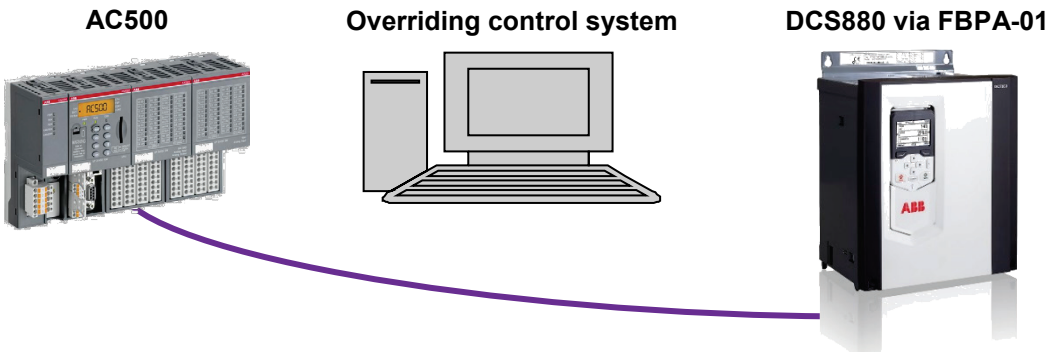
Product Information
DCS880 via FPBA-01

Connection of DCS880 via FPBA-01 at PROFIBUS



Connector:
Phoenix Contact Subconplus D-Sub Profibus.

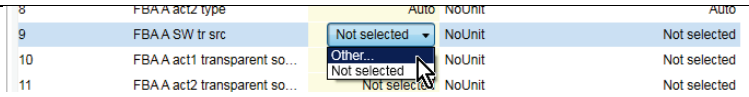
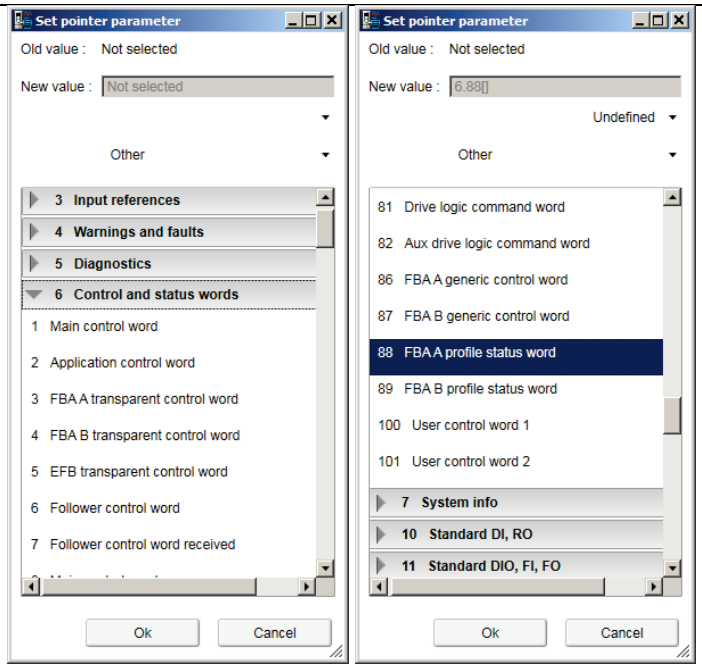
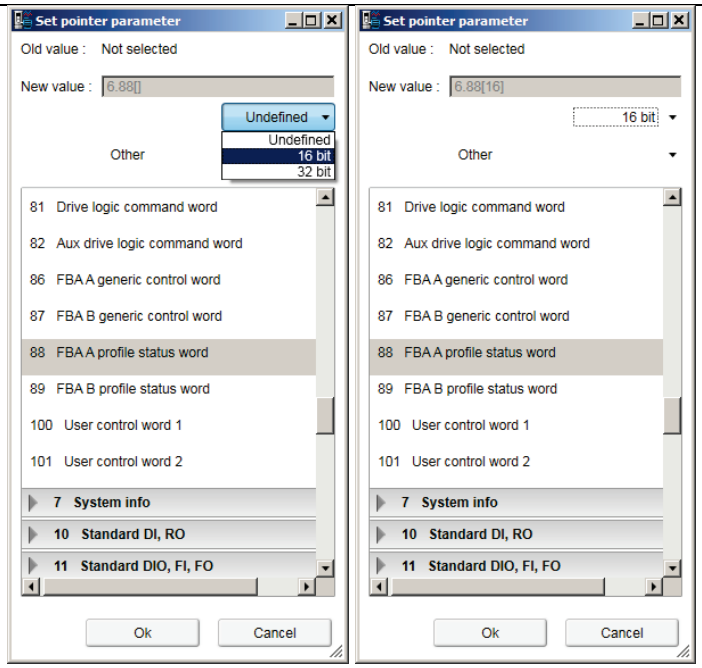
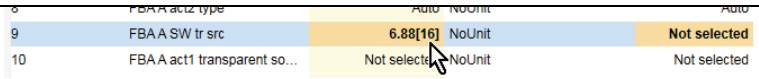
General information

