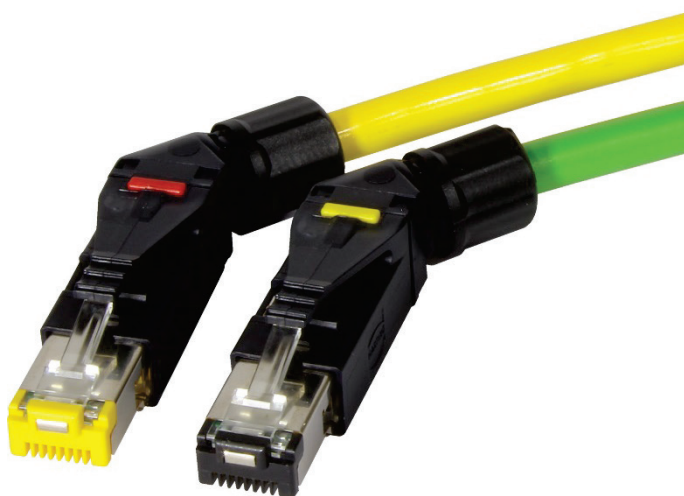
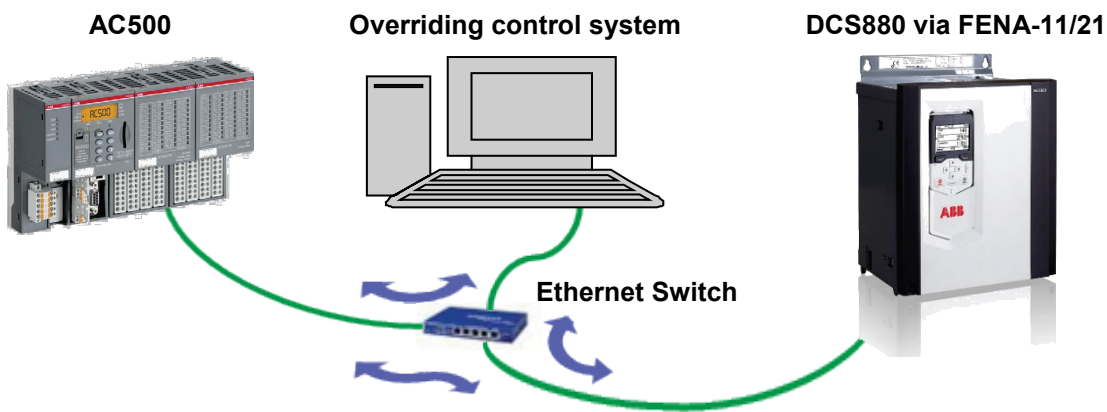


