

Selection Guide

ROTARY ENCODER(E60H SERIES)

Ordering information


E60H	20	-	8192	-	3	-	N	-	24	-	
Series	Shaft diameter		Pulse/1Revolution		Output phase		Output		Power supply		Cable
Diameter φ60mm, hollow type	φ20mm		5000, 8192		3 : A, B, Z 6 : A, \bar{A} , B, \bar{B} , Z, \bar{Z}		T : Totem pole output N : NPN open collector output V : Voltage output L : Line driver output(*)		5 : 5VDC ±5% 24 : 12-24VDC ±5%		No mark:Normal type (*) C:Cable outgoing connector type

*Standard : E60H20-[PULSE]-3-N-24

*The power of Line driver is only for 5VDC

*Cable length :250mm

Specifications

Item		Diameter φ60mm hollow type Incremental Rotary encoder		
Model	Totem Pole output	E60H20 - □ - 3-T-5 - □	E60H20 - □ - 3-T-24 - □	
	NPN open collector output	E60H20 - □ - 3-N-5 - □	E60H20 - □ - 3-N-24 - □	
	Voltage output	E60H20 - □ - 3-V-5 - □	E60H20 - □ - 3-V-24 - □	
	Line Driver output	E60H20 - □ - 6-L-5 - □	—	
Appearances		 <p>CE (Except for Line driver output) NEW</p> <p>[φ60mm, L36mm]</p>		
Resolution(P/R)		(★Note1) 5000, 8192		
Electrical specification	Output phase		A, B, Z phase (Line driver output A, \bar{A} , B, \bar{B} , Z, \bar{Z} phase)	
	Phase difference of output		Phase difference between A and B : $\frac{T}{4} \pm \frac{T}{8}$ (T=1cycle of A phase)	
	Control output	Totem pole output	<ul style="list-style-type: none"> • Low \Rightarrow Load current:Max. 30mA, Residual voltage : Max. 0.4VDC • High \Rightarrow Load current:Max. 10mA, Output voltage (Power supply 5VDC):Min. (Power supply-2.0)VDC, Output voltage (Power supply 12-24VDC):Min. (Power supply-3.0)VDC 	
		NPN open collector output	Load current : Max. 30mA, Residual voltage : Max. 0.4VDC	
		Voltage output	Load current : Max. 10mA, Residual voltage : Max. 0.4VDC	
		Line driver output	<ul style="list-style-type: none"> • Low \Rightarrow Load current : Max. 20mA, Residual : Max. 0.5VDC • High \Rightarrow Load current : Max. -20mA, Output voltage : Min. 2.5VDC 	
	Response time (Rise/Fall)	Totem pole output	Max. 1μs	<ul style="list-style-type: none"> • Measuring condition \Rightarrow Cable length : 2m, I sink = Max. 20mA
		NPN open collector output	Max. 1μs	
		Voltage output	Max. 1μs	
		Line driver output	Max. 0.5μs	
	Max. Response frequency		300kHz	
	Power supply		<ul style="list-style-type: none"> • 5VDC ±5% (Ripple P-P:Max. 5%) • 12-24VDC ±5% (Ripple P-P:Max. 5%) 	
Current consumption		Max. 80mA (disconnection of the load), Line driver output:Max. 50mA (disconnection of the load)		
Insulation resistance		Min. 100MΩ (at 500VDC)		
Dielectric strength		750VAC 50/60Hz for 1 minute (Between all terminals and case)		
Connection		Cable outgoing type, 200mm cable outgoing connector type		
Mechanical specification	Starting torque		Max. 150gf · cm (0.015N · m)	
	Rotor inertia		Max. 110g · cm ² (11×10 ⁻⁵ kg · m ²)	
	Shaft loading		Radial : 5kgf, Thrust : 2.5kgf	
	Max. allowable revolution		(★Note2) 6000rpm	
Vibration		1.5mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 2 hours		
Shock		Max. 75G		
Ambient temperature		-10 ~ 70°C (at non-freezing status), Storage : -25 ~ 85°C		
Ambient humidity		35~85%RH, Storage : 35~90%RH		
Protection		IP50 (IEC standard)		
Cable		φ5mm, 5P, Length : 2m, Shield cable (Line driver output : φ5mm, 8P)		
Accessory		Spring bracket		
Unit weight		Approx. 300g		

* **(★Note1)** Not indicated type is available to customize.

