

# Incremental Shaft



## Features:

- Miniature ø30mm shaft type rotary encoder
- Easy installation at narrow space
- Small inertia moment
- Wide range of power supply : 5VDC, 12-24VDC ±5%
- Various output types

## Description:

Diameter ø30mm shaft type incremental rotary encoder E30S Series is easy to be installed at narrow space by minimizing space limit. Small moment of inertia is another feature of the series to optimize user convenience.

## Specifications:

<b>Item</b>		Diameter ø30mm shaft type of incrementa rotary encoder		
<b>Resolution(P/R)</b>		100, 200, 360, 500, 1000, 1024, 3000 (Not indicated resolution is customizable.)		
<b>Electrical specification</b>	<b>Output phase</b>		A, B, Z phase(Line driver : A, A, B, B, Z, Z phase)	
	<b>Phase difference of output</b>		Phase difference between A and B : $T/4 \pm T/8$ (T = 1 cycle of A phase)	
	<b>Control output</b>	<b>Totem pole output</b>	Low Load current : Max. 30mA, Residual voltage : Max. 0.4V DC High Load current : Max. 10mA, Output voltage(Power supply 5V DC) : Min. (Power supply - 2)V DC, Output voltage(Power supply 12-24V DC) : Min. (Power supply - 3)V DC	
		<b>NPN open collector output</b>	Load current : Max. 30mA, Residual voltage : Max. 0.4V DC	
		<b>Voltage output</b>	Load current : Max. 10mA, Residual voltage : Max. 0.4V DC	
		<b>Line driver output</b>	Low Load current : Max. 20mA, Residual voltage : Max. 0.5V DC High Load current : Max. -20mA, Output voltage : Min. 2.5V DC	
	<b>Response time (Rise/Fall)</b>	<b>Totem pole output</b>	Max. 1µs	Measuring condition Cable length : 2m, I sink = Max. 20mA
		<b>NPN open collector output</b>	Max. 1µs	
		<b>Voltage output</b>	Max. 1µs (5V DC : Output resistance 820Ω), Max. 2µs (12 to 24V DC : Output resistance 4.7kΩ)	
		<b>Line driver output</b>	Max. 0.5µs	
	<b>Max. Response frequency</b>		300kHz	
	<b>Power supply</b>		5V DC ± 5%(Ripple P-P : Max. 5%) 12 to 24V DC ± 5%(Ripple P-P : Max. 5%)	
	<b>Current consumption</b>		Max. 80mA (disconnection of the load), Line driver output : Max. 50mA(disconnection of the load)	
	<b>Insulation resistance</b>		Min. 100MΩ(at 500V DC megger between all terminals and case)	
<b>Dielectric strength</b>		750V AC 50/60Hz for 1 minute(Between all terminals and case)		
<b>Connection</b>		Cable outgoing type, 250mm cable outgoing connector type		

