

EC-TX803 PROFIBUS-DP Communication

Expansion Modules User Manual



Preface

Thank you for choosing INVT EC-TX803 PROFIBUS-DP communication expansion modules.

EC-TX803 is a PROFIBUS-DP fieldbus communication module that needs to be used with the GD880 series VFD control box. The expansion module communicates with the bus master through PROFIBUS-DP communication protocol.

This manual describes the product overview, installation, wiring, and commissioning instructions. Before installing the VFD, read through this manual carefully to ensure the proper installation and running with the excellent performance and powerful functions into full play.

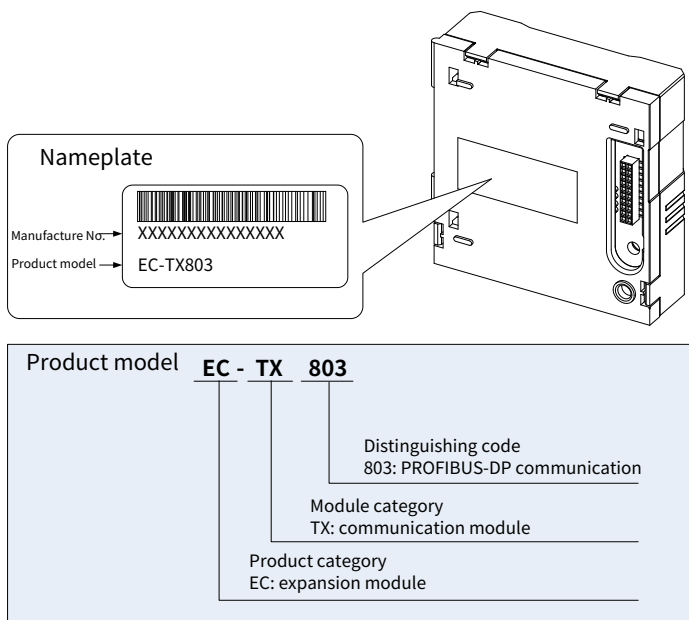
Product features:

- Communication rate: 9.6kbit/s-12Mbit/s
- A maximum of 31 nodes can be connected when no repeater is used. If repeaters are used, a maximum of 127 nodes (including the repeaters and master nodes) can be connected.
- Complies with the fieldbus standard EN50170

1 Product overview

1.1 Model description

Figure 1-1 Product nameplate and model designation



1.2 Specifications

Table 1-1 Specifications

Parameters	Specification
Working temperature	-10~50°C
Storage temperature	-20~60.0°C
Relative humidity	5%~95% (No condensation)
Running environment	No corrosive gas
Installation method	Fixed with snap-fits and screws
Ingress protection (IP) rating	IP20
Heat dissipation method	Natural air cooling
Communication rate	9.6k bit/s-12M bit/s
Network topology	Linear bus with one active fieldbus terminal resistor on each end

1.3 Structure

Figure 1-2 Structural diagram

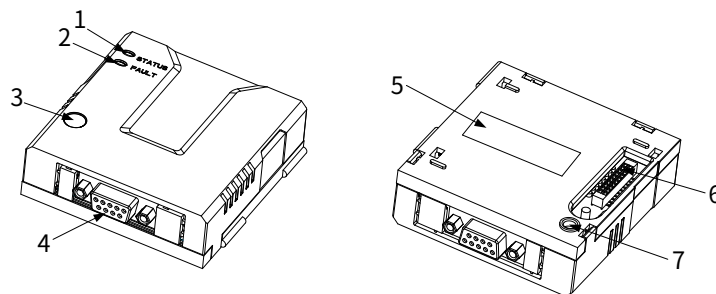


Table 1-2 Component description

No.	Name	Description
1	STATUS bus status indicator (green)	On: The expansion card is connected with the master device and data exchange can be performed. Off: The expansion card is disconnected from the master device.
2	FAULT Fault indicator (red)	On: The expansion module is offline and data exchange cannot be performed. Blinking (On: 500ms; Off: 500ms): Configuration error occurs. The length of the user parameter data set during the module initialization is different from that during the network configuration. Blinking (On: 250ms; Off: 250ms): User parameter data is incorrect, The length or content of the user parameter data set during the module initialization is different from that during the network configuration. Blinking (On: 125ms; Off: 125ms): An error occurs in the ASIC initialization of PROFIBUS communication. Off: No fault
3	Installation fixing hole	To fix the expansion module
4	X1 - communication port	PROFIBUS-DP communication port
5	Nameplate	Including the model and sequence number of the expansion module
6	Connection port	For connection between the PROFIBUS-DP module and control box.
7	Positioning hole	To align the expansion module and control box for easy installation

2 Installation and wiring

2.1 Installation precautions

	Make sure the device have been powered off before installation.
Note	<ul style="list-style-type: none"> • There are 3 expansion module interfaces on the control box (expansion slot 1, expansion slot 2, expansion slot 3). You can use any of these slots according to the actual wiring. • It is recommended to install the PROFIBUS-DP expansion module at expansion slot 3.