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.

In 50.09 FBA A SW transparent source choose **Other…**	
Open **group 6** and choose parameter **06.88**:	
Choose **16 bit** and press **Ok**:	
Now the connection is done:	

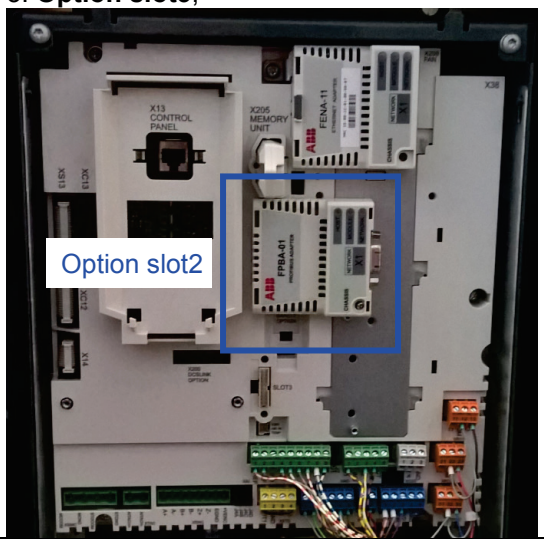
GSD-file

The GSD-file can be found here:
http://new.abb.com/drives/connectivity/fieldbus-connectivity/profibus/profibus-dp-fpba

DCS880 configuration as fieldbus device

Parameter Group 50

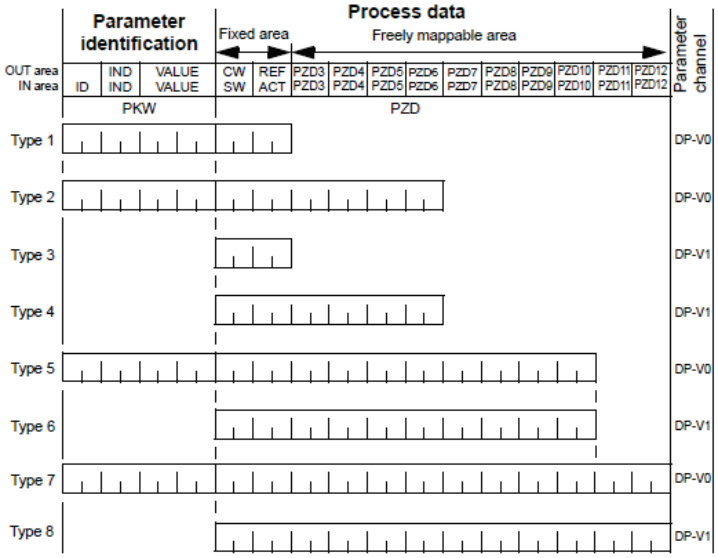
To connect the DCS880 as fieldbus device, following parameters need to be set:

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 t out	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.

