

## 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

<b>ENH</b>	-	<b>100</b>	-	<b>1</b>	-	<b>T</b>	-	<b>24</b>
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) ※ <sup>1</sup>	25,100		
Electrical specification	Output phase	A, B phase (Line driver output A, $\bar{A}$ , B, $\bar{B}$ 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	
	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 ※ <sup>2</sup>	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°C, storage: -25 to 85°C		
Ambient humidity	35 to 85%RH, storage: 35 to 90°C		
Protection structure	IP50 (IEC standard)		
Weight※ <sup>3</sup>	Approx. 330g (approx. 260g)		

※1: Not indicated resolutions are customizable.

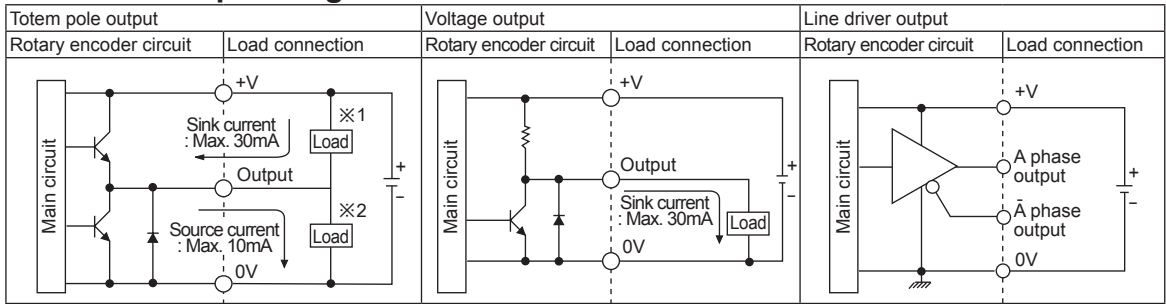
※2: Make sure that. Max response revolution should be lower than or equal to max. allowable revolution when selecting the resolution.  
 [Max. response revolution (rpm) =  $\frac{\text{Max. response frequency}}{\text{Resolution}} \times 60 \text{ sec}$ ]

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

※Environment resistance is rated at no freezing or condensation.

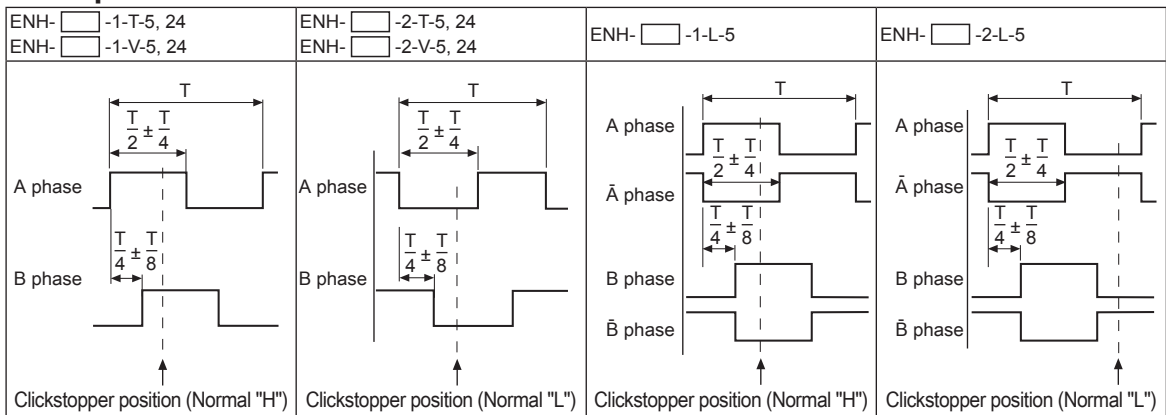
# Manual Handle Incremental Type

## Control Output Diagram



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

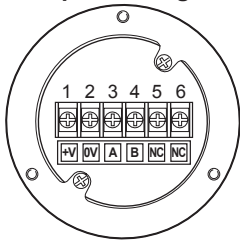
## Output Waveform



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

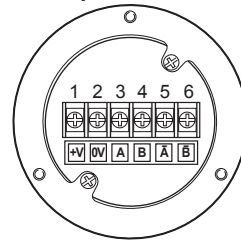
## Connections

### •Totem pole output / Voltage output

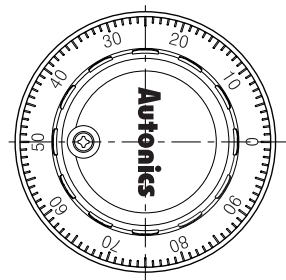
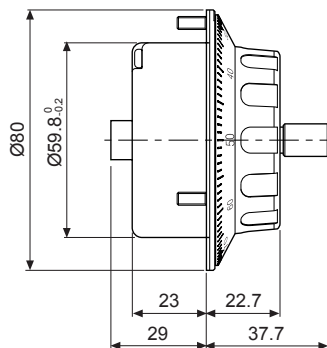
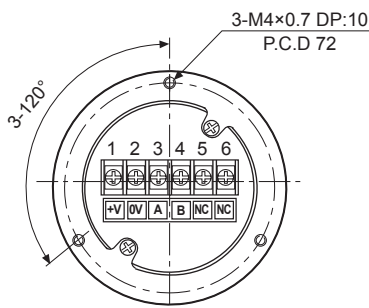


※Do not use terminal No. 5, 6.

### •Line driver output



## Dimensions



※Ø70mm PCD mounting hole type is customizable.

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies

(Q) Stepper Motors & Drivers & Controllers

(R) Graphic/ Logic Panels

(S) Field Network Devices

(T) Software