

LINEAR ENCODER

D-540 / D-5400 / D-1000Z / DE-04 / DL-07

D-540 / D-5400 / D-1000Z / DE-04 / DL-07

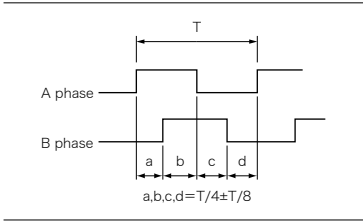
MUTOH INDUSTRIES LTD, MUTHO ENGINEERING INC, Tokyo Made in Japan
www.VictorySystem.co.th Email:victorysystem@gmail.com LINE OA: @hipower89 Tel. 0891042983

Specifications

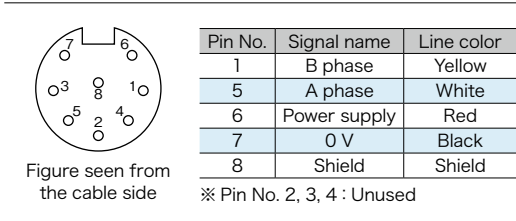
Series	D-540/D-5400	D-1000Z	DE-04	DL-07
Valid length of wire	600 mm	2400 mm	4000 mm	7000 mm
Resolution(mm)	0.1/0.01 (Both 4 multiplied)	0.1 (2 multiplied)		
Number of output pulse	2.5 pulse/mm(D-540) 25 pulse/mm(D-5400)	5 pulse/mm		
Maximum detecting speed	100 m/min(D-540) 40 m/min(D-5400)	100 m/min	60 m/min	100 m/min
Maximum accelerating speed	9.8m/s ² (1G)	13.7m/s ² (1.5G)	7.8m/s ² (0.8G)	
Wire tension	Approx. 1.96 N (200 gf)	Approx. 2.94 N (300 gf)	Approx. 1.96~4.9 N (200~500 gf)	Approx. 7.4 N (750 gf)
Wire diameter	φ 0.6 mm	φ 0.6 mm	φ 0.45 mm	φ 0.7 mm
Wire material	SUS304			
Reciprocating durability	More than 1,000,000 times	More than 50,000 times	500,000 times (Less than 0~2 m) 200,000 times (2~4 m)	More than 50,000 times
Output phase	A/B phase			
Output option	Complementary output	Open collector/Complementary/Line driver		
Output capacity	Residual voltage : less than 0.7 V/Sinking current : less than 30mA/Pressure-resistance : less than 30 V			
Power source	DC4.5~26 V 50 mA or less	DC4.5~26 V(Line driver output: 5 V±5%) 70 mA or less(Less than 150 mA in case of line driver output)		
Operating temperature range	0~45 °C (No humidity)	-10~45 °C (No humidity)		
Operating humidity range	35~90 % RH (No humidity)			
Storage temperature range	-20~80 °C			
Weight	350 g	750 g	880 g	1.65 kg
Cable specifications	2 m φ5.3 (DIN8P with connector)	2 m φ5.3 (DIN8P with connector. Line driver output type : Cable end open)		
Distance accuracy (20 °C)	0.05 % + Quantization error			
Stability accuracy (20 °C)	±0.1 mm + Quantization error	±0.2 mm + Quantization error		
Vibration resistance	49 m/s ² (5G) , 30 minutes			
Impact resistance	With 490 m/s ² (50G)			
Protective structure [※]	IP50	IP63		
Recommended range of transfer distance	Less than 15 m	Less than 15 m(Less than 50 m in case of line driver output)		
RoHS	Compliant			