# Product Information

## DCS880 via FENA-11/21

### Connection of DCS880 via FENA-11/21 at Profinet



**Connector:**  
RJ45-Plug, Harting RJ Industrial10G.

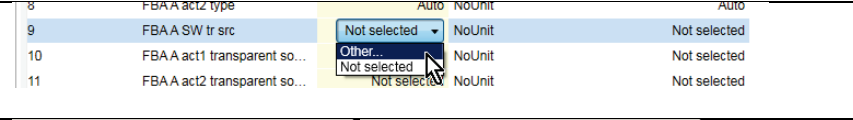
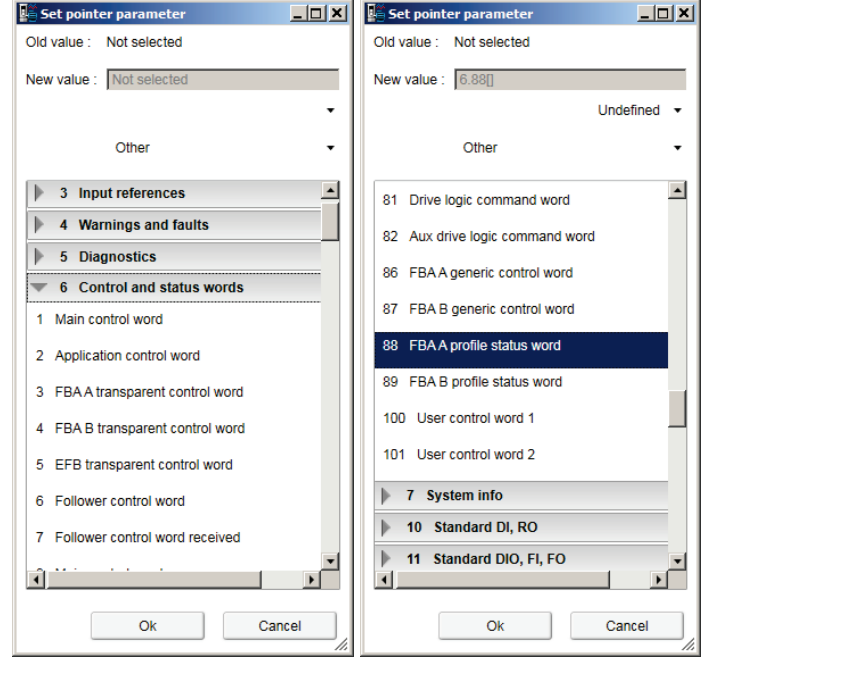
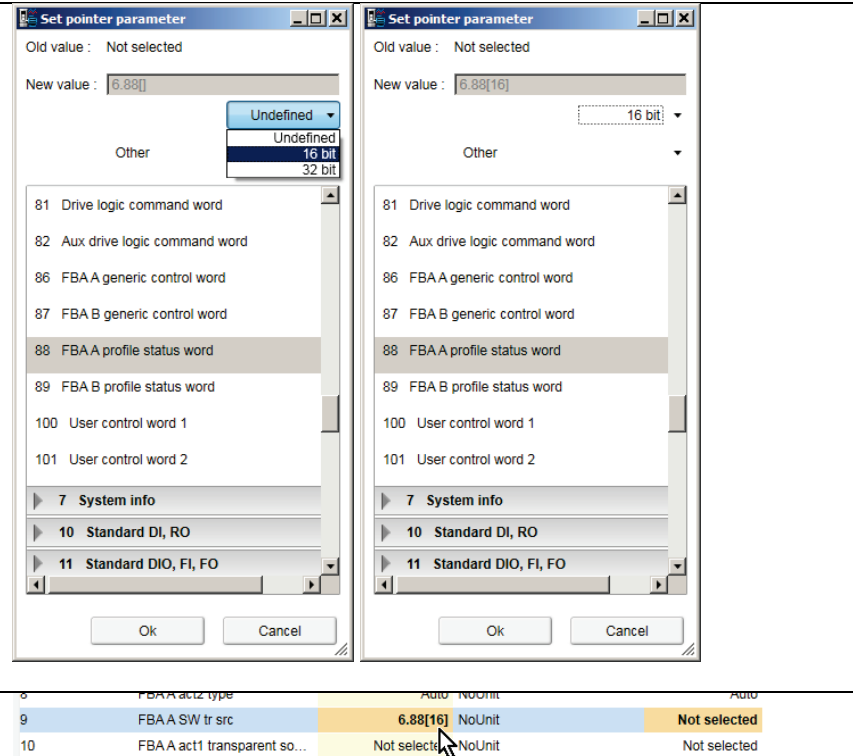

# General information

## Firmware version

2.02.x.x.

## How to use the function Other...

E.g. connect 06.88 FBA A profile status word to 50.09 FBA A SW transparent source.

<p>In 50.09 FBA A SW transparent source choose <b>Other...</b></p>	 <table border="1"> <thead> <tr> <th>Parameter ID</th> <th>Parameter Name</th> <th>Value</th> <th>Unit</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>8</td> <td>FBA A act2 type</td> <td>Auto</td> <td>NoUnit</td> <td>Auto</td> </tr> <tr> <td>9</td> <td>FBA A SW tr src</td> <td>Not selected</td> <td>NoUnit</td> <td>Not selected</td> </tr> <tr> <td>10</td> <td>FBA A act1 transparent so...</td> <td>Other...</td> <td>NoUnit</td> <td>Not selected</td> </tr> <tr> <td>11</td> <td>FBA A act2 transparent so...</td> <td>Not selected</td> <td>NoUnit</td> <td>Not selected</td> </tr> </tbody> </table>	Parameter ID	Parameter Name	Value	Unit	Source	8	FBA A act2 type	Auto	NoUnit	Auto	9	FBA A SW tr src	Not selected	NoUnit	Not selected	10	FBA A act1 transparent so...	Other...	NoUnit	Not selected	11	FBA A act2 transparent so...	Not selected	NoUnit	Not selected
Parameter ID	Parameter Name	Value	Unit	Source																						
8	FBA A act2 type	Auto	NoUnit	Auto																						
9	FBA A SW tr src	Not selected	NoUnit	Not selected																						
10	FBA A act1 transparent so...	Other...	NoUnit	Not selected																						
11	FBA A act2 transparent so...	Not selected	NoUnit	Not selected																						
<p>Open <b>group 6</b> and choose parameter <b>06.88</b>:</p>																										
<p>Choose <b>16 bit</b> and press <b>Ok</b>:</p>																										
<p>Now the connection is done:</p>	 <table border="1"> <thead> <tr> <th>Parameter ID</th> <th>Parameter Name</th> <th>Value</th> <th>Unit</th> <th>Source</th> </tr> </thead> <tbody> <tr> <td>8</td> <td>FBA A act2 type</td> <td>Auto</td> <td>NoUnit</td> <td>Auto</td> </tr> <tr> <td>9</td> <td>FBA A SW tr src</td> <td>6.88[16]</td> <td>NoUnit</td> <td>Not selected</td> </tr> <tr> <td>10</td> <td>FBA A act1 transparent so...</td> <td>Not selected</td> <td>NoUnit</td> <td>Not selected</td> </tr> </tbody> </table>	Parameter ID	Parameter Name	Value	Unit	Source	8	FBA A act2 type	Auto	NoUnit	Auto	9	FBA A SW tr src	6.88[16]	NoUnit	Not selected	10	FBA A act1 transparent so...	Not selected	NoUnit	Not selected					
Parameter ID	Parameter Name	Value	Unit	Source																						
8	FBA A act2 type	Auto	NoUnit	Auto																						
9	FBA A SW tr src	6.88[16]	NoUnit	Not selected																						
10	FBA A act1 transparent so...	Not selected	NoUnit	Not selected																						

