Incremental Manual Handle Type Rotary Encoder

■ Features

- Suitable for manual pulse input type such as numerically controlled or milling machinery
- Terminal connection type
- Power supply: 5VDC ±5%, 12-24VDC ±5%

■ Applications

- Industrial tooling machinery

Please read "Caution for your safety" in operation manual before using.

■ Ordering Information

ENH	–	100	–	1	–	T	–	24

Series	Pulse/1 Revolution	Clickstopper position	Control output	Power supply
Handle type	25, 100	1: Normal "H" 2: Normal "L"	T: Totem pole output V: Voltage output L: Line driver output (※)	5: 5VDC ±5% 24: 12-24VDC ±5%

※The power of Line driver is only for 5VDC

■ Specifications

Item			Incremental manual handle type of rotary encoder
Resolution (P/R) ※1			25,100
Electrical specification	Output phase		A, B phase (Line driver output A, $\overline{A}$, B, $\overline{B}$ phase)
	Phase difference of output		Phase difference between A and B: $\frac{T}{4} \pm \frac{T}{8}$ (T= 1 cycle of A phase)
	Control output	Totem pole output	• Low - Load current: Max. 30mA, Residual voltage: Max. 0.4VDC • High - Load current: Max. 10mA Output voltage (Power voltage 5VDC): Min. (Power voltage-2.0)VDC, Output voltage (Power voltage 12-24VDC): Min. (Power voltage-3.0) VDC
		Voltage output	Load current: Max. 10mA, Residual voltage: Max. 0.4VDC
		Line driver output	• Low - Load current: Max. 20mA, Residual voltage: Max. 0.5VDC • High - Load current: Max. -20mA, Output voltage: Min. 2.5VDC
	Response time (Rise/Fall)	Totem pole output	Max. 1μs (Cable length: 1m, I sink = 20mA)
		Voltage output	
		Line driver output	Max. 0.2μs (Cable length: 1m, I sink = 20mA)
	Power supply		• 5VDC ±5% (Ripple P-P: Max.5%) • 12-24VDC ±5% (Ripple P-P: Max.5%)
	Current consumption		Max. 40mA (disconnection of the load), Line driver output: Max. 50mA (disconnection of the load)
	Max. Response frequency		10kHz
	Insulation resistance		Min. 100MΩ (at 500VDC megger between all terminals and case)
	Dielectric strength		750VAC 50/60Hz for 1 minute (Between all terminals and case)
	Connection		Terminal block type
Mechanical specification		Starting torque	Max. 1kgf·cm (0.098N·m)
		Shaft loading	Radial: 2kgf, Thrust: 1kgf
		Max. allowable revolution ※2	Max. 200rpm (Normal), 600rpm (Peak)
Vibration			1.5mm amplitude at frequency of 10 to 55Hz (for 1 min.) in each X, Y, Z direction for 2 hours
Shock			Approx. Max. 50G
Ambient temperature			-10 to 70℃, storage: -25 to 85℃
Ambient humidity			35 to 85%RH, storage: 35 to 90℃
Protection structure			IP50 (IEC standard)
Weight※3			Approx. 330g (approx. 260g)

※1: Not indicated resolutions are customizable.

※2: Make sure that. Max response revolution should be lower than or equal to max. allowable revolution when selecting the resolution.

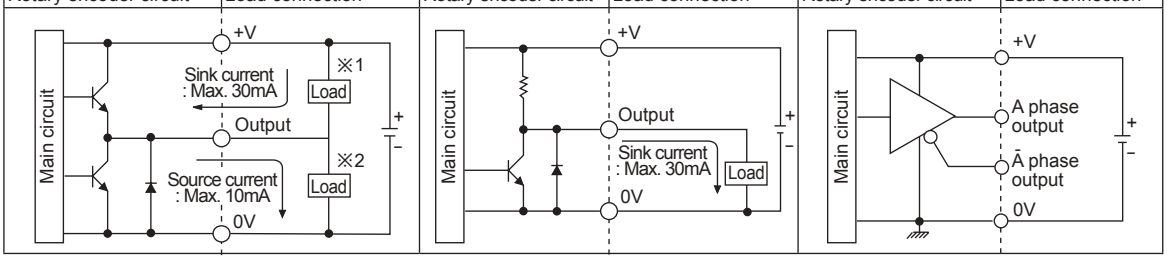
[Max. response revolution (rpm)= $\frac{\text{Max. response frequency}}{\text{Resolution}}$ × 60 sec]

※3: The weight includes packaging. The weight in parentheses is for unit only.

