invt IVDM-20 DC Voltage Detection Module User Manual

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Product Information

The IVDM-20 DC Voltage Detection Module is a synchronous voltage detection module designed for detecting DC voltage. It is equipped with a current detection Hall component and is capable of voltage detection and current sampling. The module has a supply voltage/current specification and can be connected for communication using a specific mode. It also has a structure diagram, indicating the various components and their descriptions.

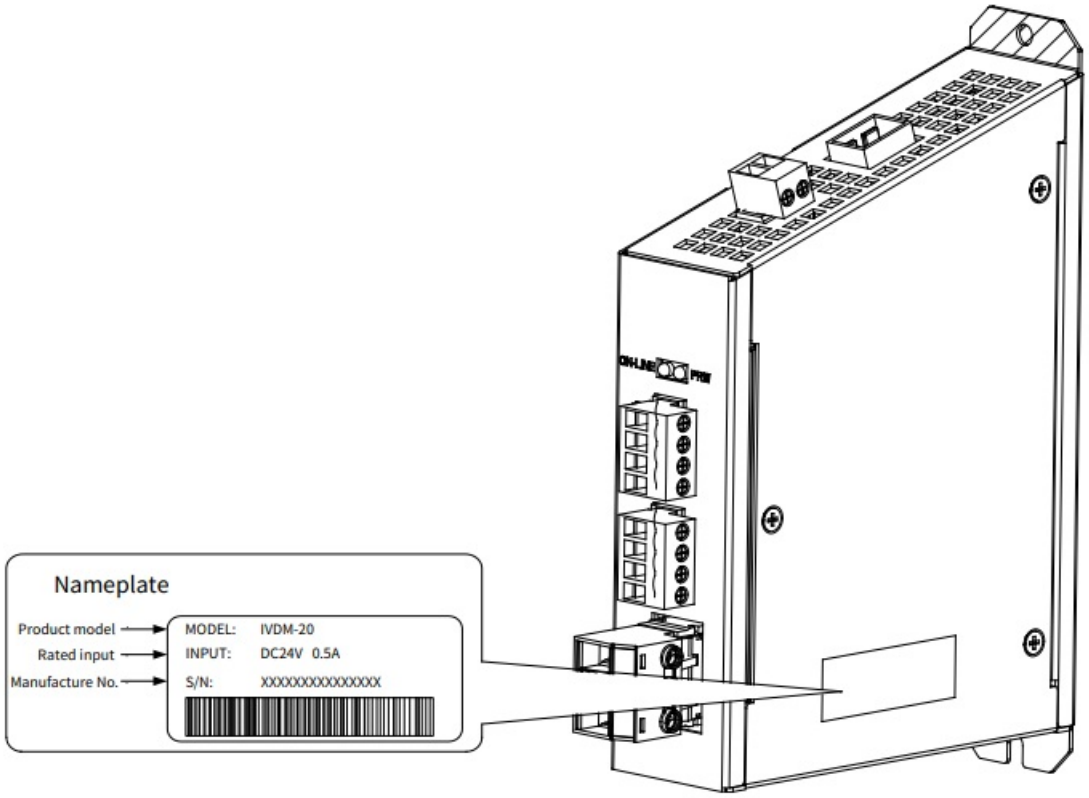
Thank you for choosing INVT IVDM-20 DC voltage detection module.
IVDM-20 DC voltage detection module is mainly used in DC-DC bidirectional DC power supply products to detect the input and output voltage and current of the system. It needs to be used with the GD880 series VFD control box. The module transmits the detection signal to the control box through optical fibers, achieving monitoring of system voltage and current.
This manual describes the product overview, installation, wiring, and commissioning instructions. Before installing the VFD, read this manual carefully to ensure the proper installation and running with the excellent performance and powerful functions into full play.
Product features:

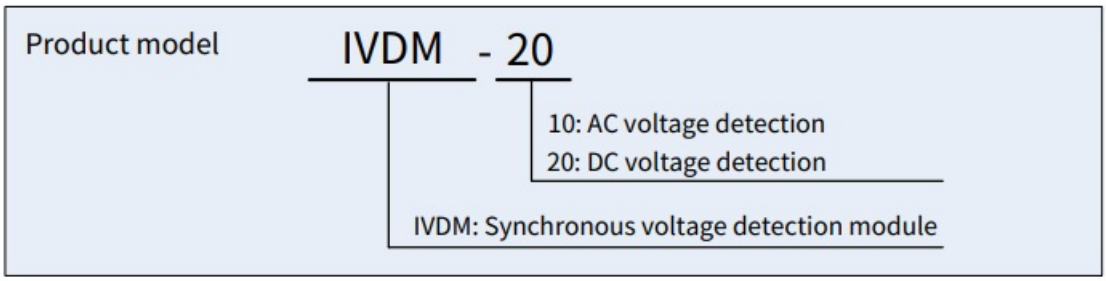
- Supports one DC voltage detection of 0–1000VDC
- Supports two voltage type open-loop Hall current detection
- Adopts optical-fiber communication, enabling fast and stable communication rate
- Supports rear mounting method, facilitating dismounting and mounting

Product Overview

Model description

Figure 1-1 Product nameplate and model designation





Specifications

Parameters	**Specification**
Working temperature	-10–+50ºC
Storage temperature	-10–+60ºC
Relative humidity	5%–95% (No condensation)
Running environment	No corrosive gas
Installation method	Rear mounting method
IP rating	IP20
Heat dissipation method	Natural air cooling

Technical parameters

Parameters	Specification
Supply voltage/current	24V±5%/0.5A
Communication connection mode	Optical-fiber communication
Voltage detection	0–1000VDC
Current sampling	Two voltage type open-loop Hall current sensor

