EPC-PG32C Expansion Card User Manual

When a 12V differential output encoder is used for speed feedback and the pulse reference is a 24V discrete input, please select our PG feedback card EPC-PG32C.It is compatible with the GK900/GK960/GK980 series inverter platforms.

EPC-PG3CB supports three frequency-divided outputs: O/A, O/B, O/Z, with an open-collector output type.

Product	Encoder Signal Input Mode	Pulse Reference Mode	Frequency Division Output Mode
EPC-PG32	5V Differential	5V Differential	Open-Collector
EPC-PG32A	12V Digital input	24V Digital input	Open-Collector
EPC-PG32B	5V Differential	24V Digital input	Open-Collector
EPC-PG32C	12V Differential	24V Digital input	Open-Collector

1. Product Outline Drawing

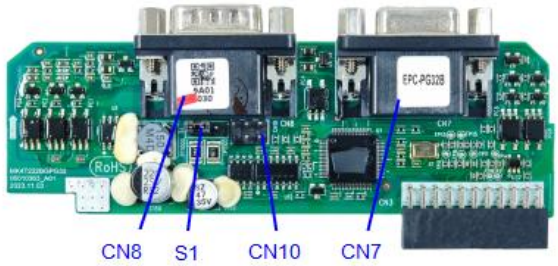


Figure 1 EPC-PG32C card outline Drawing

2. Terminal Blocks and Jumper Switches Description

2.1Terminal Blocks description

User Terminals	Function Description
CN7	Pulse Reference & Open-Collector Frequency Division Output Connection Port
CN8	Encoder Signal & Motor Temperature Connection Port
CN10	Programming Cable Connection Terminal

2.2 Jumper Switch description

Switch	Function Description	Factory Default
S1	Temperature Sensor Selection (for TEMP channel): 1.For PT100 / KTY84 motor temperature sensors, set the PG card's S1 jumper switch to the PT100 position. 2.For PT1000 / NTC motor temperature sensors, set the PG card's S1 jumper switch to the PT1000 position.	PT1000
Note	I.On the PG expansion card, set the S1 jumper to the corresponding position. The function code selection is as follows: When using a PT100 motor temperature sensor：d0-25=01； When using a PT1000 motor temperature sensor：d0-25=11； When using KTY84：d0-25=21； When using NTC：d0-25=31； II.For PT100 and KTY84 temperature sensors, you can also set the S1 jumper to the factory default position PT1000.In this DIP switch setting, an alternative function code selection is provided as follows: 1、When using a PT100 motor temperature sensor：d0-25=03； 2、When using KTY84：d0-25=23； Note: For PT100 and KTY84 temperature sensors, the temperature error will be greater when the S1 jumper is set to PT1000 than when set to PT100, but it can still meet the general temperature measurement accuracy requirements. If high-precision temperature measurement is required, set the S1 jumper to PT100.	

3. Wiring Instructions

3.1 CN8 Pin Definition

CN8 This is the connector for encoder signals and motor temperature, using a DB15 (male) socket.The pin definitions are shown in the table below, and the pin layout is shown in Figure 2.

DB15 (male) socket pin number	Signal Definition
8	A+
3	A-
9	B+
4	B-
15	Z+
14	Z-
12	VPG (Encoder power supply 12V)
13	COM (Reference ground for VPG)
6	GND (Reference ground for TEMP)
11	TEMP(Temperature data acquisition channel)
1、2、5、7、10	NC

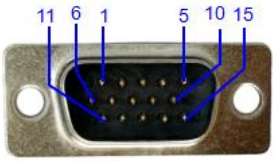


Figure 2 CN8 Pin out Diagram

3.2 CN7 Pin Definition

CN7 For the pulse command and open-collector frequency division output interface, a DB15 (female) socket is adopted. The pin definition of the socket is shown in the table below, and the pin arrangement is shown in Figure 3.

DB15（Female）socket pin definition	Signal Definition
2	PA+（Not connected; internally pulled up to 24V）
1	PA-
7	PB+（Not connected; internally pulled up to 24V）
6	PB-
5	O/A
10	O/B
9	O/Z
3	VPG(Encoder power supply 12V)
4	COM(Reference ground for VPG)
8、11~15	NC

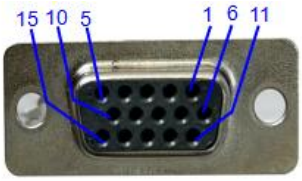


Figure 3 CN7 Pin out diagram

4. Encoder Signal Input Circuit

4.1Encoder Wiring Instructions

Figure 4 shows the twisted-pair single-shield wiring method for a differential output encoder.Leave the motor-side shield floating, and connect the inverter-side shield to PE (DB connector housing).Connect the encoder positive power supply to VPG (12V) and negative to COM.Connect encoder signals A+, A-, B+, B-, Z+, Z- to the inverter terminals A+, A-, B+, B-, Z+, Z- respectively.The two are connected one-to-one via the CN8_DB15 (male) connector.

