OMRON

Absolute Rotary Encoder

E6CP

Absolute Rotary Encoders with Gray Code Output



- Gray code output decreases output errors
- Lightweight plastic housing
- In combination with Omron's H8PS Cam Positioner, this encoder detects the operation timing of various automatic machines with high precision
- Optical system eliminates brush noise and minimizes errors from temperature fluctuation compared with potentiometers

Ordering Information

■ ENCODERS

The encoder with a "-C" in the part number has a cable that terminates in a connector for Omron's H8PS Cam Positioner. Standard stock products are shown in bold in the Part Number Index.

Resolution (pulses/revolution)	Output code	Output form	Supply voltage	Cable termination	**Part number**
8-bit (256 pulses/revolution)	Gray code	Open collector	5 to 12 VDC	Wire bundle	**E6CP-AG3C**
			12 to 24 VDC	Connector	**E6CP-AG5C-C**

■ ACCESSORIES

Description	**Part number**
Shaft coupler; fits two 6 mm (0.24 in.) dia. shafts	**E69-C06B**
Extension cable, 5 m (16.40 ft.) for E6CP-AG5C-C encoder	**E69-DF5**

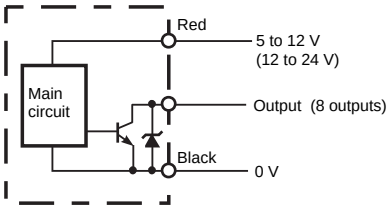
■ REPLACEMENT PARTS

Description	**Part number**
Mounting brackets (set of 3) supplied with each E6CP encoder	**E69-FCA-02**

Specifications

Part number		E6CP-AG3C	E6CP-AG5C-C
Supply voltage		5 VDC -5% to 12 VDC +10%; max. 5% ripple peak-to-peak	12 VDC -10% to 24 VDC +15%; max. 5% ripple peak-to-peak
Current consumption		90 mA max.	70 mA max.
Resolution (pulses/revolution)		8-bit (256 pulses/revolution)	
Output code		Gray code (binary)	
Applicable Cam Positioner		—	H8PS
Output form		Open collector output	
Output capacity		Applied voltage: 28 VDC Residual voltage: 0.4 V max. at sink current Sink current: 16 mA max.	
Maximum response frequency		5 kHz	
Logic		Negative (H level: 0, L level: 1)	
Accuracy		Within ±1°	
Rotation direction		Output code increases in clockwise direction when viewed from shaft	
Output rise and fall times		1.0 μs max. with 16 V control output voltage, 1 kΩ load resistance and 2 m (6.56 ft.) output cable	
Starting torque		10 g-cm (0.14 oz.-inch) max.	
Shaft loading	Radial	3 kgf (21.7 ft-lbs.)	
	Axial	2 kgf (14.5 ft-lbs.)	
Moment of inertia		10 g-cm^2 (0.055 oz.-inch^2) max.	
Maximum rpm		1,000 rpm	
Electrical connection		Prewired with 2 m (6.56 ft.) length cable	Connector
Weight		Approx. 200 g (7 oz.)	
Enclosure rating		IEC: IP50	
Ambient temperature	Operating	-10° to 55°C (14° to 131°F)	
	Storage	-25° to 80°C (-13° to 176°F)	
Ambient humidity		35 to 85% RH	
Vibration resistance		Mechanical durability: 10 to 55 Hz, 1.5 mm double amplitude, in X, Y, and Z directions for 2 hours each	
Shock resistance		Mechanical durability: approx. 100 G in X, Y, and Z directions, 3 times each	
Insulation resistance		10 MΩ minimum at 500 VDC between current-carrying part and housing	
Dielectric strength		500 VAC, 50/60 Hz for 1 minute between current-carrying part and housing	

■ OUTPUT CIRCUIT DIAGRAM



Wiring

Terminal no.	E6CP-AG5C-C
1	—
2	—
3	Output 2^5
4	Output 2^1
5	Output 2^0
6	Output 2^7
7	Output 2^4
8	Output 2^2
9	Output 2^3
10	Output 2^6
11	GND
12	Power supply 12 to 24 V
13	0 V (common)

