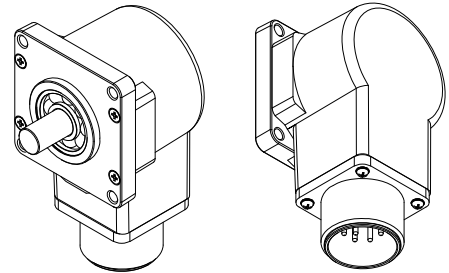


# S52F

## Specifications 1/5

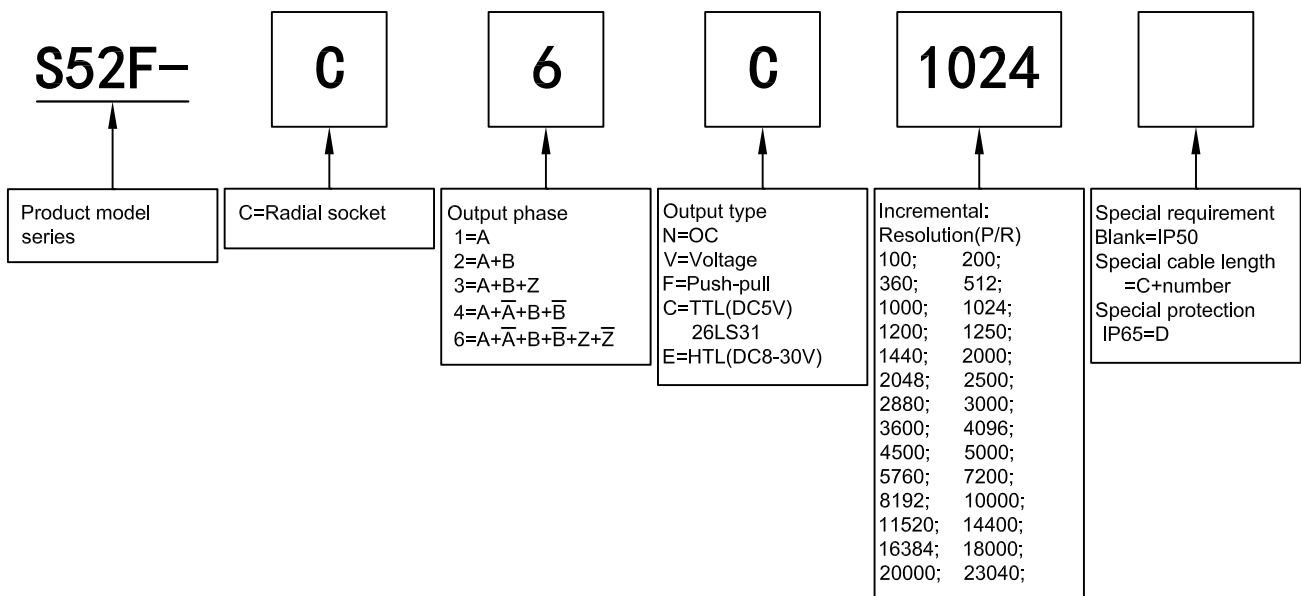
### Incremental Type(Solid shaft)

- Feature: easy to install,extremely sturdy and durable,heavy duty bearings
- Application: automation control for machine control,elevator industry,robot,etc
- External dimensions: flange52\*52mm,thickness 44mm,shaft Ø10mm
- Resolution: Max to 23040P/R
- Supply voltage: DC5V; DC8-30V
- Protection: IP50; IP65
- Cable length: Plug (cables are supplied by customers)
- Weight: about 300g



### Model Guide

- Model form (filled required parameters in the box as following)
- Must choose supply voltage: DC5V; DC8-30V
- If need coupling and special connecting cable, please purchase additionally (accessory at specifications 5/5 )



# S52F

## Specifications 2/5

### Output Mode

Output type	Output circuit	Output wave form	Connection
OC		<p> <math>a.b.c.d = \frac{T}{4} \pm \frac{T}{8}</math>                      Phase A is ahead of B by <math>\frac{T}{4} \pm \frac{T}{8}</math>, rotate direction CW (View from shaft end, direction is clockwise rotation)                      CW direction <math>\rightarrow</math> </p>	0=GND 1=D=red=DC5V; DC8-30V 2=F=black=OV 3=A=white=A 4=B=green=B 5=C=yellow=Z
Push-Pull		<p> <math>a.b.c.d = \frac{T}{4} \pm \frac{T}{8}</math>                      Phase A is ahead of B by <math>\frac{T}{4} \pm \frac{T}{8}</math>, rotate direction CW (View from shaft end, direction is clockwise rotation)                      CW direction <math>\rightarrow</math> </p>	
Voltage		<p> <math>a.b.c.d = \frac{T}{4} \pm \frac{T}{8}</math>                      Phase A is ahead of B by <math>\frac{T}{4} \pm \frac{T}{8}</math>, rotate direction CW (View from shaft end, direction is clockwise rotation)                      CW direction <math>\rightarrow</math> </p>	
TTL HTL		<p> <math>a.b.c.d = \frac{T}{4} \pm \frac{T}{8}</math>                      Phase A is ahead of B by <math>\frac{T}{4} \pm \frac{T}{8}</math>, rotate direction CW (View from shaft end, direction is clockwise rotation)                      CW direction <math>\rightarrow</math> </p>	