※ Electric parts only

Output wave-form



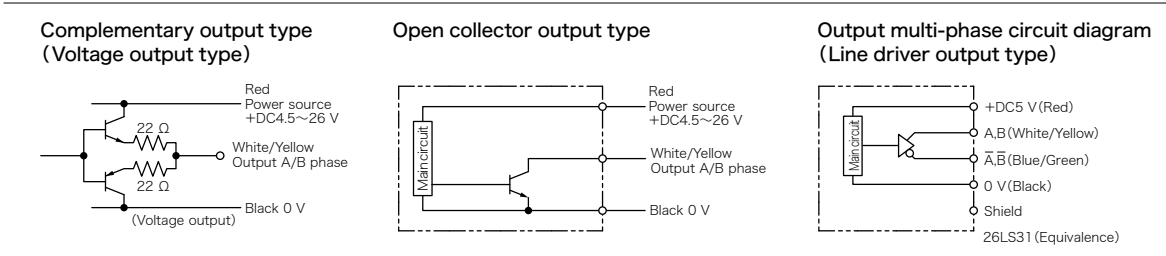
Connecting cable



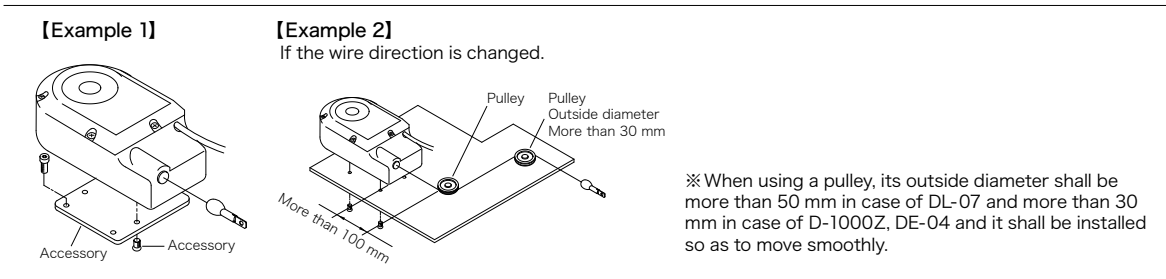
Pin No.	Signal name	Line color
1	B phase	Yellow
5	A phase	White
6	Power supply	Red
7	0 V	Black
8	Shield	Shield

※ Pin No. 2, 3, 4 : Unused

Output multi-phase circuit diagram

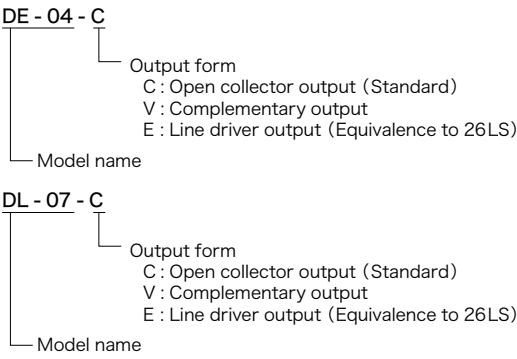
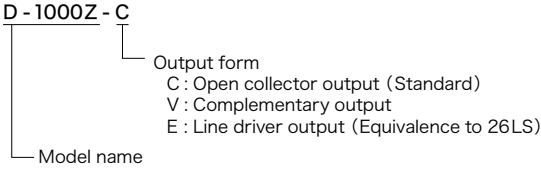


