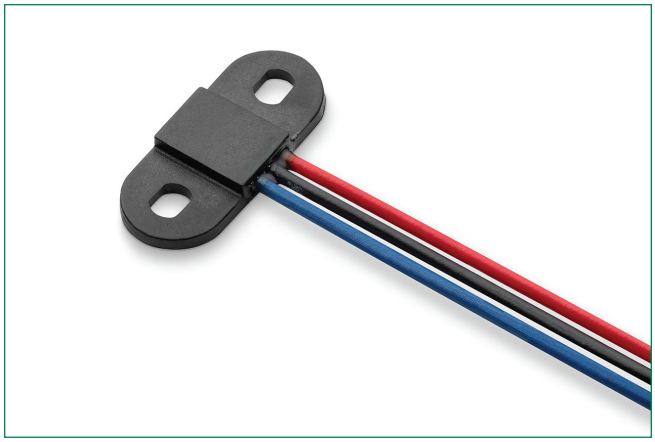
54100 Sensor

Miniature Flange Mounting Proximity

RoHS



Additional Information

Resources | Accessories | Samples

Description

The 54100 is a miniature flange-mounting omnipolar TMR sensor measuring 25.5mm x 11.00mm x 3.00mm. The case design allows both screw and adhesive mounting of the sensor. This is a 3-wire sensor (power–ground–output), and is capable of switching up to 5.5 Vdc and 3.0 mA output current. The sensor leads may be used as shipped, or can be modified for a variety of connections, with two lead lengths offered.

Customization may be supported for high-volume long-running production needs, contact Littelfuse for options.

Features & Benefits

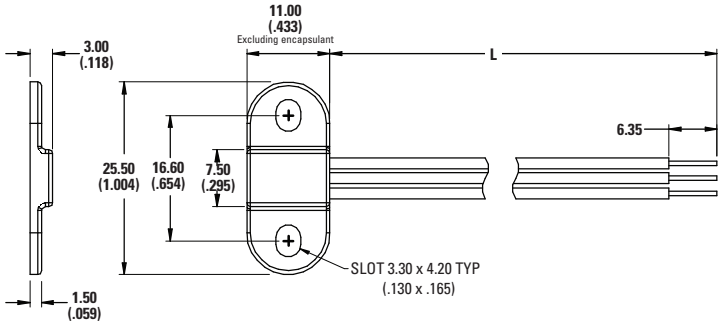
- Magnetically operated position sensor
- Operation with north or south pole
- Digital switching
- High sensitivity
- 3-wire (voltage output)
- Push-pull output
- Ultra-low power consumption at 1.5 uA
- Operates in a static or dynamic magetic field
- Built-in temperature compensation
- Excellent thermal stabiliity
- High switching speed up to 1 kHz
- Vibration 50g max. @ 50–2,000 Hz
- Shock 150 g max. @ 11 ms 1/2 sine
- Long life–up to 20 billion operations
- RoHS compliant
- IP67 rated

Applications

- Position and limit sensing
- RPM measurement
- Flow metering
- Commutation of brushless DC motors
- Magnetic encoders
- Angle sensing

Dimensions

mm (inch)



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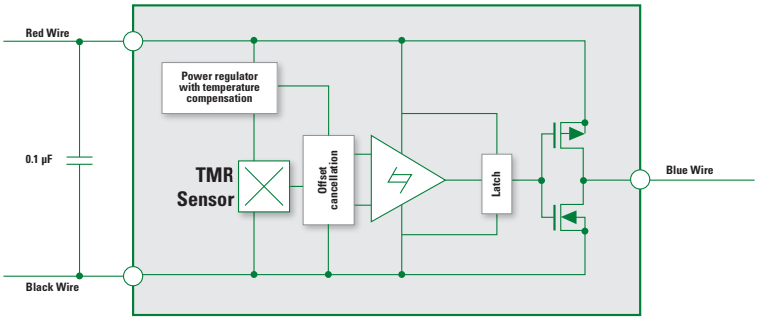
Block Diagram



