Incremental Manual Handle Type

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%

▣ Application

- ● Industrial tooling machinery

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

▣ Ordering information

ENH	—	100	—	1	—	1	—	24

Series	Pulse/1Revolution	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)			**(Note1)** 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 : $\dfrac{T}{4} \pm \dfrac{T}{8}$ (T=1cycle 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 supply 5VDC):Min. (Power supply−2.0)VDC, Output voltage(Power supply 12−24VDC):Min. (Power supply−3.0)VDC	
		Voltage output	Load current : Max. 10mA, Residual voltage : Max. 0.4VDC	
		Line driver output	• Low ☞ Load current : Max. 20mA, Residual : Max. 0.5V • High ☞ Load current : Max. −20mA, Output voltage : Min. 2.5V	
	Response time (Rise/Fall)	Totem pole output	Max. 1μs	• Measuring condition ☞ I sink = Max. 20mA
		Voltage output	Max. 1μs	
		Line driver output	Max. 0.2μs	
	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 mega 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		**(Note2)** Max. 200rpm(Normal), 600rpm(Peak)	
Vibration			1.5mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 2 hours	
Shock			Max. 50G	
Ambient temperature			−10 ~ 70℃ (at non−freezing status), Storage:−25 ~ 85℃	
Ambient humidity			35~85%RH, Storage: 35~90%RH	
Unit weight			Approx. 300g	

※**(Note1)**Not indicated type is customizable.

※**(Note2)**Max. allowable revolution ≧ Max. response revolution 【Max. response revolution(rpm) = $\dfrac{\text{Max. response frequency}}{\text{Resolution}} \times 60\ sec$】

(A) Counter

(B) Timer

(C) Temp. controller

(D) Power controller

(E) Panel meter

(F) Tacho/ Speed/ Pulse meter

(G) Display unit

(H) Sensor controller

(I) Switching power supply

(J) Proximity sensor

(K) Photo electric sensor
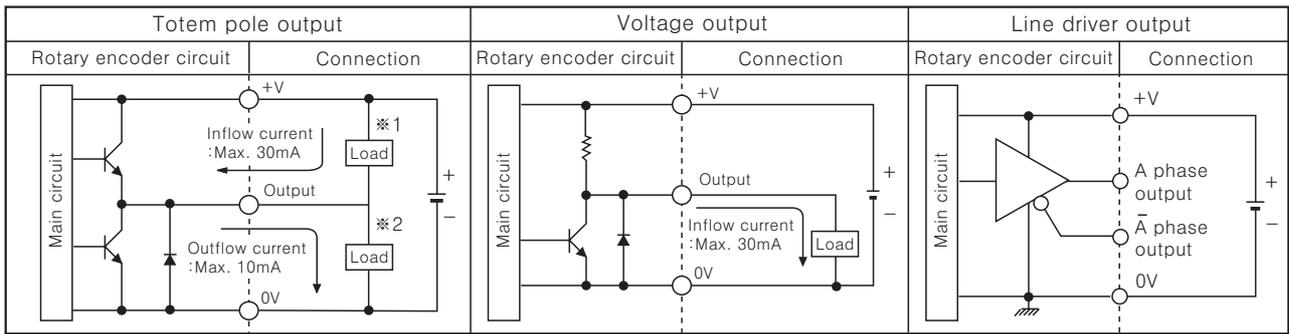
(L) Pressure sensor

