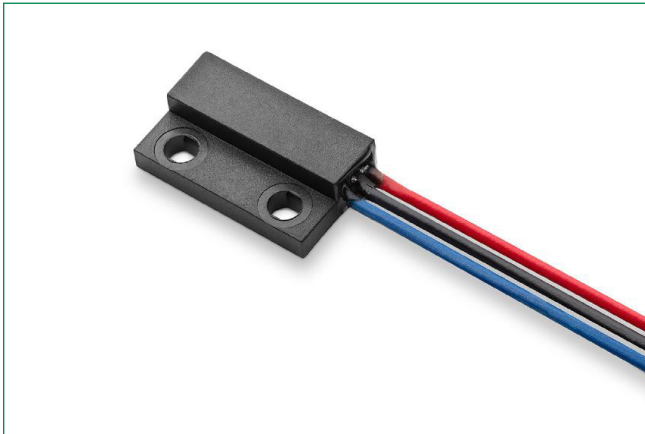


# 54140 Sensor

## Miniature Flange Mounting

RoHS



### 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 1.5uA
- Operates in a static or dynamic magnetic field
- Built-in temperature compensation
- Excellent thermal stability
- High switching speed up to 1 kHz
- Vibration 50g max. @ 50-2,000 Hz
- Shock 150g max. @ 11ms 1/2 Sine
- Long Life - up to 20 billion operations
- RoHS compliant
- IP67 rated

### Additional Information



Resources



Accessories



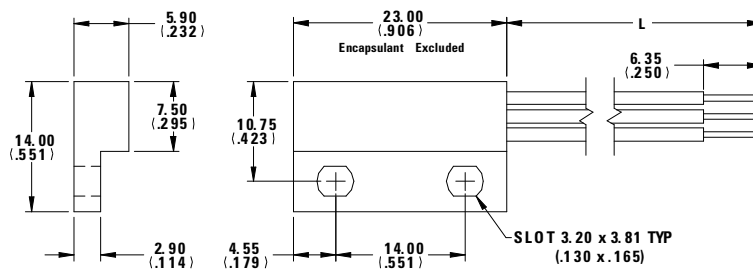
Samples

### Applications

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

### Dimensions

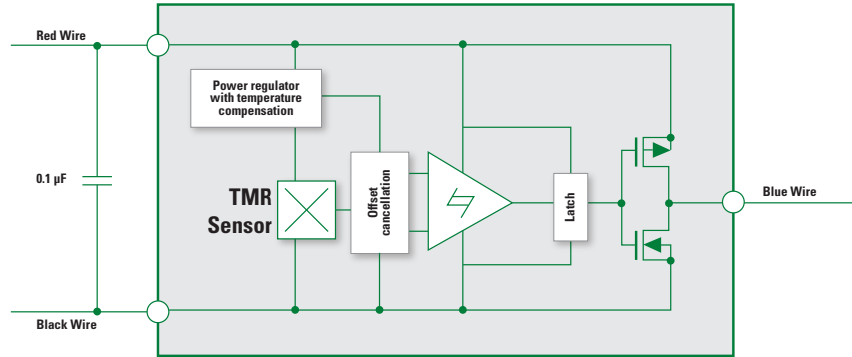
Dimensions in mm (inch)



# 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.  
 $R_{pu} = VDD/I_o$ ;  $R_{pu} = 12Vdc/10mA = 1.2k\Omega$

### T2 - Electrical Ratings

3-Wire Hall Switch & Analog Programmable (3H, 3M, & AP)

TMR Type			Digital Switch 3 - Wire (Voltage Output)
Supply Voltage <sup>1</sup>	Absolute Ratings	Vdc	7
	Operate	Vdc	1.8 to 5.5
	Overvoltage Protection	Vdc - max	7
Output High Voltage	Min	Vdc	$V_{cc} - 0.3$
Output Low Voltage	Max	Vdc	0,2
Output Current (continuously on)	Max	mA	3
Current Consumption (from 3.3 Vdc Supply)	Typical w/Output Off	µA	1,5
Switching Speed		kHz	1
Temperature	Operating	°C	-40 to +100
ESD <sup>2</sup>	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/JESD22-A114.
3. For custom modifications to the wire length or size, or adding a special connector, please contact Littelfuse

# 54140 Sensor

## Miniature Flange Mounting

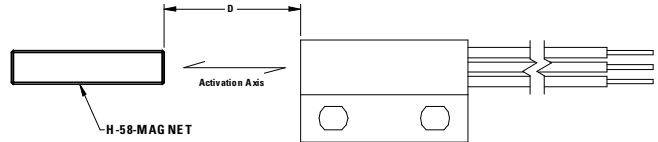
### TMR Sensitivity Options

Select Option	TMR Type	Sensitivity (Gauss)	Activate - D <sup>1</sup> mm (inch)
17X	3-wire	17	21.1 (0.83)

**Notes:**

1. Activation distances are 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 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 versions illustrated)
A	Tinned Leads 6.4 ±0.75 (0.25 ±0.030)

### Material Specification

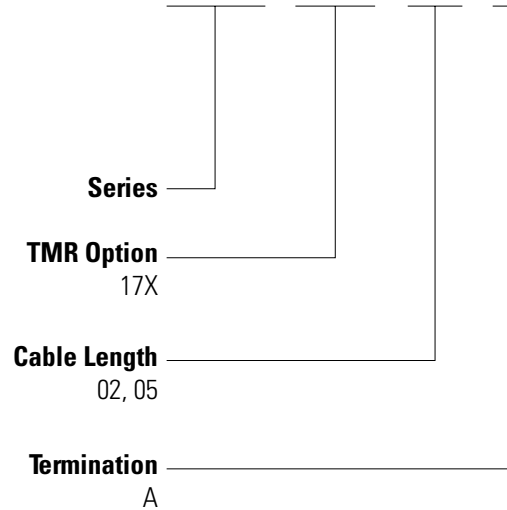
	Housing Material	Color	Sealing Component
54100 Sensor	PBT 20% GF	Black	Epoxy

### Recommended Fastener for Sensor

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

### Part Numbering System

**54140 - XXX - XX - X**



### Packaging Options

Cable Length	Packaging Option	Quantity
02	Bulk	500
05	Bulk	500

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