


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 "Caution for your safety" in operation 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) ^{※1}	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 ^{※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		
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 ^{※3}	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.

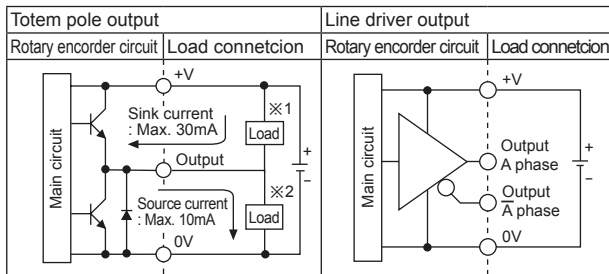
$$[\text{Max. response revolution (rpm)}] = \frac{\text{Max. response frequency}}{\text{Resolution}} \times 60 \text{ sec}$$

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

※Environment resistance is rated at no freezing or condensation.

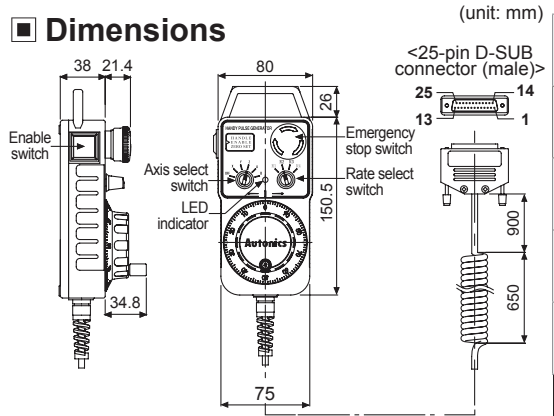
Incremental Portable, HandleType

Control Output Diagram

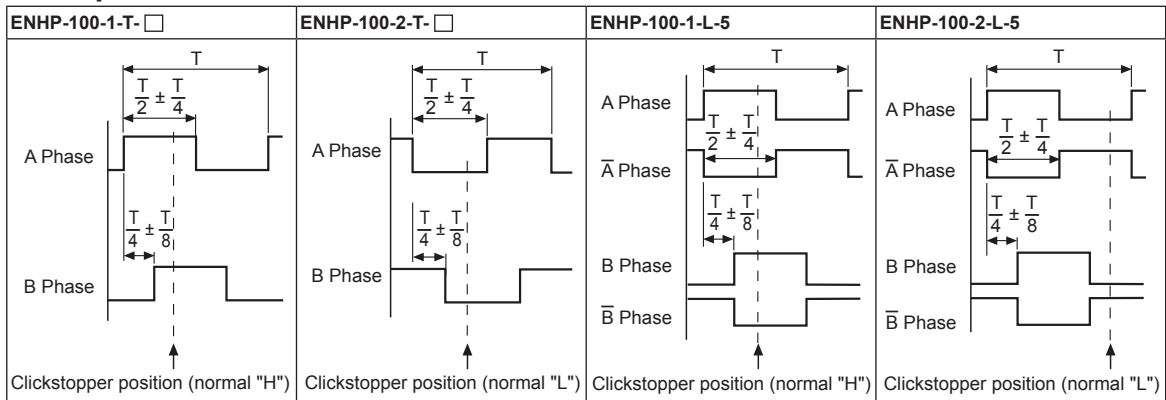


※ The output circuits of A, B phase (line driver output A, \bar{A} , B, \bar{B} phase) are same.
 ※ Totem pole output type can be used for NPN open collector output type (※1) or voltage output type (※2).

Dimensions

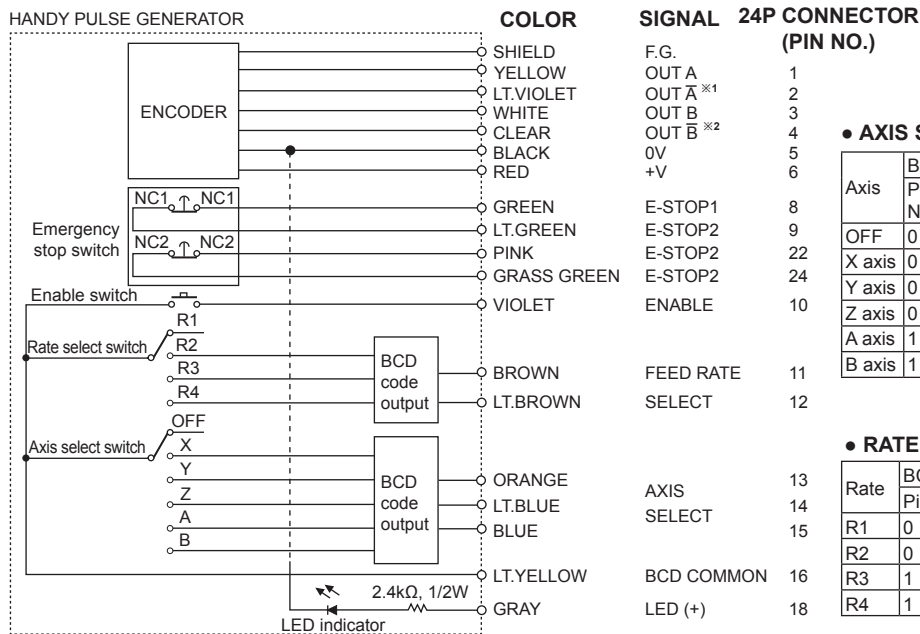


Output Waveform



※ Clickstopper position Normal "H" or Normal "L": It shows the waveform when the handle is stopped.
 ※ Encoder revolution direction: It is clockwise (CW) from the dial.

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.

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