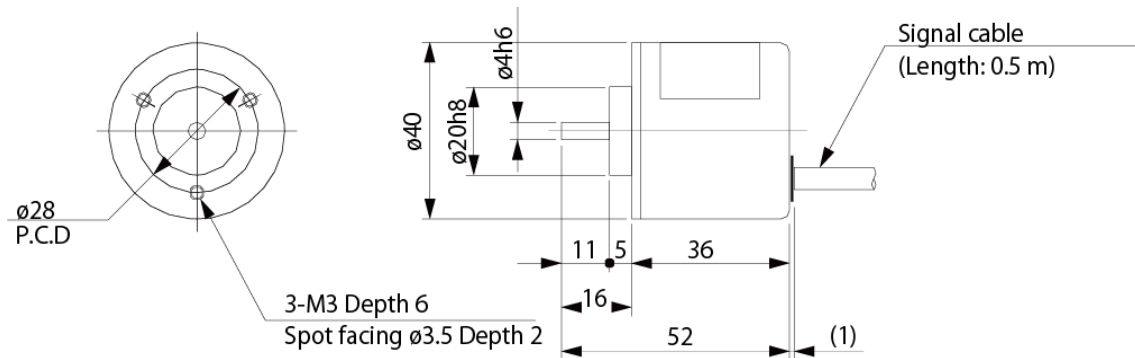


SP-405Z Rotary Encoder Simple Operation Manual

■Rated Value

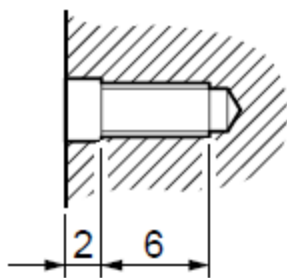
Item	COMMON load	Vcc load
Power voltage	+4.75 V to 13.2 V	
Power consumption	70 mA or less	
Output waveform	90° phase dual square wave + origin output	
Output type	Voltage output	
Load resistance or Current	10 kΩ or more	Max. 40 mA
Response frequency	50 kHz (When used in max. revolution or less.)	
Max. revolution	6,000 r/min	
Starting torque	0.25 mN·m	
Inertial moment	1.5 g·cm ²	
Allowable shaft load	Radial direction 7N/ Thrust direction 3N	
Vibration resistance	49 m/s ² (XYZ direction/ 2 hrs in each direction)	
Impact resistance	490 m/s ² (XYZ direction/ 3 times in each direction, 98 m/s ² in the axial direction)	
Operating temperature range	-10°C to +55°C (with no condensation)	
Operating humidity range	85% or less (with no condensation)	
Storage temperature range	-20°C to +80°C	
Connection method	5-core shield wire 500 mm direct terminal open	

■Outer dimension and mounting

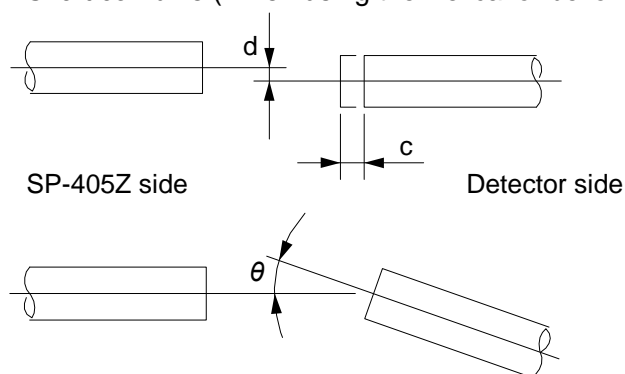


Screw part of the SP-405Z main unit: M3×0.5/ Depth 6 mm

●Screw part detailed figure



●Shaft combine (When using the Helical or bellows coupling)



d: Level difference error: 0.03 mm MAX

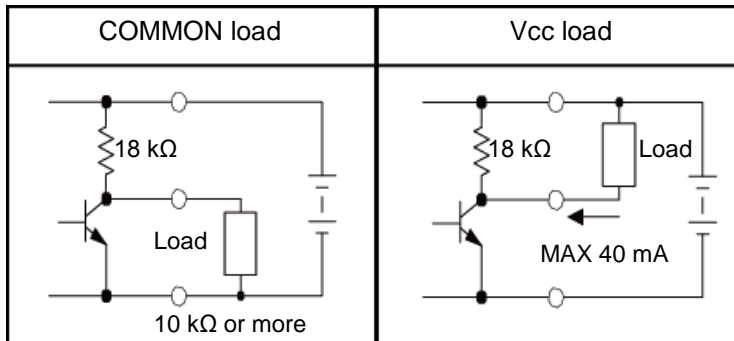
θ: Angle error: 0.5°MAX

c: Axis direction displacement: 0.2 mm MAX

*The thickness of the mounting panel is 5 mm standard.