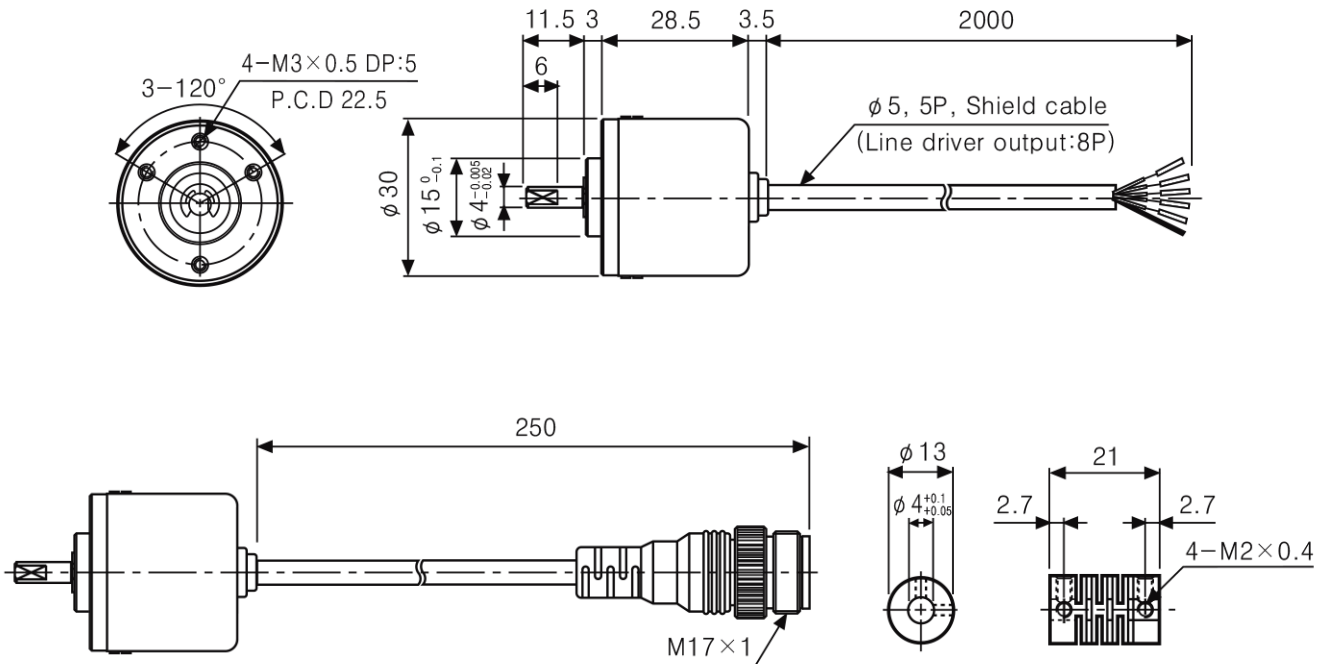


# Incremental Shaft



Mechanical Specification	Starting torque	Max. 20gf · cm(0.002N · m)
	Moment of inertia	Max. 20g · cm <sup>2</sup> (2 × 10 <sup>-6</sup> kg · m <sup>2</sup> )
	Shaft loading	Radial : Max. 2kgf, Thrust : Max. 1kgf
	Max. allowable revolution	(Note 1) 5000rpm
Vibration	1.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours	
Shock	Max. 50G	
Ambient temperature	-10°C to +70°C (at non-freezing status), Storage : -25°C to +85°C	
Ambient humidity	35 to 85%RH, Storage : 35 to 90%RH	
Protection	IP50(IEC standard)	
Cable	ø5mm, 5P, Length : 2m, Shield cable(Line driver : ø5mm, 8P)	
Accessory	ø4mm coupling	
Unit weight	Approx. 80g	

**Note 1 :** Pulse is only for A, B phase (Line Driver output is for A, A, B, B phase). It can be produced under 1,000 P/R for connector integrated type.



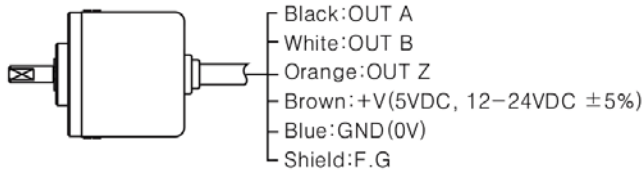
Dimensions : Millimetres



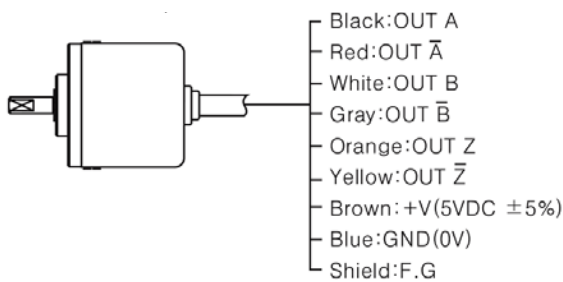
# Incremental Shaft



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



## Line driver output



\* Unused wires must be insulated.

\* The metal case and shield wire of encoder should be grounded(F.G).

## Part Number Table

Description	Part Number
Incremental Shaft	E30S4-100-3 V-5

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