ABB industrial drives

Supplement
ACS880-01 +N7502 drives for SynRM motors (0.8 to 200 kW)

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List of related manuals

Drive hardware manuals and guides	Code (English)
ACS880-01 hardware manual	*3AUA0000078093*
ACS880-01 +N7502 drives for SynRM motors supplement	*3AXD50000029482*
ACS880-01 quick installation guide for frames R1 to R3	*3AUA0000085966*
ACS880-01 quick installation guide for frames R4 and R5	*3AUA0000099663*
ACS880-01 quick installation guide for frames R6 to R9	*3AUA0000099689*
ACS880-01 +P940/+P944 drives for cabinet installation supplement	*3AUA0000145446*
ACS880-01 assembly drawings for cable entry boxes of IP21 frames R5 to R9	*3AUA0000119627*
ACS-AP-x assistant control panels user's manual	*3AUA0000085685*
Vibration dampers for ACS880-01 drives (frames R4 and R5, option +C131) installation guide	*3AXD50000010497*
Vibration dampers for ACS880-01 drives (frames R6 to R9, option +C131) installation guide	*3AXD50000013389*
ACS880-01/04 +C132 marine type-approved drives supplement	*3AXD50000010521*
Flange mounting kit installation supplement	*3AXD50000019100*
Common mode filter kit for ACS880-01 drives (frame R6, option +E208) installation guide	*3AXD50000015178*
Common mode filter kit for ACS880-01 drives (frame R7, option +E208) installation guide	*3AXD50000015179*
Common mode filter kit for ACS880-01 drives (frame R8, option +E208) installation guide	*3AXD50000015180*
Common mode filter kit for ACS880-01 drives (frame R9, option +E208) installation guide	*3AXD50000015201*
ACS880-01 drives and ACS880-04 drive modules common DC systems application guide	*3AUA0000127818*

Drive firmware manuals and guides	
ACS880 primary control program firmware manual	*3AUA0000085967*
Quick start-up guide for ACS880 drives with primary control program	*3AUA0000098062*

Option manuals and guides	
Manuals and quick guides for I/O extension modules, fieldbus adapters, etc.	

You can find manuals and other product documents in PDF format on the Internet. See section *Document library on the Internet* on the inside of the back cover. For manuals not available in the Document library, contact your local ABB representative.

The code below opens an online listing of the manuals applicable to this product.

ACS880-01 manuals

Supplement

ACS880-01 +N7502 drives for SynRM motors (0.8 to 200 kW)

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1

Introduction to the supplement

Contents of this chapter

The chapter describes the intended audience and compatibility of this supplement.

Applicability

This supplement applies to ACS880-01 drives specially rated for ABB synchronous reluctance (SynRM) motors. It is a supplement to *ACS880-01 hardware manual* (3AUA0000078093 [English]).

Safety instructions

Obey the safety instructions given in *ACS880-01 hardware manual* (3AUA0000078093 [English]).

Target audience

This supplement is intended for people who plan the installation, install, start-up and use the drive. Read the manual before you work on the drive. You are expected to know the fundamentals of electricity, wiring, electrical components and electrical schematic symbols.

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

Purpose of the manual

This supplement gives the technical data for ACS880-01 drive types the rating of which is optimized for ABB ABB synchronous reluctance (SynRM) motors. The other information and instructions are given in the *ACS880-01 hardware manual* (3AUA0000078093 [English]).

Contents of the supplement

The chapters of the manual are briefly described below.

Introduction to the supplement introduces the supplement.

Technical data contains the technical specifications for drive, for example, the ratings, fuses and cooling data.

Related manuals

See *List of related manuals* on the inside of the front cover.

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Technical data

What this chapter contains

This chapter contains the ratings, fuses, cooling data and noise of the drive,

Ratings

The nominal ratings for the drives with 50 Hz and 60 Hz supply are given below. The symbols are described below the table.

IEC RATINGS										
Drive type ACS880-01-	Frame size	Input rating	Output ratings							
			Nominal use				Light-overload use		Heavy-duty use	
		I_{1N}	I_{max}	I_N	P_N	S_N	I_{Ld}	P_{Ld}	I_{Hd}	P_{Hd}
		A	A	A	kW	kVA	A	kW	A	kW
U_N = 400 V										
03A0-3	R1	3.0	4.1	3.0	1.1	2.1	3.0	1.1	2.4	0.8
03A9-3	R1	3.9	5.6	3.9	1.5	2.7	3.9	1.5	3.0	1.1
05A8-3	R1	5.8	9.5	5.8	2.2	4.0	5.8	2.2	3.9	1.5
07A5-3	R1	7.5	12.2	7.5	3	5.2	7.5	3	5.8	2.2
09A8-3	R1	9.8	16	9.8	4	6.8	9.8	4	7.5	3
14A3-3	R2	14.3	21	14.3	5.5	9.9	14.3	5.5	9.8	4
17A7-3	R2	17.7	29	17.7	7.5	12	17.7	7.5	14.3	5.5
25A5-3	R2	25	29	25	11	17	24	11	17	7.5
035A-3	R3	35	54	35	15	24	35	15	25	11
043A-3	R4	43	64	43	18.5	30	43	18.5	35	15
050A-3	R4	50	76	50	22	35	50	22	43	18.5
069A-3	R5	69	104	69	30	48	69	30	50	22
085A-3	R5	85	122	85	37	59	83	37	69	30

