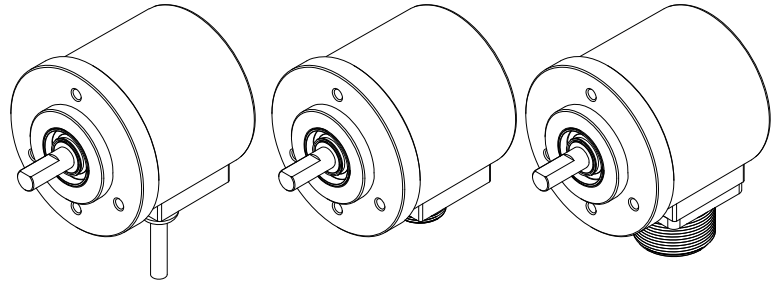


# S65

## Specifications 1/5

### Incremental Type(Solid shaft)

- Feature: sturdy and durable,optional various output mode,long service life,low price,etc
- Application: textile industry,packing machinery,production line,machine tool,etc,for automation control
- External dimensions: external diameter Ø65mm,thickness 58mm,diameter of shaft 8mm(D type)
- Resolution: up to 23040P/R
- Supply voltage: DC5V; DC8-30V
- Protection: IP50; IP65
- Cable length: 1000mm
- Weight: about 350g



