

ROTARY ENCODER

CB·CD

INCREMENTAL·SHAFT TYPE



CB Series

- Outside: $\phi 38$ (Shaft: $\phi 6$), PCD 30
- Wide Range of High Resolution Models
- High Reliability and Performance
- Economical
- Universal Mounting - Fits to almost all Standard Mounting dimensions
- Suitable for General or Industrial Applications

Outside

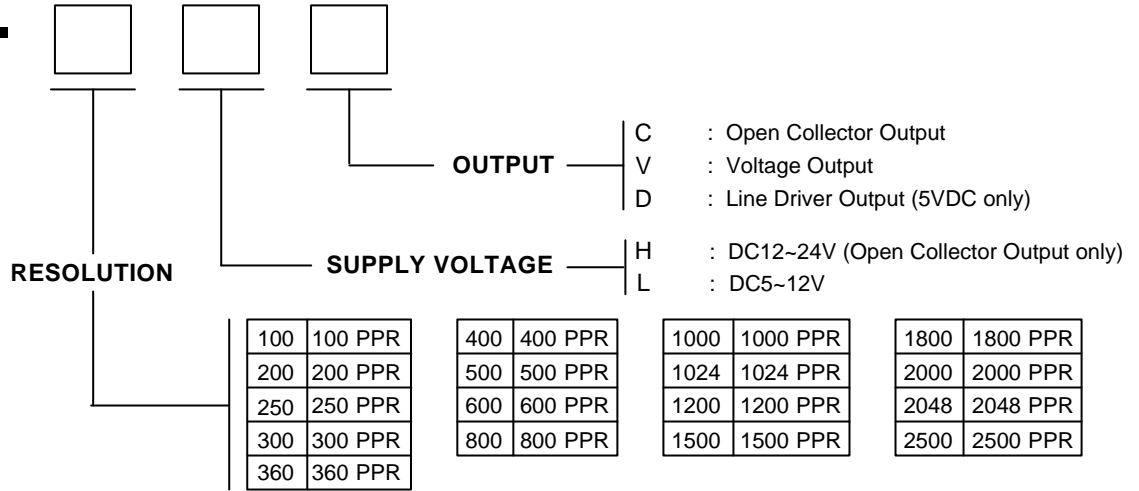
CD Series

- Outside: $\phi 55$ (Shaft: $\phi 8$), PCD 48
- Wide Range of High Resolution Models
- High Performance Version
- Environmentally Strong
- Economical
- Suitable for General or Industrial Applications

