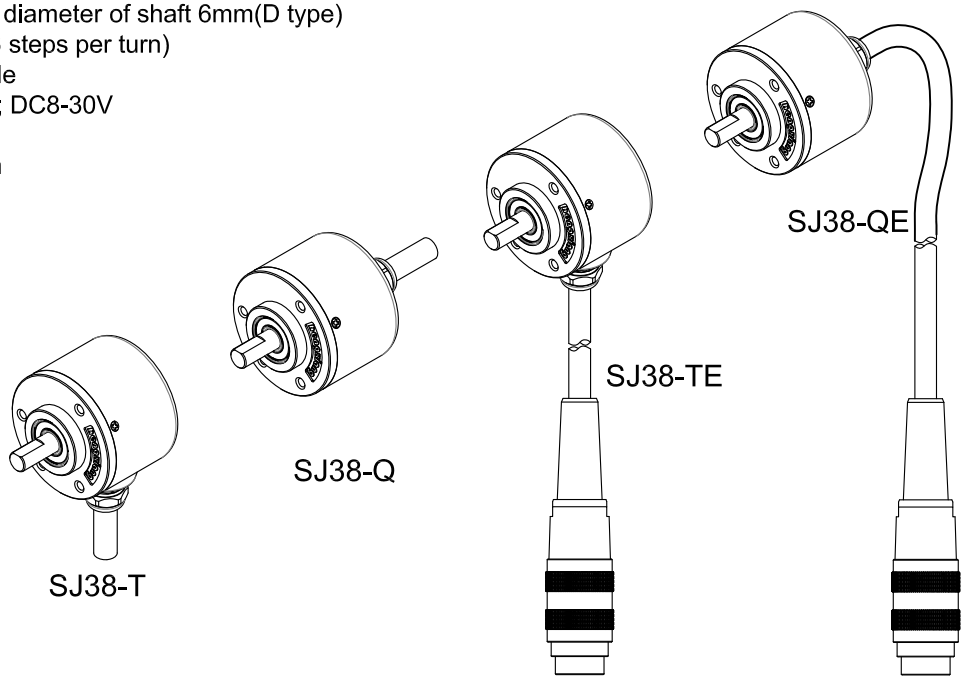
SJ38 Specifications 1/5

Absolute Type-Parallel output (Solid Shaft)

- Feature: small, output gray code without reading error, direction can be controlled by outside
- Application: automation control like motor,CNC,package machine, industrial assembly line,etc.
- External dimensions: external diameter Ø38mm, thickness 28mm, diameter of shaft 6mm(D type)
- Resolution: 12bit(4096 steps per turn)
- Output code: Gray code
- Supply voltage: DC5V; DC8-30V
- Protection: IP50; IP65
- Cable length: 1000mm
- Weight: about 130g



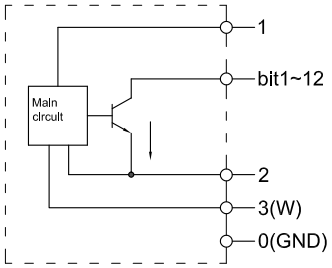
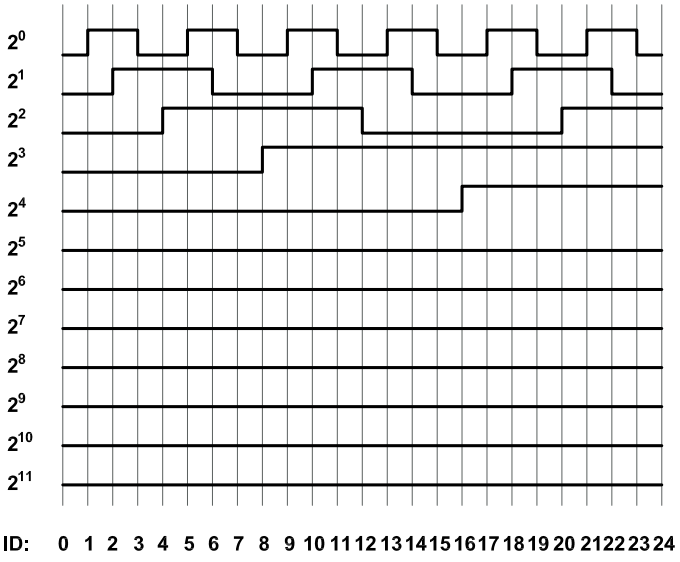
Model Guide

- Model form (filled required parameters in the box as following)

