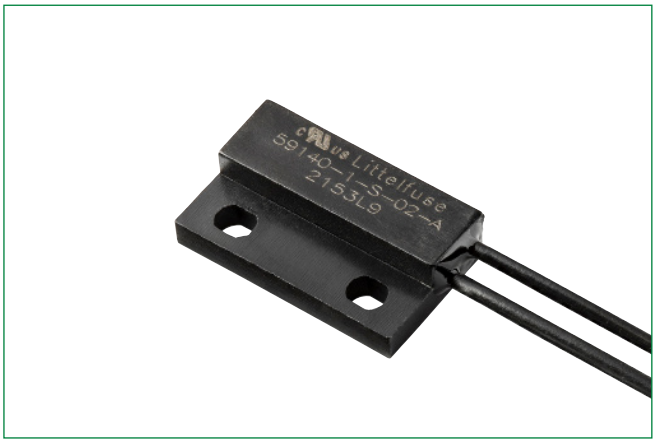
59140 Series
Miniature Flange Mount Sensor



Description

The 59140 is a miniature flange mounting reed sensor occupying only 3.22cm² (0.500"²) board space with a choice of normally open, normally open high voltage, normally closed or changeover contacts. The wires exit from the right-hand side, see Drawing 2. It is also available with left-hand exit, see 59141 series. The 59140 is capable of switching up to 265Vac/300Vdc at 10VA.

It is well suited for use in a wide range of industrial, appliances, or IoT proximity sensing applications.

The 59140 series functions best with the matching actuator 57140-000.

Additional Information

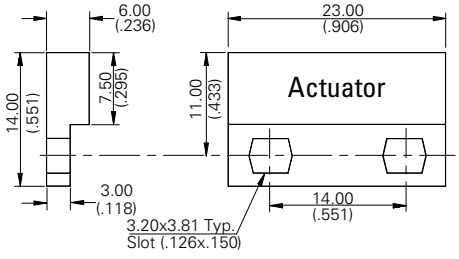
Resources | Accessories | Samples

Dimensions

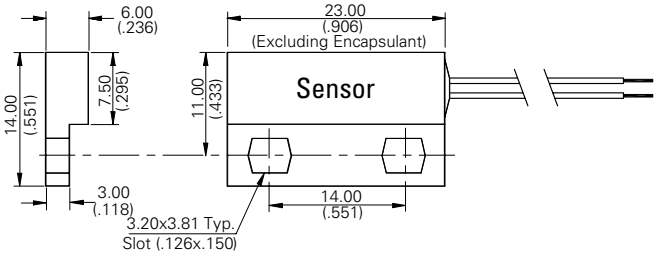
Dimensions in mm (inch)

Tolerances are +/- 0.25 (0.010) unless otherwise noted.

Actuator (sold separately)



Sensor (Two-wire version)



Schematics	Switch Type
Black / Black	1 and 2
Black / Blue / White	3
Black / Black	4

Features & Benefits

- Non-contact switching solution for wet & harsh environments
- Housing design for optimum adjustability
- Available in select sensitivities (operating distances)
- Standard cable configurations; customization options available
- Hermetically sealed, IP67 rated; UL and REACH compliant
- No leakage current in 'open' state–ideal for batterypowered IoT applications
- Can operate through non-ferrous materials (for example, wood, plastic or aluminium)
- Helps implement efficient proximity/access and energy management systems
- Compact size and easy installation and effective concealment in many applications
- UL Recognized per UL 508 and CSA C22.2 No. 14.

Applications

- Security and access control
- Factory automation
- Process equipment
- Major appliances
- Small appliances
- Proximity and limit sensing

Agency Approvals

Agency	Agency File Number
c UL us	E61760

Note: Contact Littelfuse for specific agency approval ratings.