Installation example

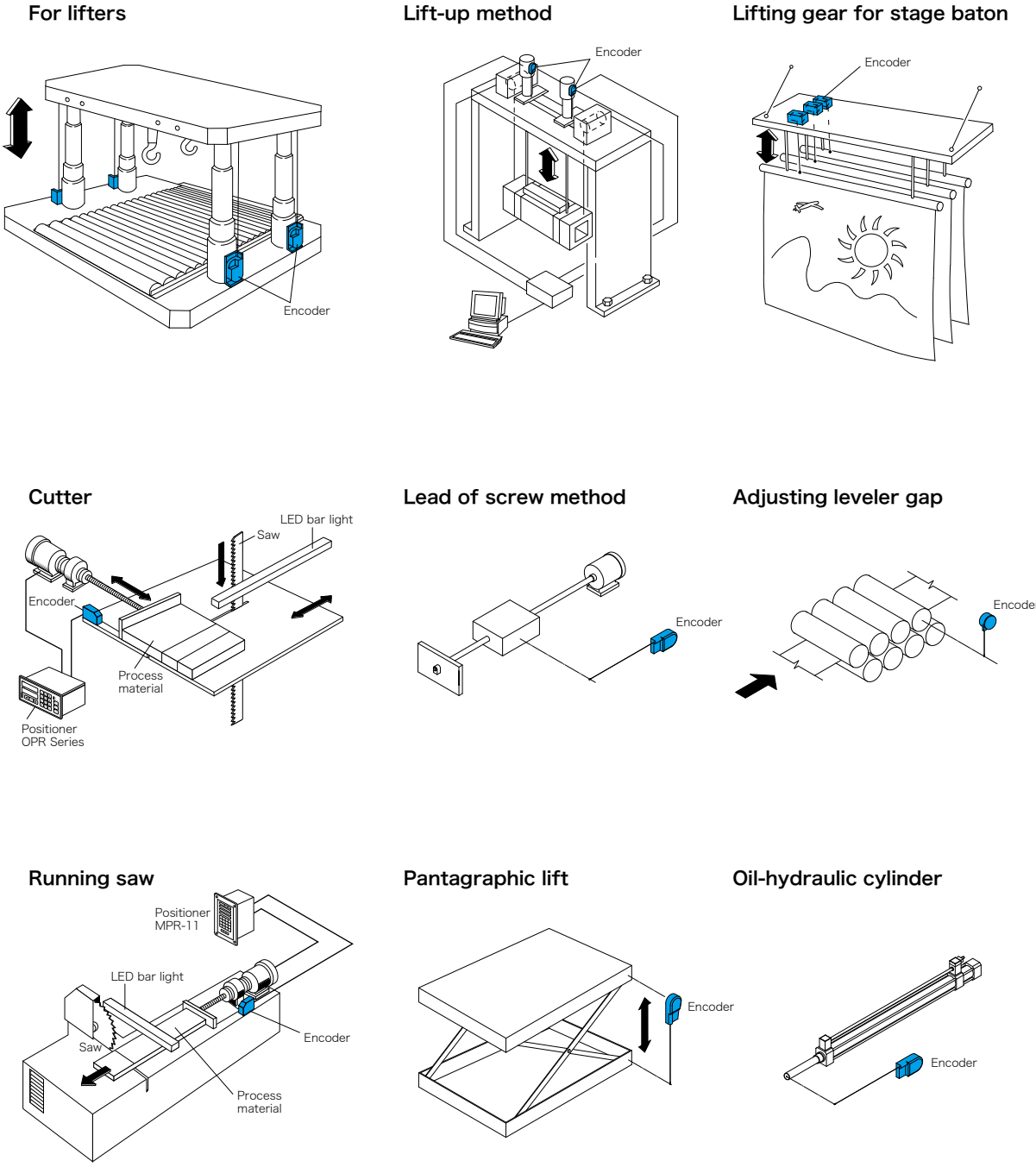


About model names

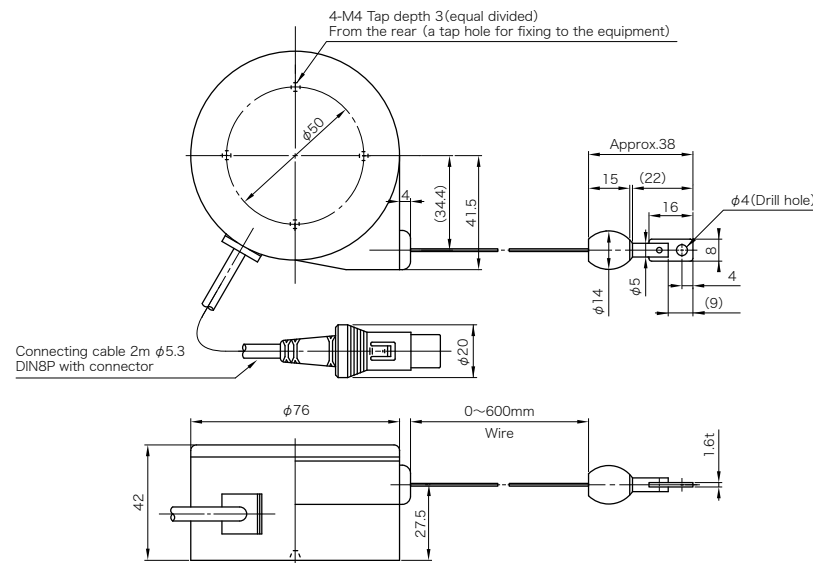
Output form needs to be selected after model name.