IEC RATINGS										
Drive type ACS880-01-	**Frame size**	**Input rating**	**Output ratings**							
			Nominal use				**Light-overload use**		**Heavy-duty use**	
		I_{1N}	I_{max}	I_N	P_N	S_N	I_{Ld}	P_{Ld}	I_{Hd}	P_{Hd}
		A	**A**	**A**	**kW**	**kVA**	**A**	**kW**	**A**	**kW**
103A-3	R6	103	148	103	45	71	103	45	85	37
123A-3	R6	123	178	123	55	85	123	55	103	45
173A-3	R7	173	287	173	75	120	173	75	123	55
202A-3	R7	202	287	202	90	140	196	90	169	75
245A-3	R8	245	350	245	110	170	245	110	202	90
290A-3	R8	290	418	290	132	201	278	132	245*	110
343A-3	R9	343	498	343	160	238	343	160	290	132
427A-3	R9	427	545	427	200	296	400	200	343**	160
U_N = 690 V										
010A-7	R5	10	29	10	7.5	12	10	7.5	9.8	5.5
14A5-7	R5	14.5	29	14.5	11	17	14.5	11	10	7.5
20A2-7	R5	20.2	54	20.2	15	24	20.2	15	14.5	11
24A8-7	R5	24.8	64	24.8	18.5	30	24.8	18.5	20.2	15
29A0-7	R5	29	64	29	22	35	29	22	24.8	18.5
39A9-7	R5	39.9	70	39.9	30	48	39.9	30	29	22
47A5-7	R5	47.5	71	47.5	37	57	47	37	39.9	30
060A-7	R6	60	124	60	45	72	60	45	47.5	37
071A-7	R6	71	124	71	55	85	71	55	60	45
100A-7	R7	100	198	100	75	120	100	75	71	55
117A-7	R7	117	198	117	90	140	113	90	98	75
143A-7	R8	143	274	143	110	171	143	110	117	90
168A-7	R8	168	274	168	132	201	165	132	142	110
199A-7	R9	199	384	199	160	238	199	160	168	132
248A-7	R9	248	411	248	200	296	248	200	199	160

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Definitions

U_N	Nominal voltage of the drive. For the input voltage range, see section *Electrical power network specification* in the hardware manual.
I_{1N}	Nominal rms input current
I_N	Nominal output current (available continuously with no over-loading)
P_N	Typical motor 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. then as long as allowed by drive temperature.
I_{Hd}	Continuous rms output current allowing 50% overload for 1 minute every 5 minutes. * Continuous rms output current allowing 30% overload for 1 minute every 5 minutes. ** Continuous rms output current allowing 25% overload for 1 minute every 5 minutes.
P_{Hd}	Typical motor power in heavy-duty use

Note 1: The ratings apply at an ambient temperature of 40 °C (104 °F).

Note 2: 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.

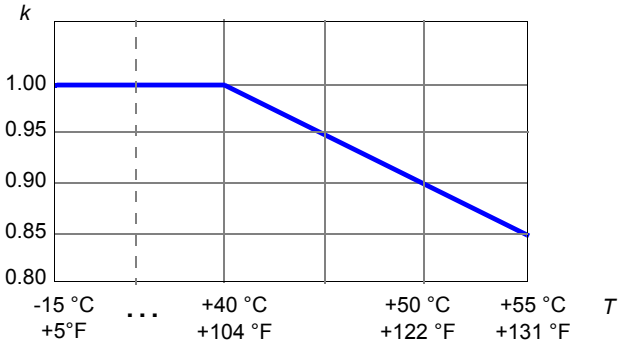
The DriveSize dimensioning tool available from ABB is recommended for selecting the drive, motor and gear combination.

Derating

Ambient temperature derating

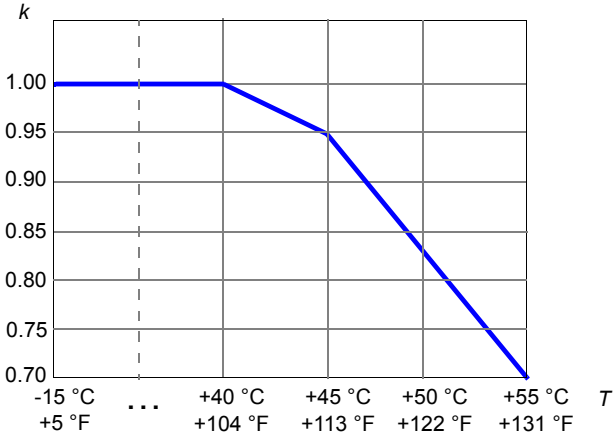
IP21 (UL Type 1) drive types and other IP55 (UL Type 12) types than listed in the following subheadings