Wire color	EC6P-AG3C
Red	+ power supply
Black	0V (common)
Brown	Output 2^0
Orange	Output 2^1
Yellow	Output 2^2
Green	Output 2^3
Blue	Output 2^4
Purple	Output 2^5
Gray	Output 2^6
White	Output 2^7

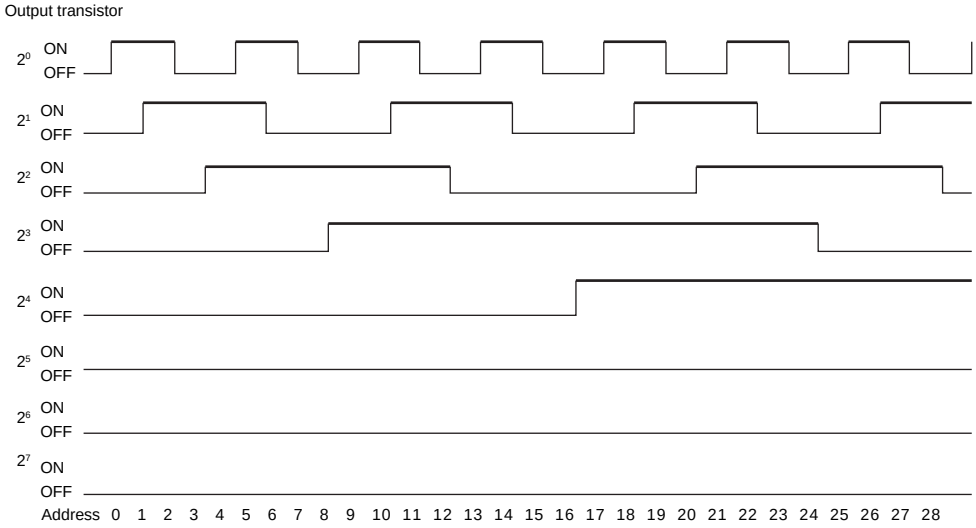
Notes:
1. The output of each bit is from the same circuit.
2. Terminals no. 1 and no. 2 are short-circuited.

■ TIMING CHART

Shaft rotation: Clockwise as viewed from the shaft

Output Mode

Revolution direction: CW (as viewed from shaft)

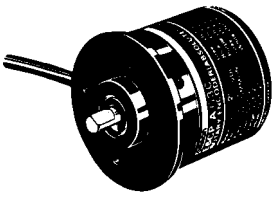


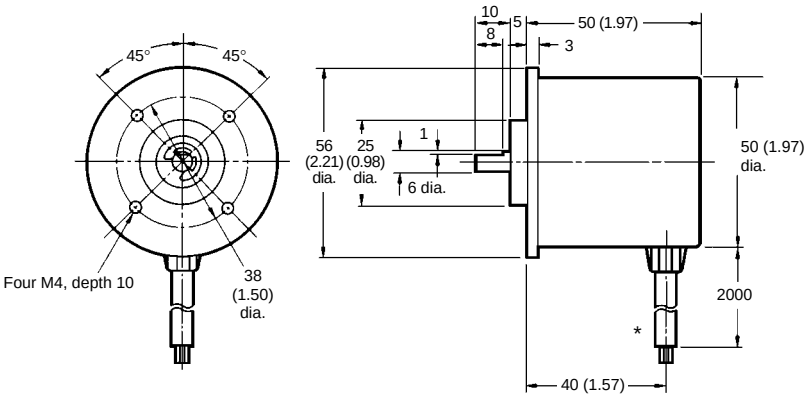
Dimensions

Unit: mm (inch)

