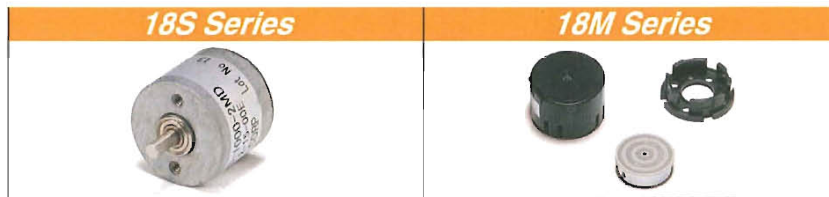


# Φ18 FAMILY

# 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 <sup>-4</sup> N·m or Less	—
Allowable load to the shaft		Thrust : 4.9N / Radial : 2.94N	—
Moment of inertia		1×10 <sup>-8</sup> kg·m <sup>2</sup> (Max)	8×10 <sup>-8</sup> kg·m <sup>2</sup> (Max)
Rotating speed		6000r/min. (Max)	18000r/min. (Max)

## 18S Series

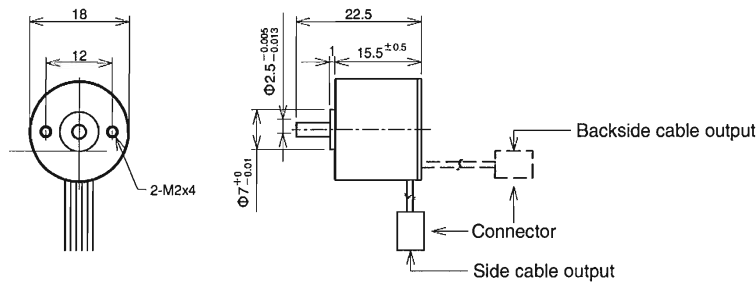
■ Type **18S - [ ] - [ ] - [ ] - 15 - 00 E**

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**

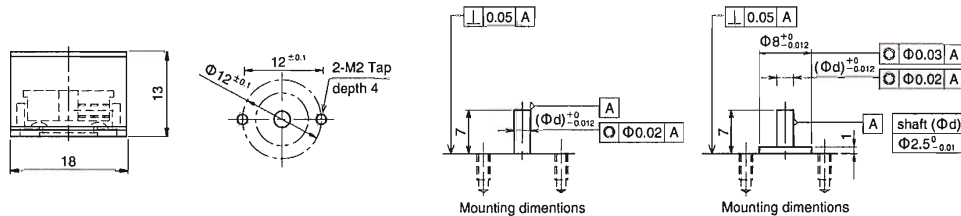
Resolution  
Refer to above

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

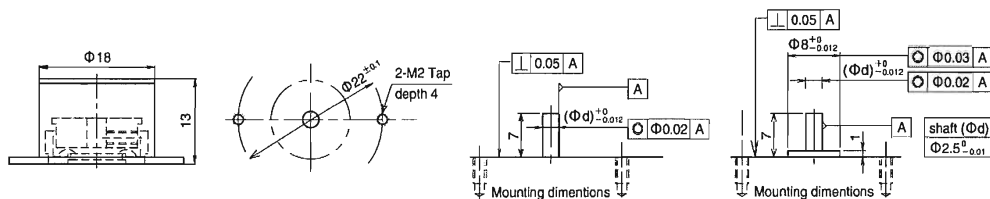
Cable length 15 : 15cm  
Shaft size 25 : Φ2.5  
Mounting pitch A : Φ12  
B : Φ22

■ 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

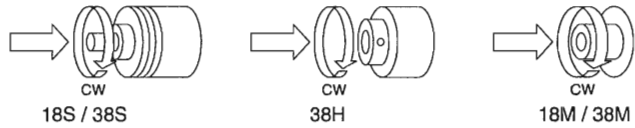
Pin No.	Color	Connection
1	Red	Vcc
2	Black	0V
3	Blue	Sig A
4	White	Sig B
5	Yellow	Sig Z
6	Black	Shield

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

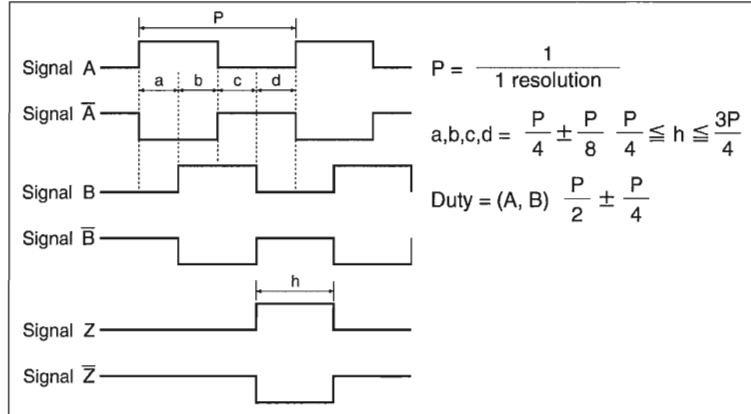
## Output style

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

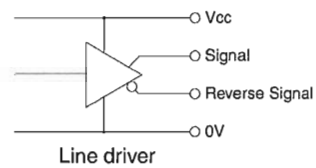
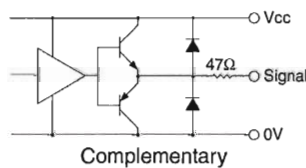
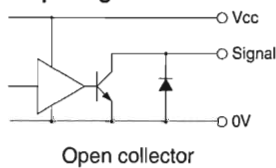
Pin No.	Connection
1	Vcc
2	0V
3	Sig A
4	Sig A
5	Sig B
6	Sig B
7	Sig Z
8	Sig Z
9	—
10	Shield
10	—

## 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 <sup>2</sup> , 11ms X, Y, Z direction each for 3 times

\*No Condensation

## Circuit of Output Signal



## We are here for you. Addresses and Contacts.

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