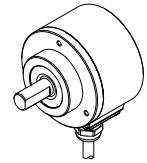


**1. SJ58 Parallel gray code absolute encoder (Solid shaft)**

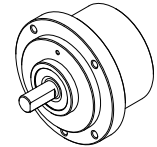
**1.1 Introduction:**

SJ58 is a solid shaft rugged housing design, single-turn absolute photoelectric encoder, capable of outputting 12Bits of parallel gray code position information, the electrical interface has an open collector NPN or PNP, the direction of rotation can be controlled externally, four mounting flange and collar sizes, the highest protection grade is IP65, the product structure is compact, high security, suitable for high-intensity mechanical movement positioning fields.

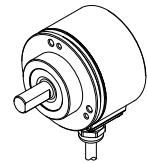
SJ58-A



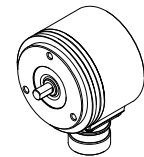
SJ58-B



SJ58-C



SJ58-D



**1.2 Feature:**

- Encoder external diameter Ø58mm、thickness 36-40mm、diameter of shaft Ø6mm, Ø8mm, Ø10mm available;
- Multiple mounting flange sizes available;
- Adopt non-contact photoelectric principle;
- Resolution per turn up to 12 Bits (4096);
- Reverse polarity protection (Up=8...30V DC);
- Short circuit protection.

**1.3 Application:**

Textile, packaging, motor, CNC and other automation control fields.

**1.4 Connection:**

- Cable connection (STD length 1000mm)
- Socket connection (M16 or M23 male)

**1.5 Protection:**

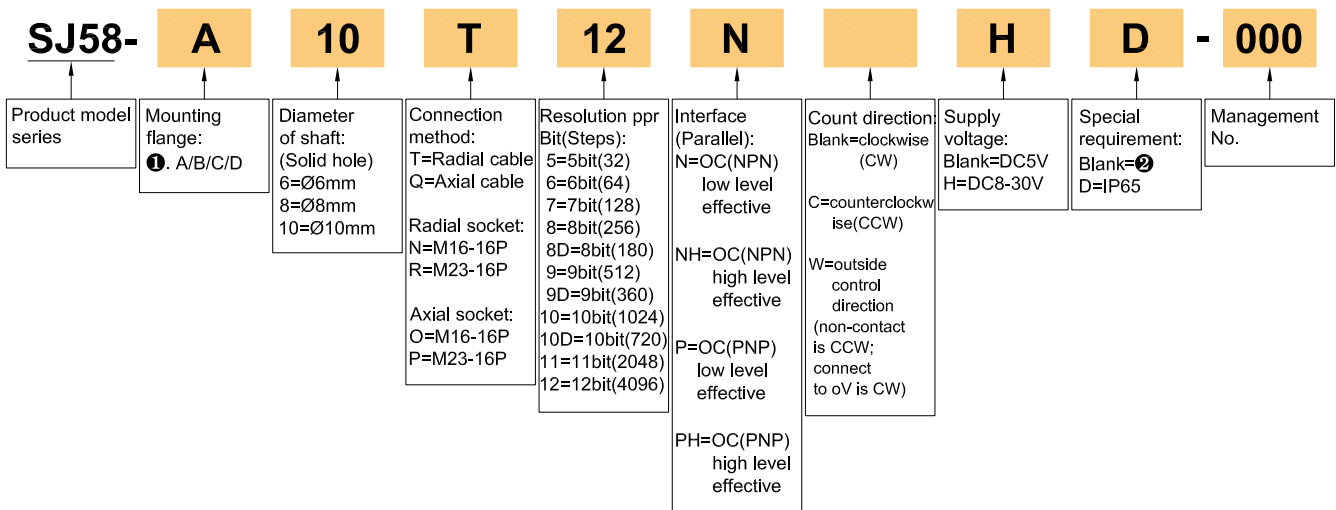
IP50 & IP65

**1.6 Weight:**

About 420g

**2. Model Selection Guide**

Model composition(select parameters)



**Mounting flange:**

- ①. A=Clamping flange, collar Ø36mm, 3-M3 PCDØ48mm;
- B=Clamping flange, collar Ø56mm, 4-M4 PCDØ66mm;
- C=Synchro flange, collar Ø36mm, 3-M3 & 3-M4 PCDØ48mm;
- D=Synchro flange, collar Ø50mm, 3-M4 PCD42mm.

