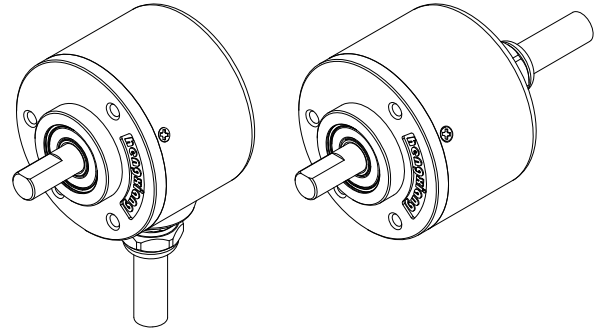


# S38

## Specifications 1/4

### Incremental Type(Solid shaft)

- Feature: general,small,optional various output mode, long service life,low price,etc
- Application: textile industry、 packing machinery、 production line , etc , for automation control
- External dimensions: external diameter Ø38mm,thickness28mm, diameter of shaft 6mm(D type)
- Resolution: up to 16384P/R
- Supply voltage: DC5V; DC8-30V
- Protection: IP50; IP65
- Cable length: 1000mm
- Weight: about 120g

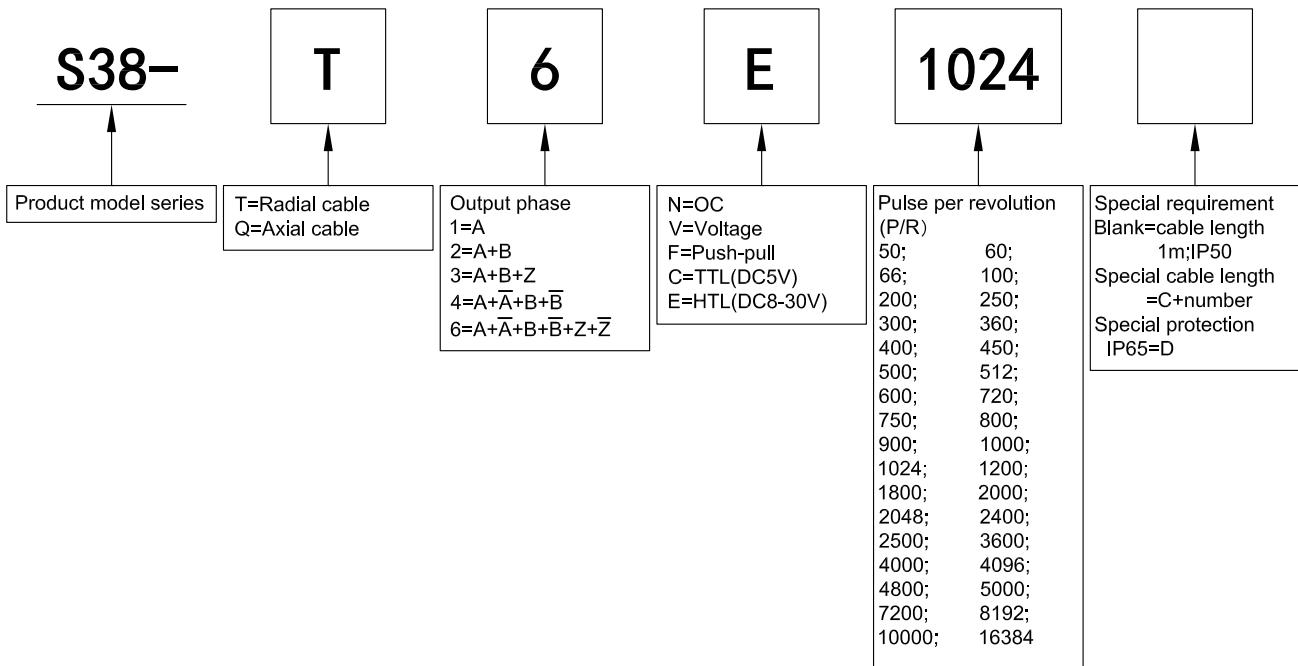


S38-T

S38-Q

### 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 4/4)



### Output Mode

Output type	Output circuit	Output wave form	Connection
OC		<p> <math>T(360^\circ)</math>  <math>a \quad b \quad c \quad d</math>  <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 <math>\rightarrow</math> </p>	0=GND 1=red=DC5V; DC8-30V 2=black=OV 3=white=A 4=green=B 5=yellow=Z
Push-Pull		<p> <math>T(360^\circ)</math>  <math>a \quad b \quad c \quad d</math>  <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 <math>\rightarrow</math> </p>	
Voltage		<p> <math>T(360^\circ)</math>  <math>a \quad b \quad c \quad d</math>  <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 <math>\rightarrow</math> </p>	
TTL HTL		<p> <math>T(360^\circ)</math>  <math>a \quad b \quad c \quad d</math>  <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 <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	∅6mm D type(stainless steel)
Starting torque	Less than $4.4 \times 10^{-3}$ N·m