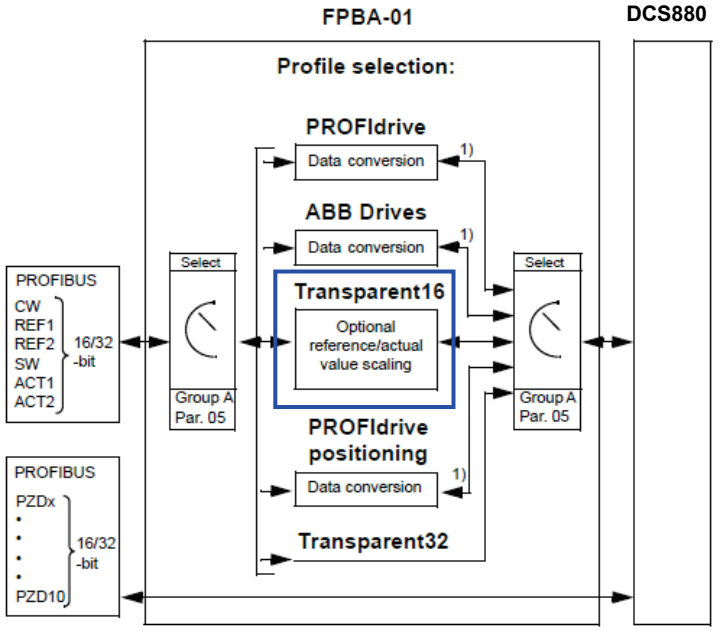
Parameter Group 51

Parameter	Setting
51.01 FBA A type	1: **FPBA**; signal thus, read-only.
51.02 Node address	**3**; example.
51.03 Baud rate	**1500**; indicates the detected communication speed in kbit/s (automatically set by the PLC). Default value is 0 if there is no connection to the PLC. Signal thus, read-only.
51.04 MSG type	1: **PPO1**; indicates the telegram type (PPO) selected for PROFIBUS communication (automatically set by the PLC). Default value is Not detected if there is no connection to the PLC. Signal thus, read-only.
51.05 Profile	0: **PROFIdrive**; not recommended. 1: **ABB DRIVES**; not recommended. 2: **Trans16**; scaling via 50.29 FBA A profile. 3. **Trans32**; scaling via 50.29 FBA A profile. 4: **PROFIdrive P**; **NOT** supported.
⚠	Each change in parameter groups 50, 51, 52 and 53 must be validated using 51.27 FBA A par refresh = Refresh.