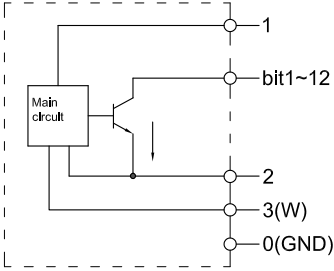
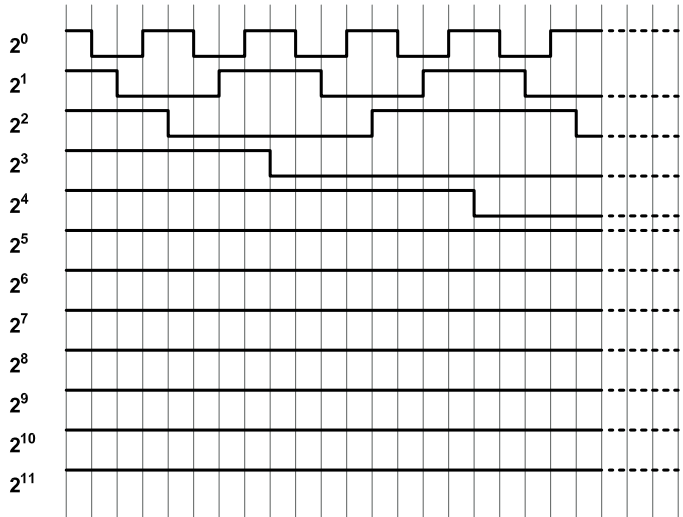
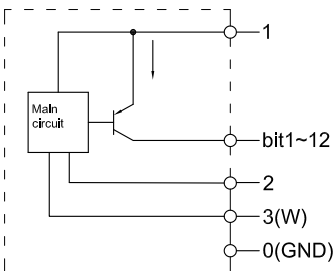
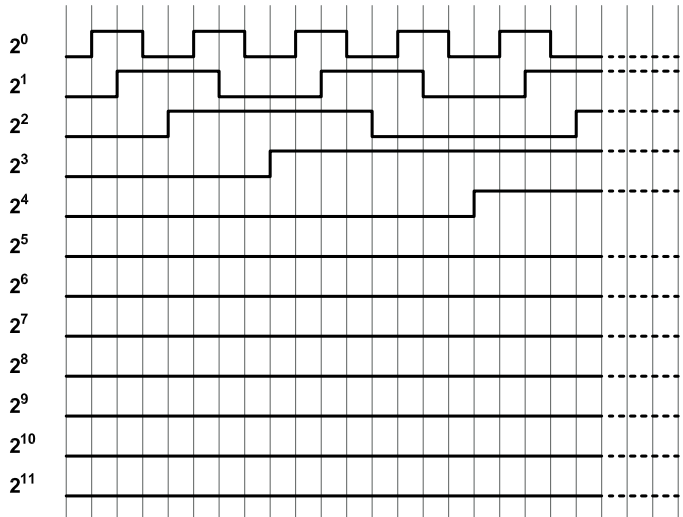
**Special requirement:**

- ②. IP=50; cable length 1m, if need to change the length C+number, max 100m(indicated by C100).