※Environment resistance is rated at no freezing or condensation.

■ Control Output Diagram

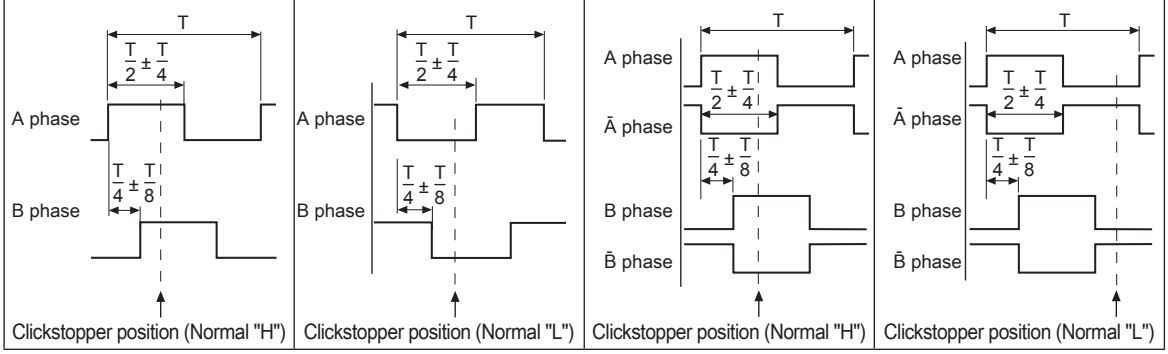
Totem pole output		Voltage output		Line driver output	
Rotary encoder circuit	Load connection	Rotary encoder circuit	Load connection	Rotary encoder circuit	Load connection



- The output circuits for A, B phase (Line driver output is A, Ā, B, B̄ phase) are same.
- Totem pole output can be used for NPN open collector type (※1) or voltage output type (※2).

■ Output Waveform

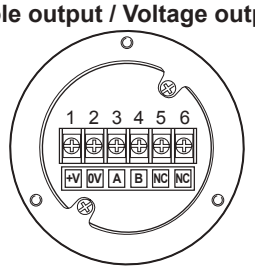
ENH- ☐ -1-T-5, 24 ENH- ☐ -1-V-5, 24	ENH- ☐ -2-T-5, 24 ENH- ☐ -2-V-5, 24	ENH- ☐ -1-L-5	ENH- ☐ -2-L-5



※Clickstopper position Normal "H" or Normal "L": It shows the waveform when the handle is stopped.

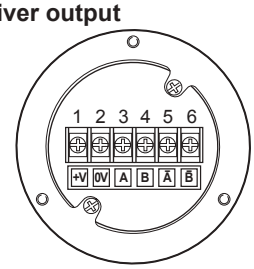
■ Connections

●Totem pole output / Voltage output



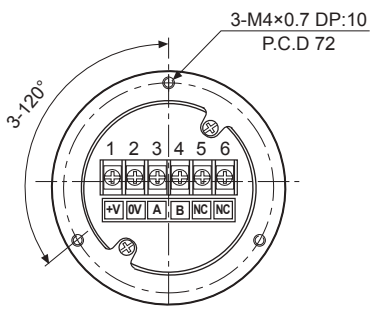
※Do not use terminal No. 5, 6.

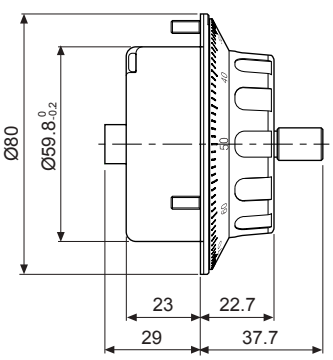
●Line driver output

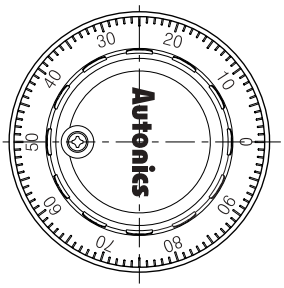


■ Dimensions

(unit: mm)







※Ø70mm PCD mounting hole type is customizable.