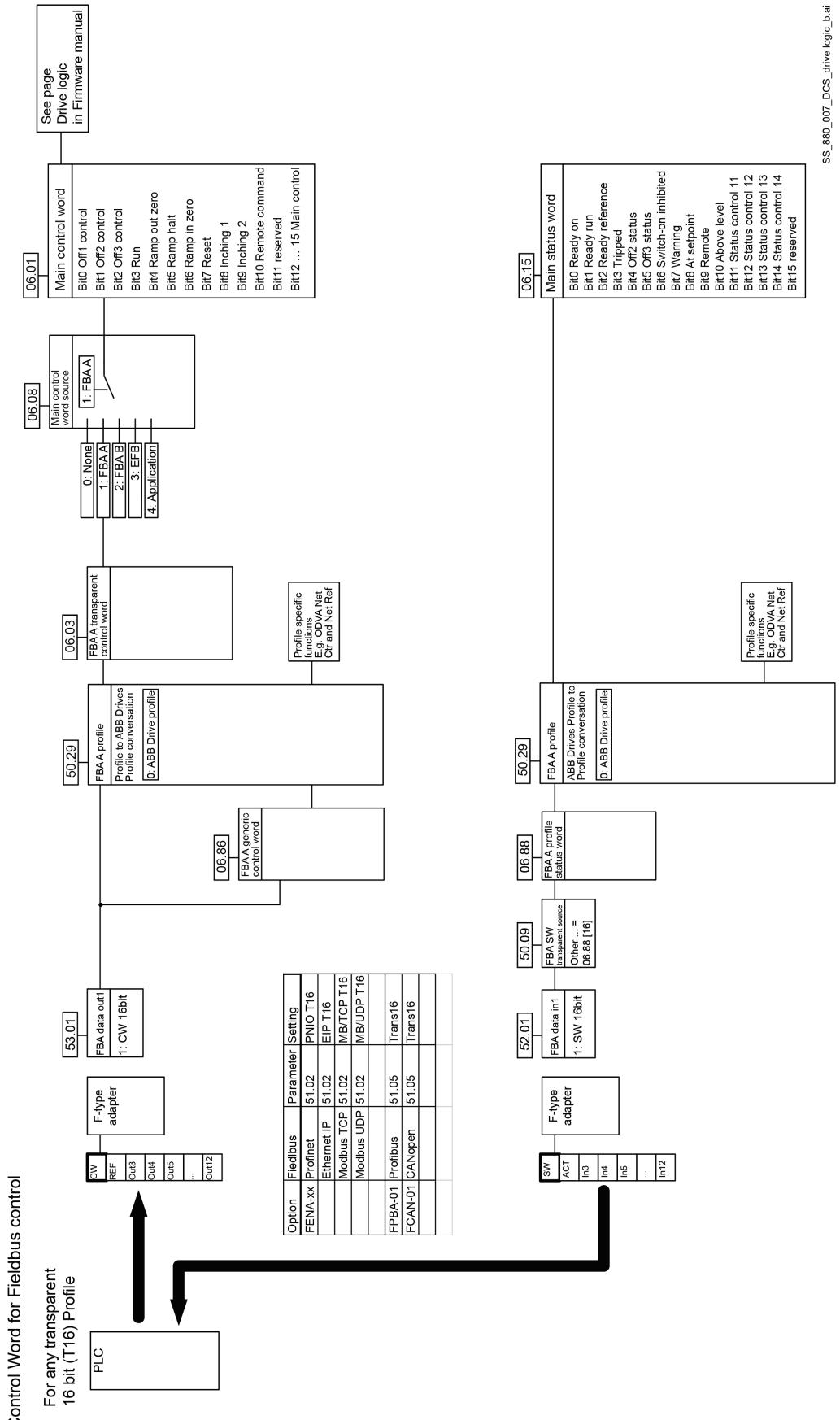
PPO types (51.04 MSG type)



Communication profiles (51.05 Profile)