3. Resolution Output Table

	bit											
	12	11	10	9	8	7	6	5	4	3	2	1
0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	1	1
31	0	0	0	0	0	0	0	1	0	0	0	0
32	0	0	0	0	0	0	1	1	0	0	0	0
37	0	0	0	0	0	0	1	1	0	1	1	1
38	0	0	0	0	0	0	1	1	0	1	0	1
63	0	0	0	0	0	0	1	0	0	0	0	0
64	0	0	0	0	0	1	1	0	0	0	0	0
75	0	0	0	0	0	1	1	0	1	1	1	0
76	0	0	0	0	0	1	1	0	1	0	1	0
127	0	0	0	0	0	1	0	0	0	0	0	0
128	0	0	0	0	1	1	0	0	0	0	0	0
151	0	0	0	0	1	1	0	1	1	1	0	0
152	0	0	0	0	1	1	0	1	0	1	0	0
217	0	0	0	0	1	0	1	1	0	1	0	1
218	0	0	0	0	1	0	1	1	0	1	1	1
255	0	0	0	0	1	0	0	0	0	0	0	0
256	0	0	0	1	1	0	0	0	0	0	0	0
435	0	0	0	1	0	1	1	0	1	0	1	0
436	0	0	0	1	0	1	1	0	1	1	1	0
511	0	0	0	1	0	0	0	0	0	0	0	0
512	0	0	1	1	0	0	0	0	0	0	0	0
871	0	0	1	0	1	1	0	1	0	1	0	0
872	0	0	1	0	1	1	0	1	1	1	0	0
1023	0	0	1	0	0	0	0	0	0	0	0	0
1024	0	1	1	0	0	0	0	0	0	0	0	0
2046	0	1	0	0	0	0	0	0	0	0	0	1
2047	0	1	0	0	0	0	0	0	0	0	0	0
4094	1	0	0	0	0	0	0	0	0	0	0	1
4095	1	0	0	0	0	0	0	0	0	0	0	0

4. Output Mode

Interface(Parallel)	Output circuit	Output wave form
<p>OC (NPN)</p>		 <p>Position: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21.....4095 View from shaft end, rotate direction is clockwise(CW)</p>
<p>OC (PNP)</p>		 <p>Position: 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21.....4095 View from shaft end, rotate direction is clockwise(CW)</p>

## 5. Electrical Parameters

Parameter Item	Interface (Parallel)		OC(NPN)	OC(PNP)
	Supply voltage	DC5V±5%; DC8V-30V±5%		
Allowable ripple	≤3%rms			
Consumption current	100mA Max			
Output code	gray code			
Precision	[360/(resolution×4)]°			
Top response frequency	100kHz Max			
Output capacity	Output current	Input	≤30mA	
		Output	—	
	Output voltage	"H"	—	
		"L"	≤0.4V	
Load voltage	≤DC30V			
Rise & Fall time	Less than 2us (Load resistance 1KΩ、cable length: 2m)			
Output level	Low level available		High level available	
Insulation strength	AC500V 60s			
Insulation resistance	10MΩ			
Reverse polarity protection	✓			
Short-circuit protection	Short-circuit to another channel or GND permitted for max.30s.		Short-circuit to another channel or Up permitted for max.30s.	
GND	not connect to encoder			

## 6. Mechanical Specifications

Shaft	Ø6mm; Ø8mm; Ø10mm(stainless steel)
Starting torque	at +20°C IP50<0.05 Nm; IP65<0.1 Nm
Inertia moment	Less than 3×10 <sup>-6</sup> kg·m <sup>2</sup>
Shaft load	Radial 60N; Axial 40N
Slew speed	IP50 ≤6000 rpm; IP65 ≤4000 rpm
Bearing Life	1.5×10 <sup>9</sup> revs at rated load(10000hrs at 2500RPM)
Shell	Die cast aluminum
Weight	about 420g

## 7. Environmental Parameters

Environmental temperature	Operating: -40~+95°C(repeatable winding cable: -10°C); storage: -40~+95°C
Environmental humidity	Operating and storage: 35~85%RH(noncondensing)
Vibration(endurance)	Amplitude 0.75mm, 10~50Hz, 1h for X,Y,Z direction individually
Shock(endurance)	49m/s <sup>2</sup> , three times for X,Y,Z direction individually
Protection	IP50 & IP65

