

## 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	<b>E6CP-AG3C</b>
			12 to 24 VDC	Connector	<b>E6CP-AG5C-C</b>

### ■ ACCESSORIES

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

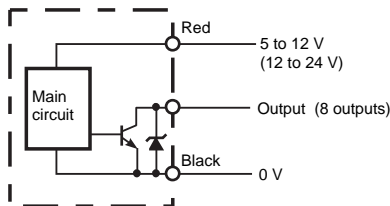
### ■ REPLACEMENT PARTS

Description	Part number
Mounting brackets (set of 3) supplied with each E6CP encoder	<b>E69-FCA-02</b>

# 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 $\pm 1^\circ$	
Rotation direction	Output code increases in clockwise direction when viewed from shaft	
Output rise and fall times	1.0 $\mu$ s max. with 16 V control output voltage, 1 k $\Omega$ 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 <sup>2</sup> (0.055 oz.-inch <sup>2</sup> ) 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 M $\Omega$ 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

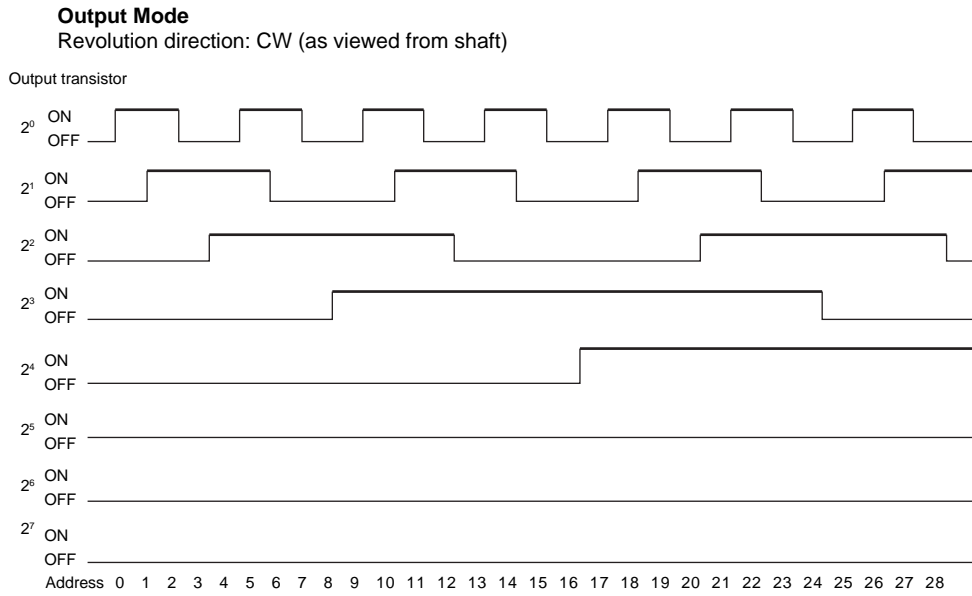
Terminal no.	E6CP-AG5C-C	Wire color	EC6P-AG3C
1	—	Red	+ power supply
2	—	Black	0V (common)
3	Output 2 <sup>5</sup>	Brown	Output 2 <sup>0</sup>
4	Output 2 <sup>1</sup>	Orange	Output 2 <sup>1</sup>
5	Output 2 <sup>0</sup>	Yellow	Output 2 <sup>2</sup>
6	Output 2 <sup>7</sup>	Green	Output 2 <sup>3</sup>
7	Output 2 <sup>4</sup>	Blue	Output 2 <sup>4</sup>
8	Output 2 <sup>2</sup>	Purple	Output 2 <sup>5</sup>
9	Output 2 <sup>3</sup>	Gray	Output 2 <sup>6</sup>
10	Output 2 <sup>6</sup>	White	Output 2 <sup>7</sup>
11	GND		
12	Power supply 12 to 24 V		
13	0 V (common)		