Structure

Figure 1-2 Structure diagram

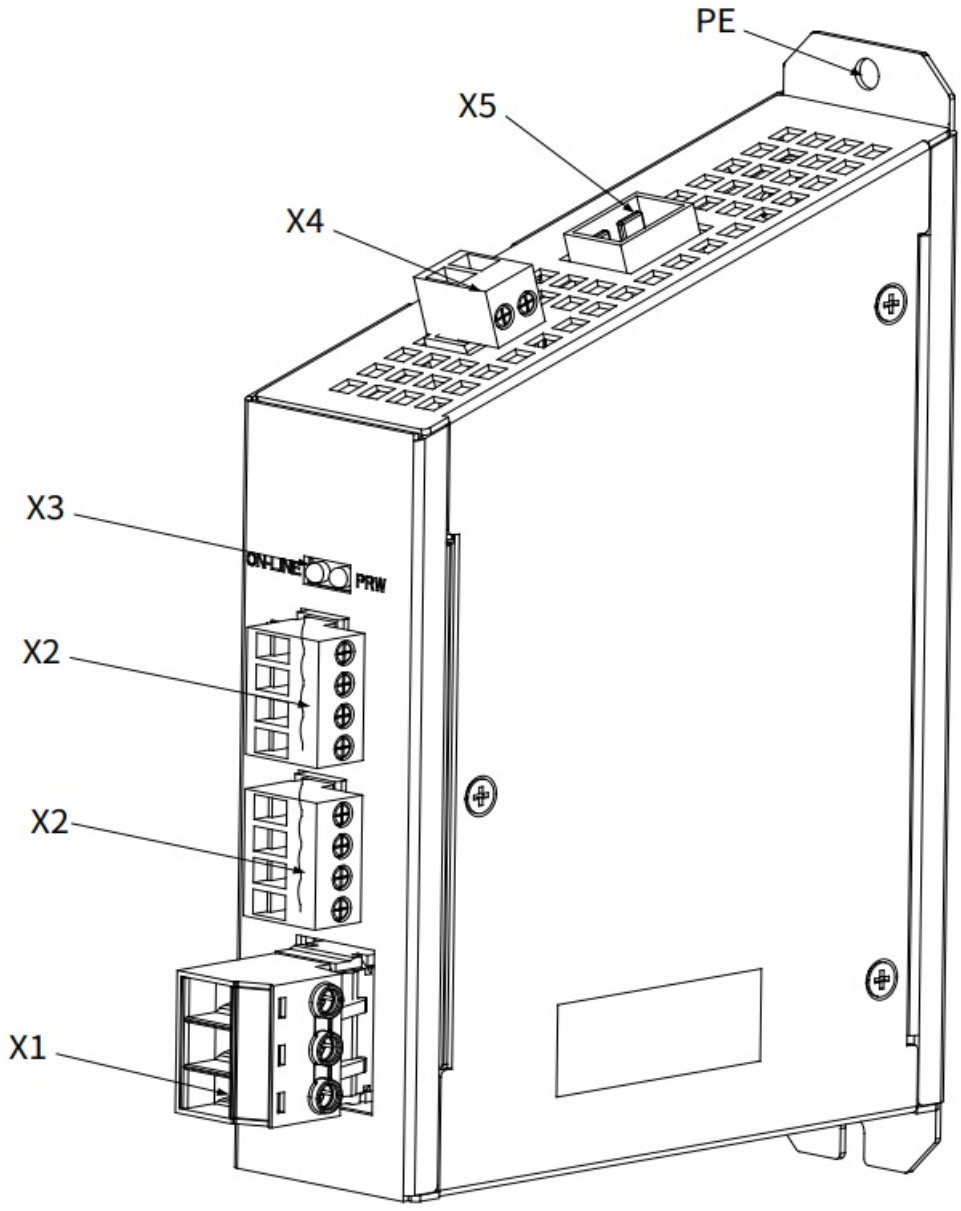


Table 1-3 Component description

No.	Name	Description
1	X1-DC voltage detection terminal	Input voltage range: 0–1000VDC Cable cross-sectional area: 0.5–2.5mm2
2	X2-Current detection terminal A	Current detection Hall component wiring terminal A Cable cross-sectional area: 0.5–2.5mm2 Use shielded four-core twisted-pair cable with both ends grounded. The total length of the cable is less than 1.5m.
3	X2-Current detection terminal B	Current detection Hall component wiring terminal B Cable cross-sectional area: 0.5–2.5mm2 Use shielded four-core twisted-pair cable with both ends grounded. The total length of the cable is less than 1.5m.
4	X3-Status indicator	PWR power supply status indicator Red LED ON: Power supply is connected. Red LED OFF: The module is not powered on or the power supply is abnormal. ONLINE operation status indicator Red LED flashes: The communication is normal. Red LED OFF: Operation exception.
5	X4-24VDC power input terminal	Externally powered: 24VDC±5%/200mA Two-core twisted-pair cable is recommended. Cable cross-sectional area: 0.5–2.5mm2
6	X5-Optical fiber connection terminal	The expansion module communicates with the control box through optical fiber. Plastic optical fiber

Installation and wiring

⚠	Make sure the device have been powered off before installation.
Note	• Prevent the module from falling or shock to avoid damage. • Do not disassemble the module to avoid damage. • Please tighten the screws according to the required torque to avoid damage or looseness.