Required tools: Phillips screwdriver PH1, straight screwdriver SL3

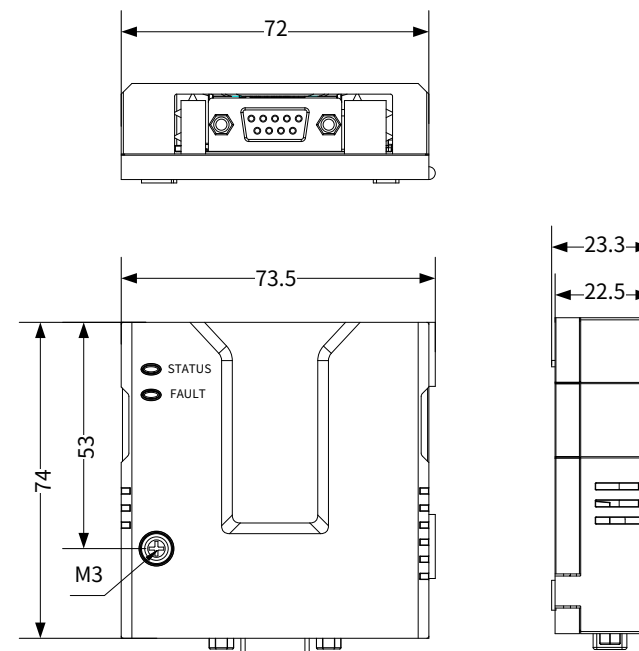
Table 2-1 Screw torque requirements

Screw size	Fastening torque
M3	0.55 N · m

2.2 Dimensions

The dimensions of the PROFIBUS-DP expansion module is 73.5 × 74 × 23.3 (W*H*D) mm, as shown in Figure 2-1.

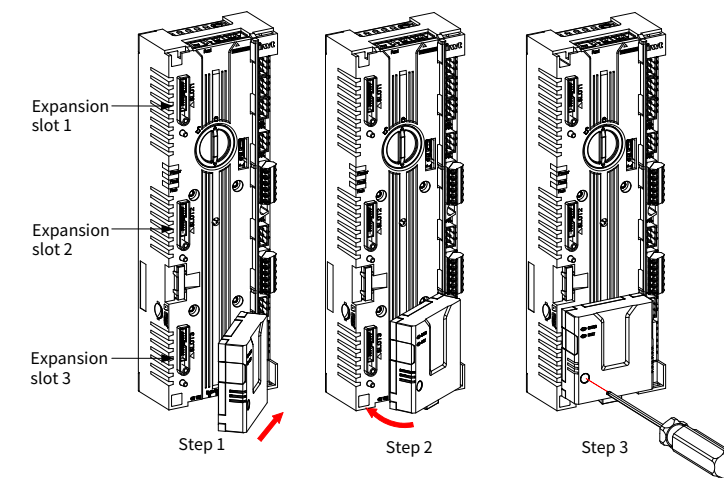
Figure 2-1 Product outline and mounting dimensions diagram (unit: mm)



2.3 Installation instructions

It is recommended to install the PROFIBUS-DP expansion module at expansion slot 3 of the control box. The following is an example of the installation at slot 3.

- Step 1 Place the expansion module in the corresponding position of the control box expansion slot 3, align it with the slot, and then buckle it together.
- Step 2 Align the expansion module positioning hole with the positioning stud.
- Step 3 Fix with a M3 screw. The installation is complete.



Note:

- The expansion module and control box are electrically connected through slots. Please install them in place.
- To ensure the reliable operation of the expansion module and meet EMC requirements, please tighten the screws according to the recommended torque for reliable grounding.

2.4 Disassembly instructions

You can disassembly the module by reversing the order of steps described in section 2.3 Installation instructions.

- Step 1 Disconnect all power supplies and disassemble all cables connected to the expansion module.
- Step 2 Use a Phillips screwdriver PH1 to remove the grounding screws of the expansion module.
- Step 3 Lift the expansion module out of the control box positioning stud and pull it out to a suitable position. Disassembly is complete.