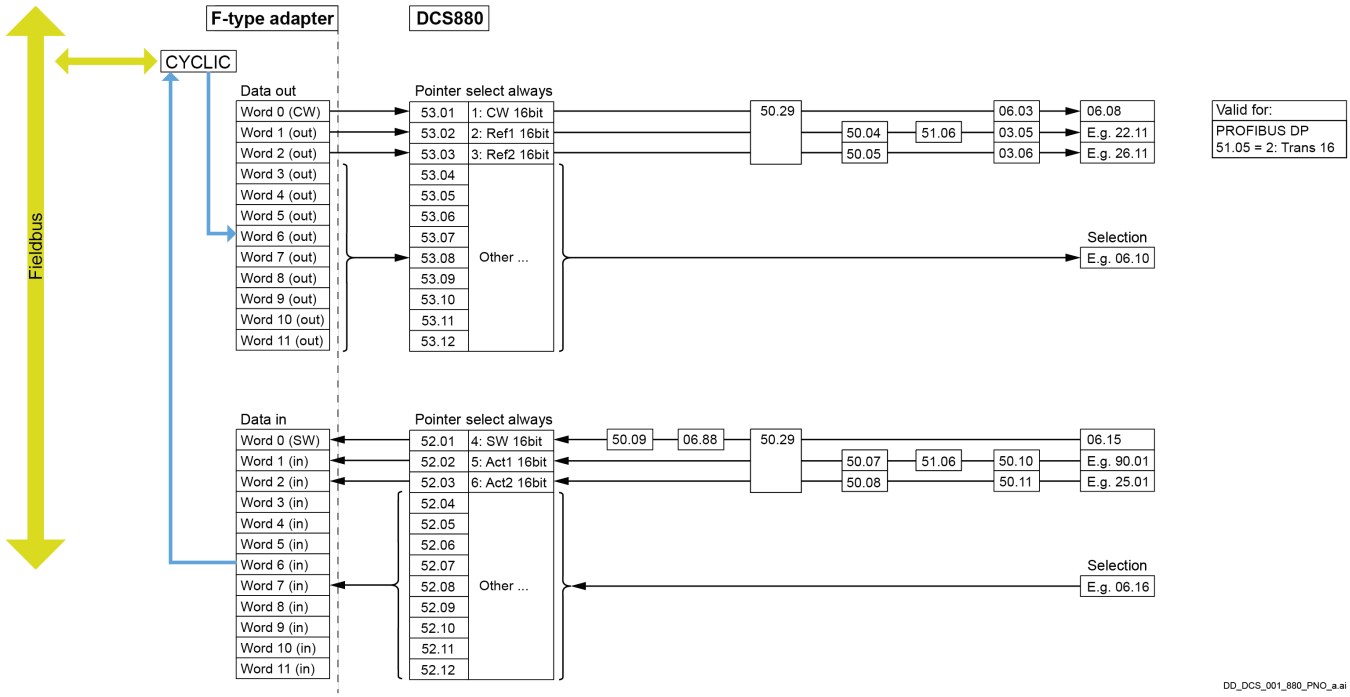


Profile conversion and SW and CW handling



Parameter Group 52

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



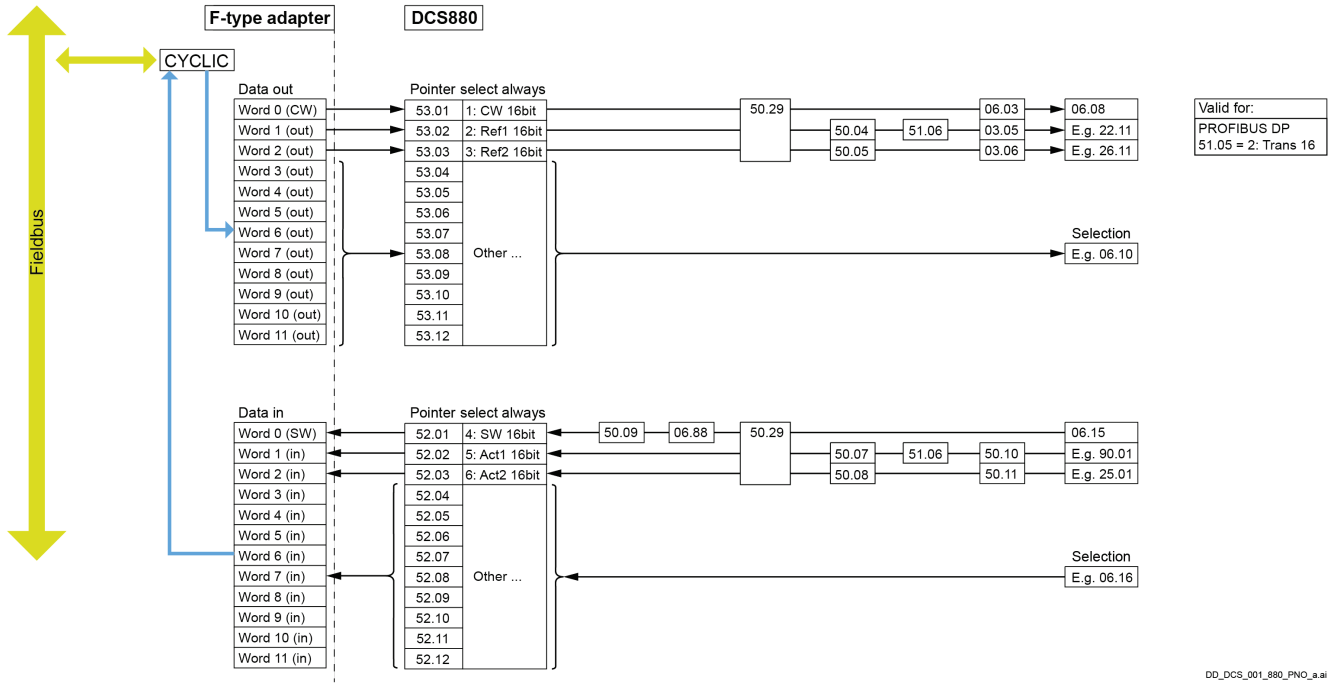
⚠	Setting of parameters 52.01 ... 52.03 see above drawing. Do **not** use Other…!
	For parameters 52.04 … 52.12 only mapping **Other…** is valid. Different mappings like SW 16bit, Act1 16bit or Act2 16bit are not allowed.

