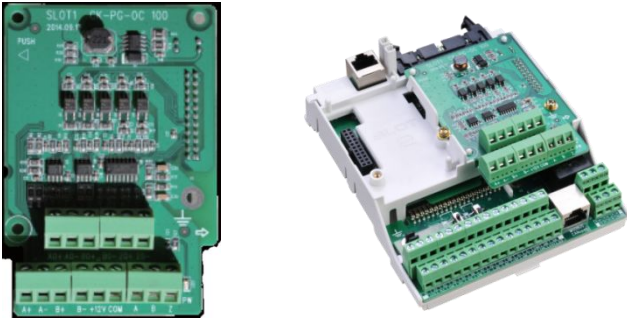


Note: In order to provide you good drive control services and safety in use, please read the following instructions carefully before using this product in related electrical and mechanical systems. If you need more details, welcome to consult our agent for the latest information or visit our website www.cumark.com.cn.

1. Appearance



Note: take one type of PG cards as an example, the picture on the right is a schematic diagram of the effect after installation.

2. Mechanical & Electrical Installation Instructions

- ✓ Before installation, please confirm that the ac drive is in the power-off state.
- ✓ Refer to the figure above and remove the front cover of the drive, then insert the card and lock it with the M3*8 screws in the packing box.
- ✓ F1~F3 Shape ac drives only need to lock the right screw, F4~F9 need lock their both left and right sides.
- ✓ Use a flat-blade screwdriver to complete the wiring according to the wiring diagram after confirming the right model.
- ✓ The wiring diameter is AWG14~24 (2.1~0.2mm²), and the maximum terminal torque is 5kgf-CM.
- ✓ To prevent interference, please use qualified shielded wire. Keep the shielded wire independent, do not run it side by side with AC220V or higher voltage circuits, and ensure that it is kept at a distance of more than 15CM from other control wires, motor wires, and power wires. When it must be staggered, please observe the principle of wiring perpendicular to each other.
- ✓ Control the length of the wiring, because it is inversely proportional to the signal frequency.
- ✓ Please use this product in an indoor environment free of corrosive gases, liquids and dust.
- ✓ When connecting inductive loads, such as relays, electromagnetic contactors, motors, etc., please install a fire arc eliminator (RC absorption device) on the coil side.
- ✓ For safety reasons, please install a fuse in the circuit (the specification cannot be greater than the contact limit)

This product is an electrostatic sensitive component! Although the corresponding anti-static damage protection has been made before leaving the factory, it is still recommended that you minimize unnecessary bare-hand contact during installation and use to avoid damage.

3. Specifications & Technical Parameters

Models	Encoder Output Form	Adapter Power	Max Wiring Length
ES-PG-OC	Open-collector form with position control pulse input/output.	DC-12V	50 meters
ES-PG-DF	Differential form with position control pulse input/output	DC-5V	300 meter
ES-PG-RT	Resolver form, with position control pulse input/output.	No Power required	50 meters
ES-PG-SN	Sine and cosine form, with position control pulse	DC-5V	50 meters

4. Application Environment

Operating Temperature	-10 ⁰ C ~ 50 ⁰ C (No condensation, no freezing)
Storage Temperature	-40 ⁰ C ~ 70 ⁰ C (No condensation)
Environment Humidity	Less than 95% RH (No ondensation)
Vibration	(IEC 60068-2/-6.Test Fc) Max.0.1mm(5 to 13.2Hz); max.7m/s ² (13.2 to 100Hz) Sine Vibration

5. Terminal Definition

	Terminal	Function Description
ES-PG-OC	A+, A-; B+, B-	PG card giving differential signal input, Maximum frequency 250KHZ
	+12V, COM	DC Power +12V, ground COM
	A, B, Z	Encoder Output Signal A, B, Z signal
	AO+, AO-; BO+ BO-; ZO+, ZO-	1:1 Frequency division output differential signal, maximum frequency 250KHZ
ES-PG-DF	PA+, PA-, PB+, PB-	PG card giving differential signal input, Maximum frequency 250KHZ
	+5V, COM	DC Power +5V, ground COM
	A+, A-; B+, B-; Z+, Z-	Encoder differential signal input
	U+, U-; V+, V-; W+, W-	Encoder differential signal output
	AO+, AO-, BO+ BO-, ZO+, ZO-	1: 1 frequency division output differential signal; Maximum frequency 250KHZ
	EXCOL, EXC	Resolver excitation positive, Resolver excitation negative
ES-PG-RT	SIN, SINLO	Resolver's output sine signal SIN positive, SINLO negative; Resolver's output cosine signal COS positive, COSLO negative
	A+, A-; B+, B-	PG card giving differential signal input,
	PE	PE Ground
	GND	Ground
	AO+, AO-, BO+, BO-, ZO+, ZO-	1: 1 frequency division output differential signal, Maximum frequency 250KHZ
	ES-PG-SN	PA+, PA-, PB+, PB-
+5V, GND		Power Source +5V, Ground
A+, A-; B+, B-; R+, R-, C+, C-, -D+, D-		Encoder sine and cosine signal output
AO+, AO-, BO+, BO-		1: 1 frequency division output sine and cosine signal