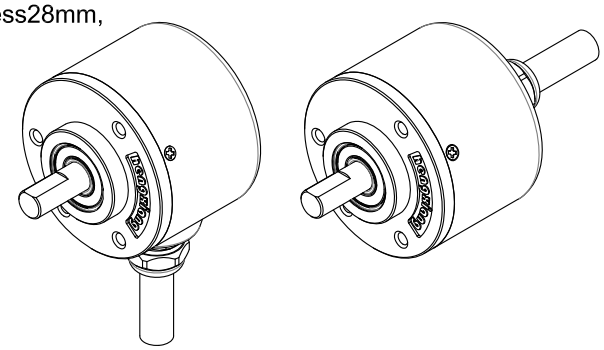
# S38 Specifications 1/4

## Incremental Type(Solid shaft)

- Feature: general,small,optional various output mode, long service life,low price,etc
- Application: textile industry、packing machinery、production line , ect , 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



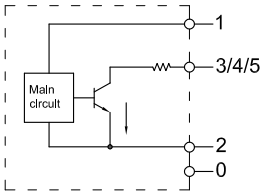
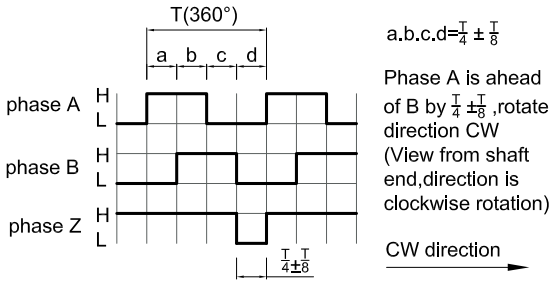
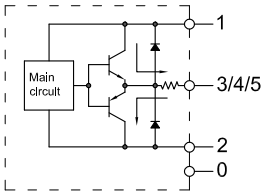
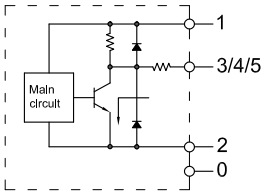
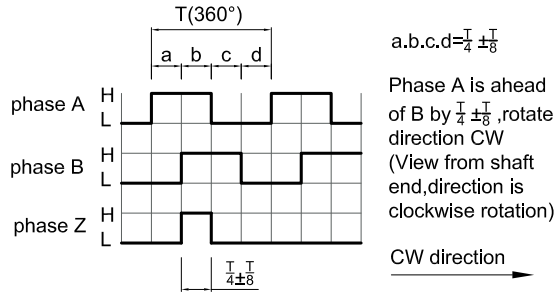
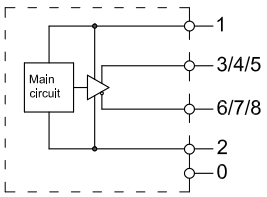
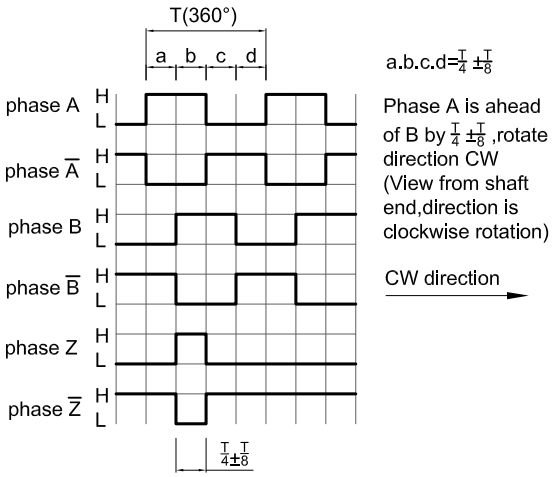
## Model Guide

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

| S38– | T | 6 | E | 1024 | |
|---|---|---|---|---|---|
| Product model series | T=Radial cable<br>Q=Axial cable | Output phase<br>1=A<br>2=A+B<br>3=A+B+Z<br>4=A+$\overline{A}$+B+$\overline{B}$<br>6=A+$\overline{A}$+B+$\overline{B}$+Z+$\overline{Z}$ | N=OC<br>V=Voltage<br>F=Push-pull<br>C=TTL(DC5V)<br>E=HTL(DC8-30V) | Pulse per revolution (P/R)<br>50; 60; 66;<br>100; 200; 250;<br>300; 360; 400;<br>450; 500; 512;<br>600; 720; 800;<br>900; 1000; 1024;<br>1200; 2000; 2048;<br>2500; 4096; 5000;<br>8192; 10000; 16384; | Special requirement<br>Blank=cable length 1m;IP50<br>Special cable length =C+number<br>Special protection IP65=D |

- Must choose supply voltage: DC5V; DC8-30V
- If need coupling ,please purchase additionally (Please refer to accessory at specifications 4/4)

