Quick Start-up Guide for RPBA-01 PROFIBUS-DP Adapter and ACS550/ACS800

Supported PPO message types:

- PPO Type1: PZD 2 words IN/OUT
- PPO Type2: PZD 6 words IN/OUT
- PPO Type3: PZD 2 words IN/OUT
- PPO Type4: PZD 6 words IN/OUT
- PPO Type5: PZD 10 words IN/OUT
  (PZD = Process Data)

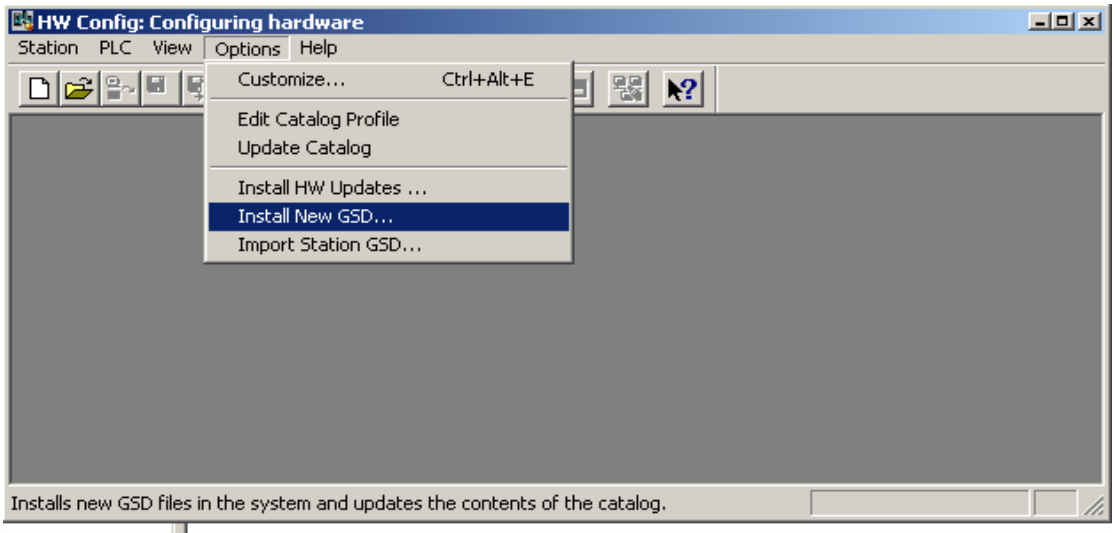
Supported operation modes:

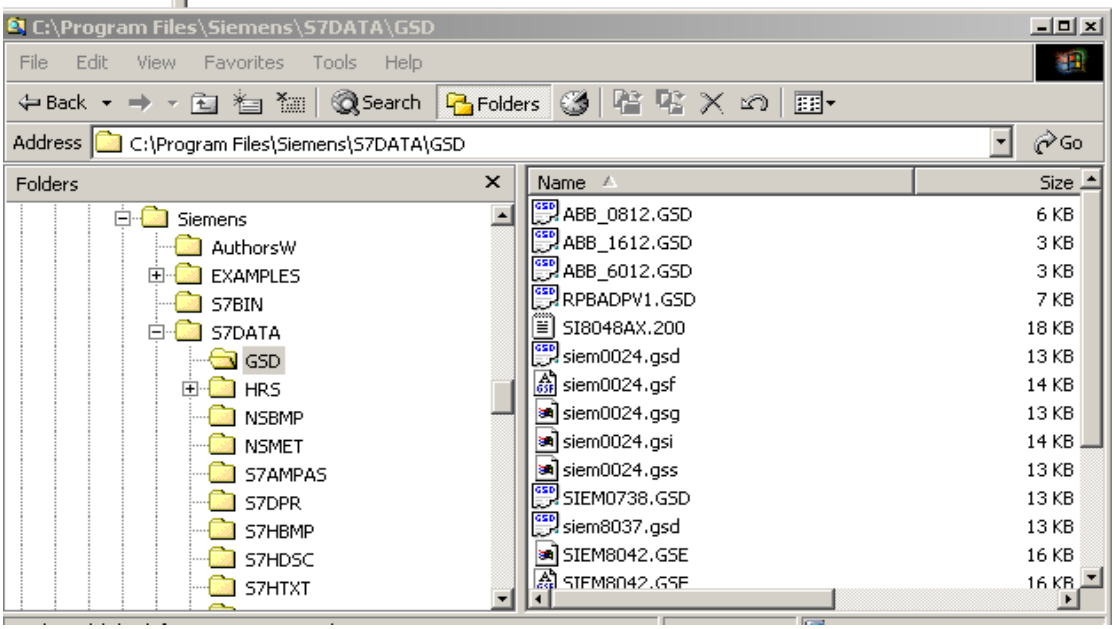
- PROFIDRIVE = GENERIC
- VENDOR SPECIFIC = ABB DRIVES

The operation mode is set with parameter 98.07 for the ACS800.
The ACS550 detects the operation mode automatically.

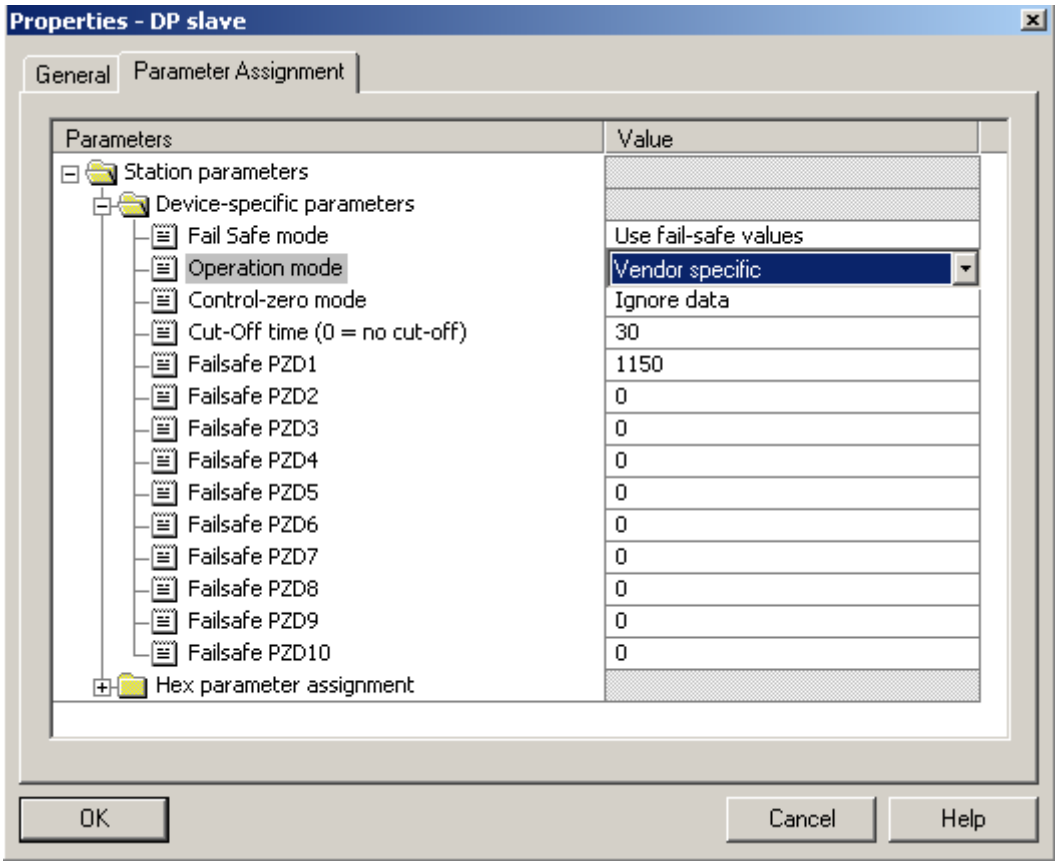
Example of start-up sequence and parameter settings:

- Install the RPBA-01 GSD file (ABB_0812.gsd) in the PLC

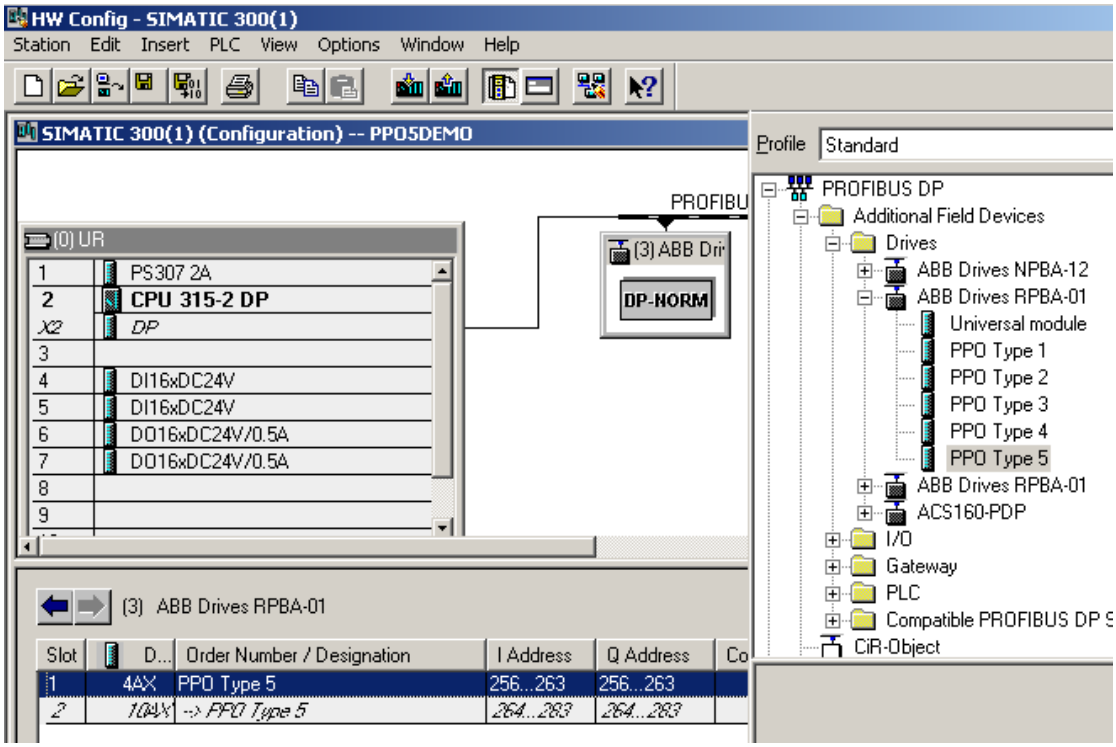




Set the operation mode (PROFIDRIVE or VENDOR SPECIFIC) in the PLC hardware configuration.



Set also the PPO type, baud rate and node number in the PLC.



Mount the module according to the instructions in the manual and set the rotary switches for node address selection before mounting (access to the rotary switches is easier then). If the node address is set by software, set the rotary switches to the position 0.

Connect the fieldbus connector according to instructions in the user's manual.

Activate the fieldbus module with parameter 98.02.

Set the communication profile to ABB Drives or Generic in the ACS800 with parameter 98.07 to match the PLC hardware configuration (not necessary with ACS550).

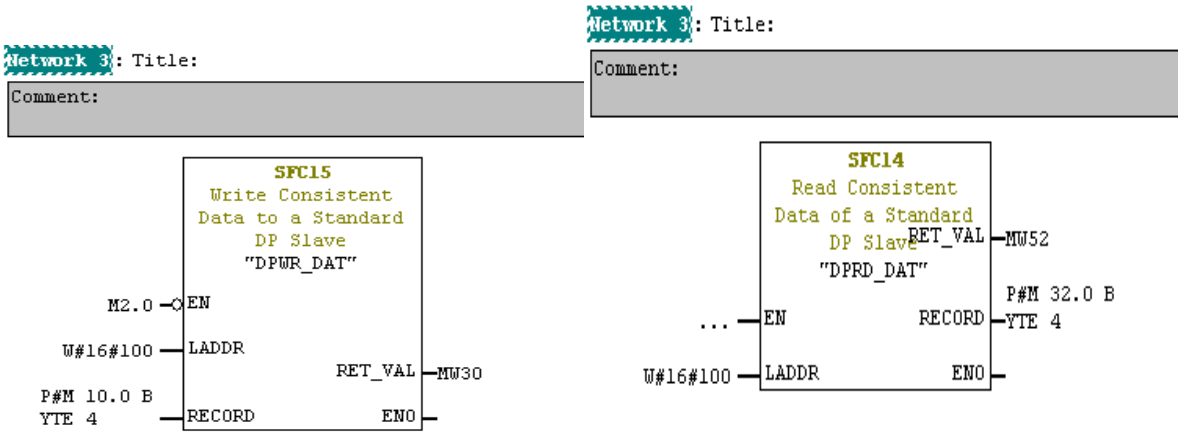
If the node address is set by software set the required address in parameter 51.02.
The baud rate and PPO type is detected automatically by the RPBA-01 module.