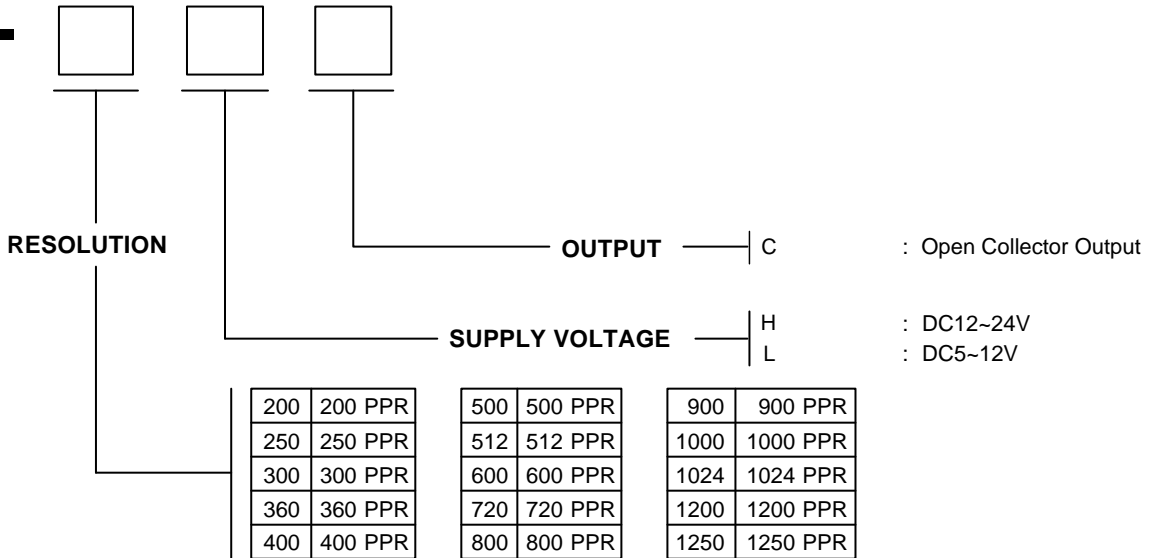


MODELS

CB -

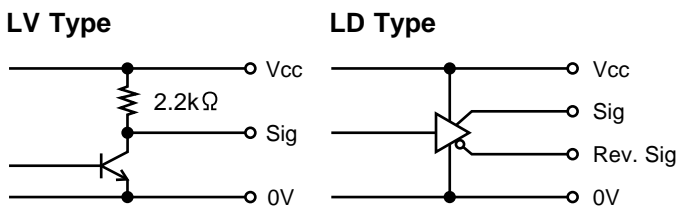


CD -



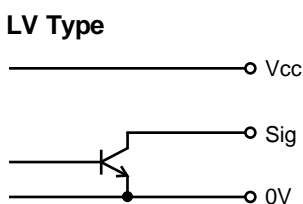
CIRCUIT OF OUTPUT SIGNAL

• CB Series



• LC and HC Types are without Pull-up Resistor.

• CD Series



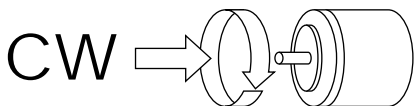
CONNECTION

Signal	COLOR OF WIRE		CD Series
	CB Series		
	D Type	C Type	
Vcc	Brown		
0V	Blue		
A	Black		
\bar{A}	Black/Red	—	
B	White		
\bar{B}	White/Red	—	
Z	Orange		
\bar{Z}	Orange/Red	—	
Shield	—		

SPECIFICATIONS

		CB Series				CD Series		
ELECTRICAL	Model	CB-□HC	CB-□LC	CB-□LV	CB-□LD	CD-□HC	CD-□LC	
	Power Supply (Ripple 3% max.)	DC12~24V±10%	DC5~12V±10%		DC5V±10%	DC12~24V±10%	DC5~12V±10%	
	Current Consumption	50 mA max.				40 mA max.		
	Output	Open Collector		Voltage	Line Driver	Open Collector		
	Output Signal	90° Quadrature + Zero Marking				90° Quadrature + Zero Marking		
	Output Phase	A,B,Z			A,B,Z,Ā,Ḃ,Ż	A,B,Z		
	Output Capacity	Sink Current : 35 mA max. Residual Voltage : 0.5V max.		Sink Current 20 mA max.	± 20 mA	Sink Current : 60 mA max. Residual Voltage : 0.5V max.		
	Max. Applied Voltage	30V max.				50V max.		
	Output Voltage	—		H: Supply Voltage -1 V min. L: 0.5 V max.	H: 2.5 V min. L: 0.5 V max.	—		
	Max. Freq. Response	100 kHz				100 kHz		
	Signal Rise/Fall Time (Pull-up resistor 2.2kΩ, 1m Cable)	1 μs max.			0.1 μs max.	1 μs max.		
	Insulation Resistance	20M Ω min. (DC100V Megger)				20M Ω min. (DC100V Megger)		
	Output Impedance (Voltage Output only)	—		2.2k Ω	—	—		
	Cable Length	500 ⁺¹⁰ mm				2000 ⁺¹⁰⁰ mm		
	Outside Diameter	φ 5.1 mm				φ 5.5 mm		
	MECHANICAL	Max. Speed of Shaft	6000 rpm				5000 rpm	
Moment of Inertia		6x10 ⁻⁷ kg·m ² max.				8x10 ⁻⁷ kg·m ² max.		
Starting Torque		1.0x10 ⁻³ N·m max.				2.0x10 ⁻² N·m max.		
Angular Acceleration		10 ⁵ rad/s ²				10 ⁴ rad/s ²		
Max. Shaft Loading		Radial	25N max.				30N max.	
		Axial	15N max.				30N max.	
Weight		Approx. 120g (with 0.5m Cable)				Approx. 290g (with 2m Cable)		
ENVIRONMENTAL	Operating Temperature	-10 ~ +70 °C (Non-Condensing, Non-Freezing)				-10 ~ +70 °C (Non-Condensing, Non-Freezing)		
	Storage Temperature	-25 ~ +80 °C (Non-Condensing, Non-Freezing)				-25 ~ +80 °C (Non-Condensing, Non-Freezing)		
	Operating Humidity	35 ~ 95% (Non-Condensing)				35 ~ 95% (Non-Condensing)		
	Vibration Resistance	10~55 Hz, Width (P-P) 1.5mm (2 hours each in X,Y,Z Direction)				10~55 Hz, Width (P-P) 1.5mm (2 hours each in X,Y,Z Direction)		
	Shock Resistance	6 ms, 980 m/s ² (3 times each in X,Y,Z Direction)				6 ms, 980 m/s ² (3 times each in X,Y,Z Direction)		
	Protection	Equivalent to IP50				Equivalent to IP50		

