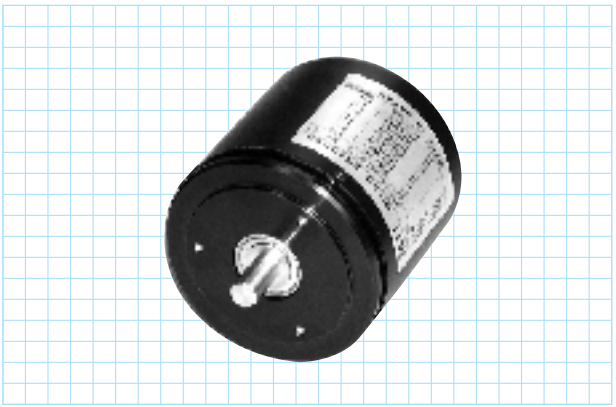
# MXS-series

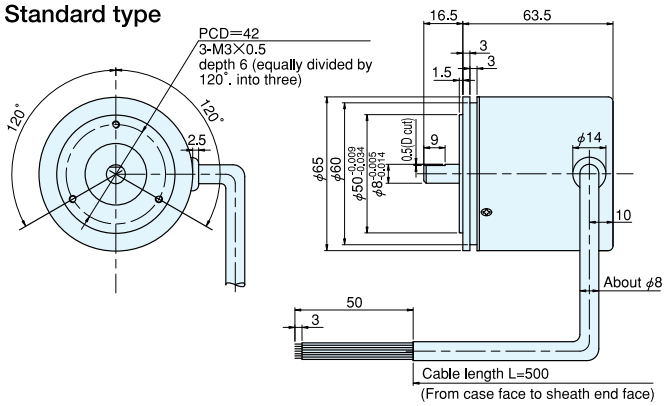
[High-resolution Multiple-rotation
(64 rotations max) Absolute Type Encoder]

- High-reliability operation without internal battery is possible. (Batteryless)
- Permitting a total count of $2^{18}$ max. high-resolution
- O.D. $\phi$65×63.5
- Multiple-rotation (64 rotations max.) absolute output
- Selection of gray code output without reading error or pure binary code
- Selection of side-cable, rear-cable, or connector type
- IP64 drip-proof option possible (rear-cable type)

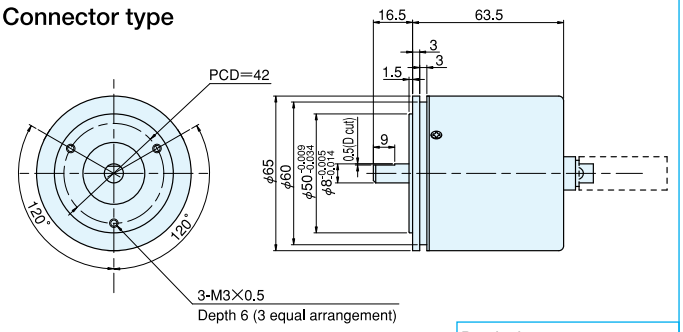


## Outside dimensions

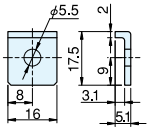
### Standard type




### Connector type




Detailed servo mount clamp




## Specifications

| Item | | Type name: MXS□-○○-△□□□□-◇ (Drip-proof (W); Rotation; One rotation resolution; Output signal code ●G=gray code ●N=pure binary code; Output method No mark: voltage output C:open collector output) |
|---|---|---|
| Supply voltage | | Voltage output:DC5V-5%～12V+10%<br>Open collector output:C DC5V-5%～24V+15% |
| Current consumption | | Voltage output:400mA or less<br>Open collector output:C 200mA or less |
| Output code | | G:gray code<br>N:pure binary code |
| Output logic | | No mark: positive logic; N: negative logic |
| Output pulse number (Standard) [Pulse number/rotation] | | 128 1,024<br>256 2,048<br>512 4,096 |
| Rotation number | | 2・4・8・16・32・64・100(N only) |
| Maximum response frequency | | 40kbit/s |
| Starting torque | | 2mN・m (typ)<br>Drip-proof 9.8mN・m (typ) |
| Shaft allowable load (electrical) | Radial | 49N (5kgf) |
| | Thrust | 29.4N (3kgf) |
| Working temperature/ humidity | | -10°C～70°C/RH95%以下 (no dewing) |
| Storage temperature | | -20°C～80°C |
| Vibration resistance | | Durability 0-500Hz, double amplitude 1.52mm<br>2 hours each in X, Y, and Z directions |
| Impact resistance | | Durability 11msec (about 50G)<br>3 times each in X, Y, and Z directions |