Example of use

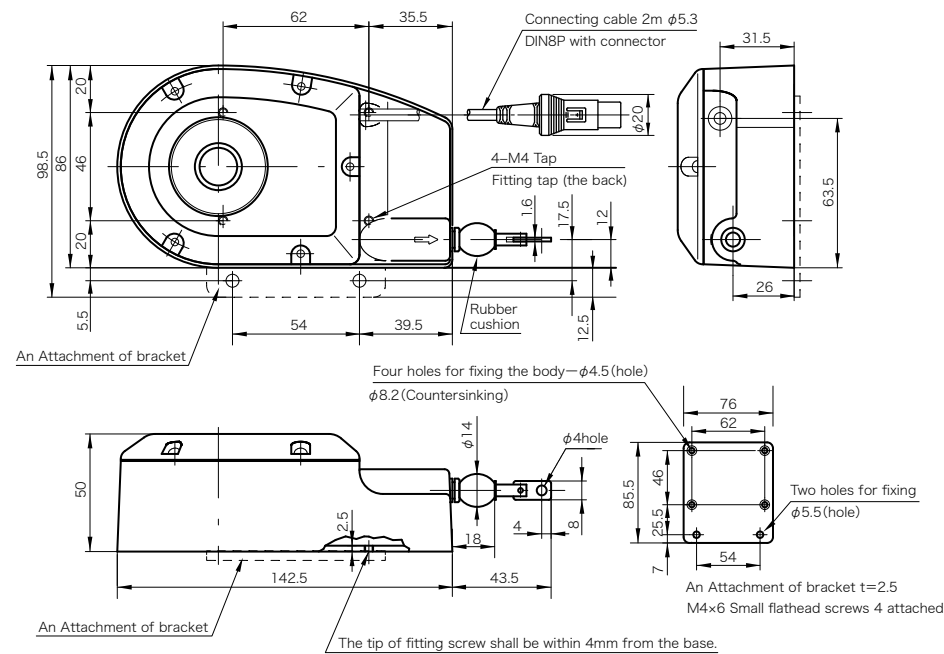


■ Outline drawing

D-540
D-5400

■ Outline drawing

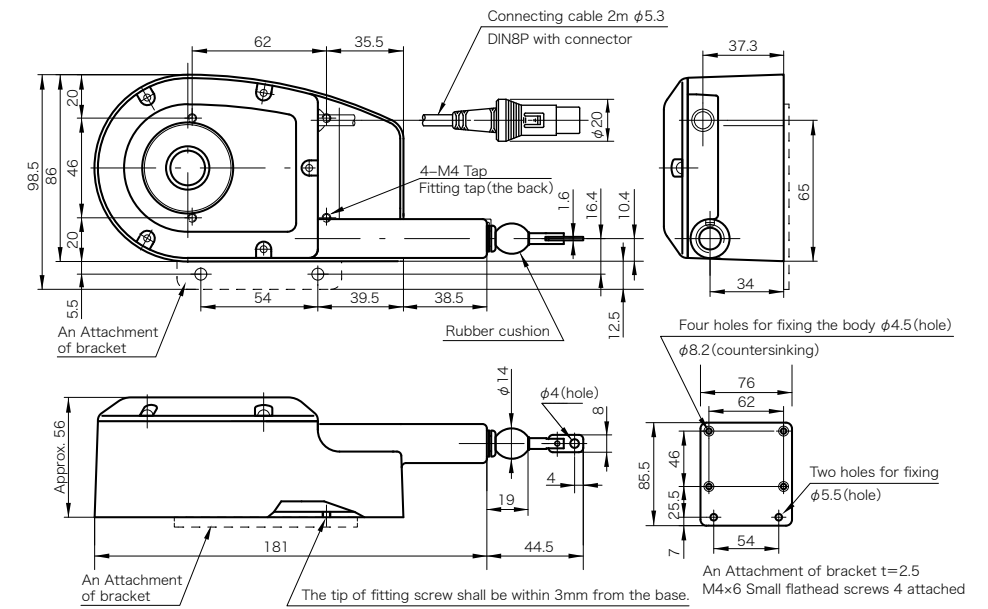
D-1000Z



※ Connectors are unnecessary when linedriver is outputting.

