

Installation Instructions for the SNDH-T4L-G01 Quadrature Industrial Speed and Direction Sensor

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⚠ WARNING

PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

Failure to comply with these instructions could result in death or serious injury.

INSTALLATION

- To achieve 90° phase shift, use the mounting geometry and proper sensor alignment shown in Figure 5.
- Mount sensor so that the center of the sensor face is over the center of the gear teeth or target. Ensure mounted sensor is stable and vibration free.
- Locate sensor wires as far as possible from electrical motors, relays, etc. Do not run sensor wires in parallel with power cables.
- Maximum recommended cable length is 20 m [65 ft].

Table 1. Specifications

Characteristic	Parameter	Note
Sensing air gap	0 mm to 2,0 mm [0 in to 0.08 in]	may achieve larger gaps with testing of actual target
Target tooth width	2,0 mm [0.08 in] (recommended)	other geometry may be suitable
Target slot width	2,0 mm [0.08 in] (recommended)	other geometry may be suitable
Tooth height	>3,0 mm [0.12] (recommended)	shorter tooth heights may limit max. air gap performance
Target width	>5,0 mm [0.20] (recommended)	narrow targets may limit axial offsets
Sensor misposition to target	±1,5 mm [0.06]	dependent on target geometry
EMI radiated immunity	100 V/m peak	400 Hz to 2 GHz
EMI bulk current injection	60 mA	20 MHz to 400 MHz
EMI ESD	16/8 KV air/contact	against the connector (150 pF, 330 Ohm)
EMI fast transient burst	EN61000-4-4 Level 4	—
Operating temperature	-40 °C to 150 °C [-40 °F to 302 °F]	continuous
Thermoshock	-40 °C to 150 °C [-40 °F to 302 °F]	—
Humidity	168 hr	95% humidity at 90 °C [194 °F]
Salt fog	96 hr	DIN IEC 6872-11
Thermo saline dunk	5 dunks	105 °C to 0 °C [221 °F to 32 °F] air to liquid, 5% saline
High temp exposure with power	1000 hr at 150 °C [302 °F]	—
Mechanical shock	50 g	—
Vibration	30 g, 10 Hz to 2 kHz	—
Resistance to fluids	general automotive under the hood fluids	—
Supply voltage	4.5 V to 18 V	—
Max. continuous supply voltage	18 V	—
Reverse voltage	-18 V max.	continuous
Current (normal)	13.6 mA	all conditions
Current (max.)	18 mA	all conditions
Short circuit protection	80 mA	—
Output signal type	square wave	two channel, phase shifted by 90°, either channel can lead or lag, push/pull
Duty cycle	50% ±10%	—
Phase shift	90° ±20°	using recommended target tooth/slot
Output high	≥Vs -0.5 V	—
Output low	≤0.5 V	—
Load current	20 mA max.	each output at all conditions
Output low	≤0.5 V	—
Rise time	10 μs typ.	dependent on load resistor
Fall time	1 μs typ.	—
Frequency	1 Hz to 15 kHz	higher frequencies about 10 kHz may be dependent on target geometry and air gap

Figure 1. Wiring Diagram

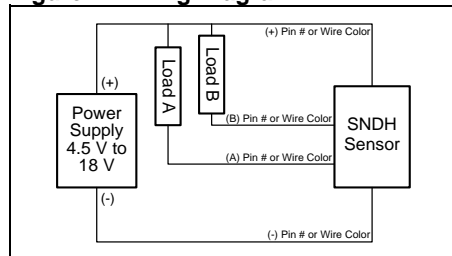


Figure 2. Sensor Output

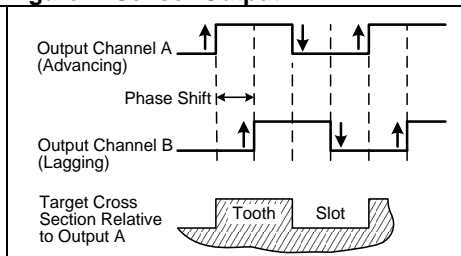


Figure 3. Temperature Air Gap Frequency Derating Curve

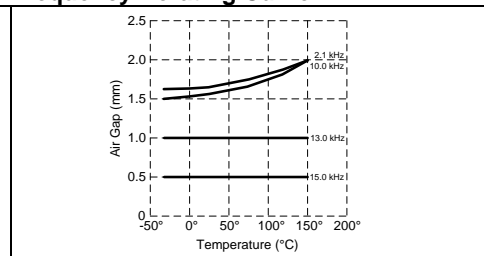


Figure 4. Mounting Dimensions (For reference only: mm/[in])