8. Wiring table

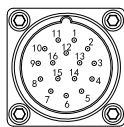
Socket Pin No. & Wire Color	Resolution4096	Resolution2048	Resolution1024 (720)	Resolution512 (360)	Resolution256 (180)	Resolution128	Resolution64	Resolution32
15=R=pink /black	bit1(2 <sup>0</sup> )	Not connect	←	←	←	←	←	←
14=P=gray /black	bit2(2 <sup>1</sup> )	bit1(2 <sup>0</sup> )	Not connect	←	←	←	←	←
13=O=blue /black	bit3(2 <sup>2</sup> )	bit2(2 <sup>1</sup> )	bit1(2 <sup>0</sup> )	Not connect	←	←	←	←
12=N=yellow /black	bit4(2 <sup>3</sup> )	bit3(2 <sup>2</sup> )	bit2(2 <sup>1</sup> )	bit1(2 <sup>0</sup> )	Not connect	←	←	←
11=M=green /black	bit5(2 <sup>4</sup> )	bit4(2 <sup>3</sup> )	bit3(2 <sup>2</sup> )	bit2(2 <sup>1</sup> )	bit1(2 <sup>0</sup> )	Not connect	←	←
10=L=white /black	bit6(2 <sup>5</sup> )	bit5(2 <sup>4</sup> )	bit4(2 <sup>3</sup> )	bit3(2 <sup>2</sup> )	bit2(2 <sup>1</sup> )	bit1(2 <sup>0</sup> )	Not connect	←
9=K=pink	bit7(2 <sup>6</sup> )	bit6(2 <sup>5</sup> )	bit5(2 <sup>4</sup> )	bit4(2 <sup>3</sup> )	bit3(2 <sup>2</sup> )	bit2(2 <sup>1</sup> )	bit1(2 <sup>0</sup> )	Not connect
8=I=gray	bit8(2 <sup>7</sup> )	bit7(2 <sup>6</sup> )	bit6(2 <sup>5</sup> )	bit5(2 <sup>4</sup> )	bit4(2 <sup>3</sup> )	bit3(2 <sup>2</sup> )	bit2(2 <sup>1</sup> )	bit1(2 <sup>0</sup> )
7=H=blue	bit9(2 <sup>8</sup> )	bit8(2 <sup>7</sup> )	bit7(2 <sup>6</sup> )	bit6(2 <sup>5</sup> )	bit5(2 <sup>4</sup> )	bit4(2 <sup>3</sup> )	bit3(2 <sup>2</sup> )	bit2(2 <sup>1</sup> )
6=G=yellow	bit10(2 <sup>9</sup> )	bit9(2 <sup>8</sup> )	bit8(2 <sup>7</sup> )	bit7(2 <sup>6</sup> )	bit6(2 <sup>5</sup> )	bit5(2 <sup>4</sup> )	bit4(2 <sup>3</sup> )	bit3(2 <sup>2</sup> )
5=F=green	bit11(2 <sup>10</sup> )	bit10(2 <sup>9</sup> )	bit9(2 <sup>8</sup> )	bit8(2 <sup>7</sup> )	bit7(2 <sup>6</sup> )	bit6(2 <sup>5</sup> )	bit5(2 <sup>4</sup> )	bit4(2 <sup>3</sup> )
4=E=white	bit12(2 <sup>11</sup> )	bit11(2 <sup>10</sup> )	bit10(2 <sup>9</sup> )	bit9(2 <sup>8</sup> )	bit8(2 <sup>7</sup> )	bit7(2 <sup>6</sup> )	bit6(2 <sup>5</sup> )	bit5(2 <sup>4</sup> )
3=D=brown	W (outside control direction: non-contact is CCW; connect to oV is CW)							
2=C=black	OV							
1=B=red	DC5V & DC8-30V							
0=A=shielding	GND <sup>①</sup>							

①. GND No encoder body connected.

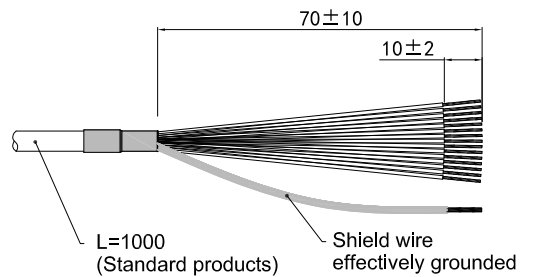
M16F-16K  
Male socket pin assignment diagram



