

PROFI-8455 – PROFIBUS Remote I/O Unit

Quick Start User Guide

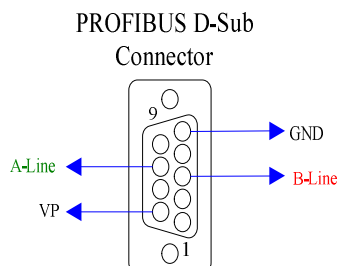
● Introduction

This user guide introduces the user how to implement the PROFI-8455 into their applications in a quick and easy way. Therefore, it only provides the basic instructions. For more detail information about the PROFI-8455, please refer to the PROFI-8455 user manual in the ICP DAS product CD or download it from ICP DAS web site.

●PROFI-8455 Hardware Structure



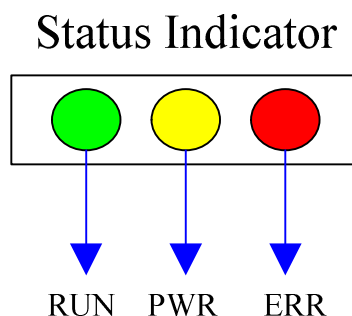
● PROFI-8455 Connector and Pin Assignment



Pin No.	Signal	Meaning
3	B-Line	Receive/Transmit data – plus
5	GND	Power ground of active terminator
6	VP	Power 5 volt of active terminator
8	A-Line	Receive/Transmit data - minus

The PROFIBUS connector is a standard 9-pin D-Sub connector, there are only 4 pins used in PROFI-8455. 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.

