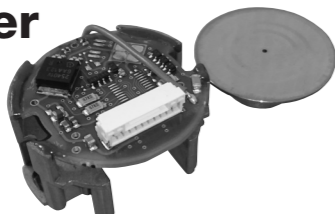


Modular Encoder

38M Model



Small Modular Model

- Wide Range of Resolution from 200 to 4096 P/R.
- Rotating Speed of 10000min⁻¹ Available for High Speed Motor.



Model

38M- [] - [] - A [] - 00E

Resolution: 50 : φ5 60 : φ6

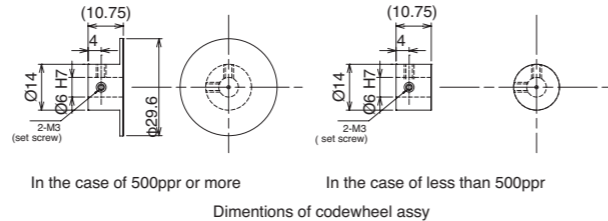
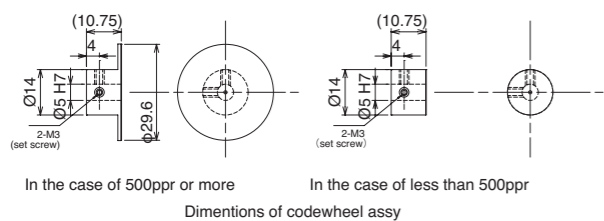
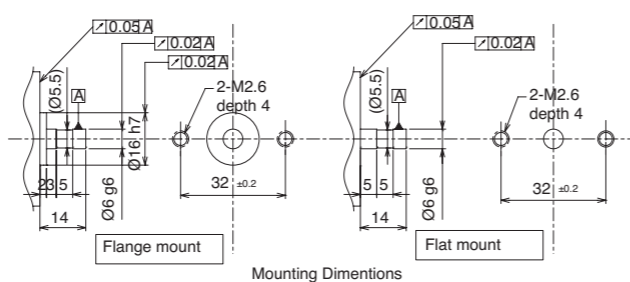
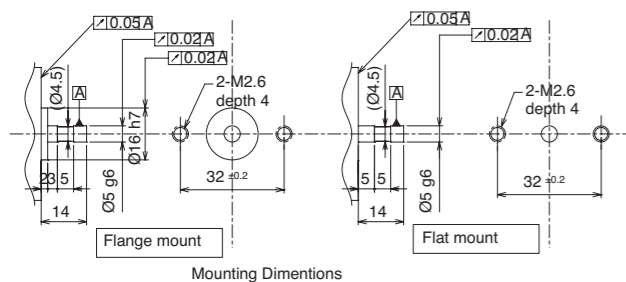
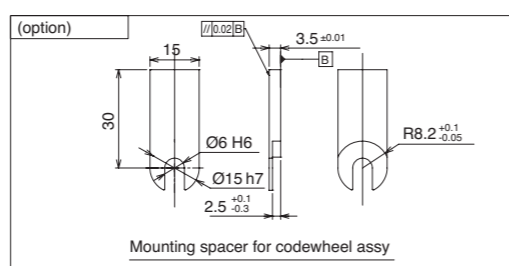
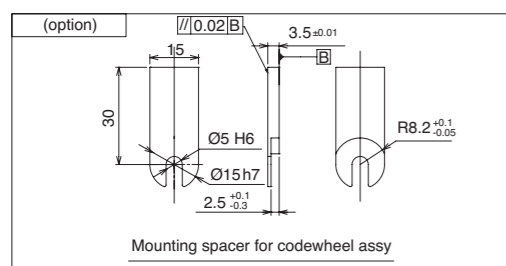
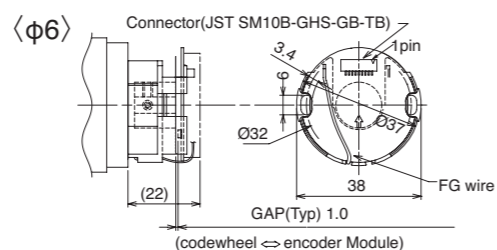
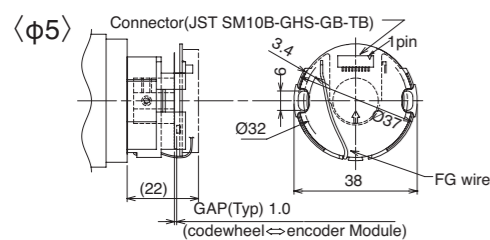
Output Mode: 2MC : A, B, Z Open Collector Output
2MT : A, B, Z Complementary Output
2MD : A, B, Z Line Driver Output

