MAGNETIC LINEAR INCREMENTAL ENCODER

Magnetic Linear Incremental Encoder (ML Series)

ML-E-01-003001

※ The above specifications are subject to change without notice.

Ordering Information

ML	10㎛	T	24	

Series	Resolution	Control output	Power supply	Protection
ML: Magnetic Linear Encoder	1㎛, 2㎛, 5㎛, 10㎛, 20㎛, 25㎛, 50㎛, 0.1㎜, 0.2㎜ 0.25㎜, 0.5㎜, 1㎜	T:Totem pole output N:NPN O.C output V:Voltage output L:Line driver output	5 :5VDC 24:12~24VDC	No mark: IP65 IP67 : IP67

Connections

■ T:Totem pole Output N:NPN O.C Output V:Voltage Output

Function	Color	Function	Color
OUT A	Green	+V	Red
OUT B	White	GND(0V)	Black
Shield	F.G.	N.C	Blue

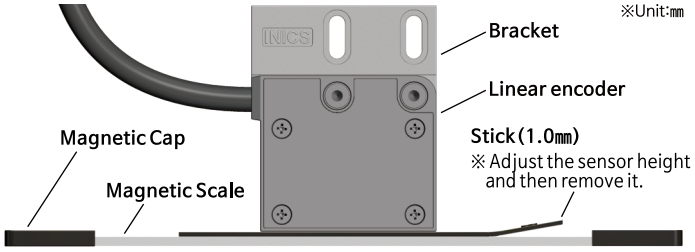
■ L:Line driver Output

Function	Color	Function	Color
OUT A	Green	OUT $\overline{A}$	Yellow
OUT B	White	OUT $\overline{B}$	Blue
+V	Red	GND(0V)	Black
Shield	F.G.	-	

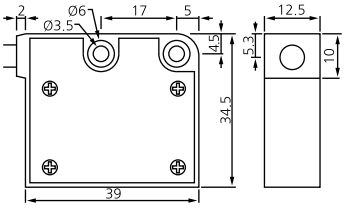
※ Unused wires must be insulated.
※ The encoder and shield cable must be grounded (F.G.).
※ F.G. (Frame Ground) must be grounded separately.

Dimensions

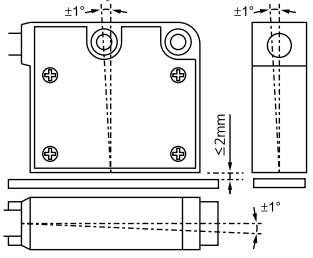
※Unit:㎜



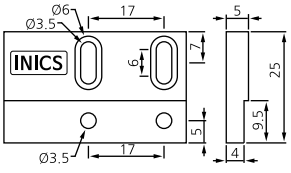
■ Linear encoder



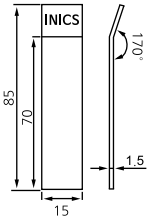
■ Assembly tolerance



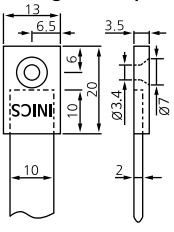
■ Bracket



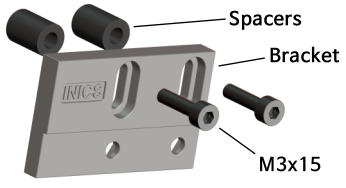
■ Stick(1.0㎜)