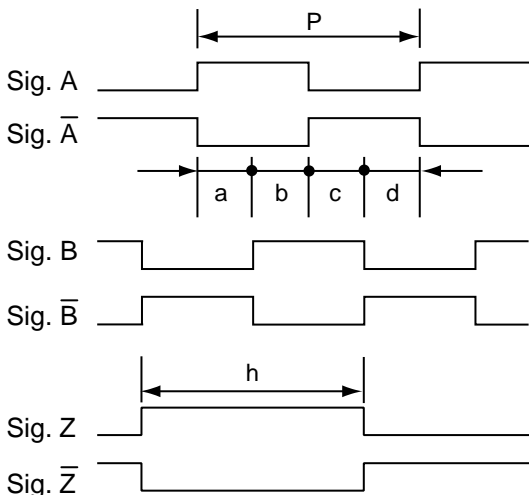
WAVEFORM



These figures show the waveforms when the shaft is rotated Clockwise (CW) when viewing towards the encoder shaft.

● CB Series

A pulse at Signal A should be completed within the period that Signal Z is at H-Level.



$$P = \frac{1}{PPR}$$

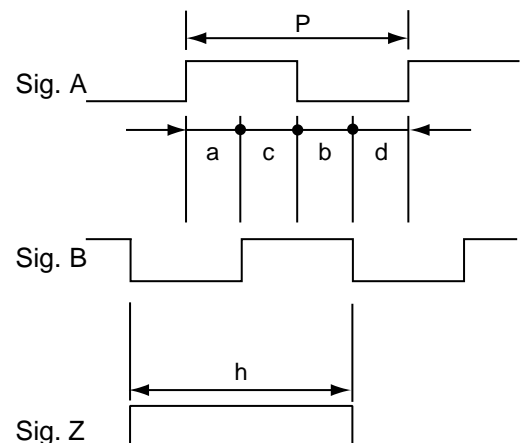
$$a, b, c, d = \frac{P}{4} \pm \frac{P}{8}$$

$$h = P \pm \frac{P}{2}$$

Phase Ā, Ḃ, Ż are applicable only for Type D Output.