Installation precautions

- **Required tools:** Phillips screwdriver PH1, straight screwdriver SL3

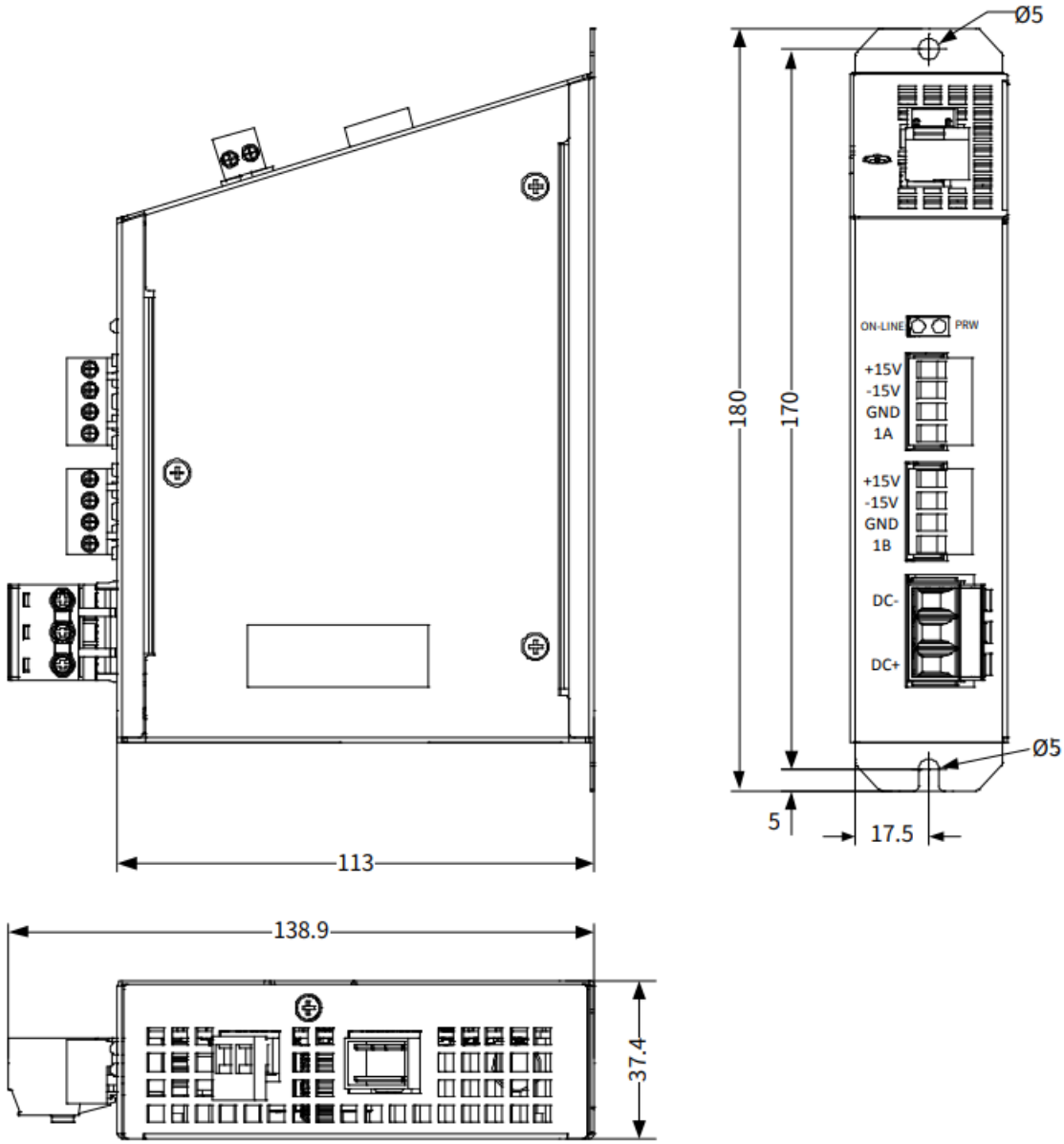
Table 2-1 Screw torque requirements

Screw size	Fastening torque
M3	0.55 N·m
M4	1.2 N·m

Dimensions

The dimensions of the DC voltage detection module is 37.4x113x180 mm (W*D*H), as shown in Figure 2-1.