In the temperature range +40…55 °C (+104…131 °F), the rated output current is derated by 1% 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*):



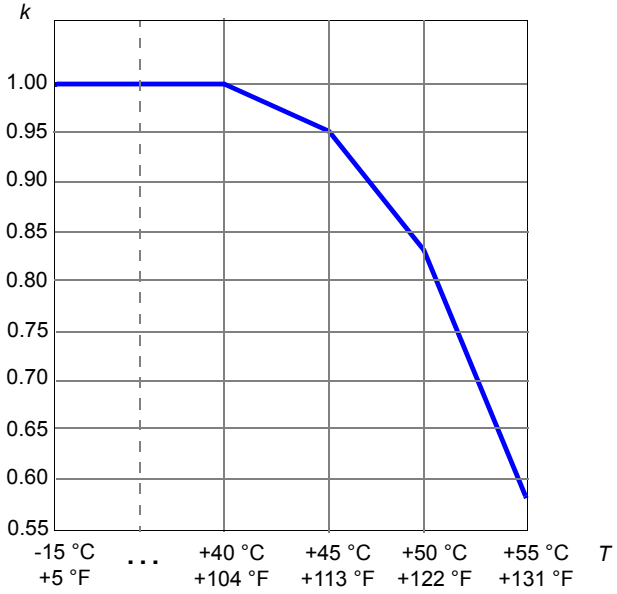
IP55 (UL Type 12) drive types -274A-2, -293A-3, -290A-3, -260A-5, -302A-5, -143A-7, -168A-7 and -174A-7

In the temperature range +40…45 °C (+104…113 °F), the rated output current is derated by 1% for every added 1 °C (1.8 °F). In the temperature range +45…55 °C (+113…131 °F), the rated output current is derated by 2.5% 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*):



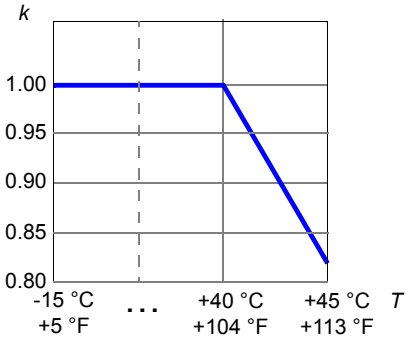
IP55 (UL Type 12) drive types -343A-3, -363A-3 and -361A-5

In the temperature range +40…45 °C (+104…113 °F), the rated output current is derated by 1% for every added 1 °C (1.8 °F). In the temperature range +45…50 °C (+113…122 °F), the rated output current is derated by 2.5% for every added 1 °C (1.8 °F). In the temperature range +50…55 °C (+122…131 °F), the rated output current is derated by 5% 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*):



IP55 (UL Type 12) drive types-199A-7 and -210A-7

In the temperature range +40…45 °C (+104…113 °F), the rated output current is derated by 3.5% for every added 1 °C (1.8 °F). The maximum temperature is 45 °C (113 °F). The output current can be calculated by multiplying the current given in the rating table by the derating factor (*k*):



IP55 (UL Type 12) types -0427A-3, -0430A-3, -0414A-5, -248A-7 and -0271A-7

The maximum ambient temperature is 35 °C (95 °F).

Deratings for special settings in the drive control program

Enabling special settings in the drive control program can require output current derating.

Ex motor, sine filter

The table below gives the deratings for these cases:

- drive is used with an ABB motor for explosive atmospheres (Ex) and **EX motor** in Parameter **95.15 Special HW settings** is enabled
- sine filter given in the selection table in the hardware manual is used and **ABB sine filter** in **Parameter 95.15 Special HW settings** is enabled

With other than recommended sine filters (see the hardware manual) and non-ABB Ex motors, contact ABB

Drive type ACS880-01-	Output ratings							
	EX motor (ABB Ex motors)				ABB Sine filter			
	Nominal use		Light-duty use	Heavy-duty use	Nominal use		Light-duty use	Heavy-duty use
	I_N	P_N	I_{Ld}	I_{Hd}	I_N	P_N	I_{Ld}	I_{Hd}
	A	kW	A	A	A	kW	A	A
U_N = 400 V								
03A0-3	3.3	1.1	3.1	2.4	3.1	0.75	2.9	2.3
03A9-3	4.0	1.5	3.8	3.3	3.8	1.1	3.6	3.1
05A8-3	8.0	3.0	7.6	5.6	7.2	2.2	6.8	5.3
07A5-3	10.0	4.0	9.5	8.0	9.2	3.0	8.7	7.2
09A8-3	12.9	5.5	12.0	10.0	12.1	4.0	11.5	9.2
14A3-3	17	8	16	12.6	16	5.5	15	12
17A7-3	25	11	24	17	23	7.5	22	16
25A5-3	25	11	24	17	23	7.5	22	16
035A-3	38	19	36	32	36	15	34	31
043A-3	45	22	43	38	43	18.5	41	36
050A-3	61	30	58	45	58	22	55	43
069A-3	72	37	68	61	64	30	61	58
085A-3	87	45	83	72	77	37	73	64
103A-3	97	45	92	87	91	45	86	77
123A-3	134	55	127	97	126	55	120	91
173A-3	195	90	185	160	186	90	177	152
202A-3	195	90	185	160	186	90	177	152
245A-3	225	110	214	195	209	110	199	186
290A-3	269	132	256	225*	249	132	237	209*
343A-3	325	160	309	269	296	160	281	249
427A-3	385	200	366	325**	352	160	334	296**