## GSDML-File

The GSDML-file can be found here:

<http://new.abb.com/drives/connectivity/fieldbus-connectivity/profinet>

### Adapters

#### FENA-21

The adapter module supports PROFINET IO DP-V1 communication

#### FENA-11

The adapter module for Ethernet/IP, Modbus TCP and Profinet

then


### Links and downloads

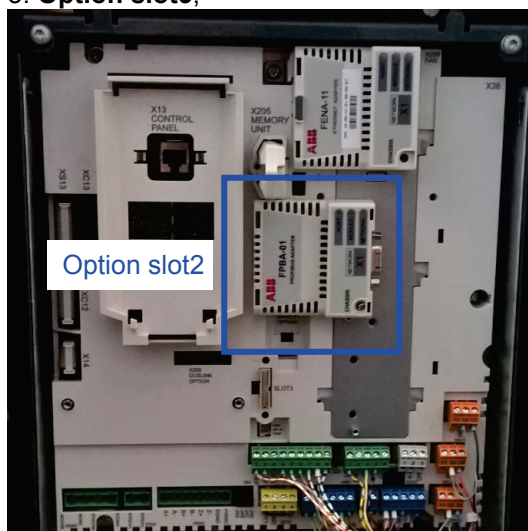


## DCS880 Configuration as fieldbus device

### Parameter Group 50

To connect the DCS880 as fieldbus device, following parameters need to be set:

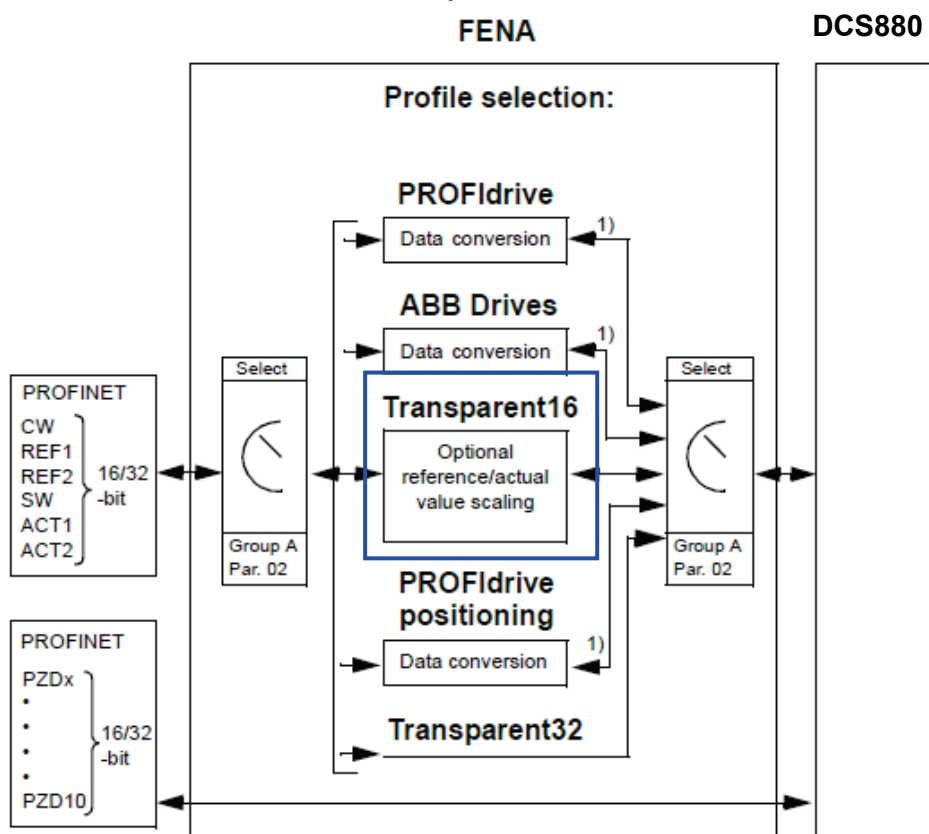
Parameter	Setting
50.01 FBA A Enable	0: Disable; 1: Option slot1; 2: Option slot2; recommended. 3: Option slot3;
50.02 FBA A comm loss func	0: No action; 1: Fault; occurs only when the drive is controlled from the fieldbus. 2: Warning; 3: Last speed; 4: Speed reference safe; 5: Fault always; occurs even though no control is expected from the fieldbus.
50.03 FBA A comm loss timeout	300 ms.
50.29 FBA A Profile	0: ABB Drive profile; 4: DCP;
	Each change in parameter groups 50, 51, 52 and 53 must be validated using 51.27 FBA A par refresh = Refresh.



## Parameter Group 51

Parameter	Setting																																		
51.01 FBA A type	128: <b>FENA-11/21</b> ; signal thus, read-only.																																		
51.02 Protocol/Profile	For PROFINET IO: 10: <b>PNIO Pdrive</b> ; not recommended. 11: <b>PNIO ABB Pro</b> ; not recommended. 12: <b>PNIO T16</b> ; scaling via 50.29 FBA A profile. 13: <b>PNIO T32</b> ; 14: <b>PNIO PdriveM</b> ; NOT supported.																																		
51.03 Commrate	0: <b>Auto</b> ; sets the bit rate for the Ethernet interface.																																		
51.04 IP configuration	0: <b>Static IP</b> ; example. 1: <b>Dyn IP DHCP</b> ;																																		
51.05 IP address 1	192; example.																																		
51.06 IP address 2	168; example.																																		
51.07 IP address 3	1; example.																																		
51.08 IP address 4	10; example.																																		
51.08 Subnet CIDR	24; example. <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Dotted decimal</th> <th>CIDR</th> </tr> </thead> <tbody> <tr><td>255.255.255.254</td><td>31</td></tr> <tr><td>255.255.255.252</td><td>30</td></tr> <tr><td>255.255.255.248</td><td>29</td></tr> <tr><td>255.255.255.240</td><td>28</td></tr> <tr><td>255.255.255.224</td><td>27</td></tr> <tr><td>255.255.255.192</td><td>26</td></tr> <tr><td>255.255.255.128</td><td>25</td></tr> <tr style="border: 2px solid blue;"><td>255.255.255.0</td><td>24</td></tr> <tr><td>255.255.254.0</td><td>23</td></tr> <tr><td>255.255.252.0</td><td>22</td></tr> <tr><td>255.255.248.0</td><td>21</td></tr> <tr><td>255.255.240.0</td><td>20</td></tr> <tr><td>255.255.224.0</td><td>19</td></tr> <tr><td>255.255.192.0</td><td>18</td></tr> <tr><td>255.255.128.0</td><td>17</td></tr> <tr><td>255.255.0.0</td><td>16</td></tr> </tbody> </table>	Dotted decimal	CIDR	255.255.255.254	31	255.255.255.252	30	255.255.255.248	29	255.255.255.240	28	255.255.255.224	27	255.255.255.192	26	255.255.255.128	25	255.255.255.0	24	255.255.254.0	23	255.255.252.0	22	255.255.248.0	21	255.255.240.0	20	255.255.224.0	19	255.255.192.0	18	255.255.128.0	17	255.255.0.0	16
Dotted decimal	CIDR																																		
255.255.255.254	31																																		
255.255.255.252	30																																		
255.255.255.248	29																																		
255.255.255.240	28																																		
255.255.255.224	27																																		
255.255.255.192	26																																		
255.255.255.128	25																																		
255.255.255.0	24																																		
255.255.254.0	23																																		
255.255.252.0	22																																		
255.255.248.0	21																																		
255.255.240.0	20																																		
255.255.224.0	19																																		
255.255.192.0	18																																		
255.255.128.0	17																																		
255.255.0.0	16																																		