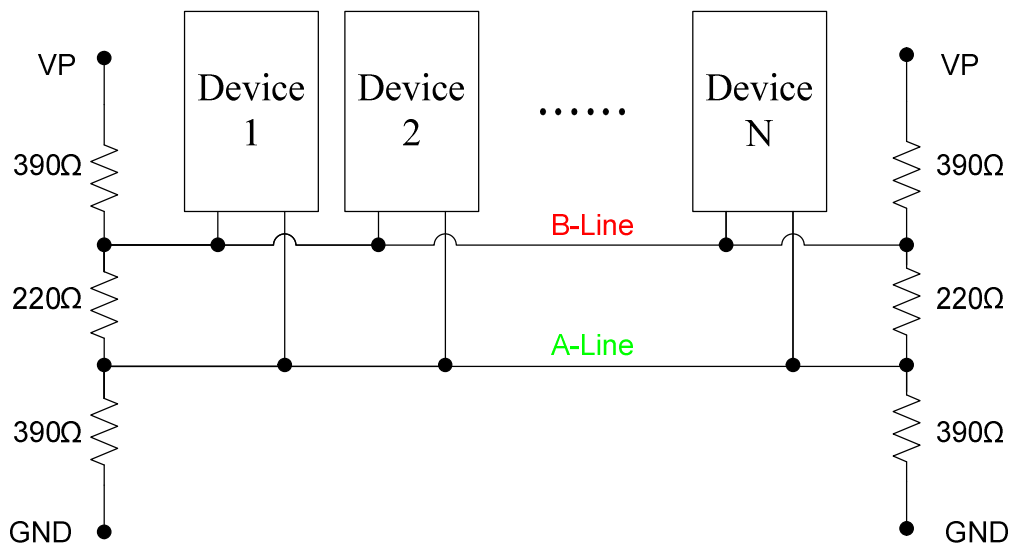
● Status Indicator



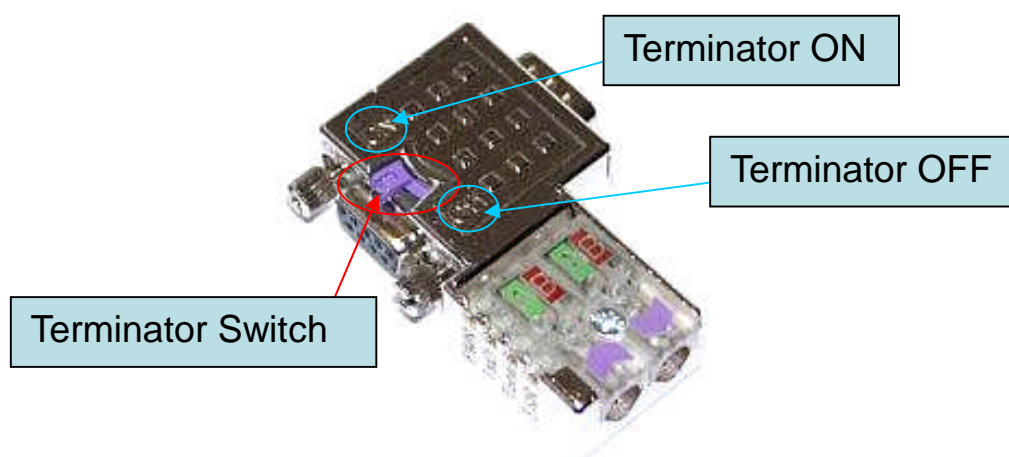
PROFI-8455 provide three types of status indicators, they are PWR LED (yellow), ERR LED (red) and RUN LED (green).

Status Indicator	Meaning	Recommend solution
ERR ON & RUN OFF	PROFI-8455 is offline with no valid baud rate (offline mode*)	Check the address setting of PROFI-8455 and DP-master.
ERR Flash (0.1 Sec)	PROFI-8455 detects baud rate, but is still offline.(stop mode*)	Check the DP-Master is ready to communicate with PROFI-8455.
ERR Flash (0.5Sec)	PROFI-8455 Prm is Fault.(Note 1)	Check the setting of PROFI-8455 in the master interface and make sure of the consistency.
ERR Flash (1 Sec)	PROFI-8455's Cfg is fault(Note 2)	Same as above
ERR ON & RUN ON	PROFI-8455 is in clear mode*.	Sets the DP-Master from clear mode to operation mode
ERR OFF & RUN ON	PROFI-8455 is in operation mode*.	
PWR Flash (1 Sec)	PROFI-8455 detect module(s) offline	Find the reason of the fault of corresponding module.

● 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-8455 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.



● PROFI-8455 – Setting and Module Installation

The following steps can help users to set and apply the PROFI-8455.

1. Load GSD file into the DP-Master Configuring software

DP-Master **configuring software** (Siemens Step7 or ProfiCaptain etc...) loads IPDS0B0C.gsd file, and make sure of the “PROFI-8455” label in “I/O” category. Finally, Loading PROFI-8455 into PROFIBUS at the software and activate it.

2. Select I/O modules

Choose PROFI-8455 and add I/O module that you want to use. Modify the system parameter “WD_On”, “Freeze/Sync Req.”, “Lock/Unlock Req”, “Group-ID assignment”, etc...(modify by user’s preference)

3. Set Parameter Data

Wait parameterization is an important step before data exchange. In this stage, DP-Master provides the essential parameter to PROFI-8455 include user parameters and module parameters. Therefore, it must finish this setting before data exchange.

1. User Parameter:

“User parameter” also called “system parameter” is the basic parameters. The number of parameter is fixed regardless of the number of modules. In PROFI-8455, there are two kinds of parameter. They are Byte Order and Diagnosis Report Period.

Byte-Order Parameter: If your system obeys the INTEL data format, you should select Little-Endian mode; otherwise, you should select Big-Endian mode.

Diagnosis Report Period Parameter: This parameter dominates the time interval of each diagnostic message report. The unit of this period is millisecond. The maximum time interval is 65536 ms, the minimum is 0 ms.

2. Module Parameters:

The most of modules must be initialized before applying them. Module parameters provide information about Operation Code, Data Code or Enable Diagnosis, etc... Please refer to the manual to know more information about these parameters.