Defining the actual values in group 52: PLC ⇐ DCS880.			
PZD	**Pointer**	**Setting**	**Remarks**
1	**52.01**	4: **SW 16bit**;	50.09 FBA A SW transparent source = **Other… = 06.88[16]**, for e.g. 06.88 FBA A profile status word. 50.29 FBA A profile = **ABB Drive profile**. 06.88 FBA A profile status word. Main Status Word after conversion with FBA A profile.
2	**52.02**	5: **ACT1 16bit**;	50.10 FBA A act1 transparent source = **Other… = 90.01[16]**, for e.g. 90.01 Motor speed for control. 51.06 T16 scale = **0**; sets the divisor (divisor = 51.06 + 1). 50.07 FBA A actual 1 type = **Speed**. 50.29 FBA A profile = **ABB Drive profile**.
3	**52.03**	6: **ACT2 16bit**;	50.11 FBA A act2 transparent source = **Other… = 25.01[16], for** e.g. 25.01 Torque reference speed control. 50.08 FBA A actual 2 type = **Torque**. 50.29 FBA A profile = **ABB Drive profile**.
4	**52.04**	**Other…**;	52.04 FBA data in4 = **Other… = 06.16[16]**, for e.g. 06.16 Drive status word 1 (actual value 4). Scaling depends on signal/parameter.
	…	…	…
12	**52.12**	**Other…**;	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 CW 16bit, Ref1 16bit, Ref2 16bit and Other...



⚠	Setting of parameters 53.01 ... 53.03 see above drawing. Do **not** use Other…!
	For parameters 53.04 … 53.12 only mapping **Other…** is valid. Different mappings like CW 16bit, Ref1 16bit or Ref2 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 = **ABB Drive profile**. Control Word, visible in 06.03 FBA A transparent control word. Select by 06.08 Main control word source = **FBA A**.
2	**53.02**	2: **Ref1 16bit**;	50.29 FBA A profile = **ABB Drive profile**. Scaling by 50.04 FBA A ref1 type = **Speed**. 51.06 T16 scale = **0**; sets the multiplier (multiplier = 51.06 + 1). Reference value 1, visible in 03.05 FBA A reference 1. Select e.g. by 22.11 Speed reference 1 source = **FBA A reference 1**.
3	**53.03**	3: **Ref2 16bit**;	50.29 FBA A profile = **ABB Drive profile**. Scaling by 50.05 FBA A ref2 type = **Torque**. Reference value 2; visible in 03.06 FBA A reference 2. Select e.g. by 26.11 Torque reference 1 source = **FBA A reference 2**.
4	**53.04**	**Other…**;	53.04 FBA data out4 = **Other… = 06.10[16]**, 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.
⚠	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 ±10000 (decimal), this equals ±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: **Auto**; 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: **Transparent**; no scaling is applied. 2: **General**; generic reference with a scaling of 100 = 1 (e.g. integer and two decimals). 3: **Torque**; the scaling is defined by 46.04 M1 torque scaling actual. 4: **Speed**; the scaling is defined by 46.02 M1 speed scaling actual. 5: **Current**; 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: **ABB Drive Profile**; Speed: value in 46.02 == 20000 speed units. Any other: 100.00 % = 10000.	Supported.
	1: **ODVA AC/DC**;	**NOT** yet supported.
	2: **Profidrive**; Speed: value in == 46.02 = 4000h. Any other: 100.00 % = 10000.	**NOT** yet supported.
	3: **CIA 402**;	**NOT** yet supported.
	4: **DCP**;	**NOT** yet supported.