Inertia moment	Less than $1.5 \times 10^{-6}$ kg·m <sup>2</sup>
Shaft load	Radial 40N; Axial 20N
Slew speed	≤5000 rpm; IP65≤3000 rpm
Bearing Life	$1.5 \times 10^9$ revs at rated load(100000hrs at 2500RPM)
Shell	Aluminium alloy
Weight	about 120g

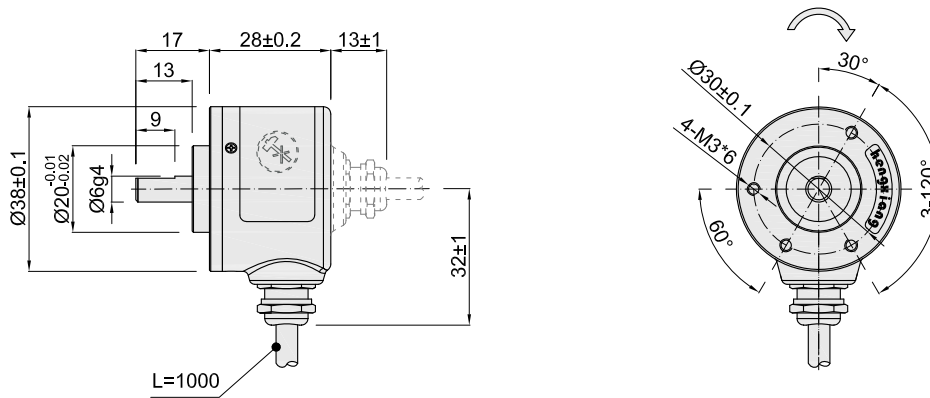
## ■ Environmental Specifications

Environmental temperature	Operating: -20~+90°C(repeatable winding cable: -10°C); Storage: -25~+100°C
Environmental humidity	Operating and storage: 35~85%RH(noncondensing)
Vibration(Endurance)	Amplitude 0.75mm,5~55Hz,2h for X,Y,Z direction individually
Shock(Endurance)	490m/s <sup>2</sup> 11ms three times for X,Y,Z direction individually
Protection	IP50; IP65

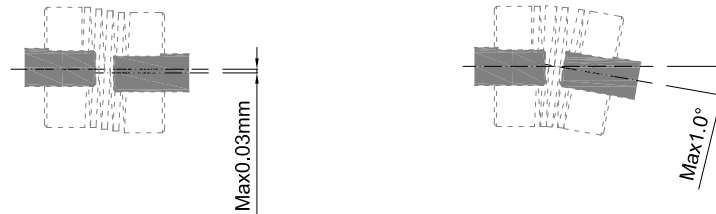
# S38

## Specifications 4/4

### Basic Dimensions



### Assembling requirement

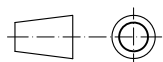


Notice : The radial runout of motor shaft should be less than 0.03mm, and the angle should be less than 1.0°.

### Accessory (Need purchase additionally)

H series oldham coupling (general accuracy, or choose M series for higher accuracy) 6H6 No:8700021 6H8 No:8700022			Model	D1	D2
			6H6	$\varnothing 6^{+0.03}_{+0.01}$	$\varnothing 6^{+0.03}_{+0.01}$
			6H8		$\varnothing 8^{+0.03}_{+0.01}$
material: aluminium alloy					
M series oldham coupling 6M6 No:8700037 6M8 No:8700038			Model	D1	D2
			6M6	$\varnothing 6^{+0.03}_{+0.01}$	$\varnothing 6^{+0.03}_{+0.01}$
			6M8		$\varnothing 8^{+0.03}_{+0.01}$
material: aluminium alloy					

Unit: mm



= Rotate direction of signal output shaft

#### 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 .