EPC-CM31/EPC-CM32 Series

(485/CAN Communication Expansion Card) User Manual

The EPC-CM31 communication card provides dual RJ45 interfaces for 485 communication - compatible with GS100 pin definitions.

The EPC-CM31A communication card provides dual RJ45 interfaces for 485 communication - compatible with GK610 pin definitions.

The EPC-CM31B communication card provides a 3-pin universal terminal for 485 communication with silk printing.

The EPC-CM32 communication card provides dual RJ45 interfaces for CAN communication.

The EPC-CM32A communication card provides a 3-pin universal terminal for CAN communication with silk printing.

All of the above can achieve functions such as remote control of frequency converters and parameter settings.

1. Appearance



Figure 1 Dual RJ45 Interface Card

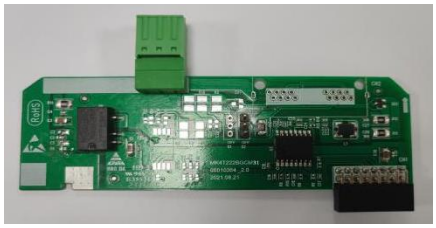


Fig. 2 Pin Terminal (with silk screen) Card

2. Terminal and Jumper Switch Configuration

2.1 Terminal description

User terminal	Function description
EN5	485/CAN communication terminal-dual RJ45 interface
CN6	485/CAN 3PIN universal terminal block-with silk screen

2.2 Jumper switch description

Jumper switch	Function description	Factory settings
S1	CAN communication terminal resistor selection ON: Select terminal resistor OFF: Do not select the terminal resistor	OFF
S2	485 Communication terminal resistor selection ON: Select terminal resistor OFF: Do not select the terminal resistor	OFF

2.3 Expansion card configuration overview

2.3.1 EPC-CM31 series (485 communication card)

Expansion card model	CN5	CN6	S1	S2	Remark
EPC-CM31	√			√	Dual RJ45 interface-compatible with GS100 pin definition
EPC-CM31A	√			√	Dual RJ45 interface-compatible with GK610 pin definition
EPC-CM31B		√		√	3PIN universal terminal block- with silk screen

2.3.2 EPC-CM32 series (CAN communication card)

Expansion card model	CN5	CN6	S1	S2	Remark
EPC-CM32	√		√		Dual RJ45 interface
EPC-CM32A		√	√		3PIN universal terminal block- With silk screen

3. Wiring instructions

3.1 CN5 pin definition

CN5 is the port for 485/CAN dual RJ45 interface communication, and the pin definitions are as follows:

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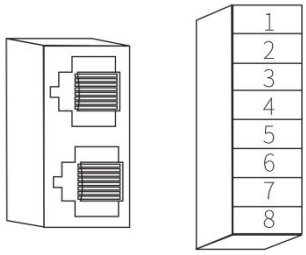


Fig. 3 CN5 Pin Configuration Diagram

3.1.1 CN5 pin definition (for EPC-CM31)

Name	Function	Technical specifications
2	485+	Rate: 4800/9600/19200/38400/57600/115200bps Maximum Distance: 500 meters (using standard network cable)
4	485-	
7	CAN+	Rate: Up to 1 Mbps
5	CAN-	
8	DGND	Communication signal reference ground, isolated internally from GND

3.1.2 CN5 pin definition (for EPC-CM31A and EPC-CM32)

Name	Function	Technical specifications
3	485+	Rate: 4800/9600/19200/38400/57600/115200bps Maximum Distance: 500 meters (using standard network cable)
4/6	485-	
7	CAN+	Rate: Up to 1 Mbps
5	CAN-	
2	DGND	Communication signal reference ground, isolated internally from GND

3.2 CN6 terminal block description

CN6 is a 485/CAN universal interface using a 3-pin terminal with silk printing, and the pin definitions are as follows:

3.2.1 CN6 Pin Definitions (for EPC-CM31B)

Name	Function	Technical specifications
3	485+	Rate: 4800/9600/19200/38400/57600/115200bps
2	485-	Maximum Distance: 500meters (using standard network cable)
1	DGND	Communication signal reference ground, internally isolated from GND

3.2.2 CN6 pin definition (for EPC-CM32A)

name	Function	Technical specifications
3	CAN+	Rate: Up to 1 Mbps
2	CAN-	
1	DGND	Communication signal reference ground, internally isolated from GND

4. Instructions for using multiple units

4.1 485 communication connection topology

The connection topology of the RS485 bus is shown in the following diagram. It is recommended to use shielded twisted-pair cable for the 485 bus connection, with twisted pair connections for 485+ and 485-, and 120Ω terminal resistors at both ends of the bus to prevent signal reflection. The reference ground for all node 485 signals should be connected together. Up to 128 nodes can be connected, and the distance of each branch line should be less than 3m.

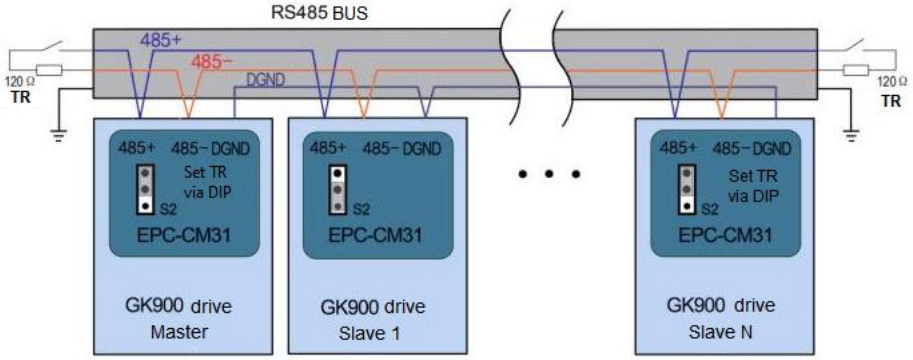
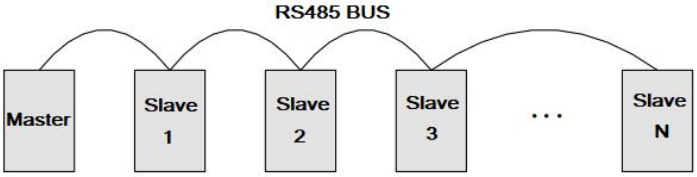