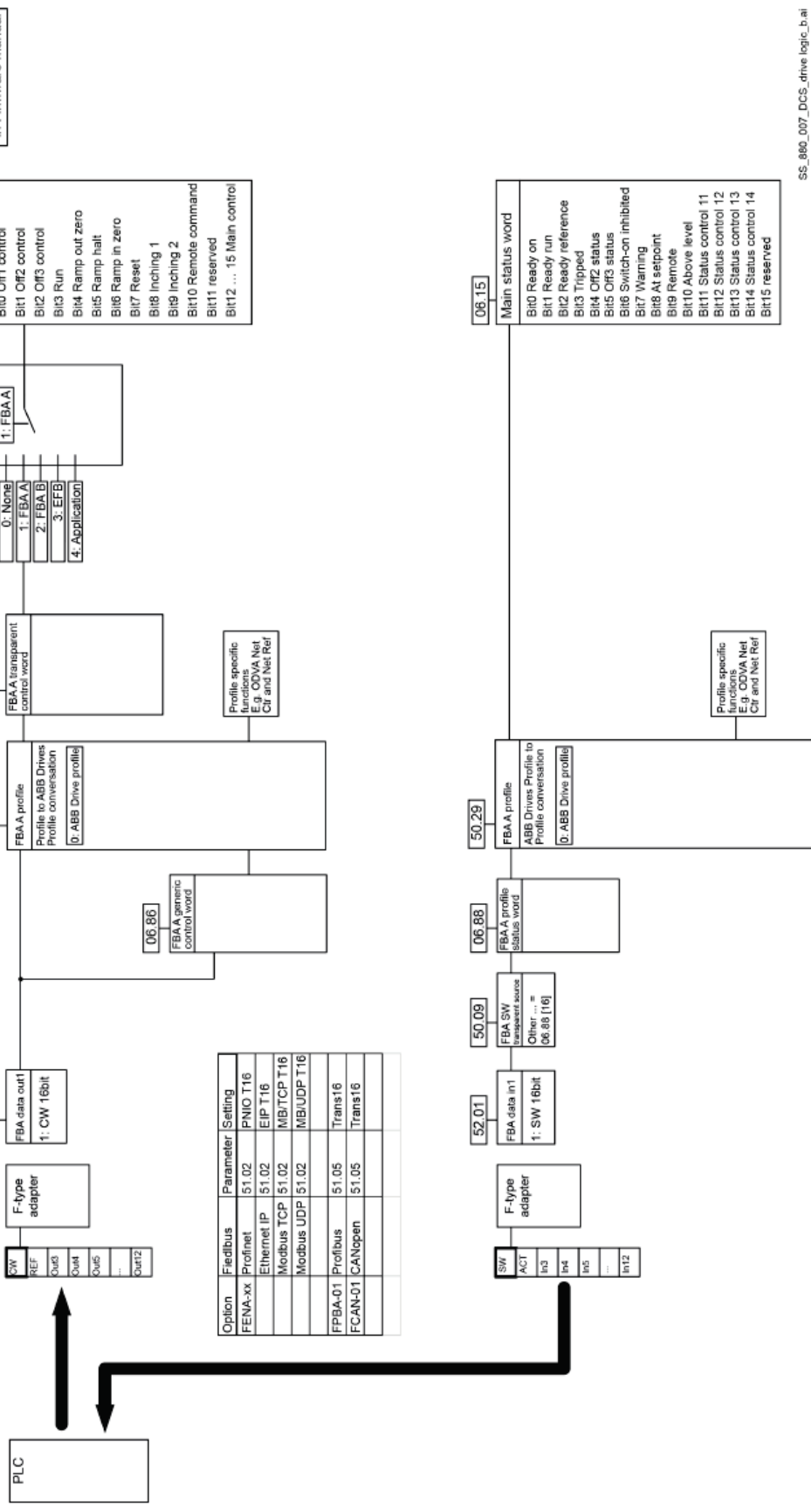
## Communication Profiles (51.02 Protocol/Profile)



