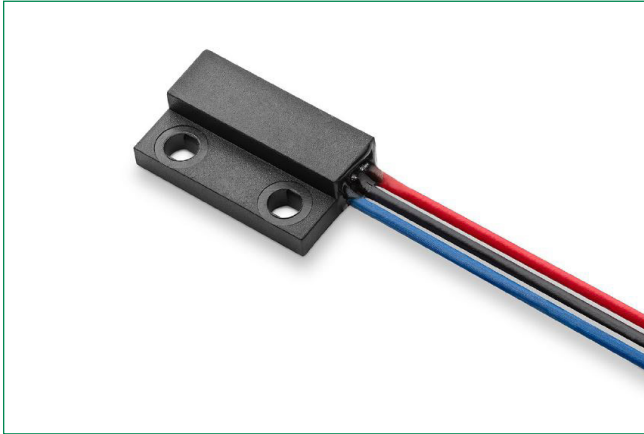


54140 Sensor

Miniature Flange Mounting

RoHS



Additional Information



Resources



Accessories



Samples

Description

The 54140 is a miniature flange-mounting Omnipolar TMR sensor measuring 23.0mm x 14.0mm x 5.9mm. The case design allows either screw or 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 will allow modifications 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

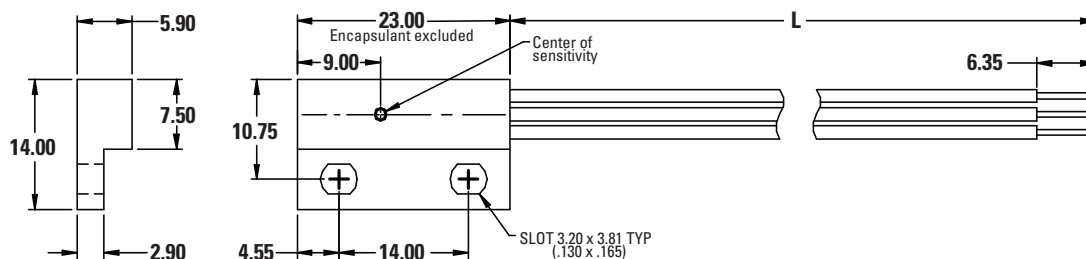
- Magnetically operated position sensor
- Operation with north or south pole
- Digital switching
- High Sensitivity
- 3-wire (voltage output)
- Push-pull output
- Ultra-low power consumption at 1.5 μ A
- Operates in a static or dynamic magnetic field
- Built-in temperature compensation
- Excellent thermal stability
- High switching speed up to 1 kHz
- Vibration 50 g max. @ 50–2,000 Hz
- Shock 150g 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

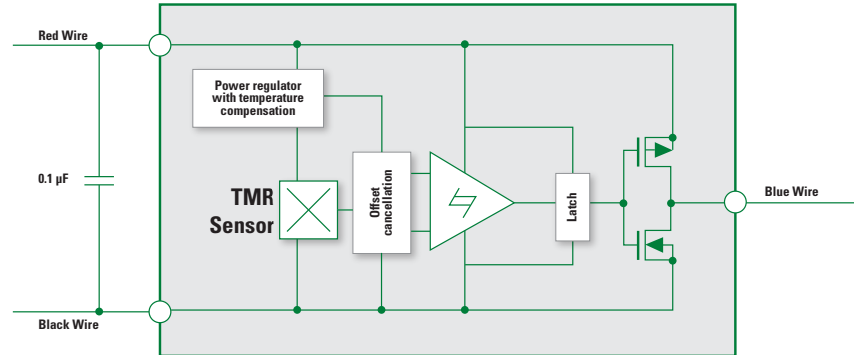
Dimensions in mm (inch)



54140 Sensor

Miniature Flange Mounting

Block Diagram



Notes:

1. Add capacitor C_n as shown, close to the sensor, for transient suppression if required.
2. Add pull-up resistor R_{pu} as shown for sinking output. The R_{pu} value should be calculated using your supply voltage while keeping the ON state current at a level below the maximum.
 $R_{pu} = V_{DD}/I_o$; $R_{pu} = 12V_{dc}/10mA = 1.2k\Omega$

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)	-	mA	1.5
Switching Speed	-	kHz	1
Temperature	Operating	C	-40 to +100
ESD ²	HBM	kV	4

Notes:

1. As long as T_j (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/JESDZ-A114
3. For custom modifications to the wire length or size, or adding a special connector, please contact Littelfuse

54140 Sensor

Miniature Flange Mounting

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 NFeB Magnet Littelfuse P/N H-58-Magnet
2. Bops +17G / -17G, Brps +10 Gauss / -10 Gauss, BH = 7G

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)

Material Specification

	Housing Material	Color	Sealing Component
54140 Sensor	PBT 20% GF	Black	Epoxy

Notes:

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

Recommended Fastener for Sensor¹

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

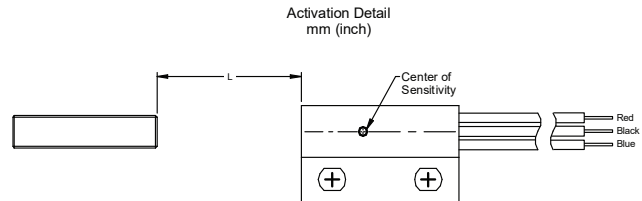
Notes:

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

Activation Detail



Termination Detail

Select Option	Description (Three-wire versions illustrated)
A	Tinned leads (6.4±0.76) mm

Part Numbering System

54140 - XXX - XX - X