■ Outline drawing

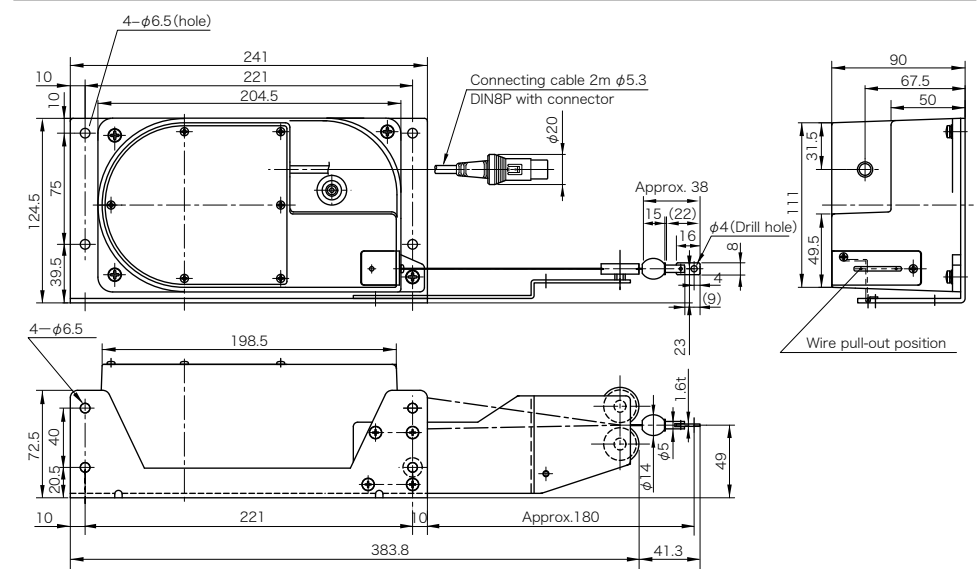
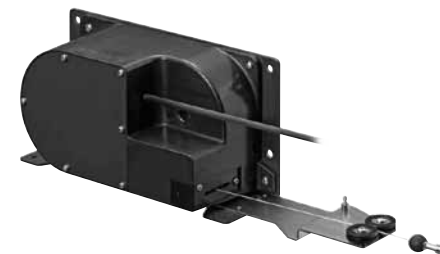
DE-04



※ Connectors are unnecessary when line driver is outputting.

■ Outline drawing

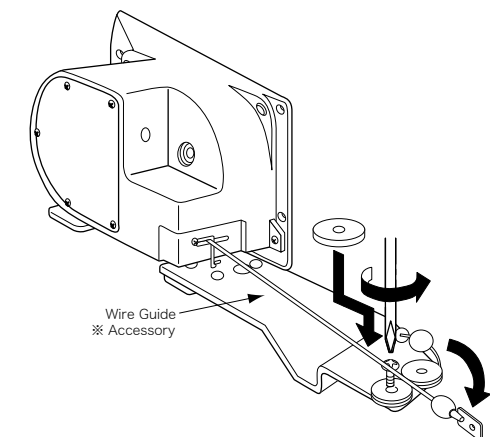
DL-07



※ Connectors are unnecessary when line driver is outputting.

■ Installation procedure

DL-07



※ Please attach wire guide board when in use.

Tubular shaft is attachable to the axis.

Unlike shaft encoder, rotary encoder doesn't require coupling. It fits in a device and reads axial rotation with high accuracy.