# Profile conversion and SW and CW handling

Status and Control Word for Fieldbus control

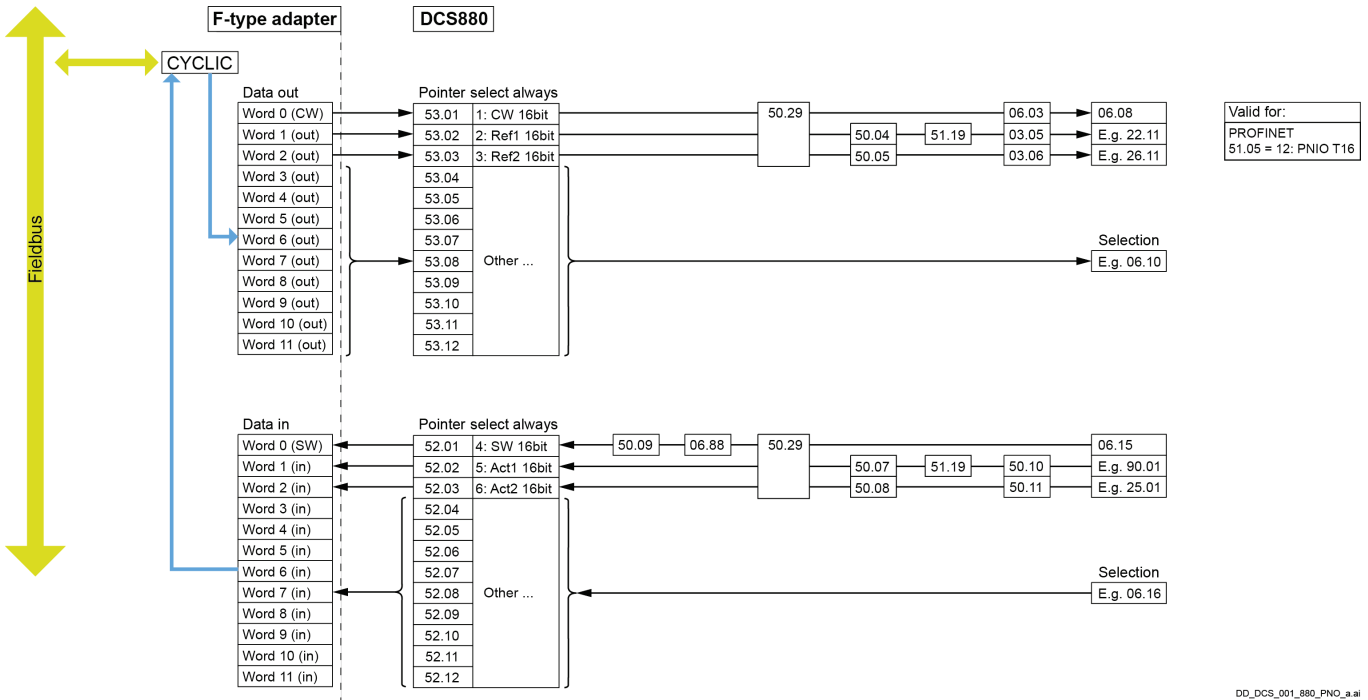
For any transparent 16 bit (T16) Profile



SS\_060\_007\_DCS\_drive\_logic\_b.at

## Parameter Group 52

Configuration using SW 16bit, Act1 16bit, Act2 16bit and Other...



