

INCREMENTAL  
SHAFT TYPE  
**KS68A Series**

■ Features : Machine tools, Industrial robot,  
Rigid shaft type (Industrial robot),  
Various resolution

**ROTARY  
ENCODER**

Model

INCREMENTAL  
SHAFT TYPE  
Outer Diameter Ø68

Shaft Size  
15 : Ø15

**KS68A**

**- 15 -**

Resolution(P/R)

0100 1000 1024  
2000 2048

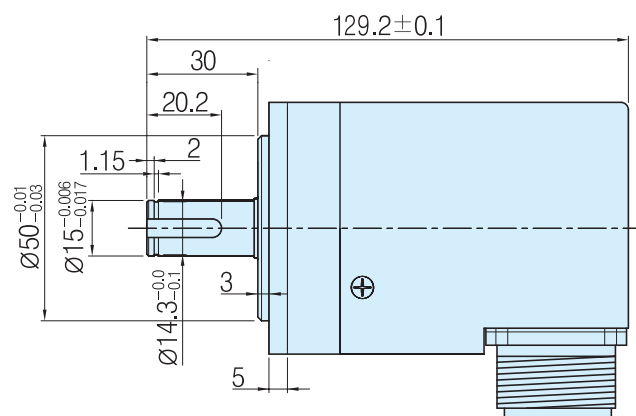
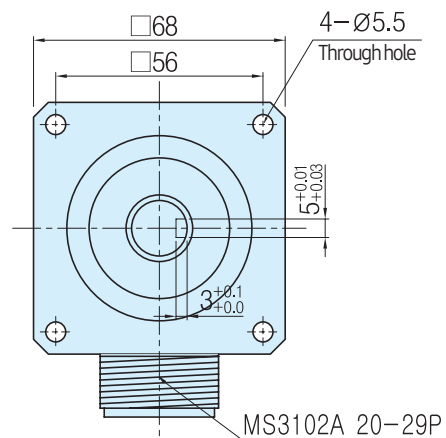
Output Signal

**Z** : A, B, Z  
**U** : A,  $\bar{A}$ , B,  $\bar{B}$   
**V** : A,  $\bar{A}$ , B,  $\bar{B}$ , Z,  $\bar{Z}$

Output Form

**O** : Open Collector  
**V** : Voltage Output  
**T** : Totem Pole  
**L** : Line Driver

External Dimension



Note) The sepc of power may be different depending on the type of output and be sure to check the electric spec.

Output Circuit

| Output  | Open Collector | Voltage Output | Totem Pole | Line Driver |
|---------|----------------|----------------|------------|-------------|
| Circuit |                |                |            |             |

Electrical Spec.

| Output type                            | Open Collector                                                                                                                                                                                                          | Voltage Output                     | Totem Pole                                | Line Driver                       |
|----------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------|-------------------------------------------|-----------------------------------|
| Power Supply                           | DC +15[V]<br>Ripple-p:less than 5%                                                                                                                                                                                      | DC +15[V]<br>Ripple-p:less than 5% | DC +5[V] ~ 24[V]<br>Ripple-p:less than 5% | DC +5[V]<br>Ripple-p:less than 5% |
| Consuming Current (In case of no load) | 70mA Max                                                                                                                                                                                                                | 70mA Max                           | 150mA Max                                 | 150mA Max                         |
| Maximum Response Frequency             | 150 KHz (10 ~ 2048 P/R)                                                                                                                                                                                                 |                                    |                                           |                                   |
| Output voltage                         | Less than V <sub>0.5</sub> [V]/More than V <sub>0.5</sub> [V] (In case of inputting +5[V]), /More than V <sub>1.0</sub> [V] (In case of inputting +15[V]) /More than V <sub>1.8</sub> [V] (In case of inputting +24[V]) |                                    |                                           |                                   |
| Output current                         | Less than 20mA                                                                                                                                                                                                          | Less than 20mA                     | Less than 10mA                            | Less than 20mA                    |
| Rising, decline time                   | Less than 3μs                                                                                                                                                                                                           | Less than 3μs                      | Less than 1μs                             | Less than 0.1μs                   |
| Common conditions                      | In case that the cable length of output side is 1[M] and load resistance is less than 1[kΩ]                                                                                                                             |                                    |                                           |                                   |

Mechanical Spec.

|                                        |                                                       |
|----------------------------------------|-------------------------------------------------------|
| Starting Torque                        | 800gf - cm Max                                        |
| Maximum number of revolution           | 8000 rpm                                              |
| Bearing lifetime                       | 100,000[hr] (In case of rotating by 5000rpm)          |
| Allowable Shaft Load                   | Radial : 5kgMax<br>Axial : 5kgMax                     |
| Position deflection of allowable shaft | Radial : Less than 0.05 mm<br>Axial : Less than 0.2mm |
| Connection Table                       | MS3102A 20-29P                                        |
| weight                                 | 720g                                                  |

Rigid Spec.

|                       |                                |
|-----------------------|--------------------------------|
| Operating Temp. Range | -10°C ~ +70°C<br>(No freezing) |
| Preserving temp       | -20°C ~ +85°C                  |
| Using humidity        | 35% ~ +85% RH                  |
| Preserving Humidity   | 30% ~ +95% RH                  |
| Internal Vibratio     | 5G                             |
| Internal Shock        | 50G                            |
| Degree of Protection  | IP 54                          |

Output Phase Shift

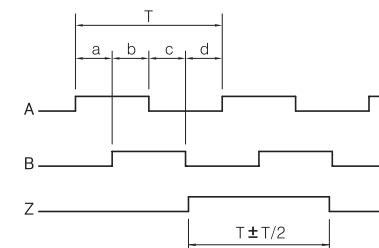
CW ➡ Clockwise viewed from shaft end

$$a + b, c + d = T/2 \pm T/10$$

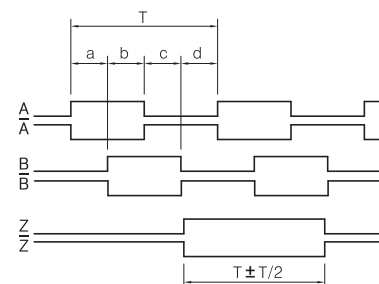
$$a, b, c, d = T/4 \pm T/10$$



Open Collector, Voltage Output  
Totem Pole



Line Driver



Connection Table

| Cable's Color | Output Signal                                  |               |
|---------------|------------------------------------------------|---------------|
| Pin code      | Open Collector<br>Voltage Output<br>Totem Pole | Line Driver   |
| H             | Vcc                                            | Vcc           |
| K, M          | GND                                            | GND           |
| A             | ASig                                           | ASig          |
| N             | -                                              | $\bar{A}$ Sig |
| C             | BSig                                           | BSig          |
| R             | -                                              | $\bar{B}$ Sig |
| B             | ZSig                                           | ZSig          |
| P             | -                                              | $\bar{Z}$ Sig |
| T             | CASE Shield                                    | CASE Shield   |