## ■ Electrical Characteristics

Parameter Item	Output type		OC	Voltage	Push-pull	TTL	HTL
	Supply voltage			DC+5V±5%; DC8V-30V±5%			DC+5V±5%
Consumption current			100mA Max				
Allowable ripple			≤3%rms				
Top response frequency			100KHz			200KHz	300KHz
Output capacity	Output current	Input	≤30mA	Load resistance 2.2K	≤30mA	≤±20mA	≤±50mA
		Output	—		≤10mA		
	Output voltage	"H"	—	—	≥[(Supply voltage)-2.5V]	≥2.5V	≥V <sub>CC</sub> -3 V <sub>DC</sub>
		"L"	≤0.4V	≤0.7V(less than 20mA)	≤0.4V(30mA)	≤0.5V	≤1V V <sub>DC</sub>
	Load voltage	≤DC30V		—	—		
Rise & Fall time			Less than 2us(cable length: 2m)			Less than 1us (Cable length: 2m)	≤100ns
Insulation strength			AC500V 60s				
Insulation resistance			10MΩ				
Mark to space ratio			45% to 55%				
Phase shift between A & B			90°±10° (frequency in low speed)				
			90°±20° (frequency in high speed)				
Origin motion			Low level available	High level available	Low level available	—	
GND			not connect to encoder				

## ■ Mechanical Characteristics

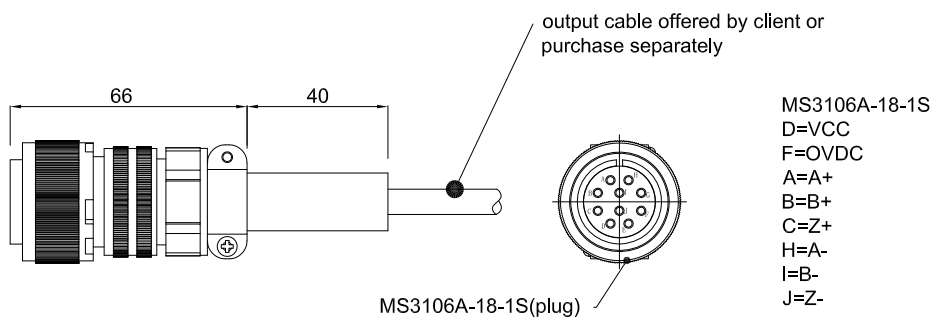
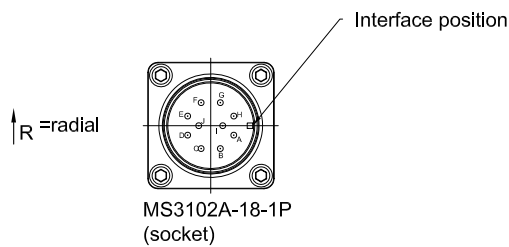
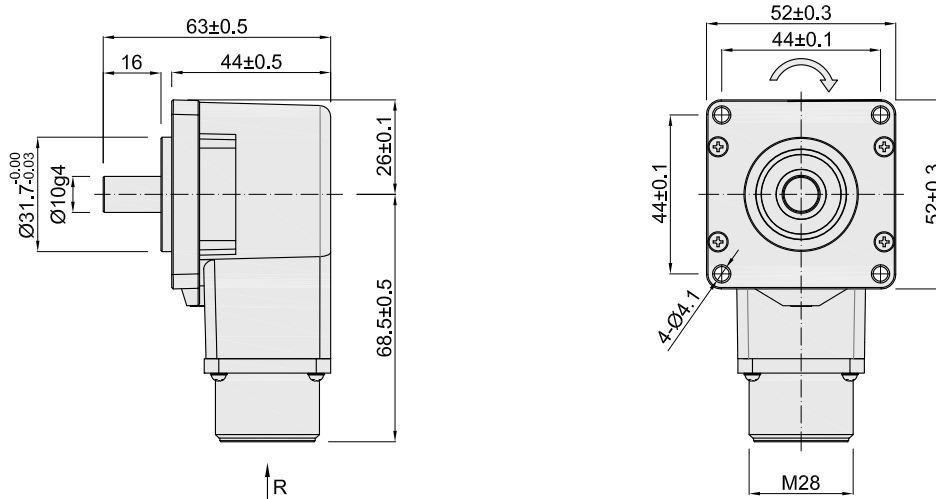
Shaft	Ø10mm(stainless)
Starting torque	Less than $5 \times 10^{-3} \text{N} \cdot \text{m}$
Inertia moment	Less than $3 \times 10^{-6} \text{kg} \cdot \text{m}^2$
Shaft load	Radial 60N; Axial 60N
Slew speed	≤6000 rpm; IP65≤3000 rpm
Bearing Life	$1.5 \times 10^9$ revs at rated load(100000hrs at 2500RPM)
Shell	Die cast aluminum
Weight	about 300g