Drive type ACS880-01-	Output ratings							
	EX motor (ABB Ex motors)				ABB Sine filter			
	Nominal use		Light-duty use	Heavy-duty use	Nominal use		Light-duty use	Heavy-duty use
	I_N	P_N	I_{Ld}	I_{Hd}	I_N	P_N	I_{Ld}	I_{Hd}
	A	kW	A	A	A	kW	A	A
U_N = 690 V								
010A-7	18	15	17	14	17	11	16	14
14A5-7	18	15	17	14	17	11	16	14
20A2-7	26	22	25	22	24	18.5	22.8	21
24A8-7	35	30	33	26	33	22	31	24
29A0-7	35	30	33	26	33	22	31	24
39A9-7	42	37	40	35	40	30	38	33
47A5-7	49	45	47	42	46	37	44	40
060A-7	84	75	80	61	68	55	65	49
071A-7	84	75	80	61	68	55	65	49
100A-7	119	110	113	98	101	90	96	83
117A-7	119	110	113	98	101	90	96	83
143A-7	154	132	146	126	137	110	130	112
168A-7	154	132	146	126	137	110	130	112
199A-7	184	160	175	154	161	132	153	137
248A-7	238	200	226	184	207	160	197	161

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U_N	Nominal voltage of the drive. For the input voltage range, see section *Electrical power network specification* in the hardware manual.
I_N	Nominal output current (available continuously with no over-loading)
P_N	Typical motor power in no-overload use
I_{Ld}	Continuous rms output current allowing 10% overload for 1 minute every 5 minutes
I_{Hd}	Continuous rms output current allowing 50% overload for 1 minute every 5 minutes. * Continuous rms output current allowing 30% overload for 1 minute every 5 minutes. ** Continuous rms output current allowing 25% overload for 1 minute every 5 minutes.
P_{Hd}	Typical motor power in heavy-duty use
Note 1: The ratings apply at an ambient temperature of 40 °C (104 °F).	

Low noise optimization

The table below gives the deratings for this case:

- **Low noise optimization** is selected in **Parameter 97.09 Switching freq mode**.

Drive type ACS880-01-	Output ratings with selection Low noise optimization of parameter Parameter 97.09 Switching freq mode			
	Nominal use		Light- duty use	Heavy-duty use
	I_N	P_N	I_{Ld}	I_{Hd}
	A	kW	A	A
U_N = 400 V				
03A0-3	3.0		2.9	2.2
03A9-3	3.6		3.4	3.0
05A8-3	6.5		6.2	5.0
07A5-3	8.5		8.1	6.5
09A8-3	11.3		10.7	8.5
14A3-3	15		14.3	11.3
17A7-3	22		20.9	15.0
25A5-3	22		20.9	15.0
035A-3	35		33	30
043A-3	41		39	35
050A-3	56		53	41
069A-3	56		53	47
085A-3	67		64	56
103A-3	86		82	67
123A-3	118		112	86
173A-3	178		169	146
202A-3	178		169	146
245A-3	194		184	178
290A-3	236		224	194*
343A-3	274		260	236
427A-3	325		309	274**
U_N = 690 V				
010A-7	17	11	16	14
14A5-7	17	11	16	14
20A2-7	24	18.5	22.8	21.0
24A8-7	33	22	31	24
29A0-7	33	22	31	24
39A9-7	40	30	38	33
47A5-7	46	37	44	40
060A-7	68	55	65	49
071A-7	68	55	65	49
100A-7	101	90	96	83

Drive type ACS880-01-	Output ratings with selection Low noise optimization of parameter Parameter 97.09 Switching freq mode			
	Nominal use		Light- duty use	Heavy-duty use
	I_N	P_N	I_{Ld}	I_{Hd}
	A	kW	A	A
117A-7	101	90	96	83
143A-7	122	110	116	101
168A-7	122	110	116	101
199A-7	138	132	131	122
248A-7	178	160	169	138

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U_N	Nominal voltage of the drive. For the input voltage range, see section *Electrical power network specification* in the hardware manual.
I_N	Nominal output current (available continuously with no over-loading)
P_N	Typical motor power in no-overload use
I_{Ld}	Continuous rms output current allowing 10% overload for 1 minute every 5 minutes
I_{Hd}	Continuous rms output current allowing 50% overload for 1 minute every 5 minutes. * Continuous rms output current allowing 30% overload for 1 minute every 5 minutes. ** Continuous rms output current allowing 25% overload for 1 minute every 5 minutes.
P_{Hd}	Typical motor power in heavy-duty use
Note 1: The ratings apply at an ambient temperature of 40 °C (104 °F).	

