Autonics

ROTARY ENCODER(INCREMENTAL TYPE)
E68S15 SERIES
M A N U A L

Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

▣ Caution for your safety

※Please keep these instructions and review them before using this unit.

※Please observe the cautions that follow;

⚠ **Warning** Serious injury may result if instructions are not followed.

⚠ **Caution** Product may be damaged, or injury may result if instructions are not followed.

※The following is an explanation of the symbols used in the operation manual.
⚠caution:Injury or danger may occur under special conditions.

⚠ Warning

1. When use this unit for controlling highly affective equipment to human or properties. (Medical instrument, Vehicles, Train, Airplane, combustion apparatus, entertainment, etc.), it requires installing a fail safety device.
It may cause serious human injury or a fire, property.

⚠ Caution

1. Do not drop water or oil on this unit.
It may cause damage or miscontrol due to malfunction.

2. Please observe voltage rating.
It may shorten the life cycle or damage to the product.

3. Please check the polarity of power and wrong wiring.
It may result in damage to this unit.

4. Do not short circuit the load.
It may result in damage to this unit.

▣ Ordering information

E68S15	1024	6	L

Series	Pulse/1 revolution	Output phase	Output
Rotary encoder (Incremental type) Diameter ϕ68, Shaft ϕ15	1024 P/R	6 : A, B, Z $\overline{A}$, $\overline{B}$, $\overline{Z}$	L:Line Driver output

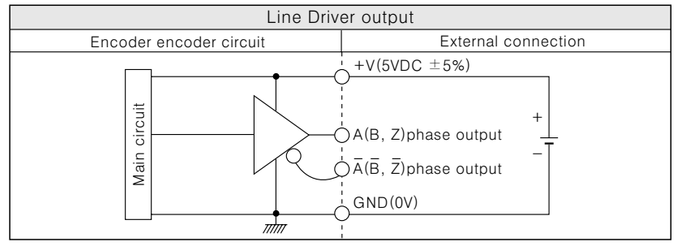
※The above specification are changeable without notice anytime.

▣ Specification

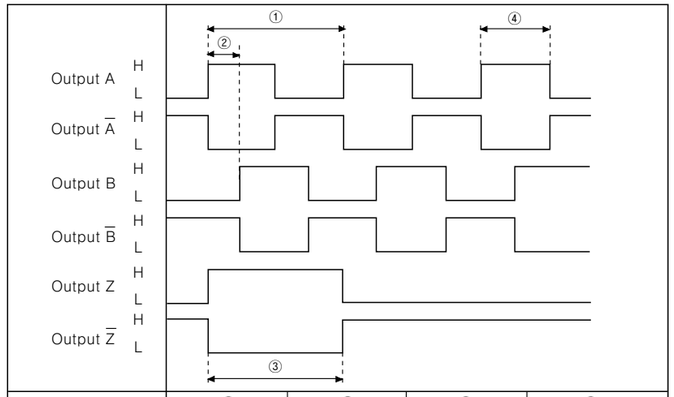
Item			Rotary Encoder(Incremental type)
Model			E68S15−□□□□−□−L
Resolution(P/R)			1024 pulse(P/R)
Electrical specification	Output phase		A, B, Z, $\overline{A}$, $\overline{B}$, $\overline{Z}$ Phase
	Phase difference of output		Phase difference between A and B phase:T/4 ± T/8(T=1cycle of A phase)
	Output Duty rate		A, B phase Duty rate:T/2 ±T/8, Z phase Duty rate:T ±T/4
	Control output	Totempole output	————
		Line Driver output	Low ☞ Load current : Max. 20mA, Residual voltage : Max. 0.5V
			High ☞ Load current : Max. −20mA, Output voltage : Min. 2.5V
	Response time (Rise & Fall)	Totempole output	————
		Line Driver output	Rise time : Max. 1㎲ Fall time : Max. 700ns (Cable : 1m, at sink current = 20mA)
	Power supply	Totempole output	————
		Line Driver output	5VDC ± 5%(Ripple P−P:Max. 5%)
	Current consump−tion	Totempole output	————
		Line Driver output	Max. 100mA
	Oferation frequency		110kHz
	Connection		Connector : MS3102A20−29P
Mechanical specification	Starting torque		Max. 1.5kgf • cm(Max. 147,000㎌ N • m)
	Staft loading		Radial : 20kgf, Thrust : 10kgf
	Deviation of shaft position		Radial : Max. 0.1mm, Thrust : Max. 0.2mm
	Mechanical revolution(rpm)		6,500rpm
Insulation resistance			Min. 50MΩ(at 500VDC)
Dielectric strength			500VAC 50/60Hz for 1minute
Vibration			1.5mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours
Shock			Max. 30G
Ambient temperature			Operating:−10 to 70℃(Non−freezing condition), Storage:−25 to 85℃
Ambient humidity			Operating:35 to 85%RH, Storage:35 to 90%RH
Protection			IP50(IEC specification)
Weight			Approx. 550g