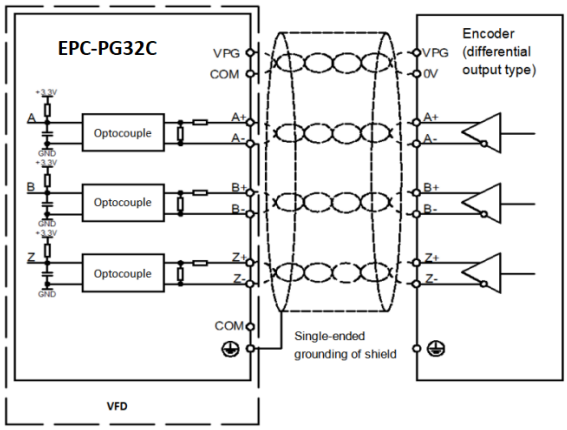


Figure 4 Single-shield Wiring Diagram of 12V Differential Input Encoder

4.2 Encoder Signal Input Terminal Description

Pin	**Function**	**Responds speed**	**Input model**
A+/A-	Encoder Signal Input	0~500kHz	12V differential input
B+/B-	Encoder Signal Input	0~500kHz	12V differential input
Z+/Z-	Encoder Signal Input	0~500kHz	12V differential input

5. Pulse command input circuit

5.1Pulse Command Input Wiring Instructions

Figure 5 and Figure 6 show the single-shield wiring methods for 24V open-collector input pulse command and 24V push-pull input pulse command respectively. The shield on the PLC or CNC system side is left floating, while the shield on the inverter side is connected to PE (DB connector housing). The signal reference ground of the PLC or CNC system is connected to COM of the PG card. Pulse command signals PA－ and PB－ are connected to the inverter’s PA－ and PB－. The two are connected one-to-one via the CN7_DB15 (female) socket. On the inverter side, PA+ and PB+ are internally shorted to 24V.

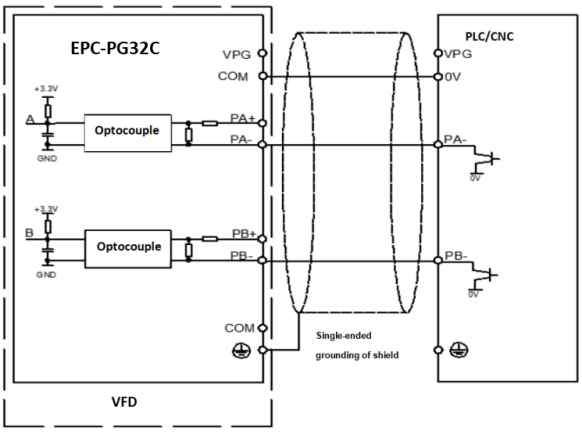


Figure 5 Single-shield Wiring Diagram of 24V Open-Collector Input Pulse Command

(PA+ and PB+ are internally shorted to 24V.）

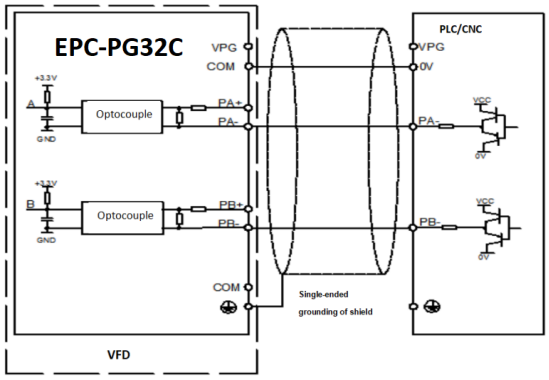


Figure 6 24V Push-Pull Input Type Pulse Reference Single Shield Wiring Diagram

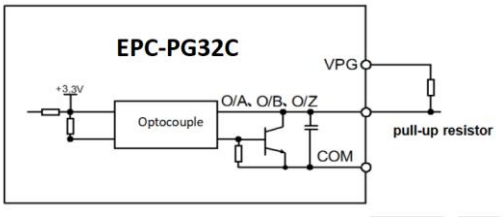
(PA+ and PB+ are internally shorted to 24V)

5.2 Pulse Command Signal Input Terminal Description

Pin	Function	Responds speed	Input model
PA-	Pulse Command Signal Input	0~100kHz	24V digital input
PB-	Pulse Command Signal Input	0~100kHz	24V digital input

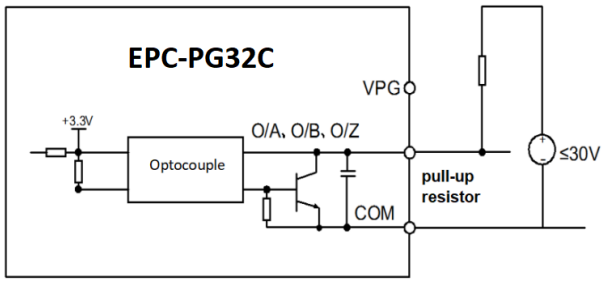
6. Divided Output Description

6.1 O/A、O/B、O/Z Divided Output Wiring Instructions



a) Wiring mode: Pull up to internal power supply VPG (12V) - Internal power supply

Note: The internal power supply of the PG32A card is 12V. For other voltages, please pull up to an external power supply.



b) Wiring mode: Pull up to external power supply - External power supply

Figure 7: O/A, O/B, O/Z Divided Outputs

📖note：

The value of the pull-up resistor is determined by the pull-up power supply. During selection, ensure that the open-collector output current is less than 50 mA and that the resistor derating requirements are satisfied.

6.2 Divided Output Terminal Description

PIN	Function	Respond speed	Output Model	Output Current	Dividing Range
O/A	Divided Signal Output	0~500kHz	Open-collector output	50mA	1~Encoder 一 Pulses Per RevolutionX4
O/B	Divided Signal Output	0~500kHz	Open-collector output	50mA	1~Encoder 一 Pulses Per RevolutionX4
O/Z	Divided Signal Output	0~500kHz	Open-collector output	50mA	1~Encoder 一 Pulses Per

6.3 Divided Output Multiplier Description

Set the value of function code F4-12 = n (n = 0, 1, 2, 3, 4, ..., 16000) via the keyboard to determine the number of divided output lines for O/A, O/B, O/Z.The factory default setting is F4-12 = 0 (no division).Starting from n = 1, the number of divided output lines for O/A, O/B, O/Z is equal to n.