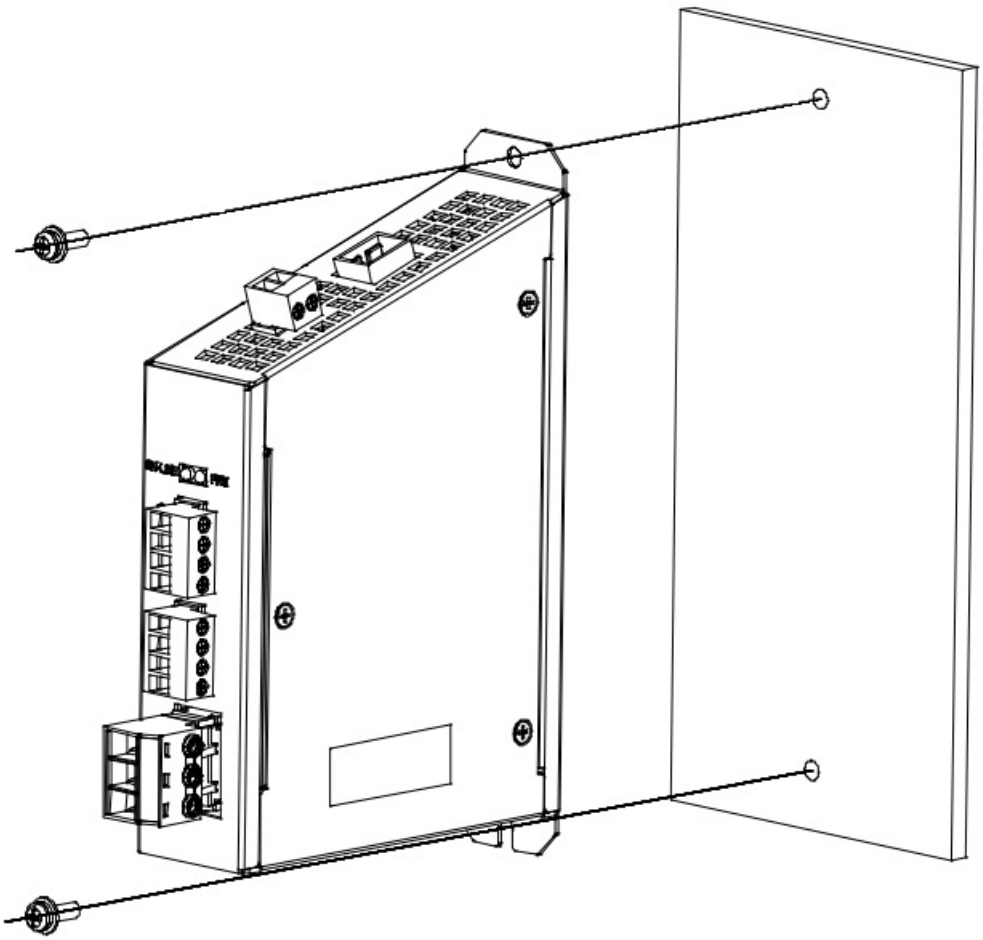
Figure 2-1 Product outline and mounting dimensions diagram (unit: mm)



Installation instructions

The rear mounting method is used. Align the installation holes and tighten the screws.

Figure 2-2 Installation diagram



Note:

- Ensure that all terminals and fiber optic plugs are installed in place for effective electrical connection.
- The module is grounded through contact between its exposed metal shell and the assembly board inside the cabinet, so the assembly board must be an exposed metal plate. To ensure the reliable operation of the module and meet the EMC requirements, please tighten the screws to ensure reliable grounding.

Disassembly instructions

- **Step 1** Disconnect the power supply and disassemble all cables connected to the expansion module.
- **Step 2** Use a Phillips screwdriver to remove the grounding screw of the module. Step 3 Pull the module out to a suitable position.