Start/Stop

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

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: **FBA A reference 1**; 8: **FBA A reference 2**;	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		

Simulation mode for NPBA-xx and RPBA-01

The FPBA-01 supports emulation modes for RPBA-01, NPBA-02 and NPBA-12. Emulation modes changes the FPBA-01 identification information so that it accepts connection from PLCs configuration made for RPBA-01, NPBA-02 or NPBA-12. Emulation mode can be used when:

- Replacing an old drive.
- The PLC program cannot be changed.

RPBA-01, NPBA-02 and NPBA-12 cyclic process data is handled based on the selected profile. Control word, status word, references and actuals can be used normally according to the configured profile.
PROFIdrive parameter handling in cyclic data (PKW DP-V0) is emulated.
The parameter addresses can be modified to convert the request to drive parameter index similarly as in the emulated modules.

Notes:

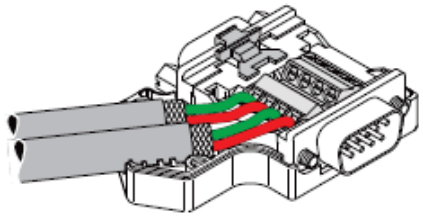
- The emulation mode only emulates parameter addresses.
- The emulated parameters need to be adapted on the drive side using application programming.

Parameter	Setting	Remark
51.07 Emul mode	0: **Disabled**;	Emulation mode is disabled.
	1: **RPBA-01**;	RPBA-01 emulation mode is enabled.
	2: **NPBA-02**;	NPBA-02 emulation mode is enabled.
	3: **NPBA-12**;	NPBA-12 emulation mode is enabled.
	4: **VIK-NAMUR**	Will NOT be supported.

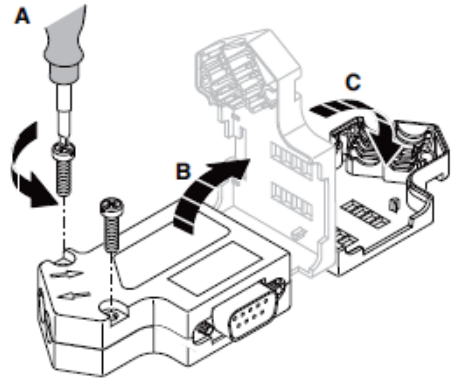
Profibus connector

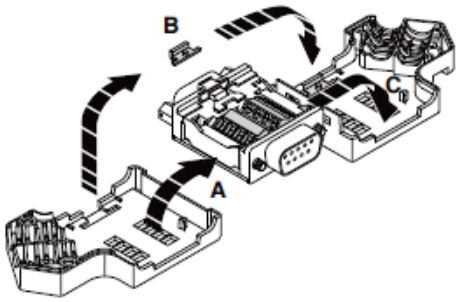
Convert Profibus connector from left-hand side cable entry to right-hand side cable entry. In this example a Phoenix Contact Subconplus D-Sub Profibus connector:

Left-hand side cable entry



Right-hand side cable entry





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