2.5 User's wiring terminal

Figure 2-2 Terminal diagram

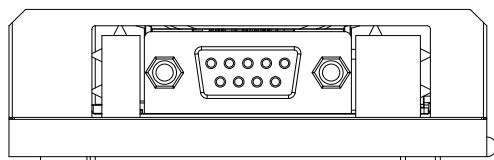


Table 2-2 D-type connector function definition

D-type connector	Pin	Name	Description
	1		Not connected
	2		Unused
	3	B-Line	Receive Data+
	4	RTS	Request sending
	5	GND_BUS	GND
	6	+5V BUS	+5V
	7		Not connected
	8	A-Line	Receive Data-
	9		Not connected
	Housing	SHLD	Shielded cable

2.6 Wiring precautions

The PROFIBUS-DP communication expansion module supports the standard 9-pin D-type connector. The electrical wiring diagram is shown in Figure 2-3.

Figure 2-3 PROFIBUS-DP bus connection diagram

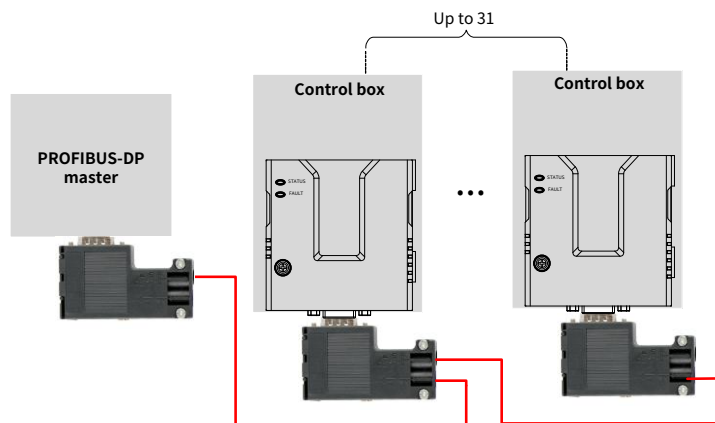


Table 2-3 Transmission rates and corresponding transmission distances

Baud rate (kbps)	9.6	19.2	93.75	187.5	500	1500	12000
Transmission distance (m)	1200	1200	1200	1000	400	200	100

Note:

- Transmission distance in Table 2-3 refers to the distance without repeaters.
- A maximum of 31 nodes can be connected when no repeater is used. If repeaters are used, a maximum of 127 nodes (including the repeaters and master nodes) can be connected.

3 Commissioning instruction

Figure 3-1 PROFIBUS-DP communication expansion module configuration flowchart

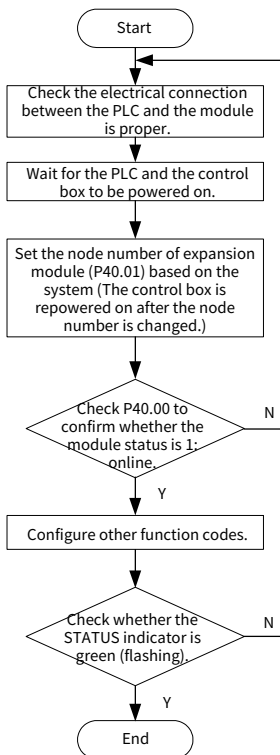


Table 3-1 Function code parameters related to PROFIBUS-DP communication expansion module

Function code	Name	Description	Setting range	Default
P40.00	Module online status	Bit0: Online status of SLOT1 module Bit1: Online status of SLOT2 module Bit2: Online status of SLOT3 module Bit3: Online status of SLOT2-1 module Bit4: Online status of SLOT2-2 module Bit5: Online status of SLOT2-3 module Bit6: Online status of SLOT3-1 module Bit7: Online status of SLOT3-2 module Bit8: Online status of SLOT3-3 module Online status 0: Offline 1: Online	0x00-0x1FF	0x00
P40.01	Node number of expansion module	1-127	1-127	1
P37.00	Bus adapter supporting bus type	0: None 1: PROFIBUS-DP module 2: PROFINET I/O module 3: CANopen module 4: EtherNET module 5: EtherCAT module 6: DeviceNet module	0-6	1
P02.00	Remote control channel selection	Remote control channel selection 0: Bus adapter A 1: Bus adapter B 2: MODBUS (address 0x4200, 0x4201) 3: Terminal start/stop module (IN1, IN2, IN3)	0-3	0

Note:

- When two identical communication expansion modules are mounted at the same time, only the expansion module in the slot with a small label number is functional, while the other expansion module is used for redundancy. For example, when two DP expansion modules are inserted in slot 1 and slot 2 respectively, the DP module in slot 1 is valid.
- For other parameter settings of the EC-TX803 PROFIBUS-DP expansion module, see software manuals of the GD880 series products.