User's wiring terminal

Figure 2-3 IVDM-20 appearance diagram

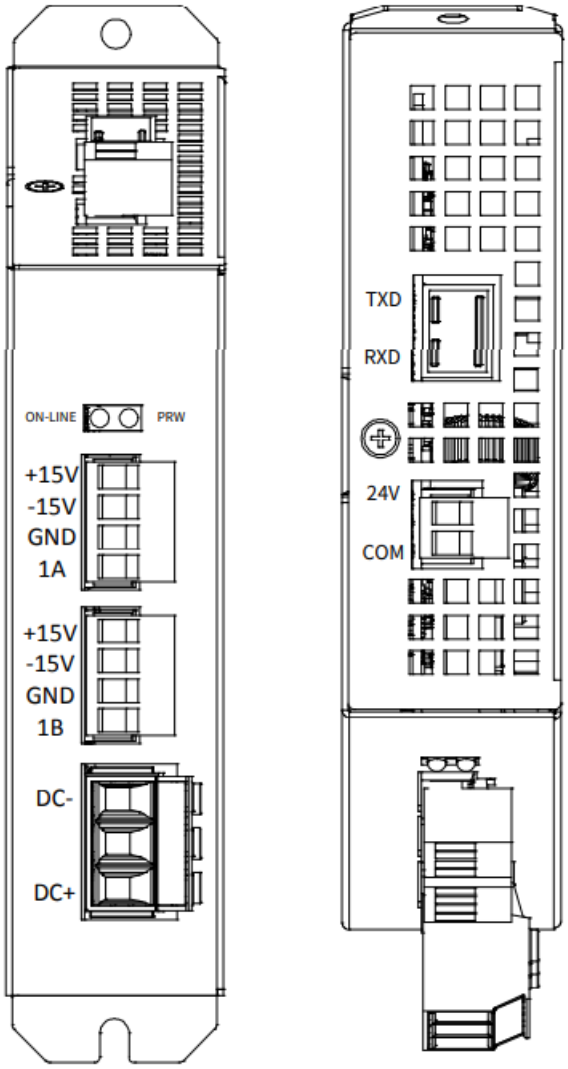


Table 2-2 X1 terminal function definition

X1 terminal definition	**Terminal name**	**Specifications**
DC+	Voltage input+	Input voltage range: 0–1000VDC
DC-	Voltage input-	

Note: The positive and negative DC voltage wiring on the IVDM-20 must match the positive and negative poles of DC-DC output wires.

Table 2-3 X2 terminal function definition

X2 terminal definition	Terminal name	Specifications
+15V	+15VDC voltage	Power output
-15V	-15VDC voltage	
GND	Power ground	
IA/IB	Hall current detection input terminal	Detects the current input

Table 2-4 X3 terminal function definition

X3 terminal definition	Terminal name	Specifications
PWR	Power supply status indicator	Red LED ON: Power supply is connected. Red LED OFF: The module is not powered on or the power supply is abnormal
ONLINE	State indicator	Red LED flashes: The communication is normal. Red LED OFF: Operation exception.