## ■ Environmental Specifications

Environmental temperature	Operating: -20~+85°C(repeatable winding cable: -10°C); Storage: -25~+90°C
Environmental humidity	Operating and storage: 35~85%RH(noncondensing)
Vibration(endure)	Amplitude 0.75mm,5~55Hz,2h for X,Y,Z direction individually
Shock(endure)	490m/s <sup>2</sup> 11ms three times for X,Y,Z direction individually
Protection	IP50; IP65

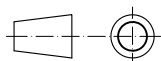
# S52F Specifications 4/5


## Basic Dimensions



- MS3106A-18-1S
- D=VCC
- F=OVDC
- A=A+
- B=B+
- C=Z+
- H=A-
- I=B-
- J=Z-

Unit: mm



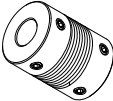
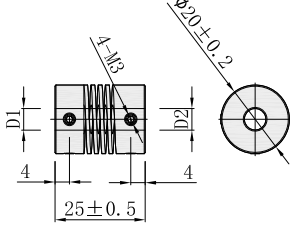
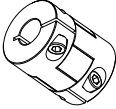
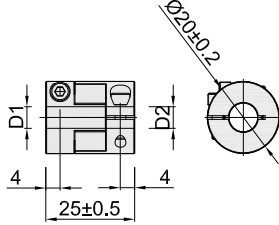
 = Rotate direction of signal output shaft

# S52F

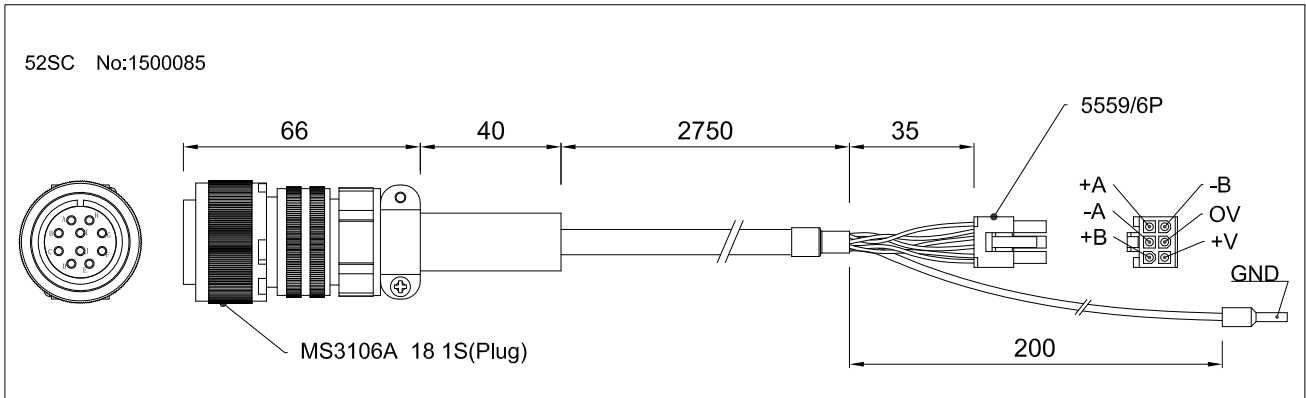
## Specifications 5/5

■ Accessory(Need purchase additionally)

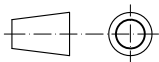
- Coupling

H series spring coupling (general accuracy, or choose M series for higher accuracy) 8H10 No:8700007 10H10 No:8700046			Model	D1	D2
			8H10	$\text{Ø}8^{+0.03}_{+0.01}$	$\text{Ø}10^{+0.03}_{+0.01}$
10H10	$\text{Ø}10^{+0.03}_{+0.01}$	material: aluminium alloy			
M series oldham coupling 8M10 No:8700040 10M10 No:8700047			Model	D1	D2
			8M10	$\text{Ø}8^{+0.03}_{+0.01}$	$\text{Ø}10^{+0.03}_{+0.01}$
10M10	$\text{Ø}10^{+0.03}_{+0.01}$	material: aluminium alloy			

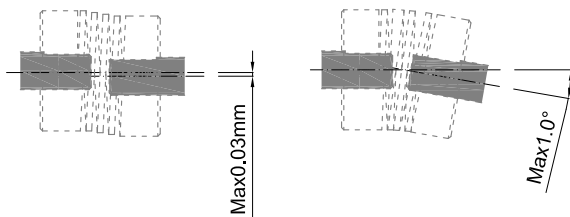
- Special connecting cable for differential output A+A+B+B, It can be customized according to customer needs.



Unit: mm



■ Assembling requirement



Notice : coaxiality between shaft of encoder and power shaft must be less than 0.03mm, and gradient must be less than 1.0°.

About vibration

Vibration act on encoder always cause wrong pulse , so we should pay attention to working place. More pulse per revolution , narrower groovy spacing of grating , more effect to encoder by vibration, when rev is low or stop , vibration act on shaft or main body would cause grating vibrating , so encoder might make wrong pulse.