Notes:
1. Add capcitor Cn as shown, close to the sensor, for transient suppression if required.
2. Add pull-up resistor Rpu as shown for sinking output. The Rpu value should be calculated using your supply voltage while keeping the ON state current at a level below the maximum.
Rpu = VDD/Io; Rpu = 12 Vdc/10 mA = 1.2 kOhm

T2 - Electrical Ratings
3-Wire TMR Switch

TMR Type			Digital Switch 3 - Wire (Voltage Output)
Supply Voltage[1]	Absolute Ratings	Vdc	7
	Operate	Vdc	1.8 to 5.5
	Overvoltage Protection	Vdc - max	7
Output High Voltage	Min	Vdc	Vcc - 0.3
Output Low Voltage	Max	Vdc	0.2
Output Current (continuously on)	Max	mA	3.0
Current Consumption (from Supply)	Typical with Output Off	µA	1.5
Switching Speed	-	kHz	1
Temperature	Operating	C	-40 to +100
ESD[2]	HBM	kV	4

Notes:
1. As long as Tj (Junction Temperature) of 125 °C is not exceeded. It is recommended to operate within the normal Operate Supply Voltage.
2. HBM = Human Body Model per JEDEC EIA/JESD22-A114
3. For custom modifications to the wire length or size, or adding a special connector, please contact Littelfuse

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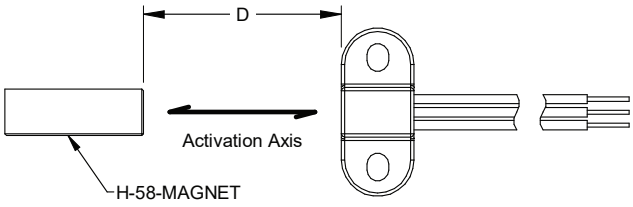
TMR Sensitivity Options

Sensing Device Activation			
Sensitivity Option	**Sensitivity**	**Activation Axis**	**Activate - D[1] mm (inch)**
17X	17G[2]	X-Axis	29.1 (1.15)

Notes:
1. Activation distance is minimum using NeFeB Magnet Littelfuse P/N H-58-Magnet
2. Bops +17G / -17G, Brps +10 Gauss / -10 Gauss, BH = 7G

Activation Detail



Cable Length Specification

Cable Type: 24 AWG 7/32 PVC 105 °C UL1430/UL1569	
Select Option	Cable Length mm (inch)
02	300 ±10.00 (11.81 ±0.394)
05	1000 ±20.00 (11.81 ±0.787)

Termination Detail

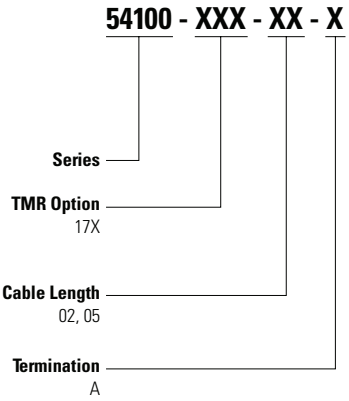
Select Option	Description (Three-wire version)	
A	Tinned Leads 6.4 ±0.75 (0.25 ±0.030)	

Material Specification

	Housing Material	Color	Sealing Component
54100 Sensor	PBT 20% GF	Black	Epoxy

Notes:
1. Sensor Housing may be secured using mechanical fasteners, see Recommended Fastener Table

Part Numbering System



Recommended Fastener for Sensor[1]

Series	Fastener	Type	Torque
Metric	M3	Screw with washer	1.0 N-m
Standard	#4 (7/64")	Screw with washer	8.85 in-lbf

Notes:
1. Sensor Housing may be secured using mechanical fasteners, M3 or #4 Screws (Torque to 1 N-m [8.9 in-lbf]), or suitable adhesive tape material. Please note that you must use a suitable washer with the mechanical fastener. Fastener material should be non-magnetic stainless steel or brass

Packaging Detail

Cable Length	Packaging Option	Quantity
02	Bulk	500
05	Bulk	500