

**ELECTRICAL SPEC. – manual pulse generator**

Detection System	Incremental
Output Wave	Square Wave
Standard Number of Pulse Per Revolution	25, 100
Output Phase	AB phase
Electronics	NPN Voltage, NPN Open Collector or Line Driver
Power Supply	DC 8~26V, DC 5V fixed
Current Consumption	< 60 mA
Output Capacity	Sync. Current: 20 mA, Residual Voltage: 0.5V or less
Max. Response	10K Hz
Phase Different	A, B phase different 90°±45° (T/4±T/8)
Wave Form Rise / Fall	2 µs or less

**MECHANICAL SPEC. – manual pulse generator**

Shaft Loading	Axial :1 Kg, Radial : 2 Kg
Starting Torque (at 25°C)	260 g-cm
Max. Speed	500 rpm (Maximum ); 200 rpm (Continuous)
X.Y.Z. Vibration	10 ~ 50 Hz / 1.5 mm X.Y.Z. 2hr)
Shock	50 g per 11 ms
Rotational Life	10 <sup>6</sup> cycles (200 rpm)
Weight	≤ 1500 g

**ENVIRONMENTAL SPEC.**

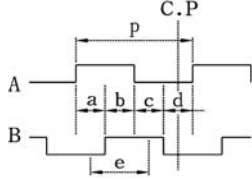
Operating Temp. / Humidity	/	-10°C ~ 60°C, RH 35% ~ 90% (No Condensation)
Storage Temp.		-20°C ~ 80°C
Protection Grade		IP 64

**SWITCHES SPEC. (max.)**

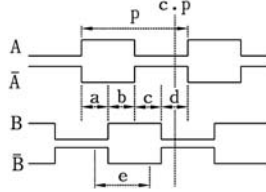
Rotary Switch		Push Button	Emergency Stop Switch	
Max. Voltage	28V AC/DC max.	AC250V 0.3A, AC 125V 5A	Contact Rating	With AC Load AC250V 0.5A, AC125V 1.0A
Current	10 mA	DC 250V 0.1A, DC24V 5A		With DC Load DC 30V 1.0A
Operating Torque	0.005 ~ 0.02 Nm			Resistance

### OUTPUT WAVE FORM (Clockwise rotation is "CW Rotation" looked from the front side)

NPN Voltage / NPN Open Collector



Line Driver



- $P = 1 \text{ P/R}$ ;  $a, b, c, d = P/4 \pm P/6$
- C.P= click point  
 $\neq$  or  $25 \text{ P/R}$ , C.P is at each position of  $a, b, c, d$ .
- Point e is recommended as the system switching timing.

### ELECTRICAL CONNECTION

COLOR of WIRE		FUNCTION	
DIAL BODY	encoder	Brown	+V
		Red	0V
		Orange	CH A
		Pink	CH B
		Yellow	CH /A
		Green	CH /B

POINT TO POINT	BINARY CODE TYPE (PNP)			BINARY CODE TYPE (NPN)		
	Purple	Blue	Light Green	Purple	Blue	Light Green
OFF	0	0	0	1	1	1
X	0	0	1	1	1	0
Y	0	1	0	1	0	1
Z	0	1	1	1	0	0
4	1	0	0	0	1	1
5	1	0	1	0	1	0
6	1	1	0	0	0	1

POINT TO POINT	Red / White		Brown / White	
	Red / White	Brown / White	Red / White	Brown / White
X 1	0	0	1	1
X 10	0	1	1	0
X 100	1	0	0	1

POINT TO POINT	Emergency Contact
Emergency Common	Emergency Common
Option PB1	Option PB1
Option PB2	Option PB2
Option PB Common	Option PB Common

Axis Switch Selecting	Rate Switch Selecting	Emergency Stop	Push Button
Light Green	Brown/White	Gray/Black	Yellow/Black
Blue	Red/White	Black/White	Green/White
Purple	Red/Black		Green/Black
Gray	Orange/White		
Blue/White			
Black			

### ORDERING INFORMATION

<b>HPG - A</b>	<i>Push Button Qty.</i>	<i>Push Button Action</i>	<i>Emergency Stop</i>	<i>Switch Function</i>	<i>Switch Axis</i>	<i>Supporting Foot</i>	<i>PPR</i>	<i>Electronics</i>	<i>Cable</i>
	A: With PB1 B: With PB1&PB2	1: Alternate Normal Open 1A 2: Alternate Normal Close 1B 3: Momentary Normal Open 1A 4: Momentary Normal Close 1B <small>[Standard] Alternate Action</small>	E: With EMG Stop O: Without EMG Stop <small>[Standard] Alternate Action</small>	P: Point to Point N: Binary Code (PNP) A: Binary Code (NPN) O: Without Switch	6: 6 Axes (OFF-X-Y-Z-4-5-6)	R: Rubber Legs *M: Magnet	A: 100 PPR B: 25 PPR	V: NPN Voltage 8-26Vdc V5: NPN Voltage 5Vdc C: NPN Open-Collector 5-26V L: Line Driver 5Vdc *HL: Line Driver 5-26Vdc	S3: 3 m *S5: 5 m