High speed mode

Selection **High speed mode** of parameter **95.15 Special HW settings** improves control performance at high output frequencies. We recommend it to be selected with output frequency of 120 Hz and above.

This table gives the drive module ratings for 120 Hz output frequency and the maximum output frequency for the drive ratings when **High speed mode** in parameter **95.15 Special HW settings** is enabled: With output frequencies smaller than this recommended maximum output frequency, the current derating is less than the values given in the table. Contact ABB for operation above the recommended maximum output frequency or for the output current derating with output frequencies above 120 Hz and below the maximum output frequency.

Drive module type ACS880-01-	Output ratings with selection High speed mode of parameter 95.15 Special HW settings									
	120 Hz output frequency					Maximum output frequency				
	f	Nominal use		Light-duty use	Heavy-duty use	f_{max}	Nominal use		Light-duty use	Heavy-duty use
		I_N	P_N	I_{Ld}	I_{Hd}		I_N	P_N	I_{Ld}	I_{Hd}
	Hz	A	kW	A	A	Hz	A	kW	A	A
U_N = 400 V										
03A0-3	120					500	3.0		2.9	2.2
03A9-3	120					500	3.6		3.4	3.0
05A8-3	120					500	6.5		6.2	5.0
07A5-3	120					500	8.5		8.1	6.5
09A8-3	120					500	11.3		10.7	8.5
14A3-3	120					500	15		14.3	11.3
17A7-3	120					500	22		20.9	15.0
25A5-3	120					500	22		20.9	15.0
035A-3	120					500	35		33	30
043A-3	120					500	41		39	35
050A-3	120					500	56		53	41
069A-3	120					500	56		53	47
085A-3	120					500	67		64	56
103A-3	120					500	77		73	67
123A-3	120					500	106		101	77
173A-3	120					500	165		157	135
202A-3	120					500	165		157	135
245A-3	120					500	170		162	143
290A-3	120					500	202		192	170*
343A-3	120					500	236		224	202
427A-3	120					500	280		266	236**
U_N= 690 V										
010A-7	120					500	16		15	13
14A5-7	120					500	16		15	13
20A2-7	120					500	23		22	20
24A8-7	120					500	32		30	23
29A0-7	120					500	32		30	23
39A9-7	120					500	38		36	32
47A5-7	120					500	44		42	38
060A-7	120					500	53		50	44
071A-7	120					500	53		50	44
100A-7	120					500	83		79	68

Drive module type ACS880-01-	Output ratings with selection High speed mode of parameter 95.15 Special HW settings									
	120 Hz output frequency					Maximum output frequency				
	f	Nominal use		Light-duty use	Heavy-duty use	f_{max}	Nominal use		Light-duty use	Heavy-duty use
		I_N	P_N	I_{Ld}	I_{Hd}		I_N	P_N	I_{Ld}	I_{Hd}
	Hz	A	kW	A	A	Hz	A	kW	A	A
117A-7	120					500	83		79	68
143A-7	120					500	96		91	83
168A-7	120					500	96		91	83
199A-7	120					500	101		96	83
248A-7	120					500	130		124	101

3AXD00000588487

f	Output frequency
f_{max}	Maximum output frequency with High speed mode
U_N	Nominal voltage of the drive. For the input voltage range, see section *Electrical power network specification* in the hardware manual.
I_N	Continuous rms output current. No overload capability at 40 °C (104 °F)
P_N	Typical motor power in no-overload use.
I_{Ld}	Continuous rms output current allowing 10% overload for 1 minute every 5 minutes
I_{Hd}	Continuous rms output current allowing 50% overload for 1 minute every 5 minutes * Continuous rms output current allowing 40% overload for 1 minute every 5 minutes ** Continuous rms output current allowing 25% overload for 1 minute every 5 minutes

Fuses (IEC)

gG and aR fuses for protection against short-circuit in the input power cable or drive are listed below. Either fuse type can be used for frames R1 to R6 if it operates rapidly enough. The operating time depends on the supply network impedance and the cross-sectional area and length of the supply cable. For frames R7 to R9 ultra-rapid (aR) fuses must be used.

Note 1: See also section *Implementing thermal overload and short-circuit protection* in the hardware manual.

Note 2: Fuses with higher current rating than the recommended ones must not be used. Fuses with lower current rating can be used.