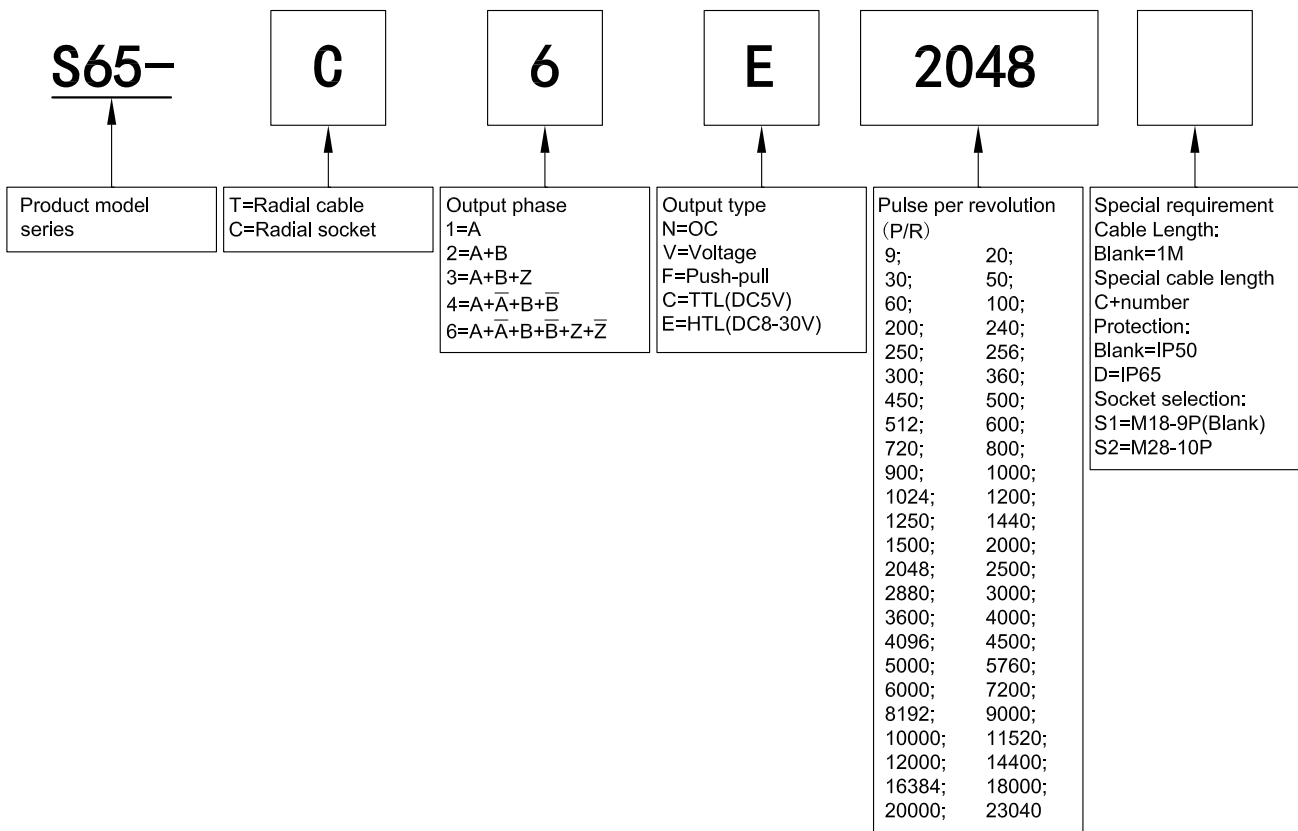
S65-T

S65-C  
(M18-9P)

S65-C  
(M28-10P)

### Model Guide

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



### 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>, rotation direction CW (Viewing from shaft end, direction is clockwise rotation)                      CW direction →                 </p>	0=GND 1=red=DC5V; DC8-30V 2=black=OV 3=white=A 4=green=B 5=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>, rotation direction CW (Viewing from shaft end, direction is clockwise rotation)                      CW direction →                 </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>, rotation direction CW (Viewing from shaft end, direction is clockwise rotation)                      CW direction →                 </p>	
TTL		<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>, rotation direction CW (Viewing from shaft end, direction is clockwise rotation)                      CW direction →                 </p>	0=shielding=GND 1=red=DC5V; DC8-30V 2=black=OV 3=white=A 4=green=B 5=yellow=Z 6=white/black= $\bar{A}$ 7=green/black= $\bar{B}$ 8=yellow/black= $\bar{Z}$
HTL			

### ■ Electrical Characteristics

Parameter Item	Output type	OC		Voltage		Push-pull		TTL		HTL			
		Supply voltage		DC+5V±5%; DC8V-30V±5%				DC+5V±5%		DC8-30V±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	Ø8mm D type(stainless steel)
Starting torque	Less than $5 \times 10^{-3}$ N·m
Inertia moment	Less than $3 \times 10^{-6}$ kg·m <sup>2</sup>
Shaft load	Radial 30N; Axial 20N
Slew speed	≤5000 rpm; IP65≤3000 rpm
Bearing Life	$1.5 \times 10^9$ revs at rated load(100000hrs at 2500RPM)
Shell	Die cast aluminum
Weight	about 350g

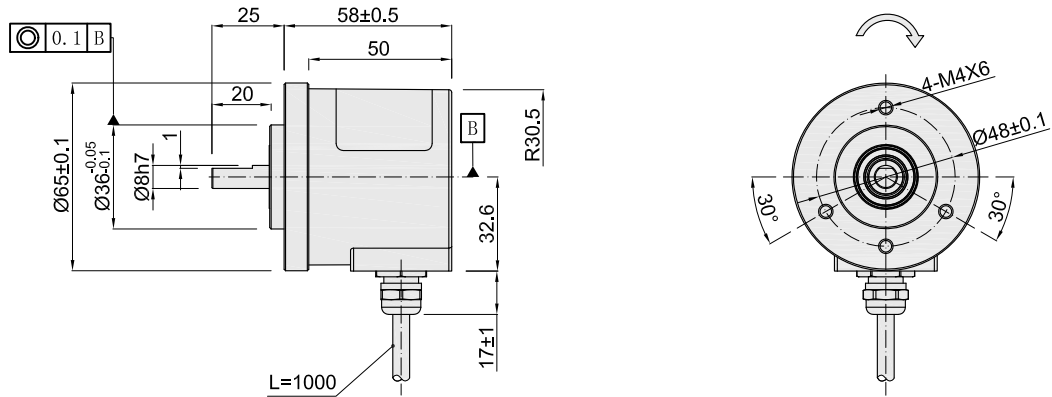
### ■ Environmental Specifications

Environmental temperature	Operating: -20~+80°C(repeatable winding cable: -10°C); Storage: -25~+85°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

