PROFI-5000 PROFIBUS Remote I/O Moodule

Quick Start

Introduction

This user guide introduces the user how to implement the PROFI-5000 into their applications in a quick and easy way. Therefore, it only provides the basic instructions. For more detail information about the PROFI-5000 module, please refer to the PROFI-5000 user manual in the ICP DAS product CD or download it from ICP DAS web site.

PROFI-5000 Connector and Pin Assignment



The PROFIBUS connector is a standard 9-pin D-Sub connector, there are only 4 pins used in PROFI-5000. The pins VP and GND support the 5 volt power to active terminal resistor, and the A-Line and B-Line is the data bus.

- **Status Indicator**
 - PROFI-5045/ **PROFI-5050/** \triangleright **PROFI-5052/ PROFI-5053/ PROFI-5060**

PROFI-5051/ PROFI-5055/



It provides two types of status indicator, they are PWR LED (Red) and RUN LED (Green).

PWR RUN

Status Indicator	Meaning	Recommend solution
PWR ON	Master not Ready,	1. Check the address setting
&	Address not Match	of module and DP-master.
RUN OFF	or	2. Sets the DP-Master to
	Cfg Fault	operation mode.
		3. Make sure of the
		consistency of Module
		Selection.

Module is in clear mode or operation mode. N/A

> PROFI-5017/ PROFI-5017C/ PROFI-5018/ PROFI-5024

It provides three types of status indicator, they are PWR LED (yellow), ERR LED (red) and RUN LED (green). When the power is supplied to module, PWR LED will turn on; If CHK_CFG procedure is finished, RUN LED will turn on and ERR LED will turn off. The table explains the relationship between them.



Status Indicator	Meaning	Recommend solution		
ERR ON & RUN OFF	Offline Mode	Check the address setting of module and DP-master.		
ERR Flash(0.1 sec)	Stop Mode	Check the DP-Master is ready to communicate with module.		
ERR Flash(0.5 sec)	Prm Fault	Check the setting of module in the master interface and make sure of the consistency.		
ERR Flash(1 sec)	Cfg Fault	Same as above		
ERR ON & RUN ON	Clear Mode	Sets the DP-Master from clear mode to operation mode		
ERR OFF & RUN ON	Operate Mode			
PWR & ERR Flash Interlace(0.5 sec)	Diag Exist (Diag. Msg. Request)	Check the Input/Output value that if exceed/under the limit		

Terminating Resistors

In order to minimize the reflection effect of the signal transmission, PROFIBUS device has to fit with an active terminal resistor at both first node and last node. The connection of active terminating resistors is shown in above circuit diagram. The PROFI-5000 doesn't have any terminating resistors inside. Therefore, users must add the terminator in external. In general, PROFIBUS connector has terminating resistors inside, and there is a switch to control the ON/OFF of the terminating resistors, as shown below.



• Node Address

According to PROFIBUS specification, the station address which from 0 to 126 is valid, and the address 126 is a special address that supports the remote setting SSA telegram from Class 2 DP-Master.



- The figure shown above is the decimal rotary switch. It dominates the node (station) address of PROFI-5000. The left side switch is high nibble of address and the other one is low nibble of address.

- It doesn't support SSA service for setting node address.

EX 1 : MSB = 2, LSB = 3, node address => (2*10+3) = 23

> PROFI-5017/ PROFI-5017C/ PROFI-5018/ PROFI-5024



- The figure shown above is the decimal rotary switch. It dominates the node (station) address of PROFI-5000. The switch is which labeled MSB is high nibble of address and the other one is low nibble of address.
- Module applies the setting of rotary switch as its address if the address is valid. While the address is invalid, module loads the pre-saved value from EEPROM. Moreover, if the address is invalid (126) again, module awaits the SSA telegram and applies it. (Note: If you want to clear the setting stored at EEPROM, you just adjust rotary switch to FF before the power supplied).