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Electrical Ratings

Contact Type			Normally Open	Normally Open High Voltage	Change Over	Normally Closed
Switch Type			1	2	3	4
Contact Rating [1]		VA/Watt - max.	10	10	5	5
Voltage [4]	Switching [2] Breakdown [3]	Vdc - max. Vac - max. Vdc - min.	200 140 250	200 265 400	175 120 200	175 120 200
Current [4]	Switching [2] Carry	Adc - max. Aac - max. Adc - max.	0.5 0.35 1.2	0.4 0.30 1.4	0.25 0.18 1.5	0.25 0.18 1.5
Resistance [5]	Contact, Initial Insulation	Ω - max. Ω - min.	0.2 10^{10}	0.2 10^{10}	0.2 10^{9}	0.2 10^{9}
Capacitance	Contact	pF - typ.	0.3	0.2	0.3	0.3
Temperature	Operating	°C	-40 to +105	-20 to +105	-40 to +105	-40 to +105

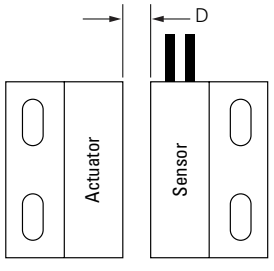
Product Characteristics						
Operate Time [6]		ms - max.	1.0	1.0	3.0	3.0
Release Time [6]		ms - max.	1.0	1.0	3.0	3.0
Shock [7]	11ms ½ sine	G - max.	100	100	50	50
Vibration [7]	50-2000 Hz	G - max.	30	30	30	30

Notes:
1. Contact rating - Product of the switching voltage and current should never exceed the wattage rating. Contact Littelfuse for additional load/life information.
2. When switching inductive and/or capacitive loads, the effects of transient voltages and/or currents should be considered. Refer to Application Notes AN108A and AN107 for details.
3. Breakdown Voltage - per MIL-STD-202, Method 301.
4. Electrical Load Life Expectancy - Contact Littelfuse with voltage, current values along with type of load.
5. This resistance value is for 300 mm wire length. Resistance changes when wire lengthens.
6. Operate (including bounce)/Release Time - per EIA/NARM RS-421-A, diode suppressed coil (Coil II).
7. Shock and Vibration - per EIA/NARM RS-421-A and MIL-STD-202.
8. For custom modifications to the wire length or size, or adding a special connector, please contact Littelfuse.

Sensitivity Options (Using 57140 Actuator)

Select Option		S			T			U			V		
	Switch Type	Pull-In AT Range	Activation Distance (mm) Min.	Deactivation Distance (mm) Max.	Pull-In AT Range	Activation Distance (mm) Min.	Deactivation Distance (mm) Max.	Pull-In AT Range	Activation Distance (mm) Min.	Deactivation Distance (mm) Max.	Pull-In AT Range	Activation Distance (mm) Min.	Deactivation Distance (mm) Max.
1	Normally Open	12-18	6.8	19	17-23	5.8	17.8	22-28	5	16.5	27-33	4.2	16.5
2	High Voltage	-	6.8	19	17-23	5.8	17.8	22-28	-	-	27-33	-	-
3	Change Over	15-20	6.5	15.2	20-25	5.5	14	25-30	-	-	-	-	-
4	Normally Closed	15-20	6.5	15.2	20-25	5.5	14	25-30	5	14	-	-	-

Notes:
1. Pull-In AT Range: These AT values are the bare reed switch AT before modification.
2. The activation distance is average value on the final sensor assembly.



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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+/-10.00 (39.37+/- 0.394)

Termination Specification

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

Material Specification

	Housing Material	Color	Sealing Component
57140 Actuator	20% GF P.B.T	Black	Epoxy
59140 Sensor	20% GF P.B.T	Black	Epoxy

Packaging

Cable Length	Packaging Option	Quantity
02	Bulk	500
05	Bulk	500

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

Note: 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 shuld be non-magnetic stainless steel or brass.

Part Numbering System

Sensor: **59140- X - X - XX - X**

- **Series**
- **Switch Type** 1, 2, 3, or 4
- **Sensitivity** S, T, U, or V
- **Cable Length** 02, 05
- **Termination** A

Actuator: **57140 - 000**

- **Series**
- **Standard Actuator** 000

Note: The 57140 Actuator is sold separately.

Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at http://www.littelfuse.com/disclaimer-electronics.

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