(M) Rotary encoder

(N) Stepping motor & Driver & Controller

(O) Graphic panel

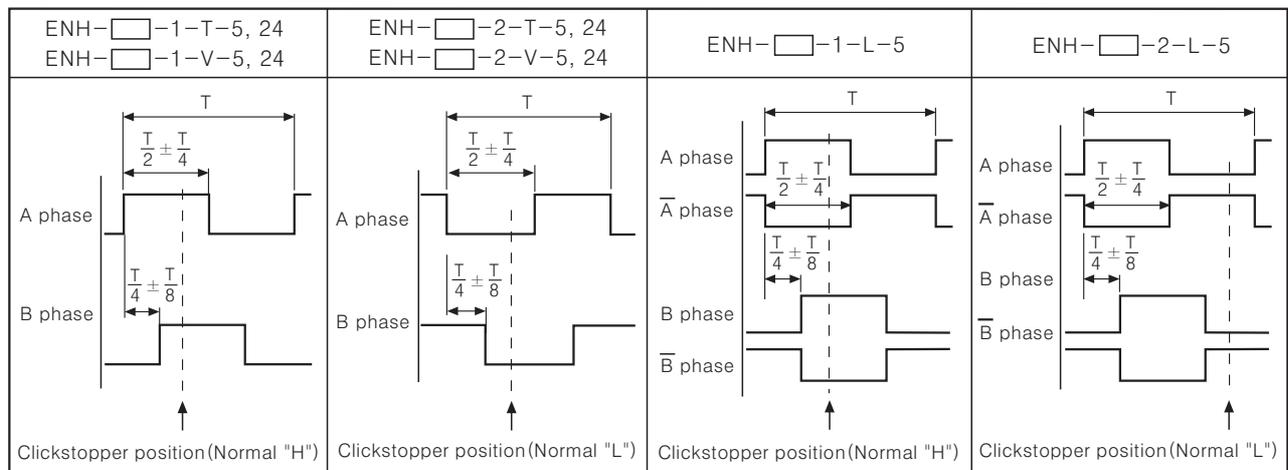(P) Production stoppage models & replacement

ENH Series

■Control output diagram

Totem pole output		Voltage output		Line driver output	
Rotary encoder circuit	Connection	Rotary encoder circuit	Connection	Rotary encoder circuit	Connection

Totem pole output — Main circuit
+V
Inflow current :Max. 30mA — Load ※1
Output
Outflow current :Max. 10mA — Load ※2
0V

Voltage output — Main circuit
+V
Output
Inflow current :Max. 30mA — Load
0V

Line driver output — Main circuit
+V
A phase output
$\overline{\text{A}}$ phase output
0V

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

■Output waveform

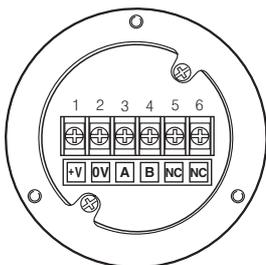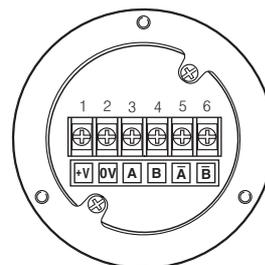| ENH−□−1−T−5, 24 ENH−□−1−V−5, 24	ENH−□−2−T−5, 24 ENH−□−2−V−5, 24	ENH−□−1−L−5	ENH−□−2−L−5
A phase, B phase $\frac{T}{2} \pm \frac{T}{4}$, $\frac{T}{4} \pm \frac{T}{8}$	A phase, B phase $\frac{T}{2} \pm \frac{T}{4}$, $\frac{T}{4} \pm \frac{T}{8}$	A phase, $\overline{\text{A}}$ phase, B phase, $\overline{\text{B}}$ phase $\frac{T}{2} \pm \frac{T}{4}$, $\frac{T}{4} \pm \frac{T}{8}$	A phase, $\overline{\text{A}}$ phase, B phase, $\overline{\text{B}}$ phase $\frac{T}{2} \pm \frac{T}{4}$, $\frac{T}{4} \pm \frac{T}{8}$
Clickstopper position(Normal "H")	Clickstopper position(Normal "L")	Clickstopper position(Normal "H")	Clickstopper position(Normal "L")

※Clickstopper position Normal " H " or Normal " L " : It shows the waveform when the handle is not stopped.

■Connections

●Totem pole output / Voltage output

1 2 3 4 5 6
+V 0V A B NC NC

※Do not use terminal No. 5, 6.

●Line driver output

1 2 3 4 5 6
+V 0V A B $\overline{\text{A}}$ $\overline{\text{B}}$

■Dimensions

$\phi 77 \, ^{+0}_{-0.3}$
35
20 ± 0.1
0.2
25.4
66.95 ± 0.5
$\phi 59.8 \, ^{0}_{-0.2}$
$\phi 80 \pm 0.1$

Autonics

3−M4×0.7
L=10
P.C.D 72
3−120°

1 2 3 4 5 6
+V 0V A B NC NC

(Unit:mm)

※ ϕ70mm PCD mounting hole type is customizable.