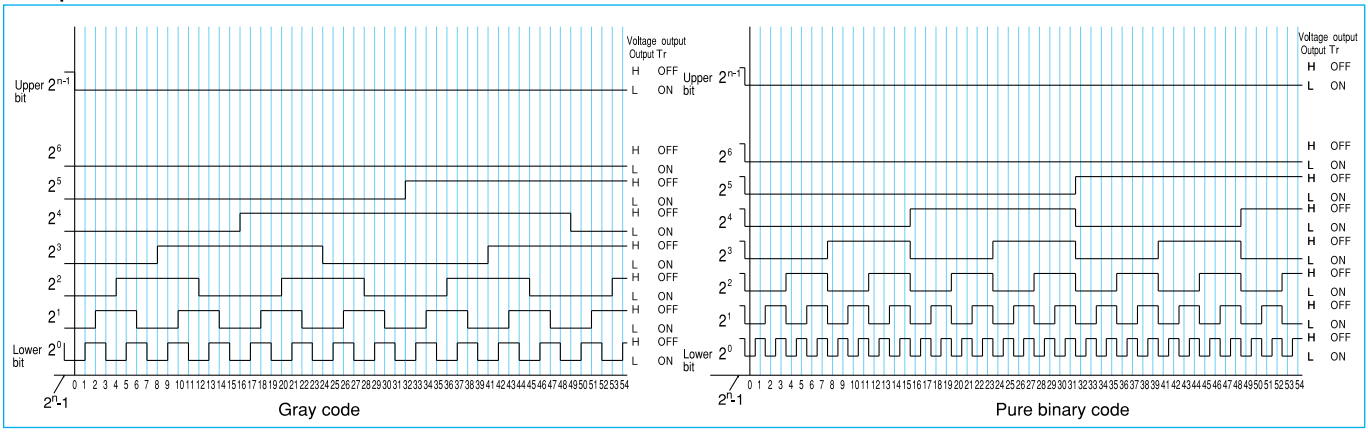
## Connection

a) Cable

| Cable color | Output signal | Cable color | Output signal |
|---|---|---|---|
| Brown | $2^0$ | Brown/White | $2^{10}$ |
| Red | $2^1$ | Red/White | $2^{11}$ |
| Orange | $2^2$ | Orange/White | $2^{12}$ |
| Yellow | $2^3$ | Yellow/White | $2^{13}$ |
| Green | $2^4$ | Green/White | $2^{14}$ |
| Blue | $2^5$ | Blue/White | $2^{15}$ |
| Purple | $2^6$ | Purple/White | $2^{16}$ |
| Gray | $2^7$ | Gray/White | $2^{17}$ |
| White | $2^8$ | Yellow/Black | Vcc |
| Black | $2^9$ | White/Black | COMMON |
| | | Shield | Cable shield |

b) Connector

| Pin No. | Output signal | Pin No. | Output signal |
|---|---|---|---|
| 1 | $2^0$ | 13 | $2^{12}$ |
| 2 | $2^1$ | 14 | $2^{13}$ |
| 3 | $2^2$ | 15 | $2^{14}$ |
| 4 | $2^3$ | 16 | $2^{15}$ |
| 5 | $2^4$ | 17 | $2^{16}$ |
| 6 | $2^5$ | 18 | $2^{17}$ |
| 7 | $2^6$ | 19 | Vcc |
| 8 | $2^7$ | 20 | Vcc |
| 9 | $2^8$ | 21 | COMMON |
| 10 | $2^9$ | 22 | COMMON |
| 11 | $2^{10}$ | 23 | NC |
| 12 | $2^{11}$ | 24 | Frame ground |
| | | 25 | NC |

Note:
1) shielding cable is non-connected in encoder.
2) Those cable which are inneccessary for signals are to be cut.
3) The form bellow indicate 64 multy-turn and 4096P/R. When resolution is not enough, it becomes NC.

## Output code