Fig. 4 485 communication connection topology

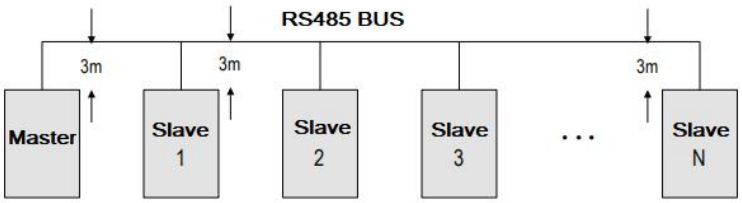
Notice:

The terminal resistors of the 485 communication network are configured using the jumper switches on the expansion card (switch set to ON for connection, OFF for disconnection), and no additional connection is required.

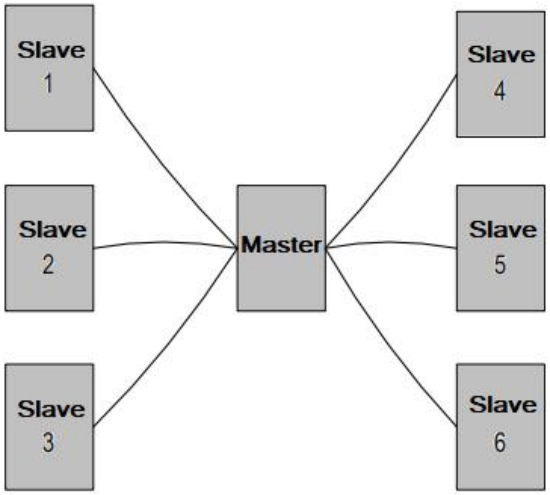
When using multiple node connection methods, it is best to use a daisy-chain connection. If branching connections are needed, the branch lines from the bus to each node should be as short as possible, preferably not exceeding 3m, and star connections should not be used.



a) Daisy chain Mode connection



b) Branch line connection



c) Star connection

Figure 5 Multiple node connection methods

4.2 CAN communication connection topology

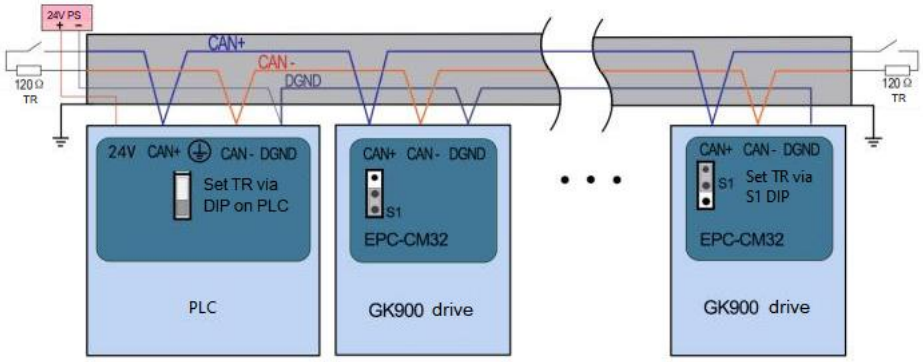


Fig. 6 CAN Communication connection topology

Notice:

The termination resistors for the CAN communication network are configured by the DIP switches on the PLC and the jumper switches on the expansion card (set the switch to ON for connection and OFF for disconnection). There is no need for additional connection.

For the CAN communication connection topology, it is recommended to use shielded twisted pair cable. Connect CAN+ and CAN- with twisted pair connection and place a 120Ω termination resistor at both ends of the bus to prevent signal reflection. The reference ground for all CAN signals from the nodes should be connected together. You can connect a maximum of 64 nodes, and the distance between each node and its branch line should be less than 0.3m. Star connections should not be used between nodes.

4.3 Wiring instructions

If the customer chooses a communication expansion card with an RJ45 connector, it is recommended to use a standard Ethernet cable for port wiring.

However, if a communication expansion card with a 3-pin connector is used, the following should be noted:

1. Using a single-core self-winding cable: The communication signals (485+/485- or CAN+/CAN-, etc.) should be connected in corresponding twisted pairs. The twisting direction should be consistent, and the communication reference ground (DGND) should be connected through the cable.
2. Using a dual-core twisted pair shielded cable: The communication signals should be connected in corresponding twisted pairs. The twisting direction should be consistent, and the communication reference ground (DGND) should be connected through the shield layer.
3. Using a multi-core twisted pair unshielded cable: The communication signals should be connected in corresponding twisted pairs. The twisting direction should be consistent, and any unused wires can be twisted together and connected to DGND.
4. Using a multi-core twisted pair shielded cable: The communication signals should be connected in corresponding twisted pairs. The twisting direction should be consistent, and any unused wires can be twisted together and connected to DGND. The shield layer should be connected to PE.

Regardless of the wiring method, it is important to ensure that DGND and PE are not mistakenly connected. Additionally, when the nodes are the same, as the communication distance increases, to ensure communication quality, it is advisable to lower the baud rate and appropriately increase the wire diameter.

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