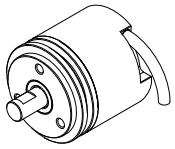
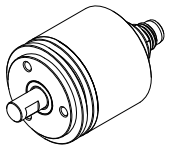
1. S30C Incremental Optical Encoder (Solid shaft)

1.1 Introduction:
S30C is a small economic universal design, compact, sturdy, high safety, and commonly used in industrial automations.

S30-S



S30-D



1.2 Feature:
- Encoder external diameter Ø30mm、thickness 29mm、diameter of shaft up to Ø4mm / Ø6mm;
- Adopt non-contact photoelectric principle;
- Multiple electrical interfaces available;
- Resolution per turn up to 2500PPR.

1.3 Application:
Textile, packaging, motor, elevator, CNC and other automation control fields.

1.4 Connection:
- Cable connection (standard length 1000mm)
- Axial socket (M8-8P/4P)

1.5 Protection:
IP65

1.6 Weight:
about 100g

2. Model Selection Guide

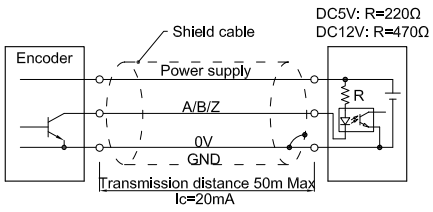
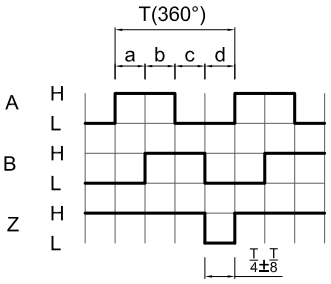
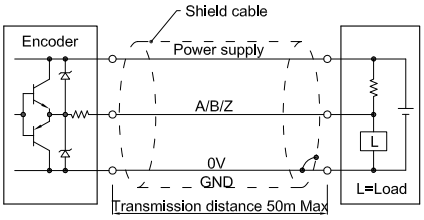
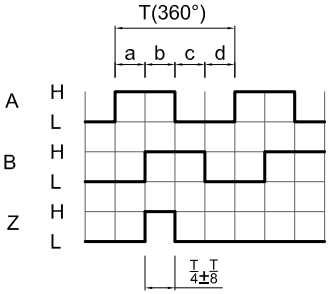
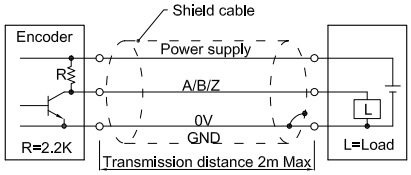
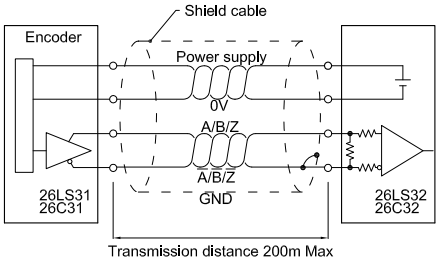
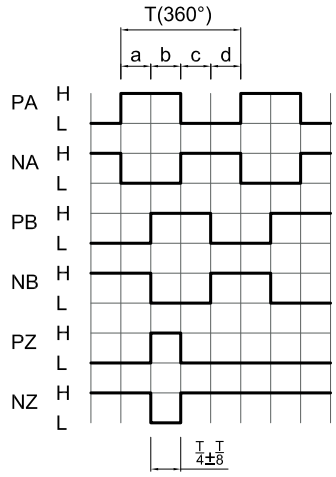
2.1 Model composition(select parameters)

S30C- | **S** | **6** | **C** | **1024** | **B6** | |

Product model series	Connection interface: S=Cable connection D=Axial socket	Output phase: 1=A 2=A+B 3=A+B+Z 4=A+$\overline{A}$+B+$\overline{B}$ 6=A+$\overline{A}$+B+$\overline{B}$+Z+$\overline{Z}$	Electrical interface N=OC(NPN) V=Voltage F=Push-pull C=TTL (DC5V,26LS31) L=TTL (DC5V,26C31) E=HTL(DC8-30V)	Resolution PPR: 36； 50； 60； 100； 128； 200； 250； 300； 360； 400； 500； 512； 600； 720； 1000； 1024； 1200； 1440； 2000； 2048； 2500	Diameter of shaft: (Solid shaft): B4=Ø4mm B6=Ø6mm	Special: specifications No indication =IP65①

2. 2 Note
①. Cable length 1m， if you need to change the length C+number， max 100m(indicated by C100), please refer to page 2 for the specific length used for the output circuit.