Table 2-5 X4 terminal function definition

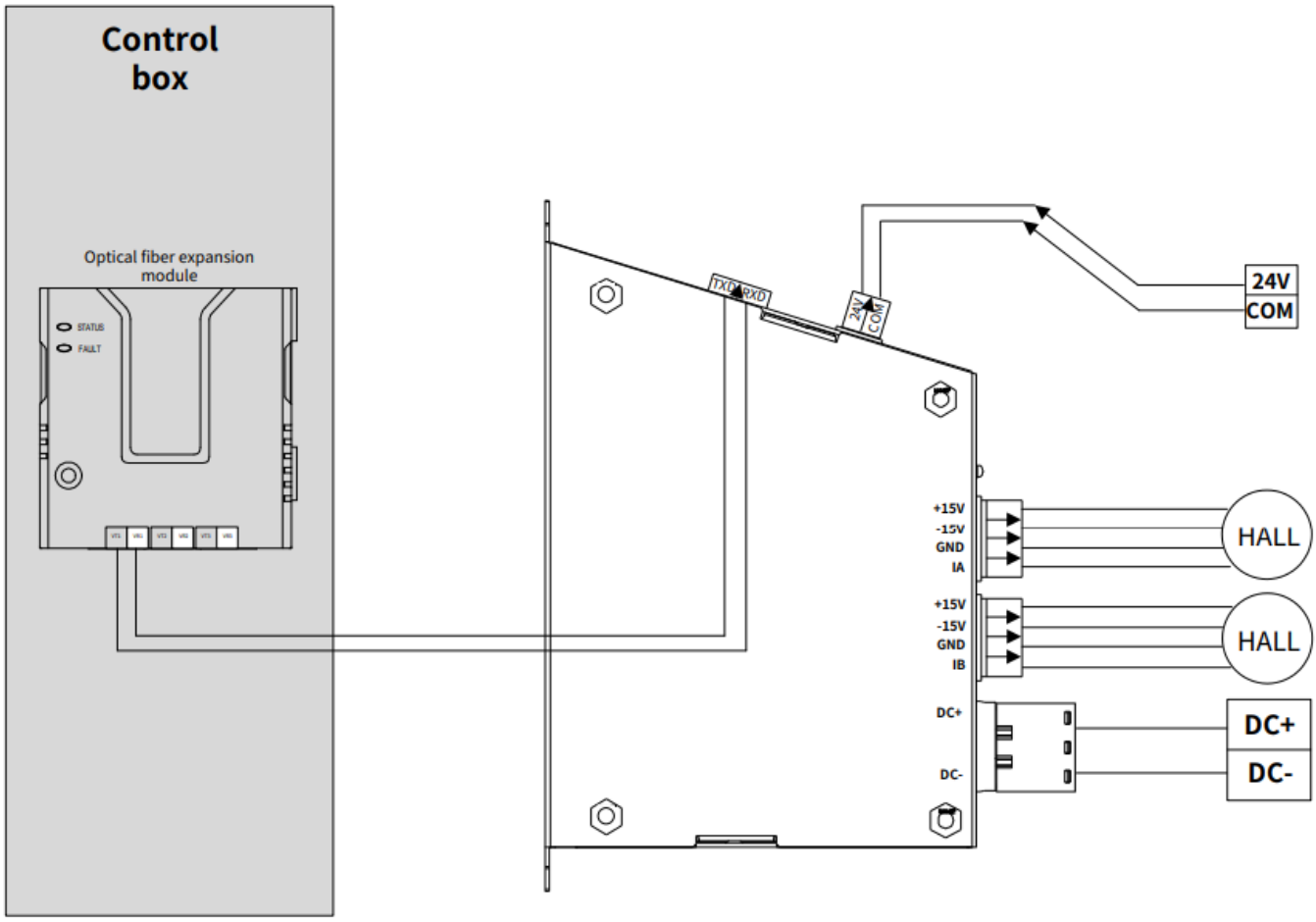
X4 terminal definition	Terminal name	Specifications
24V	24VDC power supply	Externally powered: 24VDC±5%/0.5A
COM	Power ground	

Table 2-6 X5 terminal function definition

X5 terminal definition	Terminal name	Specifications
RXD	Receiving optical fiber	Plastic optical fiber
TXD	Transmitting optical fiber	

The IVDM-20 DC voltage detection module is connected to the fiber optic expansion module EC-TX821/TX823 through optical fibers, transmitting the detection signal to the control box. Figure 2-4 shows the external wiring diagram of the IVDM-20 module, taking the fiber optic expansion module EC-TX823 as an example:

Figure 2-4 External wiring diagram when using IVDM-20



Wiring precautions

- It is recommended to place the fiber optic expansion module EC-TX821/TX823 at expansion slot 2 and slot 3 of the control box.
- Handle the optical fibers with care to prevent the fiber optic cable and connector damage, and keep the connector clean.
- Ensure that the direction of the connector is correct when installing. Align and insert the connector into the interface until the “click” sound is heard, indicating it has been installed.
- When disassembling, grip the connector tightly and pull it out. Do not directly pull the optical fiber cable.