Note 3: Fuses from other manufacturers can be used if they meet the ratings and the melting curve of the fuse does not exceed the melting curve of the fuse given in the table.

aR fuses (frames R1 to R9)

Ultrarapid (aR) fuses (one fuse per phase)								
Drive type ACS880-01-	**Min. short-circuit current [1] (A)**	**Input current (A)**	**Fuse**					
			A	**A^2s**	**V**	**Manufacturer**	**Type**	**Type IEC 60269**
U_N = 400 V								
03A0-3	65	3.0	25	130	690	Bussmann	170M1561	000
03A9-3	65	3.9	25	130	690	Bussmann	170M1561	000
05A8-3	65	5.8	25	130	690	Bussmann	170M1561	000
07A5-3	65	7.5	25	130	690	Bussmann	170M1561	000
09A8-3	65	9.8	25	130	690	Bussmann	170M1561	000
14A3-3	120	14.3	40	460	690	Bussmann	170M1563	000
17A7-3	120	17.7	40	460	690	Bussmann	170M1563	000
25A5-3	120	25	40	460	690	Bussmann	170M1563	000
035A-3	170	35	63	1450	690	Bussmann	170M1565	000
043A-3	280	43	80	2550	690	Bussmann	170M1566	000
050A-3	380	50	100	4650	690	Bussmann	170M1567	000
069A-3	480	69	125	8500	690	Bussmann	170M1568	000
085A-3	700	85	160	16000	690	Bussmann	170M1569	000
103A-3	700	103	200	15000	690	Bussmann	170M3815	1
123A-3	1000	123	250	28500	690	Bussmann	170M3816	1
173A-3	1520	173	350	68500	690	Bussmann	170M3818	1
202A-3	1520	202	350	68500	690	Bussmann	170M3818	1
245A-3	2050	245	450	105000	690	Bussmann	170M5809	2
290A-3	2200	290	500	145000	690	Bussmann	170M5810	2

Ultrarapid (aR) fuses (one fuse per phase)								
Drive type ACS880-01-	**Min. short-circuit current [1] (A)**	**Input current (A)**	**Fuse**					
			A	**A^2s**	**V**	**Manufacturer**	**Type**	**Type IEC 60269**
343A-3	3100	343	630	275000	690	Bussmann	170M5812	2
427A-3	3600	427	700	405000	690	Bussmann	170M5813	2
U_N = 690 V								
010A-7	120	10	40	460	690	Bussmann	170M1563	000
14A5-7	120	14.5	40	460	690	Bussmann	170M1563	000
20A2-7	160	20.2	50	770	690	Bussmann	170M1564	000
24A8-7	170	24.8	63	1450	690	Bussmann	170M1565	000
29A0-7	170	29	63	1450	690	Bussmann	170M1565	000
39A9-7	280	39.9	80	2550	690	Bussmann	170M1566	000
47A5-7	280	47.5	80	2550	690	Bussmann	170M1566	000
060A-7	700	60	160	16000	690	Bussmann	170M1569	000
071A-7	700	71	160	16000	690	Bussmann	170M1569	000
100A-7	700	100	200	15000	690	Bussmann	170M3815	1
117A-7	700	117	200	15000	690	Bussmann	170M3815	1
143A-7	1280	143	315	46500	690	Bussmann	170M3817	1
168A-7	1280	168	315	46500	690	Bussmann	170M3817	1
199A-7	1610	199	400	74000	690	Bussmann	170M5808	2
248A-7	2200	248	500	145000	690	Bussmann	170M5810	2

[1] minimum short-circuit current of the installation

gG fuses (frames R1 to R6)

Check on the fuse time-current curve to make sure that the operating time of the fuse is below 0.5 seconds. Obey the local regulations.

gG fuses (one fuse per phase)								
Drive type ACS880-01…	**Min. short-circuit current[1)]**	**Input current**	**Fuse**					
	A	**A**	**A**	**A^2s**	**V**	**Manufacturer**	**Type**	**Type IEC 60269**
U_N = 400 V								
03A0-3	40	3.0	6	110	500	ABB	OFAF000H6	000
03A9-3	40	3.9	6	110	500	ABB	OFAF000H6	000
05A8-3	80	5.8	10	355	500	ABB	OFAF000H10	000
07A5-3	120	7.5	16	700	500	ABB	OFAF000H16	000
09A8-3	120	9.8	16	700	500	ABB	OFAF000H16	000
14A3-3	200	14.3	25	2500	500	ABB	OFAF000H25	000
17A7-3	250	17.7	32	4500	500	ABB	OFAF000H32	000
25A5-3	250	25	32	4500	500	ABB	OFAF000H32	000
035A-3	400	35	50	15400	500	ABB	OFAF000H50	000
043A-3	500	43	63	21300	500	ABB	OFAF000H63	000
050A-3	800	50	80	37000	500	ABB	OFAF000H80	000
069A-3	1000	69	100	63600	500	ABB	OFAF000H100	000
085A-3	1000	85	100	63600	500	ABB	OFAF000H100	000
103A-3	1300	103	125	103000	500	ABB	OFAF00H125	00
123A-3	1700	123	160	185000	500	ABB	OFAF00H160	00
U_N = 690 V								
010A-7	280	10	35	12000	690	ABB	OFAA000GG35	000
14A5-7	280	14.5	35	12000	690	ABB	OFAA000GG35	000
20A2-7	450	20.2	50	24000	690	ABB	OFAA000GG50	000
24A8-7	520	24.8	63	30000	690	ABB	OFAA000GG63	000
29A0-7	520	29	63	30000	690	ABB	OFAA000GG63	000
39A9-7	800	39.9	80	51000	690	ABB	OFAA0GG80	0
47A5-7	800	47.5	80	51000	690	ABB	OFAA0GG80	0
060A-7	1700	60	160	240000	690	ABB	OFAA1GG160	1
071A-7	1700	71	160	240000	690	ABB	OFAA1GG160	1