Variety of lineups for measuring length and angles

There are four sizes for machinery axis rotation; large, medium, small, extra small are available. Three kinds of rotary encoders equipped with sexagesimal system.

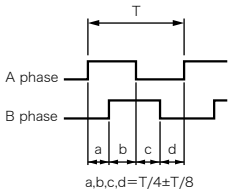
Easy to attach and strongly build.

Adapting tubular shaft saves space and simplifies. High durability for sever circumstances, and the strong casing protects from dust. Available for many purposes.

Specifications

	For measuring length			For measuring angle
Series	S	C	O	A
Number of pulses	100	100	100	2160 5400
	125	125	125	
	150	150	150	
	400	400	400	
	500	500	500	
	600	600	600	
Outside diameter	φ 23(+0.15/+0.10)	φ 35(+0.15/+0.10)	φ 23	φ 12
Power source	DC 4.5~13 V, 60 mA or less			
Output phase	A/B phase			
Output form	Voltage output, Pull-up resistor 2 kΩ			Voltage output (Complementary output)
Output capacity	Residual voltage : 0.7 V or less Sink current : 30 mA or less			
Output pressure-resistance	—			
Output phase difference	90°±45°			
Permissible rotational speed	700 min ⁻¹			200 min ⁻¹
Start torque	50 × 10 ⁻³ N・m	80 × 10 ⁻³ N・m	250 × 10 ⁻³ N・m	50 × 10 ⁻³ N・m
Moment of inertia	255 gcm ²	1.2 kgcm ²	245 gm ²	100 gcm ²
Permissible axis load	Radial	9.8 N(1 kgf)		19.6 N(2 kgf)
	Thrust	9.8 N(1 kgf)		39.2 N(4 kgf)
Operating temperature range	0~45℃			
Operating humidity range	35~90 % RH(No humidity)			
Storage temperature range	-20~80℃			
Vibration resistance	With 39.2 m/s ² (4G), 30 minutes			
Impact resistance	With 490 m/s ² (50G)			
Protection structure	IP50		IP64	IP50
Weight(with cable)	400 g	600 g	500 g	400 g
Forwarding distance	15 m or less			
Connecting cable	2 m φ5.3 (DIN8P with connector)			
RoHS	Compliant			

Output waveform



Connecting cable

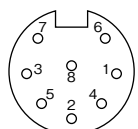
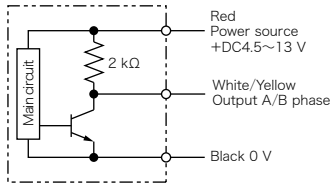


Figure seen from the cable side

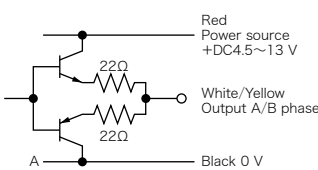
Pin No.	Signal name	Line color
1	B phase	Yellow
5	A phase	White
6	Power supply	Red
7	0 V	Black
8	Shield	Shield

Output multi-phase circuit diagram

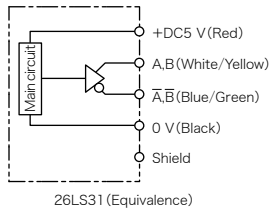
Voltage output type S, C, O



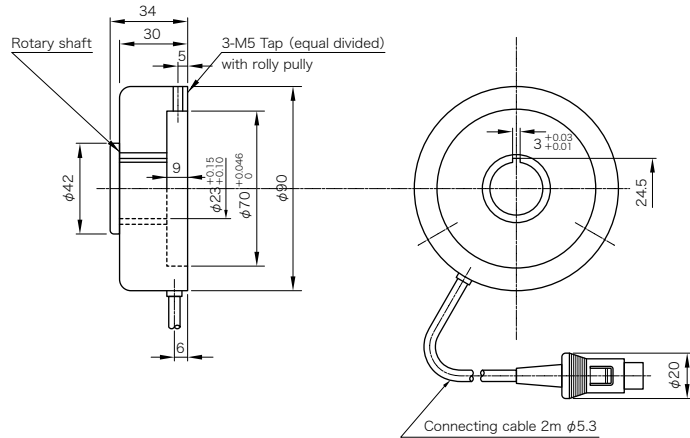
Voltage output type (Complementary output)



