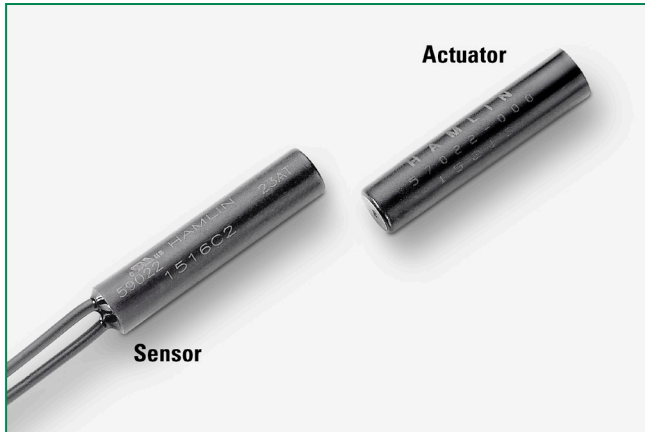


# 59022 Firecracker Reed Sensor + 57022 Actuator



## Description

The 59022 Firecracker Reed Sensor is a small cylindrical reed sensor, 25.4mm (L) x 5.80mm (Dia.) (1.00" x 0.228"), with a choice of normally open, normally closed or change-over contacts. It is capable of switching up to 200Vdc at 10W.

The 59022 Firecracker Reed Sensor is available with a range of sensitivity and cable length options. It functions best with the 57022 actuator.

**Note: The 57022 Actuator is sold separately.**

## Features

- Magnetically-operated proximity sensor
- Hermetically sealed contacts
- Operates through non-ferrous materials such as wood, plastic or aluminum
- Options of normally open, normally closed or single-pole-double-throw
- Customer-defined sensitivity option
- Custom cable length and connector options available

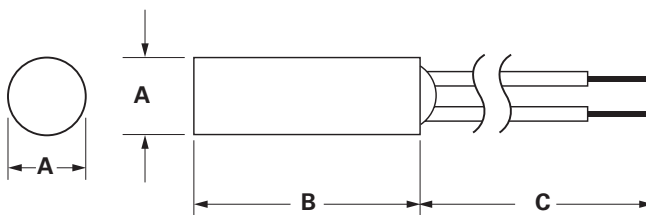
## Agency Approvals

| Agency | Agency File Number |
|--------|--------------------|
|        | E61760             |

Note: Contact Littelfuse for specific agency approval ratings.

## Dimensions

Dimensions in mm (inch)



|                       | A<br>Nom.   | B<br>Nom.     | C<br>Nom.   |
|-----------------------|-------------|---------------|-------------|
| <b>57022 Actuator</b> | 5.80 (.228) | 25.40 (1.000) | —           |
| <b>59022 Sensor</b>   | 5.80 (.228) | 25.40 (1.000) | 300 (11.81) |

## Benefits

- Fits nicely into small confined spaces
- Quick and easy to install
- Well suited for usage in high-moisture and contaminated environments
- Non-contact solution, aesthetically more appealing than push-button or lever mechanical-type switches
- Ideal for battery-powered applications as the contacts do not draw power when in the non-activated state
- Reed contacts last for millions of operating cycles under micro-controller logic level loads

## Applications

- Position and limit sensing
- Security
- Level sensing
- Linear actuators

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## Electrical Ratings

| Contact Type                |                        |                | Normally Open    | Change Over     | Normally Closed |
|-----------------------------|------------------------|----------------|------------------|-----------------|-----------------|
| Switch Type                 |                        |                | 1                | 3               | 4               |
| Contact Rating <sup>1</sup> |                        | VA/Watt - max. | 10               | 5               | 5               |
| Voltage <sup>4</sup>        | Switching <sup>2</sup> | Vdc - max.     | 200              | 175             | 175             |
|                             |                        | Vac - max.     | 140              | 120             | 120             |
|                             | Breakdown <sup>3</sup> | Vdc - min.     | 250              | 200             | 200             |
| Current <sup>4</sup>        | Switching <sup>2</sup> | Adc - max.     | 0.5              | 0.25            | 0.25            |
|                             |                        | Aac - max.     | 0.35             | 0.18            | 0.18            |
|                             | Carry                  | Adc - max.     | 1.2              | 1.5             | 1.5             |
| Resistance <sup>5</sup>     | Contact, Initial       | Ω - max.       | 0.2              | 0.2             | 0.2             |
|                             | Insulation             | Ω - min.       | 10 <sup>10</sup> | 10 <sup>9</sup> | 10 <sup>9</sup> |
| Capacitance                 | Contact                | pF - typ.      | 0.3              | 0.3             | 0.3             |
| Temperature                 | Operating              | °C             | -40 to +105      | -40 to +105     | -40 to +105     |