3. Output mode

Electrical interface	Output circuit	Output wave form
OC NPN open collector circuit		 a.b.c.d=T/4±T/8 Phase A is ahead of B by T/4±T/8, viewing from shaft end, direction is clockwise rotation. (See dimensional drawings) CW direction Z signal is low level active
Push-pull		 a.b.c.d=T/4±T/8 Phase A is ahead of B by T/4±T/8, viewing from shaft end, direction is clockwise rotation. (See dimensional drawings) CW direction Z signal is high level active
Voltage		
TTL (DC5V) HTL (DC8-30V)		 a.b.c.d=T/4±T/8 Phase A is ahead of B by T/4±T/8, viewing from shaft end, direction is clockwise rotation. (See dimensional drawings) CW direction

4. Electrical Characteristics

Parameter / Output type / Item			OC	Voltage	Push-pull	TTL	HTL
Supply voltage			DC+5V±5%；DC8V-30V±5%			DC+5V±5%	DC8-30V±5%
Consumption current			100mA Max			120mA 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	≥Vcc-3 VDC
		"L"	≤0.4V	≤0.7V(less than 20mA)	≤0.4V(30mA)	≤0.5V	≤ 1V VDC
	Load voltage		≤DC30V	—		—	
Rise & Fall time			Less than 2us(cable length：2m)			≤100ns Less than 1us(Cable length：2m)	
Insulation strength			AC500V 60s				
Insulation resistance			10MΩ				
Mark to space ratio			45% to 55%				
Reverse polarity protection			—				
Short-circuit protection			—				
Phase shift between A & B			90°±10° (frequency in low speed)				
			90°±20° (frequency in high speed)				
GND			Not connect to encoder				

5. Mechanical Characteristics

Diameter of shaft	Ø4mm; Ø6mm (D type, stainless steel material)
Starting torque	Less than 1×10^{-3}N·m
Inertia moment	Less than 1×10^{-6} kg·m²
Shaft load	Radial 30N; Axial 20N
Slew speed	≤6000 rpm
Bearing Life	$1.5X10^{9}$ revs at rated load(100000hrs at 2500RPM)
Shell	Aluminium alloy
Weight	about 100g

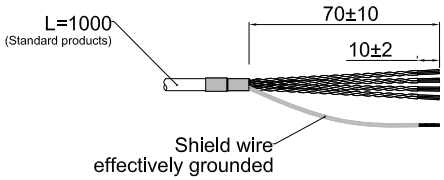
6. Environmental Specifications

Environmental temperature	Operating:—30～+90°C(repeatable winding cable: -10°C); Storage:—30～+95°C
Environmental humidity	Operating and storage：45～85%RH(noncondensing)
Vibration(Endurable)	Amplitude 0.75mm,5~55Hz,2h for X,Y,Z direction individually
Shock(Endurable)	490m/s² 11ms three times for X,Y,Z direction individually
Protection	IP65

7. Wiring table

M8 8pin male connector
pin distribution diagram

Cable connection



7.1 OC/Voltage/Push-pull (Wiring table for socket connection and cable connection)

Function definition	Supply voltage		Incremental signal					
Socket pin Definition	1	2	3	4	5	6	7	8
Wire color	Red	Black	White	/	Green	/	Yellow	/
Function	Up	0V	A	/	B	/	Z	/

7.2 TTL/HTL (Wiring table for socket connection and cable connection)

Function definition	Supply voltage		Incremental signal					
Socket pin Definition	1	2	3	4	5	6	7	8
Wire color	Red	Black	White	White/BK	Green	Green/BK	Yellow	Yellow/BK
Function	Up	0V	A+	A-	B+	B-	Z+	Z-
Twisted-paired cable								