SJ38–	T	12	N				
Product model series	T=Radial cable Q=Axial socket TE=Radial cable with plug QE=Axial cable with plug	Bit(Steps): 5=5bit(32) 6=6bit(64) 7=7bit(128) 8=8bit(256) 9=9bit(512) 10=10bit(1024) 11=11bit(2048) 12=12bit(4096)	Interface (Parallel): N=OC (low level effective) NH=OC (high level effective)	Count Direction Blank=clockwise (CW) C=counterclockwise(CCW) W=outside control direction (connect to Vcc is CCW, oV is CW, this function works on DC5V only)	Shaft: Blank= Ø6mm(D type)	Special requirement Blank=cable length 1M; IP50 Special cable length =C+number Special protection IP65=D	Supply voltage: DC5V; DC8-30V

- If need coupling(accessory at specifications 5/5)

■ Output Mode

Interface(Parallel)	Output circuit	Output wave form
OC		 View from shaft end,rotate direction is clockwise(CW)

■ Connection (The shielding wire is not connected to encoder)

Socket Pin No.	Resolution4096	Resolution2048	Resolution1024	Resolution 512	Resolution 256	Resolution 128	Resolution 64	Resolution 32
15=R=pink/black	bit1(2^0)	not connect	←	←	←	←	←	←
14=P=gray/black	bit2(2^1)	bit1(2^0)	not connect	←	←	←	←	←
13=O=blue/black	bit3(2^2)	bit2(2^1)	bit1(2^0)	not connect	←	←	←	←
12=N=yellow/black	bit4(2^3)	bit3(2^2)	bit2(2^1)	bit1(2^0)	not connect	←	←	←
11=M=green/black	bit5(2^4)	bit4(2^3)	bit3(2^2)	bit2(2^1)	bit1(2^0)	not connect	←	←
10=L=white/black	bit6(2^5)	bit5(2^4)	bit4(2^3)	bit3(2^2)	bit2(2^1)	bit1(2^0)	not connect	←
9=K=pink	bit7(2^6)	bit6(2^5)	bit5(2^4)	bit4(2^3)	bit3(2^2)	bit2(2^1)	bit1(2^0)	not connect
8=I=gray	bit8(2^7)	bit7(2^6)	bit6(2^5)	bit5(2^4)	bit4(2^3)	bit3(2^2)	bit2(2^1)	bit1(2^0)
7=H=blue	bit9(2^8)	bit8(2^7)	bit7(2^6)	bit6(2^5)	bit5(2^4)	bit4(2^3)	bit3(2^2)	bit2(2^1)
6=G=yellow	bit10(2^9)	bit9(2^8)	bit8(2^7)	bit7(2^6)	bit6(2^5)	bit5(2^4)	bit4(2^3)	bit3(2^2)
5=F=green	bit11(2^{10})	bit10(2^9)	bit9(2^8)	bit8(2^7)	bit7(2^6)	bit6(2^5)	bit5(2^4)	bit4(2^3)
4=E=white	bit12(2^{11})	bit11(2^{10})	bit10(2^9)	bit9(2^8)	bit8(2^7)	bit7(2^6)	bit6(2^5)	bit5(2^4)
3=D=brown	W (direction control)							
2=C=black	OV							
1=B=red	DC5V; DC8-30V							
0=A=shielding	GND							

■ Electrical Characteristics

Parameter / Item \ Interface (Parallel)			OC	OC
Supply voltage			DC5V±5%； DC8V-30V±5%	
Allowable ripple			≤3%rms	
Consumption current			100mA Max	
Output code			gray code	
Precision			[360/(resolutionx4)]°	
Top response frequency			100kHz Max	
Output volume	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	
GND			not connect to encoder	

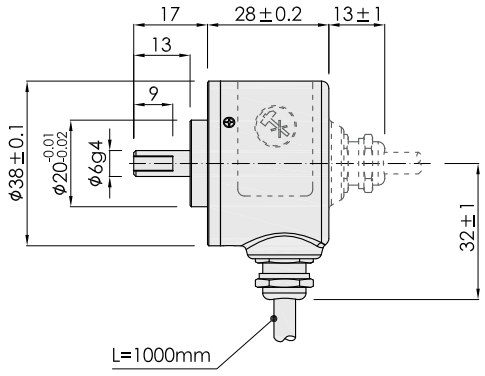
■ Mechanical Characteristics

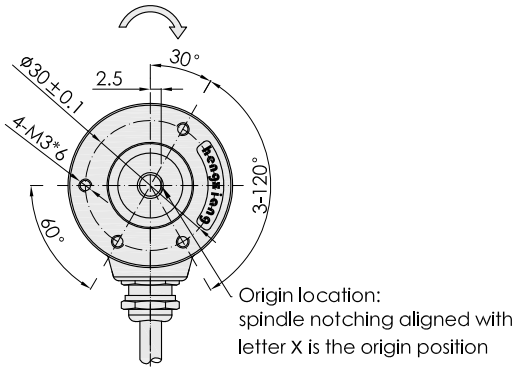
Shaft	Ø6mm(stainless steel)
Starting torque	Less than 4.4×10^{-3} N·m
Inertia moment	Less than 1.5×10^{-6} kg·m²
Shaft load	Radial 30N; Axial 20N
Slew speed	≤3000 rpm; IP65≤2000 rpm
Bearing Life	$1.5x10^{9}$ revs at rated load(10000hrs at 2500RPM)
Shell	Die cast aluminum
Weight	about 130g

