



ABB INDUSTRIAL DRIVES

ACS880-104 inverter modules

Hardware manual

ACS880-104 inverter modules

Hardware manual

Table of contents



4. Cabinet construction



5. Electrical installation



7. Start-up



Table of contents

1 Introduction to the manual

| | |
|--|----|
| Contents of this chapter | 17 |
| Applicability | 17 |
| Safety instructions | 17 |
| Target audience | 17 |
| Categorization by frame size and option code | 18 |
| Use of component designations | 18 |
| Terms and abbreviations | 18 |
| Related documents | 19 |

2 Hardware description

| | |
|--|----|
| Contents of this chapter | 21 |
| Overview diagram of the drive system | 22 |
| Inverter module hardware | 22 |
| General | 22 |
| Frames R1i to R4i | 23 |
| General | 23 |
| Frame R1i layout | 23 |
| Frame R4i layout | 24 |
| Overview circuit diagram of an inverter cubicle (frames R1i...R4i) | 25 |
| Cabinet layout and cooling | 25 |
| Frame R5i | 26 |
| General | 26 |
| Frame R5i layout | 26 |
| Overview circuit diagram of an inverter cubicle (frame R5i) | 27 |
| Cabinet layout and cooling | 27 |
| Frames R6i and R7i | 28 |
| DC connection and capacitor charging | 28 |
| Frame R6i and R7i layout | 29 |
| Overview circuit diagram of an inverter cubicle (frame R6i) | 30 |
| Overview circuit diagram of an inverter cubicle (frame R7i) | 31 |
| Cabinet layout and cooling | 31 |
| Frame R8i and multiples | 32 |
| DC connection and capacitor charging | 32 |
| Frame R8i layout | 33 |
| Connectors X50...X53 | 34 |
| Fiber optic connectors | 35 |
| Overview circuit diagram of a frame R8i inverter unit | 36 |
| Overview circuit diagram of a frame 2×R8i inverter unit | 37 |
| Cabinet layout and cooling | 37 |
| Inverter unit control interfaces | 38 |
| Overview of control connections of the ZCU control unit | 38 |
| Overview of the control connections of the BCU control unit | 39 |
| The ACx-AP-x control panel | 40 |
| Control by PC tools | 40 |
| Type designation label | 41 |



3 Moving and unpacking the module

| | |
|--|----|
| Contents of this chapter | 43 |
| Moving and lifting the transport package | 43 |
| Unpacking | 43 |
| Frames R1i...R5i | 43 |
| Frames R6i...R8i | 44 |
| Lifting the modules | 44 |
| Moving the modules | 44 |

4 Cabinet construction

| | |
|--|----|
| Contents of this chapter | 45 |
| Limitation of liability | 45 |
| General | 45 |
| Installation examples | 45 |
| R1i...R4i modules in a 400 mm wide Rittal VX25 enclosure | 47 |
| Installation stages | 48 |
| Overview of kits | 49 |
| Stage 1: Installation of common parts | 50 |
| Stage 2: Installation of bottom plate | 51 |
| Stage 3: Installation of mounting plate | 52 |
| Stage 4: Installation of DC busbars | 53 |
| Stage 5: Installation of mounting plate shrouds | 54 |
| Stage 6: Installation of inverter modules and air guides | 55 |
| Stage 7: Installation of du/dt filters | 56 |
| R1i...R4i modules in a 600 mm wide Rittal VX25 enclosure | 57 |
| Installation stages | 58 |
| Overview of kits | 59 |
| Stage 1: Installation of common parts | 60 |
| Stage 2: Installation of bottom plate | 61 |
| Stage 3: Installation of mounting plate | 62 |
| Stage 4: Installation of DC busbars | 63 |
| Stage 5: Installation of mounting plate shrouds | 64 |
| Stage 6: Installation of inverter modules and air guides | 65 |
| Stage 7: Installation of du/dt filter | 66 |
| R1i...R4i modules in a 800 mm wide Rittal VX25 enclosure | 67 |
| Installation stages | 68 |
| Overview of kits | 69 |
| Stage 1: Installation of common parts | 70 |
| Stage 2: Installation of bottom plate | 71 |
| Stage 3: Installation of mounting plate | 72 |
| Stage 4: Installation of DC busbars | 73 |
| Stage 5: Installation of mounting plate shrouds | 74 |
| Stage 6: Installation of inverter modules and air guides | 75 |
| Stage 7: Installation of du/dt filters | 76 |
| R5i modules in a 400 mm wide Rittal VX25 enclosure | 77 |
| Installation stages | 78 |
| Overview of kits | 79 |
| Stage 1: Installation of common parts | 80 |
| Stage 2: Installation of bottom plate | 81 |
| Stage 3: Installation of inverter module mounting plate | 82 |
| Stage 4: Installation of DC busbars | 83 |



| | |
|---|-----|
| Stage 5: Installation of front mounting plate | 84 |
| Stage 6: Installation of inverter modules | 85 |
| Stage 7: Installation of du/dt filters | 86 |
| R5i modules in a 600 mm wide Rittal VX25 enclosure | 87 |
| Installation stages | 88 |
| Overview of kits | 89 |
| Stage 1: Installation of common parts | 90 |
| Stage 2: Installation of bottom plate | 91 |
| Stage 3: Installation of inverter module mounting plate | 92 |
| Stage 4: Installation of DC busbars | 93 |
| Stage 5: Installation of front mounting plate | 94 |
| Stage 6: Installation of inverter modules | 95 |
| Stage 7: Installation of du/dt filters | 96 |
| One R6i/R7i module in a 400 mm wide Rittal VX25 enclosure | 97 |
| Installation stages | 98 |
| Overview of kits | 99 |
| Stage 1: Installation of common parts | 100 |
| Stage 2: Installation of bottom plate | 101 |
| Stage 3: Installation of support beams | 102 |
| Stage 4 (R6i): Installation of DC busbars and charging components | 103 |
| Stage 4 (R7i): Installation of DC busbars and charging components | 104 |
| Stage 5: Installation of common mode filters | 105 |
| Stage 6 A: Installation of AC busbars (without du/dt filters) | 106 |
| Stage 6 B: Installation of AC busbars (with du/dt filters) | 107 |
| Stage 7: Installation of inverter module | 108 |
| Stage 8: Installation of shrouding brackets | 109 |
| One R8i module in a 400 mm wide Rittal VX25 enclosure | 110 |
| Installation stages | 111 |
| Overview of kits | 112 |
| Stage 1: Installation of common parts | 113 |
| Stage 2 A: Installation of DC busbars (1) (without DC switch/charging) | 114 |
| Stage 2 B: Installation of DC busbars (1) (with DC switch/charging) | 115 |
| Stage 3: Installation of module installation parts and lead-throughs | 116 |
| Stage 4 A: Installation of quick connector and output (AC) busbars (cable connection) | 117 |
| Stage 4 B: Installation of quick connector and output (AC) busbars (common AC output busbar connection) | 118 |
| Stage 5 A: Installation of DC busbars (2) (without DC switch/charging) | 119 |
| Stage 5 B: Installation of DC busbars (2) (with DC switch/charging) | 120 |
| Stage 6: Installation of shrouding | 121 |
| Stage 7: Installation of inverter module | 122 |
| Two R8i modules in a 600 mm wide Rittal VX25 enclosure | 123 |
| Installation stages | 124 |
| Overview of kits | 125 |
| Stage 1: Installation of common parts | 126 |
| Stage 2 A: Installation of DC busbars (1) (without DC switch/charging) | 127 |
| Stage 2 B: Installation of DC busbars (1) (with DC switch/charging) | 128 |
| Stage 3: Installation of module installation parts and lead-throughs | 129 |
| Stage 4 A: Installation of quick connector and output (AC) busbars (cable connection) | 130 |
| Stage 4 B: Installation of quick connector and output (AC) busbars (cable connection with bridging) | 131 |



| | |
|---|-----|
| Stage 4 C: Installation of quick connector and output (AC) busbars (common AC output busbar connection) | 132 |
| Stage 5 A: Installation of DC busbars (2) (without DC switch/charging) | 133 |
| Stage 5 B: Installation of DC busbars (2) (with DC switch/charging) | 134 |
| Stage 6: Installation of shrouding | 135 |
| Stage 7: Installation of inverter modules | 136 |
| One R8i module in a 400 mm wide generic enclosure | 137 |
| Two R8i modules in a 600 mm wide generic enclosure | 139 |
| Three R8i modules in a 800 mm wide generic enclosure | 141 |

5 Electrical installation

| | |
|---|-----|
| Contents of this chapter | 143 |
| Safety and liability | 143 |
| Electrical safety precautions | 144 |
| General notes | 145 |
| Printed circuit boards | 145 |
| Optical components | 145 |
| Checking the insulation of the assembly | 145 |
| Checking the insulation of the drive system | 145 |
| Checking the insulation of the motor and motor cable | 145 |
| Brake resistor assembly | 146 |
| Power connections – Frames R1i...R5i | 147 |
| Power cable connection procedure | 147 |
| Frames R1i and R2i | 147 |
| Frames R3i...R5i | 148 |
| Power connections – Frames R6i...R8i | 149 |
| R6i inverter module | 149 |
| R7i inverter module | 149 |
| Power connections - Frame R8i | 150 |
| R8i inverter module | 150 |
| 2×R8i inverter unit | 151 |
| Connection procedure | 152 |
| Replacing ACS800 R8i modules with ACS880 R8i modules | 154 |
| Connecting the control cables - All frame sizes | 158 |
| Installing optional modules | 159 |
| Installation of I/O extension and fieldbus adapter modules | 159 |
| Installation of an FSO-xx safety functions module | 160 |
| Installation of an FSO-xx safety functions module onto ZCU | 160 |
| Installation of an FSO-xx safety functions module onto BCU | 161 |
| Installation of FSO-xx beside the control unit | 163 |
| Connecting a PC | 164 |
| Panel bus (Control of several units from one control panel) | 164 |

6 Installation checklist of the drive

| | |
|--------------------------------|-----|
| Contents of this chapter | 167 |
| Checklist | 167 |

7 Start-up

| | |
|--------------------------------|-----|
| Contents of this chapter | 169 |
| Start-up procedure | 169 |

8 Maintenance

| | |
|---|-----|
| Contents of this chapter | 173 |
| Maintenance intervals | 173 |
| Maintenance timers and counters | 174 |
| Cleaning | 175 |
| Cleaning the interior of the cabinet | 175 |
| Cleaning the heatsink | 175 |
| Cleaning the door air inlets | 176 |
| Cleaning the door air inlets (IP20) | 176 |
| Cleaning the door air inlets (IP22 and IP42) | 176 |
| Replacing the inlet door filters (IP54) | 177 |
| Cooling fans | 178 |
| Replacing the module cooling fans | 178 |
| Replacing the R1i and R2i module cooling fan | 178 |
| Replacing the R3i and R4i module cooling fan | 179 |
| Replacing the R5i module main cooling fan | 180 |
| Replacing the R5i module auxiliary cooling fan | 180 |
| Replacing the R6i and R7i module cooling fan | 182 |
| Replacing R8i module cooling fan (speed-controlled version) | 183 |
| Replacing R8i module cooling fan (direct-on-line version) | 184 |
| Replacing the circuit board compartment fan | 186 |
| Replacing the cabinet cooling fans | 188 |
| Cabinets with ABB air outlet kits | 188 |
| Cabinets with other fan types | 188 |
| Replacing R6i/R7i module | 189 |
| Replacing R8i module | 192 |
| Capacitors | 195 |
| Reforming the capacitors | 195 |
| Control units | 195 |
| Replacing the memory unit | 195 |
| Replacing the ZCU-14 control unit battery | 195 |
| Replacing the BCU control unit battery | 196 |
| Control panel | 197 |
| Cleaning the control panel | 197 |
| Replacing the control panel battery | 197 |
| LEDs and other status indicators | 198 |
| Control panel and panel platform/holder LEDs | 198 |
| R8i module LEDs | 198 |
| Reduced run | 198 |
| Starting reduced run operation | 199 |
| Resuming normal operation | 199 |

9 Ordering information

| | |
|--|-----|
| Contents of this chapter | 201 |
| Kit code key | 202 |
| Frames R1i...R4i | 204 |
| Inverter modules | 204 |
| Control panel | 206 |
| DC-side components | 207 |
| DC bus installation parts (for Rittal VX25 enclosures) | 208 |
| Module-specific DC fuses (IEC, UL) | 208 |

| | |
|--|-----|
| Module-specific DC fuse bases (IEC, UL) | 209 |
| Main DC switch/disconnector kits | 209 |
| Main DC fuses (IEC, UL) | 209 |
| Busbars between main DC switch/disconnector and fuses | 210 |
| AC-side components | 212 |
| Output (du/dt) filters | 212 |
| Mechanical installation accessories | 213 |
| Mounting plate shroud kits | 213 |
| Air guide kits | 214 |
| Frame R5i | 215 |
| Inverter module | 215 |
| Control panel | 217 |
| DC-side components | 218 |
| DC bus installation parts (for Rittal VX25 enclosures) | 218 |
| Module-specific DC fuses (IEC, UL) | 218 |
| Module-specific DC fuse bases (IEC, UL) | 219 |
| Main DC switch/disconnector kits | 219 |
| Main DC fuses (IEC, UL) | 219 |
| DC busbars (IEC, UL) | 220 |
| AC-side components | 221 |
| Output (du/dt) filters | 221 |
| Mechanical installation accessories | 221 |
| Mounting plate shroud kits | 221 |
| Fuse base shroud kit | 222 |
| Frames R6i and R7i | 223 |
| Inverter modules | 223 |
| Control panel | 224 |
| DC-side components | 225 |
| DC bus installation parts (for Rittal VX25 enclosures) | 225 |
| DC fuses (IEC, UL) | 226 |
| DC switch/disconnector kits | 226 |
| Charging kit (R7i only) | 227 |
| DC connection kit (for Rittal VX25 enclosures) | 228 |
| DC busbars with common mode filter holder (for Rittal VX25 enclosures) | 230 |
| DC busbars with fuse and common mode filter holders (for generic enclosures) | 231 |
| Common mode filters | 231 |
| AC-side components | 232 |
| AC busbar kit | 232 |
| Output (du/dt) filters | 232 |
| Mechanical installation accessories and tools | 233 |
| Inverter module mounting parts | 233 |
| Shrouding | 233 |
| Lifting device | 233 |
| Frame R8i and multiples | 235 |
| Inverter modules | 235 |
| Control panel | 237 |
| Control electronics | 238 |
| Inverter control unit | 238 |
| Fiber optic cables | 238 |
| Control circuit plug connectors | 238 |
| Wire sets for use with the reduced run function | 239 |



| | |
|--|-----|
| DC-side components | 239 |
| DC bus installation parts (for Rittal VX25 enclosures) | 240 |
| DC connection parts 1 of 2 (for Rittal VX25 enclosures) | 240 |
| DC connection parts 1 of 2 (for generic enclosures) | 243 |
| DC connection parts 2 of 2 (for Rittal VX25 or generic enclosures) | 245 |
| Common mode filters | 246 |
| DC fuses (IEC, UL) | 247 |
| DC switch/disconnector kits | 248 |
| Charging kits | 250 |
| Charging resistors | 252 |
| AC-side components | 254 |
| Quick connector | 254 |
| Output busbars/shrouds kit | 254 |
| Cable entry kit | 258 |
| Mechanical installation accessories | 258 |
| Inverter module top/bottom guides | 258 |
| Ramp | 260 |
| Shrouding | 260 |
| Cabinet ventilation | 261 |
| Air inlet kits | 261 |
| Air inlet kits 400 mm cabinet | 261 |
| Air inlet kits 600 mm cabinet | 262 |
| Air inlet kits 800 mm cabinet | 263 |
| Air outlet kits | 263 |
| Air outlet kits 400 mm cabinet | 263 |
| Air outlet kits 600 mm cabinet | 265 |
| Air outlet kits 800 mm cabinet | 266 |
| Cooling fans (frames R1i...R4i) | 268 |
| Cooling fans (frames R5i) | 271 |
| Cooling fans (frames R6i...R7i) | 272 |
| Cooling fans (frames R8i) | 273 |

10 Technical data

| | |
|--|-----|
| Contents of this chapter | 275 |
| Ratings | 275 |
| Definitions | 278 |
| Derating | 279 |
| Ambient temperature derating | 279 |
| Altitude derating | 279 |
| Switching frequency derating | 280 |
| Output frequency derating | 280 |
| Cooling characteristics, noise, DC capacitance | 280 |
| Allowable mounting orientations | 282 |
| Dimensions and weights | 283 |
| Free space requirements | 284 |
| Typical power cable sizes | 285 |
| Input power (DC) connection | 287 |
| Motor (AC) connection | 287 |
| Control connections | 289 |
| Efficiency | 289 |
| Degree of protection | 289 |
| Optical components | 289 |



| | |
|---|-----|
| Ambient conditions | 290 |
| Materials | 291 |
| Module housing | 291 |
| Package | 291 |
| Disposal | 291 |
| Standards | 292 |
| Markings | 292 |
| Auxiliary power consumptions | 292 |
| Control equipment | 292 |
| Cabinet cooling fans | 292 |
| Definitions | 293 |
| Fuse data | 293 |
| Ferrules used with 400 V and 500 V units | 293 |
| Ferrules used with 690 V units | 293 |
| Flush-end fuse blocks used with 400 V and 500 V units | 294 |
| Flush-end fuse blocks used with 690 V units | 294 |
| Tightening torques | 295 |
| Electrical connections | 295 |
| Mechanical connections | 295 |
| Insulation supports | 295 |
| Cable lugs | 295 |
| Disclaimers | 296 |
| Generic disclaimer | 296 |
| Cybersecurity disclaimer | 296 |

11 Control units of the drive

| | |
|---|-----|
| Contents of this chapter | 297 |
| General | 297 |
| ZCU-12 layout and connections | 298 |
| ZCU-14 layout and connections | 299 |
| Default I/O diagram of the inverter control unit (ZCU-14) | 300 |
| BCU-x2 control unit layout and connections | 302 |
| Default I/O diagram of the inverter control unit (A41) | 304 |
| External power supply for the control unit (XPOW) | 305 |
| DI6 as a PTC sensor input | 305 |
| AI1 or AI2 as a Pt100, Pt1000, PTC or KTY84 sensor input | 306 |
| DIIL input | 306 |
| The XD2D connector | 306 |
| Safe torque off (XSTO, XSTO OUT) | 307 |
| FSO-xx safety functions module connection (X12) | 308 |
| SDHC memory card slot | 308 |
| Connector data | 309 |
| BCU-x2 ground isolation diagram | 311 |
| ZCU-1x ground isolation diagram | 312 |

12 The Safe torque off function

| | |
|--|-----|
| Contents of this chapter | 313 |
| Description | 313 |
| Compliance with the European Machinery Directive | 314 |
| Wiring | 315 |
| Activation switch | 315 |

| | |
|--|-----|
| Cable types and lengths | 315 |
| Grounding of protective shields | 315 |
| Dual-channel connection with internal power supply | 316 |
| Frames R1i...R7i | 316 |
| Frame R8i and multiples | 317 |
| Single-channel connection of activation switch | 318 |
| Multiple drives | 319 |
| Internal power supply | 319 |
| External power supply | 320 |
| Operation principle | 321 |
| Start-up including acceptance test | 322 |
| Competence | 322 |
| Acceptance test reports | 322 |
| Acceptance test procedure | 322 |
| Use | 324 |
| Maintenance | 325 |
| Competence | 325 |
| Fault tracing | 326 |
| Safety data | 327 |
| Abbreviations | 328 |
| TÜV certificate | 328 |

13 Resistor braking using frames R1i...R4i inverter modules

| | |
|--|-----|
| Contents of this chapter | 329 |
| Using R1i...R4i modules for resistor braking | 329 |
| Planning the braking system | 329 |
| Restrictions | 330 |
| Selecting the brake resistor | 330 |
| Selecting and routing the brake resistor cables | 331 |
| Minimizing electromagnetic interference | 331 |
| Maximum cable length | 331 |
| Placing custom brake resistors | 331 |
| Protecting the system against thermal overload | 331 |
| Protecting the resistor cable against short circuit | 332 |
| Mechanical installation | 332 |
| Electrical installation | 332 |
| Checking the insulation of the brake resistor assembly | 332 |
| Connection procedure | 333 |
| Start-up | 334 |
| Technical data | 335 |
| Ratings | 335 |
| Definitions | 336 |
| Resistor dimensions | 337 |
| Resistor connectors on inverter modules | 338 |

14 Dimension drawings

| | |
|--------------------------------|-----|
| Contents of this chapter | 339 |
| Frame R1i | 340 |
| Frame R2i | 341 |
| Frame R3i | 342 |
| Frame R4i | 343 |

| | |
|---|-----|
| Frame R5i | 344 |
| Frame R6i | 345 |
| Frame R7i | 346 |
| Frame R8i | 347 |
| Frame R8i with option +P942 | 349 |
| Control electronics | 352 |
| ZCU control unit | 352 |
| BCU control unit | 353 |
| DPMP-01 door mounting kit | 354 |
| DC fuses and fuse bases | 355 |
| Fuse, 14 × 51 mm | 355 |
| Mersen US141 (Z331153F) fuse disconnecter (for 14 × 51 mm fuses) | 355 |
| Fuse, 27 × 60 mm | 356 |
| Mersen US271MI (R227600C) fuse disconnecter (for 27 × 60 mm fuses) | 356 |
| Mersen PS272PREMCPS (N220076) fuse disconnecter (for R5i, 27 × 60 mm fuses) | 357 |
| DC fuse blocks for frames R5i...R8i (Bussmann) | 358 |
| Switchgear and charging components | 359 |
| OS_ switch fuses | 359 |
| OS100GJ04FP | 359 |
| OS160GD04F | 360 |
| OS200DZ22F | 361 |
| OT_ switch/disconnectors | 362 |
| OT200E11 | 362 |
| OT200U11 | 363 |
| OT400E11 | 364 |
| OT400E22 | 365 |
| OT400U11 | 366 |
| OT400U22 | 367 |
| OT600U11, OT630E11 | 368 |
| OT1200U__, OT1600E__ | 369 |
| OT2500E22 | 370 |
| OHB_ switch handles | 371 |
| OHB65J6, OHB125J12, OHB145J12 | 371 |
| OHB150J12P | 371 |
| OHB274J12 | 372 |
| OA1G10/OA3G01 auxiliary contact blocks | 372 |
| AF190-30-00-13 contactor | 373 |
| Charging controller | 374 |
| CAV 120 C resistor | 375 |
| ZRF 30/165 resistor | 375 |
| Miscellaneous components | 376 |
| R3G225-RH17-23 / R2E225-RA92-17 cooling fan | 376 |
| CRBB/4-400/188 cooling fan | 376 |
| Output (du/dt) filters for frames R1i...R5i | 377 |
| Common mode filters | 378 |
| Quick connector for frame R8i | 378 |
| Insertion/extraction ramp for frame R8i modules | 380 |

15 Circuit diagrams

| | |
|--------------------------------|-----|
| Contents of this chapter | 382 |
|--------------------------------|-----|

| | |
|---|-----|
| Component designations used in the diagrams | 382 |
| Frames R1i...R5i | 382 |
| Frame R6i | 382 |
| Frame R7i | 382 |
| Frame R8i and multiples | 382 |
| Frames R1i...R4i – Sheet 001 (Main circuit, control unit) | 384 |
| Frames R1i...R4i – Sheet 020 (Auxiliary voltage distribution) | 385 |
| Frames R1i...R4i – Sheet 026 (Cabinet cooling fan control) | 386 |
| Frame R5i – Sheet 001 (Main circuit, control unit) | 387 |
| Frame R5i – Sheet 020 (Auxiliary voltage distribution) | 388 |
| Frame R5i – Sheet 026 (Cabinet cooling fan control) | 389 |
| Frame R6i – Sheet 001 (Main circuit, control unit) | 390 |
| Frame R6i – Sheet 020 (Auxiliary voltage distribution) | 391 |
| Frame R7i – Sheet 001 (Main circuit, control unit) | 392 |
| Frame R7i – Sheet 020 (Auxiliary voltage distribution) | 393 |
| Frame R8i (with DC switch/disconnector) – Sheet 001 (DC circuit) | 394 |
| Frame R8i (with DC switch/disconnector) – Sheet 005 (Inverter module) | 395 |
| Frame R8i (with DC switch/disconnector) – Sheet 020 (Auxiliary voltage distribution) .. | 396 |
| Frame R8i (with DC switch/disconnector) – Sheet 040 (Control unit) | 397 |
| Frame R8i (with DC switch/disconnector) – Sheet 061 (STO) | 398 |
| Frame 2×R8i – Sheet 001 (DC circuit) | 399 |
| Frame 2×R8i – Sheet 005 (Inverter modules) | 400 |
| Frame 2×R8i – Sheet 020 (Auxiliary voltage distribution) | 401 |
| Frame 2×R8i – Sheet 040 (Control unit) | 402 |
| Frame 2×R8i – Sheet 061 (STO) | 403 |

Further information



1

Introduction to the manual

Contents of this chapter

This chapter gives the basic information on the manual.

Applicability

The manual applies to ACS880-104 inverter modules intended for user-defined cabinet installations.

Safety instructions

Follow all safety instructions delivered with the drive.

- Read the **complete safety instructions** before you install, commission, use or service the drive. The complete safety instructions are given in *ACS880 multidrive cabinets and modules safety instructions* (3AUA0000102301 [English]).
- Read the **software-function-specific warnings and notes** before changing the default settings of a function. For each function, the warnings and notes are given in the section describing the related user-adjustable parameters.
- Read the **task-specific safety instructions** before starting the task. See the section describing the task.

Target audience

This manual is intended for people who plan the installation, install, start up and service the drive, or create instructions for the end user of the drive concerning the installation and maintenance of the drive.

Read the manual before working on the drive. You are expected to know the fundamentals of electricity, wiring, electrical components and electrical schematic symbols.

The manual is written for readers worldwide. Both SI and imperial units are shown.

Categorization by frame size and option code

The instructions and technical data which concern only certain module or frame sizes are marked with the size identifier.

The module size can be identified from the basic code visible on the type designation label, for example, ACS880-104-0100A-3 where 0100A is the module size. The option codes of the module are listed after the plus sign.

The frame size of a module can be, for example, R1i, R4i, R7i, R8i or 3×R8i (the latter describing an inverter unit consisting of three parallel-connected R8i inverter modules). See the technical data for the units and frame sizes.

Use of component designations

Some device names in the manual include the item designation in brackets, for example [Q20], to make it possible to identify the components in the circuit diagrams of the drive.

Terms and abbreviations

| Term | Description |
|--------------------|---|
| BCON | Type of control board |
| BCU | Type of control unit |
| BDPS | Internal power supply board in frame R8i modules |
| BFPS | Control and power supply board for speed-controlled cooling fan |
| Brake chopper | Conducts the surplus energy from the intermediate circuit of the drive to the brake resistor when necessary. The chopper operates when the DC link voltage exceeds a certain maximum limit. The voltage rise is typically caused by deceleration (braking) of a high inertia motor. |
| CMF | Common mode filtering |
| Cubicle | One section of a cabinet-installed drive. A cubicle is typically behind a door of its own. |
| DC link | DC circuit between rectifier and inverter |
| DC link capacitors | Energy storage which stabilizes the intermediate circuit DC voltage |
| DDCS | Distributed drives communication system protocol |
| Drive | Frequency converter for controlling AC motors |
| EFB | Embedded fieldbus |
| EMC | Electromagnetic compatibility |
| EMI | Electromagnetic interference |
| FAIO | Optional analog I/O extension module |
| FBA | Fieldbus adapter |
| FCAN | Optional CANopen® adapter module |
| FCNA | Optional ControlNet™ adapter module |
| FDCO | DDCS communication module |
| FDPI | Diagnostics and panel interface board |
| FECA | Optional EtherCAT adapter module |
| FEN-01 | Optional TTL incremental encoder interface module |
| FEN-11 | Optional TTL absolute encoder interface module |
| FEN-21 | Optional resolver interface module |
| FEN-31 | Optional HTL incremental encoder interface module |
| FENA-11 | Optional Ethernet adapter module for EtherNet/IP™, Modbus TCP® and PROFINET IO® protocols |

| Term | Description |
|-------------------------|---|
| FENA-21 | Optional Ethernet adapter module for EtherNet/IP™, Modbus TCP® and PROFINET IO® protocols, 2-port |
| FEPL | Optional Ethernet POWERLINK adapter module |
| FIO-01 | Optional digital I/O extension module |
| FIO-11 | Optional analog I/O extension module |
| Four-quadrant operation | Operation of a machine in both the forward and reverse directions in both motoring and generating modes. Also used as an attribute of a drive; a regenerative drive can operate the electric machine in all four modes, while a non-regenerative drive can only operate the machine in motoring mode. |
| FPBA | Optional PROFIBUS DP adapter module |
| Frame, frame size | Physical size of the drive or power module |
| FSCA | Optional Modbus RTU adapter module |
| FSO-12, FSO-21 | Optional functional safety modules |
| Generic enclosure | See chapter <i>Ordering information</i> . |
| HTL | High-threshold logic |
| IGBT | Insulated gate bipolar transistor |
| Intermediate circuit | DC circuit between rectifier and inverter |
| INU | Inverter unit |
| Inverter | Converts direct current and voltage to alternating current and voltage. |
| Inverter module | Inverter bridge, related components and drive DC link capacitors enclosed in a metal frame or enclosure. Intended for cabinet installation. |
| Inverter unit | Inverter module(s) under control of one control board, and related components. One inverter unit typically controls one motor. |
| Multidrive | Drive for controlling several motors which are typically coupled to the same machinery. Includes one supply unit, and one or several inverter units. |
| NBRA | Series of optional brake chopper modules |
| Parameter | In the drive control program, user-adjustable operation instruction to the drive, or signal measured or calculated by the drive. In some (for example fieldbus) contexts, a value that can be accessed as an object, eg, variable, constant, or signal. |
| PLC | Programmable logic controller |
| RFI | Radio-frequency interference |
| SIL | Safety integrity level (1...3) (IEC 61508) |
| STO | Safe torque off (IEC/EN 61800-5-2) |
| THD | Total harmonic distortion |
| TS 8 | Enclosure system by Rittal (www.rittal.com) |
| TTL | Transistor-transistor logic |
| UPS | Uninterruptible power supply |
| ZCON | Type of control board |
| ZCU | Type of control unit |
| ZMU | Type of memory unit, attached to the control unit |

Related documents

| Manual | Code |
|--|----------------|
| General manuals | |
| <i>ACS880 multidrive cabinets and modules safety instructions</i> | 3AUA0000102301 |
| <i>ACS880 multidrive cabinets and modules electrical planning instructions</i> | 3AUA0000102324 |
| <i>Drive modules cabinet design and construction instructions</i> | 3AUA0000107668 |
| <i>BCU-02/12/22 control units hardware manual</i> | 3AUA0000113605 |
| Supply module manuals | |

| Manual | Code |
|---|-----------------|
| <i>ACS880-204 IGBT supply modules hardware manual</i> | 3AUA0000131525 |
| <i>ACS880 IGBT supply control program firmware manual</i> | 3AUA0000131562 |
| <i>ACS880-304 +A003 diode supply modules hardware manual</i> | 3AUA0000102452 |
| <i>ACS880-304...+A018 diode supply modules hardware manual</i> | 3AXD50000010104 |
| <i>ACS880 diode supply control program firmware manual</i> | 3AUA0000103295 |
| <i>ACS880-904 regenerative rectifier modules hardware manual</i> | 3AXD50000020457 |
| <i>ACS880 regenerative rectifier control program firmware manual</i> | 3AXD50000020827 |
| Inverter module manuals and guides | |
| <i>ACS880-104 inverter modules hardware manual</i> | 3AUA0000104271 |
| <i>ACS880 primary control program firmware manual</i> | 3AUA0000085967 |
| <i>ACS880 primary control program quick start-up guide</i> | 3AUA0000098062 |
| Brake module and DC/DC converter module manuals | |
| <i>ACS880-604 1-phase brake chopper modules hardware manual</i> | 3AUA0000106244 |
| <i>ACS880-604 3-phase brake modules hardware manual</i> | 3AXD50000022033 |
| <i>ACS880 (3-phase) brake control program firmware manual</i> | 3AXD50000020967 |
| <i>ACS880-1604 DC/DC converter modules hardware manual</i> | 3AXD50000023642 |
| <i>ACS880 DC/DC converter control program firmware manual</i> | 3AXD50000024671 |
| Module package hardware manuals | |
| <i>ACS880-04 module packages hardware manual</i> | 3AUA0000138495 |
| <i>ACS880-14 and -34 module packages hardware manual</i> | 3AXD50000022021 |
| Option manuals | |
| <i>ACS880 +C132 marine type-approved drive modules and module packages supplement</i> | 3AXD50000037752 |
| <i>ACX-AP-x assistant control panels user's manual</i> | 3AUA0000085685 |
| <i>BAMU-12C auxiliary measurement unit hardware manual</i> | 3AXD50000117840 |
| <i>Drive composer start-up and maintenance PC tool user's manual</i> | 3AUA0000094606 |
| <i>Drive application programming (IEC 61131-3) manual</i> | 3AUA0000127808 |
| <i>Installation frames for ACS880 multidrive modules hardware manual</i> | 3AXD50000010531 |
| Manuals and quick guides for I/O extension modules, fieldbus adapters, safety functions modules, etc. | |

See www.abb.com/drives/documents for all manuals on the Internet.

You can find all documentation related to the multidrive modules on the Internet at <https://sites-apps.abb.com/sites/lvacdrivesengineeringssupport/content>.

A large, bold, black number '2' is centered within a light blue square with rounded corners. The square is positioned in the upper right quadrant of the page.

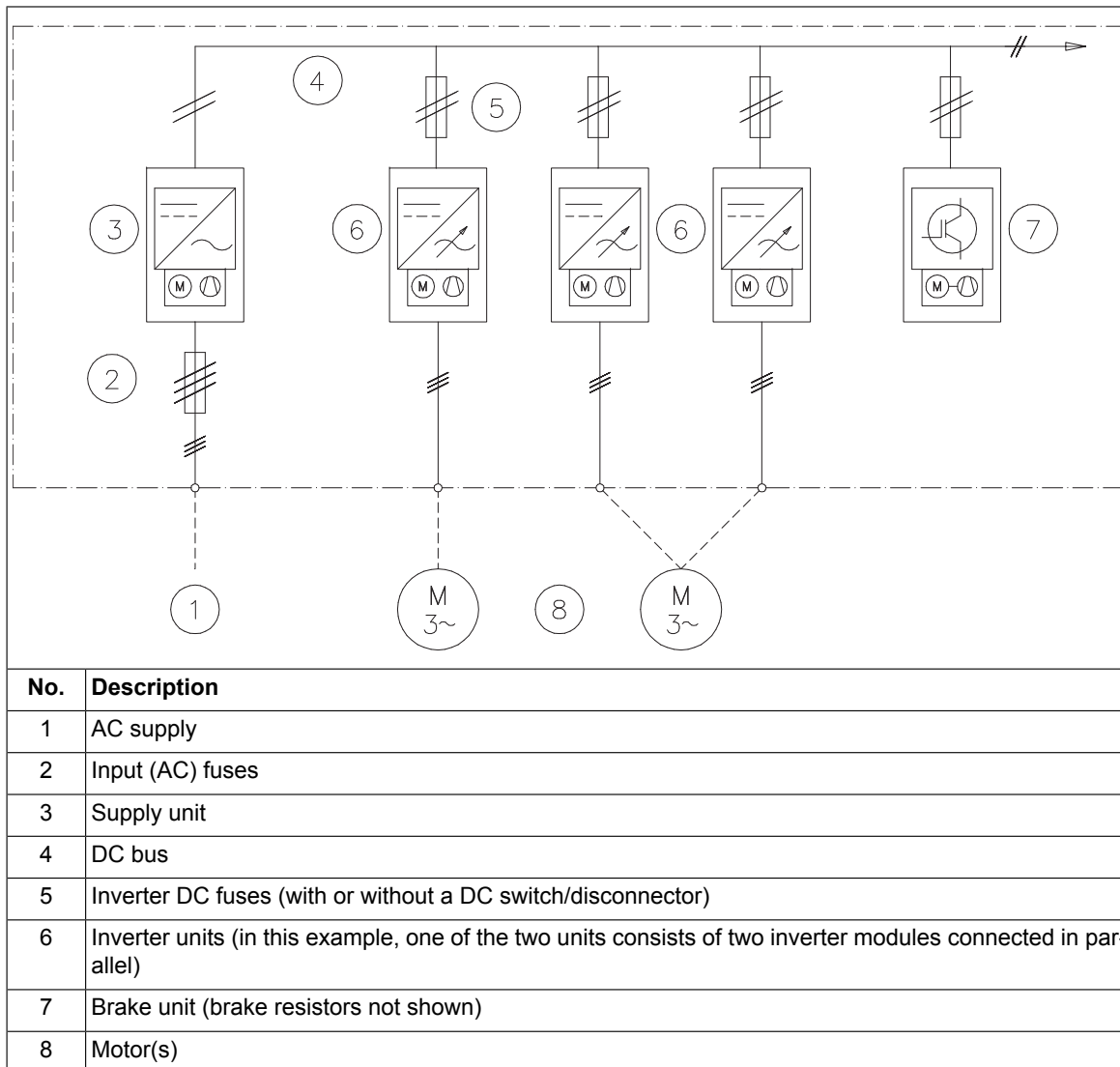
Hardware description

Contents of this chapter

This chapter describes a typical drive system and the hardware of ACS880-104 inverter modules.

Overview diagram of the drive system

The diagram below depicts a common DC bus drive system.



The supply unit connects to the AC supply network and converts the AC voltage into DC. The DC voltage is distributed through the DC bus to all inverter units. The inverter unit, consisting of one or more inverter modules, converts the DC back to AC that rotates the motor.

The inverter units can be used for controlling asynchronous AC induction motors, permanent magnet synchronous motors, AC induction servomotors and ABB synchronous reluctance (SynRM) motors

Inverter module hardware

■ General

An inverter unit contains the components required to control one motor. These include one or more inverter modules connected in parallel, together with the necessary auxiliary equipment such as control electronics, fusing, cabling and switchgear.

ACS880-104 inverter modules can be used to construct inverter units with a power rating from 2.5 kW up to several megawatts. Up to approximately 500 kW, inverter units consist of one module only; higher power ratings are achieved by connecting multiple modules in parallel.

All inverter modules have coated circuit boards as standard.

The dimension drawings of the inverter modules are presented in a separate chapter.

■ Frames R1i to R4i

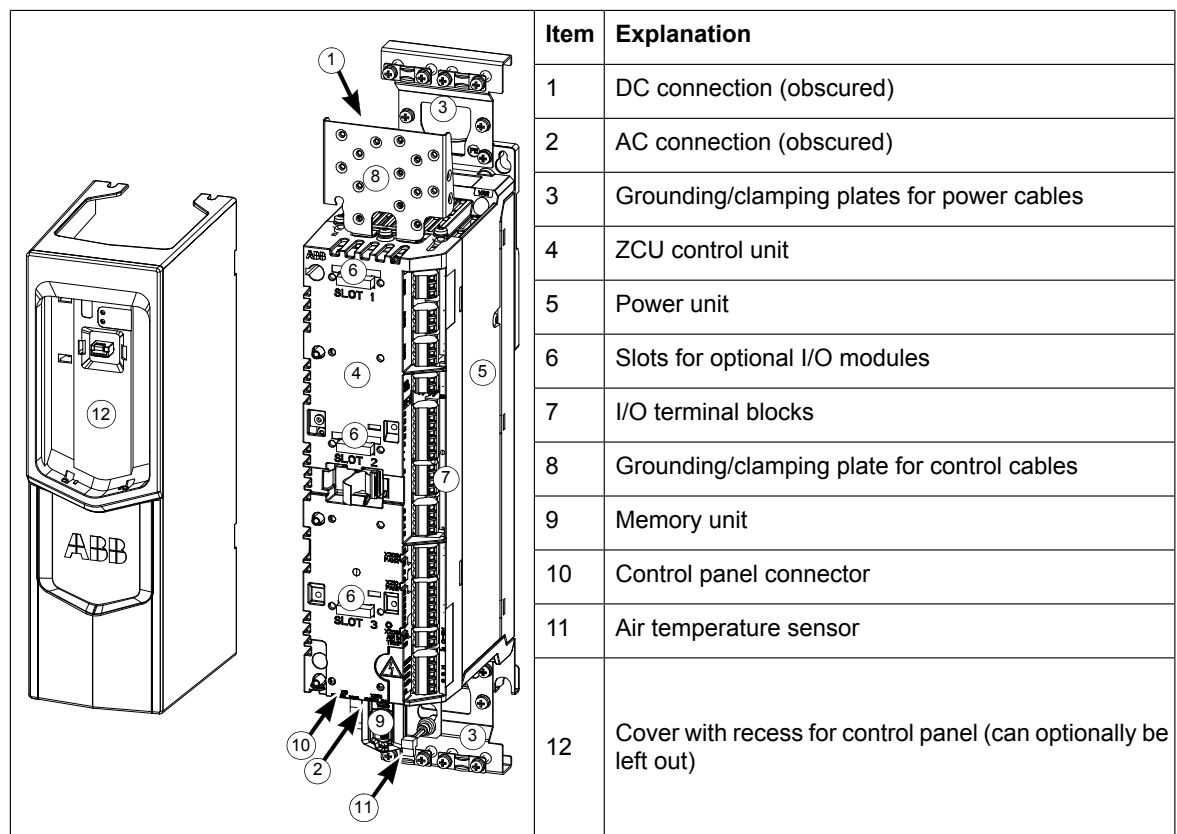
General

The DC input terminals are located at the top of the module; the AC output are located at the bottom. The ZCU-14 control unit is mounted onto the module; the control unit contains the basic I/Os and slots for optional I/O modules. Other optional equipment is primarily installed on separate mounting plates.

The module should be fitted with external DC fuses. Frame R1i...R4i modules have an internal capacitor pre-charge circuit.

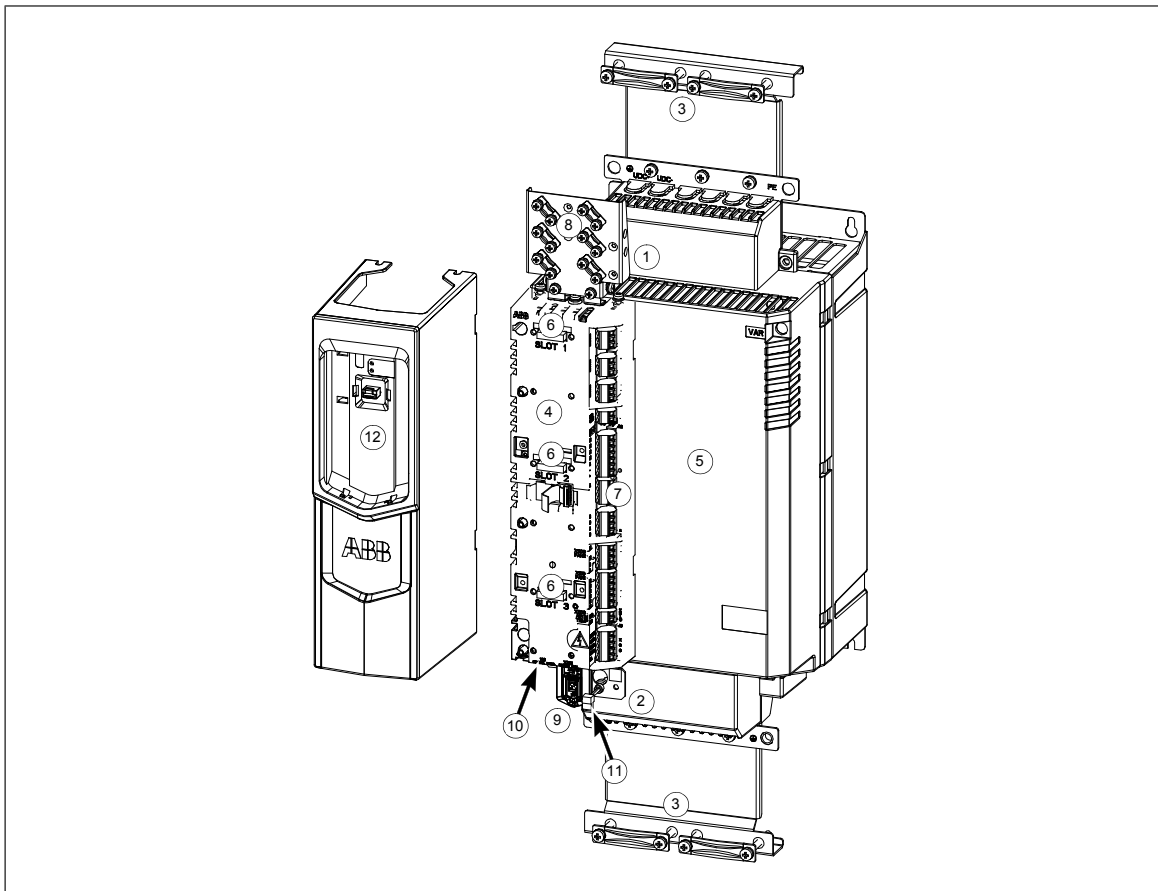
Frame R1i layout

Frame R1i is pictured (frame R2i has a similar layout).



Frame R4i layout

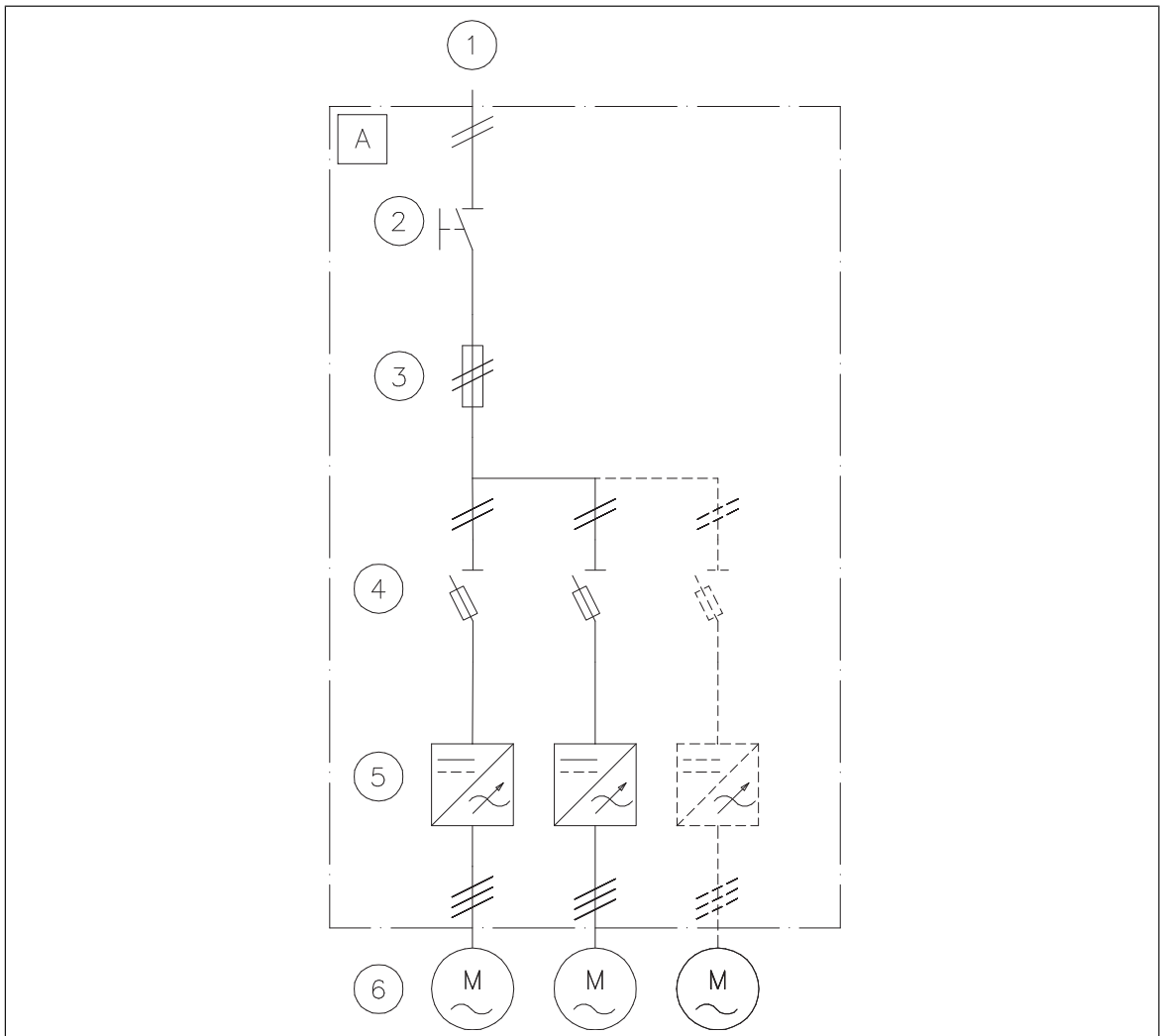
Frame R4i is pictured (frame R3i has a similar layout).



| | |
|----|---|
| 1 | DC connection (under connector cover) |
| 2 | AC connection (under connector cover) |
| 3 | Grounding/clamping plates for power cables |
| 4 | ZCU control unit |
| 5 | Power unit |
| 6 | Slots for optional I/O modules |
| 7 | I/O terminal blocks |
| 8 | Grounding/clamping plate for control cables |
| 9 | Memory unit |
| 10 | Control panel connector |
| 11 | Air temperature sensor |
| 12 | Cover with panel mounting platform (can optionally be left out) |

Overview circuit diagram of an inverter cubicle (frames R1i...R4i)

The following figure shows a simplified connection example of an inverter cubicle containing several frame R1i...R4i inverter modules.



| Item | Explanation | Available through |
|------|------------------------|---|
| A | Inverter cubicle | - |
| 1 | DC supply | - |
| 2 | DC switch/disconnector | ABB or third party |
| 3 | Common DC fuses | ABB or third party |
| 4 | Fuse disconnecter | ABB or third party |
| 5 | Inverter modules | ABB |
| 6 | Motor | ABB (not part of ACS880-104 product offering) or third party |

Cabinet layout and cooling

See chapter [Cabinet construction \(page 45\)](#).

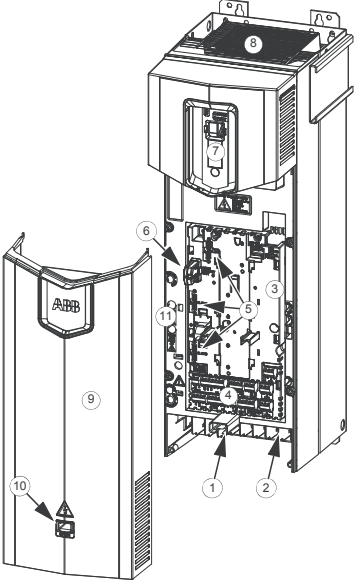
■ Frame R5i

General

The DC input and AC output terminals are located at the bottom of the module. The ZCU-12 control unit is mounted underneath the front cover; the control unit contains the basic I/Os and slots for optional I/O modules. Other optional equipment is primarily installed on separate mounting plates.

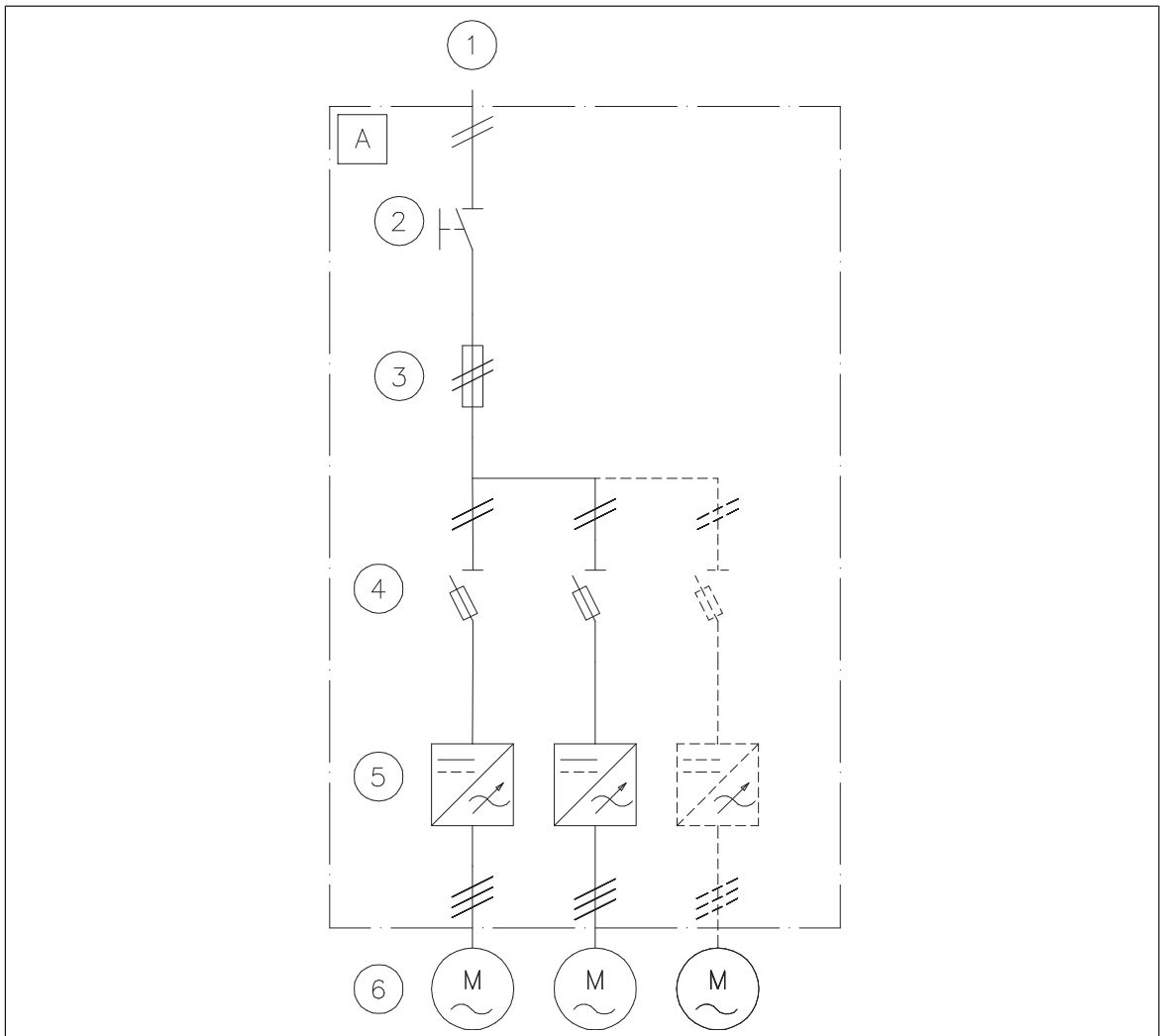
The module should be fitted with external DC fuses. Frame R5i modules have an internal capacitor pre-charge circuit.

Frame R5i layout

|  <p>The diagram shows an exploded view of the Frame R5i module. On the left is the front cover (9) with a retaining clip (10) at the bottom. The main module body is shown in the center, with various internal components labeled with numbers 1 through 11. At the top is a cooling fan (8). Below it is the ZCU control unit (3) mounted on a control panel holder (7). The ZCU contains I/O terminal blocks (4) and slots for optional I/O modules (5). A memory unit (6) is also visible. At the bottom are the DC connection (1) and AC connection (2) terminals. A varistor board and EMC filter connecting screws (11) are shown at the very bottom of the module.</p> | <table border="1"> <thead> <tr> <th>Item</th> <th>Explanation</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DC connection</td> </tr> <tr> <td>2</td> <td>AC connection</td> </tr> <tr> <td>3</td> <td>ZCU control unit</td> </tr> <tr> <td>4</td> <td>I/O terminal blocks</td> </tr> <tr> <td>5</td> <td>Slots for optional I/O modules</td> </tr> <tr> <td>6</td> <td>Memory unit</td> </tr> <tr> <td>7</td> <td>Control panel holder</td> </tr> <tr> <td>8</td> <td>Cooling fan</td> </tr> <tr> <td>9</td> <td>Front cover</td> </tr> <tr> <td>10</td> <td>Front cover retaining clip To remove the front cover, use a screwdriver to push the clip down, and pull cover outwards by its bottom edge.</td> </tr> <tr> <td>11</td> <td>Varistor board and EMC filter connecting screws (VAR and EMC). Should not be present in an ACS880-104.</td> </tr> </tbody> </table> | Item | Explanation | 1 | DC connection | 2 | AC connection | 3 | ZCU control unit | 4 | I/O terminal blocks | 5 | Slots for optional I/O modules | 6 | Memory unit | 7 | Control panel holder | 8 | Cooling fan | 9 | Front cover | 10 | Front cover retaining clip To remove the front cover, use a screwdriver to push the clip down, and pull cover outwards by its bottom edge. | 11 | Varistor board and EMC filter connecting screws (VAR and EMC). Should not be present in an ACS880-104. | <table border="1"> <thead> <tr> <th>Item</th> <th>Explanation</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>DC connection</td> </tr> <tr> <td>2</td> <td>AC connection</td> </tr> <tr> <td>3</td> <td>ZCU control unit</td> </tr> <tr> <td>4</td> <td>I/O terminal blocks</td> </tr> <tr> <td>5</td> <td>Slots for optional I/O modules</td> </tr> <tr> <td>6</td> <td>Memory unit</td> </tr> <tr> <td>7</td> <td>Control panel holder</td> </tr> <tr> <td>8</td> <td>Cooling fan</td> </tr> <tr> <td>9</td> <td>Front cover</td> </tr> <tr> <td>10</td> <td>Front cover retaining clip To remove the front cover, use a screwdriver to push the clip down, and pull cover outwards by its bottom edge.</td> </tr> <tr> <td>11</td> <td>Varistor board and EMC filter connecting screws (VAR and EMC). Should not be present in an ACS880-104.</td> </tr> </tbody> </table> | Item | Explanation | 1 | DC connection | 2 | AC connection | 3 | ZCU control unit | 4 | I/O terminal blocks | 5 | Slots for optional I/O modules | 6 | Memory unit | 7 | Control panel holder | 8 | Cooling fan | 9 | Front cover | 10 | Front cover retaining clip To remove the front cover, use a screwdriver to push the clip down, and pull cover outwards by its bottom edge. | 11 | Varistor board and EMC filter connecting screws (VAR and EMC). Should not be present in an ACS880-104. |
|--|---|------|-------------|---|---------------|---|---------------|---|------------------|---|---------------------|---|--------------------------------|---|-------------|---|----------------------|---|-------------|---|-------------|----|---|----|--|---|------|-------------|---|---------------|---|---------------|---|------------------|---|---------------------|---|--------------------------------|---|-------------|---|----------------------|---|-------------|---|-------------|----|---|----|--|
| Item | Explanation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | DC connection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | AC connection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | ZCU control unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | I/O terminal blocks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Slots for optional I/O modules | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Memory unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Control panel holder | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Cooling fan | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Front cover | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Front cover retaining clip To remove the front cover, use a screwdriver to push the clip down, and pull cover outwards by its bottom edge. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Varistor board and EMC filter connecting screws (VAR and EMC). Should not be present in an ACS880-104. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Item | Explanation | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | DC connection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 2 | AC connection | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3 | ZCU control unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 4 | I/O terminal blocks | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 5 | Slots for optional I/O modules | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6 | Memory unit | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7 | Control panel holder | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8 | Cooling fan | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 9 | Front cover | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 10 | Front cover retaining clip To remove the front cover, use a screwdriver to push the clip down, and pull cover outwards by its bottom edge. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 11 | Varistor board and EMC filter connecting screws (VAR and EMC). Should not be present in an ACS880-104. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Overview circuit diagram of an inverter cubicle (frame R5i)

The following figure shows a simplified connection example of an inverter cubicle containing several frame R5i inverter modules.



| Item | Explanation | Available through |
|------|------------------------|---|
| A | Inverter cubicle | - |
| 1 | DC supply | - |
| 2 | DC switch/disconnector | ABB or third party |
| 3 | Common DC fuses | ABB or third party |
| 4 | Fuse disconnecter | ABB or third party |
| 5 | Inverter modules | ABB |
| 6 | Motor | ABB (not part of ACS880-104 product offering) or third party |

Cabinet layout and cooling

See chapter [Cabinet construction \(page 45\)](#).

■ Frames R6i and R7i

The DC input terminals are located at the top of the module; the AC output are located at the bottom. The ZCU-14 control unit is mounted onto the module; the control unit contains the basic I/Os and slots for optional I/O modules. Other equipment is primarily installed on separate mounting plates.

DC connection and capacitor charging

The module must be equipped with external DC fuses.

A DC switch/disconnector can be installed if quick isolation of the module from the DC bus is required.

A capacitor charging circuit must be fitted if:

- the module is connected to the DC bus through a DC switch/disconnector, or
- the module is directly connected to the DC bus and the supply unit of the system does not have a charging capability.

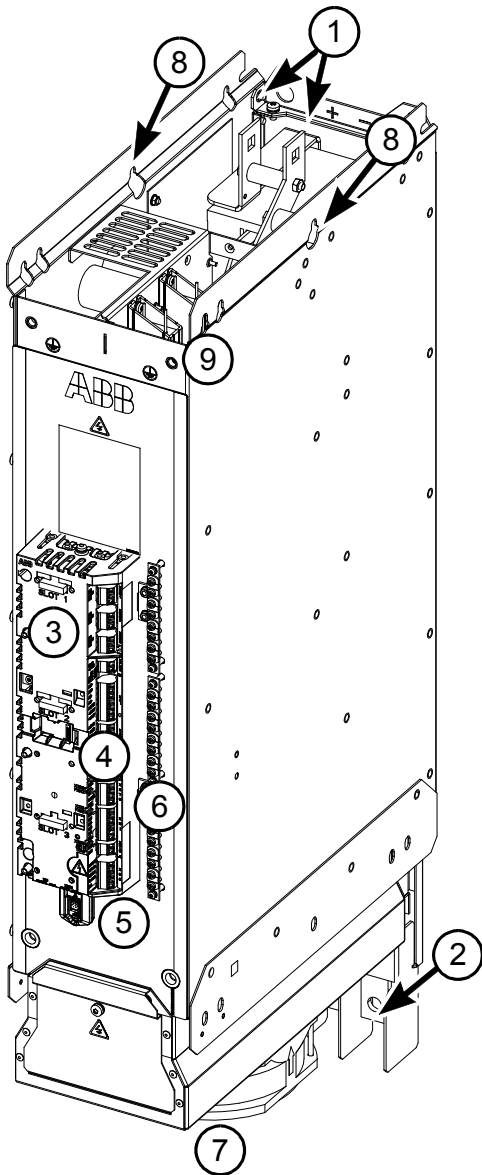
Frame R6i modules ordered with option +F272 have an internal capacitor charging circuit.

Frame R7i modules require, in addition to option +F272, a charging contactor and charging resistors which must be fitted outside the module. The contactor is controlled by an internal monitoring board using a voltage of 230 V DC.

Common mode filtering is implemented by running the DC bus through ferrite cores at the input of the module.

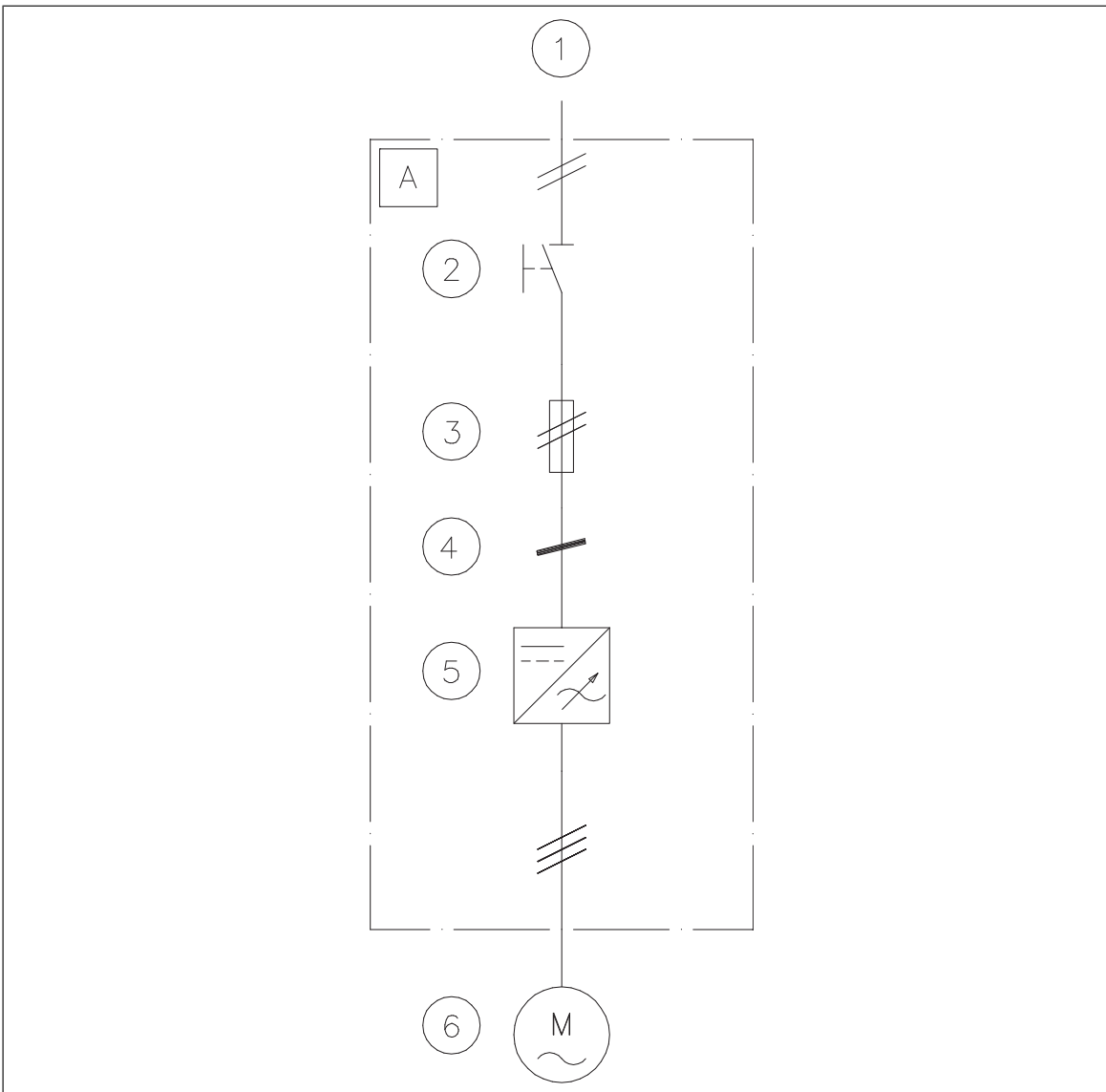
Frame R6i and R7i layout

| Item | Explanation |
|------|---|
| 1 | DC connection |
| 2 | AC connection |
| 3 | ZCU control unit (with slots for optional I/O modules) |
| 4 | I/O terminal blocks |
| 5 | Control panel connector, memory unit |
| 6 | Grounding/clamping plates for control cables |
| 7 | Cooling fan holder (frame R6i has one fan, R7i has two) |
| 8 | Lifting eyes |
| 9 | The grounding point (PE) between module frame and cabinet frame |



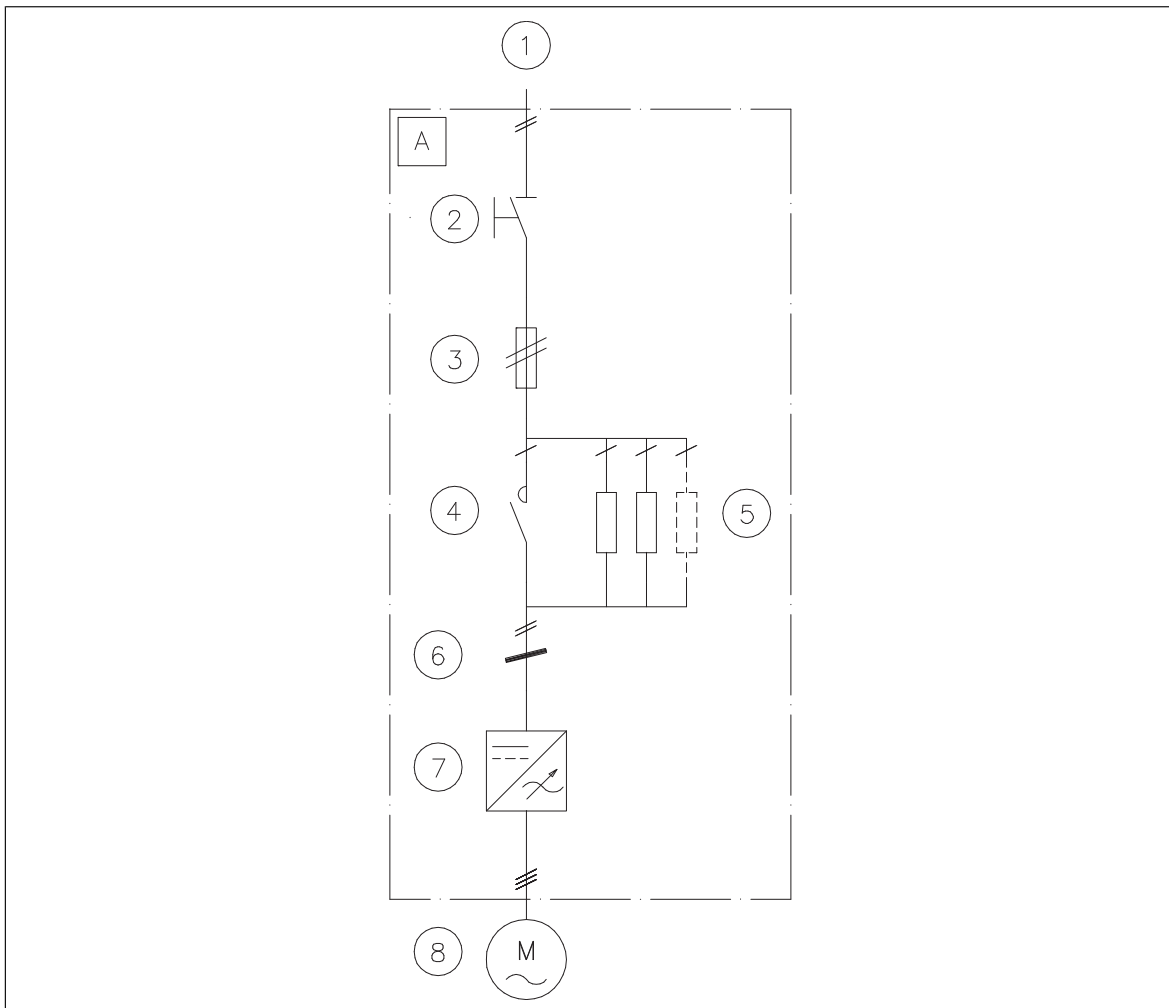
Overview circuit diagram of an inverter cubicle (frame R6i)

The following figure shows a simplified connection example of an inverter unit based on a frame R6i inverter module.



| Item | Explanation | Available through |
|------|-----------------------------------|--|
| A | Inverter cubicle | - |
| 1 | DC supply | - |
| 2 | DC switch/disconnector (optional) | ABB or third party |
| 3 | DC fuses | ABB or third party |
| 4 | Common mode filters | ABB |
| 5 | Inverter module | ABB |
| 6 | Motor | ABB (not part of ACS880-104 product offering) or third party |

Overview circuit diagram of an inverter cubicle (frame R7i)



| Item | Explanation | Available through |
|------|-----------------------------------|---|
| A | Inverter cubicle | - |
| 1 | DC supply | - |
| 2 | DC switch/disconnector (optional) | ABB or third party |
| 3 | DC fuses | ABB or third party |
| 4 | Charging contactor (optinal) | ABB or third party |
| 5 | Charging resistor (optional) | ABB or third party |
| 6 | Common mode filters | ABB |
| 7 | Inverter module | ABB |
| 8 | Motor | ABB (not part of ACS880-104 product offering) or third party |

Cabinet layout and cooling

See chapter [Cabinet construction \(page 45\)](#).

■ Frame R8i and multiples

Frame R8i modules are used to achieve output powers from approximately 250 kW upwards.

Frame R8i modules are used in single or parallel configurations. R8i modules run on wheels, and can easily be removed from the cubicle for cable installation or service.

The motor connection is via a quick connector at the back of the module that couples when the module is inserted into the cubicle. Each parallel-connected module is cabled separately to the motor, or connected by busbars to adjacent modules to reduce the number of cables. It is also possible to build an AC bus from each module to a separate output cubicle.

As standard, the cooling fan is automatically speed-controlled according to the loading of the inverter module. The fan is supplied internally.

If a direct-on-line fan (option +C188) is used, the user must connect the fan supply (400 V AC / 50/60 Hz or 320 V AC / 60 Hz) to the terminal block [X50].

Internal du/dt filtering is optional for single-module 400/500 volt inverter units, but mandatory with all 690 volt units and all parallel-connected modules.

Frame R8i (and multiples, if any) modules are controlled by a single BCU control unit installed separately from the module(s). The control unit is connected to each module by a fiber optic link. The control unit can be powered from the module (terminal block X53), from an external 24 V DC supply, or both for redundancy. The control unit contains the basic I/Os and slots for optional I/O modules. Other equipment is primarily installed on separate mounting plates.

DC connection and capacitor charging

The module must be equipped with external DC fuses.

A DC switch/disconnector can be installed if quick isolation of the module from the DC bus is required.

A capacitor charging circuit must be fitted if:

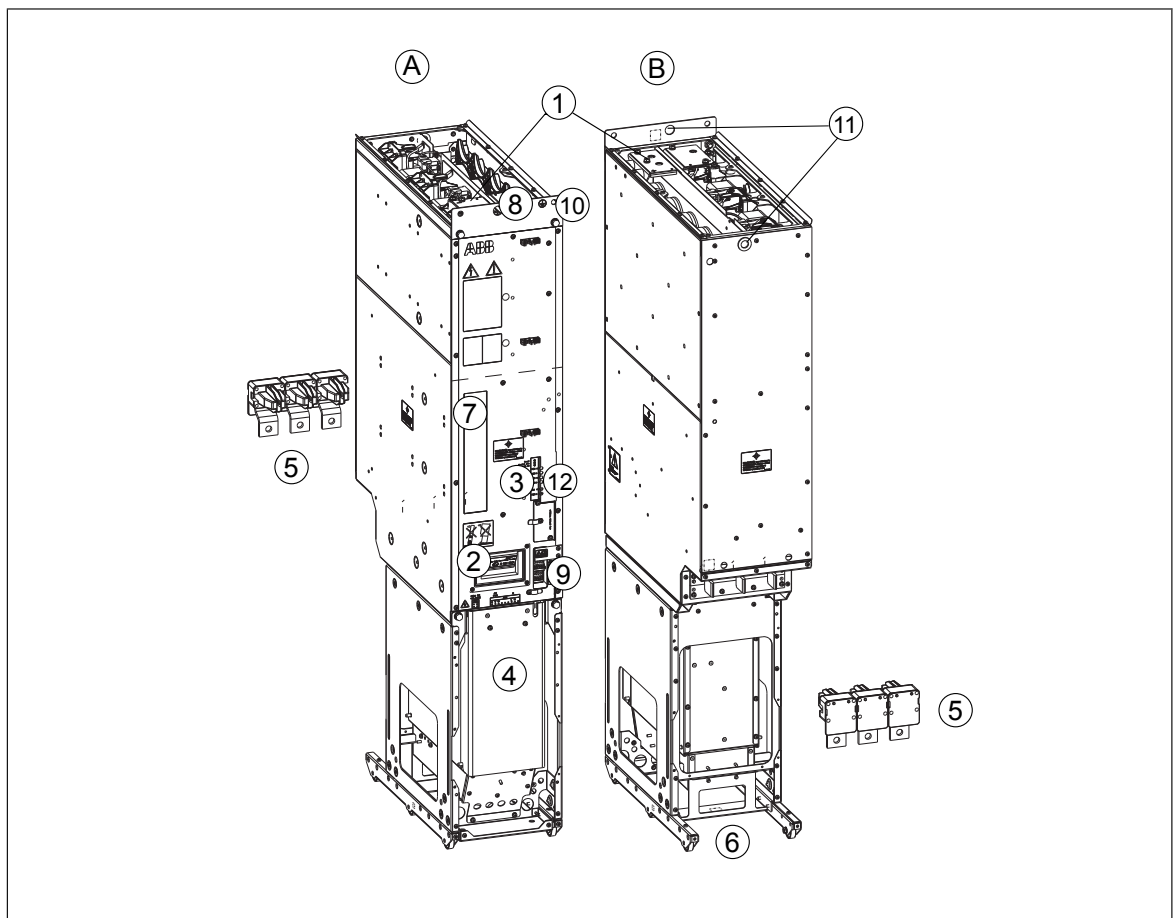
- the module is connected to the DC bus through a DC switch/disconnector, or
- the module is directly connected to the DC bus and the supply unit of the system does not have a charging capability.

The charging circuit design presented in this manual consists of a charging switch, resistors and a charging controller. When the module is connected to an energized DC bus, the charging switch is closed first. When the charging is finished, the main DC switch/disconnector can be closed and the charging switch opened. The module will not start if the charging switch is closed.

Common mode filtering is implemented by running the DC bus through ferrite cores at the input of the module.

Frame R8i layout

This figure shows the layout of the R8i module.



| | |
|----|--|
| A | R8i module, front |
| B | R8i module, back |
| 1 | DC busbars |
| 2 | Handle |
| 3 | LEDs and fiber optic connectors |
| 4 | Fan (standard speed-controlled fan shown; a direct-on-line fan is available as option +C188) |
| 5 | Quick connector (three phases). The counterpart is fastened to the cabinet behind the module. |
| 6 | Wheels |
| 7 | Type designation label |
| 8 | Terminal block [X50] (power supply for internal boards and module heating element, option +C183; DOL fan supply, option +C188) |
| 9 | Connectors [X51], [X52], [X53] |
| 10 | The unpainted grounding point (PE) between module frame and cabinet frame. |
| 11 | Lifting eyes |
| 12 | Circuit board compartment fan |

Connectors X50...X53

R8i modules contain a power supply (BDPS) that provides 24 V DC for the circuit boards of the module. The BDPS is powered internally from the DC link. An auxiliary voltage of 230 V AC (standard) or 115 V AC (option +G304) can optionally be fed to X50 (X50:4 and X50:5) to power the BDPS even when the DC link is not live. The 24 V DC voltage provided by the BDPS is available on X53, and can be used to power the BCU control unit of a single R8i inverter module.

Note:

With an inverter unit consisting of parallel-connected R8i modules, it is strongly recommended to use an external 24 V DC supply to power the BCU control unit.

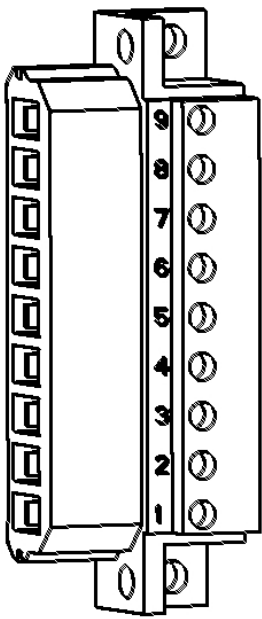
If a direct-on-line fan (option +C188) is used, the user must connect the fan supply (400 V AC 50 Hz or 60 Hz) to the module control connector [X50.1]. If an internal heating element (option +C183) is used, the user must connect the supply for the heating element to the module control connector [X50.7].

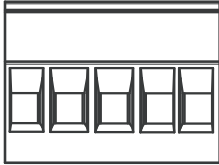
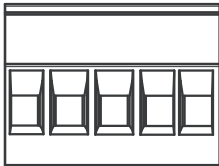
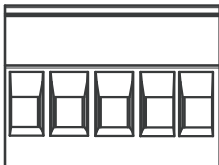
If the Safe torque off (STO) function is used, STO OUT on the BCU control unit is wired to X52 (STO IN); see the safe torque off function. X51 on the R8i module forwards the STO signals to the X52 connector of the next module (if present).

If the Safe torque off function is not used, the “24V” inputs on X52 must be connected to +24 V (X53, for example) on each inverter module. X51 is to be left unconnected.

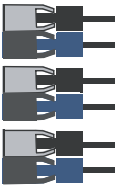
Note:

As a factory standard, Safe torque off is disabled by a jumper connection between connectors X52 and X53.

| Connector X50 | | | |
|---|---|-------------|--|
|  | 9 | Not in use. | |
| | 8 | N | 115/230 V AC (50/60 Hz) input for optional heating element (+C183). The cabinet builder must connect this when the option is in use. |
| | 7 | L | |
| | 6 | Not in use. | |
| | 5 | N | 115/230 V AC 50 Hz input for internal power supply (BDPS) (115 V AC 60 Hz with option +G304). The cabinet builder must connect this. |
| | 4 | L | |
| | 3 | W | 400 V AC (50/60 Hz) supply for optional DOL (direct-online) cooling fan (option +C188). The cabinet builder must connect this when the option is in use. |
| | 2 | V | |
| | 1 | U | <p>Note: In modules without +C188, the DOL wiring is present but not in use.</p> |

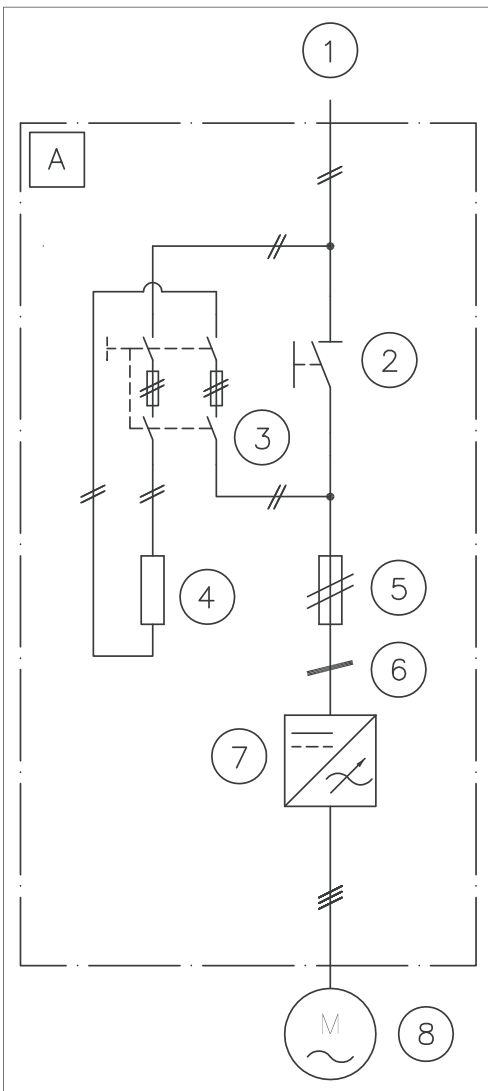
| Connectors X51, X52, X53 | | | | | | | | | | | | | | | | | | | |
|--|--|---------|-----|-----|--|--|-----|--|--|--|--|----|-----|-----|-----|-----|-----|---------|---|
|  | <table border="1"> <tr><th colspan="5">STO OUT</th></tr> <tr><th colspan="5">X51</th></tr> <tr><td>FE</td><td>GND</td><td>24V</td><td>GND</td><td>24V</td></tr> </table> | STO OUT | | | | | X51 | | | | | FE | GND | 24V | GND | 24V | X51 | STO OUT | STO signal forwarding output to next inverter module (if present). The cabinet builder must connect this in a unit with parallel modules. |
| STO OUT | | | | | | | | | | | | | | | | | | | |
| X51 | | | | | | | | | | | | | | | | | | | |
| FE | GND | 24V | GND | 24V | | | | | | | | | | | | | | | |
|  | <table border="1"> <tr><th colspan="5">STO IN</th></tr> <tr><th colspan="5">X52</th></tr> <tr><td>FE</td><td>GND</td><td>24V</td><td>GND</td><td>24V</td></tr> </table> | STO IN | | | | | X52 | | | | | FE | GND | 24V | GND | 24V | X52 | STO IN | 24 V STO signals from BCU control unit |
| STO IN | | | | | | | | | | | | | | | | | | | |
| X52 | | | | | | | | | | | | | | | | | | | |
| FE | GND | 24V | GND | 24V | | | | | | | | | | | | | | | |
|  | <table border="1"> <tr><th colspan="5">24V OUT</th></tr> <tr><th colspan="5">X53</th></tr> <tr><td>FE</td><td>24V</td><td>GND</td><td>24V</td><td>GND</td></tr> </table> | 24V OUT | | | | | X53 | | | | | FE | 24V | GND | 24V | GND | X53 | 24V OUT | 24 V DC output (for eg. BCU control unit) |
| 24V OUT | | | | | | | | | | | | | | | | | | | |
| X53 | | | | | | | | | | | | | | | | | | | |
| FE | 24V | GND | 24V | GND | | | | | | | | | | | | | | | |
| <p>Note: The Safe torque off (STO) safety function is only implemented in inverter units. Therefore, the STO function cannot be used in supply, rectifier, DC/DC converter and brake units. In these units, de-energizing any connection of STO IN (X52) connector stops the unit. Note that this stop is not safety related and must not be used for safety function purposes.</p> | | | | | | | | | | | | | | | | | | | |

Fiber optic connectors

| | | Name | Description | | | | | | | | | |
|---|------|------|--|------|-----|-----|-----|-----|-----|--|------|---|
| <table border="1"> <tr><td rowspan="2">BSFC</td><td>V50</td></tr> <tr><td>V60</td></tr> <tr><td rowspan="2">BFPS</td><td>V30</td></tr> <tr><td>V40</td></tr> <tr><td rowspan="2">BCU</td><td>V10</td></tr> <tr><td>V20</td></tr> </table>  | BSFC | V50 | V60 | BFPS | V30 | V40 | BCU | V10 | V20 | | BSFC | Charging controller connection. Must be connected by the installer. |
| | | BSFC | V50 | | | | | | | | | |
| | V60 | | | | | | | | | | | |
| BFPS | V30 | | | | | | | | | | | |
| | V40 | | | | | | | | | | | |
| BCU | V10 | | | | | | | | | | | |
| | V20 | | | | | | | | | | | |
| | | BFPS | Fan control connection (to fan control box). Connected at the factory. | | | | | | | | | |
| | | BCU | Control unit connection. Must be connected by the installer. | | | | | | | | | |

Overview circuit diagram of a frame R8i inverter unit

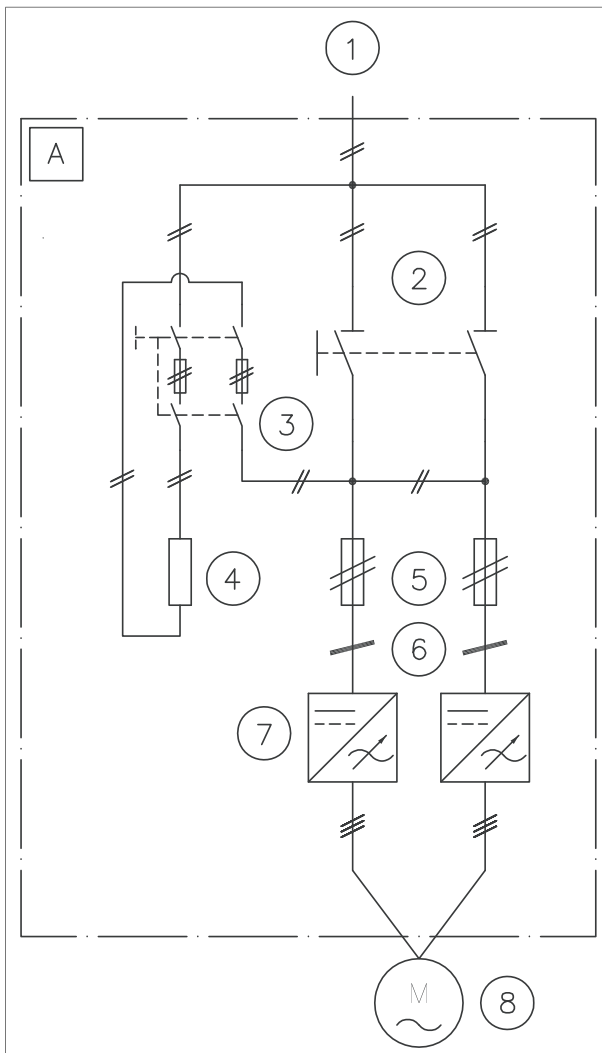
The following figure shows a simplified connection example of an inverter unit based on a frame R8i inverter module.



| Item | Explanation | Available through |
|------|-----------------------------------|--|
| A | Inverter cubicle | - |
| 1 | DC supply | - |
| 2 | DC switch/disconnector (optional) | ABB or third party |
| 3 | Charging switch (optional) | ABB or third party |
| 4 | Charging resistor (optional) | ABB or third party |
| 5 | DC fuses | ABB or third party |
| 6 | Common mode filters | ABB |
| 7 | Inverter module | ABB |
| 8 | Motor | ABB (not part of ACS880-104LC product offering) or third party |

Overview circuit diagram of a frame 2×R8i inverter unit

The following figure shows a simplified connection example of an inverter based on two parallel-connected frame R8i inverter modules.



| Item | Explanation | Available through |
|------|-----------------------------------|--|
| A | Inverter cubicle | - |
| 1 | DC supply | - |
| 2 | DC switch/disconnector (optional) | ABB or third party |
| 3 | Charging switch (optional) | ABB or third party |
| 4 | Charging resistors (optional) | ABB or third party |
| 5 | DC fuses | ABB or third party |
| 6 | Common mode filters | ABB |
| 7 | Inverter modules | ABB |
| 8 | Motor | ABB (not part of ACS880-104LC product offering) or third party |

Cabinet layout and cooling

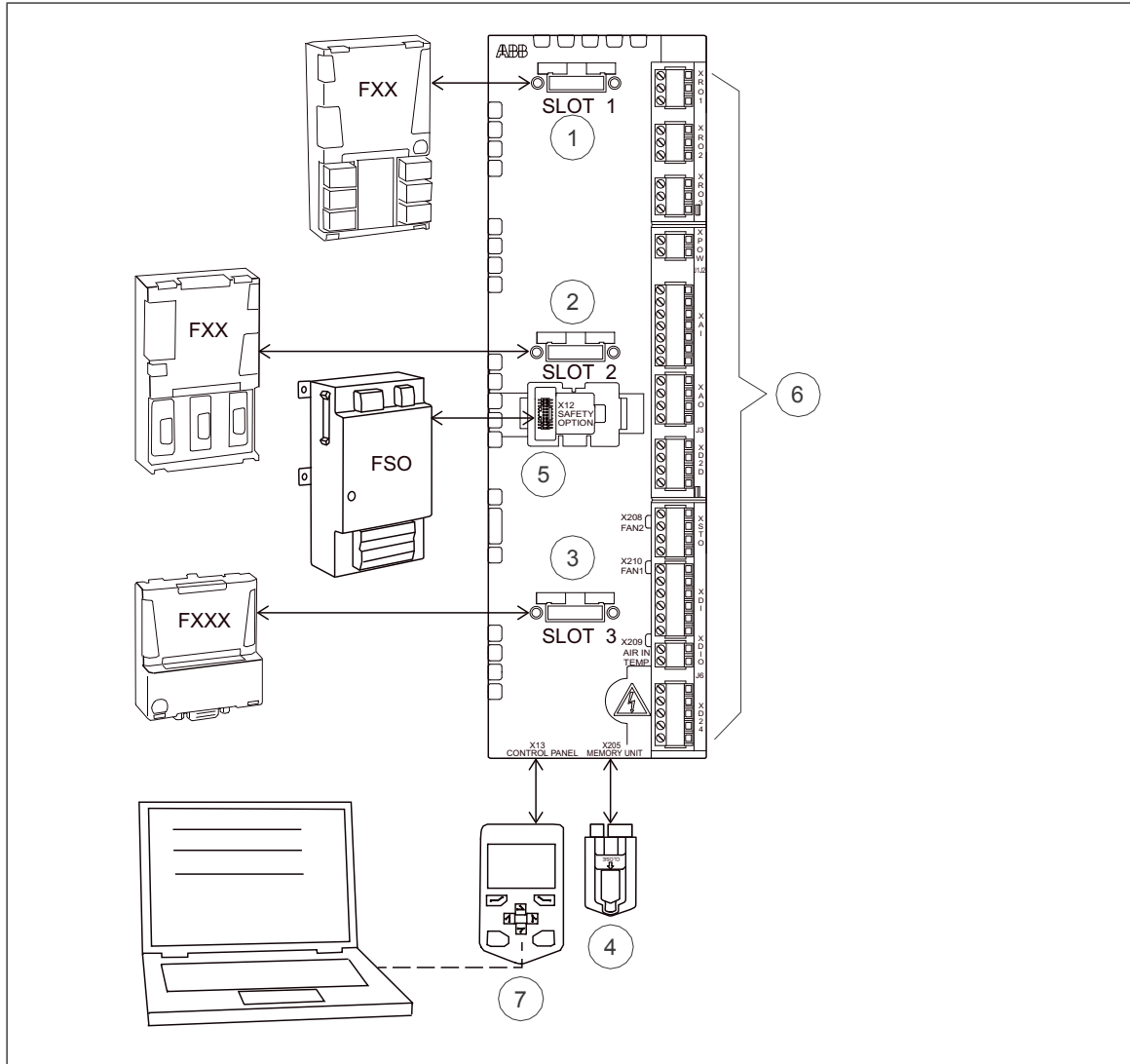
See chapter [Cabinet construction \(page 45\)](#)

Inverter unit control interfaces

■ Overview of control connections of the ZCU control unit

The diagram shows the control connections and interfaces of the ZCU-14 control unit.

It is used with module frame sizes R1i...R7i. Frame R5i modules employ a type ZCU-12 unit which has a different layout but the same connectivity as the ZCU-14.

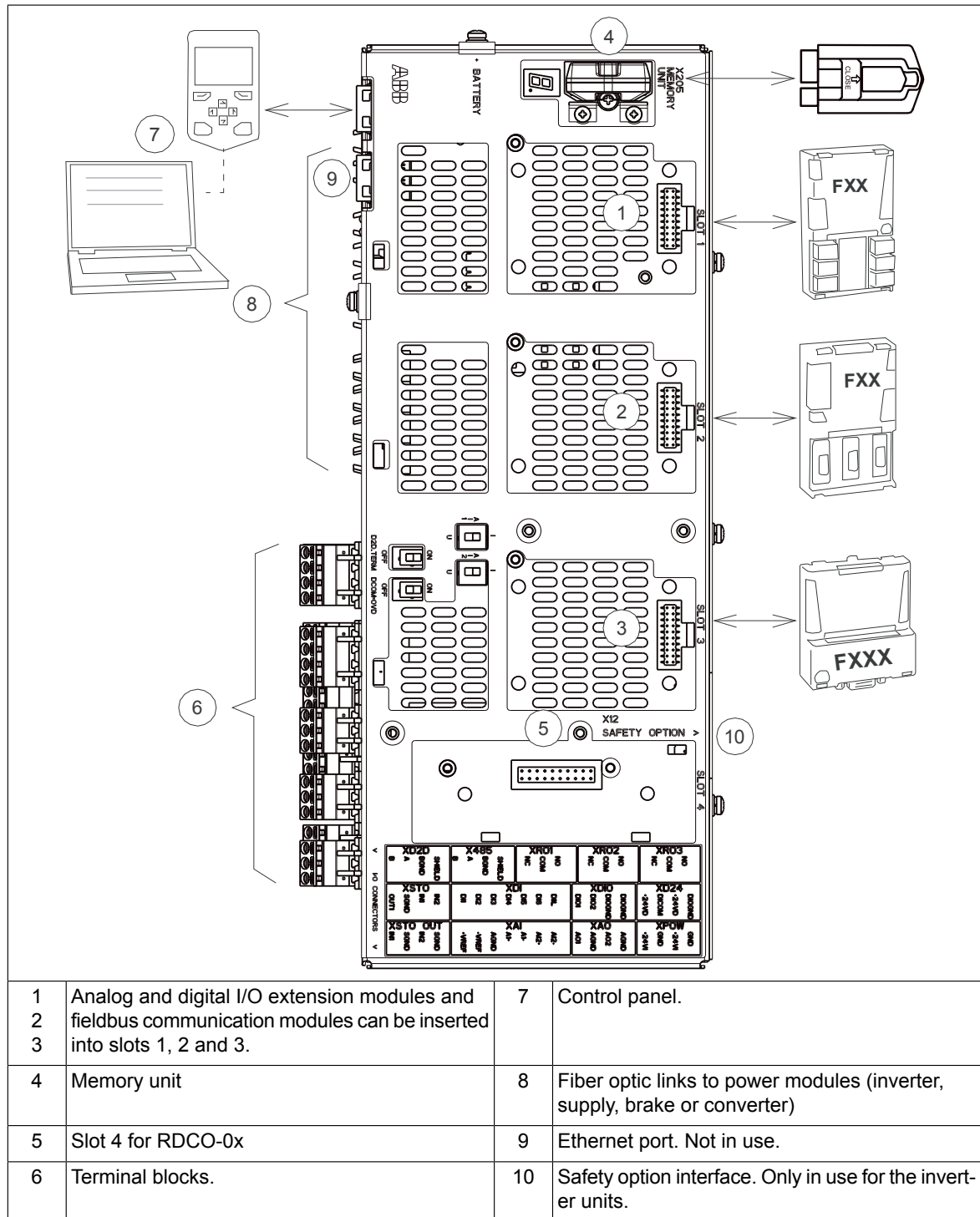


| | | |
|---|--|--------------|
| 1 | Option modules can be inserted into slots 1, 2 and 3 as follows: | |
| 2 | | |
| 3 | Modules | Slots |
| | Analog and digital I/O extension modules | 1, 2, 3 |
| | Feedback interface modules | 1, 2, 3 |
| | Fieldbus communication modules | 1, 2, 3 |
| | FSO-xx safety functions module | 2 (X12) |
| | When installed into slot 3 of a ZCU-14 control unit, the module will extend over the edge. We recommend you use slot 1 or 2 instead whenever possible. | |
| 4 | Memory unit. | |
| 5 | Connector for FSO-xx safety functions module (X12). The module reserves slot 2 when connected. | |

| | |
|---|--|
| 6 | I/O terminal blocks. See chapter Control unit. |
| 7 | See section The ACx-AP-x control panel. |

■ **Overview of the control connections of the BCU control unit**

The diagram shows the control connections and interfaces of the BCU control unit.



■ The ACx-AP-x control panel

The ACx-AP-x control panel is the user interface of the inverter unit, providing the essential controls such as Start/Stop/Direction/Reset/Reference, and the parameter settings for the control program.

The control panel can be mounted on the cabinet door using a DPMP-01 mounting platform (available separately).

With frame R1i...R5i inverter modules, the panel can be mounted on the panel holder on the cover of the module.

One control panel can be used to control several inverter units through a panel link provided that each unit is equipped with panel holder or an FDPI-02 module.

Note:

A control panel is required for the commissioning of an ACS880 drive system, even if the Drive composer PC tool is used.

For details on the control panel, see *ACX-AP-x Assistant control panels User's manual* (3AUA0000085685 [English]).

Control by PC tools

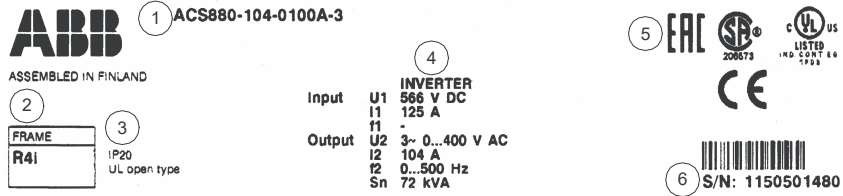
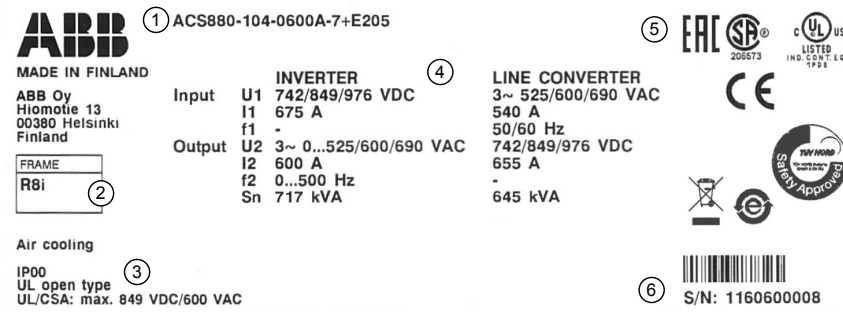
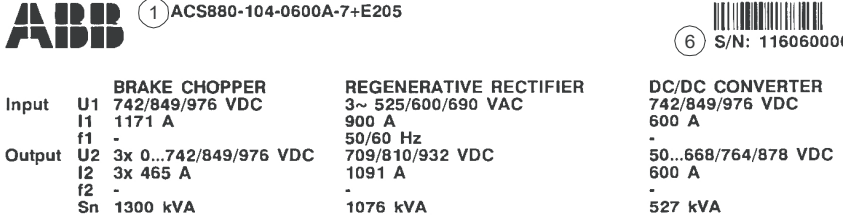
There is a USB connector on the front of the panel that can be used to connect a PC to the drive. When a PC is connected to the control panel, the control panel keypad is disabled.

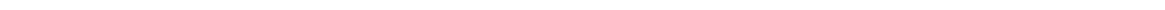
For more information see section Connecting a PC.

Type designation label

Each module has a type designation label attached to it. The type designation stated on the label contains information on the specifications and configuration of the module. The first digits express the basic construction, for example “ACS880-104-0100A-3”. Any optional selections are given thereafter, separated by plus signs.

Examples of the label are shown below.

| | |
|--|---|
|  <p>ABB ① ACS880-104-0100A-3</p> <p>ASSEMBLED IN FINLAND</p> <p>② FRAME R41</p> <p>③ IP20 UL open type</p> <p>④ INVERTER Input U1 566 V DC I1 125 A f1 - Output U2 3~ 0...400 V AC I2 104 A f2 0...500 Hz Sn 72 kVA</p> <p>⑤ EAC 205573 C-UL US LISTED 100°C 100V 100A CE</p> <p>⑥ S/N: 1150501480</p> | |
|  <p>ABB ① ACS880-104-0600A-7+E205</p> <p>MADE IN FINLAND</p> <p>ABB Oy Hiomotie 13 00380 Helsinki Finland</p> <p>② FRAME R8i</p> <p>③ IP00 UL open type UL/CSA: max. 849 VDC/600 VAC</p> <p>④ INVERTER Input U1 742/849/976 VDC I1 675 A f1 - Output U2 3~ 0...525/600/690 VAC I2 600 A f2 0...500 Hz Sn 717 kVA</p> <p>⑤ EAC 205573 C-UL US LISTED 100°C 100V 100A CE</p> <p>⑥ S/N: 1160600008</p> <p>LINE CONVERTER 3~ 525/600/690 VAC 540 A 50/60 Hz 742/849/976 VDC 655 A - 645 kVA</p> <p>Air cooling</p> <p>WARRANTY SAFETY APPROVED</p> | |
|  <p>ABB ① ACS880-104-0600A-7+E205</p> <p>② S/N: 1160600008</p> <p>Input U1 BRAKE CHOPPER 742/849/976 VDC I1 1171 A f1 - Output U2 3x 0...742/849/976 VDC I2 3x 465 A f2 - Sn 1300 kVA</p> <p>REGENERATIVE RECTIFIER 3~ 525/600/690 VAC 900 A 50/60 Hz 709/810/932 VDC 1091 A - 1076 kVA</p> <p>DC/DC CONVERTER 742/849/976 VDC 600 A - 50...668/764/878 VDC 600 A - 527 kVA</p> | |
| 1 | Type designation. |
| 2 | Frame size. |
| 3 | Degree of protection; additional UL/CSA specifications. |
| 4 | Ratings. The labels show ratings for inverter module (INVERTER), IGBT supply module (LINE CONVERTER), brake chopper module (BRAKE CHOPPER), regenerative rectifier module (REGENERATIVE RECTIFIER) and DC/DC converter module (DC/DC CONVERTER). |
| 5 | Valid markings. |
| 6 | Serial number. The first digit refers to the manufacturing plant. The next four digits indicate manufacturing year and week respectively (yyww). The remaining digits complete the serial number so that there are no two units with the same number. |



3

Moving and unpacking the module

Contents of this chapter

This chapter gives basic information on moving, unpacking and lifting the modules.



WARNING!

Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur.

Moving and lifting the transport package

Move the transport package by a pallet truck or lift. Lift the transport package in horizontal position. Use soft lifting slings.

Unpacking

■ **Frames R1i...R5i**

The module is delivered in a corrugated cardboard box. The module and its parts (such as grounding/clamp plates, terminal blocks, etc.) are placed in the different compartments of the box.

1. Remove any banding and lift off the cover of the box.
2. Lift the module out of the box.
3. Check all the compartments in the box for accessories.

Note:

Some parts may be placed in a compartment directly underneath the module.

Dispose of or recycle the packaging according to the local regulations.

■ **Frames R6i...R8i**

The module is delivered on a wooden base, boxed in corrugated cardboard. The cardboard box is tied to the base with PET bands.

1. Cut off the bands.
2. Lift off the cardboard box.
3. Remove any filling material.
4. Cut open the plastic wrapping of the module.
5. Lift off the module.
6. Check that there are no signs of damage.

Dispose of or recycle the packaging according to the local regulations.

Lifting the modules

Lift the unpacked module only by its lifting eyes.

Moving the modules



WARNING!

For general safety instructions for moving the module, see *ACS880 multidrive cabinets and modules safety instructions* (3AUA0000102301 [English]).

4

Cabinet construction

Contents of this chapter

This chapter instructs in placing the modules and additional equipment into a cabinet.

For general instructions, see *Cabinet design and construction instructions for drive modules* (3AUA0000107668 [English]).

Limitation of liability

The installation must always be designed and made according to applicable local laws and regulations. ABB does not assume any liability whatsoever for any installation which breaches the local laws and/or other regulations. Furthermore, if the recommendations given by ABB are not followed, the drive may experience problems that the warranty does not cover.

General

See the technical data for module-specific cooling requirements and allowable mounting orientations.

Installation examples

**WARNING!**

The code labels attached to mechanical parts such as busbars, shrouds and sheet metal parts must be removed before installation as they may cause bad electrical connections, or, after peeling off and collecting dust in time, cause arcing or block the cooling air flow.

This section instructs in placing the modules and additional equipment into a user-defined cabinet.



Each example includes a table that lists:

- installation stages of different equipment in the order in which the installation into the cabinet should be performed
- code of the step-by-step instructions
- equipment kit code
- kit ordering code.

You can find the kit-specific assembly drawings, step-by-step instructions and kit information on the Internet. Go to <https://sites-apps.abb.com/sites/lvacdrivesengineeringsupport/content>. If needed, contact your local ABB representative.

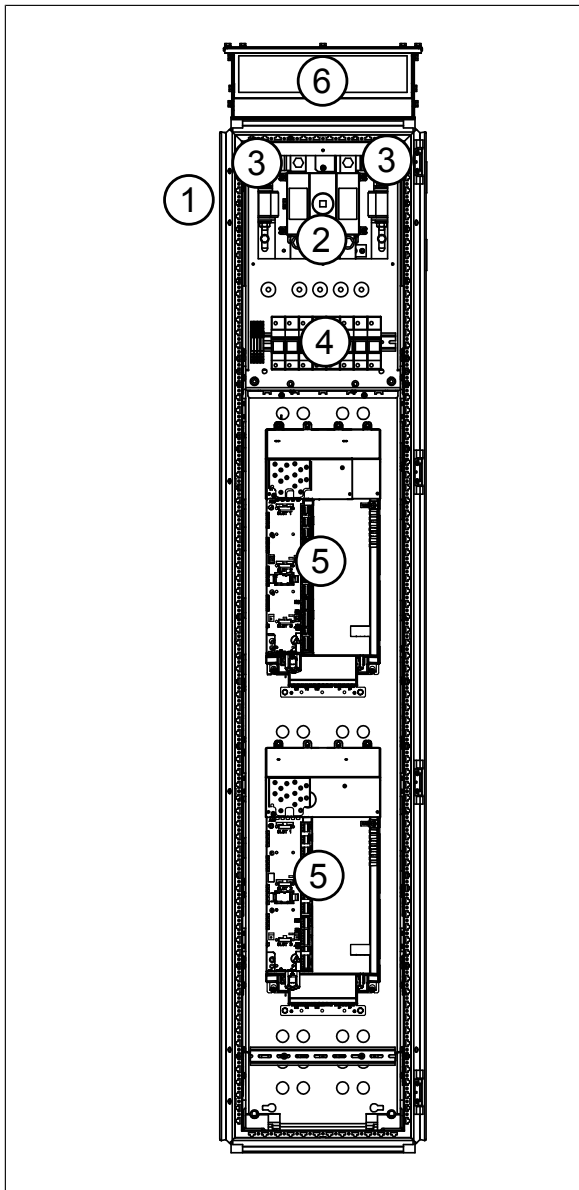
The example includes also cabinet assembly drawings that show each stage listed in the table. More detailed steps of each stage are described in the kit-specific assembly drawings.

For general instructions, see *Cabinet design and construction instructions for drive modules* (3AUA0000107668 [English]).



■ R1i...R4i modules in a 400 mm wide Rittal VX25 enclosure

A maximum of four frame R1i or R2i modules, or two frame R3i or R4i modules can be fitted into a 400 mm wide VX25 enclosure, but the number can be reduced by optional equipment.



Description

Cubicle including:

1. DC input
2. DC switch/disconnector for all inverter modules
3. Main DC fuses
4. DC fuse disconnectors for each inverter module
5. Inverter modules
6. Air outlet with exhaust fan

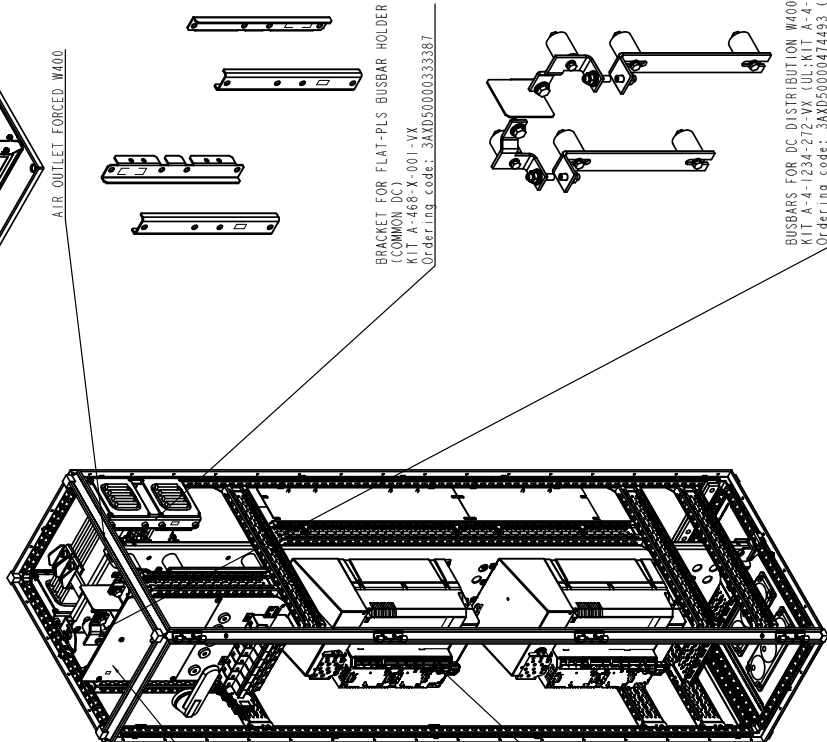
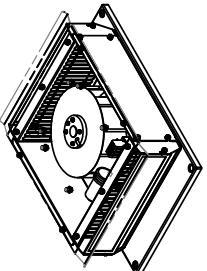


Installation stages

| # | Installation stage | Instruction code | Kit code | Kit ordering code |
|---|----------------------------------|------------------|-----------------|--|
| 1 | Common parts: | | | |
| | Baying parts | 3AXD50000336340 | - | - |
| | PE busbars | 3AXD50000336104 | - | - |
| | Divider panel | 3AXD50000336692 | - | - |
| | DC bus support kit | 3AXD50000333639 | A-468-X-001-VX | 3AXD50000333387 |
| 2 | Bottom plate | - | - | - |
| 3 | Mounting plate (IEC) | 3AXD50000444588 | - | - |
| | Mounting plate (UL) | 3AXD50000003890 | - | - |
| 4 | DC busbars (IEC) | 3AXD50000453108 | A-4-1234-272-VX | 3AXD50000474493 |
| | DC busbars (UL) | 3AXD50000003895 | A-4-1234-274 | 3AXD50000003918 |
| 5 | Mounting plate shrouds | 3AXD50000450060 | A-4-1234-403-VX | 3AXD50000456772 |
| 6 | Inverter modules and air guides: | | | |
| | R1i | 3AUA0000114397 | A-468-1-422 | 3AUA0000114398 |
| | R2i | 3AUA0000114397 | A-468-2-423 | 3AUA0000114330 |
| | R3i | 3AUA0000114397 | A-468-3-424 | 3AUA0000114404 |
| | R4i | 3AUA0000114397 | A-468-4-425 | 3AUA0000114405 |
| 7 | du/dt filters | 3AXD50000458721 | - | See <i>AC-side components</i> (page 212) |

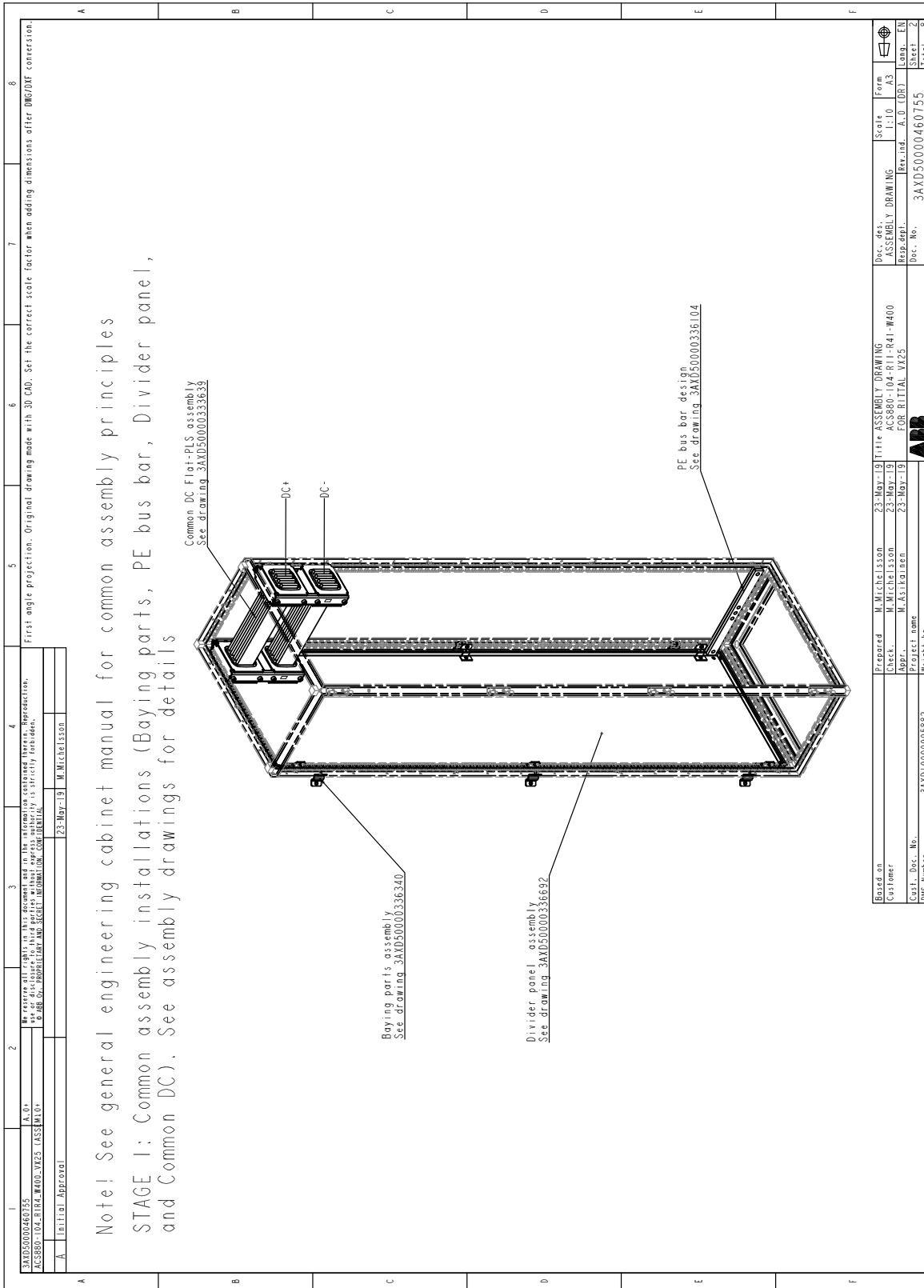


Overview of kits

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD500004607155 ACCESSORY KIT FOR R41 IN RITTAL VX25 2000x600x400 CABINET M. Michel sson 23-May-19 M. Michel sson Initial Approval | | | | | | | |
| We refer you only to this document used in the original drawing. Any other use of this document is prohibited without express authorisation. Any reproduction, use or disclosure to third parties without express authorisation is strictly forbidden. © ABB AB, 2019. ALL RIGHTS RESERVED. INFORMATION CONFIDENTIAL | | | | | | | |
| <p style="text-align: center;">KITS FOR INU R11-R41 IN RITTAL VX25 2000x600x400 CABINET</p> <p style="text-align: center;">Note! Only parts included in ABB kits are shown here. See kit assembly drawings for required Rittal and/or other standard parts.</p> | | | | | | | |
|  | | | | | | | |
| AIR GUIDE FOR MODULE KITS KIT A-488-1-422 (3AU40000114398) for R1; KIT A-488-2-423 (3AU40000114330) for R2; KIT A-488-3-424 (3AU40000114404) for R3; KIT A-488-4-425 (3AU40000114405) for R41 | | | | | | | |
| MOUNTING PLATE SHROUDS FOR W400 KIT A-4-1234-403-VX Order no. code: 3AXD50000456772 | | | | | | | |
| BRACKET FOR FLAT-PLUS BUSBAR HOLDER (COMMON DC) KIT A-468-X-001-VX Order no. code: 3AXD50000333387 | | | | | | | |
| BUSBARS FOR DC DISTRIBUTION W400 KIT A-4-1234-272-VX (UL: KIT A-4-1234-274) Order no. code: 3AXD50000474493 (UL: 3AXD500000003918) | | | | | | | |
|  <p style="text-align: center;">AIR OUTLET FORCED W400</p> | | | | | | | |
| Based on: M. Michel sson, 23-May-19 Prepared: M. Michel sson, 23-May-19 Checked: M. Michel sson, 23-May-19 Customer: M. Michel sson, 23-May-19 Project name: 3AXD100009105882 Weight: kg DMS Number: 3AXD100009105882 | | | | | | | |
| ABB Title: ASSEMBLY DRAWING Part: R41-W400 Description: ASSEMBLY DRAWING FOR RITTAL VX25 Dec. No.: 3AXD500004607155 Scale: 1:1 Form: A3 Sheet: 1 of 1 Total: 1 | | | | | | | |

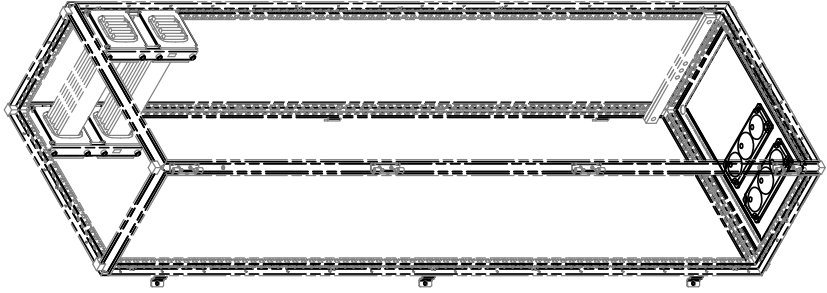
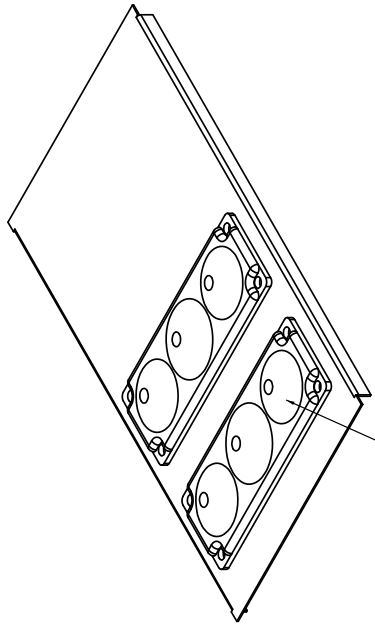


Stage 1: Installation of common parts



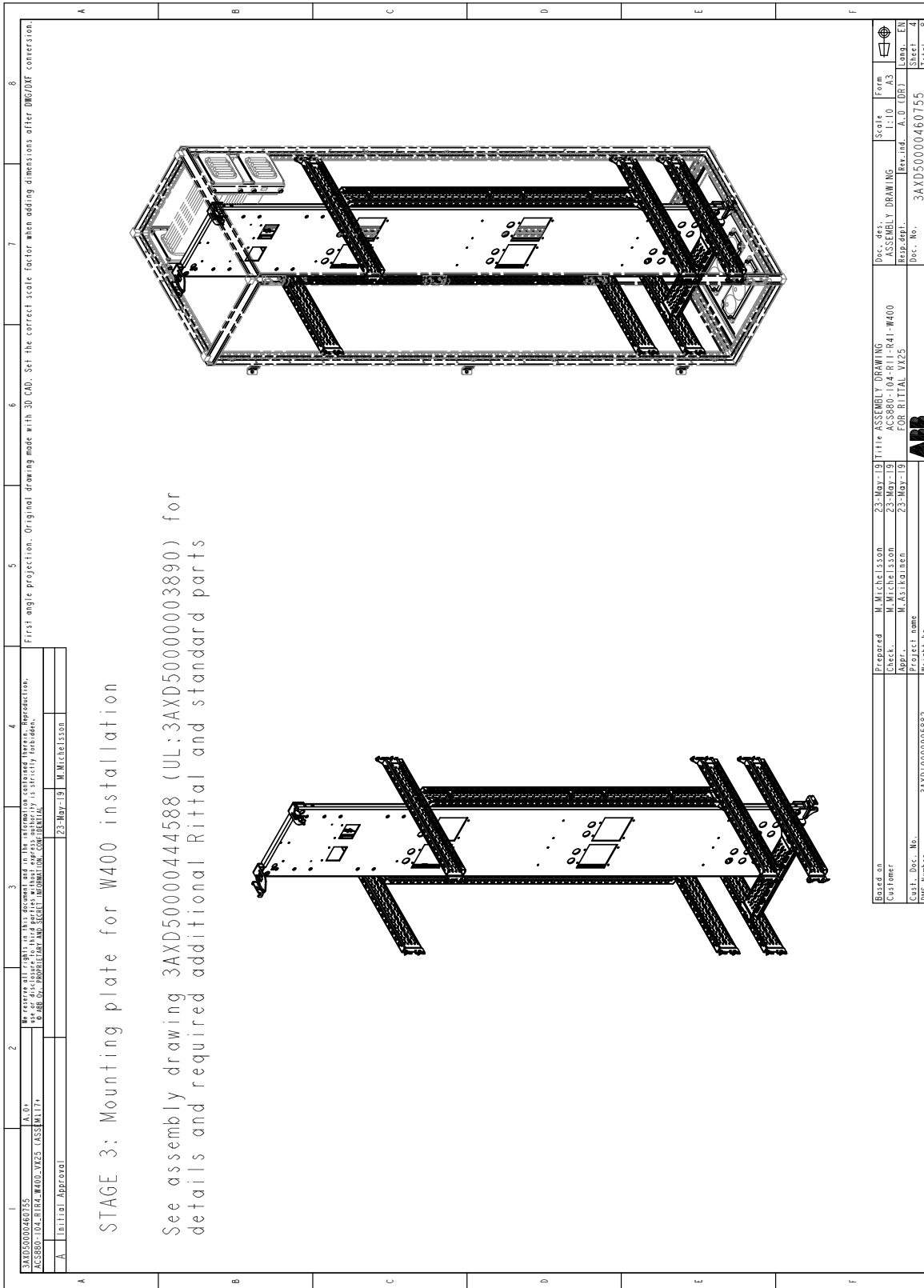
| | | | | | | | |
|---------------|--------------|---------------|-----------|------------------------|------------------|----------|----------|
| Based on | Prepared | M. Michelsson | 23-May-19 | Title | ASSEMBLY DRAWING | Scale | Form |
| Customer | Check | M. Michelsson | 23-May-19 | ACS880-104-R1-R41-W400 | ASSEMBLY DRAWING | 1:10 | A3 |
| | Appr. | M. Asikainen | 23-May-19 | FOR RITTAL VX25 | Rev.ind. | A.0 (DR) | Lang. EN |
| Cur. Dec. No. | Project name | | | Doc. No. | 3AXD50000460755 | Sheet | 2 |
| DWG Number | Weight kg | | | Doc. No. | 3AXD50000460755 | Total | 8 |
| | | | | ABB | | | |

Stage 2: Installation of bottom plate

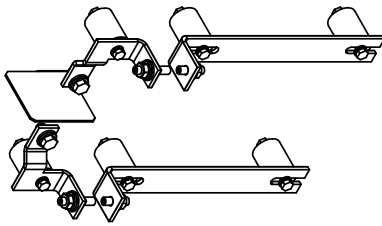
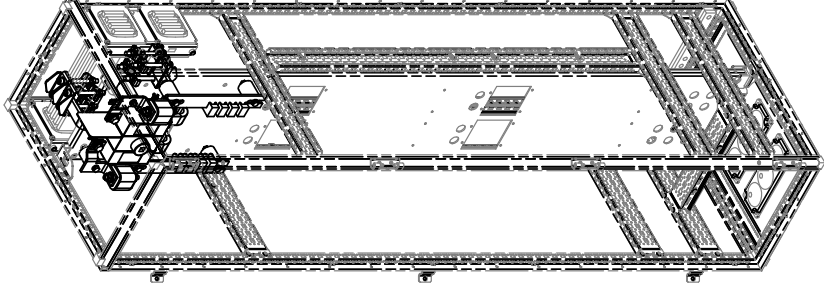
| | | | | | | | |
|--|--|--|---|--|---|--|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p>3AXD50000460755 3AXD50000460755-1-01 3AXD50000460755-1-01 3AXD50000460755-1-01 3AXD50000460755-1-01</p> | | | | | | | |
| <p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | |
| A |  | | | | | | F |
| <p>STAGE 2: Bottom Plate installation (if applicable)</p> <p>Note! EMC cable lead-throughs should be used (not included in ABB delivery)</p> | | | | | | | |
| A |  | | | | | | F |
| <p>Cable lead-throughs not included in kit</p> | | | | | | | |
| <p>Based on: M. Michelsson 23-May-19</p> <p>Customer: M. Michelsson 23-May-19</p> <p>Cart. Desc. No.: M. AS1811222 23-May-19</p> <p>DWG Number: 3AXD100009045882</p> | | <p>Prepared: M. Michelsson 23-May-19</p> <p>Checked: M. Michelsson 23-May-19</p> <p>Project name: 3AXD100009045882</p> <p>Weight: kg</p> | | <p>Title: ASSEMBLY DRAWING</p> <p>Part No.: 3AXD50000460755</p> <p>Rev. No.: 1</p> <p>Rev. Date: 23-May-19</p> | | <p>Scale: 1:1</p> <p>Form: A3</p> <p>Sheet: 1 of 1</p> <p>Drawn: EN</p> <p>Checked: EN</p> <p>Total: 8</p> | |



Stage 3: Installation of mounting plate



Stage 4: Installation of DC busbars

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------|--|--------------|--|----------|----------|---|----------|---------------|-----------|-------|------------------|-------|------|----------|---------------|-----------|----------|------------------|-------|----|-------|---------------|-----------|--------------|--|----------|----------|-------|---------------|-----------|--------|--|-------|---|--------------|------------------|--|--|--------|----|--|-----------------|------------------|--|--|--------|----|--|-------------|------------------|--|--|--------|----|--|
| <p>3AXD500000460755</p> <p>3AXD500000460755 - 3AXD500000460755 <small>WARRANTY INFORMATION</small> <small>SEE USER MANUAL FOR WARRANTY INFORMATION</small></p> <p>Initial Approval</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 4: Busbars for DC distribution W400 installation</p> <p>See assembly drawing 3AXD50000453108 (UL:3AXD50000003895) for details and required additional Rittal and standard parts</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | |  | |  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Ordering code: 3AXD50000474493 KIT A-4-1234-272-VX</p> <p>UL: Ordering code: 3AXD500000003918 KIT A-4-1234-274</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Based on</td> <td style="width: 30%;">M. Michelsson</td> <td style="width: 15%;">23 May 19</td> <td style="width: 25%;">Title</td> <td style="width: 10%;">ASSEMBLY DRAWING</td> <td style="width: 10%;">Scale</td> <td style="width: 10%;">Form</td> </tr> <tr> <td>Customer</td> <td>M. Michelsson</td> <td>23 May 19</td> <td>Part No.</td> <td>3AXD500000460755</td> <td>Ratio</td> <td>A3</td> </tr> <tr> <td>Drawn</td> <td>M. Michelsson</td> <td>23 May 19</td> <td>Project Name</td> <td></td> <td>Revision</td> <td>1.0 (DR)</td> </tr> <tr> <td>Check</td> <td>M. Michelsson</td> <td>23 May 19</td> <td>Weight</td> <td></td> <td>Sheet</td> <td>5</td> </tr> <tr> <td>Project Name</td> <td colspan="3">3AXD100009046882</td> <td>Weight</td> <td>kg</td> <td></td> </tr> <tr> <td>Part. Desc. No.</td> <td colspan="3">3AXD100009046882</td> <td>Weight</td> <td>kg</td> <td></td> </tr> <tr> <td>DWG. Number</td> <td colspan="3">3AXD100009046882</td> <td>Weight</td> <td>kg</td> <td></td> </tr> </table> | | | | | | | | Based on | M. Michelsson | 23 May 19 | Title | ASSEMBLY DRAWING | Scale | Form | Customer | M. Michelsson | 23 May 19 | Part No. | 3AXD500000460755 | Ratio | A3 | Drawn | M. Michelsson | 23 May 19 | Project Name | | Revision | 1.0 (DR) | Check | M. Michelsson | 23 May 19 | Weight | | Sheet | 5 | Project Name | 3AXD100009046882 | | | Weight | kg | | Part. Desc. No. | 3AXD100009046882 | | | Weight | kg | | DWG. Number | 3AXD100009046882 | | | Weight | kg | |
| Based on | M. Michelsson | 23 May 19 | Title | ASSEMBLY DRAWING | Scale | Form | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer | M. Michelsson | 23 May 19 | Part No. | 3AXD500000460755 | Ratio | A3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drawn | M. Michelsson | 23 May 19 | Project Name | | Revision | 1.0 (DR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Check | M. Michelsson | 23 May 19 | Weight | | Sheet | 5 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project Name | 3AXD100009046882 | | | Weight | kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Part. Desc. No. | 3AXD100009046882 | | | Weight | kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DWG. Number | 3AXD100009046882 | | | Weight | kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

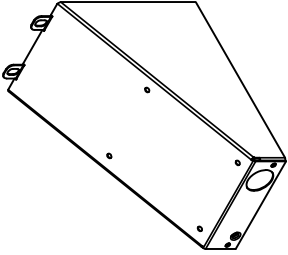
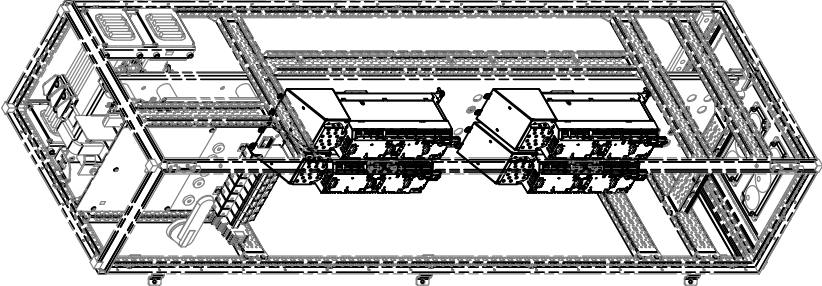


Stage 5: Installation of mounting plate shrouds



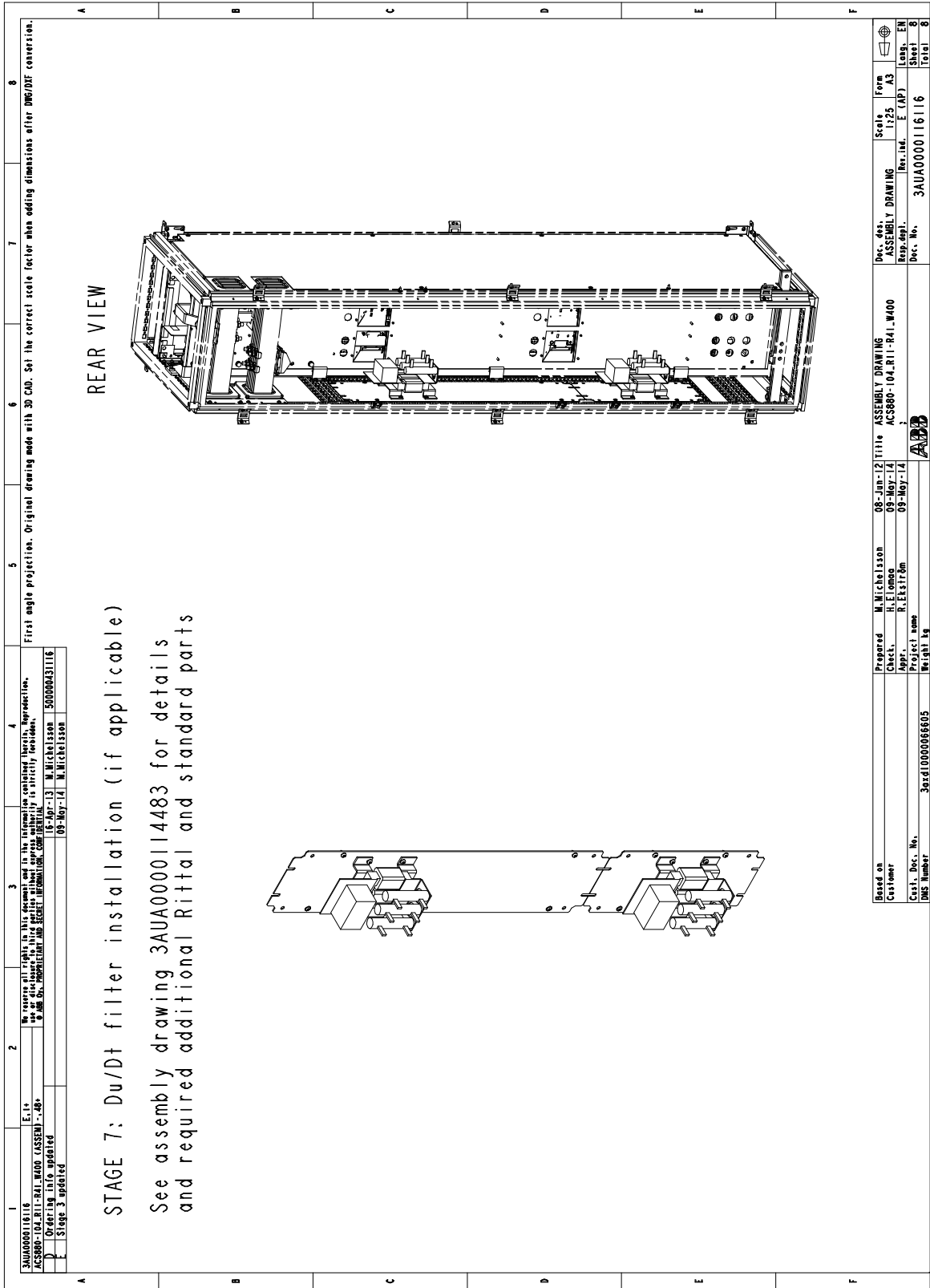
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p>3AXD50000460755</p> <p>ACS880-104-R1R4-W400-VX25 (ASSEMBLY)</p> <p>Initial Approval</p> <p>23-May-19 M. Michelsson</p> | | | | | | | |
| <p>3AXD50000460755</p> <p>ACS880-104-R1R4-W400-VX25 (ASSEMBLY)</p> <p>Initial Approval</p> <p>23-May-19 M. Michelsson</p> | | | | | | | |
| <p>STAGE 5: Mounting plate shrouds for W400 installation</p> <p>See assembly drawing 3AXD50000450060 for details and required additional Rittal and standard parts</p> | | | | | | | |
| | | | | | | | |
| <p>Ordering code: 3AXD50000456772 KIT A-4-1234-403-VX</p> | | | | | | | |
| | | | | | | | |
| <p>Doc. des. ASSEMBLY DRAWING Scale 1:10 A3 Form</p> <p>Resp. des. ACS880-104-R1-R4-W400 Rev. ind. A.0 (DR) Log. FN</p> <p>Doc. No. 3AXD50000460755 Rev. No. 3AXD50000460755 Sheet 6</p> <p>Weight kg 3AXD10000905882 Weight kg</p> <p>ABB</p> | | | | | | | |
| <p>Based on: Prepared M. Michelsson 23-May-19 Title ASSEMBLY DRAWING</p> <p>Customer: M. Michelsson 23-May-19 ACS880-104-R1-R4-W400</p> <p>Appr.: M. Asikainen 23-May-19 FOR RITTAL VX25</p> <p>Project name: ABB</p> <p>DWG Number: 3AXD10000905882 Weight kg</p> | | | | | | | |

Stage 6: Installation of inverter modules and air guides

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|---|---|--|--|--|------------------|--|------------------|
| <p>3AXD50000460755 ACCESSORY CABINET W400-VX25-ASSEMBLY A. Initial Approval</p> | <p>WE HEREBY CERTIFY TO THIS DOCUMENT USE IN THE ORIGINAL OR REPRODUCED FORM. ANY REPRODUCTION, USE OR DISCLOSURE TO THIRD PARTIES WITHOUT EXPRESS AUTHORITY IS STRICTLY FORBIDDEN. © ABB © M. MICHEL 2019 M. MICHEL 2019</p> | <p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | <p>3AXD50000460755 M. MICHEL 2019</p> | <p>23-May-19</p> | <p>23-May-19</p> | <p>23-May-19</p> | <p>23-May-19</p> |
| <p>STAGE 6: Air guide for module kit installation</p> <p>See assembly drawing 3AUA0000114397 for details and required additional Rittal and standard parts</p> <p>Note! Finalize wiring during this stage if Du/Dt filters are not used!</p> | |  |  | | | | |
| <p> KIT A-468-1-422, Ordering code: (3AUA0000114398) for R1 KIT A-468-2-423, Ordering code: (3AUA0000114330) for R2 KIT A-468-3-424, Ordering code: (3AUA0000114404) for R3 KIT A-468-4-425, Ordering code: (3AUA0000114405) for R4 </p> | | | | | | | |
| <p>Based on: M. MICHEL 2019 Customer: M. MICHEL 2019 Part. Desc. No.: 3AXD100009145882 DMS Number</p> | | <p>Prepared: M. MICHEL 2019 Checked: M. MICHEL 2019 Project name: 3AXD100009145882 Weight: kg</p> | | <p>Title: ASSEMBLY DRAWING FOR RITZ FOR RITZ Part. No.: R41-W400 Part. No.: VX25 Weight: kg</p> | | <p>Doc. No.: 3AXD50000460755 Scale: 1:1 (DR) Sheet: 1 of 1 Form: 1 Date: 23-May-19</p> | |



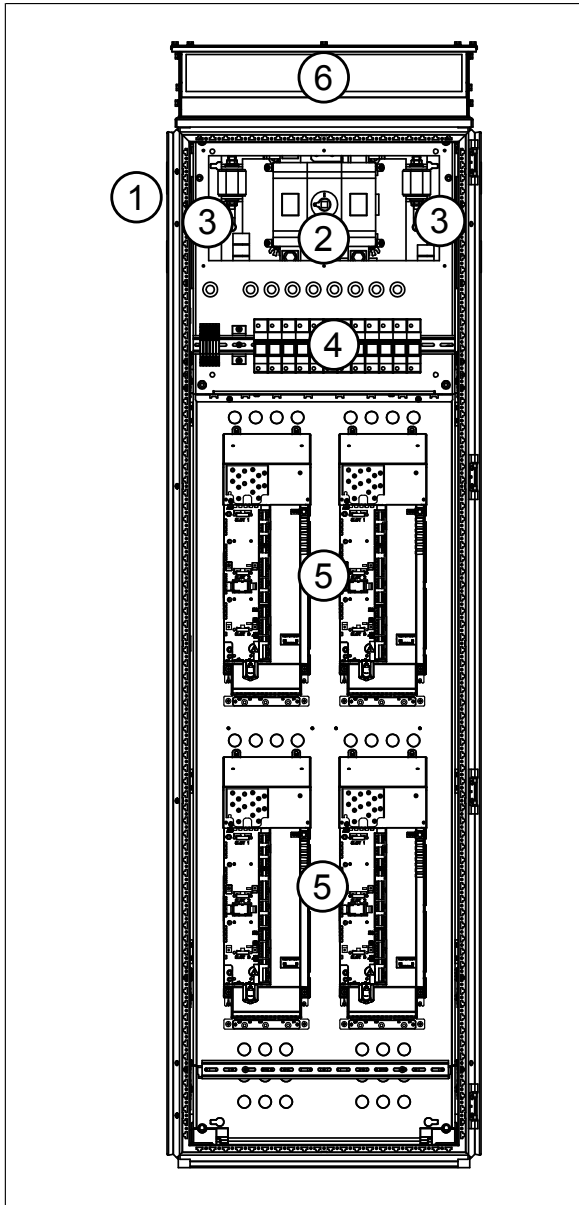
Stage 7: Installation of du/dt filters



First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

■ R1i...R4i modules in a 600 mm wide Rittal VX25 enclosure

A maximum of eight frame R1i or R2i modules, or four frame R3i or R4i modules can be fitted into a 600 mm wide VX25 enclosure, but the number can be reduced by optional equipment.



