

# Incremental 78-mm-Dia. Rotary Encoder

M78SA/M78SB

General purpose encoder with external Diameter of 78mm

- Incremental model
- External diameter of 78mm
- Resolution up to 5400 ppr.
- Various output type
- Solid shaft with Dia at 10 mm



## Ordering Information

M78SA/M78SB-              

1      2    3    4    5    6    7

### Section 1: Basic Model Name

**M78SA:** 78mm Rotary Encoder(Mounting Type A)  
**M78SB:** 78mm Rotary Encoder(Mounting Type B)

Refer to drawings for the difference between M78SA/M78SB

### Section 2: Shaft Size

**10:** Solid shaft with Dia at 10 mm

### Section 3: Resolution

10: 10 ppr  
 20: 20 ppr

40 50 60 80 100 120 125 150  
 200 225 240 250 256 300 360 400 450  
 480 500 512 600 625 720 750 800 900  
 1000 1024 1080 1200...up to 5400

Not indicated resolution is customizable

### Section 4: Output phase

**3:** A B Z  
**6:** A  $\bar{A}$  B  $\bar{B}$  Z  $\bar{Z}$

### Section 5: Output type

**T:** Push-pull(also known as totem-pull)  
**N:** NPN Open collector  
**P:** PNP Open collector  
**V:** Voltage output  
**L:** Line driver(**Power source 5VDC ONLY, 6 phase**)  
**K:** Push-Pull(**With inverted signal, 6 phase**)

### Section 6: Power Supply

**30:** 5-30 VDC(+/- 5%)  
**5:** 5 VDC(+/- 5%)

### Section 7: Cable outgoing type

**G:** Side entry cable  
**X:** Side entry plug

▲Standard cable length is 2M

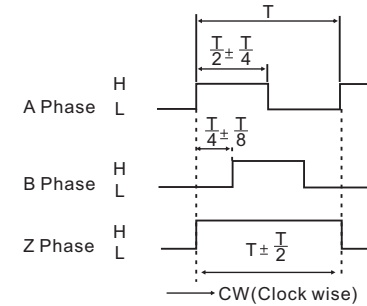
## Ratings and Specifications

- Power supply:** 5 VDC / 8-30 VDC  
**Resolution:** 5-5400 ppr  
**Current consumption:** 100mA(Load disconnected)  
**Load current:** 50mA maximum per channel 20mA maximum per channel (Line driver output)  
**Output type:** NPN/PNP open collector/Complementary/Voltage/Line Driver/Push-Pull(HTL with reverse signal)  
**Frequency:** 100K HZ Frequency=RPM\*Resolution/60  
**Maximum permissible speed:** 6000 rpm  
**Shaft loading radial:** 25N  
**Shaft loading thrust:** 35N  
**Weight:** Approx 0.42KG  
**Protection level:** IP50  
**Temperature:** operation(-10°C~+70°C), storage(-30°C~+85°C)  
**Vibration resistance:** 50m/s, 10-200 HZ, 1 mm double amplitude for 2 hours each in X, Y, and Z directions  
**Shock resistance:** 980m/s, 6m/s 2 times each in X, Y, and Z directions  
**Starting torque:** 5 x 10<sup>-3</sup> N.m Maximum

## Output circuits and wave forms

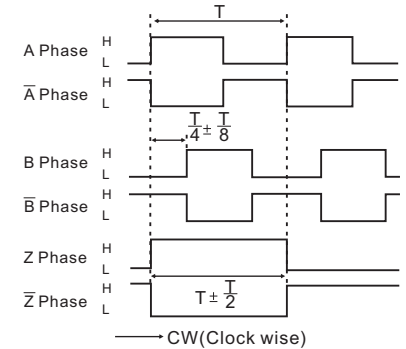
### Wave forms

Complementary/Open collector(NPN&PNP)/Voltage output

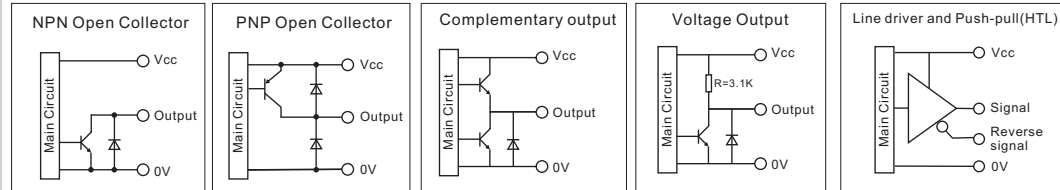


CW: As viewed from the shaft

Line Driver(RS422)/Push-pull(HTL with reverse signal)

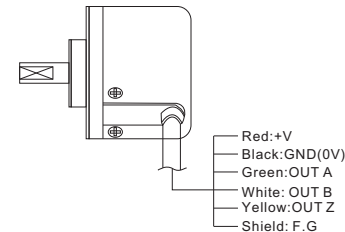


### Output circuits

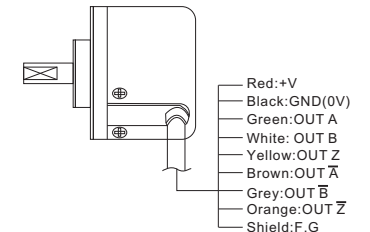


## Wiring Details

Complementary/Open collector(NPN/PNP)/Voltage output



Line Driver/ Push-pull(HTL with reverse signal)



## Mounting and Dimensions