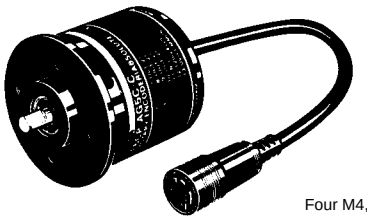
■ ENCODERS

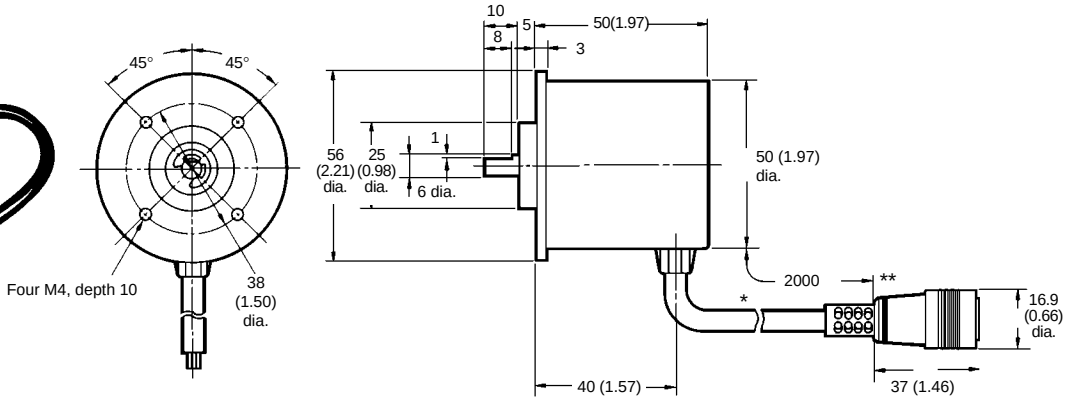
E6CP-AG3C





E6CP-AG5C-C



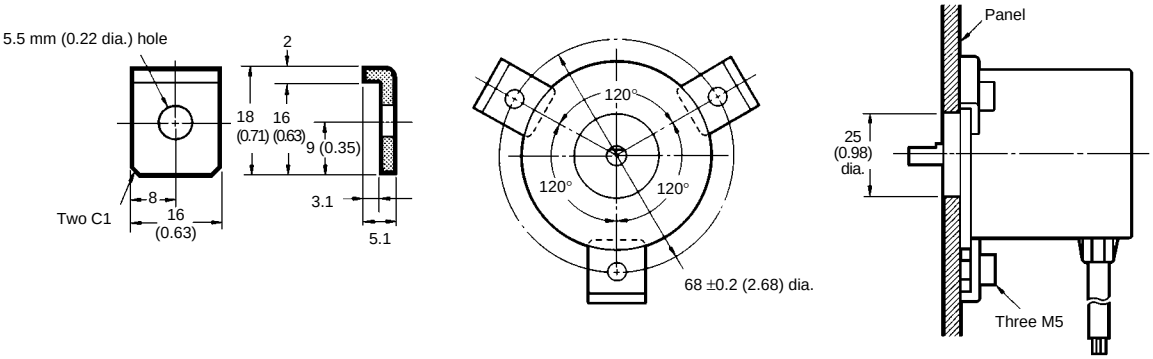


Note:

* Oil-resistant, vinyl-insulated and shielded cable is 2 m (6.56 ft.) long. The E6CP-AG3C encoder terminates with a 6 mm OD wire bundle.

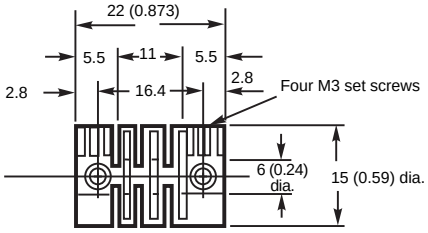
**E6CP-AG5C-C encoder terminates in a connector that fits the H8PS Cam Positioner.

■ MOUNTING BRACKET E69-FCA-02



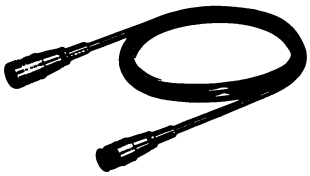
■ ACCESSORIES

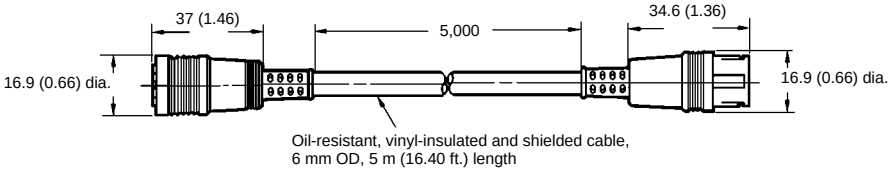
Shaft Coupler E69-C06B



Note:
1. Material: Glass-filled polybutadiene terephthalate (PBT).
2. Each set screw must be tightened to 2.5 kg-cm (2.17 in-lbs.)

Extension Cable E69-DF5





NOTE: DIMENSIONS ARE IN MILLIMETERS. To convert millimeters to inches, divide by 25.4.

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