7.3 OC/Vo/Push-pull (Wiring table for socket connection M8 4pin)

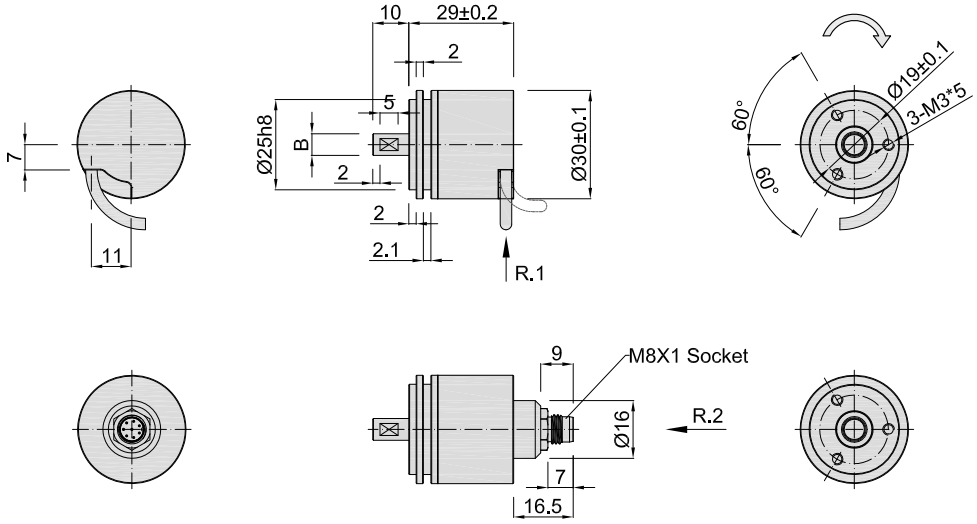
Function definition	Supply voltage		Incremental signal		
Socket pin Definition	1	2	3	4	
Function	OV	Up	A	B	

Up=Supply voltage.
Shield wire is not connected to the internal circuit of encoder.

8. Basic Dimensions

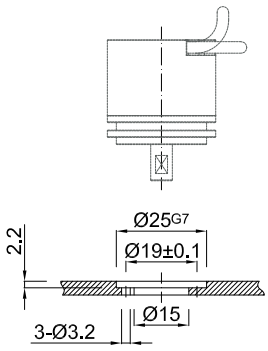
8.1 Dimensions

B(D type，solid shaft)
$Ø4_{g4}(^{-0.004}_{-0.008})$
$Ø6_{g4}(^{-0.005}_{-0.009})$



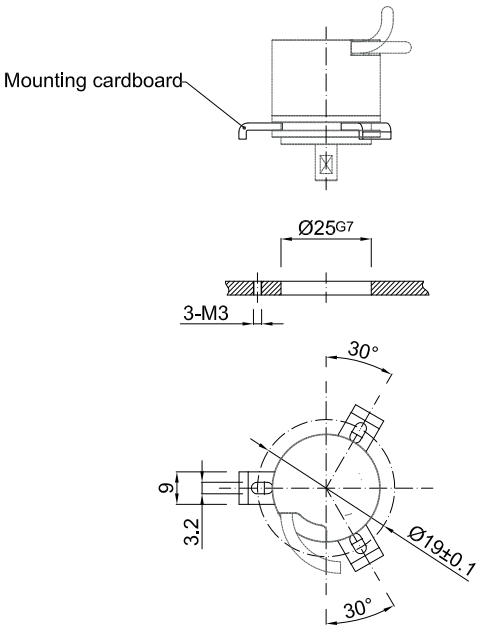
8.2 Installation method

Installation method 1:

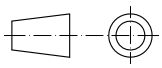


Mounting screws
Inner hexagon bolt +flat washer Specification: M3*8 Material: stainless steel Quantity: 3

Installation method 2:



Unit: mm



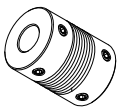
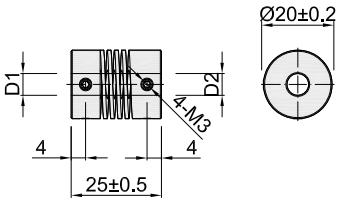
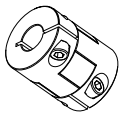
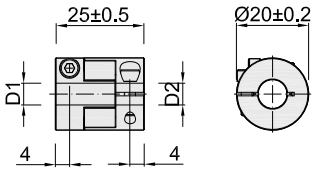
 = Shaft rotation direction of the signal output

R.1 = Cable connection (standard length 1000)

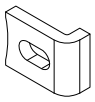
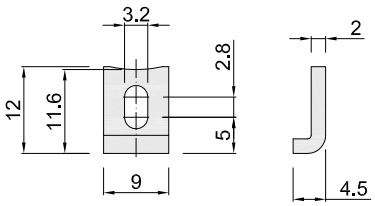
R.2 = Axial socket（M8x1-P8/P4）

9. Recommended Accessories

9.1 Coupler

Coupler	Dimensions	D1	D2	Model	Order No.
Spring type: H series 	 Main body material: aluminum alloy	Ø4^{G8}	Ø6^{G8}	4H6	08700056
		Ø6^{G8}	Ø6^{G8}	6H6	08700021
Cross type: M series 	 Main body material: aluminum alloy	Ø4^{G8}	Ø6^{G8}	4M6	08700057
		Ø6^{G8}	Ø6^{G8}	6M6	08700037

9.2 Mounting cardboard

Mounting cardboard	Dimensions	Model	Order NO.
 3 pcs as a set	 Material: stainless steel	39K46	03700722

Unit: mm