

# SHAFT TYPE

## Heavy Duty Model

- Compact Sized Encoder with OD50mm x L33mm.
- High Specification Type with Up to 5000P/R.

# 50S Model



### Model

**50S**- [ ] - [ ] - **8** - [ ] - [ ] - **00E**

Resolution

Outer diameter shaft 8 :  $\phi 8$

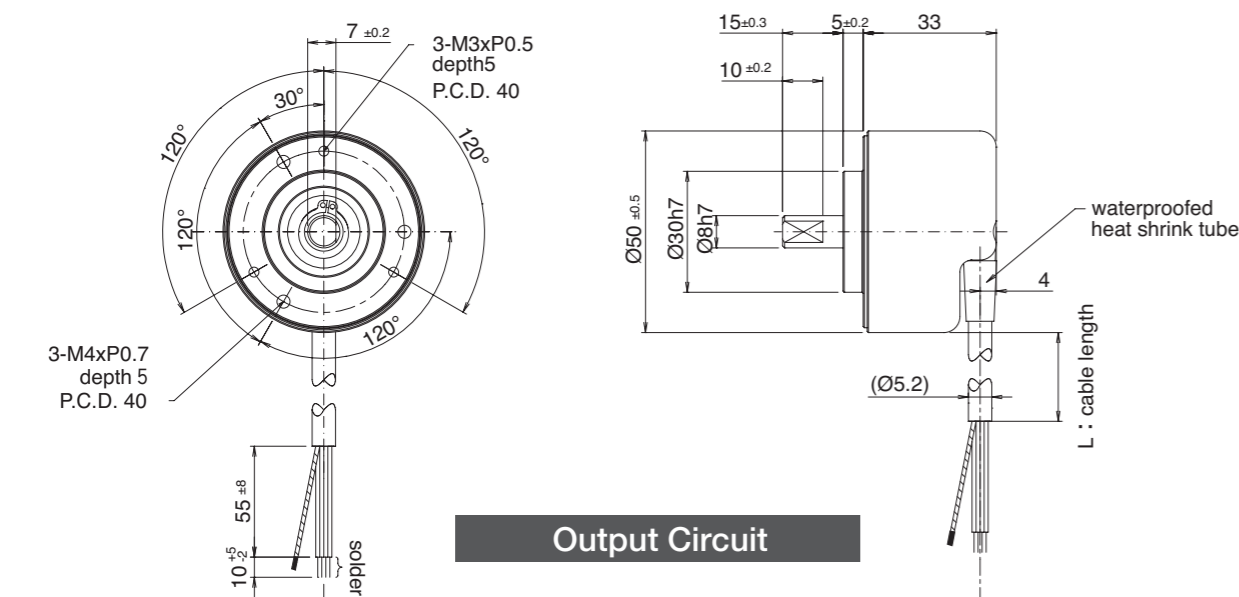
Cable Length  
200 : 2000mm  
300 : 3000mm  
500 : 5000mm

Output Mode  
2MC : A, B, Z Open Collector Output  
2MT : A, B, Z Complementary Output  
2MD : A, B, Z Line Driver Output