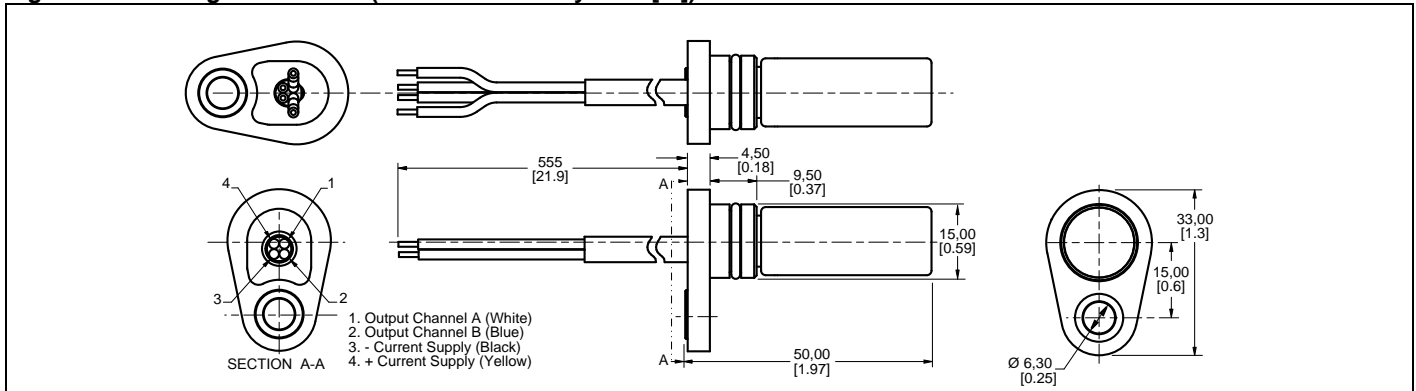
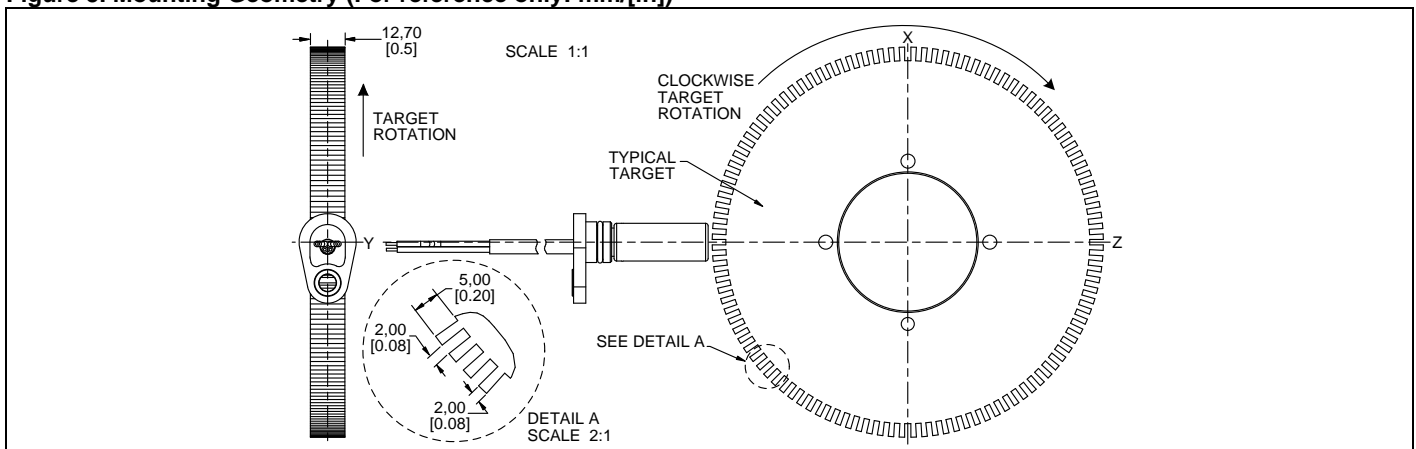


Figure 5. Mounting Geometry (For reference only: mm/[in])



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