## ■ Output Mode

<table>
<tr><th>Output type</th><th>Output circuit</th><th>Output wave form</th><th>Connection</th></tr>
<tr><td>OC</td><td rowspan="2"> 
</td><td rowspan="2"> 
</td><td rowspan="3">0=GND<br>1=red=DC5V;<br>DC8-30V<br>2=black=OV<br>3=white=A<br>4=green=B<br>5=yellow=Z</td></tr>
<tr><td>Push-Pull</td><td> 
</td></tr>
<tr><td>Voltage</td><td> 
</td><td> 
</td></tr>
<tr><td>TTL<br><br>HTL</td><td> 
</td><td> 
</td><td>0=shielding=GND<br>1=red=DC5V;<br>DC8-30V<br>2=black=OV<br>3=white=A<br>4=green=B<br>5=yellow=Z<br>6=white/black=Ā<br>7=green/black=B̄<br>8=yellow/black=Z̄</td></tr>
</table>

## ■ 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 | | | | |
| Allowable ripple | | | ≤3%rms | | | | |
| Top response frequency | | | 100KHz | | | 200KHz | 300KHz |
| Output volume | 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) | | | 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° ( low speed,frequency ≤1000Hz ) | | | | |
| | | | 90°±20° ( high speed,frequency >1000Hz ) | | | | |
| Origin motion | | | Low level available | High level available | Low level available | — | |
| GND | | | not connect to encoder | | | | |

## ■ Mechanical Characteristics

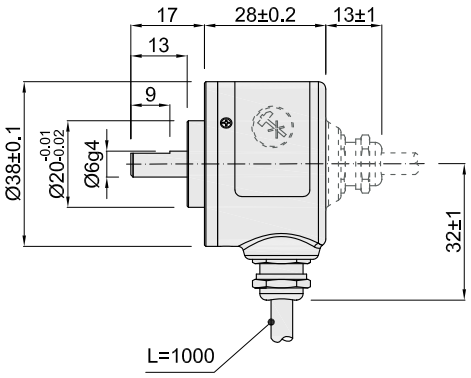
| | |
|---|---|
| Shaft | Ø6mm D type(stainless steel) |
| Starting torque | Less than $4.4\times10^{-3}$ N·m |
| Inertia moment | Less than $1.5\times10^{-6}$ kg·m² |
| Shaft load | Radial 40N; Axial 20N |
| Slew speed | ≤5000 rpm; IP65≤3000 rpm |
| Bearing Life | $1.5X10^{9}$ revs at rated load(100000hrs at 2500RPM) |
| Shell | Die cast aluminum |
| Weight | about 120g |

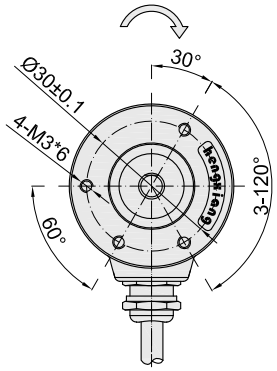
## ■ Environmental Specifications

| | |
|---|---|
| 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(endure) | Amplitude 0.75mm,5~55Hz,2h for X,Y,Z direction individually |
| Shock(endure) | 490m/s² 11ms three times for X,Y,Z direction individually |
| Protection | IP50; IP65 |

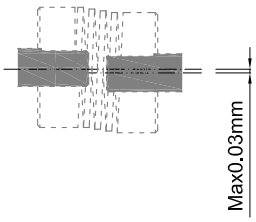
# S38 Specifications 4/4

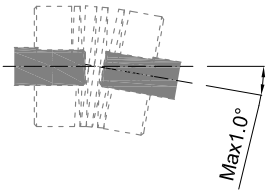
## ■ Basic Dimensions




## ■ Assembling requirement

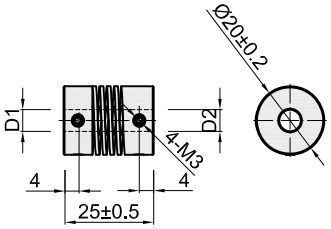



Notice : coaxiality between shaft of encoder and power shaft must be less than 0.03mm, and gradient must be less than 1.0°.

## ■ Accessory (Need purchase additionally)

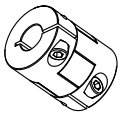
H series oldham coupling
(general accuracy, or choose M series for higher accuracy)
6H6 No:8700021
6H8 No:8700022

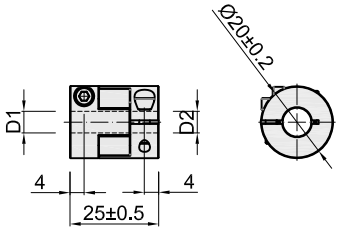



| Model | D1 | D2 |
|---|---|---|
| 6H6 | Ø6 +0.01 +0.03 | Ø6 +0.01 +0.03 |
| 6H8 | | Ø8 +0.01 +0.03 |

material: aluminium alloy

M series oldham coupling
6M6 No:8700037
6M8 No:8700038

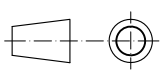





| Model | D1 | D2 |
|---|---|---|
| 6M6 | Ø6 +0.01 +0.03 | Ø6 +0.01 +0.03 |
| 6M8 | | Ø8 +0.01 +0.03 |

material: aluminium alloy

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。