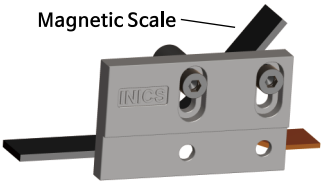


■ Magnetic cap



Magnetic Scale Mounting





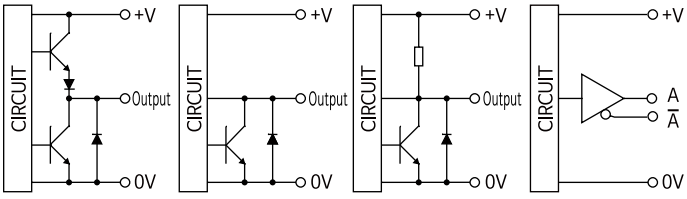
Specifications

Model		Magnetic Linear Incremental Encoder
Power supply		5VDC±5%, 12VDC~24VDC±5% (Ripple P-P : Max. 5%)
Current consumption		Max. 100㎃(no load)
Resolution(4x mode)		1㎛, 2㎛, 5㎛, 10㎛, 20㎛, 25㎛, 50㎛, 0.1㎜, 0.2㎜, 0.25㎜, 0.5㎜, 1㎜
Edge separation		≥25㎲
Control Output	Totem pole output	「L」Level - Load current: Max.10㎃, Residual voltage: Max. 1VDC 「H」Level - Load current: Max.10㎃ Power voltage: Min.(Power voltage-2.5VDC)
	NPN O.C output	Load current: Max. 20㎃, Residual voltage: Max. 1VDC
	Voltage output	Load current: Max. 10㎃, Residual voltage: Max. 1VDC
	Line driver output	Load current : 「H」Level Io = Max. -20㎃, 「L」Level Is = Max. 20㎃ Output voltage: Min.(Power voltage-2.5VDC), Vs = Max. 0.5VDC
Response time	Totem pole output	Max. 1㎲ (Cable length : 1.5m, I sink=20㎃)
	NPN O.C output	Max. 2㎲ (Cable length : 1.5m, I sink=20㎃)
	Voltage output	
	Line driver output	Max. 1㎲ (Cable length : 1.5m, I sink=20㎃)
System accuracy		±100㎛
Repeatability		±1increment
Shock		Max. 50G
Vibration		Max. 5G
Protection		IP65, IP67 (IEC standard)
Enviro-nment	Ambient temperature	-10 ~ 60℃ (no freezing or condensation)
	Storage temperature	-20 ~ 85℃ (no freezing or condensation)
	Ambient humidity	35% ~ 85% RH
	Storage humidity	35% ~ 90% RH
Material		PA66-GF30
Accessory		Basic : Product, Bracket, Stick, Spacers, Bolt, Instruction manual Option: Magnetic Scale, Magnetic Cap, Bolt
Cable		Shield cable, Length: 1.5m
Approval		CE

※ The PA66-GF15 is a lightweight material with very high stiffness, excellent wear resistance, very high strength, and resistance to oil and fuel applied to the aviation, automobile and machine industries.

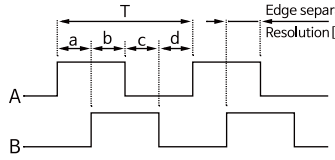
Control output diagram

■ Totem pole Output ■ NPN O.C Output ■ Voltage Output ■ Line driver Output



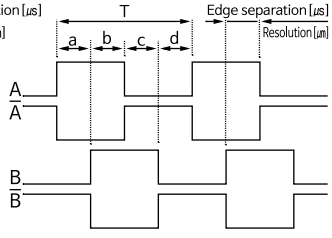
Output Waveform

■ Totem pole Output, NPN O.C Output, Voltage Output



a+b, c+d = T/2 ±T/4
a, b, c, d = T/4 ±T/8

■ Line driver Output



Cautions during use

■ Environment
Please do not use this unit with below environment, or it may cause malfunction.
1) Place where this unit or component may be damaged by strong vibration or impact.
2) Place where there is a lot of flammable or corrosive gases.
3) Place where strong magnet field or electric noise occurs.
4) Place where strong acids or alkali near and direct ray of the sun.

■ Cautions during installation
1) Do not connect, repair, or inspect the unit while connected to a power source.
2) If a big impact or strong vibration applies to the product it may cause pulse errors.

■ Wire Connection
1) Do not pull out the wire with over 20N strength after fixing the unit and wiring the cable.
2) if wire encoder cable with high voltage line or power cable in the same conduit, it may cause a malfunction or mechanical problem. Please wire it separately or use separated conduit.

■ **Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.**
1) medical equipment, ship, vehicle, railways, aircraft, safety equipment, etc
2) Failure to follow this instruction may result in personal injury, economic loss or fire