* **(★Note2)** Max. allowable revolution \geq Max. response revolution **[**Max. response revolution (rpm) = $\frac{\text{Max. response frequency}}{\text{Resolution}} \times 60 \text{ sec}$ **]**

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■Connections

○Normal type

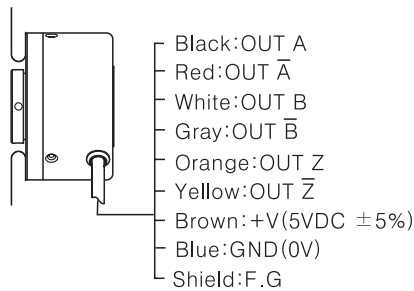
- Totem pole output / NPN open collector output / Voltage output



※Unused wires must be insulated.

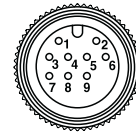
※The metal case and shield cable of encoder should be grounded(F.G).

- Line driver output



○Cable outgoing connector type

- Totem pole output
- Line driver output
- NPN open collector output
- Voltage output

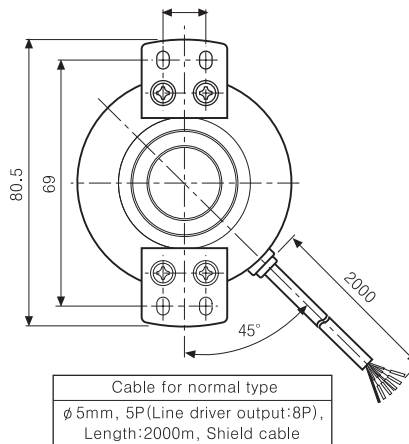
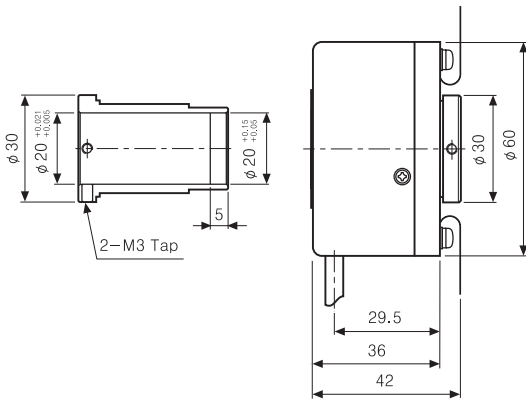


Totem pole output NPN open collector output Voltage output			Line driver output		
Pin No.	Cable color	Function	Pin No.	Cable color	Function
①	Black	OUT A	①	Black	OUT A
②	White	OUT B	②	Red	OUT \bar{A}
③	Orange	OUT Z	③	Brown	+V
④	Brown	+V	④	Blue	GND
⑤	Blue	GND	⑤	White	OUT B
⑥	Shield	F.G	⑥	Gray	OUT \bar{B}
			⑦	Orange	OUT Z
			⑧	Yellow	OUT \bar{Z}
			⑨	Shield	F.G

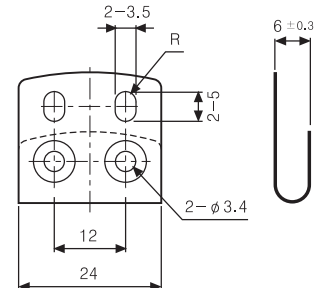
※F.G(Field Ground):It should be grounded separately.

■Dimensions

○Normal type



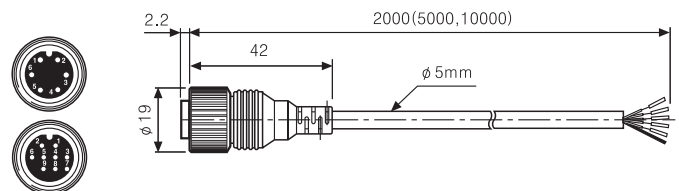
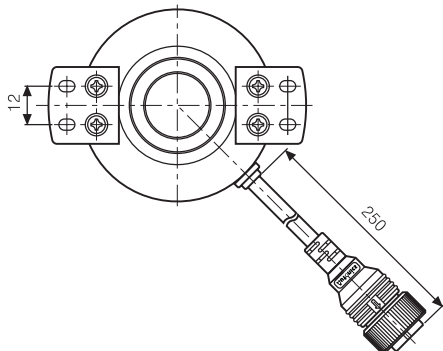
●Bracket



Unit:mm

○Cable outgoing connector type

- Connector cable(Accessory)



Connector cable model	
Line driver output	CID9S-2(Standard), CID9S-5, CID9S-10
Etc.	CID6S-2(Standard),CID6S-5, CID6S-10