M23\*1 16P  
Male socket pin assignment diagram



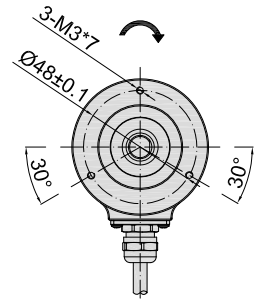
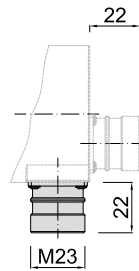
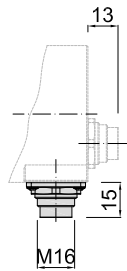
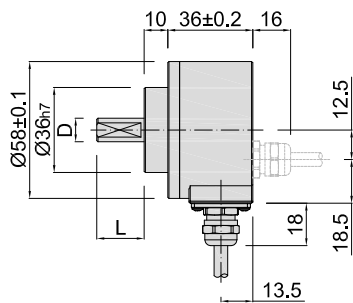
Cable connection



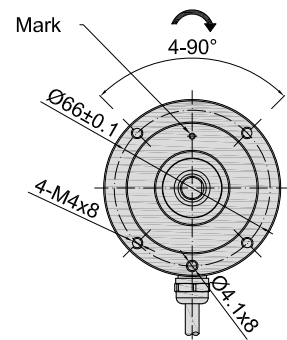
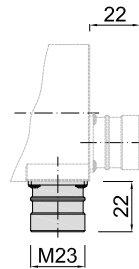
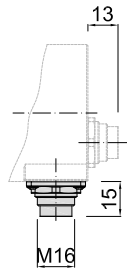
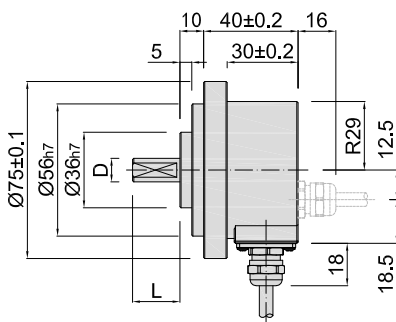
**SJ58 PARALLEL ABSOLUTE**

9. Basic Dimensions

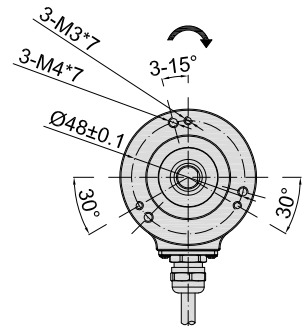
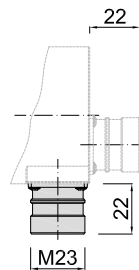
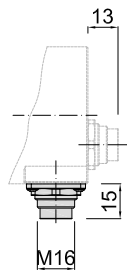
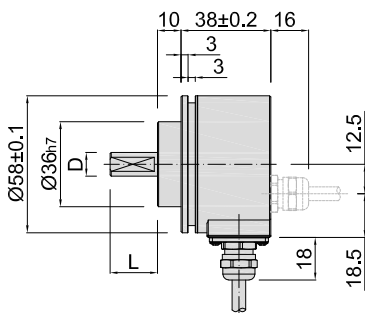
9.1 SJ58-A (Basic dimensions)



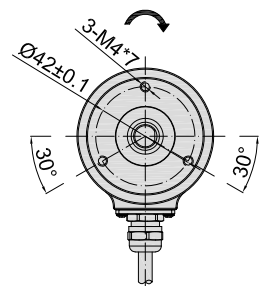
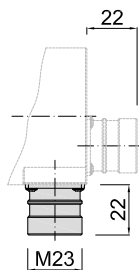
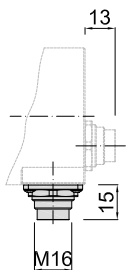
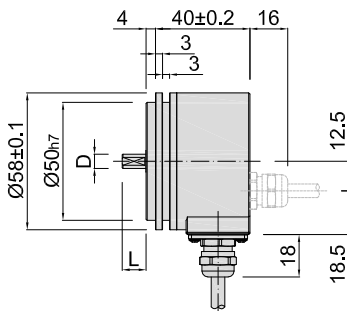
9.2 SJ58-B (Basic dimensions)