Rotary Switch(dec)	Pre-saved address (EEPROM)	SSA Telegram	PROFI-5017(C) Station Address
0~125	Do not care	No Accept	Rotary Switch
126~254	0~125	No Accept	Pre-saved address(EEPROM)
	126(default)	Accept with address 0~125	SSA Telegram and save address to EEPROM
	127~254	impossible	N/A
255	Clear to 126	Accept with address 0~125	SSA telegram and save address to EEPROM

EX 1 : MSB = 0, LSB = B, node address => (0*16+11) = 11

EX 2 : MSB =7, LSB = 9, node address => (7*16+9) = 121

• PROFI-5000 – Setting and Module Installation

(example for SIMATIC Step 7)

The following steps can help users to set and apply the PROFI-5000.

- 1. Address Setting:
- Load GSD file into the DP-Master Configuring software
 a. Open HW Config

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			Configured Distions	
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1				

b. Select Option -> Install GSD files

00	Station	<u>E</u> dit	Insert	PLC	⊻iew	Options	<u>W</u> indow	<u>H</u> elp	
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	5				<u> </u>	<u>F</u> ind i	n Service &	2 Support.	
						Create	e GSD file f	or I-Devia	:e

c. Click "Browse" to select GSD file, and then click "Install"

Install GSD Files			X
Install GSD Files:	from the directory	_	
D:workPROFIBUSDataPROFI	BUS FTP\remote io\profi-5000\gsd		Browse
File Release Versi ipdsUc47.gst	on Languages Default		
The file 'ipds0c47.gsd' contains sy	mtax errors.		
InstallShow	Log Select <u>A</u> ll	Deselect All	
Close			Help

d. Install OK



3. Select I/O modules a. Choose PROFI-5000

B HW Config - [SIMATIC 300 Station (Configuration) -- S7_Pro1] 💵 Station Edit Insert PLC View Options Window Help - 8 : 🗅 🚅 💱 🖉 👫 🎒 🛍 💼 🚺 🖬 🚼 🕅 5000 Find: m† mi CPU 313C-2 DP(1) PROFIBUS(1): DP master system (1) Profile: Standard • X2 2.2 D116/D016 ~ T (2) PROFI-2.4 Count DP-NORM Gateway
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 Compatible PROFIBUS DP Slaves
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b. add I/O module that you want to use.

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1 8AI PROFI-5017(C) 256271		PROFI-5060	
		PROFI-5067	
		H- TROPI-8155(DPV1)	
		Compatible PROFIBUS DP Slaves	

c. Modify system parameters and module parameters(modify by user's preference)



System parameters: Double click PROFI-5000

General Parameter Assignment Parameters Value	_
Parameters Value	
🖃 🔄 Station parameters	
Device-specific parameters	
Eig Endian(Motorola format)	
Hex parameter assignment Hex parameter assignment	
CancelHel	p

Module parameters: Double click module PROFI-5017(C)

Properties - DP slave		X
Address / ID Parameter Assignment		1
Parameters	Value	~
🖃 🔄 Station parameters		
🖨 🔄 Device-specific parameters		
— 🗐 Channel 0 - Data Range	Volt Inp. Range: +/- 10.0 V	
— 🖃 Channel 0 - Data Format	Engineer-unit format	
— El Channel 0 - Diag Enable	Enable	=
— E Channel 1 - Data Range	Volt Inp. Range: +/- 10.0 V	
— 🗐 Channel 1 - Data Format	Engineer-unit format	
- E Channel 1 - Diag Enable	Enable	
— 🗐 Channel 2 - Data Range	Volt Inp. Range: +/- 10.0 V	
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- 🖃 Channel 2 - Diag Enable	Enable	
🖃 Channel 3 - Data Range	Volt Inp. Range: +/- 10.0 V	
- Channel 3 - Data Format	Engineer-unit format	
- E Channel 3 - Diag Enable	Enable	
_ 🗐 Channel 4 - Data Range	Volt Inp. Range: +/- 10.0 V	
- 🗐 Channel 4 - Data Format	Engineer-unit format	
🗐 Channel 4 - Diag Enable	Fnahle	<u>×</u>
OK	Cancel	Help

4. Download Setting and Program into DP-Master

Users load the setting and program into DP-Master, and let it go.

a. Select Station -> Save and Compile



b. Select PLC -> Download



After the procedure finish, DP-Master will establish the connection with PROFI-5000 and execute program automatically. RUN_LED indicates the status of connection that you can observe.