Description

Cubicle including:

1. DC input
2. DC switch/disconnector for all inverter modules
3. Main DC fuses
4. DC fuse disconnectors for each inverter
5. Inverter modules
6. Air outlet with exhaust fan



Installation stages

| # | Installation stage | Instruction code | Kit code | Kit ordering code |
|---|----------------------------------|------------------|-----------------|--|
| 1 | Common parts: | | | |
| | Baying parts | 3AXD50000336340 | - | - |
| | PE busbars | 3AXD50000336104 | - | - |
| | Divider panel | 3AXD50000336692 | - | - |
| | DC bus support kit | 3AXD50000333639 | A-468-X-001-VX | 3AXD50000333387 |
| 2 | Bottom plate | - | - | - |
| 3 | Mounting plate | 3AXD50000468195 | - | - |
| 4 | DC busbars | 3AXD50000460779 | A-6-1234-271-VX | 3AXD50000475964 |
| 5 | Mounting plate shrouds | 3AXD50000461691 | A-6-1234-402-VX | 3AXD50000456819 |
| 6 | Inverter modules and air guides: | | | |
| | R1i | 3AUA0000114397 | A-468-1-422 | 3AUA0000114398 |
| | R2i | 3AUA0000114397 | A-468-2-423 | 3AUA0000114330 |
| | R3i | 3AUA0000114397 | A-468-3-424 | 3AUA0000114404 |
| | R4i | 3AUA0000114397 | A-468-4-425 | 3AUA0000114405 |
| 7 | du/dt filters | 3AXD50000471713 | - | See <i>AC-side components</i> (page 212) |



Overview of kits

12345678

ABCDEF

3AXD50000460373
 ACCESSORY KIT FOR RITTAL VX25-4-SS200

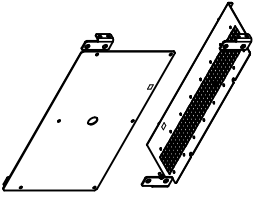
We reserve all rights in this document and in the information contained therein. Reproduction,
 use or disclosure to third parties without express authority is strictly forbidden.

© ABB AB, ROSSLECHEN, SWITZERLAND. INFORMATION: CONFIDENTIAL

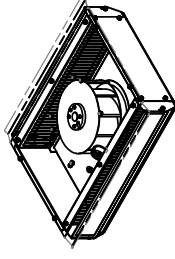
| | | |
|---------------------|------------|---------------|
| A. Initial Approval | 122-May-19 | M. Michelsson |
|---------------------|------------|---------------|

KITS FOR R11-R41 MODULES IN RITTAL VX25 2000x600x600 CABINET

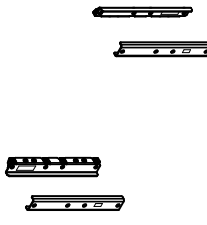
Note! Only parts included in ABB kits are shown here!
 See kit assembly drawings for required Rittal and/or other standard parts.



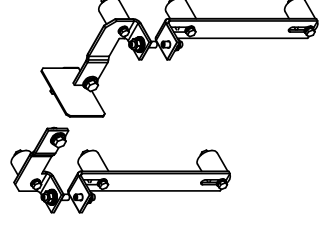
MOUNTING PLATE SHROUDS FOR W600
 KIT A-6-1234-402-VX
 Orderling code: 3AXD50000456619



AIR OUTLET FORCED W600




BRACKET FOR FLAT-PLS BUSBAR HOLDER (COMMON DC)
 KIT A-468-X-001-VX
 Orderling code: 3axd50000333387



BUSBARS FOR DC DISTRIBUTION W600
 KIT A-6-1234-271-VX
 Orderling code: 3AXD50000475964

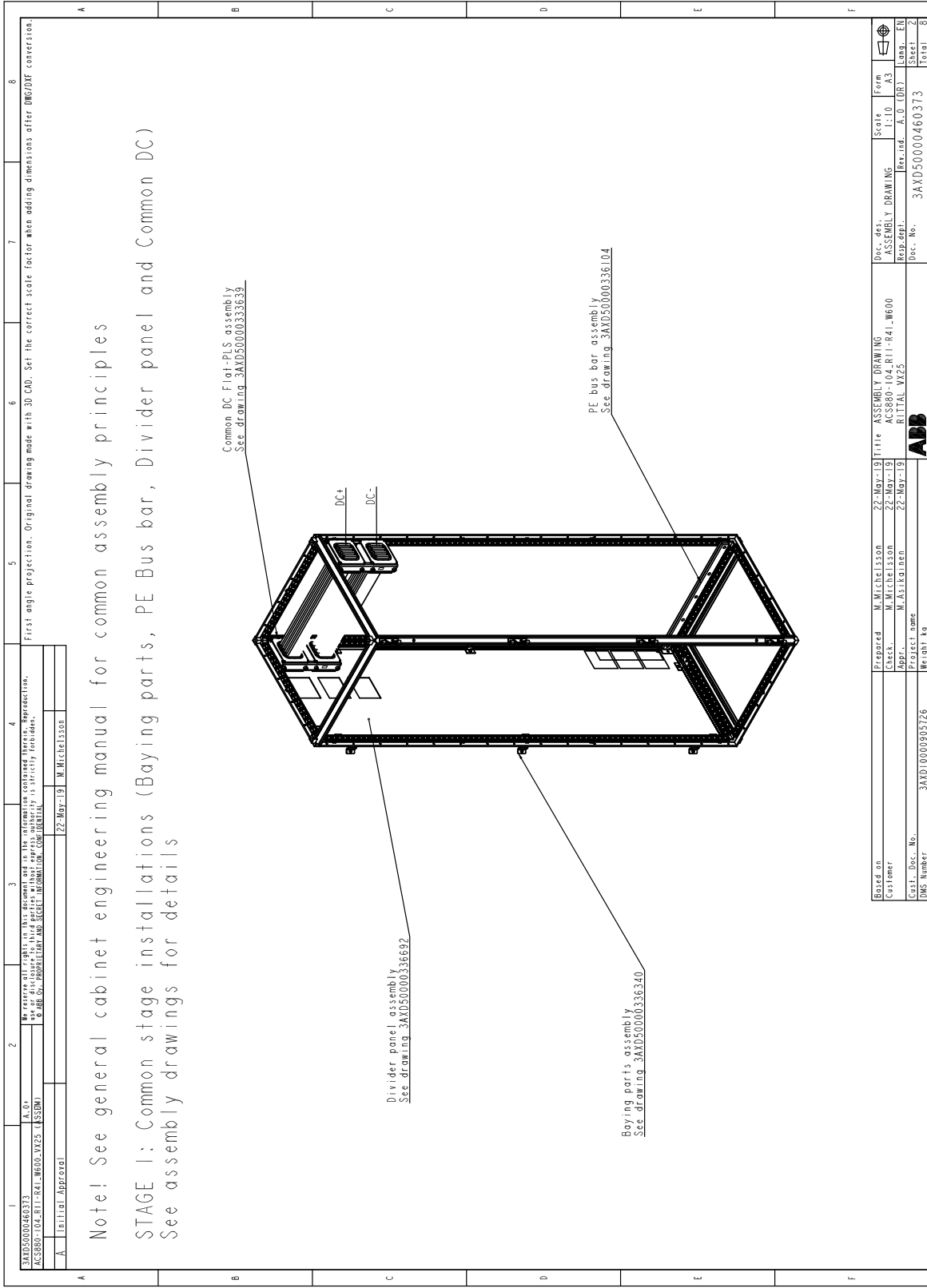
AIR GUIDE FOR MODULE KITS
 KIT A-468-1-422 (3AXUA0000114398) for R11
 KIT A-468-2-423 (3AXUA0000114330) for R21
 KIT A-468-3-424 (3AXUA0000114404) for R31
 KIT A-468-4-425 (3AXUA0000114405) for R41

| | | | | | | |
|--------------|------------------|-----------|-----------------|------------------|-----------------|----------|
| Based on | M. Michelsson | 22-May-19 | Title | ASSEMBLY DRAWING | Scale | Form |
| Customer | M. Michelsson | 22-May-19 | 3AXD50000460373 | ASSEMBLY DRAWING | A3.0 | Form 03 |
| Created | M. Michelsson | 22-May-19 | 3AXD50000460373 | Rev. title | A3.0 (DR) | Sheet 01 |
| Project name | 3AXD100009051726 | | | Rev. desc. | | Sheet 01 |
| Weight | kg | | | Dec. No. | 3AXD50000460373 | Sheet 01 |
| DMS Number | | | | | | Total 08 |



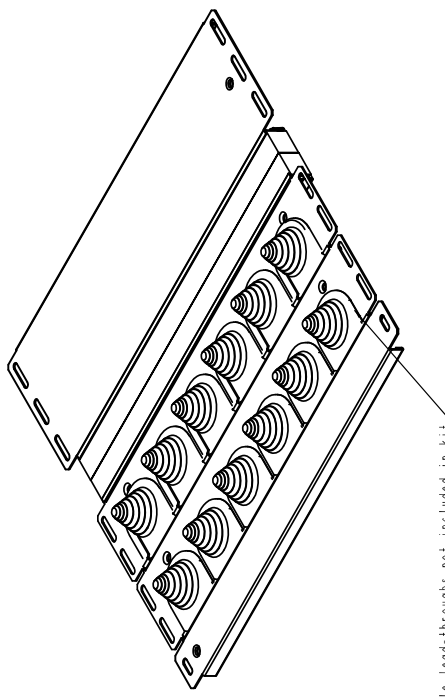


Stage 1: Instalation of common parts

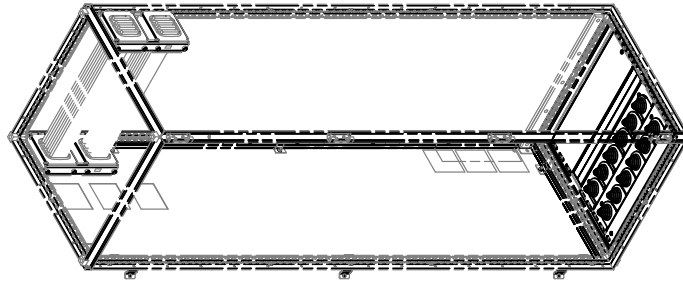


Stage 2: Installation of bottom plate

| | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD5000460373 ACCESSORY TO CABINET WITH 30 CAU. Set the correct scale factor when adding dimensions after DMG/DHF conversion. | | | | | | | |
| I.D. No. M. MICHEL Project No. 3AXD5000460373 | | | | | | | |
| Initial Approval: M. Michelsson 22-May-19 | | | | | | | |
| We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. | | | | | | | |
| CONFIDENTIAL INFORMATION - CONFIDENTIAL | | | | | | | |



Cable lead-throughs not included in kit



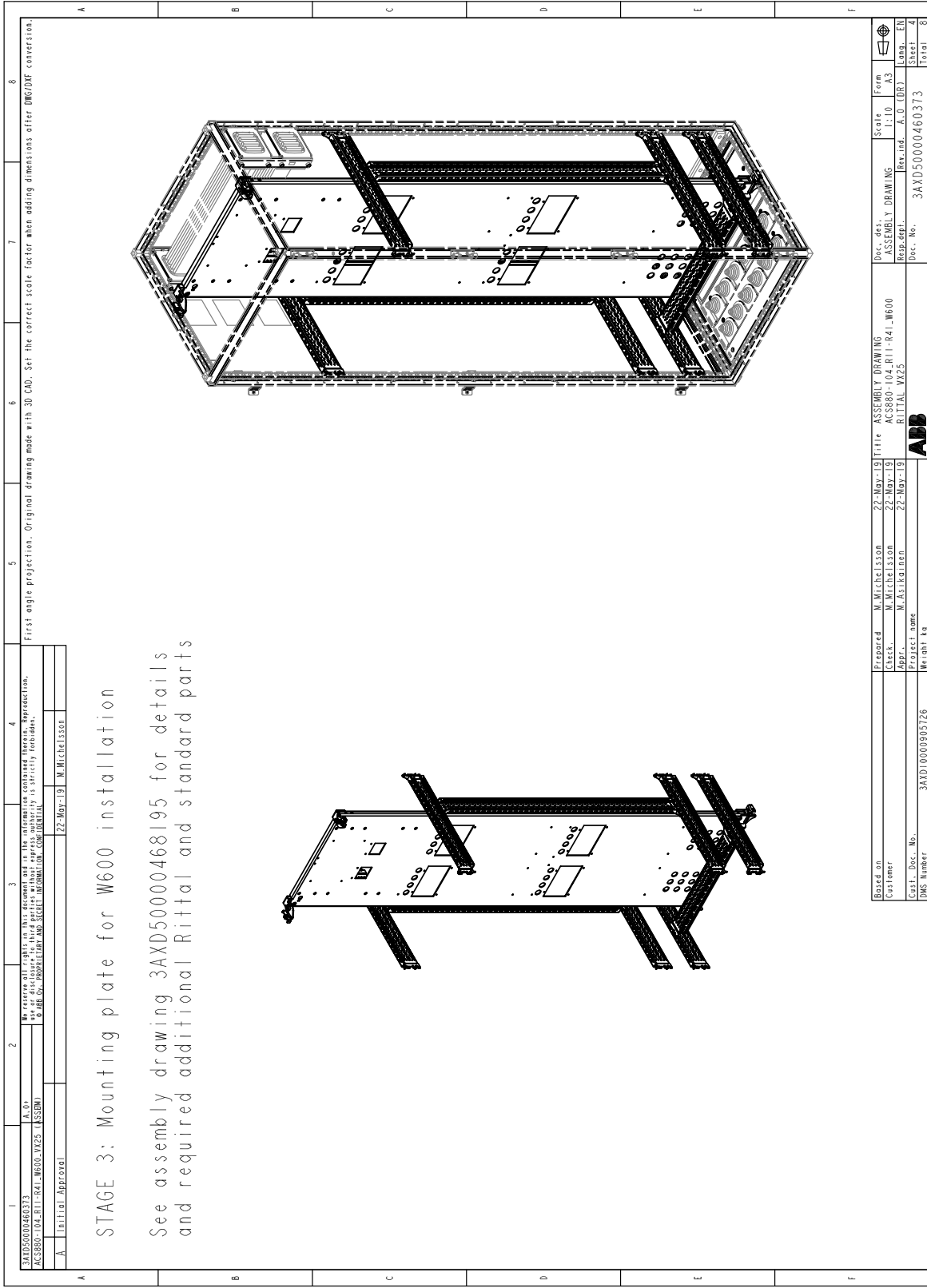
STAGE 2: Bottom plate installation (if required, basic set up included in cabinet delivery)

Note! EMC cable lead-throughs should be used (not included in ABB delivery)

| | | | | | | |
|-----------------|-----------------|-----------|--------------|------------------|----------|-----------------|
| Based on | M. Michelsson | 22-May-19 | Title | ASSEMBLY DRAWING | Doc. No. | 3AXD50000460373 |
| Customer | M. MICHELSSON | 22-May-19 | Project No. | 3AXD5000460373 | Rev. No. | 1.0 (DR) |
| Cart. Desc. No. | M. ASSEMBLY | 22-May-19 | Project Name | ABB | Rev. No. | 1.0 (DR) |
| DWG Number | 3AXD10000905726 | | Weight | kg | Sheet | 3 |
| | | | | | Total | 8 |



Stage 3: Installation of mounting plate



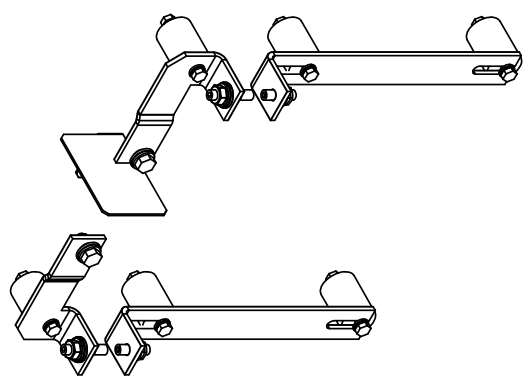
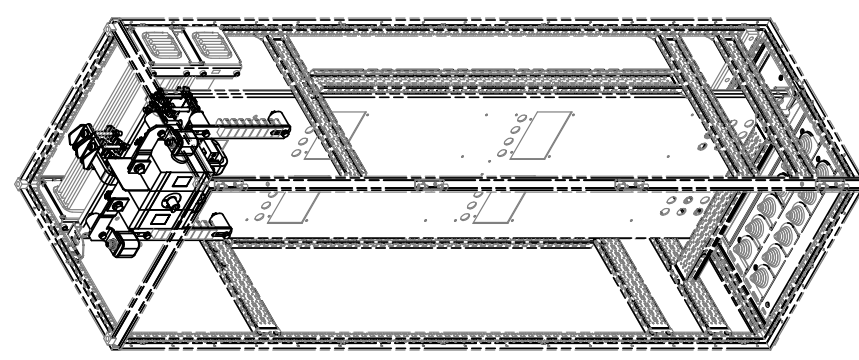
First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

| | | | |
|--|------|-----------|---------------|
| 3AXD50000460373 | A.01 | 22-May-19 | M. Michelsson |
| AC8880-104-R11-R41-W600-VX25 (SSDM) | | | |
| We reserve all rights in this document and in the information contained therein, reproduction, distribution, modification, copying, or any other use is strictly prohibited. | | | |
| © ABB Oy. PROPRIETÄR OCH SÄLLSKAPSKONFIGURER | | | |
| Initial Approval | | | |

STAGE 3: Mounting plate for W600 installation
 See assembly drawing 3AXD50000468195 for details and required additional Rittal and standard parts

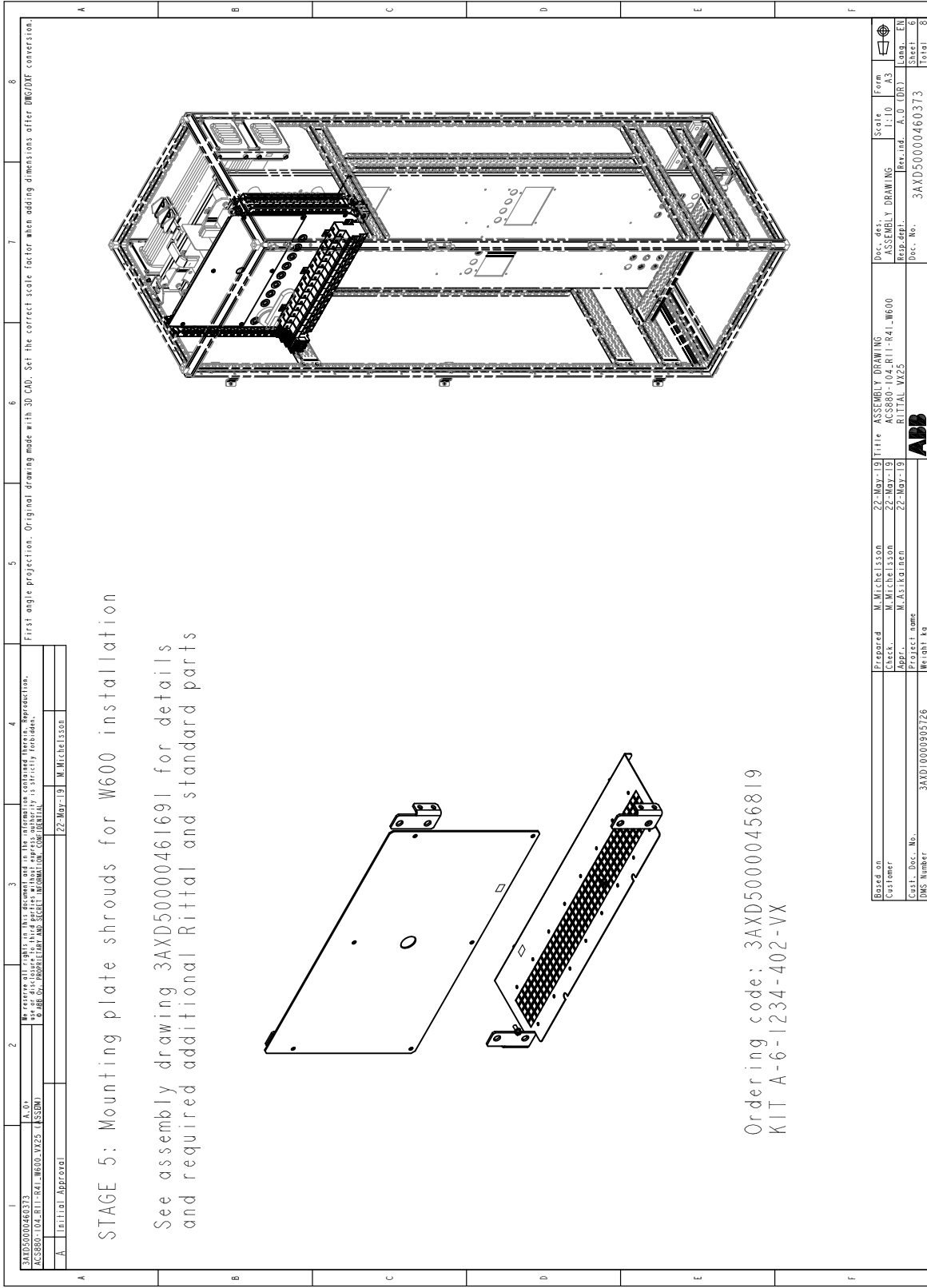
| | | | | | | |
|--------------|-------------------|-----------|-------------------------|------------------|-----------------|----------|
| Based on | M. Michelsson | 22-May-19 | Title | ASSEMBLY DRAWING | Scale | Form |
| Checked | M. Michelsson | 22-May-19 | AC8880-104-R11-R41-W600 | ASSEMBLY DRAWING | 1:10 | A3 |
| Approved | M. Asikainen | 22-May-19 | RITTAL VX25 | Rev.ind. | A.0 (DR) | Logg. FN |
| Project name | | | 3AXD50000460373 | Doc. No. | 3AXD50000460373 | |
| DWG Number | 3AXD1000090505726 | | ABB | | Sheet | 4 |
| Weight kg | | | | | Total | 8 |

Stage 4: Installation of DC busbars

| | | | | | | | |
|--|-------------------------|--|---|----------------------------------|---|----------------------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p style="font-size: 8px;">3AXD50000460373 ACCESSORY TO CABINET KIT A-6-1234-271-VX ALL RIGHTS RESERVED. NO PARTS OR SUBASSEMBLIES MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM. © 2020 ABB. ALL RIGHTS RESERVED. INFORMATION CONTAINED HEREIN IS STRICTLY CONFIDENTIAL. 122-May-19 M. Michelsson</p> | | | | | | | |
| A | <p>Initial Approval</p> | | | | | | 8 |
| <p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | |
| A | B | C | D | E | F | | |
|  | | | | | | | |
| <p>STAGE 4: Busbars for DC distribution W600 installation</p> <p>See assembly drawing 3AXD50000460779 for details and required additional Rittal and standard parts</p> | | | | | | | |
|  | | | | | | | |
| <p>Ordering code: 3AXD50000475964 KIT A-6-1234-271-VX</p> | | | | | | | |
| <p>Based on: M. Michelsson 22-May-19</p> | | <p>Prepared: M. Michelsson 22-May-19</p> | | <p>Title: ASSEMBLY DRAWING</p> | | <p>Doc. No.: 3AXD50000460373</p> | |
| <p>Customer: M. Michelsson 22-May-19</p> | | <p>Checked: M. Michelsson 22-May-19</p> | | <p>Scale: A0</p> | | <p>Form: 1.0 (DR)</p> | |
| <p>Part. Desc. No.: 3AXD10000905726</p> | | <p>Project name: 3AXD10000905726</p> | | <p>Rev. title: A.0 (DR)</p> | | <p>Rev. No.: 3AXD50000460373</p> | |
| <p>Weight: kg</p> | | <p>Weight: kg</p> | | <p>Rev. No.: 3AXD50000460373</p> | | <p>Rev. No.: 3AXD50000460373</p> | |
| | | | | | | <p>Sheet: 5</p> | |
| | | | | | | <p>Total: 8</p> | |



Stage 5: Installation of mounting plate shrouds



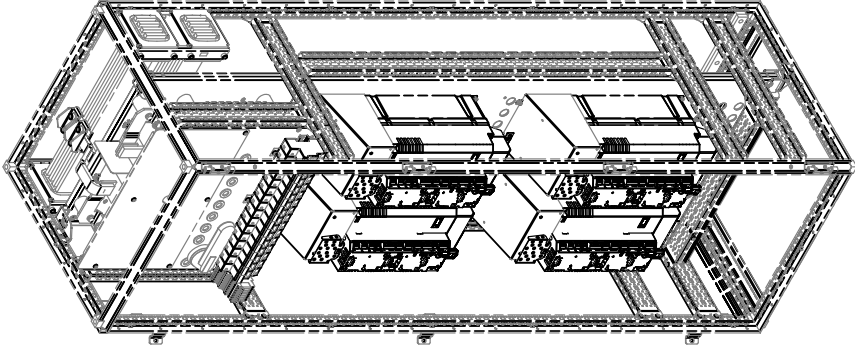
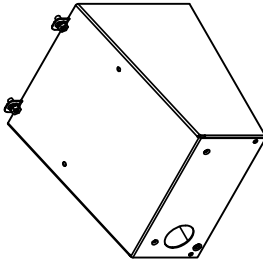
First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

STAGE 5: Mounting plate shrouds for W600 installation
 See assembly drawing 3AXD50000461691 for details
 and required additional Rittal and standard parts

Ordering code: 3AXD50000456819
 KIT A-6-1234-402-VX

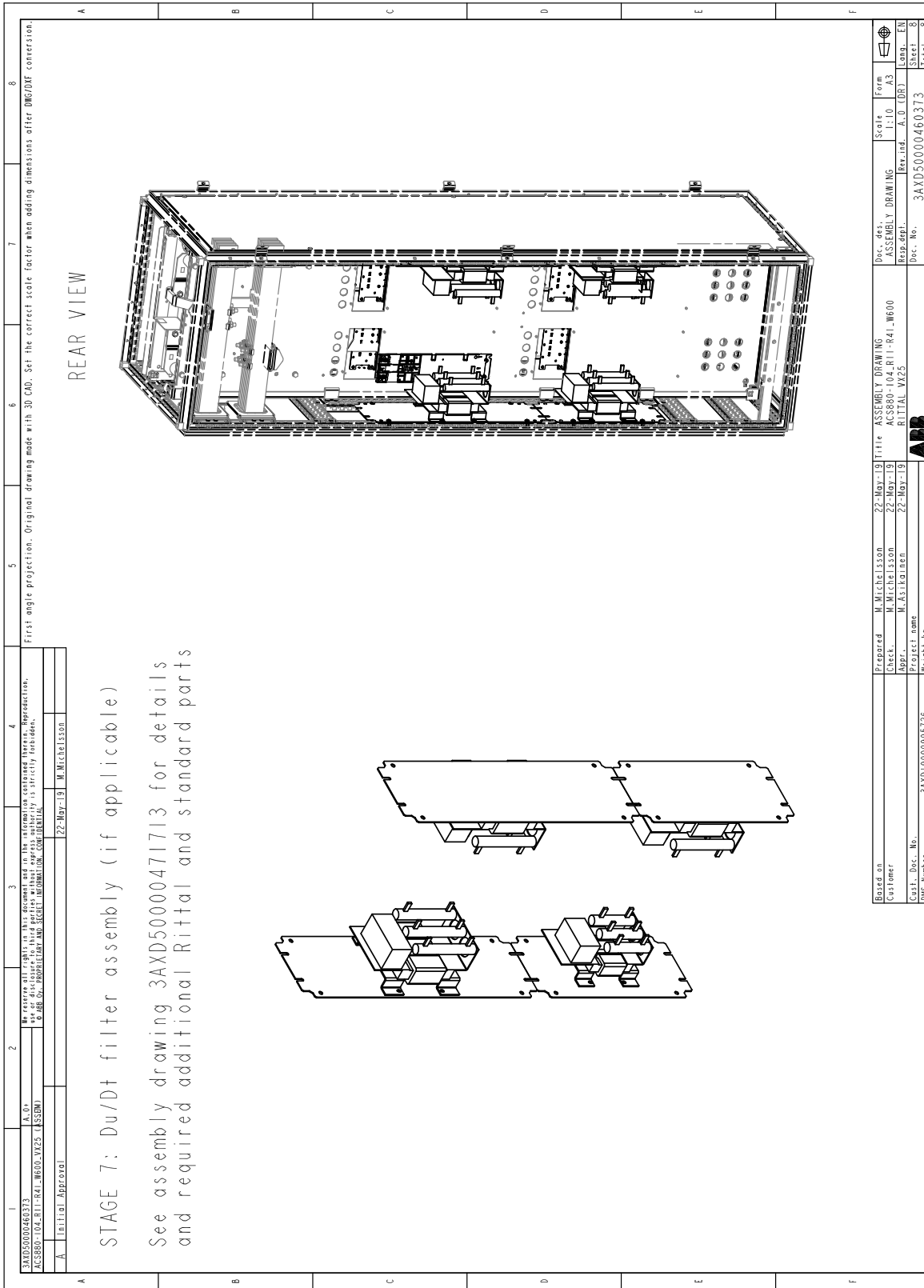
| | | | | | | | | | |
|--------------------------------------|------|--------------------------------------|---|---|---|---|---|---|---|
| 3AXD50000460373 | A.0* | AC8880-104-R11-R41-W600-VX25 (LSSDM) | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Initial Approval | | | | | | | | | |
| Prepared by: M. Michelsson 22-May-19 | | | | | | | | | |
| Checked by: M. Michelsson 22-May-19 | | | | | | | | | |
| Approved by: M. Asikainen 22-May-19 | | | | | | | | | |
| Project name: RITTAL VX25 | | | | | | | | | |
| DMS Number: 3AXD.00009050726 | | | | | | | | | |
| Weight: kg | | | | | | | | | |
| Based on: M. Michelsson 22-May-19 | | | | | | | | | |
| Title: ASSEMBLY DRAWING | | | | | | | | | |
| AC8880-104-R11-R41-W600 | | | | | | | | | |
| Form: A3 | | | | | | | | | |
| Scale: 1:10 | | | | | | | | | |
| Doc. des. ASSEMBLY DRAWING | | | | | | | | | |
| Rev. ind.: A.0 (DR) | | | | | | | | | |
| Resp. appl.: A.0 (DR) | | | | | | | | | |
| Doc. No.: 3AXD50000460373 | | | | | | | | | |
| Sheet: 6 | | | | | | | | | |
| Total: 8 | | | | | | | | | |

Stage 6: Installation of inverter modules and air guides

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------|-----------|------------------|------------|-----------------|---|---|----------|---------------|-----------|------------------|----------|-----------------|----------|---------------|-----------|----------|-------|-----|--------------|------------|-----------|-------------|------------|----------|------------|-----------------|--|--|----------|-----------------|--|--|--|--|------|--|--|--|--|--|-------|---|--|--|--|--|-------|---|--|--|--|--|-------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3AXD50000460373 3AXD50000460373 3AXD50000460373 3AXD50000460373 3AXD50000460373</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 6: Air guide for module kit installation</p> <p>See assembly drawing 3AUA0000114397 for details and required additional Rittal and standard parts</p> <p>Note! Finalize wiring during this stage if Du/Dt filters are not used!</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>KIT A-468-1-422, Ordering code: (3AUA0000114398) for R11 KIT A-468-2-423, Ordering code: (3AUA0000114330) for R21 KIT A-468-3-424, Ordering code: (3AUA0000114404) for R31 KIT A-468-4-425, Ordering code: (3AUA0000114405) for R41</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Based on</td> <td>M. Michelsson</td> <td>22-May-19</td> <td>ASSEMBLY DRAWING</td> <td>Doc. No.</td> <td>3AXD50000460373</td> </tr> <tr> <td>Customer</td> <td>M. Michelsson</td> <td>22-May-19</td> <td>RYDINGEN</td> <td>Scale</td> <td>1:1</td> </tr> <tr> <td>Project name</td> <td>M. ASHTECH</td> <td>22-May-19</td> <td>RITTAL XPE2</td> <td>Rev. title</td> <td>A.0 (DR)</td> </tr> <tr> <td>DWG Number</td> <td>3AXD10000905726</td> <td></td> <td></td> <td>Rev. No.</td> <td>3AXD50000460373</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>Form</td> <td></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>Sheet</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>Sheet</td> <td>1</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>Total</td> <td>8</td> </tr> </table> | | | | | | | | Based on | M. Michelsson | 22-May-19 | ASSEMBLY DRAWING | Doc. No. | 3AXD50000460373 | Customer | M. Michelsson | 22-May-19 | RYDINGEN | Scale | 1:1 | Project name | M. ASHTECH | 22-May-19 | RITTAL XPE2 | Rev. title | A.0 (DR) | DWG Number | 3AXD10000905726 | | | Rev. No. | 3AXD50000460373 | | | | | Form | | | | | | Sheet | 1 | | | | | Sheet | 1 | | | | | Total | 8 |
| Based on | M. Michelsson | 22-May-19 | ASSEMBLY DRAWING | Doc. No. | 3AXD50000460373 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer | M. Michelsson | 22-May-19 | RYDINGEN | Scale | 1:1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project name | M. ASHTECH | 22-May-19 | RITTAL XPE2 | Rev. title | A.0 (DR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DWG Number | 3AXD10000905726 | | | Rev. No. | 3AXD50000460373 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Form | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Sheet | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Sheet | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | Total | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Stage 7: Installation of du/dt filter



REAR VIEW

STAGE 7: Du/Dt filter assembly (if applicable)

See assembly drawing 3AXD50000471713 for details and required additional Rittal and standard parts

First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

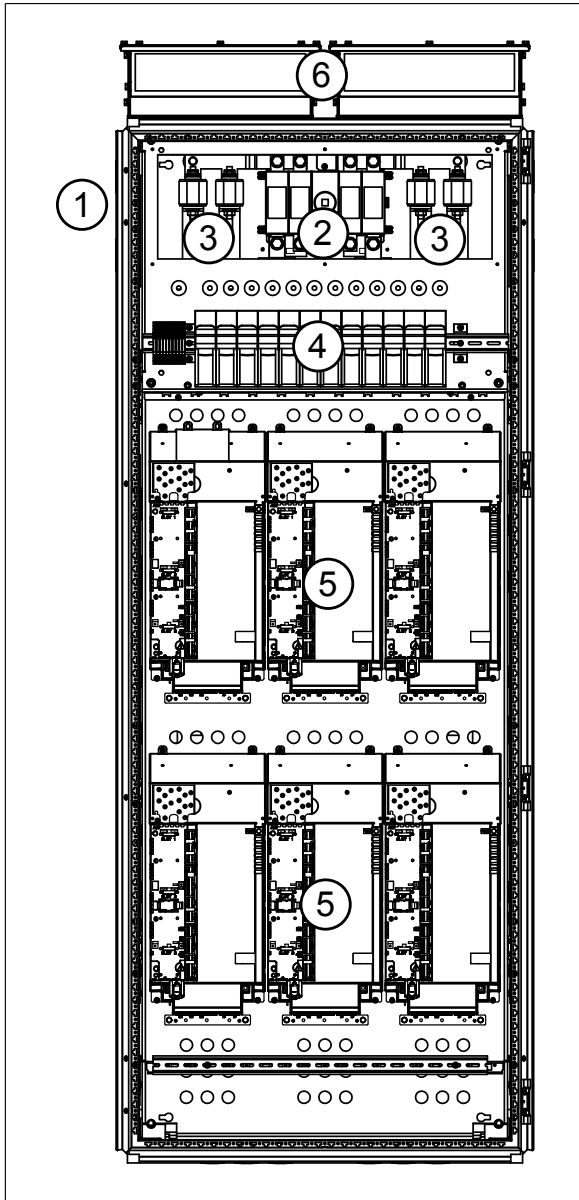
| | | | | |
|--|------|-------------------------------------|-----------|---------------|
| 3AXD50000460373 | A.01 | AC8880-104-R11-R41-W600-VX25 (SSDM) | 22-May-19 | M. Michelsson |
| <p>We reserve all rights in this document and in the information contained therein, reproduction, distribution, modification, copying, or any other use is strictly prohibited.</p> <p>© ABB. All rights reserved. ABB, RITTAL AND SCALD INFORMATION CONTAINED HEREIN.</p> | | | | |
| Initial Approval | | 22-May-19 M. Michelsson | | |

| | | | | | | | |
|---------------|----------|-----------------|-------------------------|------------------|----------|------|-------|
| Based on | Prepared | 22-May-19 | Title | ASSEMBLY DRAWING | Scale | Form | |
| Customer | Check | 22-May-19 | AC8880-104-R11-R41-W600 | ASSEMBLY DRAWING | 1:10 | A3 | |
| Cur. Doc. No. | Appr. | 22-May-19 | RITTAL VX25 | Resp. Dept. | A.0 (DR) | | |
| DWG Number | Weight | 3AXD50000460373 | | | | | Sheet |
| | kg | | | | | | Total |
| | | | | | | | 8 |



■ R1i...R4i modules in a 800 mm wide Rittal VX25 enclosure

A maximum of twelve frame R1i or R2i modules, or six frame R3i or R4i modules can be fitted into a 800 mm wide VX25 enclosure, but the number can be reduced by optional equipment.



Description

Cubicle including:

1. DC input
2. DC switch/disconnector for all inverter modules
3. Main DC fuses
4. DC fuse disconnectors for each inverter module
5. Inverter modules
6. Air outlet with exhaust fan



Installation stages

| # | Installation stage | Instruction code | Kit code | Kit ordering code |
|---|----------------------------------|------------------|-----------------|--|
| 1 | Common parts: | | | |
| | Baying parts | 3AXD50000336340 | - | - |
| | PE busbars | 3AXD50000336104 | - | - |
| | Divider panel | 3AXD50000336692 | - | - |
| | DC bus support kit | 3AXD50000333639 | A-468-X-001-VX | 3AXD50000333387 |
| 2 | Bottom plate | - | - | - |
| 3 | Mounting plate | 3AXD50000474158 | - | - |
| 4 | DC busbars | 3AXD50000474516 | A-8-1234-273-VX | 3AXD50000475933 |
| 5 | Mounting plate shrouds | 3AXD50000474882 | A-8-1234-404-VX | 3AXD50000475926 |
| 6 | Inverter modules and air guides: | | | |
| | R1i | 3AUA0000114397 | A-468-1-422 | 3AUA0000114398 |
| | R2i | 3AUA0000114397 | A-468-2-423 | 3AUA0000114330 |
| | R3i | 3AUA0000114397 | A-468-3-424 | 3AUA0000114404 |
| | R4i | 3AUA0000114397 | A-468-4-425 | 3AUA0000114405 |
| 7 | du/dt filters | 3AXD50000475810 | - | See <i>AC-side components</i> (page 212) |

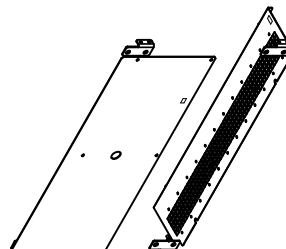


Overview of kits

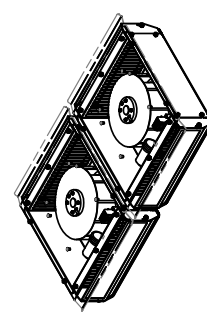
| | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p>3AXD50000475926 1.01 WE EXCEPT ALL LIABILITY IN THIS DOCUMENT ON THE INFORMATION CONTAINED HEREIN. ANY INFORMATION, USE OR DISCLOSURE TO THIRD PARTIES WITHOUT EXPRESS AUTHORITY IS STRICTLY FORBIDDEN.</p> <p>ACCESS: 1045111-041-W800-VX25-4-5SERV 23-May-19 M. Michelsson</p> | | | | | | | |
| <p>A. Initial Approval</p> | | | | | | | |

KITS FOR R11-R41 MODULES IN RITTAL VX25 2000x600x800 CABINET


Note! Only parts included in ABB kits are shown here!
See kit assembly drawings for required Rittal and/or other standard parts.



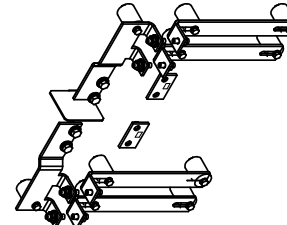
MOUNTING PLATE SHROUDS FOR W800
KIT A-8-1234-404-VX
Ordering code 3AXD50000475926



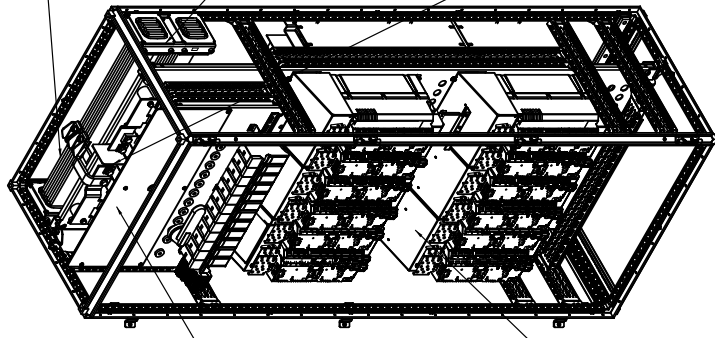
AIR OUTLET FORCED W800



BRACKET FOR FLAT-PLS BUSBAR HOLDER (COMMON DC)
KIT A-468-X-001-VX
Ordering code: 3AXD50000333387



BUSBARS FOR DC DISTRIBUTION W800
KIT A-8-1234-272-VX KIT A-8-1234-275
Ordering code: 3AXD50000475933 (UL...3AXD50000003919)

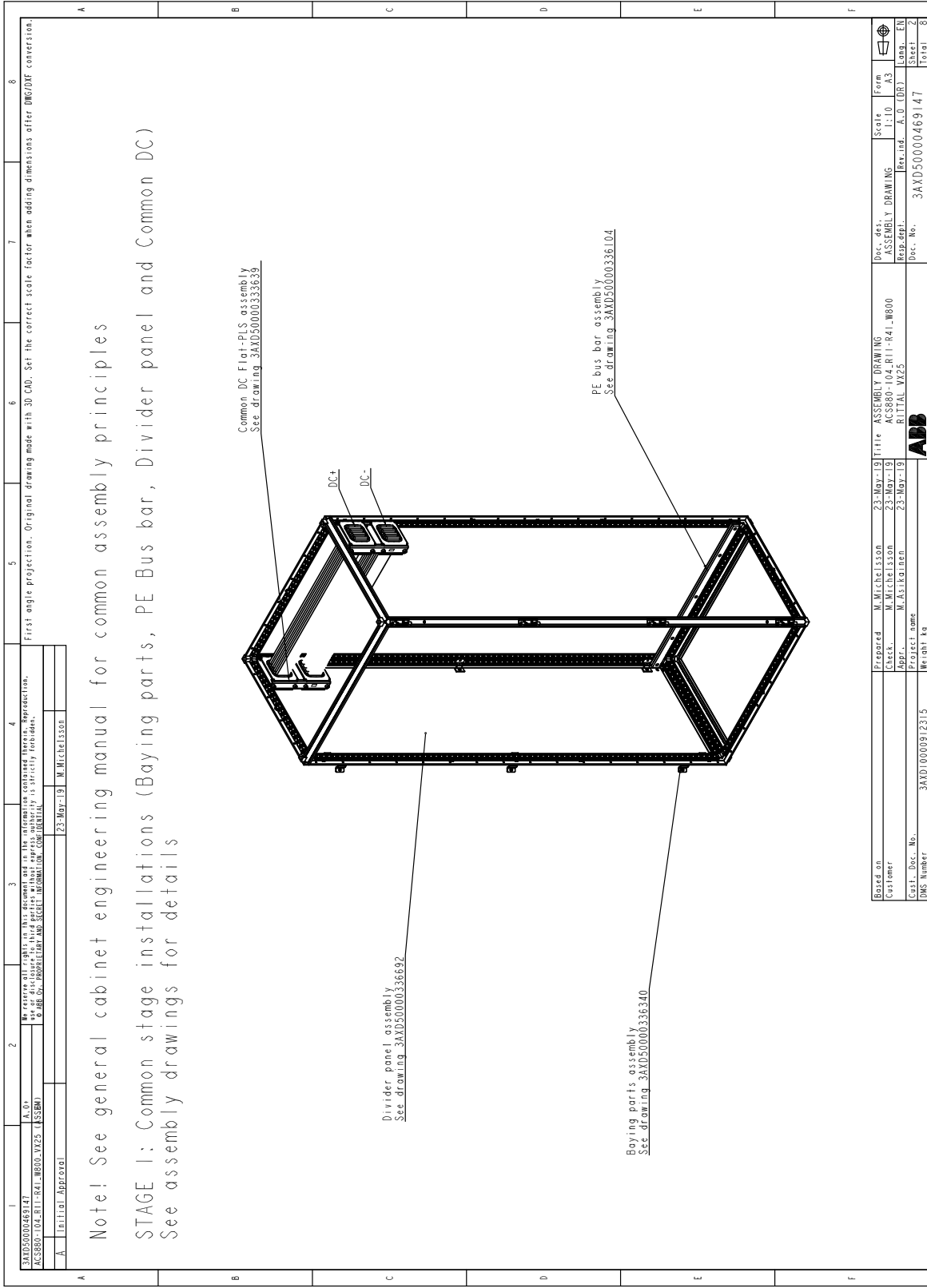


AIR GUIDE FOR MODULE KITS

- KIT A-468-1-422 (3AUA0000114398) for R11
- KIT A-468-2-423 (3AUA0000114330) for R21
- KIT A-468-3-424 (3AUA0000114404) for R31
- KIT A-468-4-425 (3AUA0000114405) for R41

| | | | | | | | | |
|----------|---------------|-----------|--------------|------------------|----------|-----------------|-------|------|
| Based on | M. Michelsson | 23-May-19 | Title | ASSEMBLY DRAWING | Doc. No. | 3AXD50000469147 | Scale | Form |
| Customer | M. Michelsson | 23-May-19 | Project No. | 3AXD50000469147 | Revision | A.0 (DR) | Leaf | 8 |
| Created | M. Michelsson | 23-May-19 | Project Name | ABB | Drawn by | A.0 (DR) | Sheet | 1 |
| Checked | M. Michelsson | 23-May-19 | Weight | kg | Released | A.0 (DR) | Total | 8 |

Stage 1: Installation of common parts



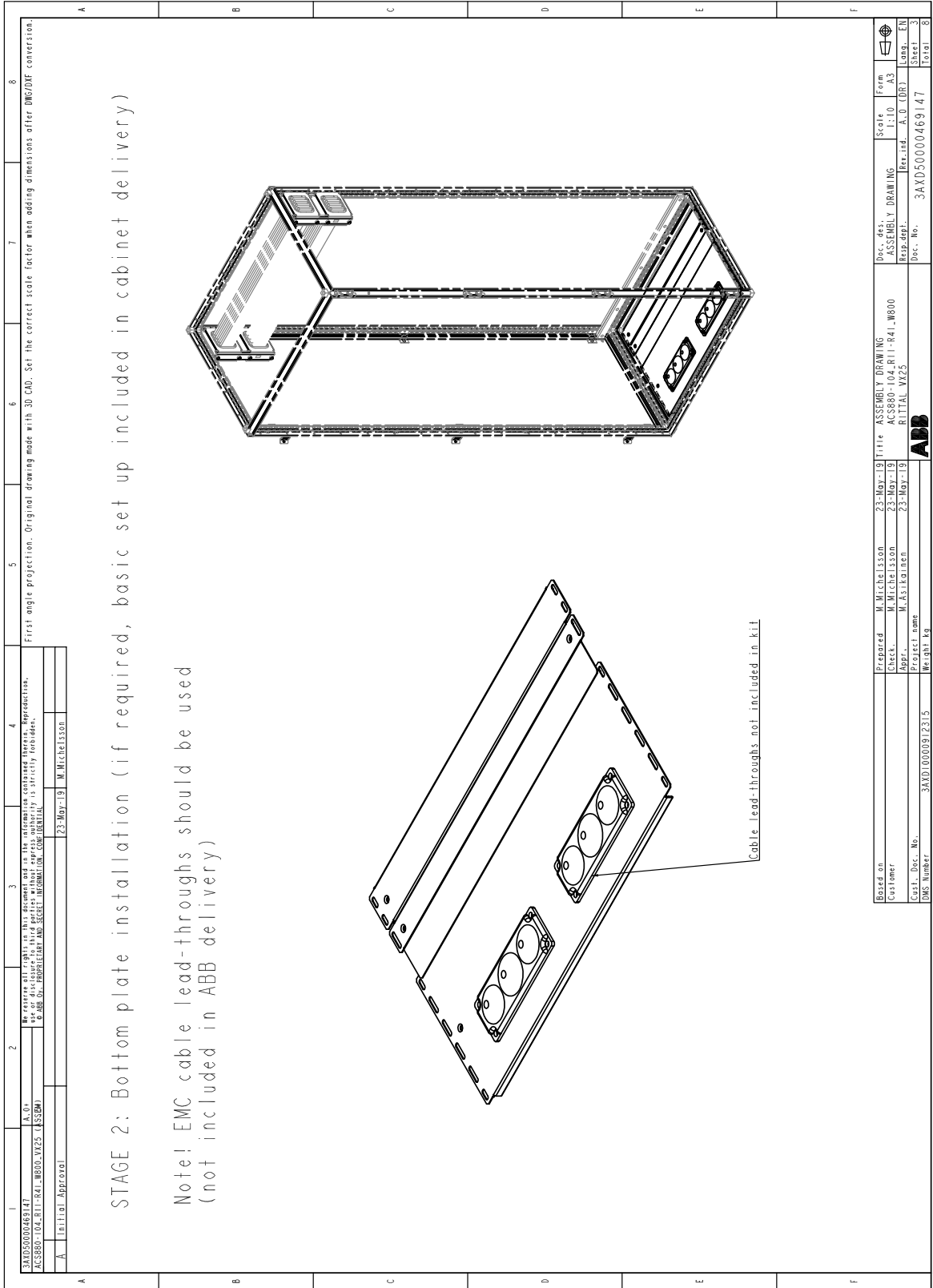
Note! See general cabinet engineering manual for common assembly principles
 STAGE 1: Common stage installations (Baying parts, PE Bus bar, Divider panel and Common DC)
 See assembly drawings for details

| | | | | | | | |
|------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|-----------------------------------|
| 3AXD50000469147 | AC8880-104-R11-R41-W800-VX25 (A0) | AC8880-104-R11-R41-W800-VX25 (A0) | AC8880-104-R11-R41-W800-VX25 (A0) | AC8880-104-R11-R41-W800-VX25 (A0) | AC8880-104-R11-R41-W800-VX25 (A0) | AC8880-104-R11-R41-W800-VX25 (A0) | AC8880-104-R11-R41-W800-VX25 (A0) |
| Initial Approval | | 23-May-19 | | M. Michelsson | | | |

First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

| | | | | | | | | | |
|---------------|--------------|---------------|-----------|-------------------------|------------------|----------|-----------------|-------|----|
| Based on | Prepared | M. Michelsson | 23-May-19 | Title | ASSEMBLY DRAWING | Scale | 1:10 | Form | A3 |
| Customer | Check | M. Michelsson | 23-May-19 | AC8880-104-R11-R41-W800 | ASSEMBLY DRAWING | Rev.ind. | A.0 (DR) | Long. | FN |
| Cur. Doc. No. | Appr. | M. Asikainen | 23-May-19 | RITIAL VX25 | ASSEMBLY DRAWING | Rev.ind. | A.0 (DR) | Sheet | 2 |
| DWG Number | Project name | ABB | | Doc. No. | 3AXD50000469147 | Doc. No. | 3AXD50000469147 | Total | 8 |
| | Weight | kg | | | | | | | |

Stage 2: Installation of bottom plate

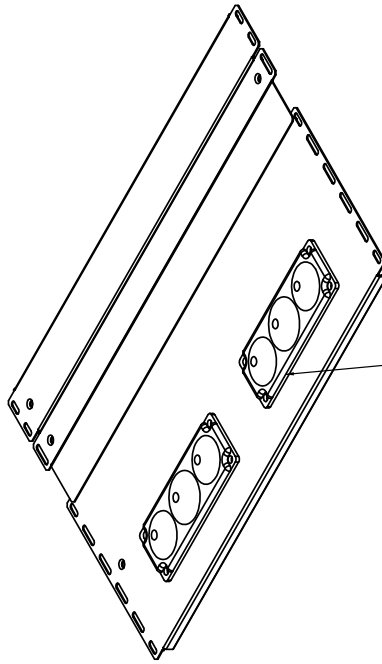


First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

| | | | | | | | |
|---------------------|---|---|---|---------------|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD050000469147 | | | | M. Michelsson | | | |
| A. Initial Approval | | | | M. Michelsson | | | |

STAGE 2: Bottom plate installation (if required, basic set up included in cabinet delivery)

Note! EMC cable lead-throughs should be used (not included in ABB delivery)

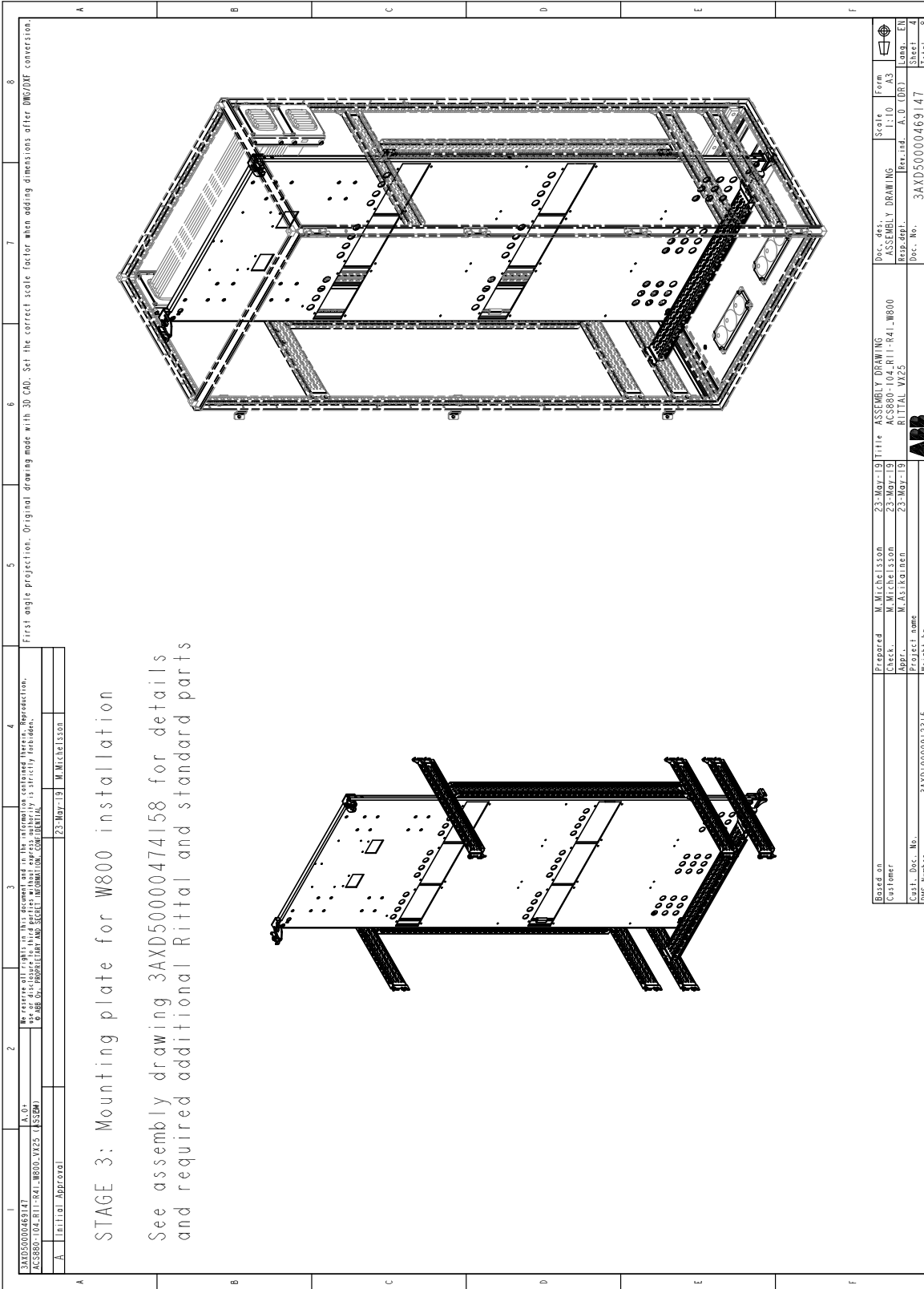


Cable lead-throughs not included in kit

| | | | | | |
|------------|-----------------|-----------|-----------------------|----------|---------|
| Drawn on | M. Michelsson | 23-May-19 | ASSEMBLY DRAWING | Scale | Form |
| Customer | M. Michelsson | 23-May-19 | ABB LOVÅR 11-141-W800 | X:1.0 | A3 |
| Drawn by | M. Michelsson | 23-May-19 | RITTAL YX25 | Rev: 1.0 | EDR 1/3 |
| Draw. No. | 3AXD10000912315 | | | Rev: 1.0 | EDR 1/3 |
| DWG Number | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |
| | | | | Rev: 1.0 | EDR 1/3 |



Stage 3: Installation of mounting plate



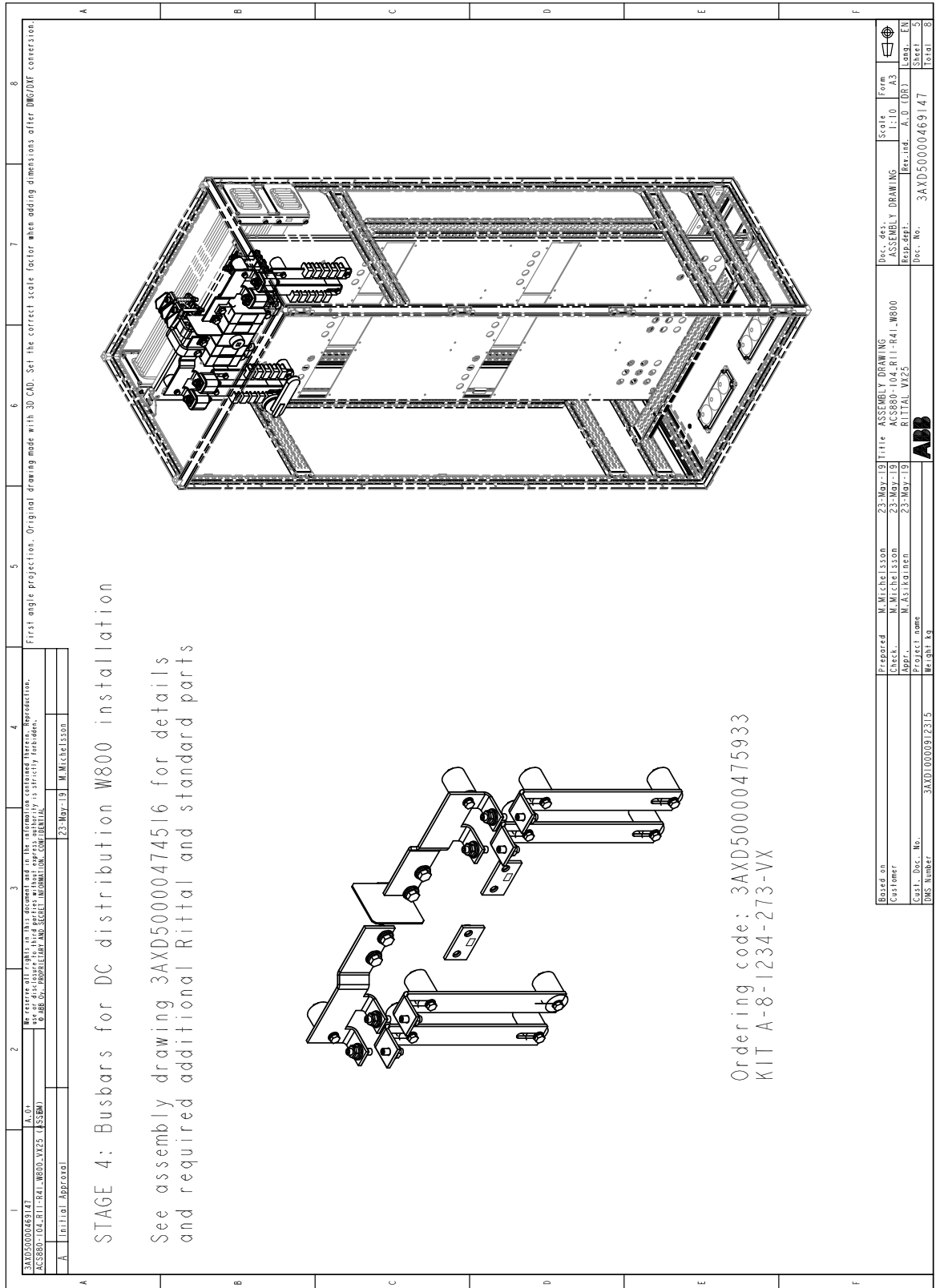
STAGE 3: Mounting plate for W800 installation

See assembly drawing 3AXD5000474158 for details and required additional Rittal and standard parts

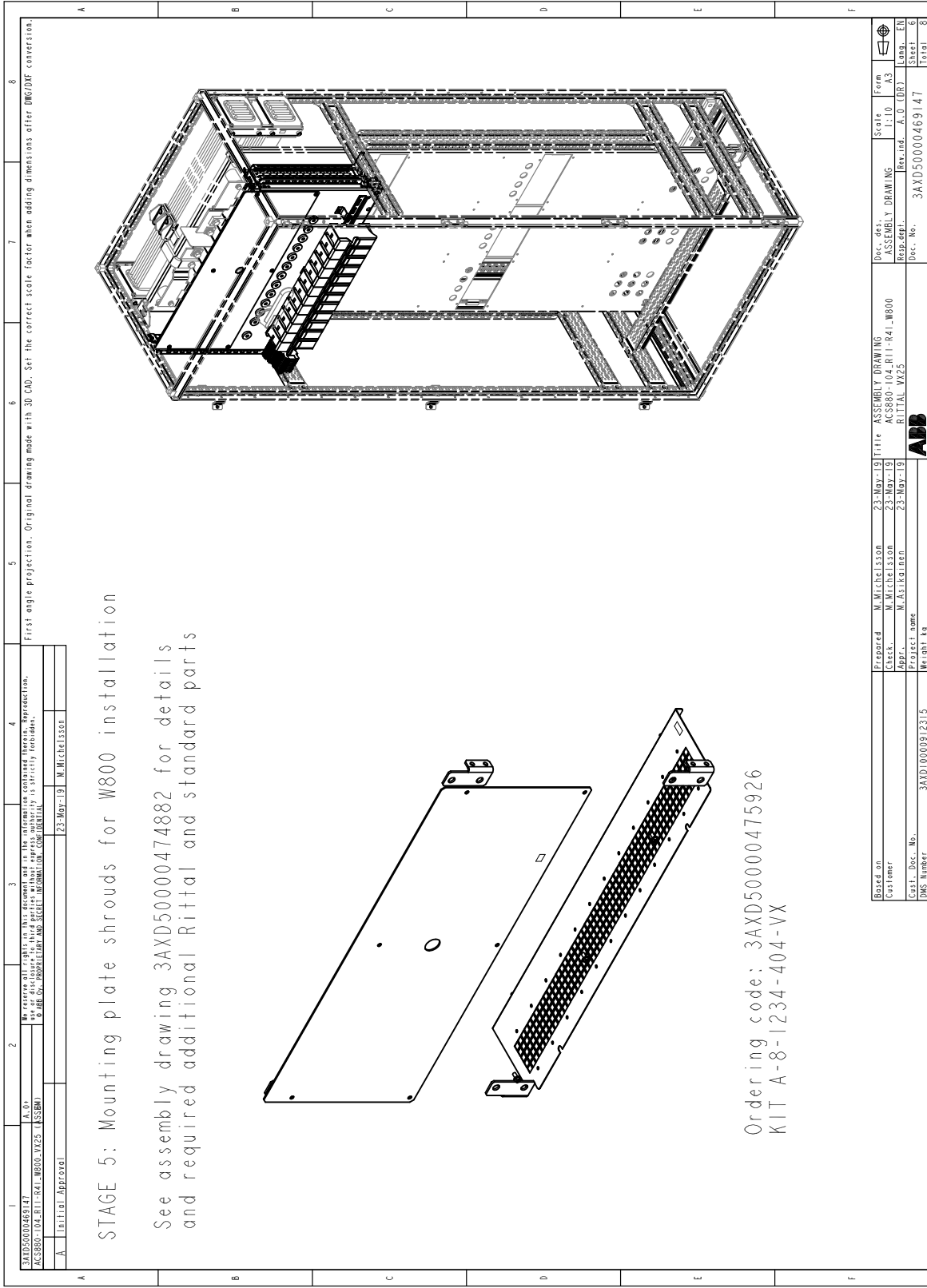
First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

| | |
|---|---------------------------|
| 3AXD5000469147 | A.0* |
| AC8890-104_R11-R41_W800_VXZ5 (SSRM) | |
| * We reserve all rights in this document and in the information contained therein, reproduction, distribution, modification, or any other use is strictly prohibited. | |
| © ABB Oy - HUOLITIE 4, FIN-00010 ABB, FINLAND | |
| Initial Approval | 23-May-19 M. Michelsson |

Stage 4: Installation of DC busbars



Stage 5: Installation of mounting plate shrouds



First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

| | | | | |
|------------------|------|-------------------------------------|-----------|---------------|
| 3AXD50000469147 | A.01 | AC8880-104-R11-R41-W800-VX25 (SSRM) | 23-May-19 | M. Michelsson |
| Initial Approval | | | | |

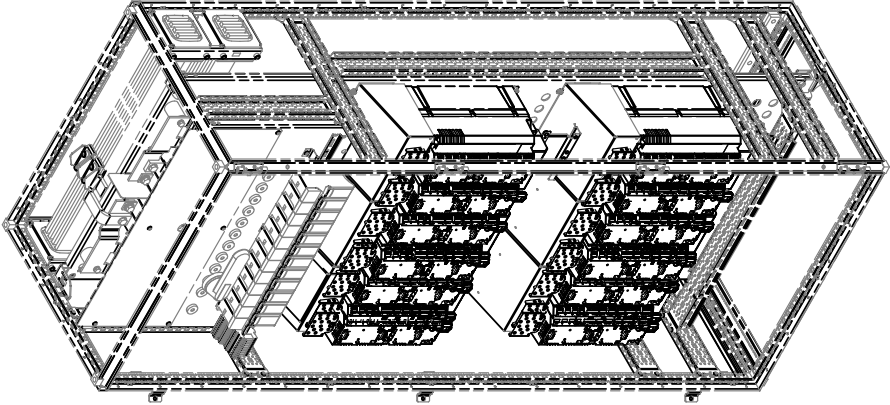
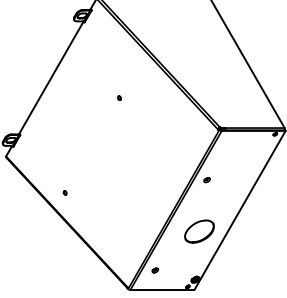
STAGE 5: Mounting plate shrouds for W800 installation
 See assembly drawing 3AXD50000474882 for details
 and required additional Rittal and standard parts

Ordering code: 3AXD50000475926
 KIT A-8-1234-404-VX

| | | | | | | | | | |
|---------------|----------|---------------|-----------------|-------------------------|------------------|-----------------|----------|------|----|
| Based on | Prepared | M. Michelsson | 23-May-19 | Title | ASSEMBLY DRAWING | Scale | 1:10 | Form | A3 |
| Customer | Check | M. Michelsson | 23-May-19 | AC8880-104-R11-R41-W800 | ASSEMBLY DRAWING | Rev.ind. | A.0 (DR) | Log. | FN |
| Cur. Doc. No. | Appr. | M. Asikainen | 23-May-19 | RITTAL VX25 | Doc. No. | 3AXD50000469147 | Sheet | 6 | 8 |
| DWG. Number | Weight | kg | 3AXD10000912315 | | | | Total | 8 | |

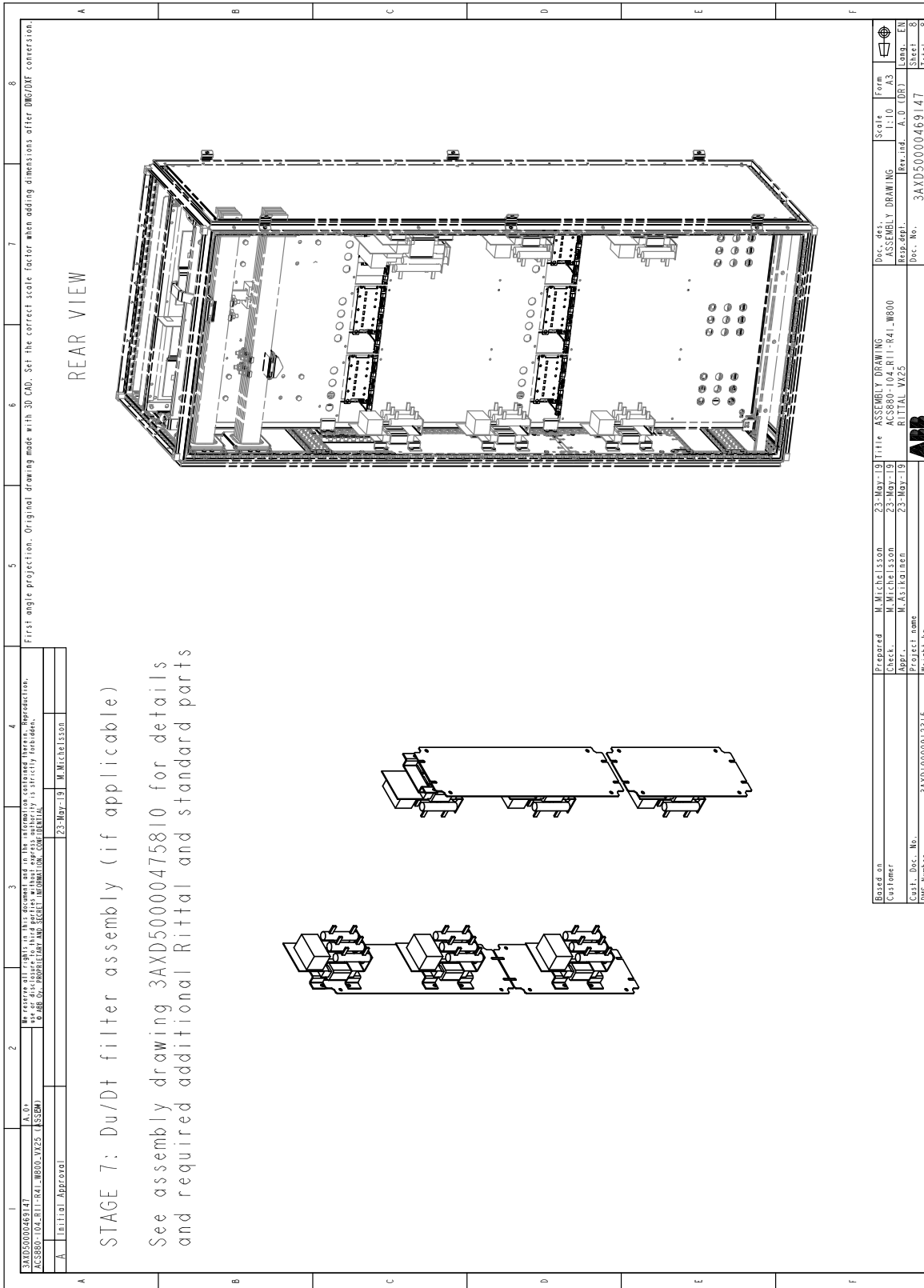


Stage 6: Installation of inverter modules and air guides

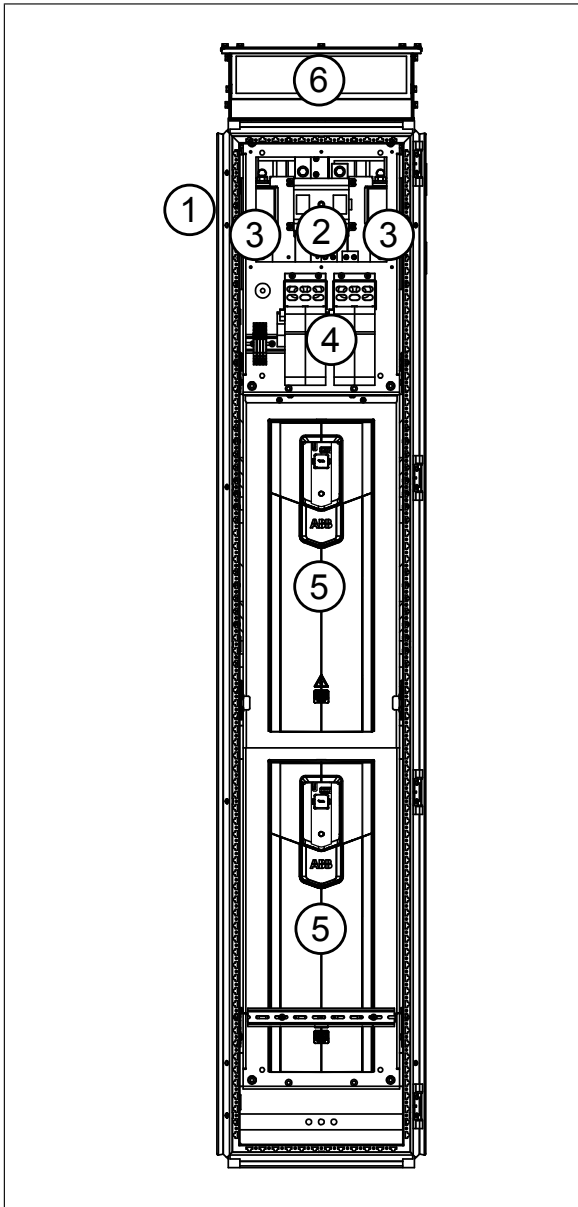
| | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------|-----------|------------------|---|---|---|---|----------|---------------|-----------|------------------|----------|---------------|-----------|-----------------|-----------------|--------------|-----------|-----------------|------------|-----------------|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | |
| <p>3AXD50000469147 3AXD50000469147 3AXD50000469147</p> | | | | | | | | | | | | | | | | | | | | | | | |
| <p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 6: Air guide for module kit installation</p> <p>See assembly drawing 3AUA0000114397 for details and required additional Rittal and standard parts</p> <p>Note! Finalize wiring during this stage if Du/Dt filters are not used!</p> | | | | | | | | | | | | | | | | | | | | | | | |
| <p>KIT A-468-1-422, Ordering code: (3AUA0000114398) for R11 KIT A-468-2-423, Ordering code: (3AUA0000114330) for R21 KIT A-468-3-424, Ordering code: (3AUA0000114404) for R31 KIT A-468-4-425, Ordering code: (3AUA0000114405) for R41</p> | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Based on</td> <td style="width: 25%;">M. Michelsson</td> <td style="width: 25%;">23-May-19</td> <td style="width: 25%;">ASSEMBLY DRAWING</td> </tr> <tr> <td>Customer</td> <td>M. Michelsson</td> <td>23-May-19</td> <td>3AXD50000469147</td> </tr> <tr> <td>Cart. Desc. No.</td> <td>M. AS1817ECN</td> <td>23-May-19</td> <td>3AXD50000469147</td> </tr> <tr> <td>DWG Number</td> <td>3AXD10000912315</td> <td></td> <td></td> </tr> </table> | | | | | | | | Based on | M. Michelsson | 23-May-19 | ASSEMBLY DRAWING | Customer | M. Michelsson | 23-May-19 | 3AXD50000469147 | Cart. Desc. No. | M. AS1817ECN | 23-May-19 | 3AXD50000469147 | DWG Number | 3AXD10000912315 | | |
| Based on | M. Michelsson | 23-May-19 | ASSEMBLY DRAWING | | | | | | | | | | | | | | | | | | | | |
| Customer | M. Michelsson | 23-May-19 | 3AXD50000469147 | | | | | | | | | | | | | | | | | | | | |
| Cart. Desc. No. | M. AS1817ECN | 23-May-19 | 3AXD50000469147 | | | | | | | | | | | | | | | | | | | | |
| DWG Number | 3AXD10000912315 | | | | | | | | | | | | | | | | | | | | | | |



Stage 7: Installation of du/dt filters



■ R5i modules in a 400 mm wide Rittal VX25 enclosure



Description

Cubicle including:

1. DC input
2. DC switch/disconnector for all inverter modules
3. Main DC fuses
4. DC fuse disconnectors for each inverter module
5. Inverter modules
6. Air outlet with exhaust fan



Installation stages

| # | Installation stage | Instruction code | Kit code | Kit ordering code |
|---|------------------------|------------------|-----------------|--|
| 1 | Common parts: | | | |
| | Baying parts | 3AXD50000336340 | - | - |
| | PE busbars | 3AXD50000336104 | - | - |
| | Divider panel | 3AXD50000336692 | - | - |
| | DC bus support kit | 3AXD50000333639 | A-468-X-001-VX | 3AXD50000333387 |
| 2 | Bottom plate | - | - | - |
| 3 | Mounting plate | 3AXD50000455188 | - | - |
| 4 | DC busbars | 3AXD50000458110 | A-4-5-276-VX | 3AXD50000456802 |
| 5 | Mounting plate shrouds | 3AXD50000450060 | A-4-1234-403-VX | 3AXD50000456772 |
| | Fuse base shroud | 3AXD50000458424 | A-X-5-356-VX | 3AXD50000456796 |
| 6 | Inverter modules | - | - | - |
| 7 | du/dt filters | 3AXD50000462094 | - | See <i>AC-side components</i> (page 212) |



Overview of kits

1
2
3
4
5
6
7
8

A
B
C
D
E
F

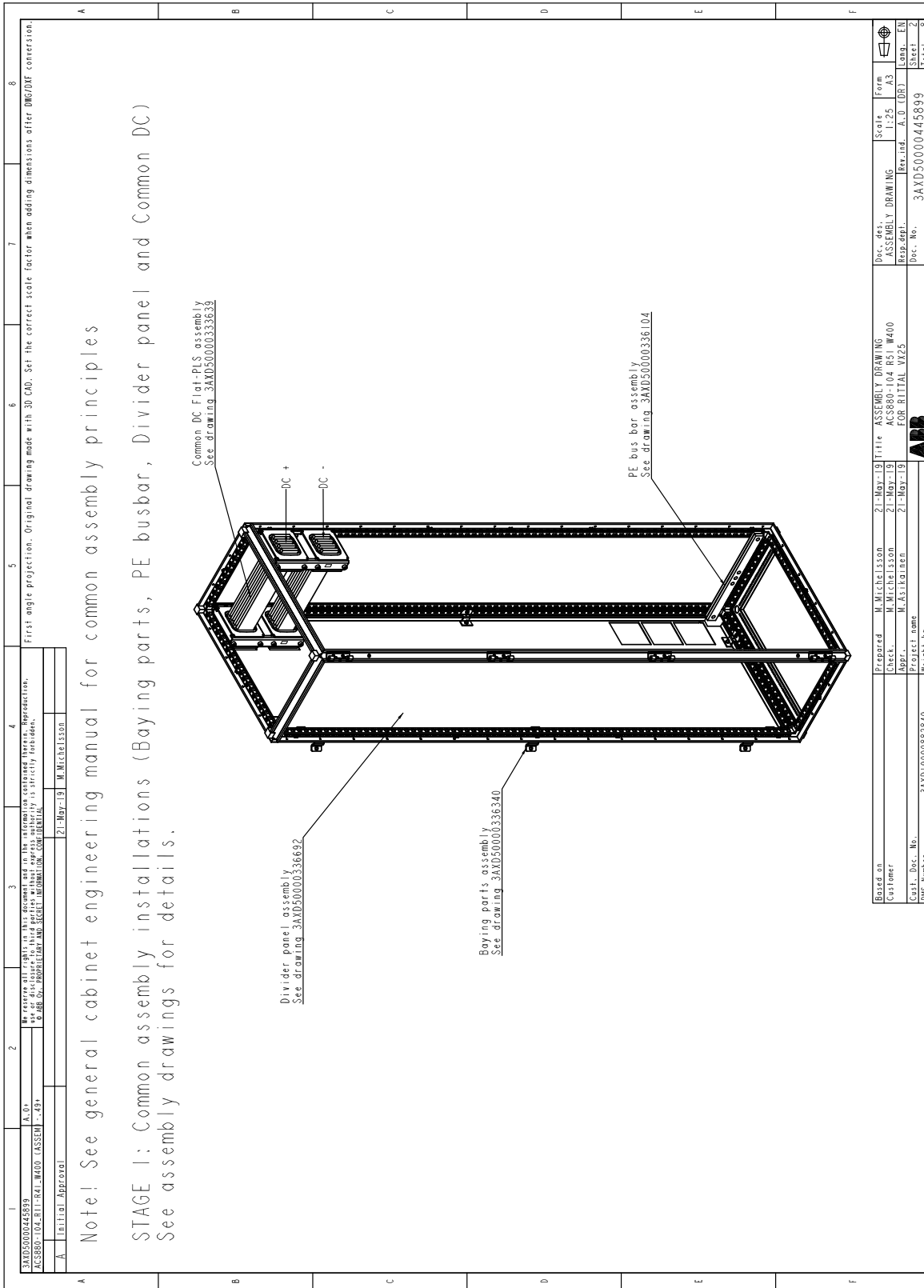
| | | | | | |
|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| 3AXD500045680 ACCESSORY KIT W400 - ASSEMBLY - 434 | 4 M. MICHELSSON 21-May-19 | 5 M. MICHELSSON 21-May-19 | 6 M. MICHELSSON 21-May-19 | 7 M. MICHELSSON 21-May-19 | 8 M. MICHELSSON 21-May-19 |
| M. MICHELSSON: ORIGINAL DRAWING MADE WITH 3D CAD. SET THE CORRECT SCALE FACTOR WHEN ADDING DIMENSIONS AFTER DWG/DXF CONVERSION. K. RITTAL: THIS DRAWING IS ONLY TO BE USED FOR INFORMATION ON THE ORIGINAL DRAWING. IT IS NOT TO BE USED FOR PRODUCTION. ORIGINAL DRAWING IS STRICTLY FOR INFORMATION PURPOSES. ANY REVISIONS, CHANGES OR MODIFICATIONS MUST BE APPROVED BY THE ORIGINAL DRAWING AUTHOR. ANY REVISIONS, CHANGES OR MODIFICATIONS MUST BE APPROVED BY THE ORIGINAL DRAWING AUTHOR. ANY REVISIONS, CHANGES OR MODIFICATIONS MUST BE APPROVED BY THE ORIGINAL DRAWING AUTHOR. | | | | | |
| A. Initial Approval | | | | | |
| KITS FOR R5i MODULES IN RITTAL VX25 2000x600x400 CABINET | | | | | |
| Note! Only parts included in ABB kits are shown here! See kit assembly drawings for required Rittal and/or other standard parts. | | | | | |
| MOUNTING PLATE SHROUDS FOR W400 KIT A-1234-403-VX Ordering code: 3AXD50000456772 | | | | | |
| AIR OUTLET FORCED W400 | | | | | |
| BRACKET FOR FLAT-PLUS BUSBAR HOLDER (COMMON DC) KIT A-468-X-001-VX Ordering code: 3AXD5000033387 | | | | | |
| R5i DC BUSBARS W400 KIT A-4-5-2716-VX Ordering code: 3AXD50000456802 | | | | | |
| R5i FUSEBASE SHROUD 1 Kit/module KIT A-X-3-356-VX Ordering code: 3AXD50000456796 | | | | | |

| | | | | | | | |
|-----------------|--------------|---------------|-----------|--------------|------------------|----------|-----------------|
| Based on | Prepared | M. Michelsson | 21-May-19 | Title | ASSEMBLY DRAWING | Doc. No. | 3AXD50000456802 |
| Customer | Checked | M. Michelsson | 21-May-19 | Part No. | 3AXD50000456802 | Scale | 1:1 |
| Part. Desc. No. | Project name | M. Michelsson | 21-May-19 | Project name | ASSEMBLY DRAWING | Sheet | 1 of 1 |
| DWG Number | Weight | M. Michelsson | 21-May-19 | DWG Number | 3AXD50000456802 | Drawn | EN |
| | | M. Michelsson | 21-May-19 | | | Checked | EN |
| | | | | | | Reviewed | EN |
| | | | | | | Total | 8 |

ABB



Stage 1: Installation of common parts



First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

Note! See general cabinet engineering manual for common assembly principles

STAGE 1: Common assembly installations (Baying parts, PE busbar, Divider panel and Common DC)
See assembly drawings for details.

Common DC Flat-PLS assembly
See drawing 3AXD50000336339

Divider panel assembly
See drawing 3AXD50000336692

Baying parts assembly
See drawing 3AXD50000336340

PE bus bar assembly
See drawing 3AXD50000336104

| | | | | | | |
|------------------|----------------|---------------------|--------------------------|-----------------|----|-------|
| 3AXD50000445899 | A.01 | AC8860-104 R51 W400 | ASSEMBLY DRAWING | 1:25 | A3 | 8 |
| Initial Approval | 21-May-19 | M. Michelsson | ASSEMBLY DRAWING | 1:25 | A3 | 8 |
| Prepared | 21-May-19 | M. Michelsson | ASSEMBLY DRAWING | 1:25 | A3 | 8 |
| Checked | 21-May-19 | M. Michelsson | ASSEMBLY DRAWING | 1:25 | A3 | 8 |
| Approved | 21-May-19 | M. Asikainen | ASSEMBLY DRAWING | 1:25 | A3 | 8 |
| Project name | 3AXD1000082840 | | Doc. No. | 3AXD50000445899 | | Total |
| DWG Number | 3AXD1000082840 | | Doc. No. | 3AXD50000445899 | | 8 |
| Weight | kg | | Doc. No. | 3AXD50000445899 | | 8 |
| ABB | | | Doc. No. 3AXD50000445899 | | | |

Stage 2: Installation of bottom plate

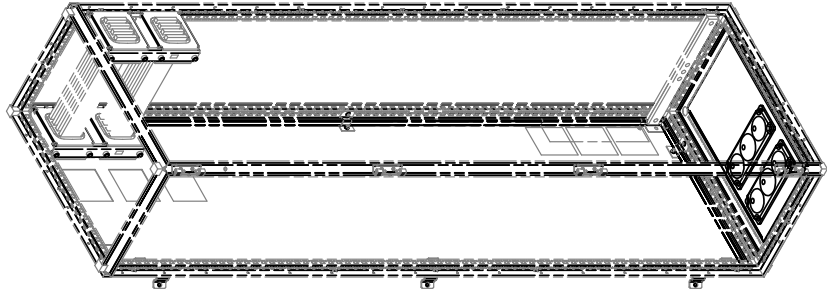
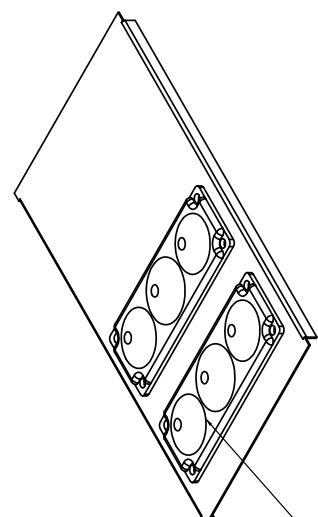
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| A | B | C | D | E | F | G | H |

3AXD500043899
ASSEMBLY DRAWING
FOR INITIAL 10225

3AXD10000852840

STAGE 2: Bottom Plate installation (if applicable)

Note! EMC cable lead-throughs should be used (not included in ABB delivery)

Cable lead-throughs not included in kit

First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

| | | | |
|------------------|---------------|-------------------|--------|
| Based on: | Prepared: | Title: | Scale: |
| Customer: | M. Michelsson | ASSEMBLY DRAWING | Form: |
| Cart. Desc. No.: | M. Michelsson | FOR INITIAL 10225 | Scale: |
| DWG Number: | M. Asplund | 3AXD5000043899 | Form: |
| | Project name: | | Scale: |
| | Weight: kg | | Form: |

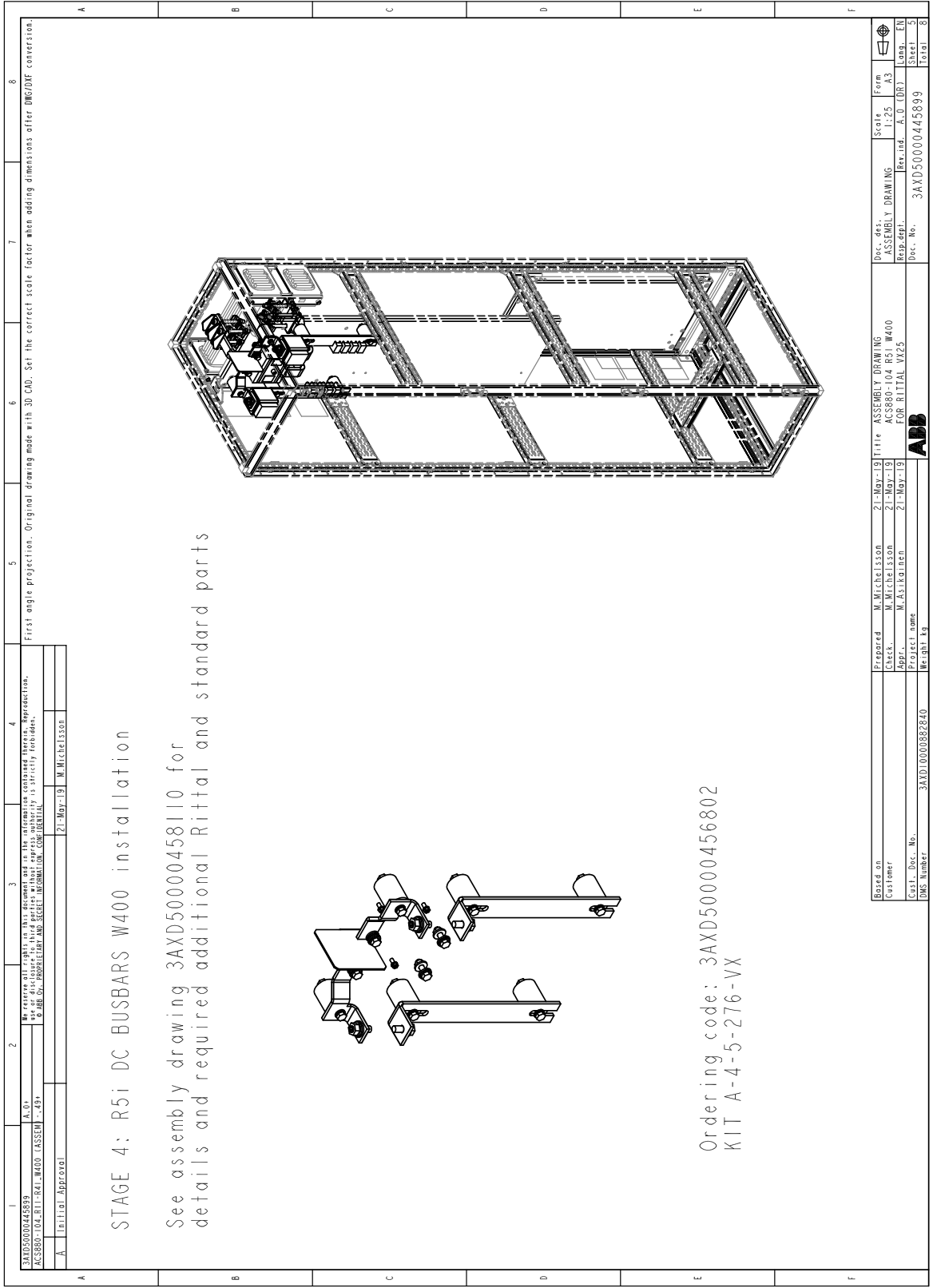


Stage 3: Installation of inverter module mounting plate



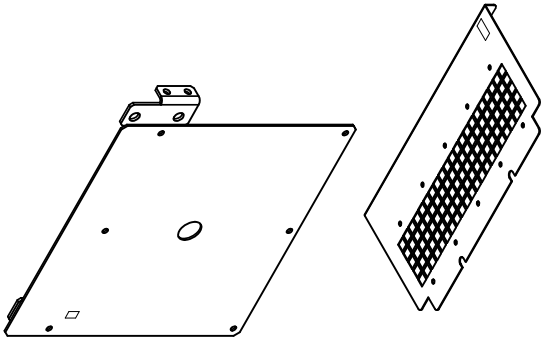
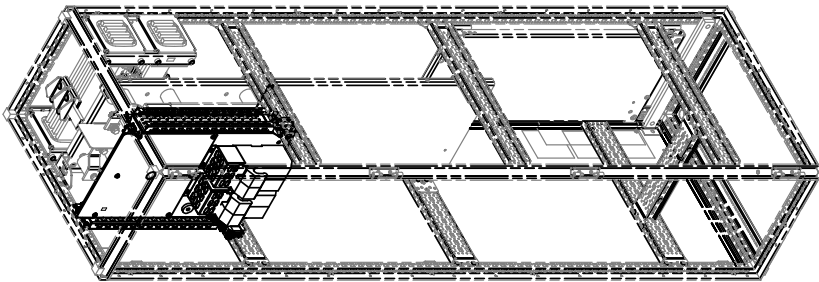
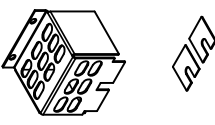
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| A | B | C | D | E | F | G | H |
| | | | | | | | |
| <p>STAGE 3: Mounting plates and supports for W400 installation</p> <p>See assembly drawing 3AXD50000455188 for details and required additional Rittal and standard parts</p> | | | | | | | |
| <p>3AXD50000455899 AC8880-104-R11-W400 (ASSEMB -491)</p> <p>Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | |
| <p>Based on: M. Michelsson 21-May-19 Title: ASSEMBLY DRAWING AC8880-104-R11-W400 FOR RITTAL VX25</p> <p>Customer: M. Michelsson 21-May-19</p> <p>Checked: M. Michelsson 21-May-19</p> <p>Approved: M. Asikainen 21-May-19</p> <p>Project name: 3AXD50000455899</p> <p>DWG Number: 3AXD50000455899</p> <p>Weight: kg</p> | | | | | | | |
| <p>Doc. des. ASSEMBLY DRAWING Scale 1:25 A3</p> <p>Resp. appl. M. Asikainen Rev. ind. A.0 (DR) Long. EN</p> <p>Doc. No. 3AXD50000455899 Sheet 4</p> <p>ABB Total 8</p> | | | | | | | |

Stage 4: Installation of DC busbars

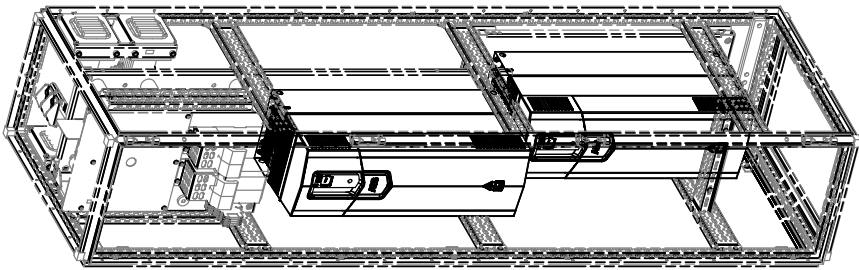


Stage 5: Installation of front mounting plate



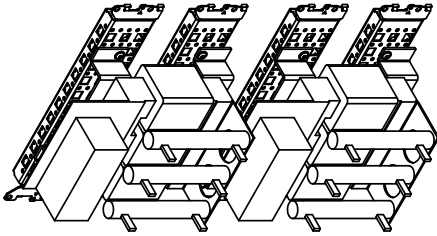
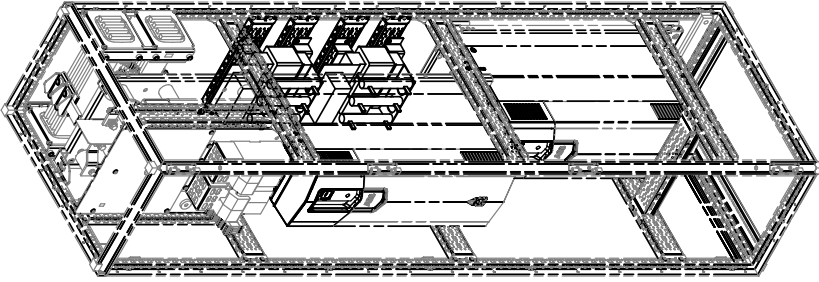
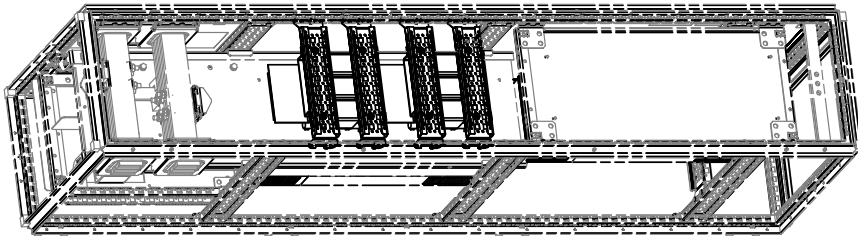
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|----------------|-----------|---------------------|------------------|----------------|-------|---|----------|---------------|-----------|-------|------------------|-------|------|----------|---------------|-----------|---------------------|-----------------|------|----|---------|---------------|-----------|--|--|--|--|----------|--------------|-----------|--|--|--|--|--------------|--|--|--|----------|----------------|-------|------------|----------------|--|--|-----------|----------|-------|--|--|--|--|------------|--|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3AXD5000045899</p> <p>AC8880-104-R11-W400 (ASSEMBLY) - 491</p> <p>Initial Approval</p> <p>21-May-19 M. Michelsson</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 5: MOUNTING PLATE SHROUDS FOR W400 and R5i FUSEBASE SHROUD installation</p> <p>See assembly drawing 3AXD50000450060 and 3AXD50000458424 for details and required additional Rittal and standard</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Ordering code: 3AXD50000456772 KIT A-4-1234-403-VX</p> <p>Ordering code: 3AXD50000456796 KIT A-X-5-356-VX 1 kit/module</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Based on</td> <td>M. Michelsson</td> <td>21-May-19</td> <td>Title</td> <td>ASSEMBLY DRAWING</td> <td>Scale</td> <td>Form</td> </tr> <tr> <td>Customer</td> <td>M. Michelsson</td> <td>21-May-19</td> <td>AC8880-104-R5i W400</td> <td>FOR RITTAL VX25</td> <td>1:25</td> <td>A3</td> </tr> <tr> <td>Checked</td> <td>M. Michelsson</td> <td>21-May-19</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Approved</td> <td>M. Asikainen</td> <td>21-May-19</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Project name</td> <td colspan="3"></td> <td>Doc. No.</td> <td>3AXD5000045899</td> <td>Sheet</td> </tr> <tr> <td>DWG Number</td> <td colspan="3">3AXD1000082840</td> <td>Rev. ind.</td> <td>A.0 (DR)</td> <td>Total</td> </tr> <tr> <td colspan="4"></td> <td colspan="2" style="text-align: center;">ABB</td> <td>8</td> </tr> </table> | | | | | | | | Based on | M. Michelsson | 21-May-19 | Title | ASSEMBLY DRAWING | Scale | Form | Customer | M. Michelsson | 21-May-19 | AC8880-104-R5i W400 | FOR RITTAL VX25 | 1:25 | A3 | Checked | M. Michelsson | 21-May-19 | | | | | Approved | M. Asikainen | 21-May-19 | | | | | Project name | | | | Doc. No. | 3AXD5000045899 | Sheet | DWG Number | 3AXD1000082840 | | | Rev. ind. | A.0 (DR) | Total | | | | | ABB | | 8 |
| Based on | M. Michelsson | 21-May-19 | Title | ASSEMBLY DRAWING | Scale | Form | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer | M. Michelsson | 21-May-19 | AC8880-104-R5i W400 | FOR RITTAL VX25 | 1:25 | A3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Checked | M. Michelsson | 21-May-19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Approved | M. Asikainen | 21-May-19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project name | | | | Doc. No. | 3AXD5000045899 | Sheet | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DWG Number | 3AXD1000082840 | | | Rev. ind. | A.0 (DR) | Total | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | ABB | | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Stage 6: Installation of inverter modules

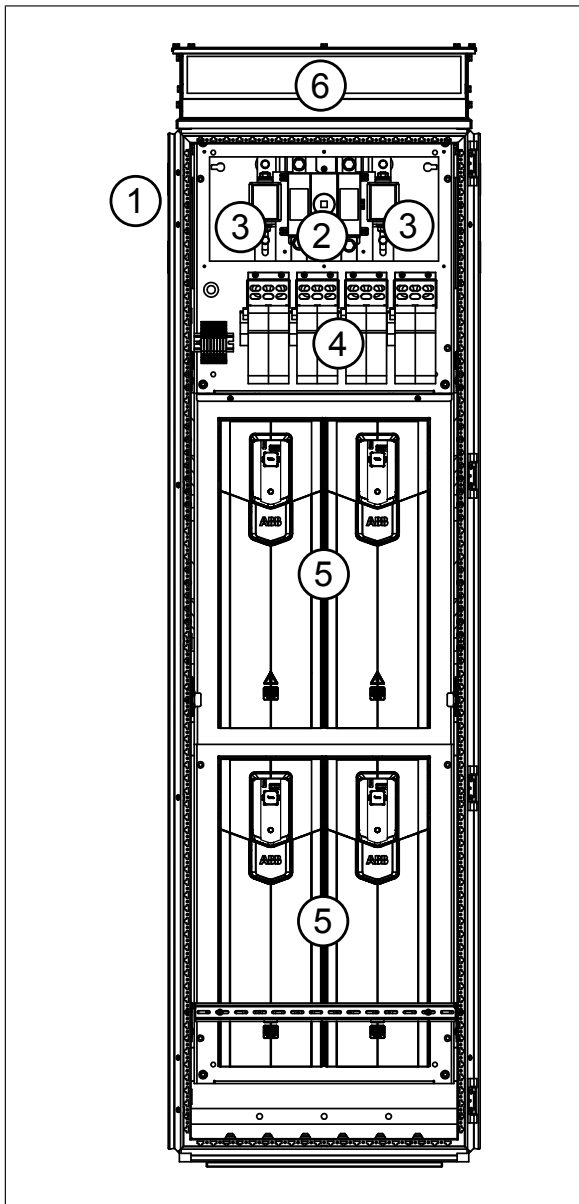
| | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | |
| <p>3AXD500045899 ACS880-104-011-041-000-ASSEMBLY M. MICHEL 21-May-19 M. Michelsson</p> | | | | | | | |
| <p>STAGE 6: Module installation See ACS880-104 Hardware manual for details</p> | | | | | | | |
|  | | | | | | | |
| <p>Based on: M. Michelsson 21-May-19 Title: ASSEMBLY DRAWING Customer: M. MICHELSSON 21-May-19 ACS880-104 Part. Desc. No.: M. AS1811221 21-May-19 FOR INITIAL 1025 DMS Number: 3AXD10000882840 Weight: kg</p> | | | | | | | |
| <p>Doc. No.: 3AXD50000445899 Base. No.: 3AXD50000445899 Scale: 1:1 Form: A3 Sheet: 1 of 1 Total: 1</p> | | | | | | | |



Stage 7: Installation of du/dt filters

| | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD50000445899 A.01 AC8880-104-R11-W400 CASSEM No reserve all rights in this document and in the information contained therein, reproduction, distribution, or public or private communication is strictly prohibited. © ABB Oy, FINLANDIA, ABB SOCIETY CORPORATION, CANADA 21-May-19 M. MICHELSSON | | | | | | | |
| Initial Approval | | | | | | | |
| <p>STAGE 3: Du/Dt filter installation (if applicable)</p> <p>See assembly drawing 3AXD50000462094 for details and required additional Rittal and standard parts</p> | | | | | | | |
|  | | <p>FRONT VIEW</p>  | | <p>REAR VIEW</p>  | | | |
| First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion. | | | | | | | |
| Based on: M. Michelsson 21-May-19 Title: ASSEMBLY DRAWING Form: 1:25 A3 Checked: M. Michelsson 21-May-19 AC8880-104-R11-W400 ASSEMBLY DRAWING Approved: M. Asikainen 21-May-19 FOR RITTAL VX25 Rev.ind.: A.0 (DR) Log.: FN Cur. Doc. No.: 3AXD1000082240 Weight: kg Project name: ABB Doc. No.: 3AXD50000445899 DMS Number: | | | | | | | |
| Total: 8 | | | | | | | |

■ R5i modules in a 600 mm wide Rittal VX25 enclosure



Description

Cubicle including:

1. DC input
2. DC switch/disconnector for all inverter modules
3. Main DC fuses
4. DC fuse disconnectors for each inverter module
5. Inverter modules
6. Air outlet with exhaust fan



Installation stages

| # | Installation stage | Instruction code | Kit code | Kit ordering code |
|---|------------------------|------------------|-----------------|--|
| 1 | Common parts: | | | |
| | Baying parts | 3AXD50000336340 | - | - |
| | PE busbars | 3AXD50000336104 | - | - |
| | Divider panel | 3AXD50000336692 | - | - |
| | DC bus support kit | 3AXD50000333639 | A-468-X-001-VX | 3AXD50000333387 |
| 2 | Bottom plate | - | - | - |
| 3 | Mounting plate | 3AXD50000455188 | - | - |
| 4 | DC busbars | 3AXD50000461332 | A-6-5-277-VX | 3AXD50000456826 |
| 5 | Mounting plate shrouds | 3AXD50000461691 | A-6-1234-402-VX | 3AXD50000456819 |
| | Fuse base shroud | 3AXD50000458424 | A-X-5-356-VX | 3AXD50000456796 |
| 6 | Inverter modules | - | - | - |
| 7 | du/dt filters | 3AXD50000462094 | - | See <i>AC-side components</i> (page 212) |



Overview of kits

12345678

ABCDEF

3AXD0000456796
ACCESSORY TO C-111-184L-W600 - ASSEMBLY

WE EXCEPT ALL LIABILITY IN THIS DOCUMENT FOR THE INFORMATION CONTAINED HEREIN. ANY REVISION, use or disclosure by third parties without express authority is strictly forbidden.

© ABB AB, ROYALTECH, AND SIEGEL INFORMATION CONTAINED

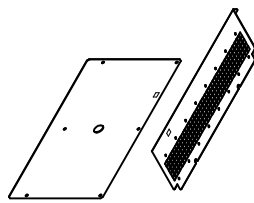
21-May-19 M. Michelsson

A.

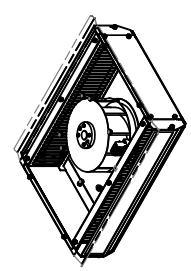
Initial Approval

KITS FOR R5i MODULES IN RITTAL VX25 2000x600x600 CABINET

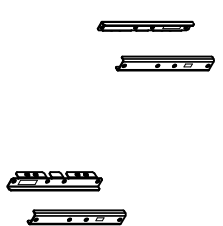
Note! Only parts included in ABB kits are shown here!
See kit assembly drawings for required Rittal and/or other standard parts.




MOUNTING PLATE SHROUDS FOR W600
KIT A-6-1234-402-VX
Ordering code: 3AXD0000456819



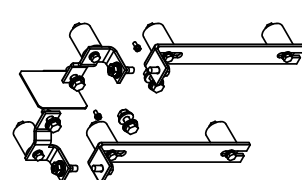
AIR OUTLET FORCED W600



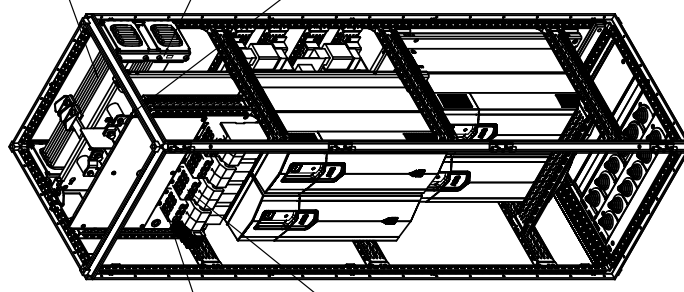
BRACKET FOR FLAT-PLS BUSBAR HOLDER (COMMON DC)
KIT A-468-X-001-VX
Ordering code: 3AXD50000333387



R5i FUSEBASE SHROUD
KIT A-6-5-356-VX
Ordering code: 3AXD50000456796



R5i DC BUSBARS W600
KIT A-6-5-277-VX
Ordering code: 3AXD50000456826



Based on: M. Michelsson
Customer: M. Michelsson
Cart. Desc. No.: M. AS18111111
DMS Number: 3AXD10000894501

Prepared: M. Michelsson
Checked: M. Michelsson
Project name: 3AXD10000894501

Title: ASSEMBLY DRAWING
FOR RITTAL VX25
FOR RITTAL VX25


Scale: A0 (DR)
Scale: A0 (DR)


Form: 1
Form: 1

Sheet: 1
Sheet: 1

Total: 8
Total: 8

Dec. No.: 3AXD50000452576



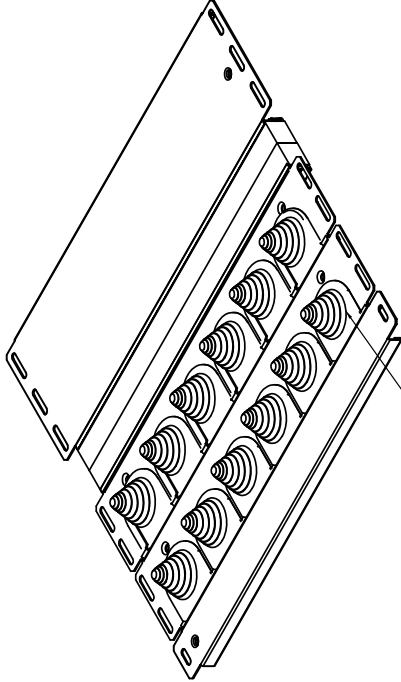
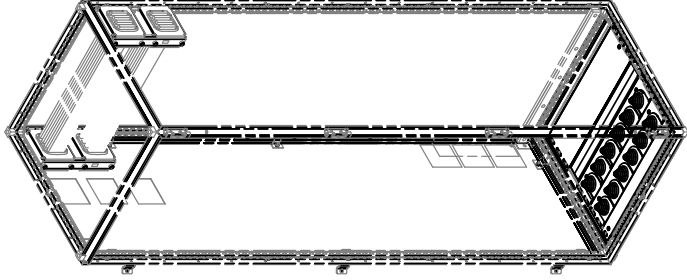


Stage 1: Installation of common parts



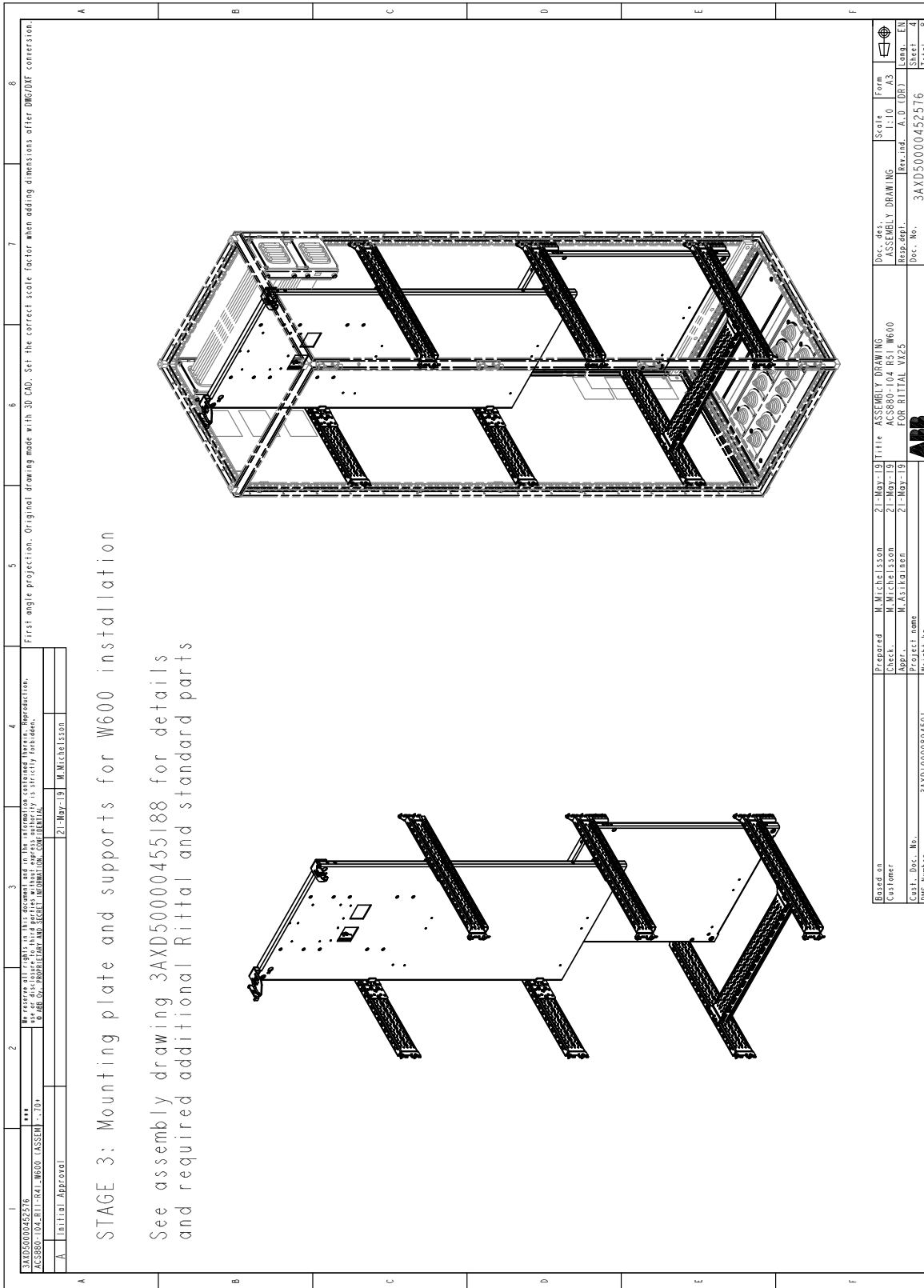
| | | | | | | | |
|---|---|---------------------------|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD50000452576 AC8880-104-R11-W600 (ASSEM -1-10*) No reserve all rights on this document and on the information contained therein, reproduction, translation, storage in retrieval systems, or any other form of copying is strictly prohibited. © ABB Oy - PROFILICITY AND SCALING INFORMATION: COM-10000101 | | | | | | | |
| Initial Approval | | 21-May-19 M. Michelsson | | | | | |
| <p>Note! See general cabinet engineering manual for common assembly principles</p> <p>STAGE 1: Common stage installations (Baying parts, PE Bus bar, Divider panel and Common DC)</p> <p>See assembly drawings for details</p> <div style="text-align: center;"> </div> <p>Common DC Flat-PLS assembly See drawing 3AXD5000033639</p> <p>DC+</p> <p>DC-</p> <p>PE bus bar assembly See drawing 3AXD50000336104</p> <p>Divider panel assembly See drawing 3AXD50000336692</p> <p>Baying parts assembly See drawing 3AXD50000336340</p> | | | | | | | |
| | | | | | | Form A3 Scale 1:10 Rev.ind. A.0 (DR) | |
| | | | | | | Doc. des. ASSEMBLY DRAWING Resp. appl. AC8880-104-R11-W600 FOR BITTAL VXS5 Doc. No. 3AXD50000452576 Sheet 2 Total 8 | |
| | | | | | | Prepared M. Michelsson 21-May-19 Title ASSEMBLY DRAWING Check M. Michelsson 21-May-19 AC8880-104-R11-W600 Appr. M. Asikainen 21-May-19 Project name FOR BITTAL VXS5 DMS Number 3AXD10000894501 Weight kg | |
| | | | | | | ABB | |

Stage 2: Installation of bottom plate

| | | | | | | | |
|---|--|---|---|--|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD500045256 ACCESSORY TO 3AXD500045256 ASSEMBLY DRAWING FOR INITIAL DELIVERY FIRST ANGLE PROJECTION. ORIGINAL DRAWING MADE WITH 3D CAD. SET THE CORRECT SCALE FACTOR WHEN ADDING DIMENSIONS AFTER DWG/DXF CONVERSION. | | | | | | | |
| A | Prepared: M. Michelsson Checked: M. Michelsson Project Name: 3AXD10000894501 Weight: kg | | | | | | 8 |
| STAGE 2: Bottom plate installation (if required, basic set up included in cabinet delivery) Note! EMC cable lead-throughs should be used (not included in ABB delivery) | | | | | | | |
|  | | | |  | | | |
| Cable lead-throughs not included in kit | | | | | | | |
| A | B | C | D | E | F | | |
| Based on: M. Michelsson, 21-May-19, Title: ASSEMBLY DRAWING FOR INITIAL DELIVERY Customer: M. Michelsson, 21-May-19, Project Name: 3AXD10000894501 Desc. No.: 3AXD10000894501, Weight: kg Desc. No.: 3AXD5000045256, Sheet: 3 of 3 | | | | | | | |



Stage 3: Installation of inverter module mounting plate



STAGE 3: Mounting plate and supports for W600 installation

See assembly drawing 3AXD5000045188 for details and required additional Rittal and standard parts

First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

| | | | | |
|--|---------------------|------------------|-----------|---------------|
| 3AXD50000452576 | AC8880-104-R11-W600 | ASSEMBLY DRAWING | 21-May-19 | M. Michelsson |
| We reserve all rights in this document and in the information contained therein, reproduction, distribution, modification, copying, or any other use is strictly prohibited. | | | | |
| © ABB Oy. PROHILICITY AND SOCIAL RESPONSIBILITY. CONFIDENTIAL | | | | |
| Initial Approval | | | | |

| | | | | | | | |
|-------------|-----------------|---------------|-----------|--------------------------|---------------------|-----------|----------|
| Based on: | Prepared: | M. Michelsson | 21-May-19 | Title | ASSEMBLY DRAWING | Scale | Form |
| Customer: | Checked: | M. Michelsson | 21-May-19 | Doc. des. | ASSEMBLY DRAWING | 1:10 | A3 |
| Appr.: | Appr.: | M. Asikainen | 21-May-19 | Resp. appl. | AC8880-104-R11-W600 | Rev. ind. | A.0 (DR) |
| Proj. name | Project name | | | FOR RITTAL VX25 | | | |
| DWG. Number | 3AXD10000894501 | | | Doc. No. 3AXD50000452576 | | | |
| Weight kg | | | | Total 8 | | | |



Stage 4: Installation of DC busbars

| | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p>3AXD5000045256 ASSEMBLY DRAWING FOR INITIAL 1X25</p> | | | | | | | |
| <p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | |
| A | B | C | D | E | F | G | H |
| | | | | | | | |
| <p>STAGE 4: R5i DC BUSBARS W600 installation</p> <p>See assembly drawing 3AXD50000461332 for details and required additional Rittal and standard parts</p> | | | | | | | |
| | | | | | | | |
| <p>Ordering code: 3AXD50000456826 KIT A-6-5-277-VX</p> | | | | | | | |
| <p>3AXD5000045256 ASSEMBLY DRAWING FOR INITIAL 1X25</p> | | <p>Prepared: M. Michelsson Checked: M. Michelsson Project name: 3AXD10000394501 Weight: kg</p> | | <p>21-May-19 M. Michelsson</p> | | <p>ASSEMBLY DRAWING FOR INITIAL 1X25 3AXD50000456800</p> | |
| <p>Initial Approval</p> | | <p>M. Michelsson</p> | | <p>ASSEMBLY DRAWING FOR INITIAL 1X25</p> | | <p>3AXD5000045256</p> | |
| <p>3AXD5000045256</p> | | <p>3AXD5000045256</p> | | <p>3AXD5000045256</p> | | <p>3AXD5000045256</p> | |
| <p>3AXD5000045256</p> | | <p>3AXD5000045256</p> | | <p>3AXD5000045256</p> | | <p>3AXD5000045256</p> | |



Stage 5: Installation of front mounting plate

12345678

ABCDEF

3AXD50000452576

AC8880-104-R11-W600 (ASSEMBLY)

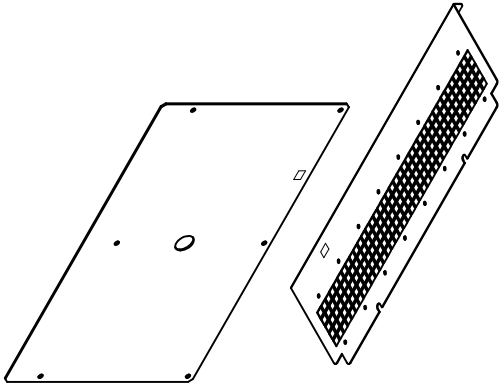
Initial Approval


21-May-19 | M. Michelsson

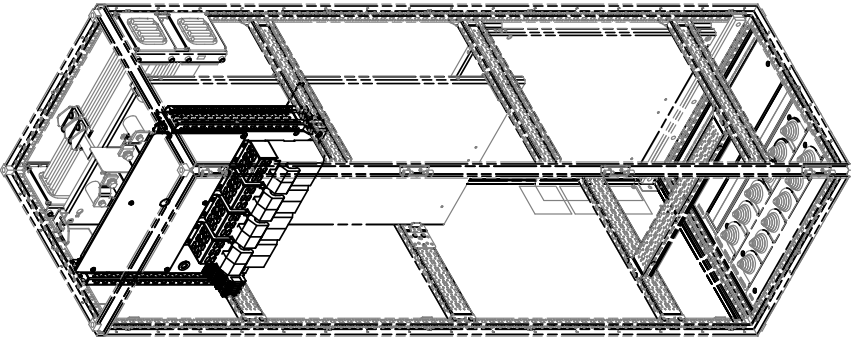
We reserve all rights in this document and the information contained therein, reproduction, distribution, modification or any other use is strictly prohibited. CONFIDENTIAL

© ABB. ALL RIGHTS RESERVED. INFORMATION IS SUBJECT TO CHANGE WITHOUT NOTICE.

8







STAGE 5: Mounting plate shrouds for W600 installation

See assembly drawing 3AXD50000461691 and 3AXD50000458424 for details and required additional Rittal and standard parts

Ordering code: 3AXD50000456819
KIT A-6-1234-402-VX

Ordering code: 3AXD50000456796
KIT A-X-5-356-VX
1 kit/module

| | | | | | | |
|--------------|-----------------|-----------|-------|---------------------|----------|-----------------|
| Based on | M. Michelsson | 21-May-19 | Title | ASSEMBLY DRAWING | Scale | Form |
| Customer | M. Michelsson | 21-May-19 | | AC8880-104-R11-W600 | 1:10 | A3 |
| Checked | M. Michelsson | 21-May-19 | | FOR RITTAL VX25 | Rev.ind. | A.0 (DR) |
| Approved | M. Asikainen | 21-May-19 | | | Doc. No. | 3AXD50000452576 |
| Project name | | | | | Log. | FN |
| DWG. Number | 3AXD10000894501 | | | | Sheet | 6 |
| | | | | | Total | 8 |

Doc. des. ASSEMBLY DRAWING

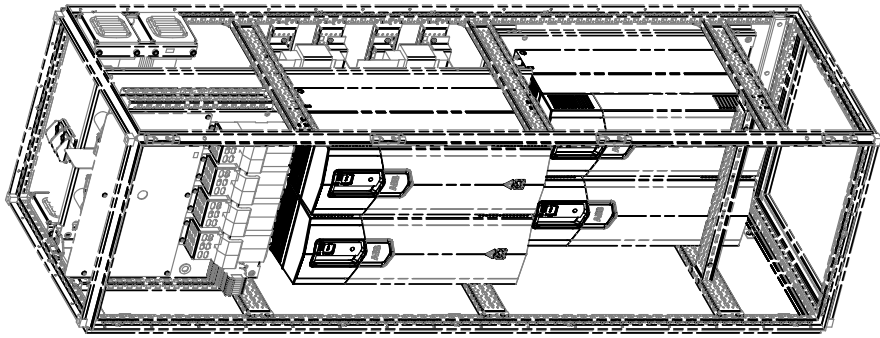
Resp. appl. A.0 (DR)

Doc. No. 3AXD50000452576

ABCDEF

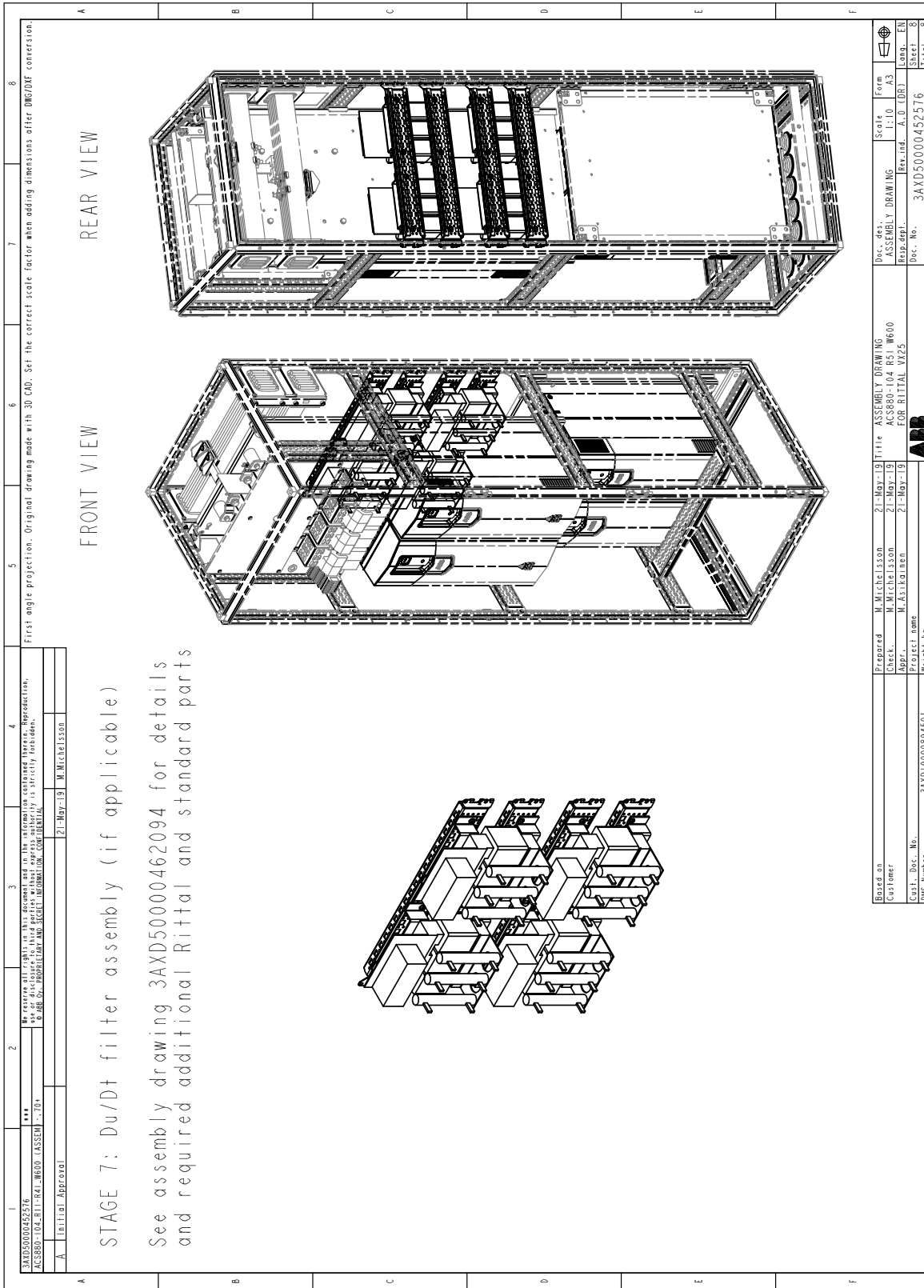


Stage 6: Installation of inverter modules

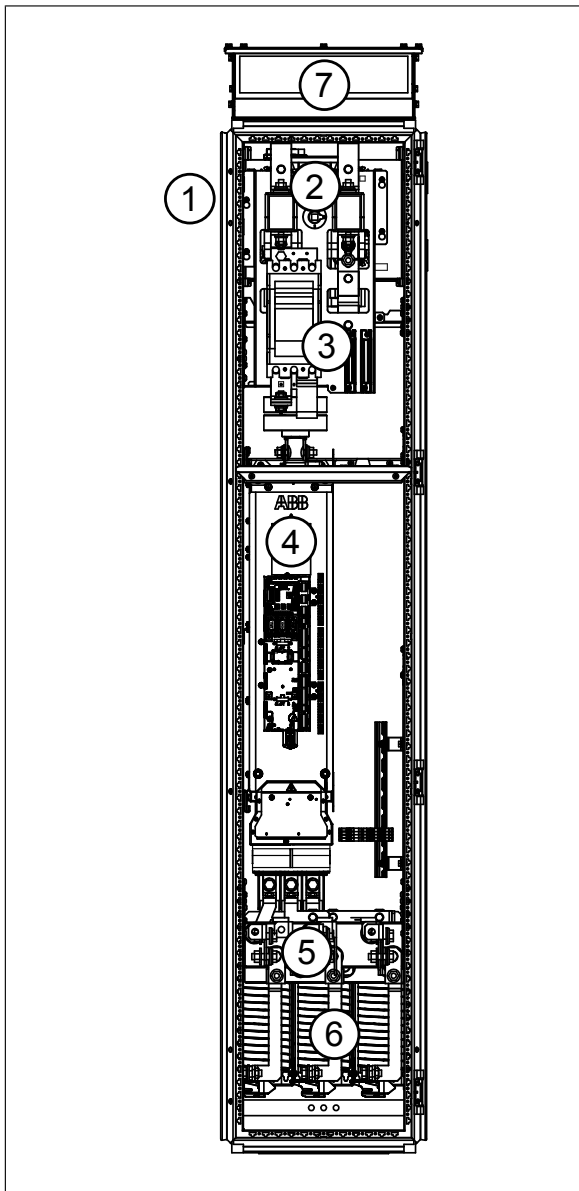
| | | | | | | | |
|---|--|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p>3AXD00045256</p> <p>ACS880-104-811-841-WE00 - ASSEMBLY DRAWING</p> <p>Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | |
| A |  | | | | | | F |
| <p>STAGE 6: Module installation</p> <p>See ACS880-104 Hardware manual for details</p> | | | | | | | |
| <p>1. I have read and understand the content of this document and agree with the information contained therein. My signature, use of initials or any other mark signifies my acknowledgment and approval of the information contained herein.</p> <p>2. I have read and understand the content of this document and agree with the information contained therein.</p> | | <p>3. I have read and understand the content of this document and agree with the information contained therein.</p> <p>4. I have read and understand the content of this document and agree with the information contained therein.</p> | | <p>5. I have read and understand the content of this document and agree with the information contained therein.</p> <p>6. I have read and understand the content of this document and agree with the information contained therein.</p> | | <p>7. I have read and understand the content of this document and agree with the information contained therein.</p> <p>8. I have read and understand the content of this document and agree with the information contained therein.</p> | |
| <p>Prepared: M. Michelsson Checked: M. Michelsson Project name: ACS880-104 Weight: kg</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | |
| <p>Based on: M. Michelsson Customer: M. Michelsson Cart. Dec. No.: 3AXD10000894501 DMS Number: 3AXD10000894501</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | |
| <p>Title: ASSEMBLY DRAWING Part No.: ACS880-104-WE00 FOR INITIAL 1025</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | |
| <p>Dec. No.: 3AXD1000045256</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | |
| <p>Scale: A3 Form: A3</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | |
| <p>Dec. No.: 3AXD1000045256</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | |
| <p>Sheet: 1 Total: 8</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | | <p>21-May-19 M. Michelsson</p> | |



Stage 7: Installation of du/dt filters



■ One R6i/R7i module in a 400 mm wide Rittal VX25 enclosure



Description

Cubicle including:

1. DC bus
2. DC switch/disconnector and DC fuses
3. Charging contactor and resistors (frame R7i only)
4. Inverter module
5. AC output
6. du/dt filters (optional)
7. Air outlet



Installation stages

| # | Installation stage | Instruction code | Kit code | Kit ordering code |
|-----|---|------------------|----------------|-------------------|
| 1 | Common parts: | | | |
| | Baying parts | 3AXD50000336340 | - | - |
| | PE busbars | 3AXD50000336104 | - | - |
| | Divider panel | 3AXD50000336692 | - | - |
| | DC busbars | 3AXD50000333639 | A-468-X-001-VX | 3AXD50000333387 |
| 2 | Bottom plate | - | - | - |
| 3 | Support beams | 3AXD50000452934 | - | - |
| 4 | DC busbars and charging components: | | | |
| | R6i without DC switch | 3AXD50000444489 | A-4-67-283-VX | 3AXD50000459094 |
| | R6i with DC switch (IEC) | 3AXD50000445202 | A-4-6-281-VX | 3AXD50000459100 |
| | R6i with DC switch (UL) | 3AXD50000445325 | A-4-6-285-VX | 3AXD50000459117 |
| | R7i without DC switch or charging | 3AXD50000444489 | A-4-67-283-VX | 3AXD50000459094 |
| | R7i without DC switch, with charging | 3AXD50000445097 | A-4-7-282-VX | 3AXD50000459063 |
| | R7i (400/500 V) with DC switch and charging | 3AXD50000445257 | A-4-7-280-VX | 3AXD50000459056 |
| | R7i (690 V) with DC switch and charging | 3AXD50000445356 | A-4-7-286-VX | 3AXD50000459070 |
| | R7i (690 V) without DC switch, with charging | 3AXD50000445332 | A-4-7-287-VX | 3AXD50000459087 |
| 5 | Common mode filters (filters not included in kit) | 3AXD50000444304 | A-4-67-241-VX | 3AXD50000458509 |
| 6 A | AC busbars without output (du/dt) filters | 3AXD50000452798 | A-4-67-181-VX | 3AXD50000459032 |
| 6 B | AC busbars with output (du/dt) filters | 3AXD50000452439 | A-4-67-186-VX | 3AXD50000459049 |
| 7 | Inverter module installation parts | 3AXD50000453337 | A-4-67-302-VX | 3AXD50000459018 |
| 8 | Shroud brackets | 3AXD50000453252 | A-4-67-350-VX | 3AXD50000458493 |



Overview of kits

1

2

3

4

5

6

7

8

KITS FOR INU R6i/R7i IN RITTAL VX25 2000x400x600 CABINET
 Note! Only parts included in ABB kits are shown here!
 See kit assembly drawings for required Rittal and/or standard parts.

COMMON MODE FILTER BUSBARS R6i/R7i
 KIT A-4-67-241-VX
 Ordering code: 3AXD50000458509

R6i/R7i SHROUD INSTALLATION PARTS
 KIT A-4-67-350-VX
 Ordering code: 3AXD50000458493

BRACKET FOR FLAT-PLS BUSBAR HOLDER (COMMON DC)
 KIT A-466-X-001-VX
 Ordering code: 3AXD50000333387

DC KIT FOR R7i: SWITCH AND CHARGING
 KIT A-4-7-280-VX
 Ordering code: 3AXD50000459056

DC KIT FOR R6i: FUSES ONLY
 KIT A-4-67-283-VX
 Ordering code: 3AXD50000459094

DC KIT FOR R6i: WITH SWITCH
 KIT A-4-6-281-VX
 Ordering code: 3AXD50000459100

DC KIT FOR R6i: WITH SWITCH UL
 KIT A-4-6-285-VX
 Ordering code: 3AXD50000459117

DC KIT FOR R7i: SWITCH AND CHARGING
 KIT A-4-7-286-VX
 Ordering code: 3AXD50000459063

DC KIT FOR 690V R7i: SWITCH AND CHARGING
 KIT A-4-7-287-VX
 Ordering code: 3AXD50000459087

R6i/R7i: DU/DI FILTER BUSBARS
 KIT A-4-67-186-VX
 Ordering code: 3AXD50000459049

OUTPUT (AC) BUSBAR KIT
 KIT A-4-67-181-VX
 Ordering code: 3AXD50000459032

| | | | | | | | | | | |
|--------------|-------------------|--------------|-------------------|-----------|-----------|------------------|-----------|-----------|-----------|-----------|
| Based on | M. Michelsson | Prepared | M. Michelsson | 20-May-19 | Title | ASSEMBLY DRAWING | Scale | 1:1 | Form | Form 3 |
| Customer | M. Michelsson | Created | M. Michelsson | 20-May-19 | Part. No. | 3AXD50000443932 | Rev. No. | 1.0 | Rev. Date | A.O. (DR) |
| Project name | M. A. S. Lightech | Project name | M. A. S. Lightech | 20-May-19 | Rev. No. | 3AXD50000443932 | Rev. Date | A.O. (DR) | Rev. Date | A.O. (DR) |
| IMS Number | 3AXD10000878870 | Weight | kg | | | | | | | |



Stage 1: Installation of common parts

12345678

3AXD50000443932
ACS880-R61-R71-104-VX (ASSEM) - -7*

Initial Approval

Prepared by: M. Michelsson
Checked by: M. Michelsson
Approved by: M. Asikainen

20-May-19 | M. Michelsson

We reserve all rights in this document and the information contained therein, reproduction, distribution, or disclosure of any part of this document is strictly prohibited.

ABB Oy, PRODUKTION, ÅBÖ SKOLEN, INFORMATION, CONTROLLER

Note! See general cabinet engineering manual for common assembly principles.

STAGE 1: Common assembly installations (Baying parts, PE Bus bar, Divider panel and Common DC)

See assembly drawings for details.

