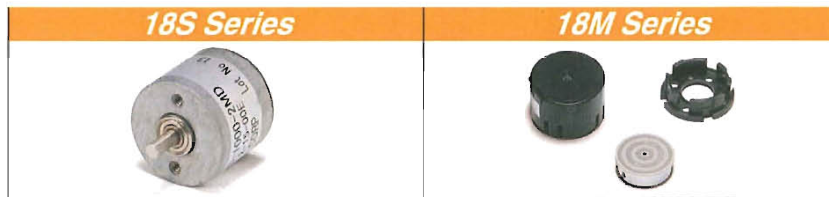


Φ18 FAMILY

Incremental Encoders

■ Connector (Hirose Electric)

| Output type | Parts Number |
|----------------|--------------|
| Open Collector | DF3-5S-2C |
| Line Driver | DF3-9S-2C |



| Electrical spec | | 18S Series | 18M Series |
|-----------------------------|----------------|--|--|
| Output Type | | A, B, Z (index signal) | |
| Resolution | | 100, 160, 200, 300, 360, 400, 500, 800, 1000, 1024, 1600 | 200, 300, 360, 400, 500, 800, 1000, 1024, 1600 |
| Supply voltage | Line driver | DC4.5~5.5V | |
| | Open collector | DC4.5~13.2V | |
| Current consumption | | 30mA (Max) | |
| Output current | | 20mA (Max) | |
| Operating frequency | | 240kHz (Max) | |
| Mechanical spec | | 18S Series | 18M Series |
| Shaft diameter | | Φ2.5 | Φ2.5 (Option Φ3~Φ6) |
| Sealing | | IP 50 | — |
| Starting torque | | 4.9×10 ⁻⁴ N·m or Less | — |
| Allowable load to the shaft | | Thrust : 4.9N / Radial : 2.94N | — |
| Moment of inertia | | 1×10 ⁻⁸ kg·m ² (Max) | 8×10 ⁻⁸ kg·m ² (Max) |
| Rotating speed | | 6000r/min. (Max) | 18000r/min. (Max) |

18S Series

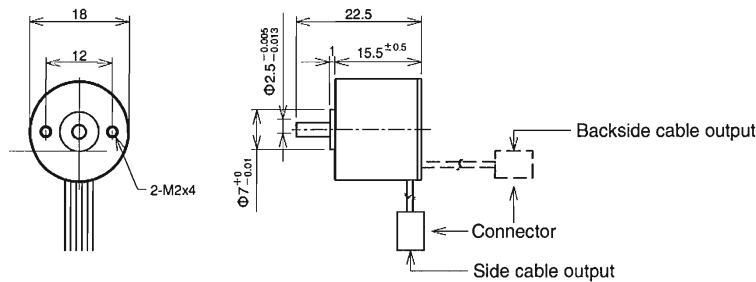
■ Type **18S - [] - [] - [] - 15 - 00 E**

Resolution
Refer to above

2MD : A, B, Z Line driver
2MC : A, B, Z Open collector

Cable length 15 : 15cm
1 : Backside cable output
2 : Side cable output

■ Dimensions (mm)



18M Series

■ Type **18M - [] - [] - [] - 25 - 15 - 00 E**

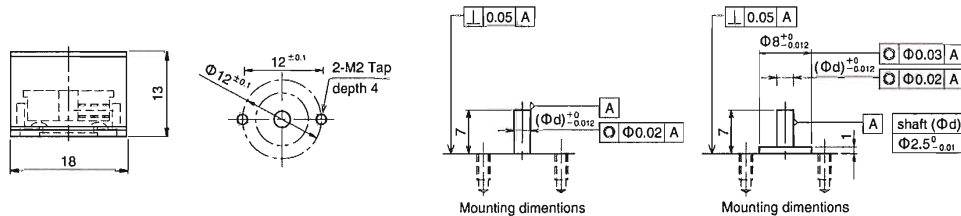
Resolution
Refer to above

2MD : A, B, Z Line driver
2MC : A, B, Z Open collector

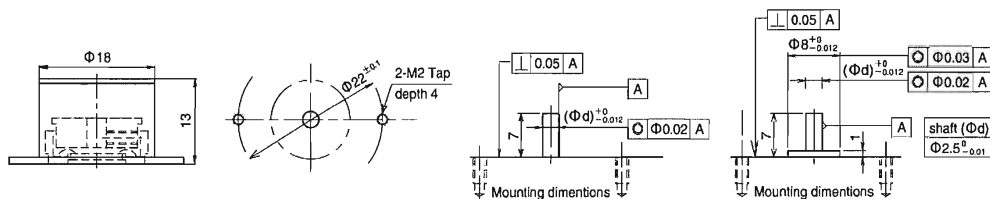
Cable length 15 : 15cm
Shaft size 25 : Φ2.5
Mounting pitch A : Φ12
B : Φ22

