Rotary encoder

HE68B

INSTRUCTION MANUAL

Thank you for purchasing HANYOUNG product.
Please check whether the product is the exactly same as you ordered.
Before using the product, please read this instruction manual carefully.
Please keep this manual where you can view at any time

HANYOUNG NUX

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Safety information

⚠ DANGER	DANGER indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury
⚠ WARNING	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
⚠ CAUTION	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury

⚠ Warning

- Since this product is not designed as a safely used device the user must install double safety equipment when this product is used for equipment with possible fatal accident or large property damage.

⚠ Caution

- Please check for correct model type and specification.
- Please check for any damage or abnormality that may occurred during shipment.
- Rotary encoder is composed of very precision parts so impacting strong shock to the product may damage the function therefore, please handle with care.
- The shield wire of rotary encoder is not connected to the CASE
- If the device is touched or contacted by water then short-circuit and fire may occur so please inspect the device with care
- We recommend the continuous inspection and repair in order to use it safely for a long period of time.
- Not following this instruction manual may result in personal injury and property damage.

■ About Mega Test

- Although it has an internal voltage 800 V d.c in between the CASE and electric circuit, internal electric circuit may get damaged or destroyed if users use wrong method when applying the voltage. Therefore, please do not perform the mega test.

■ About Installation

- When installing, do not apply strong force or twist the rotational axis of encoder.
- The life expectancy of rotary encoder varies depending on the using condition or environment so please be cautious
- Do not disassemble, manufacture, upgrade and repair the product by yourself.
- Please turn OFF the product and disassemble the product. Not doing so will break down the product and cause malfunction to occur.
- Rotary encoder is composed of very precision parts so impacting strong shock to the product may damage the function therefore, please handle with care.
- When installing the rotational axis of rotary to the device, please use the Coupling and when installing the Coupling to axis, do not apply strong force.
- When mounting the product, as the eccentricity and angle deviation become larger, the force applied to the shaft will become large too and result may damage the product or shorten the life expectancy.

■ About Environment.

Please avoid using this product at following environment. Doing so may break down the product or cause malfunction to occur.

- Place where the internal parts or structure become damaged by the strong vibration and shock
- Place near to the machine which generates the strong electromagnetism or electrical noise
- Place that does not fall into the given specification especially for ambient temperature and humidity.

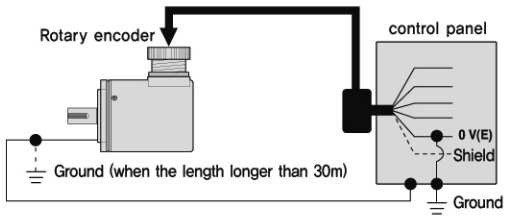
■ About wiring

- Please separate the input signal wire and output signal wire from each other but when separating them from each other is impossible, please use the shield wire for input wire.
- When there are too much noises generating from the power, we recommend using the insulation Trans and noise filter.
- Please check the polarity of terminal before wiring.
- Please make the wiring length as short as possible
- Wiring the rotary encoder wire and power wire to each other may cause malfunction to occur so please be cautious.
- False wiring of rotary encoder may break down the internal circuit so please be cautious
- If type for applying power is SMPS, surge may occur so please connect noise filter (surge observer) to the power terminal and doing so will solve the problem that corresponds to the surge. Also, in order to minimize the effect causing by noise and etc, please make the wiring as short as possible.
- When extending or drawing out the cable, please use the Twist Pair wire. Shield wire must be connected to the F.G terminal!

■ About the vibration

- If strong vibration or shock is carried out through the rotary encoder, incorrect pulse may be generated and this may end up as malfunction of system so please be cautious about the installation place, mounting place and etc.
- As there are much of pulse generation per 1 rotation, the slit gap of rotational slit gets narrower so it may be influenced by vibration easily and the vibration applied during spinning or when it is stopped, it will be carried through out this device so may generate the wrong pulse so please be cautious.
- When inserting the coupling to Shaft, do not apply shock by using the hammer and etc

■ For noise prevention



Distance from the control panel	Connection method of rotary encoder
More than 30m	For the case of rotary encoder, please connect it to the controlling case with wire type 3 - 5,5 ㎟. For the 0 V (E) terminal, please connect it to the controlling case with the same type of wire and ground it one more time.
Less than 30m	Refer to the information on the above and ground the rotary encoder.

※ Not following the information on the above when handling the product may damage the product so please follow it at all times.

Suffix code

Model	Code						Information
HE68B-	15	1024	6	L	□	C	Shaft type rotary encoder. Incremental
Diameter	15						External diameter : Ø68 ㎜, diameter : Ø15 ㎜
Number of pulse		1024					1024 Pulse/Revolution
Output signal (number of phase)			6				A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$
Output circuit				L	5		Line Driver output (5 V d.c)
					12		Line Driver output (12 V d.c)
					24		Line Driver output (24 V d.c)
Cable specification						C	Connector

※ Pulse without resolving power is optional
※ Output circuit is same among A, $\overline{A}$, B, $\overline{B}$, Z, $\overline{Z}$ phase