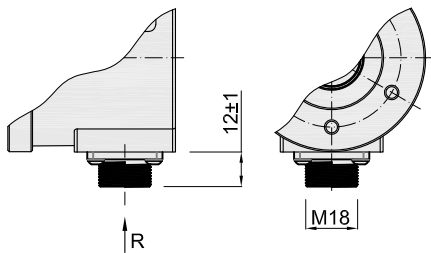
# S65 Specifications 4/5

Basic Dimensions

- S65-T

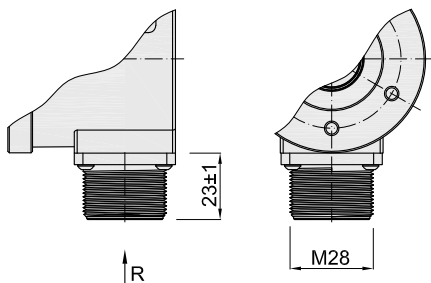


- S65-C(Socket M18-9P)



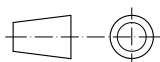
S1-Pin Assignments		Connector (WS-16K9TQ)	
 WS-16J9Z	1	DC	 Output cable offered by client or purchase separately
	2	OV	
	3	A	
	4	B	
	5	Z	
	6	A	
	7	B	
	8	Z	
	9	-	

- S65-C(Socket M28-10P)



S2-Pin Assignments		Connector (MS3106A-18-16)	
 MS3102A-18-1P	A	DC	 Output cable offered by client or purchase separately
	B	OV	
	C	A	
	D	B	
	E	Z	
	F	A	
	G	B	
	H	Z	
	I	-	
	J	-	

Unit: mm



↑R = Radial socket

= Rotate direction of signal output shaft

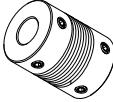
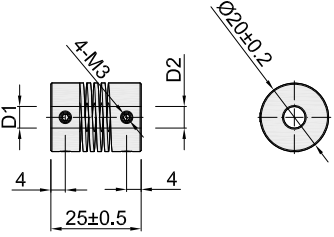

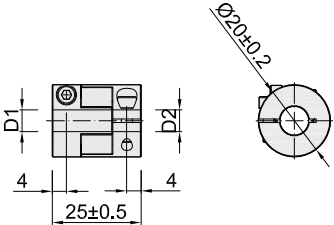
# S65 Specifications 5/5

## Assembling requirement

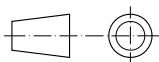


Notice : coaxiality between shaft of encoder and power shaft must be less than 0.03mm, and gradient must be less than 1.0°.

## Accessory(Need purchase additionally)

H series spring coupling (general accuracy, or choose M series for higher accuracy) 6H8 No:8700022 8H8 No:8700023 8H10 No:8700007			Model	D1	D2
			6H8	$\text{Ø}6^{+0.03}_{+0.01}$	$\text{Ø}8^{+0.03}_{+0.01}$
			8H8	$\text{Ø}8^{+0.03}_{+0.01}$	
			8H10		$\text{Ø}10^{+0.03}_{+0.01}$
material: aluminium alloy					
M series oldham coupling 6M8 No:8700038 8M8 No:8700039 8M10 No:8700040			Model	D1	D2
			6M8	$\text{Ø}6^{+0.03}_{+0.01}$	$\text{Ø}8^{+0.03}_{+0.01}$
			8M8	$\text{Ø}8^{+0.03}_{+0.01}$	
			8M10		$\text{Ø}10^{+0.03}_{+0.01}$
material: aluminium alloy					

Unit: mm



### 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.