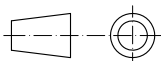
9.3 SJ58-C (Basic dimensions)



9.4 SJ58-D (Basic dimensions)



Unit: mm

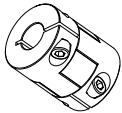
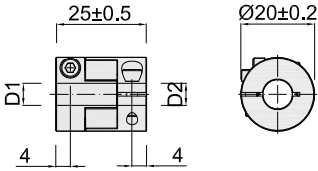

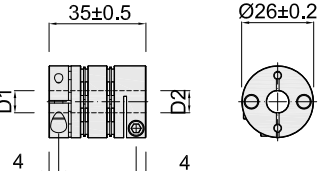


= Direction of shaft rotation for signal output

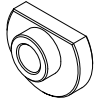
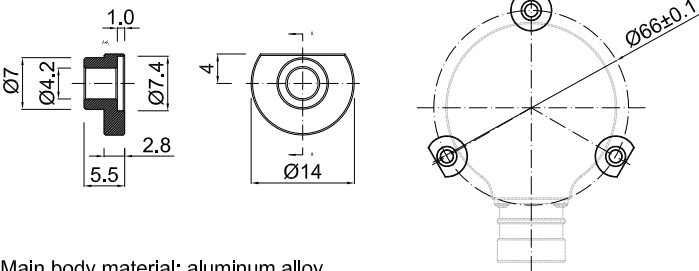
D(Shaft)	Ø6 <sub>h7</sub> ( <sup>0</sup> <sub>-0.015</sub> )	Ø8 <sub>h7</sub> ( <sup>0</sup> <sub>-0.015</sub> )	Ø10 <sub>h7</sub> ( <sup>0</sup> <sub>-0.018</sub> )
L	10	20	20

10. Recommended Accessories

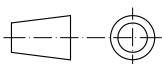
10.1 Coupler

Coupler	Dimensions	D1	D2	Model	Order No.
<p>Cross type: M series</p> 	 <p>Main body material: aluminum alloy</p>	Ø6 <sup>G8</sup>	Ø8 <sup>G8</sup>	6M8	08700038
		Ø8 <sup>G8</sup>	Ø8 <sup>G8</sup>	8M8	08700039
		Ø8 <sup>G8</sup>	Ø10 <sup>G8</sup>	8M10	08700040
<p>Diaphragm type: W series</p> 	 <p>Main body material: aluminum alloy</p>	Ø6 <sup>G8</sup>	Ø8 <sup>G8</sup>	6W8	08700042
		Ø8 <sup>G8</sup>	Ø8 <sup>G8</sup>	8W8	08700043
		Ø8 <sup>G8</sup>	Ø10 <sup>G8</sup>	8W10	08700044

10.2 Mounting cardboard

Mounting cardboard	Dimensions	Model	Order NO.
 <p>3 pcs as a set</p>	 <p>Main body material: aluminum alloy</p>	58C66	03700733

Unit: mm



## 11. Caution

### 11.1 Caution for operation

- The working temperature shall not exceed the storage temperature.
- The working humidity shall not exceed the storage humidity.
- Do not use where the temperature changes dramatically and have fog.
- Do not close to corrosive and flammable gas.
- Keep away from dust, salt and metal powder.
- Keep away from places where you will use water, oil, or medicine.
- Undue vibration and shock will impact the encoder.

### 11.2 Caution for Installation

- Electrical components should not be subjected to excessive pressure, etc., and electrostatic assessment of the installation environment should be conducted.
- Do not close the cable of the motor power to the encoder.
- The FG wire of the motor and mechanical device should be grounded.
- The shielding wire must be effectively grounded since the shielding is not connected to the encoder.

### 11.3 Caution for wiring

- Use the encoder under the specified supply voltage. Please note that the supply voltage range may drop due to the wiring length.
- Do not put the encoder wiring and other power lines through the same duct, and do not use them by bundling in parallel.
- Please use twisted pair wires for the signal and power wires of encoder.
- Please do not apply excessive force to the cable of encoder, or it will may be damaged.