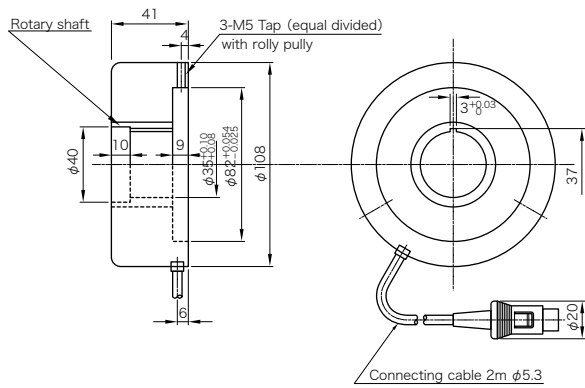
Output multi-phase circuit diagram (Line driver output type)



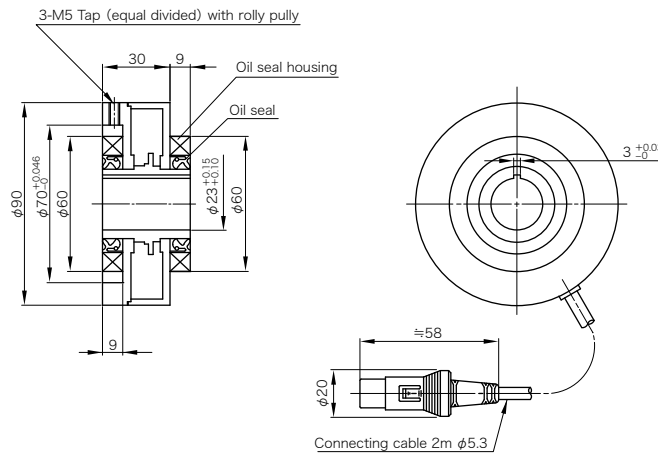
Outline drawing S Series



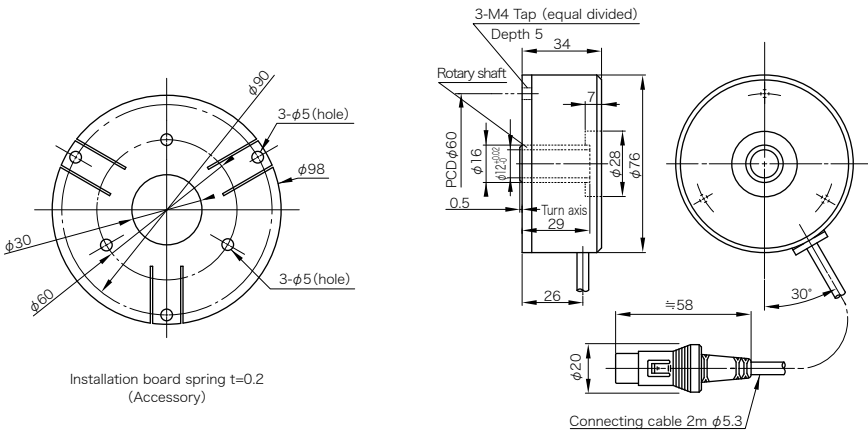
Outline drawing C Series Build to order



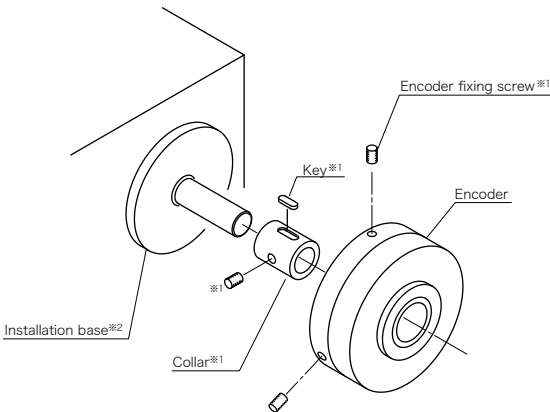
Outline drawing O Series Build to order



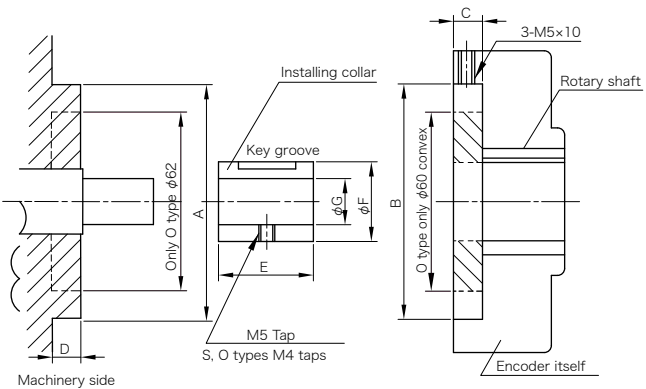
■ Outline drawing
A series



■ Installation method
S series
C series
O series



※1 Only S, C, O series are the accompanying items
※2 Please prepare for yourself.

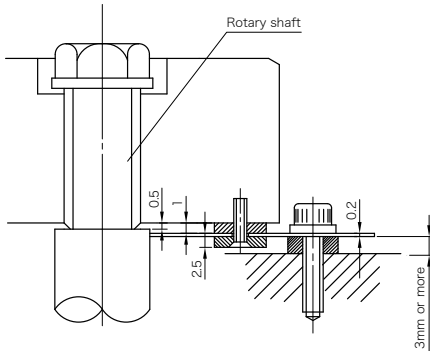