Example 1: GENERIC DRIVES PROFILE (PROFIDRIVE) + PPO 1

10.01 EXT1 STRT/STP/DIR	COMM.CW	(COMM in ACS550)
11.03 EXT REF1 SELECT	COMM.REF	(COMM in ACS550)
16.01 RUN ENABLE	COMM.CW	(COMM in ACS550)
16.04 FAULT RESET SEL	COMM.CW	(COMM in ACS550)
98.02 COMM. MODULE LINK	FIELDBUS	(COMM PROT SEL and EXT FBA in ACS550)
98.07 COMM PROFILE	GENERIC	(ACS800 only)
51.01 MODULE TYPE	PROFIBUS-DP	(Read Only)
51.02 NODE ADDRESS	3	
51.03 BAUDRATE	12000	
51.04 PPO-type	PPO1	
…		
51.27 Par. refresh	Refresh	

NOTE: The new settings in parameter group 51 will take effect only when the module is powered up the next time or when the module receives a refresh command (parameter 51.27).

The RPBA-01 uses data consistent communication, which means that the whole data frame is from the same program cycle. Some PLC's handle this internally but some must be programmed to transmit data consistent telegrams. E.g. in Simatic S7 the special functions SFC15 and SFC14 must be used.



The start/stop commands and reference are according to the PROFIDRIVE profile. See RPBA-01 user's manual for a description of the Profibus state-machine. The reference value +/- 16384dec (4000hex) corresponds to motor nominal speed (par.99.8) in forward and reverse direction.

Example 2: ABB DRIVES PROFILE (VENDOR SPECIFIC) + PPO2

10.01 EXT1 COMMANDS	COMM.CW	(COMM in ACS550)
10.02 EXT2 COMMANDS	COMM.CW	(COMM in ACS550)
11.02 EXT1/EXT2 SEL	COMM.CW	(COMM in ACS550)
11.03 REF1 SELECT	COMM.REF	(COMM in ACS550)
16.01 RUN ENABLE	COMM.CW	(COMM in ACS550)
16.04 FAULT RESET SEL	COMM.CW	(COMM in ACS550)
98.02 COMM. MODULE LINK	FIELDBUS	(COMM PROT SEL and EXT FBA in ACS550)
98.07 COMM PROFILE	ABB DRIVES	(ACS800 only)
51.01 MODULE TYPE	PROFIBUS-DP	(Read Only)
51.02 NODE ADDRESS	4	
51.03 BAUDRATE	1500	
51.04 PPO-type	PPO2	
51.05 PZD3 OUT	1202	(CONST SPEED 1)
51.06 PZD3 IN	104	(CURRENT)
51.07 PZD4 OUT	2501	(CRIT SPEED SEL)
51.08 PZD4 IN	105	(TORQUE)
51.09 PZD5 OUT	2502	(CRIT SPEED 1 LO)
51.10 PZD5 IN	106	(POWER)
51.11 PZD6 OUT	2503	(CRIT SPEED 1 HI)
51.12 PZD6 IN	107	(DC BUS VOLTAGE)
....		
51.27 Par. refresh	Refresh	

NOTE: The new settings in parameter group 51 will take effect only when the module is powered up the next time or when the module receives a refresh command (parameter 51.27).

The ABB Drives Profile is from the PLC programming point of view similar as with Example 1.

The start/stop commands and reference value are according to the ABB Drives profile. See ACS800/ACS550 Firmware manual for a description of the ABB Drives Communication profile. The reference value +/- 20000dec corresponds to speed/frequency set with parameter 11.05/11.08 (Ext Ref1 Max / Ext Ref2 Max) in forward and reverse direction. The minimum and maximum reference values (16 bit integer) that can be given through the fieldbus are –32768dec and 32767dec.