Outer diameter motor shaft: 50 : φ5 60 : φ6

Complying with RoHS

| | | | | | | | | | |
|-----|--------|-----|--------|------|---------|------|---------|------|---------|
| 200 | 200P/R | 360 | 360P/R | 1000 | 1000P/R | 2048 | 2048P/R | 4000 | 4000P/R |
| 250 | 250P/R | 500 | 500P/R | 1024 | 1024P/R | 2500 | 2500P/R | 4096 | 4096P/R |
| 300 | 300P/R | 512 | 512P/R | 2000 | 2000P/R | 3600 | 3600P/R | - | - |

External Dimension

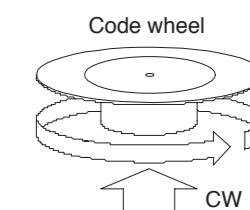
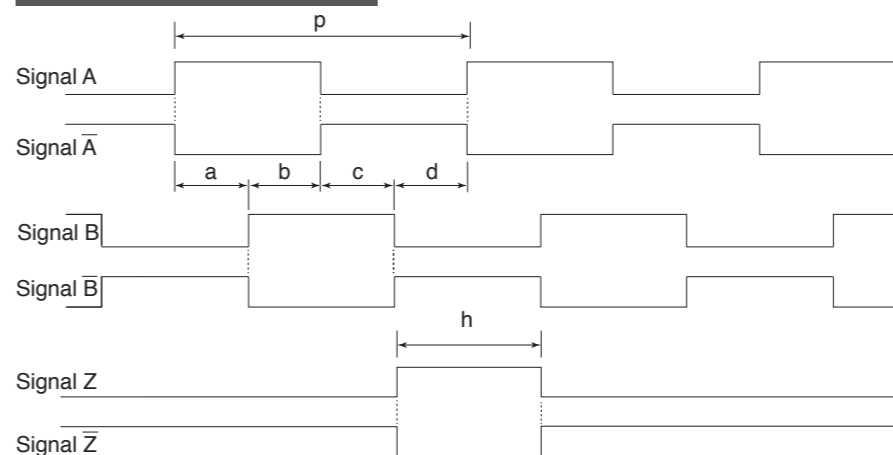


Electrical Spec

| TYPE | | 2MC | 2MT | 2MD |
|----------------------------|-----------------|---|-------------|---|
| Power Supply(Vcc) | | DC 4.5 to 30V (Ripple 3% or less (P-P)) | | DC 4.5 to 13.2V (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 | 1024P/R or less | 120kHz | | |
| | 2000P/R or more | 240kHz | | |
| Rise & Fall Time | | 1μs Max | 200ns Max | 100ns Max |

*1) at Maximum Sink Current

Wave Form



CW → Rotating Toward Clockwise Viewed from an Arrow

* P = 1 / Resolution

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

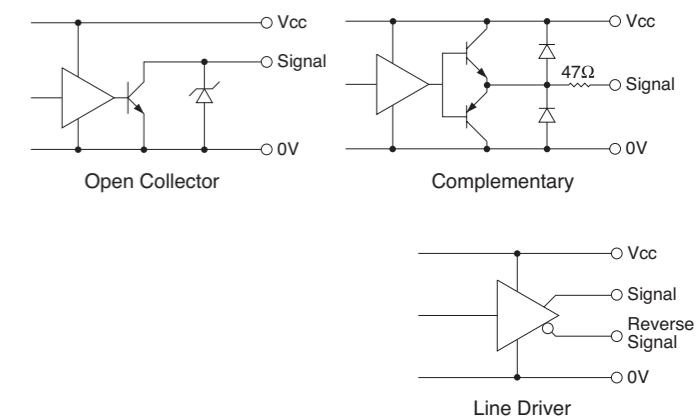
Signal A,B a,b,c,d= (P/4)±(P/8)
Duty = (P/2)±(P/4)
Signal Z (P/4) ≤ h ≤ (3P/4)

Electrical Connections

Connector JST SM10B-GHS-GB-TB

| Open Collector · Complementary | | Line Driver | |
|--------------------------------|-------|-------------|-----------|
| 1 | Vcc | 1 | Vcc |
| 2 | 0V | 2 | 0V |
| 3 | Sig A | 3 | Sig A |
| 4 | - | 4 | Sig A-bar |
| 5 | Sig B | 5 | Sig B |
| 6 | - | 6 | Sig B-bar |
| 7 | Sig Z | 7 | Sig Z |
| 8 | - | 8 | Sig Z-bar |
| 9 | - | 9 | - |
| 10 | FG | 10 | FG |

Output Circuit



Mechanical Spec

| | |
|-------------------------------|--|
| Angular Acceleration | 1×10 ⁵ rad/s ² |
| Moment of Inertia | 9.3×10 ⁻⁷ kg·m ² Max |
| Allowable Value of shaft play | Thrust : ±0.25mm Max |
| Maximum Permissible Speed | 10000min ⁻¹ |

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 | 490m/s ² , 11ms X, Y, Z Each 3 times |