

Φ18 FAMILY

Incremental Encoders

Connector (Hirose Electric)

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

18S Series



18M Series



Electrical spec

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

Shaft diameter	Φ2.5	Φ2.5 (Option Φ3~Φ6)
Sealing	IP 50	—
Starting torque	$4.9 \times 10^{-4} \text{N} \cdot \text{m}$ or Less	—
Allowable load to the shaft	Thrust : 4.9N / Radial : 2.94N	—
Moment of inertia	$1 \times 10^{-8} \text{kg} \cdot \text{m}^2$ (Max)	$8 \times 10^{-8} \text{kg} \cdot \text{m}^2$ (Max)
Rotating speed	6000r/min. (Max)	18000r/min. (Max)

18S Series

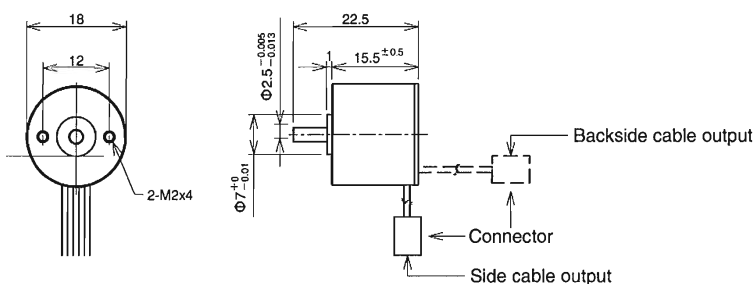
■ Type **18S - [] - [] - [] - 15 - 00 E**

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**

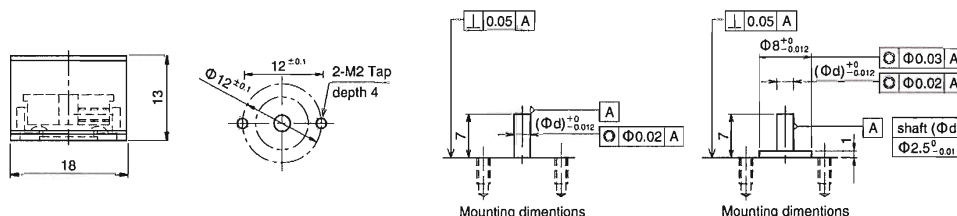
Resolution
Refer to above

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

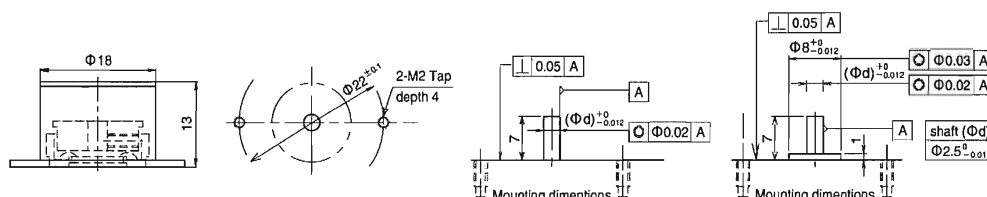
Cable length 15 : 15cm
Shaft size 25 : Φ2.5
Mounting pitch A : Φ12
B : Φ22

Dimensions (mm)

<Mounting pitch 12>



<Mounting pitch 22>



$\Phi 18 / \Phi 38$ Other Spec

■ $\Phi 18$ 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 $\bar{A}$
5	Green	Sig B
6	Blue	Sig $\bar{B}$
7	Purple	Sig Z
8	Gray	Sig $\bar{Z}$
9	Black	—

■ 38S / 38H Cable assign

Open collector / Complementary

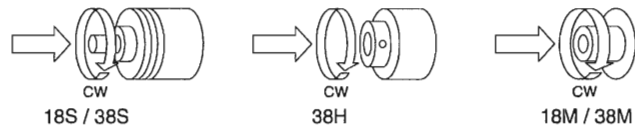
Pin No.	Color	Connection
1	Red	Vcc
2	Black	0V
3	Blue	Sig A
4	White	Sig B
5	Yellow	Sig Z
6	Black	Shield

Line driver

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

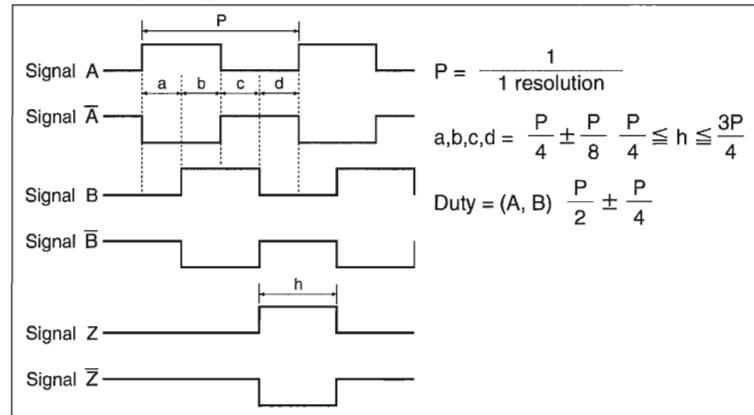
■ Output style

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

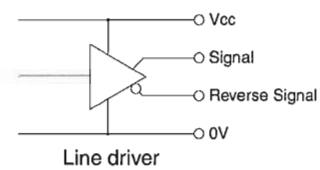
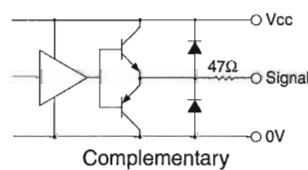
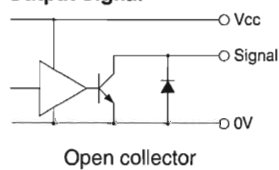
Pin No.	Connection
1	Vcc
2	0V
3	Sig A
4	Sig $\bar{A}$
5	Sig B
6	Sig $\bar{B}$
7	Sig Z
8	Sig $\bar{Z}$
9	—
10	Shield
10	—

■ 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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