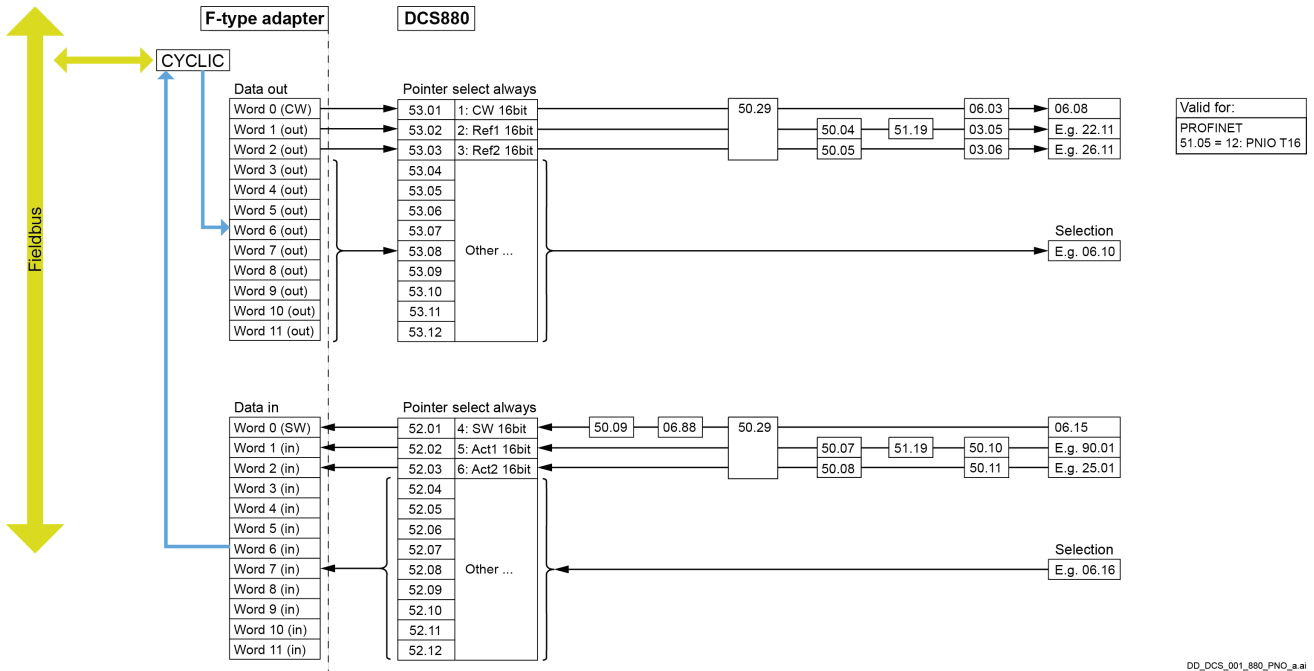
Setting of parameters 52.01 ... 52.03 see above drawing. Do **not** use Other...!  
 For parameters 52.04 ... 52.12 only mapping **Other...** is valid.  
 Different mappings like SW 16bit, Act1 16bit or Act2 16bit are not allowed.

Defining the actual values in group 52:			PLC ← DCS880.
PZD	Pointer	Setting	Remarks
1	<b>52.01</b>	<b>4: SW 16bit;</b>	50.09 FBA A SW transparent source = <b>Other... = 06.88[16]</b> , for e.g. 06.88 FBA A profile status word. 50.29 FBA A profile = <b>ABB Drive profile</b> . 06.88 FBA A profile status word. Main Status Word after conversion with FBA A profile.
2	<b>52.02</b>	<b>5: ACT1 16bit;</b>	50.10 FBA A act1 transparent source = <b>Other... = 90.01[16]</b> , for e.g. 90.01 Motor speed for control. 51.19 T16 scale = <b>0</b> ; sets the divisor (divisor = 51.19 + 1). 50.07 FBA A actual 1 type = <b>Speed</b> . 50.29 FBA A profile = <b>ABB Drive profile</b> .
3	<b>52.03</b>	<b>6: ACT2 16bit;</b>	50.11 FBA A act2 transparent source = <b>Other... = 25.01[16]</b> , for e.g. 25.01 Torque reference speed control. 50.08 FBA A actual 2 type = <b>Torque</b> . 50.29 FBA A profile = <b>ABB Drive profile</b> .
4	<b>52.04</b>	<b>Other...;</b>	52.04 FBA data in4 = <b>Other... = 06.16[16]</b> , for e.g. 06.16 Drive status word 1 (actual value 4). Scaling depends on signal/parameter.
	...	...	...
12	<b>52.12</b>	<b>Other...;</b>	52.12 FBA data in12 (actual value 12). Scaling depends on signal/parameter.
			Each change in parameter groups 50, 51, 52 and 53 must be validated using 51.27 FBA A par refresh = Refresh.

01	02	03	04	05	06	07	08	...	...	23	24
Status Word	Speed feedback	Torque reference	Actual value 4	...	...	...	...	...	...	Actual value 12	

# Parameter Group 53

Configuration using SW 16bit, Act1 16bit, Act2 16bit and Other...



**⚠** Setting of parameters 52.01 ... 52.03 see above drawing. Do **not** use Other...!  
 For parameters 52.04 ... 52.12 only mapping **Other...** is valid.  
 Different mappings like SW 16bit, Act1 16bit or Act2 16bit are not allowed.