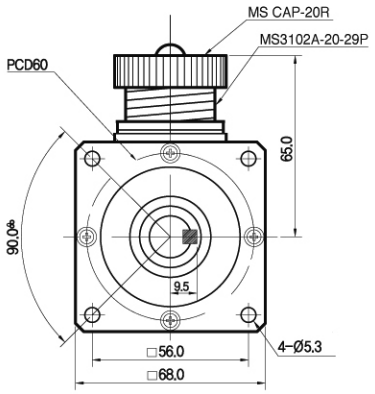
Specification

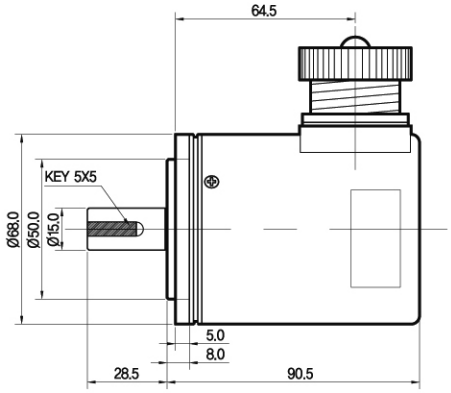
Model		HE68B-15-1024-6-L-□
Output type		Line Driver Output
Electrical Specification	Output signal	A, $\overline{A}$ / B, $\overline{B}$ / Z, $\overline{Z}$ phase output
	Phase difference on Output	Phase difference between A, B phase T/4 ± T/8 (Cycle of A phase = T)
	Max Response Frequency	100 kHz max.
	Power Voltage	5 / 12 / 24 V d.c ±5 %
	Current Consumption	60 ㎃ Max.(No-load) Line Drive output
	Connection method	Connector extended type
	Control output	For Low (Load Current : 20 ㎃ max. Residual Voltage : 0.4 V max.) For High (Load Current : 20 ㎃ max. Residual Voltage : Power Voltage 2.5 V min.)
	Response Time	1 ㎲ max. (Cable length 1.5 m, sinking current = 30 ㎃ max.)
Mechanical Specification	Starting Torque	0.15 N · m max.
	Permissible Shaft Loading	Radial : With in 196 N, Thrust : With in 98 N
	max. Permissible Revolution	5,000 r/min
Insulation Resistance		Over 100 ㏁ (Base on 500 V d.c mega between terminal and case)
Dielectric strenght		800 V a.c (Between terminal and case at 60 Hz for 1 minute)
Vibration Resistance		10 - 55 ㎐(Cycle for 1 minute), Double amplitude width : 1.5 ㎜, Each X · Y · Z direction for 2 hours
Shock Resistance		735 ㎨ max.
Operating Ambient Temperature		-10 ~ 70 ℃ (Without condensation), Storage Temperature : -25 ~ 85 ℃
Operating Ambient Humidity		35 ~ 85 % R.H.
Connection method		Connector (MS3102A-20-29P)
Weight		Approx. 600 g (included the weight of box)

Dimension

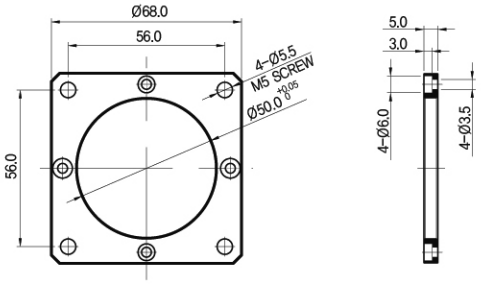
[unit : ㎜]

■ Ø68 Diameter



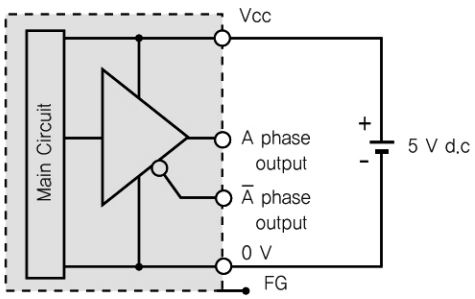


■ Accessories



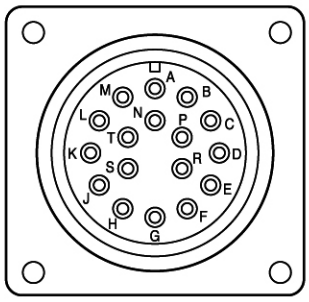
Control output circuit diagram

Line Driver Output	
Internal Circuit of Encoder	Example of external connection



※ The output circuit of A, B, Z Phase (Line drive output A, Ā, B, B̄, Z, Z̄ Phase) is same.

Connection diagram

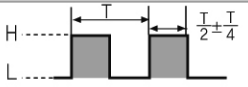
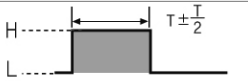


Pin No.	Information	Pin No.	Information
A	A Phase	K	0 V
B	Z Phase	L	N.C
C	B Phase	M	0 V
D	N.C	N	Ā Phase
E	5 V d.c	P	Z̄ Phase
F	N.C	R	B̄ Phase
G	N.C	S	N.C
H	5 V d.c	T	Shield(F.G)
J	N.C	-	-

※ N.C (Not Connected) : Do not connect
※ E/H and K/M terminals are Connected internally

Output wave

■ Line Driver Output

Output	Clockwise(CW)	Counterclockwise(CCW)
OUT A		
OUT Ā		
OUT B		
OUT B̄		
OUT Z		
OUT Z̄		

∗Clockwise (CW) : When you are looking at the shaft of the product, it is turning in a clockwise direction.
∗Counterclockwise (CCW) : When you are looking at the shaft of the product, it is turning in a counterclockwise.