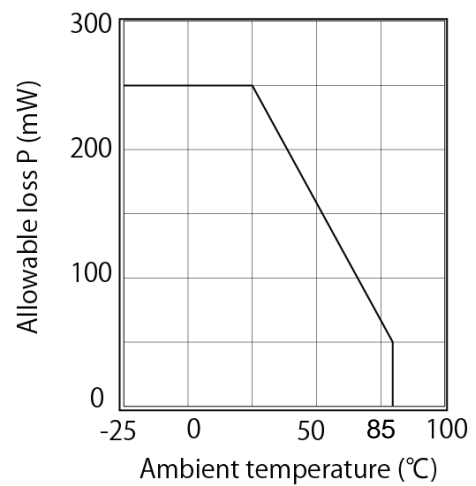
*Can be mounted in any direction.

■ Output stage circuit figure (Signal 1, signal 2, and signal Z are the same)



- Allowable loss $P_{MAX} = 250 \text{ mW}$
- Low level output current
 $I_{OL} = 40 \text{ mA}$

Allowable loss reduction



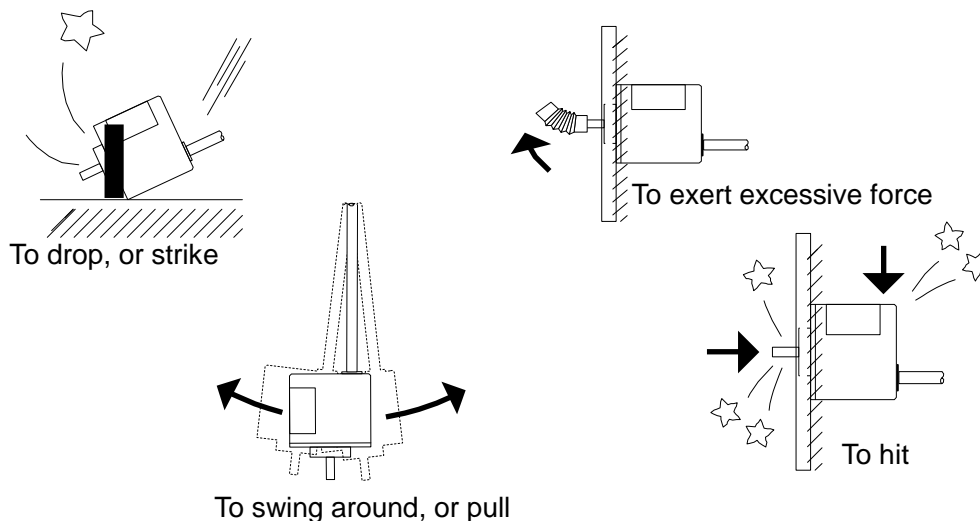
*Please use the external load within the range not exceeding allowable loss P.

*Be careful not to incorrect wiring when connecting externally. Incorrect wiring may cause breakage.

Line color	Terminal name	Line color	Terminal name
Blue	Signal 1	Red	+4.75 V to 13.2 V
White	Signal 2	Black	0 V
Orange	Signal 3	Shield	F.G (Case)

■Be sure to use correctly

This product consists of precision parts, so please be careful enough for handling.



* Please use the coupling for combining with the rotation axis not to exert excessive force to the main unit.

- As this may cause malfunction, please wire separately from high-tension wire and power line.
- If a surge occurs in the using power source, connect a surge absorber between the power sources. Also, please shorten wiring as much as possible to prevent malfunction.
- The connection of shielded wire, the noise may be stronger when it is connected to 0 V or it is in the open state depending on the condition of the site.