Baying parts assembly
See drawing 3AXD50000336340

Common DC Flat-PLS assembly
See drawing 3AXD5000033639

DC+
DC-

PE bus bar design
See drawing 3AXD50000336104

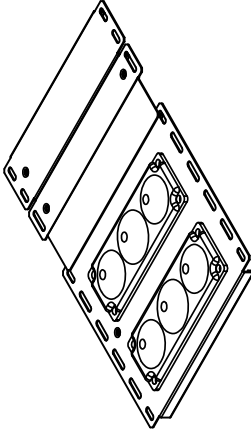
Divider panel assembly
See drawing 3AXD50000336692

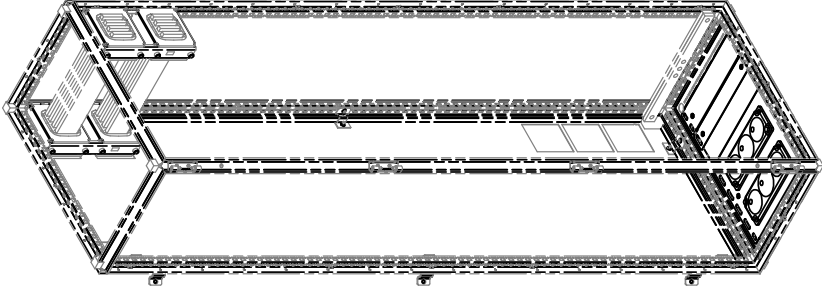
ABCDEF

| | | | | | | |
|---------------|-----------------|-----------|--------------------|------------------|-----------------|----------|
| Based on | M. Michelsson | 20-May-19 | Title | ASSEMBLY DRAWING | Scale | Form |
| Customer | M. Michelsson | 20-May-19 | ACS880-R61/R71-104 | ASSEMBLY DRAWING | 1:10 | A3 |
| Appr. | M. Asikainen | 20-May-19 | RITTAL WK25 | Rev.ind. | A.0 (DR) | Lang. EN |
| Cur. Doc. No. | | | | Doc. No. | 3AXD50000443932 | Sheet 2 |
| DWG Number | 3AXD10000816870 | | | | | Total 11 |
| | | | | | | |

Stage 2: Installation of bottom plate

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p>3AXD500044393Z ACCESSORY DRAWING (ASSEMBLY) ABB Initial Approval</p> | | | | | | | |
| <p>WE HEREBY CERTIFY TO THIS DOCUMENT USE IN THE MANNER AND FOR THE PURPOSES SPECIFIED HEREIN. ANY REPRODUCTION, USE OR DISCLOSURE TO THIRD PARTIES WITHOUT EXPRESS WRITTEN AUTHORIZATION IS STRICTLY FORBIDDEN. © ABB. OR. PROPRIETARY AND CONFIDENTIAL INFORMATION. CONFIDENTIAL</p> | | | | | | | |
| <p>Prepared: M. Michelsson 20-May-19 Checked: M. Michelsson 20-May-19 Project name: 3AXD10000878870 Weight: kg</p> | | | | | | | |
| <p>Based on: M. Michelsson 20-May-19 Customer: 3AXD500044393Z Project name: 3AXD10000878870 DMS Number: 3AXD10000878870</p> | | | | | | | |
| <p>Title: ASSEMBLY DRAWING Part No.: 3AXD500044393Z Revision: 1.0 (DR) Rev. title: 1.0 (DR) Rev. No.: 3AXD5000044393Z</p> | | | | | | | |
| <p>Dec. No.: 3AXD5000044393Z Dec. title: 3AXD5000044393Z Dec. No.: 3AXD5000044393Z</p> | | | | | | | |
| <p>Form: 1.0 (DR) Form: 1.0 (DR) Form: 1.0 (DR)</p> | | | | | | | |
| <p>Sheet: 1.0 (DR) Sheet: 1.0 (DR) Sheet: 1.0 (DR)</p> | | | | | | | |
| <p>Total: 1.0 (DR) Total: 1.0 (DR) Total: 1.0 (DR)</p> | | | | | | | |





STAGE 2: Bottom Plate installation (If required)
 Note! EMC cable lead-throughs should be used
 (not included in ABB delivery)

First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

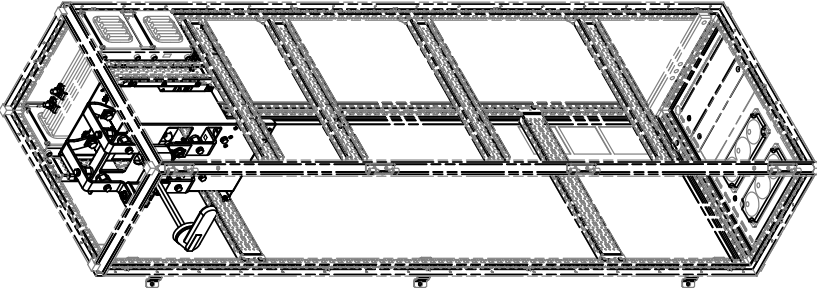
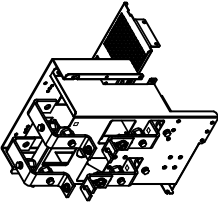


Stage 3: Installation of support beams



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------|-----------|-------------------------|---|---|---|---|------------|--------------|-----------|-------------------------|------------------|-------------|-----------|--------------------|---------------|--------------|-----------|-------------|-------------|-----------------|--|----|-----------|-----------------|--|--|--------|---|--|--|--------|----|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3AXD50000443932 ACS880-R61-R71-104-VX (ASSEM) - -7*</p> <p>© ABB. All rights reserved. No part of this document may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or by any information storage and retrieval system, without the prior written permission of ABB.</p> <p>Prepared by: M. Michelsson 20-May-19</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Initial Approval</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 3: Rittal supports installation for INU R6i/R7i</p> <p>See assembly drawing 3AXD50000452934 for details.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Based on:</td> <td style="width: 25%;">Prepared by:</td> <td style="width: 25%;">20-May-19</td> <td style="width: 25%;">Title: ASSEMBLY DRAWING</td> </tr> <tr> <td>Customer:</td> <td>Checked by:</td> <td>20-May-19</td> <td>ACS880-R61/R71-104</td> </tr> <tr> <td>Project name:</td> <td>Approved by:</td> <td>20-May-19</td> <td>RITTAL VX25</td> </tr> <tr> <td>DWG Number:</td> <td colspan="3">3AXD50000443932</td> </tr> <tr> <td>Weight:</td> <td colspan="3">kg</td> </tr> </table> | | | | | | | | Based on: | Prepared by: | 20-May-19 | Title: ASSEMBLY DRAWING | Customer: | Checked by: | 20-May-19 | ACS880-R61/R71-104 | Project name: | Approved by: | 20-May-19 | RITTAL VX25 | DWG Number: | 3AXD50000443932 | | | Weight: | kg | | | | | | | | | | |
| Based on: | Prepared by: | 20-May-19 | Title: ASSEMBLY DRAWING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer: | Checked by: | 20-May-19 | ACS880-R61/R71-104 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project name: | Approved by: | 20-May-19 | RITTAL VX25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DWG Number: | 3AXD50000443932 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Weight: | kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 25%;">Doc. des.:</td> <td style="width: 25%;">Scale:</td> <td style="width: 25%;">Form:</td> <td style="width: 25%;">Form:</td> </tr> <tr> <td>ASSEMBLY DRAWING</td> <td>1:10</td> <td>A3</td> <td></td> </tr> <tr> <td>Resp. appl.:</td> <td>Rev. ind.:</td> <td>A.0 (DR)</td> <td>Lang.:</td> </tr> <tr> <td>EN</td> <td></td> <td></td> <td>EN</td> </tr> <tr> <td>Doc. No.:</td> <td colspan="3">3AXD50000443932</td> </tr> <tr> <td>Sheet:</td> <td colspan="3">4</td> </tr> <tr> <td>Total:</td> <td colspan="3">11</td> </tr> </table> | | | | | | | | Doc. des.: | Scale: | Form: | Form: | ASSEMBLY DRAWING | 1:10 | A3 | | Resp. appl.: | Rev. ind.: | A.0 (DR) | Lang.: | EN | | | EN | Doc. No.: | 3AXD50000443932 | | | Sheet: | 4 | | | Total: | 11 | | |
| Doc. des.: | Scale: | Form: | Form: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ASSEMBLY DRAWING | 1:10 | A3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Resp. appl.: | Rev. ind.: | A.0 (DR) | Lang.: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| EN | | | EN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Doc. No.: | 3AXD50000443932 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sheet: | 4 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Total: | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

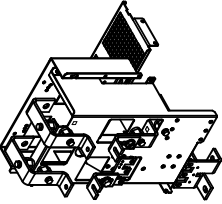
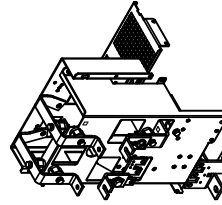
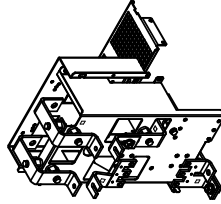
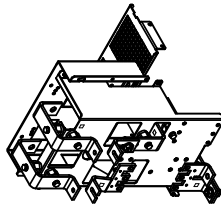
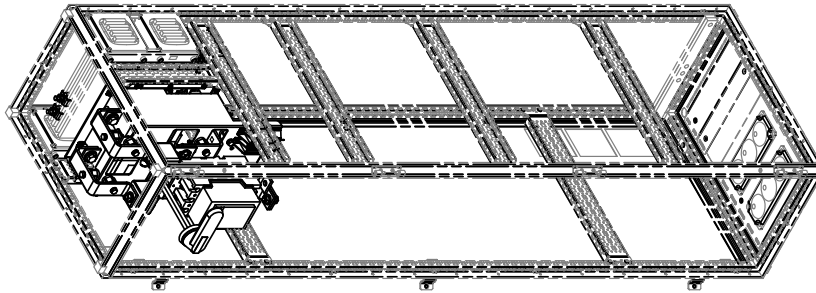
Stage 4 (R6i): Installation of DC busbars and charging components

| | | | | | | | |
|--|--|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p>3AXD5000043932 ACCESSORY KIT FOR R6i WITH SWITCH AND DC BUSBAR KIT FOR R6i WITH FUSES ONLY M. Michelsson 20-May-19</p> | | | | | | | |
| <p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | |
| A | <p>STAGE 4A: DC KIT FOR R6i WITH SWITCH installation See assembly drawing 3AXD50000445202 for details.</p> <p>DC KIT FOR R6i WITH SWITCH UL installation See assembly drawing 3AXD50000445325 for details.</p> | | | | | | F |
| B |  | | | | | | F |
| C | <p>DC KIT FOR R6i WITH SWITCH Ordering code: 3AXD50000459100 KIT A-4-6-281-VX</p> | | | | | | F |
| D |  | | | | | | F |
| E | <p>DC KIT FOR R6i/RTi FUSES ONLY Ordering code: 3AXD50000459094 KIT A-4-67-283-VX</p> <p>For solutions with fuses only</p> | | | | | | F |
| <p>Based on: M. Michelsson, 20-May-19, Title: ASSEMBLY DRAWING Customer: M. Michelsson, 20-May-19, Accessory kit for R6i with switch and DC busbar kit for R6i with fuses only Part. Desc. No.: 3AXD5000043932, Project name: RITTAL VX23, Weight: kg DMS Number: 3AXD10000878870</p> | | | | | | | |
| <p>Prepared: M. Michelsson, 20-May-19, Title: ASSEMBLY DRAWING Checked: M. Michelsson, 20-May-19, Accessory kit for R6i with switch and DC busbar kit for R6i with fuses only Project name: RITTAL VX23, Weight: kg DMS Number: 3AXD10000878870</p> | | | | | | | |
| <p>Dec. No.: 3AXD50000443932</p> | | | | | | | |
| <p>Scale: 1:10 (DR)</p> | | | | | | | |
| <p>Form: 11</p> | | | | | | | |
| <p>Sheet: 5</p> | | | | | | | |
| <p>Total: 11</p> | | | | | | | |



Stage 4 (R7i): Installation of DC busbars and charging components

| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | |
|--|--|-------|--|---|--|--|--|-----------|--|---------------|--|---|--|---|--|
| 3AXD5000044332 | | A, D* | | We reserve all rights in this document and in the information contained therein, reproduction, in whole or in part, is strictly prohibited. | | GABRIEL ROYER AND SONS LTD. INFORMATION COMMUNICATIONS | | 20-May-19 | | M. Michelsson | | | | | |
| Initial Approval | | | | | | | | | | | | | | | |
| <p>STAGE 4B: DC KIT FOR R7i SWITCH AND CHARGING installation See assembly drawing 3AXD50000445257 for details.</p> <p>DC KIT FOR 690V R7i SWITCH AND CHARGING installation See assembly drawing 3AXD50000445356 for details.</p> | | | | | | | | | | | | | | | |
| <p>DC KIT FOR R7i SWITCH AND CHARGING Ordering code: 3AXD50000459056 KIT A-4-7-280-VX For solutions with DC-switch, fuses and charging</p> | | | | | | | | | | | | | | | |
| <p>DC KIT FOR R7i WITH CHARGING Ordering code: 3AXD50000459063 KIT A-4-7-282-VX For solutions with charging and fuses</p> | | | | | | | | | | | | | | | |
| <p>DC KIT FOR 690V R7i SWITCH AND CHARGING Ordering code: 3AXD50000459070 KIT A-4-7-286-VX For solutions with DC-switch, fuses and charging</p> | | | | | | | | | | | | | | | |
| <p>DC KIT FOR 690V R7i WITH CHARGING Ordering code: 3AXD50000459087 KIT A-4-7-287-VX For solutions with charging and fuses</p> | | | | | | | | | | | | | | | |
| <p>See drawings for required Rittal and/or other standard parts.</p> | | | | | | | | | | | | | | | |
| <p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | | | | | | | | | |



| | | | | | | |
|--------------|-----------------|-----------|--------------------|------------------|----------------|----------|
| Based on | M. Michelsson | 20-May-19 | Title | ASSEMBLY DRAWING | Scale | Form |
| Customer | M. Michelsson | 20-May-19 | ACS880-R61/R7i-104 | ASSEMBLY DRAWING | 1:10 | A3 |
| Check. | M. Michelsson | 20-May-19 | RITTAL WK25 | Rev. ind. | A.0 (DR) | Long. EN |
| Appr. | M. Asikainen | 20-May-19 | | Doc. No. | 3AXD5000044332 | Sheet 6 |
| Project name | | | | | | Total 11 |
| DWG. Number | 3AXD1.000087870 | | | | | |
| Weight | kg | | | | | |

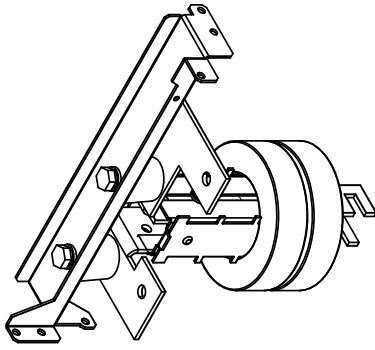


Stage 5: Installation of common mode filters

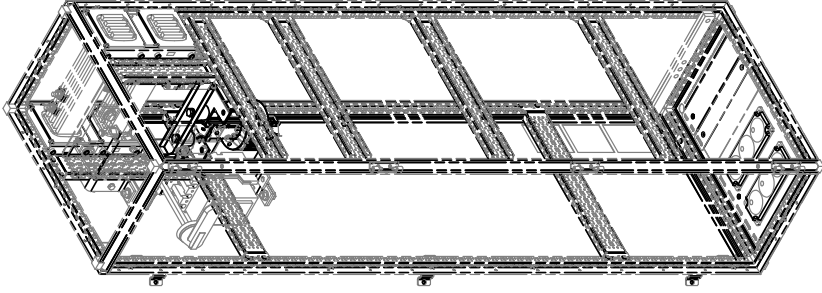
| | | | | | | | |
|--|------------------|---|-----------|---------------|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p>3AXD5000044332</p> <p><small>WE HEREBY CERTIFY TO THIS DOCUMENT USE IN THIS APPLICATION. ORIGINAL DRAWING MADE WITH 3D CAD. SET THE CORRECT SCALE FACTOR WHEN ADDING DIMENSIONS AFTER DWG/DXF CONVERSION.</small></p> <p><small>USE OF THIS DOCUMENT FOR ANY OTHER APPLICATION WITHOUT EXPRESS WRITTEN PERMISSION IS STRICTLY FORBIDDEN.</small></p> <p><small>ABB, AN, HONEYWELL, AND SIEMENS INFORMATION CONTAINED HEREIN IS UNCLASSIFIED.</small></p> | | | | | | | |
| A | Initial Approval | | 20-May-19 | M. Michelsson | | | |

STAGE 5: COMMON MODE FILTER BUSBARS R6i/R7i installation

See assembly drawing 3AXD5000044304 for details and required additional Rittal and standard parts.



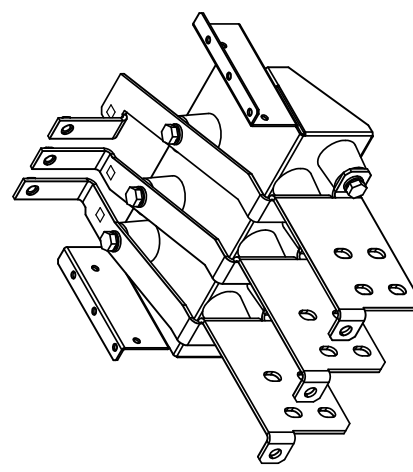
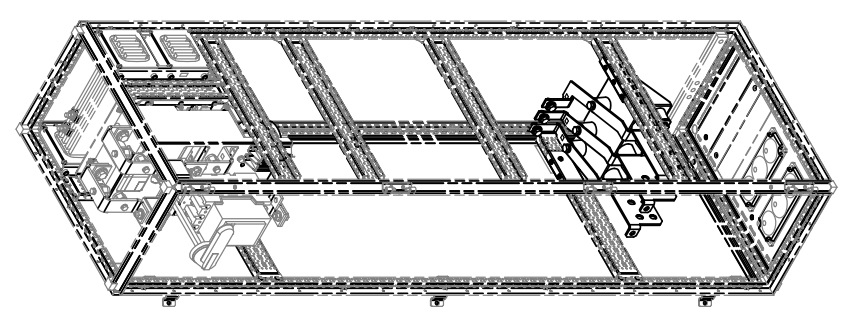
Ordering code: 3AXD50000458509
Toroids not included in kit
KIT A-4-67-241-VX



| | | | | | | |
|-----------------|-----------------|--------------|-----------|------------------|------------|----------|
| Based on | M. Michelsson | 20-May-19 | Title | ASSEMBLY DRAWING | Scale | Form |
| Customer | M. Michelsson | 20-May-19 | Base part | RITVAL M23 | Base title | A.0 (DR) |
| Cart. Desc. No. | 3AXD10000378870 | Project name | ABB | | | |
| DMS Number | 3AXD10000378870 | Weight, kg | Dec. No. | 3AXD5000044332 | Sheet | Total |

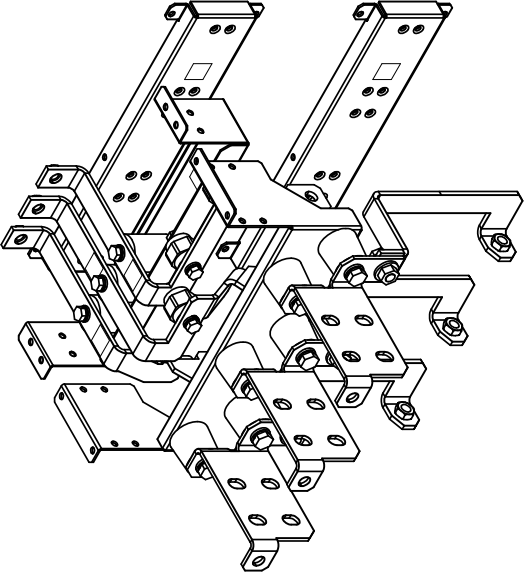
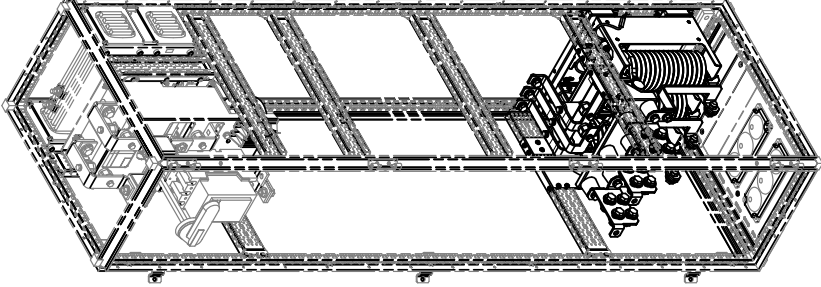


Stage 6 A: Installation of AC busbars (without du/dt filters)

| | | | | | | | |
|--|---|---|---|--|---|--|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|  | | | | | | | |
| <p>STAGE 6 A: OUTPUT (AC) BUSBAR KIT installation</p> <p>See assembly drawing 3AXD50000452798 for details and required additional Rittal and standard parts.</p> | | | | | | | |
| <p>Ordering code: 3AXD50000459032 KIT A-4-67-181-VX</p> | | | | | | | |
|  | | | | | | | |
| <p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | |
| <p>3AXD50000459032</p> <p>ACS880-R61-R71-104-VX (ASSEMBLY) - 17</p> <p>Initial Approval</p> <p>20-May-19 M. Michelsson</p> | | <p>Based on: M. Michelsson 20-May-19 Title: ASSEMBLY DRAWING</p> <p>Customer: M. Michelsson 20-May-19 ACS880-R61/R71-104</p> <p>Appr.: M. Asikainen 20-May-19 RITTAL VX25</p> <p>Project name: 3AXD50000459032</p> <p>DWG Number: 3AXD1000087870 Weight: kg</p> | | <p>Doc. des.: ASSEMBLY DRAWING</p> <p>Resp. appl.: A. O. (DR)</p> <p>Doc. No.: 3AXD50000443932</p> | | <p>Scale: 1:10 A3</p> <p>Form: A3</p> <p>Log.: EN</p> <p>Sheet: 8</p> <p>Total: 11</p> | |



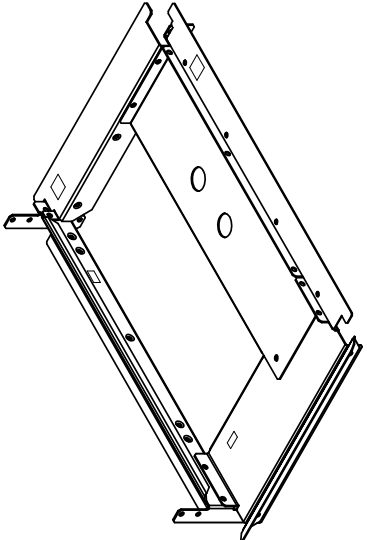
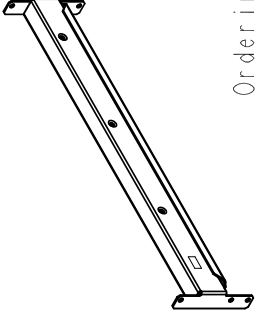
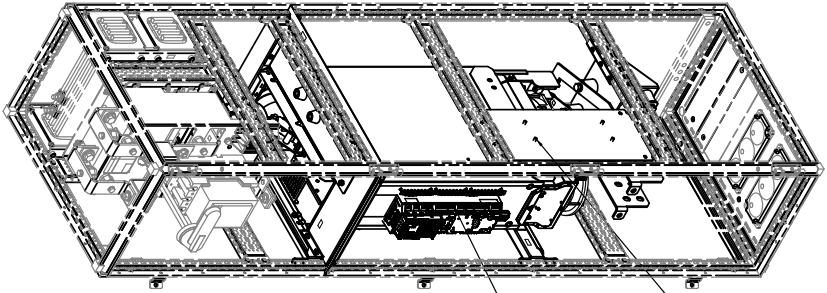

Stage 6 B: Installation of AC busbars (with du/dt filters)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD500004393Z ACCESSORY KIT FOR R6i/R7i DU/DT FILTER BUSBARS INSTALLATION. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion. | | | | | | | |
| M. Michelsson 20-May-19 M. Michelsson | | | | | | | |
| Initial Approval | | | | | | | |
| <p>STAGE 6 B: R6i/R7i DU/DT FILTER BUSBARS installation</p> <p>See assembly drawing 3AXD50000452439 for details and required additional Rittal and standard parts.</p> | | | | | | | |
|  | | | |  | | | |
| Ordering code: 3AXD50000459049 KIT A-4-67-186-VX | | | | | | | |
| Based on: M. Michelsson Customer: M. Michelsson Date: M. Michelsson Project name: 3AXD10000378870 DWG Number: | | Prepared: M. Michelsson Checked: M. Michelsson Date: M. Michelsson Project name: | | Title: ASSEMBLY DRAWING No.: 3AXD50000459049 Date: 20-May-19 Project name: | | Scale: 1:1 Sheet: 1 of 1 Date: 20-May-19 Project name: | |
| Dec. No.: 3AXD5000044393Z Sheet: 1 of 1 | | Dec. No.: 3AXD5000044393Z Sheet: 1 of 1 | | Dec. No.: 3AXD5000044393Z Sheet: 1 of 1 | | Dec. No.: 3AXD5000044393Z Sheet: 1 of 1 | |

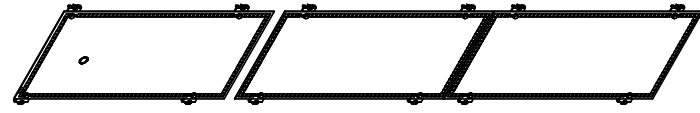
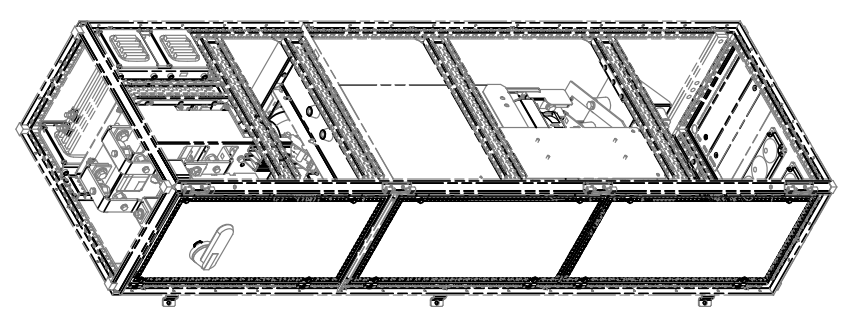


Stage 7: Installation of inverter module



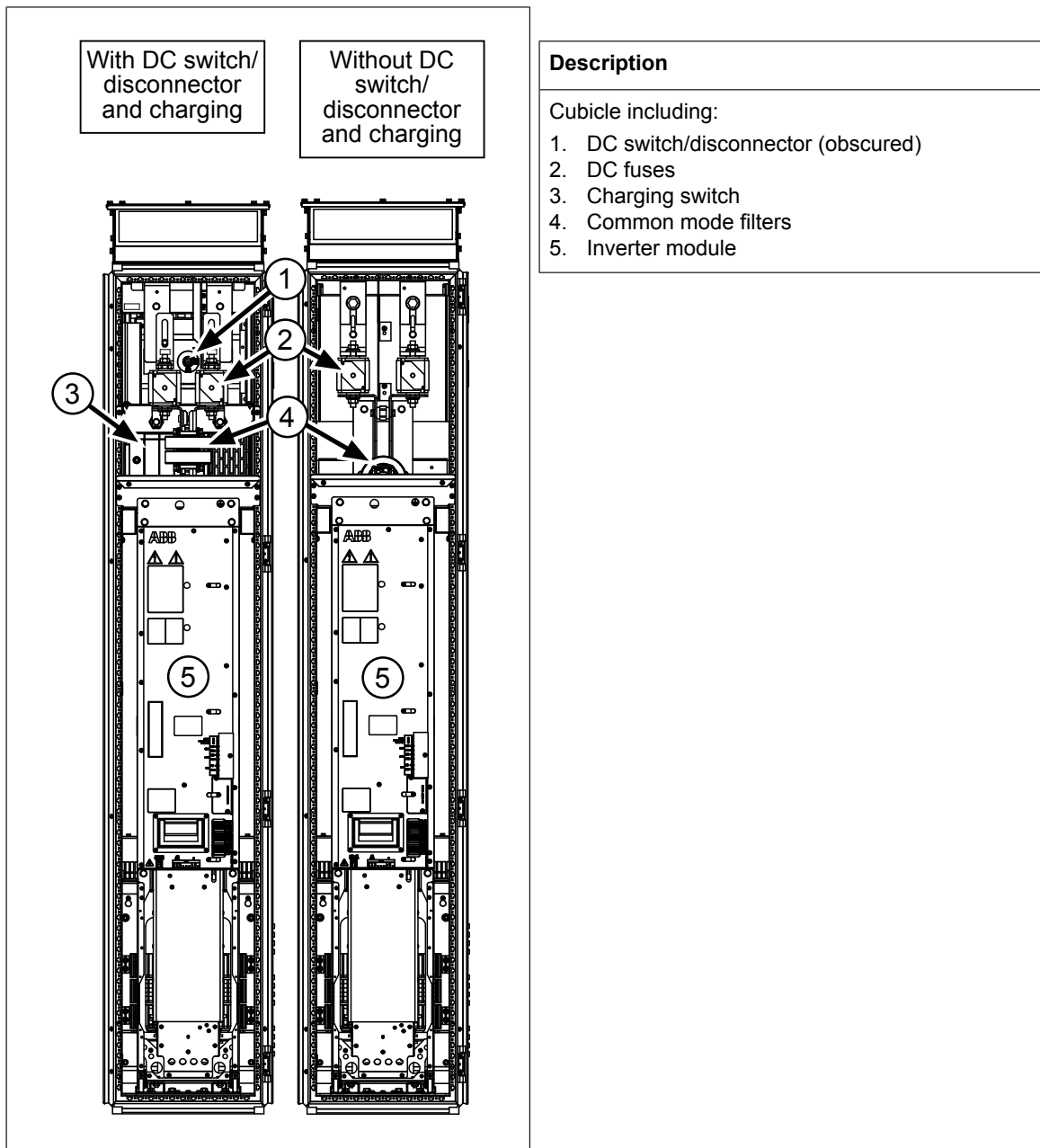
| | | | | | | | |
|---|---|---|---|--|---|------------------------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD50000443932 ACS880-R61-R71-104-VX (ASSEM) - 71 A.01 We reserve all rights in this document and in the information contained therein, reproduction, storage in retrieval systems and electronic transmission is strictly prohibited. © ABB Oy. PROHIBITÄT AV SKILLNINGSÄNDNING, FÖRDELNING, REPRODUKTION, ÅTERGIVNING OCH ÖVERSÄTTNING. 20-May-19 M. Michelsson | | | | | | | |
| Initial Approval | | | | | | | |
| <p style="text-align: center;">STAGE 7: R61/R71 MODULE INSTALLATION PARTS installation</p> <p style="text-align: center;">See assembly drawing 3AXD5000045337 for details and required additional Rittal and standard parts.</p> | | | | | | | |
|  | | | |  | | | |
| MODULE NOT INCLUDED IN KIT | | | | IF NEEDED, FOR EXAMPLE FOR CONTROL ELECTRONICS NOT INCLUDED IN KIT | | | |
|  | | | | SEAL THE GAPS BETWEEN THE FRAMES AND SUPPORTS AND AIR BLOCKERS TO AVOID HOT AIR BACKFLOW FROM THE MODULE | | | |
| Ordering code: 3AXD50000459018 KIT A-4-67-302-VX | | | | Doc. des. ASSEMBLY DRAWING Resp. appl. ACS880-R61/R71-104 RITTAL VX25 Doc. No. 3AXD50000443932 | | | |
| Based on: M. Michelsson 20-May-19 Prepared: M. Michelsson 20-May-19 Check: M. Michelsson 20-May-19 Title: ASSEMBLY DRAWING ACS880-R61/R71-104 | | Project name: RITTAL VX25 Weight: kg | | Form: A3 Scale: 1:10 Rev. ind.: A.0 (DR) | | Log.: EN Sheet: 10 Total: 11 | |
| Cur. Doc. No. 3AXD10000878870 | |  | | | | | |

Stage 8: Installation of shrouding brackets

| | | | | | | | |
|--|---|-------------------------------|---|--|---|-----------------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD500043252 ACCESSORY KIT FOR R6i/R7i FIRST ANGLE PROJECTION. ORIGINAL DRAWING MADE WITH 3D CAD. SET THE CORRECT SCALE FACTOR WHEN ADDING DIMENSIONS AFTER DWG/DXF CONVERSION. | | | | | | | |
| A. Initial Approval | | M. MICHELSSON 20-May-19 | | M. MICHELSSON 20-May-19 | | M. MICHELSSON 20-May-19 | |
| <p style="text-align: center;">STAGE 8: R6i/R7i SHROUD INSTALLATION PARTS installation</p> <p style="text-align: center;">See assembly drawing 3AXD5000043252 for details and required additional Rittal and standard parts.</p> | | | | | | | |
|  | | | |  | | | |
| <p>Ordering code: 3AXD5000043252 KIT A-4-67-350-VX</p> | | | | | | | |
| Based on: Customer: | | Prepared by: M. MICHELSSON | | Title: ASSEMBLY DRAWING RITTAL VX3 | | Scale: 1:1 | |
| Date: 20-May-19 | | Checked by: M. MICHELSSON | | Date: 20-May-19 | | Date: 20-May-19 | |
| Part. No.: 3AXD10000378870 | | Project name: | | Dec. No.: 3AXD5000043252 | | Dec. No.: 3AXD5000043252 | |
| Weight: kg | | Weight: kg | | Weight: kg | | Weight: kg | |
| | | | | | | Total: 11 | |



■ One R8i module in a 400 mm wide Rittal VX25 enclosure

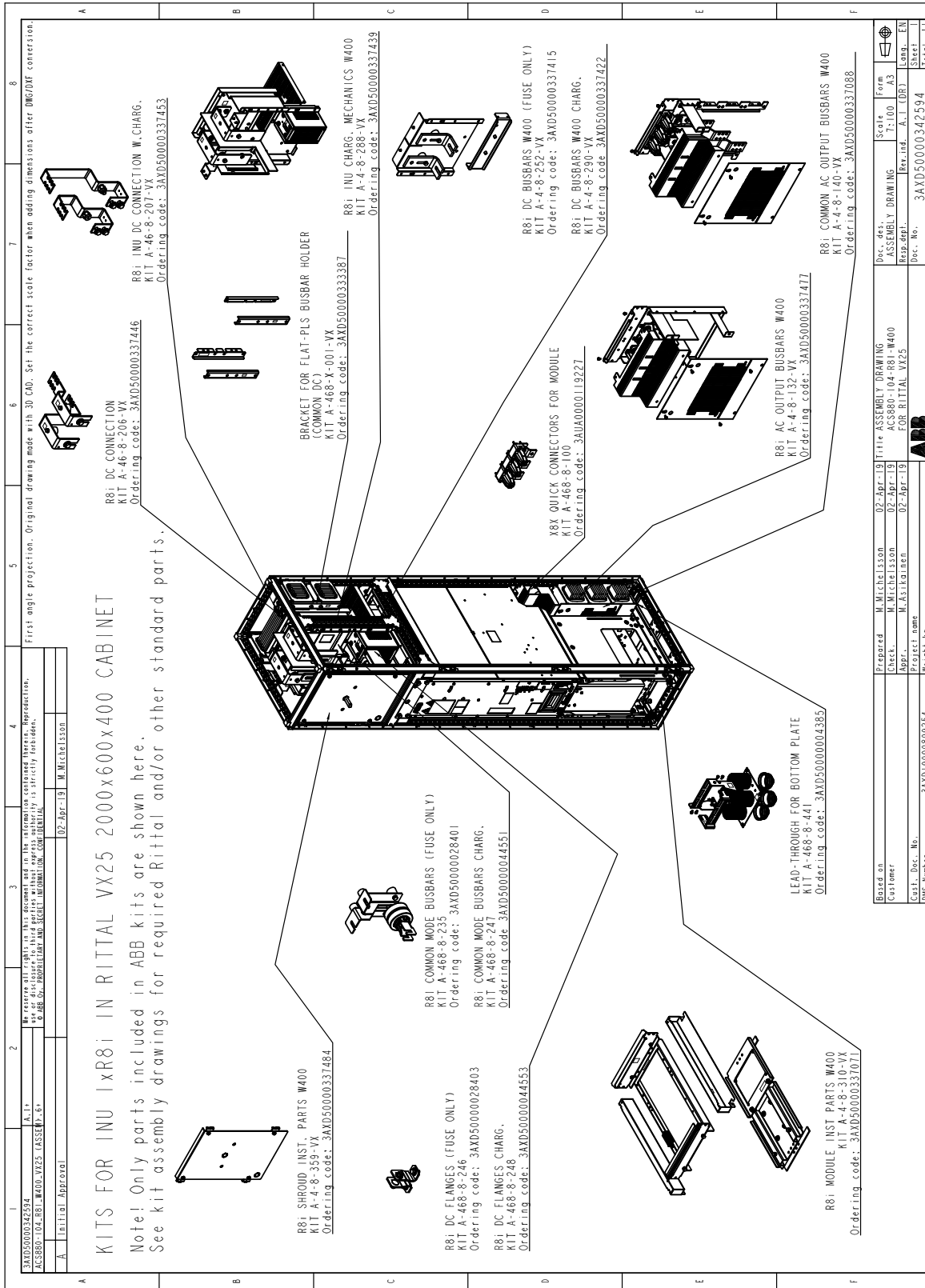


Installation stages

| # | Installation stage | Instruction code | Kit code | Kit ordering code |
|-----|---|------------------|----------------|-------------------|
| 1 | Common parts: | | | |
| | Baying parts | 3AXD50000336340 | - | - |
| | PE busbar | 3AXD50000336104 | - | - |
| | Divider panel | 3AXD50000336692 | - | - |
| | DC busbars | 3AXD50000333639 | A-468-X-001-VX | 3AXD50000333387 |
| 2 A | DC connection 1 of 2 (from DC bus to DC fuses) without DC switch/charging: | | | |
| | Busbar assembly | 3AXD50000345151 | A-4-8-252-VX | 3AXD50000337415 |
| | Busbars | 3AXD50000345915 | A-46-8-206-VX | 3AXD50000337446 |
| 2 B | DC connection 1 of 2 (from DC bus to DC fuses) with DC switch/charging: | | | |
| | DC switch/charging mechanics | 3AXD50000342501 | A-4-8-288-VX | 3AXD50000337439 |
| | Busbar assembly | 3AXD50000345236 | A-4-8-290-VX | 3AXD50000337422 |
| | Busbars | 3AXD50000345458 | A-46-8-207-VX | 3AXD50000337453 |
| 3 | Module mechanical installation parts, lead-throughs: | | | |
| | Module top/bottom guides | 3AXD50000335152 | A-4-8-310-VX | 3AXD50000337071 |
| | Lead-throughs | 3AXD50000004817 | A-468-8-441 | 3AXD50000004385 |
| 4 A | Quick connector, output (AC) busbars (cable connection): | | | |
| | Quick connector | 3AUA0000118667 | A-468-8-100 | 3AUA0000119227 |
| | Busbars and shrouds | 3AXD50000343492 | A-4-8-132-VX | 3AXD50000337477 |
| 4 B | Quick connector, output (AC) busbars (common AC output busbar connection): | | | |
| | Quick connector | 3AUA0000118667 | A-468-8-100 | 3AUA0000119227 |
| | Busbars and shrouds | 3AXD50000343928 | A-4-8-140-VX | 3AXD50000337088 |
| 5 A | DC connection 2 of 2 (from DC fuses to inverter module) without DC switch/charging: | | | |
| | DC connection flanges | 3AXD50000028384 | A-468-8-246 | 3AXD50000028403 |
| | DC busbars with common mode filters (filters not included in kit) | 3AXD50000028418 | A-468-8-235 | 3AXD50000028401 |
| 5 B | DC connection 2 of 2 (from DC fuses to inverter module) with DC switch/charging: | | | |
| | DC connection flanges | 3AXD50000043466 | A-468-8-248 | 3AXD50000044553 |
| | DC busbars with common mode filters (filters not included in kit) | 3AXD50000043411 | A-468-8-247 | 3AXD50000044551 |
| 6 | Shrouding | 3AXD50000335169 | A-4-8-359-VX | 3AXD50000337484 |
| 7 | Inverter module | - | - | - |



Overview of kits



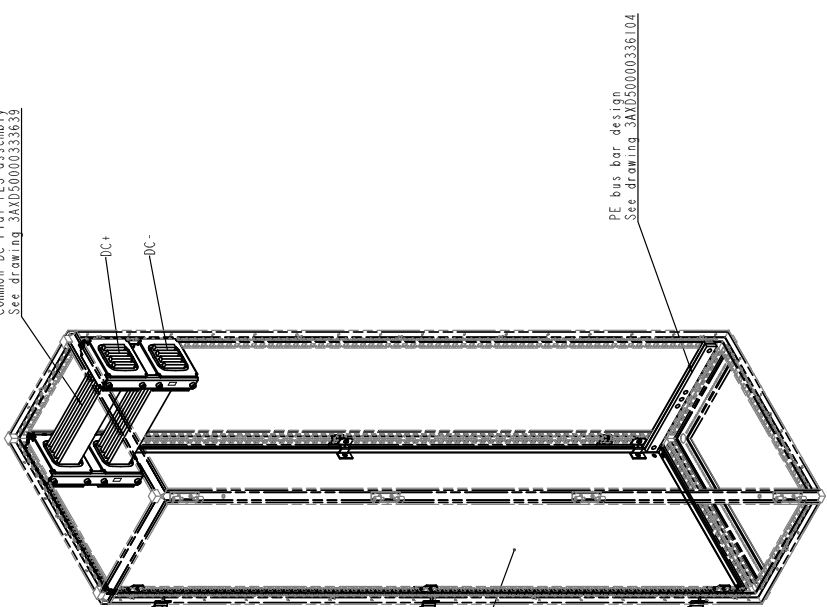
| Doc. des. | Scale | Form |
|------------------|-----------------|----------|
| ASSEMBLY DRAWING | 7:100 | A3 |
| Resp. appl. | Rev. ind. | Lang. EN |
| Doc. No. | 3AXD50000342594 | Sheet |
| | | Total |

| Prepared | Checked | Appr. | Weight kg |
|---------------|---------------|--------------|-----------------|
| M. Michelsson | M. Michelsson | M. Asikainen | 3AXD50000004385 |

| Based on | Title | Doc. des. |
|---------------------|------------------|-----------|
| ACS880-104-R81-W400 | ASSEMBLY DRAWING | 7:100 |
| ACS880-104-R81-W400 | FOR RITTAL VX25 | Rev. ind. |
| | | Lang. EN |
| | | Sheet |
| | | Total |

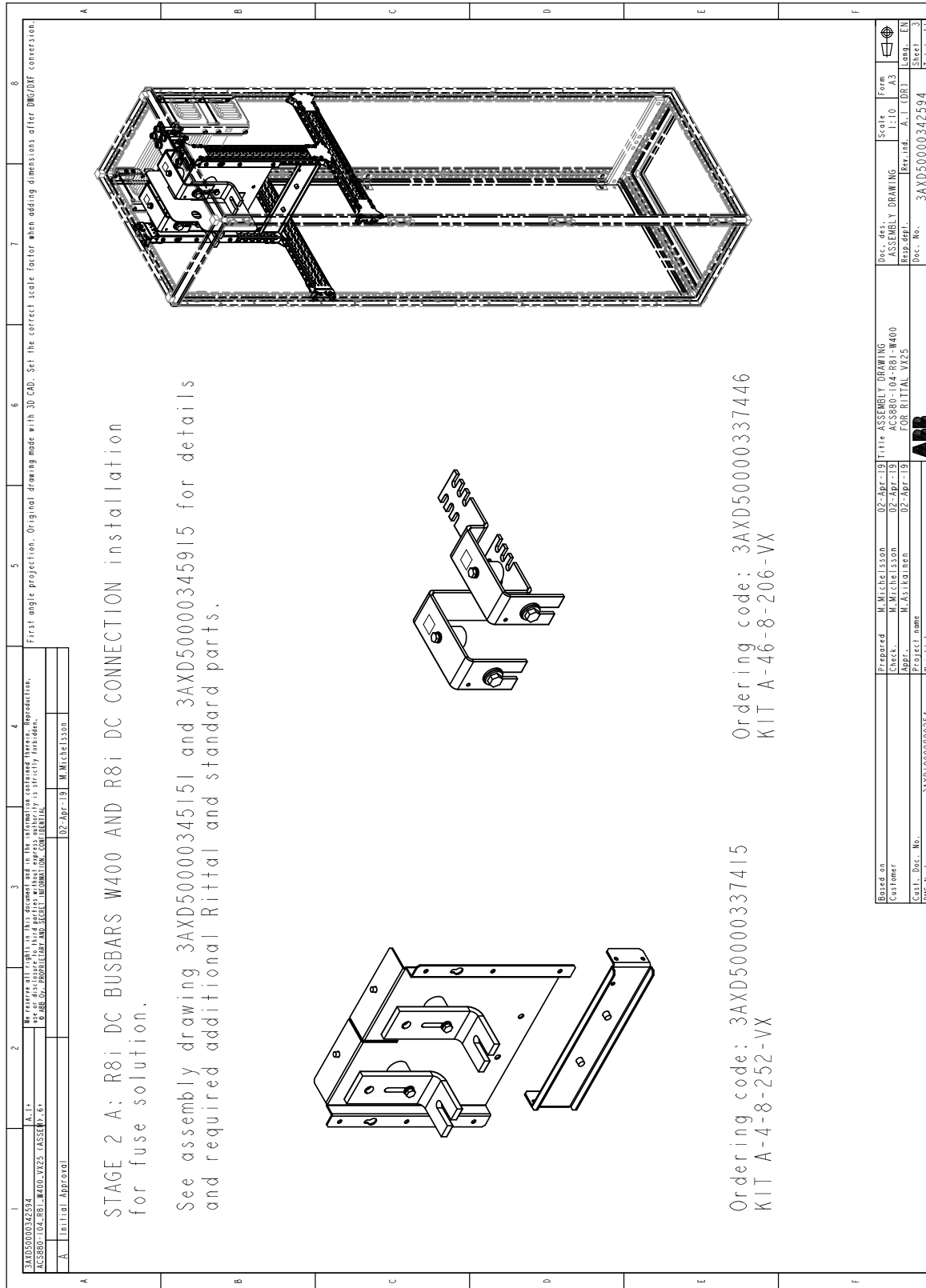


Stage 1: Installation of common parts

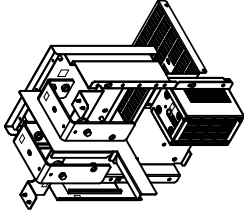
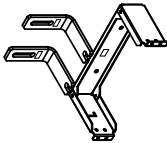
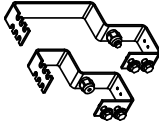
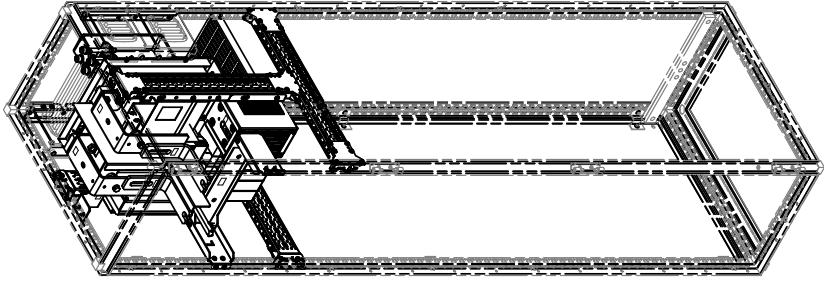
| | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p style="font-size: 8px;">3AXD5000034254 ACCESSORY DRAWING Title: ASSEMBLY DRAWING Customer: M. A. S. I. G. I. T. E. C. H. Project name: 3AXD10000809254 Weight: kg</p> | | | | | | | |
| <p style="font-size: 8px;">1. M. Michelsson 02-Apr-19 2. M. Michelsson 02-Apr-19 3. M. Michelsson 02-Apr-19 4. M. Michelsson 02-Apr-19 5. M. Michelsson 02-Apr-19 6. M. Michelsson 02-Apr-19 7. M. Michelsson 02-Apr-19 8. M. Michelsson 02-Apr-19</p> | | | | | | | |
| <p style="font-size: 8px;">Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | |
| <p>Note! See general engineering cabinet manual for common assembly principles STAGE 1: Common assembly installations (Baying parts, PE bus bar, Divider panel, and Common DC). See assembly drawings for details</p> | | | | | | | |
|  | | | | | | | |
| <p style="font-size: 8px;">Title: ASSEMBLY DRAWING Drawing No.: 3AXD5000034254 Project No.: 3AXD10000809254</p> | | | | | | | |
| <p style="font-size: 8px;">Prepared by: M. Michelsson Checked by: M. Michelsson Project name: 3AXD10000809254 Weight: kg</p> | | | | | | | |
| <p style="font-size: 8px;">Date: 02-Apr-19 Date: 02-Apr-19 Date: 02-Apr-19</p> | | | | | | | |
| <p style="font-size: 8px;">Scale: 1:1 (DR) Form: L (DR) Scale: 1:1 (DR) Form: L (DR)</p> | | | | | | | |
| <p style="text-align: right;">ABB</p> | | | | | | | |



Stage 2 A: Installation of DC busbars (1) (without DC switch/charging)

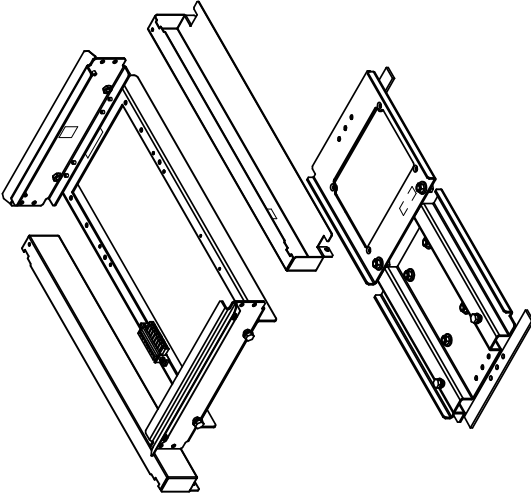
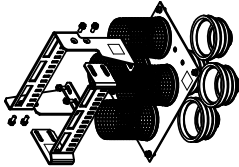
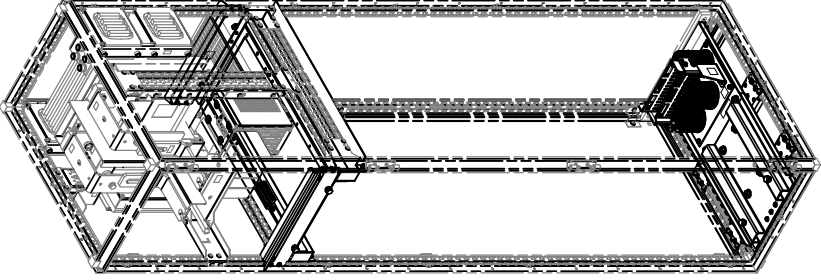


Stage 2 B: Installation of DC busbars (1) (with DC switch/charging)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------|-----------|------------------------|---|---|---|---|----------|---------------|-----------|------------------------|----------|---------------|-----------|----------------------|-----------------|---------------|-----------|-----------------|------------|-----------------|--|------------|----------|----------------|-------|------|-----------|-----------|----------|---|----------|----------------|-------|--------|--|--|-------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3AXD5000034254 A 11 ACCESS - 104-851-W400-V123 - ASSEMBLY KIT We request that you only use this document for the original intended purpose. Any reproduction, use or disclosure to third parties without express authority is strictly forbidden. ©ABB AB, PROPRIETARY AND SECURE INFORMATION, CONFIDENTIAL A Initial Approval 02-Apr-19 M.Michelsson | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 2 B: R8i INU CHARG. MECHANICS W400, R8i DC BUSBARS W400 CHARG. AND R8i INU DC CONNECTION W.CHARG. installation for charging solution.</p> <p>See assembly drawing 3AXD50000342501, 3AXD50000345236 and 3AXD50000345458 for details and required additional Rittal and standard parts.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Ordering code: 3AXD50000337439 KIT A-4-8-288-VX</p> </div> <div style="text-align: center;">  <p>Ordering code: 3AXD50000337422 KIT A-4-8-290-VX</p> </div> <div style="text-align: center;">  <p>Ordering code: 3AXD50000337453 KIT A-46-8-207-VX</p> </div> </div> <div style="text-align: center; margin-top: 20px;">  </div> <p style="text-align: center; font-weight: bold; margin-top: 20px;">KITS MUST BE INSTALLED IN CORRECT ORDER SEE DRAWING 3AXD50000342501 FOR DETAILS</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="0" style="width: 100%;"> <tr> <td style="width: 25%;">Based on</td> <td style="width: 25%;">M. Michelsson</td> <td style="width: 25%;">02-Apr-19</td> <td style="width: 25%;">Title ASSEMBLY DRAWING</td> </tr> <tr> <td>Customer</td> <td>M. Michelsson</td> <td>02-Apr-19</td> <td>Accessories for W400</td> </tr> <tr> <td>Cart. Desc. No.</td> <td>M. Michelsson</td> <td>02-Apr-19</td> <td>FOR RITTAL V123</td> </tr> <tr> <td>DWG Number</td> <td>3AXD10000309254</td> <td></td> <td>ABB</td> </tr> </table> <table border="0" style="width: 100%; margin-top: 5px;"> <tr> <td style="width: 25%;">Doc. No.</td> <td style="width: 25%;">3AXD5000034254</td> <td style="width: 25%;">Scale</td> <td style="width: 25%;">Form</td> </tr> <tr> <td>Base Part</td> <td>Base Part</td> <td>1:1 (DR)</td> <td>1</td> </tr> <tr> <td>Doc. No.</td> <td>3AXD5000034254</td> <td>Sheet</td> <td>1 of 1</td> </tr> <tr> <td></td> <td></td> <td>Total</td> <td>1</td> </tr> </table> | | | | | | | | Based on | M. Michelsson | 02-Apr-19 | Title ASSEMBLY DRAWING | Customer | M. Michelsson | 02-Apr-19 | Accessories for W400 | Cart. Desc. No. | M. Michelsson | 02-Apr-19 | FOR RITTAL V123 | DWG Number | 3AXD10000309254 | | ABB | Doc. No. | 3AXD5000034254 | Scale | Form | Base Part | Base Part | 1:1 (DR) | 1 | Doc. No. | 3AXD5000034254 | Sheet | 1 of 1 | | | Total | 1 |
| Based on | M. Michelsson | 02-Apr-19 | Title ASSEMBLY DRAWING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer | M. Michelsson | 02-Apr-19 | Accessories for W400 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cart. Desc. No. | M. Michelsson | 02-Apr-19 | FOR RITTAL V123 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DWG Number | 3AXD10000309254 | | ABB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Doc. No. | 3AXD5000034254 | Scale | Form | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Base Part | Base Part | 1:1 (DR) | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Doc. No. | 3AXD5000034254 | Sheet | 1 of 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Total | 1 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

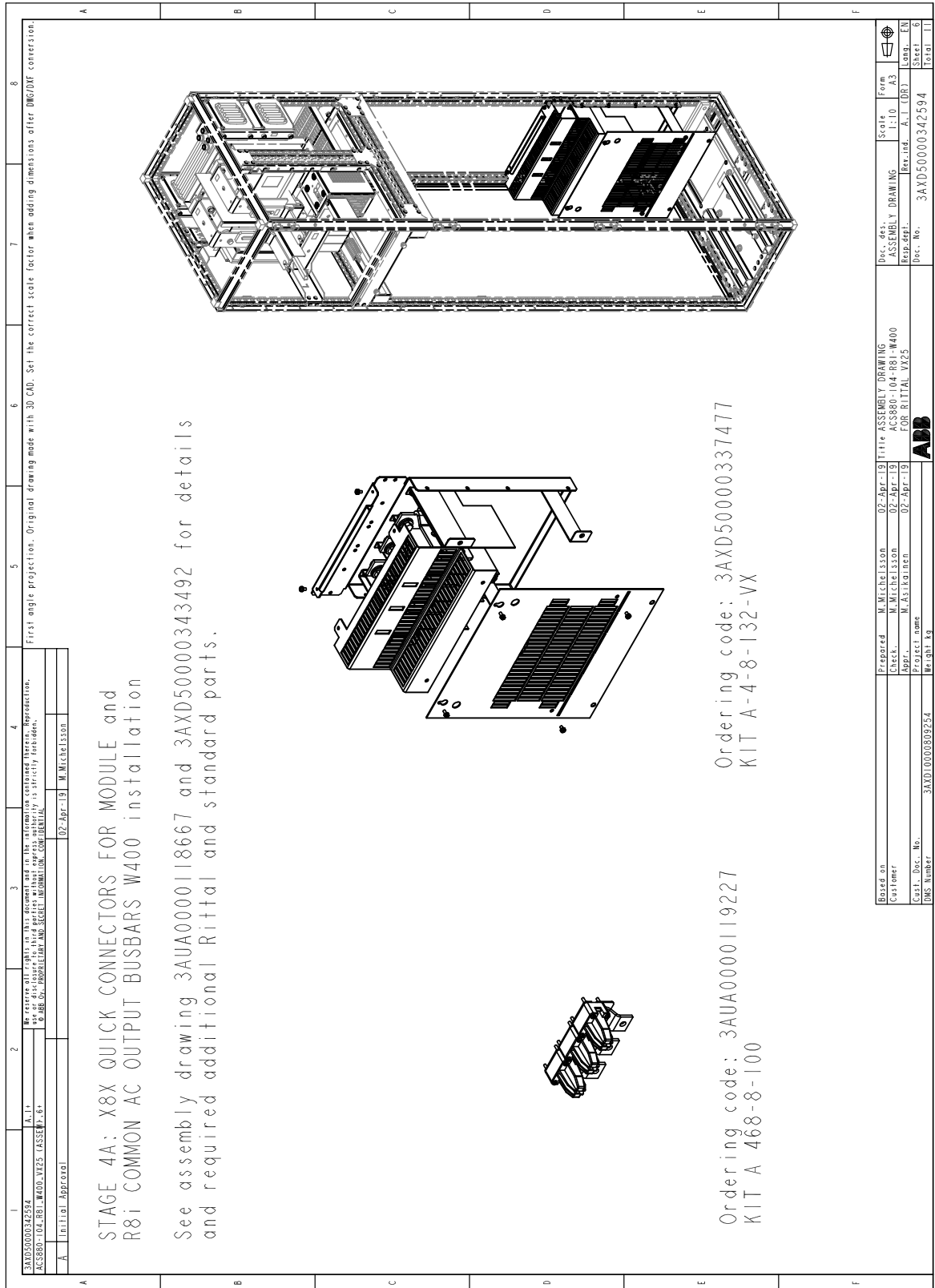


Stage 3: Installation of module installation parts and lead-throughs

| | | | | | | | | | | | |
|---|---|------------------|---|---|---|---------------|---|---|--|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | |
| 3AXD50000342594 ACS880-104-R81-W400-VX25 (ASSEMBLY PARTS) © ABB. ALL RIGHTS RESERVED. INFORMATION CONTAINED HEREIN IS PROPRIETARY AND SOLELY FOR INTERNAL USE ONLY. | | | | | | | | | | | |
| A | | Initial Approval | | 02-Apr-19 | | M. Michelsson | | | | | |
| <p> STAGE 3: R81 MODULE INSTALLATION PARTS W400 and LEAD-THROUGH FOR BOTTOM PLATE installation </p> <p> See assembly drawing 3AXD50000335152 and 3AXD5000004817 for details and required additional Rittal and standard parts. </p> | | | | | | | | | | | |
|  | | | |  | | | |  | | | |
| Ordering code: 3AXD50000337071 KIT A-4-8-310-VX | | | | Ordering code: 3AXD5000004385 KIT A-468-8-441 | | | | Doc. des. ASSEMBLY DRAWING Resp. des. M. Michelsson Rev. ind. A. I. (DR) | | | |
| Based on: Customer Cur. Doc. No. 3AXD10000809254 | | | | Prepared M. Michelsson 02-Apr-19 Title ASSEMBLY DRAWING ACS880-104-R81-W400 FOR RITTAL VX25 | | | | Scale 1:10 Form A3 | | | |
| Project name 3AXD10000809254 | | | | Checked M. Michelsson 02-Apr-19 | | | | Rev. ind. A. I. (DR) | | | |
| Weight kg | | | | Project name 3AXD10000809254 | | | | Doc. No. 3AXD50000342594 | | | |
| Weight kg | | | | Weight kg | | | | Total | | | |



Stage 4 A: Installation of quick connector and output (AC) busbars (cable connection)



First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

| | | | | | | | | | |
|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 |
| 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 |
| 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 |
| 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 | 3AXD5000034254 |

STAGE 4A: X8X QUICK CONNECTORS FOR MODULE and R8i COMMON AC OUTPUT BUSBARS W400 installation

See assembly drawing 3AUA0000118667 and 3AXD50000343492 for details and required additional Rittal and standard parts.

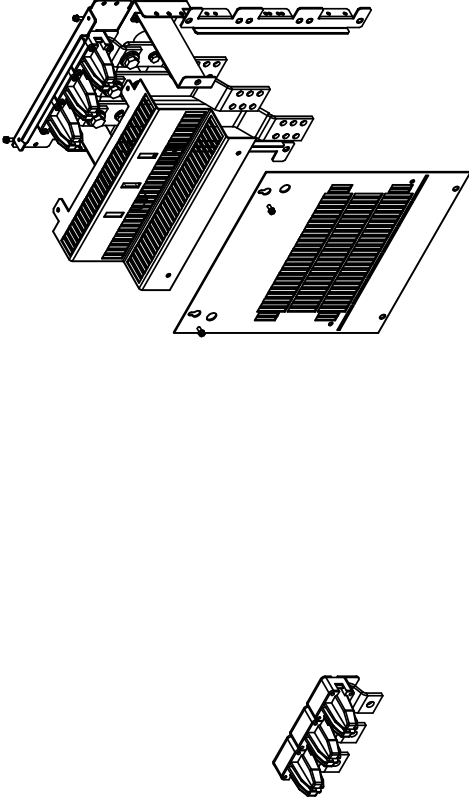
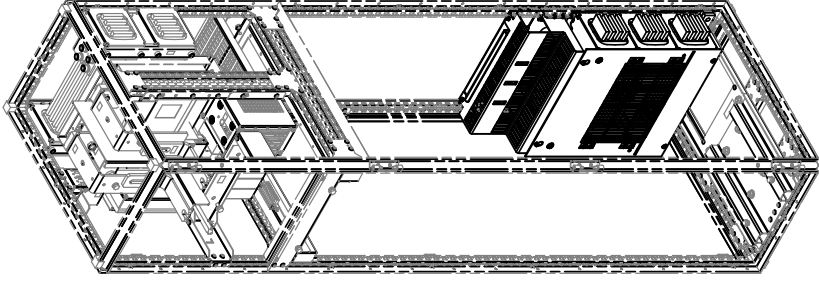
Ordering code: 3AUA0000119227
KIT A 468-8-100

Ordering code: 3AXD50000337477
KIT A-4-8-132-VX

| | | | | | | | | |
|-----------------|-----------------|--------------|---------------|-----------|-----------|------------------|----------|------|
| Based on | 3AXD5000034254 | Prepared | M. Michelsson | 02-Apr-19 | Title | ASSEMBLY DRAWING | Scale | Form |
| Customer | | Checked | M. Michelsson | 02-Apr-19 | Base part | FOR RITTAL V823 | 1:1 (DR) | 1 |
| Cart. Desc. No. | | Project name | M. Michelsson | 02-Apr-19 | Desc. No. | 3AXD5000034259.4 | Sheet | EN |
| DWG Number | 3AXD10000809254 | Weight | kg | | | | Sheet | IT |
| | | | | | | | Total | 11 |

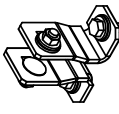
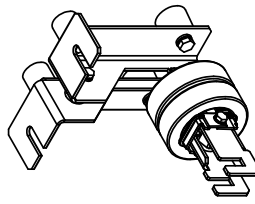
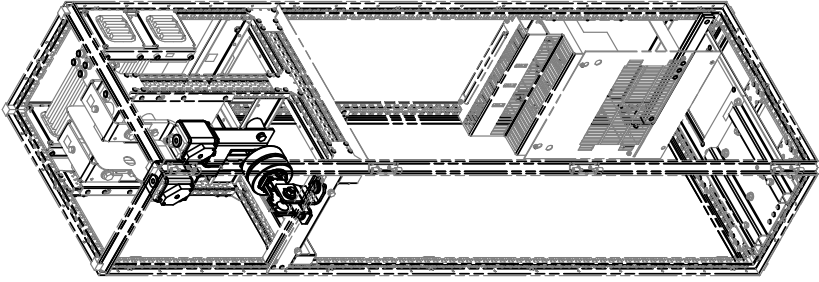


Stage 4 B: Installation of quick connector and output (AC) busbars (common AC output busbar connection)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------|-----------|------------------|---|---|---|---|----------|----------|-------|------|----------|---------------|-----------|------------------|--------------|---------------|-----------|-------|------------|-----------------|-----------|-----------|--|--|--|-----------|--|--|--|------------|--|--|--|-------|--|--|--|----|--|--|--|-------|--|--|--|---|--|--|--|-------|--|--|--|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3AXD5000342594 ACS880-104-R81-W400-VX25 (ASSEMBLY) A.1.1 Initial Approval 02-Apr-19 M. Michelsson</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Reserve all rights in this document and its contents contained herein. Reproduction, distribution, or use of any part of this document is strictly forbidden. © ABB. All rights reserved. ABB, the ABB logo, and other marks contained herein are trademarks of ABB Corporation in Sweden.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 4B: R8i COMMON AC OUTPUT BUSBARS W400 and R8i AC BUSBARS W400 installation</p> <p>See assembly drawing 3AUA0000118667 and 3AXD50000343928 for details and required additional Rittal and standard parts.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Ordering code: 3AUA0000119227 KIT A 468-8-100</p> <p>Ordering code: 3AXD50000337088 KIT A-4-8-140-VX</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 33%;">Based on</td> <td style="width: 33%;">Prepared</td> <td style="width: 33%;">Title</td> <td style="width: 17%;">Form</td> </tr> <tr> <td>Customer</td> <td>M. Michelsson</td> <td>02-Apr-19</td> <td>ASSEMBLY DRAWING</td> </tr> <tr> <td>Project name</td> <td>M. Michelsson</td> <td>02-Apr-19</td> <td>Scale</td> </tr> <tr> <td>DWG Number</td> <td>3AXD10000809254</td> <td>Perth1 kt</td> <td>1:1:10 A3</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Per. ind.</td> </tr> <tr> <td></td> <td></td> <td></td> <td>A. I. (DR)</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Lang.</td> </tr> <tr> <td></td> <td></td> <td></td> <td>EM</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Sheet</td> </tr> <tr> <td></td> <td></td> <td></td> <td>7</td> </tr> <tr> <td></td> <td></td> <td></td> <td>Total</td> </tr> <tr> <td></td> <td></td> <td></td> <td>11</td> </tr> </table> | | | | | | | | Based on | Prepared | Title | Form | Customer | M. Michelsson | 02-Apr-19 | ASSEMBLY DRAWING | Project name | M. Michelsson | 02-Apr-19 | Scale | DWG Number | 3AXD10000809254 | Perth1 kt | 1:1:10 A3 | | | | Per. ind. | | | | A. I. (DR) | | | | Lang. | | | | EM | | | | Sheet | | | | 7 | | | | Total | | | | 11 |
| Based on | Prepared | Title | Form | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer | M. Michelsson | 02-Apr-19 | ASSEMBLY DRAWING | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project name | M. Michelsson | 02-Apr-19 | Scale | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DWG Number | 3AXD10000809254 | Perth1 kt | 1:1:10 A3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | Per. ind. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | A. I. (DR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | Lang. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | EM | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | Sheet | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 7 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | Total | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



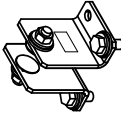
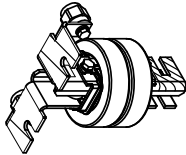
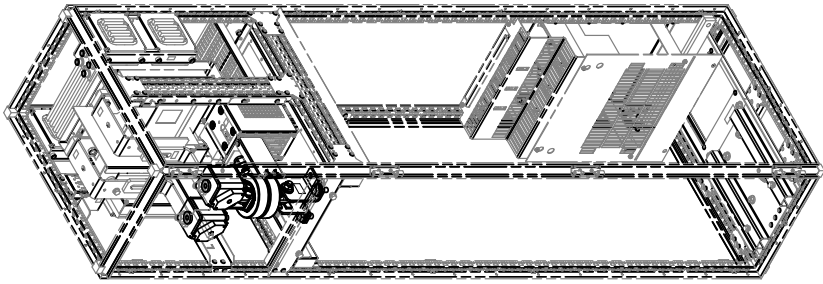
Stage 5 A: Installation of DC busbars (2) (without DC switch/charging)

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD50000028403 ACCESSORY KIT FOR DC BUSBAR CONNECTIONS 3AXD50000028403 ASSEMBLY KIT A Initial Approval 102-Apr-19 M. Michelsson | | | | | | | |
| We request that you do not disseminate this document or its contents outside the company. Any reproduction, use or disclosure to third parties without express authority is strictly forbidden. © 2019 ABB. ALL RIGHTS RESERVED. INFORMATION IS CONFIDENTIAL. | | | | | | | |
| <p>STAGE 5A : R8I COMMON MODE BUSBARS and R8I DC FLANGES installation for fuse solution.</p> <p>See assembly drawings 3AXD50000028384 and 3AXD50000028418 for details and required additional Rittal and standard parts.</p> | | | | | | | |
|  | | | |  | | | |
| <p>Ordering code: 3AXD50000028403 1 kit/module KIT A-468-8-246</p> | | | | <p>Ordering code: 3AXD50000028401 Toroids/fuses not included in kit 1 kit/module KIT A-468-8-235</p> | | | |
|  | | | | | | | |
| First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion. | | | | | | | |
| Based on: Prepared: M. Michelsson 02-Apr-19 Title: ASSEMBLY DRAWING Customer: M. Michelsson 02-Apr-19 Project: ASSEMBLY DRAWING Part. Desc. No.: M. Michelsson 02-Apr-19 FOR RITTAL V423 Project Name: 3AXD50000028403 DWG Number: 3AXD50000028403 Weight: kg | | | | | | | |
| Dec. No.: 3AXD50000034259.4 Dec. No.: 3AXD50000034259.4 Sheet: 8 Total: 11 | | | | | | | |



Stage 5 B: Installation of DC busbars (2) (with DC switch/charging)



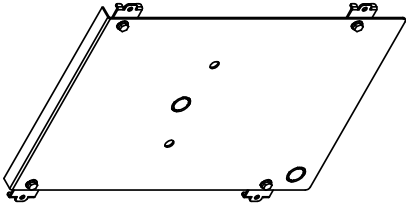
| | | | | | | | |
|--|---|---|---|--|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD50000342534 ACS880-104-R81-W400-VX25 (ASSEMBLY) A.11 We reserve all rights in this document and in the information contained therein, reproduction, distribution, modification, copying, or any other use is strictly prohibited. © ABB. ALL RIGHTS RESERVED. ABB TECHNICAL INFORMATION. CONFIDENTIAL 02-Apr-19 M. Michelsson | | | | | | | |
| Initial Approval | | | | | | | |
| <p>STAGE 5B : R81 COMMON MODE BUSBARS CHARG. and R81 DC FLANGES CHARG. installation for charging solution.</p> <p>See assembly drawings 3AXD50000043411 and 3AXD50000043466 for details and required additional Rittal and standard parts.</p> | | | | | | | |
|  | | | |  | | | |
| Ordering code: 3AXD50000044553 1 kit/module KIT A-468-8-248 | | | | Ordering code: 3AXD50000044551 Toroids/fuses not included in kit 1 kit/module KIT A-468-8-247 | | | |
|  | | | | | | | |
| Based on: M. Michelsson 02-Apr-19 Title: ASSEMBLY DRAWING Form: A3 Customer: ACS880-104-R81-W400 Checked: M. Michelsson 02-Apr-19 ACS880-104-R81-W400 Approved: M. Asikainen 02-Apr-19 FOR RITTAL VX25 Project name: 3AXD50000034254 Weight: kg DMS Number: 3AXD50000034254 Doc. No.: 3AXD5000034254 Rev. No.: A.1 (DR) Rev. Ind.: Scale: 1:10 Doc. des.: ASSEMBLY DRAWING Resp. Dept.: Doc. No.: 3AXD5000034254 Form: A3 Scale: 1:10 Rev. Ind.: A.1 (DR) Rev. No.: Total: 3 | | | | | | | |

Stage 6: Installation of shrouding

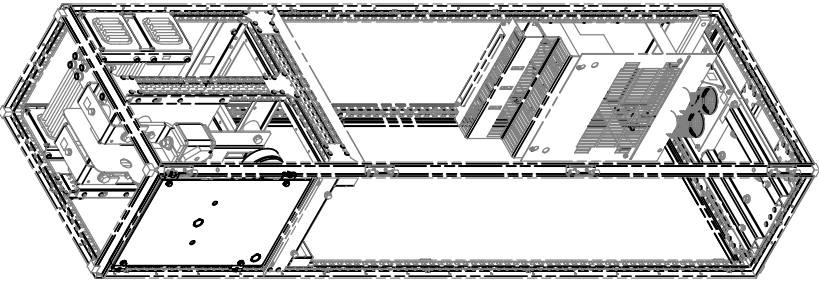
| | | | | | | | |
|--|---|--------------------------|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p>3AXD5000034254 ACCESSORY KIT FOR W400 V123 ASSEMBLY KIT 3AXD5000034254</p> | | | | | | | |
| <p>WE HEREBY CERTIFY TO THIS DOCUMENT USE IN THE MANNER AND FOR THE PURPOSES INTENDED. REPRODUCTION, USE OR DISCLOSURE TO THIRD PARTIES WITHOUT EXPRESS AUTHORITY IS STRICTLY FORBIDDEN. © ABB AB, 10270, ROSSLECHEN, SWITZERLAND. CONFIDENTIAL</p> | | | | | | | |
| A. Initial Approval | | 102-Apr-19 M. Michelsson | | | | | |

STAGE 6: R8i SHROUD INST. PARTS W400 installation

See assembly drawing 3AXD50000335169 for details and required additional Rittal and standard parts.



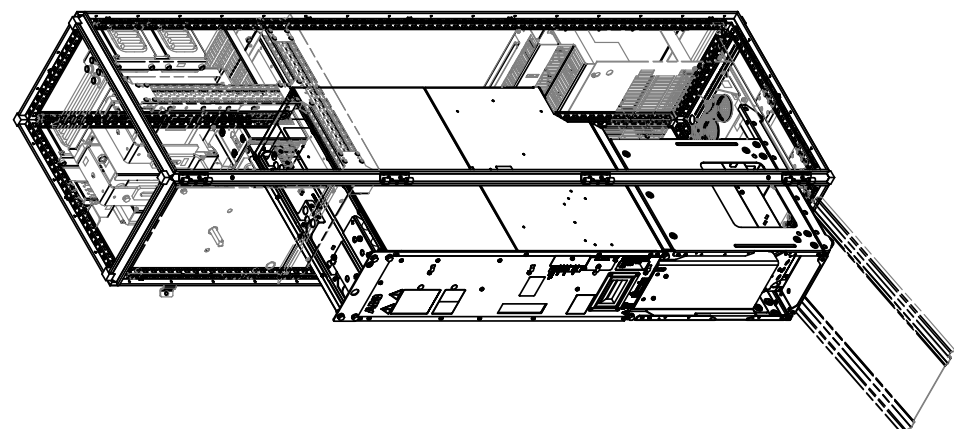
Ordering code: 3AXD50000337484
 KIT A-4-8-359-VX



| | | | | | | |
|-----------------|-----------------|-----------|--------------|------------------|-------|----------|
| Based on | M. Michelsson | 02-Apr-19 | Title | ASSEMBLY DRAWING | Scale | Form |
| Customer | M. Michelsson | 02-Apr-19 | Base part | W400 | Ratio | Kit (DR) |
| Cart. Desc. No. | M. Michelsson | 02-Apr-19 | Base part | FOR RITTAL V123 | Ratio | Kit (DR) |
| IMS Number | 3AXD10000809254 | | Project name | | Sheet | 10 |
| | | | Weight, kg | | Sheet | 11 |
| | | | | | Total | 11 |

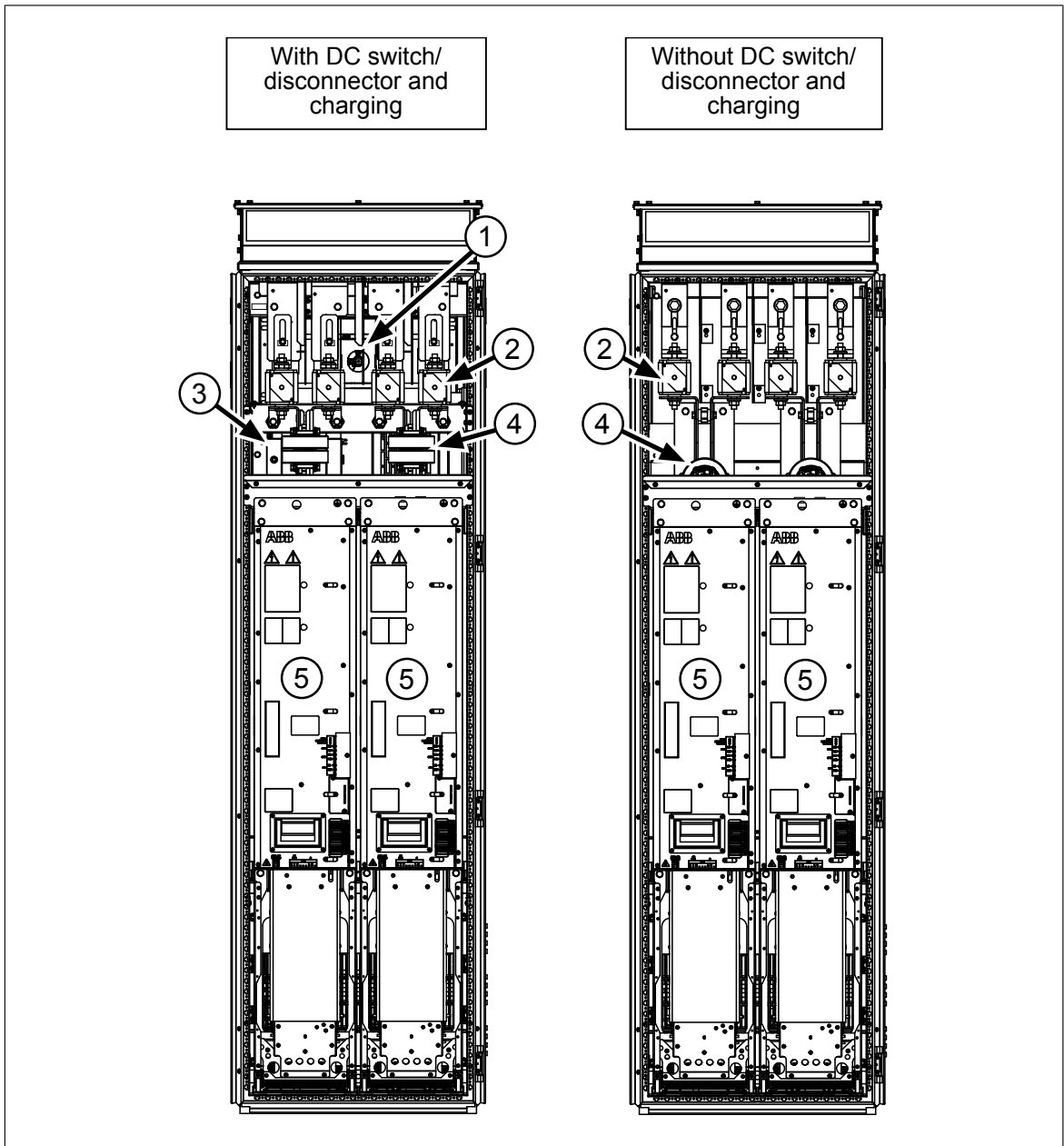


Stage 7: Installation of inverter module

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------|-----------|---------------------|------------------|----------|----------------|-------|-----------|----------------|-----------|-------|------------------|-------|------|------|----|-----------|----------------|-----------|---------------------|------------------|----------|----------|-------|----|--------|--------------|-----------|-----------------|------------------|----------|----------------|-------|----|---------------|--|--|--|----------|--|--|--|-------|-------------|-----------------|--|--|------------|--|--|--|--|---------|----|--|--|--|--|--|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p style="font-size: small;">3AXD5000342594 ACS880-104-R81-W400-VX25 (ASSEMBLY) A.1.1 © ABB Oy. PROPRIETARY AND SECRET INFORMATION. CONFIDENTIAL 02-Apr-19 M. MichéLisson</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p style="text-align: center;">Initial Approval</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 7: MODULE INSTALLATION</p> <p>See ACS880-104 Hardware Manual for details</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p style="font-size: small;">First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Based on:</td> <td>M. MichéLisson</td> <td>02-Apr-19</td> <td>Title</td> <td>ASSEMBLY DRAWING</td> <td>Scale</td> <td>1:10</td> <td>Form</td> <td>A3</td> </tr> <tr> <td>Customer:</td> <td>M. MichéLisson</td> <td>02-Apr-19</td> <td>ACS880-104-R81-W400</td> <td>ASSEMBLY DRAWING</td> <td>Rev.ind.</td> <td>A.1 (DR)</td> <td>Lang.</td> <td>EN</td> </tr> <tr> <td>Appr.:</td> <td>M. Asikainen</td> <td>02-Apr-19</td> <td>FOR RITTAL VX25</td> <td>ASSEMBLY DRAWING</td> <td>Doc. No.</td> <td>3AXD5000342594</td> <td>Sheet</td> <td>11</td> </tr> <tr> <td>Project name:</td> <td colspan="3"></td> <td>Doc. No.</td> <td colspan="3"></td> <td>Total</td> </tr> <tr> <td>DWG Number:</td> <td colspan="3">3AXD10000809254</td> <td colspan="4" style="text-align: center;">ABB</td> <td></td> </tr> <tr> <td>Weight:</td> <td colspan="3">kg</td> <td colspan="4"></td> <td></td> </tr> </table> | | | | | | | | Based on: | M. MichéLisson | 02-Apr-19 | Title | ASSEMBLY DRAWING | Scale | 1:10 | Form | A3 | Customer: | M. MichéLisson | 02-Apr-19 | ACS880-104-R81-W400 | ASSEMBLY DRAWING | Rev.ind. | A.1 (DR) | Lang. | EN | Appr.: | M. Asikainen | 02-Apr-19 | FOR RITTAL VX25 | ASSEMBLY DRAWING | Doc. No. | 3AXD5000342594 | Sheet | 11 | Project name: | | | | Doc. No. | | | | Total | DWG Number: | 3AXD10000809254 | | | ABB | | | | | Weight: | kg | | | | | | | |
| Based on: | M. MichéLisson | 02-Apr-19 | Title | ASSEMBLY DRAWING | Scale | 1:10 | Form | A3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer: | M. MichéLisson | 02-Apr-19 | ACS880-104-R81-W400 | ASSEMBLY DRAWING | Rev.ind. | A.1 (DR) | Lang. | EN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Appr.: | M. Asikainen | 02-Apr-19 | FOR RITTAL VX25 | ASSEMBLY DRAWING | Doc. No. | 3AXD5000342594 | Sheet | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project name: | | | | Doc. No. | | | | Total | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DWG Number: | 3AXD10000809254 | | | ABB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Weight: | kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



■ Two R8i modules in a 600 mm wide Rittal VX25 enclosure



Description

Cubicle including:

1. DC switch/disconnector (obscured)
2. DC fuses
3. Charging switch
4. Common mode filters
5. Inverter module

Installation stages

| # | Installation stage | Instruction code | Kit code | Kit ordering code |
|-----|---|------------------|----------------|-------------------|
| 1 | Common parts: | | | |
| | Baying parts | 3AXD50000336340 | - | - |
| | PE busbar | 3AXD50000336104 | - | - |
| | Divider panel | 3AXD50000336692 | - | - |
| | DC busbars | 3AXD50000333639 | A-468-X-001-VX | 3AXD50000333387 |
| 2 A | DC connection 1 of 2 (from DC bus to DC fuses) without DC switch/charging: | | | |
| | Busbar assembly | 3AXD50000342471 | A-6-8-255-VX | 3AXD50000337521 |
| | Busbars | 3AXD50000345915 | A-46-8-206-VX | 3AXD50000337446 |
| 2 B | DC connection 1 of 2 (from DC bus to DC fuses) with DC switch/charging: | | | |
| | DC switch/charging assembly | 3AXD50000342860 | A-6-8-289-VX | 3AXD50000337545 |
| | Busbar assembly | 3AXD50000342983 | A-6-8-291-VX | 3AXD50000337538 |
| | Busbars | 3AXD50000345458 | A-46-8-207-VX | 3AXD50000337453 |
| 3 | Module mechanical installation parts, lead-throughs: | | | |
| | Module top/bottom guides | 3AXD50000345052 | A-6-8-309-VX | 3AXD50000337514 |
| | Lead-throughs | 3AXD50000004817 | A-468-8-441 | 3AXD50000004385 |
| 4 A | Quick connector, output (AC) busbars (cable connection without bridging): | | | |
| | Quick connector | 3AUA0000118667 | A-468-8-100 | 3AUA0000119227 |
| | Busbars and shrouds | 3AXD50000345526 | A-6-8-133-VX | 3AXD50000337569 |
| 4 B | Quick connector, output (AC) busbars (cable connection with bridging): | | | |
| | Quick connector | 3AUA0000118667 | A-468-8-100 | 3AUA0000119227 |
| | Busbars and shrouds | 3AXD50000345632 | A-6-8-134-VX | 3AXD50000337576 |
| 4 C | Quick connector, output (AC) busbars (common AC output busbar connection): | | | |
| | Quick connector | 3AUA0000118667 | A-468-8-100 | 3AUA0000119227 |
| | Busbars and shrouds | 3AXD50000346196 | A-6-8-141-VX | 3AXD50000337552 |
| 5 A | DC connection 2 of 2 (from DC fuses to inverter module) without DC switch/charging: | | | |
| | DC connection flanges | 3AXD50000028384 | A-468-8-246 | 3AXD50000028403 |
| | DC busbars with common mode filters | 3AXD50000028418 | A-468-8-235 | 3AXD50000028401 |
| 5 B | DC connection 2 of 2 (from DC fuses to inverter module) with DC switch/charging: | | | |
| | DC connection flanges | 3AXD50000043466 | A-468-8-248 | 3AXD50000044553 |
| | DC busbars with common mode filters (filters not included in kit) | 3AXD50000043411 | A-468-8-247 | 3AXD50000044551 |
| 6 | Shrouding | 3AXD50000335022 | A-6-8-360-VX | 3AXD50000337378 |
| 7 | Inverter module | - | - | - |



Overview of kits

3AXD5000347919

Accessories: 104, R81-W600-VX25, ASSEMBLY KIT

Initial Approval

2

Prepared: M. Michelsson

Checked: M. Asbjornsen

Project name: 3AXD10000816615

DWG Number

3

See kit assembly drawings for required Rittal and/or other standard parts.

4

Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

5

First angle projection.

6

Kit assembly drawings

7

Kit assembly drawings

8

Kit assembly drawings

KITS FOR INU 2xR8i IN RITTAL VX25 2000x600x600 CABINET

Note! Only parts included in 488 kits, shown here.

See kit assembly drawings for required Rittal and/or other standard parts.

R8i SHROUD, INST. PARTS W600
KIT A-6-8-360-VX
Ordering code: 3AXD50000337378

R8i DC FLANGES (FUSE ONLY)
KIT A-468-8-246
Ordering code: 3AXD5000028403

R8i DC FLANGES CHARG.
KIT A-468-8-248
Ordering code: 3AXD5000044553

R8i COMMON MODE BUSBARS (FUSE ONLY)
KIT A-468-8-235
Ordering code: 3AXD5000028401

R8i COMMON MODE BUSBARS CHARG.
KIT A-468-8-247
Ordering code: 3AXD5000044551

R8i DC BUSBARS W600 (FUSE ONLY)
KIT A-6-8-255-VX
Ordering code: 3AXD50000337521

R8i DC BUSBARS W600 CHARG.
KIT A-6-8-291-VX
Ordering code: 3AXD50000337538

R8i INU CHARG. MECHANICS W600
KIT A-6-8-289-VX
Ordering code: 3AXD50000337545

R8i AC OUTPUT BUSBARS W600
KIT A-6-8-133-VX
Ordering code: 3AXD50000337569

R8i AC OUTPUT - INTERCORN. BUSBARS W600
KIT A-6-8-134-VX
Ordering code: 3AXD50000337576

R8i AC OUTPUT BUSBARS W600
KIT A-6-8-141-VX
Ordering code: 3AXD50000337552

R8i COMMON AC OUTPUT BUSBARS W600
KIT A-6-8-141-VX
Ordering code: 3AXD50000337552

R8i DC CONNECTION W. CHARG.
KIT A-46-8-207-VX
Ordering code: 3AXD50000337453

R8i DC CONNECTION
KIT A-46-8-208-VX
Ordering code: 3AXD50000337446

BRACKET FOR FLAT-PLS BUSBAR HOLDER
(COMMON DC)
KIT A-466-X-001-VX
Ordering code: 3AXD50000333387

X8X QUICK CONNECTORS FOR MODULE
KIT A-466-8-100
Ordering code: 3AXD50000119227

LEAD-THROUGH FOR BOTTOM PLATE
KIT A-468-8-44
Ordering code: 3AXD50000004395

| Doc. No. | Scale | Form |
|------------------|----------------------|----------|
| ASSEMBLY DRAWING | 1:1 | Form 3 |
| Base part: | Base title: A-2 (DR) | Leaf: EN |
| Doc. No. | 3AXD50000347919 | Sheet: 1 |
| | | Total: 1 |

Based on: M. Michelsson

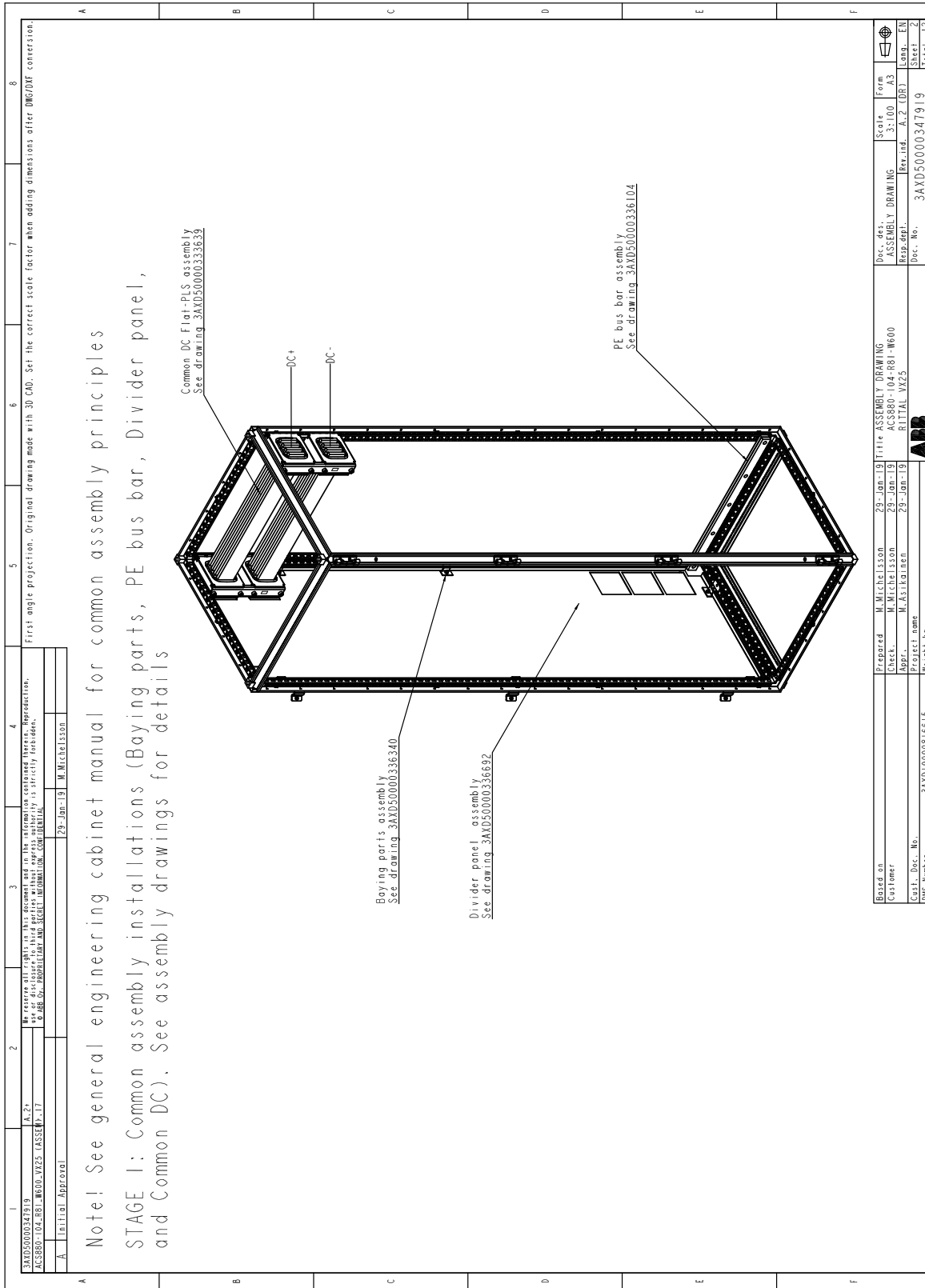
Customer: M. Asbjornsen

Project name: 3AXD10000816615

DWG Number



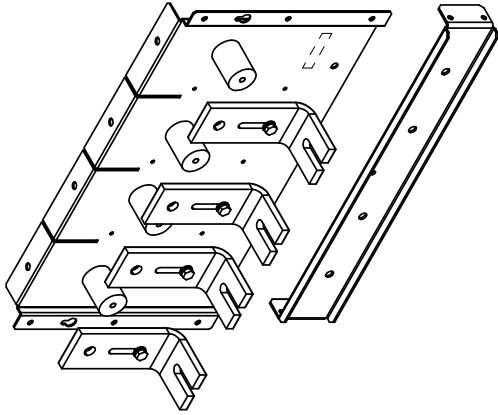
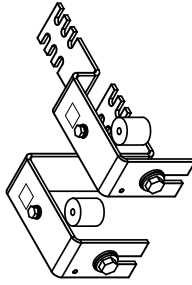
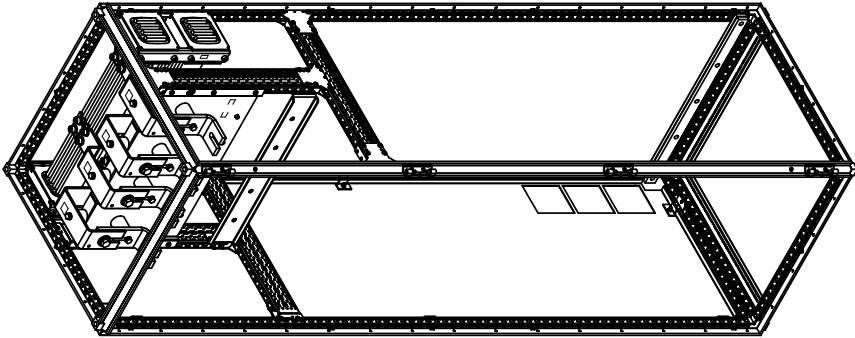
Stage 1: Installation of common parts



| | | | | | | | |
|--|---|-----------|---|---------------|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD50000347919 ACS880-104-R81-W600-VX25-CASSEP-17 A.2+ We reserve all rights in this document and in the information contained therein, reproduction, storage in retrieval systems and disclosure is strictly prohibited. © ABB. All rights reserved. | | | | | | | |
| Initial Approval | | 29-Jan-19 | | M. Michelsson | | | |

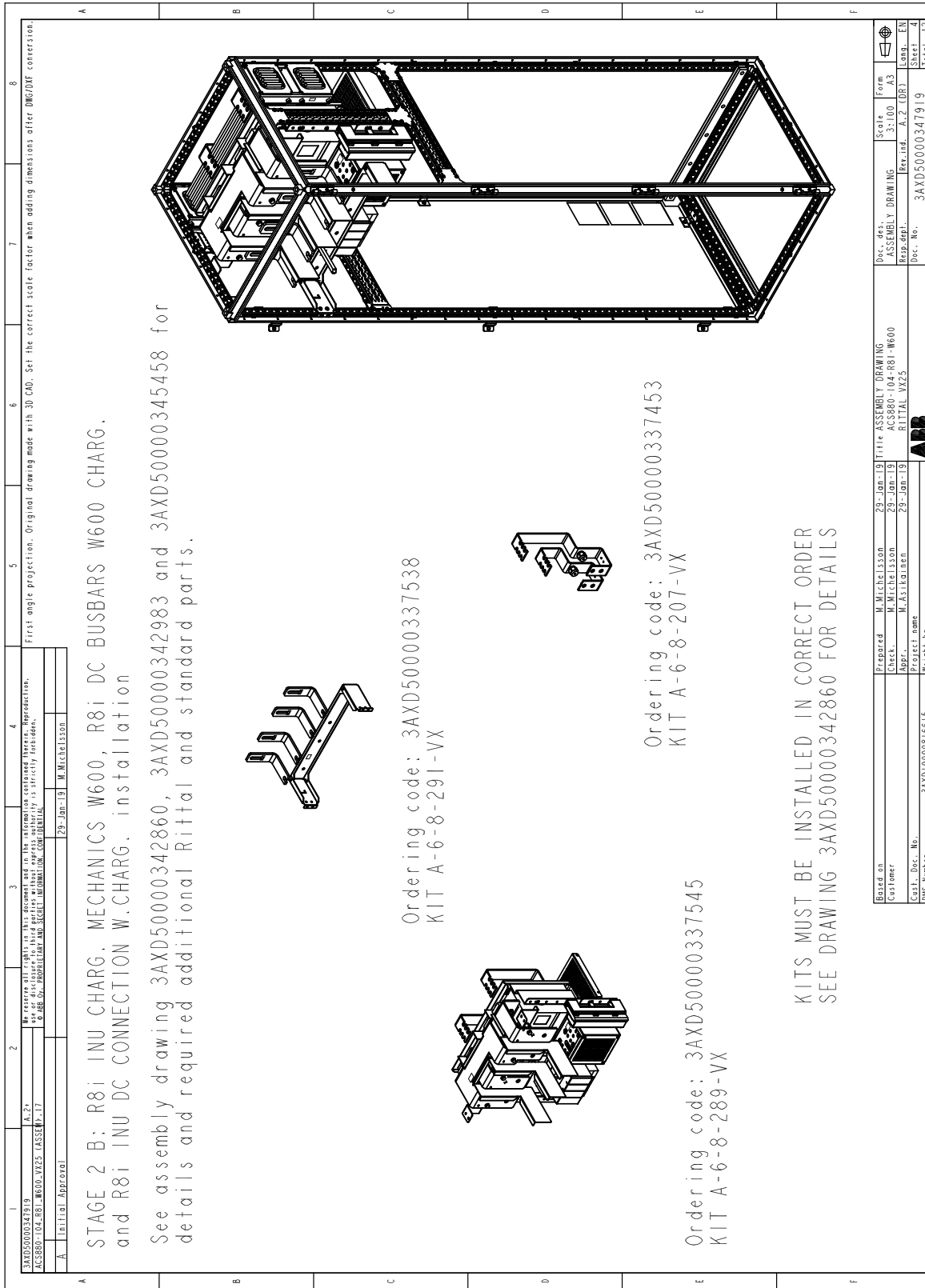
| | | | | | | | | | | | |
|---------------|-----------------|---------------|-----------|---------------------|------------------|-------------|------------------|-----------|----------|-------|----|
| Based on | Prepared | M. Michelsson | 29-Jan-19 | Title | ASSEMBLY DRAWING | Doc. des. | ASSEMBLY DRAWING | Scale | 3:100 | Form | A3 |
| Customer | Check | M. Michelsson | 29-Jan-19 | ACS880-104-R81-W600 | | Resp. appl. | | Rev. ind. | A.2 (DR) | Lang. | EN |
| Cur. Doc. No. | Appr. | M. Asikainen | 29-Jan-19 | RITTAL VX25 | | Doc. No. | 3AXD50000347919 | Sheet | 2 | Total | 12 |
| DWG Number | 3AXD10000816615 | | Weight | | kg | | | | | | |

Stage 2 A: Installation of DC busbars (1) (without DC switch/charging)

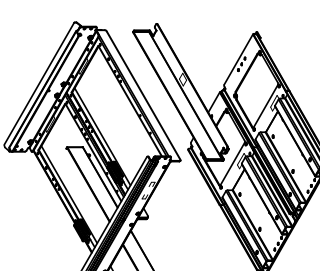
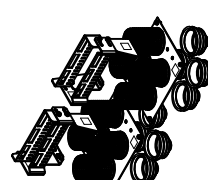
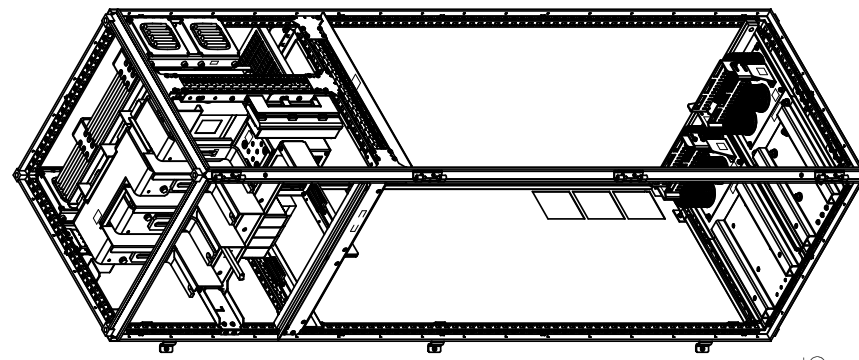
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AXD50000347919 A-21 ACCESSORY DRAWING M. Michelsson 29-Jan-19 M. Michelsson Initial Approval | | | | | | | |
| We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. © ABB AB. PROPRIETARY AND CONFIDENTIAL INFORMATION. | | | | | | | |
| <p>STAGE 2 A: R8i DC BUSBARS W600 and R8i DC CONNECTION installation for fuse solution.</p> <p>See assembly drawing 3AXD50000342471 and 3AXD50000345915 for details and required additional Rittal and standard parts.</p> | | | | | | | |
|  | | | |  | | | |
| <p>Ordering code: 3AXD50000337521 KIT A-6-8-255-VX</p> | | | | <p>Ordering code: 3AXD50000337446 1 kit/module KIT A-46-8-206-VX</p> | | | |
|  | | | | | | | |
| First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion. | | | | | | | |
| Based on: Prepared: M. Michelsson 29-Jan-19 Title: ASSEMBLY DRAWING Customer: M. Michelsson 29-Jan-19 RITTAL W600 Project: M. Michelsson 29-Jan-19 RITTAL W600 Project name: 3AXD10000816615 DWG Number: 3AXD10000816615 Weight: kg | | | | | | | |
| Draw. No.: 3AXD50000347919 Scale: 1:1 Rev. No.: 01 Rev. Date: 29-Jan-19 Rev. Title: A-2 (DR) | | | | | | | |
| Dec. No.: 3AXD50000347919 Dec. Date: 29-Jan-19 Dec. Title: A-2 (DR) | | | | | | | |
| Form: 1 Sheet: 1 of 1 Total: 1 | | | | | | | |



Stage 2 B: Installation of DC busbars (1) (with DC switch/charging)

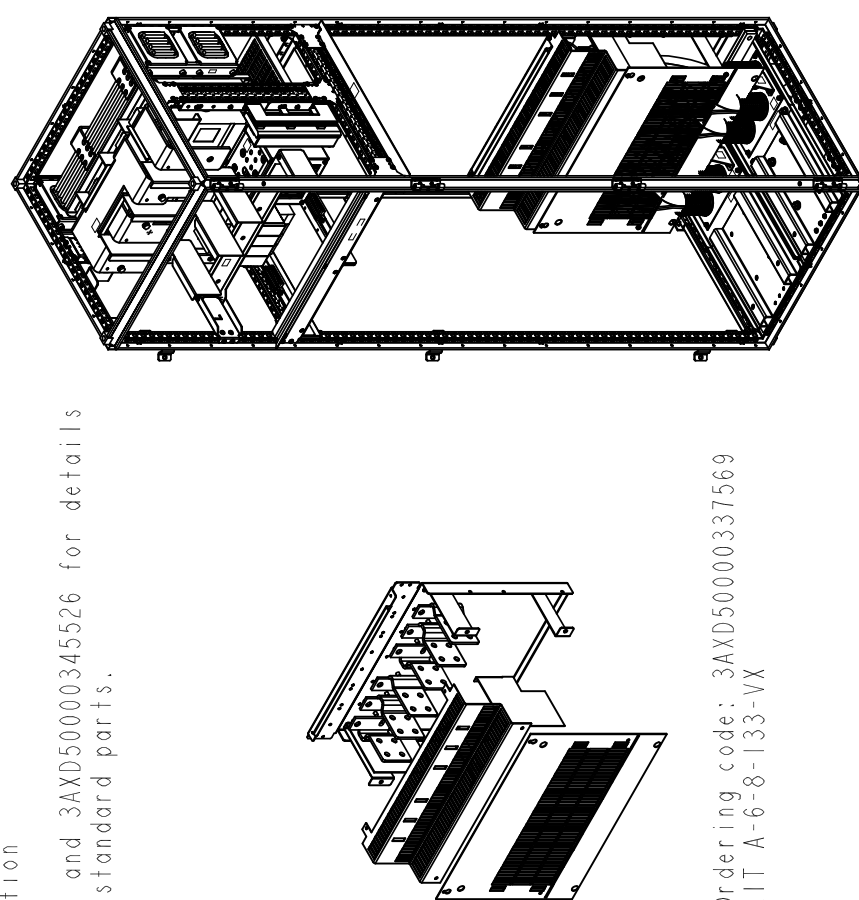


Stage 3: Installation of module installation parts and lead-throughs

| | | | | | | | |
|--|---|--|---|--|---|--|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| <p>3AXD50000347919 ASSEMBLY DRAWING RITTAL W600, W123, ASSEMBLY KIT</p> <p style="font-size: small;">We reserve all rights in this document and its contents. Reproduction, use or disclosure in any manner without express authority is strictly forbidden. ©ABB AB, RITTAL, ABB, AEG, SIEMENS, SCHNEIDER ELECTRIC, GEORGIA INSTITUTE OF TECHNOLOGY</p> <p>29-Jan-19 M. Michelsson Initial Approval</p> | | | | | | | |
| <p>STAGE 3: R8i MODULE INST PARTS W600 and LEAD-THROUGH FOR BOTTOM PLATE installation</p> <p>See assembly drawing 3AXD50000345052 and 3AXD50000004817 for details and required Rittal and standard parts.</p> | | | | | | | |
|  | |  | |  | | | |
| <p>Ordering code: 3AXD50000337514 KIT A-6-8-309-VX</p> | | <p>Ordering code: 3AXD50000004385 I kit/module KIT A-468-8-441</p> | | <p>Ordering code: 3AXD50000347919</p> | | | |
| <p>Based on: M. Michelsson 29-Jan-19 Title: ASSEMBLY DRAWING</p> | | <p>Customer: M. Michelsson 29-Jan-19 3AXD50000347919</p> | | <p>Base Part: M. Michelsson 29-Jan-19 RITTAL W600</p> | | <p>Doc. No.: M. Michelsson 29-Jan-19 RITTAL W600</p> | |
| <p>Cart. Desc. No.: 3AXD10000316615</p> | | <p>Project Name:</p> | | <p>Weight: kg</p> | | <p>Scale: 1:1</p> | |
| <p>DWG Number:</p> | | <p>ABB</p> | | <p>Doc. No.: 3AXD50000347919</p> | | <p>Form:</p> | |
| <p>Sheet 1 of 1</p> | | <p>Sheet 1 of 1</p> | | <p>Sheet 1 of 1</p> | | <p>Sheet 1 of 1</p> | |

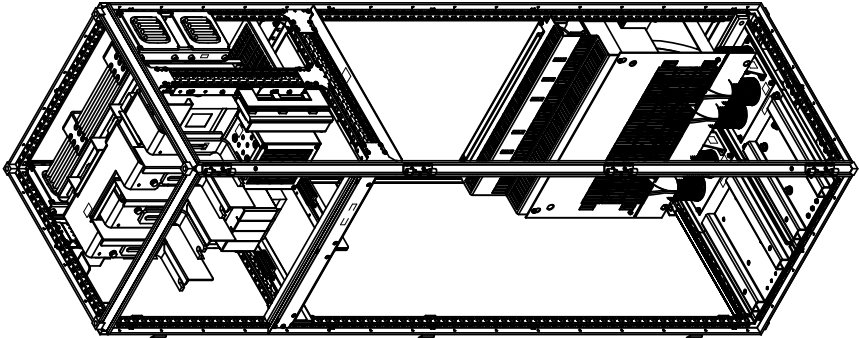
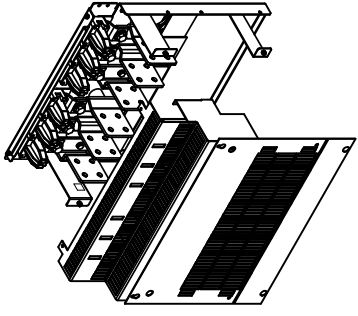
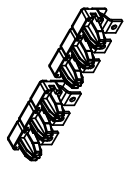


Stage 4 A: Installation of quick connector and output (AC) busbars (cable connection)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------|-----------|----------|---------------------|-------------|------------------|-----------|-----------|---------------|-----------|-------|------------------|-----------|------------------|-------|-------|------|----|----------|---------------|-----------|----------|---------------------|-------------|-------------|-----------|----------|-------|----|---------------|-----------------|-----------|-------|---------------|----------|-----------------|-------|---|-------|----|-------------|------------|--|--|--|--|--|--|--|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3AXD5000347919 ACS880-104-R81-W600-VX25 (ASSEMBLY) A.21 © ABB. ALL RIGHTS RESERVED. INFORMATION CONTAINED HEREIN IS PROPRIETARY AND SHALL REMAIN THE PROPERTY OF ABB.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Initial Approval 79-Jan-19 M. MICHELSSON</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 4A: X8X QUICK CONNECTORS FOR MODULE and R8i AC OUTPUT BUSBARS W600 installation</p> <p>See assembly drawing 3AUA0000118667 and 3AXD5000034526 for details and required additional Rittal and standard parts.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Ordering code: 3AUA0000119227 1 kit/module KIT A 468-8-100</p> <p>Ordering code: 3AXD50000337569 KIT A-6-8-133-VX</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Based on:</td> <td>M. Michelsson</td> <td>29-Jan-19</td> <td>Title</td> <td>ASSEMBLY DRAWING</td> <td>Doc. des.</td> <td>ASSEMBLY DRAWING</td> <td>Scale</td> <td>3:100</td> <td>Form</td> <td>A3</td> </tr> <tr> <td>Created:</td> <td>M. Michelsson</td> <td>29-Jan-19</td> <td>Checked:</td> <td>ACS880-104-R81-W600</td> <td>Resp. appl.</td> <td>RITTAL VX25</td> <td>Rev. ind.</td> <td>A.2 (DR)</td> <td>Lang.</td> <td>EN</td> </tr> <tr> <td>Cur. Doc. No.</td> <td>3AXD10000816615</td> <td>29-Jan-19</td> <td>Appr.</td> <td>M. Asikigiren</td> <td>Doc. No.</td> <td>3AXD50000347919</td> <td>Sheet</td> <td>6</td> <td>Total</td> <td>12</td> </tr> <tr> <td>DWG. Number</td> <td colspan="10" style="text-align: right;">ABB</td> </tr> </table> | | | | | | | | Based on: | M. Michelsson | 29-Jan-19 | Title | ASSEMBLY DRAWING | Doc. des. | ASSEMBLY DRAWING | Scale | 3:100 | Form | A3 | Created: | M. Michelsson | 29-Jan-19 | Checked: | ACS880-104-R81-W600 | Resp. appl. | RITTAL VX25 | Rev. ind. | A.2 (DR) | Lang. | EN | Cur. Doc. No. | 3AXD10000816615 | 29-Jan-19 | Appr. | M. Asikigiren | Doc. No. | 3AXD50000347919 | Sheet | 6 | Total | 12 | DWG. Number | ABB | | | | | | | | | |
| Based on: | M. Michelsson | 29-Jan-19 | Title | ASSEMBLY DRAWING | Doc. des. | ASSEMBLY DRAWING | Scale | 3:100 | Form | A3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Created: | M. Michelsson | 29-Jan-19 | Checked: | ACS880-104-R81-W600 | Resp. appl. | RITTAL VX25 | Rev. ind. | A.2 (DR) | Lang. | EN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cur. Doc. No. | 3AXD10000816615 | 29-Jan-19 | Appr. | M. Asikigiren | Doc. No. | 3AXD50000347919 | Sheet | 6 | Total | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DWG. Number | ABB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Stage 4 B: Installation of quick connector and output (AC) busbars (cable connection with bridging)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----------------|---------------------|-----------|---|---|---|---|-----------|--------------|--------|--------|-----------------|-----------------|---------------------|-------|-----------|---------------|------------|-----------|--|-----------------|-----------|---------|--------|---------|------------|--|---|----|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | |
| 3AXD5000347919 A 24 ACS850-104-181-1 W600 V25 ASSEMBLY V.17 © 2018 ABB CORPORATION AND SEVERAL AFFILIATED COMPANIES. ALL RIGHTS RESERVED. First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A Initial Approval 29-Jan-19 M. Michelsson | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p style="font-weight: bold; margin: 0;">STAGE 4B: X8X QUICK CONNECTORS FOR MODULE and R8i AC OUTP. INTERCONN. BUSBARS W600 installation</p> <p style="margin: 0;">See assembly drawing 3AUA0000118667 and 3AXD50000345632 for details and required additional Rittal and standard parts.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p style="font-weight: bold;">Ordering code: 3AUA0000119227</p> <p>1 kit/module</p> <p>KIT A 468-8-100</p> <p style="font-weight: bold;">Ordering code: 3AXD50000337576</p> <p>KIT A-6-8-134-VX</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="0" style="width: 100%;"> <tr> <td style="width: 25%;">Based on:</td> <td style="width: 25%;">Prepared by:</td> <td style="width: 25%;">Title:</td> <td style="width: 25%;">Scale:</td> </tr> <tr> <td>M. Michelsson</td> <td>M. Michelsson</td> <td>3D ASSEMBLY DRAWING</td> <td>1:100</td> </tr> <tr> <td>Customer:</td> <td>Project name:</td> <td>Revision:</td> <td>Drawn by:</td> </tr> <tr> <td></td> <td>3AXD10000818615</td> <td>02-Jan-19</td> <td>A.2-D03</td> </tr> <tr> <td>Sheet:</td> <td>Weight:</td> <td colspan="2" style="text-align: right;">ABB</td> </tr> <tr> <td>1</td> <td>kg</td> <td colspan="2"></td> </tr> </table> | | | | | | | | Based on: | Prepared by: | Title: | Scale: | M. Michelsson | M. Michelsson | 3D ASSEMBLY DRAWING | 1:100 | Customer: | Project name: | Revision: | Drawn by: | | 3AXD10000818615 | 02-Jan-19 | A.2-D03 | Sheet: | Weight: | ABB | | 1 | kg | | |
| Based on: | Prepared by: | Title: | Scale: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M. Michelsson | M. Michelsson | 3D ASSEMBLY DRAWING | 1:100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer: | Project name: | Revision: | Drawn by: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | 3AXD10000818615 | 02-Jan-19 | A.2-D03 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sheet: | Weight: | ABB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="0" style="width: 100%;"> <tr> <td style="width: 25%;">Doc. No.:</td> <td style="width: 25%;">Rev. No.:</td> <td style="width: 25%;">Form:</td> <td style="width: 25%;">Scale:</td> </tr> <tr> <td>3AXD50000347919</td> <td>3AXD50000347919</td> <td>ASSEMBLY DRAWING</td> <td>1:100</td> </tr> <tr> <td>Drawn by:</td> <td>Checked by:</td> <td>Issued by:</td> <td>Drawn by:</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Sheet:</td> <td>Weight:</td> <td colspan="2" style="text-align: right;">ABB</td> </tr> <tr> <td>1</td> <td>kg</td> <td colspan="2"></td> </tr> </table> | | | | | | | | Doc. No.: | Rev. No.: | Form: | Scale: | 3AXD50000347919 | 3AXD50000347919 | ASSEMBLY DRAWING | 1:100 | Drawn by: | Checked by: | Issued by: | Drawn by: | | | | | Sheet: | Weight: | ABB | | 1 | kg | | |
| Doc. No.: | Rev. No.: | Form: | Scale: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3AXD50000347919 | 3AXD50000347919 | ASSEMBLY DRAWING | 1:100 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drawn by: | Checked by: | Issued by: | Drawn by: | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sheet: | Weight: | ABB | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | kg | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Stage 4 C: Installation of quick connector and output (AC) busbars (common AC output busbar connection)

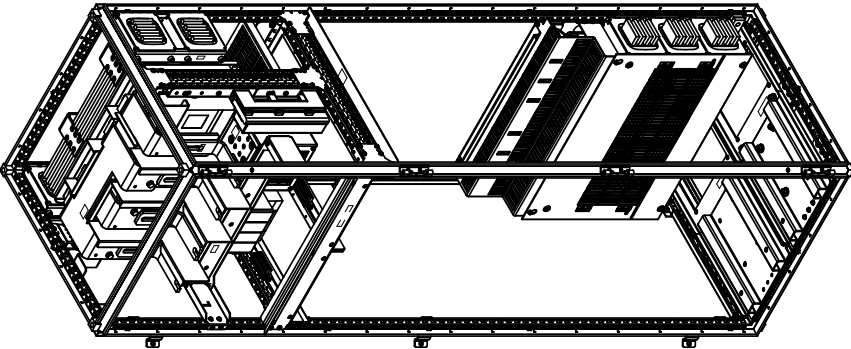
1 2 3 4 5 6 7 8

3AXD5000347919
ACS880-104-R81-W600-VX25 (ASSEMBLY KIT)

Initial Approval

Prepared by: M. Michelsson
Checked by: M. Michelsson
Approved by: M. Asikainen

29-Jan-19 | M. Michelsson



Doc. No. 3AXD5000347919

Form A3

Scale 3:100

Per. ind. A.2 (DR)

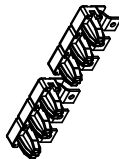
Lang. EN

Sheet 8

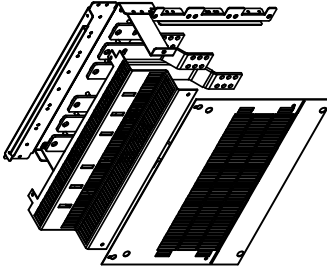
Total 12

STAGE 4C: X8X QUICK CONNECTORS FOR MODULE and R81 COMMON AC OUTPUT BUSBARS W600 installation

See assembly drawing 3AUA0000118667 and 3AXD50000346196 for details and required additional Rittal and standard parts.



Ordering code: 3AUA0000119227
1 kit/module
KIT A 468-8-100

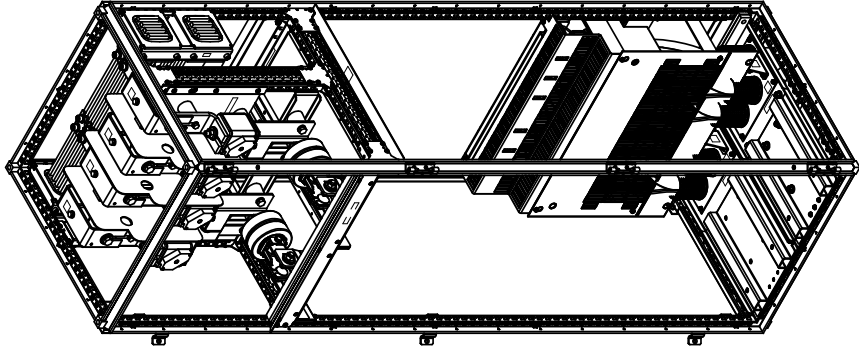
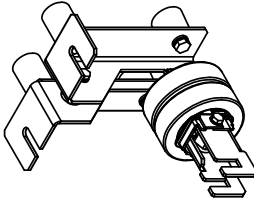
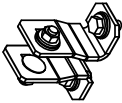


Ordering code: 3AXD50000337552
KIT A-6-8-141-VX

Based on: M. Michelsson 29-Jan-19 Title ASSEMBLY DRAWING
Customer: ACS880-104-R81-W600
Project name: RITTAL VX25
Doc. No. 3AXD10000816615
Per. ind. M. Michelsson



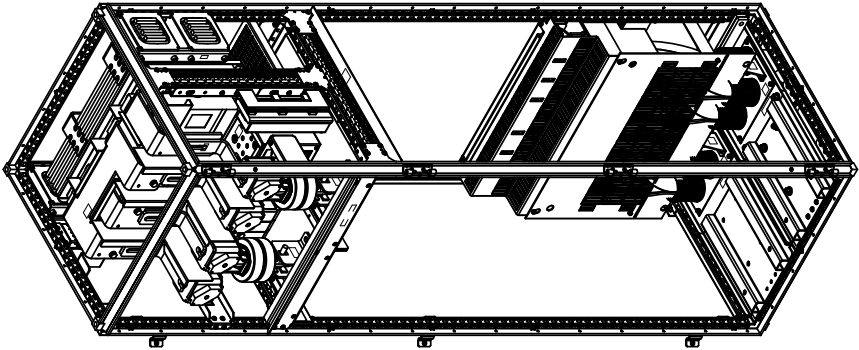
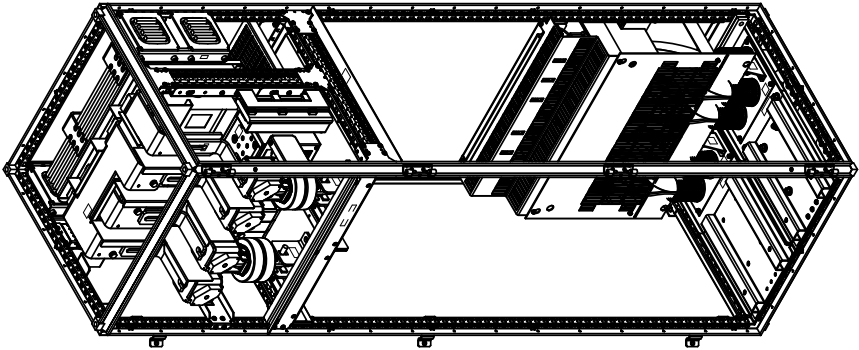
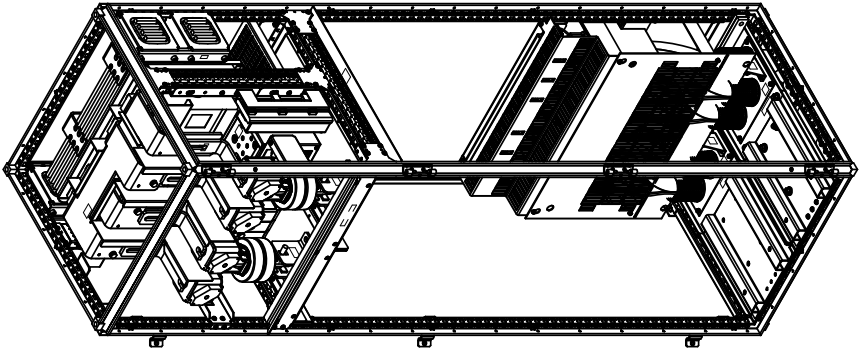
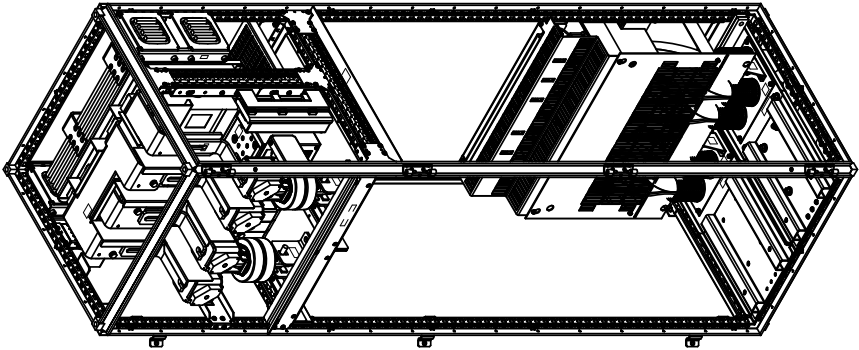
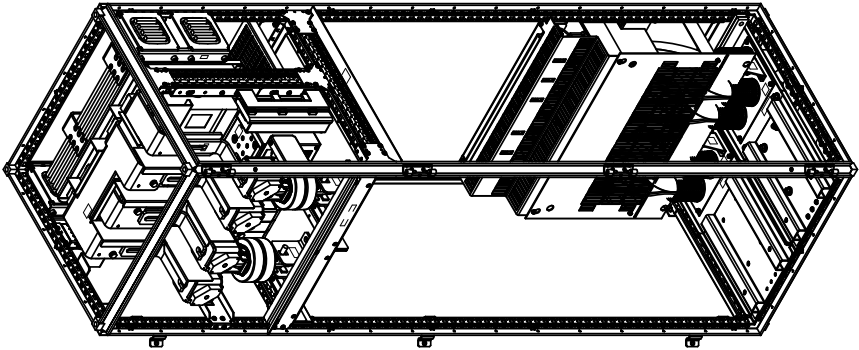
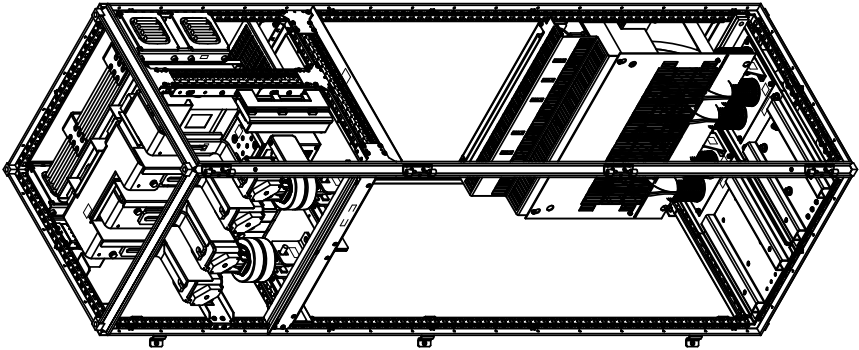
Stage 5 A: Installation of DC busbars (2) (without DC switch/charging)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|------------------|-----------|--------------|------------------|------------|----------|---|----------|---------------|-----------|-------|------------------|-------|------|----------|---------------|-----------|-----------|---------------|------------|----------|-----------------|---------------|-----------|--------------|-------------|-------|----|------------|------------------|--|--------|----|-------|---|--|--|--|--|--|-------|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 3AXD50000028401.9 ACCESS: 104-RE3-18600-V123: ASSEMBLY KIT M. Michelsson 29-Jan-19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| M. Michelsson 29-Jan-19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A | B | C | D | E | F | G | H | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 5A : R8I COMMON MODE BUSBARS and R8i DC FLANGES installation for fuse solution</p> <p>See assembly drawings 3AXD50000028384 and 3AXD50000028418 for details and required additional Rittal and standard parts.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Ordering code: 3AXD50000028401 I kit/module KIT A-468-8-235 Toroids/fuses not included in kit</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Ordering code: 3AXD50000028403 I kit/module KIT A-468-8-246</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse; font-size: 8px;"> <tr> <td>Based on</td> <td>M. Michelsson</td> <td>29-Jan-19</td> <td>Title</td> <td>ASSEMBLY DRAWING</td> <td>Scale</td> <td>Form</td> </tr> <tr> <td>Customer</td> <td>M. Michelsson</td> <td>29-Jan-19</td> <td>Base part</td> <td>104-RE3-18600</td> <td>Base title</td> <td>AS2-DR73</td> </tr> <tr> <td>Cart. Desc. No.</td> <td>M. Michelsson</td> <td>29-Jan-19</td> <td>Project name</td> <td>RITTAL V123</td> <td>Sheet</td> <td>EN</td> </tr> <tr> <td>DWG Number</td> <td>3AXD100000186615</td> <td></td> <td>Weight</td> <td>kg</td> <td>Sheet</td> <td>9</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Total</td> <td>17</td> </tr> </table> | | | | | | | | Based on | M. Michelsson | 29-Jan-19 | Title | ASSEMBLY DRAWING | Scale | Form | Customer | M. Michelsson | 29-Jan-19 | Base part | 104-RE3-18600 | Base title | AS2-DR73 | Cart. Desc. No. | M. Michelsson | 29-Jan-19 | Project name | RITTAL V123 | Sheet | EN | DWG Number | 3AXD100000186615 | | Weight | kg | Sheet | 9 | | | | | | Total | 17 |
| Based on | M. Michelsson | 29-Jan-19 | Title | ASSEMBLY DRAWING | Scale | Form | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer | M. Michelsson | 29-Jan-19 | Base part | 104-RE3-18600 | Base title | AS2-DR73 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Cart. Desc. No. | M. Michelsson | 29-Jan-19 | Project name | RITTAL V123 | Sheet | EN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DWG Number | 3AXD100000186615 | | Weight | kg | Sheet | 9 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | Total | 17 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



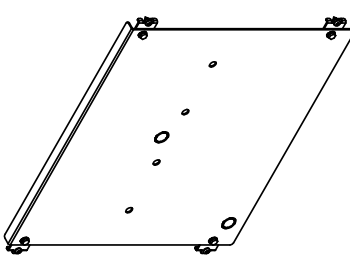
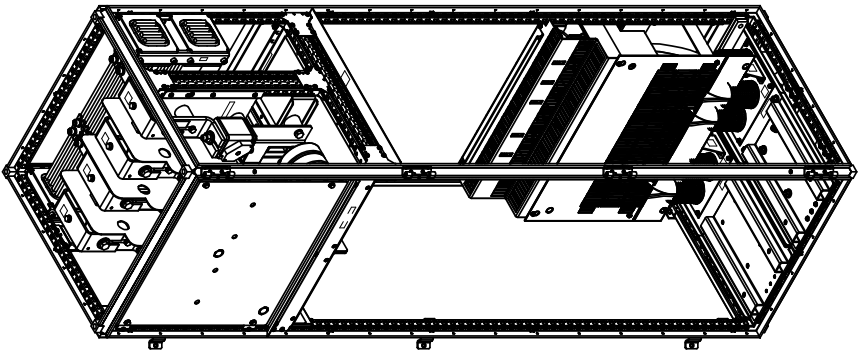
Stage 5 B: Installation of DC busbars (2) (with DC switch/charging)



| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---------------|-----------|---------------------|------------------|-------|-------|------|-----------|-----------------|-----------|-------|------------------|-------|-------|------|----|----------|---------------|-----------|---------------------|--|--|--|--|--|----------|---------------|-----------|-------------|--|--|--|--|--|-----------|--------------|-----------|--|--|--|--|--|--|---------------|--|--|--|--|--|--|--|----------|-----------------|-------------|--|--|--|--|--|--|--|----------|----------|--|--|--|--|--|--|--|--|---------|--|--|--|--|--|--|--|--|--|-------|---|--|--|--|--|--|--|--|--|-------|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3AXD5000044519 ACS880-104-R81-W600-VX25 (ASSEMB-17) A.24</p> <p>We reserve all rights in this document and in the information contained therein, reproduction, in whole or in part, is strictly prohibited. © ABB. All rights reserved. ABB is a registered trademark of ABB Ltd. in Switzerland.</p> <p>Initial Approval 79-Jan-19 M. Michelsson</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 5B : R81 COMMON MODE BUSBARS CHARG. and R81 DC FLANGES CHARG. installation for charging solution</p> <p>See assembly drawings 3AXD50000043411 and 3AXD50000043466 for details and required additional Rittal and standard parts.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Ordering code: 3AXD50000044553 1 kit/module KIT A-468-8-248</p> <p>Ordering code: 3AXD50000044551 Toroids/fuses not included in kit 1 kit/module KIT A-468-8-247</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Based on:</td> <td>M. Michelsson</td> <td>29-Jan-19</td> <td>Title</td> <td>ASSEMBLY DRAWING</td> <td>Scale</td> <td>3:100</td> <td>Form</td> <td>A3</td> </tr> <tr> <td>Created:</td> <td>M. Michelsson</td> <td>29-Jan-19</td> <td>ACS880-104-R81-W600</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Checked:</td> <td>M. Michelsson</td> <td>29-Jan-19</td> <td>RITTAL VX25</td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Approved:</td> <td>M. Asikainen</td> <td>29-Jan-19</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Project name:</td> <td colspan="7"></td> <td>Doc. No.</td> <td>3AXD50000347919</td> </tr> <tr> <td>DWG Number:</td> <td colspan="7"></td> <td>Rev. No.</td> <td>A.2 (DR)</td> </tr> <tr> <td colspan="8"></td> <td>Log. FN</td> <td></td> </tr> <tr> <td colspan="8"></td> <td>Sheet</td> <td>0</td> </tr> <tr> <td colspan="8"></td> <td>Total</td> <td>12</td> </tr> </table> | | | | | | | | Based on: | M. Michelsson | 29-Jan-19 | Title | ASSEMBLY DRAWING | Scale | 3:100 | Form | A3 | Created: | M. Michelsson | 29-Jan-19 | ACS880-104-R81-W600 | | | | | | Checked: | M. Michelsson | 29-Jan-19 | RITTAL VX25 | | | | | | Approved: | M. Asikainen | 29-Jan-19 | | | | | | | Project name: | | | | | | | | Doc. No. | 3AXD50000347919 | DWG Number: | | | | | | | | Rev. No. | A.2 (DR) | | | | | | | | | Log. FN | | | | | | | | | | Sheet | 0 | | | | | | | | | Total | 12 |
| Based on: | M. Michelsson | 29-Jan-19 | Title | ASSEMBLY DRAWING | Scale | 3:100 | Form | A3 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Created: | M. Michelsson | 29-Jan-19 | ACS880-104-R81-W600 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Checked: | M. Michelsson | 29-Jan-19 | RITTAL VX25 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Approved: | M. Asikainen | 29-Jan-19 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project name: | | | | | | | | Doc. No. | 3AXD50000347919 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DWG Number: | | | | | | | | Rev. No. | A.2 (DR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | Log. FN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | Sheet | 0 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | Total | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

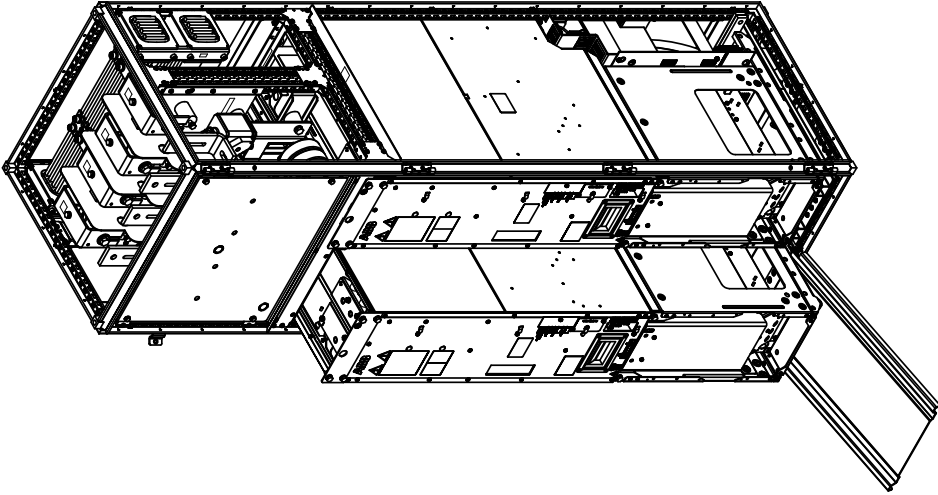


Stage 6: Installation of shrouding

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|-----------------|-----------|------------|------------------|------------|-----------|----|----------|---------------|-----------|-------|------------------|-------|------|----------|---------------|-----------|----------|-----------------|-----|----|-------|---------------|-----------|----------|---|------------|-----------|--------------|-----------------|--|----------|-----------------|-------|----|--------|--------|--|--------|----|-------|----|--|--|--|------------|--|--|-------|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>3AXD50000347919</p> <p>ASSEMBLY DRAWING</p> <p>3AXD50000347919</p> <p>Initial Approval</p> <p>29-Jan-19 M. Michelsson</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p><small>WE HEREBY CERTIFY TO THIS DOCUMENT USE IN THE MANNER AND FOR THE PURPOSES SPECIFIED HEREIN. ANY REPRODUCTION, USE OR DISCLOSURE TO THIRD PARTIES WITHOUT EXPRESS AUTHORITY IS STRICTLY FORBIDDEN.</small></p> <p><small>BASED ON: 3AXD50000347919 - ORIGINAL INFORMATION, CONFIDENTIAL</small></p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>STAGE 6: R8i SHROUD INST. PARTS W600 installation</p> <p>See assembly drawing 3AXD50000335022 for details and required additional Rittal and standard parts.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>Ordering code: 3AXD50000337378 KIT A-6-8-360-VX</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|  | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <p>ABB</p> | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Based on</td> <td>M. Michelsson</td> <td>29-Jan-19</td> <td>Title</td> <td>ASSEMBLY DRAWING</td> <td>Scale</td> <td>Form</td> </tr> <tr> <td>Customer</td> <td>M. Michelsson</td> <td>29-Jan-19</td> <td>Part No.</td> <td>3AXD50000347919</td> <td>3:1</td> <td>EN</td> </tr> <tr> <td>Drawn</td> <td>M. Michelsson</td> <td>29-Jan-19</td> <td>Rev. No.</td> <td>1</td> <td>Rev. title</td> <td>AS-2 (DR)</td> </tr> <tr> <td>Project name</td> <td colspan="2">3AXD50000347919</td> <td>Rev. No.</td> <td>3AXD50000347919</td> <td>Sheet</td> <td>11</td> </tr> <tr> <td>Weight</td> <td colspan="2">1661.5</td> <td>Weight</td> <td>kg</td> <td>Sheet</td> <td>12</td> </tr> <tr> <td colspan="3"></td> <td colspan="3" style="text-align: right;">ABB</td> <td colspan="1" style="text-align: right;">Total</td> <td colspan="1" style="text-align: right;">12</td> </tr> </table> | | | | | | | | Based on | M. Michelsson | 29-Jan-19 | Title | ASSEMBLY DRAWING | Scale | Form | Customer | M. Michelsson | 29-Jan-19 | Part No. | 3AXD50000347919 | 3:1 | EN | Drawn | M. Michelsson | 29-Jan-19 | Rev. No. | 1 | Rev. title | AS-2 (DR) | Project name | 3AXD50000347919 | | Rev. No. | 3AXD50000347919 | Sheet | 11 | Weight | 1661.5 | | Weight | kg | Sheet | 12 | | | | ABB | | | Total | 12 |
| Based on | M. Michelsson | 29-Jan-19 | Title | ASSEMBLY DRAWING | Scale | Form | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Customer | M. Michelsson | 29-Jan-19 | Part No. | 3AXD50000347919 | 3:1 | EN | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Drawn | M. Michelsson | 29-Jan-19 | Rev. No. | 1 | Rev. title | AS-2 (DR) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Project name | 3AXD50000347919 | | Rev. No. | 3AXD50000347919 | Sheet | 11 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Weight | 1661.5 | | Weight | kg | Sheet | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | ABB | | | Total | 12 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |



Stage 7: Installation of inverter modules

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|  | | | | | | | |
| <p>First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.</p> | | | | | | | |
| <p>3AXD5000347919 ACS880-104-R81-W600-VX25 (ASSEMB-17)</p> | | | | | | | |
| <p>Based on: M. Michelsson, 29-Jan-19, Title: ASSEMBLY DRAWING Check: M. Michelsson, 29-Jan-19, ACS880-104-R81-W600 Appr.: M. Asikainen, 29-Jan-19, RITTAL VX25 Project name: ABB DMS Number: 3AXD10000816615 Weight: kg</p> | | | | | | | |
| <p>Doc. des.: ASSEMBLY DRAWING Resp. appl.: Doc. No.: 3AXD5000347919 Scale: 3:100 Form: A3 Rev. ind.: A.2 (DR) Long. FN Sheet: 2 Total: 2</p> | | | | | | | |

STAGE 7: MODULE INSTALLATION

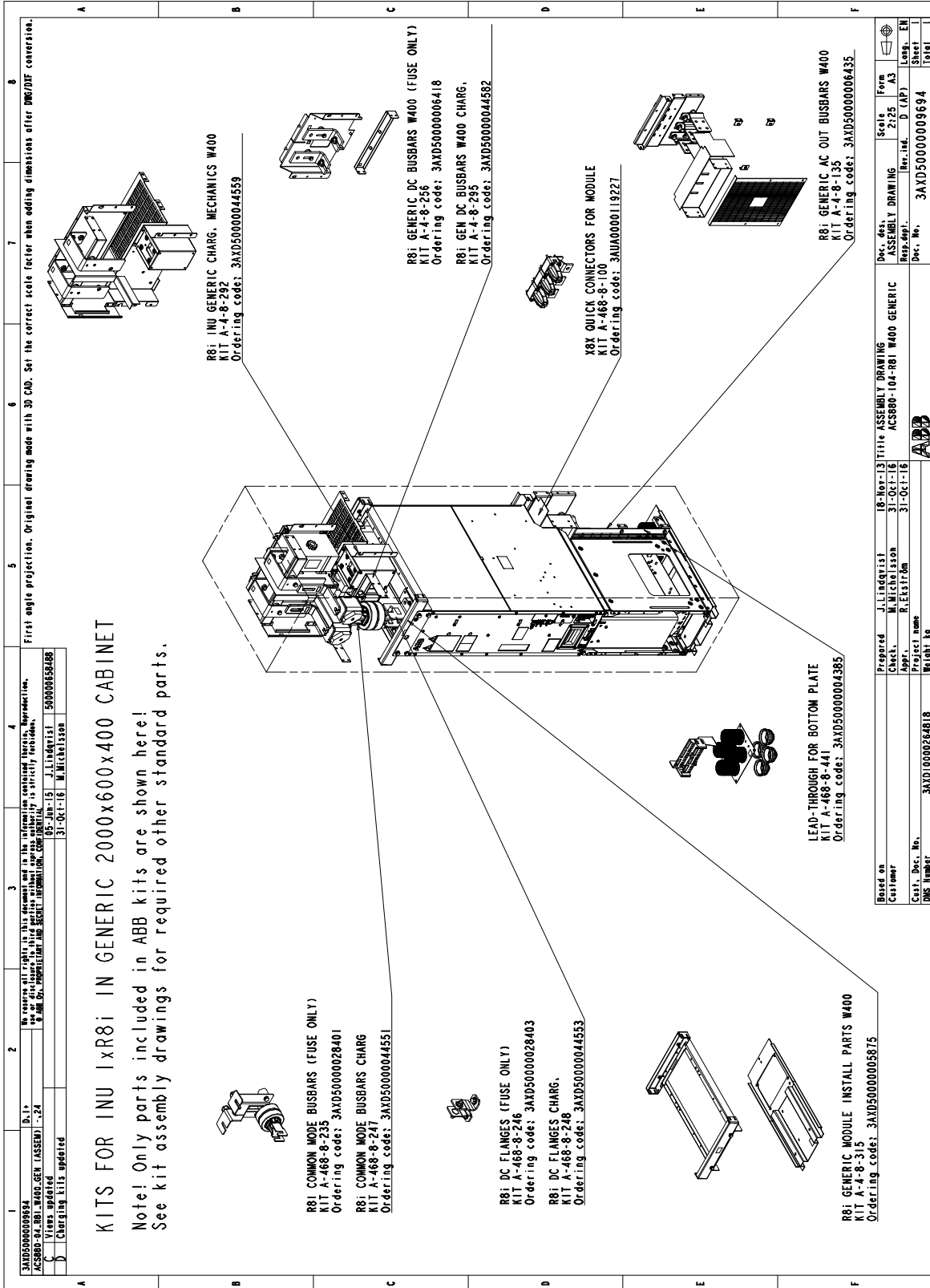
See ACS880-104 Hardware Manual for details



■ **One R8i module in a 400 mm wide generic enclosure**

| Parts installed | Instruction code | Kit code | Kit ordering code |
|---|------------------|-------------|-------------------|
| DC switch/charging mechanics (optional) | 3AXD50000043644 | A-4-8-292 | 3AXD50000044559 |
| DC busbars (without DC switch/charging): | | | |
| Busbar assembly | 3AXD50000006441 | A-4-8-256 | 3AXD50000006418 |
| DC busbars with common mode filters (filters not included in kit) | 3AXD50000028418 | A-468-8-235 | 3AXD50000028401 |
| DC connection flanges | 3AXD50000028384 | A-468-8-246 | 3AXD50000028403 |
| DC busbars (with DC switch/charging): | | | |
| Busbar assembly | 3AXD50000043686 | A-4-8-295 | 3AXD50000044582 |
| DC busbars with common mode filters (filters not included in kit) | 3AXD50000043411 | A-468-8-247 | 3AXD50000044551 |
| DC connection flanges | 3AXD50000043466 | A-468-8-248 | 3AXD50000044553 |
| Module mechanical installation parts, lead-throughs: | | | |
| Module top/bottom guides | 3AXD50000005874 | A-4-8-315 | 3AXD50000005875 |
| Lead-throughs | 3AXD50000004817 | A-468-8-441 | 3AXD50000004385 |
| Quick connector, output (AC) busbars: | | | |
| Quick connector | 3AUA0000118667 | A-468-8-100 | 3AUA0000119227 |
| Busbars and shrouds | 3AXD50000006497 | A-4-8-135 | 3AXD50000006435 |
| Inverter module | - | - | - |
| Shrouding | - | - | - |





1
3AXD5000009694
D.L.P.
ACSRD-C4-R81-W400-GEN (ASSEM) - 24
Views updated
D Charging kits updated

2
No reports are published in this document and no information contained therein, reproduction, or use by any person, without the written consent of the manufacturer.

3
05-Jun-15 J. Lindqvist 50000652498
31-Oct-16 M. Michelsson

4
First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DFE conversion.

KITS FOR INU 1xR81 IN GENERIC 2000x600x400 CABINET

Note! Only parts included in ABB kits are shown here!
See kit assembly drawings for required other standard parts.