### Product Characteristics

|                           |             |           |     |     |     |
|---------------------------|-------------|-----------|-----|-----|-----|
| Operate Time <sup>6</sup> |             | ms - max. | 1.0 | 3.0 | 3.0 |
| Release Time <sup>6</sup> |             | ms - max. | 1.0 | 3.0 | 3.0 |
| Shock <sup>7</sup>        | 11ms ½ sine | G - max.  | 100 | 50  | 50  |
| Vibration <sup>7</sup>    | 50-2000 Hz  | G - max.  | 30  | 30  | 30  |

#### Notes:

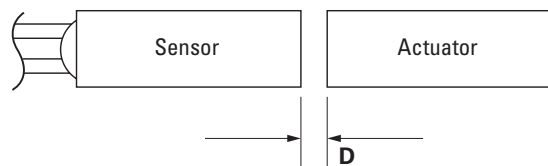
- Contact rating - Product of the switching voltage and current should never exceed the wattage rating. Contact Littelfuse for additional load/life information.
- When switching inductive and/or capacitive loads, the effects of transient voltages and/or currents should be considered. Refer to Application Notes AN108A and AN107 for details.
- Breakdown Voltage - per MIL-STD-202, Method 301. Leakage current is less than 0.1mA for 60 seconds.
- Electrical Load Life Expectancy - Contact Littelfuse with voltage, current values along with type of load.
- This resistance value is for 11.81mm 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.
- Custom sensitivities and a high voltage switch are options

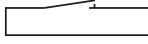
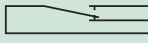
## Sensitivity Options (Using 57022 Actuator)

| Select Option |                 | S                |                                           | T                |                                           | U                |                                           |
|---------------|-----------------|------------------|-------------------------------------------|------------------|-------------------------------------------|------------------|-------------------------------------------|
| Switch Type   |                 | Pull-In AT Range | Activate Distance<br>mm (inch)<br>Average | Pull-In AT Range | Activate Distance<br>mm (inch)<br>Average | Pull-In AT Range | Activate Distance<br>mm (inch)<br>Average |
| 1             | Normally Open   | 12-18            | 9.6 (.377)                                | 17-23            | 7.0 (.275)                                | 22-28            | 5.0 (.197)                                |
| 3             | Change Over     | 15-20            | 9.3 (.367)                                | 20-25            | 7.5 (.295)                                | 25-30            | 6.5 (.256)                                |
| 4             | Normally Closed | 15-20            | 9.3 (.367)                                | 20-25            | 7.5 (.295)                                | 25-30            | 6.5 (.256)                                |

#### Note:

- 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



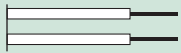
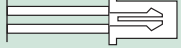
| Schematics                                                                           | Switch Type |
|--------------------------------------------------------------------------------------|-------------|
|  | 1           |
|  | 3           |
|  | 4           |

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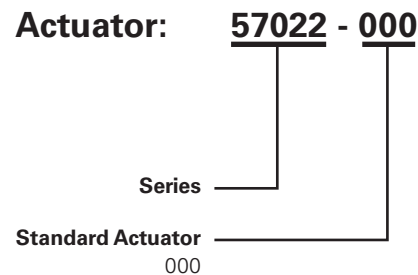
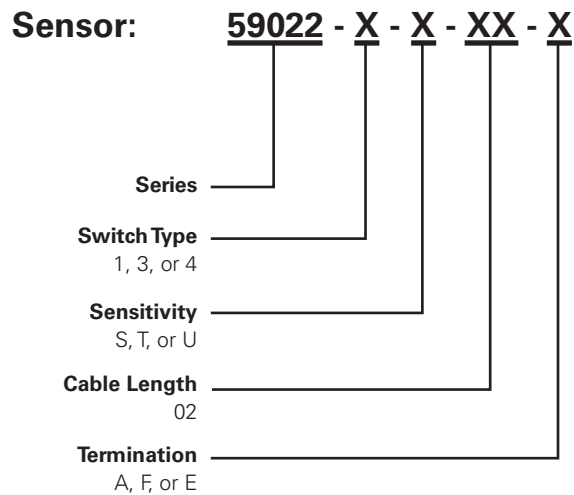
## Cable Length Specification

| Cable Type: 24 AWG 7/32 PVC 105°C UL1430/UL1569 |                           |
|-------------------------------------------------|---------------------------|
| Select Option                                   | Cable Length<br>mm (inch) |
| 02                                              | 300 (11.81)               |

## Termination Specification

| Termination Options |                                                |                                                                                     |
|---------------------|------------------------------------------------|-------------------------------------------------------------------------------------|
| Select Option       | Description<br>(Two-wire versions illustrated) |                                                                                     |
| A                   | Tinned leads (6.4±0.76)mm                      |  |
| F                   | Untinned leads (6.4±0.76)mm                    |  |
| E                   | JST type XHP 2.5mm pitch                       |  |

## Part Numbering System



Note: The 57022 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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