

## Portable, Handle Type Incremental Rotary Encoder

### ■ Features

- Suitable for manual pulse input type such as numerically controlled or milling machinery
- Emergency stop switch, enable switch is available
- 6-axis, 4-rate select switches

### ■ Application

- Industrial tooling machinery

**⚠ Please read "Safety Considerations" in the instruction manual before using.**



### ■ Ordering Information

**ENHP** — **100** — **1** — **L** — **5**

Series	Pulses/revolution	Clickstopper position	Control output	Power supply
Portable handle type	100	1: Normal "H" 2: Normal "L"	T: Totem pole output L: Line driver output	5: 5VDC ±5% 24: 12-24VDC ±5%

※Line driver power is only 5VDC.

### ■ Specifications

Item	Portable, Handle Type Incremental Rotary Encoder		
Resolution (PPR) <sup>※1</sup>	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)	
	Rotary switch output	BCD Code output • Axis select switch (OFF, X, Y, Z, A, B) • Rate select switch (R1, R2, R3, R4)	
	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
		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)
		Line driver output	Max. 0.5μs (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	Over 100MΩ (at 500VDC megger between all terminals and case)		
Dielectric strength	750VAC 50/60Hz for 1 minute (between all terminals and case)		
Connection	25Pin D-SUB of connector 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		
Environment	Ambient temperature	-10 to 70°C, storage: -25 to 85°C	
	Ambient humidity	35 to 85%RH, storage: 35 to 90%RH	
Protection structure <sup>※3</sup>	IP67 (IEC standard) for Box		
Cable	Ø5mm, 18-wire, 8m, Spring code cable (AWG28, core diameter: 0.08mm, number of cores: 18, insulator out diameter: Ø0.7mm)		
Unit weight	Approx. 730g		

※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.

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

※3: It is protection for the rear case and the wiring part.

※Environment resistance is rated at no freezing or condensation.

SENSORS

CONTROLLERS

MOTION DEVICES

SOFTWARE

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) LIDAR

(D) Door/Area Sensors

(E) Vision Sensors

(F) Proximity Sensors

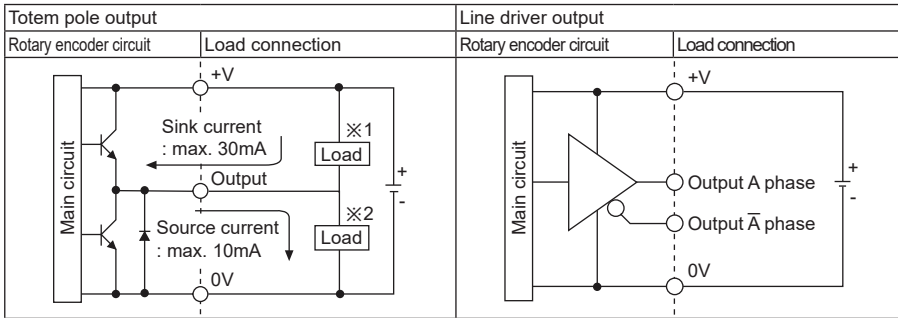
(G) Pressure Sensors

(H) Rotary Encoders

(I) Connectors/ Connector Cables/ Sensor Distribution Boxes/ Sockets

# ENHP Series

## Control Output Diagram

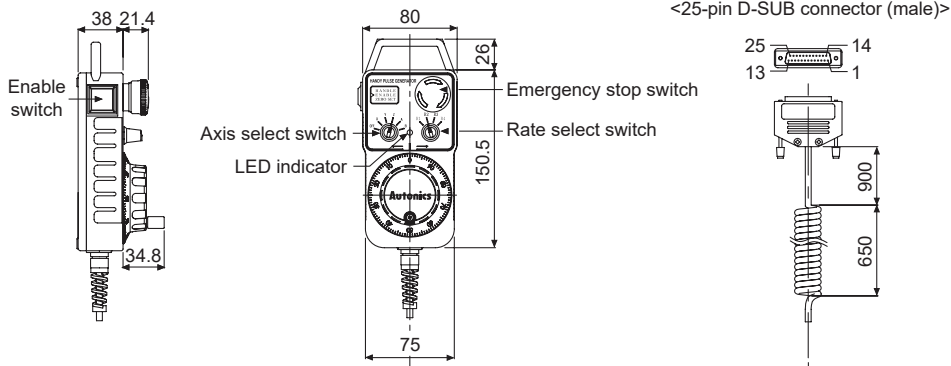


※The output circuits of A, B phase (line driver output A,  $\bar{A}$ , B,  $\bar{B}$  phase) are same.

※Totem pole output type can be used for NPN open collector output type (※1) or voltage output type (※2).