■ Dimensions (mm)

<Mounting pitch 12>



<Mounting pitch 22>



Φ18 / Φ38 Other Spec

Φ18 Cable assign

Open collector

| Pin No. | Color | Connection |
|---------|--------|------------|
| 1 | Brown | Vcc |
| 2 | Red | 0V |
| 3 | Orange | Sig A |
| 4 | Yellow | Sig B |
| 5 | Green | Sig Z |

Line driver

| Pin No. | Color | Connection |
|---------|--------|------------|
| 1 | Brown | Vcc |
| 2 | Red | 0V |
| 3 | Orange | Sig A |
| 4 | Yellow | Sig A |
| 5 | Green | Sig B |
| 6 | Blue | Sig B |
| 7 | Purple | Sig Z |
| 8 | Gray | Sig Z |
| 9 | Black | — |

38S / 38H Cable assign

Open collector / Complementary

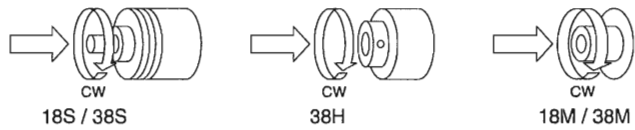
| Pin No. | Color | Connection |
|---------|--------|------------|
| 1 | Red | Vcc |
| 2 | Black | 0V |
| 3 | Blue | Sig A |
| 4 | White | Sig B |
| 5 | Yellow | Sig Z |
| 6 | Black | Shield |

Line driver

| Pin No. | Color | Connection |
|---------|--------|------------|
| 1 | Red | Vcc |
| 2 | Black | 0V |
| 3 | Green | Sig A |
| 4 | Blue | Sig A |
| 5 | White | Sig B |
| 6 | Gray | Sig B |
| 7 | Yellow | Sig Z |
| 8 | Orange | Sig Z |
| 9 | Black | Shield |

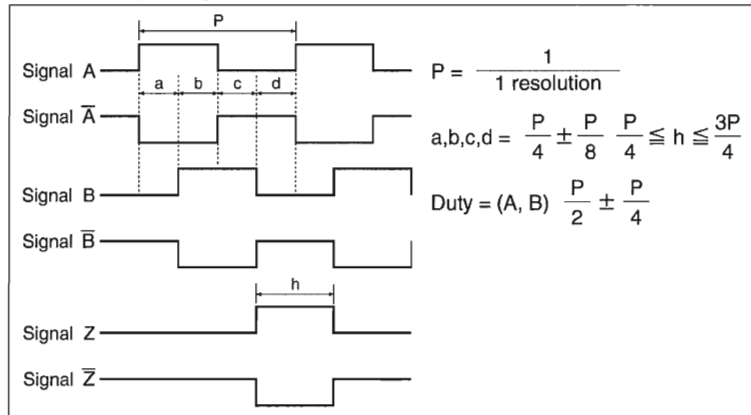
Output style

Rotation direction



Open collector output / Complementary output : Signal A, B, Z

Line driver output : Signal A, B, Z, /A, /B, /Z



38M Connector assign

Open collector / Complementary

| Pin No. | Connection |
|---------|------------|
| 1 | Vcc |
| 2 | 0V |
| 3 | Sig A |
| 4 | — |
| 5 | Sig B |
| 6 | — |
| 7 | Sig Z |
| 8 | — |
| 9 | — |
| 10 | Shield |
| 11 | — |

Line driver

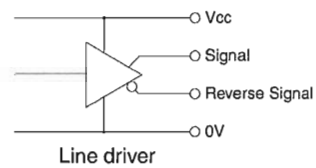
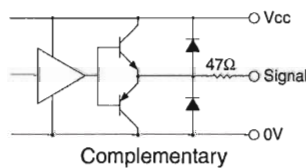
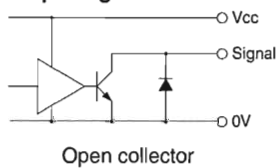
| Pin No. | Connection |
|---------|------------|
| 1 | Vcc |
| 2 | 0V |
| 3 | Sig A |
| 4 | Sig A |
| 5 | Sig B |
| 6 | Sig B |
| 7 | Sig Z |
| 8 | Sig Z |
| 9 | — |
| 10 | Shield |
| 10 | — |

Environmental spec

| | |
|-----------------------|---|
| Operating temperature | -10°C ~ +85°C |
| Humidity | RH 85% Max* |
| Vibration | 10~55Hz/1.5mm X, Y, Z direction each 2h |
| Shock | 490m/s ² , 11ms X, Y, Z direction each for 3 times |

*No Condensation

Circuit of Output Signal



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