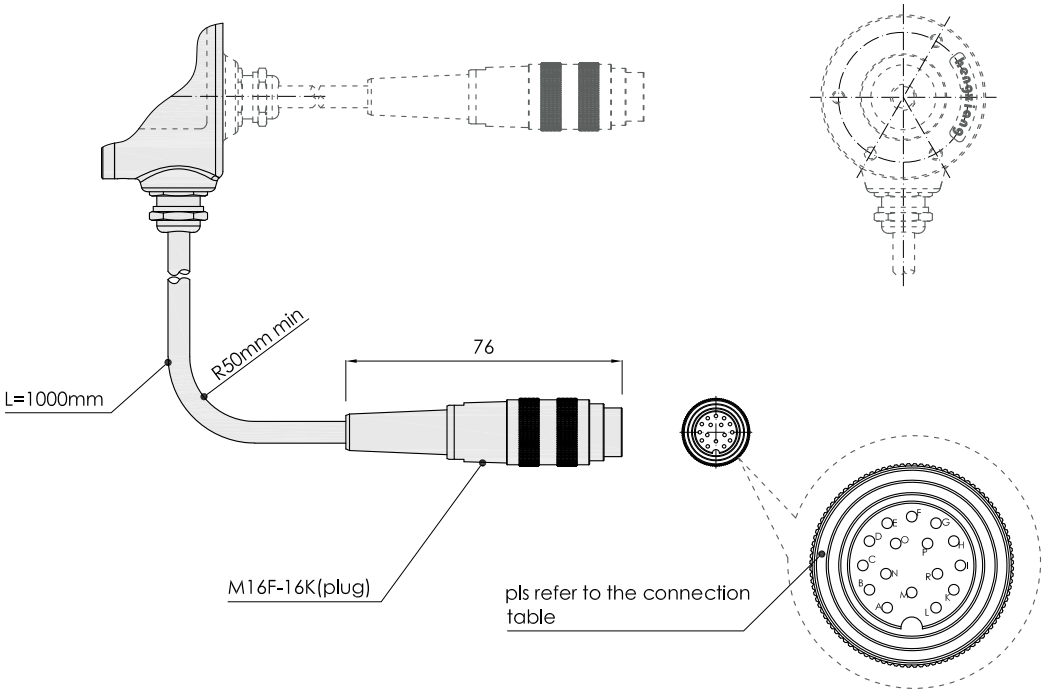
■ Environmental Specifications

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, 10~50Hz, 1h for X,Y,Z direction individually
Shock(endure)	49m/s² ,three times for X,Y,Z direction individually
Protection	IP50; IP65

Basic Dimensions







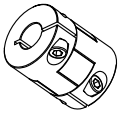
Unit: mm

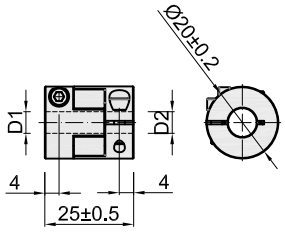
= Clockwise direction for shaft rotation

Accessory(Need purchase additionally)

- Coupling

M series oldham coupling
(general accuracy, or choose W series for higher accuracy)
6M6 No:8700037
6M8 No:8700038

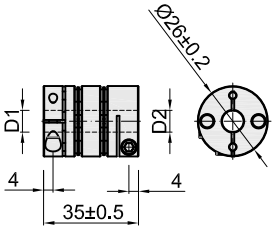




Model	D1	D2
6M6	$Ø6^{+0.01}_{+0.03}$	$Ø6^{+0.01}_{+0.03}$
6M8		$Ø8^{+0.01}_{+0.03}$

material:
aluminium alloy

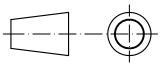
W series plate flexible coupling
(high accuracy)
6W6 No:8700041
6W8 No:8700042



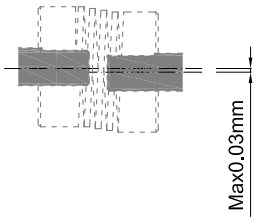
Model	D1	D2
6W6	$Ø6^{+0.01}_{+0.03}$	$Ø6^{+0.01}_{+0.03}$
6W8		$Ø8^{+0.01}_{+0.03}$

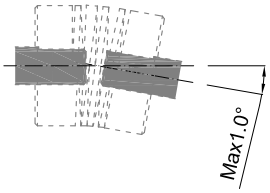
material:
aluminium alloy

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。