#### Notes:

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

■ TIMING CHART

Shaft rotation: Clockwise as viewed from the shaft

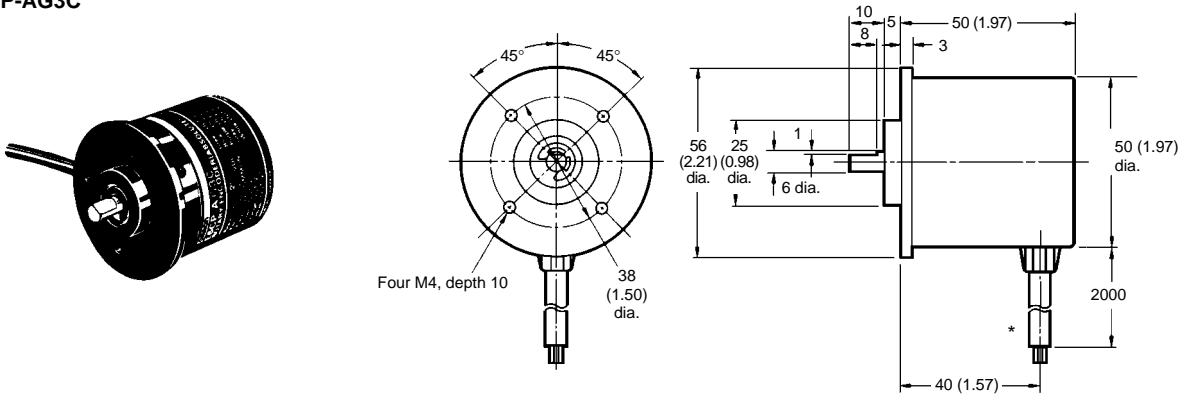


Dimensions

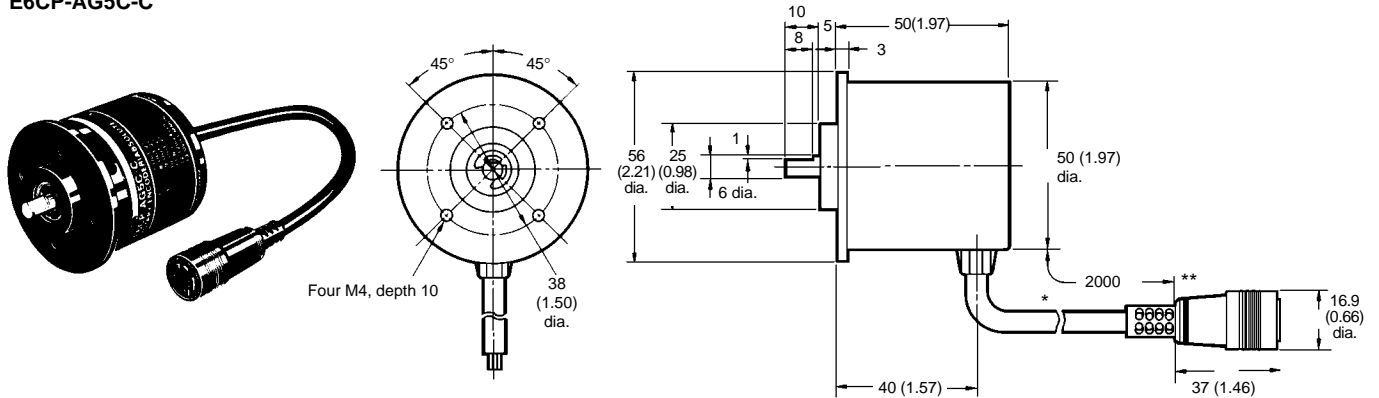
Unit: mm (inch)

■ ENCODERS

E6CP-AG3C



E6CP-AG5C-C

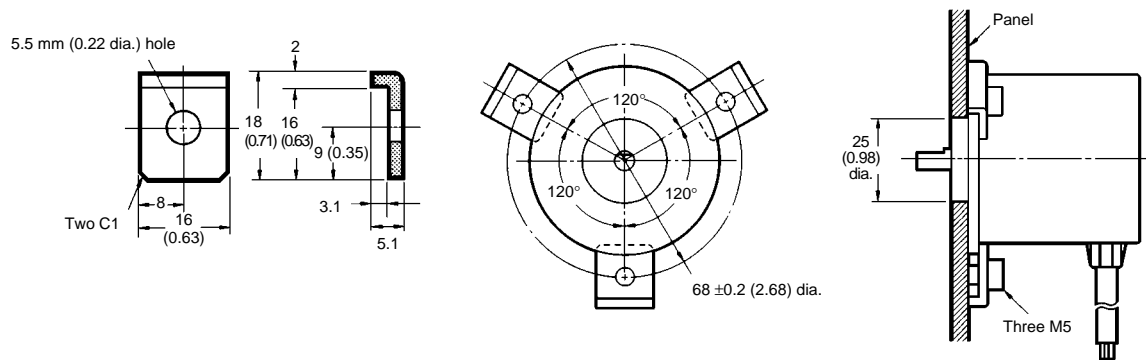


Note:

\* 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.

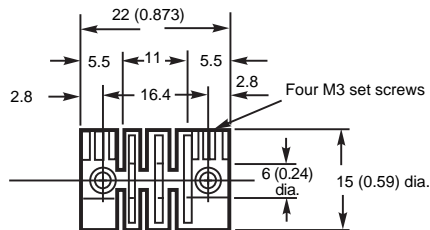
\*\*E6CP-AG5C-C encoder terminates in a connector that fits the H8PS Cam Positioner.

## ■ MOUNTING BRACKET E69-FCA-02



## ■ ACCESSORIES

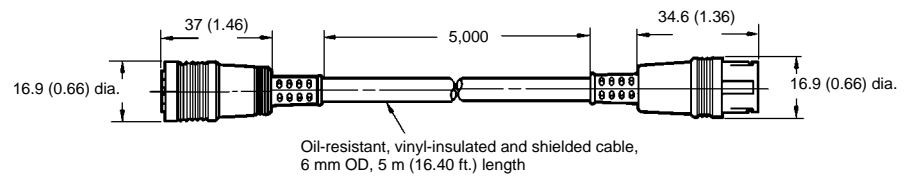
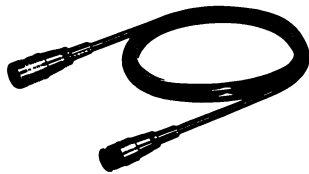
### Shaft Coupler E69-C06B



#### 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.**

# OMRON

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