Upgrading from the 1785-PFB/B to the SST-PFB-PLC5

About this Technical Note

This technical note is intended for users who are replacing their current 1785-PFB PLC-5 ProfiBus modules with SST-PFB-PLC5 modules.

This technical note assumes:

- You know how to swap out your old ProfiBus PLC-5 module with SST's ProfiBus Coprocessor
- You have installed SST's ProfiBus Configuration Tool on your PC
- You have the most up-to-date copy of the SST-PFB-PLC5 manual (V1.1) and firmware (V1.0)

Upgrade Overview

There are differences between Allen Bradley's 1785-PFB/B modules and SST's ProfiBus PLC-5 module that require changes to your control logic. The following table summarizes the differences:

Characteristic	SST-PFB-PLC5	1785-PFB/B
Arrangement of Slave I/O	Automatically arranges slave I/O in Normal mode, meaning words are guaranteed to be word-aligned. Also, same slave I/O offsets can be set if the normal addressing mode was used in ProfiBus manager	Had the option of Compact or Normal arrangement of slave I/O
Uploading Speed of DP master configurations	9K6 to 115K2	Fixed 9K6
PLC display order of I/O bytes transmitted along DP	Proper bit Order DI0 -> N[X]:0/0 DI15 -> N[X]:0/15	Same order for bytes and words DI0 -> N[X]:0/8 DI15 -> N[X]:0/7
DP Transfer modes (Synchronous/Asynchronous)	Synchronous only	Synchronous and asynchronous
Location of status information	In a separate integer file	Appeared at end of input table
Location of command register	In status file at offset N[X]:56 X = Integer file #	Appeared at end of output table

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Characteristic	SST-PFB-PLC5	1785-PFB/B
Location of slave diagnostics	End of status file N[X]:59 (122 words)	End of input table
Number of ProfiBus channels	1 for DP or FMS	Port 1 FMS, Port 2 DP

Action Required

1. Record the integer files and I/O offsets for each slave used in your existing application. To do this easily in your Allen-Bradley ProfiBus Manager software, choose *DP/Address Assignment/Display AAT*.
2. Save your existing PLC-5 program with a new name so that you have a copy of the old program for reference.
3. Turn the power off on the PLC-5 and remove the old co-processor. Replace it with the SST co-processor.
4. The following steps explain how to reconfigure your DP master with SST's ProfiBus Configuration tool. To open the configuration tool, open the Windows Start Menu and choose *Programs/5136-PFB/Configuration tools/ SST Profibus Configuration*.
5. Drag the SST-PFB-PLC5 Master from the device list to a location underneath ProfiBus-DP (in the top right of the window).
6. Specify the Station address of the DP master and the PLC-5 Files for input, output, and status (must be in a separate integer file).
7. Begin adding slaves.
8. If you used Normal Addressing mode in your existing configuration, you can order modules exactly at the same offsets for slave I/O. If you used Compact mode, you have to specify different I/O offsets in the configuration and in your ladder program.
9. After configuring slaves, double click on ProfiBus-DP (at the top of the right tree) to configure your baud rate and network options.
10. Choose *File/Export Binary* to export your configuration to a .BSS file.
11. Upload this .BSS file through the serial port using any terminal program (for example, HyperTerminal).
12. Connect the serial cable between the co-processor serial port and the PC COM port.
13. Verify the PLC-5 is on and in program mode.
14. Press SHIFT + * several times until you get a prompt in your communication software window.
15. Type `RECBSSXMODEM` and press [Enter].

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16. Transfer the file through an Xmodem send.
17. Update the flash by typing `EXIT` and answering Yes when asked to update Flash or type `UPDFLASH` to update immediately.
18. While still in program mode, verify integer files exist for your I/O and create a new integer file for status (minimum size is 181 words). Change your ladder logic to reference status information correctly and I/O offsets if you had configured your I/O in compact mode. Save the new program and download it to PLC-5.
19. Switch to run mode.

Comparison of Status Blocks

1785-PFB Block Offset (Word) Starting from end of input table	**1785-PFB Length (Word)**	**1785-PFB Description**	**SST-PFB-PLC5 Description /Location X = Status File**
0	1	Module Status	Not in integer status file. Use Processor status file at S:1/0 –15
1	1	Port 1 Status	Ignore. Used for FMS
2	1	Port 2 Status (DP Line Status)	PFBMasCntrlCfg Offset N[X]:03/00-07 Bit1=1 = Run Bit1=0 = Clear
3	1	Acknowledge of Commands	No Equivalent
4	2	Error Codes	No Equivalent
6	1	Reserved	
7	8	List of configured reporting diagnostics on DP line (1 bit per slave)	Slave Diagnostics present when MasDiagUpdate N[X]:46 has non-zero value and MasDiagStn N[X]:47 contains slave station number that has updated diagnostics

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1785-PFB Block Offset (Word) Starting from end of input table	1785-PFB Length (Word)	1785-PFB Description	SST-PFB-PLC5 Description /Location X = Status File
15	8	List of configured slaves not exchanging data on DP line (one bit per slave)	PfbActStnList Offset N[X]:27 –34 Bits set if slaves configured and returning no errors
23	122	Slave Diagnostics	VarBufer N[X]:59 (Variable length 122 words max.) MasDiagUpdate N[X]:46 & MasDiagStn N[X]:47 registers can be used to indicate slave diagnostics present. MasDiagStn would be written first to coProcTransArg and then 0x01h would be written to CoProcTransCmd to read slave diagnostics
N/A	N/A	Status of Communication with processor was only indicated by status LED on coprocessor	PfbOndTranfers must be used to ensure communication between PLC/5 and SST-PFB-PLC5 Offset N[X]:26 On demand transfer counter and Coprocessor heartbeat. See the manual for details.

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1785-PFB Block Offset (Word) Starting from end of input table	1785-PFB Length (Word)	1785-PFB Description	SST-PFB-PLC5 Description /Location X = Status File
N/A	8	Command Block Located at end of output table (Change DP Operating mode)	PfbCommand N[X]:56 Run Mode = 0x01h Clear mode = 0x02h Clear status counters = 0x03h No command present = 0x00h

If you need more help

SST-PFB-PLC5 Technical Support
SST
50 Northland Road
Waterloo, Ontario
N2V 1N3
Canada

Voice: (519) 725-5136
Fax: (519) 725-1515

Email: techsupport@sstech.on.ca

Web site: www.sstech.on.ca