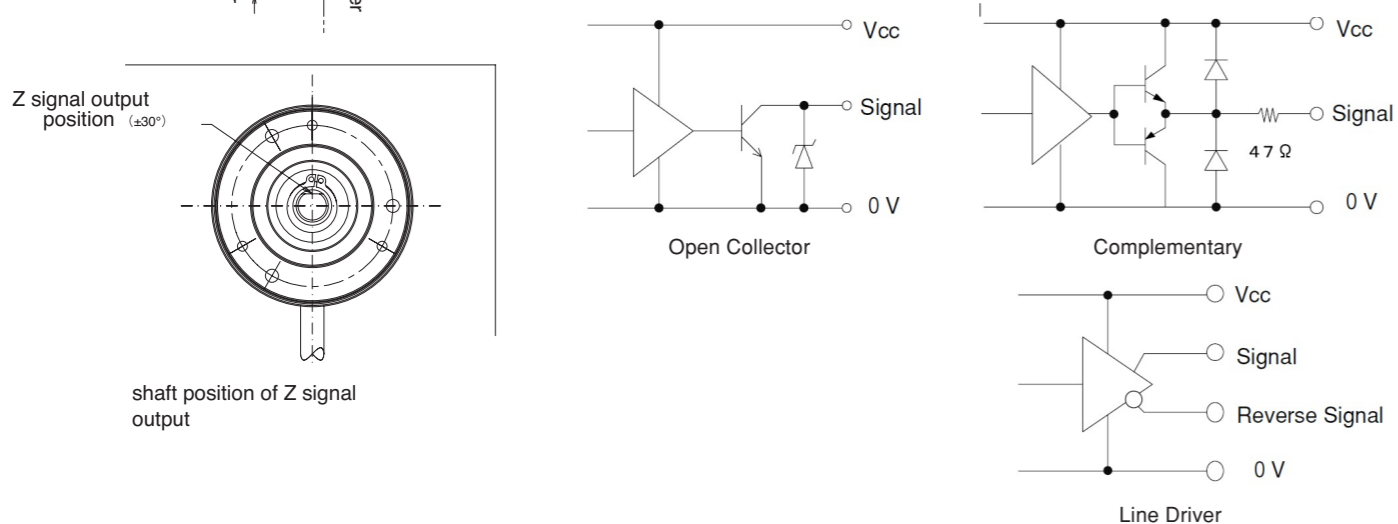
Complying with RoHS

360	360 P/R	1000	1000 P/R	2000	2000 P/R
500	500 P/R	1024	1024 P/R	5000	5000 P/R

### External Dimension



### Output Circuit

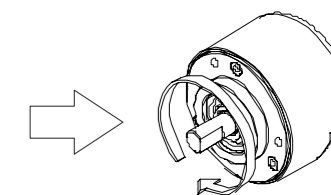
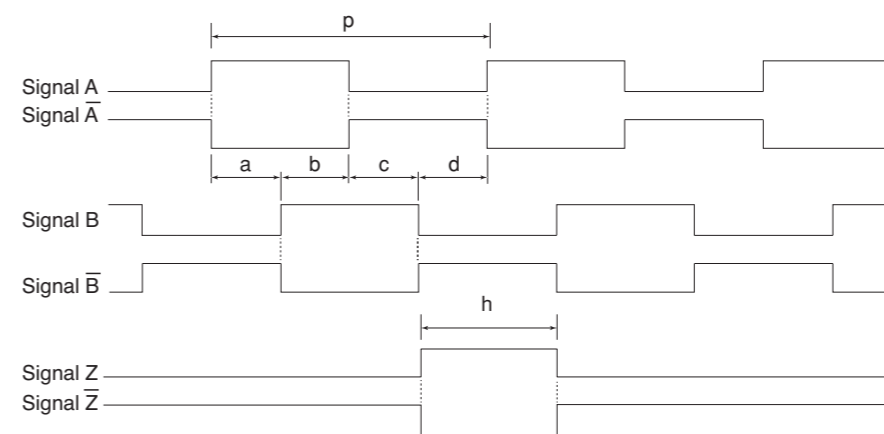


### Electrical Spec

TYPE		2MC	2MT	2MD
Power Supply(Vcc)		DC 4.5 to 30V (Ripple 3% or less (P-P))		
Current Consumption		30mA Max	60mA Max	30mA Max
Output Voltage	"H"	-	Vcc - 3V Min	2.5V Min
	"L" *1	0.5V Max	3V Max	0.5V Max
Maximum Sink Current		40mA		20mA
Maximum Frequency Response	500P/R or less	120kHz		
	1000P/R or more	240kHz		
Rise & Fall Time		1 $\mu$ s Max	200ns Max	100ns Max

\*1) at Maximum Sink Current

### Wave Form



CW → Rotating Toward Clockwise Viewed from an Arrow

$P = 1 / \text{Resolution}$

Line driver output is available for only A, B, Z signal.

Signal A,B  $a, b, c, d = (P/4) \pm (P/8)$   
Duty =  $(P/2) \pm (P/4)$

Signal Z  $(P/4) \leq h \leq (3P/4)$

### Electrical Connections

Open Collector · Complementary		Line Driver	
Red	Vcc	Red	Vcc
Black	0V	Black	0V
Blue	Sig A	Green	Sig A
White	Sig B	Blue	Sig A-bar
Yellow	Sig Z	White	Sig B
Shield	N.C	Gray	Sig B-bar
-	-	Yellow	Sig Z
-	-	Orange	Sig Z-bar
-	-	Shield	N.C

### Mechanical Spec

Starting Torque	9.8x10 <sup>-3</sup> N·m Max(at 25°C)
Angular Acceleration	1x10 <sup>5</sup> rad·s <sup>-2</sup>
Shaft Loading	Thrust 49.0N
	Radial 78.4N
Moment of Inertia	8x10 <sup>-7</sup> kg·m <sup>2</sup>
Maximum Permissible Speed	5000min <sup>-1</sup>
Net Weight	250g Max (Without Cable)

### Environmental Spec

Operating Temperature	-10°C~+85°C
Storage Temperature	-30°C~+85°C
Humidity	RH 85% Max No Condensation
Vibration	10~55 Hz / 1.5mm X,Y,Z Each 2h
Shock	980m/s <sup>2</sup> , 11ms X, Y, Z Each 3 times
Ingress Protection	IP65