

# 59020

## Miniature Cylindrical Reed Sensor + 57020 Actuator



### Description

The 59020 Reed Sensor is a miniature cylindrical reed sensor 15.24mm x 5.10mm (0.600" x 0.201") with a normally open contact. It is capable of switching up to 120 Vac/170 Vdc at 10 VA. The 59020 Reed Sensor is available with a range of sensitivity and cable length options. It is well suited for use in a wide range of industrial, appliances, or IoT proximity sensing applications. It functions best with the 57020-000 actuator.

**Note:** The 57020 Actuator is sold separately.

### Features and Benefits

- Non-contact switching solution for wet & harsh environments
- No leakage current in 'open' state—ideal for battery-powered IoT applications
- Helps implement efficient proximity/access and energy management systems
- Compact size and easy installation and effective concealment in many applications
- Hermetically sealed, IP67 rated; REACH compliant
- Can operate through non-ferrous materials (for example, wood, plastic, or aluminum)
- Available in select sensitivities (operating distances)
- Standard cable configurations; customization options available
- ATEX certified for use in European explosive atmospheres: II 3 G Ex nC IIC Gc

### Additional Information



Resources



Accessories



Samples

### Agency Approvals

| Agency | Agency File/Certificate Number                |
|--------|-----------------------------------------------|
|        | DEMKO 14 ATEX 1393U*<br>Ⓜ II 3 G Ex nC IIC Gc |

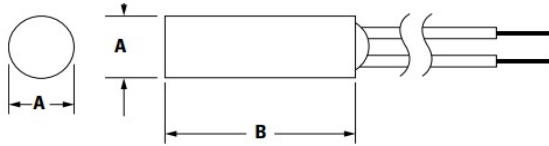
### Applications

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

## 59020

## Miniature Cylindrical Reed Sensor + 57020 Actuator

## Dimensions (Dimensions in mm (inch))



## Package Dimensions (Dimensions in mm[in])

| Product        | A Nom. Mm[in]                      | B Nom. Mm[in]                       |
|----------------|------------------------------------|-------------------------------------|
| 57020 Actuator | 5.10 +/- 0.25<br>[0.201 +/- 0.010] | 15.24 +/- 0.25<br>[0.600 +/- 0.010] |
| 59020 Sensor   | 5.10 +/- 0.25<br>[0.201 +/- 0.010] | 15.24 +/- 0.25<br>[0.600 +/- 0.010] |

## Material Specifications

| Product        | Housing Material | Color | Sealing Component |
|----------------|------------------|-------|-------------------|
| 57020 Actuator | 30% GF PBT       | Black | Epoxy             |
| 59020 Sensor   | 30% GF PBT       | Black | Epoxy             |

## Electrical Ratings

| Contact Type                |                        |                | Normally Open   |
|-----------------------------|------------------------|----------------|-----------------|
| Switch Type                 |                        |                | 1               |
| Contact Rating <sup>1</sup> |                        | VA/Watt - max. | 10              |
| Voltage <sup>4</sup>        | Switching <sup>2</sup> | Vdc - max.     | 170             |
|                             |                        | Vac - max.     | 120             |
|                             | Breakdown <sup>3</sup> | Vdc - min.     | 175             |
| Current <sup>4</sup>        | Switching <sup>2</sup> | Adc - max.     | 0.25            |
|                             |                        | Aac - max.     | 0.18            |
|                             | Carry                  | Adc - max.     | 0.5             |
| Resistance <sup>5</sup>     | Contact, Initial       | Ω - max.       | 0.2             |
|                             | Insulation             | Ω - min.       | 10 <sup>9</sup> |
| Capacitance                 | Contact                | pF - typ.      | 0.3             |
| Temperature                 | Operating              | °C             | -40 to +105     |

## Product Characteristics

|                           |             |           |     |
|---------------------------|-------------|-----------|-----|
| Operate Time <sup>6</sup> |             | ms - max. | 0.5 |
| Release Time <sup>6</sup> |             | ms - max. | 0.2 |
| Shock <sup>7</sup>        | 11ms ½ sine | G - max.  | 100 |
| Vibration <sup>7</sup>    | 50-2000 Hz  | G - max.  | 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. Leakage current is less than 0.1mA for 60 seconds.

4. Electrical Load Life Expectancy - Contact Littelfuse with voltage, and 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 diode suppressed coil (Coil).  
 7. Shock and Vibration - per EIA/NARM RS-421-A and MIL-STD-202.

# 59020

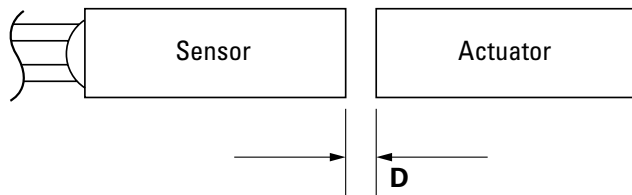
## Miniature Cylindrical Reed Sensor + 57020 Actuator

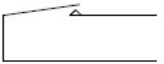
### Sensitivity Options (Using 57020 Actuator)

| Select Option |               | S                |                          |                            | T                |                          |                            | U                |                          |                            |
|---------------|---------------|------------------|--------------------------|----------------------------|------------------|--------------------------|----------------------------|------------------|--------------------------|----------------------------|
| Switch Type   |               | Pull-In AT Range | Activation Distance (mm) | Deactivation Distance (mm) | Pull-In AT Range | Activation Distance (mm) | Deactivation Distance (mm) | Pull-In AT Range | Activation Distance (mm) | Deactivation Distance (mm) |
| 1             | Normally Open | 6-10             | 4.5                      | 12.5                       | 10-15            | 3.5                      | 9.5                        | 15-20            | 2.5                      | 9.5                        |

**Notes:**

- Measurements are from 57020 Nominal Actuator
- Pull-In AT Range: These AT values are the bare reed switch AT before modification
- Not recommended to be mounted within/near ferrous materials if doing so these activation & deactivation distances will decrease significantly



| SCHEMATIC                                                                          | SWITCH TYPE |
|------------------------------------------------------------------------------------|-------------|
|  | 1           |

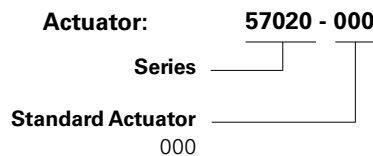
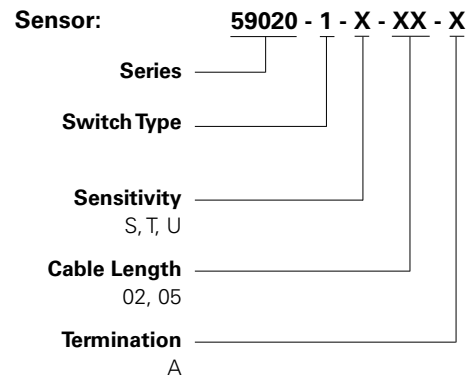
### Cable Length Specification

| Cable Type: 24 AWG 7/32 PVC 105°C UL1430/UL1569 |                                  |
|-------------------------------------------------|----------------------------------|
| Options                                         | 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  |

### Part Numbering System



**Note:** The 57020 Actuator is sold separately.

### Packaging

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

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