※Control output type is optional by every model. ———— is not developed yet.
※Resolution and output phase can be developed or changed by company specification.
※Max. allowable revolution(rpm) =(Max. response frequency / Max. resolution) ×60
[Max response frequency ≦ Max. allowable revolution]

▣ Control output diagram



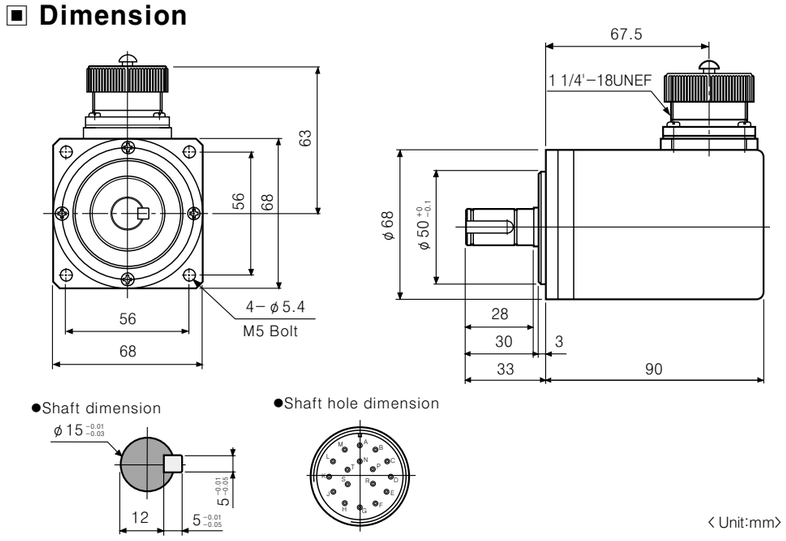
▣ Output waveform



Standard error	①	②	③	④
	T(1 Cycle)	T/4 ± T/8	T ± T/4	T/2 ± T/8

※Revolving direction : CW direction.

▣ Dimension

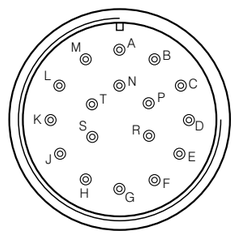


〈Unit:mm〉

▣ Connection

Code	Connection	Code	Connection
A	A phase	K	0V(NC)
B	Z phase	L	NC
C	B phase	M	NC(0V)
D	NC	N	$\overline{A}$ phase
E	5VDC(NC)	P	$\overline{Z}$ phase
F	NC	R	$\overline{B}$ phase
G	NC	S	NC
H	NC(5VDC)	T	NC(Shield)
J	NC	——	——

※( )is Option.
※N.C : Not Connected.



▣ Caution for using

1. Installation
   ①This unit is consisted of precision components. Therefore please treat this product carefully.
   ②For the installation, please check the assembly dimension of mate target, then try not to occur the offset between them.
   ③When you install this unit, if eccentricity and deflection angle on it are larger, it may shorten the life cycle of this unit.
2. Environment
   Please do not use this unit with below environment, it results in malfunction.
   ①Place where this unit or component may be damaged by strong vibration or impact.
   ②Place where strong magnet field or electric noise are occurred.
   ③Place where is beyond of rating temperature or humidity.
3. Vibration and Impact
   ①Do not put strong impact when insert coupling into shaft.
   ②Please fix bracket firmly when mount it in order to avoid malfunction by residual vibration.
4. Wire connection
   ①If use the cable of encoder and high voltage line or power cable in the same conduit, it may cause a malfunction or mechanical trouble. Please wire separately or use separated conduit.
   ②When the power source is a Switching power, please install the surge absorber in power line and wire should be shorter in order not to be influenced by noise.
   ③Use SIL attached Twist Pair wire for cable lead or extension.
   ④Please connect shield wire to terminal of F.G.

※It may cause malfunction if above instructions are not followed.

▣ Main products

■ COUNTER
■ TIMER
■ TEMPERATURE CONTROLLER
■ PANEL METER
■ TACHOMETER
■ LINE SPEED METER
■ DISPLAY UNIT
■ PROXIMITY SWITCH
■ PHOTOELECTRIC SENSOR
■ FIBER OPTIC SENSOR
■ PRESSURE SENSOR
■ ROTARY ENCODER
■ SENSOR CONTROLLER
■ POWER CONTROLLER
■ STEPPING MOTOR & DRIVER & CONTROLLER

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NO20020528−EP−KE−09−0068B