[1)] minimum short-circuit current of the installation

Quick guide for selecting between gG and aR fuses

The combinations (cable size, cable length, transformer size and fuse type) in this table fulfil the minimum requirements for the proper operation of the fuse. Use this table to select between gG and aR fuses or calculate the short-circuit current of the installation as described in section *Calculating the short-circuit current of the installation* in the hardware manual).

Drive type ACS880-01…	Cable type		Supply transformer minimum apparent power S_N (kVA)					
	Copper	Aluminium	Maximum cable length with gG fuses			Maximum cable length with aR fuses		
	mm^2	mm^2	10 m	50 m	100 m	10 m	100 m	200 m
U_N = 400 V								
03A0-3	3××1.5	-	1.9	1.9	2.0	3.1	3.4	5.0
03A9-3	3×1.5	-	1.9	1.9	2.0	3.1	3.4	5.0
05A8-3	3×1.5	-	3.8	4.0	4.4	3.1	3.4	5.0
07A5-3	3×1.5	-	5.8	6.2	8.4	3.1	3.4	5.0
09A8-3	3×1.5	-	5.8	6.2	8.4	3.1	3.4	5.0
14A3-3	3×6	-	9.6	9.8	10	5.8	5.9	6.2
17A7-3	3×6	-	12	12	13	5.8	5.9	6.2
25A5-3	3×6	-	12	12	13	5.8	5.9	6.2
035A-3	3×10	-	19	20	21	8.2	8.3	8.7
043A-3	3×16	3×25	24	24	26	13	14	15
050A-3	3×25	3×25	39	39	42	18	19	20
069A-3	3×35	3×35	48	49	52	23	24	25
085A-3	3×35	3×50	48	49	52	34	35	38
103A-3	3×50	3×70	63	65	68	34	35	37
123A-3	3×95	3×95	82	85	88	48	50	53
U_N = 690 V								
010A-7	3×4	-	23	23	23	9.9	10	10
14A5-7	3×4	-	23	23	23	9.9	10	10
20A2-7	3×10	3×25	37	37	38	13	13	13
24A8-7	3×10	3×25	43	43	44	14	14	14
29A0-7	3×10	3×25	43	43	44	14	14	14
39A9-7	3×16	3×25	66	67	68	23	23	24
47A5-7	3×16	3×25	66	67	68	23	23	24
060A-7	3×35	3×50	141	144	149	58	59	61
071A-7	3×35	3×50	141	144	149	58	59	61

Fuses (UL)

UL class T fuses for branch circuit protection per NEC are listed below. Fast acting class T or faster fuses are recommended in the USA. **Check on the fuse time-current curve to make sure that the operating time of the fuse is below 0.5 seconds for drives of frame sizes R1 to R6 and below 0.1 seconds for drives of frame sizes R7 to R9. Obey local regulations.**

Note 1: See also section *Implementing thermal overload and short-circuit protection* in the hardware manual.

Note 2: Fuses with higher current rating than the recommended ones must not be used. Fuses with lower current rating can be used.

Note 3: Fuses from other manufacturers can be used if they meet the ratings and the melting curve of the fuse does not exceed the melting curve of the fuse given in the table.

Drive type ACS880-01…	**Input current**	**Fuse (one fuse per phase)**				
	A	A	V	Manufacturer	Type	UL class
U_N = 575 V						
010A-7	10	40	600	Bussmann	JJS-40	T
14A5-7	14.5	40	600	Bussmann	JJS-40	T
20A2-7	20.2	50	600	Bussmann	JJS-50	T
24A8-7	24.8	60	600	Bussmann	JJS-60	T
29A0-7	29	60	600	Bussmann	JJS-60	T
39A9-7	39.9	80	600	Bussmann	JJS-80	T
47A5-7	47.5	80	600	Bussmann	JJS-80	T
060A-7	60	150	600	Bussmann	JJS-150	T
071A-7	71	150	600	Bussmann	JJS-150	T
100A-7	100	200	600	Bussmann	JJS-200	T
117A-7	117	200	600	Bussmann	JJS-200	T
143A-7	143	300	600	Bussmann	JJS-300	T
168A-7	168	300	600	Bussmann	JJS-300	T
199A-7	199	400	600	Bussmann	JJS-400	T
248A-7	248	400	600	Bussmann	JJS-400	T