Commissioning instruction

Figure 3-1 IVDM-20 configuration flowchart

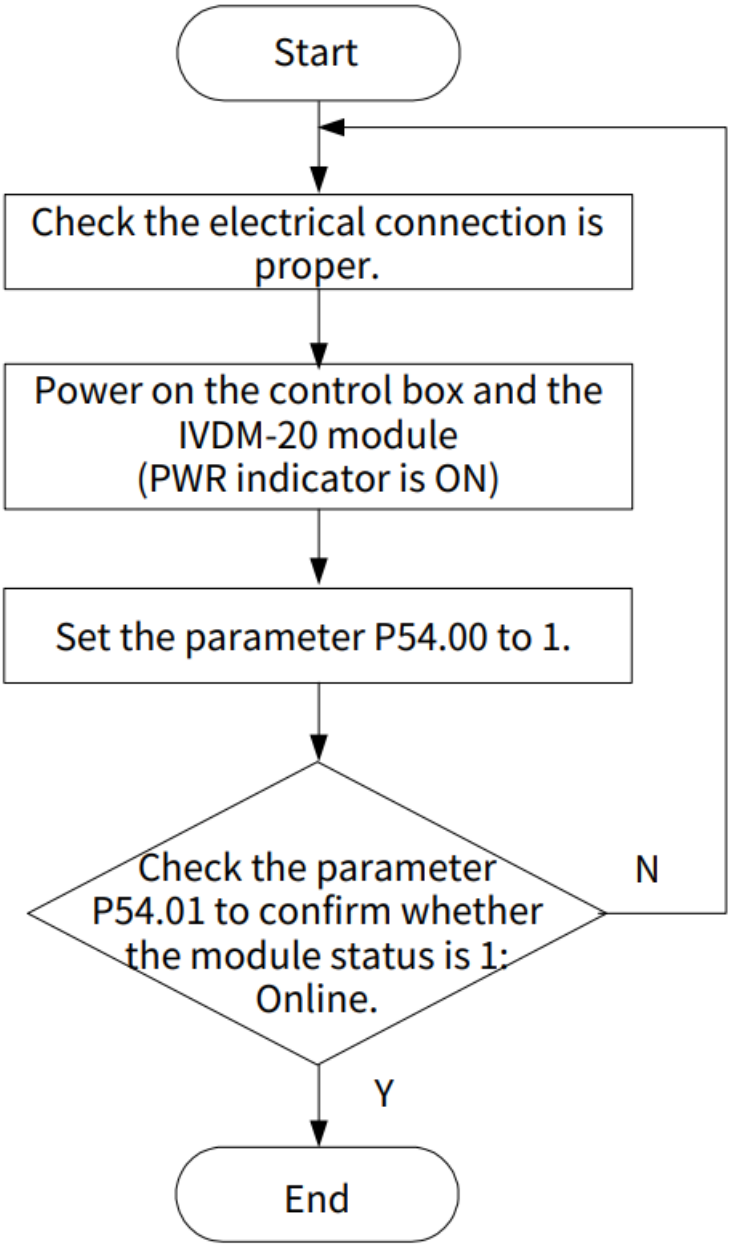
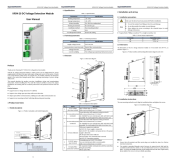


Table 3-1 Function code parameters related to IVDM-20

Function code	Name	Description		Setting range	Default
P54.00	Module type	0: One-expand-three expansion modules 1: DC/AC voltage sampling card		0–1	1
P54.01	Module online status	Bit0–Bit5	Online status of modules in expansion slots (0: Offline 1: Online)	0–1	0

Note: For other parameter settings of the IVDM-20 DC voltage detection module, see software manuals of the GD880 series rectifier unit.

Documents / Resources

	**invt IVDM-20 DC Voltage Detection Module** [pdf] User Manual IVDM-20, IVDM-20 DC Voltage Detection Module, DC Voltage Detection Module, Voltage Detection Module, Detection Module, Module