Defining the reference values in group 53: PLC ⇒ DCS880.			
PZD	Pointer	Setting	Remarks
1	53.01	1: CW 16bit;	50.29 FBA A profile = <b>ABB Drive profile</b> . Control Word, visible in 06.03 FBA A transparent control word. Select by 06.08 Main control word source = <b>FBA A</b> .
2	53.02	2: Ref1 16bit;	50.29 FBA A profile = <b>ABB Drive profile</b> . Scaling by 50.04 FBA A ref1 type = <b>Speed</b> . 51.19 T16 scale = <b>0</b> ; sets the multiplier (multiplier = 51.19 + 1). Reference value 1, visible in 03.05 FBA A reference 1. Select e.g. by 22.11 Speed reference 1 source = <b>FBA A reference 1</b> .
3	53.03	3: Ref2 16bit;	50.29 FBA A profile = <b>ABB Drive profile</b> . Scaling by 50.05 FBA A ref2 type = <b>Torque</b> . Reference value 2; visible in 03.06 FBA A reference 2. Select e.g. by 26.11 Torque reference 1 source = <b>FBA A reference 2</b> .
4	53.04	Other...;	53.04 FBA data out4 = <b>Other... = 06.10[16]</b> , for, e.g. 06.10 Auxiliary control word 1 (reference value 4). Scaling depends on parameter.
...	...	...	...
12	53.12	Other...;	53.12 FBA data out12 (reference value 4). Scaling depends on parameter.
<b>⚠</b>	Each change in parameter groups 50, 51, 52 and 53 must be validated using 51.27 FBA A par refresh = Refresh.		

01	02	03	04	05	06	07	08	...	...	23	24
Control Word		Speed reference		Torque reference		Reference value 4		...		Reference value 12	

## Additional parameters

### Scaling and profile selection

Reference and actual value scaling depends on profile- and parameter selection.

All reference values are scaled to  $\pm 10000$  (decimal), this equals  $\pm 100.00\%$ . The exception is speed. The scaling value of 46.02 M1 speed scaling actual corresponds to 20000 speed units.

Parameter	Setting
50.04 FBA A ref1 type	0: <b>Auto</b> ; automatic type and scaling according to which reference chain the incoming reference is connected to. If the reference is not connected to any chain, setting Transparent is applied. 1: <b>Transparent</b> ; no scaling is applied (1 = 1.00). 2: <b>General</b> ; generic reference with a scaling of 100 = 1 (e.g. integer and two decimals). 3: <b>Torque</b> ; the scaling is defined by 46.04 M1 torque scaling actual. 4: <b>Speed</b> ; the scaling is defined by 46.02 M1 speed scaling actual. 5: <b>Current</b> ; the scaling is in percent of 99.11 M1 nominal current: 100 = 1 %.
50.05 FBA A ref2 type	
50.07 FBA A act1 type	
50.08 FBA A act2 type	

The DCS880 only supports transparent16 profile for the FPBA-01 fieldbus adapter, so profile adaption according to Profidrive, ABB Drive profile or others are handled inside the firmware of the drive.

Parameter	Setting (scaling for Act1/Act2, Ref1/Ref2)	Remark
50.29 FBA A Profile	0: <b>ABB Drive Profile</b> ; Speed: value in 46.02 == 20000 speed units. Any other: 100.00 % = 10000.	Supported.
	1: <b>ODVA AC/DC</b> ;	<b>NOT</b> yet supported.
	2: <b>Profidrive</b> ; Speed: value in == 46.02 = 4000h. Any other: 100.00 % = 10000.	<b>NOT</b> yet supported.
	3: <b>CIA 402</b> ;	<b>NOT</b> yet supported.
	4: <b>DCP</b> ;	<b>NOT</b> yet supported.

### Start/Stop

Parameter	Setting
20.01 Command location	0: <b>Local I/O</b> ; 1: <b>Main control word</b> ; 2: <b>Key</b> ; 3: <b>12-pulse link</b> ; 4: <b>Field exciter link</b> ;

### Reference Chain

Depending on if speed, torque, current or other reference types are used, for 50.04 FBA A ref1 type/50.05 FBA A ref2 type= **Auto**.

Parameter	Setting	Auto type and scaling
22.11 Speed reference 1 source	7: <b>FBA A reference 1</b> ; 8: <b>FBA A reference 2</b> ;	Speed
22.12 Speed reference 2 source		
23.32 Direct speed reference		
26.11 Torque reference 1 source		Torque
26.12 Torque reference 2 source		
27.22 Current reference source		Current
28.18 EMF reference source		General
28.20 EMF voltage correction source		
28.29 Flux correction source		



ABB Automation Products  
Wallstadter Straße 59  
68526 Ladenburg  
Germany  
[www.abb.com/dc-drives](http://www.abb.com/dc-drives)  
E-Mail: [dc-drives@de.abb.com](mailto:dc-drives@de.abb.com)