Losses, cooling data and noise

Drive type ACS880-01-	Frame	Air flow		Heat dissipation	Noise
		m^3/h	ft^3/min	W	dB(A)
U_N = 400 V					
03A0-3	R1	44	26	40	46
03A9-3	R1	44	26	52	46
05A8-3	R1	44	26	94	46
07A5-3	R1	44	26	122	46
09A8-3	R1	44	26	172	46
14A3-3	R2	88	52	232	51
17A7-3	R2	88	52	337	51
25A5-3	R2	88	52	337	51
035A-3	R3	134	79	562	57
043A-3	R4	134	79	667	62
050A-3	R4	280	165	907	62
069A-3	R5	280	165	1117	62
085A-3	R5	280	165	1120	62
103A-3	R6	435	256	1295	67
123A-3	R6	435	256	1440	67
173A-3	R7	450	265	2310	67
202A-3	R7	450	265	2310	67
245A-3	R8	550	324	3300	65
290A-3	R8	550	324	3900	65
343A-3	R9	1150	677	4800	68
427A-3	R9	1150	677	6000	68
U_N = 690 V					
010A-7	R5	280	165	490	62
14A5-7	R5	280	165	490	62
20A2-7	R5	280	165	660	62
24A8-7	R5	280	165	864	62
29A0-7	R5	280	165	864	62
39A9-7	R5	280	165	998	62
47A5-7	R5	280	165	1120	62
060A-7	R6	435	256	1440	67
071A-7	R6	435	256	1440	67
100A-7	R7	450	265	2310	67
117A-7	R7	450	265	2310	67
143A-7	R8	550	324	3900	65
168A-7	R8	550	324	3900	65
199A-7	R9	1150	677	4200	68
248A-7	R9	1150	677	4800	68

Cooling air flow and heat dissipation for flange mounting (option +C135)

Drive type ACS880-01-	Frame	Air flow (option +C135)		Heat dissipation (option +C135)	
		Heatsink	Front	Heatsink	Front
		m^3/h	m^3/h	W	W
U_N = 400 V					
03A0-3	R1	44	9	27	13
03A9-3	R1	44	9	38	14
05A8-3	R1	44	9	76	18
07A5-3	R1	44	9	101	21
09A8-3	R1	44	9	146	26
14A3-3	R2	88	16	195	37
17A7-3	R2	88	16	290	47
25A5-3	R2	88	16	290	47
035A-3	R3	134	22	488	74
043A-3	R4	134	32	573	94
050A-3	R4	280	32	789	118
069A-3	R5	280	42	960	157
085A-3	R5	280	42	963	157
103A-3	R6	435	52	1121	175
123A-3	R6	435	52	1251	189
173A-3	R7	450	75	2034	276
202A-3	R7	450	75	2034	276
245A-3	R8	550	120	2925	375
290A-3	R8	550	120	3465	435
343A-3	R9	1150	170	4275	525
427A-3	R9	1150	170	5355	645
U_N = 690 V					
010A-7	R5	280	42	396	94
14A5-7	R5	280	42	396	94
20A2-7	R5	280	42	549	111
24A8-7	R5	280	42	733	131
29A0-7	R5	280	42	733	131
39A9-7	R5	280	42	854	145
47A5-7	R5	280	42	963	157
060A-7	R6	435	52	1251	189
071A-7	R6	435	52	1251	189
100A-7	R7	450	75	2034	276
117A-7	R7	450	75	2034	276
143A-7	R8	550	120	3465	435
168A-7	R8	550	120	3465	435

Drive type ACS880-01-	Frame	Air flow (option +C135)		Heat dissipation (option +C135)	
		Heatsink	Front	Heatsink	Front
		m^3/h	m^3/h	W	W
199A-7	R9	1150	170	3735	465
248A-7	R9	1150	170	4275	525

Motor connection data

Motor types	Asynchronous AC induction motors, permanent magnet synchronous motors, AC induction servomotors and ABB synchronous reluctance motors (SynRM motors)
Voltage (U_2)	0 to U_1, 3-phase symmetrical. This is indicated in the type designation label as typical output voltage level 3∼0...U_1. U_{max} at the field weakening point.
Frequency	0…500 Hz For drives with du/dt filter: 120 Hz For drives with sine filter: 120 Hz
Current	See section *Ratings*.
Switching frequency	2.7 kHz (typically)
Maximum recommended motor cable length	For frames R1 to R3: 150 m (492 ft) For frames R4 to R9: 300 m (984 ft). **Note:** With motor cables longer than 150 m (492 ft) or switching frequencies higher than default, the EMC Directive requirements may not be fulfilled.

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.

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For information on ABB product training, navigate to new.abb.com/service/training.

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