

SPEH Series

Single Turn Hollow Shaft Encoder (Optical, Incremental)



- Up to 60,000 rpm
- Resolution: 100...360 p.p.r
- TTL or Linedriver output
- Low profile (11mm)
- Economical

The SPEH fits over your end of shaft. Optional through hole cover for longer shaft lengths. Fits shaft diameters from 1.5mm to 6.35mm (1/4"). 5 VDC supply voltage with TTL or Line Driver output up to 60,000 rpm.

Electrical Data

Resolution	100, 108, 120, 125, 128, 200, 250, 256, 300, 360 p.p.r.
Output channels	A, B
Output signal	TTL: 5V - A, B / Linedriver: differential 3.8V - A, /A, B, /B
Supply voltage	5 VDC $\pm 5\%$
Current consumption	≤ 32 mA (typ. 27 mA)
Output high voltage	TTL: ≥ 2.4 V @ 8 mA load
Output low voltage	TTL: ≤ 0.4 V @ 8 mA load
Differential output voltage	Linedriver: ≥ 3.0 V @ $R_L = 100 \Omega$

Mechanical and Environmental Data

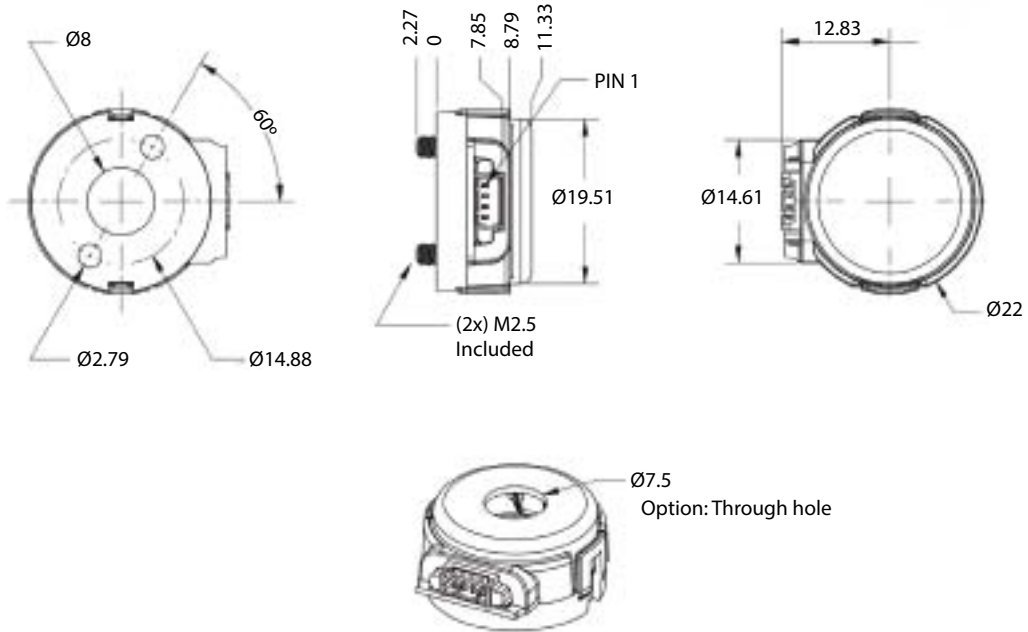
Max rotational speed	60,000
Max acceleration	250,000 rad/s ²
Permitted axial play	± 0.25 mm
Permitted shaft runout (TIR)	0.05 mm
Shaft to mounting circle perpendicularity	90 $\pm 1^\circ$
Min. shaft length including axial play	7 mm
Max. shaft length including axial play	10 mm (unless with through hole in cover option)
Operating / Storage temperature	-20°C..+100°C
Protection grade (IEC 60529)	IP40
Vibration	20 g (20...2 kHz) sinusoidal
Shock	75 g / 6 ms / half sine
Weight	approx. 5 g
Housing material	Plastic
Electrostatic discharge	12 kv (human body model. MIL-STD-883, Method 3015.8)

Note: Customers should test and verify device performance in any given application. Shaft modifications are possible, please consult us. Specifications subject to change without notice.

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Dimensions (mm)



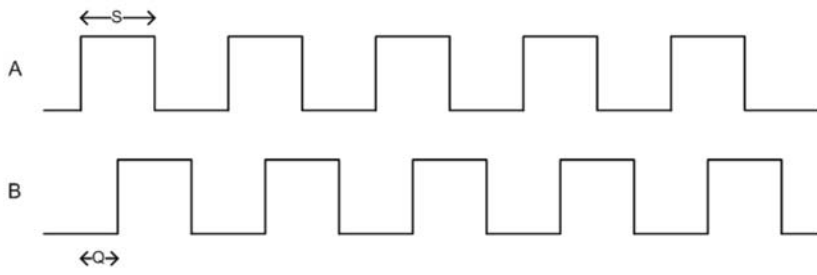
TTL (5V)

Mating connector (not included)
Housing: Molex # 51021-0400
Pins: Molex # 50079-8100

Line Driver (differential)

Mating connector (not included)
Housing: Molex # 51021-0600
Pins: Molex # 50079-8100

Signal characteristics



A leads B for clockwise shaft rotation.
Viewed from shaft end.

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Installation Instructions

Step 1:

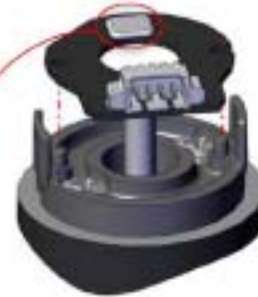
Place the base over the shaft and onto the mounting surface. Slide the centering tool (included) onto the shaft so that it contacts and aligns the base. While applying light pressure to the centering tool, secure the base to the mounting surface using the two screws (included).



Fastening torque: ≤ 0.3 Nm

Step 2:

Remove the centering tool and place the PCB onto the base, aligning the hole and slot to the two pins on the base. Note that the base is symmetrical allowing the connector to exit out either side.



Caution: When handling the PCB it is best to avoid directly touching the optical sensor.

Step 3:

Using the spacer tool (included), very firmly press down on the PCB in order to push it over the alignment pins and completely onto the base surface. Check to make sure that the PCB is fully seated against the base. If it is not, use the spacer tool to press it again and recheck.



Step 4:

Place the hubdisk onto the shaft with the longer end of hub toward the base. Position the spacer tool onto the hub such that the notches are aligned with the latches of the base. Press down firmly until the tool bottoms out on the PCB. Verify that this action has pressed the PCB flush against the base.



Caution: While installing the hubdisk ensure that the hub bore is parallel to the shaft. Forcing the hub onto the shaft at an angle may cause permanent damage to the hub.

Step 5:

Remove the spacer tool and snap the cover down onto the base. With your thumb and finger, squeeze the the base latches together to ensure they are fully engaged with the cover.

