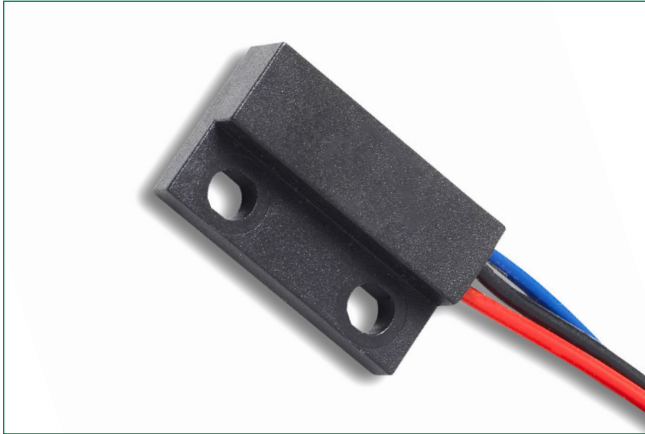


55140 Sensor

Miniature Flange Mounting

RoHS



Description

The 55140 is a small flange mounting hall effect sensor occupying only 3.22cm² (0.500"²) board space with a choice of digital, or programmable analog outputs. It is available as three-wire (voltage output) or two-wire (current output) versions. Its case design enables screw or adhesive mounting and the sensor is capable of switching up to 24Vdc and 20mA. It comes with a range of sensitivity and cable length options.

Features & Benefits

- Magnetically operated position sensor
- Digital and programmable analog types available
- Medium, high or programmable sensitivities
- Three-wire (voltage output) or two-wire (current output) versions
- Vibration 50g max. @ 50-2,000Hz
- Shock 150g max. @ 11ms ½ Sine
- Reverse/Over voltage protection
- Built in temperature compensation
- High switching speed up to 12kHz
- Long life; up to 20 billion operations
- Operates in static or dynamic magnetic field
- RoHS Compliant

Additional Information



Resources



Accessories



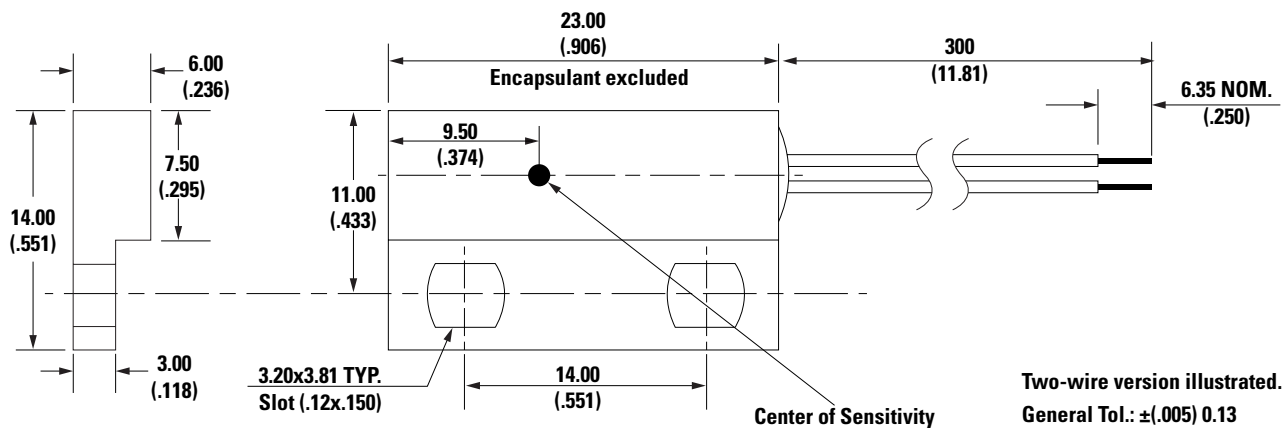
Samples

Applications

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

Dimensions

Dimensions in mm (inch)

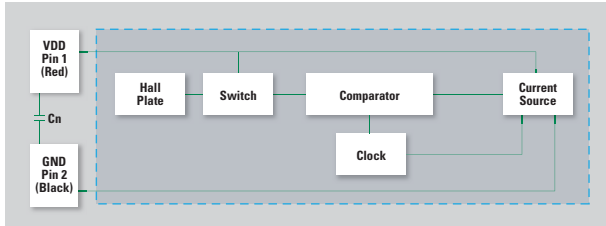


55140 Sensor

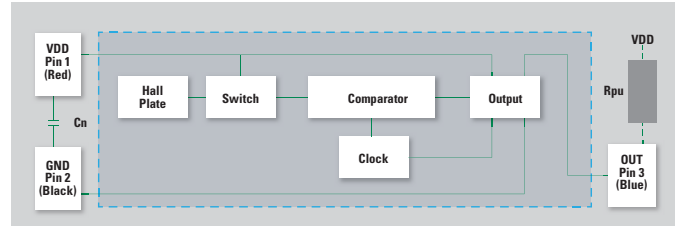
Miniature Flange Mounting

Block Diagram

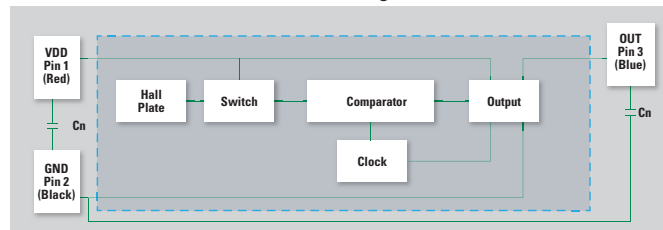
Two-wire Version



Three-wire Version



Three-wire Analog Version



Notes:

