

# 59140 Series

## Miniature Flange Mount Sensor



### Description

The 59140 is a miniature flange mounting reed sensor occupying only 3.22cm<sup>2</sup> (0.500”<sup>2</sup>) 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



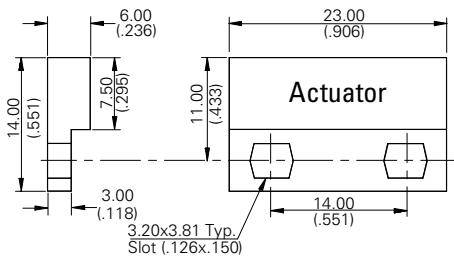
Samples

### Dimensions

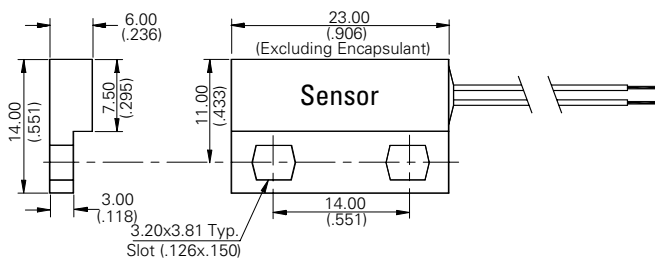
Dimensions in mm (inch)

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

**Actuator** (sold separately)



**Sensor** (Two-wire version)



### 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 battery-powered 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
	E61760

**Note:** Contact Littelfuse for specific agency approval ratings.

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

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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 <sup>1</sup>		VA/Watt - max.	10	10	5	5
Voltage <sup>4</sup>	Switching <sup>2</sup>	Vdc - max.	200	200	175	175
		Vac - max.	140	265	120	120
	Breakdown <sup>3</sup>	Vdc - min.	250	400	200	200
Current <sup>4</sup>	Switching <sup>2</sup>	Adc - max.	0.5	0.4	0.25	0.25
		Aac - max.	0.35	0.30	0.18	0.18
	Carry	Adc - max.	1.2	1.4	1.5	1.5
Resistance <sup>5</sup>	Contact, Initial Insulation	Ω - max.	0.2	0.2	0.2	0.2
		Ω - min.	10 <sup>10</sup>	10 <sup>10</sup>	10 <sup>9</sup>	10 <sup>9</sup>
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 <sup>6</sup>		ms - max.	1.0	1.0	3.0	3.0
Release Time <sup>6</sup>		ms - max.	1.0	1.0	3.0	3.0
Shock <sup>7</sup>	11ms ½ sine	G - max.	100	100	50	50
Vibration <sup>7</sup>	50-2000 Hz	G - max.	30	30	30	30

#### Notes:

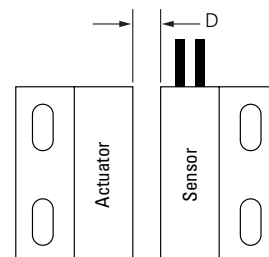
- Contact rating - Product of the switching voltage and current should never exceed the wattage rating. Contact Littelfuse for additional load/life information.
- When switching inductive and/or capacitive loads, the effects of transient voltages and/or currents should be considered. Refer to Application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

### Sensitivity Options (Using 57140 Actuator)

Select Option	Switch Type	S			T			U			V		
		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:

- Pull-In AT Range: These AT values are the bare reed switch AT before modification.
- 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

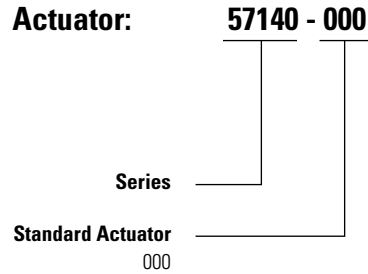
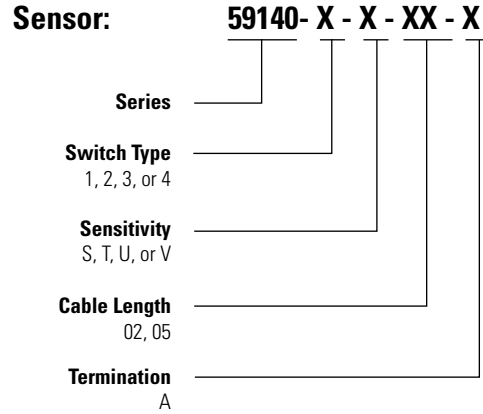
Cable Length	Packaging Option	Quantity
02	Bulk	500
05	Bulk	500

### Recommended Fastener for Sensor<sup>1</sup>

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 should be non-magnetic stainless steel or brass.

### Part Numbering System



**Note:** The 57140 Actuator is sold separately.