4. Download Setting and Program into DP-Master

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

Users must finish these steps before starting to communicate with PROFI-8455.

5. Module Installation:

In the expansion slots, users install the modules, and make sure of correct installation. Notice that address mapping is order by slot id of installed module (from left to right), and the expansion slot that without module will be skipped.

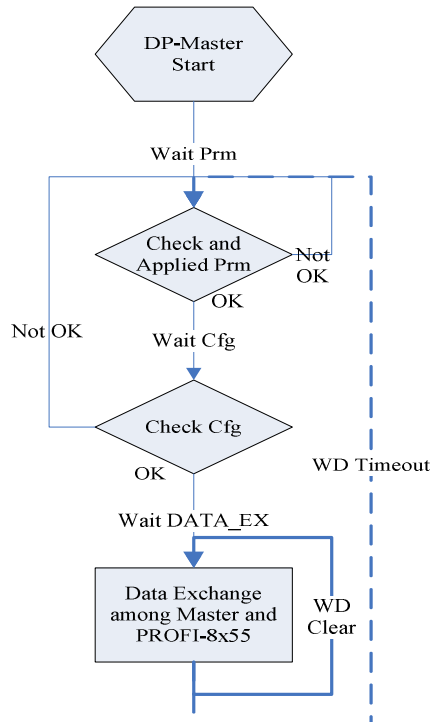
6. Address Setting:

There are two hexadecimal rotary switches in PROFI-8455 panel. They dominate the address of PROFI-8455. The switch labeled LSB is represented the low nibble of the address, and the switch labeled MSB is represented the high nibble of the address. For advance setting, please refer to PROFI-8455 User's Manual.

After finishing the procedure, DP-Master will establish the connection with PROFI-8455 and execute program automatically. RUN_LED indicates the status of connection that you can observe.

● PROFI-8455 – state flow chart

The state machine of PROFI-8455 is shown below. If your PROFI-8455 can't establish connection with DP-Master, you can see Q/A to solve it.



● PROFI-8455 – Q&A

1. Q: How do I know the status of the PROFI-8455?

A: You can observe the RUN LED in PROFI-8455 panel. If RUN LED is light, data is exchanging. Otherwise it must be error in the previous state. You can see Q&A 3 to solve it.

2. Q: Have I must set the PROFI-8455's address before power applied?

A: You can change the address after power applied, but you should let the PROFI-8455 offline at least 5 second. After 5 second offline, PROFI-8455 will reset by itself, and then apply the new setting of the rotary switches.

3. Q: If PROFI-8455 couldn't establish communication with DP-Master, what can I do?

A: In General, the PROFI-8455's error is due to the following reasons.

1. Parameter Fault- PROFI-8455's ERR LED will have an interval of 0.5 second in each flash. It may reduce from "error module selection".

2, Configuration Fault-PROFI-8455's ERR LED will have an interval of 1 second in each flash. It may reduce from "error installation order".

3, DP-Master OFFLINE-PROFI-8455's ERR LED will light until establish data exchange connection. You should switch DP-Master status from OFFLINE to OPERATE.

4, DP-Master STOP-PROFI-8455's ERR LED will flash quickly (time interval may less then 0.5 second). You should switch DP-Master status from STOP to OPERATE.

4. Q: Which Modules is faster among the same Module Number (I-87017 and I-8017H)?

A: I-8K series is faster than I-87K series. It is due to the communication interface, I-8K use Parallel interface, and I-87K use the serial communication.

5. Q: I feel that the reaction time of analog module in I-87K is slow. Why does it?

A: It is due to low sampling rate. Beside the I-87017 series module, the remainder analog input module has sampling rate with 10Hz maximum. If you want to use the high sampling module, I-8017H and I-87017 is the best choice.

6. Q: how can I use the additional function of I-87082?

A: Please refer to the “**Byte Order and Data Address**” chapter in the PROFi-8455 user’s manual.