R81: INU GENERIC CHARG. MECHANICS W400
KIT A-4-8-292
Ordering code: 3AXD50000044559

R81: COMMON MODE BUSBARS (FUSE ONLY)
KIT A-468-8-235
Ordering code: 3AXD50000028401

R81: COMMON MODE BUSBARS CHARG
KIT A-468-8-247
Ordering code: 3AXD50000044551

R81: DC FLANGES (FUSE ONLY)
KIT A-468-8-246
Ordering code: 3AXD50000028403

R81: DC FLANGES CHARG.
KIT A-468-8-248
Ordering code: 3AXD50000044553

R81: GENERIC DC BUSBARS W400 (FUSE ONLY)
KIT A-4-8-256
Ordering code: 3AXD50000006418

R81: GEN DC BUSBARS W400 CHARG.
KIT A-4-8-295
Ordering code: 3AXD50000044582

X8Y QUICK CONNECTORS FOR MODULE
KIT A-468-8-100
Ordering code: 3AUAD000119227

LEAD-THROUGH FOR BOTTOM PLATE
KIT A-468-8-441
Ordering code: 3AXD50000043985

R81: GENERIC MODULE INSTALL PARTS W400
KIT A-4-8-315
Ordering code: 3AXD50000006875

R81: GENERIC AC OUT BUSBARS W400
KIT A-4-8-135
Ordering code: 3AXD50000006435

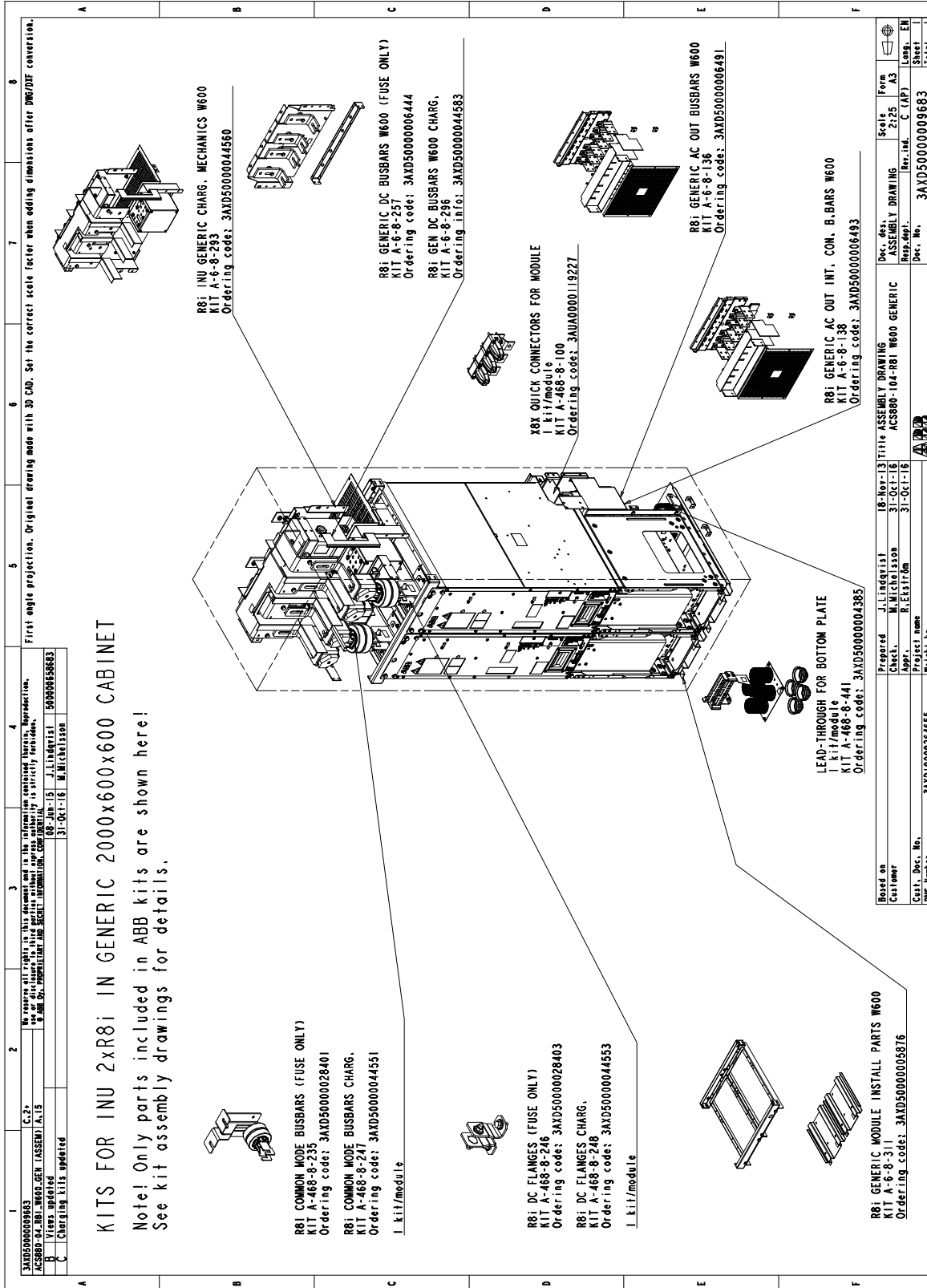
| | | | | | | |
|--------------|----------------|-----------|-------|-----------------------------|-----------|--------|
| Based on | J. Lindqvist | 18-Nov-13 | Title | ASSEMBLY DRAWING | Scale | Form |
| Customer | M. Michelsson | 31-Oct-16 | | ACS880-104-R81 W400 GENERIC | 2:25 | A3 |
| Appr. | R. Ekström | 31-Oct-16 | | | Per. ind. | D (AP) |
| Customer | M. Michelsson | | | | | |
| Project name | | | | | | |
| DWG Number | 3AXD1000028418 | | | | | |
| Doc. No. | | | | | | |
| Dec. No. | 3AXD5000009694 | | | | | |
| Sheet | | | | | | |
| Total | | | | | | |



■ Two R8i modules in a 600 mm wide generic enclosure

| Parts installed | Instruction code | Kit code | Kit ordering code |
|---|------------------|-------------|-------------------|
| DC switch/charging mechanics (optional) | 3AXD50000043784 | A-6-8-293 | 3AXD50000044560 |
| DC busbars (without DC switch/charging): | | | |
| Busbar assembly | 3AXD50000006447 | A-6-8-257 | 3AXD50000006444 |
| DC busbars with common mode filters (filters not included in kit) | 3AXD50000028418 | A-468-8-235 | 3AXD50000028401 |
| DC connection flanges | 3AXD50000028384 | A-468-8-246 | 3AXD50000028403 |
| DC busbars (with DC switch/charging): | | | |
| Busbar assembly | 3AXD50000043737 | A-6-8-296 | 3AXD50000044583 |
| DC busbars with common mode filters (filters not included in kit) | 3AXD50000043411 | A-468-8-247 | 3AXD50000044551 |
| DC connection flanges | 3AXD50000043466 | A-468-8-248 | 3AXD50000044553 |
| Module mechanical installation parts, lead-throughs: | | | |
| Module top/bottom guides | 3AXD50000005864 | A-6-8-311 | 3AXD50000005876 |
| Lead-throughs | 3AXD50000004817 | A-468-8-441 | 3AXD50000004385 |
| Quick connector, output (AC) busbars: | | | |
| Quick connector | 3AUA0000118667 | A-468-8-100 | 3AUA0000119227 |
| Busbars and shrouds (without bridging) | 3AXD50000006489 | A-6-8-136 | 3AXD50000006491 |
| Busbars and shrouds (with bridging) | 3AXD50000006505 | A-6-8-138 | 3AXD50000006493 |
| Inverter module | - | - | - |
| Shrouding | - | - | - |





1 3AXD5000009683 C.2* No reports available in this document and in this information collected through inspection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

2 ACSRD-04-R81-W600-GEN I-ASSEMBLY A4.15 W. AB. DV. MICHOLSSON AND SECKEL - INFORMATIONS COMPLÉMENTAIRES
B Views updated 09-JUN-15 J.LINDQVIST 300004558683
C Changing kits updated 31-OCT-16 M.MICHELSSON

KITS FOR INU 2xR81 IN GENERIC 2000x600x600 CABINET
 Note! Only parts included in ABB kits are shown here!
 See kit assembly drawings for details.

R81 INU GENERIC CHARG. MECHANICS W600
 KIT A-6-8-293
 Ordering code: 3AXD50000044580

R81 COMMON MODE BUSBARS (FUSE ONLY)
 KIT A-468-8-235
 Ordering code: 3AXD50000028401

R81 COMMON MODE BUSBARS CHARG.
 KIT A-468-8-247
 Ordering code: 3AXD50000044551

R81 DC FLANGES (FUSE ONLY)
 KIT A-468-8-246
 Ordering code: 3AXD50000028403

R81 DC FLANGES CHARG.
 KIT A-468-8-246
 Ordering code: 3AXD50000044553

R81 GENERIC DC BUSBARS W600 (FUSE ONLY)
 KIT A-6-8-257
 Ordering code: 3AXD50000006444

R81 GEN DC BUSBARS W600 CHARG.
 KIT A-6-8-296
 Ordering info: 3AXD50000044583

R81 GENERIC AC OUT INT. CON. B.BARS W600
 KIT A-6-8-138
 Ordering code: 3AXD50000006491

28X QUICK CONNECTORS FOR MODULE
 1 kit/module
 KIT A-468-8-100
 Ordering code: 3AAU0000119227

LEAD-THROUGH FOR BOTTOM PLATE
 1 kit/module
 KIT A-468-8-441
 Ordering code: 3AXD5000004385

R81 GENERIC AC OUT INT. CON. B.BARS W600
 KIT A-6-8-138
 Ordering code: 3AXD50000006493

R81 GENERIC AC OUT BUSBARS W600
 KIT A-6-8-136
 Ordering code: 3AXD50000006491

R81 GENERIC MODULE INSTALL PARTS W600
 KIT A-6-8-311
 Ordering code: 3AXD50000005876

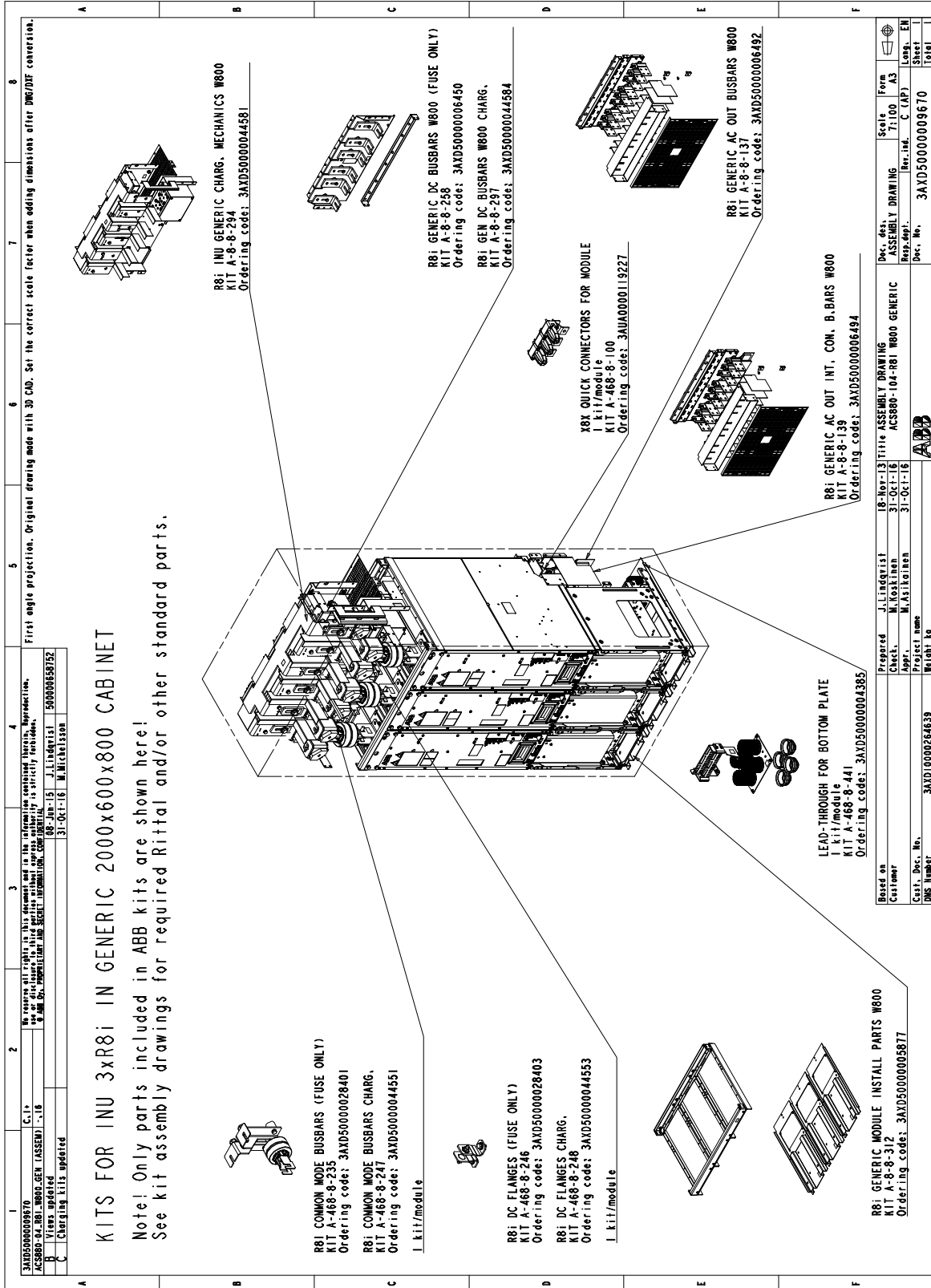
| | | | | | |
|--------------|----------------|-----------|-----------------------------|----------|----------------|
| Based on | J.LINDQVIST | 18-Nov-13 | THIS ASSEMBLY DRAWING | Scale | Form |
| Customer | M.Michelsson | 31-Oct-16 | ACS880-104-R81 W600 GENERIC | 2:25 | A3 |
| Appr. | R.ELSTROM | 31-Oct-16 | | Per.ind. | C (AP) |
| Project name | | | | Doc. No. | 3AXD5000009683 |
| DWG Number | 3AXD1000028455 | 88181-kg | | | |
| | | | | Sheet | 1 |
| | | | | Total | 1 |



■ **Three R8i modules in a 800 mm wide generic enclosure**

| Parts installed | Instruction code | Kit code | Kit ordering code |
|---|------------------|-------------|-------------------|
| DC switch/charging mechanics (optional) | 3AXD50000044586 | A-8-8-294 | 3AXD50000044581 |
| DC busbars (without DC switch/charging): | | | |
| Busbar assembly | 3AXD50000006455 | A-8-8-258 | 3AXD50000006450 |
| DC busbars with common mode filters (filters not included in kit) | 3AXD50000028418 | A-468-8-235 | 3AXD50000028401 |
| DC connection flanges | 3AXD50000028384 | A-468-8-246 | 3AXD50000028403 |
| DC busbars (with DC switch/charging): | | | |
| Busbar assembly | 3AXD50000044574 | A-8-8-297 | 3AXD50000044584 |
| DC busbars with common mode filters (filters not included in kit) | 3AXD50000043411 | A-468-8-247 | 3AXD50000044551 |
| DC connection flanges | 3AXD50000043466 | A-468-8-248 | 3AXD50000044553 |
| Module mechanical installation parts, lead-throughs: | | | |
| Module top/bottom guides | 3AXD50000005848 | A-8-8-312 | 3AXD50000005877 |
| Lead-throughs | 3AXD50000004817 | A-468-8-441 | 3AXD50000004385 |
| Quick connector, output (AC) busbars: | | | |
| Quick connector | 3AUA0000118667 | A-468-8-100 | 3AUA0000119227 |
| Busbars and shrouds (without bridging) | 3AXD50000006503 | A-8-8-137 | 3AXD50000006492 |
| Busbars and shrouds (with bridging) | 3AXD50000006498 | A-8-8-139 | 3AXD50000006494 |
| Inverter module | - | - | - |
| Shrouding | - | - | - |





KITS FOR INU 3xR8i IN GENERIC 2000x600x800 CABINET

Note! Only parts included in ABB kits are shown here!
See kit assembly drawings for required Rittal and/or other standard parts.

First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

| | | |
|--------------------------------------|-----------|--|
| 3AXD5000009670 | C.I.P. | No reports will be made in this document and no information concerning the contents of this document will be disclosed to third parties without the written approval of ABB. |
| ACS880-04-R81-W800-GEN (ASSEMB) - 16 | 31-OCT-16 | J. Lindqvist |
| B Views updated | 08-JUN-15 | M. Koskinen |
| C Changing kits updated | 31-OCT-16 | M. Mikkelsson |
| | | 90000058792 |

| | | | | | | | | | |
|--------------|--------------|---------------|-----------|--------------------|------------------|-----------|----------------|-------|----|
| Based on | Prepared | J. Lindqvist | 18-Nov-13 | Title | ASSEMBLY DRAWING | Scale | 7:100 | Form | A3 |
| Customer | Checked | M. Koskinen | 31-Oct-16 | ACS880-04-R81-W800 | GENERIC | Rev. ind. | C (AP) | Long. | EN |
| Customer No. | Appr. | M. Mikkelsson | 31-Oct-16 | | | Doc. No. | 3AXD5000009670 | Sheet | 1 |
| DWG Number | Project name | | | | | Weight | kg | Total | |
| | | | | | | | | | |



5

Electrical installation

Contents of this chapter

This chapter describes the electrical installation of the modules.

The wiring diagrams in this chapter are simplified presentations. For details, see the example circuit diagrams included in the manual.

Note:

The instructions do not cover all possible cabinet constructions.

For more information on electrical installation, see *Electrical planning instructions for ACS880 multidrive cabinets and modules* [3AUA0000102324 (English)].

Safety and liability



WARNING!

Only qualified electricians are allowed to do the work described in this chapter. Read the **complete safety instructions** before you install, commission, use or service the drive. The complete safety instructions are given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]).

Note:

The installation must always be designed and made according to applicable local laws and regulations. ABB does not assume any liability whatsoever for any installation which breaches the local laws and/or other regulations. Furthermore, if the recommendations given by ABB are not followed, the drive system may experience problems that the warranty does not cover.



Electrical safety precautions

These electrical safety precautions are for all personnel who do work on the drive, motor cable or motor.



WARNING!

Obey these instructions. If you ignore them, injury or death, or damage to the equipment can occur.

If you are not a qualified electrician, do not do installation or maintenance work.

Go through these steps before you begin any installation or maintenance work.

1. Keep the cabinet doors closed when the drive is powered. With the doors open, a risk of a potentially fatal electric shock, arc flash or high-energy arc blast exists.
2. Clearly identify the work location and equipment.
3. Disconnect all possible voltage sources. Lock out and tag out.
 - Open the main disconnecting device of the drive.
 - Open the charging switch if present.
 - Open the disconnecter of the supply transformer. (The main disconnecting device in the drive cabinet does not disconnect the voltage from the AC input power busbars of the drive cabinet.)
 - If the drive is equipped with a DC/DC converter unit (optional): Open the DC switch/disconnector ([Q11], option +F286) of the DC/DC converter. Open the disconnecting device of the energy storage connected to the DC/DC converter unit (outside the drive cabinet).
 - Open the auxiliary voltage switch-disconnector (if present), and all other possible disconnecting devices that isolate the drive from dangerous voltage sources.
 - If you have a permanent magnet motor connected to the drive, disconnect the motor from the drive with a safety switch or by other means.
 - Make sure that re-connection is not possible. Lock out and tag out.
 - Disconnect any dangerous external voltages from the control circuits.
 - After you disconnect power from the drive, always wait 5 minutes to let the intermediate circuit capacitors discharge before you continue.
4. Protect any other energized parts in the work location against contact.
5. Take special precautions when close to bare conductors.
6. Measure that the installation is de-energized. If the measurement requires removal or disassembly of shrouding or other cabinet structures, obey the local laws and regulations applicable to live working (including – but not limited to – electric shock and arc protection).
 - Use a multimeter with an impedance greater than 1 Mohm.
 - Make sure that the voltage between the drive input power terminals (L1, L2, L3) and the grounding (PE) busbar is close to 0 V.
 - Make sure that the voltage between the drive DC busbars (+ and -) and the grounding (PE) busbar is close to 0 V.
 - If you have a permanent magnet motor connected to the drive, make sure that the voltage between the drive output terminals (T1/U, T2/V, T3/W) and the grounding (PE) busbar is close to 0 V.



7. Install temporary grounding as required by the local regulations.
8. Ask the person in control of the electrical installation work for a permit to work.

General notes

■ Printed circuit boards



WARNING!

Use a grounding wrist band when you handle printed circuit boards. Do not touch the boards unnecessarily. The boards contain components sensitive to electrostatic discharge.

■ Optical components



WARNING!

Obey these instructions. If you ignore them, damage to the equipment can occur.

- Handle the fiber optic cables with care.
- When you unplug the fiber optic cables, always hold the connector, not the cable itself.
- Do not touch the ends of the fibers with bare hands as the ends are extremely sensitive to dirt.
- Do not bend the fiber optic cables too tightly. The minimum allowed bend radius is 35 mm (1.4").

Checking the insulation of the assembly

■ Checking the insulation of the drive system



WARNING!

Do not make any voltage withstand or insulation resistance tests on any part of the drive as testing can damage the drive. Every drive has been tested for insulation between the main circuit and the chassis at the factory. Also, there are voltage-limiting circuits inside the drive which cut down the testing voltage automatically.

■ Checking the insulation of the motor and motor cable



WARNING!

Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur.

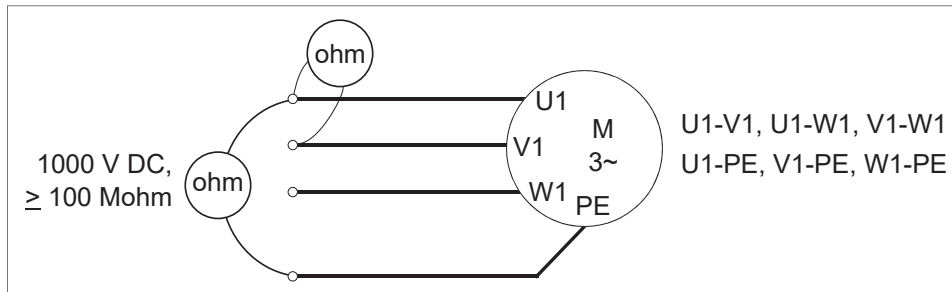
If you are not a qualified electrician, do not do installation or maintenance work.

1. Stop the drive and do the steps in section *Electrical safety precautions (page 144)* before you start the work.
2. Check that the motor cable is disconnected from the drive output terminals.
3. Measure the insulation resistance between the phase conductors and then between each phase conductor and the Protective Earth conductor. Use a measuring voltage of 1000 V DC. The insulation resistance of an ABB motor must exceed 100 Mohm

(reference value at 25 °C [77 °F]). For the insulation resistance of other motors, consult the manufacturer's instructions.

Note:

Moisture inside the motor casing reduces the insulation resistance. If moisture is suspected, dry the motor and repeat the measurement.



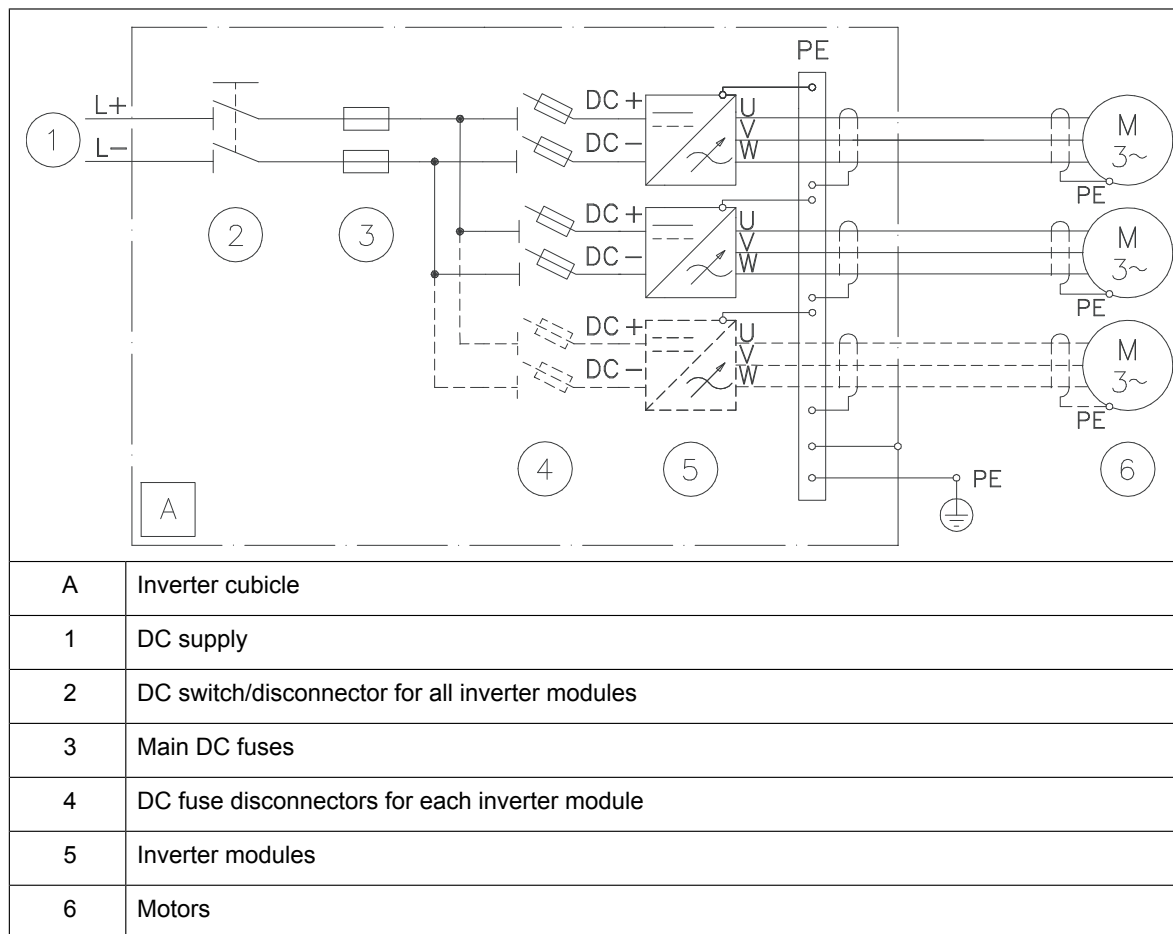
■ **Brake resistor assembly**

See section [Checking the insulation of the brake resistor assembly \(page 332\)](#).



Power connections – Frames R1i...R5i

A simplified diagram of the power connections is presented below.



■ Power cable connection procedure

Frames R1i and R2i



WARNING!

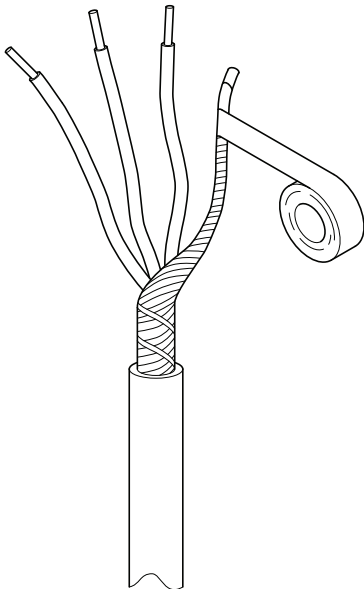
Read and follow the instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). Ignoring the instructions can cause physical injury or death, or damage to the equipment.

1. Run the output (motor) cable into the cubicle through a cable gland or grommet. In case a grounding cable gland is available, remove the outer jacket of the cable where it passes through the cable gland.
2. Cut the input (DC) and output cables to suitable length and strip the ends of the individual conductors.
3. Twist the shield strands of the output cable together to form a separate conductor and crimp a ring terminal onto it. Do the same for the input cable if it is a shielded type.
4. Connect the conductors to the terminal blocks. Connect the cable shields to grounding terminals near the terminal blocks.
5. Secure the cables inside and outside the cabinet mechanically.
6. Tighten the cable gland if present.

7. Connect the motor cable as described under Grounding the motor cable shield at the motor end.

Frames R3i...R5i

1. Run the output (motor) cable into the cubicle through a cable gland or grommet. 360° grounding of the cable shield is recommended to suppress interference. In case a grounding cable gland is available, remove the outer jacket of the cable where it passes through the cable gland.
2. Remove the shrouds covering the terminals of the inverter module.
3. Cut the input (DC) and output cables to suitable length and strip the ends of the individual conductors.
4. Twist the shield strands of the output cable together to form a separate conductor. Crimp a suitable ring terminal onto the end, and cover the remaining bare screen with tape as shown below. Do the same for the input cable if it is a shielded type.

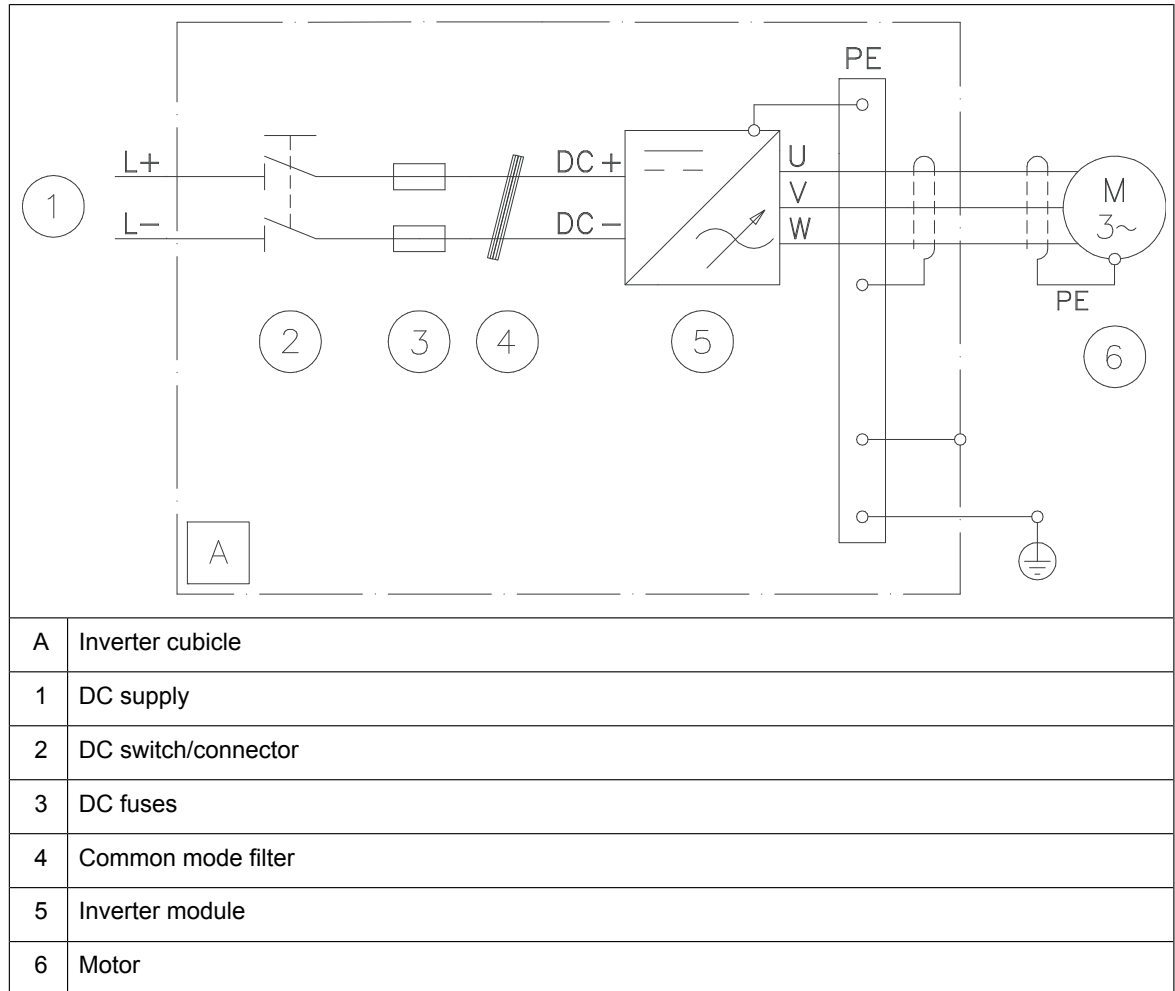


5. Insert the conductors to the terminals and tighten the Allen screw. Note that the original screw lugs can be replaced by crimp ring terminals connected directly to the connection post. Make note of the order and orientation of the washers on the connection post.
 6. Connect the cable shields to ground near the terminals.
 7. Reinstall the terminal covers.
 8. Secure the cables inside and outside the cabinet mechanically.
 9. Tighten the cable gland if present.
 10. Connect the motor cable as shown below.
-

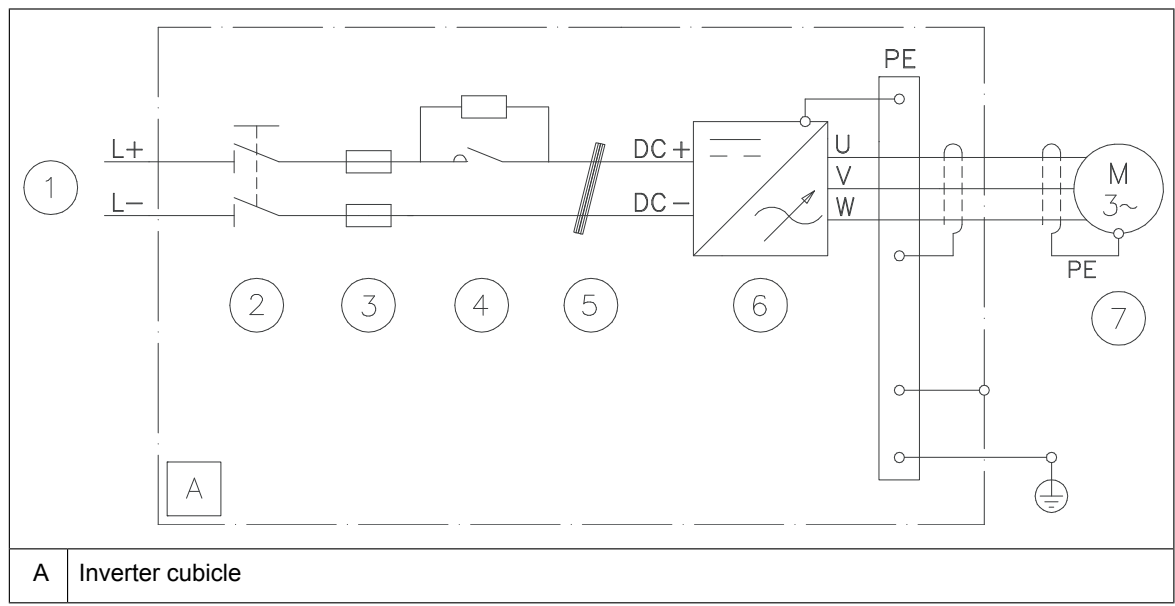
Power connections – Frames R6i...R8i

Simplified diagrams of the power connections are presented below.

■ R6i inverter module



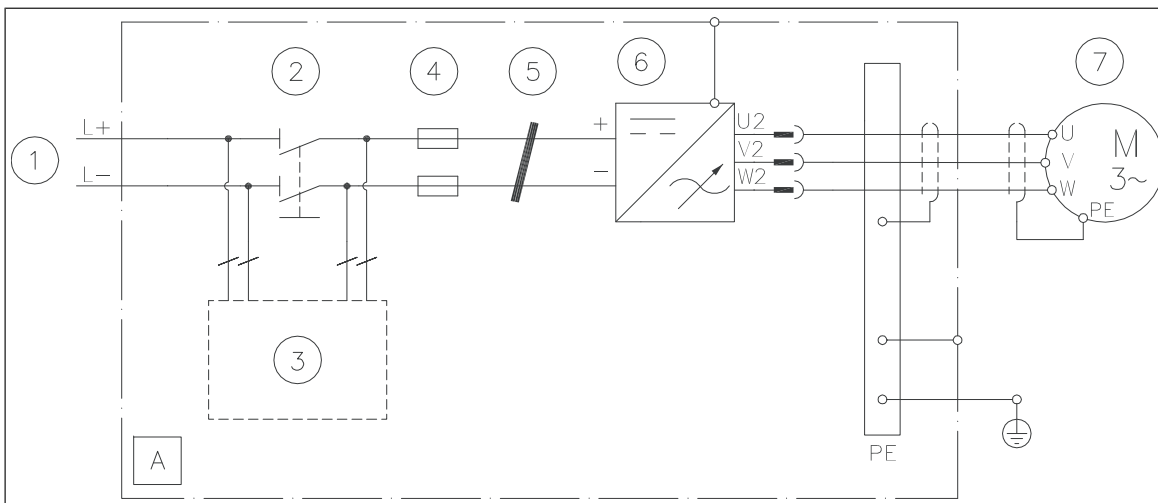
■ R7i inverter module



| | |
|---|--|
| 1 | DC supply |
| 2 | DC switch/connector |
| 3 | DC fuses |
| 4 | Charging circuit (contactor and resistors) |
| 5 | Common mode filter |
| 6 | Inverter module |
| 7 | Motor |

■ Power connections - Frame R8i

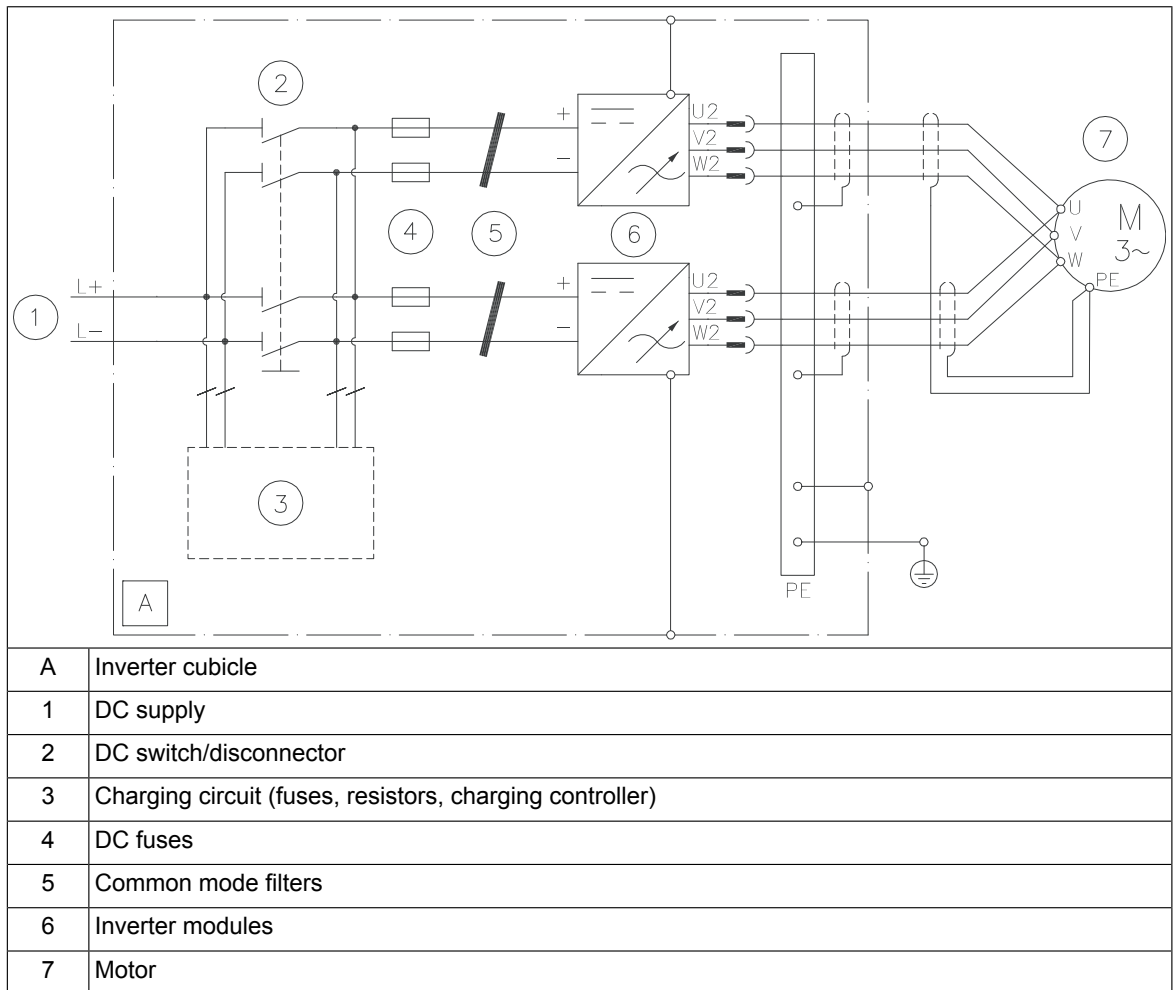
R8i inverter module



| | |
|---|--|
| A | Inverter cubicle |
| 1 | DC supply |
| 2 | DC switch/disconnector |
| 3 | Charging circuit (fuses, resistors, charging controller) |
| 4 | DC fuses |
| 5 | Common mode filter |
| 6 | Inverter module |
| 7 | Motor |



2×R8i inverter unit



Connection procedure



WARNING!

Read and follow the instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). Ignoring the instructions can cause physical injury or death, or damage to the equipment.

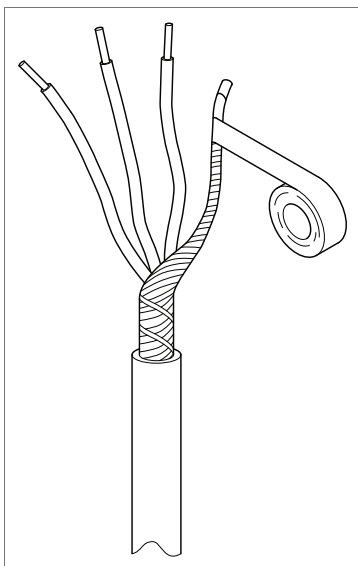
1. Ground the inverter modules by the top edge of the front plate. The grounding point is marked on the module. Connect the front plate to the frame support bracket with screws. The bracket should have a galvanic connection to the PE busbar through the cabinet frame.

Note:

- If the cabinet frame is painted (such as with Rittal enclosures), it is important to make sure that a good galvanic connection to ground (PE busbar) is achieved. You can, for example, remove the paint from the connection points and use star washers.
- The connection to ground merely through the mounting screws and the cabinet chassis is not always good enough. To ensure the continuity of the protective bonding circuit, you can connect the modules to the cabinet PE busbar with a copper busbar or cable. The inductance and impedance of the PE conductor must be rated according to permissible touch voltage appearing under fault conditions (so that the fault point voltage will not rise excessively when a ground fault occurs).

See *Electrical planning instructions for ACS880 multidrive cabinets and modules* (3AUA0000102324 [English]).

2. Run the output (motor) cable into the cubicle through a cable gland or grommet. 360° grounding of the cable shield is recommended to suppress interference. In case a grounding cable gland is available, remove the outer jacket of the cable where it passes through the cable gland.
3. Cut the output cable to suitable length and strip the ends of the individual conductors.
4. Twist the shield strands of the output cable together to form a separate conductor and wrap tape around it as shown.

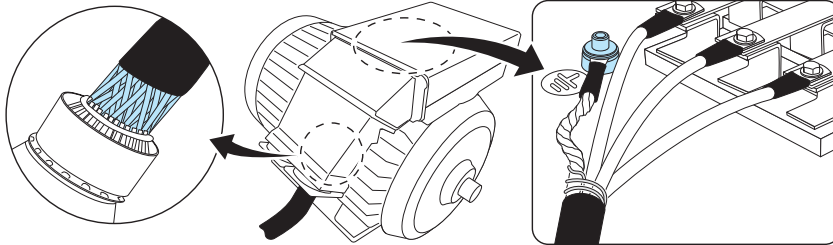


5. Crimp suitable cable lugs to the conductors as well as the twisted shield. Connect the phase conductors to the output busbars. Connect the cable shield to a PE busbar.
-

6. Secure the cables inside and outside the cabinet mechanically.
7. Tighten the cable gland if present.

Grounding the motor cable shield at the motor end

For minimum radio-frequency interference, ground the cable shield 360 degrees at the cable entry of the motor terminal box.



Replacing ACS800 R8i modules with ACS880 R8i modules

ACS880 R8i modules can be ordered with option +P942 for mechanical compatibility with ACS800 R8i modules. A dimension drawing is presented on [Frame R8i with option +P942 \(page 349\)](#).

The following procedure explains the additional wiring changes that are required.



WARNING!

Repeat the steps described in section Electrical safety precautions. The complete safety instructions are given in *Safety instructions for ACS880 multidrive cabinets and modules (3AUA0000102301 [English])*. Ignoring the instructions can cause physical injury or death, or damage to the equipment.

1. Replace the inverter module(s).

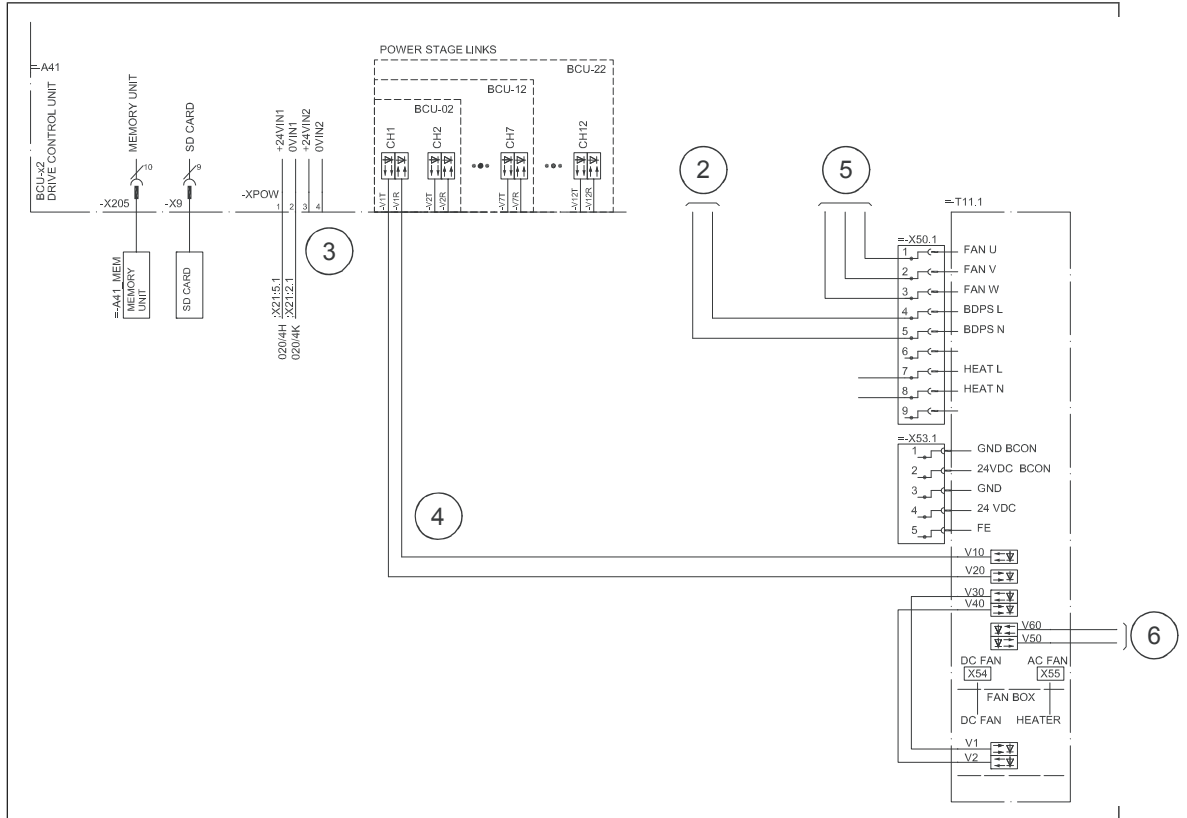
Note:

The DC fuses (F11.xx) and common mode filters (R11.xx) at the input of each inverter module need not be changed if the output currents of the inverter module(s) remain unchanged.

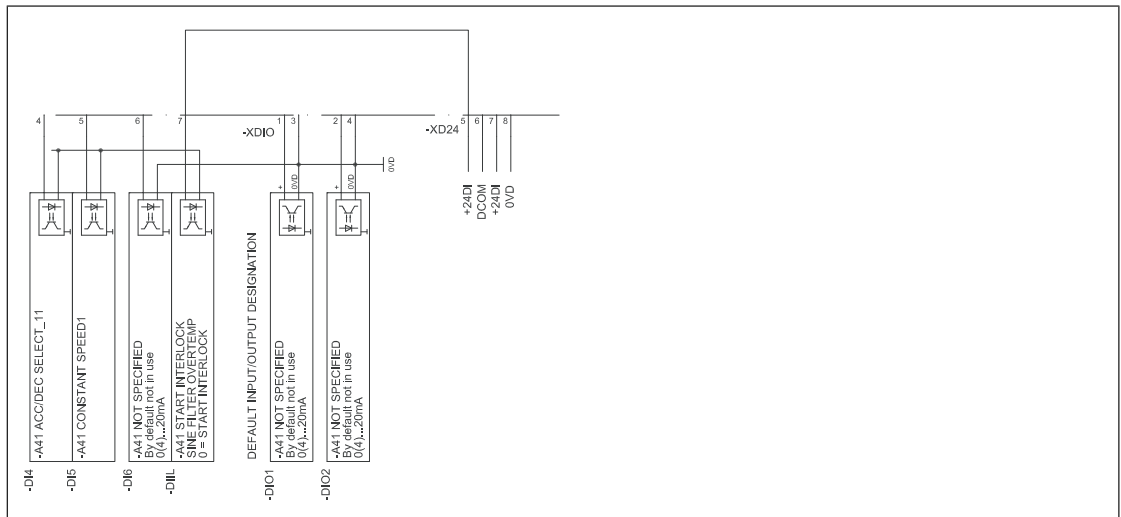
2. If needed, connect an auxiliary voltage supply of 230 V AC 50 Hz (standard) or 115 V AC 60 Hz (with option +G304) to X50:4...5 on the module to power the BDPS (internal power supply of the module) even when the DC link is not live.
3. Replace the RDCU control unit with a BCU-x2 inverter control unit (with a sufficient number of inverter module connections). Connect the control unit to a 24 V DC power supply. (An external power supply is recommended for an inverter unit consisting of parallel-connected modules; with a single-module configuration, connectors X53:1 and X53:2 on the module can be used.)
4. Connect the BCU to the inverter module(s) using fiber optic cables. In case of parallelconnected modules, remove the existing APBU branching unit.
5. If the module is equipped with option +C188 (direct-on-line cooling fan), connect a 3-phase 400 V 50/60 Hz (or 320 V 60 Hz) supply to X50:1...3.
6. If the inverter unit is equipped with a DC switch/disconnector and charging controller, connect terminals V50 and V60 of the inverter module to the charging controller using fiber optic cables.

Note:

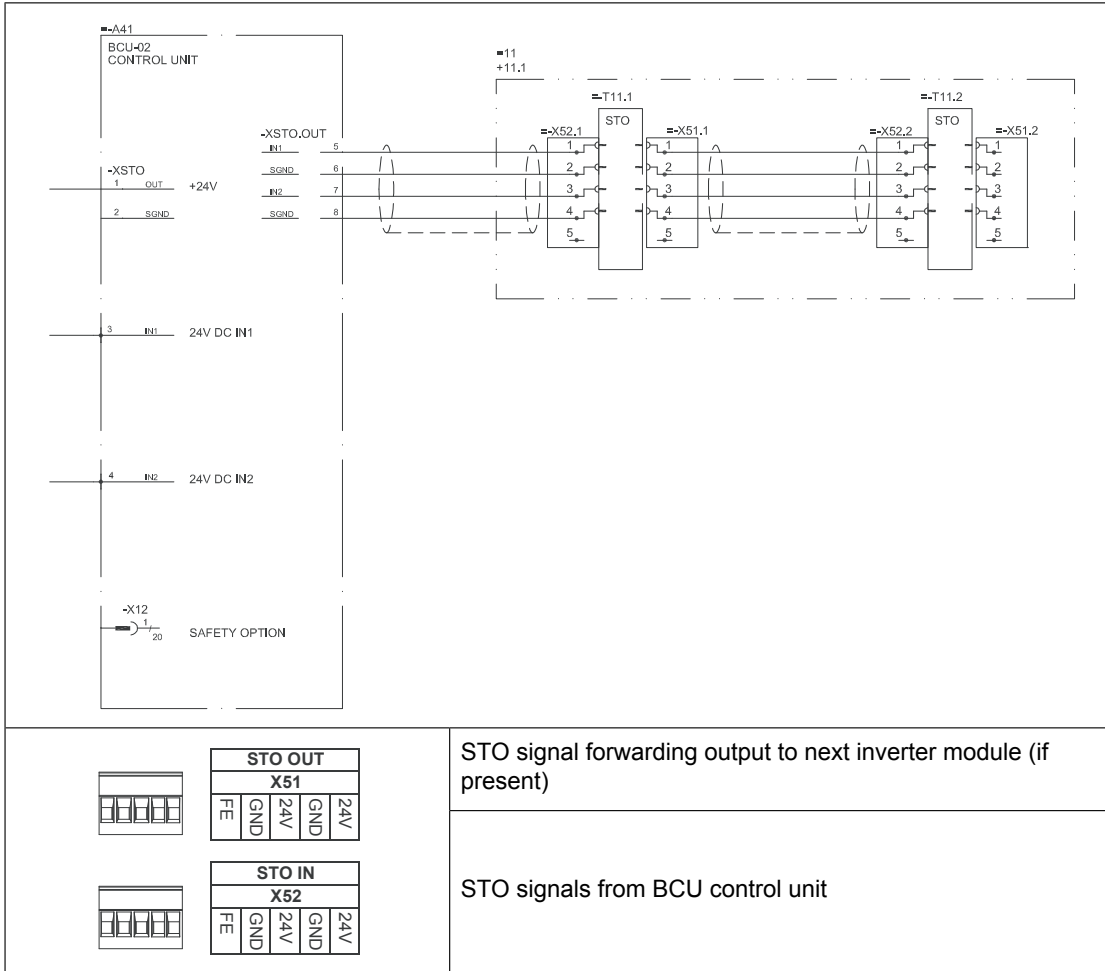
With an ACS880 R8i module used with the ACS800 charging circuit, only one charging cycle in five minutes is allowed.



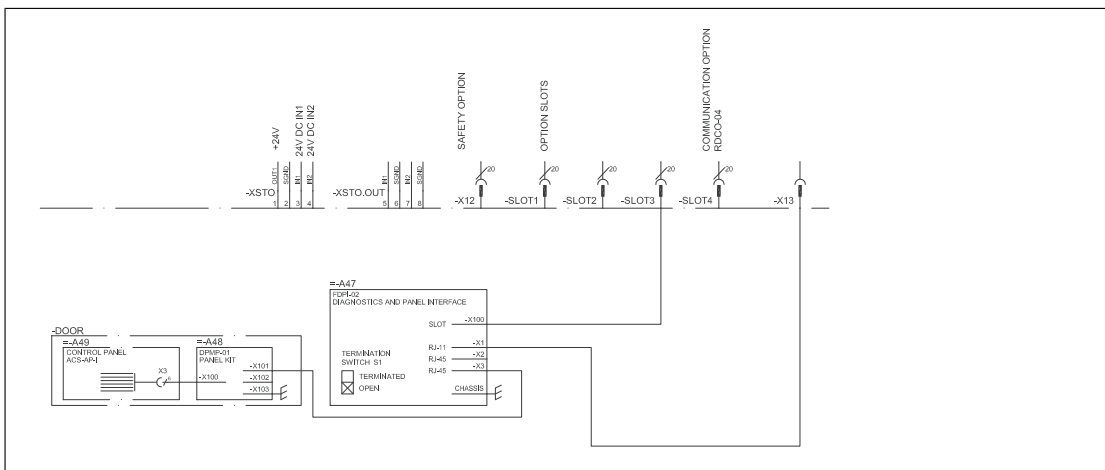
7. On the BCU control unit, connect the DIIL input to a +24VD terminal.



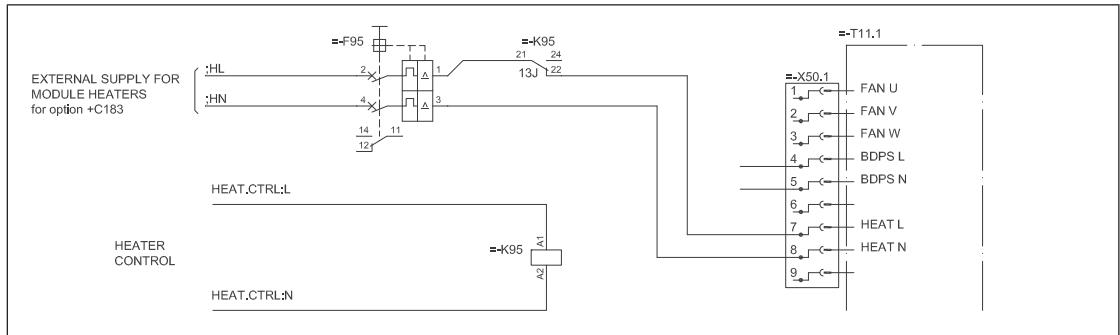
8. If the Safe torque off (STO) function is to be used, remove the jumper connection between X52 and X53 on each module. Wire the STO link to all inverter modules of the inverter unit. Connect the device triggering the STO function to the BCU control unit.



9. Connect an ACS-AP-x control panel to X13 on the BCU control unit.



10. If the modules are equipped with option +C183 (heating elements), connect a 230/115 V AC (50/60 Hz) supply to X50:7...8.

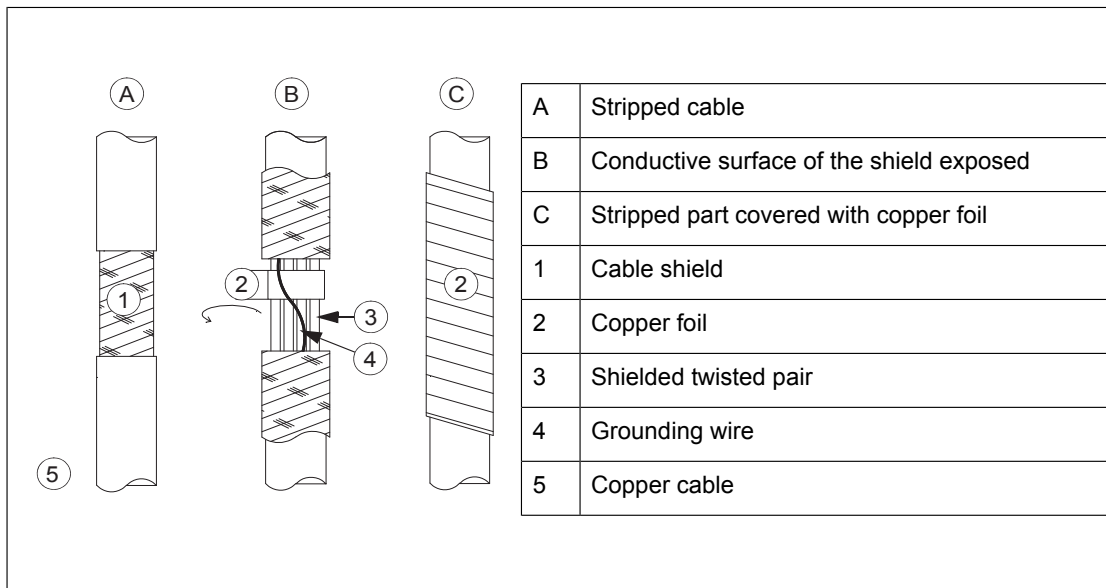


Connecting the control cables - All frame sizes

For technical data and default I/O connections of the inverter control unit, refer to chapter Control unit.

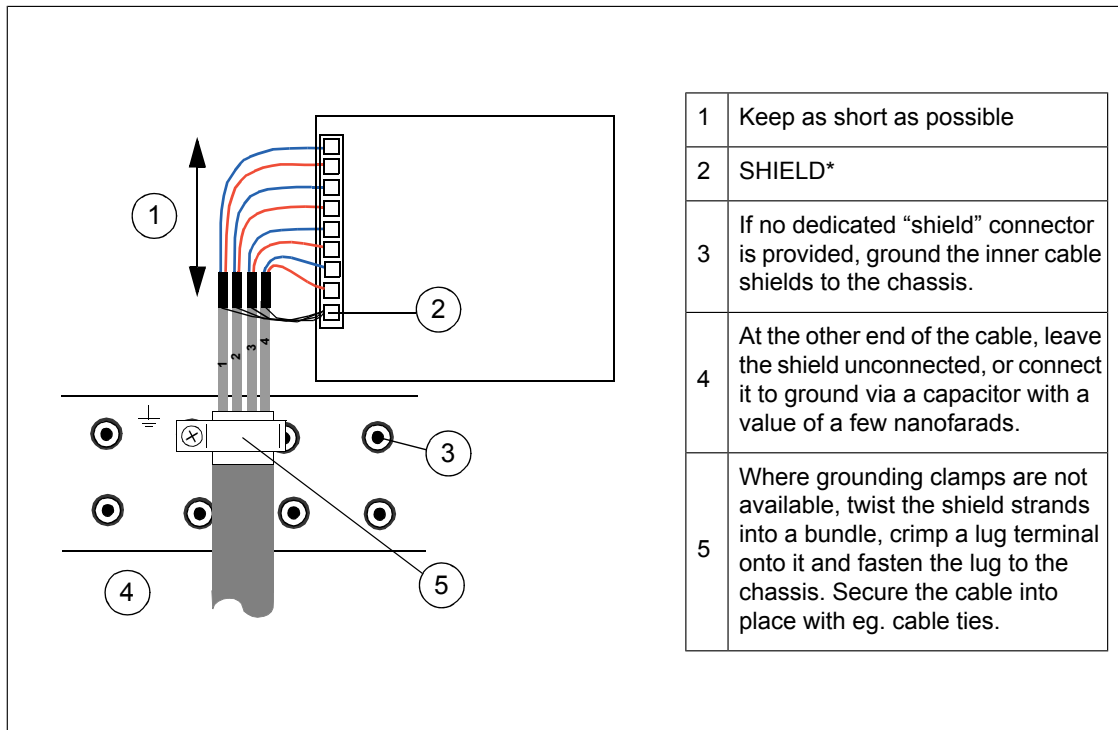
1. In the cabinet, remove shrouding wherever necessary to allow access to the cable entries and any trunking inside the cubicle.
2. Run the control cables into the cubicle. If possible, arrange for a 360° grounding of the cable shield at the cable entry.

If the outer surface of the shield is non-conductive, turn the shield inside out as shown below and wrap copper foil around the cable to keep the shielding continuous. Do not cut the grounding wire (if present).



3. Run the cables to the control unit of the inverter (or other connection point) using cable trunking wherever possible.
4. (Only when running the cable to the inverter module) The inverter control units have a clamp plate attached. Remove the outer sheathing of the cable at one of the clamps on the plate. Tighten the clamp onto the bare cable shield.
5. Cut the cables to suitable length.

6. Strip the cable ends and conductors. When connecting to the drive I/O, also remove the shield along with the outer sheathing, and use electrical tape or shrink tubing to contain the strands. Elsewhere, twist the outer shield strands into a bundle, crimp a lug onto it and connect it to the nearest chassis grounding point.



7. Connect the conductors to appropriate terminals.
8. Refit any shrouds removed earlier.

Installing optional modules

■ Installation of I/O extension and fieldbus adapter modules



WARNING!

Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur.

Note:

Pay attention to the free space required by the cabling or terminals coming to the optional modules.

1. Repeat the steps described in section [Electrical safety precautions \(page 144\)](#).
2. Ensure by measuring that the I/O terminals of the control unit (especially the relay output terminals) are safe.
3. Insert the module into a free option module slot on the control unit.
4. Fasten the module. For instructions, see the documentation of the optional module.
5. Connect the necessary wiring to the module following the instructions given in the documentation of the module.
6. Tighten the grounding screw to a torque of 0.8 N·m.

Note:

The screw tightens the connections and grounds the module. It is essential for fulfilling the EMC requirements and for proper operation of the module.

■ **Installation of an FSO-xx safety functions module**

Frames R1i...R7i employ the ZCU control unit. The BCU control unit is used with frame R8i and multiples. The following sections describe installation of an FSO-xx safety functions module onto a ZCU and a BCU control unit.

Installation of an FSO-xx safety functions module onto ZCU

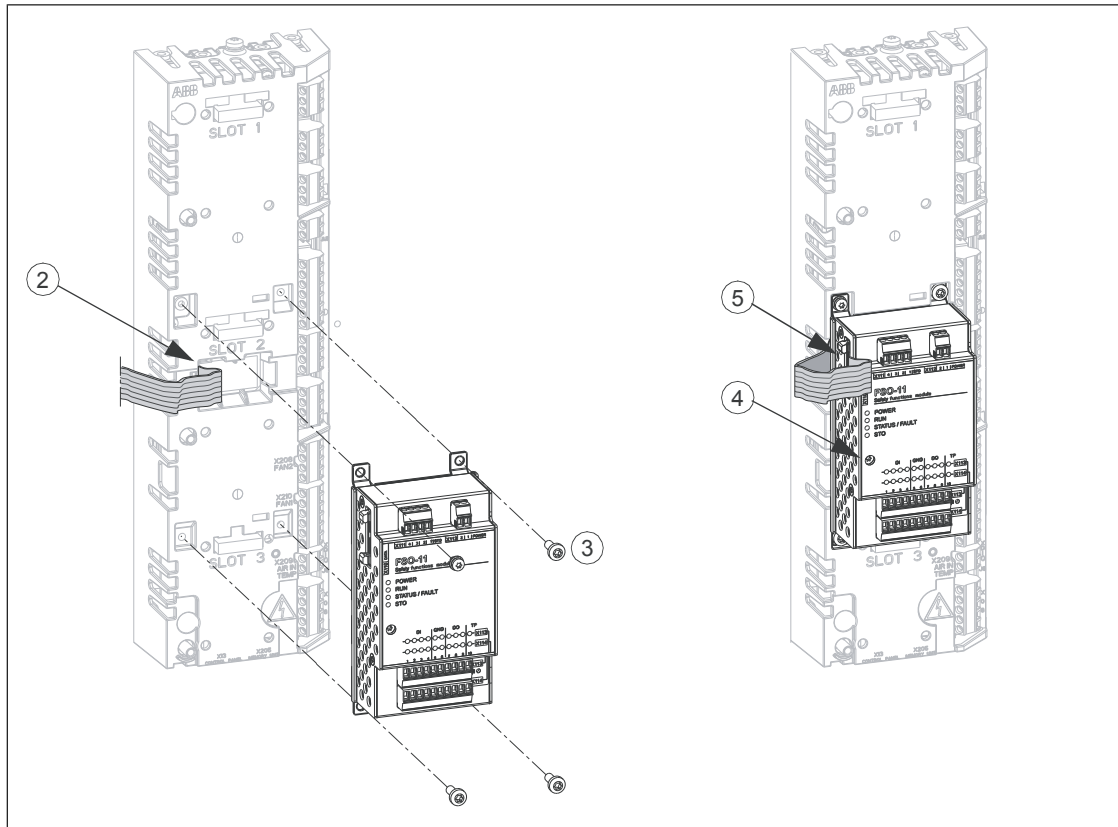


WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

1. Stop the inverter unit and do the steps in section [Electrical safety precautions \(page 144\)](#) before you start the work.
2. The FSO-xx comes with alternative bottom plates for mounting on different units. For mounting on the ZCU-14, the mounting points should be located at the short edges of the module as shown. Replace the bottom plate of the FSO-xx if necessary. For mounting on the ZCU-12, the mounting points should be located at the long edges. Replace the bottom plate of the FSO-xx if necessary.
3. Connect the data cable to connector X12 on the control unit.
4. Put the FSO-xx into its position on slot 2 of the control unit.
5. Tighten the FSO-xx electronics grounding screw. Note: The screw tightens the connections and grounds the module. It is essential for fulfilling the EMC requirements and for proper operation of the module.
6. Fasten the module by the bottom plate with four screws.
7. Connect the other end of the data cable to connector X110 on the FSO-xx.
8. To complete the installation, refer to the instructions in the User's manual delivered with the FSO-xx.





Installation of an FSO-xx safety functions module onto BCU



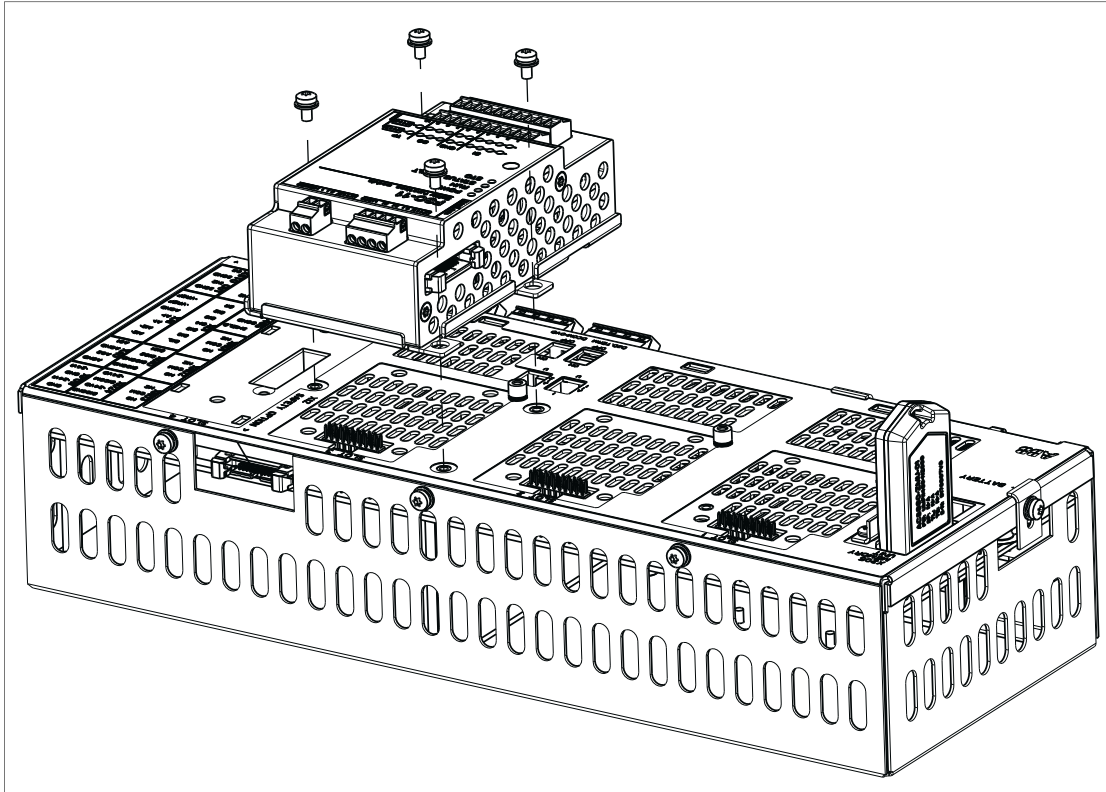
WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

This procedure describes the installation of an FSO-xx safety functions module onto the BCU control unit. (The FSO-xx can alternatively be installed beside the control unit, which is the standard with factory-installed FSO-xx modules. For instructions, see the FSO-xx manual.)

1. Stop the inverter unit and do the steps in section *Electrical safety precautions* (page 144) before you start the work.
2. The FSO-xx comes with alternative bottom plates for mounting on different units. For mounting on the BCU, the mounting points should be located at the long edges of the module as shown. Replace the bottom plate of the FSO-xx if necessary.
3. Fasten the FSO-xx onto slot 3 of the BCU control unit [A41] with four screws.



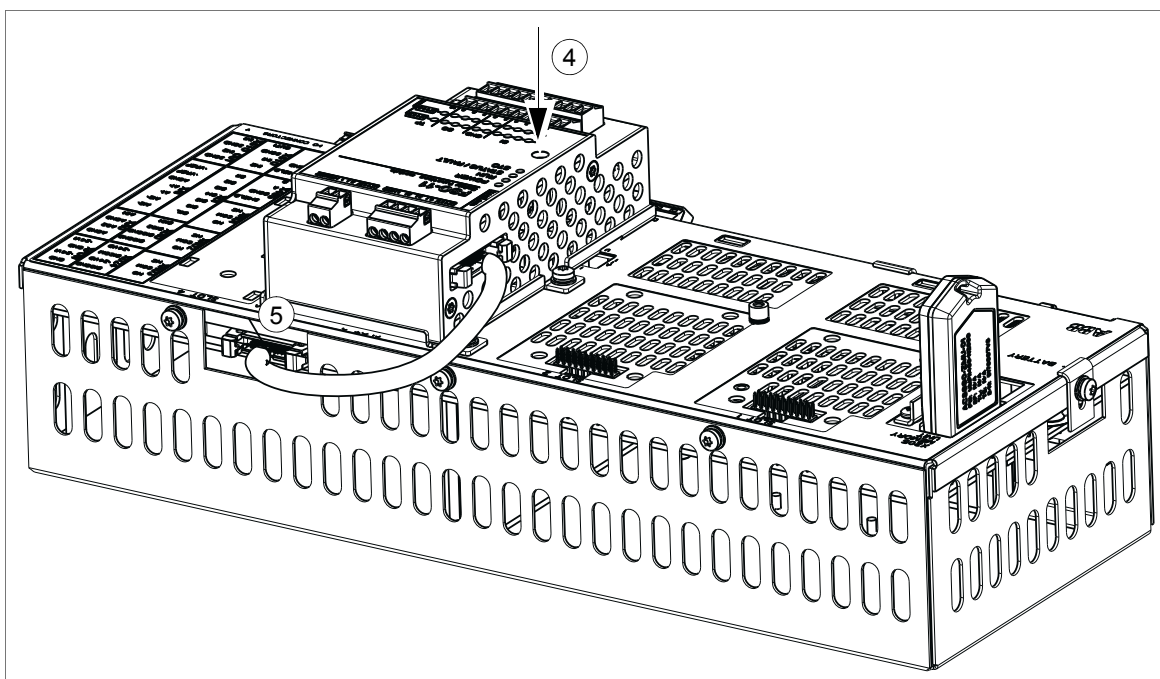


4. Tighten the FSO-xx electronics grounding screw.

Note:

The screw tightens the connections and grounds the module. It is essential for fulfilling the EMC requirements and for proper operation of the module.

5. Connect the FSO-xx data cable between FSO-xx connector X110 and BCU-x2 connector X12.
6. To complete the installation, refer to the instructions in the User's manual delivered with the FSO-xx.

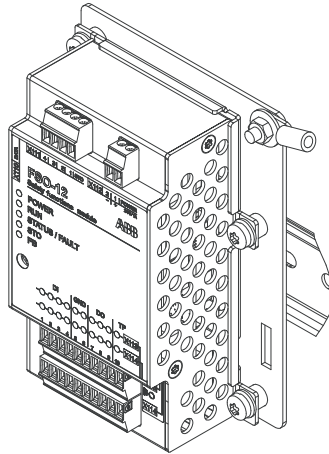


Installation of FSO-xx beside the control unit

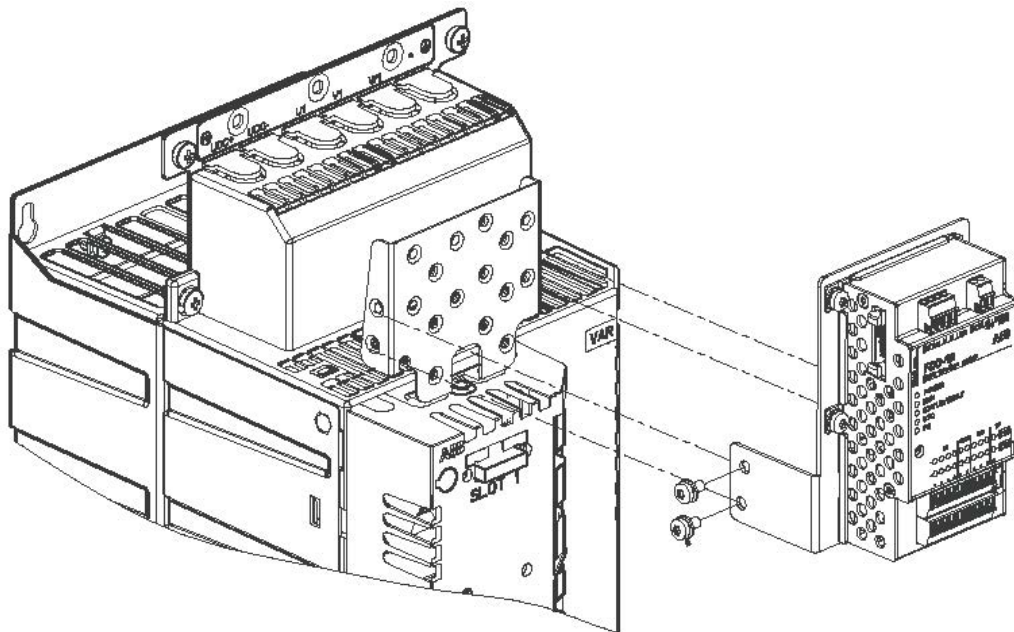
To reserve the slots of the control unit for other modules, you can install the FSO-xx separate from the control unit using mounting kit 3AXD5000025495. The kit contains the parts for mounting the FSO-xx either onto a DIN rail nearby the control unit or onto the grounding/clamping plate of a ZCU-14 (used in frames R1i...R4i) control unit. The kit also contains longer cables for connecting the FSO-xx to the control unit.

Refer to instruction 3AXD5000025583 for installation details.

Mounting on DIN rail



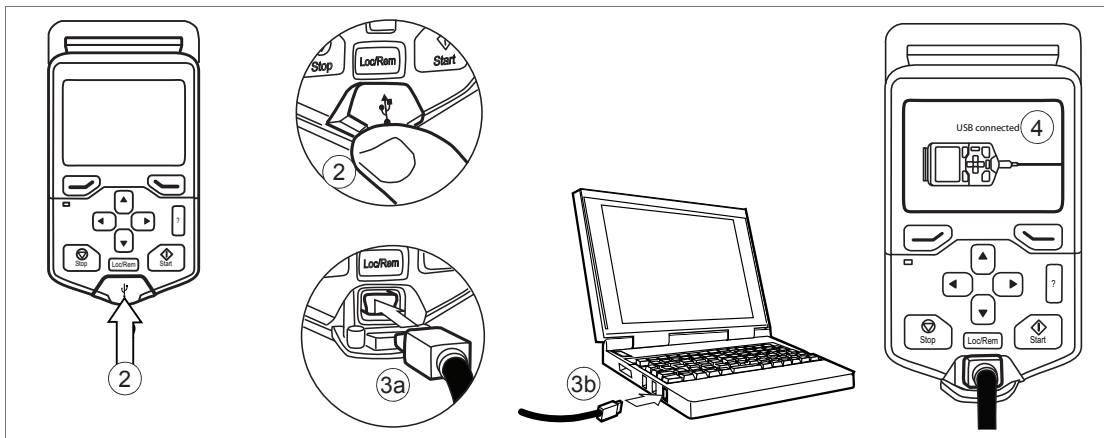
Mounting on ZCU-14 grounding/clamping plate (with frames R1i...R4i)



Connecting a PC

A PC (with eg, the Drive composer PC tool) can be connected as follows:

1. Connect an ACx-AP-x control panel to the unit either
 - by inserting the control panel into the panel holder or platform (if present), or
 - by using an Ethernet (eg, Cat 5e) networking cable.
2. Remove the USB connector cover on the front of the control panel.
3. Connect an USB cable (Type A to Type Mini-B) between the USB connector on the control panel (3a) and a free USB port on the PC (3b).
4. The panel will display an indication whenever the connection is active.



5. See the documentation of the PC tool for setup instructions.

Panel bus (Control of several units from one control panel)

One control panel (or PC) can be used to control several drives (or inverter units, supply units etc.) by constructing a panel bus. This is done by daisy-chaining the panel connections of the drives. Some drives have the necessary (twin) panel connectors in the control panel holder; those that do not require the installation of an FDPI-02 module (available separately). For further information, see the hardware description and *FDPI-02 diagnostics and panel interface user's manual* (3AUA0000113618 [English]).

The maximum allowed length of the cable chain is 100 m (328 ft).

1. Connect the panel to one drive using an Ethernet (for example Cat 5e) cable.
 - Use Menu - Settings - Edit texts - Drive to give a descriptive name to the drive
 - Use parameter 49.01* to assign the drive with a unique node ID number
 - Set other parameters in group 49* if necessary
 - Use parameter 49.06* to validate any changes.

*The parameter group is 149 with supply (line-side), brake or DC/DC converter units.
- Repeat the above for each drive.
2. With the panel connected to one unit, link the units using Ethernet cables.
3. Switch on the bus termination on the drive that is farthest from the control panel in the chain.
 - With drives that have the panel mounted on the front cover, move the terminating switch into the outer position.

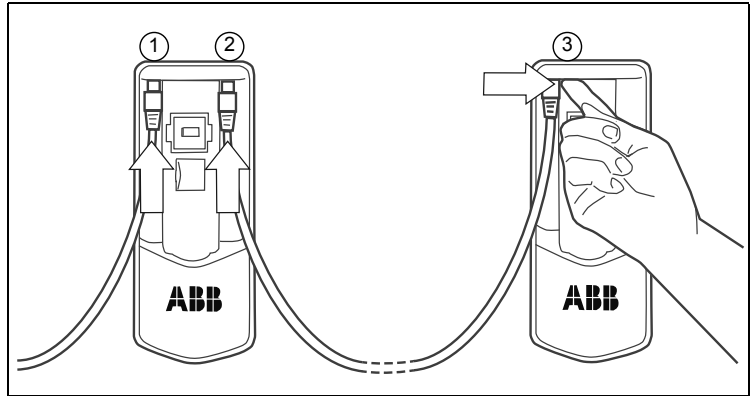
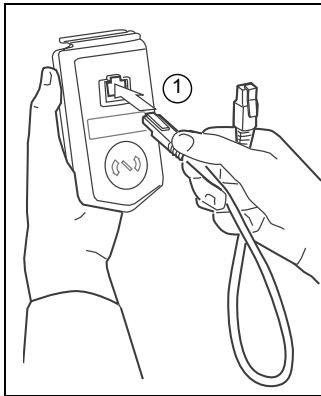
- With an FDPI-02 module, move termination switch S2 into the TERMINATED position.

Make sure that bus termination is off on all other drives.

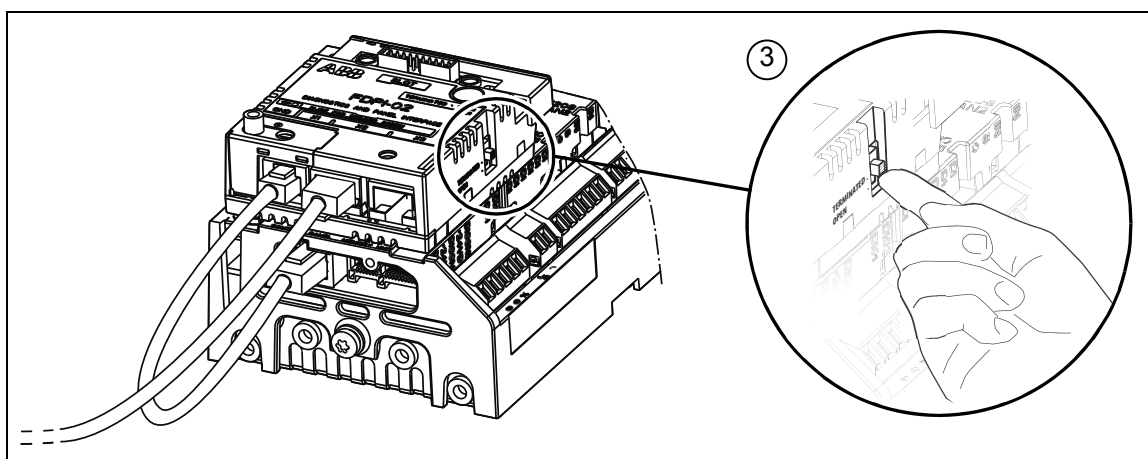
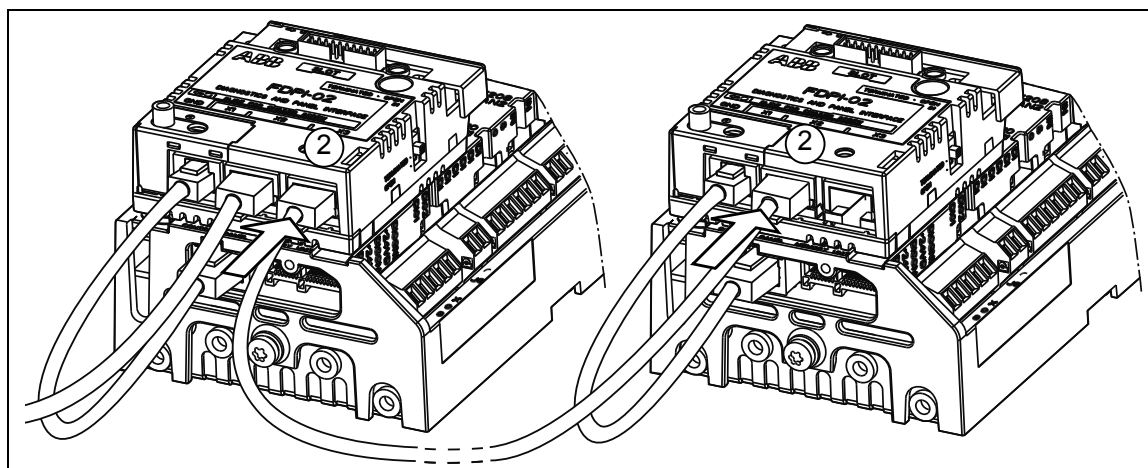
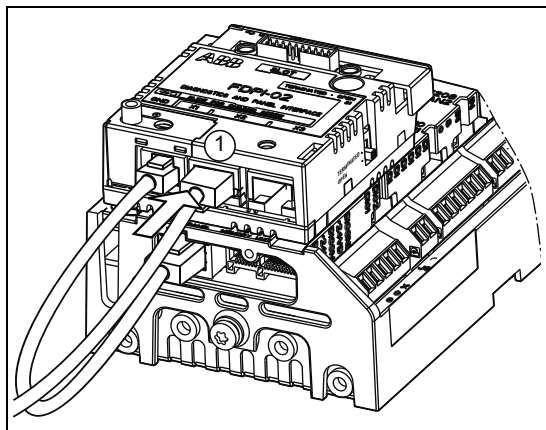
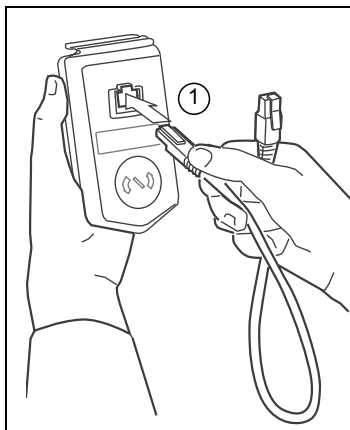
4. On the control panel, switch on the panel bus functionality (Options - Select drive - Panel bus). The drive to be controlled can now be selected from the list under Options - Select drive.

If a PC is connected to the control panel, the drives on the panel bus are automatically displayed in the Drive composer tool.

With twin connectors in the control panel holder:



With FDPI-02 modules:





Installation checklist of the drive

Contents of this chapter

This chapter contains a checklist of the mechanical and electrical installation of the drive.

Checklist

Examine the mechanical and electrical installation of the drive before start-up. Go through the checklist together with another person.



WARNING!

Obey the safety instructions of the drive. If you ignore them, injury or death, or damage to the equipment can occur.

If you are not a qualified electrician, do not do installation or maintenance work.



WARNING!

Stop the drive and do the steps in section [Electrical safety precautions \(page 144\)](#) before you start the work.

| | |
|--|-------------------------------------|
| Make sure that ... | <input checked="" type="checkbox"/> |
| The ambient operating conditions meet the drive ambient conditions specification, and enclosure rating (IP code or UL enclosure type). | <input type="checkbox"/> |
| The supply voltage matches the nominal input voltage of the drive. See the type designation label. | <input type="checkbox"/> |
| The drive cabinet has been attached to floor, and if necessary due to vibration etc, also by its top to the wall or roof. | <input type="checkbox"/> |
| The cooling air flows freely in and out of the drive. Air recirculation inside the cabinet is not be possible (air baffle plates are on place, or there is another air guiding solution). | <input type="checkbox"/> |
| <u>If the drive is connected to a network other than a symetrically grounded TN-S system:</u> Check the compatibility. See the electrical installation instructions in the supply unit manual. | <input type="checkbox"/> |

168 Installation checklist of the drive

| | |
|--|-------------------------------------|
| Make sure that ... | <input checked="" type="checkbox"/> |
| The enclosures of the equipment in the cabinet have proper galvanic connection to the cabinet protective earth (ground) busbar; The connection surfaces at the fastening points are bare (unpainted) and the connections are tight, or separate grounding conductors have been installed. | <input type="checkbox"/> |
| The main circuit connections inside the drive cabinet correspond to the circuit diagrams. | <input type="checkbox"/> |
| The control unit has been connected. See the circuit diagrams. | <input type="checkbox"/> |
| Appropriate AC fuses and main disconnecter have been installed. | <input type="checkbox"/> |
| There is an adequately sized protective earth (ground) conductor between the drive and the switchboard, the conductor has been connected to appropriate terminal, and the terminal has been tightened to the proper torque. Proper grounding has also been measured according to the regulations. | <input type="checkbox"/> |
| The input power cable has been connected to the appropriate terminals, the phase order is right, and the terminals have been tightened to the proper torque. | <input type="checkbox"/> |
| There is an adequately sized protective earth (ground) conductor between the motor and the drive, and the conductor has been connected to appropriate terminal, and the terminal has been tightened to the proper torque. (Pull on the conductors to check.). Proper grounding has also been measured according to the regulations. | <input type="checkbox"/> |
| The motor cable has been connected to the appropriate terminals, the phase order is right, and the terminals have been tightened to the proper torque. | <input type="checkbox"/> |
| The motor cable has been routed away from other cables. | <input type="checkbox"/> |
| No power factor compensation capacitors have been connected to the motor cable. | <input type="checkbox"/> |
| The control cables have been connected to the appropriate terminals, and the terminals have been tightened to the proper torque. | <input type="checkbox"/> |
| If a drive bypass connection will be used: The direct-on-line contactor of the motor and the drive output contactor are either mechanically and/or electrically interlocked, ie, cannot be closed simultaneously. A thermal overload device must be used for protection when bypassing the drive. Refer to local codes and regulations. | <input type="checkbox"/> |
| There are no tools, foreign objects or dust from drilling inside the drive. | <input type="checkbox"/> |
| The area in front of the drive is clean: the drive cooling fan cannot draw any dust or dirt inside. | <input type="checkbox"/> |
| Cover(s) of the motor connection box are in place. Cabinet shrouds are in place and doors are closed. | <input type="checkbox"/> |
| The motor and the driven equipment are ready for start. | <input type="checkbox"/> |

7

Start-up

Contents of this chapter

This chapter contains the start-up procedure of the inverter.

Note:

These instructions do not cover all possible cabinet constructions. Always refer to the delivery-specific circuit diagrams when proceeding with the start-up.



WARNING!


Only qualified electricians are allowed to do the work described in this chapter. Read the complete safety instructions and repeat the steps described in section Electrical safety precautions. The complete safety instructions are given in *Safety instructions for ACS880 multidrive cabinets and modules* [3AUA0000102301 (English)]. Ignoring the instructions can cause physical injury or death, or damage to the equipment.

Note:




The customer is fully responsible for implementing and testing the functional safety circuits according to the relevant legislation and acceptance testing regulations. The functional safety option manuals give examples on implementing the safety circuits in ACS880 multidrives. For information on the Safe torque off function, see chapter *The Safe torque off function* (page 313).

Start-up procedure






| | |
|--------|-------------------------------------|
| Tasks | <input checked="" type="checkbox"/> |
| Safety | |

| | |
|---|-------------------------------------|
| Tasks | <input checked="" type="checkbox"/> |
|  WARNING! Obey the safety instructions during the start-up procedure. See <i>Safety instructions for ACS880 multidrive cabinets and modules</i> (3AUA0000102301 [English]) and Electrical safety precautions. | <input type="checkbox"/> |
| Checks/Settings with no voltage connected | |
| Check the mechanical and electrical installation. | <input type="checkbox"/> |
| Make sure that the insulation resistance of the assembly has been checked. See <i>Checking the insulation of the assembly</i> (page 145). | <input type="checkbox"/> |
| The supply unit of the drive system has been set up according to the instructions in its manuals. | <input type="checkbox"/> |
| The supply unit is off, and the drive system has been isolated from the supply network. | <input type="checkbox"/> |
| Check that any circuit breakers and protection switches in the cooling fan supply circuit are closed. Refer to the circuit diagrams. | <input type="checkbox"/> |
| Check the following data for each inverter unit and note down any deviations from delivery documents. | |
| • Motor, pulse encoder and cooling fan rating plate data correspond to the values in the motor list. | <input type="checkbox"/> |
| • Motor temperature method: Pt100, PTC, KTY84, other? | <input type="checkbox"/> |
| • Motor fan of separately ventilated motors. Check the current, the overcurrent protection setting and the functioning of the fan output control circuit. | <input type="checkbox"/> |
| • Direction of motor rotation. | <input type="checkbox"/> |
| • Maximum and minimum speeds, fixed speeds. | <input type="checkbox"/> |
| • Speed scaling factor, gear ratio, roll diameter, etc. | <input type="checkbox"/> |
| • Acceleration and deceleration times. | <input type="checkbox"/> |
| • Inertia compensation. | <input type="checkbox"/> |
| • Operating modes, stop mode, emergency stop mode, etc. | <input type="checkbox"/> |
| Connecting voltage to the auxiliary circuits | |
| Disconnect any auxiliary voltage (230 or 115 V AC) cables that lead from the terminal blocks to the outside of the equipment and have not yet been checked. Also disconnect any uncompleted wiring. | <input type="checkbox"/> |
| Disconnect the communication link between the drive system and any overriding system. | <input type="checkbox"/> |
| Make sure the main contactor/breaker cannot be switched on inadvertently by remote control. | <input type="checkbox"/> |
| Be ready to trip the main breaker of the supply transformer in case something abnormal occurs. | <input type="checkbox"/> |
| Ensure all cabinet doors are closed. | <input type="checkbox"/> |
| Close the main breaker of the supply transformer. This will energize the input terminals of the drive system. | <input type="checkbox"/> |
| Close the auxiliary voltage switch (if present). | <input type="checkbox"/> |
| Checks with auxiliary voltage connected | |
| Check that the cooling fans rotate freely in the right direction, and the air flows upwards. | <input type="checkbox"/> |
| Note: <ul style="list-style-type: none"> Speed-controlled cooling fans of frame R8i modules (ie. without option +C188) will not rotate until the DC voltage to the module is connected. Depending on the wiring of the drive system and the type of inverter modules, it may be necessary to have the supply unit powered before the fans are started. If so, check the cooling fans after powering the supply unit. | |
| Set the parameters for each inverter unit. Refer to the firmware manual and/or start-up guide of the control program. You can also use the start-up assistant if available in the particular control program. In addition to the parameter settings required by the application, make the following settings: | |
| • Set 31.23 Wiring or earth fault to “No action”. | <input type="checkbox"/> |
| • Set 95.04 Control board supply according to how the inverter control unit is powered. | <input type="checkbox"/> |



| | |
|--|-------------------------------------|
| Tasks | <input checked="" type="checkbox"/> |
| • Edit 95.08 DC switch monitoring if necessary (ie. with R1i...R7i modules equipped with a DC switch/disconnector). | <input type="checkbox"/> |
| • Edit 95.09 Fuse switch control if necessary (ie. with R8i modules without a DC switch/disconnector and charging controller). | <input type="checkbox"/> |
| • With R8i modules with option +C188 (direct-on-line cooling fan), set bit 14 of 95.20 HW options word 1. | <input type="checkbox"/> |
| • With parallel-connected R8i modules, select the inverter unit type in parameter 95.31 Parallel connection rating id. You can filter the list using parameter 95.30. | <input type="checkbox"/> |
| • Reboot the control unit either by cycling the power, or by parameter 96.08 Control board boot. | <input type="checkbox"/> |
| Powering up the inverter unit | |
| Close the cabinet doors. | <input type="checkbox"/> |
| Make sure that it is safe to connect voltage to the drive system. Ensure that: <ul style="list-style-type: none"> • nobody is working on the unit or circuits that have been wired from outside into the cabinets • cover of the motor terminal box is on. | <input type="checkbox"/> |
| Close the main disconnecting device of the drive system. <p> WARNING! When connecting voltage to the supply unit, the DC busbars will become live, as will all the inverters connected to the DC bus.</p> <p> WARNING! <u>Inverter units with a DC switch-disconnector:</u> Some types of inverter module may be energized through a charging circuit even when the DC switch-disconnector is open or the DC fuses are removed. <u>Inverter units without a DC switch-disconnector:</u> If the inverter unit only has DC fuses without a switch fuse, all the inverter units with the DC fuses in place will be energized when the main breaker/contactor closes. To prevent this, remove the fuses from the inverter units which are to remain unenergized before connecting voltage. When the main breaker/contactor of the supply unit is closed (DC busbars are live), never remove or insert the DC fuses of an inverter unit. <u>Inverter cubicles with frame R1i...R5i modules:</u> Before closing the main DC switch-disconnector of the cubicle, leave open the fuse disconnectors of those inverter modules that need not be powered at this time. Do not open or close any fuse disconnectors under load.</p> | <input type="checkbox"/> |
| <u>Inverter units equipped with DC switch-disconnector (or fuse disconnectors):</u> Close the DC switch/disconnector (or fuse disconnectors) of the inverter units that are to be powered up. | <input type="checkbox"/> |
| <u>Inverter cubicles equipped with main DC switch-disconnector (frames R1i...R5i):</u> Close the main DC switch/disconnector. | <input type="checkbox"/> |
|  WARNING! Before closing the main contactor/air circuit breaker, make sure that sufficient inverter power is connected to the intermediate (DC) bus. As a rule of thumb, <ul style="list-style-type: none"> • the sum power of the inverters connected must be at least 30% of the sum power of all inverters • the sum power of the inverters connected must be at least 30% of the rated power of the brake unit (Pbr.max) (if present). If the above-mentioned rules are not followed, the DC fuses of the connected inverter units may blow, or the brake chopper (if present) may be damaged. | <input type="checkbox"/> |
| Close the main contactor (or breaker) of the supply unit. The DC bus is now powered, along with all inverters that are connected to it. | <input type="checkbox"/> |
| Checks with voltage connected to the inverter unit | |



| | |
|---|-------------------------------------|
| Tasks | <input checked="" type="checkbox"/> |
| <p>Complete the pending ID (motor identification) run. Refer to the firmware manual and/or start-up guide of the control program.</p> <p> WARNING! Make sure the motor can be started and rotated as required by the selected ID run mode (parameter 99.13 ID run requested).</p> | <input type="checkbox"/> |
| Check the rotation direction of the motor. | <input type="checkbox"/> |
| Check the operation of the pulse encoder (if present). Refer to the user manual of the pulse encoder interface module. | <input type="checkbox"/> |
| Check the functioning of the emergency stop function from each operating location. | <input type="checkbox"/> |
| <p>Validate the Safe torque off function. Refer to chapter <i>The Safe torque off function</i>, section <i>Start-up including acceptance test (page 322)</i>.</p> <p>  WARNING! The safety functions cannot be considered safe until they are validated.</p> | <input type="checkbox"/> |
| <p>Validate any other safety functions (Emergency stop, Prevention of unexpected start-up, etc.) according to the appropriate procedures.</p> <p>  WARNING! The safety functions cannot be considered safe until they are validated.</p> | <input type="checkbox"/> |
| Control from an overriding system | |
| Disconnect all voltages from the drive system. | <input type="checkbox"/> |
| Connect the communication link between the overriding system and the inverter unit. | <input type="checkbox"/> |
| Power up the drive system. | <input type="checkbox"/> |
| Check the start/stop functions. | <input type="checkbox"/> |
| Check the references received from the overriding system. | <input type="checkbox"/> |
| Check the warning/fault words. | <input type="checkbox"/> |
| Check the reaction of the inverter unit in case of a communication break. | <input type="checkbox"/> |
| Check the updating intervals of the communication. | <input type="checkbox"/> |
| Check any other relevant points. | <input type="checkbox"/> |





Maintenance

Contents of this chapter

This chapter contains maintenance instructions.

Maintenance intervals

The table below shows the maintenance tasks which can be done by the end user. The complete maintenance schedule is available on the Internet (www.abb.com/driveservices). For more information, consult your local ABB Service representative (www.abb.com/searchchannels).

| Maintenance task/object | Years from start-up | | | | | | | | | | | | | |
|---|---------------------|---|---|---|---|---|---|---|---|---|----|----|----|-----|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | ... |
| Cooling | | | | | | | | | | | | | | |
| Inverter module main cooling fan | | | | | | | | | | R | | | | |
| Frame R5i auxiliary cooling fan | | | | | | | | | | R | | | | |
| Frame R8i circuit board compartment fan | | | | | | | | | | R | | | | |
| Cabinet cooling fan (50 Hz) | | | | | | | | | | R | | | | |
| Cabinet cooling fan (60 Hz) | | | | | | | R | | | | | | R | |
| Batteries | | | | | | | | | | | | | | |
| Control unit battery | | | | | | | R | | | | | | R | |
| Control panel battery | | | | | | | | | | R | | | | |
| Connections and environment | | | | | | | | | | | | | | |
| Air inlet and outlet cleaning (IP20/IP42) | | I | I | I | I | I | I | I | I | I | I | I | I | I |
| Cabinet door filter change (IP54) | | R | R | R | R | R | R | R | R | R | R | R | R | R |
| Checking tightness of cable and busbar terminals. Tightening if needed. | | I | I | I | I | I | I | I | I | I | I | I | I | I |
| Checking ambient conditions (dustiness, corrosion, temperature) | | I | I | I | I | I | I | I | I | I | I | I | I | I |
| Cleaning of heatsinks | | I | I | I | I | I | I | I | I | I | I | I | I | I |
| Quality of supply voltage | | P | P | P | P | P | P | P | P | P | P | P | P | P |
| Spare parts | | | | | | | | | | | | | | |
| Spare parts | | I | I | I | I | I | I | I | I | I | I | I | I | I |
| DC circuit capacitor reforming (spare modules and spare capacitors) | | P | P | P | P | P | P | P | P | P | P | P | P | P |
| 4FPS10000292961 | | | | | | | | | | | | | | |

Symbols

- I Inspection** (visual inspection and maintenance action if needed)
- P Performance** of on/off-site work (commissioning, tests, measurements or other work)
- R Replacement**

Maintenance and component replacement intervals are based on the assumption that the equipment is operated within the specified ratings and ambient conditions. ABB recommends annual drive inspections to ensure the highest reliability and optimum performance.

Note:

Long term operation near the specified maximum ratings or ambient conditions may require shorter maintenance intervals for certain components. Consult your local ABB Service representative for additional maintenance recommendations.

Maintenance timers and counters

The control program has maintenance timers and counters that can be configured to generate a warning when a pre-defined limit is reached. Each timer/counter can be set to monitor any parameter. This feature is especially useful as a service reminder. For more information, see the firmware manual.

Cleaning

■ Cleaning the interior of the cabinet



WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.



WARNING!

Use a vacuum cleaner with an antistatic hose and nozzle, and wear a grounding wristband. Otherwise an electrostatic charge might build up and damage the circuit boards.

1. Stop the drive and do the steps in section *Electrical safety precautions (page 144)* before you start the work.
2. Open the cabinet door.
3. Clean the interior of the cabinet. Use a vacuum cleaner and a soft brush.
4. Clean the air inlets of the fans and air outlets of the modules (top).
5. Clean the air inlet gratings (if any) on the door.
6. Close the door.

■ Cleaning the heatsink

The drive module heatsink fins pick up dust from the cooling air. The drive runs into overtemperature warnings and faults if the heatsink is not clean. When necessary, clean the heatsink as follows.



WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.



WARNING!

Use a vacuum cleaner with antistatic hose and nozzle. Using a normal vacuum cleaner creates static discharges which can damage circuit boards.

1. Stop the drive and do the steps in section *Electrical safety precautions (page 144)* before you start the work.
2. Remove the drive module from the cabinet.
3. Remove the module cooling fan(s). See the separate instructions.
4. Blow dry, clean and oil-free compressed air from bottom to top and simultaneously use a vacuum cleaner at the air outlet to trap the dust.

Note:

If there is a risk of dust entering adjoining equipment, perform the cleaning in another room.

5. Reinstall the cooling fan.

■ Cleaning the door air inlets

Follow the instructions of the manufacturer of the cabinet system.

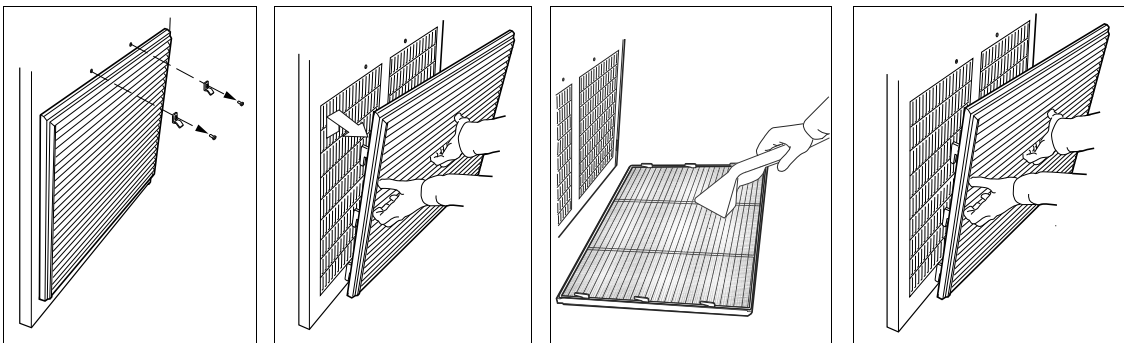
Cleaning the door air inlets (IP20)

Use a vacuum cleaner and brush to clean the grating.

Cleaning the door air inlets (IP22 and IP42)

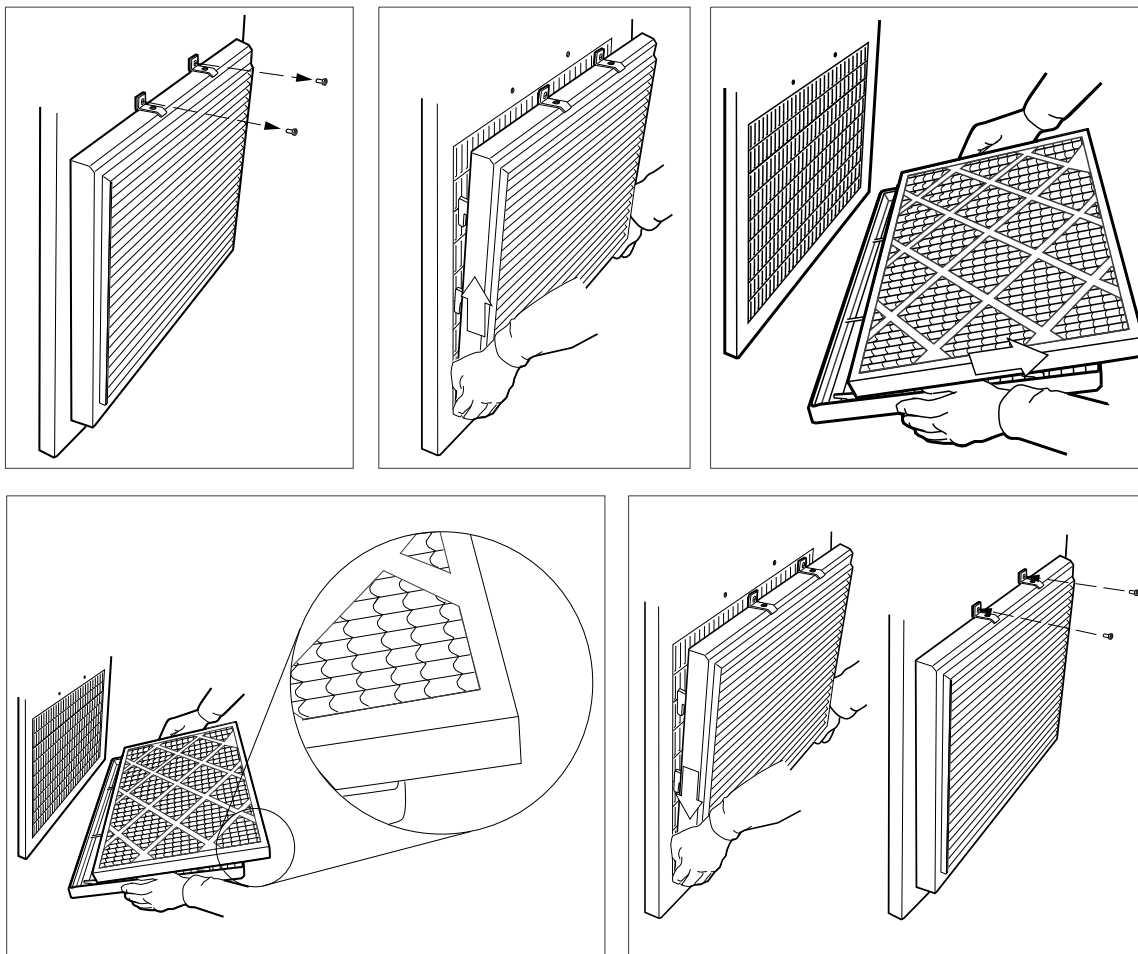
Check the dustiness of the air inlet meshes. If the dust cannot be removed by vacuum cleaning from outside through the grating holes with a small nozzle, proceed as follows:

1. Stop the drive and do the steps in section *Electrical safety precautions (page 144)* before you start the work.
2. Remove the fasteners at the top of the grating.
3. Lift the grating and pull it away from the door.
4. Vacuum clean or wash the grating on both sides.
5. Reinstall the grating in reverse order.



Replacing the inlet door filters (IP54)

1. Stop the drive and do the steps in section *Electrical safety precautions (page 144)* before you start the work.
2. Remove the fasteners at the top of the grating.
3. Lift the grating and pull it away from the door.
4. Remove the air filter mat.
5. Place the new filter mat in the grating the metal wire side facing the door.
6. Reinstall the grating in reverse order.



Cooling fans

The lifespan of the cooling fans of the drive depends on the running time, ambient temperature and dust concentration. See the firmware manual for the actual signal which indicates the running time of the cooling fan. Reset the running time signal after fan replacement.

Replacement fans are available from ABB. Do not use other than ABB specified spare parts.

■ Replacing the module cooling fans

Replacing the R1i and R2i module cooling fan



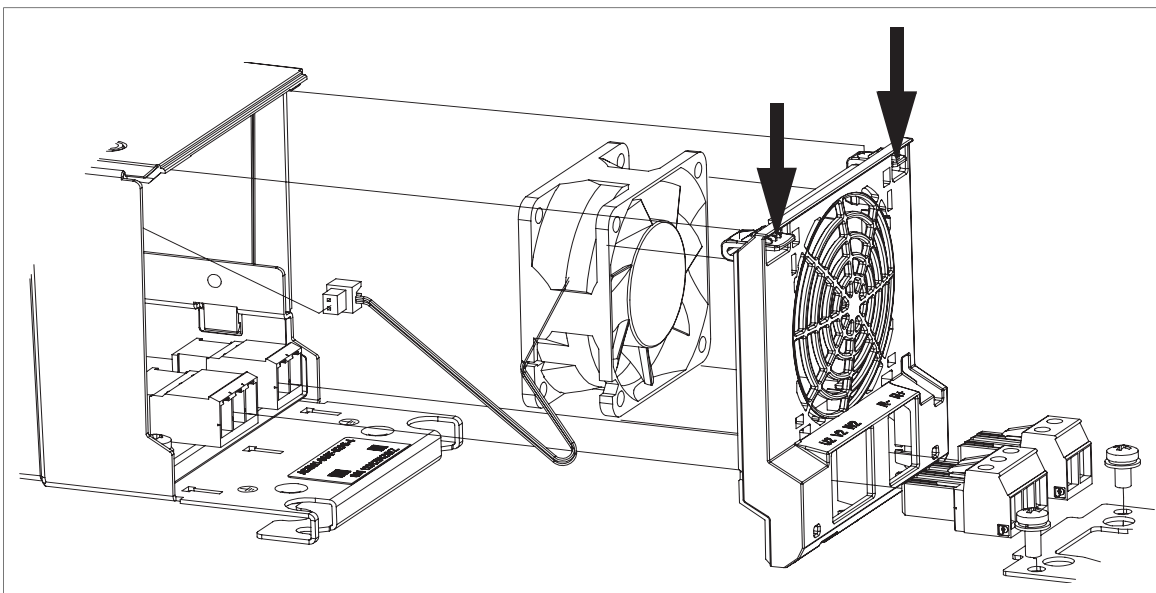
WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

1. Stop the drive and do the steps in section [Electrical safety precautions \(page 144\)](#) before you start the work.
2. Detach the power cable clamp plate and terminal blocks.
3. Release the retaining clips (arrowed) carefully using a screwdriver.
4. Pull the fan holder out.
5. Disconnect the fan cable.
6. Carefully bend the clips on the fan holder to free the fan.
7. Install new fan in reverse order.

Note:

The airflow direction is bottom-to-top. Install the fan so that the arrow on it points up.



In the drawing, the direction of airflow is from right to left.

Replacing the R3i and R4i module cooling fan



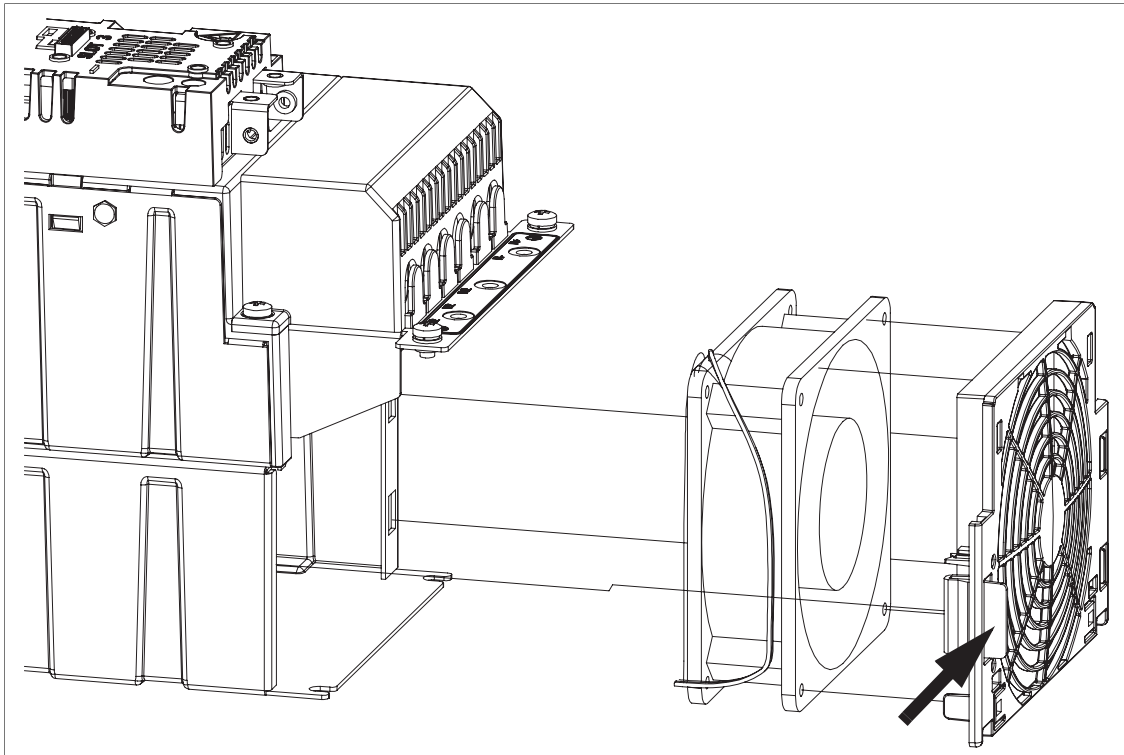
WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

1. Stop the drive and do the steps in section *Electrical safety precautions* (page 144) before you start the work.
2. To remove the fan, release the retaining clip (arrowed) carefully using a screwdriver.
3. Pull the fan holder out.
4. Disconnect the fan cable.
5. Carefully bend the clips on the fan holder to free the fan.
6. Install new fan in reverse order.

Note:

The airflow direction is bottom-to-top. Install the fan so that the airflow arrow points up.



In the picture direction of airflow is from right to left.

Replacing the R5i module main cooling fan



WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

1. Stop the drive and do the steps in section *Electrical safety precautions (page 144)* before you start the work.
2. Disconnect the drive from the power line. Lock the main disconnecting device and ensure by measuring that there is no voltage.
3. Lift the fan mounting plate by the front edge.
4. Unplug the power supply wires.
5. Lift the fan assembly off.
6. Install the new fan assembly in reverse order. Make sure that the fan blows upwards.



Replacing the R5i module auxiliary cooling fan

Frame R5i modules have an auxiliary fan located at the top front of the module.



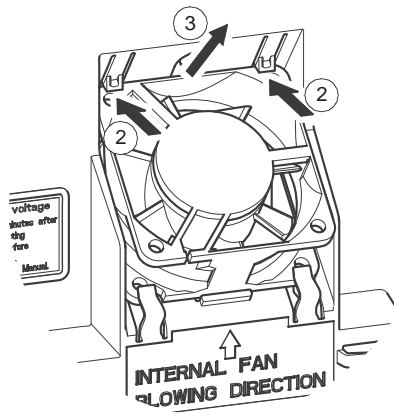
WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

1. Stop the drive and do the steps in section *Electrical safety precautions (page 144)* before you start the work.
2. Unplug the fan from the control unit. Make note of the connector the plug is connected to.
3. Push the two locking tabs gently inwards to release the fan.

4. Remove the fan.

Install new fan in reverse order. Make sure that the fan blows upwards (the arrows on the fan frame and the fan holder point in the same direction).



Replacing the R6i and R7i module cooling fan

Frame R6i modules have one fan, R7i modules have two.



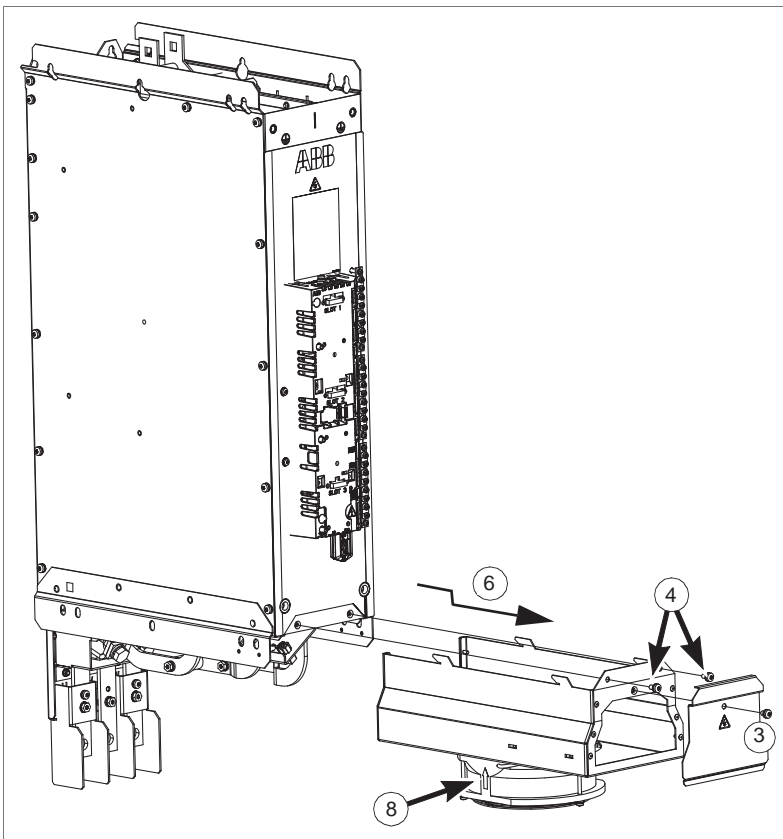
WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

1. Stop the drive and do the steps in section *Electrical safety precautions (page 144)* before you start the work.
2. Open the door. Remove any shrouding in front of the fan unit.
3. Remove the front plate.
4. Remove the two screws that lock the fan unit.
5. Unplug the power supply wire(s) of the fan(s).
6. To free the fan holder, pull it slightly outwards (about 5 mm), then downwards.
7. Detach the fan(s) from the fan holder.
8. Install new fan(s) in reverse order to the above.

9. **Note:**

The airflow direction is bottom-to-top. Make sure that the airflow direction arrow on the fan points upward.



Replacing R8i module cooling fan (speed-controlled version)

The module is equipped with a fan unit that contains two cooling fans.



WARNING!

Obey the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore the safety instructions, injury or death, or damage to the equipment can occur.

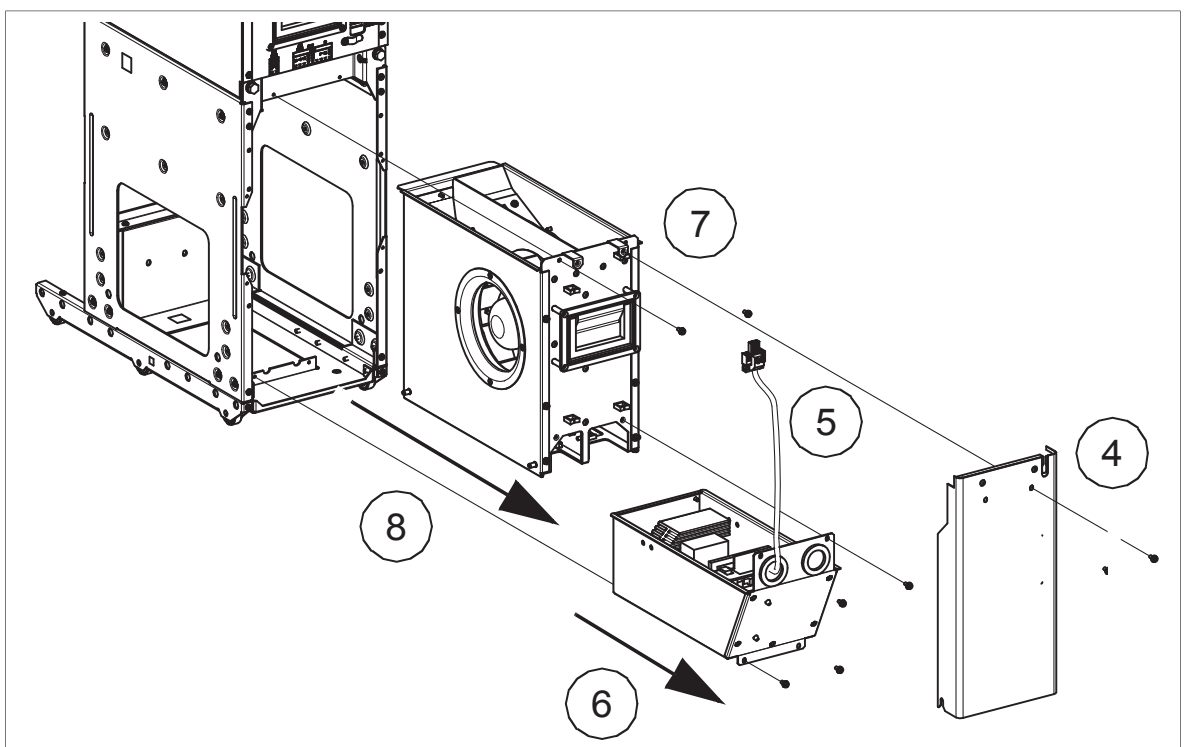
If you are not a qualified electrician, do not do installation or maintenance work.



WARNING!

Use the required personal protective equipment. Wear protective gloves and long sleeves. Some parts have sharp edges.

1. Stop the drive and do the steps in section [Electrical safety precautions \(page 144\)](#) before you start the work.
2. Open the cubicle door.
3. Remove the shroud in front of the fan (if any).
4. Remove the screws holding the front cover plate. Lift the cover plate somewhat to release it.
5. Disconnect the fan wiring.
6. Remove the unit below the fan.
7. Remove the screws of the fan unit.
8. Pull out the fan unit.
9. Install a new fan in reverse order.



Replacing R8i module cooling fan (direct-on-line version)



WARNING!

Obey the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore the safety instructions, injury or death, or damage to the equipment can occur.

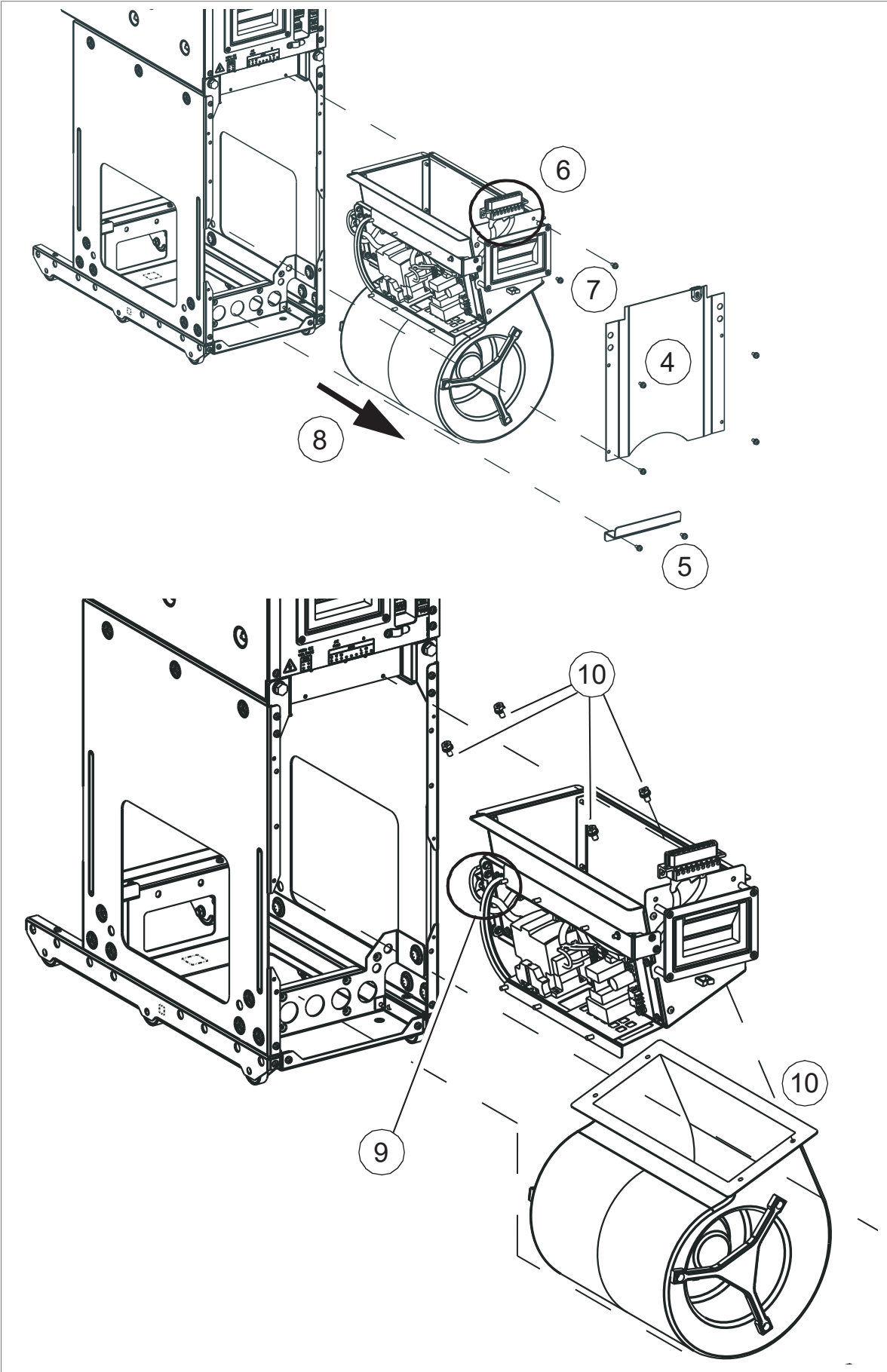
If you are not a qualified electrician, do not do installation or maintenance work.



WARNING!

Use the required personal protective equipment. Wear protective gloves and long sleeves. Some parts have sharp edges.

1. Stop the drive and do the steps in section *Electrical safety precautions (page 144)* before you start the work.
 2. Open the door.
 3. Remove the shroud in front of the fan (if any).
 4. Remove the screws holding the front cover plate. Lift the cover plate somewhat to release it.
 5. Remove the bracket.
 6. Disconnect the wiring of the fan unit.
 7. Remove the screws of the fan unit.
 8. Pull out the fan unit.
 9. Disconnect the fan wire from the fan unit.
 10. Remove the screws of the fan.
 11. Install a new fan in reverse order.
-



Replacing the circuit board compartment fan

Frame R8i modules are equipped with a fan blowing air through the circuit board compartment.

The fan is accessible from the front of the module.

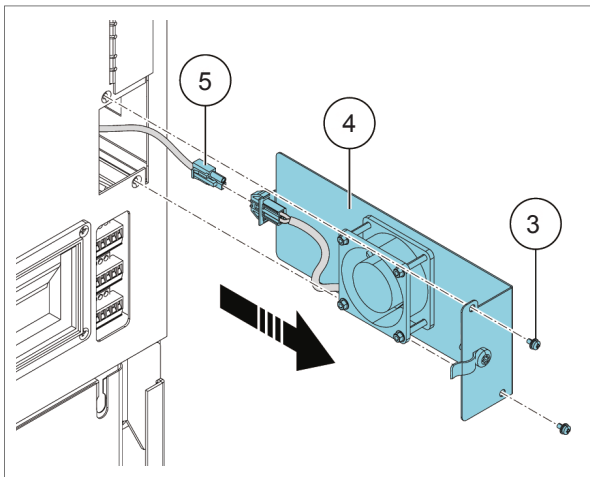


WARNING!

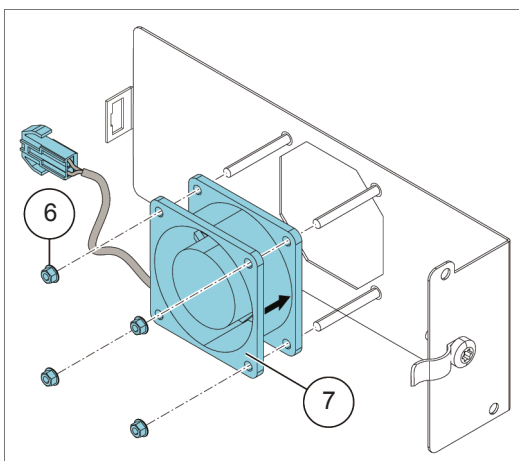
Obey the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore the safety instructions, injury or death, or damage to the equipment can occur.

If you are not a qualified electrician, do not do installation or maintenance work.

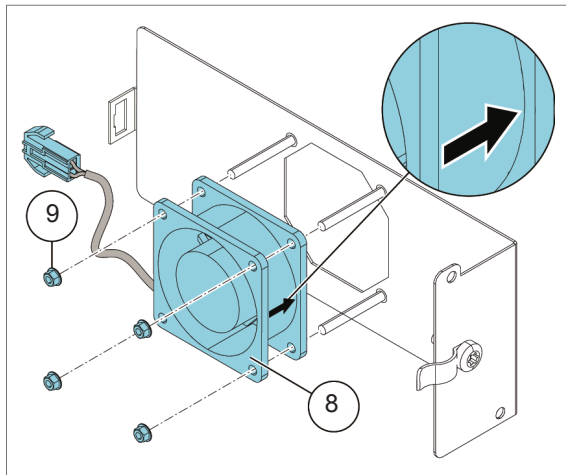
1. Stop the drive and do the steps in section [Electrical safety precautions \(page 144\)](#) before you start the work.
2. Open the door of the module cubicle.
3. Remove the two M4×12 (T20) screws which lock the fan holder.
4. Pull the fan holder out of the module.
5. Disconnect the fan cable.



6. Remove the four M3 (5.5 mm) nuts which hold the fan.
7. Remove the fan from the fan holder.

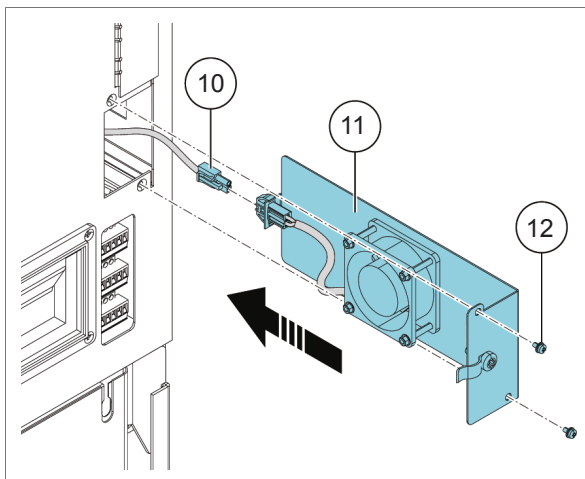


8. Put the fan onto the threaded studs on the fan holder with the airflow direction arrow pointing towards the fan holder.
9. Install and tighten the four nuts removed earlier.



10. Connect the fan cable.
 11. Align and push the fan holder into the module.
-

12. Install and tighten the two M4×12 (T20) screws.



■ Replacing the cabinet cooling fans

Cabinets with ABB air outlet kits



WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

1. Stop the drive and do the steps in section [Electrical safety precautions \(page 144\)](#) before you start the work.
2. The instruction mentioned at each air outlet kit in chapter Ordering information contains an exploded view of the outlet. Remove all gratings and filters, and finally remove the plate on top of the outlet. Unscrew all necessary screws securing the fan and remove it.
3. Install new fan in reverse order.

Cabinets with other fan types



WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

1. Stop the drive and do the steps in section [Electrical safety precautions \(page 144\)](#) before you start the work.
2. Follow the instructions of the manufacturer of the air outlet or enclosure system.

Replacing R6i/R7i module

The following procedure describes the replacement of a frame R6i or R7i inverter module.

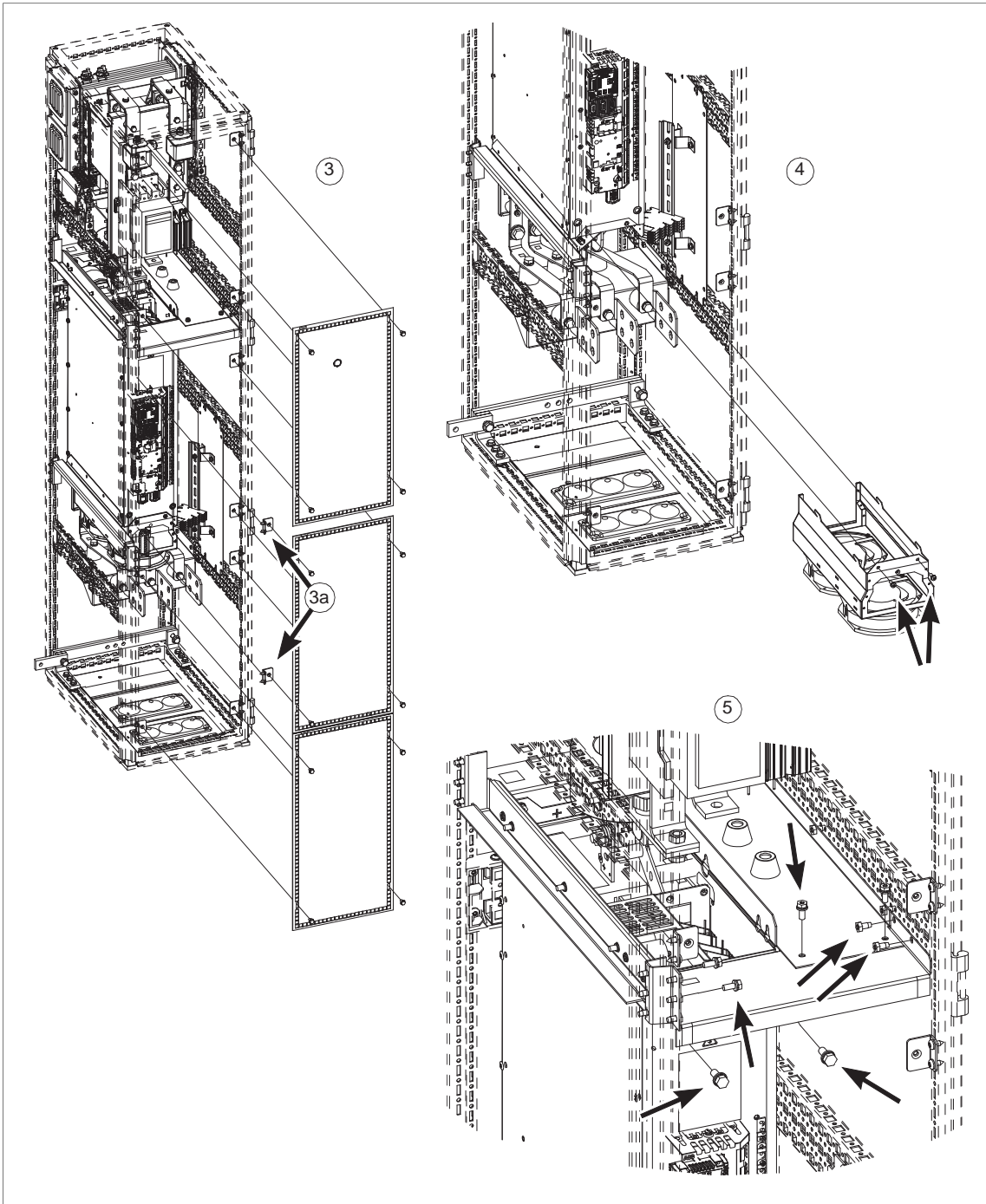
The procedure applies to the design presented in this manual.

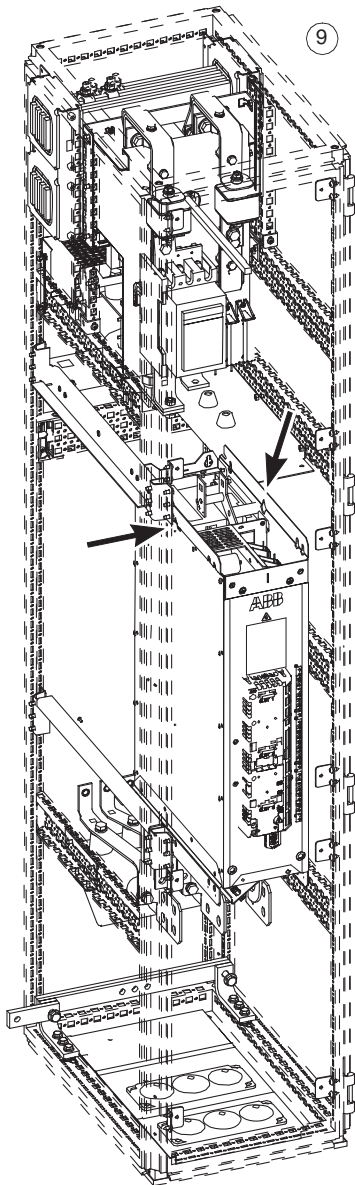
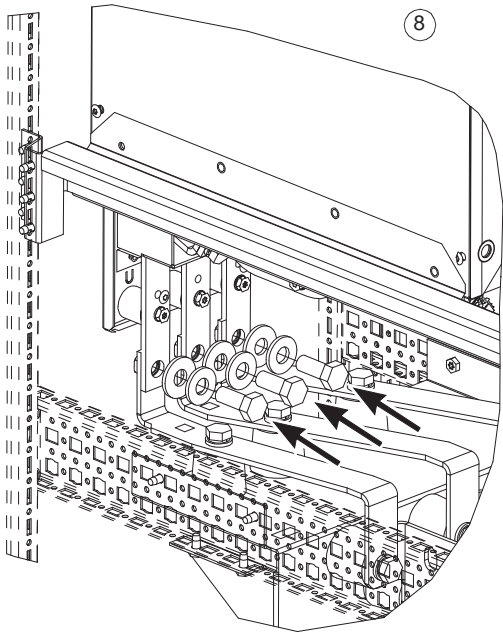
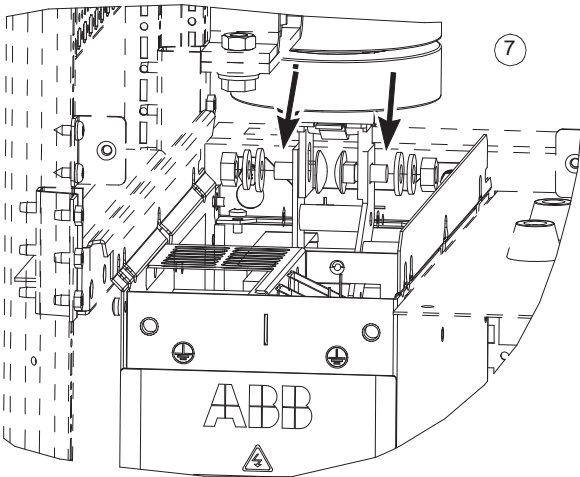
**WARNING!**

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

Refer to the drawings below.

1. Stop the drive and do the steps in section *Electrical safety precautions (page 144)* before you start the work.
 2. Disconnect the drive system from the AC power line.
 3. Open the cubicle door.
 4. Remove the shrouds. Also remove the mounting brackets of the middle shroud (3a) on the left.
 5. Remove the two screws holding the fan unit (arrowed). Remove the fan unit by pulling it slightly outwards, then downwards.
 6. Remove the mounting screws (arrowed) of the front air baffle. Remove the baffle.
 7. Disconnect all control cabling coming to the control unit at the front of the module. Move the cabling aside and tie it out of the way.
 8. Disconnect the DC busbars.
 9. Disconnect the AC busbars.
 10. Pull out the module until the lifting device (or a suitable hoist) can be attached to the lifting eyes at the top of the module (arrowed).
 11. Make sure the lifting device is carrying the weight of the module, and pull the module out completely.
 12. Install the module in reverse order to the above.
-





Replacing R8i module



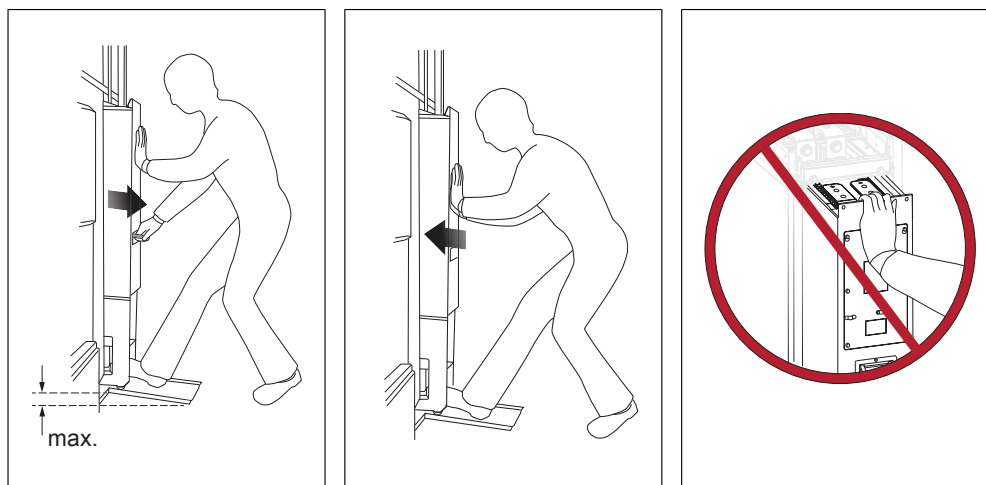
WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules (3AUA0000102301 [English])*. If you ignore them, injury or death, or damage to the equipment can occur.