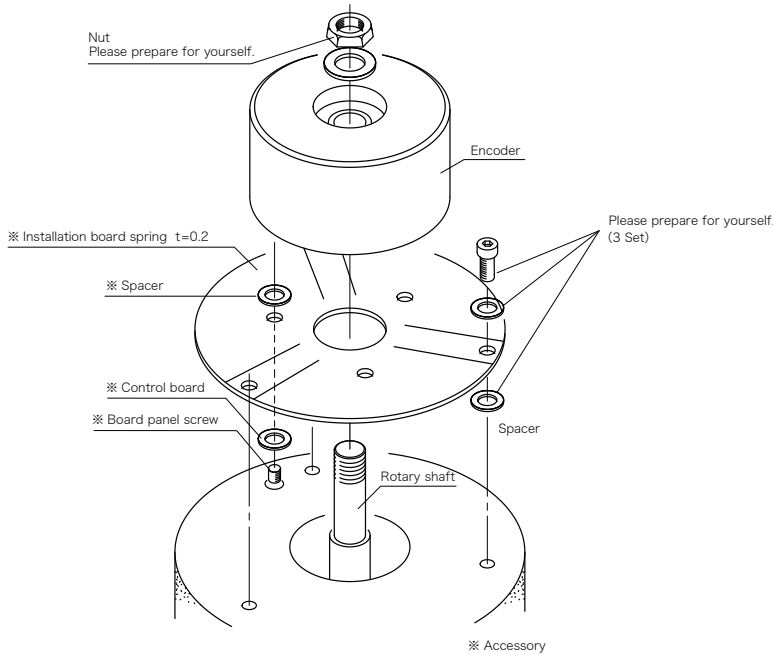


Installation size and color (Accessory) size

Size	A	B	C	D	E	F	G	Key
Series								
S · O	$\phi 70^{+0.1}_{-0.15}$	$\phi 70^{+0.1}_{-0.15}$	9	8 or more	24	$\phi 23^{+0.1}_{-0.15}$	$\phi 8$	3 $\square$ -12 ℓ Keys with both round ends
C	$\phi 82^{+0.1}_{-0.15}$	$\phi 82^{+0.1}_{-0.15}$	9	8 or more	24	$\phi 35^{+0.1}_{-0.15}$	$\phi 9$	3 $\square$ -12 ℓ Keys with both round ends

※ G is processed with uneven on the end. Please process to adjust to the size of shafting.

■ Installation procedure
A series



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