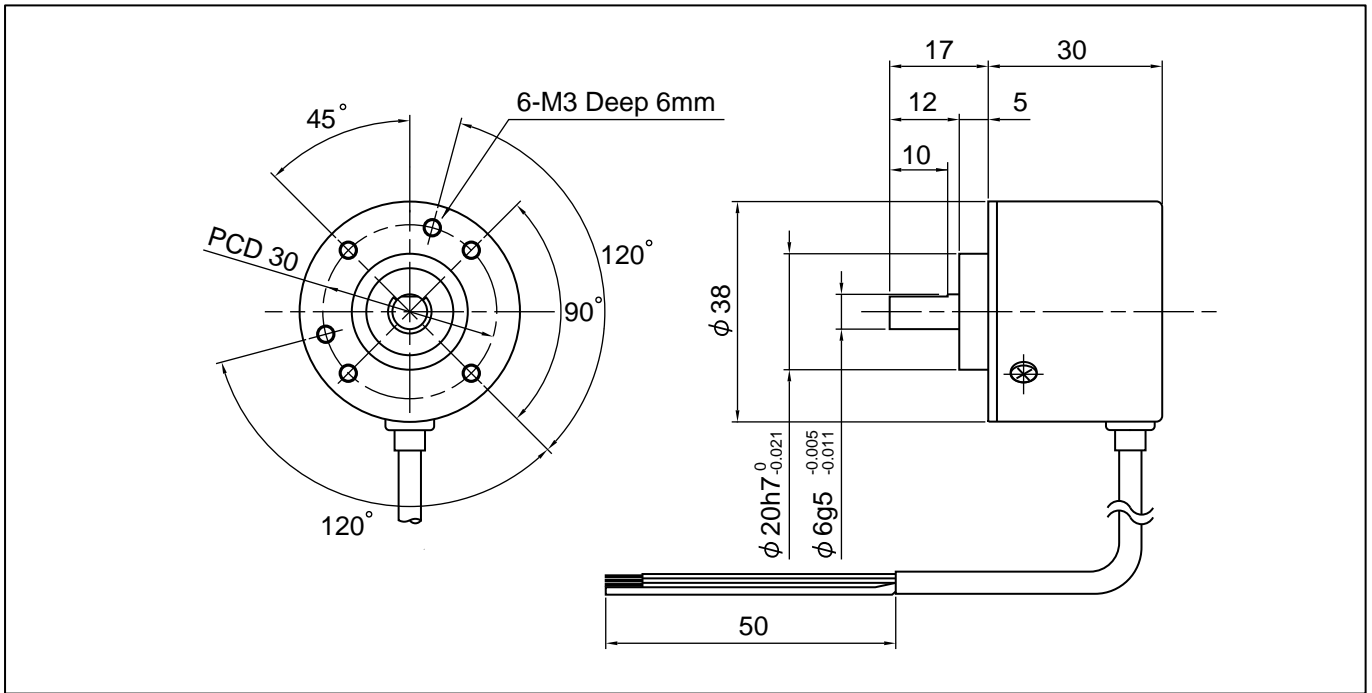
● CD Series

Positional relationship of Signals A, B and Z is not specified.

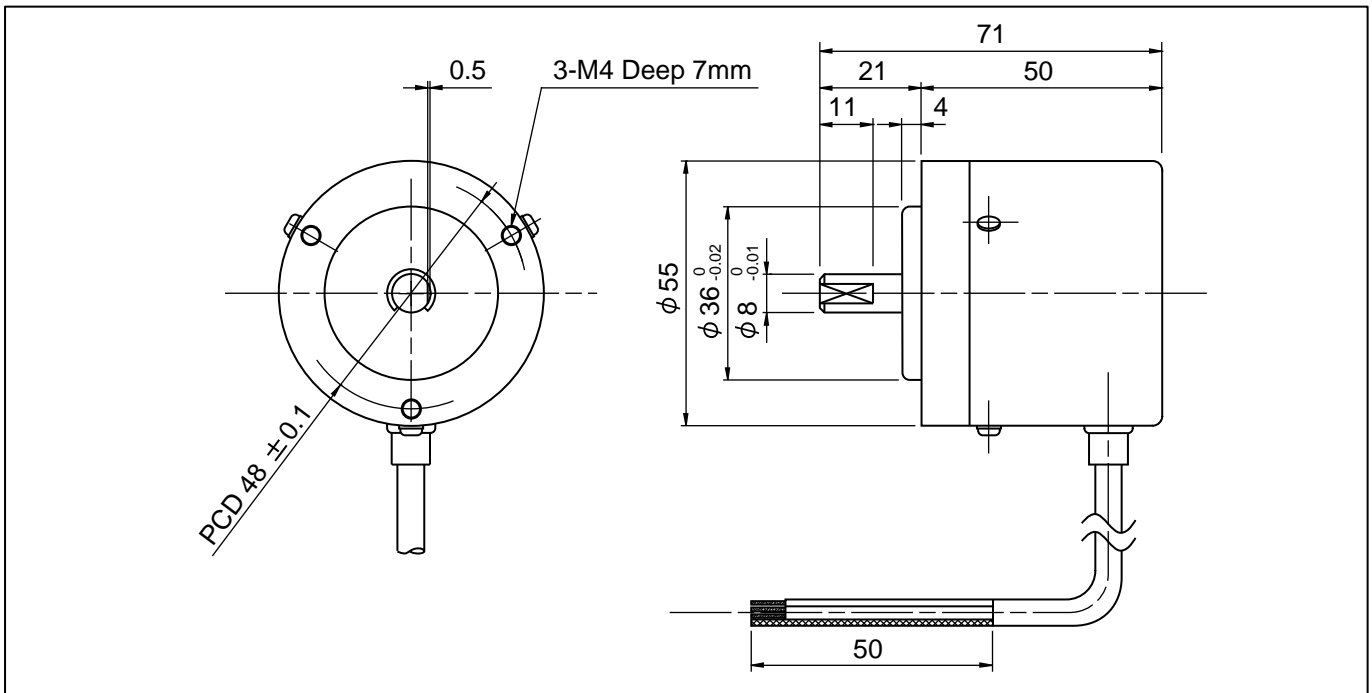


DIMENSIONS

● CB Series



● CD Series



For Inquiries:

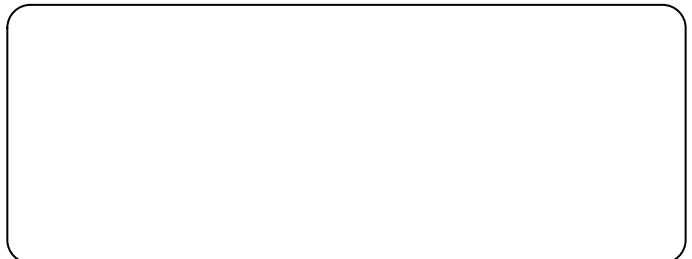
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