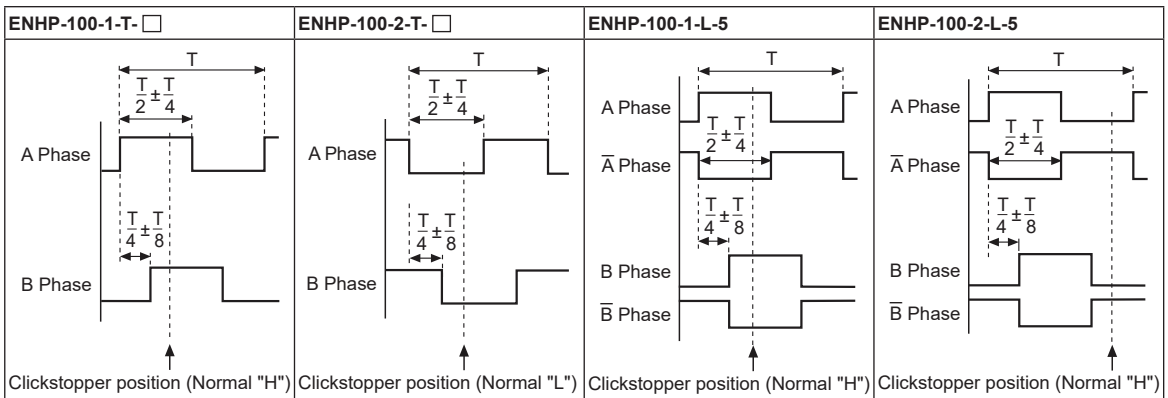
## Dimensions

(unit: mm)



※Fix the unit or a coupling by a wrench under 0.15N·m of torque.

## Output Waveform

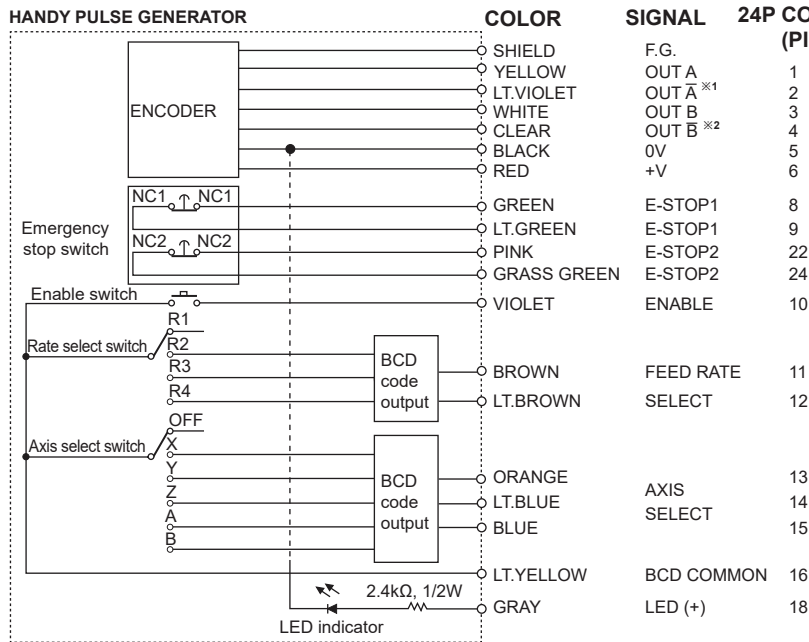


※Clickstopper position Normal "H" or Normal "L": It shows the waveform when the handles is stopped.

※Encoder revolution direction: It is clockwise (CW) from the dial.

# Incremental Portable, HandleType

## ■ Connections



※1: Totem pole output does not have  $\bar{A}$ ,  $\bar{B}$  output signal.

※COMMON terminal (pin no. 16) of Axis select switch and Rate select switch are common.

### SIGNAL 24P CONNECTOR (PIN NO.)

F.G.	1
OUT A	2
OUT $\bar{A}$ ※1	3
OUT B	4
OUT $\bar{B}$ ※2	5
0V	6
+V	7
E-STOP1	8
E-STOP2	9
E-STOP1	22
E-STOP2	24
ENABLE	10
FEED RATE SELECT	11
SELECT	12
AXIS SELECT	13
SELECT	14
SELECT	15
BCD COMMON	16
LED (+)	18

### ● AXIS SELECT

Axis	BCD code output		
	Pin No.15	Pin No.14	Pin No.13
OFF	0	0	0
X axis	0	0	1
Y axis	0	1	0
Z axis	0	1	1
A axis	1	0	0
B axis	1	0	1

### ● RATE SELECT

Rate	BCD code output	
	Pin No.12	Pin No.11
R1	0	0
R2	0	1
R3	1	0
R4	1	1

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