WARNING!

- Do not use the module extraction/installation ramp with plinth heights which exceeds the maximum allowed height.
- Secure the module extraction/installation ramp carefully.
- Push the module into the cabinet and pull it from the cabinet carefully preferably with help from another person. Keep a constant pressure with one foot on the base of the module to prevent the module from falling on its back. Keep your fingers away from the edges of the front flange of the module.

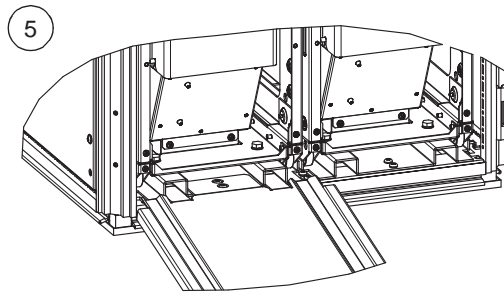
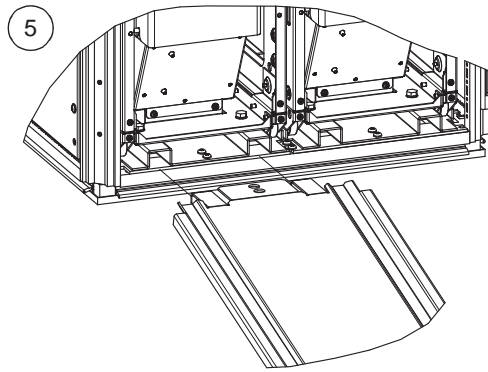
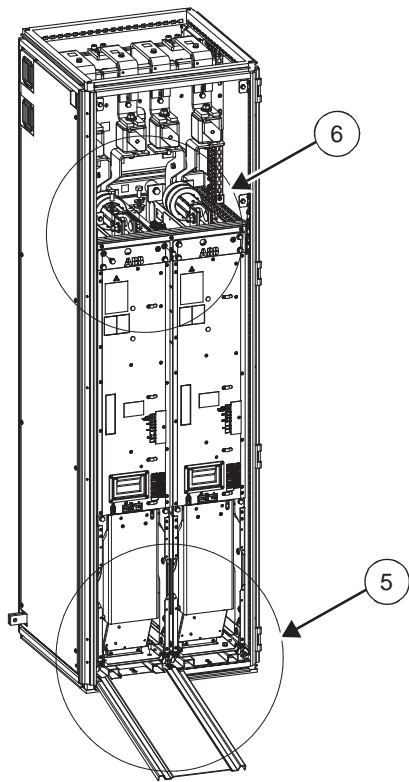


- Be careful when handling a tall module. The module overturns easily because it is heavy and has a high center of gravity. Whenever possible, secure the module with chains. Do not leave an unsupported module unattended especially on a sloping floor.

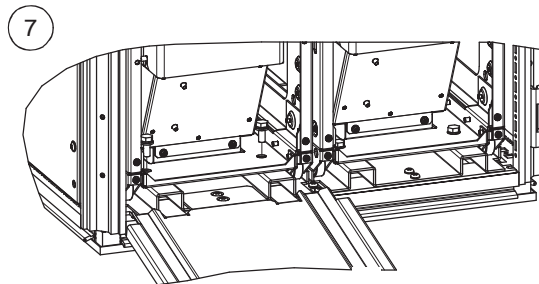
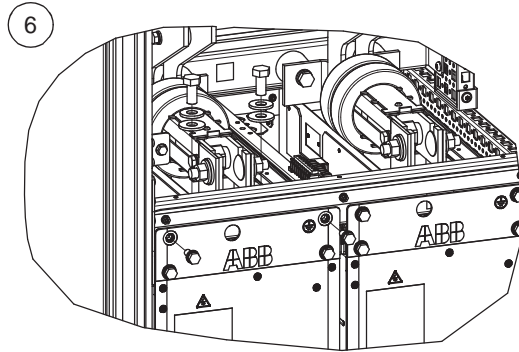
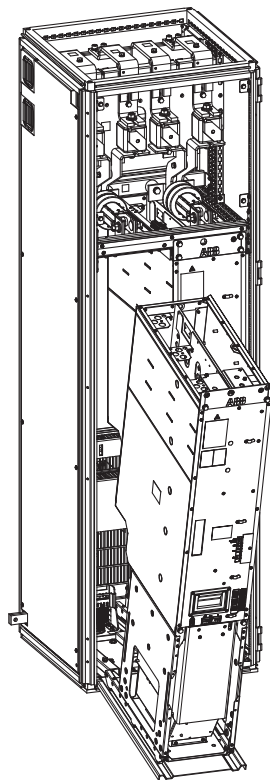


1. Stop the drive and do the steps in section [Electrical safety precautions \(page 144\)](#) before you start the work.
2. Open the cubicle door.
3. Remove the shrouds (if any).

4. Unplug the wiring on the front of the module. Unplug the connector (X50) at the top of the module. Move the wires aside.
 5. Use a module pull out ramp or other lifting device to remove the module from the cabinet. If the ramp designed for Rittal enclosures is used, install it by placing the hooks of the ramp between the bottom plate and enclosure frame.
 6. Remove the two fastening bolts in the DC output busbars. Remove the two fastening screws on the top part of the module.
 7. Remove the module fastening screws on the lower part of the module.
 8. Pull the module carefully out of the cabinet along the ramp, or use another lifting device to remove the module.
 9. Replace the module:
 - Push the module back in and fasten. Tighten the fastening screws of the module to 22 N·m (16.2 lbf·ft) and fastening bolts of the DC input busbars to 70 N·m (51.6 lbf·ft).
 - Reconnect connector X50 at the top of the module.
 - Reconnect the wiring and fiber optic cables to their respective terminals on the front of the module.
 - Remove the module pull-out ramp, attach the shrouds (if any) and close the cabinet doors.
-



8



Capacitors

The DC circuit of the power modules of the drive contain several electrolytic capacitors. Their lifespan depends on the operating time of the drive, loading and ambient temperature. Capacitor life can be prolonged by lowering the ambient temperature.

Capacitor failure is usually followed by damage to the unit and an input cable fuse failure, or a fault trip. Contact ABB if capacitor failure is suspected. Replacements are available from ABB. Do not use other than ABB specified spare parts. Contact an ABB service representative for spare parts and repair services.

■ Reforming the capacitors

The capacitors must be reformed if the drive has not been powered (either in storage or unused) for a year or more. The manufacturing date is on the type designation label. For information on reforming the capacitors, see *Converter module capacitor reforming instructions* (3BFE64059629 [English]) in the ABB Library (<https://library.abb.com/en>).

If the drive module has been stored for one to three years, turn on the mains power for 30 minutes without load, then continue as usual.

If the drive module has been stored for less than a year, continue as usual.

Control units

■ Replacing the memory unit

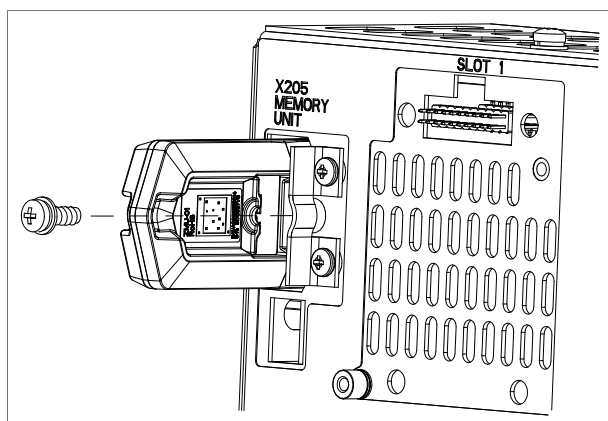
After replacing a control unit, you can retain the existing parameter settings by transferring the memory unit from the defective control unit to the new control unit.



WARNING!

Do not remove or insert the memory unit when the control unit is powered.

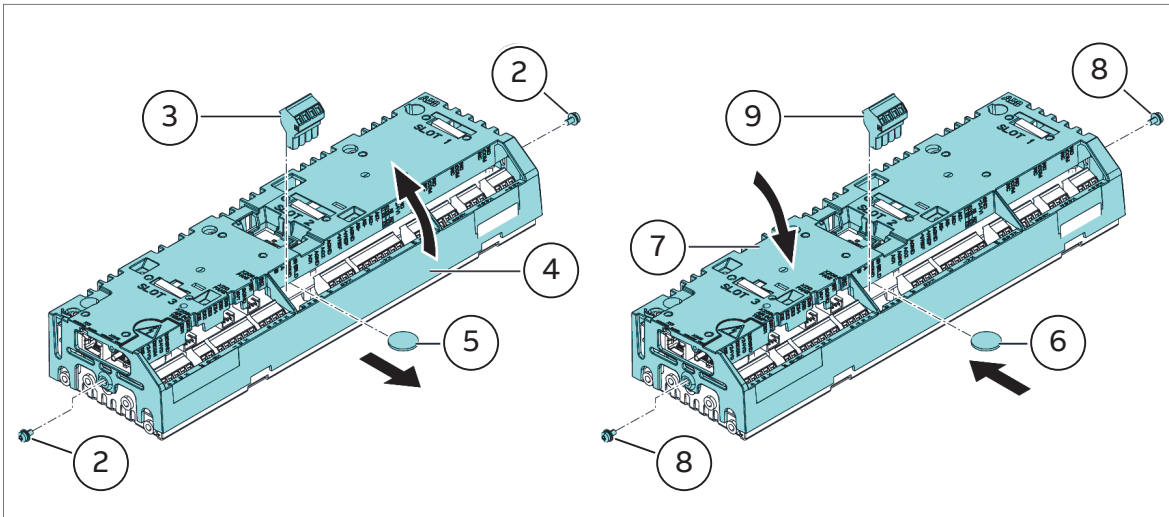
1. Stop the drive and do the steps in section *Electrical safety precautions* (page 144) before you start the work.
2. Make sure that the control unit is not powered.
3. Undo the fastening screw and pull the memory unit out.
4. Install a memory unit in reverse order.



■ Replacing the ZCU-14 control unit battery

1. Repeat the steps described in *Electrical safety precautions* (page 144).

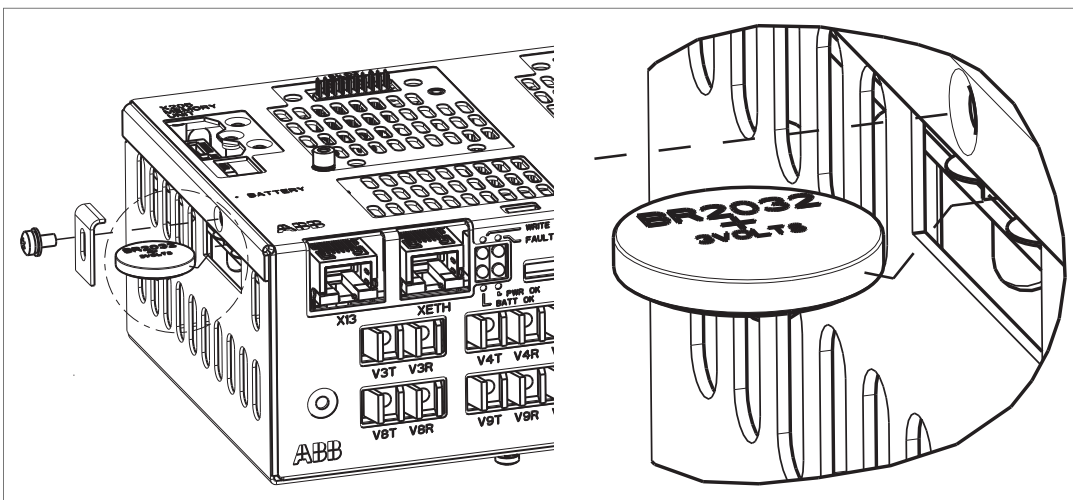
2. Remove the M4×8 [T20] screws at the ends of the control unit.
3. To see the battery, remove the XD2D terminal block.
4. Carefully lift the edge of the control unit cover on the side with the I/O terminal blocks.
5. Carefully pull the battery out of the battery holder.
6. Carefully put a new CR2032 battery into the battery holder.
7. Close the control unit cover.
8. Tighten the M4×8 [T20] screws.
9. Install the XD2D terminal block.



■ Replacing the BCU control unit battery

Replace the real-time clock battery if the BATT OK LED is not illuminated when the control unit is powered.

1. Stop the drive and do the steps in section *Electrical safety precautions (page 144)* before you start the work.
2. Undo the fastening screw and remove the battery
3. Replace the battery with a new BR2032 battery.
4. Dispose of the old battery according to local disposal rules or applicable laws.
5. Set the real-time clock.



Control panel

For detailed information on the control panel, see *ACx-AP-x assistant control panels user's manual* (3AUA0000085685 [English]).

■ **Cleaning the control panel**

Use a soft damp cloth to clean the control panel. Avoid harsh cleaners which could scratch the display window.

■ **Replacing the control panel battery**

For instructions on how to replace the control panel battery, see the separate *ACx-AP-x assistant control panels user's manual* document (3AUA0000085685 [English]).

LEDs and other status indicators

■ Control panel and panel platform/holder LEDs

The ACX-AP-x control panel has a status LED. The control panel mounting platform or holder has two status LEDs. For their indications, see the following table.

| Location | LED | Indication |
|--|---------------------------------|--|
| Control panel | Continuous green | The unit is functioning normally. |
| | Flickering green | Data is transferred between the PC and the unit through the USB connection of the control panel. |
| | Blinking green | There is an active warning in the unit. |
| | Continuous red | There is an active fault in the unit. |
| | Blinking red | There is a fault that requires the stopping and restarting of the drive/converter/inverter. |
| | Blinking blue (ACS-AP-W only) | The Bluetooth interface is enabled, in discoverable mode, and ready for pairing. |
| | Flickering blue (ACS-AP-W only) | Data is being transferred through the Bluetooth interface of the control panel. |
| Control panel mounting platform or holder (with the control panel removed) | Red | There is an active fault in the unit. |
| | Green | Power supply for the control unit is OK. |

■ R8i module LEDs

Frame R8i modules have three LEDs. For their indications, see the following table.

| Location | LED | Indication |
|------------|-------------------------------------|---|
| R8i module | FAULT (continuous red) | There is an active fault in the module. |
| | ENABLE / STO (continuous green) | The module is ready for use. |
| | ENABLE / STO (continuous yellow) | XSTO connectors are de-energized. |
| | POWER OK (continuous green) | Supply voltage of the internal circuit boards is OK (> 21 V). |

Reduced run

A “reduced run” function is available for inverter units consisting of parallel-connected inverter modules. The function makes it possible to continue operation with limited current even if one (or more) module is out of service, for example, because of maintenance work. In principle, reduced run is possible with only one module, but the physical requirements of operating the motor still apply; for example, the modules remaining in use must be able to provide the motor with enough magnetizing current.

The wiring accessories needed during the procedure are available from ABB.

■ Starting reduced run operation



WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

1. Stop the drive and do the steps in section [Electrical safety precautions \(page 144\)](#) before you start the work.
2. If the inverter control unit is powered from the faulty module, connect the control unit to another 24 V DC power supply. We strongly recommend using an external power supply with inverter units consisting of parallel-connected modules.
3. Remove the module to be serviced from its bay.
4. If the STO (Safe torque off) function is in use, install the STO jumper wire set in place of the missing module (unless the module was the last on the chain).
5. Install an air baffle to the top module guide to block the airflow through the empty module bay.
6. In case the inverter unit has a DC switch with a charging circuit, disable the appropriate channel on the charging monitoring unit.
7. Switch on the power to the inverter unit.
8. Enter the number of inverter modules present into parameter **95.13 Reduced run mode**.
9. Reset all faults and start the inverter unit. The maximum current is now automatically limited according to the new inverter configuration. A mismatch between the number of detected modules (95.14) and the value set in 95.13 will generate a fault.
10. If the STO function is in use, validate it as described in chapter [The Safe torque off function \(page 313\)](#).

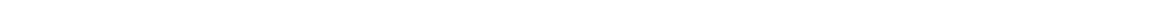
■ Resuming normal operation



WARNING!

Read the safety instructions given in *Safety instructions for ACS880 multidrive cabinets and modules* (3AUA0000102301 [English]). If you ignore them, injury or death, or damage to the equipment can occur.

1. Stop the drive and do the steps in section [Electrical safety precautions \(page 144\)](#) before you start the work.
2. Remove the STO (Safe torque off) jumper wire set (if present).
3. Remove the air baffle from the module bay.
4. Reinstall the module into its bay.
5. Reconnect the STO wiring (if used) to the module.
6. In case the inverter unit has a DC switch with a charging circuit, re-enable all channels on the charging monitoring unit.
7. Switch on the power to the inverter unit.
8. Enter "0" into parameter **95.13 Reduced run mode**.
9. If the STO function is in use, validate it as described in chapter [The Safe torque off function \(page 313\)](#).



9

Ordering information

Contents of this chapter

This chapter lists the types and ordering codes of the unit components.

You can find the kit-specific assembly drawings, step-by-step instructions and detailed kit information on the Internet. Go to

<https://sites-apps.abb.com/sites/lvacdrivesengineeringsupport/content>. If needed, contact your local ABB representative.

Note:

- This chapter only lists the installation accessories available from ABB. All other parts must be sourced from a third party (such as Rittal) by the system integrator. For a listing, refer to the kit-specific installation instructions available at <https://sites-apps.abb.com/sites/lvacdrivesengineeringsupport/content>. For access, contact your local ABB representative.
- Parts that are labeled suitable for generic enclosures are not designed for any specific enclosure system. These parts are intended as a basis for further engineering, and may require additional parts to be fully usable.

Installation accessories designed for generic enclosures are in fact designed for an inside width of 50 mm less than the nominal width of the enclosure. For example, a mechanical kit intended for 800 mm wide generic enclosure is designed for an inside width of 750 mm, and will not fit a 800 mm wide Rittal VX25 enclosure.

Kit code key

The kit codes shown in this chapter break down as follows.

The format of the kit code is x-w-s-yyy(-VX), for example, L-6-8-401 where:

- x = cooling method
 - A = air-cooled (some of these kits are also used with liquid-cooled drives)
 - L = liquid-cooled
 - w = cabinet width
 - 4 = 400 mm
 - 6 = 600 mm
 - 8 = 800 mm
 - s = module frame size / sizes
 - 1 = R1i
 - 2 = R2i
 - 3 = R3i
 - 4 = R4i
 - 5 = R5i
 - 6 = R6i/D6D
 - 7 = R7i/D7D/D7T
 - 8 = R8i/D8D/D8T
 - X = any, or not defined.
 - yyy = consecutive numbering
 - 001...099 = Kits related to cabinets, for example, adapter plates
 - 001...019 Common AC- and DC-related kits
 - 020...049 Cabinet mechanics kits
 - 050...059 Swing frame kits
 - 100...199 = Kits related to AC connection, for example, busbars
 - 100...129 Kits with connection to AC
 - 130...149 Kits with connection to module
 - 150...199 Other kits related to AC connection
 - 200...299 = Kits related to DC connection, for example, busbars
 - 200...229 Kits with connection to common DC
 - 230...249 Kits with connection to module
 - 250...299 Other kits related to DC connection
 - 300...399 = Kits related to module installation, for example, mechanical supports
 - 300...330 Module supporting kits, basic mechanical support
 - 350...379 Shroud kits
-

- 400...499 = Other kits
 - 400...419 Fan kits
 - 420...439 Air guides
 - 440...459 Cooling circuit kits

 - VX = Kit specifically designed for the Rittal VX25 enclosure system. Many kits without this designation are also used with the VX25 system.
-

Frames R1i...R4i

■ Inverter modules

As standard, frame R1i to R4i inverter modules come with a cover that also acts as a control panel holder. The cover is fitted with a panel interface board (ZDPI-01) which enables the construction of a panel bus. The panel bus makes it possible to control several inverter units from a single control panel.


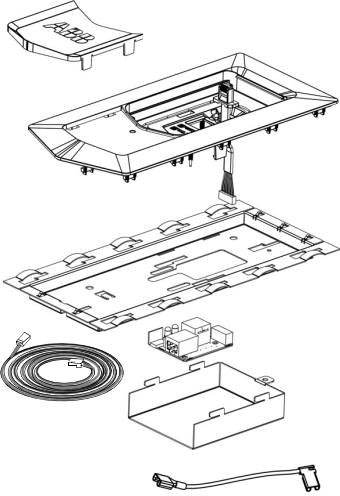
The modules can be ordered without the cover by specifying option code +0J414. (If desired, the panel bus can be constructed using FDPI-02 modules which are available separately.)

| Ordering code | Contents |
|---|--|
| <p>[Module type] For example, ACS880-104-008A0-3</p> | <ul style="list-style-type: none"> • Inverter module (1) with ZCU control unit (1a) • ZMU memory unit (2) with ACS880 primary control program. For availability of other control programs, contact your local ABB representative. • Module cover with control panel holder (3) • ZDPI-01 panel interface board (4) • Cable from ZDPI-01 to control unit (5) • Control cable grounding/strain relief plate (6) with adapter (6a) • Two power cable grounding/strain relief plates (7a, 7b) • Module air temperature sensor (8) with mounting plate (8a) • Cabinet cooling fan wire (connector with a stretch of wire). |
| <p>[Module type] +0J414 For example, ACS880-104-008A0-3 +0J414</p> | <ul style="list-style-type: none"> • Inverter module (1) with ZCU control unit (1a) • ZMU memory unit (2) with ACS880 primary control program. For availability of other control programs, contact your local ABB representative. • Control cable grounding/strain relief plate (6) with adapter (6a) • Two power cable grounding/strain relief plates (7a, 7b) • Module air temperature sensor (8) with mounting plate (8a) • Cabinet cooling fan wire (connector with a stretch of wire). |
| <p>[Module type] +N8010 For example, ACS880-104-008A0-3 +N8010 ACS880-104-008A0-3 +0J414+N8010</p> | <ul style="list-style-type: none"> • ACS880 primary control program with application programmability using function blocks based on the IEC 61131-3 standard. For more information, see <i>Programming manual: Drive application programming (IEC 61131-3)</i> (3AUA0000127808 [English]). |
| | |
| <p>For module types, see Ratings.</p> | |

Control panel

The control panel is not included with the module but must be ordered separately. One control panel is required for the commissioning of an ACS880 drive system, even if the Drive composer PC tool is used.

The control panel can be flush mounted on the cabinet door with the help of a door mounting kit. For more information on the control panel, see *ACS-AP-x assistant control panels user's manual* (3AUA0000085685 [English]).

| Type | Description | Ordering code | Illustration |
|----------|------------------------------|-----------------|---|
| ACS-AP-W | Control panel with Bluetooth | 3AXD50000025965 |  |
| DPMP-01 | Door mounting kit (IP55) | 3AUA0000108878 |  |

The door mounting kit contains:

- front cover
- flat cable (between DDPI-01 board and the panel)
- DDPI-01 board, cover and M4×8 combi screw for the cover
- EMC shield
- control panel mounting platform
- grounding wire
- Ethernet cable (3 m).
- *DPMP-01 mounting platform for ACS-AP control panel installation guide* [3AUA0000100140 (English)].

■ DC-side components

Frame R1i...R4i inverter modules are connected to the DC bus through individual fuses. The fuses are installed on fuse bases that can be opened under no load. Microswitches are used for monitoring the open/closed state of the fuse bases. The fuse bases specified for frame sizes R3i and R4i include the microswitches as standard; the microswitches must be ordered separately for R1i and R2i fuse bases.

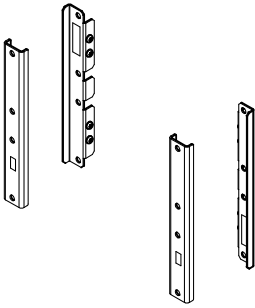
A main DC switch/disconnector and DC fuses for all the modules in the same enclosure can optionally be added. The main DC fuses are typically used to protect against short-circuits in the DC path to the module fuses when a high-power supply unit is used.

DC bus installation parts (for Rittal VX25 enclosures)

The brackets in this kit act as a mounting base for the busbar supports of the Rittal Flat-PLS DC bus and ensure its correct placement and alignment inside the cabinet line-up.

Note:

The designs presented in this manual for Rittal VX25 enclosures employ the Rittal Flat-PLS busbar system. Make sure that the current carrying capability of the busbars is not exceeded at any point of the drive system.

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|-------------------------------|-------------------|-----------------|----------------|--|
| 400/600/800 mm VX25 enclosure | 1 kit per cabinet | 3AXD50000333387 | A-468-X-001-VX |  <p>Instruction code: 3AXD50000333639</p> |

Module-specific DC fuses (IEC, UL)

| Module type ACS880-104-... | | Fuse | | Qty | Ordering code |
|-------------------------------|--------------------|---------------------------------|--------------|-----|----------------|
| | | Type | Data | | |
| 004A8-3 006A0-3 | 003A6-5 004A8-5 | Bussmann FWP-10A14F* | 10 A, 660 V | 2 | 3AUA0000089115 |
| 008A0-3 | 006A0-5 | Bussmann FWP-15A14F* | 15 A, 660 V | 2 | 3AUA0000089116 |
| 0011A-3 | 008A0-5 | Bussmann FWP-20A14F* | 20 A, 660 V | 2 | 3AUA0000089117 |
| 0014A-3 | 0011A-5 | Bussmann FWP-25A14F* | 25 A, 660 V | 2 | 3AUA0000089118 |
| 0018A-3 | 0014A-5 0018A-5 | Bussmann FWP-32A14F* | 32 A, 660 V | 2 | 3AUA0000089119 |
| 0025A-3 | 0025A-5 | Mersen 6,921 CP URQ 27x60/50** | 50 A, 690 V | 2 | 3AXD5000000189 |
| 0035A-3 | 0030A-5 | Mersen 6,921 CP URQ 27x60/63** | 63 A, 690 V | 2 | 3AXD5000000211 |
| 0044A-3 | 0035A-5 | Mersen 6,921 CP URQ 27x60/80** | 80 A, 690 V | 2 | 3AXD5000000213 |
| 0050A-3 | 0050A-5 | Mersen 6,921 CP URQ 27x60/100** | 100 A, 690 V | 2 | 3AXD5000000215 |
| 0061A-3 | 0061A-5 | Mersen 6,921 CP URQ 27x60/125** | 125 A, 690 V | 2 | 3AXD5000000217 |
| 0078A-3 | 0078A-5 | Mersen 6,921 CP URQ 27x60/160** | 160 A, 690 V | 2 | 3AXD5000000219 |
| 0094A-3 0100A-3 | 0094A-5 | Mersen 6,921 CP URQ 27x60/200** | 200 A, 690 V | 2 | 3AXD5000000221 |

*Size: 14 × 51 mm
**Size: 27 × 60 mm

Module-specific DC fuse bases (IEC, UL)

| Module type ACS880-104-... | | Fuse base | | Qty | Ordering code |
|-------------------------------|---------|------------------------------|----------------------------|-----|--|
| | | Type | Data | | |
| 004A8-3 | 003A6-5 | Mersen US141 (Z331153F) | 14 × 51 mm 50 A, 690 V | 2 | 3AUA0000089224 (fuse base) |
| ... | ... | | | 2 | 3AUA0000089228 (microswitch) |
| 0018A-3 | 0018A-5 | | | | |
| 0025A-3 | 0025A-5 | Mersen US271MI (R227600C) | 27 × 60 mm 140 A, 800 V | 2 | 3AUA0000089227 (microswitch in- cluded) |
| ... | ... | | | | |
| 0100A-3 | 0094A-5 | | | | |

Main DC switch/disconnector kits

| IEC | | | | |
|-----------------|------------------------|---------------|-----|-----------------|
| Enclosure width | DC switch/disconnector | | Qty | Ordering code |
| | Type | Data | | |
| 400 mm | ABB OT400E11 | 2-pole, 400 A | 1 | 3AXD50000000891 |
| 600 mm | ABB OT630E11 | 2-pole, 630 A | 1 | 3AXD50000000892 |
| 800 mm | ABB OT400E22 | 4-pole, 400 A | 1 | 3AXD50000000893 |

| UL | | | | |
|-----------------|------------------------|---------------|-----|-----------------|
| Enclosure width | DC switch/disconnector | | Qty | Ordering code |
| | Type | Data | | |
| 400 mm | ABB OT400U11 | 2-pole, 400 A | 1 | 3AXD50000002764 |
| 600 mm | ABB OT600U11 | 2-pole, 600 A | 1 | 3AXD50000002765 |
| 800 mm | ABB OT400U22 | 4-pole, 400 A | 1 | 3AXD50000002767 |

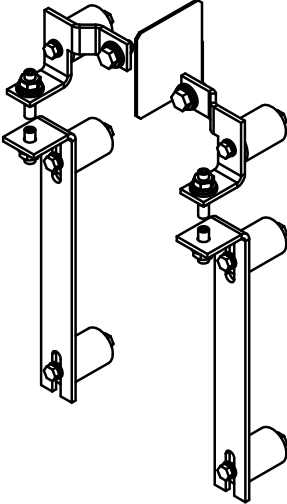
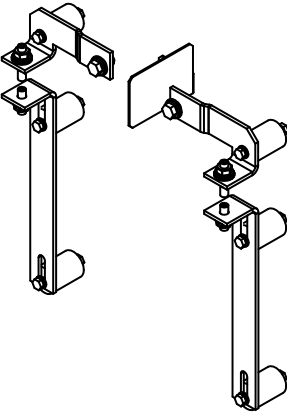
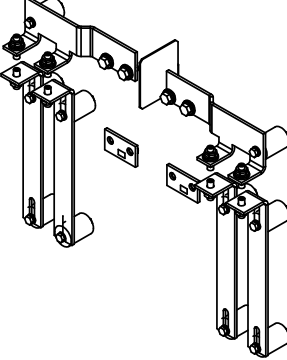
Kit contents:

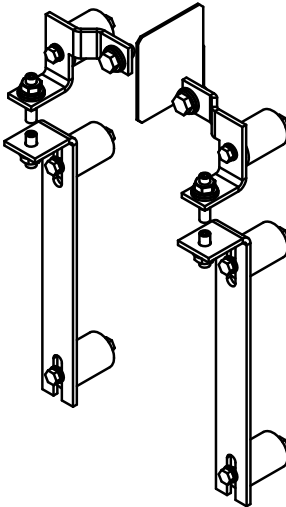
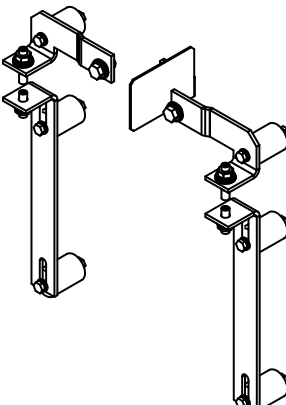
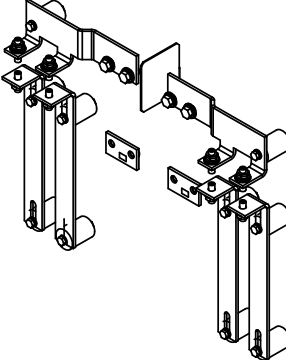
- DC switch/disconnector
- Shaft (12 × 325 mm)
- OHB__J12 handle with off/on indication
- OA1G10 normally-open auxiliary contact block.

Main DC fuses (IEC, UL)

| Enclosure width | DC switch/disconnector | | Qty | Ordering code |
|-----------------|------------------------|---------------|-----|-----------------|
| | Type | Data | | |
| 400 mm | Bussmann 170M4413 | 2-pole, 400 A | 1 | 3AXD50000002764 |
| 600 mm | ABB OT600U11 | 2-pole, 600 A | 1 | 3AXD50000002765 |
| 800 mm | ABB OT400U22 | 4-pole, 400 A | 1 | 3AXD50000002767 |

Busbars between main DC switch/disconnector and fuses

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--------------|-----|-----------------|-----------------|--|
| 400 mm IEC | 1 | 3AXD50000474493 | A-4-1234-272-VX |  <p>Instruction code: 3AXD50000453108</p> |
| 600 mm IEC | 1 | 3AXD50000475964 | A-6-1234-271-VX |  <p>Instruction code: 3AXD50000460779</p> |
| 800 mm IEC | 1 | 3AXD50000475933 | A-8-1234-273-VX |  <p>Instruction code: 3AXD50000474516</p> |

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--------------|-----|-----------------|-----------------|--|
| 400 mm UL | 1 | 3AXD50000003918 | A-4-1234-274 |  <p>Instruction code: 3AXD50000003895</p> |
| 600 mm UL | 1 | 3AXD50000475964 | A-6-1234-271-VX |  <p>Instruction code: 3AXD50000460779</p> |
| 800 mm UL | 1 | 3AXD50000003919 | A-8-1234-275 |  <p>Instruction code: 3AXD50000003875</p> |

■ AC-side components

Output (du/dt) filters

For information on the usage of output (du/dt) filters, see document *ACS880 multidrive cabinets and modules electrical planning instructions* (3AUA0000102324 [English]).

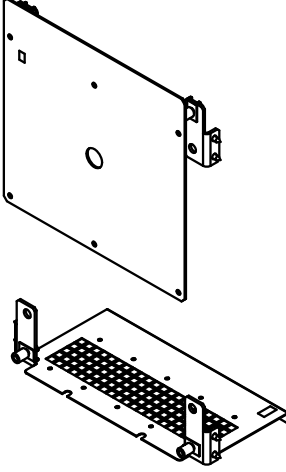
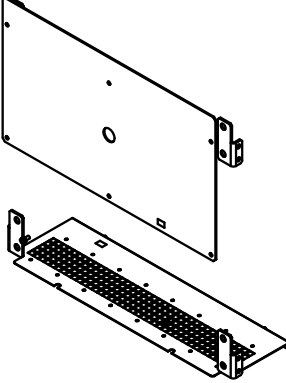
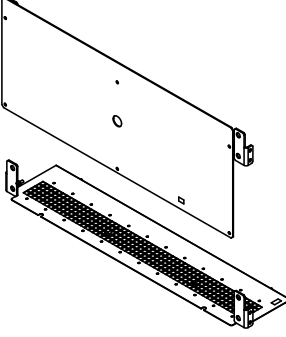
| Module type ACS880-104-... | | Fuse base | | Qty | Ordering code |
|-------------------------------|---------|-------------|--|-----|---------------|
| | | Type | Data | | |
| 004A8-3 | 003A6-5 | NOCH0016-60 | I_{RMS} : 15 A L : 150 μ H Power loss: 110 W Cable size: 0.2 ... 10 mm ² Connection: M5 | 1 | 58982784 |
| 006A0-3 | 004A8-5 | | | | |
| 008A0-3 | 006A0-5 | | | | |
| 0011A-3 | 008A0-5 | | | | |
| 0014A-3 | 0011A-5 | | | | |
| 0018A-3 | 0014A-5 | | | | |
| | 0018A-5 | | | | |
| 0025A-3 | 0025A-5 | NOCH0030-60 | I_{RMS} : 28 A L : 140 μ H Power loss: 167 W Cable size: 0.5 ... 16 mm ² Connection: M5 | 1 | 58982792 |
| 0035A-3 | 0030A-5 | | | | |
| | 0035A-5 | | | | |
| 0044A-3 | 0050A-5 | NOCH0070-60 | I_{RMS} : 65 A L : 115 μ H Power loss: 210 W Cable size: 10...35 mm ² Connection: M6 | 1 | 58982806 |
| 0050A-3 | 0061A-5 | | | | |
| 0061A-3 | 0078A-5 | | | | |
| 0078A-3 | 0094A-5 | | | | |
| 0094A-3 | | | | | |
| 0100A-3 | | | | | |

■ **Mechanical installation accessories**

These kits include parts that are required for installing the inverter module in the enclosure.

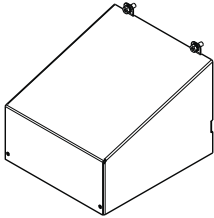
Mounting plate shroud kits

The plates are installed in front of the main DC switch and fuses. The module-specific fuse disconnectors are installed onto this plate.

| Enclosure width | Qty | Ordering code | Kit code | Illustration |
|-----------------|-----|-----------------|-----------------|--|
| 400 mm | 1 | 3AXD50000456772 | A-4-1234-403-VX |  <p>Instruction code: 3AXD50000450060</p> |
| 600 mm | 1 | 3AXD50000456819 | A-6-1234-402-VX |  <p>Instruction code: 3AXD50000461691</p> |
| 800 mm | 1 | 3AXD50000475926 | A-8-1234-404-VX |  <p>Instruction code: 3AXD50000474882</p> |

Air guide kits

The air guide directs the hot air exiting the inverter module into the hot area at the rear of the cubicle.

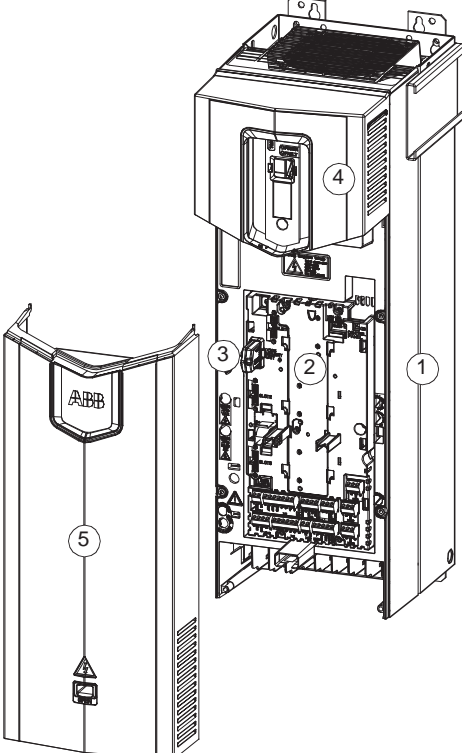
| Frame size | Qty | Ordering code | Kit code | Illustration |
|------------|-----|----------------|-------------|---|
| R1i | 1 | 3AUA0000114398 | A-468-1-422 |  <p>Instruction code: 3AUA0000114397</p> |
| R2i | 1 | 3AUA0000114330 | A-468-2-423 | |
| R3i | 1 | 3AUA0000114404 | A-468-3-424 | |
| R4i | 1 | 3AUA0000114405 | A-468-4-425 | |

Frame R5i

■ Inverter module

As standard, frame R5i inverter modules come with a two-part front cover, the top part of which also acts as a control panel holder. The holder is fitted with a panel interface board (ZDPI-01) which enables the construction of a panel bus. The panel bus makes it possible to control several inverter units from a single control panel.


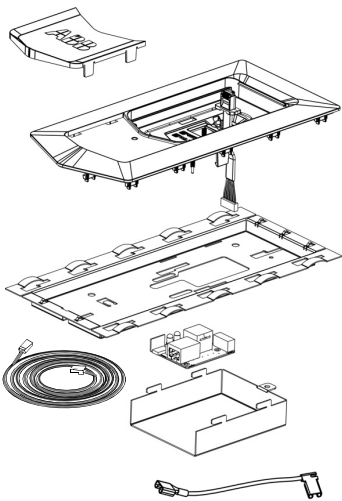
The modules can be ordered without the front covers by specifying option code +0J414. (If desired, the panel bus can be constructed using FDPI-02 modules which are available separately.)

| Ordering code | Contents |
|--|---|
| [Module type] For example, ACS880-104-007A3-7 | <ul style="list-style-type: none"> • Inverter module (1) with ZCU-12 control unit (2) • ZMU memory unit (3) with ACS880 primary control program. For availability of other control programs, contact your local ABB representative. • Module front cover, top (4) including <ul style="list-style-type: none"> • Control panel holder • ZDPI-01 panel interface board • Cable from ZDPI-01 to control unit • Module front cover, bottom (5) • Cabinet cooling fan wire (connector with a stretch of wire). |
| [Module type] +C132 For example, ACS880-104-007A3-7 +C132 ACS880-104-007A3-7 +C132+0J414 | <ul style="list-style-type: none"> • Marine type approval. For more information, see <i>ACS880 +C132 marine type-approved drive modules and module packages supplement</i> (3AXD50000037752 [English]). |
| [Module type] +0J414 For example, ACS880-104-007A3-7 +0J414 | <ul style="list-style-type: none"> • Inverter module (1) with ZCU-12 control unit (2) • ZMU memory unit (3) with ACS880 primary control program. For availability of other control programs, contact your local ABB representative. • Cabinet cooling fan wire (connector with a stretch of wire). |
| [Module type] +N8010 For example, ACS880-104-007A3-7 +N8010 ACS880-104-007A3-7 +0J414+N8010 | <ul style="list-style-type: none"> • ACS880 primary control program with application programmability using function blocks based on the IEC 61131-3 standard. For more information, see <i>Programming manual: Drive application programming (IEC 61131-3)</i> (3AUA0000127808 [English]). |
| |  |
| For module types, see Ratings. | |

Control panel

The control panel is not included with the module but must be ordered separately. One control panel is required for the commissioning of an ACS880 drive system, even if the Drive composer PC tool is used.

The control panel can be flush mounted on the cabinet door with the help of a door mounting kit. For more information on the control panel, see *ACX-AP-x assistant control panels user's manual* (3AUA0000085685 [English]).

| Type | Description | Ordering code | Illustration |
|----------|------------------------------|-----------------|--|
| ACS-AP-W | Control panel with Bluetooth | 3AXD50000025965 |  |
| DPMP-01 | Door mounting kit (IP55) | 3AUA0000108878 |  |

The door mounting kit contains:

- front cover
- flat cable (between DDPI-01 board and the panel)
- DDPI-01 board, cover and M4×8 combi screw for the cover
- EMC shield
- control panel mounting platform
- grounding wire
- Ethernet cable (3 m).
- *DPMP-01 mounting platform for ACS-AP control panel installation guide* [3AUA0000100140 (English)].

■ DC-side components

Frame R5i inverter modules are connected to the DC bus through individual fuses. The fuses are installed on fuse bases that can be opened under no load. Microswitches are used for monitoring the open/closed state of the fuse bases. The fuse bases listed below include the microswitches as standard.

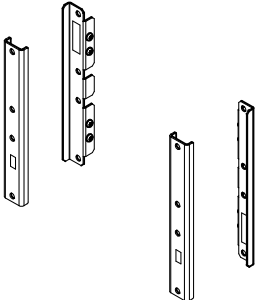
A main DC switch/disconnector and DC fuses for all the modules in the same enclosure can optionally be added. The main DC fuses are typically used to protect against short-circuits in the DC path to the module fuses when a high-power supply unit is used.

DC bus installation parts (for Rittal VX25 enclosures)

The brackets in this kit act as a mounting base for the busbar supports of the Rittal Flat-PLS DC bus and ensure its correct placement and alignment inside the cabinet line-up.

Note:

The designs presented in this manual for Rittal VX25 enclosures employ the Rittal Flat-PLS busbar system. Make sure that the current carrying capability of the busbars is not exceeded at any point of the drive system.

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|-------------------------------|-------------------|-----------------|----------------|---|
| 400/600/800 mm VX25 enclosure | 1 kit per cabinet | 3AXD50000333387 | A-468-X-001-VX |  <p>Instruction code: 3AXD50000333639</p> |

Module-specific DC fuses (IEC, UL)

| Module type ACS880-104-... | Fuse | | Qty | Ordering code |
|---|-------------------------------|---------------|-----|----------------|
| | Type | Data | | |
| 007A3-7 009A8-7 014A2-7 0018A-7 | Mersen 1021 CP URB 27x60/40* | 40 A, 1000 V | 2 | 3AUA0000089197 |
| 0022A-7 0027A-7 0035A-7 0042A-7 0052A-7 | Mersen 1021 CP URB 27x60/100* | 100 A, 1000 V | 2 | 3AUA0000089211 |
| *Size: 27 × 60 mm | | | | |

Module-specific DC fuse bases (IEC, UL)

| Module type ACS880-104-... | Fuse base | | Qty | Ordering code |
|---|----------------------------------|--------------------------------|-----|---|
| | Type | Data | | |
| 007A3-7 009A8-7 014A2-7 0018A-7 0022A-7 0027A-7 0035A-7 0042A-7 0052A-7 | Mersen PS272PREMCPS (N220076) | 27 × 60 mm 250 A, 1250 V DC | 1 | 3AXD50000012958 (microswitch included) |

Main DC switch/disconnector kits

| IEC | | | | | |
|-----------------|----------------|------------------------|---------------|-----|-----------------|
| Enclosure width | Qty of modules | DC switch/disconnector | | Qty | Ordering code |
| | | Type | Data | | |
| 400 mm | 2 × R5i | ABB OT400E11 | 2-pole, 200 A | 1 | 3AXD50000015608 |
| 600 mm | 4 × R5i | ABB OT630E11 | 2-pole, 400 A | 1 | 3AXD50000000891 |

| UL | | | | | |
|-----------------|----------------|------------------------|---------------|-----|-----------------|
| Enclosure width | Qty of modules | DC switch/disconnector | | Qty | Ordering code |
| | | Type | Data | | |
| 400 mm | 2 × R5i | ABB OT200U11 | 2-pole, 200 A | 1 | 3AXD50000024411 |
| 600 mm | 4 × R5i | ABB OT400U11 | 2-pole, 400 A | 1 | 3AXD50000002764 |

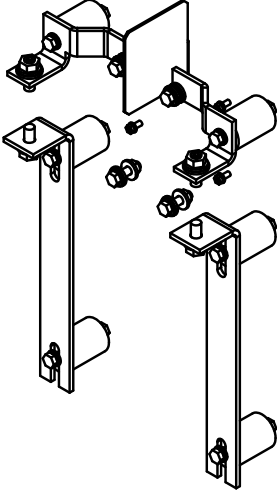
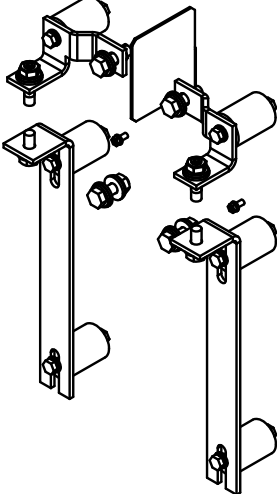
Kit contents:

- DC switch/disconnector
- Shaft (6 × 210 mm for OT200_, 12 × 325 mm for OT400_)
- OHB65J6 (OT200_) or OHB125J12 (OT400_) handle with off/on indication
- OA1G10 normally-open auxiliary contact block.

Main DC fuses (IEC, UL)

| Enclosure width | Qty of modules | Fuse | | | Qty | Ordering code |
|-----------------|----------------|----------------------|------------------|------|-----|-----------------|
| | | Type | Data | Size | | |
| 400 mm | 2 × R5i | Bussmann 170M4389 | 200 A, 1250 V | 1 | 2 | 3AXD50000010195 |
| 600 mm | 4 × R5i | Bussmann 170M4393 | 400 A, 1250 V | 1 | 2 | 3AUA0000076327 |

DC busbars (IEC, UL)

| Enclosure width | Qty | Ordering code | Kit code | Illustration |
|-----------------|-----|-----------------|--------------|---|
| 400 mm | 1 | 3AXD50000456802 | A-4-5-276-VX |  <p>Instruction code: 3AXD50000458110</p> |
| 600 mm | 1 | 3AXD50000456826 | A-6-5-277-VX |  <p>Instruction code: 3AXD50000461332</p> |

■ **AC-side components**

Output (du/dt) filters

For information on the usage of output (du/dt) filters, see document *ACS880 multidrive cabinets and modules electrical planning instructions* (3AUA0000102324 [English]).

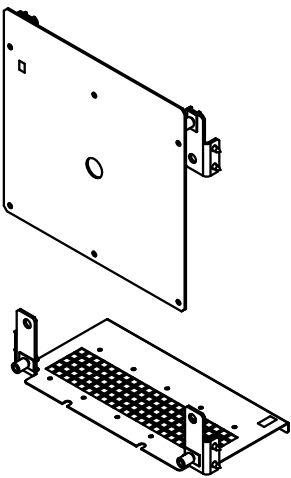
| Module type ACS880-104-... | Filter | | Qty | Ordering code |
|-------------------------------|-------------|--|-----|---------------|
| | Type | Data | | |
| 007A3-7 009A8-7 014A2-7 | NOCH0016-60 | I_{RMS} : 15 A L : 150 μ H Power loss: 110vW Cable size: 0.2 ... 10 mm ² Connection: M5 | 1 | 58982784 |
| 0018A-7 0022A-7 0027A-7 | NOCH0030-60 | I_{RMS} : 28 A L : 140 μ H Power loss: 167 W Cable size: 0.5 ... 16 mm ² Connection: M5 | 1 | 58982792 |
| 0035A-7 0042A-7 0052A-7 | NOCH0070-60 | I_{RMS} : 65 A L : 115 μ H Power loss: 210 W Cable size: 10...35 mm ² Connection: M6 | 1 | 58982806 |

■ **Mechanical installation accessories**

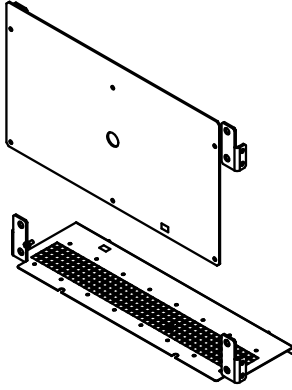
These kits include parts that are required for installing the inverter module in the enclosure.

Mounting plate shroud kits

The shrouds are to be attached to the Rittal partial mounting plate mounted in front of the DC switch. The module-specific fuse disconnectors are to be installed onto the vertical plate.

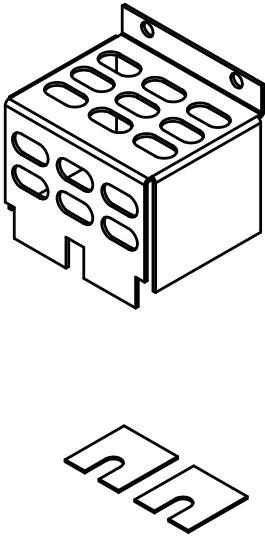
| Enclosure width | Qty | Ordering code | Kit code | Illustration |
|-----------------|-----|-----------------|-----------------|--|
| 400 mm | 1 | 3AXD50000456772 | A-4-1234-403-VX |  <p>Instruction code: 3AXD50000450060</p> |

222 Ordering information

| Enclosure width | Qty | Ordering code | Kit code | Illustration |
|-----------------|-----|-----------------|-----------------|--|
| 600 mm | 1 | 3AXD50000456819 | A-6-1234-402-VX |  <p>Instruction code: 3AXD50000461691</p> |

Fuse base shroud kit

IP20 protection of the DC fuse bases requires shrouding both above and below. One shroud kit contains the shrouds for each dual fuse base.

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--|--------------|-----------------|--------------|--|
| R5i modules installed in 400 or 600 mm wide cubicles | 1 per module | 3AXD50000456796 | A-X-5-356-VX |  <p>Instruction code: 3AXD50000458424</p> |

Frames R6i and R7i

■ Inverter modules

Deliveries of frame R6i and R7i inverter modules include the following items:

| Ordering code | Contents |
|--|--|
| [Module type] For example, ACS880-104-0210A-3 | <ul style="list-style-type: none"> • Inverter module with ZCU control unit • ZMU memory unit with ACS880 primary control program. For availability of other control programs, contact your local ABB representative. |
| [Module type] +C132 For example, ACS880-104-0210A-3 +C132 ACS880-104-0210A-3 +C132 +F272 | <ul style="list-style-type: none"> • Marine type approval. For more information, see <i>ACS880 +C132 marine type-approved drive modules and module packages supplement</i> (3AXD50000037752 [English]). |
| [Module type] +F272 For example, ACS880-104-0210A-3 +F272 | <ul style="list-style-type: none"> • Inverter module with ZCU control unit and internal charging circuit (note that R7i requires additional external components) • ZMU memory unit with ACS880 primary control program. For availability of other control programs, contact your local ABB representative. |
| [Module type] +N8010 For example, ACS880-104-0210A-3 +N8010 ACS880-104-0210A-3 +F272 +N8010 | <ul style="list-style-type: none"> • ACS880 primary control program with application programmability using function blocks based on the IEC 61131-3 standard. For more information, see <i>Programming manual: Drive application programming (IEC 61131-3)</i> (3AUA0000127808 [English]). |
| For module types, see Ratings. | |

Note: The following components are also required to construct a working unit and must be ordered separately:

- An ACS-AP-x control panel is required for the commissioning of an ACS880 drive system, even if the Drive composer PC tool is used.
- Common mode filters.


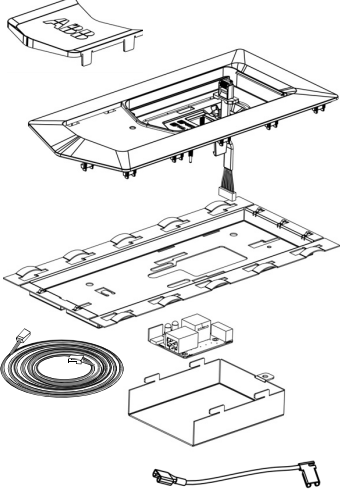
The other parts listed in this chapter for these frame sizes

- may be required by the application (such as a DC switch/disconnector), or
- make the installation or use of the module easier.

■ Control panel

The control panel is not included with the module but must be ordered separately. One control panel is required for the commissioning of an ACS880 drive system, even if the Drive composer PC tool is used.

The control panel can be flush mounted on the cabinet door with the help of a door mounting kit. For more information on the control panel, see *ACX-AP-x assistant control panels user's manual* (3AUA0000085685 [English]).

| Type | Description | Ordering code | Illustration |
|----------|------------------------------|-----------------|--|
| ACS-AP-W | Control panel with Bluetooth | 3AXD50000025965 |  |
| DPMP-01 | Door mounting kit (IP55) | 3AUA0000108878 |  |

The door mounting kit contains:

- front cover
- flat cable (between DDPI-01 board and the panel)
- DDPI-01 board, cover and M4×8 combi screw for the cover
- EMC shield
- control panel mounting platform
- grounding wire
- Ethernet cable (3 m).
- *DPMP-01 mounting platform for ACS-AP control panel installation guide* [3AUA0000100140 (English)].

■ **DC-side components**

Frame R6i and R7i inverter modules are connected to the DC bus through fuses. The design presented in this manual has flush-end fuse blocks bolted to the DC busbars.

A DC switch/disconnector can be installed if quick isolation of the module from the DC bus is required. One of the auxiliary contacts of the switch is used for monitoring the open/closed state of the switch.

A capacitor charging circuit must be fitted if

- the inverter module is connected to the DC bus through a DC switch/disconnector, or
- the inverter unit is directly connected to the DC bus and the supply unit of the system does not have a charging capability.

If a charging circuit is required, the inverter module is to be ordered using option code +F272. With frame R6i, all charging components are built into the module. R7i modules with option code +F272 require an external charging contactor and resistors, which are included in the DC connection kit for frame R7i.

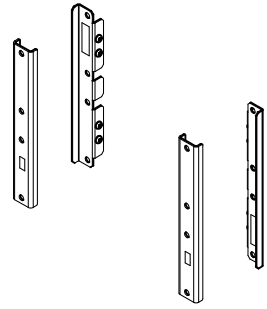
The common mode filters are mounted onto the busbars that connect to the DC input of the inverter module.

DC bus installation parts (for Rittal VX25 enclosures)

The brackets in this kit act as a mounting base for the busbar supports of the Rittal Flat-PLS DC bus and ensure its correct placement and alignment inside the cabinet line-up.

Note:

The designs presented in this manual for Rittal VX25 enclosures employ the Rittal Flat-PLS busbar system. Make sure that the current carrying capability of the busbars is not exceeded at any point of the drive system.

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|-------------------------------|-------------------|-----------------|----------------|--|
| 400/600/800 mm VX25 enclosure | 1 kit per cubicle | 3AXD50000333387 | A-468-X-001-VX |  <p>Instruction code: 3AXD50000333639</p> |

DC fuses (IEC, UL)

| Module type ACS880-104-... | | | Fuse | | | Qty | Ordering code |
|----------------------------|--------------------|---------|-----------------|---------------|------|-----|-----------------|
| | | | Type (Bussmann) | Data | Size | | |
| | 0110A-5 | | 170M4409 | 250 A, 690 V | 1 | 2 | 3AUA0000066038 |
| 0140A-3 | 0140A-5 | | 170M4410 | 315 A, 690 V | 1 | 2 | 3AXD50000000234 |
| 0170A-3 | 0170A-5 0200A-5 | | 170M4412 | 400 A, 690 V | 1 | 2 | 3AXD50000000238 |
| 0210A-3 | | | 170M4413 | 450 A, 690 V | 1 | 2 | 68731623 |
| 0250A-3 | 0240A-5 | | 170M4414 | 500 A, 690 V | 1 | 2 | 3AXD50000000242 |
| 0300A-3 | 0300A-5 | | 170M4416 | 630 A, 690 V | 1 | 2 | 3AXD50000000246 |
| 0350A-3 | 0340A-5 | | 170M4417 | 700 A, 690 V | 1 | 2 | 64607383 |
| | | 0062A-7 | 170M3392 | 125 A, 1250 V | 1* | 2 | 3AXD50000010198 |
| | | 0082A-7 | 170M4388 | 160 A, 1250 V | 1 | 2 | 3AUA0000114934 |
| | | 0100A-7 | 170M4389 | 200 A, 1250 V | 1 | 2 | 3AXD50000010195 |
| | | 0130A-7 | 170M4390 | 250 A, 1250 V | 1 | 2 | 3AUA0000114933 |
| | | 0140A-7 | 170M4391 | 315 A, 1250 V | 1 | 2 | 3AXD50000010196 |
| | | 0190A-7 | 170M4392 | 350 A, 1250 V | 1 | 2 | 3AXD50000010197 |
| | | 0220A-7 | 170M4393 | 400 A, 1250 V | 1 | 2 | 3AUA0000076327 |
| | | 0270A-7 | 170M4395 | 500vA, 1100 V | 1 | 2 | 3AUA0000114932 |

DC switch/disconnector kits

| IEC | | | | | | |
|----------------------------|---------|--------------------|------------------------|---------------|-----|-----------------|
| Module type ACS880-104-... | | | DC switch/disconnector | | Qty | Ordering code |
| | | | Type | Data | | |
| 0140A-3 | 0110A-5 | 0062A-7 | ABB OT400E11 | 2-pole, 400 A | 1 | 3AXD50000001306 |
| 0170A-3 | 0140A-5 | 0082A-7 | | | | |
| 0210A-3 | 0170A-5 | 0100A-7 | | | | |
| 0250A-3 | 0200A-5 | 0130A-7 | | | | |
| | 0240A-5 | 0140A-7 | | | | |
| | | 0190A-7 | | | | |
| | | 0220A-7 0270A-7 | | | | |
| 0300A-3 | 0300A-5 | | ABB OT630E11 | 2-pole, 630 A | 1 | 3AXD50000001307 |
| 0350A-3 | 0340A-5 | | | | | |

| UL | | | | | | |
|-------------------------------|---------|---------|------------------------|---------------|-----|-----------------|
| Module type ACS880-104-... | | | DC switch/disconnector | | Qty | Ordering code |
| | | | Type | Data | | |
| 0140A-3 | 0110A-5 | 0062A-7 | ABB OT400U11 | 2-pole, 400 A | 1 | 3AXD50000002791 |
| 0170A-3 | 0140A-5 | 0082A-7 | | | | |
| 0210A-3 | 0170A-5 | 0100A-7 | | | | |
| 0250A-3 | 0200A-5 | 0130A-7 | | | | |
| | | 0240A-5 | | | | |
| | | 0140A-7 | | | | |
| | | 0190A-7 | | | | |
| | | 0220A-7 | | | | |
| | | 0270A-7 | | | | |
| 0300A-3 | 0340A-5 | | ABB OT600U11 | 2-pole, 600 A | 1 | 3AXD50000002792 |
| 0350A-3 | 0300A-5 | | | | | |

Kit contents:

- DC switch/disconnector
- Shaft (12 × 395 mm)
- OHB___J12 handle with off/on indication
- OA1G10 normally-open auxiliary contact block.

Charging kit (R7i only)

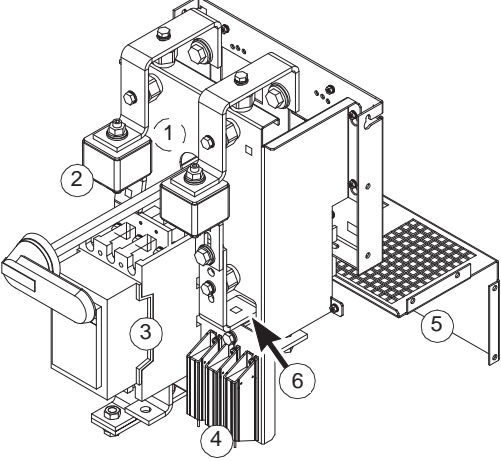
| Module type ACS880-104-... | | | Qty | Ordering code |
|-------------------------------|---------|--------------------|-----|------------------|
| 0300A-3 | 0300A-5 | | 1 | 3AXD50000001328 |
| 0350A-3 | 0340A-5 | | | |
| | | 0220A-7 0270A-7 | 1 | 3AXD500000018982 |

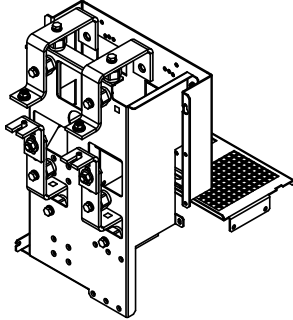
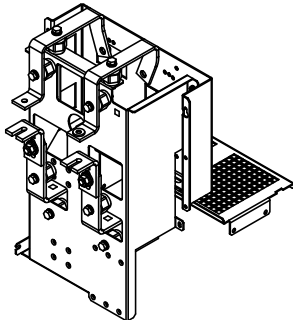
Kit contents:

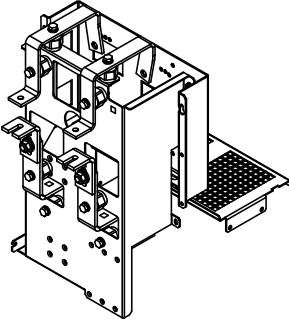
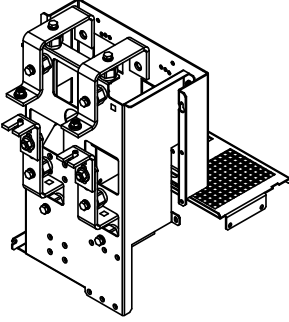
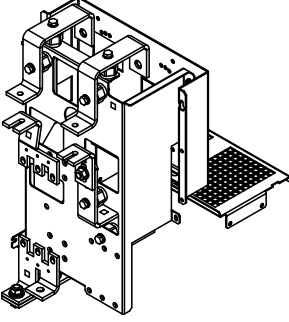
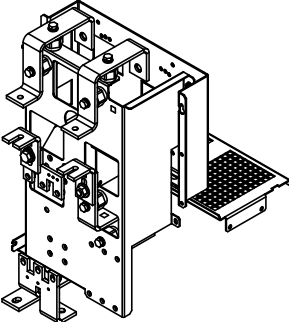
- ABB AF190-30-00-13 charging contactor (3AXD50000415984)
- 2 pcs CEL19-10 auxiliary contacts (3AXD50000415991)
- 2 pcs Danotherm CAV 120 C (36 ohm, 55 W) charging resistor (3AUA0000088634)
- Wire set (3AXD50000001360 for 400 and 500 V types, 3AXD50000005981 for 690 V).

DC connection kit (for Rittal VX25 enclosures)

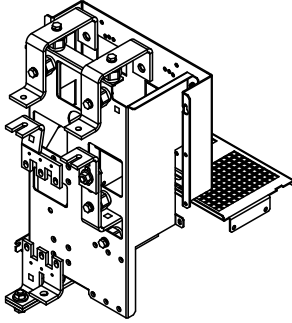
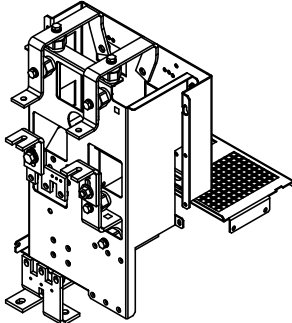
This kit contains the busbars from the DC bus towards the module as well as an air guide, mounting plate, insulators and screws. The assembly incorporates the electrical components (such as DC fuses, DC switch/disconnector, and charging components) whenever required; note that the electrical parts are to be ordered separately as detailed above.

|  | Item | Explanation |
|---|--------------------------|---|
| | 1 | DC switch/disconnector (obscured by mounting plate) |
| | 2 | DC fuses |
| | 3 | Charging contactor (R7i only) |
| | 4 | Charging resistors (R7i only; 400/500 V units have two resistors, 690 V units have three) |
| | 5 | Air guide |
| 6 | Connection to DC busbars | |

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--|-----|-----------------|---------------|--|
| Frame R6i without DC switch/disconnector | 1 | 3AXD50000459094 | A-4-67-283-VX |  <p>Instruction code: 3AXD50000444489</p> |
| Frame size R6i with DC switch/disconnector (IEC) | 1 | 3AXD50000459100 | A-4-6-281-VX |  <p>Instruction code: 3AXD50000445202</p> |

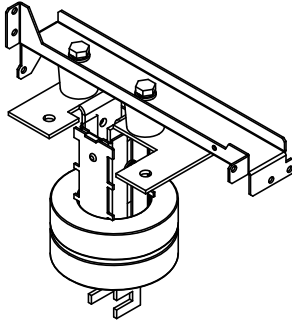
| Used with... | Qty | Ordering code | Kit code | Illustration |
|---|----------|------------------------|----------------------|--|
| <p>Frame size R6i with DC switch/disconnector (UL)</p> | <p>1</p> | <p>3AXD50000459117</p> | <p>A-4-6-285-VX</p> |  <p>Instruction code: 3AXD50000445325</p> |
| <p>Frame R7i without DC switch/disconnector or charging circuit</p> | <p>1</p> | <p>3AXD50000459094</p> | <p>A-4-67-283-VX</p> |  <p>Instruction code: 3AXD50000444489</p> |
| <p>Frame size R7i (400/500 V) without DC switch/disconnector, with charging circuit</p> | <p>1</p> | <p>3AXD50000459063</p> | <p>A-4-7-282-VX</p> |  <p>Instruction code: 3AXD50000445097</p> |
| <p>Frame size R7i (690 V) without DC switch/disconnector, with charging circuit</p> | <p>1</p> | <p>3AXD50000459087</p> | <p>A-4-7-287-VX</p> |  <p>Instruction code: 3AXD50000445332</p> |

230 Ordering information

| Used with... | Qty | Ordering code | Kit code | Illustration |
|---|-----|-----------------|--------------|---|
| Frame size R7i (400/500 V) with DC switch/disconnector and charging circuit | 1 | 3AXD50000459056 | A-4-7-280-VX |  <p>Instruction code: 3AXD50000445257</p> |
| Frame size R7i (690 V) with DC switch/disconnector and charging circuit | 1 | 3AXD50000459070 | A-4-7-286-VX |  <p>Instruction code: 3AXD50000445356</p> |

DC busbars with common mode filter holder (for Rittal VX25 enclosures)

This kit contains the busbars that connect to the DC input of the inverter module. The busbars have a holder for the common mode filters; note that the filters shown in the illustration are not included in the kit.

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--------------|-----|-----------------|---------------|---|
| R6i R7i | 1 | 3AXD50000458509 | A-4-67-241-VX |  <p>Instruction code: 3AXD50000444304</p> <p>Note: Filters to be ordered separately</p> |

DC busbars with fuse and common mode filter holders (for generic enclosures)

This kit contains the busbars that connect to the DC input of the inverter module. The kit is mounted onto the module. It has screws for cable lug connection as well as a holder for the DC fuses and common mode filters. Note that the fuses and filters are not included in the kit.

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--------------|-----|-----------------|------------|---|
| R6i R7i | 1 | 3AXD50000023329 | A-0-67-244 |  <p>Instruction code: 3AXD50000023500</p> <p>Note: Fuses and filters to be ordered separately</p> |

Common mode filters

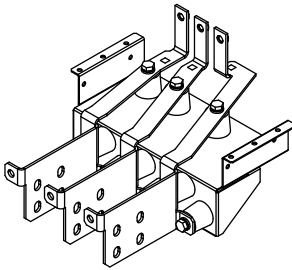
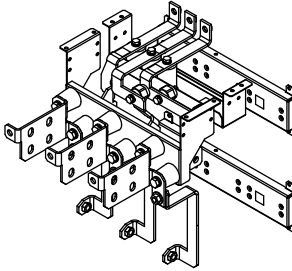
Common mode filtering reduces bearing currents and is required for electromagnetic compatibility (EMC). The filtering is implemented by installing two toroidal cores onto the DC busbars. The cores must be ordered separately.

| Used with | Qty | Ordering code | Kit code | Illustration |
|---------------------|--------------|----------------|----------|---|
| All enclosure types | 2 per module | 3AUA0000032859 | - |  <p>Instruction code: 3AUA0000123359</p> |

■ AC-side components

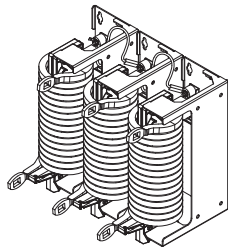
AC busbar kit

This kit contains the busbars for connection of the motor cable. Note that the output (du/dt) filters (if required) are to be ordered separately (see further below).

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--|-----|-----------------|---------------|--|
| R6i R7i (without output filters) | 1 | 3AXD50000459032 | A-4-67-181-VX |  <p>Instruction code: 3AXD50000452798</p> |
| R6i R7i (with output filters) | 1 | 3AXD50000459049 | A-4-67-186-VX |  <p>Instruction code: 3AXD50000452439</p> <p>Note: Filters to be ordered separately</p> |

Output (du/dt) filters

For information on the usage of output (du/dt) filters, see document *ACS880 multidrive cabinets and modules electrical planning instructions* (3AUA0000102324 [English]).

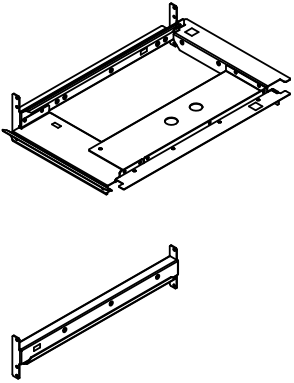
| Used with... | Qty | Ordering code | Filter type | Illustration |
|--------------|-----|-----------------|-------------|---|
| R6i R7i | 1 | 3AXD50000018892 | BOCH-350A-7 |  <p>Instruction code: 3AXD50000018989, 3AXD50000027070</p> |

■ **Mechanical installation accessories and tools**

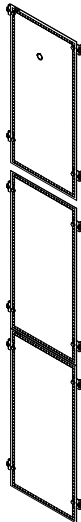
These kits include parts that are used for installing the inverter module in the Rittal VX25 enclosure.

Inverter module mounting parts

This kit contains the rails on which the inverter module rests, and provides air baffles for blocking unwanted air flow along the sides of the module.

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--------------|-----|-----------------|---------------|--|
| R6i R7i | 1 | 3AXD50000459018 | A-4-67-302-VX |  <p>Instruction code: 3AXD50000453337</p> |

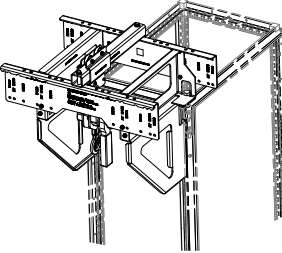
Shrouding

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--------------|-----|-----------------|---------------|--|
| R6i R7i | 1 | 3AXD50000458493 | A-4-67-350-VX |  <p>Instruction code: 3AXD50000453252</p> |

Lifting device

The lifting device is designed for maneuvering a frame R6i/R7i module when installing it into (or extracting it from) the Rittal VX25 enclosure. See also section Replacing a frame R6i/R7i inverter module.

234 Ordering information

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--------------|-----|-----------------|----------|---|
| R6i R7i | 1 | 3AXD50000439997 | - |  <p>Instruction code: 3AXD50000439409, 3AXD50000210268</p> |

Frame R8i and multiples

■ Inverter modules

Inverter units consisting of frame R8i inverter modules are to be ordered as separate modules. For inverter unit ratings, see chapter Technical data.

| Inverter unit | | Modules used | |
|----------------------|------------|--------------|---|
| Type | Frame size | Qty | Ordering code (for options, see below) |
| $U_N = 400\text{ V}$ | | | |
| ACS880-104-0470A-3 | R8i | 1 | ACS880-104-0470A-3 |
| ACS880-104-0640A-3 | R8i | 1 | ACS880-104-0640A-3 |
| ACS880-104-0760A-3 | R8i | 1 | ACS880-104-0760A-3 |
| ACS880-104-0900A-3 | R8i | 1 | ACS880-104-0900A-3 |
| ACS880-104-1250A-3 | 2×R8i | 2 | ACS880-104-0640A-3 +E205 |
| ACS880-104-1480A-3 | 2×R8i | 2 | ACS880-104-0760A-3 +E205 |
| ACS880-104-1760A-3 | 2×R8i | 2 | ACS880-104-0900A-3 +E205 |
| ACS880-104-2210A-3 | 3×R8i | 3 | ACS880-104-0760A-3 +E205 |
| ACS880-104-2610A-3 | 3×R8i | 3 | ACS880-104-0900A-3 +E205 |
| ACS880-104-3450A-3 | 4×R8i | 4 | ACS880-104-0900A-3 +E205 |
| ACS880-104-4290A-3 | 5×R8i | 5 | ACS880-104-0900A-3 +E205 |
| ACS880-104-5130A-3 | 6×R8i | 6 | ACS880-104-0900A-3 +E205 |
| $U_N = 500\text{ V}$ | | | |
| ACS880-104-0440A-5 | R8i | 1 | ACS880-104-0440A-5 |
| ACS880-104-0590A-5 | R8i | 1 | ACS880-104-0590A-5 |
| ACS880-104-0740A-5 | R8i | 1 | ACS880-104-0740A-5 |
| ACS880-104-0810A-5 | R8i | 1 | ACS880-104-0810A-5 |
| ACS880-104-1150A-5 | 2×R8i | 2 | ACS880-104-0590A-5 +E205 |
| ACS880-104-1450A-5 | 2×R8i | 2 | ACS880-104-0740A-5 +E205 |
| ACS880-104-1580A-5 | 2×R8i | 2 | ACS880-104-0810A-5 +E205 |
| ACS880-104-2150A-5 | 3×R8i | 3 | ACS880-104-0740A-5 +E205 |
| ACS880-104-2350A-5 | 3×R8i | 3 | ACS880-104-0810A-5 +E205 |
| ACS880-104-3110A-5 | 4×R8i | 4 | ACS880-104-0810A-5 +E205 |
| ACS880-104-3860A-5 | 5×R8i | 5 | ACS880-104-0810A-5 +E205 |
| ACS880-104-4610A-5 | 6×R8i | 6 | ACS880-104-0810A-5 +E205 |
| $U_N = 690\text{ V}$ | | | |
| ACS880-104-0340A-7 | R8i | 1 | ACS880-104-0340A-7 +E205 |

| Inverter unit | | Modules used | |
|--------------------|------------|--------------|---|
| Type | Frame size | Qty | Ordering code (for options, see below) |
| ACS880-104-0410A-7 | R8i | 1 | ACS880-104-0410A-7 +E205 |
| ACS880-104-0530A-7 | R8i | 1 | ACS880-104-0530A-7 +E205 |
| ACS880-104-0600A-7 | R8i | 1 | ACS880-104-0600A-7 +E205 |
| ACS880-104-0800A-7 | 2×R8i | 2 | ACS880-104-0410A-7 +E205 |
| ACS880-104-1030A-7 | 2×R8i | 2 | ACS880-104-0530A-7 +E205 |
| ACS880-104-1170A-7 | 2×R8i | 2 | ACS880-104-0600A-7 +E205 |
| ACS880-104-1540A-7 | 3×R8i | 3 | ACS880-104-0530A-7 +E205 |
| ACS880-104-1740A-7 | 3×R8i | 3 | ACS880-104-0600A-7 +E205 |
| ACS880-104-2300A-7 | 4×R8i | 4 | ACS880-104-0600A-7 +E205 |
| ACS880-104-2860A-7 | 5×R8i | 5 | ACS880-104-0600A-7 +E205 |
| ACS880-104-3420A-7 | 6×R8i | 6 | ACS880-104-0600A-7 +E205 |

| Ordering code format | Option codes |
|--|--|
| [Module type] +code [+code] ... For example, ACS880-104-0470A-3 +E205 | +C132: Marine type approval. For more information, see <i>ACS880 +C132 marine type-approved drive modules and module packages supplement</i> (3AXD50000037752 [English]). +C183: Heating element mounted to module base +C188: Direct-on-line (DOL) cooling fan +E205: Internal du/dt filtering. Standard with 690 V modules, required with parallel-connected modules for all nominal voltages +G304: 115 V AC auxiliary voltage supply +P942: Mechanical compatibility with ACS800 R8i. |

Note:

The following components are also required to construct a working inverter unit and must be ordered separately:

- An ACS-AP-x control panel is required for the commissioning of an ACS880 drive system, even if the Drive composer PC tool is used. See section ACS-AP-W control panel below.
- Inverter control unit (see section Inverter control unit below)
- Fiber optic cabling from control unit to each inverter module (see section Fiber optic cables below)
- Common mode filters
- Control circuit plug connectors
- Quick connector.


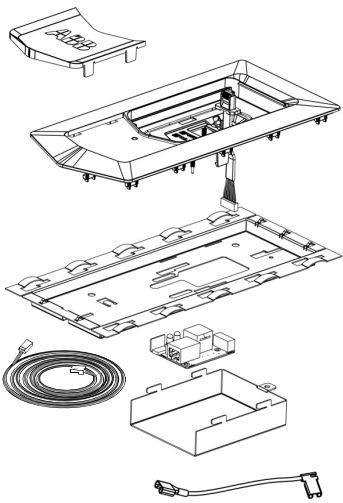
The other parts listed in this chapter for this frame size

- may be required by the application (such as a DC switch/disconnector), or
- make the installation or use of the module easier.

Control panel

The control panel is not included with the module but must be ordered separately. One control panel is required for the commissioning of an ACS880 drive system, even if the Drive composer PC tool is used.

The control panel can be flush mounted on the cabinet door with the help of a door mounting kit. For more information on the control panel, see *ACX-AP-x assistant control panels user's manual* (3AUA0000085685 [English]).

| Type | Description | Ordering code | Illustration |
|----------|------------------------------|-----------------|--|
| ACS-AP-W | Control panel with Bluetooth | 3AXD50000025965 |  |
| DPMP-01 | Door mounting kit (IP55) | 3AUA0000108878 |  |

The door mounting kit contains:

- front cover
- flat cable (between DDPI-01 board and the panel)
- DDPI-01 board, cover and M4×8 combi screw for the cover
- EMC shield
- control panel mounting platform
- grounding wire
- Ethernet cable (3 m).
- *DPMP-01 mounting platform for ACS-AP control panel installation guide* [3AUA0000100140 (English)].

■ Control electronics

Inverter control unit

One BCU-0x control unit is required per inverter unit. The type of the control unit depends on the number of inverter modules as shown below. The control unit is delivered with a memory unit containing the ACS880 primary control program, optionally with application programmability. For availability of other control programs, contact your local ABB representative.

| Frame size | Control unit type | Application programmability | Ordering code |
|---------------|-------------------|-----------------------------|-----------------|
| R8i, 2×R8i | BCU-02 | No | 3AXD50000003417 |
| | | *Yes | 3AXD50000011540 |
| 3×R8i...6×R8i | BCU-12 | No | 3AXD50000006340 |
| | | *Yes | 3AXD50000011541 |

*Application programmability using function blocks based on the IEC 61131-3 standard. For more information, see *Programming manual: Drive application programming (IEC 61131-3)* (3AUA0000127808 [English]).

Fiber optic cables

Each frame R8i module is connected to the inverter control unit with a pair of fiber optic cables.

If the inverter unit is equipped with a DC switch/disconnector, each inverter module is also connected to the charging controller by a pair of fiber optic cables.

The following kits, each consisting of a pair of plastic fiber optic cables, are available from ABB:

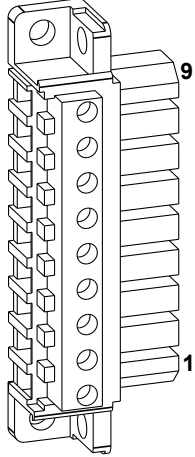
| Length | Kit type designation | Ordering code |
|--------|----------------------|---------------|
| 2 m | NLWC-02 | 58988821 |
| 3 m | NLWC-03 | 58948233 |
| 5 m | NLWC-05 | 58948250 |
| 7 m | NLWC-07 | 58948268 |
| 10 m | NLWC-10 | 58948276 |

Control circuit plug connectors

The control circuit plug for connector X50 is not included in the module kit and you must order it separately.

Note:

Plug connectors for X51, X52 and X53 are included in the module kit.

| Used with... | Qty | Ordering code | Data | Illustration |
|--------------|--------------|----------------|-----------------------------------|---|
| X50 | 1 per module | 3AUA0000059813 | STV S 9 SB 500 V, 32 A, 9-pole |  |

Wire sets for use with the reduced run function

A “reduced run” function (for inverter unit frame sizes 3×R8i and above) makes it possible to continue operation with limited current even if some modules of the inverter unit are out of service. The wire set for the STO connection is available as shown below.

| Use | Qty | Ordering code | Data |
|--|--------------|-----------------|-------------------------|
| STO wiring in place of removed inverter module | 1 per module | 3AXD50000022694 | PVC insulation |
| | | 3AXD50000022695 | Halogen-free insulation |

■ **DC-side components**

Frame R8i modules are connected to the DC bus through fuses. The design presented in this manual has flush-end fuse blocks bolted to the DC busbars.

A DC switch/disconnector can be installed if quick isolation of the module from the DC bus is required. One of the auxiliary contacts of the switch is used for monitoring the open/closed state of the switch. A capacitor charging circuit is to be installed with the DC switch/disconnector.

Note:

A separate capacitor charging circuit must be designed and installed by the customer if the inverter unit is directly connected to the DC bus and the supply unit of the system does not have a charging capability.

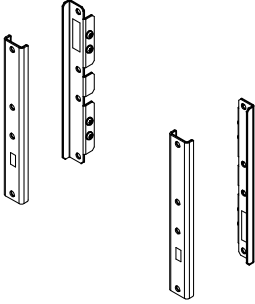
The common mode filters are mounted onto the busbars that connect to the DC input of the inverter module.

DC bus installation parts (for Rittal VX25 enclosures)

The brackets in this kit act as a mounting base for the busbar supports of the Rittal Flat-PLS DC bus and ensure its correct placement and alignment inside the cabinet line-up.

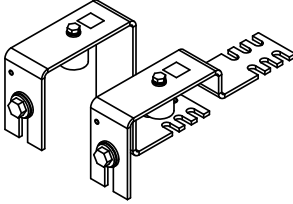
Note:

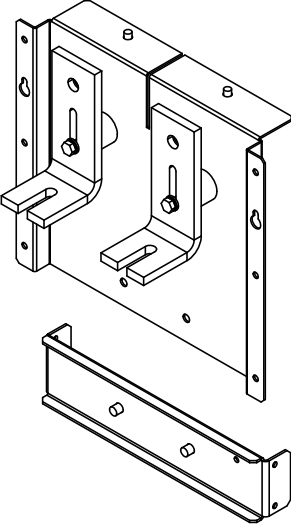
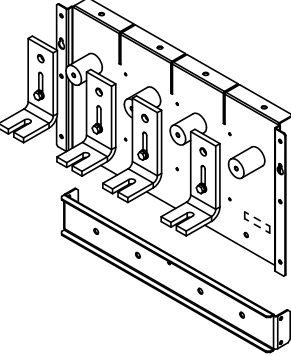
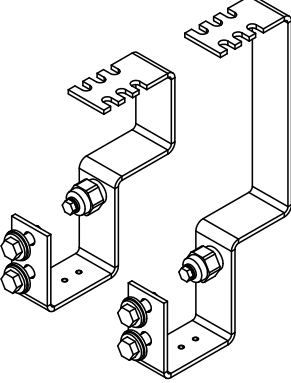
The designs presented in this manual for Rittal VX25 enclosures employ the Rittal Flat-PLS busbar system. Make sure that the current carrying capability of the busbars is not exceeded at any point of the drive system.

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|-------------------------------|--------------------|-----------------|----------------|--|
| 400/600/800 mm VX25 enclosure | 1 kit per cu-bicle | 3AXD50000333387 | A-468-X-001-VX |  <p>Instruction code: 3AXD50000333639</p> |

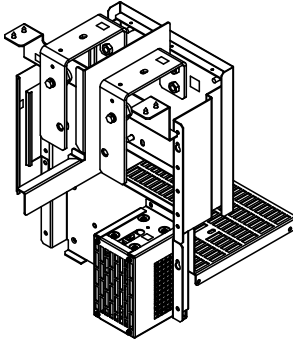
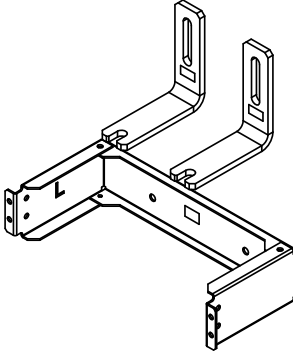
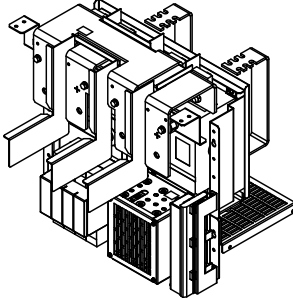
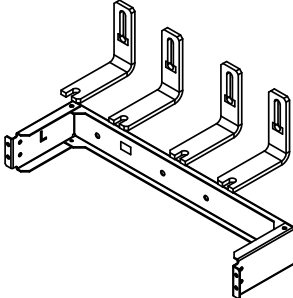
DC connection parts 1 of 2 (for Rittal VX25 enclosures)

These parts connect the Flat-PLS busbars to the DC fuses, and provide the mounting base for the charging components if required.

| Used with... | Qty | Ordering code | Kit code | Illustration |
|---|--------------|-----------------|---------------|--|
| 400/600 mm VX25 enclosure without DC switch/disconnector and charging | 1 per module | 3AXD50000337446 | A-46-8-206-VX |  <p>Instruction code: 3AXD50000345915</p> |

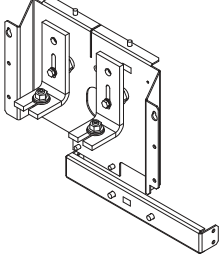
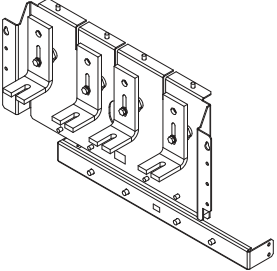
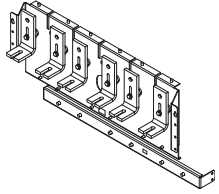
| Used with... | Qty | Ordering code | Kit code | Illustration |
|--|--------------|-----------------|---------------|--|
| 400 mm VX25 enclosure without DC switch/disconnector and charging | 1 | 3AXD50000337415 | A-4-8-252-VX |  <p>Instruction code: 3AXD50000345151</p> |
| 600 mm VX25 enclosure without DC switch/disconnector and charging | 1 | 3AXD50000337521 | A-6-8-255-VX |  <p>Instruction code: 3AXD50000342471</p> |
| 400/600 mm VX25 enclosure with DC switch/disconnector and charging | 1 per module | 3AXD50000337453 | A-46-8-207-VX |  <p>Instruction code: 3AXD50000345458</p> |

242 Ordering information

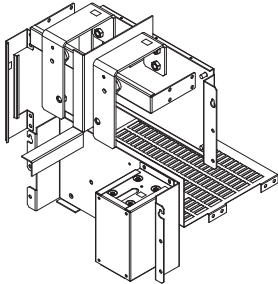
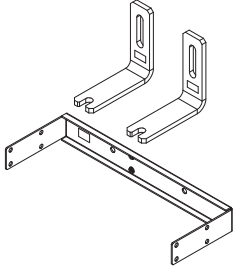
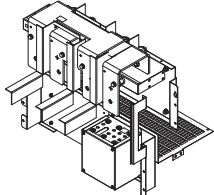
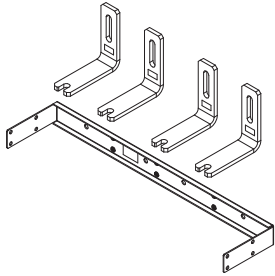
| Used with... | Qty | Ordering code | Kit code | Illustration |
|--|-----|-----------------|--------------|--|
| 400 mm VX25 enclosure with DC switch/disconnector and charging | 1 | 3AXD50000337439 | A-4-8-288-VX |  <p>Instruction code: 3AXD50000342501</p> |
| | 1 | 3AXD50000337422 | A-4-8-290-VX |  <p>Instruction code: 3AXD50000345236</p> |
| 600 mm VX25 enclosure with DC switch/disconnector and charging | 1 | 3AXD50000337545 | A-6-8-289-VX |  <p>Instruction code: 3AXD50000342860</p> |
| | 1 | 3AXD50000337538 | A-6-8-291-VX |  <p>Instruction code: 3AXD50000342983</p> |

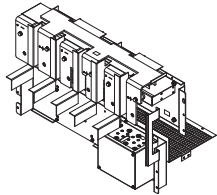
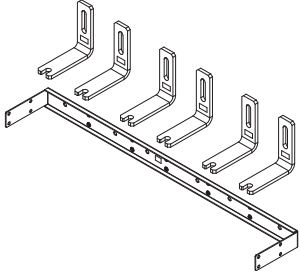
DC connection parts 1 of 2 (for generic enclosures)

These parts provide the DC connection between the input busbars and the DC fuses (including a mounting base for the charging components if required).

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--|-----|----------------|-----------|---|
| 400 mm generic enclosure without DC switch/disconnector and charging | 1 | 3AXD5000006418 | A-4-8-256 |  <p>Instruction code: 3AXD5000006441</p> |
| 600 mm generic enclosure without DC switch/disconnector and charging | 1 | 3AXD5000006444 | A-6-8-257 |  <p>Instruction code: 3AXD5000006447</p> |
| 800 mm generic enclosure without DC switch/disconnector and charging | 1 | 3AXD5000006450 | A-8-8-258 |  <p>Instruction code: 3AXD5000006455</p> |

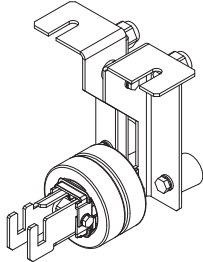
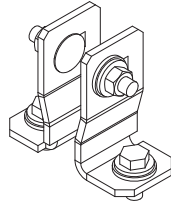
244 Ordering information

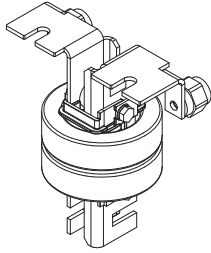
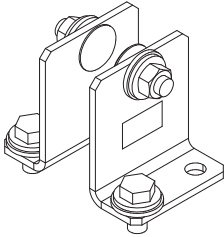
| Used with... | Qty | Ordering code | Kit code | Illustration |
|---|-----|-----------------|-----------|--|
| 400 mm generic enclosure with DC switch/disconnector and charging | 1 | 3AXD50000044559 | A-4-8-292 |  <p>Instruction code: 3AXD50000043644</p> |
| | 1 | 3AXD50000044582 | A-4-8-295 |  <p>Instruction code: 3AXD50000043686</p> |
| 600 mm generic enclosure with DC switch/disconnector and charging | 1 | 3AXD50000044560 | A-6-8-293 |  <p>Instruction code: 3AXD50000043784</p> |
| | 1 | 3AXD50000044583 | A-6-8-296 |  <p>Instruction code: 3AXD50000043737</p> |

| Used with... | Qty | Ordering code | Kit code | Illustration |
|---|-----|-----------------|-----------|--|
| 800 mm generic enclosure with DC switch/disconnector and charging | 1 | 3AXD50000044581 | A-8-8-294 |  <p>Instruction code: 3AXD50000044586</p> |
| | 1 | 3AXD50000044584 | A-8-8-297 |  <p>Instruction code: 3AXD50000044574</p> |

DC connection parts 2 of 2 (for Rittal VX25 or generic enclosures)

These parts connect the DC fuses to the inverter module.

| Used with... | Qty | Ordering code | Kit code | Illustration |
|---|--------------|-----------------|-------------|---|
| All VX25 and generic enclosures without DC switch/disconnector and charging | 1 per module | 3AXD50000028401 | A-468-8-235 |  <p>Instruction code: 3AXD50000028418</p> <p>Note: Filters to be ordered separately</p> |
| | 1 per module | 3AXD50000028403 | A-468-8-246 |  <p>Instruction code: 3AXD50000028384</p> |

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--|--------------|-----------------|-------------|---|
| All VX25 and generic enclosures with DC switch/disconnector and charging | 1 per module | 3AXD50000044551 | A-468-8-247 |  <p>Instruction code: 3AXD50000043411</p> <p>Note: Filters to be ordered separately</p> |
| | 1 per module | 3AXD50000044553 | A-468-8-248 |  <p>Instruction code: 3AXD50000043466</p> |

Common mode filters

Common mode filtering reduces bearing currents and is required for electromagnetic compatibility (EMC). The filtering is implemented by installing two toroidal cores onto the DC busbars. The cores must be ordered separately.

| Used with | Qty | Ordering code | Kit code | Illustration |
|---------------------|--------------|----------------|----------|--|
| All enclosure types | 2 per module | 3AUA0000032859 | - |  <p>Instruction code: 3AUA0000123359</p> |

DC fuses (IEC, UL)

| Unit type ACS880-104-... | | | Fuse | | | | |
|--------------------------|--------------------|---------|------|-----------------|------------------|----------------|------|
| | | | Qty | Ordering code | Type | Data | Size |
| 0470A-3 | | | 2 | 3AXD50000000148 | Busmann 170M6413 | 900 A, 690 V | 3 |
| 0640A-3 | | | 2 | 68244463 | Busmann 170M6416 | 1250 A, 690 V | 3 |
| 0760A-3 | | | 2 | 3AXD50000000150 | Busmann 170M6417 | 1400 A, 690 V | 3 |
| 0900A-3 | | | 2 | 68393108 | Busmann 170M6419 | 1600 A, 690 V | 3* |
| 1250A-3 | | | 4 | 68244463 | Busmann 170M6416 | 1250 A, 690 V | 3 |
| 1480A-3 | | | 4 | 3AXD50000000150 | Busmann 170M6417 | 1400 A, 690 V | 3 |
| 1760A-3 | | | 4 | 68393108 | Busmann 170M6419 | 1600 A, 690 V | 3* |
| 2210A-3 | | | 6 | 3AXD50000000150 | Busmann 170M6417 | 1400 A, 690 V | 3 |
| 2610A-3 | | | 6 | 68393108 | Busmann 170M6419 | 1600 A, 690 V | 3* |
| 3450A-3 | | | 8 | | | | |
| 4290A-3 | | | 10 | | | | |
| 5130A-3 | | | 12 | | | | |
| | 0440A-5 | | 2 | 3AXD50000000148 | Busmann 170M6413 | 900 A, 690 V | 3 |
| | 0590A-5 | | 2 | 68731658 | Busmann 170M6415 | 1100 A, 690 V | 3 |
| | 0740A-5 0810A-5 | | 2 | 3AXD50000000150 | Busmann 170M6417 | 1400 A, 690 V | 3 |
| | 1150A-5 | | 4 | 68731658 | Busmann 170M6415 | 1100 A, 690 V | 3 |
| | 1450A-5 1580A-5 | | 4 | 3AXD50000000150 | Busmann 170M6417 | 1400 A, 690 V | 3 |
| | 2150A-5 2350A-5 | | 6 | | | | |
| | 3110A-5 | | 8 | | | | |
| | 3860A-5 | | 10 | | | | |
| | 4610A-5 | | 12 | | | | |
| | | 0340A-7 | 2 | 63903167 | Busmann 170M6544 | 630 A, 1250 V | 3 |
| | | 0410A-7 | 2 | 63919128 | Busmann 170M6546 | 800 A, 1250 V | 3 |
| | | 0530A-7 | 2 | 63916749 | Busmann 170M6548 | 1000 A, 1100 V | 3 |
| | | 0600A-7 | 2 | 68736021 | Busmann 170M6549 | 1100 A, 1000 V | 3 |
| | | 0800A-7 | 4 | 63919128 | Busmann 170M6546 | 800 A, 1250 V | 3 |
| | | 1030A-7 | 4 | 63916749 | Busmann 170M6548 | 1000 A, 1100 V | 3 |
| | | 1170A-7 | 4 | 68736021 | Busmann 170M6549 | 1100 A, 1000 V | 3 |
| | | 1540A-7 | 6 | 63916749 | Busmann 170M6548 | 1000 A, 1100 V | 3 |
| | | 1740A-7 | 6 | 68736021 | Busmann 170M6549 | 1100 A, 1000 V | 3 |
| | | 2300A-7 | 8 | | | | |
| | | 2860A-7 | 10 | | | | |
| | | 3420A-7 | 12 | | | | |

DC switch/disconnector kits

| IEC – 230 V 50 Hz | | | | | | |
|--------------------------|--------------------|--------------------|------------------------|-----|-----------------|---------------|
| Unit type ACS880-104-... | | | Enclosure type | Qty | Ordering code | Switch type |
| 0470A-3 | 0440A-5 | 0340A-7 | Rittal VX25 or generic | 1 | 3AXD50000009534 | ABB OT1600E11 |
| 0640A-3 | 0590A-5 | 0410A-7 | | | | |
| 0760A-3 | 0740A-5 | 0530A-7 | | | | |
| 0900A-3 | 0810A-5 | 0600A-7 | | | | |
| 1250A-3 | 1150A-5 | 0800A-7 | Rittal VX25 or generic | 1 | 3AXD50000009535 | ABB OT1600E22 |
| 1480A-3 | 1450A-5 | 1030A-7 | | | | |
| 1760A-3 | 1580A-5 | 1170A-7 | | | | |
| 2210A-3 2610A-3 | 2150A-5 2350A-5 | 1540A-7 1740A-7 | Rittal VX25 | 1 | 3AXD50000009534 | ABB OT1600E11 |
| | | | | 1 | 3AXD50000009535 | ABB OT1600E22 |
| | | | Generic | 1 | 3AXD50000009536 | ABB OT2500E22 |
| 3450A-3 | 3110A-5 | 2300A-7 | Rittal VX25 or generic | 2 | 3AXD50000009535 | ABB OT1600E22 |
| 4290A-3 | 3860A-5 | 2860A-7 | Rittal VX25 | 1 | 3AXD50000009534 | ABB OT1600E11 |
| | | | | 2 | 3AXD50000009535 | ABB OT1600E22 |
| | | | Generic | 1 | 3AXD50000009535 | ABB OT1600E22 |
| | | | | 1 | 3AXD50000009536 | ABB OT2500E22 |
| 5130A-3 | 4610A-5 | 3420A-7 | Rittal VX25 | 3 | 3AXD50000009535 | ABB OT1600E22 |
| | | | Generic | 2 | 3AXD50000009536 | ABB OT2500E22 |

| IEC – 230 V 60 Hz | | | | | | |
|---------------------------------|--------------------|--------------------|------------------------|------------|----------------------|--------------------|
| Unit type ACS880-104-... | | | Enclosure type | Qty | Ordering code | Switch type |
| 0470A-3 | 0440A-5 | 0340A-7 | Rittal VX25 or generic | 1 | 3AXD50000026854 | ABB OT1600E11 |
| 0640A-3 | 0590A-5 | 0410A-7 | | | | |
| 0760A-3 | 0740A-5 | 0530A-7 | | | | |
| 0900A-3 | 0810A-5 | 0600A-7 | | | | |
| 1250A-3 | 1150A-5 | 0800A-7 | Rittal VX25 or generic | 1 | 3AXD50000026857 | ABB OT1600E22 |
| 1480A-3 | 1450A-5 | 1030A-7 | | | | |
| 1760A-3 | 1580A-5 | 1170A-7 | | | | |
| 2210A-3 2610A-3 | 2150A-5 2350A-5 | 1540A-7 1740A-7 | Rittal VX25 | 1 | 3AXD50000026854 | ABB OT1600E11 |
| | | | | 1 | 3AXD50000026857 | ABB OT1600E22 |
| | | | Generic | 1 | 3AXD50000026860 | ABB OT2500E22 |
| 3450A-3 | 3110A-5 | 2300A-7 | Rittal VX25 or generic | 2 | 3AXD50000026857 | ABB OT1600E22 |
| 4290A-3 | 3860A-5 | 2860A-7 | Rittal VX25 | 1 | 3AXD50000026854 | ABB OT1600E11 |
| | | | | 2 | 3AXD50000026857 | ABB OT1600E22 |
| | | | Generic | 1 | 3AXD50000026857 | ABB OT1600E22 |
| | | | | 1 | 3AXD50000026860 | ABB OT2500E22 |
| 5130A-3 | 4610A-5 | 3420A-7 | Rittal VX25 | 3 | 3AXD50000026857 | ABB OT1600E22 |
| | | | Generic | 2 | 3AXD50000026860 | ABB OT2500E22 |

| UL – 115 V 60 Hz | | | | | | |
|---------------------------------|--------------------|--------------------|------------------------|------------|----------------------|--------------------|
| Unit type ACS880-104-... | | | Enclosure type | Qty | Ordering code | Switch type |
| 0470A-3 | 0440A-5 | 0340A-7 | Rittal VX25 or generic | 1 | 3AXD50000009540 | ABB OT1200U11 |
| 0640A-3 | 0590A-5 | 0410A-7 | | | | |
| 0760A-3 | 0740A-5 | 0530A-7 | | | | |
| 0900A-3 | 0810A-5 | 0600A-7 | | | | |
| 1250A-3 | 1150A-5 | 0800A-7 | Rittal VX25 or generic | 1 | 3AXD50000009541 | ABB OT1200U22 |
| 1480A-3 | 1450A-5 | 1030A-7 | | | | |
| 1760A-3 | 1580A-5 | 1170A-7 | | | | |
| 2210A-3 2610A-3 | 2150A-5 2350A-5 | 1540A-7 1740A-7 | Rittal VX25 or generic | 1 | 3AXD50000009540 | ABB OT1200U11 |
| | | | | 1 | 3AXD50000009541 | ABB OT1200U22 |
| 3450A-3 | 3110A-5 | 2300A-7 | Rittal VX25 or generic | 2 | 3AXD50000009541 | ABB OT1200U22 |
| 4290A-3 | 3860A-5 | 2860A-7 | Rittal VX25 or generic | 1 | 3AXD50000009540 | ABB OT1200U11 |
| | | | | 2 | 3AXD50000009541 | ABB OT1200U22 |
| 5130A-3 | 4610A-5 | 3420A-7 | Rittal VX25 or generic | 3 | 3AXD50000009541 | ABB OT1200U22 |

Kit contents:

- DC switch/disconnector(s)
- Shaft (12 × 395 mm)

250 Ordering information

- OHB150J12P (switch types ...11) or OHB274J12 (switch types ...22) handle with off/on indication
- Interlock kit OTZT4A with PDAL2 coil
- One normally-open (OA1G10) and one normally-closed (OA3G01) auxiliary contact block.

Charging kits

The charging kit contains the main parts of the charging circuit, such as the charging switch (with shaft, handle, terminal shrouds and a set of auxiliary contacts), fuses, connectors and the charging controller. Note that the charging resistors or fiber optic cables are not included in the kit and must be ordered separately.

| IEC | | | | | |
|--------------------------|---------|---------|------------------------|-----|-----------------|
| Unit type ACS880-104-... | | | Enclosure type | Qty | Ordering code |
| 0470A-3 | 0440A-5 | 0340A-7 | Rittal VX25 or generic | 1 | 3AXD50000009537 |
| 0640A-3 | 0590A-5 | 0410A-7 | | | |
| 0760A-3 | 0740A-5 | 0530A-7 | | | |
| 0900A-3 | 0810A-5 | 0600A-7 | | | |
| 1250A-3 | 1150A-5 | 0800A-7 | | | |
| 1480A-3 | 1450A-5 | 1030A-7 | | | |
| 1760A-3 | 1580A-5 | 1170A-7 | | | |
| 2210A-3 | 2150A-5 | 1540A-7 | Rittal VX25 | 2 | 3AXD50000009537 |
| 2610A-3 | 2350A-5 | 1740A-7 | Generic | 1 | 3AXD50000009539 |
| 3450A-3 | 3110A-5 | 2300A-7 | Rittal VX25 or generic | 2 | 3AXD50000009537 |
| 4290A-3 | 3860A-5 | 2860A-7 | Rittal VX25 | 3 | 3AXD50000009537 |
| | | | Generic | 1 | 3AXD50000009537 |
| | | | | 1 | 3AXD50000009539 |
| 5130A-3 | 4610A-5 | 3420A-7 | Rittal VX25 | 3 | 3AXD50000009537 |
| | | | Generic | 2 | 3AXD50000009539 |

| UL | | | | | |
|--------------------------|---------|---------|------------------------|-----|-----------------|
| Unit type ACS880-104-... | | | Enclosure type | Qty | Ordering code |
| 0470A-3 | 0440A-5 | 0340A-7 | Rittal VX25 or generic | 1 | 3AXD50000009538 |
| 0640A-3 | 0590A-5 | 0410A-7 | | | |
| 0760A-3 | 0740A-5 | 0530A-7 | | | |
| 0900A-3 | 0810A-5 | 0600A-7 | | | |
| 1250A-3 | 1150A-5 | 0800A-7 | | | |
| 1480A-3 | 1450A-5 | 1030A-7 | | | |
| 1760A-3 | 1580A-5 | 1170A-7 | | | |
| 2210A-3 | 2150A-5 | 1540A-7 | Rittal VX25 or generic | 2 | 3AXD50000009538 |
| 2610A-3 | 2350A-5 | 1740A-7 | | | |
| 3450A-3 | 3110A-5 | 2300A-7 | | | |
| 4290A-3 | 3860A-5 | 2860A-7 | Rittal VX25 or generic | 3 | 3AXD50000009538 |
| 5130A-3 | 4610A-5 | 3420A-7 | | | |

Kit contents:

| Ordering code | Contents |
|-----------------|--|
| 3AXD50000009537 | Switch fuse (OS160GD04F) with terminal shrouds (OSS160GT1S/4); shaft (6 × 161 mm); OHB65J6 handle; one normally-closed auxiliary contact (OA3G01); 170M2676 fuses; charging controller |
| 3AXD50000009538 | Switch fuse (OS100GJ04FP) with terminal shrouds (OSS160GT1S/4); shaft (6 × 161 mm); OHB65J6 handle; one normally-closed auxiliary contact (OA3G01); FWJ30A fuses and fuse holder modification parts; charging controller |
| 3AXD50000009539 | Switch fuse (OS200DZ22F) with terminal shrouds (OSS200G1S/4); shaft (6 × 210 mm); OHB65J6 handle; one normally-closed auxiliary contact (OA3G01); 170M2676 fuses; charging controller |

- Charging resistors are not included and must be ordered separately. See below.
 - The charging controller connects to each inverter module by a pair of fiber optic cables. The cables are not included and must be ordered separately.
-

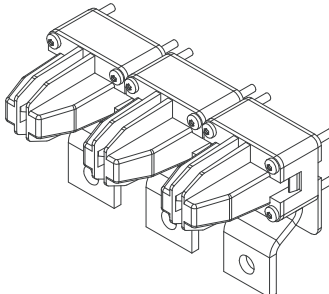
Charging resistors

| IEC | | | | | | |
|--------------------------|---------|--|------------------------|-----|---------------|------------------|
| Unit type ACS880-104-... | | | Enclosure type | Qty | Ordering code | Data |
| 0470A-3 | 0440A-5 | | Rittal VX25 or generic | 4 | 10037531 | ZRF 30/165 S 24R |
| 0640A-3 | 0590A-5 | | | | | |
| 0760A-3 | 0740A-5 | | | | | |
| 0900A-3 | 0810A-5 | | | | | |
| 1250A-3 | 1150A-5 | | Rittal VX25 or generic | 6 | 10037531 | ZRF 30/165 S 24R |
| 1480A-3 | 1450A-5 | | | | | |
| 1760A-3 | 1580A-5 | | | | | |
| 2210A-3 | 2150A-5 | | Rittal VX25 | 10 | 10037531 | ZRF 30/165 S 24R |
| 2610A-3 | 2350A-5 | | Generic | 8 | | |
| 3450A-3 | 3110A-5 | | Rittal VX25 or generic | 12 | 10037531 | ZRF 30/165 S 24R |
| 4290A-3 | 3860A-5 | | Rittal VX25 | 16 | 10037531 | ZRF 30/165 S 24R |
| | | | Generic | 14 | | |
| 5130A-3 | 4610A-5 | | Rittal VX25 | 18 | 10037531 | ZRF 30/165 S 24R |
| | | | Generic | 16 | | |
| | | 0340A-7 0410A-7 0530A-7 0600A-7 | Rittal VX25 or generic | 4 | 10028531 | ZRF 30/165 S 33R |
| | | 0800A-7 1030A-7 1170A-7 | Rittal VX25 or generic | 6 | 10028531 | ZRF 30/165 S 33R |
| | | 1540A-7 1740A-7 | Rittal VX25 | 10 | 10028531 | ZRF 30/165 S 33R |
| | | | Generic | 8 | | |
| | | 2300A-7 | Rittal VX25 or generic | 12 | 10028531 | ZRF 30/165 S 33R |
| | | 2860A-7 | Rittal VX25 | 16 | 10028531 | ZRF 30/165 S 33R |
| | | | Generic | 114 | | |
| | | 3420A-7 | Rittal VX25 | 18 | 10028531 | ZRF 30/165 S 33R |
| | | | Generic | 16 | | |

| UL | | | | | | |
|--------------------------|---------|--|------------------------|-----|---------------|------------------|
| Unit type ACS880-104-... | | | Enclosure type | Qty | Ordering code | Data |
| 0470A-3 | 0440A-5 | | Rittal VX25 or generic | 4 | 10037531 | ZRF 30/165 S 24R |
| 0640A-3 | 0590A-5 | | | | | |
| 0760A-3 | 0740A-5 | | | | | |
| 0900A-3 | 0810A-5 | | | | | |
| 1250A-3 | 1150A-5 | | Rittal VX25 or generic | 6 | 10037531 | ZRF 30/165 S 24R |
| 1480A-3 | 1450A-5 | | | | | |
| 1760A-3 | 1580A-5 | | | | | |
| 2210A-3 | 2150A-5 | | Rittal VX25 or generic | 10 | 10037531 | ZRF 30/165 S 24R |
| 2610A-3 | 2350A-5 | | | | | |
| 3450A-3 | 3110A-5 | | Rittal VX25 or generic | 12 | 10037531 | ZRF 30/165 S 24R |
| 4290A-3 | 3860A-5 | | Rittal VX25 or generic | 16 | 10037531 | ZRF 30/165 S 24R |
| 5130A-3 | 4610A-5 | | Rittal VX25 or generic | 18 | 10037531 | ZRF 30/165 S 24R |
| | | 0340A-7 0410A-7 0530A-7 0600A-7 | Rittal VX25 or generic | 4 | 10028531 | ZRF 30/165 S 33R |
| | | 0800A-7 1030A-7 1170A-7 | Rittal VX25 or generic | 6 | 10028531 | ZRF 30/165 S 33R |
| | | 1540A-7 1740A-7 | Rittal VX25 or generic | 10 | 10028531 | ZRF 30/165 S 33R |
| | | 2300A-7 | Rittal VX25 or generic | 12 | 10028531 | ZRF 30/165 S 33R |
| | | 2860A-7 | Rittal VX25 or generic | 16 | 10028531 | ZRF 30/165 S 33R |
| | | 3420A-7 | Rittal VX25 or generic | 18 | 10028531 | ZRF 30/165 S 33R |

■ **AC-side components**

Quick connector

| Used with | Qty | Ordering codes | Kit code | Illustration |
|---------------------|--------------|----------------|-------------|--|
| All enclosure types | 1 per module | 3AUA0000119227 | A-468-8-100 |  <p>Instruction code: 3AUA0000118667</p> |

Output busbars/shrouds kit

This kit contains the busbars that connect to the quick connector(s), the busbars for the motor cable connection, and shrouding.

The following types of kits are available:

1. Kits with cable connections (all enclosure types).
Each inverter module has its own motor cable connections. If the inverter unit consists of parallel-connected modules, each module must be separately (and identically) cabled to the motor.
2. Kits with bridging busbars (600 mm VX25 or generic enclosures, 800 mm generic enclosures).
These kits connect the outputs of the modules in the same cubicle so that, for example, a single thicker cable can be used instead of separate cables for each module.



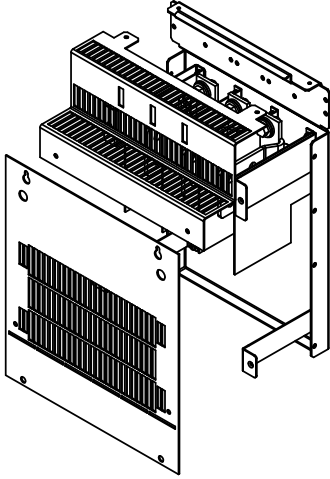
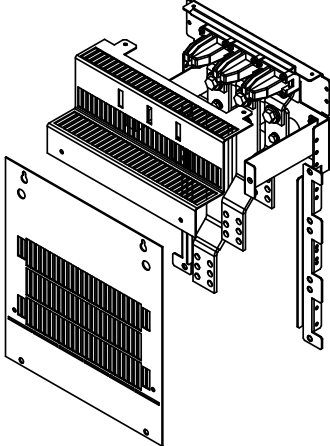
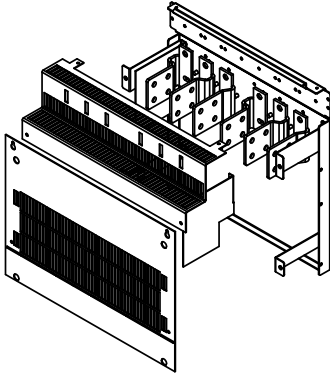
WARNING!

The bridging can carry the nominal output of one inverter module. In case of three parallel modules, ensure that the load capacity of the bridging is not exceeded. For example, if the cabling connects to the output busbars at one module only, use the module in the middle.

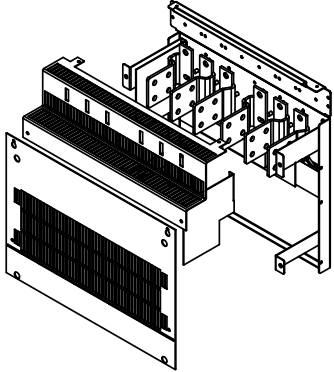
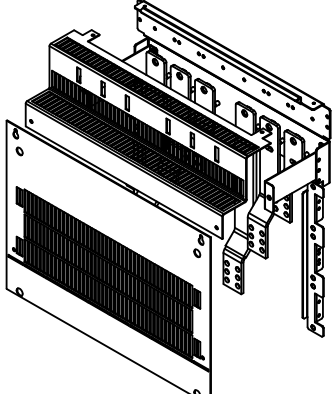
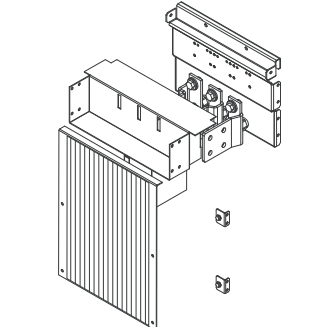
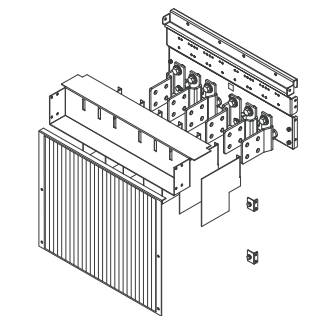
If the inverter unit consists of modules installed in different cubicles, make sure that the load is distributed evenly between the modules:

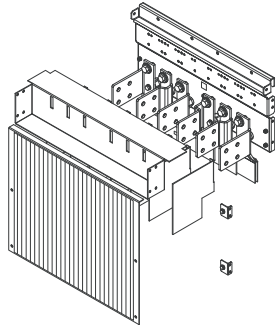
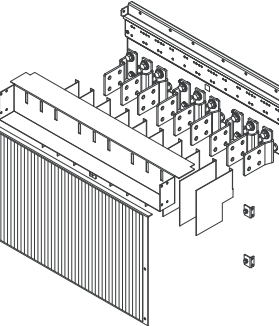
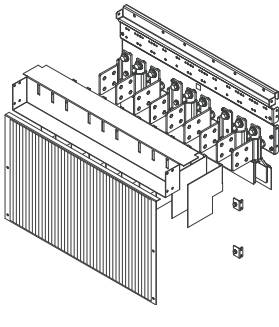
- In case of two inverter cubicles of two modules, connect the same number of cables to each cubicle.
- In case of one inverter cubicle with three modules and another with two, each cubicle requires a number of cables proportional to the number of modules within. For example, connect three out of five (or six out of ten, etc.) cables to the cubicle with three modules, the remaining two out of five (four out of ten) cables to the cubicle with two modules.

3. Kits with common AC output busbars (400 and 600 mm wide VX25 enclosures).
These kits have connection points for busbars that join the outputs of inverter modules regardless of whether the modules are located in the same cubicle or not. Using these kits, it is possible to construct a common output cubicle where all motor cables connect to.

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--|-----|-----------------|--------------|--|
| 400 mm VX25 enclosure (cable connection) | 1 | 3AXD50000337477 | A-4-8-132-VX |  <p>Instruction code: 3AXD50000343492</p> |
| 400 mm VX25 enclosure (common AC output busbar connection) | 1 | 3AXD50000337088 | A-4-8-140-VX |  <p>Instruction code: 3AXD50000337088</p> |
| 600 mm VX25 enclosure (cable connection) | 1 | 3AXD50000337569 | A-6-8-133-VX |  <p>Instruction code: 3AXD50000345526</p> |

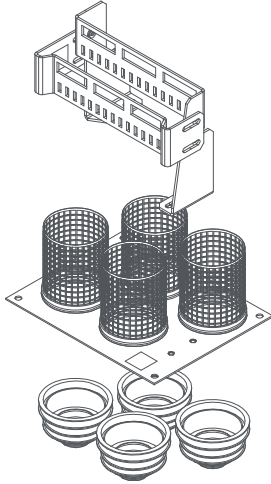
256 Ordering information

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--|-----|-----------------|--------------|--|
| 600 mm VX25 enclosure (cable connection with bridging busbars) | 1 | 3AXD50000337576 | A-6-8-134-VX |  <p>Instruction code: 3AXD50000345632</p> |
| 600 mm VX25 enclosure (common AC output busbar connection) | 1 | 3AXD50000337552 | A-6-8-141-VX |  <p>Instruction code: 3AXD50000346196</p> |
| 400 mm generic enclosure (cable connection) | 1 | 3AXD50000006435 | A-4-8-135 |  <p>Instruction code: 3AXD50000006497</p> |
| 600 mm generic enclosure (cable connection) | 1 | 3AXD50000006491 | A-6-8-136 |  <p>Instruction code: 3AXD50000006489</p> |

| Used with... | Qty | Ordering code | Kit code | Illustration |
|--|-----|-----------------|-----------|--|
| 600 mm generic enclosure (cable connection with bridging busbars) | 1 | 3AXD50000006493 | A-6-8-138 |  <p>Instruction code: 3AXD50000006505</p> |
| 800 mm generic enclosure (cable connection) | 1 | 3AXD50000006492 | A-8-8-137 |  <p>Instruction code: 3AXD50000006503</p> |
| 800 mm generic enclosure (cable connection with bridging busbars) | 1 | 3AXD50000006494 | A-8-8-139 |  <p>Instruction code: 3AXD50000006498</p> |

Cable entry kit

Cable entry kit, to be installed on the bottom plate of the enclosure, contains four 60 mm diameter inlets for cables with grommets, wire meshing for 360° grounding, and a strain relief bracket.

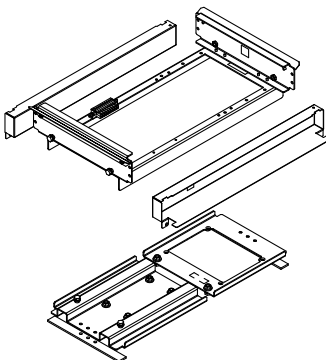
| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------------|------------------------------|----------------|-------------|---|
| All enclosure types | 1 (minimum) kit for a module | 3AXD5000004385 | A-468-8-441 |  <p>Instruction code: 3AXD5000004817</p> |

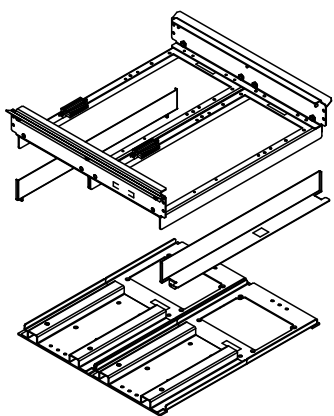
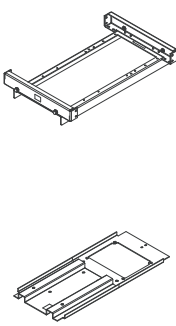
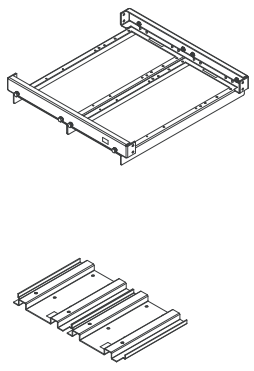
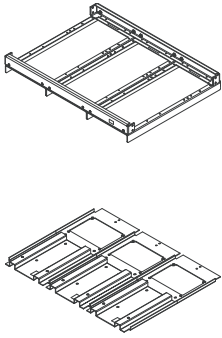
■ Mechanical installation accessories

These kits include parts that are used for installing the inverter module in the enclosure.

Inverter module top/bottom guides

This kit contains the rails that guide the inverter module at the top and the bottom.

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|------------------------------|-----|-----------------|--------------|---|
| 400 mm Rittal VX25 enclosure | 1 | 3AXD50000337071 | A-4-8-310-VX |  <p>Instruction code: 3AXD50000335152</p> |

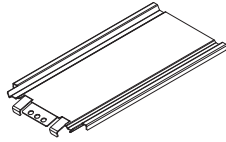
| Used with ... | Qty | Ordering code | Kit code | Illustration |
|------------------------------|-----|-----------------|--------------|--|
| 600 mm Rittal VX25 enclosure | 1 | 3AXD50000337514 | A-4-8-309-VX |  <p>Instruction code: 3AXD50000345052</p> |
| 400 mm generic enclosure | 1 | 3AXD50000005875 | A-4-8-315 |  <p>Instruction code: 3AXD50000005874</p> |
| 600 mm generic enclosure | 1 | 3AXD50000005876 | A-6-8-311 |  <p>Instruction code: 3AXD50000005864</p> |
| 800 mm generic enclosure | 1 | 3AXD50000005877 | A-8-8-312 |  <p>Instruction code: 3AXD50000005848</p> |

Ramp

The ramp can be used when installing or removing an R8i module.

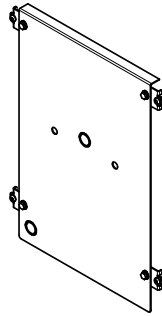
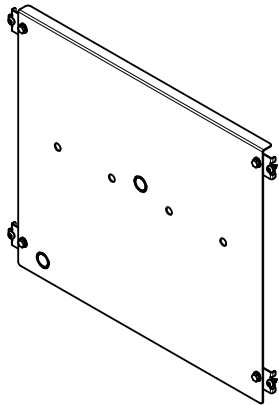
Note:

Do not use the ramp with plinth heights over 100 mm. The ramp is designed for a plinth height of 100 mm (the standard plinth height of Rittal VX25 enclosures).

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------------|-----|-----------------|----------------|---|
| All VX25 enclosures | 1 | 3AXD50000438037 | A-468-8-304-VX |  |

Shrouding

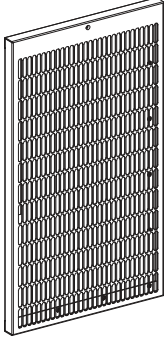
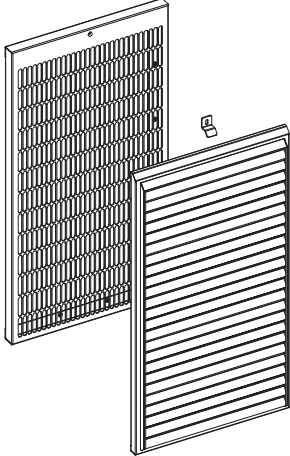
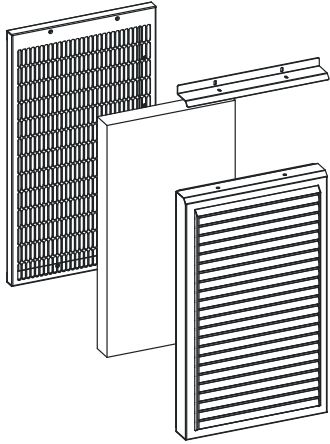
This kit contains the shroud for the top part of the cubicle with the necessary brackets and screws.

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|------------------------------|-----|-----------------|--------------|--|
| 400 mm Rittal VX25 enclosure | 1 | 3AXD50000331484 | A-4-8-359-VX |  <p>Instruction code: 3AXD50000335169</p> |
| 600 mm Rittal VX25 enclosure | 1 | 3AXD50000337378 | A-6-8-360-VX |  <p>Instruction code: 3AXD50000335022</p> |

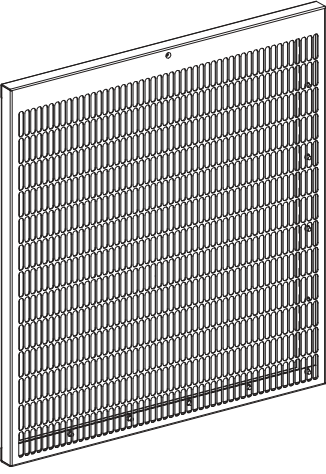
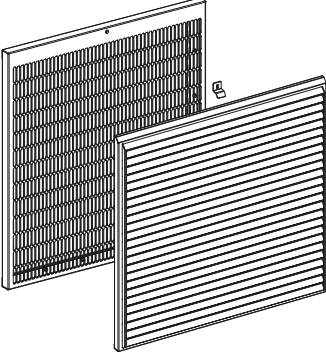
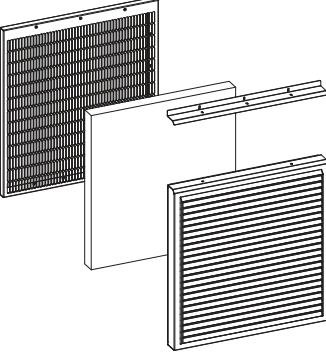
Cabinet ventilation

■ Air inlet kits

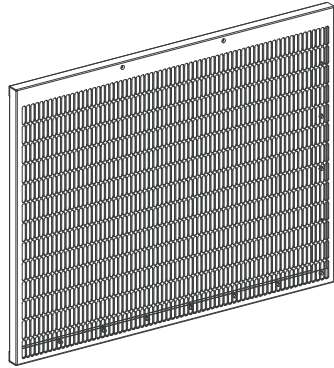
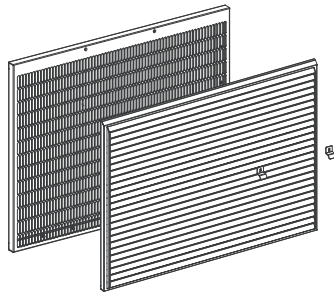
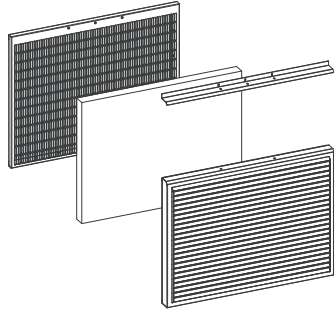
Air inlet kits 400 mm cabinet

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------|-----|-----------------|-----------|--|
| IP20 | 1 | 3AUA0000117002 | A-4-X-021 |  <p>Instruction code: 3AUA0000116879</p> |
| IP42 | 1 | 3AUA0000117007 | A-4-X-024 |  <p>Instruction code: 3AUA0000116873</p> |
| IP54 | 1 | 3AXD50000009184 | A-4-X-027 |  <p>Instruction code: 3AXD50000009989</p> |

Air inlet kits 600 mm cabinet

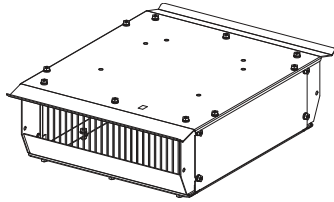
| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------|-----|----------------|-----------|---|
| IP20 | 1 | 3AUA0000117003 | A-6-X-022 |  <p>Instruction code: 3AUA0000116880</p> |
| IP42 | 1 | 3AUA0000117008 | A-6-X-025 |  <p>Instruction code: 3AUA0000116874</p> |
| IP54 | 1 | 3AXD5000009185 | A-6-X-028 |  <p>Instruction code: 3AXD5000009990</p> |

Air inlet kits 800 mm cabinet

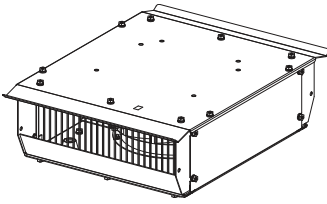
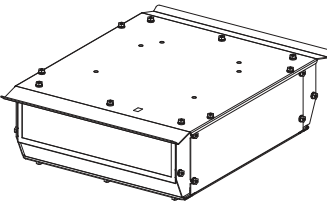
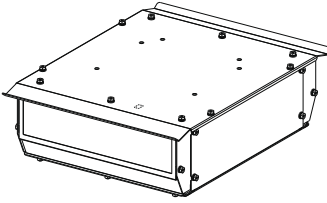
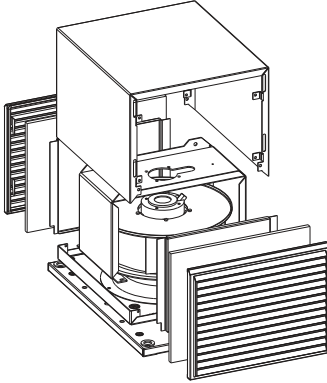
| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------|-----|-----------------|-----------|--|
| IP20 | 1 | 3AUA0000117005 | A-8-X-023 |  <p>Instruction code: 3AUA0000116887</p> |
| IP42 | 1 | 3AUA0000117009 | A-8-X-026 |  <p>Instruction code: 3AUA0000116875</p> |
| IP54 | 1 | 3AXD50000009186 | A-8-X-029 |  <p>Instruction code: 3AXD50000010001</p> |

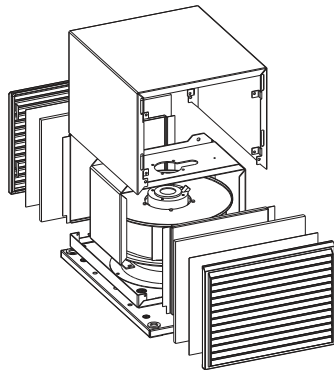
■ Air outlet kits

Air outlet kits 400 mm cabinet

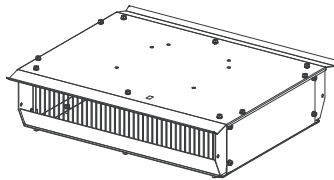
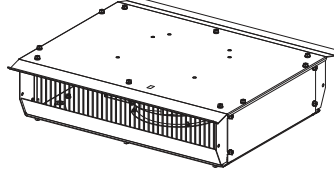
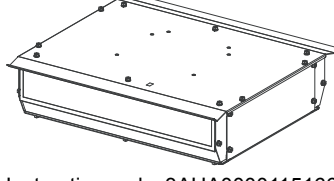
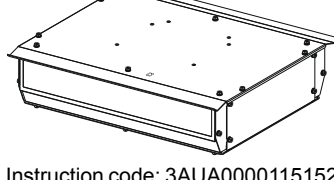
| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------|-----|----------------|-----------|--|
| IP20 (IEC) | 1 | 3AUA0000125203 | A-4-X-042 |  <p>Instruction code: 3AXD50000001983</p> |

264 Ordering information

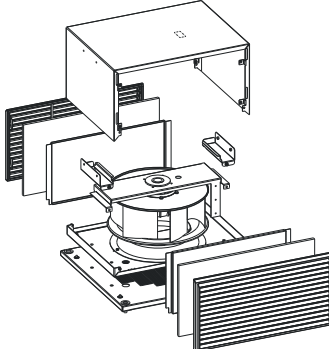
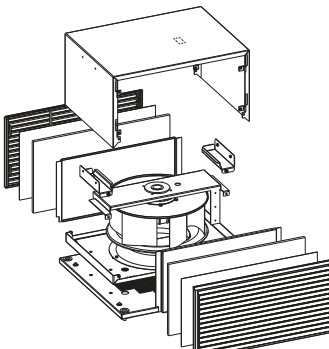
| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------|-----|-----------------|-----------|--|
| IP20 (IEC) | 1 | 3AUA0000125201 | A-4-X-062 |  <p>Instruction code: 3AXD50000001982</p> <p>Note: Fan to be ordered separately</p> |
| IP42 (IEC) | 1 | 3AUA0000114968 | A-4-X-040 |  <p>Instruction code: 3AUA0000115292</p> |
| IP42 (IEC) | 1 | 3AUA0000114967 | A-4-X-060 |  <p>Instruction code: 3AUA0000115290</p> <p>Note: Fan to be ordered separately</p> |
| IP54 (IEC) | 1 | 3AXD50000009187 | A-4-X-064 |  <p>Instruction code: 3AXD50000010001</p> <p>Note: Fan to be ordered separately</p> |

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------|-----|-----------------|-----------|---|
| IP54 (UL) | 1 | 3AXD50000010362 | A-4-X-067 |  <p>Instruction code: 3AXD50000010284</p> <p>Note: Fan to be ordered separately</p> |

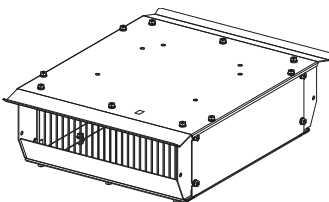
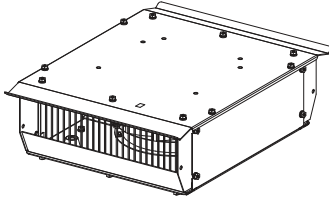
Air outlet kits 600 mm cabinet

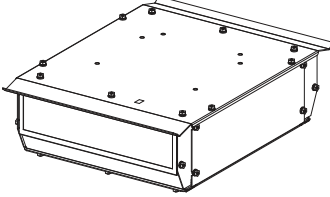
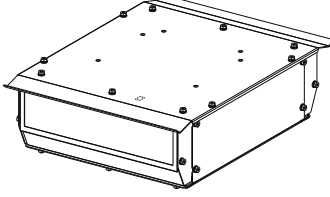
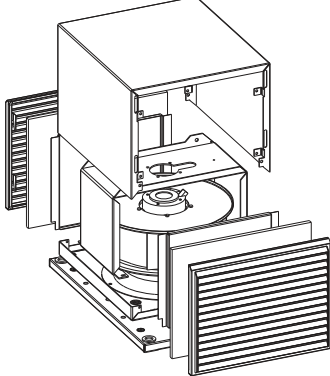
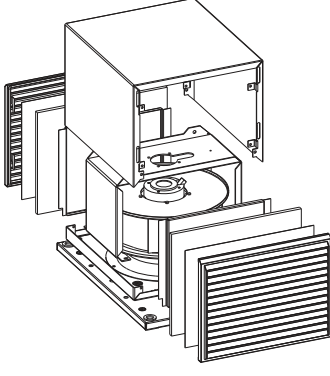
| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------|-----|----------------|-----------|---|
| IP20 (IEC) | 1 | 3AUA0000125204 | A-6-X-043 |  <p>Instruction code: 3AXD50000001981</p> |
| IP20 (IEC) | 1 | 3AUA0000125202 | A-6-X-063 |  <p>Instruction code: 3AXD50000001980</p> <p>Note: Fan to be ordered separately</p> |
| IP42 (IEC) | 1 | 3AUA0000114789 | A-6-X-041 |  <p>Instruction code: 3AUA0000115166</p> |
| IP42 (IEC) | 1 | 3AUA0000114971 | A-6-X-061 |  <p>Instruction code: 3AUA0000115152</p> <p>Note: Fan to be ordered separately</p> |

266 Ordering information

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------|-----|-----------------|-----------|---|
| IP54 (IEC) | 1 | 3AXD5000009189 | A-6-X-065 |  <p>Instruction code: 3AXD50000010004</p> <p>Note: Fan to be ordered separately</p> |
| IP54 (UL) | 1 | 3AXD50000010327 | A-6-X-066 |  <p>Instruction code: 3AXD50000010004</p> <p>Note: Fan to be ordered separately</p> |

Air outlet kits 800 mm cabinet

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------|-----|----------------|-----------|--|
| IP20 (IEC) | 2 | 3AUA0000125203 | A-4-X-042 |  <p>Instruction code: 3AUA0000116887</p> |
| IP20 (IEC) | 2 | 3AUA0000125201 | A-4-X-062 |  <p>Instruction code: 3AXD50000001982</p> <p>Note: Fan to be ordered separately</p> |

| Used with ... | Qty | Ordering code | Kit code | Illustration |
|---------------|-----|-----------------|-----------|---|
| IP42 (IEC) | 2 | 3AUA0000114968 | A-4-X-040 |  <p>Instruction code: 3AUA0000116875</p> |
| IP42 (IEC) | 2 | 3AUA0000114967 | A-4-X-060 |  <p>Instruction code: 3AUA0000115290</p> <p>Note: Fan to be ordered separately</p> |
| IP54 (IEC) | 2 | 3AXD5000009187 | A-4-X-064 |  <p>Instruction code: 3AXD50000010001</p> <p>Note: Fan to be ordered separately</p> |
| IP54 (UL) | 2 | 3AXD50000010362 | A-4-X-067 |  <p>Instruction code: 3AXD50000010284</p> <p>Note: Fan to be ordered separately</p> |

■ Cooling fans (frames R1i...R4i)

One or two cooling fans are to be installed inside the air outlet compartment to ensure sufficient cooling of the cabinet.

| IEC | | | | |
|---|-----------|---|-----|-----------------|
| Enclosure width / Degree of protection (Auxiliary voltage) | Component | | Qty | Ordering code |
| | Name | Data | | |
| 400 mm, 600 mm / IP20, IP42 (230 V 50/60 Hz) | Fan | R3G225-RH17-23 | 1 | 3AXD50000000592 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 400 mm / IP54 (230 V 50/60 Hz) | Fan | RB4C-355/170 | 1 | 3AXD50000006934 |
| | Capacitor | MSB MKP 6/603/E1679 | 1 | 3AXD50000006959 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 600 mm / IP54 (230 V 50/60 Hz) | Fan | CRBB/4-400/188 | 1 | 3AXD50000006111 |
| | Capacitor | MSB MKP 12/603/E1679 | 1 | 3AXD50000006885 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 800 mm / IP20, IP42 (230 V 50/60 Hz) | Fan | R3G225-RH17-23 | 2 | 3AXD50000000592 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000724 |
| 800 mm / IP54 (230 V 50/60 Hz) | Fan | RB4C-355/170 | 2 | 3AXD50000006934 |
| | Capacitor | MSB MKP 6/603/E1679 | 2 | 3AXD50000006959 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000724 |

| UL | | | | |
|---|-----------|---|-----|-----------------|
| Enclosure width / Degree of protection (Auxiliary voltage) | Component | | Qty | Ordering code |
| | Name | Data | | |
| 400 mm, 600 mm / IP20, IP42 (230 V 50/60 Hz) | Fan | R2E225-RA92-17 | 1 | 3AXD50000000514 |
| | Capacitor | MSB MKP 3,5/603/E1679 | 1 | 3AXD50000000882 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 400 mm, 600 mm / IP20, IP42 (115 V 60 Hz) | Fan | R2E225-BD40-65 | 1 | 68502926 |
| | Capacitor | KO230F, mod. 345 | 1 | 58915211 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |

| UL | | | | |
|---|-----------|---|-----|-----------------|
| Enclosure width / Degree of protection (Auxiliary voltage) | Component | | Qty | Ordering code |
| | Name | Data | | |
| 400 mm / IP54 (230 V 50/60 Hz) | Fan | RB4C-355/170 | 1 | 3AXD50000006934 |
| | Capacitor | MSB MKP 6/603/E1679 | 1 | 3AXD50000006959 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 400 mm / IP54 (115 V 50/60 Hz) | Fan | RH35M-4EK.4F.1R | 1 | 64750062 |
| | Capacitor | 25 µF, 220 V | 1 | 68713188 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 600 mm / IP54 (230 V 50/60 Hz) | Fan | CRBB/4-400/188 | 1 | 3AXD50000006111 |
| | Capacitor | MSB MKP 12/603/E1679 | 1 | 3AXD50000006885 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 600 mm / IP54 (115 V 50/60 Hz) | Fan | RH40M-4EK.4I.1R | 1 | 64750038 |
| | Capacitor | 25 µF, 220 V | 1 | 68713188 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 800 mm / IP20, IP42 (230 V 50/60 Hz) | Fan | R2E225-RA92-17 | 1 | 3AXD50000000514 |
| | Capacitor | MSB MKP 3,5/603/E1679 | 1 | 3AXD50000000882 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 800 mm / IP20, IP42 (115 V 60 Hz) | Fan | R2E225-BD40-65 | 2 | 68502926 |
| | Capacitor | KO230F, mod. 345 | 2 | 58915211 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000724 |
| 800 mm / IP54 (230 V 50/60 Hz) | Fan | RB4C-355/170 | 2 | 3AXD50000006934 |
| | Capacitor | MSB MKP 6/603/E1679 | 2 | 3AXD50000006959 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000724 |
| 800 mm / IP54 (115 V 50/60 Hz) | Fan | RH35M-4EK.4F.1R | 2 | 64750062 |
| | Capacitor | 25 µF, 220 V | 2 | 68713188 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000724 |

270 Ordering information

The wiring diagram examples show a cabinet cooling fan circuit that energizes the fan when at least one inverter module installed in the cabinet is running. The fan will continue to run for 20 minutes after all inverter modules have been stopped.