1. Add capacitor 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.
 $R_{pu} = V_{DD}/I_o$; $R_{pu} = 12V_{dc}/10mA = 1.2k\Omega$

T1 - Electrical Ratings

2-Wire Hall Switch (2M)

Hall Type			Digital Switch 2-Wire (Current Output)
Supply Voltage ¹	Absolute Ratings	Vdc	-18 to +28
	Operate	Vdc	+3 to +24
	Overvoltage Protection	Vdc - max	32
Current Consumption	Hall OFF	mA	5.0 to 6.9
	Hall ON	mA	12.0 to 17.0
Switching Speed	-	kHz	12
Temperature	Operating	C	-40 to +100

Notes:

1. It is assumed the product will operate within the normal Supply Voltage of +24Vdc maximum.

T2 - Electrical Ratings

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

Hall Type			Digital Switch 3 - Wire (Voltage Output)	AP - Analog (Programmable Only) ²
Supply Voltage ¹	Absolute Ratings	Vdc	-18 to +28	8.5
	Operate	Vdc	2.7 to 24	4.5 - 5.5
	Overvoltage Protection	Vdc - max	32	16.0
Output High Voltage	Min	Vdc	Sinking Output	0.2
Output Low Voltage	Max	Vdc	0.4 @ 20mA	4.80
Output Current (continuously on)	Max	mA	25	-1.0 to +1.0
Current Consumption (from Supply)	-	mA	1.1 to 2.4	5.0 to 10.0
Switching Speed	-	kHz	12	2
Temperature	Operating	C	-40 to +100	-40 to +100

Notes:

1. It is assumed the product will operate within the normal Supply Voltage of +24Vdc maximum.
2. Sensor Voltage Output can be reprogrammed to best fit customer application (see LF Application Note)

55140 Sensor

Miniature Flange Mounting

Hall Sensitivity Options

Select Option	Hall Type	Sensitivity (Gauss)	Activate - D ¹ mm (inch)
2M	2-Wire Switch	94	15.0
3M	3-Wire Switch	120	13.0
3H	3-Wire Switch	55	19.0
AP	Analog	Programmable Response ²	

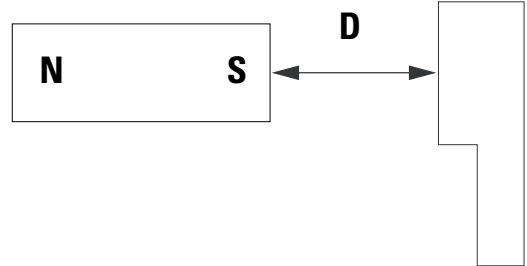
Notes:

1. Activation distances are approximate using NFeB Magnet 21 x 7 x 4.7 (.827 x .276W x .185H)

Littelfuse P/N H-58

2. Sensor Voltage Output can be reprogrammed to best fit customer application (see LF Application Note)

Activation Detail



Cable Length Specification

Cable 24 AWG 7/32 PVC 105°C UL1430/UL1569	
Select Option	Cable Length mm (inch)
02	300 (11.81)
05	1000 (39.37)

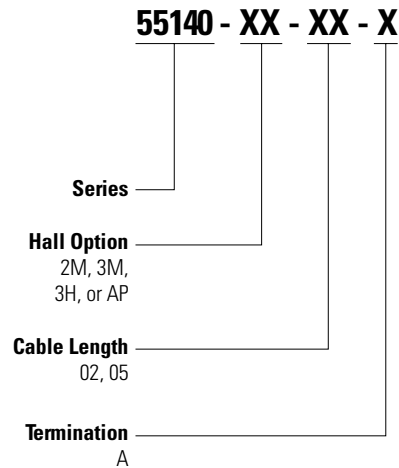
Termination Detail

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

Packaging Options

Packaging Option	Packaging Specification	Quantity	Quantity & Packaging Code	Taping Width
Bulk	Bulk	500	N/A	N/A

Part Numbering System



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<u>55140-3H-02-A</u>	<u>55140-2H-02-A</u>	<u>55140-AP-02-A</u>	<u>55140-2L-02-A</u>	<u>55140-3L-02-A</u>	<u>55140-3M-02-A</u>	<u>55140-2M-02-A</u>
<u>55140-2H-05-A</u>	<u>55140-2L-01-E</u>	<u>55140-3L-01-D</u>	<u>55140-3M-01-E</u>	<u>55140-3M-04-A</u>	<u>55140-3M-03-A</u>	<u>55140-3M-05-D</u>
<u>55140-3M-05-E</u>	<u>55140-AP-04-E</u>	<u>55140-2M-03-E</u>	<u>55140-3M-01-A</u>	<u>55140-AP-05-E</u>	<u>55140-3M-01-D</u>	<u>55140-AP-03-D</u>
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<u>55140-3M-02-D</u>	<u>55140-3M-03-E</u>	<u>55140-3M-04-E</u>	<u>55140-AP-03-E</u>	<u>55140-3M-02-E</u>	<u>55140-3H-03-E</u>	<u>55140-3L-03-A</u>
<u>55140-AP-01-A</u>	<u>55140-AP-01-E</u>	<u>55140-AP-05-A</u>	<u>55140-2M-04-D</u>	<u>55140-2M-05-E</u>	<u>55140-3H-03-D</u>	<u>55140-3H-05-E</u>
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<u>55140-3H-01-D</u>	<u>55140-3H-05-D</u>	<u>55140-2L-04-D</u>	<u>55140-3H-01-E</u>	<u>55140-3L-05-E</u>	<u>55140-2L-01-A</u>	<u>55140-3L-04-E</u>
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