The following parts (or equivalent) are used to implement the circuit. These parts are to be sourced by the customer.

- Phoenix Contact ST 2,5-DIO/L-R - 3036262 spring cage component terminal block with a 1N4007 diode
 - Relpol PI84-24DC-M41G relay
 - Rated load (capacity): 8 A / 24 V DC
 - Rated power consumption: 0.40 ... 0.48 W DC
 - GZT80 relay socket
 - 600 mm of AWG24, 300 V, UL1569 (or equivalent material, valid for PVC insulation only) wire
 - Favier SEP-4 light brown 4 kV fiberglass sleeving.
-

■ Cooling fans (frames R5i)

A cooling fan is to be installed inside the air outlet compartment to ensure sufficient cooling of the cabinet.

| IEC | | | | |
|---|-----------|---|-----|-----------------|
| Enclosure width / Degree of protection (Auxiliary voltage) | Component | | Qty | Ordering code |
| | Name | Data | | |
| 400 mm, 600 mm / IP20, IP42 (230 V 50/60 Hz) | Fan | R3G225-RH17-23 | 1 | 3AXD50000000592 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 400 mm / IP54 (230 V 50/60 Hz) | Fan | RB4C-355/170 | 1 | 3AXD50000006934 |
| | Capacitor | MSB MKP 6/603/E1679 | 1 | 3AXD50000006959 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 600 mm / IP54 (230 V 50/60 Hz) | Fan | CRBB/4-400/188 | 1 | 3AXD50000006111 |
| | Capacitor | MSB MKP 12/603/E1679 | 1 | 3AXD50000006885 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |

| UL | | | | |
|---|-----------|---|-----|-----------------|
| Enclosure width / Degree of protection (Auxiliary voltage) | Component | | Qty | Ordering code |
| | Name | Data | | |
| 400 mm, 600 mm / IP20, IP42 (230 V 50/60 Hz) | Fan | R2E225-RA92-17 | 1 | 3AXD50000000514 |
| | Capacitor | MSB MKP 3,5/603/E1679 | 1 | 3AXD50000000882 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 400 mm, 600 mm / IP20, IP42 (115 V 60 Hz) | Fan | R2E225-BD40-65 | 1 | 68502926 |
| | Capacitor | KO230F, mod. 345 | 1 | 58915211 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 400 mm / IP54 (230 V 50/60 Hz) | Fan | RB4C-355/170 | 1 | 3AXD50000006934 |
| | Capacitor | MSB MKP 6/603/E1679 | 1 | 3AXD50000006959 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 400 mm / IP54 (115 V 50/60 Hz) | Fan | RH35M-4EK.4F.1R | 1 | 64750062 |
| | Capacitor | 25 µF, 220 V | 1 | 68713188 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |

| UL | | | | |
|---|-----------|---|-----|-----------------|
| Enclosure width / Degree of protection (Auxiliary voltage) | Component | | Qty | Ordering code |
| | Name | Data | | |
| 600 mm / IP54 (230V 50/60 Hz) | Fan | CRBB/4-400/188 | 1 | 3AXD50000006111 |
| | Capacitor | MSB MKP 12/603/E1679 | 1 | 3AXD50000006885 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 600 mm / IP54 (115 V 50/60 Hz) | Fan | RH40M-4EK.4I.1R | 1 | 64750038 |
| | Capacitor | 25 µF, 220 V | 1 | 68713188 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |

The wiring diagram examples show a cabinet cooling fan circuit that energizes the fan when at least one inverter module installed in the cabinet is running. The fan will continue to run for 20 minutes after all inverter modules have been stopped.

The following parts (or equivalent) are used to implement the circuit. These parts are to be sourced by the customer.

- Phoenix Contact ST 2,5-DIO/L-R - 3036262 spring cage component terminal block with a 1N4007 diode
- Relpol PI84-24DC-M41G relay
 - Rated load (capacity): 8 A / 24 V DC
 - Rated power consumption: 0.40 ... 0.48 W DC
 - GZT80 relay socket
- 600 mm of AWG24, 300 V, UL1569 (or equivalent material, valid for PVC insulation only) wire
- Favier SEP-4 light brown 4 kV fiberglass sleeving.

■ Cooling fans (frames R6i...R7i)

A cooling fan is to be installed inside the IP54 air outlet compartment to ensure sufficient cooling of the cabinet.

| Enclosure width / Degree of protection (Auxiliary voltage) | Component | | Qty | Ordering code |
|---|-----------|---|-----|-----------------|
| | Name | Data | | |
| 400 mm / IP54 (230 V 50/60 Hz) | Fan | RB4C-355/170 | 1 | 3AXD50000006934 |
| | Capacitor | MSB MKP 6/603/E1679 | 1 | 3AXD50000006959 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 400 mm / IP54 (115 V 50/60 Hz) | Fan | RH35M-4EK.4F.1R | 1 | 64750062 |
| | Capacitor | 25µF, 220 V | 1 | 68713188 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |

■ Cooling fans (frames R8i)

| Enclosure width / Degree of protection (Auxiliary voltage) | Component | | Qty | Ordering code |
|---|-----------|---|-----|-----------------|
| | Name | Data | | |
| 400 mm / IP54 (230 V 50/60 Hz) | Fan | RB4C-355/170 | 1 | 3AXD50000006934 |
| | Capacitor | MSB MKP 6/603/E1679 | 1 | 3AXD50000006959 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 400 mm / IP54 (115 V 50/60 Hz) | Fan | RH35M-4EK.4F.1R | 1 | 64750062 |
| | Capacitor | 25 µF, 220 V | 1 | 68713188 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 600 mm / IP54 (230 V 50/60 Hz) | Fan | CRBB/4-400/188 | 1 | 3AXD50000006111 |
| | Capacitor | MSB MKP 12/603/E1679 | 1 | 3AXD50000006885 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 600 mm / IP54 (115 V 50/60 Hz) | Fan | RH40M-4EK.4I.1R | 1 | 64750038 |
| | Capacitor | 25 µF, 220 V | 1 | 68713188 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 1 | 3AXD50000000724 |
| 800mm / IP54 (230 V 50/60 Hz) | Fan | RB4C-355/170 | 2 | 3AXD50000006934 |
| | Capacitor | MSB MKP 6/603/E1679 | 2 | 3AXD50000006959 |
| | Connector | SPB2,5/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000724 |
| 800 mm / IP54 (115 V 50/60 Hz) | Fan | RH35M-4EK.4F.1R | 2 | 64750062 |
| | Capacitor | 25 µF, 220 V | 2 | 68713188 |
| | Connector | SPB2,5/7 (2.5mm ² , 12AWG) | 2 | 3AXD50000000723 |
| | Connector | SC 2,5-RZ/7 (2.5 mm ² , 12AWG) | 2 | 3AXD50000000724 |



10

Technical data

Contents of this chapter

This chapter contains the technical specifications of the inverter modules and associated components.

Ratings

| Inverter unit type ACS880-104- ... | Frame size | Input ratings | Output ratings | | | | | | | | |
|---------------------------------------|------------|---------------|-----------------|-----------|-------|-------|--------------------|----------|----------------|----------|----------|
| | | | No-overload use | | | | Light-overload use | | Heavy-duty use | | |
| | | | I_1 | I_{max} | I_2 | P_N | S_N | I_{Ld} | P_{Ld} | I_{Hd} | P_{Hd} |
| | | | A | A | A | kW | kVA | A | kW | A | kW |
| $U_N = 400\text{ V}$ | | | | | | | | | | | |
| 004A8-3 | R1i | 5.8 | 7.0 | 4.8 | 1.5 | 3.3 | 4.5 | 1.5 | 4.0 | 1.5 | |
| 006A0-3 | R1i | 7.2 | 8.8 | 6.0 | 2.2 | 4.2 | 5.5 | 2.2 | 5.0 | 1.5 | |
| 008A0-3 | R1i | 9.6 | 10.5 | 8.0 | 3.0 | 5.5 | 7.6 | 3.0 | 6.0 | 2.2 | |
| 0011A-3 | R2i | 12.6 | 13.5 | 10.5 | 4.0 | 7.3 | 9.7 | 4.0 | 9.0 | 3.0 | |
| 0014A-3 | R2i | 16.8 | 16.5 | 14.0 | 5.5 | 9.7 | 13.0 | 5.5 | 11.0 | 4.0 | |
| 0018A-3 | R2i | 21.6 | 21 | 18.0 | 7.5 | 12.5 | 16.8 | 7.5 | 14.0 | 5.5 | |
| 0025A-3 | R3i | 30 | 33 | 25 | 11.0 | 17.0 | 23 | 11.0 | 19.0 | 7.5 | |
| 0035A-3 | R3i | 42 | 44 | 35 | 15.0 | 24 | 32 | 15.0 | 29 | 11.0 | |
| 0044A-3 | R3i | 53 | 53 | 44 | 18.5 | 30 | 41 | 18.5 | 35 | 15.0 | |
| 0050A-3 | R3i | 60 | 66 | 50 | 22 | 35 | 46 | 22 | 44 | 22 | |
| 0061A-3 | R4i | 73 | 78 | 61 | 30 | 42 | 57 | 30 | 52 | 22 | |
| 0078A-3 | R4i | 94 | 100 | 78 | 37 | 54 | 74 | 37 | 69 | 30 | |
| 0094A-3 | R4i | 113 | 124 | 94 | 45 | 65 | 90 | 45 | 75 | 37 | |

| Inverter unit type ACS880-104- ... | Frame size | Input ratings | | Output ratings | | | | | | |
|---------------------------------------|------------|---------------|-----------|-----------------|-------|-------|--------------------|----------|----------------|----------|
| | | | | No-overload use | | | Light-overload use | | Heavy-duty use | |
| | | I_1 | I_{max} | I_2 | P_N | S_N | I_{Ld} | P_{Ld} | I_{Hd} | P_{Hd} |
| | | A | A | A | kW | kVA | A | kW | A | kW |
| 0100A-3 | R4i | 125 | 125 | 104 | 55 | 72 | 100 | 55 | 78 | 37 |
| 0140A-3 | R6i | 169 | 183 | 141 | 75 | 98 | 135 | 75 | 105 | 55 |
| 0170A-3 | R6i | 203 | 220 | 169 | 90 | 117 | 162 | 90 | 126 | 55 |
| 0210A-3 | R6i | 247 | 268 | 206 | 110 | 143 | 198 | 110 | 154 | 75 |
| 0250A-3 | R6i | 295 | 320 | 246 | 132 | 170 | 236 | 132 | 184 | 90 |
| 0300A-3 | R7i | 360 | 390 | 300 | 160 | 208 | 288 | 160 | 224 | 110 |
| 0350A-3 | R7i | 420 | 455 | 350 | 200 | 242 | 336 | 160 | 262 | 132 |
| 0470A-3 | R8i | 529 | 620 | 470 | 250 | 326 | 451 | 250 | 352 | 160 |
| 0640A-3 | R8i | 720 | 840 | 640 | 355 | 443 | 614 | 315 | 479 | 250 |
| 0760A-3 | R8i | 855 | 990 | 760 | 400 | 527 | 730 | 400 | 568 | 315 |
| 0900A-3 | R8i | 1013 | 1080 | 900 | 500 | 624 | 864 | 450 | 473 | 355 |
| 1250A-3 | 2×R8i | 1406 | 1630 | 1250 | 630 | 866 | 1200 | 630 | 935 | 500 |
| 1480A-3 | 2×R8i | 1665 | 1930 | 1480 | 800 | 1025 | 1421 | 800 | 1107 | 630 |
| 1760A-3 | 2×R8i | 1980 | 2120 | 1760 | 1000 | 1219 | 1690 | 900 | 1316 | 710 |
| 2210A-3 | 3×R8i | 2486 | 2880 | 2210 | 1200 | 1531 | 2122 | 1200 | 1653 | 900 |
| 2610A-3 | 3×R8i | 2936 | 3140 | 2610 | 1400 | 1808 | 2506 | 1400 | 1952 | 1000 |
| 3450A-3 | 4×R8i | 3881 | 4140 | 3450 | 1800 | 2390 | 3312 | 1800 | 2581 | 1400 |
| 4290A-3 | 5×R8i | 4826 | 5150 | 4290 | 2400 | 2972 | 4118 | 2000 | 3209 | 1800 |
| 5130A-3 | 6×R8i | 5771 | 6160 | 5130 | 2800 | 3554 | 4925 | 2400 | 3837 | 2000 |
| $U_N = 500 \text{ V}$ | | | | | | | | | | |
| 003A6-5 | R1i | 4.3 | 5.3 | 3.6 | 1.5 | 3.1 | 3.4 | 1.5 | 3.0 | 1.5 |
| 004A8-5 | R1i | 5.8 | 7.0 | 4.8 | 2.2 | 4.2 | 4.5 | 2.2 | 4.0 | 1.5 |
| 006A0-5 | R1i | 7.2 | 8.8 | 6.0 | 3.0 | 5.2 | 5.5 | 3.0 | 5.0 | 2.2 |
| 008A0-5 | R1i | 9.6 | 10.5 | 8.0 | 4.0 | 6.9 | 7.6 | 4.0 | 6.0 | 3.0 |
| 0011A-5 | R2i | 12.6 | 13.5 | 10.5 | 5.5 | 9.1 | 9.7 | 5.5 | 9.0 | 4.0 |
| 0014A-5 | R2i | 16.8 | 16.5 | 14.0 | 7.5 | 12.1 | 13.0 | 7.5 | 11.0 | 5.5 |
| 0018A-5 | R2i | 21.6 | 21 | 18.0 | 11.0 | 16 | 16.8 | 11.0 | 14.0 | 7.5 |
| 0025A-5 | R3i | 30 | 33 | 25 | 15.0 | 22 | 23 | 15.0 | 19.0 | 11.0 |
| 0030A-5 | R3i | 36 | 36 | 30 | 18.5 | 26 | 28 | 18.5 | 24 | 15.0 |
| 0035A-5 | R3i | 42 | 44 | 35 | 22 | 30 | 32 | 22 | 29 | 18.5 |
| 0050A-5 | R3i | 60 | 66 | 50 | 30 | 43 | 45 | 30 | 44 | 22 |
| 0061A-5 | R4i | 73 | 78 | 61 | 37 | 53 | 57 | 37 | 52 | 30 |
| 0078A-5 | R4i | 94 | 100 | 78 | 45 | 68 | 74 | 45 | 59 | 45 |
| 0094A-5 | R4i | 113 | 124 | 94 | 55 | 81 | 90 | 55 | 75 | 45 |
| 0110A-5 | R6i | 136 | 147 | 113 | 75 | 98 | 108 | 75 | 85 | 55 |
| 0140A-5 | R6i | 163 | 177 | 136 | 90 | 118 | 131 | 90 | 102 | 55 |
| 0170A-5 | R6i | 198 | 215 | 165 | 110 | 143 | 158 | 110 | 123 | 75 |
| 0200A-5 | R6i | 236 | 256 | 197 | 132 | 171 | 189 | 132 | 147 | 90 |

| Inverter unit type ACS880-104- ... | Frame size | Input ratings | | Output ratings | | | | | | |
|---------------------------------------|------------|---------------|-----------|-----------------|-------|-------|--------------------|----------|----------------|----------|
| | | | | No-overload use | | | Light-overload use | | Heavy-duty use | |
| | | I_1 | I_{max} | I_2 | P_N | S_N | I_{Ld} | P_{Ld} | I_{Hd} | P_{Hd} |
| | | A | A | A | kW | kVA | A | kW | A | kW |
| 0240A-5 | R6i | 288 | 312 | 240 | 160 | 208 | 230 | 160 | 180 | 110 |
| 0300A-5 | R7i | 362 | 393 | 302 | 200 | 262 | 290 | 200 | 226 | 132 |
| 0340A-5 | R7i | 408 | 442 | 340 | 250 | 294 | 326 | 200 | 254 | 160 |
| 0440A-5 | R8i | 495 | 580 | 440 | 250 | 381 | 422 | 250 | 329 | 200 |
| 0590A-5 | R8i | 664 | 770 | 590 | 400 | 511 | 566 | 355 | 441 | 250 |
| 0740A-5 | R8i | 833 | 970 | 740 | 500 | 641 | 710 | 450 | 554 | 355 |
| 0810A-5 | R8i | 911 | 1060 | 810 | 560 | 701 | 778 | 500 | 606 | 400 |
| 1150A-5 | 2×R8i | 1294 | 1500 | 1150 | 800 | 996 | 1104 | 710 | 860 | 560 |
| 1450A-5 | 2×R8i | 1631 | 1890 | 1450 | 1000 | 1256 | 1392 | 900 | 1085 | 710 |
| 1580A-5 | 2×R8i | 1778 | 2060 | 1580 | 1100 | 1368 | 1517 | 1000 | 1182 | 800 |
| 2150A-5 | 3×R8i | 2419 | 2800 | 2150 | 1500 | 1862 | 2064 | 1400 | 1608 | 1100 |
| 2350A-5 | 3×R8i | 1644 | 3060 | 2350 | 1600 | 2035 | 2256 | 1500 | 1758 | 1200 |
| 3110A-5 | 4×R8i | 3499 | 4050 | 3110 | 2000 | 2693 | 2986 | 2000 | 2326 | 1600 |
| 3860A-5 | 5×R8i | 4343 | 5020 | 3860 | 2400 | 3343 | 3706 | 2400 | 2887 | 2000 |
| 4610A-5 | 6×R8i | 5186 | 6000 | 4610 | 3200 | 392 | 4426 | 2800 | 3448 | 2400 |
| $U_N = 600\text{ V}$ | | | | | | | | | | |
| 007A3-7 | R5i | 8.8 | 9.5 | 7.3 | 5.5 | 8.7 | 6.9 | 5.5 | 5.6 | 4.0 |
| 009A8-7 | R5i | 11.8 | 12.7 | 9.8 | 7.5 | 11.7 | 9.3 | 7.5 | 7.33 | 5.5 |
| 014A2-7 | R5i | 17.0 | 18.5 | 14.2 | 11.0 | 17.0 | 13.5 | 11.0 | 9.8 | 7.5 |
| 0018A-7 | R5i | 22 | 23 | 18.0 | 15.0 | 21.5 | 17.1 | 15.0 | 14.2 | 11.0 |
| 0022A-7 | R5i | 26 | 29 | 22 | 18.5 | 26 | 21 | 18.5 | 18.0 | 15.0 |
| 0027A-7 | R5i | 32 | 35 | 27 | 22 | 32 | 26 | 22 | 22 | 18.5 |
| 0035A-7 | R5i | 42 | 46 | 35 | 30 | 42 | 33 | 30 | 27 | 22 |
| 0042A-7 | R5i | 50 | 55 | 42 | 37 | 50 | 40 | 37 | 35 | 30 |
| 0052A-7 | R5i | 62 | 68 | 52 | 45 | 62 | 49 | 45 | 42 | 37 |
| 0062A-7 | R6i | 74 | 81 | 62 | 55 | 74 | 60 | 55 | 46 | 45 |
| 0082A-7 | R6i | 98 | 107 | 82 | 75 | 98 | 79 | 75 | 61 | 55 |
| 0100A-7 | R6i | 119 | 129 | 99 | 90 | 118 | 95 | 90 | 74 | 75 |
| 0130A-7 | R6i | 150 | 163 | 125 | 110 | 149 | 120 | 110 | 94 | 75 |
| 0140A-7 | R6i | 173 | 187 | 144 | 132 | 172 | 138 | 132 | 108 | 90 |
| 0190A-7 | R6i | 230 | 250 | 192 | 160 | 229 | 184 | 160 | 144 | 132 |
| 0220A-7 | R7i | 260 | 282 | 217 | 200 | 259 | 208 | 200 | 162 | 160 |
| 0270A-7 | R7i | 324 | 351 | 270 | 250 | 323 | 259 | 250 | 202 | 200 |
| 0340A-7 | R8i | 383 | 510 | 340 | 315 | 406 | 326 | 250 | 254 | 200 |
| 0410A-7 | R8i | 461 | 620 | 410 | 400 | 490 | 394 | 355 | 307 | 250 |
| 0530A-7 | R8i | 596 | 800 | 530 | 500 | 633 | 509 | 450 | 396 | 355 |
| 0600A-7 | R8i | 675 | 900 | 600 | 560 | 717 | 576 | 560 | 449 | 400 |
| 0800A-7 | 2×R8i | 900 | 1200 | 800 | 800 | 956 | 768 | 710 | 598 | 560 |

| Inverter unit type ACS880-104- ... | Frame size | Input ratings | | Output ratings | | | | | | |
|---------------------------------------|------------|---------------|-----------|-----------------|-------|-------|--------------------|----------|----------------|----------|
| | | | | No-overload use | | | Light-overload use | | Heavy-duty use | |
| | | I_1 | I_{max} | I_2 | P_N | S_N | I_{Ld} | P_{Ld} | I_{Hd} | P_{Hd} |
| | | A | A | A | kW | kVA | A | kW | A | kW |
| 1030A-7 | 2×R8i | 1159 | 1550 | 1030 | 1000 | 1231 | 989 | 900 | 770 | 710 |
| 1170A-7 | 2×R8i | 1316 | 1760 | 1170 | 1100 | 1398 | 1123 | 1000 | 875 | 800 |
| 1540A-7 | 3×R8i | 1733 | 2310 | 1540 | 1400 | 1840 | 1478 | 1400 | 1152 | 1100 |
| 1740A-7 | 3×R8i | 1958 | 2610 | 1740 | 1600 | 2080 | 1670 | 1600 | 1302 | 1200 |
| 2300A-7 | 4×R8i | 2588 | 3450 | 2300 | 2000 | 2749 | 2208 | 2000 | 1720 | 1600 |
| 2860A-7 | 5×R8i | 3218 | 4290 | 2860 | 2800 | 3418 | 2746 | 2400 | 2139 | 2000 |
| 3420A-7 | 6×R8i | 3848 | 5130 | 3420 | 3200 | 4087 | 3283 | 3200 | 2558 | 2400 |

■ Definitions

| | |
|-----------|--|
| U_N | Nominal AC supply voltage of drive system |
| I_1 | Nominal rms input current |
| I_2 | Nominal output current (available continuously with no over-loading) |
| P_N | Typical motor power in no-overload use The horsepower ratings are typical NEMA motor sizes at 460 V (ACS880-104-xxxxA-5) and 575 V (ACS880-104-xxxxA-7) respectively. |
| S_N | Apparent power in no-overload use |
| I_{Ld} | Continuous rms output current allowing 10% overload for 1 minute every 5 minutes |
| P_{Ld} | Typical motor power in light-overload use |
| I_{max} | Maximum output current. Available for 10 seconds at start; otherwise as long as allowed by drive temperature. |
| I_{Hd} | Continuous rms output current allowing 50% overload for 1 minute every 5 minutes |
| P_{Hd} | Typical motor power in heavy-duty use |

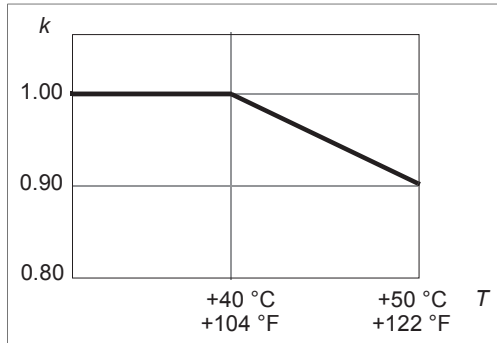
Note:

- The ratings apply at an ambient temperature of 40 °C (104 °F).
- The ratings apply to units without option +C132 (marine type approval). For ratings of units with option +C132, see *ACS880 +C132 marine type-approved drive modules and module packages supplement (3AXD50000037752 [English])*
- To achieve the rated motor power given in the table, the rated current of the drive must be higher than or equal to the rated motor current.
- The DriveSize dimensioning tool available from ABB is recommended for selecting the drive, motor and gear combination.

Derating

Ambient temperature derating

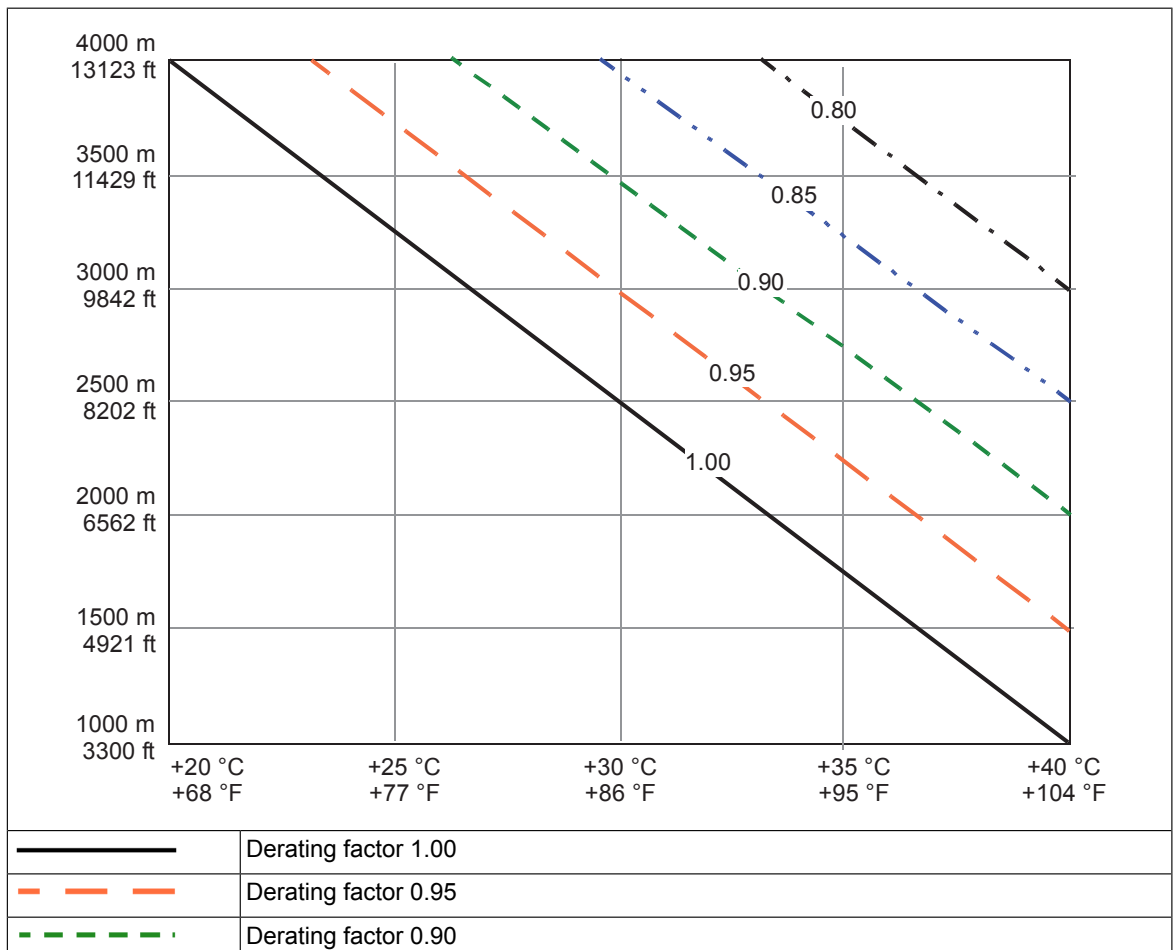
In the temperature range +40...50 °C (+104...122 °F), the rated output current is derated by 1 percentage point for every added 1 °C (1.8 °F). The output current can be calculated by multiplying the current given in the rating table by the derating factor (*k*):





Altitude derating

At altitudes from 1000 to 4000 m (3281 to 13123 ft) above sea level, the output current derating is 1 percentage point for every added 100 m (328 ft). For example, the derating factor for 1500 m (4921 ft) is 0.95.

If ambient temperature is below +40 °C (+104 °F), the derating can be reduced by 1.5 percentage points for every 1 °C (1.8 °F) reduction in temperature. A few altitude derating curves are shown below.



| | |
|---|----------------------|
|  | Derating factor 0.85 |
|  | Derating factor 0.80 |

For a more accurate derating, use the DriveSize PC tool.

■ Switching frequency derating

Switching frequencies other than default can require output current derating. Contact ABB for more information.

■ Output frequency derating

Motor operation above 150 Hz can require type-specific output current derating. Contact ABB for more information.

Cooling characteristics, noise, DC capacitance

| Inverter unit type ACS880- 104-... | Power loss | Air flow | | Noise level | DC capacitance |
|--|------------|-------------------|----------------------|-------------|----------------|
| | W | m ³ /h | ft ³ /min | dB(A) | μF |
| $U_N = 400 \text{ V}$ | | | | | |
| 004A8-3 | 70 | 24 | 14 | 47 | 280 |
| 006A0-3 | 80 | 24 | 14 | 47 | 280 |
| 008A0-3 | 90 | 24 | 14 | 47 | 280 |
| 0011A-3 | 110 | 48 | 28 | 39 | 435 |
| 0014A-3 | 140 | 48 | 28 | 39 | 865 |
| 0018A-3 | 170 | 48 | 28 | 39 | 865 |
| 0025A-3 | 200 | 142 | 84 | 63 | 785 |
| 0035A-3 | 300 | 142 | 84 | 63 | 785 |
| 0044A-3 | 350 | 200 | 118 | 71 | 1178 |
| 0050A-3 | 410 | 200 | 118 | 71 | 1178 |
| 0061A-3 | 500 | 290 | 171 | 70 | 1570 |
| 0078A-3 | 600 | 290 | 171 | 70 | 2355 |
| 0094A-3 | 740 | 290 | 171 | 70 | 2355 |
| 0100A-3 | 750 | 290 | 171 | 70 | 2355 |
| 0140A-3 | 1100 | 650 | 383 | 71 | 4500 |
| 0170A-3 | 1400 | 650 | 383 | 71 | 4500 |
| 0210A-3 | 1800 | 650 | 383 | 71 | 4500 |
| 0250A-3 | 2000 | 650 | 383 | 71 | 6750 |
| 0300A-3 | 2500 | 940 | 553 | 72 | 9000 |
| 0350A-3 | 3100 | 940 | 553 | 72 | 9000 |
| 0470A-3 | 4800 | 1300 | 765 | 72 | 11250 |
| 0640A-3 | 6700 | 1300 | 765 | 72 | 13500 |
| 0760A-3 | 8600 | 1300 | 765 | 72 | 18000 |
| 0900A-3 | 10000 | 1300 | 765 | 72 | 18000 |
| 1250A-3 | 13000 | 2600 | 1530 | 74 | 27000 |
| 1480A-3 | 16000 | 2600 | 1530 | 74 | 36000 |
| 1760A-3 | 20000 | 2600 | 1530 | 74 | 36000 |

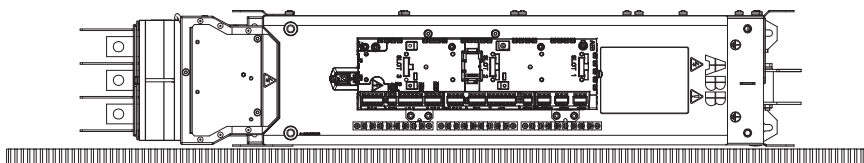
| Inverter unit type ACS880- 104-... | Power loss | Air flow | | Noise level | DC capacitance |
|--|------------|-------------------|----------------------|-------------|----------------|
| | W | m ³ /h | ft ³ /min | dB(A) | μF |
| 2210A-3 | 23000 | 3900 | 2295 | 76 | 54000 |
| 2610A-3 | 30000 | 3900 | 2295 | 76 | 54000 |
| 3450A-3 | 40000 | 5200 | 3060 | 76 | 72000 |
| 4290A-3 | 50000 | 6500 | 3825 | 77 | 90000 |
| 5130A-3 | 60000 | 7800 | 4590 | 78 | 108000 |
| $U_N = 500\text{ V}$ | | | | | |
| 003A6-5 | 60 | 24 | 14 | 47 | 280 |
| 004A8-5 | 70 | 24 | 14 | 47 | 280 |
| 006A0-5 | 80 | 24 | 14 | 47 | 280 |
| 008A0-5 | 90 | 24 | 14 | 47 | 280 |
| 0011A-5 | 130 | 48 | 28 | 39 | 435 |
| 0014A-5 | 150 | 48 | 28 | 39 | 865 |
| 0018A-5 | 180 | 48 | 28 | 39 | 865 |
| 0025A-5 | 230 | 142 | 84 | 63 | 785 |
| 0030A-5 | 280 | 142 | 84 | 63 | 785 |
| 0035A-5 | 320 | 142 | 84 | 63 | 785 |
| 0050A-5 | 480 | 200 | 118 | 71 | 1178 |
| 0061A-5 | 550 | 290 | 171 | 70 | 1570 |
| 0078A-5 | 650 | 290 | 171 | 70 | 2355 |
| 0094A-5 | 800 | 290 | 171 | 70 | 2355 |
| 0110A-5 | 1000 | 650 | 383 | 71 | 4500 |
| 0140A-5 | 1200 | 650 | 383 | 71 | 4500 |
| 0170A-5 | 1500 | 650 | 383 | 71 | 4500 |
| 0200A-5 | 1800 | 650 | 383 | 71 | 4500 |
| 0240A-5 | 2000 | 650 | 383 | 71 | 6750 |
| 0300A-5 | 2700 | 940 | 553 | 72 | 9000 |
| 0340A-5 | 3200 | 940 | 553 | 72 | 9000 |
| 0440A-5 | 4700 | 1300 | 765 | 72 | 11250 |
| 0590A-5 | 6300 | 1300 | 765 | 72 | 13500 |
| 0740A-5 | 8100 | 1300 | 765 | 72 | 18000 |
| 0810A-5 | 9300 | 1300 | 765 | 72 | 78000 |
| 1150A-5 | 12000 | 2600 | 1530 | 74 | 27000 |
| 1450A-5 | 16000 | 2600 | 1530 | 74 | 36000 |
| 1580A-5 | 18000 | 2600 | 1530 | 74 | 36000 |
| 2150A-5 | 24000 | 3900 | 2295 | 76 | 54000 |
| 2350A-5 | 27000 | 3900 | 2295 | 76 | 54000 |
| 3110A-5 | 36000 | 5200 | 3060 | 76 | 72000 |
| 3860A-5 | 44000 | 6500 | 3825 | 77 | 90000 |
| 4610A-5 | 53000 | 7800 | 4590 | 78 | 108000 |
| $U_N = 690\text{ V}$ | | | | | |
| 007A3-7 | 220 | 280 | 165 | 62 | 343 |

| Inverter unit type ACS880- 104-... | Power loss | Air flow | | Noise level | DC capacitance |
|--|------------|-------------------|----------------------|-------------|----------------|
| | W | m ³ /h | ft ³ /min | dB(A) | μF |
| 009A8-7 | 280 | 280 | 165 | 62 | 343 |
| 014A2-7 | 400 | 280 | 165 | 62 | 343 |
| 0018A-7 | 490 | 280 | 165 | 62 | 343 |
| 0022A-7 | 580 | 280 | 165 | 62 | 687 |
| 0027A-7 | 660 | 280 | 165 | 62 | 687 |
| 0035A-7 | 860 | 280 | 165 | 62 | 687 |
| 0042A-7 | 1000 | 280 | 165 | 62 | 687 |
| 0052A-7 | 1120 | 280 | 165 | 62 | 687 |
| 0062A-7 | 800 | 650 | 383 | 71 | 1500 |
| 0082A-7 | 1100 | 650 | 383 | 71 | 1500 |
| 0100A-7 | 1300 | 650 | 383 | 71 | 1500 |
| 0130A-7 | 1500 | 650 | 383 | 71 | 3000 |
| 0140A-7 | 1800 | 650 | 383 | 71 | 3000 |
| 0190A-7 | 2500 | 650 | 383 | 71 | 3000 |
| 0220A-7 | 2800 | 940 | 553 | 72 | 4500 |
| 0270A-7 | 3300 | 940 | 553 | 72 | 4500 |
| 0340A-7 | 5200 | 1300 | 765 | 72 | 6000 |
| 0410A-7 | 6100 | 1300 | 765 | 72 | 6000 |
| 0530A-7 | 7900 | 1300 | 765 | 72 | 9000 |
| 0600A-7 | 9000 | 1300 | 765 | 72 | 9000 |
| 0800A-7 | 12000 | 2600 | 1530 | 74 | 12000 |
| 1030A-7 | 15000 | 2600 | 1530 | 74 | 18000 |
| 1170A-7 | 18000 | 2600 | 1530 | 74 | 18000 |
| 1540A-7 | 23000 | 3900 | 2295 | 76 | 27000 |
| 1740A-7 | 26000 | 3900 | 2295 | 76 | 27000 |
| 2300A-7 | 35000 | 5200 | 3060 | 76 | 36000 |
| 2860A-7 | 43000 | 6500 | 3825 | 77 | 45000 |
| 3420A-7 | 52000 | 7800 | 4590 | 78 | 54000 |

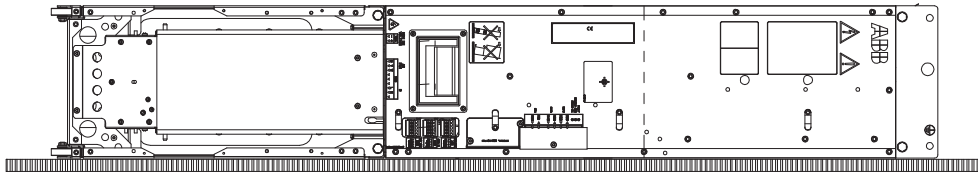
Allowable mounting orientations

The modules must be mounted upright unless other orientations are expressly allowed below.

Frames R6i...R7i: Installation on right-hand side (viewed from the front) allowed.



Frame R8i: Installation on right-hand side (viewed from the front) allowed.



Dimensions and weights

The weights of the ACS880-104 modules are shown below. For the dimensions, see chapter Dimension drawings.

| Inverter module type ACS880-104-... | | | Weight | |
|--|---|---|--------|-----|
| | | | kg | lbs |
| 004A8-3 006A0-3 008A0-3 | 003A6-5 004A8-5 006A0-5 008A0-5 | | 3 | 6.5 |
| 0011A-3 0014A-3 0018A-3 | 0011A-5 0014A-5 0018A-5 | | 5 | 11 |
| 0025A-3 0035A-3 0044A-3 0050A-3 | 0025A-5 0030A-5 0035A-5 0050A-5 | | 10 | 22 |
| | | 007A3-7 009A8-7 014A2-7 0018A-7 0022A-7 0027A-7 0035A-7 0042A-7 0052A-7 | 14 | 31 |
| 0061A-3 0078A-3 0094A-3 0100A-3 | 0061A-5 0078A-5 0094A-5 | | 17 | 38 |
| 0140A-3 0170A-3 0210A-3 0250A-3 | 0110A-5 0140A-5 0170A-5 0200A-5 0240A-5 | 0062A-7 0082A-7 0100A-7 0130A-7 0140A-7 0190A-7 | 38 | 84 |
| 0300A-3 0350A-3 | 0300A-5 0340A-5 | 0220A-7 0270A-7 | 39 | 86 |
| 0470A-3 0640A-3 0760A-3 0900A-3 | 0440A-5 0590A-5 0740A-5 0810A-5 | 0340A-7 0410A-7 0530A-7 0600A-7 | 125 | 275 |

Free space requirements

| Inverter module type ACS880-104-... | | | Above ⁽¹⁾ | | Below ⁽³⁾ | | Front ⁽⁴⁾ | | Left/Right ⁽⁵⁾ | |
|--|---|---|----------------------|--------------------|----------------------|------|----------------------|------|---------------------------|------|
| | | | mm | inch | mm | inch | mm | inch | mm | inch |
| 004A8-3 006A0-3 008A0-3 0011A-3 0014A-3 0018A-3 | 003A6-5 004A8-5 006A0-5 008A0-5 0011A-5 0014A-5 0018A-5 | | 150 ⁽²⁾ | 5.9 ⁽²⁾ | 125 | 4.9 | 0 | 0.0 | 2.5 | 0.1 |
| 0025A-3 0035A-3 0044A-3 0050A-3 | 0025A-5 0030A-5 0035A-5 0050A-5 | | 150 ⁽²⁾ | 5.9 ⁽²⁾ | 150 | 5.9 | 0 | 0.0 | 2.5 | 0.1 |
| 0061A-3 0078A-3 0094A-3 0100A-3 | 0061A-5 0078A-5 0094A-5 | | 150 ⁽²⁾ | 5.9 ⁽²⁾ | 175 | 6.9 | 0 | 0.0 | 2.5 | 0.1 |
| | | 007A3-7 009A8-7 014A2-7 0018A-7 0022A-7 0027A-7 0035A-7 0042A-7 0052A-7 | 200 | 7.9 | 150 | 5.9 | 0 | 0.0 | 10 | 0.4 |
| 0140A-3 0170A-3 0210A-3 0250A-3 0300A-3 0350A-3 | 0110A-5 0140A-5 0170A-5 0200A-5 0240A-5 0300A-5 0340A-5 | 0062A-7 0082A-7 0100A-7 0130A-7 0140A-7 0190A-7 0220A-7 0270A-7 | 150 | 5.9 | 150 | 5.9 | 0 | 0.0 | 25 | 1.0 |
| 0470A-3 0640A-3 0760A-3 0900A-3 | 0440A-5 0590A-5 0740A-5 0810A-5 | 0340A-7 0410A-7 0530A-7 0600A-7 | 200 | 7.9 | - | - | 10 | 0.4 | 10 | 0.4 |

1) As required by cooling air flow or 2) air guide

3) As required by cooling air flow and/or cabling

4) Additional free space may be required by options installed on control unit, and control wiring

5) As required for smooth installation

Typical power cable sizes

The tables below give current carrying capacity (I_{Lmax}) for aluminum and copper PVC/XLPE insulated cables. A correction factor $K = 0.70$ is used. Time const is the temperature time constant of the cable.

The cable sizing is based on max. 9 cables laid on the cable trays side by side, three ladder type trays one on top of the other, ambient temperature 30 °C (EN 60204-1 and IEC 60364-5-52).

| Aluminum cable | | PVC insulation Conductor temperature 70° | | XLPE insulation Conductor temperature 90° | |
|------------------------|---------|---|-----------------|--|-----------------|
| Size | ∅ [mm] | I_{Lmax} [A] | Time const. [s] | I_{Lmax} [A] | Time const. [s] |
| 3 × 35 + 10 Cu | 26 | 67 | 736 | 84 | 669 |
| 3 × 50 + 15 Cu | 29 | 82 | 959 | 102 | 874 |
| 3 × 70 + 21 Cu | 32 | 105 | 1182 | 131 | 1079 |
| 3 × 95 + 29 Cu | 38 | 128 | 1492 | 159 | 1376 |
| 3 × 120 + 41 Cu | 41 | 148 | 1776 | 184 | 1637 |
| 3 × 150 + 41 Cu | 44 | 171 | 2042 | 213 | 1881 |
| 3 × 185 + 57 Cu | 49 | 196 | 2422 | 243 | 2237 |
| 3 × 240 + 72 Cu | 54 | 231 | 2967 | 286 | 2740 |
| 3 × 300 + 88 Cu | 58 | 267 | 3478 | 330 | 3229 |
| 2 × (3 × 70 + 21 Cu) | 2 × 32 | 210 | 1182 | 262 | 1079 |
| 2 × (3 × 95 + 29 Cu) | 2 × 38 | 256 | 1492 | 318 | 1376 |
| 2 × (3 × 120 + 41 Cu) | 2 × 41 | 297 | 1776 | 368 | 1637 |
| 2 × (3 × 150 + 41 Cu) | 2 × 44 | 343 | 2042 | 425 | 1881 |
| 2 × (3 × 185 + 57 Cu) | 2 × 49 | 392 | 2422 | 486 | 2237 |
| 2 × (3 × 240 + 72 Cu) | 2 × 54 | 462 | 2967 | 572 | 2740 |
| 2 × (3 × 300 + 88 Cu) | 2 × 58 | 533 | 3478 | 659 | 3229 |
| 3 × (3 × 150 + 41 Cu) | 3 × 44 | 514 | 2042 | 638 | 1881 |
| 3 × (3 × 185 + 57 Cu) | 3 × 49 | 588 | 2422 | 728 | 2237 |
| 3 × (3 × 240 + 72 Cu) | 3 × 54 | 693 | 2967 | 859 | 2740 |
| 3 × (3 × 300 + 88 Cu) | 3 × 58 | 800 | 3478 | 989 | 3229 |
| 4 × (3 × 185 + 57 Cu) | 4 × 49 | 784 | 2422 | 971 | 2237 |
| 4 × (3 × 240 + 72 Cu) | 4 × 54 | 924 | 2967 | 1145 | 2740 |
| 4 × (3 × 300 + 88 Cu) | 4 × 58 | 1067 | 3478 | 1319 | 3229 |
| 5 × (3 × 185 + 57 Cu) | 5 × 49 | 980 | 2422 | 1214 | 2237 |
| 5 × (3 × 240 + 72 Cu) | 5 × 54 | 1155 | 2967 | 1431 | 2740 |
| 5 × (3 × 300 + 88 Cu) | 5 × 58 | 1333 | 3478 | 1648 | 3229 |
| 6 × (3 × 240 + 72 Cu) | 6 × 54 | 1386 | 2967 | 1718 | 2740 |
| 6 × (3 × 300 + 88 Cu) | 6 × 58 | 1600 | 3478 | 1978 | 3229 |
| 7 × (3 × 240 + 72 Cu) | 7 × 54 | 1617 | 2967 | 2004 | 2740 |
| 7 × (3 × 300 + 88 Cu) | 7 × 58 | 1867 | 3478 | 2308 | 3229 |
| 8 × (3 × 240 + 72 Cu) | 8 × 54 | 1848 | 2967 | 2290 | 2740 |
| 8 × (3 × 300 + 88 Cu) | 8 × 58 | 2133 | 3478 | 2637 | 3229 |
| 9 × (3 × 240 + 72 Cu) | 9 × 54 | 2079 | 2967 | 2577 | 2740 |
| 9 × (3 × 300 + 88 Cu) | 9 × 58 | 2400 | 3478 | 2967 | 3229 |
| 10 × (3 × 240 + 72 Cu) | 10 × 54 | 2310 | 2967 | 2867 | 2740 |
| 10 × (3 × 300 + 88 Cu) | 10 × 58 | 2667 | 3478 | 3297 | 3229 |

| Copper cable | | PVC insulation Conductor temperature 70° | | XLPE insulation Conductor temperature 90° | |
|---------------------|--------|---|-----------------|--|-----------------|
| Size | ∅ [mm] | I _{Lmax} [A] | Time const. [s] | I _{Lmax} [A] | Time const. [s] |
| 3 × 1.5 + 1.5 | 13 | 13 | 85 | 16 | 67 |
| 3 × 2.5 + 2.5 | 14 | 18 | 121 | 23 | 88 |
| (3 × 4 + 4) | 16 | 24 | 175 | 30 | 133 |
| 3 × 6 + 6 | 18 | 30 | 251 | 38 | 186 |
| 3 × 10 + 10 | 21 | 42 | 359 | 53 | 268 |
| 3 × 16 + 16 | 23 | 56 | 514 | 70 | 391 |
| 3 × 25 + 16 | 24 | 71 | 791 | 89 | 598 |
| 3 × 35 + 16 | 26 | 88 | 1000 | 110 | 760 |
| 3 × 50 + 25 | 29 | 107 | 1308 | 134 | 990 |
| 3 × 70 + 35 | 32 | 137 | 1613 | 171 | 1230 |
| 3 × 95 + 50 | 38 | 167 | 2046 | 209 | 1551 |
| 3 × 120 + 70 | 41 | 193 | 2441 | 241 | 1859 |
| 3 × 150 + 70 | 44 | 223 | 2820 | 279 | 2139 |
| 3 × 185 + 95 | 50 | 255 | 3329 | 319 | 2525 |
| 3 × 240 + 120 | 55 | 301 | 4073 | 376 | 3099 |
| 3 × 300 + 150 | 58 | 348 | 4779 | 435 | 3636 |
| 2 × (3 × 70 + 35) | 2 × 32 | 274 | 1613 | 342 | 1230 |
| 2 × (3 × 95 + 50) | 2 × 38 | 334 | 2046 | 418 | 1551 |
| 2 × (3 × 120 + 70) | 2 × 41 | 386 | 2441 | 482 | 1859 |
| 2 × (3 × 150 + 70) | 2 × 44 | 446 | 2820 | 558 | 2139 |
| 2 × (3 × 185 + 95) | 2 × 50 | 510 | 3329 | 638 | 2525 |
| 2 × (3 × 240 + 120) | 2 × 55 | 602 | 4073 | 752 | 3099 |
| 2 × (3 × 300 + 150) | 2 × 58 | 696 | 4779 | 869 | 3636 |
| 3 × (3 × 120 + 70) | 3 × 41 | 579 | 2441 | 723 | 1859 |
| 3 × (3 × 150 + 70) | 3 × 44 | 669 | 2820 | 837 | 2139 |
| 3 × (3 × 185 + 95) | 3 × 50 | 765 | 3329 | 957 | 2525 |
| 3 × (3 × 240 + 120) | 3 × 55 | 903 | 4073 | 1128 | 3099 |
| 3 × (3 × 300 + 150) | 3 × 58 | 1044 | 4779 | 1304 | 3636 |
| 4 × (3 × 150 + 70) | 4 × 44 | 892 | 2820 | 1116 | 2139 |
| 4 × (3 × 185 + 95) | 4 × 50 | 1020 | 3329 | 1276 | 2525 |
| 4 × (3 × 240 + 120) | 4 × 55 | 1204 | 4073 | 1504 | 3099 |
| 4 × (3 × 300 + 150) | 4 × 58 | 1391 | 4779 | 1304 | 3636 |
| 5 × (3 × 185 + 95) | 5 × 50 | 1275 | 3329 | 1595 | 2525 |
| 5 × (3 × 240 + 120) | 5 × 55 | 1505 | 4073 | 1880 | 3099 |
| 5 × (3 × 300 + 150) | 5 × 58 | 1739 | 4779 | 2173 | 3636 |
| 6 × (3 × 185 + 95) | 6 × 50 | 1530 | 3329 | 1914 | 2525 |
| 6 × (3 × 240 + 120) | 6 × 55 | 1806 | 4073 | 2256 | 3099 |
| 6 × (3 × 300 + 150) | 6 × 58 | 2087 | 4779 | 2608 | 3636 |
| 7 × (3 × 240 + 120) | 7 × 55 | 2107 | 4073 | 2632 | 3099 |
| 7 × (3 × 300 + 150) | 7 × 58 | 2435 | 4779 | 3043 | 3636 |
| 8 × (3 × 240 + 120) | 8 × 55 | 2408 | 4073 | 3008 | 3099 |
| 8 × (3 × 300 + 150) | 8 × 58 | 2783 | 4779 | 3477 | 3636 |

Input power (DC) connection

| | |
|-------------------------------------|--|
| Voltage (U_1) | <p>ACS880-104-xxxx-3: 513...566 V DC. This is indicated in the type designation label as typical input voltage level (566 V DC).</p> <p>ACS880-104-xxxx-5: 513...707 V DC. This is indicated in the type designation label as typical input voltage levels (566/679/707 V DC).</p> <p>ACS880-104-xxxx-7: 709...976 V DC. This is indicated in the type designation label as typical input voltage levels (742/849/976 V DC).</p> |
| Drive AC supply network type | TN (grounded) and IT (ungrounded) systems up to 690 V AC, corner-grounded systems up to 600 V AC |
| Input terminals | <p><u>Frame R1i</u></p> <p>UDC+, UDC–: 0.25...4 mm², 0.5 ... 0.6 N·m (4.4 ...5.3 lbf·in)</p> <p>PE: 1.5 N·m (13 lbf·in)</p> <p><u>Frame R2i</u></p> <p>UDC+, UDC–: 0.5 ... 6 mm², 1.2 ... 1.5 N·m (10.6 ... 13.3 lbf·in)</p> <p>PE: 1.5 N·m (13 lbf·in)</p> <p><u>Frames R3i, R4i and R5i</u></p> <p>UDC+, UDC–: 6...70 mm². Allen screw torque 15 N·m (11 lbf·ft), connection post torque 4 N·m (30 lbf·in). Other conductor sizes can be used by replacing the original lug with a suitable crimp ring terminal.</p> <p>PE: Screw size M5, torque 3 N·m (25 lbf·in)</p> <p>Connector cover screws: Torque 3 N·m (25 lbf·in)</p> <p><u>Frames R6i and R7i</u></p> <p>See chapter <i>Dimension drawings (page 339)</i>, and section <i>One R6i/R7i module in a 400 mm wide Rittal VX25 enclosure (page 97)</i></p> <p><u>Frame R8i and multiples</u></p> <p>M12, maximum intrusion into module 20 mm (0.8"). See also chapter <i>Dimension drawings (page 339)</i>, and section <i>One R8i module in a 400 mm wide Rittal VX25 enclosure (page 110)</i></p> |

Motor (AC) connection

| | |
|-------------------------------------|---|
| Motor types | Asynchronous AC induction motors, permanent magnet synchronous motors and AC induction servomotors |
| Voltage (U_2) | <p>3-phase symmetrical, U_{max} at field weakening point:</p> <p>ACS880-104-xxxx-3: 0...400 V AC. The maximum value (400 V) is a typical drive input voltage level shown on the type designation label of the supply unit corresponding to 380...415 V AC.</p> <p>ACS880-104-xxxx-5: 0...400/480/500 V AC. The maximum values (400/480/500 V) are typical drive input voltage levels shown on the type designation label of the supply unit corresponding to 380...500 V AC.</p> <p>ACS880-104-xxxx-7: 0...525/600/690 V AC. The maximum values (525/600/690 V) are typical drive input voltage levels shown on the type designation label of the supply unit corresponding to 525...690 V AC.</p> |
| Frequency (f_2) | <p>0...500 Hz, except</p> <p>0...120 Hz with sine output filters (option +E206)</p> <p>0...120 Hz for frames R1i...R5i with du/dt filters (option +E205)</p> <p>0...200 Hz for frames R6i and R7i with du/dt filters (option +E205)</p> <p>For higher operational output frequencies, please contact your local ABB representative.</p> <p>Operation above 150 Hz may require type-specific derating. For more information, contact your local ABB representative.</p> |

Current See section *Ratings*.

Switching frequency Frames R1i...R4i: 4.5 kHz (typical)
 Frames R5i...R8i: 3 kHz (typical)
 The switching frequency can vary per frame and voltage. For exact values, please contact your local ABB representative.

Maximum recommended motor cable length *Frames R1i...R2i: 150 m (492 ft)
 *Frames R3i...R7i: 300 m (984 ft)
 Frame R8i and multiples: 500 m (1640 ft)
 *Tested with 100 m (328 ft) for EMC Category C3. See standards and markings information in *Electrical planning instructions for ACS880 multidrive cabinets and modules* (3AUA0000102324 [English]).

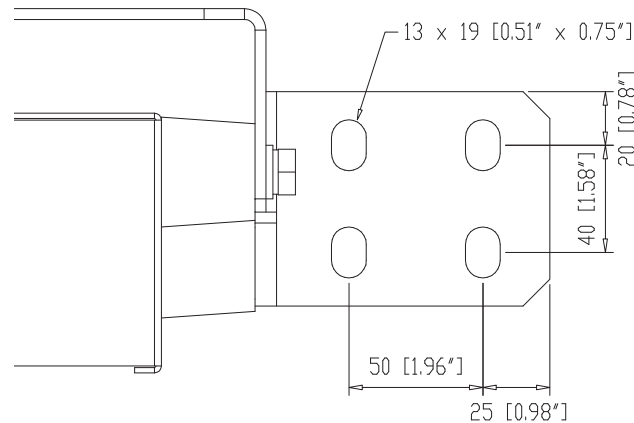
Note: Longer cables cause a motor voltage decrease which limits the available motor power. The decrease depends on the motor cable length and characteristics. Contact ABB for more information. Note that a sine filter (optional) at the drive output also causes a voltage decrease.

Output terminals (Frame R1i) U2, V2, W2: 0.25 ... 4 mm², 0.5 ... 0.6 N·m (4.4 ... 5.3 lbf·in)
 Ground: 1.5 N·m (13 lbf·in)

Output terminals (Frame R2i) U2, V2, W2: 0.5 ... 6 mm², 1.2 ... 1.5 N·m (10.6 ... 13.3 lbf·in)
 Ground: 1.5 N·m (13 lbf·in)

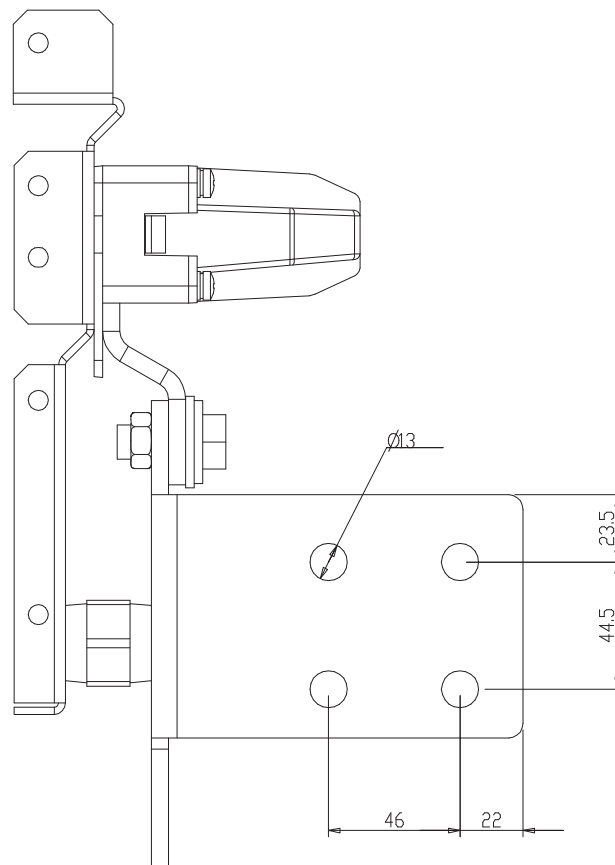
Output terminals (Frames R3i...R5i) U2, V2, W2: 6 ... 70 mm². Allen screw torque 15 N·m (11 lbf·ft), connection post torque 4 N·m (30 lbf·in). Other conductor sizes can be used by replacing the original lug with a suitable crimp ring terminal.
 Ground: M5, torque 3 N·m (25 lbf·in)
 Connector cover screws: Torque 3 N·m (25 lbf·in)

Output terminals (Frames R6i and R7i)–
 Side view



Screw size: M12 or ½". Tightening torque: 70 N·m (52 lbf·ft)

Output terminals (Frame R8i) – Side view



Busbars to quick connector: M12. Torque: 50 N·m (37 lbf·ft)
 Busbars to support insulators: M8. Torque: 9 N·m (6.5 lbf·ft)
 Cables to busbars: M12 or 1/2". Torque: 70 N·m (52 lbf·ft)

Control connections

See chapter [Control units of the drive \(page 297\)](#).

Efficiency

Approximately 98% at nominal power level

Degree of protection

Frames R1i...R5i: IP20

Frames R6i...R8i: IP00

Optical components

The specifications of the optic cable are as follows:

- Storage temperature: -55 ... +85 °C
- Installation temperature: -20 ... +70 °C
- Maximum short-term tensile force: 50 N
- Minimum short-term bend radius: 25 mm
- Minimum long-term bend radius: 35 mm
- Maximum long-term tensile load: 1 N

- Flexing: Max. 1000 cycles

ABB drive products in general utilize 5 and 10 MBd (megabaud) optical components from Avago Technologies' Versatile Link range. Note that the optical component type is not directly related to the actual communication speed.

Note:

The optical components (transmitter and receiver) on a fiber optic link must be of the same type.

Plastic optical fiber (POF) cables can be used with both 5 MBd and 10 MBd optical components. 10 MBd components also enable the use of Hard Clad Silica (HCS®) cables, which allow longer connection distances thanks to their lower attenuation. HCS® cables cannot be used with 5 MBd optical components.

The maximum lengths of fiber optic links for POF and HCS® cables are 20 and 200 meters respectively.

Ambient conditions

Environmental limits for the drive system are given below. The drive system is to be used in a heated, indoor, controlled environment.

| | Operation installed for stationary use | Storage in the protective package | Transportation in the protective package |
|--|---|---|--|
| Installation site altitude above sea level | 1. 0...4000 m (13123 ft) 2. 0...2000 m (6561 ft) Output derated above 1000 m (3281 ft). | - | - |
| | 1. <u>Frames R1i...R8i</u> : Neutral-grounded TN and TT network systems, non-corner-grounded IT network systems <u>Frame R8j</u> : Corner-grounded TN, TT and IT network systems up to 600 V 2. <u>Frames R1i...R7i</u> : Corner-grounded TN, TT and IT network systems up to 500 V | | |
| Air temperature | 0 ... +40 °C (+32 ... +104 °F). No condensation allowed. Output derated in the range +40 ... +50 °C (+104 ... +122 °F). See section Ambient temperature derating. | -40 to +70 °C (-40 to +158 °F) | -40 to +70 °C (-40 to +158 °F) |
| Relative humidity | 5 to 95% | Max. 95% | Max. 95% |
| | No condensation allowed. Maximum allowed relative humidity is 60% in the presence of corrosive gases. | | |
| Contamination | IEC/EN 60721-3- 3:2002: Classification of environmental conditions - Part 3-3: Classification of groups of environmental parameters and their severities - Stationary use of weather protected locations | IEC 60721-3-1 | IEC 60721-3-2 |
| Chemical gases | Class 3C2 | Class 1C2 | Class 2C2 |

| | | | |
|--|---|---|---|
| Solid particles | Class 3S1. No conductive dust allowed. | Class 1S3 (packing must support this, otherwise 1S2) | Class 2S2 |
| Vibration IEC 61800-5-1 IEC 60068-2-6:2007, EN 60068-2-6:2008 Environmental testing Part 2: Tests - Test Fc: Vibration (sinusoidal) | 10...57 Hz: max. 0.075 mm amplitude 58...150 Hz: 1 g Tested in ABB multdrive cabinet (ACS880-x07) according to: Max. 1 mm (0.04 in.) (5 ... 13.2 Hz), max. 0.7 g (13.2 ... 100 Hz) sinusoidal | For modules and cabinets in packages: IEC/EN 60721-3-1:1997 Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 1: Storage | For cabinet package: IEC/EN 60721-3-1:1997 Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 2: Transportation |
| Shock IEC 60068-2-27:2008, EN 60068-2-27:2009 Environmental testing - Part 2-27: Tests - Test Ea and guidance: Shock | Not allowed | With packing max. 100 m/s ² (330 ft./s ²) 11 ms | With packing max. 100 m/s ² (330 ft./s ²) 11 ms |

Materials

■ Module housing

PC/ABS 3 mm, color NCS 1502-Y (RAL 9002 / PMS 1C Cool Gray) and RAL 9017 (frames R1i...R5i)

PC+10%GF 3.0 mm, Color RAL 9017 (in frames R1i...R3i only)

Hot-dip zinc coated steel sheet 1.5 to 3.0 mm, thickness of coating 20 micrometers, color NCS 1502-Y

■ Package

Frames R1i...R5i: Corrugated cardboard. Foam cushions: PP-E. Plastic wrapping: PE-LD. Strapping: PP.

Frames R6i and up: Plywood base, corrugated cardboard, PET straps.

■ Disposal

The main parts of the drive can be recycled to preserve natural resources and energy. Product parts and materials should be dismantled and separated.

Generally all metals, such as steel, aluminum, copper and its alloys, and precious metals can be recycled as material. Plastics, rubber, cardboard and other packaging material can be used in energy recovery. Printed circuit boards and large electrolytic capacitors need selective treatment according to IEC 62635 guidelines. To aid recycling, plastic parts are marked with an appropriate identification code.

Contact your local ABB distributor for further information on environmental aspects and recycling instructions for professional recyclers. End of life treatment must follow international and local regulations.

Standards

See *Electrical planning instructions for ACS880 multidrive cabinets and modules* (3AUA0000102324 [English]).

Markings

See *Electrical planning instructions for ACS880 multidrive cabinets and modules* (3AUA0000102324 [English]).

Auxiliary power consumptions

■ Control equipment

| Device | U_N | f Hz | I_{cont} A | I_{start} A | P_{cont} W |
|--|----------------------|-----------|-----------------|------------------|-----------------|
| ZCU/BCU control unit | 24 V DC (+10%) | - | 2.0 | - | 48 |
| R8i module: internal electronics | 230 V AC (+15%/-20%) | 50/60 | 0.45 | - | 105 |
| | 115 V AC (+15%/-20%) | 50/60 | 0.9 | - | 105 |
| R8i module: heating element (option +C183) | 230 V AC | 50/60 | - | - | 40 |
| | 115 V AC | 60 | - | - | 40 |
| R8i module: direct-on-line fan (option +C188) | 400 V AC | 50 | 1.5 | 3.0 | - |
| | | 60 | 1.9 | 3.8 | - |
| | 320 V AC | 60 | 1.5 | 4.4 | - |
| Charging controller | 230 V AC (+10%/-15%) | 50/60 | 0.04 | - | - |
| | 115 V AC (+10%/-15%) | 50/60 | 0.08 | - | - |
| PDAL2 switch/disconnector inter- lock coil | 230 V AC (+10%/-30%) | 50 | - | - | 6.5 |
| | 240 V AC (+10%/-30%) | 60 | - | - | 6.5 |
| | 110 V AC (+10%/-30%) | 60 | - | - | 6.5 |

■ Cabinet cooling fans

| Frame size | Type | U_N V AC | f Hz | I_{cont} A |
|--------------------------------|--------------------------------|---------------|-----------|-----------------|
| R1i...R5i (IP20/IP42 roof fan) | R2E225-RA92-17, R3G225-RH17-23 | 230 | 50 | 0.7 |
| | | | 60 | 0.9 |
| | R2E225-BD40-65 | 115 | 60 | 1.8 |
| R1i...R8i (IP54 roof fan) | RB4C-355/170 | 230 | 50 | 1.1 |
| | | | 60 | 1.45 |
| | CRBB/4-400/188 | 230 | 50 | 2.3 |
| | | | 60 | 3 |
| | RH35M-4EK.4F.1R | 115 | 50 | 3.1 |
| | | | 60 | 3.9 |
| RH40M-4EK.4I.1R | 115 | 50 | 5.5 | |
| | | 60 | 6.3 | |

■ Definitions

| | |
|-------------|----------------------------------|
| f | Supply frequency |
| I_{cont} | Continuous current consumption |
| I_{start} | Calculated load current at start |
| P_{cont} | Continuous input power |
| U_N | Voltage requirement |

Fuse data

■ Ferrules used with 400 V and 500 V units

| Rating A rms | Class | Example | Power loss at I_n | Clearing I^2t | | U_n |
|-----------------|-------|-------------------------------|---------------------|------------------|-----|-----------------------|
| | | | W | A ² s | V | V |
| 10 | aR | Bussmann FWP-10A14F | 4 | 22 | 660 | 660 (IEC) 700 (UL) |
| 15 | aR | Bussmann FWP-15A14F | 5.5 | 75 | 660 | |
| 20 | aR | Bussmann FWP-20A14F | 6 | 180 | 660 | |
| 25 | aR | Bussmann FWP-25A14F | 7 | 320 | 660 | |
| 32 | aR | Bussmann FWP-32A14F | 7.6 | 600 | 660 | |
| 50 | aR | Mersen 6,921 CP URQ 27x60/50 | 16 | 610 | 690 | 690 |
| 63 | aR | Mersen 6,921 CP URQ 27x60/63 | 21 | 860 | 690 | |
| 80 | aR | Mersen 6,921 CP URQ 27x60/80 | 24 | 1880 | 690 | |
| 100 | aR | Mersen 6,921 CP URQ 27x60/100 | 27 | 3210 | 690 | |
| 125 | aR | Mersen 6,921 CP URQ 27x60/125 | 30 | 6970 | 690 | |
| 160 | aR | Mersen 6,921 CP URQ 27x60/160 | 34 | 15000 | 690 | |
| 200 | aR | Mersen 6,921 CP URQ 27x60/200 | 38 | 30000 | 690 | |

■ Ferrules used with 690 V units

| Rating A rms | Class | Example | Power loss at I_n | Clearing I^2t | | U_n |
|-----------------|-------|------------------------------|---------------------|------------------|------|-------|
| | | | W | A ² s | V | V |
| 40 | aR | Mersen 1021 CP URB 27x60/40 | 17 | 450 | 1000 | 1000 |
| 100 | aR | Mersen 1021 CP URB 27x60/100 | 27 | 6000 | 1000 | |

■ Flush-end fuse blocks used with 400 V and 500 V units

| Rating A rms | Class | Example | Power loss at I_n | Clearing I^2t | | Size | U_n |
|-----------------|-------|-------------------|---------------------|------------------|-----|------|-----------------------|
| | | | W | A ² s | V | | V |
| 250 | aR | Bussmann 170M4409 | 55 | 21000 | 660 | 1 | 690 (IEC) 700 (UL) |
| 315 | aR | Bussmann 170M4410 | 58 | 42000 | 660 | | |
| 400 | aR | Bussmann 170M4412 | 65 | 91500 | 660 | | |
| 450 | aR | Bussmann 170M4413 | 70 | 120000 | 660 | | |
| 500 | aR | Bussmann 170M4414 | 72 | 170000 | 660 | | |
| 630 | aR | Bussmann 170M4416 | 80 | 350000 | 660 | | |
| 700 | aR | Bussmann 170M4417 | 85 | 465000 | 660 | | |
| 800 | aR | Bussmann 170M4418 | 95 | 725000 | 660 | | |
| 900 | aR | Bussmann 170M6413 | 120 | 670000 | 660 | 3 | |
| 1100 | aR | Bussmann 170M6415 | 130 | 1300000 | 660 | | |
| 1250 | aR | Bussmann 170M6416 | 140 | 1950000 | 660 | | |
| 1400 | aR | Bussmann 170M6417 | 155 | 2450000 | 660 | | |
| 1600 | aR | Bussmann 170M6419 | 160 | 3900000 | 660 | | |

■ Flush-end fuse blocks used with 690 V units

| Rating A rms | Class | Example | Power loss at I_n | Clearing I^2t | | Size | U_n |
|-----------------|-------|-------------------|---------------------|------------------|------|------|--------------------------|
| | | | W | A ² s | V | | V |
| 125 | aR | Bussmann 170M3392 | 35 | 9000 | 1000 | 1* | 690 (IEC) 700 (UL) |
| 160 | aR | Bussmann 170M4388 | 45 | 11500 | 1000 | 1 | |
| 200 | aR | Bussmann 170M4389 | 50 | 22500 | 1000 | | |
| 250 | aR | Bussmann 170M4390 | 60 | 4600 | 1000 | | |
| 315 | aR | Bussmann 170M4391 | 65 | 9000 | 1000 | | |
| 350 | aR | Bussmann 170M4392 | 70 | 125000 | 1000 | | |
| 400 | aR | Bussmann 170M4393 | 75 | 175000 | 1000 | | |
| 500 | aR | Bussmann 170M4395 | 85 | 340000 | 1000 | | |
| 630 | aR | Bussmann 170M6544 | 115 | 495000 | 1000 | 3 | 1250 (IEC), 1300 (UL) |
| 800 | aR | Bussmann 170M6546 | 125 | 995000 | 1000 | | 1100 (IEC) |
| 1000 | aR | Bussmann 170M6548 | 135 | 2150000 | 1000 | | 1000 (IEC) |
| 1100 | aR | Bussmann 170M6549 | 140 | 2800000 | 1000 | | 1000 (IEC) |

Tightening torques

Unless a tightening torque is specified in the text, the following torques can be used.

■ Electrical connections

| Size | Torque | Note |
|------|----------------------|--------------------------|
| M3 | 0.5 N·m (4.4 lbf-in) | Strength class 4.6...8.8 |
| M4 | 1 N·m (9 lbf-in) | Strength class 4.6...8.8 |
| M5 | 4 N·m (35 lbf-in) | Strength class 8.8 |
| M6 | 9 N·m (6.6 lbf-ft) | Strength class 8.8 |
| M8 | 22 N·m (16 lbf-ft) | Strength class 8.8 |
| M10 | 42 N·m (31 lbf-ft) | Strength class 8.8 |
| M12 | 70 N·m (52 lbf-ft) | Strength class 8.8 |
| M16 | 120 N·m (90 lbf-ft) | Strength class 8.8 |

■ Mechanical connections

| Size | Max. torque | Note |
|------|----------------------|--------------------|
| M5 | 6 N·m (53 lbf-in) | Strength class 8.8 |
| M6 | 10 N·m (7.4 lbf-ft) | Strength class 8.8 |
| M8 | 24 N·m (17.7 lbf-ft) | Strength class 8.8 |

■ Insulation supports

| Size | Max. torque | Note |
|------|----------------------|--------------------|
| M6 | 5 N·m (44 lbf-in) | Strength class 8.8 |
| M8 | 9 N·m (6.6 lbf-ft) | Strength class 8.8 |
| M10 | 18 N·m (13.3 lbf-ft) | Strength class 8.8 |
| M12 | 31 N·m (23 lbf-ft) | Strength class 8.8 |

■ Cable lugs

| Size | Max. torque | Note |
|------|----------------------|--------------------|
| M8 | 15 N·m (11 lbf-ft) | Strength class 8.8 |
| M10 | 32 N·m (23.5 lbf-ft) | Strength class 8.8 |
| M12 | 50 N·m (37 lbf-ft) | Strength class 8.8 |

Disclaimers

■ **Generic disclaimer**

The manufacturer shall have no obligation with respect to any product which (i) has been improperly repaired or altered; (ii) has been subjected to misuse, negligence or accident; (iii) has been used in a manner contrary to the manufacturer's instructions; or (iv) has failed as a result of ordinary wear and tear.

■ **Cybersecurity disclaimer**

This product is designed to be connected to and to communicate information and data via a network interface. It is Customer's sole responsibility to provide and continuously ensure a secure connection between the product and Customer network or any other network (as the case may be). Customer shall establish and maintain any appropriate measures (such as but not limited to the installation of firewalls, application of authentication measures, encryption of data, installation of anti-virus programs, etc) to protect the product, the network, its system and the interface against any kind of security breaches, unauthorized access, interference, intrusion, leakage and/or theft of data or information. ABB and its affiliates are not liable for damages and/or losses related to such security breaches, any unauthorized access, interference, intrusion, leakage and/or theft of data or information.

11

Control units of the drive

Contents of this chapter

This chapter

- describes the connections of the control unit(s) used in the drive,
- contains the specifications of the inputs and outputs of the control unit(s).

General

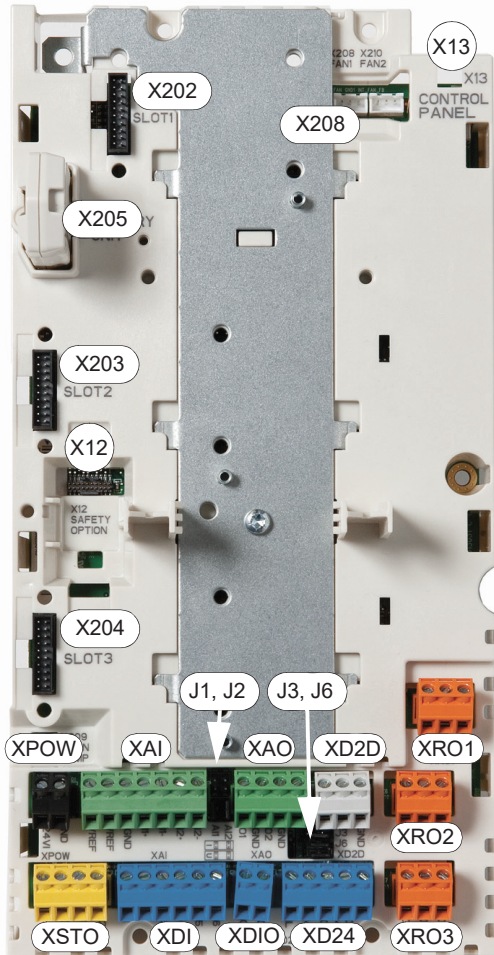
The ZCU-14 control unit is used with inverter module frame sizes R1i...R4i, R6i and R7i, while the ZCU-12 is used with frame size R5i. Both ZCU units consist of a ZCON control board contained in a plastic housing. The control unit is mounted on the inverter module.

The BCU-x2 control unit is used with frame size R8i and multiples. The BCU-x2 consists of a BCON-12 control board (and a BIOC-01 I/O connector board and power supply board) built in a metal housing. The control unit is connected to the inverter module(s) by fiber optic cables.

In this manual, the name "BCU-x2" represents the control unit types BCU-02, BCU-12 and BCU-22. These have a different number of power module connections (2, 7 and 12 respectively) but are otherwise similar.

ZCU-12 layout and connections

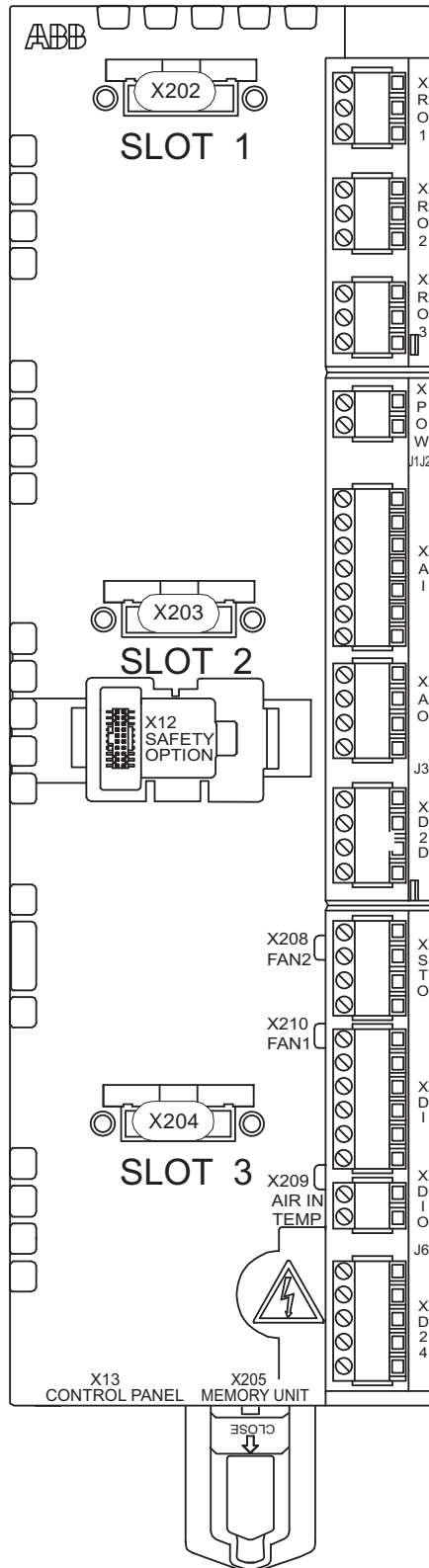
The layout and connections of the ZCU-12 are shown below.



| | Description |
|--------|--|
| XAI | Analog inputs |
| XAO | Analog outputs |
| XDI | Digital inputs |
| XDIO | Digital input/outputs |
| XD24 | Digital input interlock (DIIL) and +24 V output |
| XD2D | Drive-to-drive link |
| XPOW | External power input |
| XRO1 | Relay output RO1 |
| XRO2 | Relay output RO2 |
| XRO3 | Relay output RO3 |
| XSTO | Safe torque off connection |
| X12 | Connection for FSO-xx safety functions module |
| X13 | Control panel connection |
| X202 | Option slot 1 |
| X203 | Option slot 2 |
| X204 | Option slot 3 |
| X205 | Memory unit connection (memory unit inserted in the picture) |
| J1, J2 | Voltage/Current selection jumpers (J1, J2) for analog inputs |
| J3 | Drive-to-drive link termination switch (J3) |
| J6 | Common digital input ground selection switch (J6) |

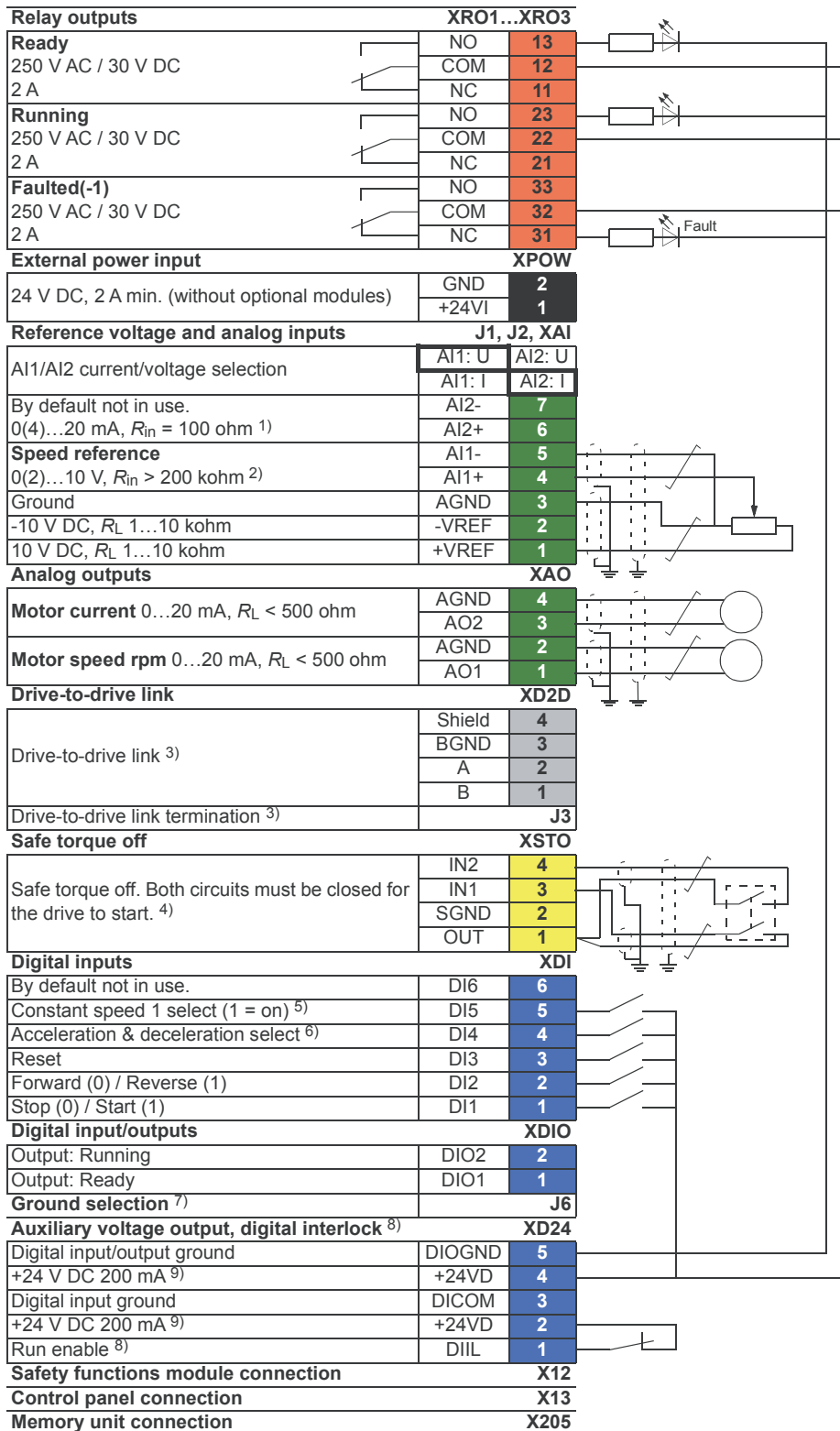
ZCU-14 layout and connections

The layout and connections of the ZCU-14 are shown below.



| | Description |
|--------|--|
| XPOW | External power input |
| XAI | Analog inputs |
| XAO | Analog outputs |
| XD2D | Drive-to-drive link |
| XRO1 | Relay output RO1 |
| XRO2 | Relay output RO2 |
| XRO3 | Relay output RO3 |
| XD24 | Digital input interlock (DIIL) and +24 V output |
| XDIO | Digital input/outputs |
| XDI | Digital inputs |
| XSTO | Safe torque off connection (inverter unit only). Note: This connection only acts as a true Safe torque off input when the ZCU is controlling an inverter unit. When the ZCU is controlling a supply unit, de-energizing the inputs will stop the unit but will not constitute a true safety function. |
| X12 | Connection for FSO-xx safety functions module (inverter unit only). |
| X13 | Control panel connection |
| X202 | Option slot 1 |
| X203 | Option slot 2 |
| X204 | Option slot 3 |
| X205 | Memory unit connection (memory unit inserted in the drawing) |
| J1, J2 | Voltage/Current selection jumpers (J1, J2) for analog inputs |
| J3 | Drive-to-drive link termination switch (J3) |
| J6 | Common digital input ground selection jumper (J6). |

Default I/O diagram of the inverter control unit (ZCU-14)

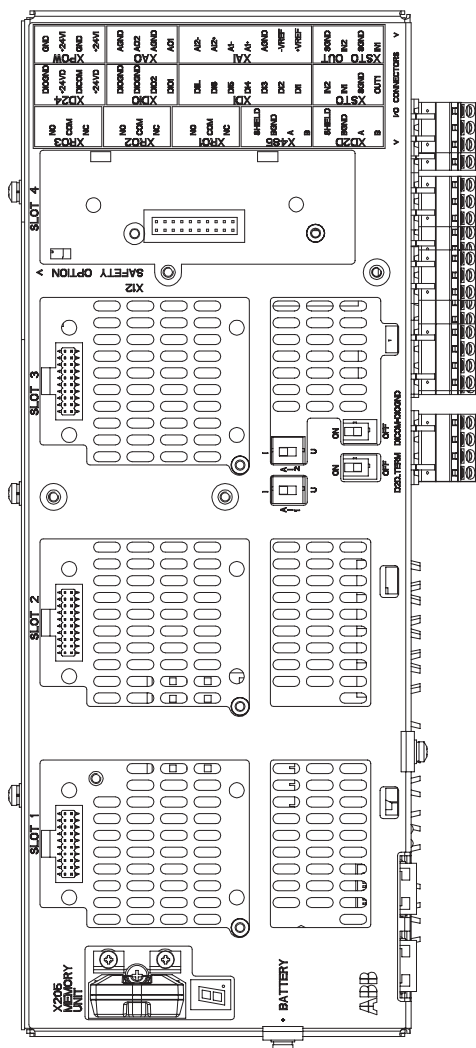


Notes:

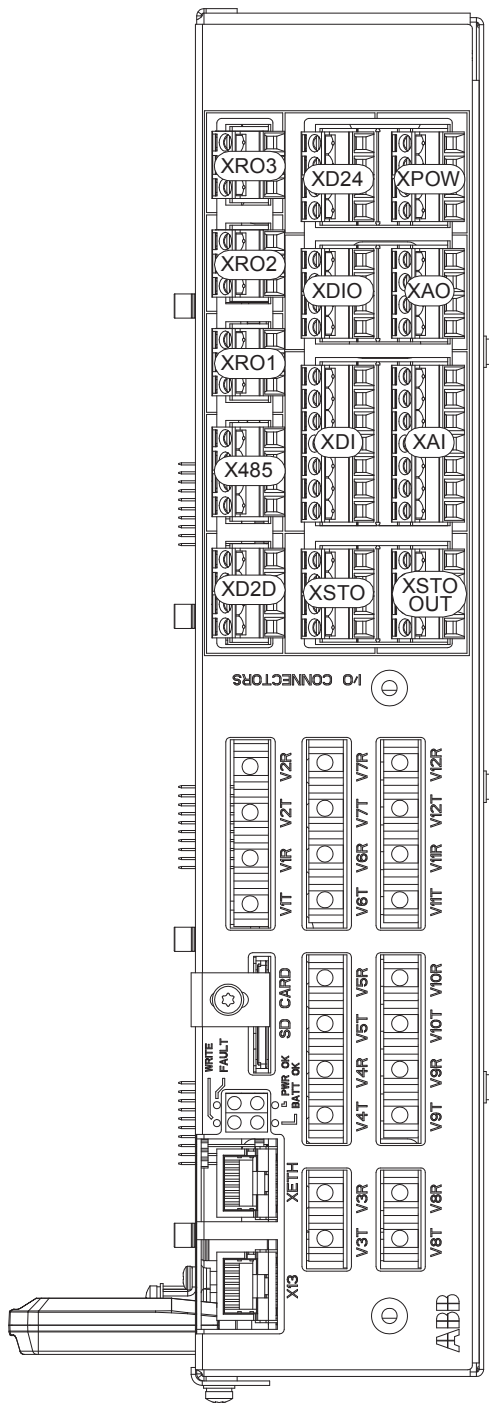
The wire size accepted by all screw terminals (for both stranded and solid wire) is 0.5 ... 2.5 mm² (24...12 AWG). The torque is 0.5 N·m (5 lbf·in).

- 1) Current [0(4)...20 mA, $R_{in} = 100 \text{ ohm}$] or voltage [0(2)...10 V, $R_{in} > 200 \text{ kohm}$] input selected by switch AI2. Change of setting requires reboot of control unit.
 - 2) Current [0(4)...20 mA, $R_{in} = 100 \text{ ohm}$] or voltage [0(2)...10 V, $R_{in} > 200 \text{ kohm}$] input selected by switch AI1. Change of setting requires reboot of control unit.
 - 3) See section [The XD2D connector \(page 306\)](#).
 - 4) See chapter [The Safe torque off function \(page 313\)](#).
 - 5) Constant speed 1 is defined by parameter 22.26.
 - 6) 0 = Acceleration/deceleration ramps defined by parameters 23.12/23.13 in use. 1 = Acceleration/deceleration ramps defined by parameters 23.14/23.15 in use.
 - 7) Determines whether DICOM is separated from DIOGND (ie. common reference for digital inputs floats; in practice, selects whether the digital inputs are used in current sinking or sourcing mode). See also [BCU-x2 ground isolation diagram \(page 311\)](#). DICOM=DIOGND ON: DICOM connected to DIOGND. OFF: DICOM and DIOGND separate.
 - 8) See section [DIIL input \(page 306\)](#).
 - 9) Total load capacity of these outputs is 4.8 W (200 mA at 24 V) minus the power taken by DIO1 and DIO2.
-

BCU-x2 control unit layout and connections



| | Description |
|--|---|
| I/O | I/O terminals (see following diagram) |
| SLOT 1 | I/O extension, encoder interface or fieldbus adapter module connection. (This is the sole location for an FDPI-02 diagnostics and panel interface.) |
| SLOT 2 | I/O extension, encoder interface or fieldbus adapter module connection |
| SLOT 3 | I/O extension, encoder interface, fieldbus adapter or FSO-xx safety functions module connection |
| SLOT 4 | RDCO-0x DDCS communication option module connection |
| X205 | Memory unit connection |
| BATTERY | Holder for real-time clock battery (BR2032) |
| A11 | Mode selector for analog input A11 (I = current, U = voltage) |
| A12 | Mode selector for analog input A12 (I = current, U = voltage) |
| D2D TERM | Termination switch for drive-to-drive link (D2D) |
| DICOM= DIOGND | Ground selection. Determines whether DICOM is separated from DIOGND (ie. the common reference for the digital inputs floats). See the ground isolation diagram. |
| 7-segment display | |
| Multicharacter indications are displayed as repeated sequences of characters | |
| | ("U" is indicated briefly before "o".) Control program running |
| | Control program startup in progress |
| | (Flashing) Firmware cannot be started. Memory unit missing or corrupted |
| | Firmware download from PC to control unit in progress |
| | At power-up, the display may show short indications of eg. "1", "2", "b" or "U". These are normal indications immediately after power-up. If the display ends up showing any other value than those described, it indicates a hardware failure. |

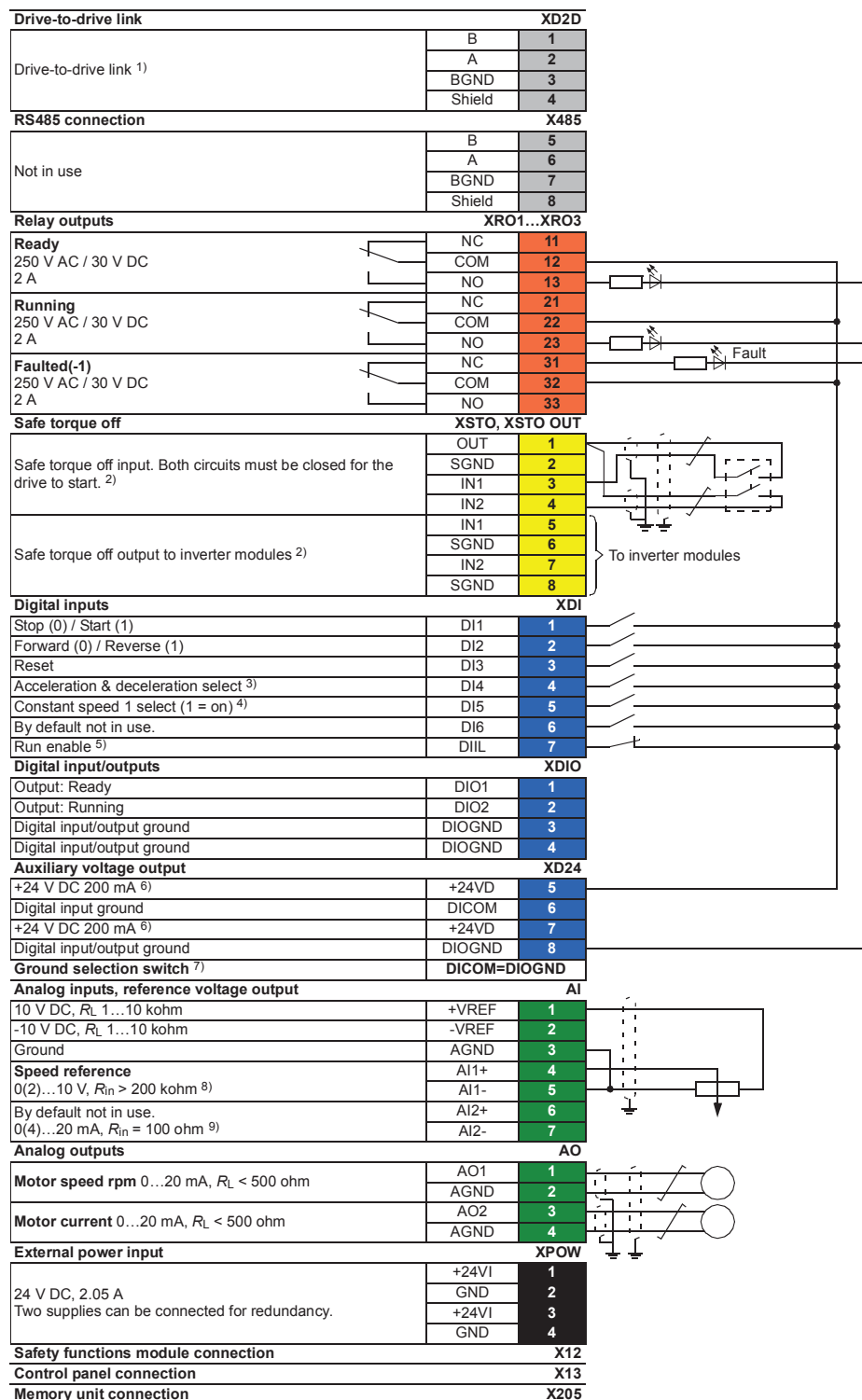


| | Description |
|-----------------------|--|
| XAI | Analog inputs |
| XAO | Analog outputs |
| XDI | Digital inputs, Digital input interlock (DIIL) |
| XDIO | Digital input/outputs |
| XD2D | Drive-to-drive link |
| XD24 | +24 V output (for digital inputs) |
| XETH | Ethernet port – Not in use |
| XPOW | External power input |
| XRO1 | Relay output RO1 |
| XRO2 | Relay output RO2 |
| XRO3 | Relay output RO3 |
| XSTO | Safe torque off connection (input signals) |
| XSTO OUT | Safe torque off connection (to inverter modules) |
| X12 | (On the opposite side) Connection for FSO-xx safety functions module (optional) |
| X13 | Control panel / PC connection |
| X485 | Not in use |
| V1T/V1R, V2T/V2R | Fiber optic connection to modules 1 and 2 (VxT = transmitter, VxR = receiver) |
| V3T/V3R ... V7T/V7R | Fiber optic connection to modules 3...7 (BCU-12/22 only) (VxT = transmitter, VxR = receiver) |
| V8T/V8R ... V12T/V12R | Fiber optic connection to modules 8...12 (BCU-22 only) (VxT = transmitter, VxR = receiver) |
| SD CARD | Data logger memory card for inverter module communication |
| BATT OK | Real-time clock battery voltage is higher than 2.8 V. If the LED is off when the control unit is powered, replace the battery. |
| FAULT | The control program has generated a fault. See the firmware manual of the supply/inverter unit. |
| PWR OK | Internal voltage supply is OK |
| WRITE | Writing to memory card in progress. Do not remove the memory card. |

Default I/O diagram of the inverter control unit (A41)

The diagram below shows the default I/O connections on the inverter control unit (A41), and describes the use of the connections in the inverter unit.

The wire size accepted by all screw terminals (for both stranded and solid wire) is 0.5 ... 2.5 mm² (24...12 AWG). The torque is 0.5 N·m (5 lbf·in).



Notes:

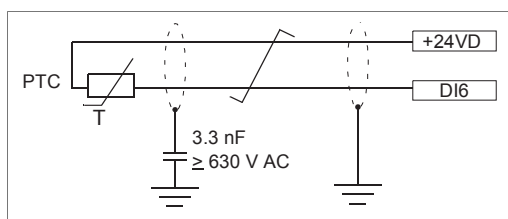
- 1) See section *The XD2D connector (page 306)*.
- 2) See chapter *The Safe torque off function (page 313)*.
- 3) 0 = Acceleration/deceleration ramps defined by parameters 23.12/23.13 in use. 1 = Acceleration/deceleration ramps defined by parameters 23.14/23.15 in use.
- 4) Constant speed 1 is defined by parameter 22.26.
- 5) See section *DIIL input (page 306)*.
- 6) Total load capacity of these outputs is 4.8 W (200 mA at 24 V) minus the power taken by DIO1 and DIO2.
- 7) Determines whether DICOM is separated from DIOGND (ie. common reference for digital inputs floats; in practice, selects whether the digital inputs are used in current sinking or sourcing mode). See also *BCU-x2 ground isolation diagram (page 311)*.
DICOM=DIOGND ON: DICOM connected to DIOGND. OFF: DICOM and DIOGND separate.
- 8) Current [0(4)...20 mA, $R_{in} = 100 \text{ ohm}$] or voltage [0(2)...10 V, $R_{in} > 200 \text{ kohm}$] input selected by switch AI1. Change of setting requires reboot of control unit.
- 9) Current [0(4)...20 mA, $R_{in} = 100 \text{ ohm}$] or voltage [0(2)...10 V, $R_{in} > 200 \text{ kohm}$] input selected by switch AI2. Change of setting requires reboot of control unit.

External power supply for the control unit (XPOW)

The control unit is powered from a 24 V DC, 2 A supply through terminal block XPOW. With a type BCU control unit, a second supply can be connected to the same terminal block for redundancy.

DI6 as a PTC sensor input

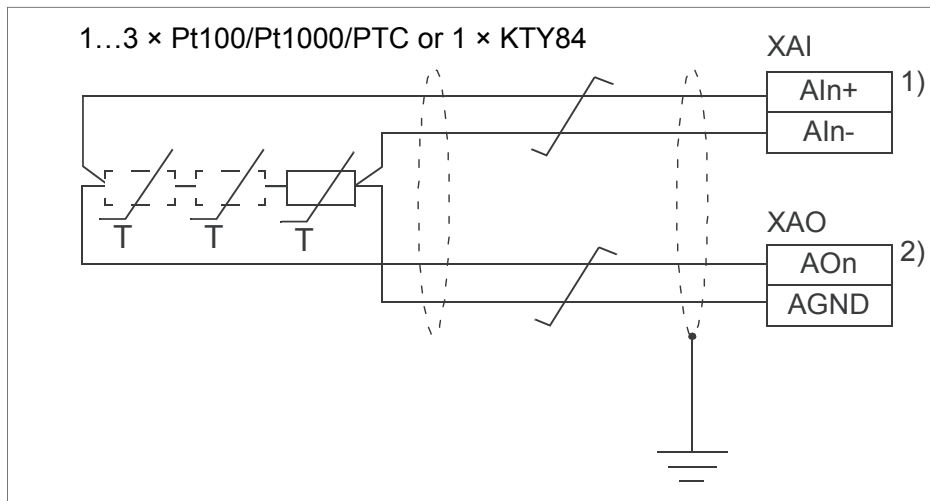
A PTC sensor can be connected to this input for motor temperature measurement as follows. The sensor can alternatively be connected to FEN-xx encoder interface module. At the sensor end of the cable, leave the shields unconnected or ground them indirectly via a high-frequency capacitor with a few nanofarads, for example 3.3 nF / 630 V AC. The shield can also be grounded directly at both ends if they are in the same ground line with no significant voltage drop between the end points. See the firmware manual of the inverter unit for parameter settings.

**WARNING!**

As the inputs pictured above are not insulated according to IEC 60664, the connection of the motor temperature sensor requires double or reinforced insulation between motor live parts and the sensor. If the assembly does not fulfill the requirement, the I/O board terminals must be protected against contact and must not be connected to other equipment or the temperature sensor must be isolated from the I/O terminals.

AI1 or AI2 as a Pt100, Pt1000, PTC or KTY84 sensor input

Three Pt100/Pt1000 sensors or one KTY84 sensor for motor temperature measurement can be connected between an analog input and output as shown below. (Alternatively, you can connect the KTY to an FIO-11 or FAIO-01 analog I/O extension module or FEN-xx encoder interface module.) At the sensor end of the cable, leave the shields unconnected or ground them indirectly via a high-frequency capacitor with a few nanofarads, for example 3.3 nF / 630 V. The shield can also be grounded directly at both ends if they are in the same ground line with no significant voltage drop between the end points.



1) Set the input type to voltage with the appropriate switch or jumper on the inverter control unit. Make the corresponding setting in the inverter unit control program in parameter group **12 Standard AI**.

2) Select the excitation mode in parameter group **13 Standard AO** of inverter unit control program.



WARNING!

As the inputs pictured above are not insulated according to IEC/EN 60664, the connection of the motor temperature sensor requires double or reinforced insulation between motor live parts and the sensor. If the assembly does not fulfill the requirement, the I/O board terminals must be protected against contact and must not be connected to other equipment or the temperature sensor must be isolated from the I/O terminals.

DIIL input

The DIIL input is used for the connection of safety circuits. The input is parametrized to stop the unit when the input signal is lost.

Note:

This input is NOT SIL or PI certified.

The XD2D connector

The XD2D connector provides an RS-485 connection that can be used for

- basic master/follower communication with one master drive and multiple followers,
- fieldbus control through the embedded fieldbus interface (EFB), or

- drive-to-drive (D2D) communication implemented by application programming.

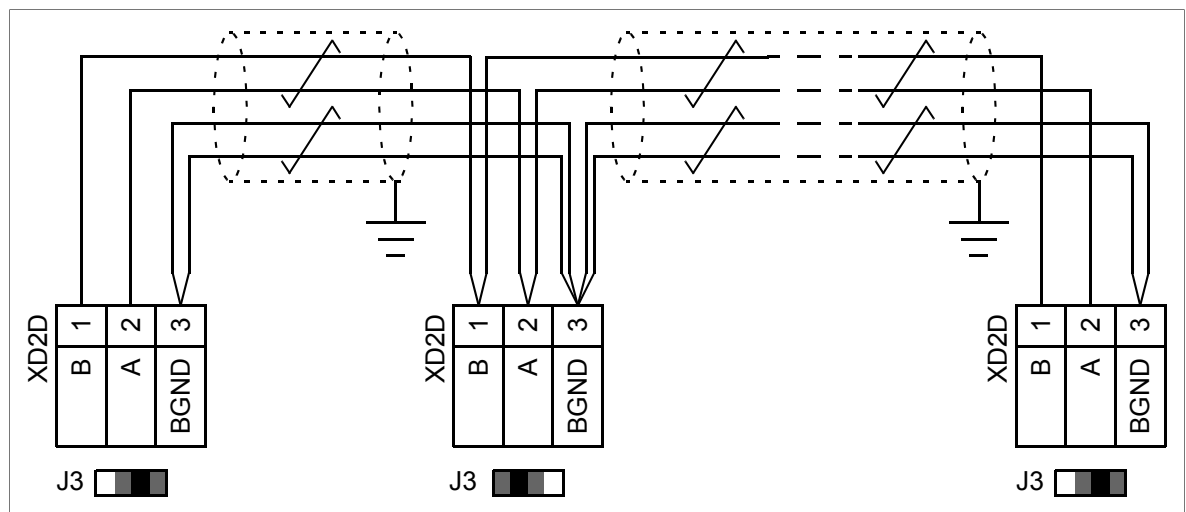
See the firmware manual of the drive for the related parameter settings.

Enable bus termination on the units at the ends of the drive-to-drive link. Disable bus termination on the intermediate units.

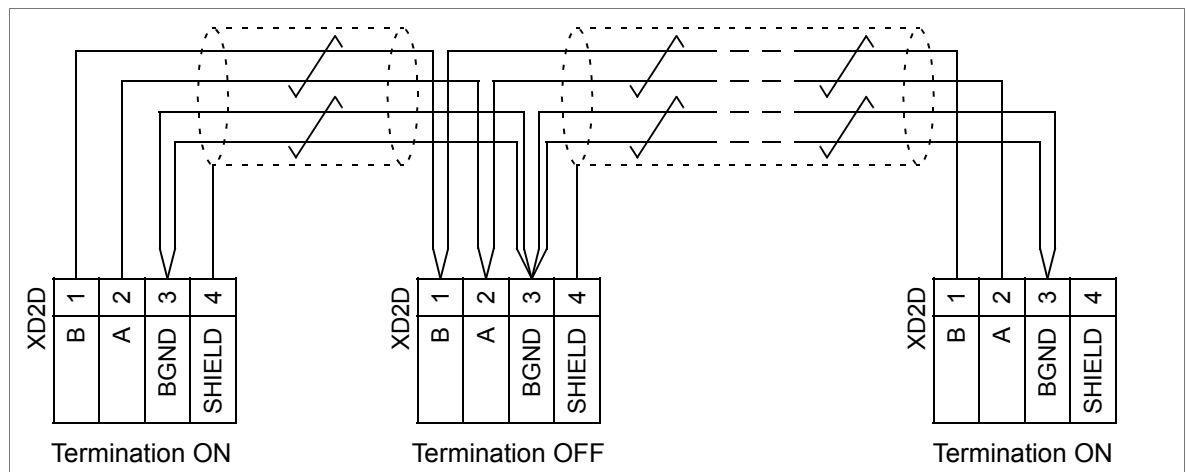
Use shielded twisted-pair cable with a twisted pair for data and a wire or another pair for signal ground (nominal impedance 100 to 165 ohm, for example Belden 9842) for the wiring. For best immunity, ABB recommends high quality cable. Keep the cable as short as possible. Avoid unnecessary loops and parallel runs near power cables such as motor cables.

The following diagram shows the wiring between control units.

ZCU-12



ZCU-14, BCU-x2



Safe torque off (XSTO, XSTO OUT)

See chapter [The Safe torque off function \(page 313\)](#).

Note:

The XSTO input only acts as a true Safe torque off input on the inverter control unit. De-energizing the IN1 and/or IN2 terminals of other units (supply, DC/DC converter, or brake unit) will stop the unit but not constitute a true safety function.

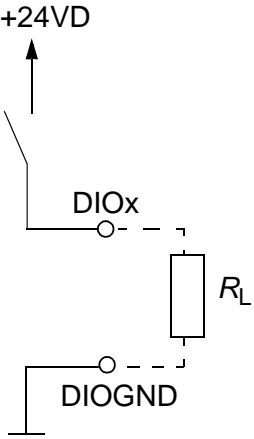
FSO-xx safety functions module connection (X12)

See the user manual of the FSO-xx module. Note that the FSO-xx safety functions module is not in use in supply (or DC/DC converter or brake) units.

SDHC memory card slot

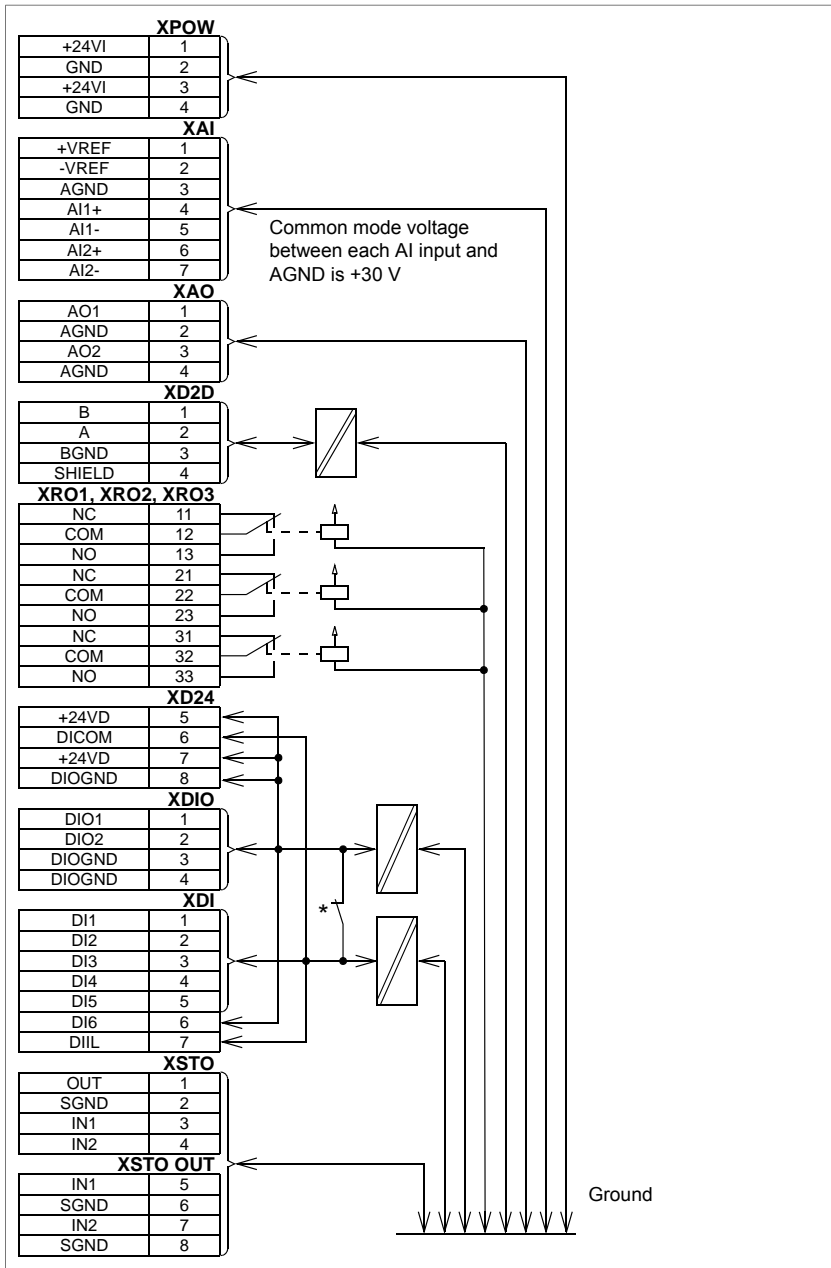
The BCU-x2 has an on-board data logger that collects real-time data from the power modules to help fault tracing and analysis. The data is stored onto the SDHC memory card inserted into the SD CARD slot and can be analyzed by ABB service personnel.

Connector data

| | |
|--|--|
| Power supply (XPOW) | Connector pitch 5 mm, wire size 2.5 mm ² 24 V ($\pm 10\%$) DC, 2 A External power input. Two supplies can be connected to the BCU-x2 for redundancy. |
| Relay outputs RO1...RO3 (XRO1...XRO3) | Connector pitch 5 mm, wire size 2.5 mm ² 250 V AC / 30 V DC, 2 A Protected by varistors |
| +24 V output (XD24:2 and XD24:4) | Connector pitch 5 mm, wire size 2.5 mm ² Total load capacity of these outputs is 4.8 W (200 mA / 24 V) minus the power taken by DIO1 and DIO2. |
| Digital inputs DI1...DI6 (XDI:1...XDI:6) | Connector pitch 5 mm, wire size 2.5 mm ² 24 V logic levels: "0" < 5 V, "1" > 15 V R_{in} : 2.0 kohm Input type: NPN/PNP (DI1...DI5), NPN (DI6) Hardware filtering: 0.04 ms, digital filtering up to 8 ms DI6 (XDI:6) can alternatively be used as an input for a PTC sensor. "0" > 4 kohm, "1" < 1.5 kohm. I_{max} : 15 mA (DI1...DI5), 5 mA (DI6) |
| Start interlock input DIIL (XD24:1 [ZCU-1x], XDI:7 [BCU-x2]) | Connector pitch 5 mm, wire size 2.5 mm ² 24 V logic levels: "0" < 5 V, "1" > 15 V R_{in} : 2.0 kohm Input type: NPN/PNP Hardware filtering: 0.04 ms, digital filtering up to 8 ms |
| Digital inputs/outputs DIO1 and DIO2 (XDIO:1 and XDIO:2) Input/output mode selection by parameters. DIO1 can be configured as a frequency input (0...16 kHz with hardware filtering of 4 microseconds) for 24 V level square wave signal (sinusoidal or other wave form cannot be used). DIO2 can be configured as a 24 V level square wave frequency output. See the firmware manual of the supply/inverter unit, parameter group 111/11. | Connector pitch 5 mm, wire size 2.5 mm ² <u>As inputs:</u> 24 V logic levels: "0" < 5 V, "1" > 15 V. R_{in} : 2.0 kohm. Filtering: 1 ms. <u>As outputs:</u> Total output current from +24VD is limited to 200 mA  |
| Reference voltage for analog inputs +VREF and -VREF (XAI:1 and XAI:2) | Connector pitch 5 mm, wire size 2.5 mm ² 10 V $\pm 1\%$ and -10 V $\pm 1\%$, R_{load} 1...10 kohm Maximum output current: 10 mA |

| | |
|---|---|
| Analog inputs AI1 and AI2 (XAI:4 ... XAI:7). Current/voltage input mode selection by jumpers (ZCU-1x) or switches (BCU-x2) | Connector pitch 5 mm, wire size 2.5 mm ² Current input: -20...20 mA, $R_{in} = 100 \text{ ohm}$ Voltage input: -10...10 V, $R_{in} > 200 \text{ kohm}$ Differential inputs, common mode range $\pm 30 \text{ V}$ Sampling interval per channel: 0.25 ms Hardware filtering: 0.25 ms, adjustable digital filtering up to 8 ms Resolution: 11 bit + sign bit Inaccuracy: 1% of full scale range |
| Analog outputs AO1 and AO2 (XAO) | Connector pitch 5 mm, wire size 2.5 mm ² 0...20 mA, $R_{load} < 500 \text{ ohm}$ Frequency range: 0...300 Hz (ZCU-1x), 0...500 Hz (BCU-x2) Resolution: 11 bit + sign bit Inaccuracy: 2% of full scale range |
| XD2D connector | Connector pitch 5 mm, wire size 2.5 mm ² Physical layer: RS-485 Termination by jumper (ZCU-1x) or switch (BCU-x2) |
| RS-485 connection (X485) (BCU-x2 only) | Connector pitch 5 mm, wire size 2.5 mm ² Physical layer: RS-485 |
| Safe torque off connection (XSTO) | Connector pitch 5 mm, wire size 2.5 mm ² Input voltage range: -3...30 V DC Logic levels: "0" < 5 V, "1" > 17 V. Note: For the unit to start, both connections must be "1". This applies to all control units (including drive, inverter, supply, brake, DC/DC converter etc. control units), but true Safe torque off functionality is only achieved through the XSTO connector of the drive/inverter control unit. Current consumption: 66 mA (continuous) per STO channel per R8i module EMC (immunity) according to IEC 61326-3-1 See also chapter The Safe torque off function (page 313) . |
| Safe torque off output (XSTO OUT) (BCU-x2 only) | Connector pitch 5 mm, wire size 2.5 mm ² To STO connector of inverter module. |
| Control panel connection (X13) | Connector: RJ-45 Cable length < 3 m |
| Ethernet connection (XETH) (BCU-x2 only) | Connector: RJ-45 This connection is not supported by the firmware. |
| SDHC memory card slot (SD CARD) (BCU-x2 only) | Memory card type: SDHC Maximum memory size: 4 GB |
| The terminals of the control unit fulfill the Protective Extra Low Voltage (PELV) requirements. The PELV requirements of a relay output are not fulfilled if a voltage higher than 48 V is connected to the relay output. | |

■ BCU-x2 ground isolation diagram



*Ground selector (DICOM=DIOGND) settings

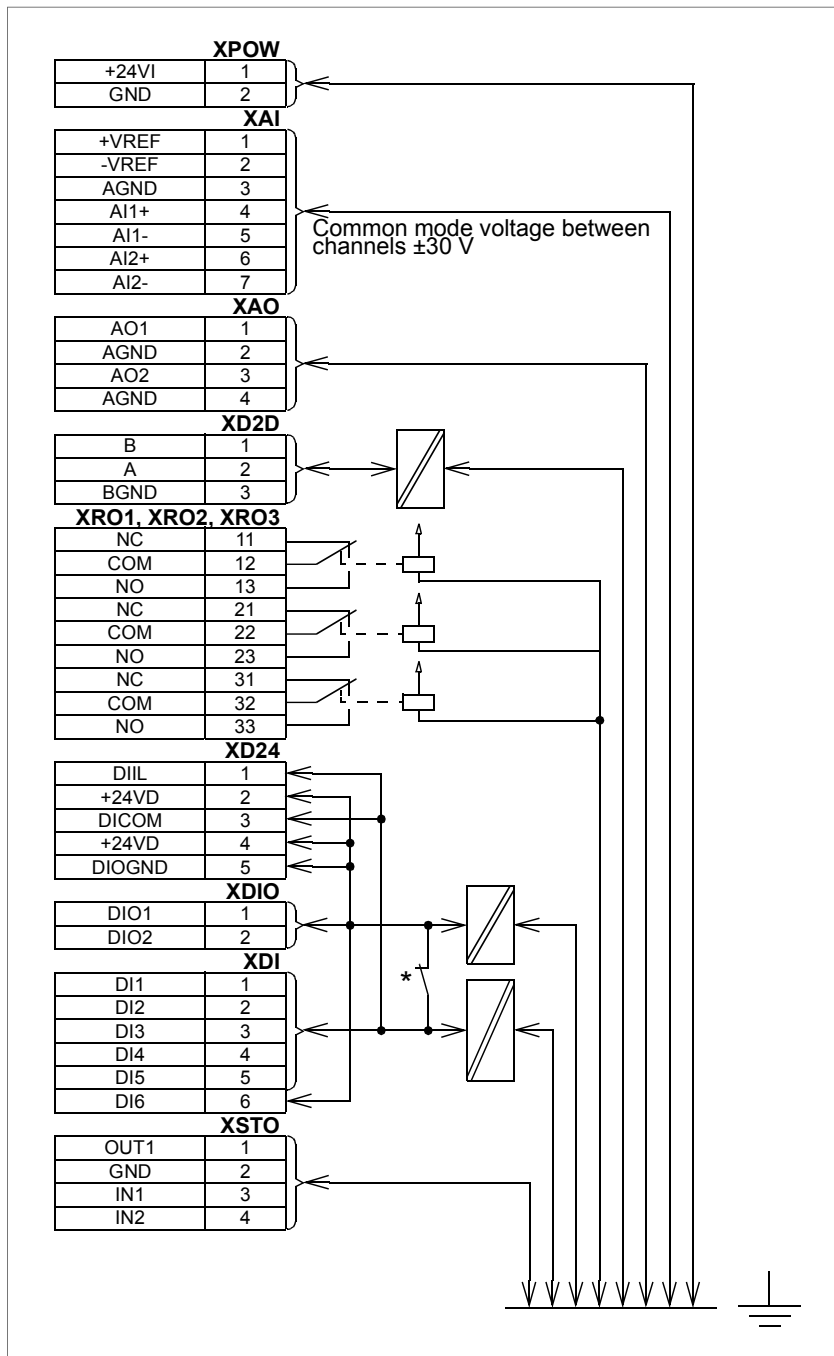
DICOM=DIOGND: ON

All digital inputs share a common ground (DICOM connected to DIOGND). This is the default setting.

DICOM=DIOGND: OFF

Ground of digital inputs DI1...DI5 and DIIL (DICOM) is isolated from DIO signal ground (DIOGND). Isolation voltage 50 V.

■ ZCU-1x ground isolation diagram



* Ground selector (J6) settings

(ZCU-12)

(ZCU-14)

All digital inputs share a common ground (DICOM connected to DIOGND). This is the default setting.

(ZCU-12)

(ZCU-14)

Ground of digital inputs DI1...DI5 and DIIL (DICOM) is isolated from DIO signal ground (DIOGND). Isolation voltage 50 V.

12

The Safe torque off function

Contents of this chapter

This chapter describes the Safe torque off (STO) function of the inverter and gives instructions for its use.

Description

The Safe torque off function can be used, for example, to as the final actuator device of safety circuits that stop the inverter in case of danger (such as an emergency stop circuit). Another typical application is a prevention of unexpected start-up function that enables short-time maintenance operations like cleaning or work on non-electrical parts of the machinery without switching off the power supply to the inverter.

When activated, the Safe torque off function disables the control voltage of the power semiconductors of the inverter output stage (A, see the diagrams below), thus preventing the inverter from generating the torque required to rotate the motor. If the motor is running when Safe torque off is activated, it coasts to a stop.

The Safe torque off function has a redundant architecture, that is, both channels must be used in the safety function implementation. The safety data given in this manual is calculated for redundant use, and does not apply if both channels are not used.

The Safe torque off function complies with these standards:

| Standard | Name |
|--|---|
| IEC 60204-1:2016 EN 60204-1:2006 + A1:2009 + AC:2010 | <i>Safety of machinery – Electrical equipment of machines – Part 1: General requirements</i> |
| IEC 61000-6-7:2014 | <i>Electromagnetic compatibility (EMC) – Part 6-7: Generic standards – Immunity requirements for equipment intended to perform functions in a safety-related system (functional safety) in industrial locations</i> |

| Standard | Name |
|---|--|
| IEC 61326-3-1:2017 | <i>Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 3-1: Immunity requirements for safety-related systems and for equipment intended to perform safety-related functions (functional safety) – General industrial applications</i> |
| IEC 61508-1:2010 | <i>Functional safety of electrical/electronic/programmable electronic safety-related systems – Part 1: General requirements</i> |
| IEC 61508-2:2010 | <i>Functional safety of electrical/electronic/programmable electronic safety-related systems – Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems</i> |
| IEC 61511-1:2016 | <i>Functional safety – Safety instrumented systems for the process industry sector</i> |
| IEC 61800-5-2:2016 EN 61800-5-2:2007 | <i>Adjustable speed electrical power drive systems – Part 5-2: Safety requirements – Functional</i> |
| IEC 62061:2005 + A1:2012 + A2:2015 EN 62061:2005 + AC:2010 + A1:2013 + A2:2015 | <i>Safety of machinery – Functional safety of safety-related electrical, electronic and programmable electronic control systems</i> |
| EN ISO 13849-1:2015 | <i>Safety of machinery – Safety-related parts of control systems – Part 1: General principles for design</i> |
| EN ISO 13849-2:2012 | <i>Safety of machinery – Safety-related parts of control systems – Part 2: Validation</i> |

The function also corresponds to Prevention of unexpected start-up as specified by EN ISO 14118:2018 (ISO 14118:2017), and Uncontrolled stop (stop category 0) as specified in EN/IEC 60204-1.

■ **Compliance with the European Machinery Directive**

See *Electrical planning instructions for ACS880 multidrive cabinets and modules* (3AUA0000102324 [English]).

Wiring

For the electrical specifications of the STO connection, see the technical data of the control unit.

■ Activation switch

In the wiring diagrams, the activation switch has the designation [K]. This represents a component such as a manually operated switch, an emergency stop push button switch, or the contacts of a safety relay or safety PLC.

- In case a manually operated activation switch is used, the switch must be of a type that can be locked out to the open position.
- The contacts of the switch or relay must open/close within 200 ms of each other.
- An FSO-xx safety functions module or and FPTC-0x thermistor protection module can also be used. For more information, see the module documentation.

■ Cable types and lengths

- Double-shielded twisted-pair cable is recommended.
- Maximum cable lengths:
 - 300 m (1000 ft) between activation switch [K] and inverter control unit
 - 60 m (200 ft) between multiple drives or inverter units
 - 60 m (200 ft) between external power supply and first control unit
 - 30 m (100 ft) between BCU control unit and last inverter module in the chain.

Note:

A short-circuit in the wiring between the switch and an STO terminal causes a dangerous fault. Therefore, it is recommended to use a safety relay (including wiring diagnostics) or a wiring method (shield grounding, channel separation) which reduces or eliminates the risk caused by the short-circuit.

Note:

The voltage at the STO input terminals of the control unit (or frame R8i inverter module) must be at least 17 V DC to be interpreted as "1".

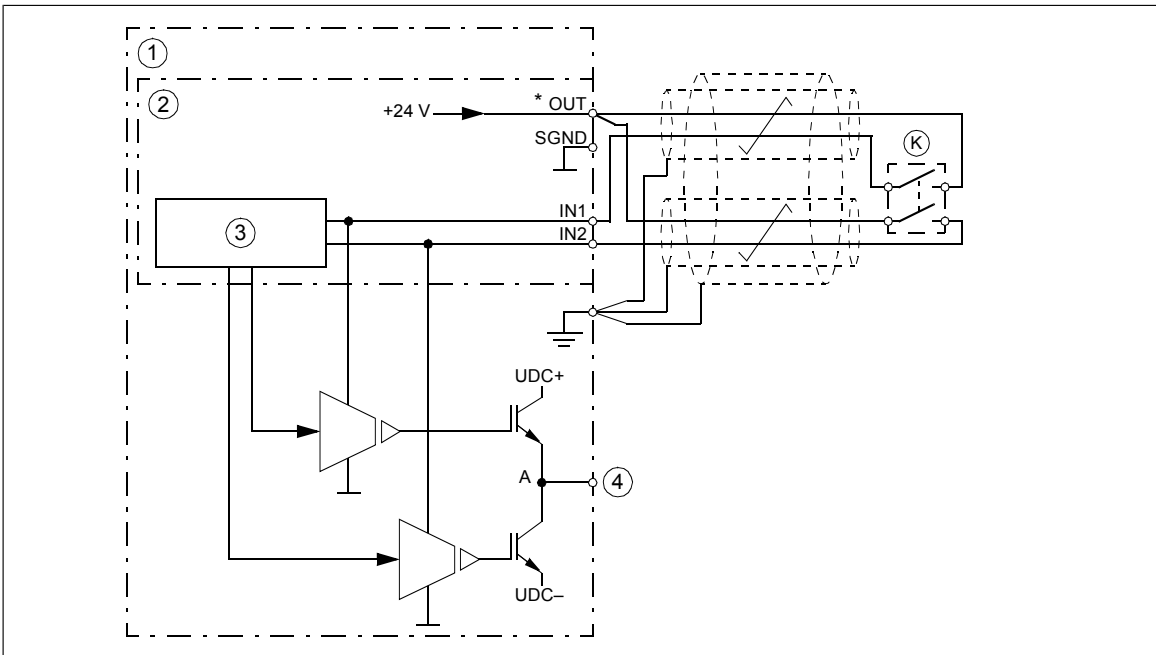
The pulse tolerance of the input channels is 1 ms.

■ Grounding of protective shields

- Ground the shield in the cabling between the activation switch and the control unit at the control unit only.
 - Ground the shield in the cabling between two control units at one control unit only.
 - Do not ground the shield in the cabling between BCU and R8i module, or between R8i modules.
-

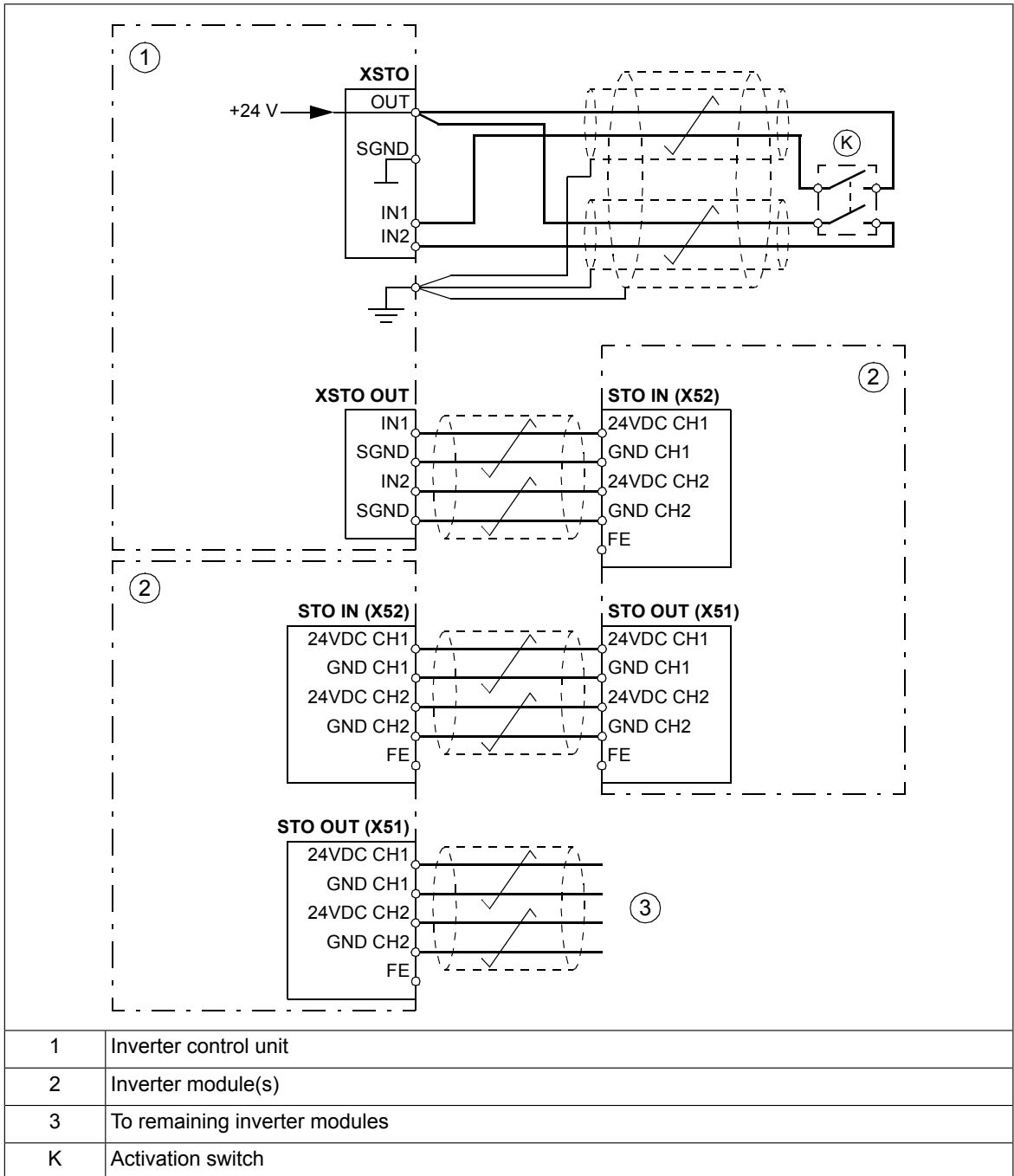
■ Dual-channel connection with internal power supply

Frames R1i...R7i

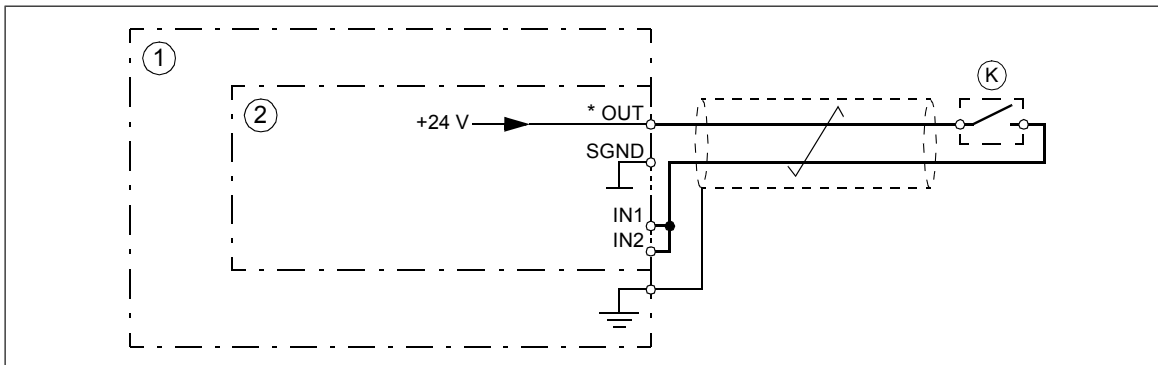


| | |
|-------------------------|-------------------|
| 1 | Inverter unit |
| 2 | Control unit |
| 3 | Control logic |
| 4 | To motor |
| K | Activation switch |
| * "OUT1" with frame R5i | |

Frame R8i and multiples



■ Single-channel connection of activation switch



Note:

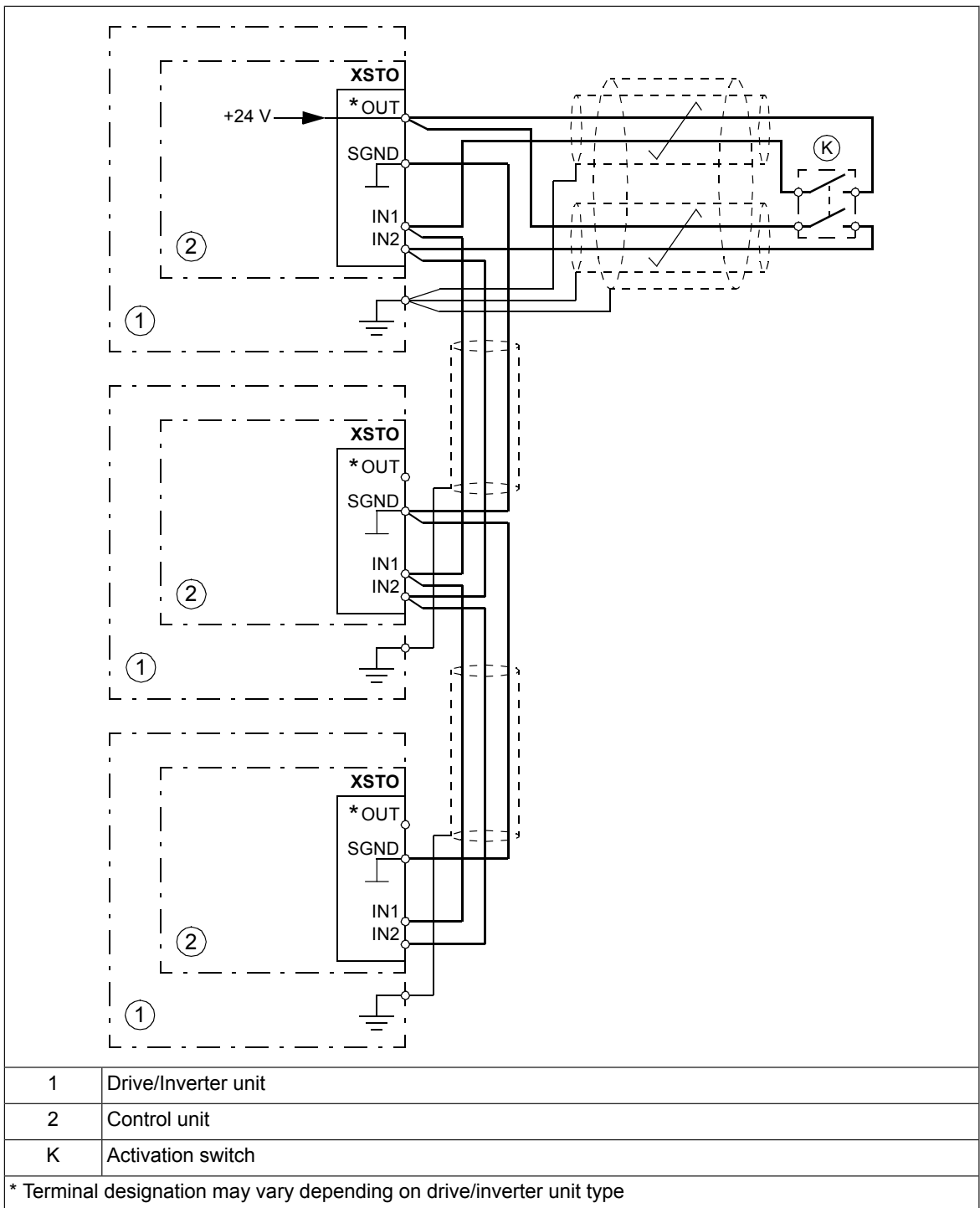
- Both STO inputs (IN1, IN2) must be connected to the activation switch. Otherwise, no SIL/PL classification is given.
- Pay special attention to avoiding any potential failure modes for the wiring. For example, use shielded cable. For measures for fault exclusion of wiring, see eg. EN ISO 13849-2:2012, table D.4.

| | |
|---|-------------------|
| 1 | Inverter unit |
| 2 | Control unit |
| K | Activation switch |

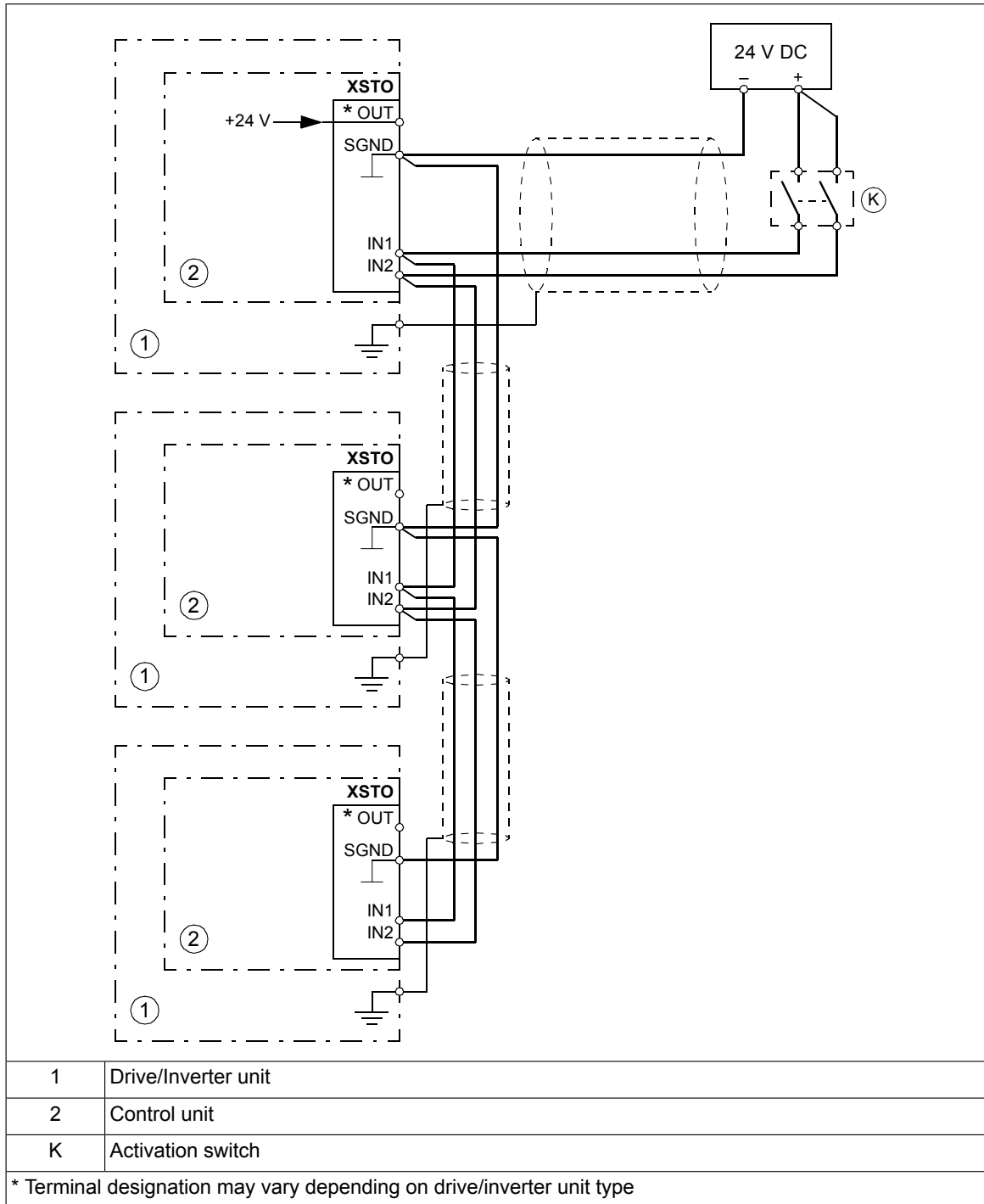
* "OUT1" with frame R5i

■ Multiple drives

Internal power supply



External power supply



Operation principle

1. The Safe torque off activates (the activation switch is opened, or safety relay contacts open).
2. The STO inputs of the inverter control unit de-energize.
3. The control unit cuts off the control voltage from the output IGBTs.
4. The control program generates an indication as defined by parameter 31.22 (refer to the firmware manual of the inverter).

The parameter selects which indications are given when one or both STO signals are switched off or lost. The indications also depend on whether the inverter is running or stopped when this occurs.

Note:

This parameter does not affect the operation of the STO function itself. The STO function will operate regardless of the setting of this parameter: a running drive will stop upon removal of one or both STO signals, and will not start until both STO signals are restored and all faults reset.

Note:

The loss of only one STO signal always generates a fault as it is interpreted as a malfunction of STO hardware or wiring.

5. The motor coasts to a stop (if running). The inverter cannot restart while the activation switch or safety relay contacts are open. After the contacts close, a reset may be needed (depending on the setting of parameter 31.22). A new start command is required to start the inverter.
-

Start-up including acceptance test

To ensure the safe operation of a safety function, validation is required. The final assembler of the machine must validate the function by performing an acceptance test. The acceptance test must be performed

- at initial start-up of the safety function
- after any changes related to the safety function (circuit boards, wiring, components, settings, etc.)
- after any maintenance work related to the safety function.

■ Competence

The acceptance test of the safety function must be carried out by a competent person with adequate expertise and knowledge of the safety function as well as functional safety, as required by IEC 61508-1 clause 6. The test procedures and report must be documented and signed by this person.

■ Acceptance test reports

Signed acceptance test reports must be stored in the logbook of the machine. The report shall include documentation of start-up activities and test results, references to failure reports and resolution of failures. Any new acceptance tests performed due to changes or maintenance shall be logged into the logbook.

■ Acceptance test procedure


After wiring the Safe torque off function, validate its operation as follows.

Note:

If an FSO-xx safety functions module or an FPTC-0x module is installed, refer to its documentation.

Note:

All inverter modules of the inverter unit must be powered and connected to the STO circuit during the acceptance test.

| | |
|---|-------------------------------------|
| Action | <input checked="" type="checkbox"/> |
|  WARNING! Follow the safety instructions. If you ignore them, injury or death, or damage to the equipment can occur. | <input type="checkbox"/> |
| Ensure that the inverter can be run and stopped freely during start-up. | <input type="checkbox"/> |
| Stop the inverter (if running), switch the input power off and isolate the inverter from the power line using a disconnecter. | <input type="checkbox"/> |
| Check the STO circuit connections against the wiring diagram. | <input type="checkbox"/> |
| Close the disconnecter and switch the power on. | <input type="checkbox"/> |

| | |
|---|-------------------------------------|
| Action | <input checked="" type="checkbox"/> |
| <p>Test the operation of the STO function when the motor is stopped.</p> <ul style="list-style-type: none"> • Give a stop command for the inverter (if running) and wait until the motor shaft is at a standstill. <p>Ensure that the inverter operates as follows:</p> <ul style="list-style-type: none"> • Open the STO circuit. The inverter generates an indication if one is defined for the 'stopped' state in parameter 31.22 (see the firmware manual). • Give a start command to verify that the STO function blocks the inverter's operation. The inverter generates a warning. The motor should not start. • Close the STO circuit. • Reset any active faults. Restart the inverter and check that the motor runs normally. | <input type="checkbox"/> |
| <p>Test the operation of the STO function when the motor is running.</p> <ul style="list-style-type: none"> • Start the inverter and ensure the motor is running. • Open the STO circuit. The motor should stop. The inverter generates an indication if one is defined for the 'running' state in parameter 31.22 (see the firmware manual). • Reset any active faults and try to start the inverter. • Ensure that the motor stays at a standstill and the inverter operates as described above in testing the operation when the motor is stopped. • Close the STO circuit. • Reset any active faults. Restart the inverter and check that the motor runs normally. | <input type="checkbox"/> |
| <p>Test the operation of the failure detection of the inverter. The motor can be stopped or running.</p> <ul style="list-style-type: none"> • Open the 1st channel of the STO circuit (wire coming to IN1). If the motor was running, it should coast to a stop. The inverter generates a <i>FA81 Safe Torque Off 1 loss</i> fault indication (see the firmware manual). • Give a start command to verify that the STO function blocks the inverter's operation. The motor should not start. • Close the STO circuit. • Reset any active faults. Restart the inverter and check that the motor runs normally. • Open the 2nd channel of the STO circuit (wire coming to IN2). If the motor was running, it should coast to a stop. The inverter generates a <i>FA82 Safe Torque Off 2 loss</i> fault indication (see the firmware manual). • Give a start command to verify that the STO function blocks the inverter's operation. The motor should not start. • Close the STO circuit. • Reset any active faults. Restart the inverter and check that the motor runs normally. | <input type="checkbox"/> |
| <p>Document and sign the acceptance test report which verifies that the safety function is safe and accepted for operation.</p> | <input type="checkbox"/> |

Use

1. Open the activation switch, or activate the safety functionality that is wired to the STO connection.
2. The STO inputs on the inverter control unit de-energize, and the control unit cuts off the control voltage from the output IGBTs.
3. The control program generates an indication as defined by parameter 31.22 (refer to the firmware manual of the inverter).
4. The motor coasts to a stop (if running). The inverter will not restart while the activation switch or safety relay contacts are open.
5. Deactivate the STO by closing the activation switch, or resetting the safety functionality that is wired to the STO connection.
6. Reset any faults before restarting.



WARNING!

The Safe torque off function does not disconnect the voltage of the main and auxiliary circuits from the inverter. Therefore maintenance work on electrical parts of the inverter or the motor can only be carried out after isolating the inverter from the supply and all other voltage sources.



WARNING!

The Safe torque off functionality is only achieved through the XSTO connector of the inverter control unit (A41). True Safe torque off functionality is not achieved through the XSTO connectors of other control units (such as the supply control unit or the brake control unit).

The Safe torque off function is supported by any ACS880 inverter or drive control program. It is not supported by supply, DC/DC converter or brake firmware.



WARNING!

(With permanent magnet or synchronous reluctance [SynRM] motors only)

In case of a multiple IGBT power semiconductor failure, the inverter can produce an alignment torque which maximally rotates the motor shaft by $180/p$ degrees (with permanent magnet motors) or $180/2p$ degrees (with synchronous reluctance [SynRM] motors) regardless of the activation of the Safe torque off function. p denotes the number of pole pairs.

Notes:

- If a running inverter is stopped by using the Safe torque off function, the inverter will cut off the motor supply voltage and the motor will coast to a stop. If this causes danger or is not otherwise acceptable, stop the inverter and machinery using the appropriate stop mode before activating the Safe torque off function.
 - The Safe torque off function overrides all other functions of the inverter.
 - The Safe torque off function is ineffective against deliberate sabotage or misuse.
 - The Safe torque off function has been designed to reduce the recognized hazardous conditions. In spite of this, it is not always possible to eliminate all potential hazards. The assembler of the machine must inform the final user about the residual risks.
-

Maintenance

After the operation of the circuit is validated at start-up, the STO function shall be maintained by periodic proof testing. In high demand mode of operation, the maximum proof test interval is 20 years. In low demand mode of operation, the maximum proof test interval is 5 or 2 years; see section [Safety data \(page 327\)](#). It is assumed that all dangerous failures of the STO circuit are detected by the proof test. To perform the proof test, do the [Acceptance test procedure \(page 322\)](#).

Note:

See also the Recommendation of Use CNB/M/11.050 (published by the European co-ordination of Notified Bodies) concerning dual-channel safety-related systems with electromechanical outputs:

- When the safety integrity requirement for the safety function is SIL 3 or PL e (cat. 3 or 4), the proof test for the function must be performed at least every month.
- When the safety integrity requirement for the safety function is SIL 2 (HFT = 1) or PL d (cat. 3), the proof test for the function must be performed at least every 12 months.

The STO function of the drive does not contain any electromechanical components.

In addition to proof testing, it is a good practice to check the operation of the function when other maintenance procedures are carried out on the machinery.

Include the Safe torque off operation test described above in the routine maintenance program of the machinery that the inverter runs.

If any wiring or component change is needed after start up, or the parameters are restored, follow the test given in section [Acceptance test procedure \(page 322\)](#).

Use only spare parts approved by ABB.

Record all maintenance and proof test activities in the machine logbook.

■ Competence

The maintenance and proof test activities of the safety function must be carried out by a competent person with adequate expertise and knowledge of the safety function as well as functional safety, as required by IEC 61508-1 clause 6.

Fault tracing

The indications given during the normal operation of the Safe torque off function are selected by inverter control program parameter 31.22.

The diagnostics of the Safe torque off function cross-compare the status of the two STO channels. In case the channels are not in the same state, a fault reaction function is performed and the inverter trips on an “STO hardware failure” fault. An attempt to use the STO in a non-redundant manner, for example activating only one channel, will trigger the same reaction.

See the firmware manual of the inverter control program for the indications generated by the inverter, and for details on directing fault and warning indications to an output on the control unit for external diagnostics.

Any failures of the Safe torque off function must be reported to ABB.

Safety data

The safety data for the Safe torque off function is given below.

Note:

The safety data is calculated for redundant use, and does not apply if both STO channels are not used.

| Frame size | SIL/ SILCL | PL | SFF (%) | PFH ($T_1 = 20$ a) (1/h) | PFD _{avg} ($T_1 = 2$ a) | PFD _{avg} ($T_1 = 5$ a) | MTTF _D (a) | DC (%) | Cat. | SC | HFT | CCF | T _M (a) |
|--------------------------|---------------|----|------------|---------------------------------|--------------------------------------|--------------------------------------|--------------------------|-----------|------|----|-----|-----|-----------------------|
| R1i R2i R3i R4i | 3 | e | 98.8 | 3.23E-09 | 2.83E-05 | 7.08E-05 | 24293 | ≥90 | 3 | 3 | 1 | 80 | 20 |
| R5i | 3 | e | 96.7 | 3.36E-09 | 2.51E-05 | 6.27E-05 | 16946 | ≥90 | 3 | 3 | 1 | 80 | 20 |
| R6i R7i | 3 | e | 99.0 | 3.87E-09 | 3.39E-05 | 8.47E-05 | 6538 | ≥90 | 3 | 3 | 1 | 80 | 20 |
| R8i | 3 | e | >99 | 5.0E-11 | 4.5E-07 | 1.1E-06 | 23970 | ≥90 | 3 | 3 | 1 | 80 | 20 |
| 2×R8i | 3 | e | >99 | 6.2E-11 | 5.5E-07 | 1.3E-06 | 16330 | ≥90 | 3 | 3 | 1 | 80 | 20 |
| 3×R8i | 3 | e | >99 | 7.3E-11 | 6.5E-07 | 1.6E-06 | 12390 | ≥90 | 3 | 3 | 1 | 80 | 20 |
| 4×R8i | 3 | e | >99 | 8.4E-11 | 7.6E-07 | 1.9E-06 | 9980 | ≥90 | 3 | 3 | 1 | 80 | 20 |
| 5×R8i | 3 | e | >99 | 9.5E-11 | 8.6E-07 | 2.1E-06 | 8360 | ≥90 | 3 | 3 | 1 | 80 | 20 |
| 6×R8i | 3 | e | >99 | 1.1E-10 | 9.6E-07 | 2.4E-06 | 7190 | ≥90 | 3 | 3 | 1 | 80 | 20 |

3AXD10000041323 F, 3AXD10000078136 F

- The following temperature profile is used in safety value calculations:
 - 670 on/off cycles per year with $\Delta T = 71.66$ °C
 - 1340 on/off cycles per year with $\Delta T = 61.66$ °C
 - 30 on/off cycles per year with $\Delta T = 10.0$ °C
 - 32 °C board temperature at 2.0% of time
 - 60 °C board temperature at 1.5% of time
 - 85 °C board temperature at 2.3% of time.
- The STO is a type A (frames R1i...R7i) or type B (frame R8i and multiples) safety component as defined in IEC 61508-2.
- Relevant failure modes:
 - The STO trips spuriously (safe failure)
 - The STO does not activate when requested
 - A fault exclusion on the failure mode "short circuit on printed circuit board" has been made (EN 13849-2, table D.5). The analysis is based on an assumption that one failure occurs at one time. No accumulated failures have been analyzed.
- STO response times:
 - STO reaction time (shortest detectable break): 1 ms
 - STO response time:
 - Frames R1i...R7i: 2 ms (typical), 5 ms (maximum)
 - Frame R8i and multiples: 2 ms (typical), 25 ms (maximum)
 - Fault detection time: Channels in different states for longer than 200 ms
 - Fault reaction time: Fault detection time + 10 ms
- Indication delays:

- STO fault indication (parameter 31.22) delay: < 500 ms
- STO warning indication (parameter 31.22) delay: < 1000 ms

■ Abbreviations

| Abbr. | Reference | Description |
|--------------------|------------------|---|
| Cat. | EN ISO 13849-1 | Classification of the safety-related parts of a control system in respect of their resistance to faults and their subsequent behavior in the fault condition, and which is achieved by the structural arrangement of the parts, fault detection and/or by their reliability. The categories are: B, 1, 2, 3 and 4. |
| CCF | EN ISO 13849-1 | Common cause failure (%) |
| DC | EN ISO 13849-1 | Diagnostic coverage |
| HFT | IEC 61508 | Hardware fault tolerance |
| MTTF _D | EN ISO 13849-1 | Mean time to dangerous failure: (Total number of life units) / (Number of dangerous, undetected failures) during a particular measurement interval under stated conditions |
| PFD _{avg} | IEC 61508 | Average probability of dangerous failure on demand, that is, mean unavailability of a safety-related system to perform the specified safety function when a demand occurs |
| PFH | IEC 61508 | Average frequency of dangerous failures per hour, that is, average frequency of a dangerous failure of a safety related system to perform the specified safety function over a given period of time |
| PL | EN ISO 13849-1 | Performance level. Levels a...e correspond to SIL |
| SC | IEC 61508 | Systematic capability |
| SFF | IEC 61508 | Safe failure fraction (%) |
| SIL | IEC 61508 | Safety integrity level (1...3) |
| SILCL | IEC/EN 62061 | Maximum SIL (level 1...3) that can be claimed for a safety function or subsystem |
| STO | IEC/EN 61800-5-2 | Safe torque off |
| T ₁ | IEC 61508-6 | Proof test interval. T ₁ is a parameter used to define the probabilistic failure rate (PFH or PFD) for the safety function or subsystem. Performing a proof test at a maximum interval of T ₁ is required to keep the SIL capability valid. The same interval must be followed to keep the PL capability (EN ISO 13849) valid. See also section Maintenance. |
| T _M | EN ISO 13849-1 | Mission time: the period of time covering the intended use of the safety function/device. After the mission time elapses, the safety device must be replaced. Note that any T _M values given cannot be regarded as a guarantee or warranty. |

■ TÜV certificate

The TÜV certificate is available on the Internet at www.abb.com/drives/documents.

13

Resistor braking using frames R1i...R4i inverter modules

Contents of this chapter

This chapter deals with using the internal brake choppers of frame R1i...R4i inverter modules.

Using R1i...R4i modules for resistor braking

The internal brake choppers of frame R1i...R4i inverter modules can be used for resistor braking of other modules. Brake resistors are available from ABB as add-on kits and must be installed in separate cubicles; contact your local ABB representative for details.

Planning the braking system

- The continuous and maximum braking power ratings of individual inverter modules are listed on [Ratings \(page 335\)](#).

The total continuous braking power of parallel-connected modules is calculated with the formula

$$P_{\text{brcont}} = P_{\text{brcont1}} + 0.8 \times (P_{\text{brcont2}} + P_{\text{brcont3}} + \dots)$$

where P_{brcont1} , P_{brcont2} , etc. are the P_{brcont} values of the connected modules from largest to smallest.

The total maximum braking power of parallel-connected modules is calculated with the formula

$$P_{\text{brmax}} = P_{\text{brmax1}} + 0.7 \times (P_{\text{brmax2}} + P_{\text{brmax3}} + \dots)$$

where P_{brmax1} , P_{brmax2} , etc. are the P_{brmax} values of the connected modules from largest to smallest.

- The resistance of the resistor must not be lower than R_{min} . The energy transferred by any inverter module to its resistor must not exceed the heat dissipation capacity (E_R) of the resistor.
-

■ Restrictions

- Internal brake choppers are only available for frame R1i...R4i, ACS880-104-xxxxx-3 and ACS880-104-xxxxx-5 inverter module types.
- The maximum number of modules doing the braking is 12 frame R1i...R2i modules or 6 frame R3i...R4i modules, ie. the number of modules that can be mounted into a 800 mm wide Rittal TS 8 cubicle.
- Each inverter module must have its own resistor(s).
- In case the braking power of the modules is not sufficient, a separate brake chopper must be used. It is not allowed to use the internal brake choppers simultaneously with a separate brake chopper.
- The cubicle with the braking modules must be next in the line-up to the inverter that needs to be braked.
- The internal brake choppers cannot be used if the system has an IGBT (regenerative) supply unit.

■ Selecting the brake resistor

[Ratings \(page 335\)](#) lists an example brake resistor for each inverter type. These resistors are available from ABB.

When sourcing a resistor from a third party, make sure that:

1. The resistance of the custom resistor is greater or equal than the minimum allowed resistance:

$$R \geq R_{\min}$$

where

R Resistance of the custom resistor.



WARNING! Never use a brake resistor with a resistance smaller than R_{\min} . The inverter module and the chopper are not able to handle the overcurrent caused by the low resistance.

R_{\min} Minimum allowed resistance of the brake resistor. See section Ratings.

2. The load capacity of the custom resistor is higher than the instantaneous maximum power consumption of the resistor when it is connected to the DC link voltage by the chopper:

$$P_r > \frac{U_{DC}^2}{R}$$

where

P_r Load capacity of the custom resistor

U_{DC} Drive DC link voltage.

1.35 · 1.25 · 415 V DC (when supply voltage is 380 to 415 V AC) or

1.35 · 1.25 · 500 V DC (when supply voltage is 440 to 500 V AC)

R Resistance of the custom resistor

■ Selecting and routing the brake resistor cables

Use the same cable type for resistor as for inverter input cabling to ensure that the inverter DC fuses also protect the resistor cable.

Minimizing electromagnetic interference

Follow these rules in order to minimize electromagnetic interference caused by the rapid current changes in the resistor cables:

- Shield the braking power line completely, either by using shielded cable or a metallic enclosure. Unshielded single-core cable can only be used if it is routed inside a cabinet that efficiently suppresses the radiated emissions.
- Install the cables away from other cable routes.
- Avoid long parallel runs with other cables. The minimum parallel cabling separation distance should be 0.3 meters (1 ft).
- Cross the other cables at right angles.
- Keep the cable as short as possible in order to minimize the radiated emissions and stress on chopper IGBTs. The longer the cable the greater the radiated emissions, inductive load and voltage peaks over the IGBT semiconductors of the brake chopper.

Note:

ABB has not verified that the EMC requirements are fulfilled with custom brake resistors and cabling. The customer must consider the EMC compliance of the complete installation.

Maximum cable length

The maximum cable length of the resistor cable is 10 m (33 ft).

■ Placing custom brake resistors

Install the resistors outside the drive in a place where they are able to cool effectively.

Arrange the cooling of the resistor in a way that

- no danger of overheating is caused to the resistor or nearby materials, and
- the temperature of the room the resistor is located in does not exceed the allowed maximum.

Supply the resistor with cooling air or coolant according to the resistor manufacturer's instructions.



WARNING!

The materials near the brake resistor must be non-flammable. The surface temperature of the resistor is high. Air flowing from the resistor is of hundreds of degrees Celsius. If the exhaust vents are connected to a ventilation system, make sure that the material withstands high temperatures. Protect the resistor against contact.

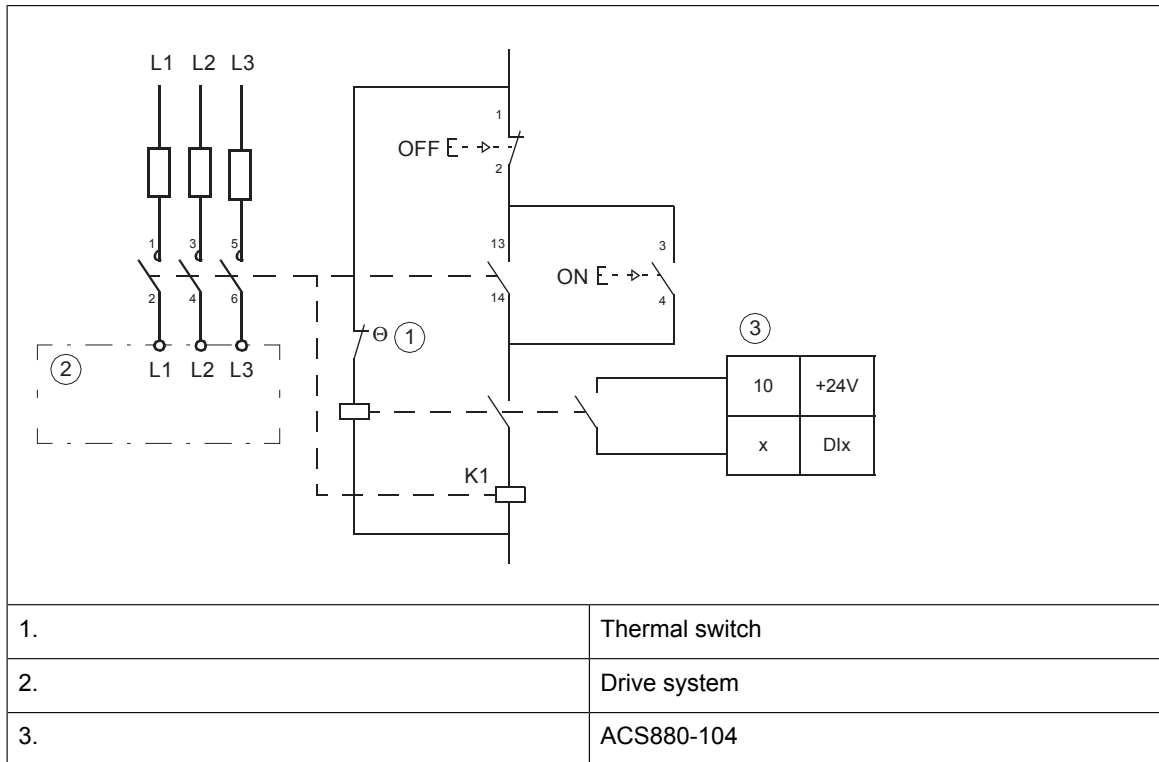
■ Protecting the system against thermal overload

The inverter module protects itself and the resistor cable against thermal overload when the cable is correctly dimensioned. The inverter control program includes a resistor and resistor cable thermal protection function which can be tuned by the user. See the firmware manual.

Equipping the drive system with a main contactor or breaker is highly recommended for safety reasons. Wire the contactor or breaker so that it opens in case the resistor overheats.

This is essential for safety since the inverter module may not be able to break the current if the chopper remains conductive in a fault situation. An example wiring diagram is shown below. ABB resistors are equipped with a thermal switch (1) inside the resistor assembly as standard. The switch indicates overtemperature and overload.

We recommend that you also wire the thermal switch to a digital input of the inverter module.



■ Protecting the resistor cable against short circuit

The DC fuses of the inverter module will also protect the resistor cable if the cable is identical with the inverter input cable.

Mechanical installation

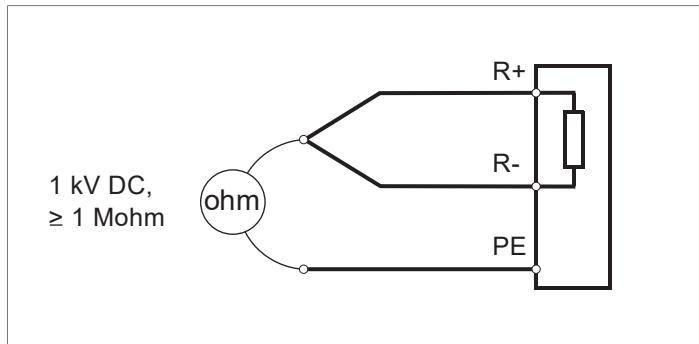
All brake resistors must be installed outside the drive. Follow the resistor manufacturer's instructions.

Electrical installation

■ Checking the insulation of the brake resistor assembly

Check the insulation of each brake resistor assembly as follows:

1. Check that the resistor cable is connected to the resistor, and disconnected from the inverter module terminals R+ and R-.
2. At the inverter end, connect the R+ and R- conductors of the resistor cable together. Measure the insulation resistance between the combined conductors and the Protective Earth (PE) conductor by using a measuring voltage of 1000 V DC. The insulation resistance must be higher than 1 Mohm.



■ Connection procedure

1. Connect the resistor cable to the R+ and R- terminals in the same way as the other power cables. Use the same cable type as with the DC input cable. If a shielded threeconductor cable is used, cut the third conductor, insulate it, and ground the twisted shield of the cable (protective earth conductor of the resistor assembly) at both ends.
2. Connect the thermal switch of the brake resistor as described above under [Protecting the system against thermal overload](#).

Start-up

Note:

New brake resistors may be coated with storage grease. As the brake chopper operates for the first time, the grease burns off and may produce some smoke. Make sure there is proper ventilation.

Set the following inverter control program parameters (ACS880 primary control program) in each braking inverter:

- Disable the overvoltage control (parameter 30.30).
- Set parameter 31.01 to point to the digital input to which the thermal switch of the brake resistor is wired.
- Set parameter 31.02 so that the event generates a fault.
- Enable the brake chopper by parameter 43.06 *Brake chopper enable*. If you select *Enabled with thermal model*, also set the brake resistor overload protection parameters 43.08 and 43.09 according to the application.
- Check the value of parameter 43.10 *Brake resistance*.
- Adjust other brake-related settings as necessary in parameter group 43.

Match the brake chopper operating limits of all braking inverters. You will need to enter a service-level pass code into parameter 96.02 to access the limit parameters. To obtain the pass code, contact your local ABB representative.

- Stop all inverters of the drive system (even those not used for braking) if any are running.
- Monitor the DC voltage (parameter 01.11) on each braking inverter for a period of time. Calculate the average of the readings separately for each inverter.
- Select one braking inverter as reference. On this inverter, enter the nominal AC supply voltage into parameter 95.37. Multiply this value by the number shown in the table below to get the value of 95.36.

| Supply voltage range [V AC] (see parameter 95.01) | | | | |
|---|-----------|-----------|-----------|-------|
| | 208...240 | 380...415 | 440...480 | 500 |
| $[95.36] = [95.37] \times$ | 0.867 | 0.916 | 0.917 | 1.000 |

For example, with a 380...415 V inverter, the value of 95.36 should be 0.916 times the value of 95.37.

- For each of the remaining braking inverters, divide the average DC voltage value of the inverter by that of the reference inverter. Multiply the result with the nominal supply voltage, and enter the result into parameter 95.37. Further multiply the value of 95.37 by the factor shown in the above table to get the value of 95.36.
- On all braking inverters, enable custom supply voltage limits using parameter 95.35.

With these parameter settings, a resistor overtemperature situation will trip the inverter which will then coast to a stop.



WARNING!

Connect the brake resistor to the inverter module before enabling the brake chopper. On the other hand, if the chopper is disabled, the resistor must be disconnected.

For settings with other control programs, see the appropriate firmware manual.

Technical data

■ Ratings

| Inverter unit type ACS880-104-... | Output ratings | | | Brake resistor example | | | |
|--------------------------------------|----------------|-------------|-----------|---|-----|-------|-------|
| | P_{brcont} | P_{brmax} | R_{min} | Type | R | P_n | E_R |
| | kW | kW | ohm | | ohm | W | kJ |
| $U_N = 400\text{ V}$ | | | | | | | |
| 004A8-3 | 1.8 | 3.3 | 120 | JBR-01 (Danotherm CAR 155 D T 414 120R) | 120 | 105 | 22 |
| 006A0-3 | 1.9 | 3.3 | 120 | | | | |
| 008A0-3 | 1.9 | 3.3 | 120 | | | | |
| 0011A-3 | 2.8 | 50 | 80 | JBR-03 (Danotherm CAR 200 D T 415 80R) | 80 | 135 | 40 |
| 0014A-3 | 5.7 | 10.0 | 40 | JBR-04 (Danotherm CBR-V 210 D T 415 40R) | 40 | 360 | 73 |
| 0018A-3 | 5.7 | 10.00 | 40 | | | | |
| 0025A-3 | 11.4 | 20.0 | 20 | JBR-05 (Danotherm CBR-V 330 D T 415 20R) | 20 | 570 | 77 |
| 0035A-3 | 11.4 | 20.0 | 20 | | | | |
| 0044A-3 | 17.5 | 30.8 | 13 | JBR-06 (Danotherm CBR-V 460 D HT 415 13R) | 13 | 790 | 132 |
| 0050A-3 | 17.5 | 30.8 | 13 | | | | |
| 0061A-3 | 17.5 | 30.8 | 13 | | | | |
| 0078A-3 | 17.5 | 30.8 | 13 | | | | |
| 0094A-3 | 17.5 | 30.8 | 13 | | | | |
| 0100A-3 | 17.5 | 30.8 | 13 | | | | |
| $U_N = 500\text{ V}$ | | | | | | | |
| 003A6-5 | 1.3 | 5.5 | 120 | JBR-01 (Danotherm CAR 155 D T 414 120R) | 120 | 105 | 22 |
| 004A8-5 | 1.8 | 5.5 | 120 | | | | |
| 006A0-5 | 1.9 | 5.5 | 120 | | | | |
| 008A0-5 | 1.9 | 5.5 | 120 | | | | |
| 0011A-5 | 2.8 | 7.9 | 80 | JBR-03 (Danotherm CAR 200 D T 415 80R) | 80 | 135 | 40 |
| 0014A-5 | 5.7 | 14.6 | 40 | JBR-04 (Danotherm CBR-V 210 D T 415 40R) | 40 | 360 | 73 |
| 0018A-5 | 5.7 | 14.6 | 40 | | | | |
| 0025A-5 | 11.4 | 30.7 | 20 | JBR-05 (Danotherm CBR-V 330 D T 415 20R) | 20 | 570 | 77 |
| 0030A-5 | 11.4 | 30.7 | 20 | | | | |
| 0035A-5 | 11.4 | 30.7 | 20 | | | | |
| 0050A-5 | 17.5 | 43.9 | 13 | JBR-06 (Danotherm CBR-V 460 D HT 415 13R) | 13 | 790 | 132 |
| 0061A-5 | 17.5 | 43.9 | 13 | | | | |
| 0078A-5 | 17.5 | 43.9 | 13 | | | | |
| 0094A-5 | 17.5 | 43.9 | 13 | | | | |
| 0094A-5 | 17.5 | 43.9 | 13 | | | | |

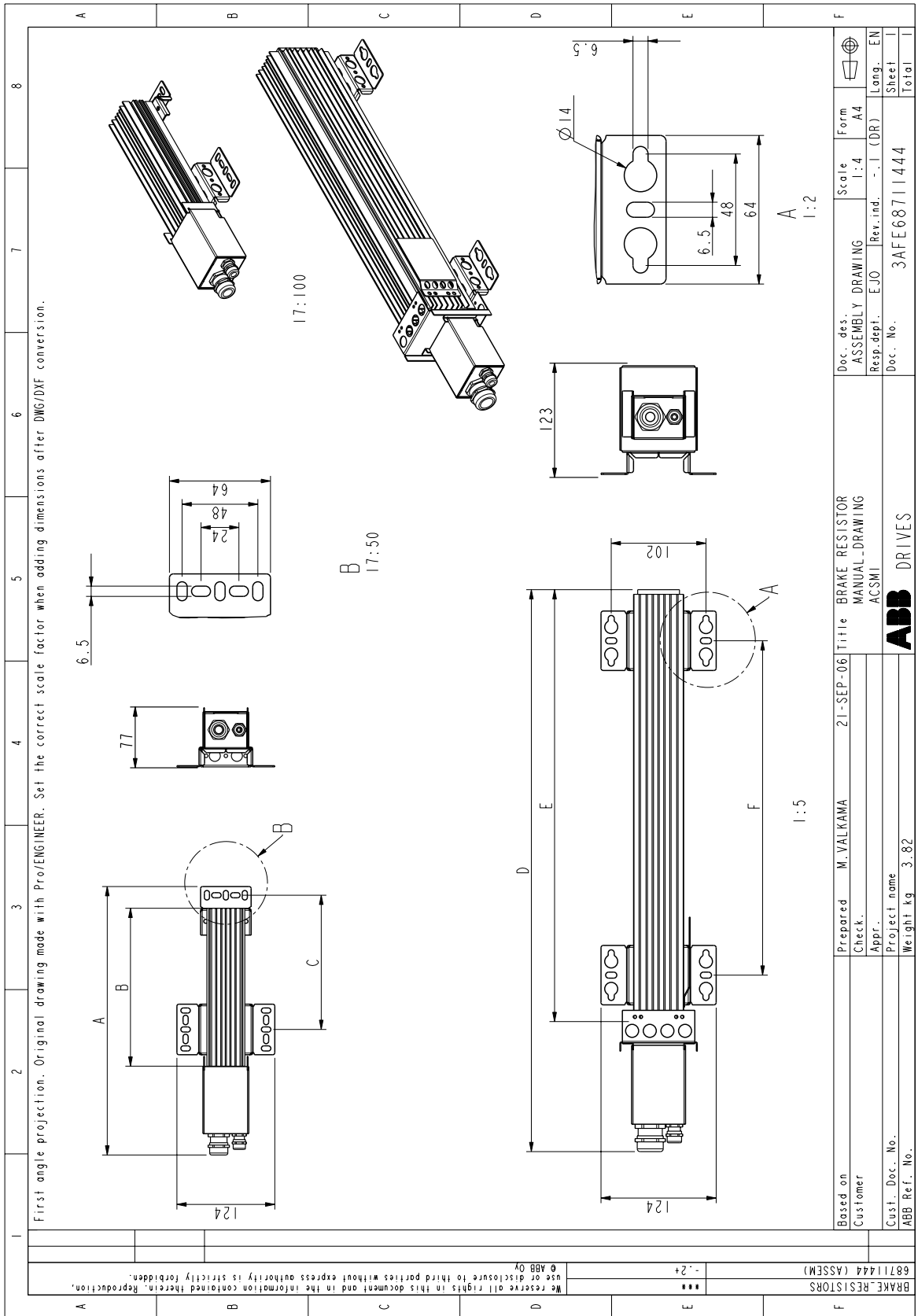
Definitions

| | |
|--------------|--|
| P_{brcont} | Maximum continuous braking power. The braking is considered continuous if the braking time exceeds 30 seconds. |
| P_{brmax} | Maximum braking power of the inverter module and its internal brake chopper. The inverter and chopper will withstand this braking power for 1 second within every 10 seconds. Note: The listed resistors will withstand this braking power for 1 second within every 120 seconds. |
| R_{min} | Minimum allowed resistance of the brake resistor. |
| R | Resistance of the listed resistor. |
| P_n | Continuous power (heat) dissipation of the listed resistor when placed correctly. |
| E_R | Short energy pulse that the listed resistor will withstand every 400 seconds. |

The ratings apply at an ambient temperature of 40 °C (104 °F).

The listed brake resistors are protected to IP20. Refer to [Resistor dimensions \(page 337\)](#) for dimensions, wire sizes and tightening torques for the resistors.

■ Resistor dimensions



| Parameter | Resistor type | | | | |
|---|--------------------------------------|-------------|-------------|-------------|-------------|
| | JBR-01 | JBR-03 | JBR-04 | JBR-05 | JBR-06 |
| Dim. A mm (in.) | 295 (11.61) | 340 (13.39) | – | – | – |
| Dim. B mm (in.) | 155 (6.10) | 200 (7.87) | – | – | – |
| Dim. C mm (in.) | 125 (4.92) | 170 (6.69) | – | – | – |
| Dim. D mm (in.) | – | – | 345 (13.58) | 465 (18.31) | 595 (23.43) |
| Dim. E mm (in.) | – | – | 210 (8.27) | 330 (12.99) | 460 (18.11) |
| Dim. F mm (in.) | – | – | 110 (4.33) | 230 (9.06) | 360 (14.17) |
| Weight kg (lbs) | 0.75 (1.7) | 0.8 (1.8) | 1.8 (4.0) | 3.0 (6.6) | 3.9 (8.6) |
| Max. wire size – Main terminals | 10 mm ² (AWG6) | | | | |
| Tightening torque – Main terminals | 1.5 ... 1.8 N·m (13 ... 16 lbf·in) | | | | |
| Max. wire size – Thermal switch terminals | 4 mm ² (AWG12) | | | | |
| Tightening torque – Thermal switch terminals | 0.6 ... 0.8 N·m (5.3 ... 7.1 lbf·in) | | | | |

■ Resistor connectors on inverter modules

R+ and R- terminals

Frame R1i

U2, V2, W2: 0.25...4 mm², 0.5 ... 0.6 N·m (4.4 ... 5.3 lbf·in)

Ground: 1.5 N·m (13 lbf·in)

Frame R2i

U2, V2, W2: 0.5 ... 6 mm², 1.2 ... 1.5 N·m (10.6 ... 13.3 lbf·in)

Ground: 1.5 N·m (13 lbf·in)

Frames R3i and R4i

U2, V2, W2: 6...70 mm². Allen screw torque 15 N·m (11 lbf·ft), connection post torque 4 N·m (30 lbf·in). Other conductor sizes can be used by replacing the original lug with a suitable crimp ring terminal.

Ground: Screw size M5, torque 3 N·m (25 lbf·in)

Connector cover screws: Torque 3 N·m (25 lbf·in)

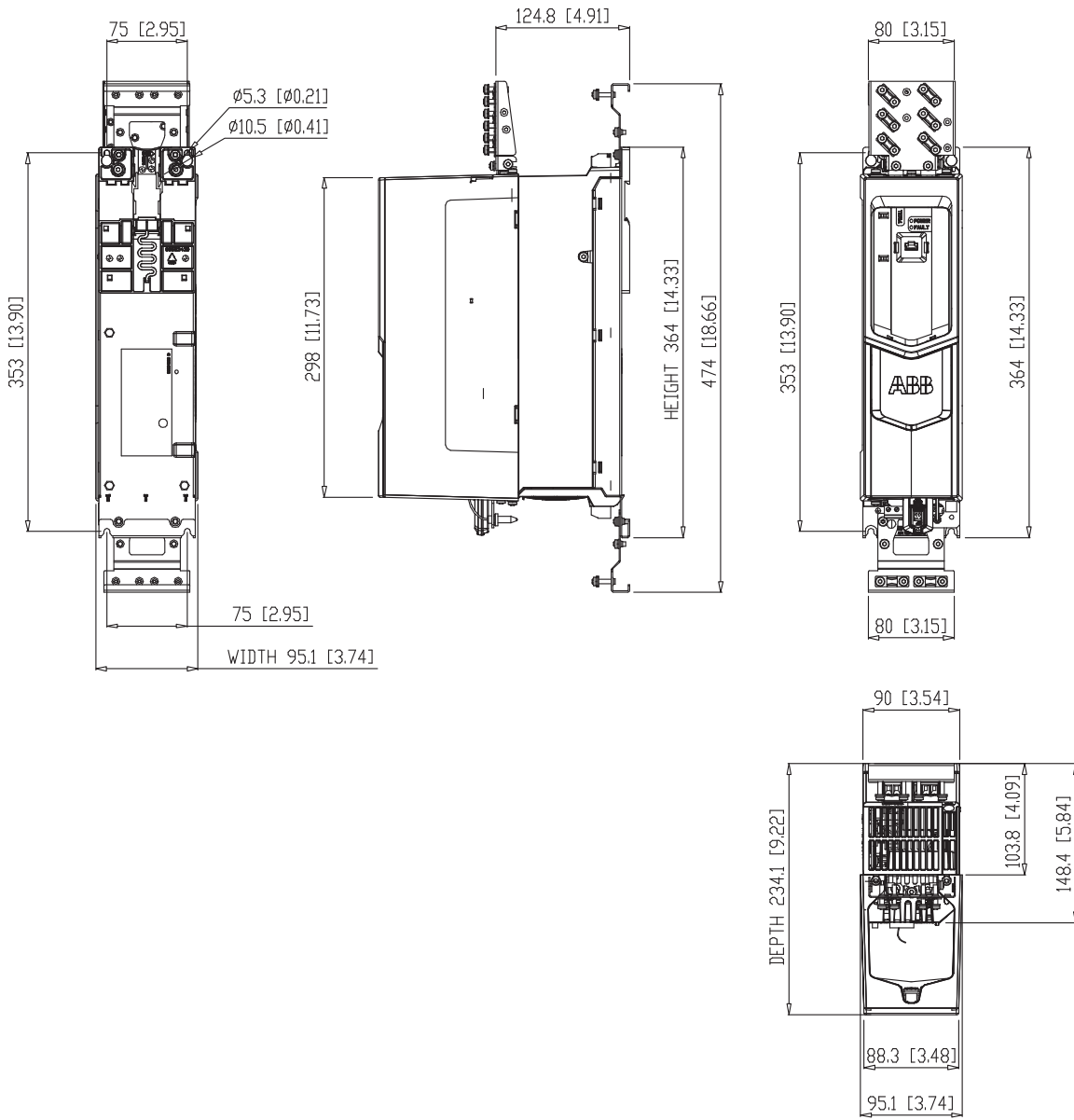
14

Dimension drawings

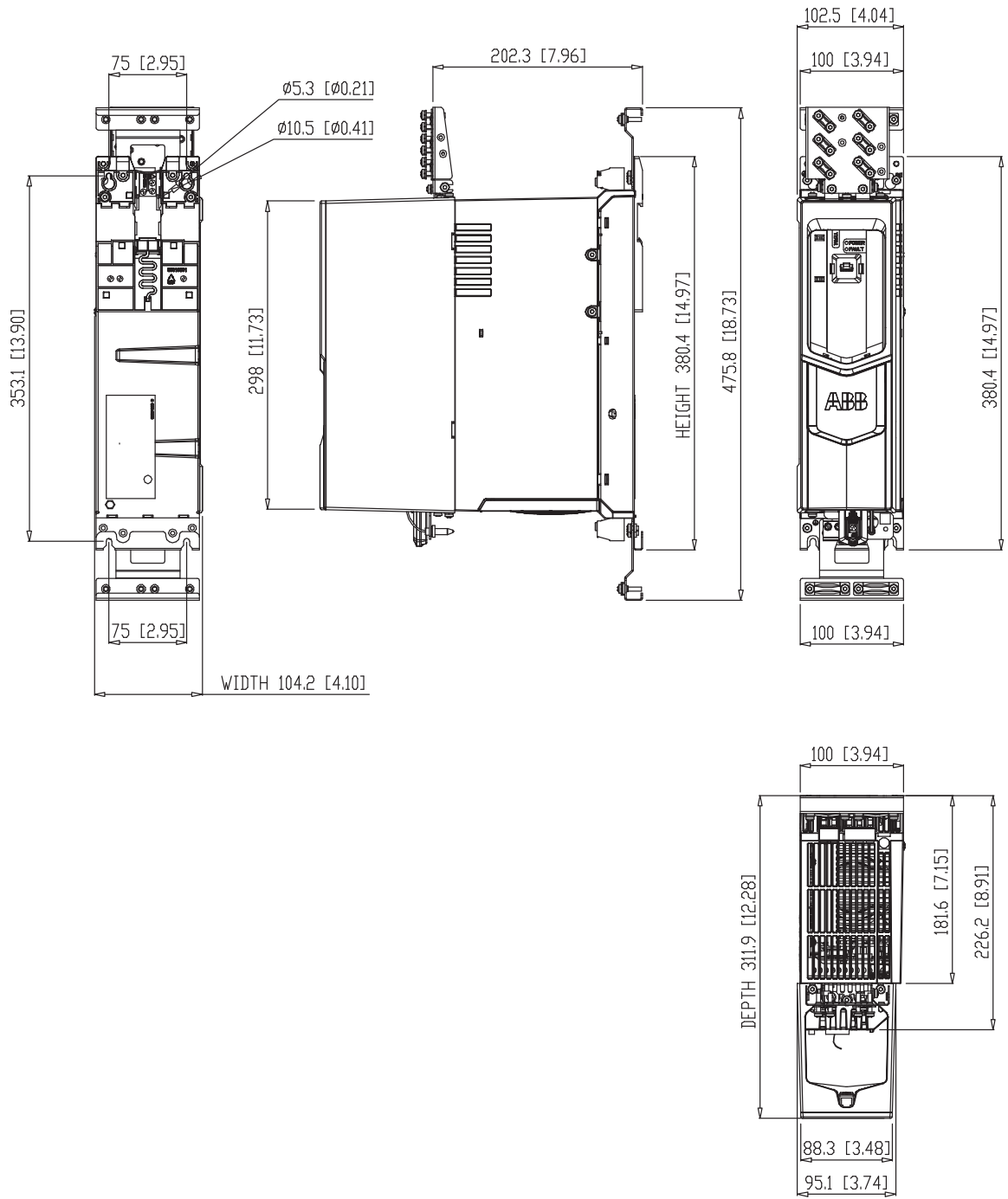
Contents of this chapter

This chapter contains dimension drawings of the ACS880-104 inverter modules as well as auxiliary components. Dimensional drawings of most installation accessories are available from ABB on request.

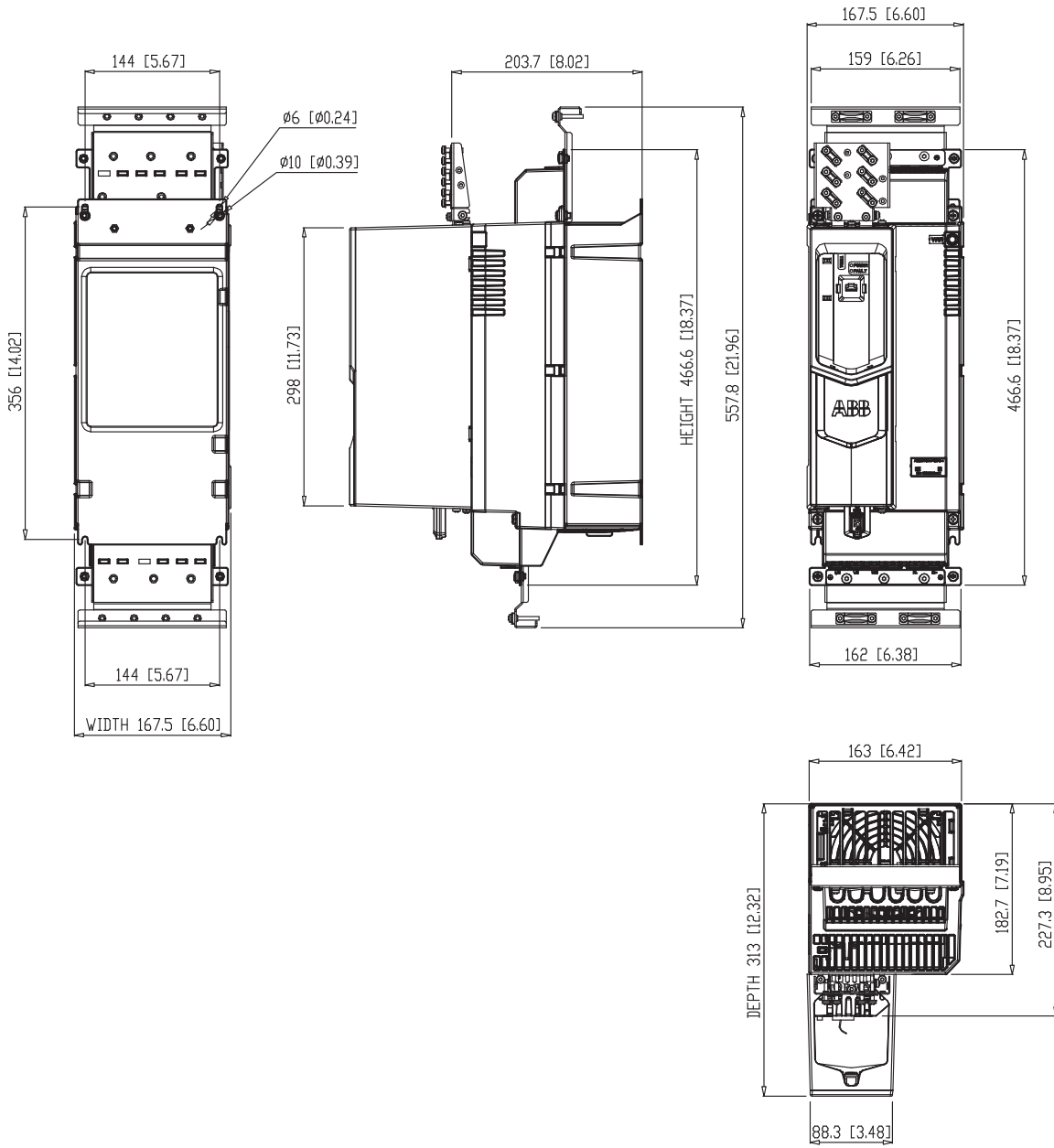
Frame R1i



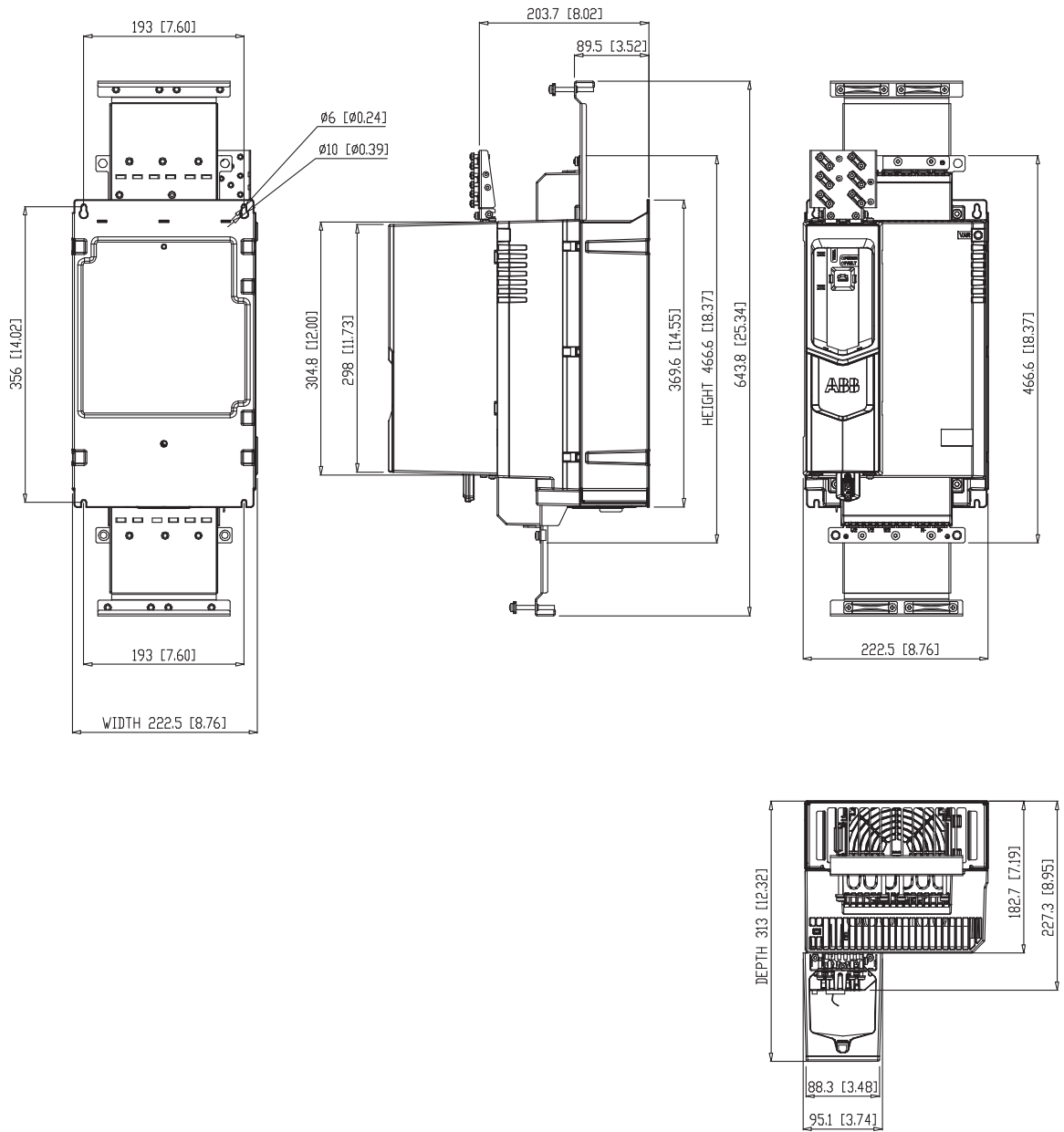
Frame R2i



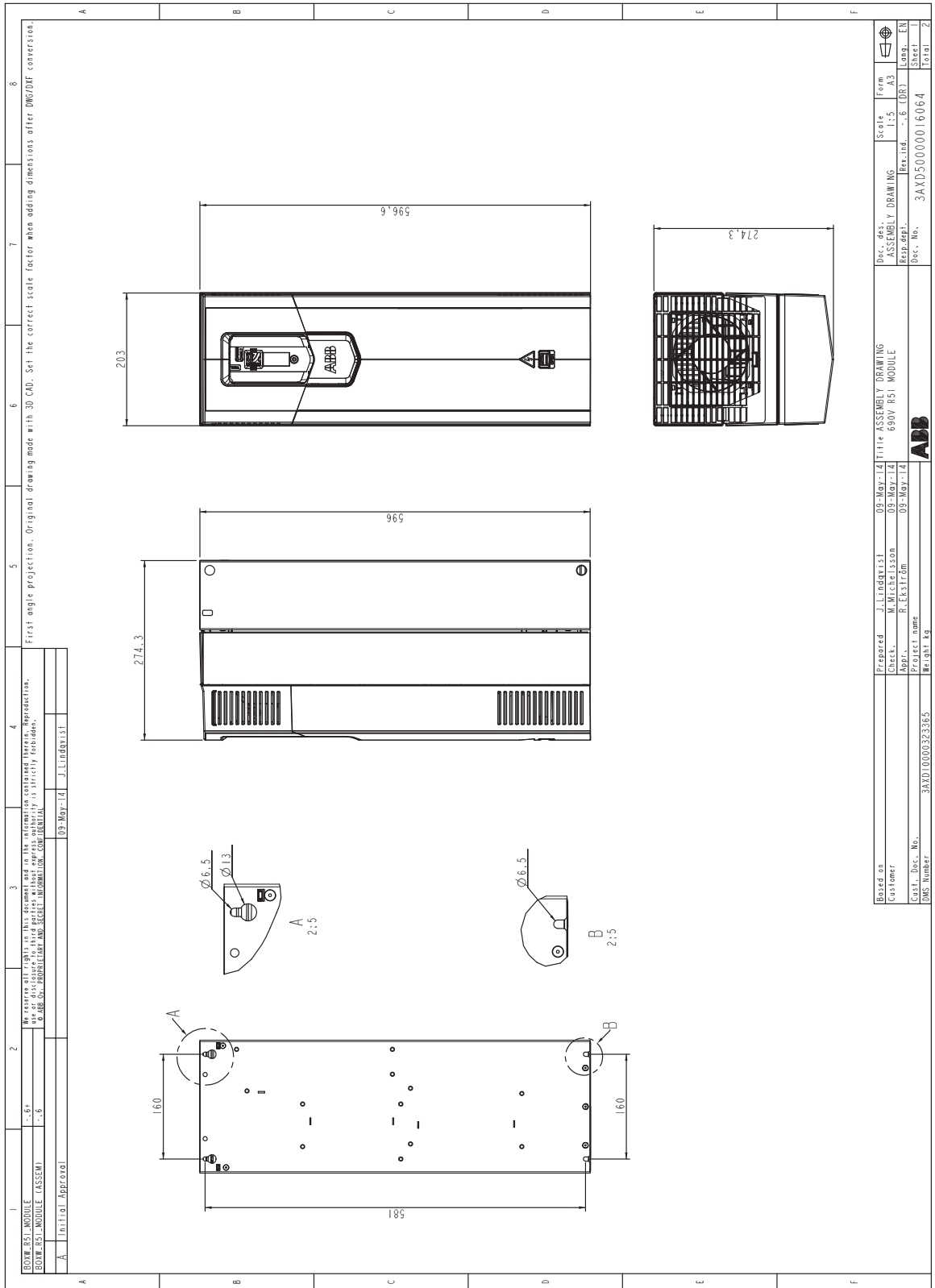
Frame R3i



Frame R4i



Frame R5i



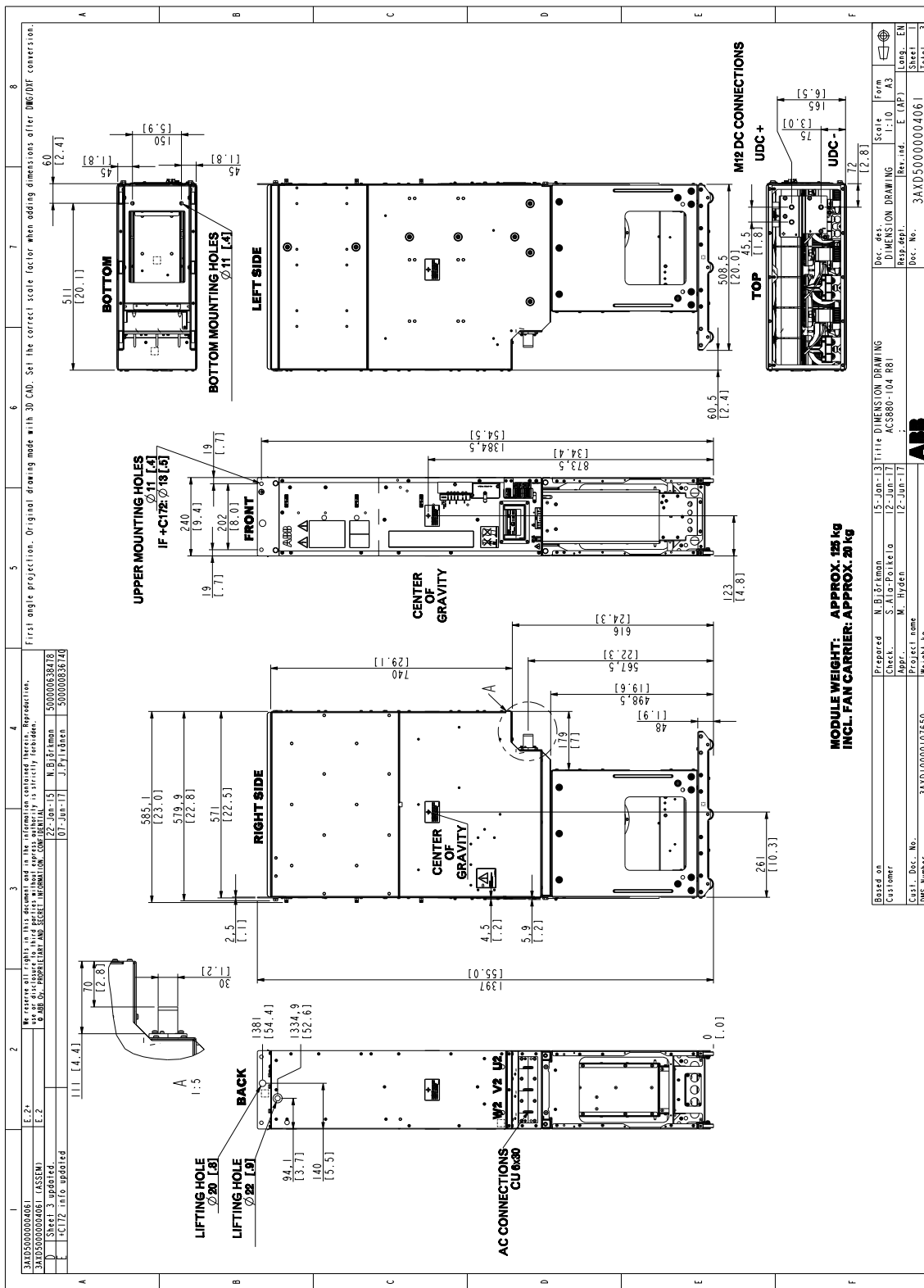
First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

| | | | | | | | |
|-------------------------|---|-----------------------|---|-----------|---|--------------------------|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| BOX/R5i-MODULE | | -6* | | -6* | | | |
| BOX/R5i-MODULE (ASSEMB) | | -6* | | -6* | | | |
| A Initial Approval | | 09-May-14 J.Lindqvist | | | | | |
| Based on | | Prepared J.Lindqvist | | 09-May-14 | | Title ASSEMBLY DRAWING | |
| Customer | | Checked R.Kristrom | | 09-May-14 | | Scale 1:2 | |
| Cust. Doc. No. | | Project name | | 09-May-14 | | Doc. No. 3AXD50000016064 | |
| DMS Number | | Weight kg | | 09-May-14 | | Form DR7 | |
| | | | | | | Rev. No. 3AXD50000016064 | |
| | | | | | | Sheet 1 | |
| | | | | | | Total 2 | |

| | |
|----------|-----------------|
| Doc. No. | 3AXD50000016064 |
| Form | DR7 |
| Scale | 1:2 |
| Rev. No. | 3AXD50000016064 |
| Sheet | 1 |
| Total | 2 |



Frame R8i



MODULE WEIGHT: APPROX. 125 kg
INCL. FAN CARRIER: APPROX. 20 kg

First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

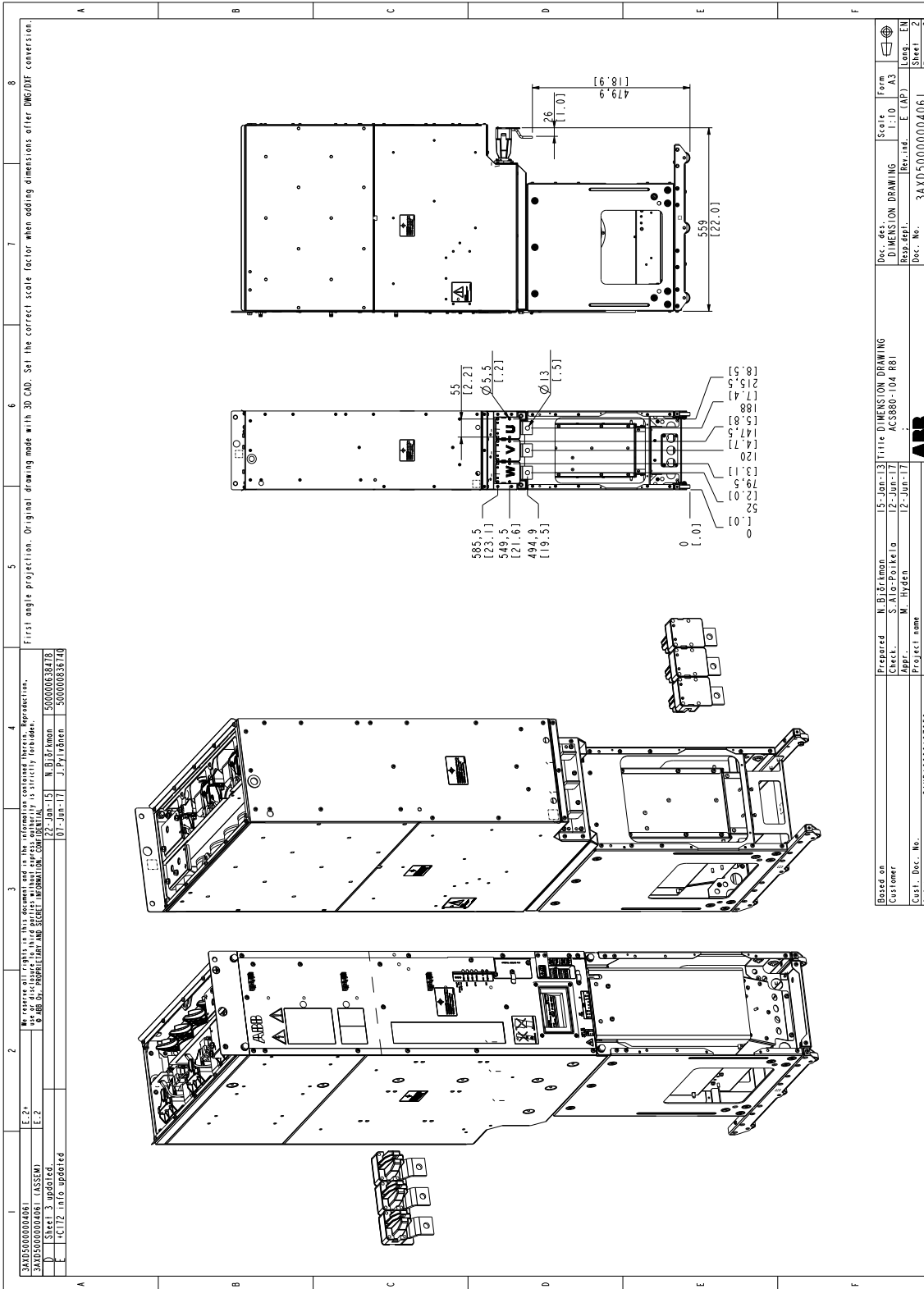
3AXD5000004061 E-2/ M. Kivimäki
3AXD5000004061 E-2/ S. Alar-Poikela
3AXD5000004061 E-2/ M. Hyöden
3AXD5000004061 E-2/ J. Pyyönen

3AXD5000004061 E-2/ M. Kivimäki
3AXD5000004061 E-2/ S. Alar-Poikela
3AXD5000004061 E-2/ M. Hyöden
3AXD5000004061 E-2/ J. Pyyönen

3AXD5000004061 E-2/ M. Kivimäki
3AXD5000004061 E-2/ S. Alar-Poikela
3AXD5000004061 E-2/ M. Hyöden
3AXD5000004061 E-2/ J. Pyyönen

| | | | | | | |
|--------------|-----------------|-----------|-------------|-------------------|-------|------|
| Prepared | N. B. Eriksson | 15-Jun-13 | Title | DIMENSION DRAWING | Scale | Form |
| Check | S. Alar-Poikela | 12-Jun-17 | Appr. | AC6880-104 R8i | 1:10 | A3 |
| Project name | M. Hyöden | 12-Jun-17 | Responsible | E. (AP) | Sheet | EN |
| Customer | | | DMS number | 3AXD5000004061 | Sheet | 1 |
| Customer No. | | | Weight | kg | Total | 3 |
| DMS number | 3AXD10000107650 | | | | | |





1st angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

3AXD5000004061 (ASSEMB)
 3AXD5000004061 (ASSEMB)
 Sheet 3 updated
 C112 info updated

01-Jun-17 J.Pylynen 50000038478
 22-Jun-15 N.Birkman

ABB Oy, IMPULSILÄINTEKNIKKA
 N. Birkman

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

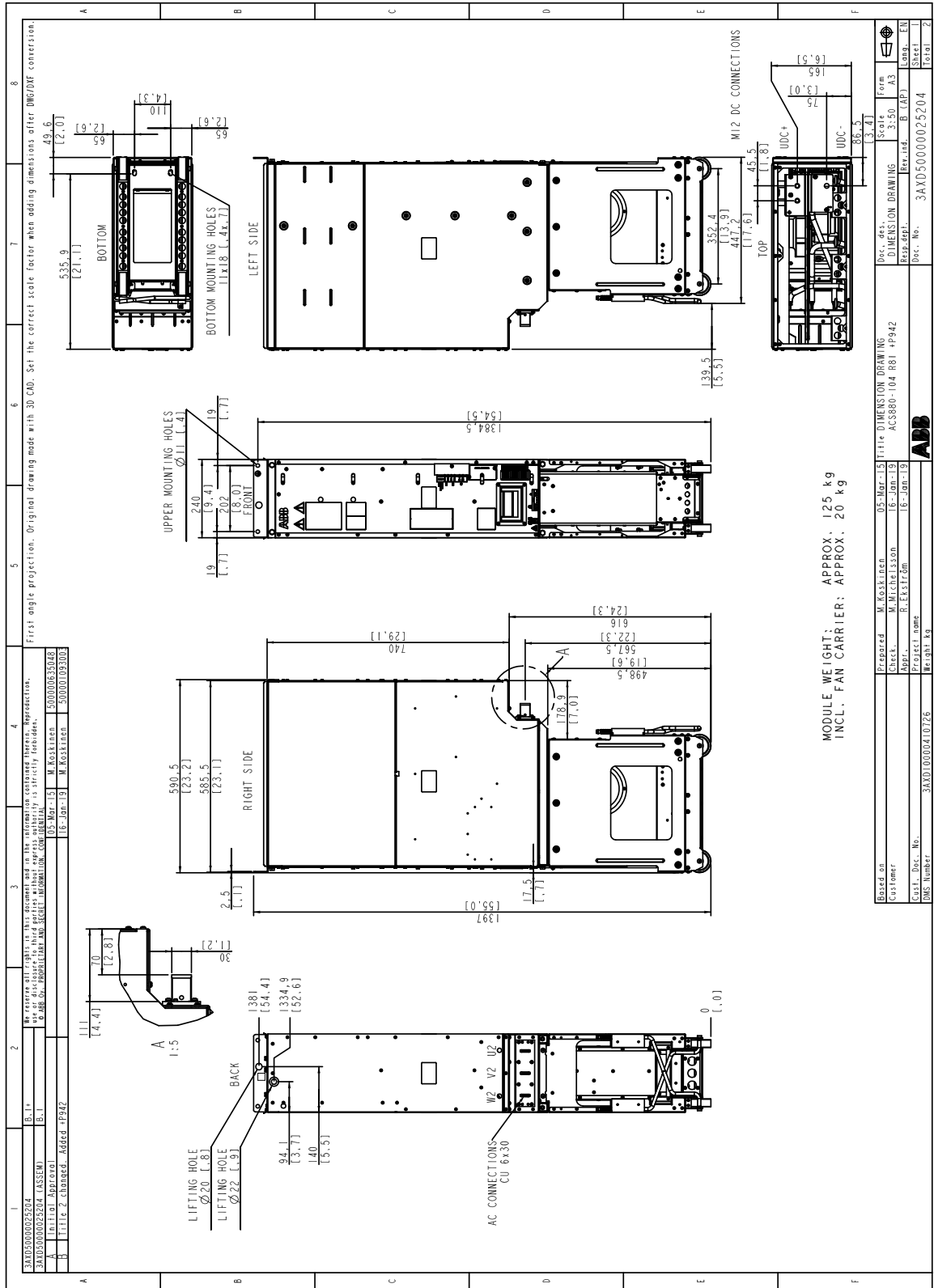
01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

01-Jun-17 J.Pylynen 50000038478

Frame R8i with option +P942



MODULE WEIGHT: APPROX. 125 kg
INCL. FAN CARRIER: APPROX. 20 kg

First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

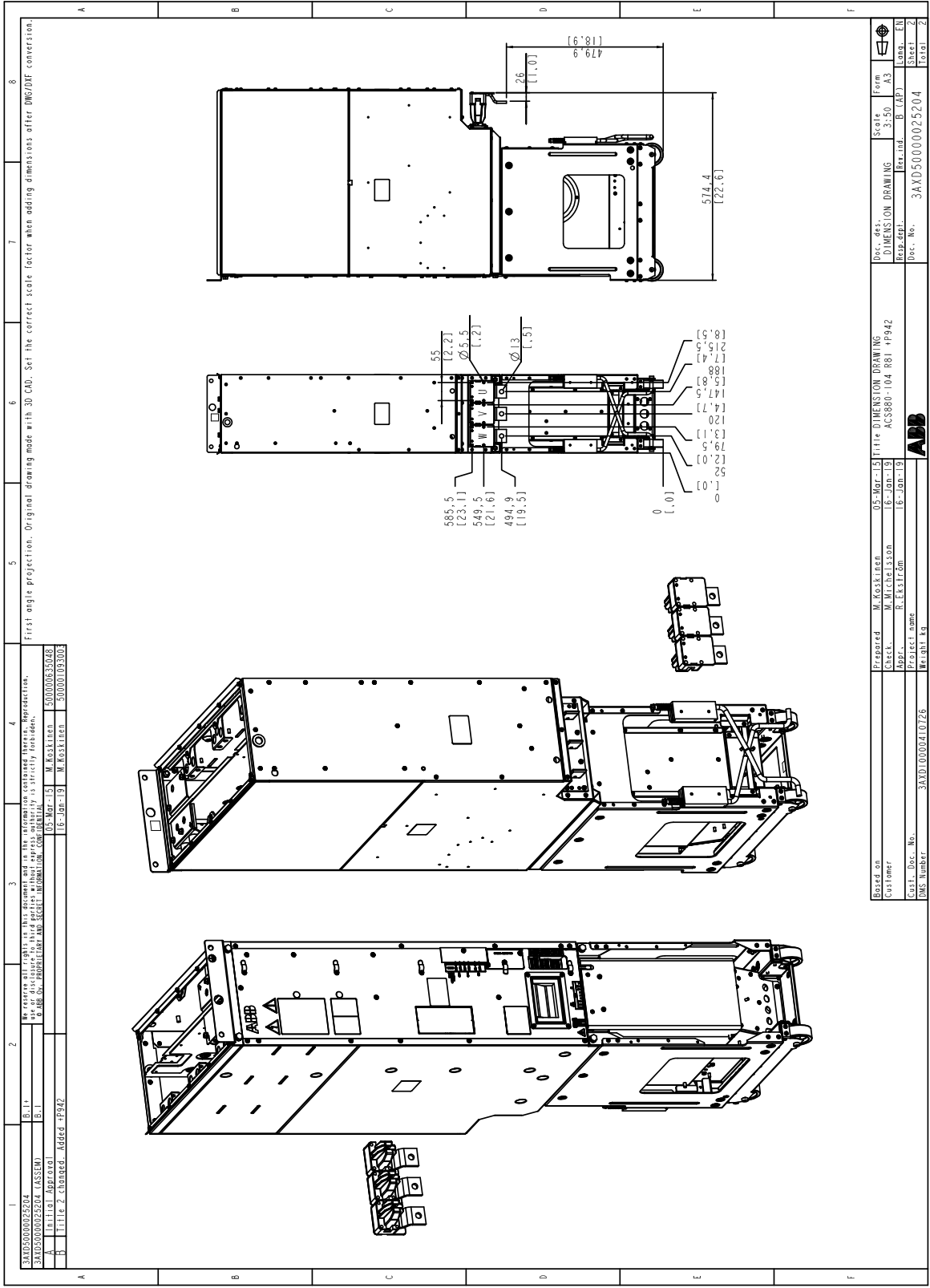
| EXERCISES | | | |
|--------------------------|---|---|---|
| 1 | 2 | 3 | 4 |
| 3AXD500025204 - ASSEMBLY | 1 | 1 | 1 |
| 3AXD500025204 - ASSEMBLY | 1 | 1 | 1 |
| 3AXD500025204 - ASSEMBLY | 1 | 1 | 1 |

Doc. des. DIMENSION DRAWING
Scale 3:50
Form A3
Rev. no. B (LAP)
Doc. No. 3AXD5000025204

Based on Prepared M. Koskinen 05-Mar-15
Customer Checked M. Mikhejsson 16-Jan-19
Appr. R. Ekström 16-Jan-19
Title DIMENSION DRAWING ACS880-104 R8i + P942
Project name 3AXD10000410726
Date M. Mikhejsson
M. Mikhejsson
3AXD5000025204



350 Dimension drawings



1
3AXD5000022204
B.1
3AXD5000022204 (ASSEM)
B.1
Initial Approval
Title 2 changed. Added 1P42

2
3AXD5000022204 (ASSEM)
B.1
3AXD5000022204 (ASSEM)
B.1
Initial Approval
Title 2 changed. Added 1P42

3
3AXD5000022204 (ASSEM)
B.1
3AXD5000022204 (ASSEM)
B.1
Initial Approval
Title 2 changed. Added 1P42

4
3AXD5000022204 (ASSEM)
B.1
3AXD5000022204 (ASSEM)
B.1
Initial Approval
Title 2 changed. Added 1P42

5
3AXD5000022204 (ASSEM)
B.1
3AXD5000022204 (ASSEM)
B.1
Initial Approval
Title 2 changed. Added 1P42

6
3AXD5000022204 (ASSEM)
B.1
3AXD5000022204 (ASSEM)
B.1
Initial Approval
Title 2 changed. Added 1P42

7
3AXD5000022204 (ASSEM)
B.1
3AXD5000022204 (ASSEM)
B.1
Initial Approval
Title 2 changed. Added 1P42

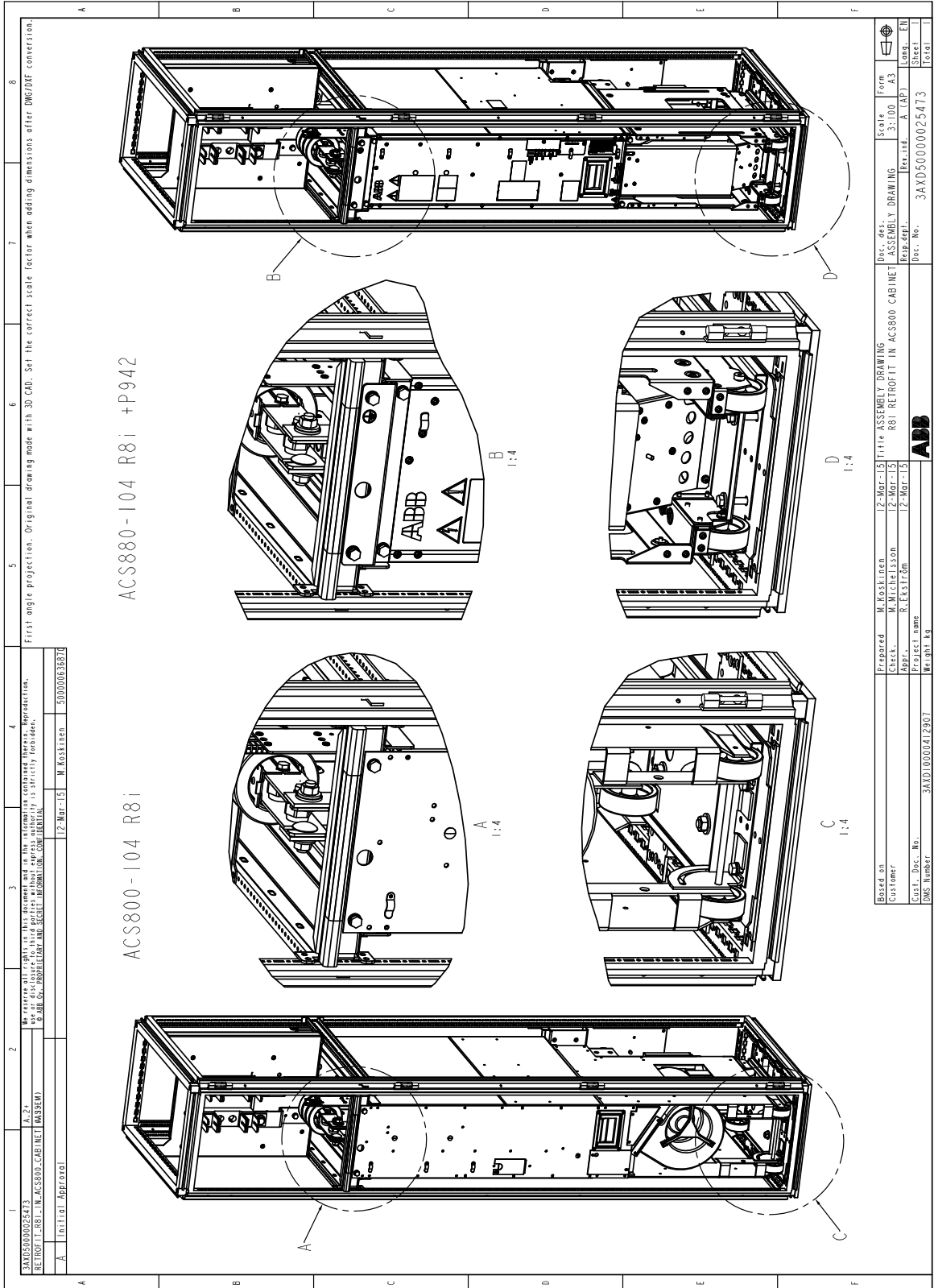
8
3AXD5000022204 (ASSEM)
B.1
3AXD5000022204 (ASSEM)
B.1
Initial Approval
Title 2 changed. Added 1P42

First angle projection. Original drawing made with 3D CAD. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

| | | | | | |
|-----------|-------------------|----------|---------|-------|----|
| Doc. des. | DIMENSION DRAWING | Scale | 3:50 | Form | A3 |
| Doc. No. | 3AXD5000022204 | Rev. No. | B (VAP) | Conv. | EU |
| Doc. No. | 3AXD5000022204 | Rev. No. | B (VAP) | Conv. | EU |
| Doc. No. | 3AXD5000022204 | Rev. No. | B (VAP) | Conv. | EU |

| | | | | |
|----------|-----------------|-----------|-------------|---------------------|
| Prepared | M. Koskinen | 05-Mar-13 | Title | DIMENSION DRAWING |
| Checked | M. Mitchellsson | 18-Jan-13 | Customer | ACS880-104 R81 4P42 |
| Approved | R. Ekström | 18-Jan-13 | Client name | |
| Drawn | R. Ekström | 18-Jan-13 | MS Number | 3AXD10000410726 |

| |
|-----|
| ABB |
|-----|



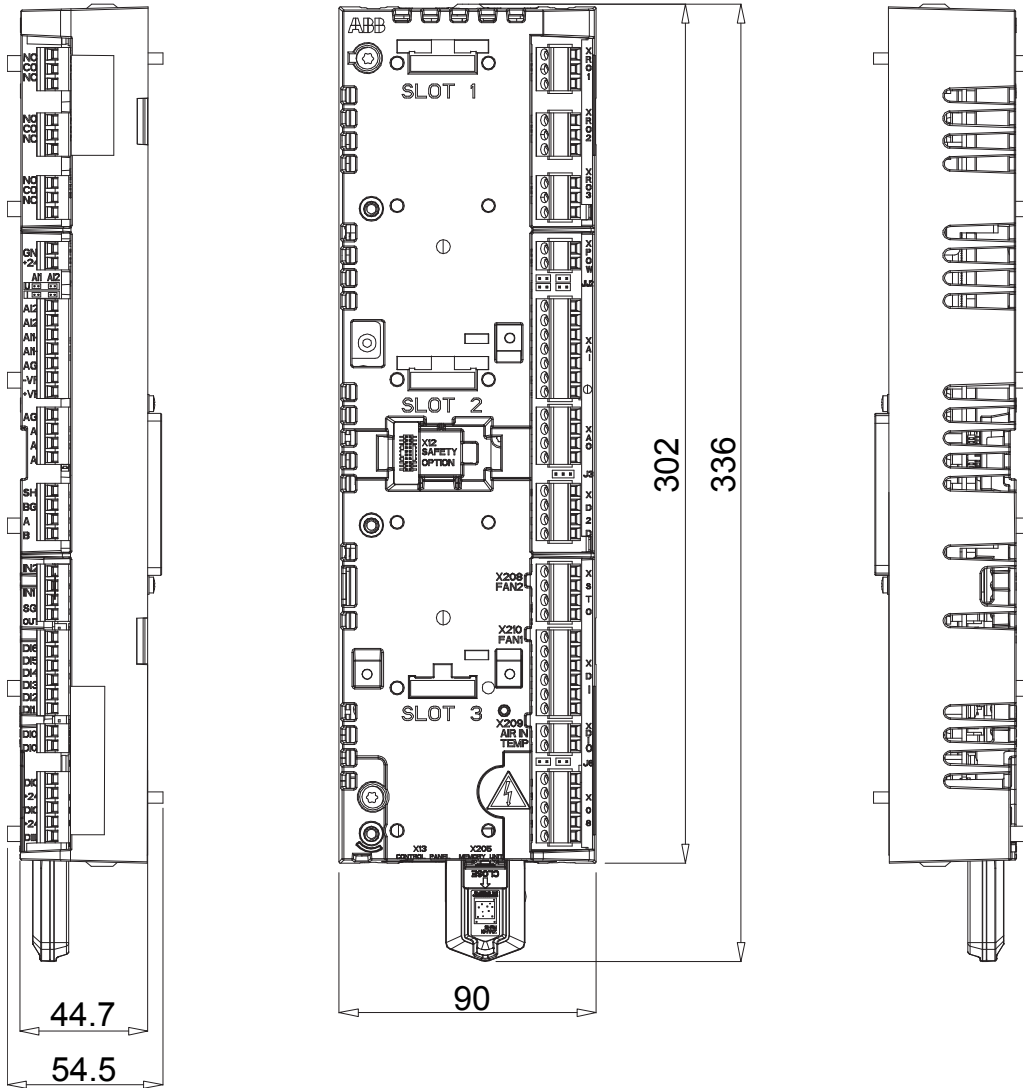
ACS880-104 R8i + P942

ACS800-104 R8i

Control electronics

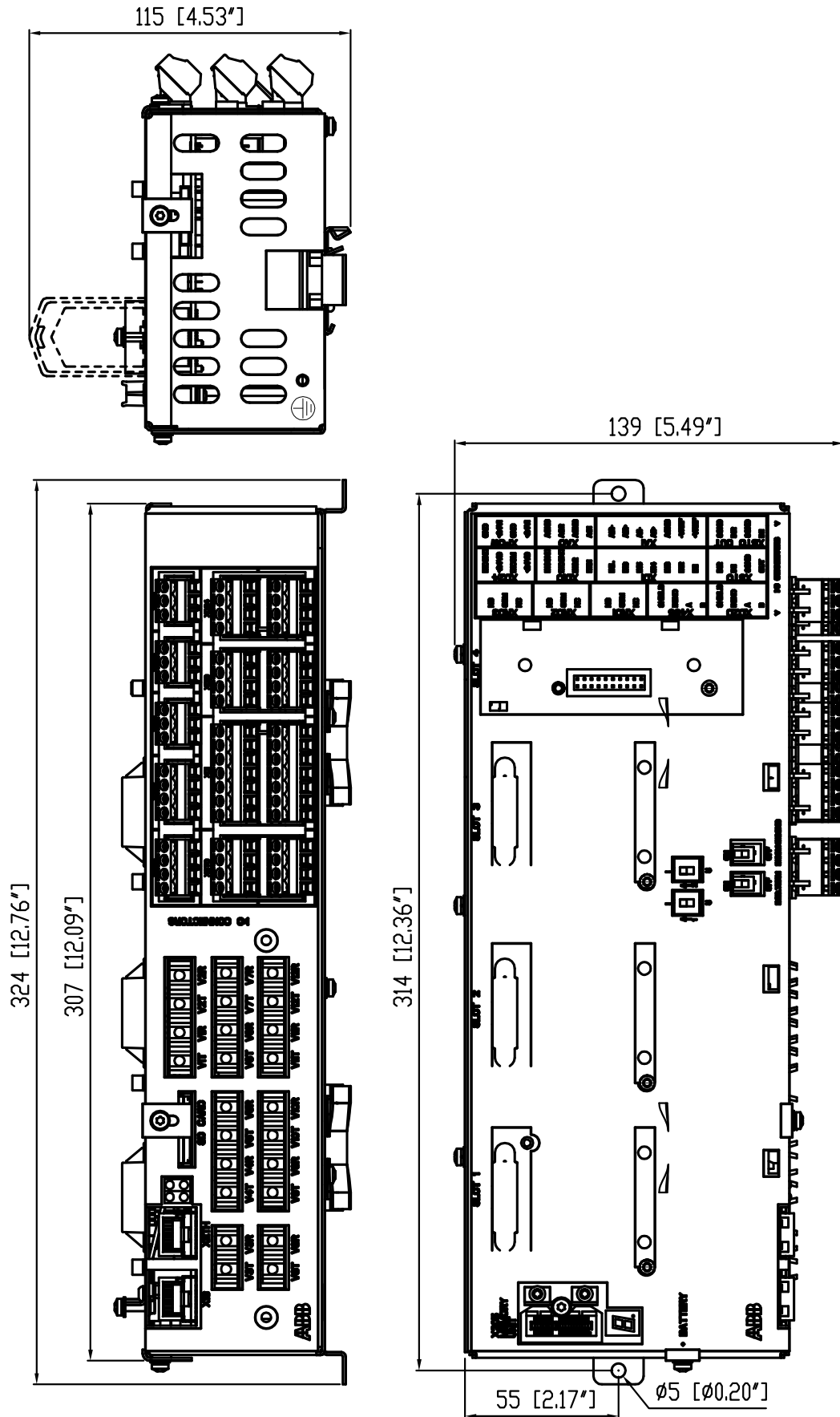
■ ZCU control unit

Note: The control cable grounding plate can be attached to either top or bottom edge of the control unit.

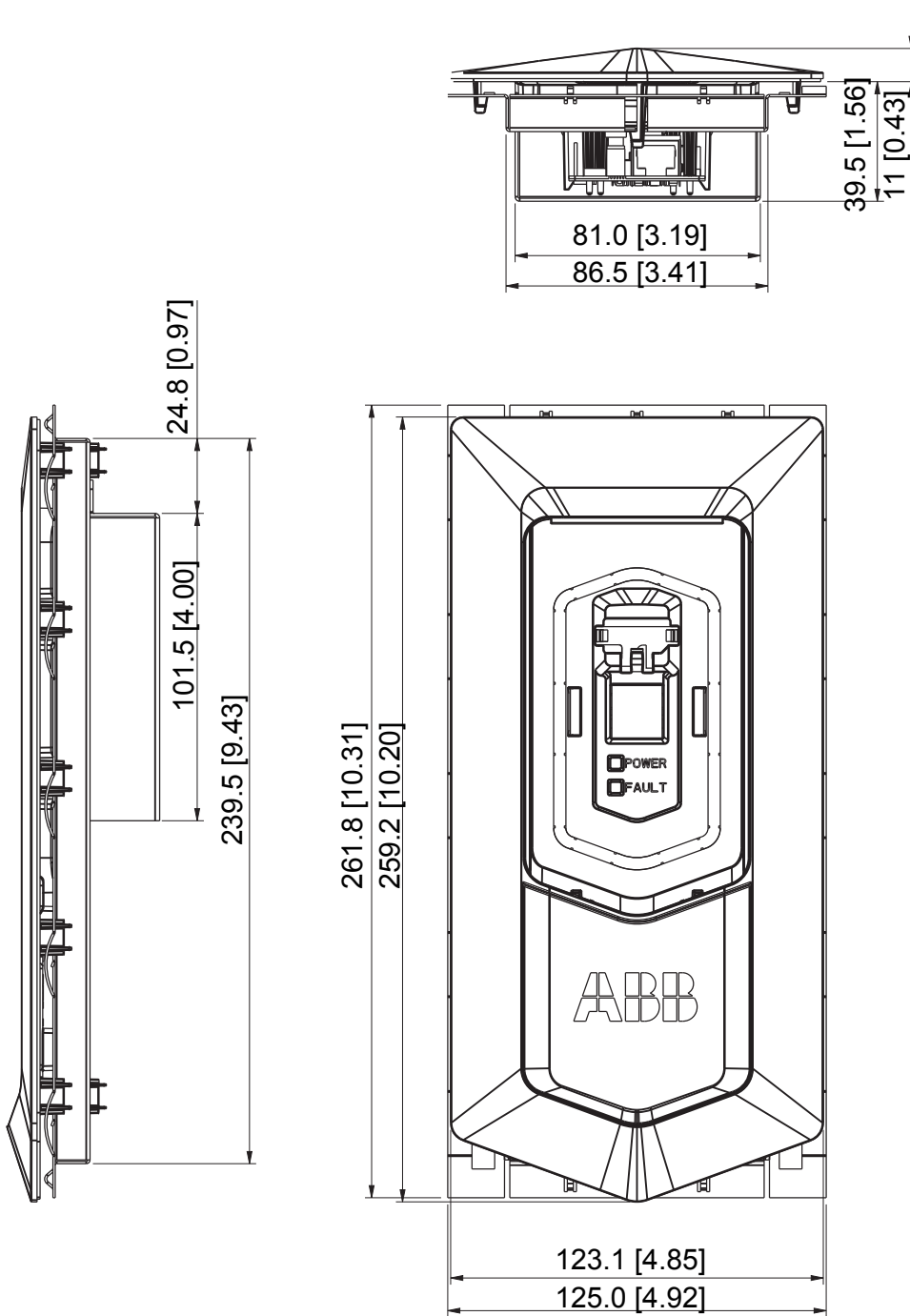


Dimensions in mm
1 mm = 0.0394 in

■ BCU control unit



■ DPMP-01 door mounting kit

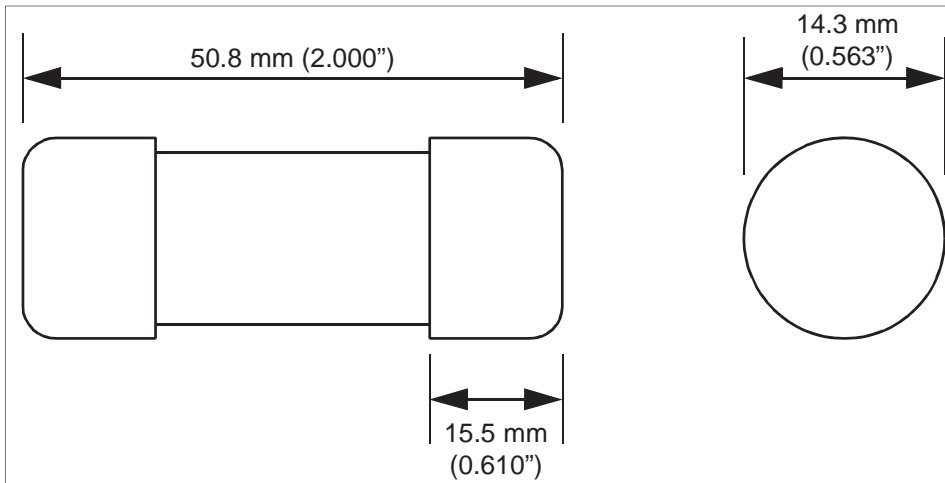


Cutting in the cabinet door: 109 mm × 223 mm (4.29 in. × 8.78 in.)

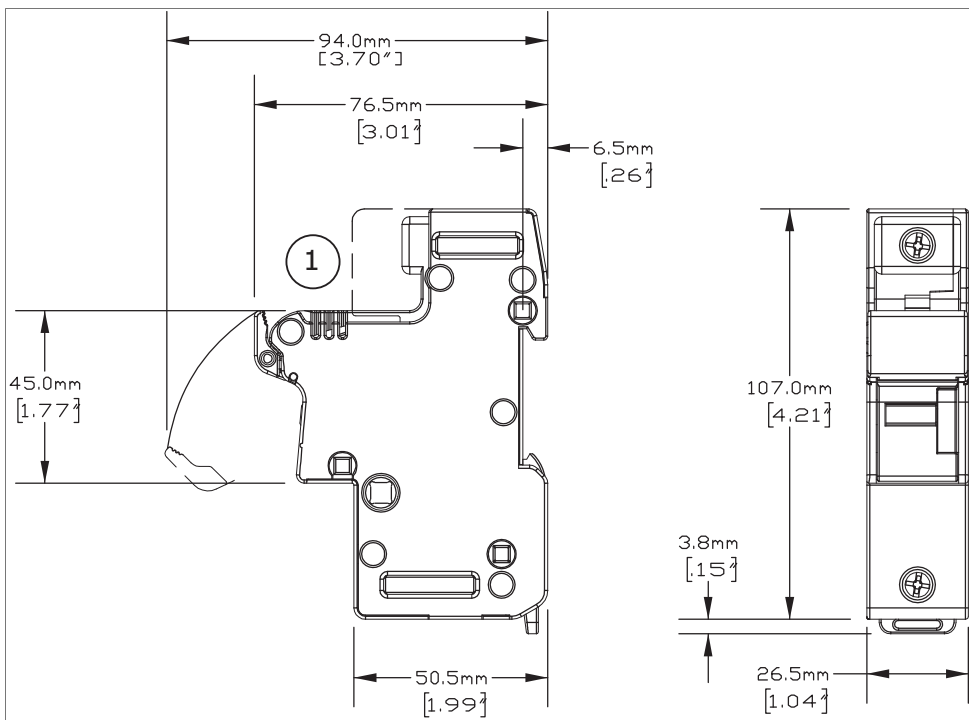
Plate thickness: 1.5 ... 2.5 mm (0.06 ... 0.10 in.)

DC fuses and fuse bases

■ Fuse, 14 × 51 mm

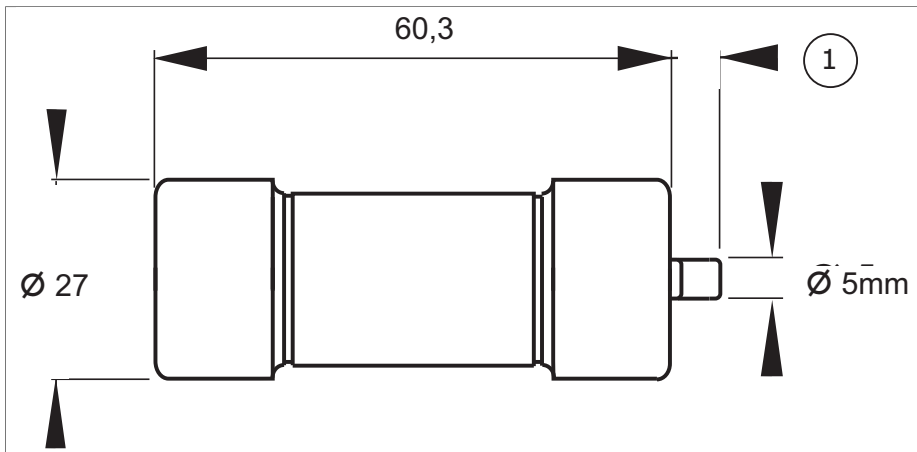


■ Mersen US141 (Z331153F) fuse disconnecter (for 14 × 51 mm fuses)



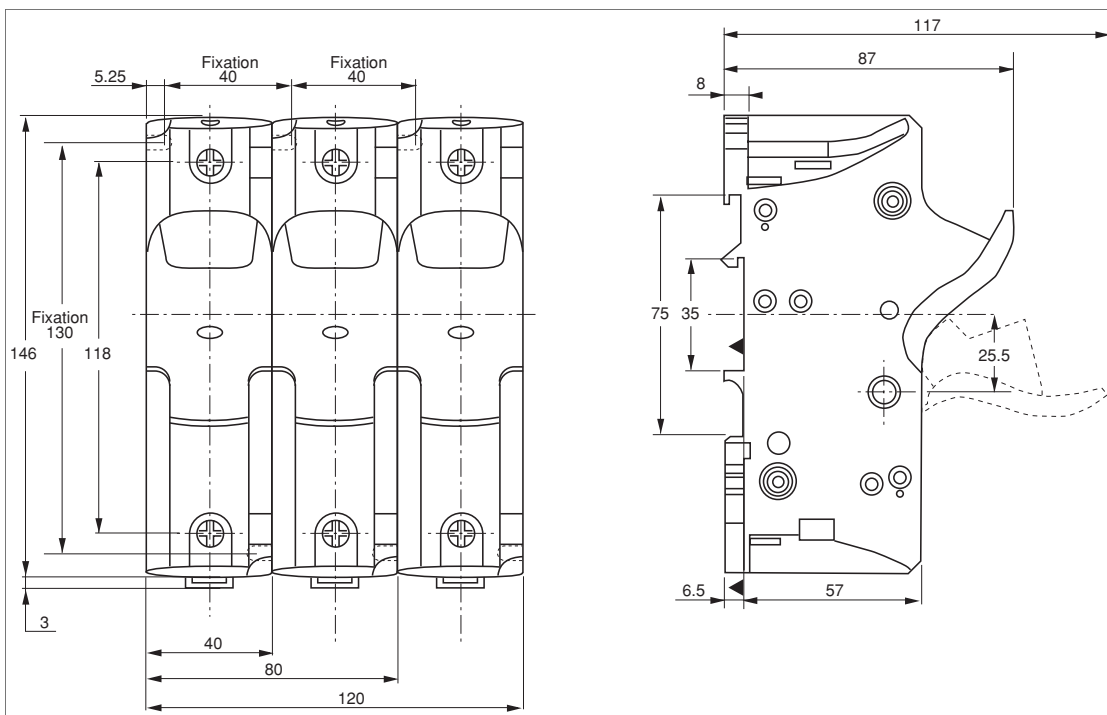
1. **Note:** On microswitch versions only

■ Fuse, 27 × 60 mm

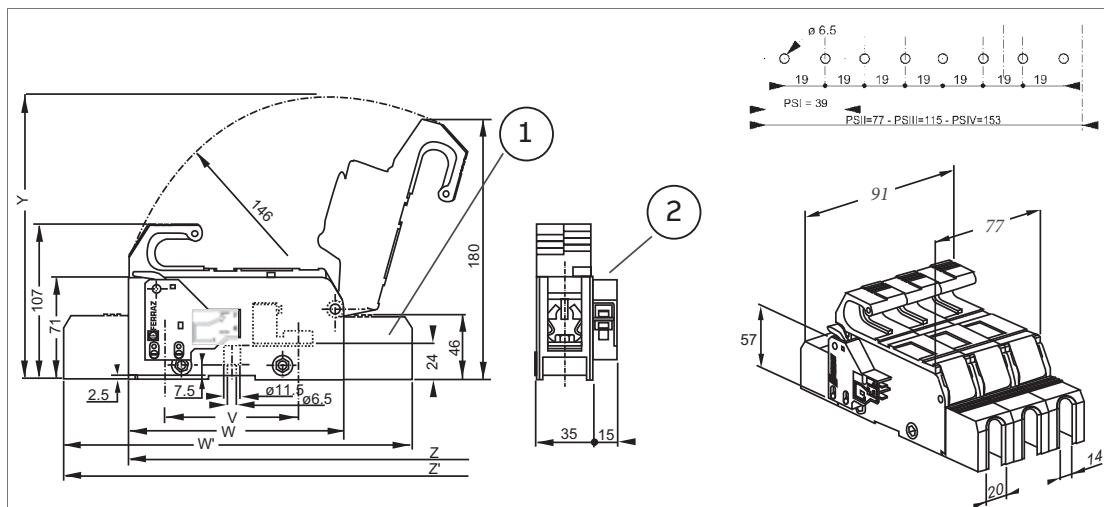


1. 7 mm indicator travel

■ Mersen US271MI (R227600C) fuse disconnecter (for 27 × 60 mm fuses)

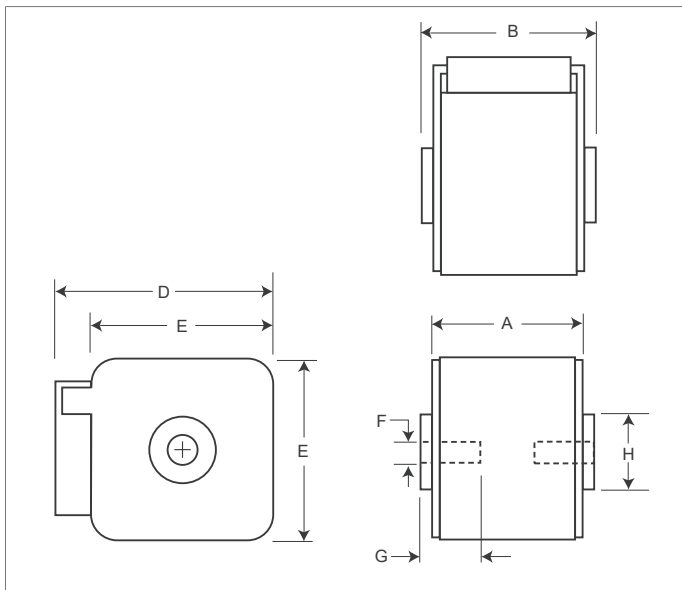


■ Mersen PS272PREMCPS (N220076) fuse disconnecter (for R5i, 27 × 60 mm fuses)



1. Twin terminal covers
PS 27
Part #: A 220087
Weight: 30 g
Packaging: 3 twins
 2. MC PS
- V: 93 Connecting distance between centers
W: 150 Without terminals cover length
W': 240 With terminals cover length
Y: 196 Space factor with a 90° fuse carrier position
Z: 284 Without terminal cover, space factor with a 180° fuse carrier position
Z': 279 With terminal cover, space factor with a 180° fuse carrier position

■ DC fuse blocks for frames R5i...R8i (Bussmann)



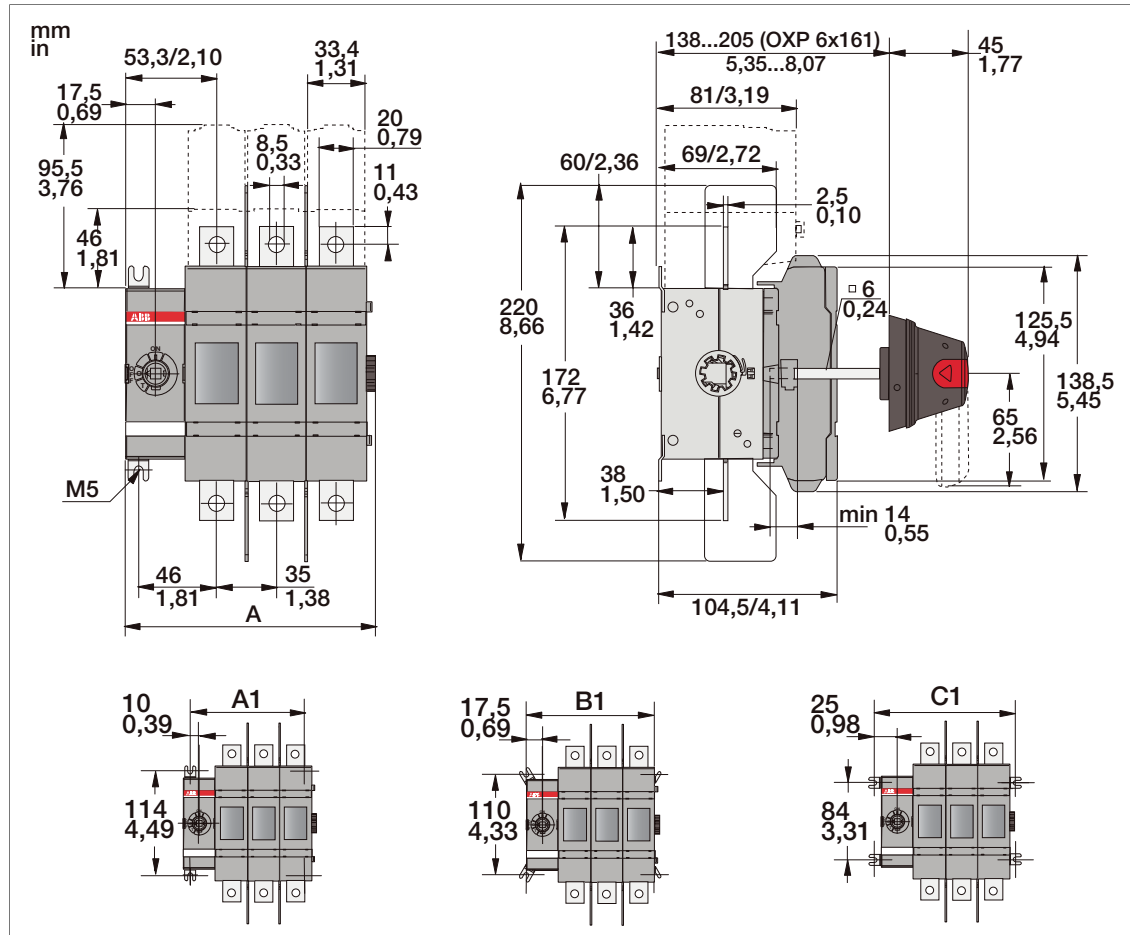
| 690 V fuses (as used with 400 and 500 V units) | | | | | | | |
|--|----------------|----------------|----------------|----------------|-----|----------------|----------------|
| Size | A mm (inch) | B mm (inch) | D mm (inch) | E mm (inch) | F | G mm (inch) | H mm (inch) |
| 1 | 50 (1.97) | 51 (2.01) | 69 (2.72) | 53 (2.09) | M8 | 8 (0.31) | 20 (0.79) |
| 3 | 51 (2.01) | 53 (2.09) | 92 (3.62) | 76 (2.99) | M12 | 10 (0.39) | 30 (1.18) |
| 3* | 51 (2.01) | 65 (2.56) | 92 (3.62) | 76 (2.99) | M12 | 10 (0.39) | 30 (1.18) |

| 1000...1250 V fuses (as used with 690 V units) | | | | | | | |
|--|----------------|----------------|----------------|----------------|-----|----------------|----------------|
| Size | A mm (inch) | B mm (inch) | D mm (inch) | E mm (inch) | F | G mm (inch) | H mm (inch) |
| 1* | 74 (2.91) | 75 (2.95) | 59 (2.32) | 45 (1.77) | M8 | 5 (0.20) | 17 (0.67) |
| 1 | 74 (2.91) | 75 (2.95) | 69 (2.72) | 53 (2.09) | M8 | 8 (0.31) | 20 (0.79) |
| 3 | 81 (3.19) | 83 (3.27) | 92 (3.62) | 76 (2.99) | M12 | 10 (0.39) | 30 (1.18) |

Switchgear and charging components

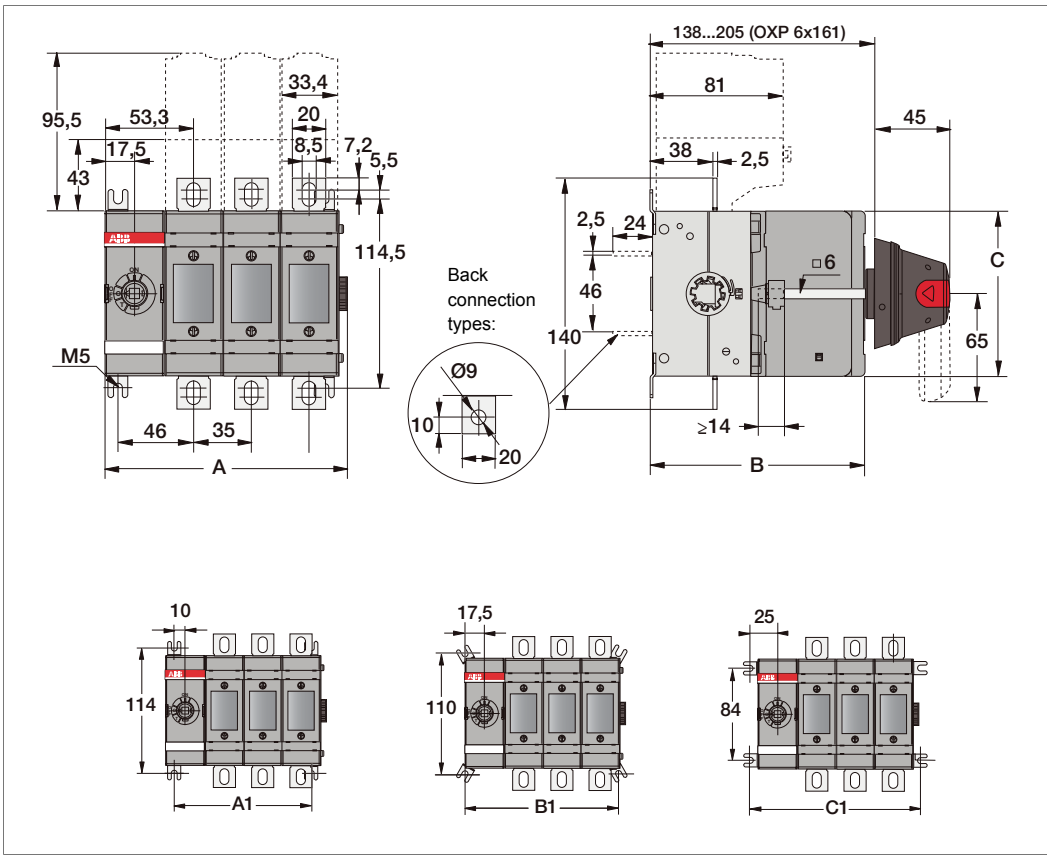
■ OS_switch fuses

OS100GJ04FP



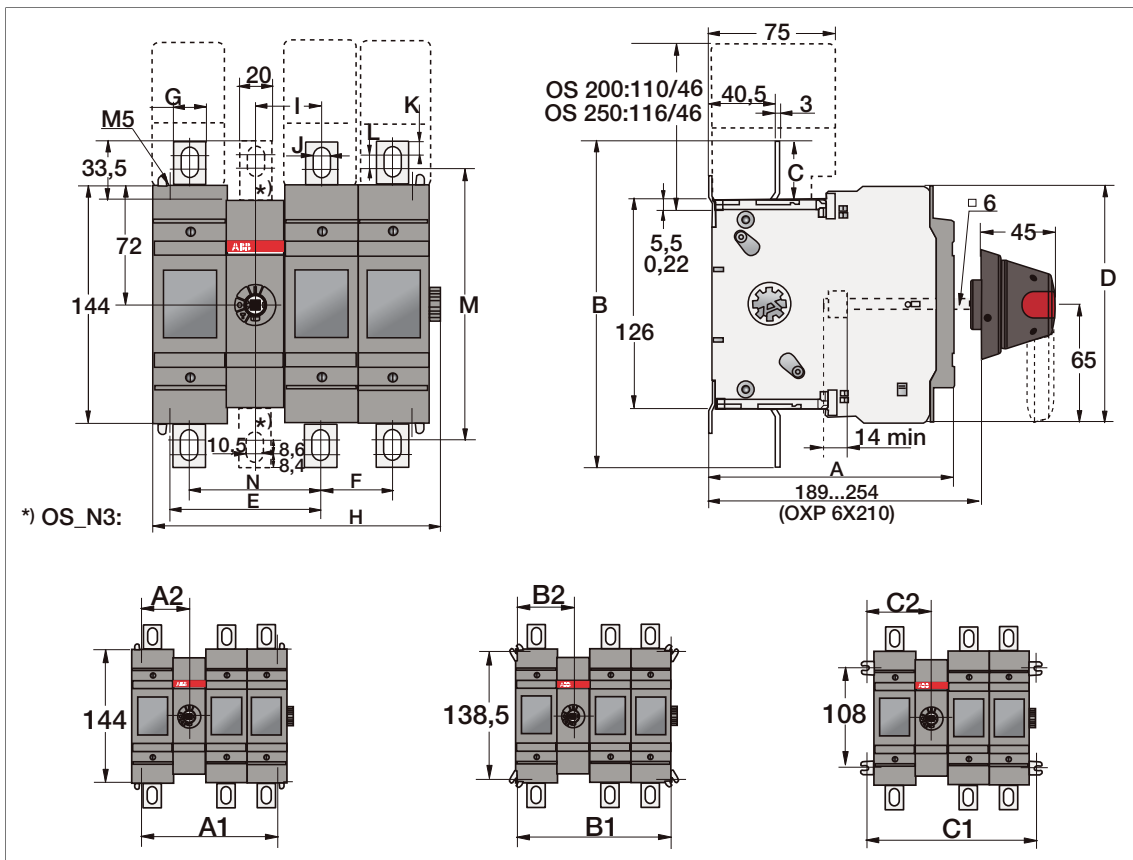
| | mm (in) |
|-----------|--------------|
| A | 181.5 (7.15) |
| A1 | 160 (6.30) |
| B2 | 175 (6.89) |
| C1 | 190 (7.48) |

OS160GD04F



| | mm (in) |
|-----------|--------------|
| A | 181.5 (7.15) |
| B | 130 (5.12) |
| C | 100 (3.94) |
| A1 | 160 (6.30) |
| B1 | 175 (6.89) |
| C1 | 190 (7.48) |

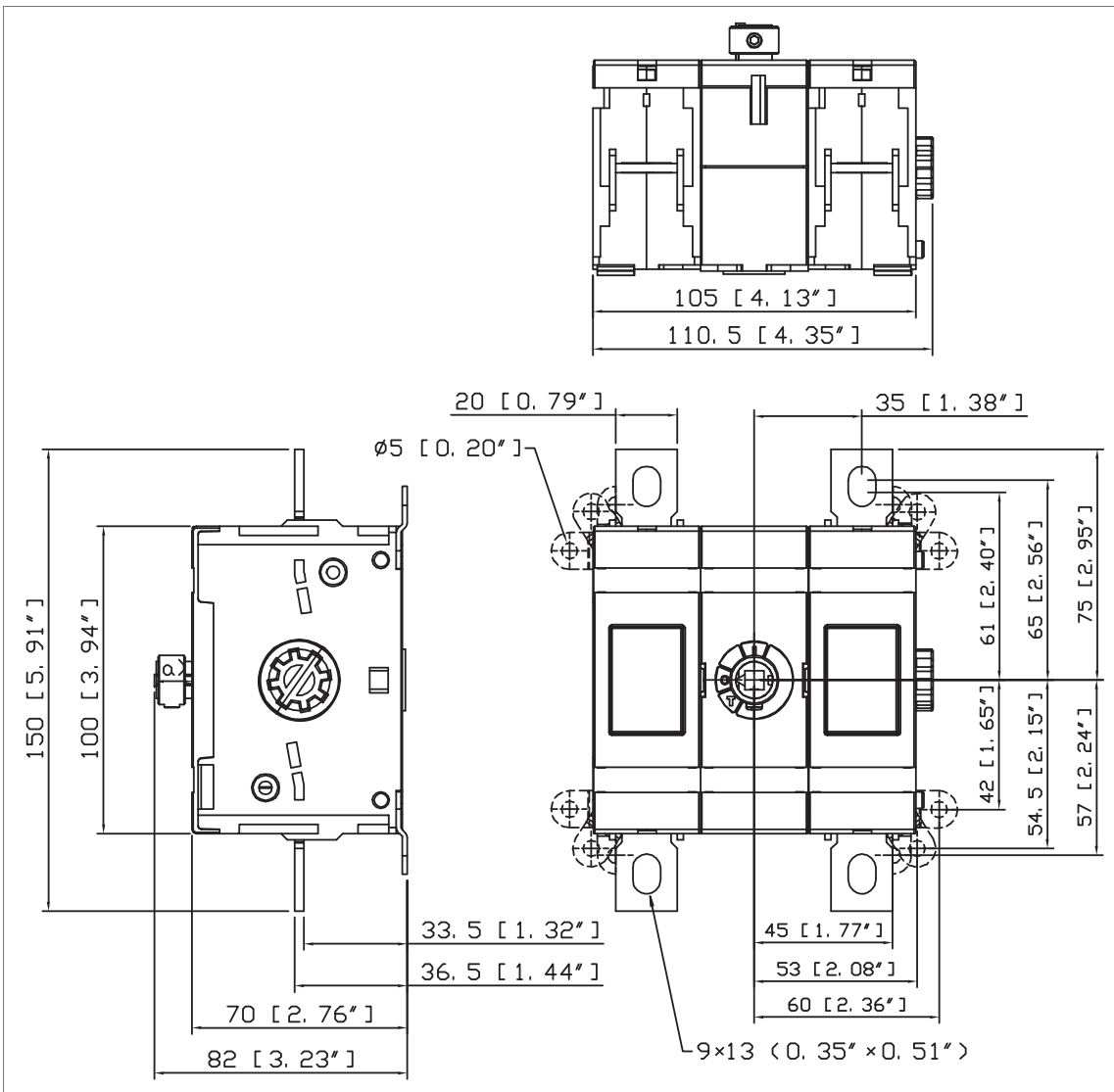
OS200DZ22F



| OS200 | | | |
|-------|--------------|-----|--------------|
| D22 | mm (inch) | D22 | mm (inch) |
| A | 149 (5.87) | K | 8.4 (0.33) |
| B | 199 (7.83) | L | 8.6 (0.34) |
| C | 36.5 (1.44) | M | 165 (6.50) |
| D | 144.5 (5.69) | N | 80 (3.15) |
| E | 135.5 (5.33) | A1 | 191 (7.52) |
| F | 43.5 (1.71) | A2 | 95.5 (3.76) |
| G | 20 (0.79) | B1 | 210 (8.27) |
| H | 219 (8.62) | B2 | 105 (4.13) |
| I | 40.8 (1.57) | C1 | 227 (8.94) |
| J | 10 (0.39) | C2 | 113.5 (4.47) |

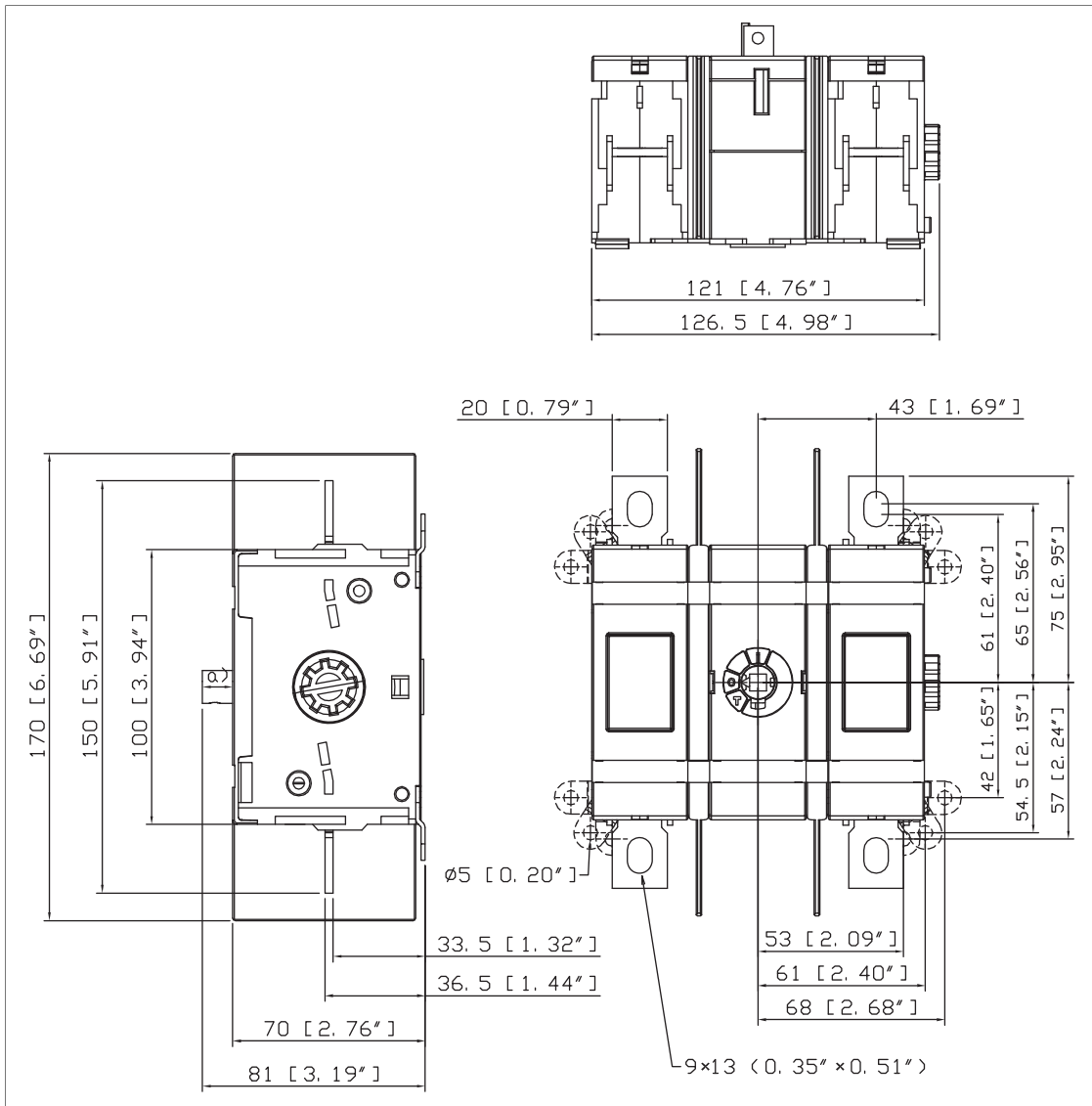
■ OT_switch/disconnectors

OT200E11



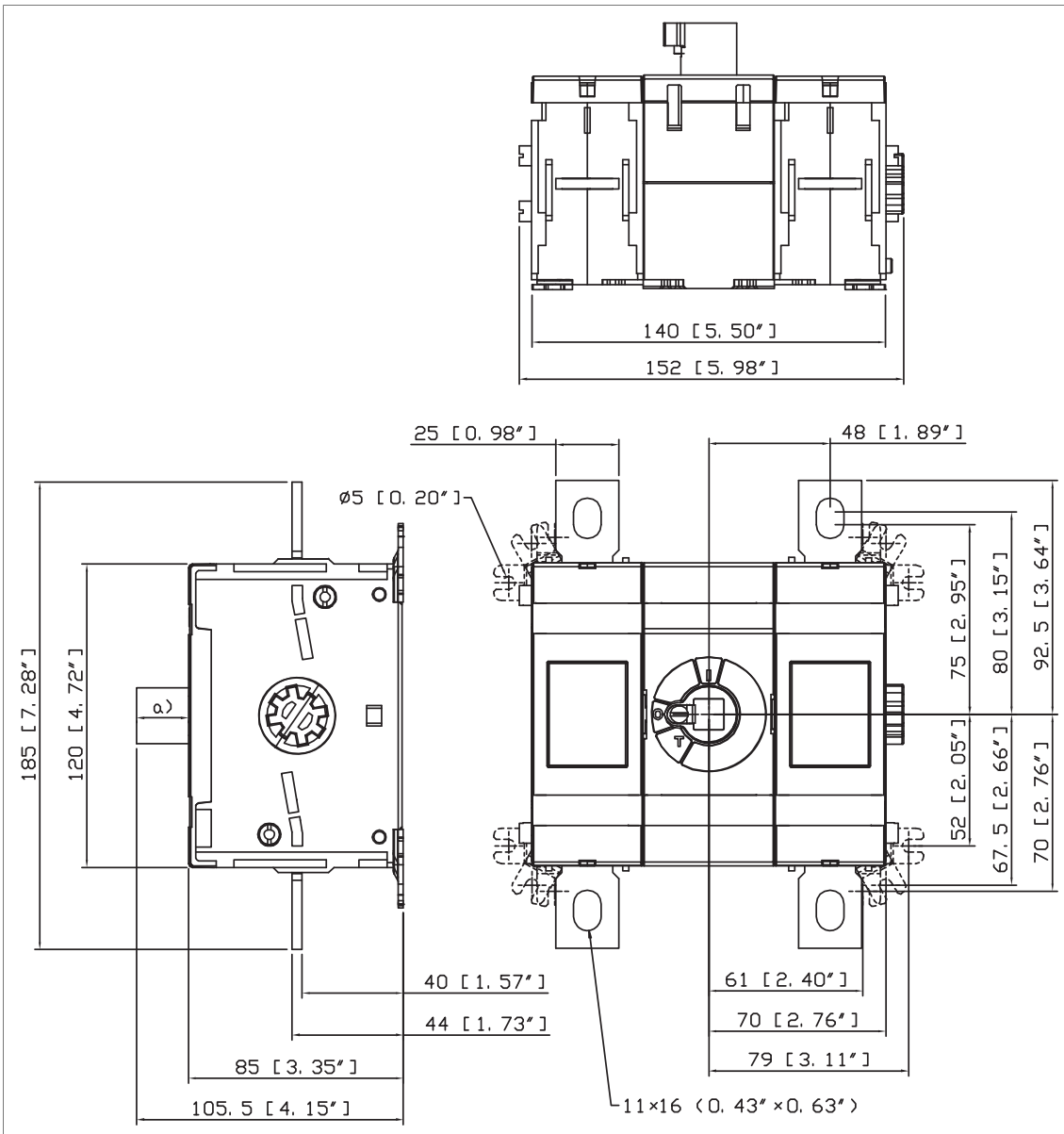
a) The shaft must extend into switch at least 14 mm (0.55").

OT200U11

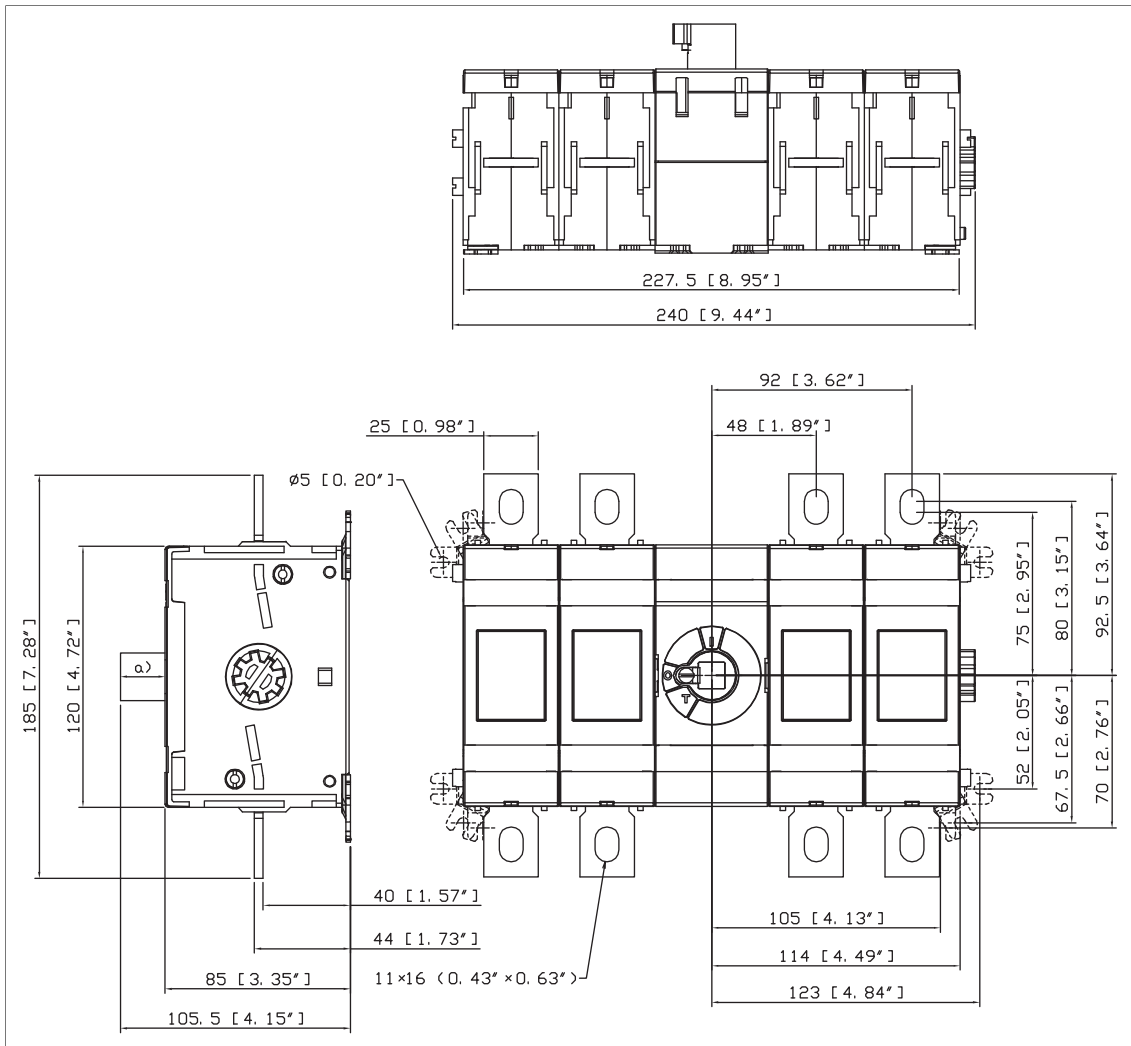


a) The shaft must extend into switch at least 14 mm (0.55").

OT400E11

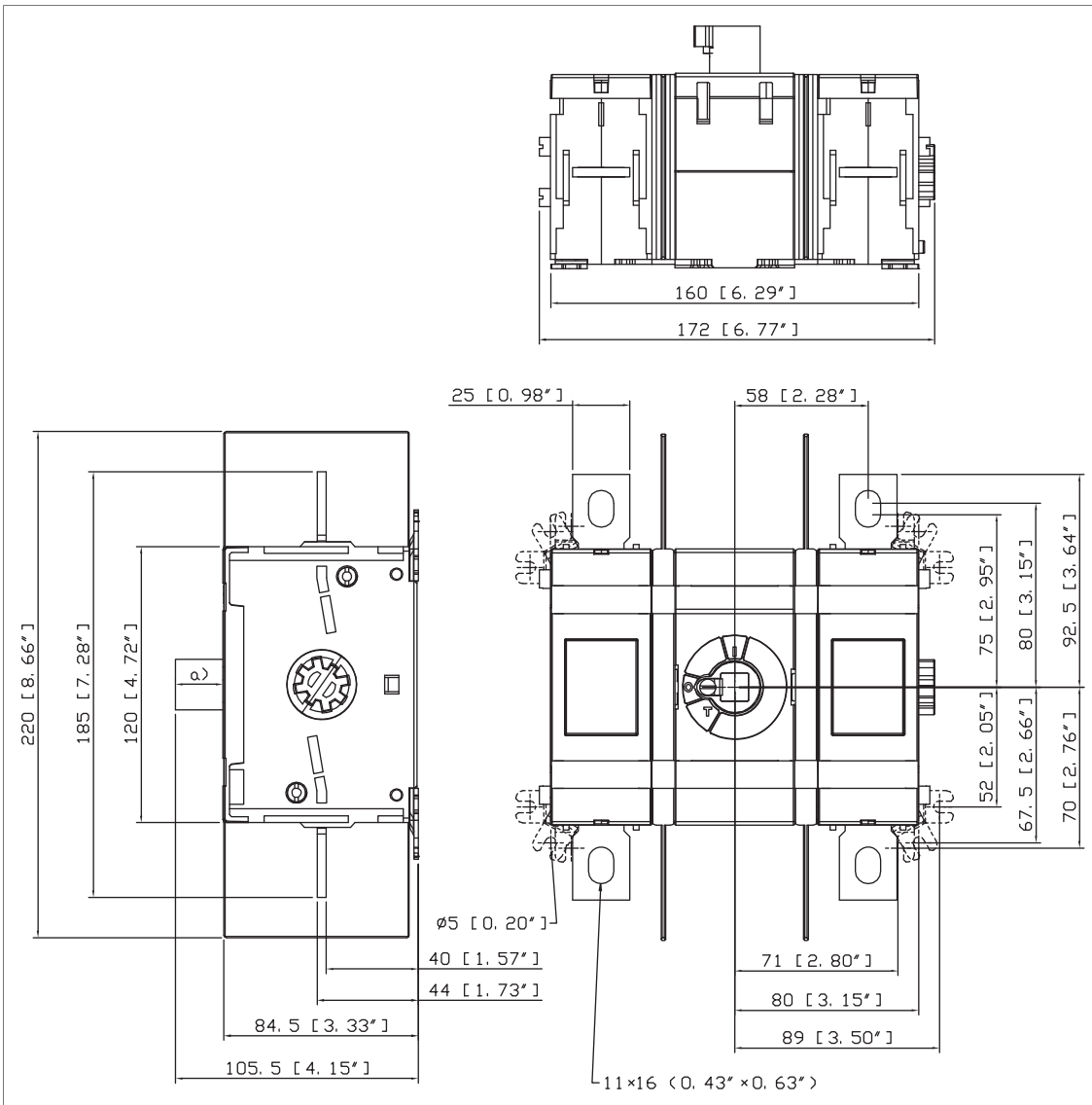


OT400E22



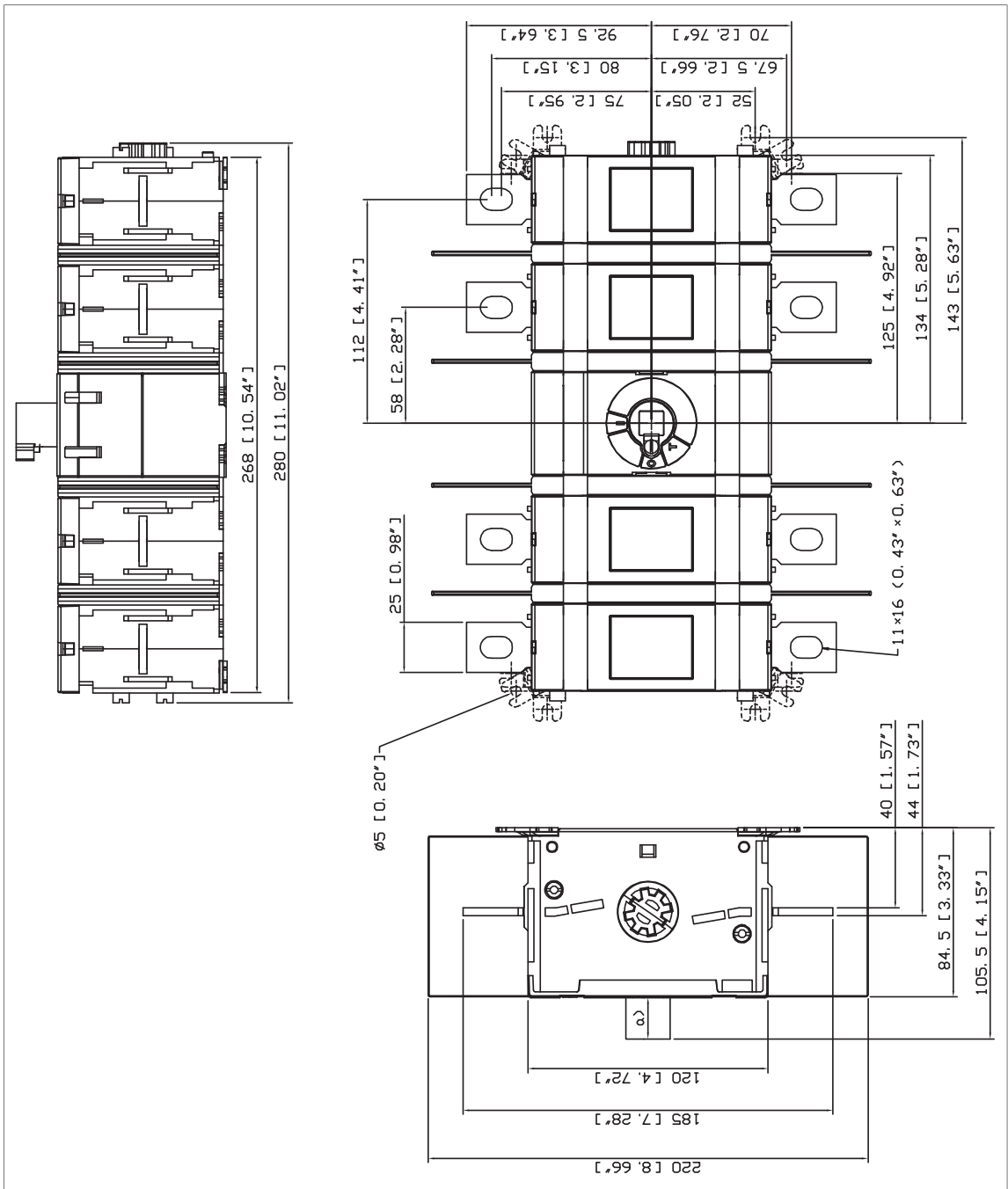
a) The shaft must extend into the switch at least 20 mm (0.79").

OT400U11



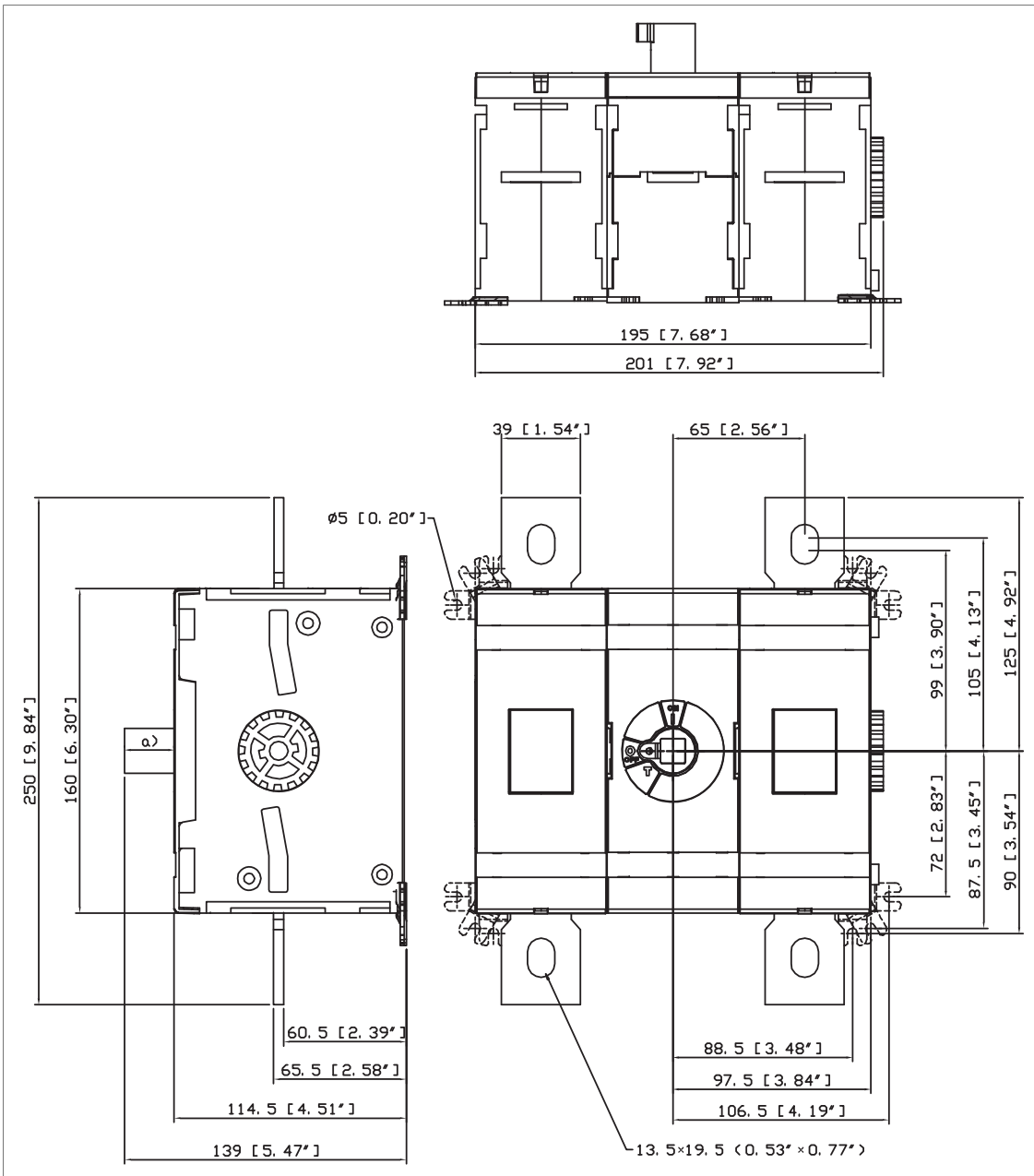
a) The shaft must extend into the switch at least 20 mm (0.79").

OT400U22



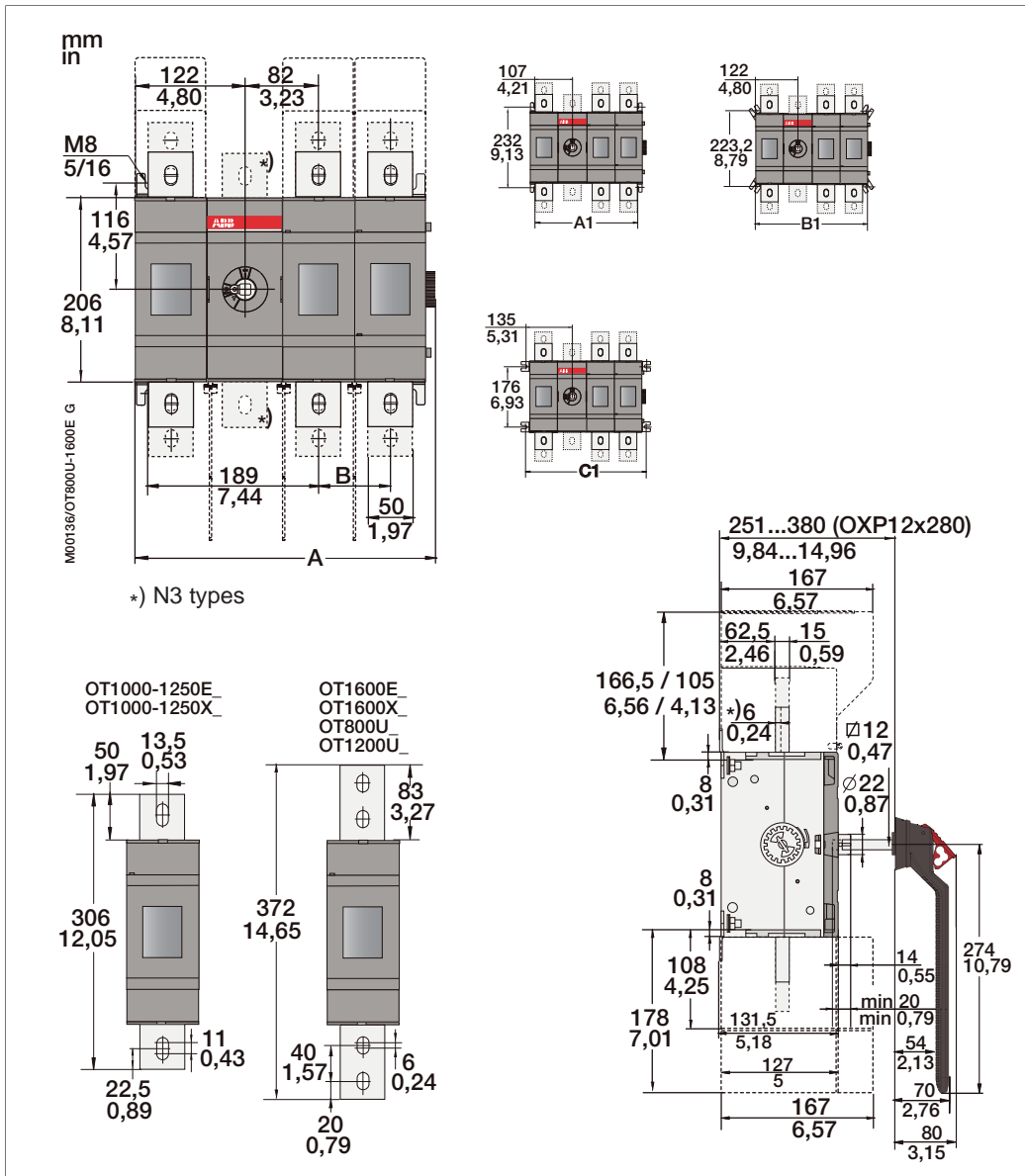
a) The shaft must extend into the switch at least 20 mm (0.79").

OT600U11, OT630E11



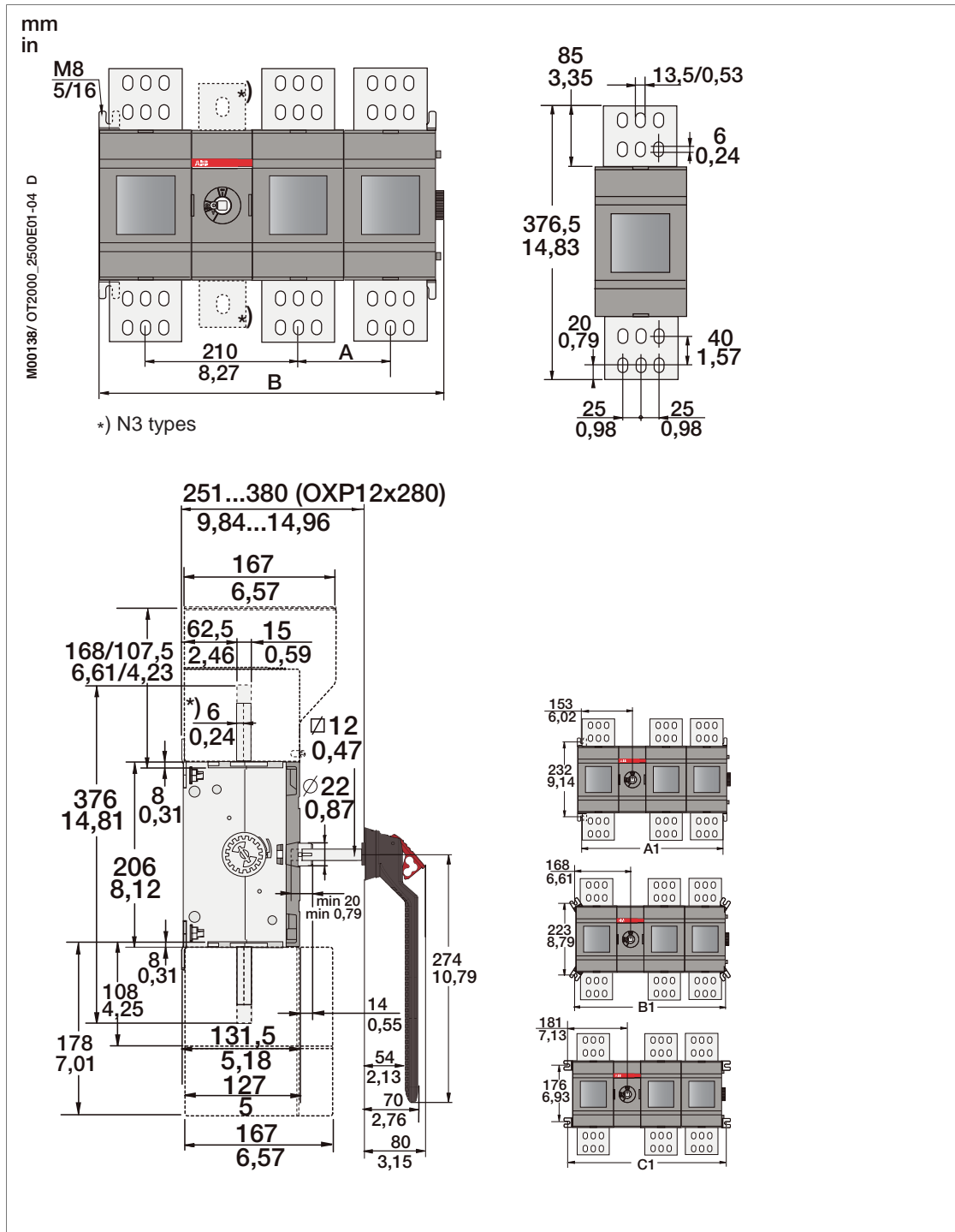
a) The shaft must extend into the switch at least 20 mm (0.79").

OT1200U__, OT1600E__



| | _11 mm (in) | _22 mm (in) |
|-----------|----------------|----------------|
| A | 254.50 (10.02) | 414.50 (16.32) |
| B | - | 80 (3.15) |
| A1 | 214 (8.43) | 374 (14.72) |
| B1 | 244 (9.61) | 404 (15.91) |
| C1 | 270 (10.63) | 430 (16.93) |

OT2500E22

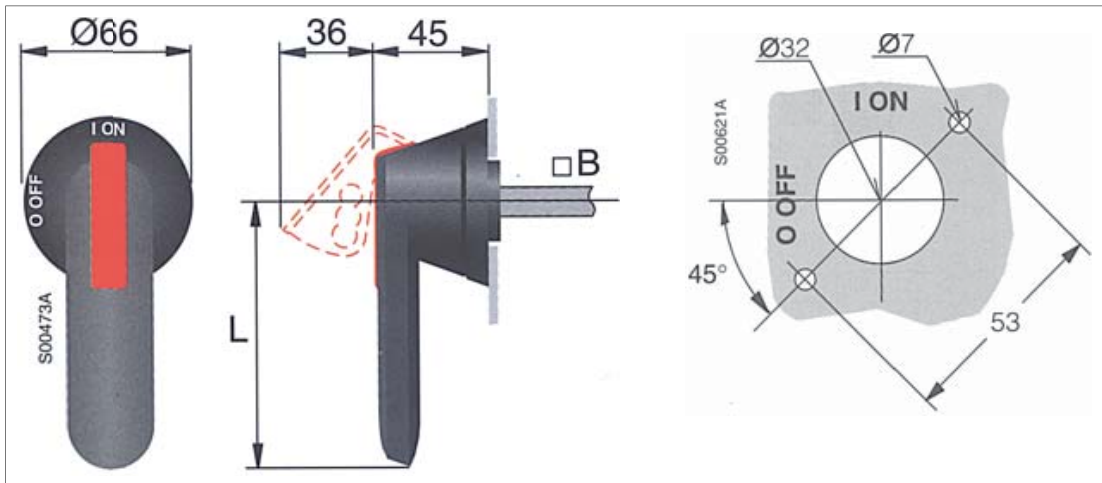


| | mm (in) |
|-----------|---------------|
| A | 126 (4.96) |
| B | 598.5 (23.56) |
| A1 | 558 (21.97) |
| B1 | 588 (23.15) |
| C1 | 614 (24.17) |

■ **OHB_ switch handles**

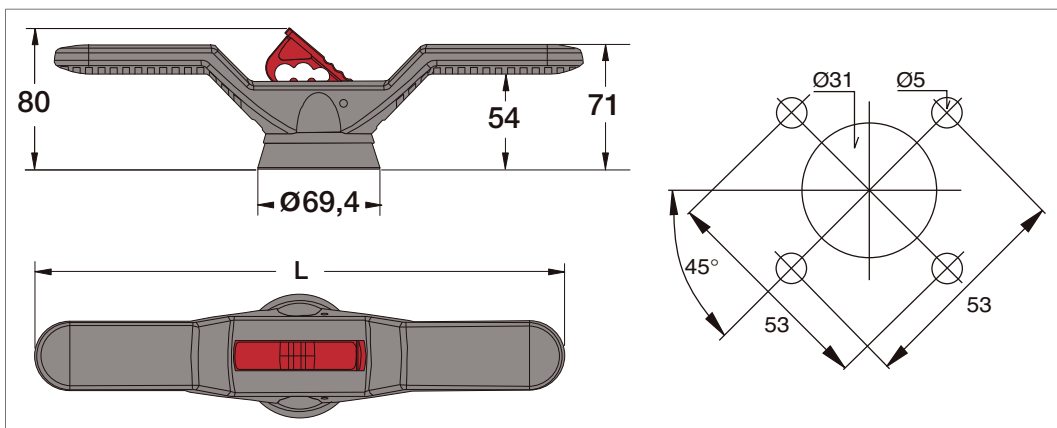
Note: The drawings are not to scale.

OHB65J6, OHB125J12, OHB145J12



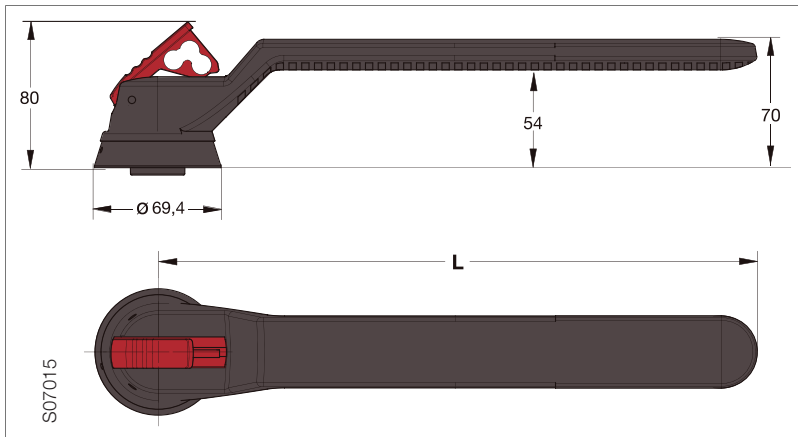
| Handle type | L mm (inch) | B mm (inch) | Notes |
|-------------|----------------|-----------------------|-----------------------------|
| OHB65J6 | 65 (2.56) | 6 × 6 (0.24 × 0.24) | Used with OS_, OT200_ |
| OHB125J12 | 125 (4.92) | 12 × 12 (0.47 × 0.47) | Used with OT400_ |
| OHB145J12 | 145 (5.71) | 12 × 12 (0.47 × 0.47) | Used with OT600_ and OT630_ |

OHB150J12P



| Handle type | L mm (inch) | Shaft mm (inch) | Notes |
|-------------|----------------|-----------------------|-----------------------------------|
| OHB150J12P | 300 (11.81) | 12 × 12 (0.47 × 0.47) | Used with OT1200U11 and OT1600E11 |

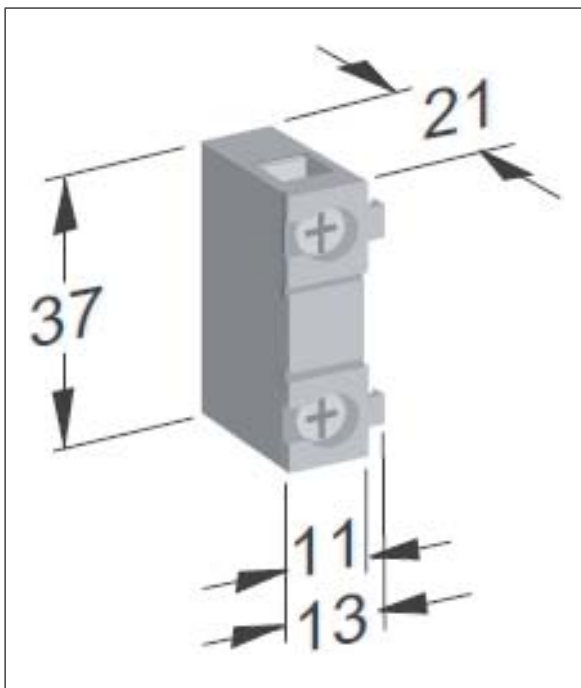
OHB274J12



The drilling pattern is the same as OHB65/125/145.

| Handle type | L mm (inch) | Shaft mm (inch) | Note |
|-------------|----------------|-----------------------|--|
| OHB274J12 | 274 (10.79) | 12 × 12 (0.47 × 0.47) | Used with OT1200U22, OT1600E22 and OT2500E22 |

■ **OA1G10/OA3G01 auxiliary contact blocks**

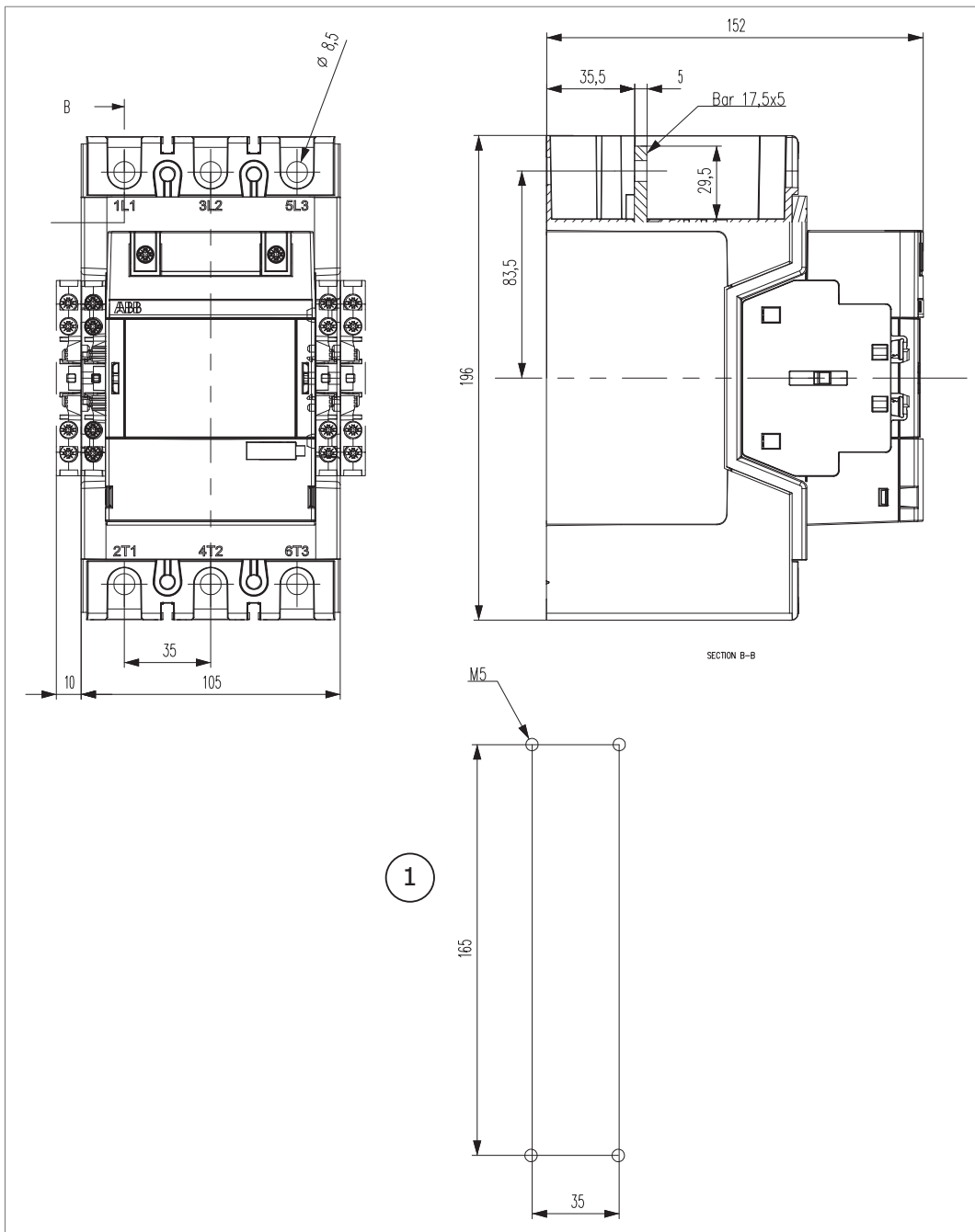


2×0.75...2.5 mm² (2×18...14 AWG)

0.8 N·m (7 lb.in)

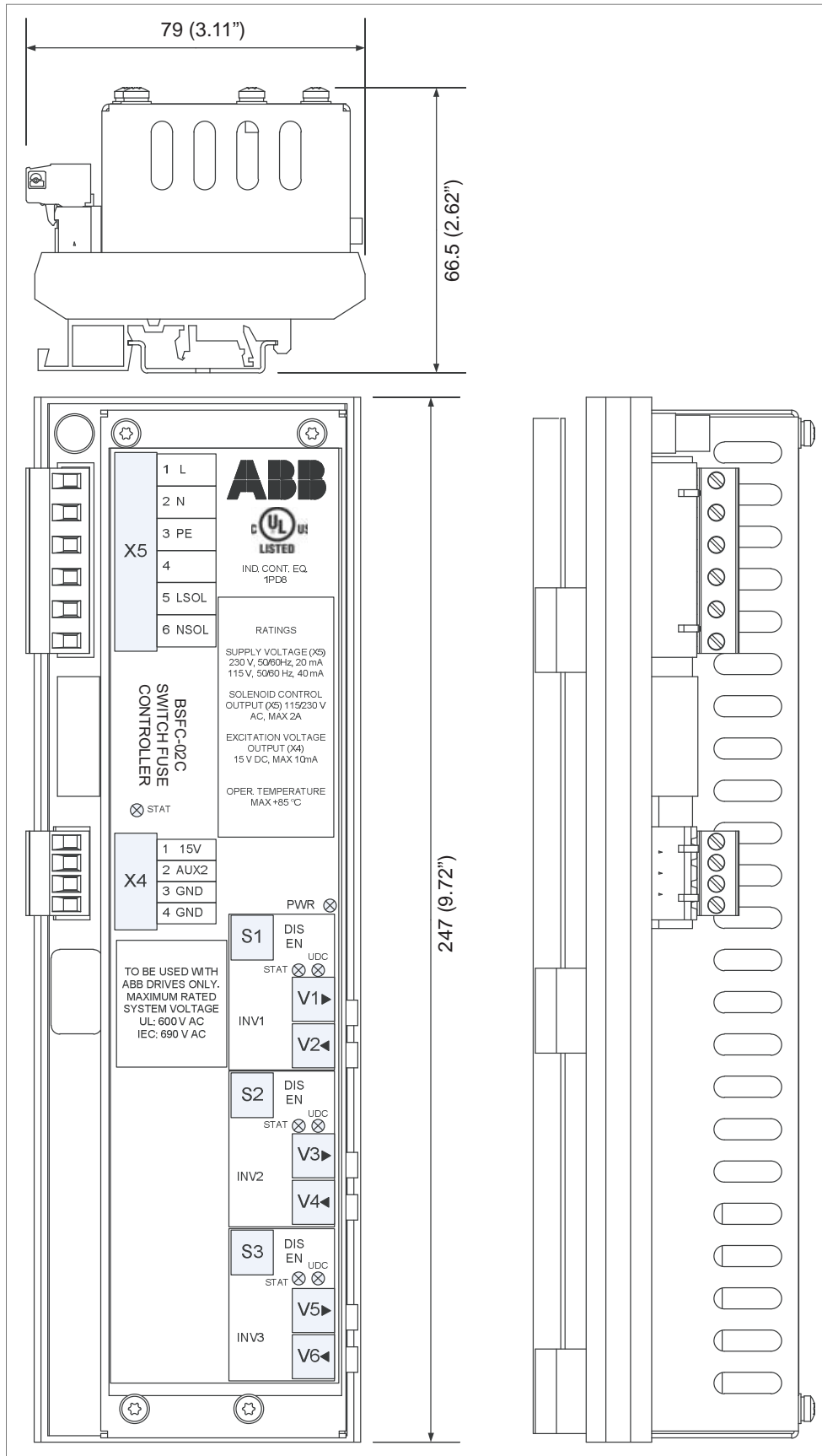
Pozidriv M3.5 Form 2

■ AF190-30-00-13 contactor

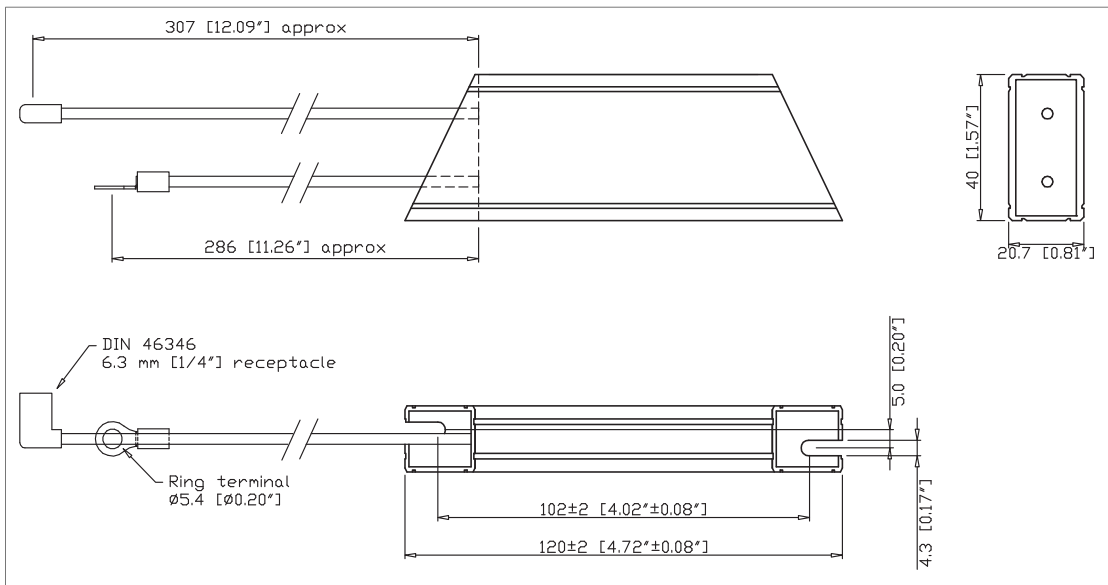


1. Drilling pattern

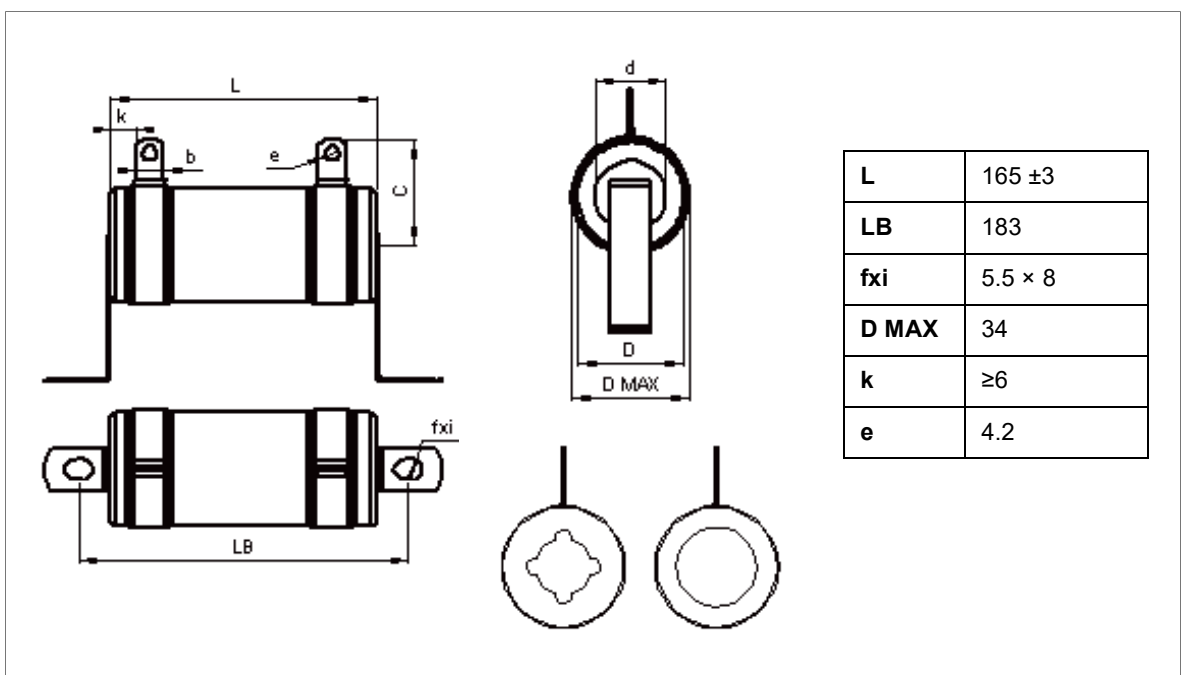
■ Charging controller



■ **CAV 120 C resistor**

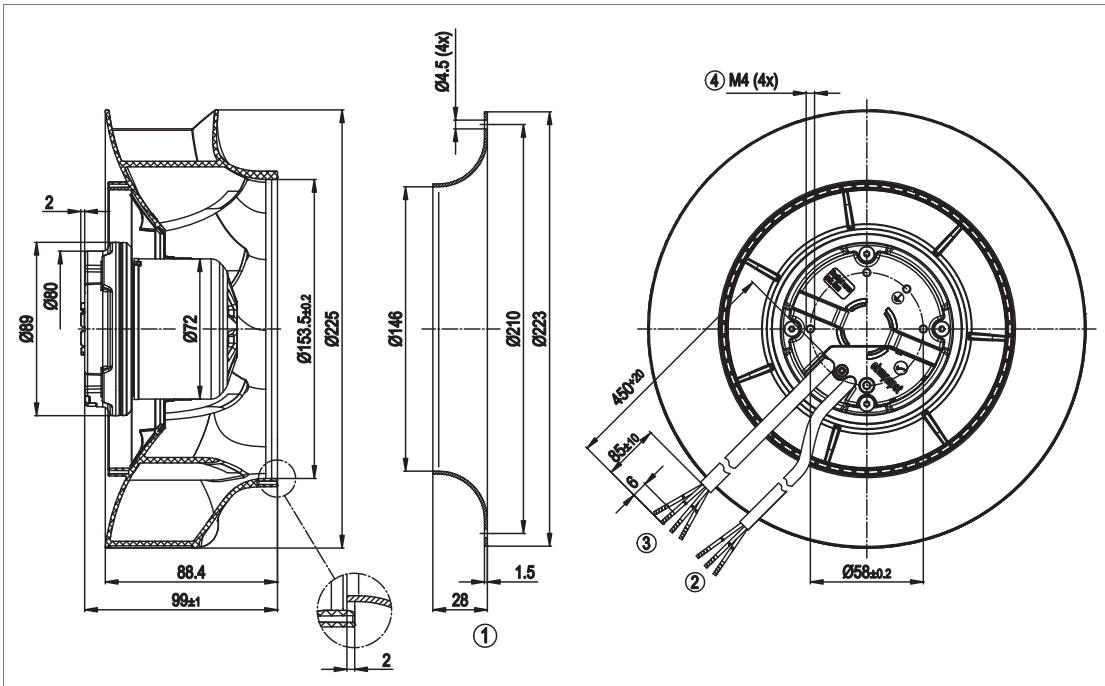


■ **ZRF 30/165 resistor**

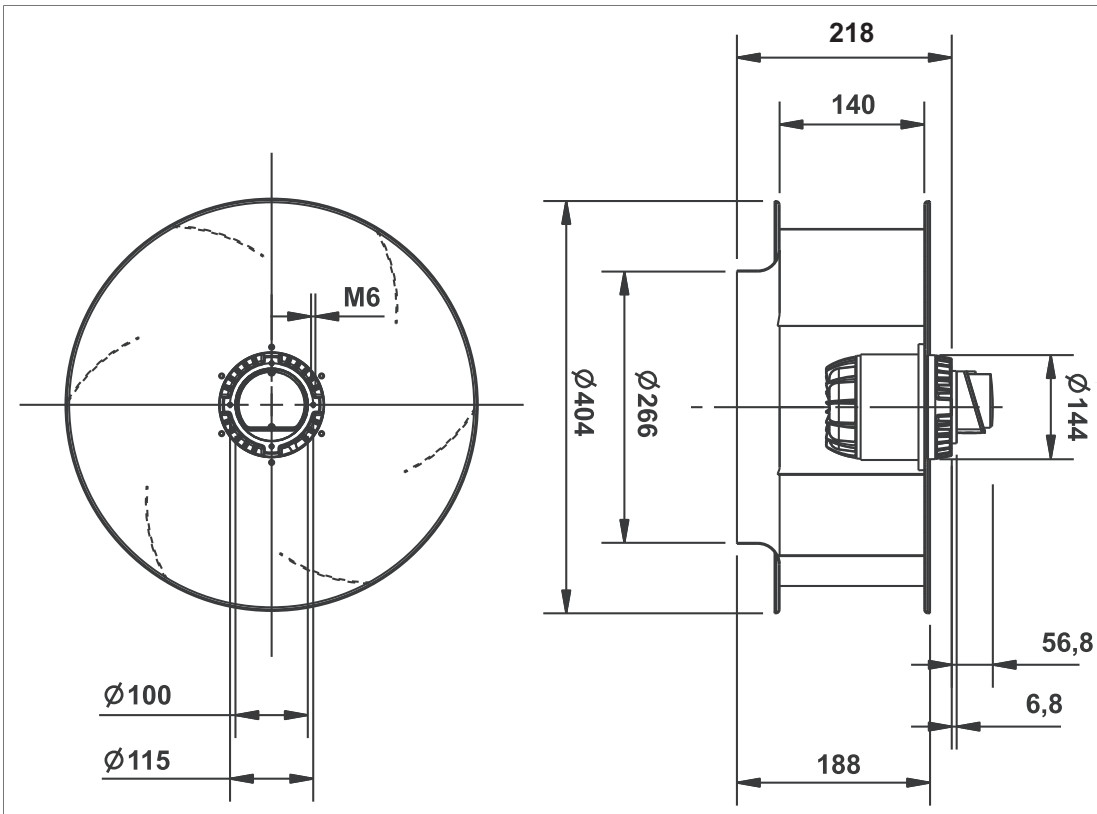


Miscellaneous components

■ R3G225-RH17-23 / R2E225-RA92-17 cooling fan

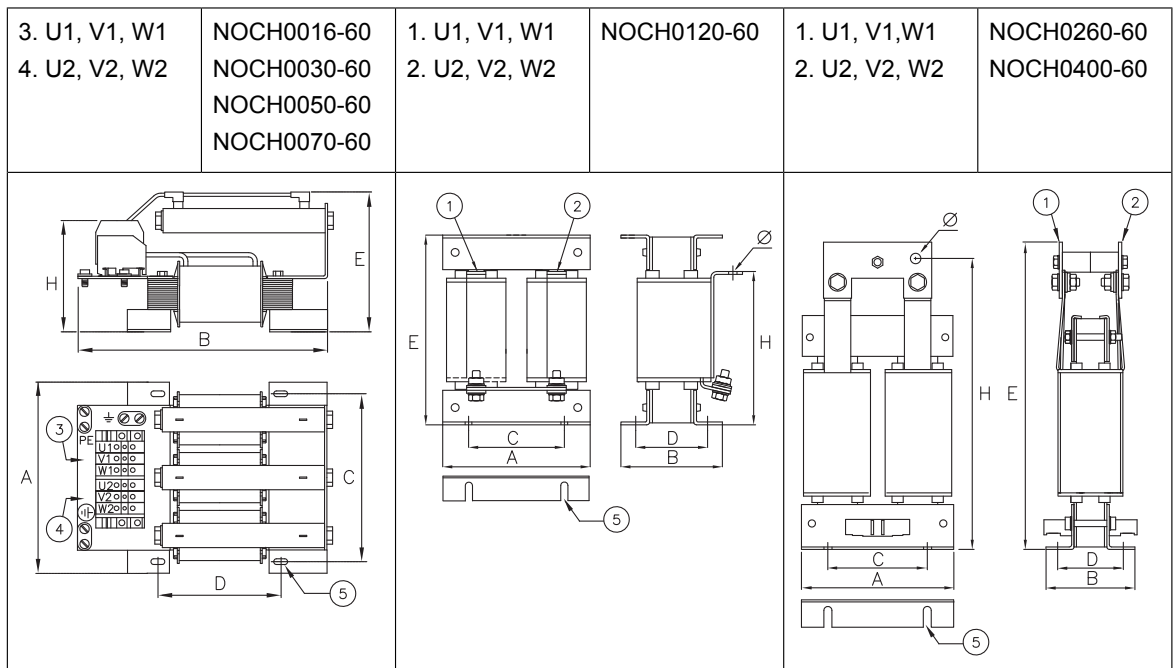


■ CRBB/4-400/188 cooling fan

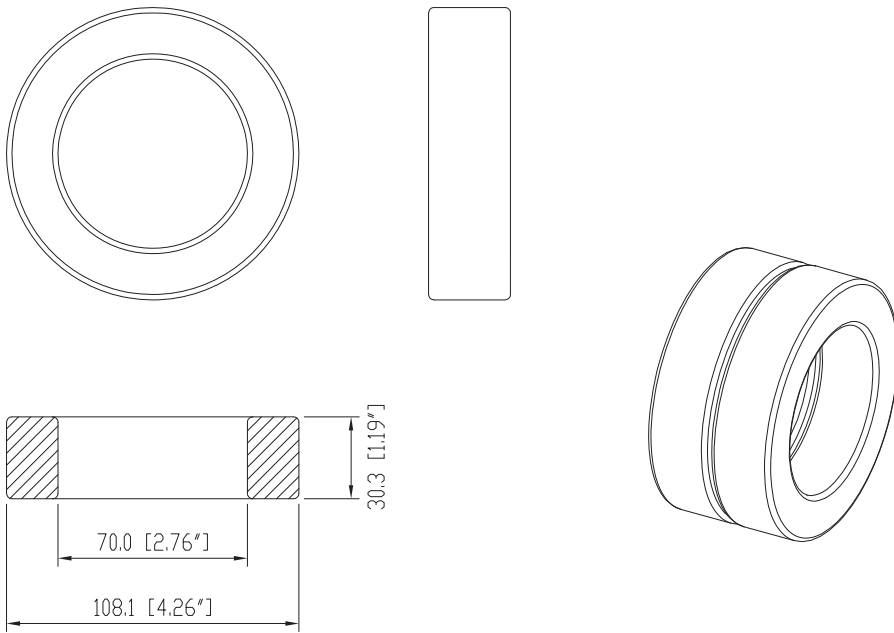


■ Output (du/dt) filters for frames R1i...R5i

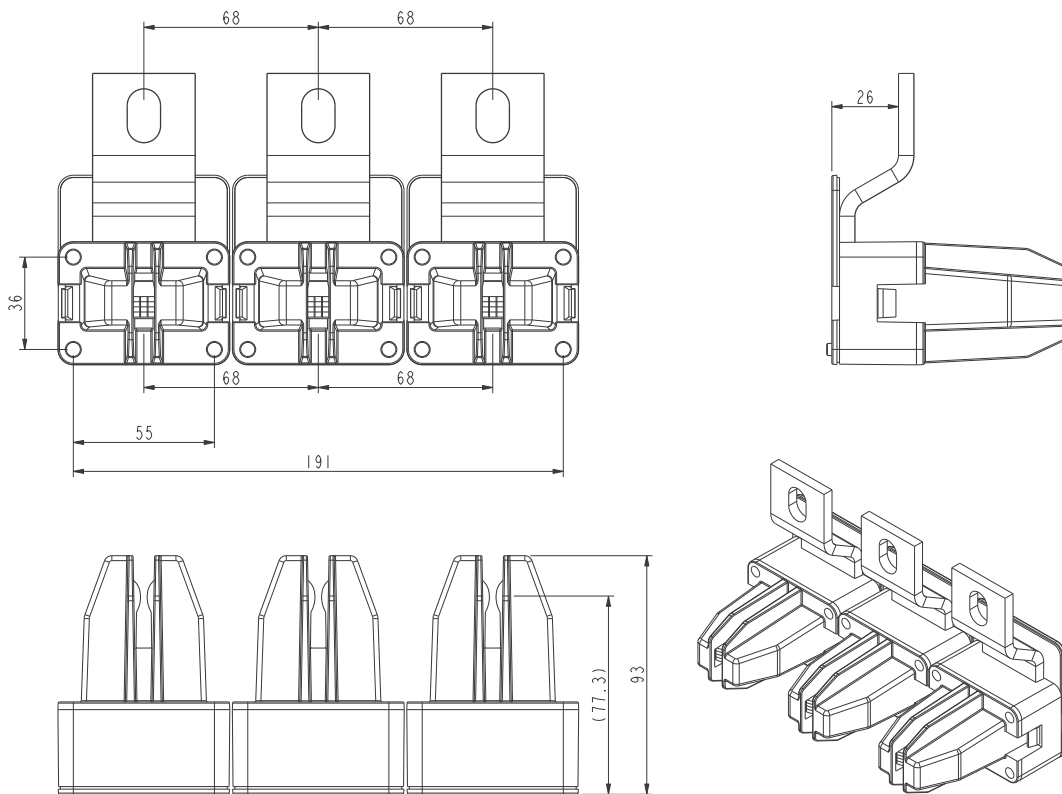
| L2 | mm (inch) | | | | | | ① ② ∅ | kg (lb) | ⑤ | ① ② Nm | ③ ④ mm ² | Nm (lbf-in) |
|-------------|--------------|---------------|--------------|--------------|---------------|---------------|--------------|----------------|-----|----------------|---------------------------|----------------|
| | A | B | C | D | E | H | mm (inch) | kg (lb) | | Nm (lbf-in) | mm ² | Nm (lbf-in) |
| NOCH0016-60 | 140 (551) | 195 (768) | 120 (472) | 85 (335) | 115 (453) | 83 (329) | – | 2.4 (5.29) | M5 | 4 (35.40) | 0.2...10 | 1.5 (13.28) |
| NOCH0030-60 | 165 (650) | 215 (846) | 145 (571) | 108 (425) | 130 (512) | 95 (374) | – | 4.7 (10.36) | M5 | 4 (35.40) | 0.5...16 | 1.5 (13.28) |
| NOCH0070-60 | 180 (709) | 261 (1028) | 170 (669) | 125 (492) | 150 (591) | 120 (472) | – | 9.5 (20.94) | M6 | 6 (53.10) | 10...35 | 2.5 (22.13) |
| NOCH0120-60 | 154 (606) | 106 (417) | 100 (394) | 75 (295) | 200 (787) | 160 (630) | 9 (0.35) | 7 (15.43) | M8 | 20 (177.02) | – | – |
| NOCH0260-60 | 185 (728) | 111 (437) | 124 (488) | 82 (323) | 383 (1508) | 368 (1449) | 13 (0.51) | 12 (26.46) | M10 | 30 (265.52) | – | – |
| NOCH0400-60 | 185 (728) | 126 (496) | 124 (488) | 97 (382) | 383 (1508) | 368 (1449) | 13 (0.51) | 17 (37.48) | M10 | 30 (265.52) | – | – |

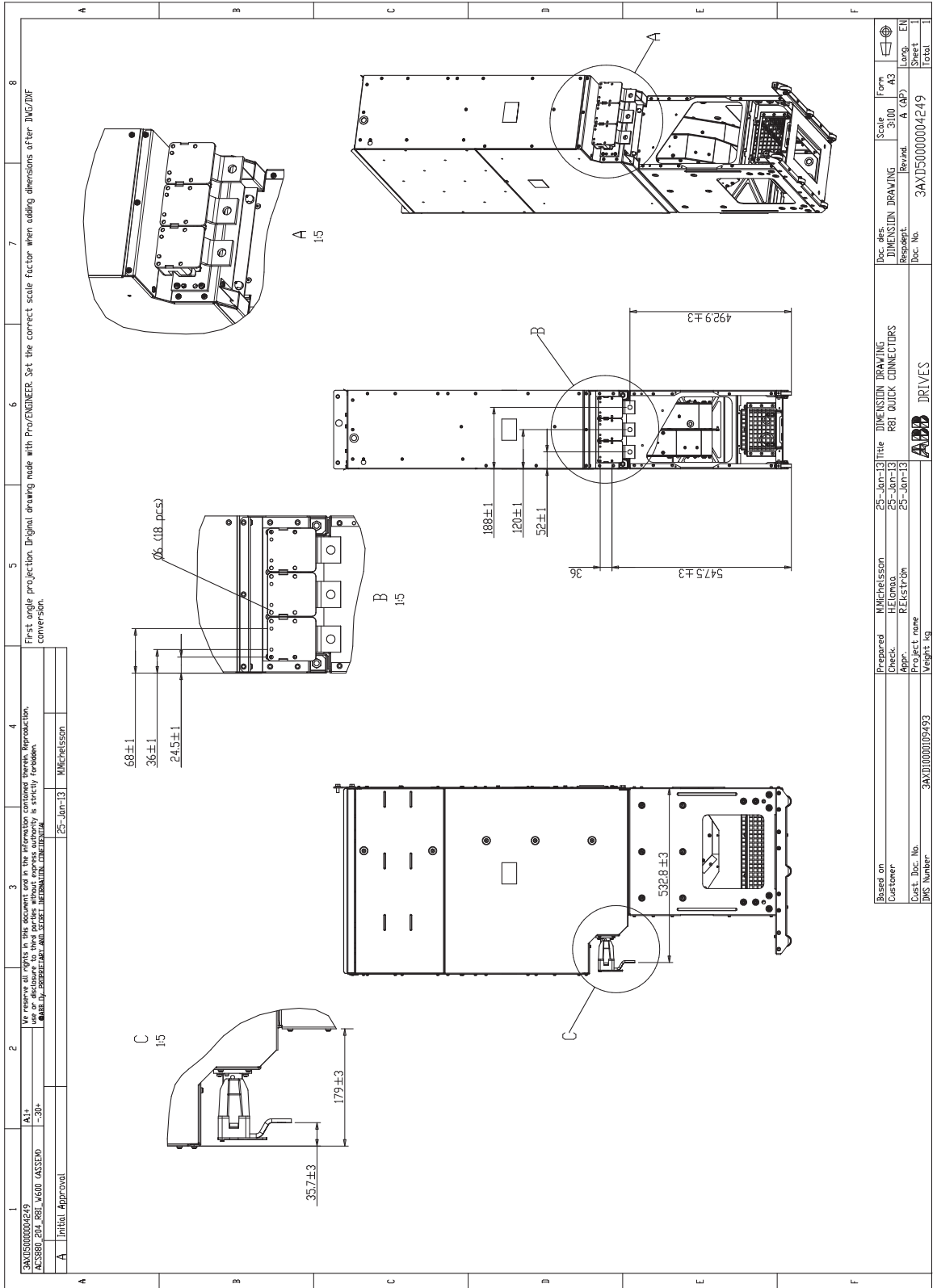


■ Common mode filters



■ Quick connector for frame R8i





1
SANTECH00000249
ACS500_204_800_V600_GASSEFD
A Initial Approval

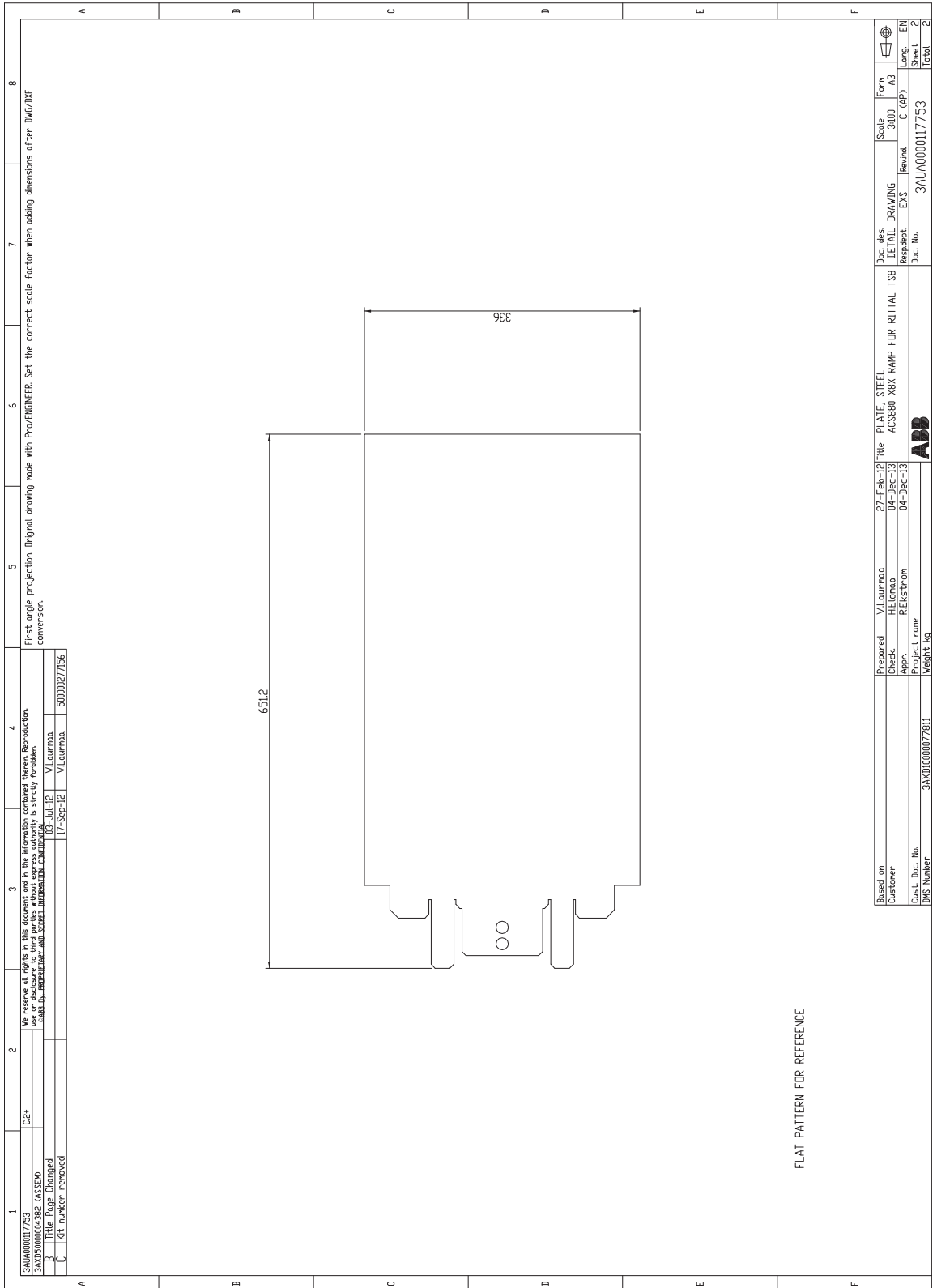
2
We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden.
Alle Rechte vorbehalten. Nachdruck, Vervielfältigung und Verbreitung, auch auszugsweise, ist ohne schriftliche Genehmigung.

3
25-Jan-13 MICHELLESSION

4
First angle projection. Digital drawing made with Pro/ENGINEER. Set the correct scale factor when adding dimensions after DWG/DXF conversion.

5
6
7
8

| | | |
|-----------------------------|----------------|-------------------------|
| Doc. des. DIMENSION DRAWING | Scale 3:100 | Form A3 |
| Responsible: A (AP) | Rev. A (AP) | Lang. EN |
| Doc. No. 3AXD5000004249 | | Sheet 1 |
| | | Total 1 |
| Prepared MICHELLESSION | Date 25-Jan-13 | Title DIMENSION DRAWING |
| Check HELOMCA | Date 25-Jan-13 | R81 QUICK CONNECTORS |
| Appr. REKSTRÖM | Date 25-Jan-13 | |
| Project name | | ABB DRIVES |
| Weight kg | | |
| Based on | | |
| Customer | | |
| Cust. Doc. No. | 3AXD0000009493 | |
| DMS Number | | |



| | | | | | | | |
|--------------|-----|--|-----------|----------|-----------|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 3AU000017753 | C2+ | US reserves all rights in this document. Its use or disclosure to third parties without express authority is strictly forbidden. | 17-SEP-12 | VLaurmaa | 500027756 | | |
| 3AU000017753 | | | 17-SEP-12 | VLaurmaa | | | |
| | | | | | | | |

| | | | | | |
|--------------|--------------|--------------|--------------|--------------|-----------|
| Based on | Prepared | Checked | Appr. | Project name | Weight kg |
| Customer | VLaurmaa | HElonca | REKSTrom | 3AU000017753 | |
| Customer No. | 27-Feb-12 | 04-Dec-13 | 04-Dec-13 | | |
| DMS Number | 3AU000017753 | 3AU000017753 | 3AU000017753 | | |

| | | | |
|----------------|--------------|--------|----------|
| Doc. des. | Doc. No. | Scale | Form |
| DETAIL DRAWING | 3AU000017753 | 3:100 | A3 |
| Responsible | Revind. | C. CAP | Lang. EN |
| | | | Sheet 2 |
| | | | Total 2 |



15. Circuit diagrams

Contents of this chapter

This chapter contains connection diagram examples for the whole inverter unit.

Note:

By default, the Safe torque off (STO) function is not in use, and has been bridged at the factory as shown in the diagrams. For information on implementing the function, see chapter The Safe torque off function.

Component designations used in the diagrams

■ Frames R1i...R5i

- R1i...R4i:
- R5i:

| Designation | Component |
|-------------|---|
| A41.x | ZCU control unit |
| A47 | FDPI diagnostics and control panel interface. For constructing a panel bus between inverter modules without front cover (see page 167). |
| A48 | DPMP-01 panel mounting platform kit (to be ordered separately) |
| A49 | ACS-AP-W control panel |
| F10.x | Main DC fuses |
| F11.x | Module-specific DC fuses |
| G26.x | Roof fan |
| K26 | Roof fan control relay |
| Q11 | Main DC switch/disconnector |
| R12 | du/dt filter |
| T11 | Inverter module |
| T22 | 24 V DC power supply |

■ Frame R6i

| Designation | Component |
|-------------|---|
| A41 | ZCU control unit |
| A47 | FDPI diagnostics and control panel interface. For constructing a panel bus between inverter modules without front cover (see page 167). |
| A48 | DPMP-01 panel mounting platform kit (to be ordered separately) |
| A49 | ACS-AP-W control panel |

| Designation | Component |
|-------------|-----------------------------|
| F11.x | DC fuses |
| Q11 | Main DC switch/disconnector |
| R12 | Output (du/dt) filter |
| T11 | Inverter module |
| T22 | 24 V DC power supply |
| Z1.x | Common mode filters |

■ Frame R7i

| Designation | Component |
|-------------|---|
| A47 | FDPI diagnostics and control panel interface. For constructing a panel bus between inverter modules without front cover (see page 167). |
| A48 | DPMP-01 panel mounting platform kit (to be ordered separately) |
| A49 | ACS-AP-W control panel |
| A51 | ZCU control unit |
| F11.x | DC fuses |
| Q11 | Main DC switch/disconnector |
| Q14 | Charging contactor |
| R14.x | Charging resistors |
| T11 | Inverter module |
| T22 | 24 V DC power supply |
| Z1.x | Common mode filters |

■ Frame R8i and multiples

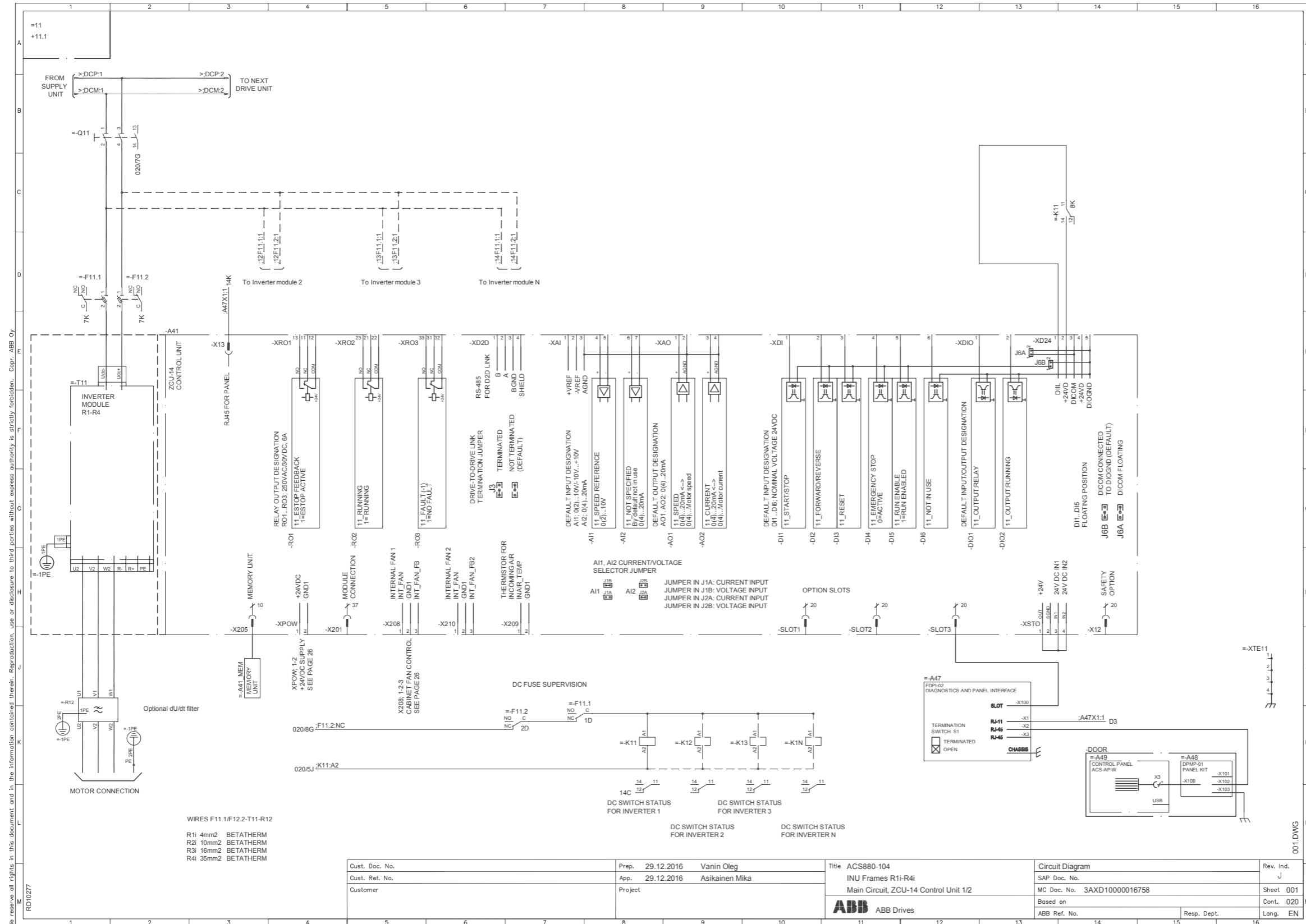
The following wiring diagram examples for frame R8i inverter modules are presented in this chapter:

- R8i
- 2×R8i

| Designation | Component |
|-------------|---|
| A11.x | Charging controller |
| A41 | BCU control unit |
| A47 | FDPI diagnostics and control panel interface. For constructing a panel bus between inverter modules without front cover (see page 167). |
| A48 | DPMP-01 panel mounting platform kit (to be ordered separately) |
| A49 | ACS-AP-W control panel |
| F11.xx | DC fuses |
| Q10.x | Charging switch |

| Designation | Component |
|--------------------|-------------------------------|
| Q11.x | Main DC switch/disconnector |
| R10.x | Charging resistors |
| R11.xx | Common mode filters |
| T11.x | Inverter module |
| T22 | External 24 V DC power supply |

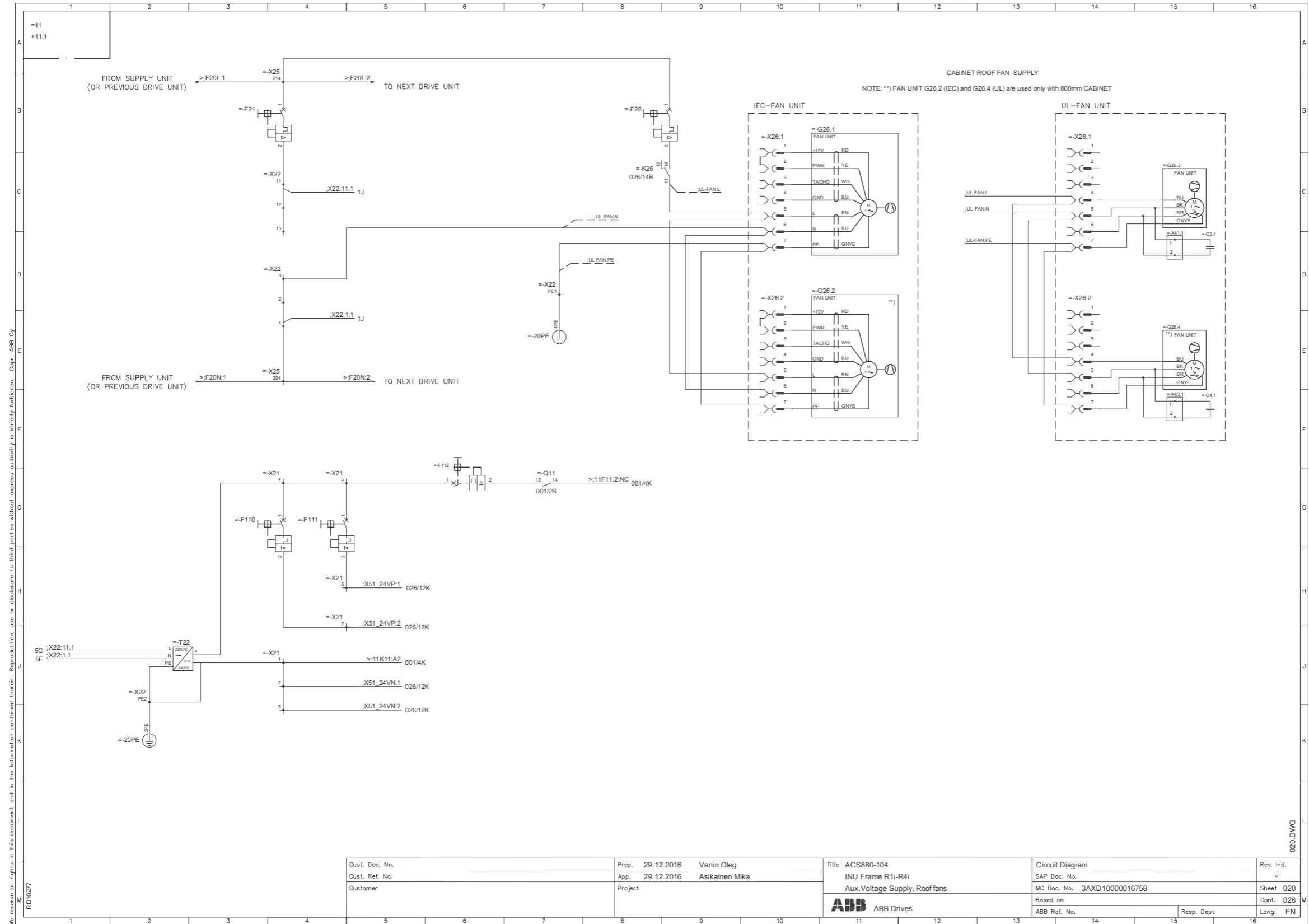
Frames R1i...R4i – Sheet 001 (Main circuit, control unit)



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy RD10277

001.DWG

Frames R1i...R4i – Sheet 020 (Auxiliary voltage distribution)

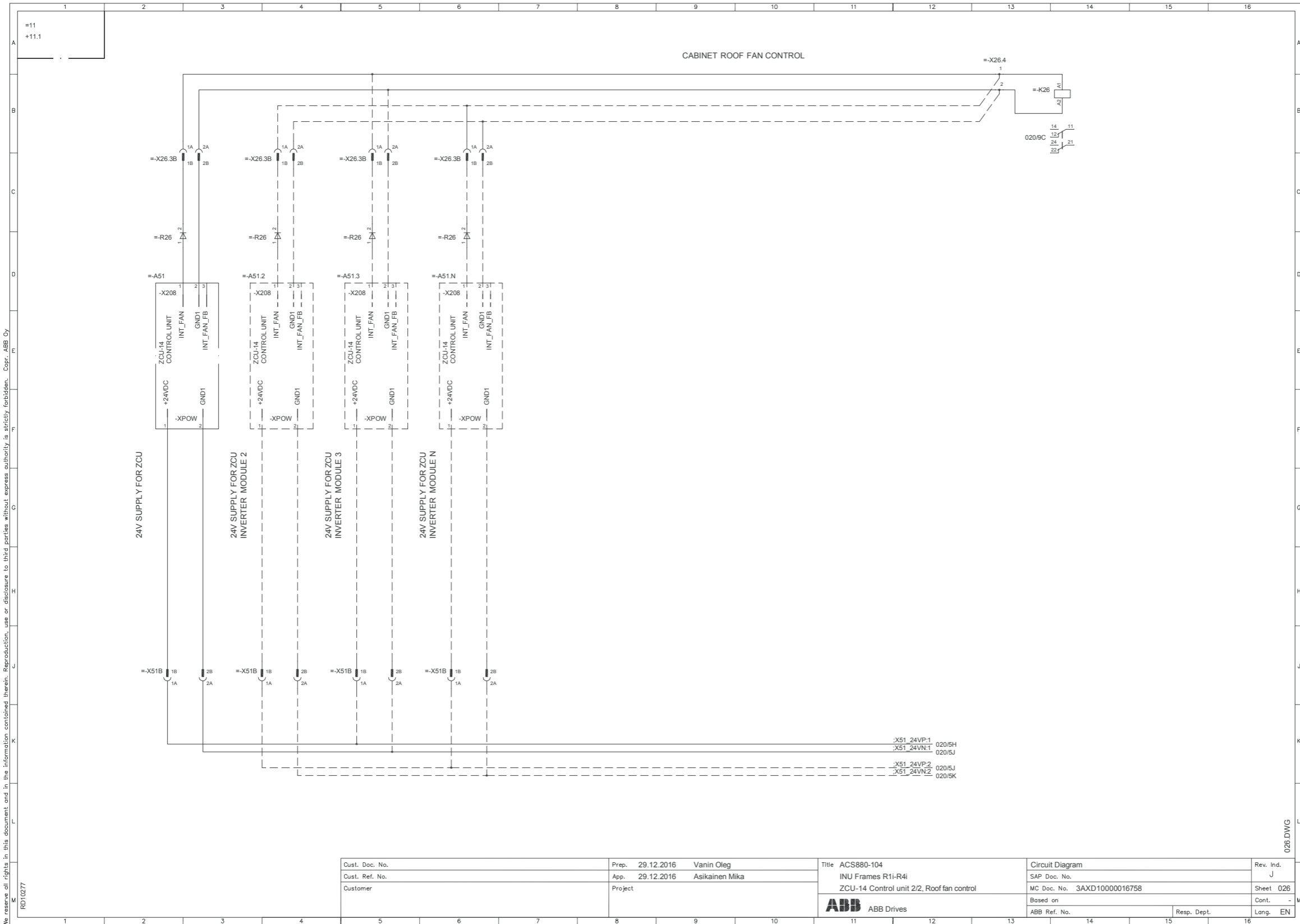


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy RD1010277

| | | | | | |
|----------------|------------------|----------------|--------------------------------|-----------------------------|-----------|
| Cust. Doc. No. | Prep. 29.12.2016 | Vanin Oleg | Title ACS880-104 | Circuit Diagram | Rev. Ind. |
| Cust. Ref. No. | App. 29.12.2016 | Asikainen Mika | INU Frame R1i-R4i | SAP Doc. No. | J |
| Customer | Project | | Aux. Voltage Supply, Roof fans | MC Doc. No. 3AXD10000016758 | Sheet 020 |
| | | | ABB ABB Drives | Based on | Cont. 02B |
| | | | | ABB Ref. No. | Lang. EN |
| | | | | Resp. Dept. | |

020.DWG

Frames R1i...R4i – Sheet 026 (Cabinet cooling fan control)

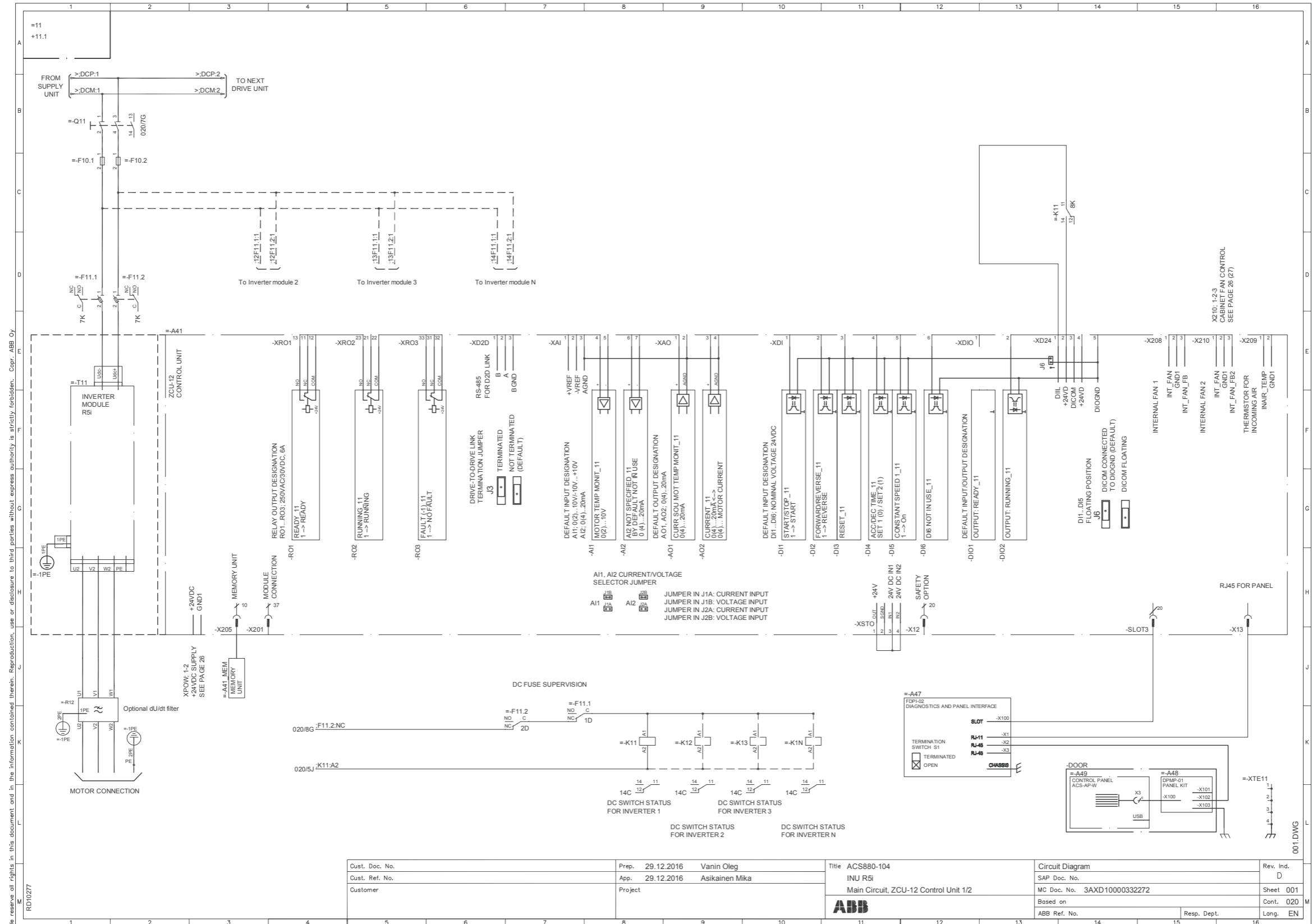


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy RD10277

026.DWG

| | | | | |
|----------------|--------------------------------|---|----------------------------|-----------|
| Cust. Doc. No. | Prep. 29.12.2016 Vanin Oleg | Title ACS880-104 | Circuit Diagram | Rev. Ind. |
| Cust. Ref. No. | App. 29.12.2016 Asikainen Mika | INU Frames R1i-R4i | SAP Doc. No. | J |
| Customer | Project | ZCU-14 Control unit 2/2, Roof fan control | MC Doc. No. 3AXD1000016758 | Sheet 026 |
| | | ABB ABB Drives | Based on | Cont. - |
| | | | ABB Ref. No. | Long- EN |
| | | | Resp. Dept. | |

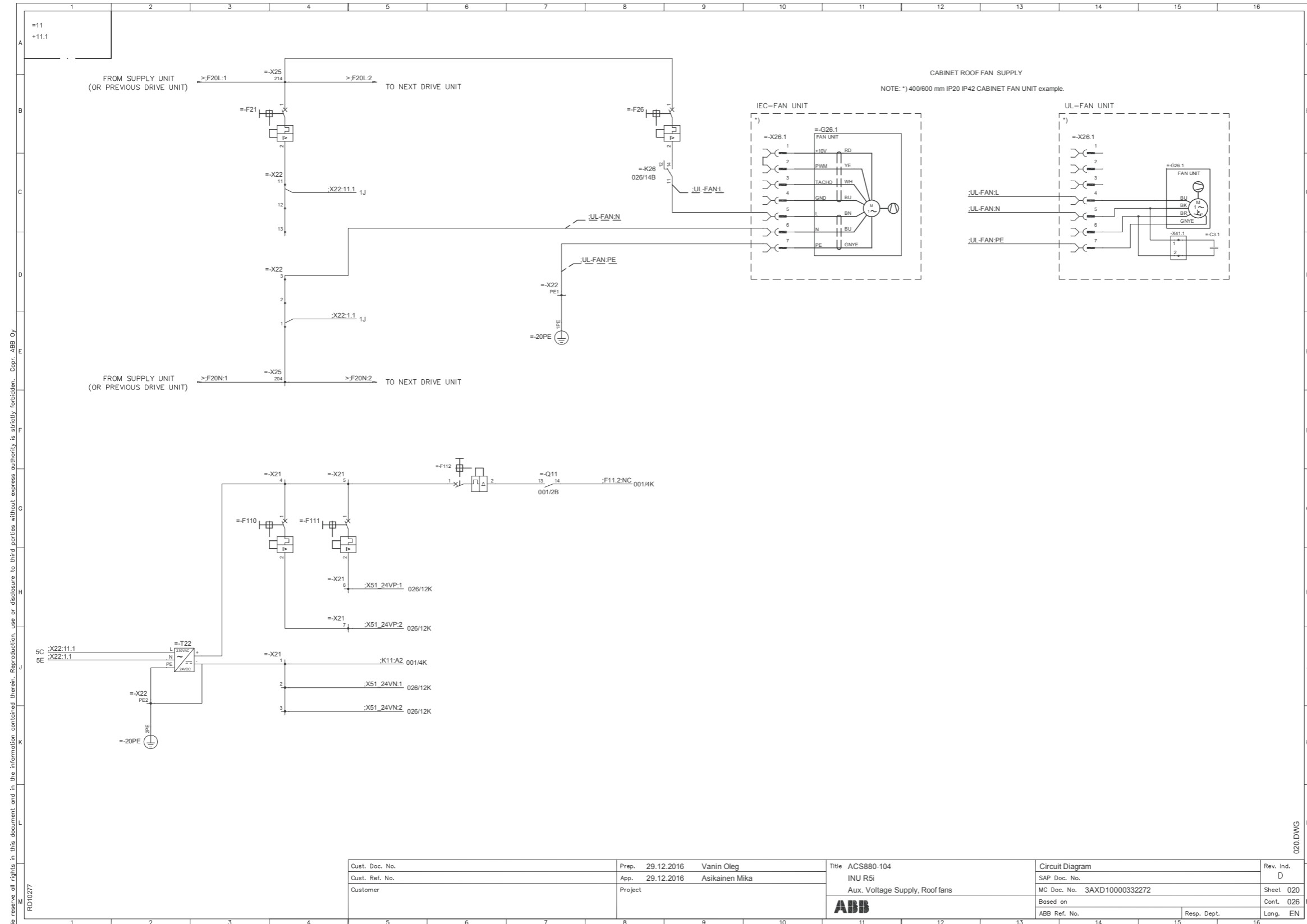
Frame R5i – Sheet 001 (Main circuit, control unit)



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. - Copr. ABB Oy RD10277

| | | | | | |
|----------------|------------------|----------------|---------------------------------------|-----------------------------|-----------|
| Cust. Doc. No. | Prep. 29.12.2016 | Vanin Oleg | Title ACS880-104 | Circuit Diagram | Rev. Ind. |
| Cust. Ref. No. | App. 29.12.2016 | Asikainen Mika | INU R5i | SAP Doc. No. | D |
| Customer | Project | | Main Circuit, ZCU-12 Control Unit 1/2 | MC Doc. No. 3AXD10000332272 | Sheet 001 |
| | | | ABB | Based on | Cont. 020 |
| | | | | ABB Ref. No. | Lang. EN |
| | | | | Resp. Dept. | |

Frame R5i – Sheet 020 (Auxiliary voltage distribution)

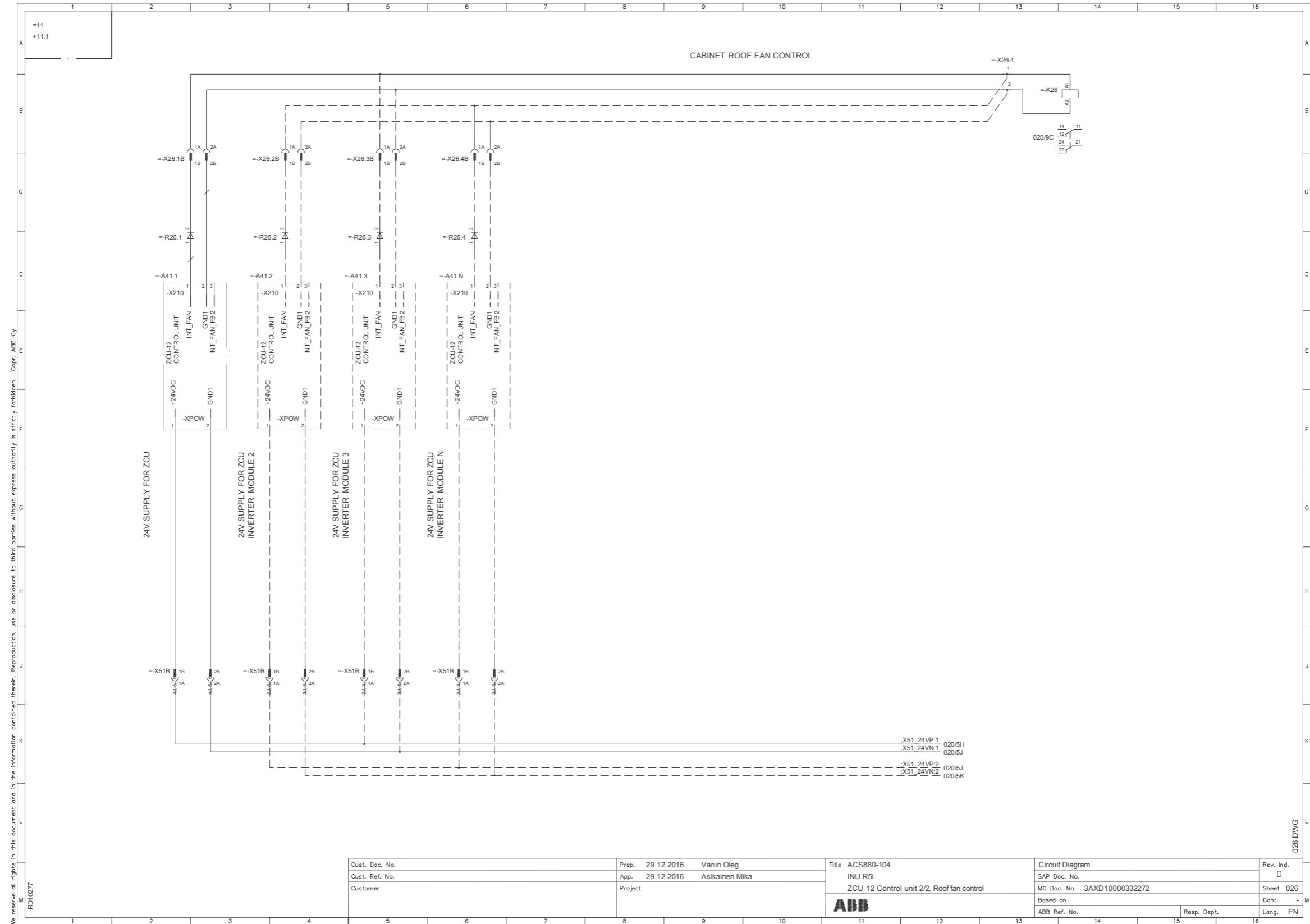


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

020.DWG

| | | | | |
|----------------|--------------------------------|--------------------------------|-----------------------------|-------------|
| Cust. Doc. No. | Prep. 29.12.2016 Vanin Oleg | Title ACS880-104 | Circuit Diagram | Rev. Ind. D |
| Cust. Ref. No. | App. 29.12.2016 Asikainen Mika | INU R5i | SAP Doc. No. | Sheet 020 |
| Customer | Project | Aux. Voltage Supply, Roof fans | MC Doc. No. 3AXD10000332272 | Cont. 026 |
| | | ABB | Based on | Lang. EN |
| | | | ABB Ref. No. | Resp. Dept. |

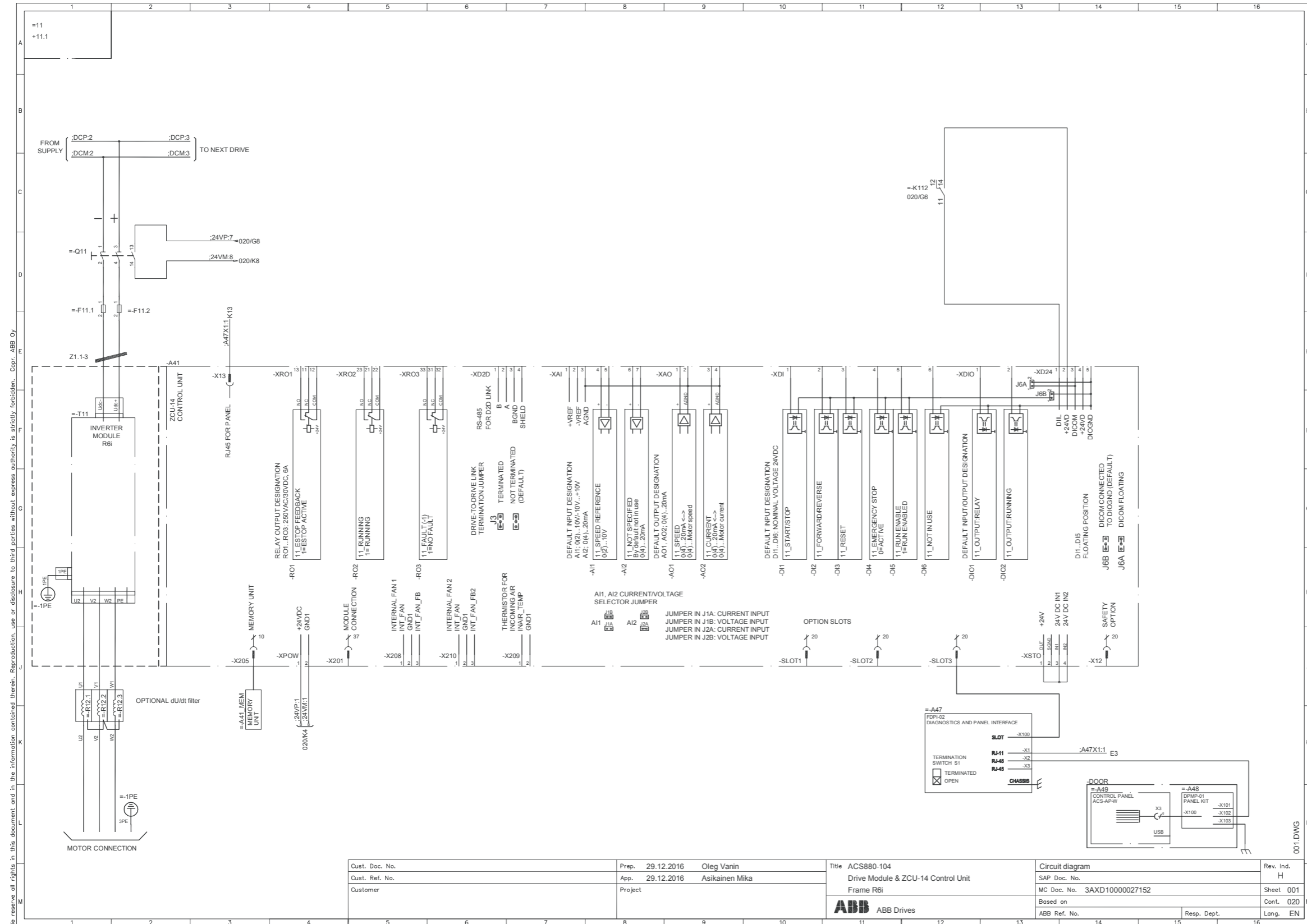
Frame R5i – Sheet 026 (Cabinet cooling fan control)



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

| | | | | |
|----------------|--------------------------------|---|-----------------------------|-----------|
| Cust. Doc. No. | Prep. 29.12.2016 Vanin Oleg | Title ACS880-104 | Circuit Diagram | Rev. Ind. |
| Cust. Ref. No. | App. 29.12.2016 Asikainen Mika | INU R5i | SAP Doc. No. | D |
| Customer | Project | ZCU-12 Control unit 2/2, Roof fan control | MC Doc. No. 3AXD10000332272 | Sheet 026 |
| | | ABB | Based on | Cont. - |
| | | | ABB Ref. No. | Lang. EN |
| | | | Resp. Dept. | |

Frame R6i – Sheet 001 (Main circuit, control unit)

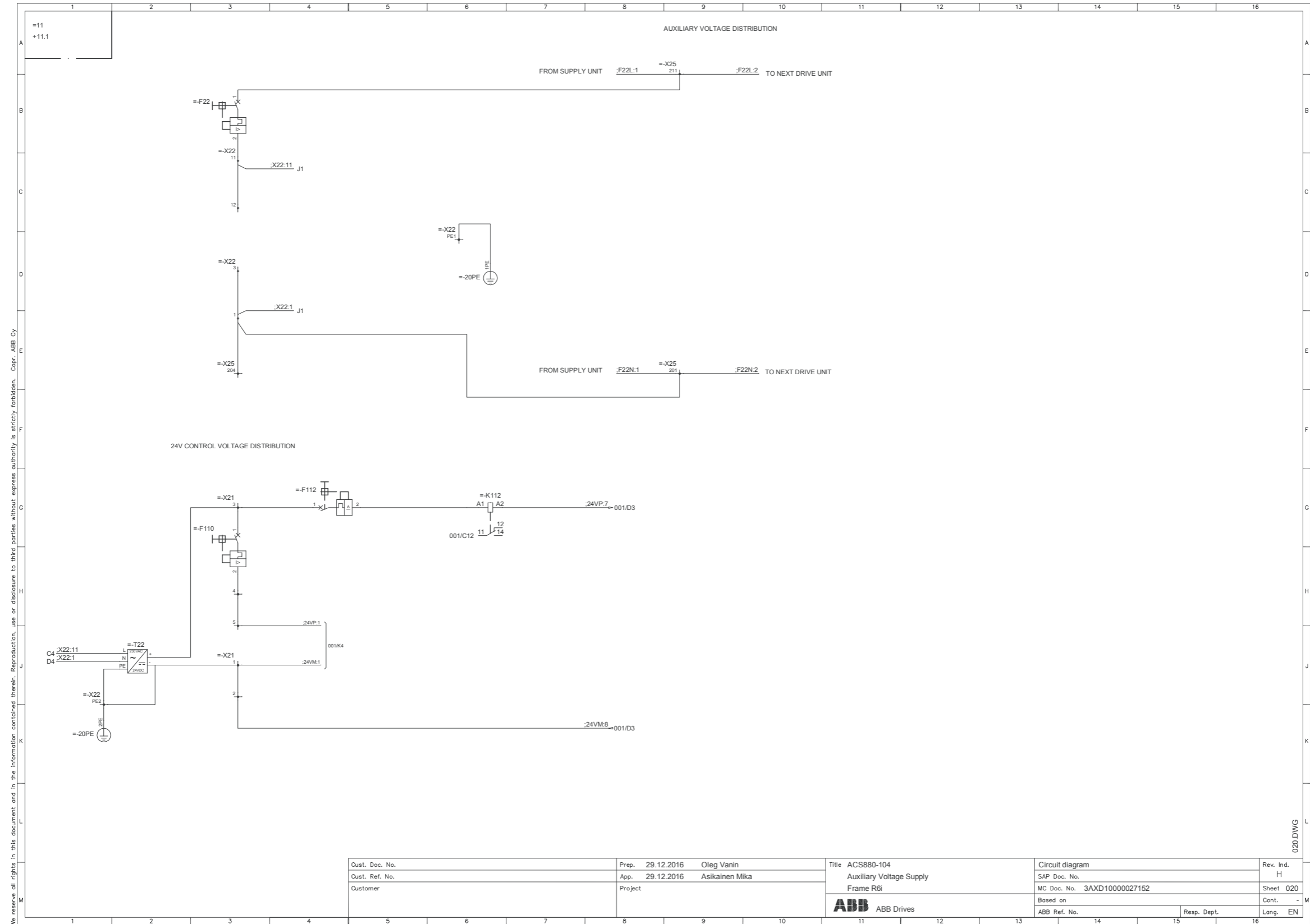


| | | | | |
|----------------|--------------------------------|------------------------------------|-----------------------------|-------------|
| Cust. Doc. No. | Prep. 29.12.2016 Oleg Vanin | Title ACS880-104 | Circuit diagram | Rev. Ind. H |
| Cust. Ref. No. | App. 29.12.2016 Asikainen Mika | Drive Module & ZCU-14 Control Unit | SAP Doc. No. | Sheet 001 |
| Customer | Project | Frame R6i | MC Doc. No. 3AXD10000027152 | Cont. 020 |
| | | ABB ABB Drives | Based on | Lang. EN |
| | | | ABB Ref. No. | Resp. Dept. |

We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

001.DWG

Frame R6i – Sheet 020 (Auxiliary voltage distribution)

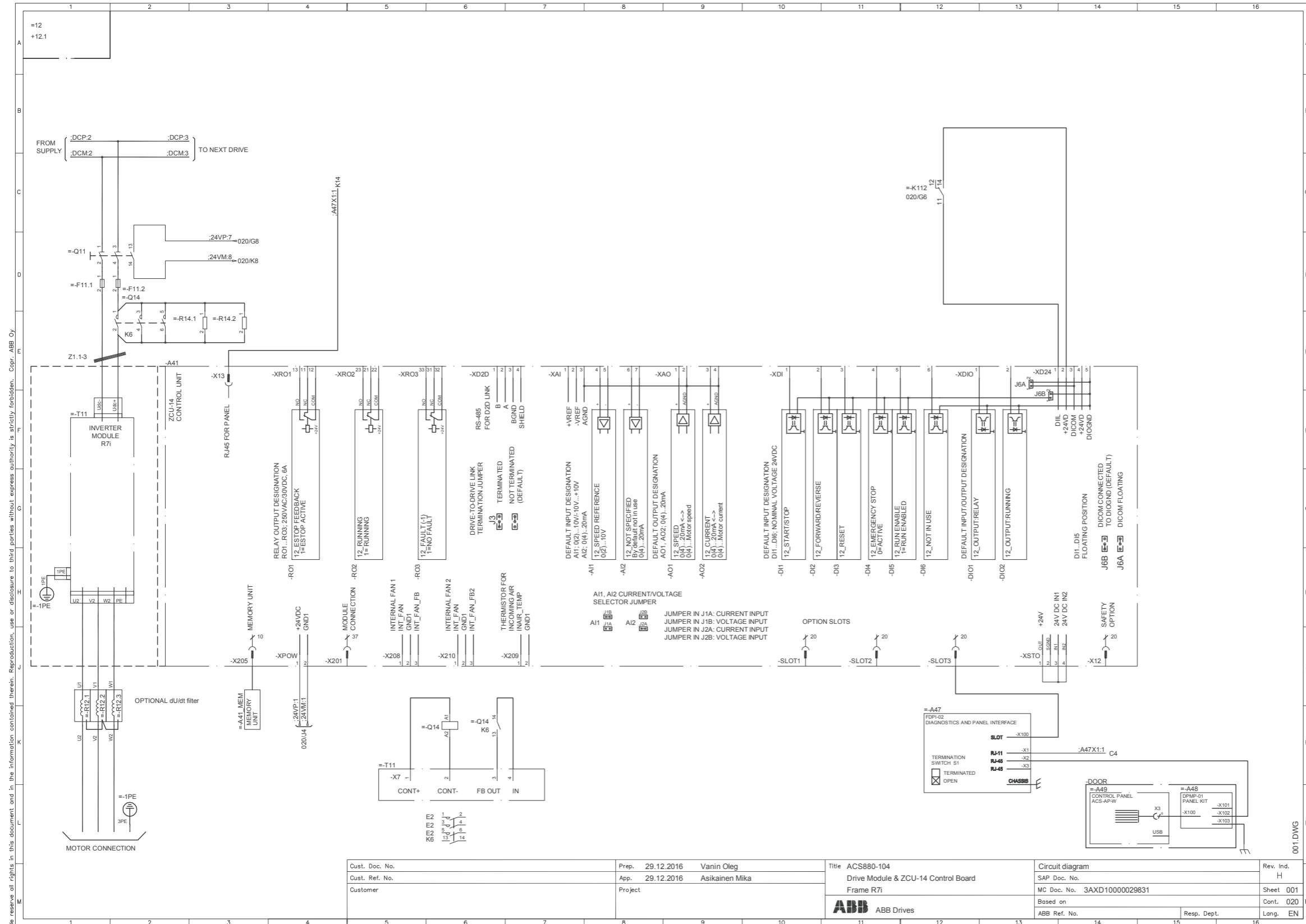


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

020.DWG

| | | | | |
|----------------|--------------------------------|--------------------------|-----------------------------|-----------|
| Cust. Doc. No. | Prep. 29.12.2016 Oleg Vanin | Title ACS880-104 | Circuit diagram | Rev. Ind. |
| Cust. Ref. No. | App. 29.12.2016 Asikainen Mika | Auxiliary Voltage Supply | SAP Doc. No. | H |
| Customer | Project | Frame R6i | MC Doc. No. 3AXD10000027152 | Sheet 020 |
| | | ABB ABB Drives | Based on | Cont. - |
| | | | ABB Ref. No. | Lang. EN |
| | | | Resp. Dept. | |

Frame R7i – Sheet 001 (Main circuit, control unit)

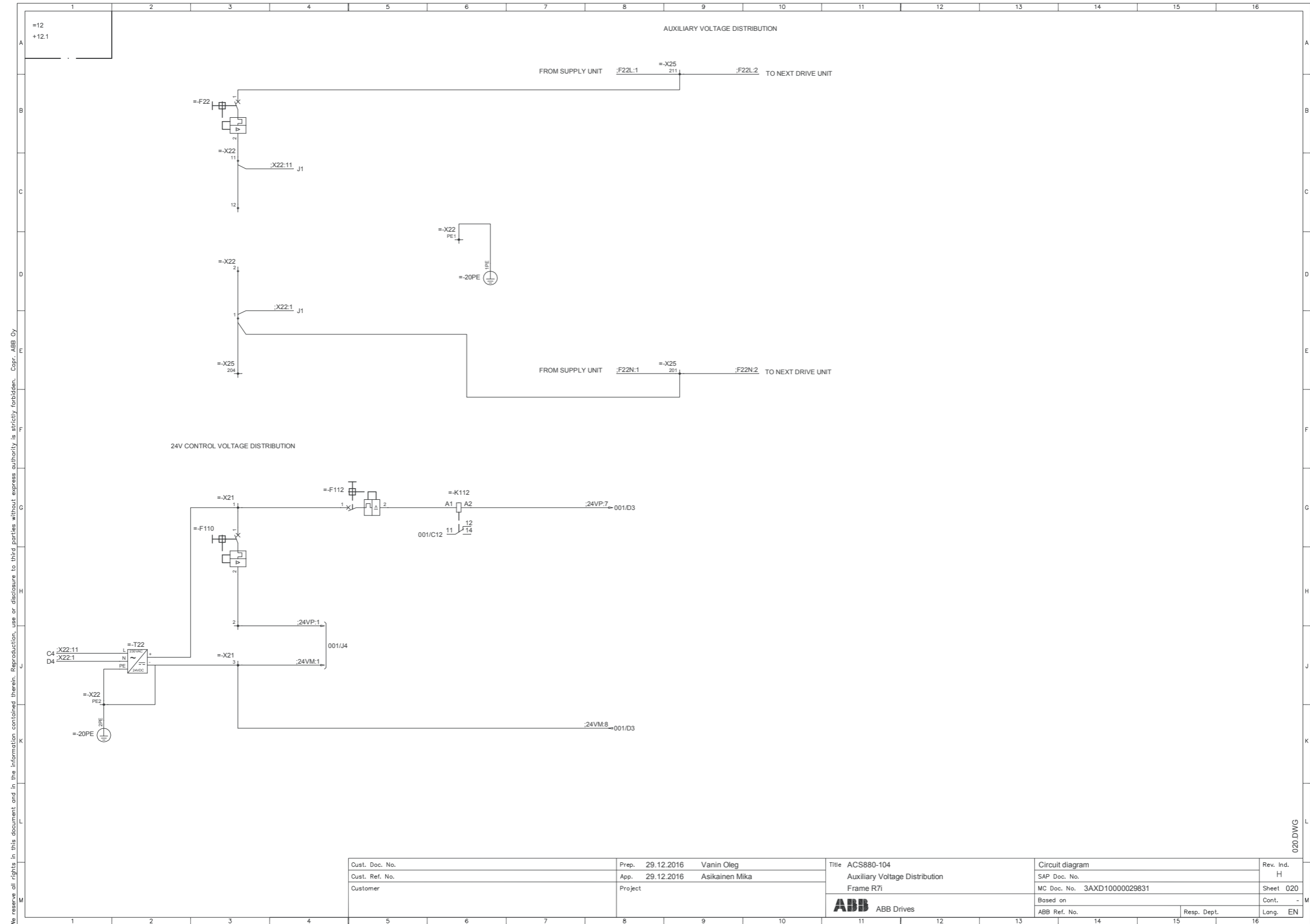


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

| | | | | |
|----------------|--------------------------------|-------------------------------------|-----------------------------|-------------|
| Cust. Doc. No. | Prep. 29.12.2016 Vanin Oleg | Title ACS880-104 | Circuit diagram | Rev. Ind. H |
| Cust. Ref. No. | App. 29.12.2016 Asikainen Mika | Drive Module & ZCU-14 Control Board | SAP Doc. No. | Sheet 001 |
| Customer | Project | Frame R7i | MC Doc. No. 3AXD10000029831 | Cont. 020 |
| | | ABB ABB Drives | Based on | Lang. EN |
| | | | ABB Ref. No. | Resp. Dept. |

001.DWG

Frame R7i – Sheet 020 (Auxiliary voltage distribution)

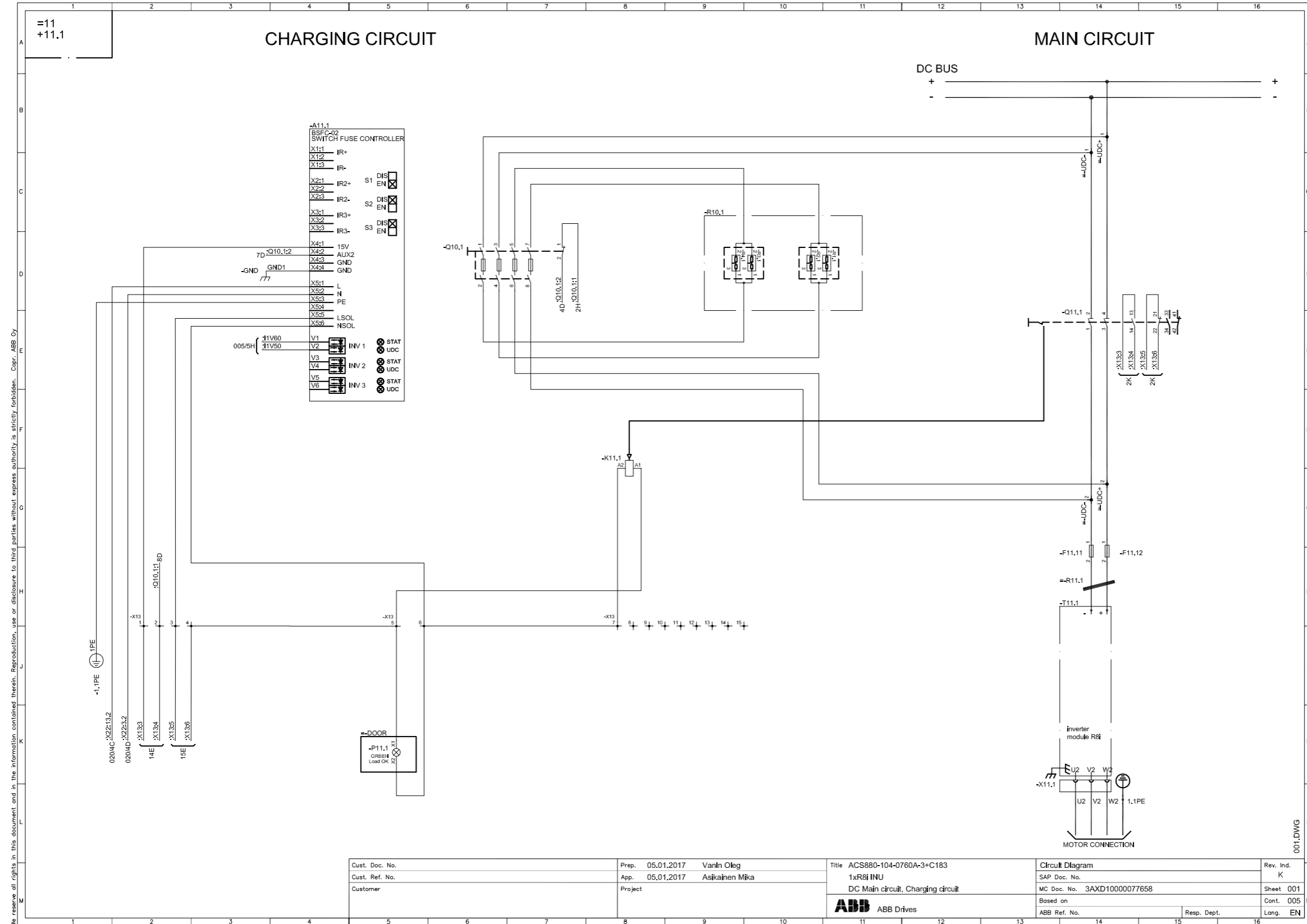


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

020.DWG

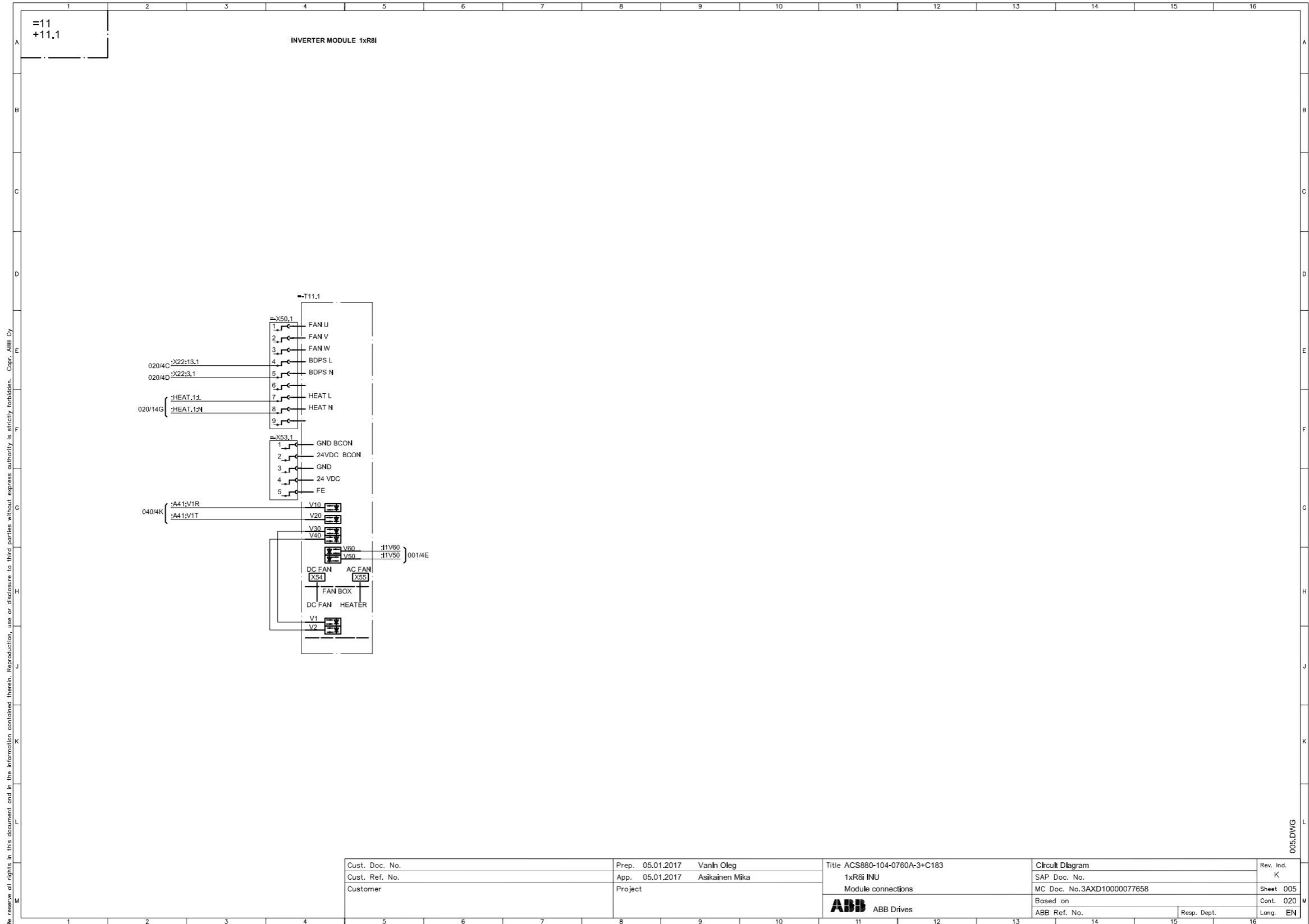
| | | | | |
|----------------|--------------------------------|--------------------------------|-----------------------------|-------------|
| Cust. Doc. No. | Prep. 29.12.2016 Vanin Oleg | Title ACS880-104 | Circuit diagram | Rev. Ind. H |
| Cust. Ref. No. | App. 29.12.2016 Asikainen Mika | Auxiliary Voltage Distribution | SAP Doc. No. | Sheet 020 |
| Customer | Project | Frame R7i | MC Doc. No. 3AXD10000029831 | Cont. - |
| | | ABB ABB Drives | Based on | Lang. EN |
| | | | ABB Ref. No. | Resp. Dept. |

Frame R8i (with DC switch/disconnector) – Sheet 001 (DC circuit)



Frame R8i (with DC switch/disconnector) – Sheet 005

(Inverter module)



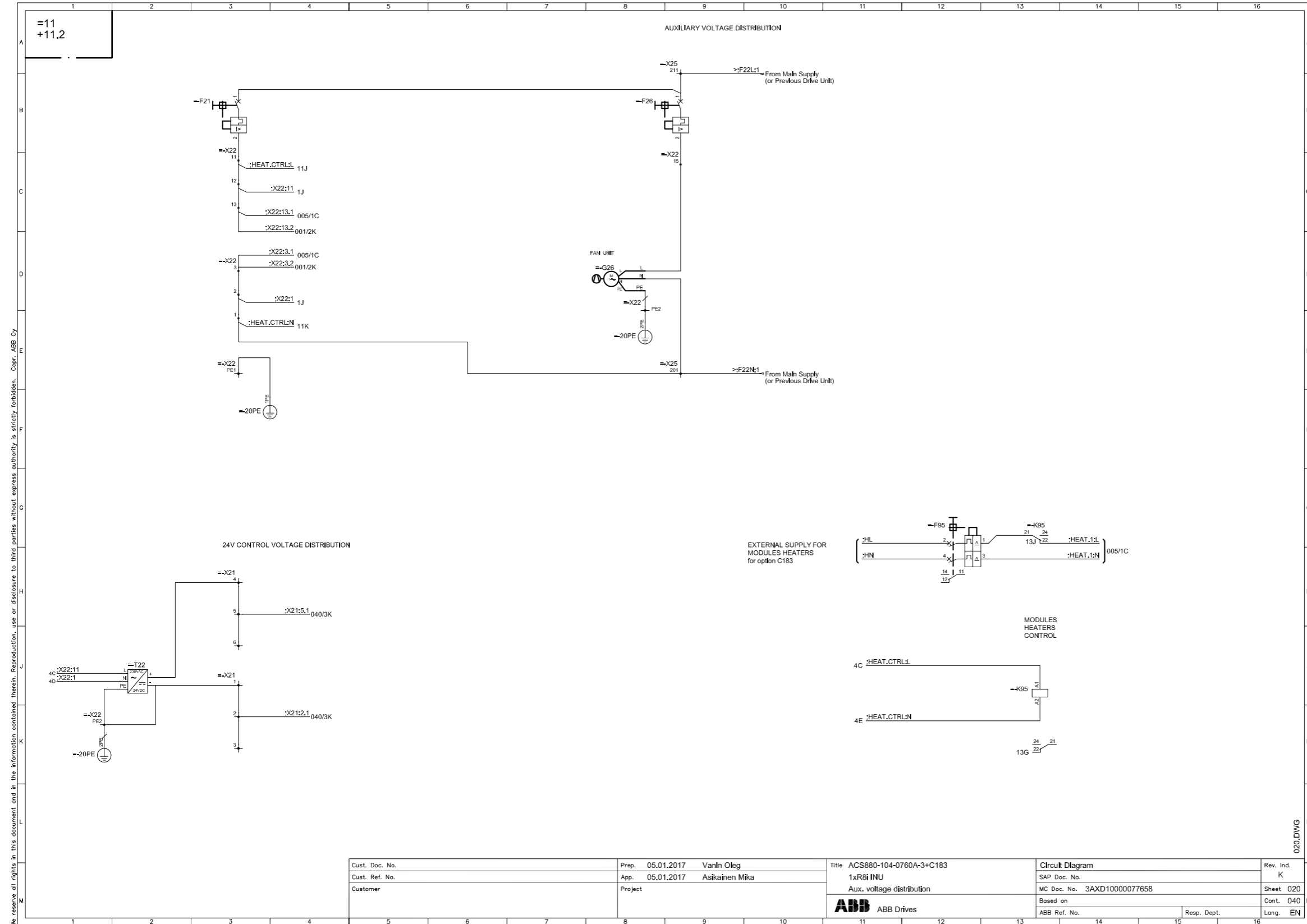
We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

005.DWG

| | | | | |
|----------------|--------------------------------|-------------------------------|----------------------------|-----------|
| Cust. Doc. No. | Prep. 05.01.2017 VanIn Oleg | Title ACS880-104-0760A-3+C183 | Circuit Diagram | Rev. Ind. |
| Cust. Ref. No. | App. 05.01.2017 Asikainen Mika | 1xR8i INU | SAP Doc. No. | K |
| Customer | Project | Module connections | MC Doc. No.3AXD10000077658 | Sheet 005 |
| | | ABB ABB Drives | Based on | Cont. 020 |
| | | | ABB Ref. No. | Long. EN |
| | | | Resp. Dept. | |

Frame R8i (with DC switch/disconnector) – Sheet 020

(Auxiliary voltage distribution)



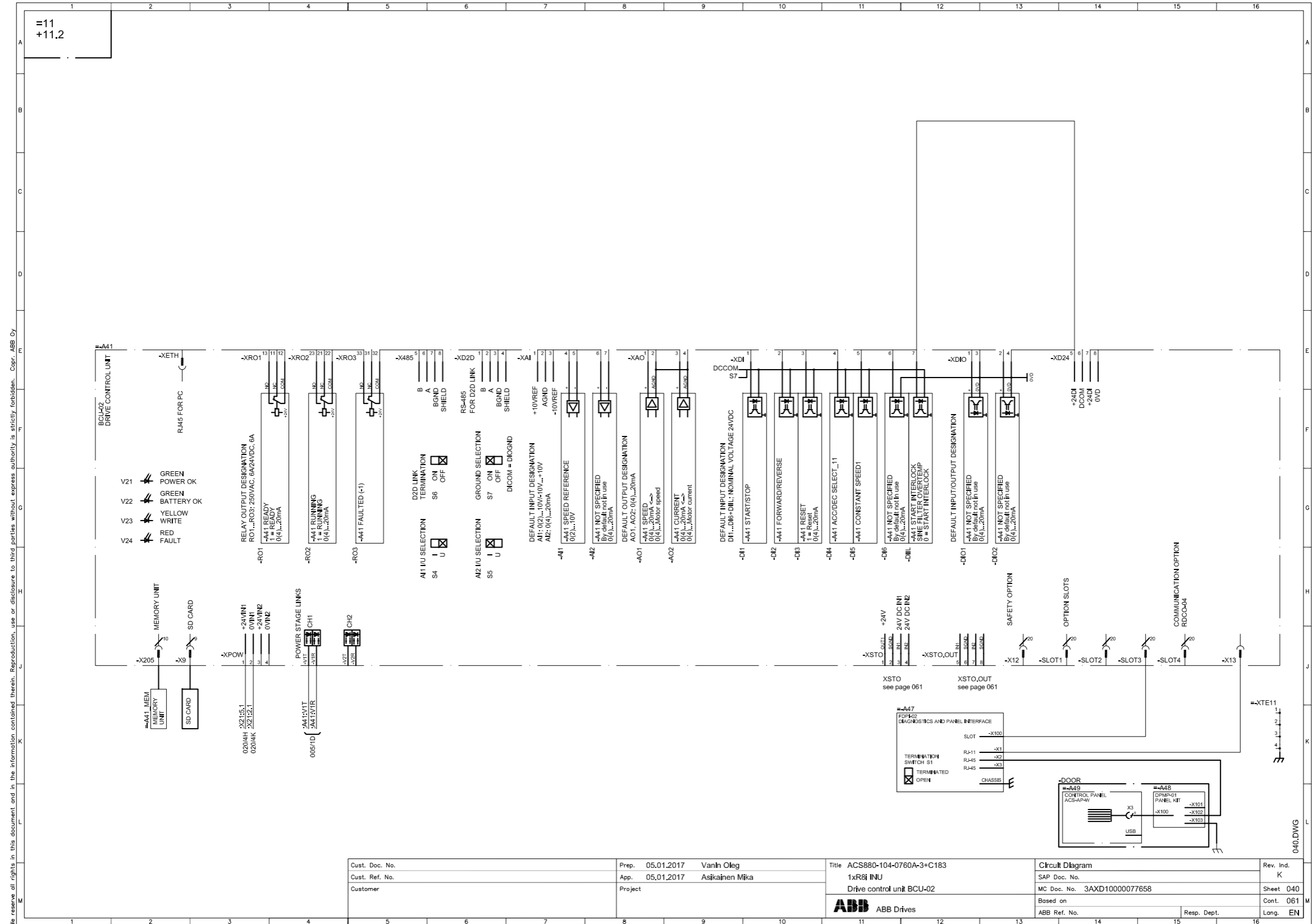
We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

020.DWG

| | | | | |
|----------------|-------------------------------|-------------------------------|----------------------------|-------------|
| Cust. Doc. No. | Prep. 05.01.2017 VanIn Oleg | Title ACS880-104-0760A-3+C183 | Circuit Diagram | Rev. Ind. K |
| Cust. Ref. No. | App. 05.01.2017 Askainen Mika | 1xR8i INU | SAP Doc. No. | |
| Customer | Project | Aux. voltage distribution | MC Doc. No. 3AXD1000077658 | Sheet 020 |
| | | ABB ABB Drives | Based on | Cont. 040 |
| | | | ABB Ref. No. | Lang. EN |
| | | | Resp. Dept. | |

Frame R8i (with DC switch/disconnector) – Sheet 040

(Control unit)

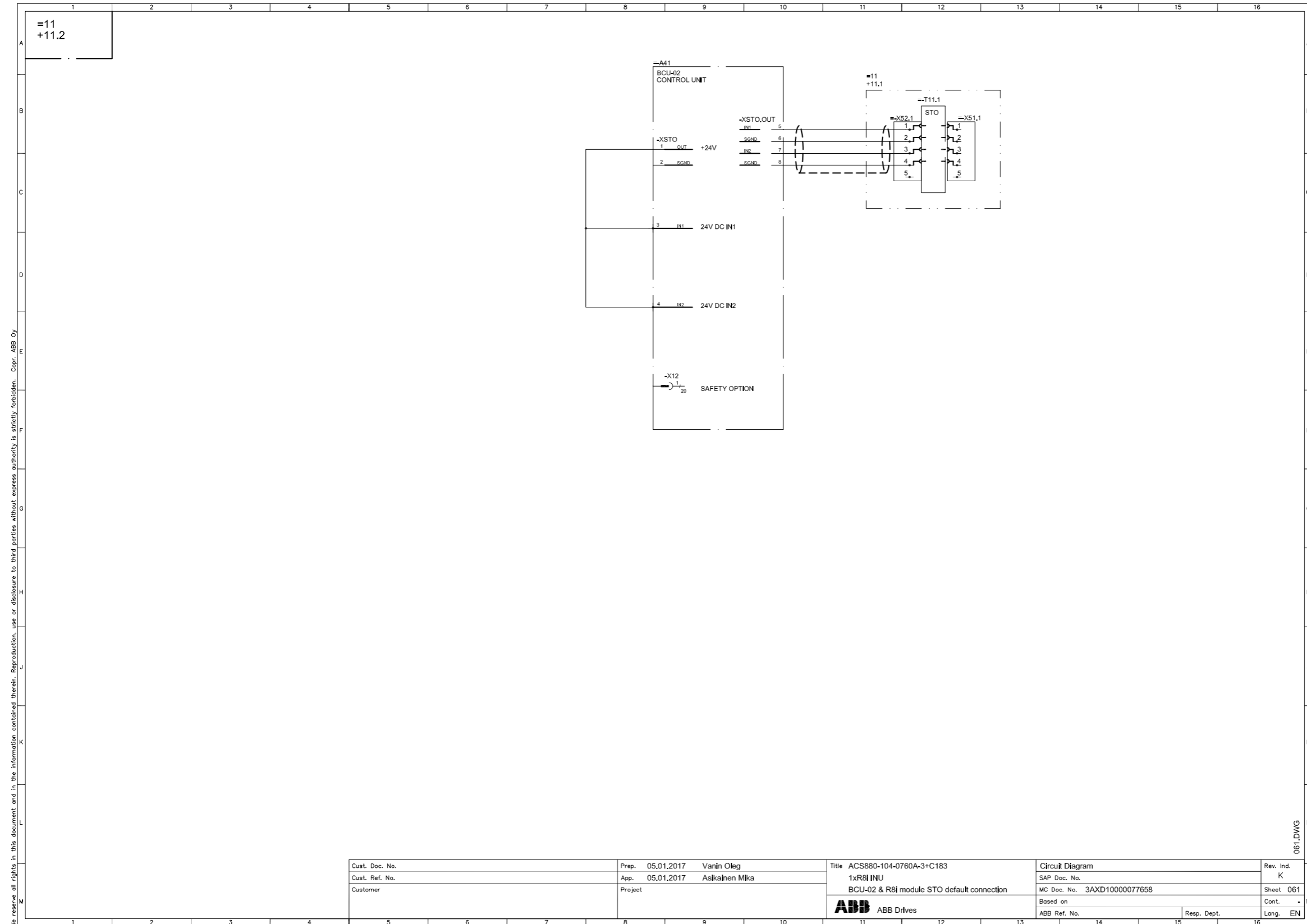


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

| | | | | |
|----------------|--------------------------------|-------------------------------|-----------------------------|-------------|
| Cust. Doc. No. | Prep. 05.01.2017 VanIn Oleg | Title ACS880-104-0760A-3+C183 | Circuit Diagram | Rev. Ind. K |
| Cust. Ref. No. | App. 05.01.2017 Asikainen Mika | 1xR8i INU | SAP Doc. No. | |
| Customer | Project | Drive control unit BCU-02 | MC Doc. No. 3AXD10000077658 | Sheet 040 |
| | | ABB ABB Drives | Based on | Cont. 061 |
| | | | ABB Ref. No. | Long. EN |
| | | | Resp. Dept. | |

040.DWG

Frame R8i (with DC switch/disconnector) – Sheet 061 (STO)

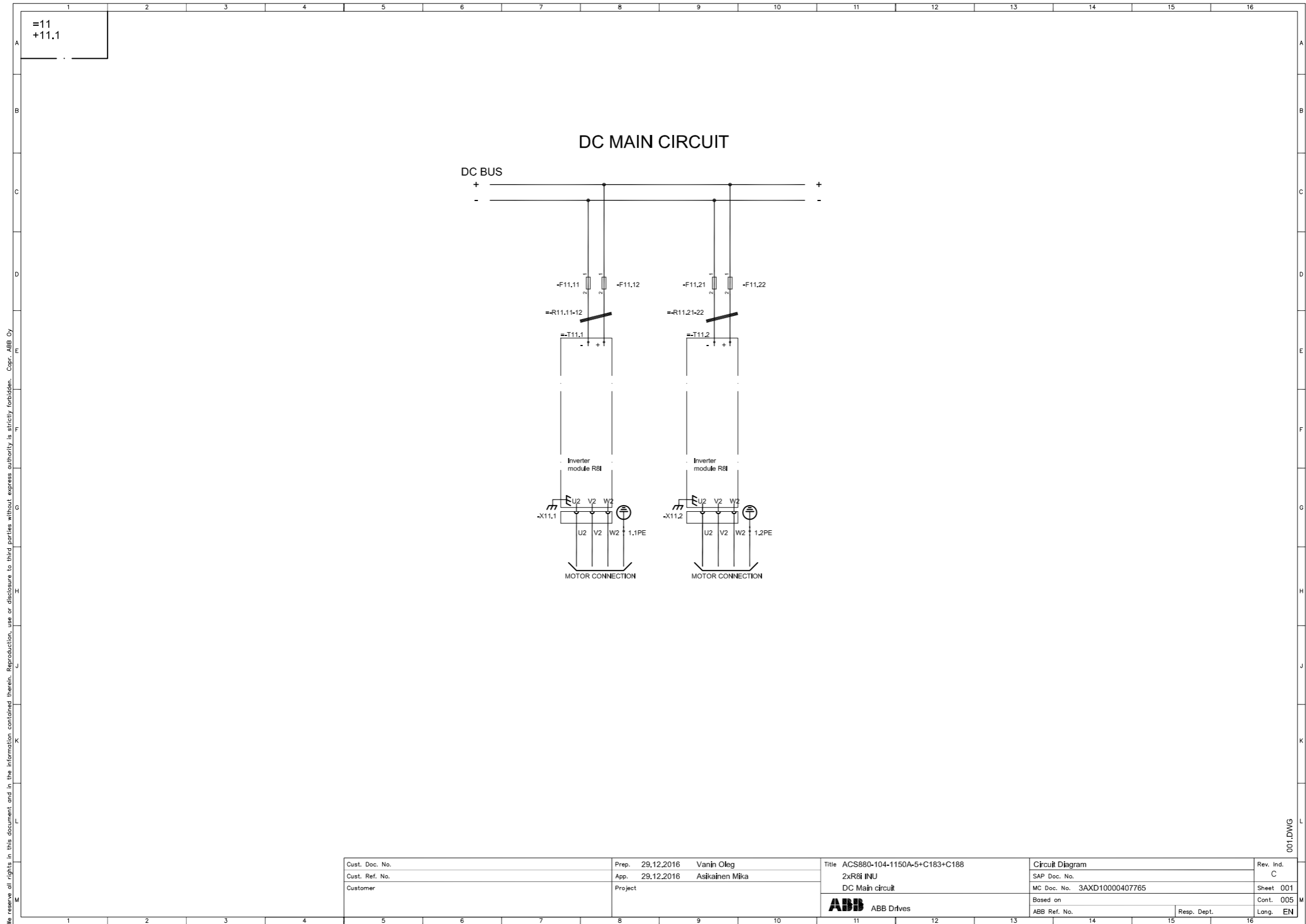


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

061.DWG

| | | | | |
|----------------|--------------------------------|--|-----------------------------|-------------|
| Cust. Doc. No. | Prep. 05.01.2017 Vanin Oleg | Title ACS880-104-0760A-3+C183 | Circuit Diagram | Rev. Ind. K |
| Cust. Ref. No. | App. 05.01.2017 Asikainen Mika | 1xR8i INU | SAP Doc. No. | Sheet 061 |
| Customer | Project | BCU-02 & R8i module STO default connection | MC Doc. No. 3AXD10000077658 | Cont. - |
| | | ABB ABB Drives | Based on | Lang. EN |
| | | | ABB Ref. No. | Resp. Dept. |

Frame 2xR8i – Sheet 001 (DC circuit)

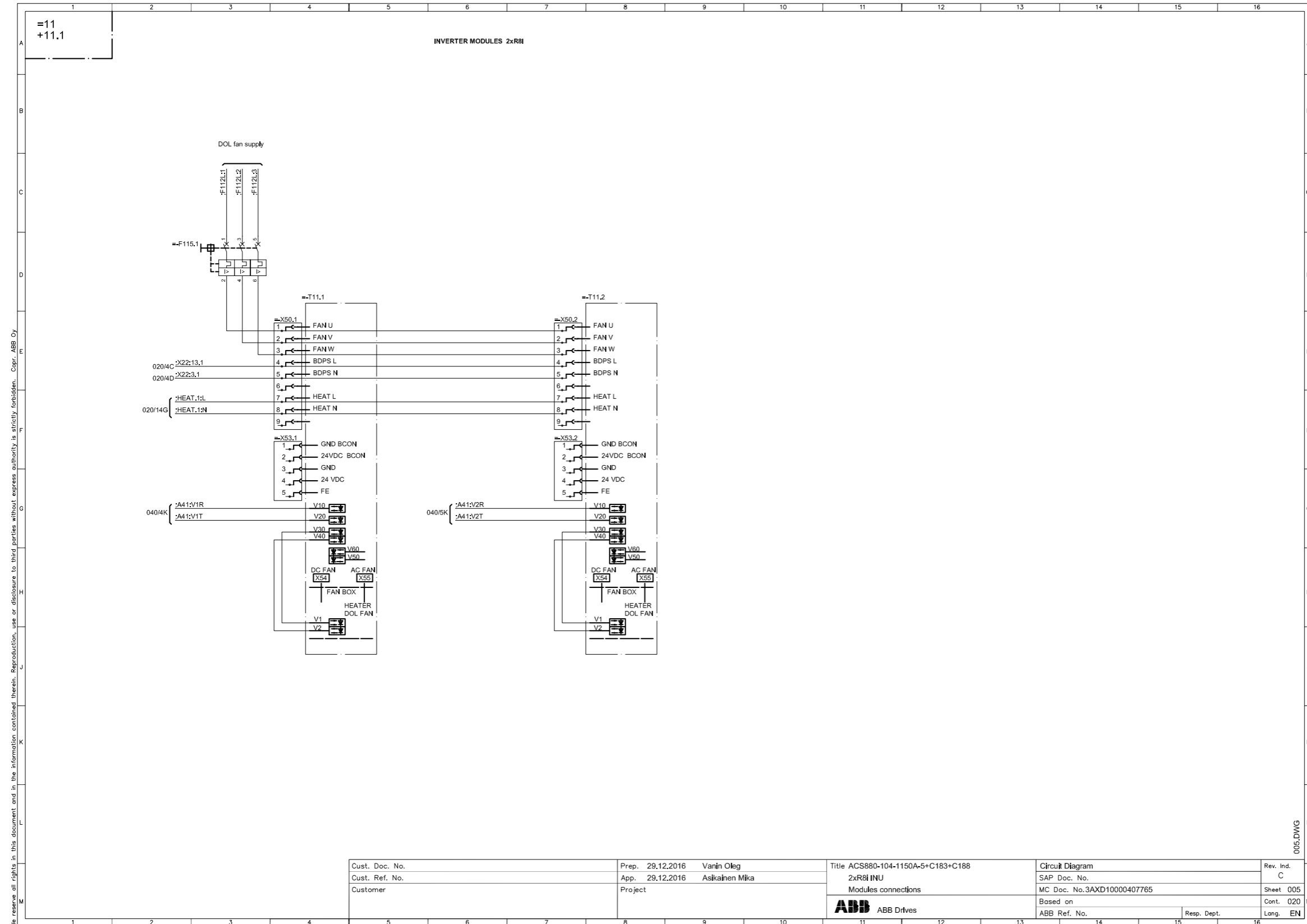


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Capr. ABB Oy

001.DWG

| | | | | | |
|----------------|------------------|----------------|------------------------------------|-----------------------------|-----------|
| Cust. Doc. No. | Prep. 29.12.2016 | Vanin Oleg | Title ACS880-104-1150A-5+C183+C188 | Circuit Diagram | Rev. Ind. |
| Cust. Ref. No. | App. 29.12.2016 | Asikainen Mika | 2xR8i INU | SAP Doc. No. | C |
| Customer | Project | | DC Main circuit | MC Doc. No. 3AXD10000407765 | Sheet 001 |
| | | | ABB ABB Drives | Based on | Cont. 005 |
| | | | | ABB Ref. No. | Lang. EN |
| | | | | Resp. Dept. | |

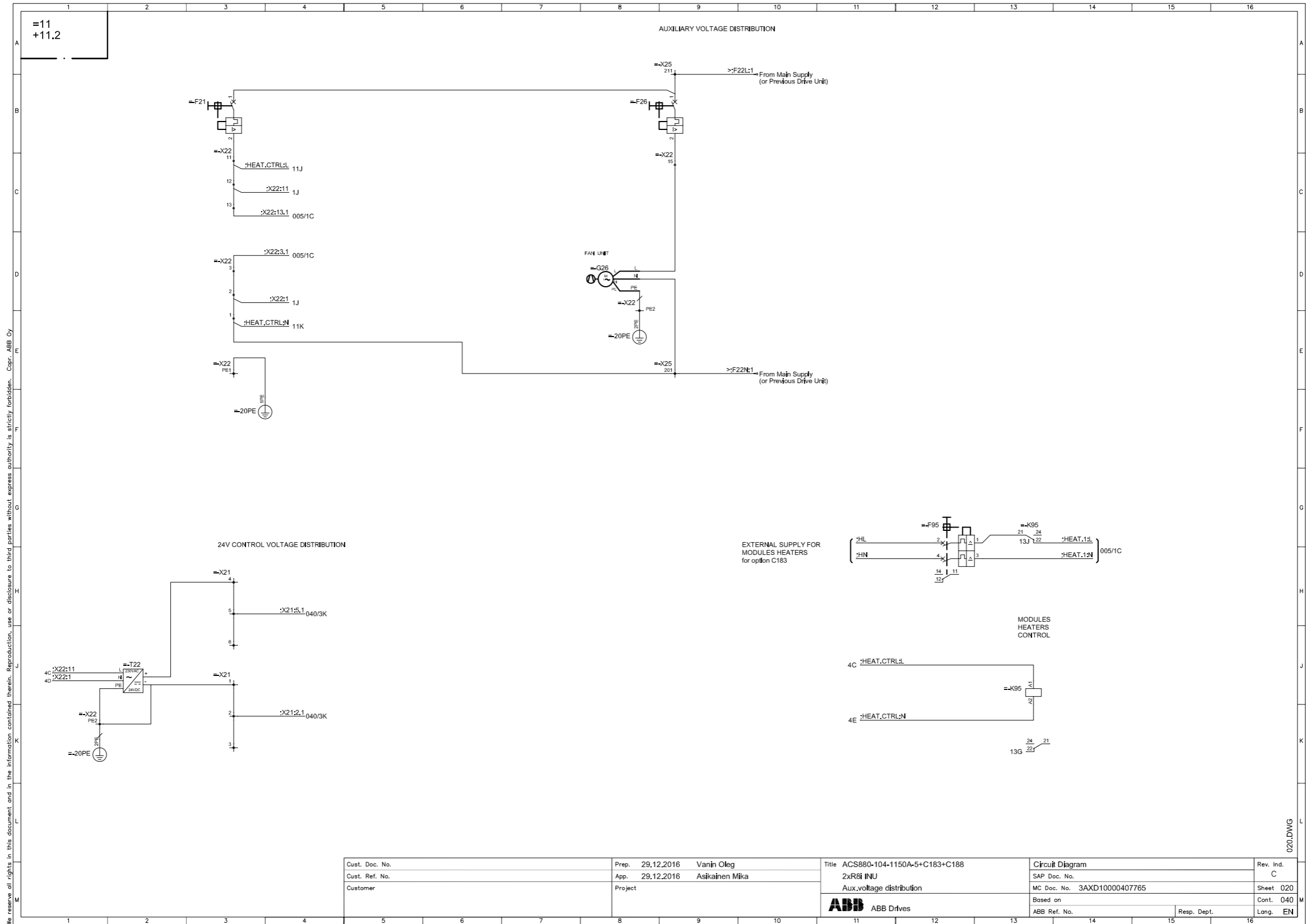
Frame 2xR8i – Sheet 005 (Inverter modules)



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

005.DWG

Frame 2xR8i – Sheet 020 (Auxiliary voltage distribution)

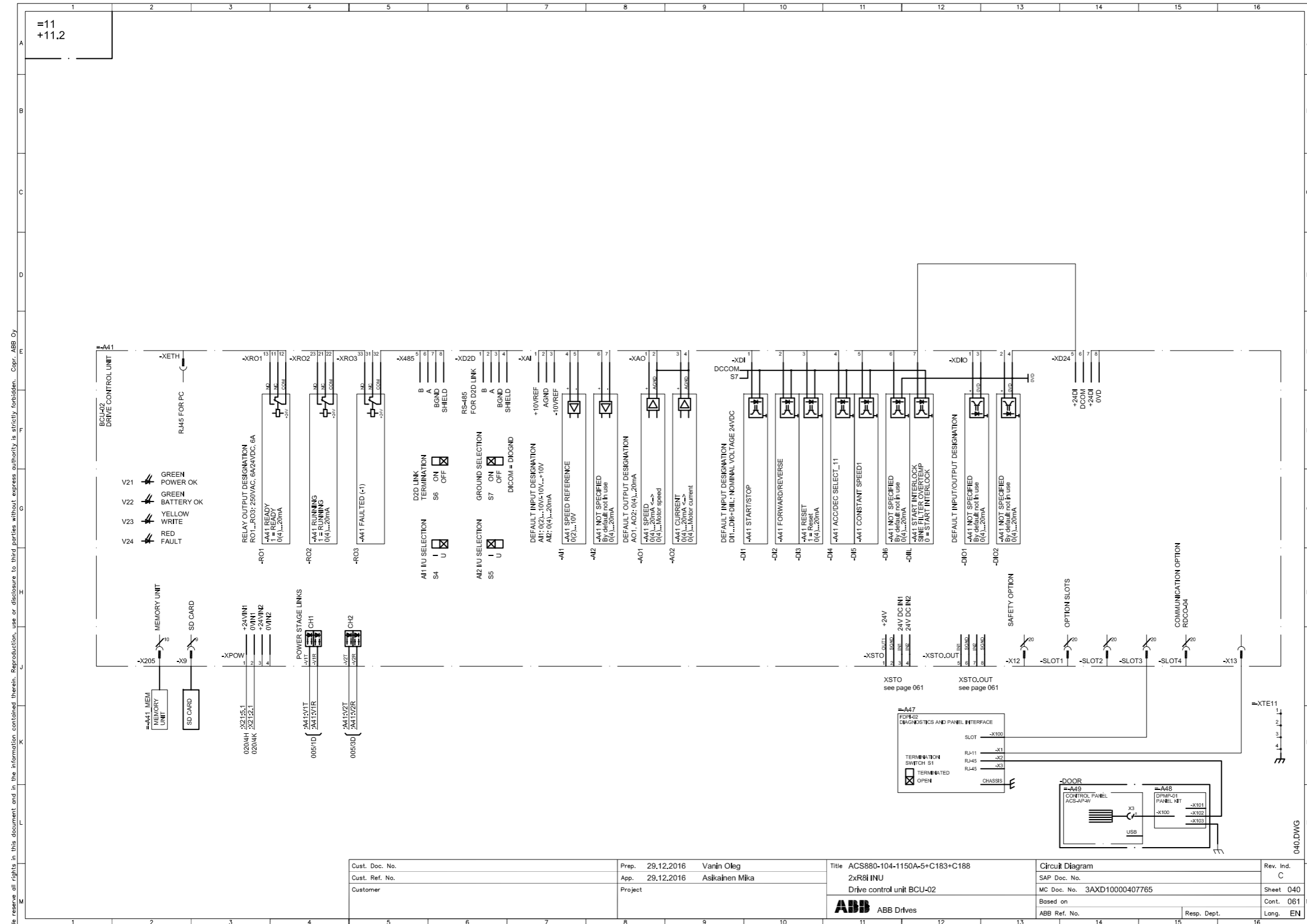


We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

| | | | | | |
|----------------|------------------|----------------|------------------------------------|-----------------------------|-------------|
| Cust. Doc. No. | Prep. 29.12.2016 | Vanin Oleg | Title ACS880-104-1150A-5+C183+C188 | Circuit Diagram | Rev. Ind. C |
| Cust. Ref. No. | App. 29.12.2016 | Asikainen Mika | 2xR8i INU | SAP Doc. No. | Sheet 020 |
| Customer | Project | | Aux.voltage distribution | MC Doc. No. 3AXD10000407765 | Cont. 040 |
| | | | ABB ABB Drives | Based on | Lang. EN |
| | | | | ABB Ref. No. | Resp. Dept. |

020.DWG

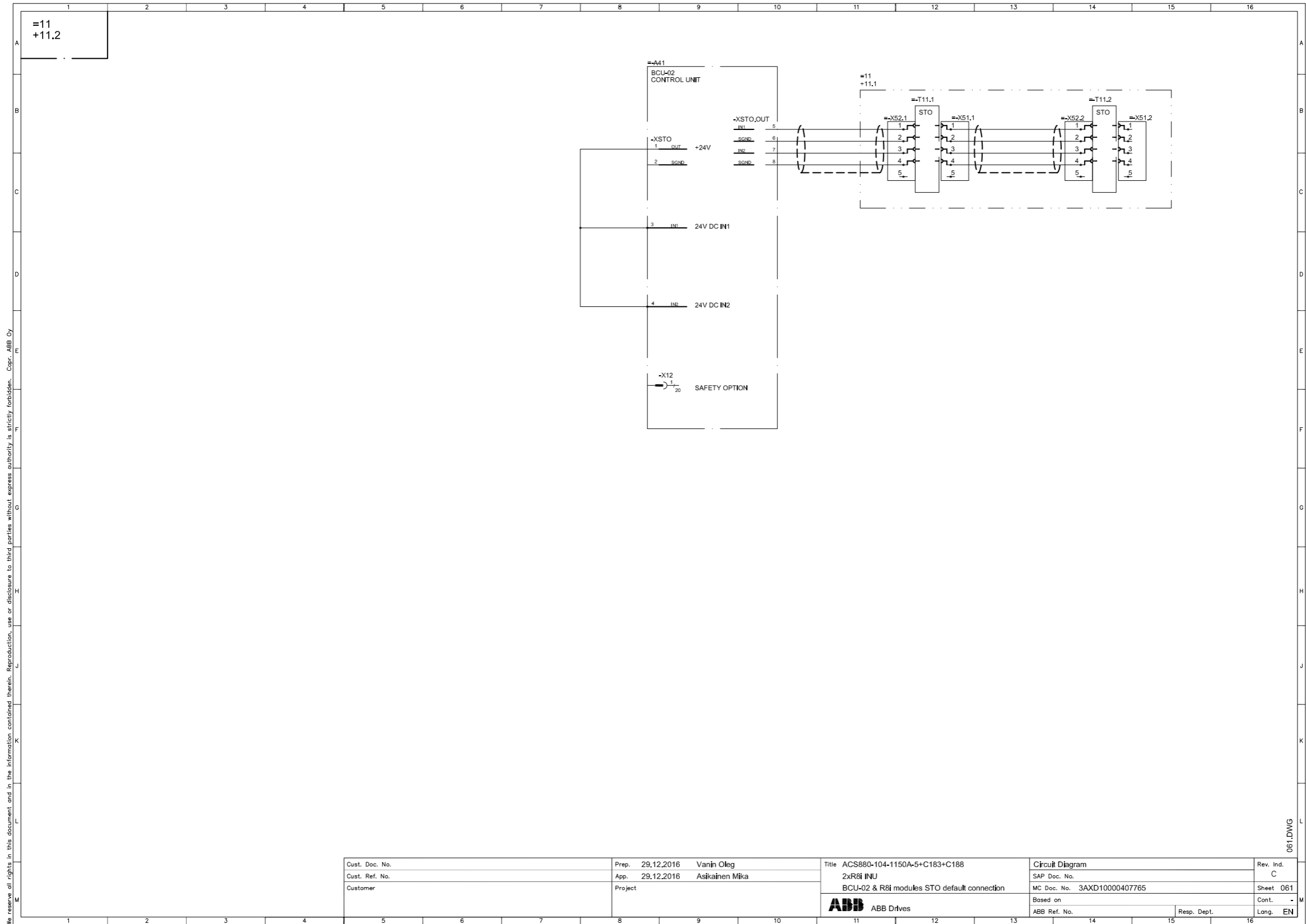
Frame 2xR8i – Sheet 040 (Control unit)



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Copr. ABB Oy

| | | | | |
|----------------|-------------------------------|------------------------------------|-----------------------------|-------------|
| Cust. Doc. No. | Prep. 29.12.2016 Vanin Oleg | Title ACS880-104-1150A-5+C183+C188 | Circuit Diagram | Rev. Ind. C |
| Cust. Ref. No. | App. 29.12.2016 Askainen Mika | 2xR8i INU | SAP Doc. No. | Sheet 040 |
| Customer | Project | Drive control unit BCU-02 | MC Doc. No. 3AXD10000407765 | Cont. 061 |
| | | ABB ABB Drives | Based on | Lang. EN |
| | | | ABB Ref. No. | Resp. Dept. |

Frame 2xR8i – Sheet 061 (STO)



We reserve all rights in this document and in the information contained therein. Reproduction, use or disclosure to third parties without express authority is strictly forbidden. Capr. ABB Oy

061.DWG

| | | | | | |
|----------------|------------------|----------------|---|-----------------------------|-----------|
| Cust. Doc. No. | Prep. 29.12.2016 | Vanin Oleg | Title ACS880-104-1150A-5+C183+C188 | Circuit Diagram | Rev. Ind. |
| Cust. Ref. No. | App. 29.12.2016 | Asikainen Mika | 2xR8i INU | SAP Doc. No. | C |
| Customer | Project | | BCU-02 & R8i modules STO default connection | MC Doc. No. 3AXD10000407765 | Sheet 061 |
| | | | ABB ABB Drives | Based on | Cont. - |
| | | | | ABB Ref. No. | Lang. EN |
| | | | | Resp. Dept. | |

Further information

Product and service inquiries

Address any inquiries about the product to your local ABB representative, quoting the type designation and serial number of the unit in question. A listing of ABB sales, support and service contacts can be found by navigating to www.abb.com/searchchannels.

Product training

For information on ABB product training, navigate to new.abb.com/service/training.

Providing feedback on ABB manuals

Your comments on our manuals are welcome. Navigate to new.abb.com/drives/manuals-feedback-form.

Document library on the Internet

You can find manuals and other product documents in PDF format on the Internet at www.abb.com/drives/documents.



www.abb.com/drives



3AUA0000104271H