

## One-Piece Ferromagnetic Actuated Reed Proximity Switches



### FR ORDER GUIDE

| Catalog Listing Wires | Heavy Duty Cable | Sensitivity* in. (mm) | MUST Operate Pt. | Lead Length Feet/mm |
|-----------------------|------------------|-----------------------|------------------|---------------------|
| 4FR1-6                | 4FR2-25          | 0.50/12,7             | 0.35/8,9         | 6.0/1,83            |
| 6FR1-6                | 6FR2-6           | 0.75/19,1             | 0.60/15,2        | 6.0/1,83            |

\*Nominal for low carbon steel, 1 x 3 x 0.25 in. (25,4 x 76,2 x 6,35 mm).

Note: 25 and 50 ft. (7,6 and 15,2m) lead lengths can be supplied, but longer lead lengths are not necessarily stock items.

6FR1-6: 589,5g (20.8 oz)

### FEATURES

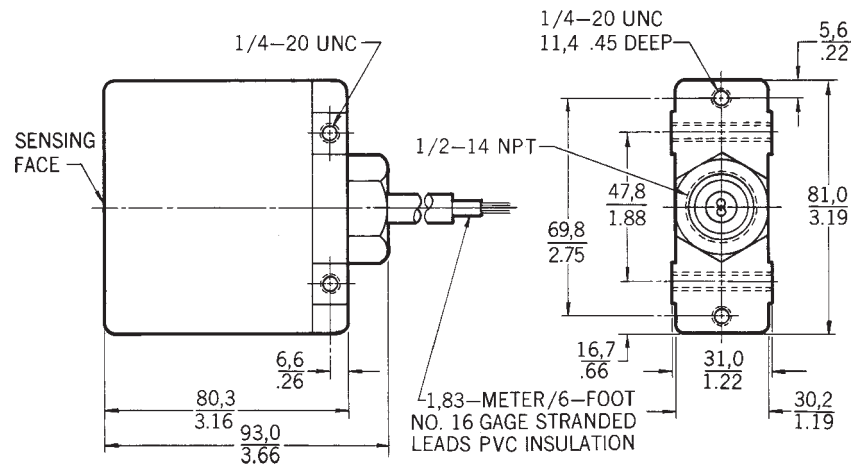
- Internal dry reed switch, ferrous metals sensitive
- One piece construction aluminum housing
- Single pole, single throw, normally open circuitry
- May be used to directly drive low energy circuits
- Long mechanical life
- Completely potted enclosure
- Hermetically sealed contacts
- No-touch detection of ferrous metals
- Standard 1/2 inch conduit outlet
- **Can detect ferrous metal through non-ferrous metal. Example: Steel through stainless steel.**

### CHARACTERISTICS

|   |  |
|---|--|
| Circuitry   | Single pole, normally open   |
| Response Time   | 1 millisecond  |
| Repeatability (constant actuator path, at stabilized temperature) | 0.005 inch (0,13mm)  |
| Power rating  |  |
| AC (maximum)  | 15 VA, 500 mA, 280 V RMS   |
| DC (maximum)*   | 15 watts, 500 mA, 400 V  |
| Initial Contact Resistance (closed circuit)                       | 0.060 ohm max.   |
| Switching Frequency   | Dependent on size and speed of target. Has been tested to 100 Hz, but should be operated at less than 700-800 Hz resonant frequency. |
| Reed Bounce Time  | 0.5 millisecond max.   |
| Operating Life  |  |
| Max. Load   | 100,000 operations min.  |
| With 5FD1 relay load  | 50 million operations  |
| Temperature Range   | -20° to +83°C (-4° to +181°F)  |

\*DC rating with contact protection diode [N2071, International Rect. 10D6, 600V. 1 amp or equivalent] for increased life.

### MOUNTING DIMENSIONS (For reference only)

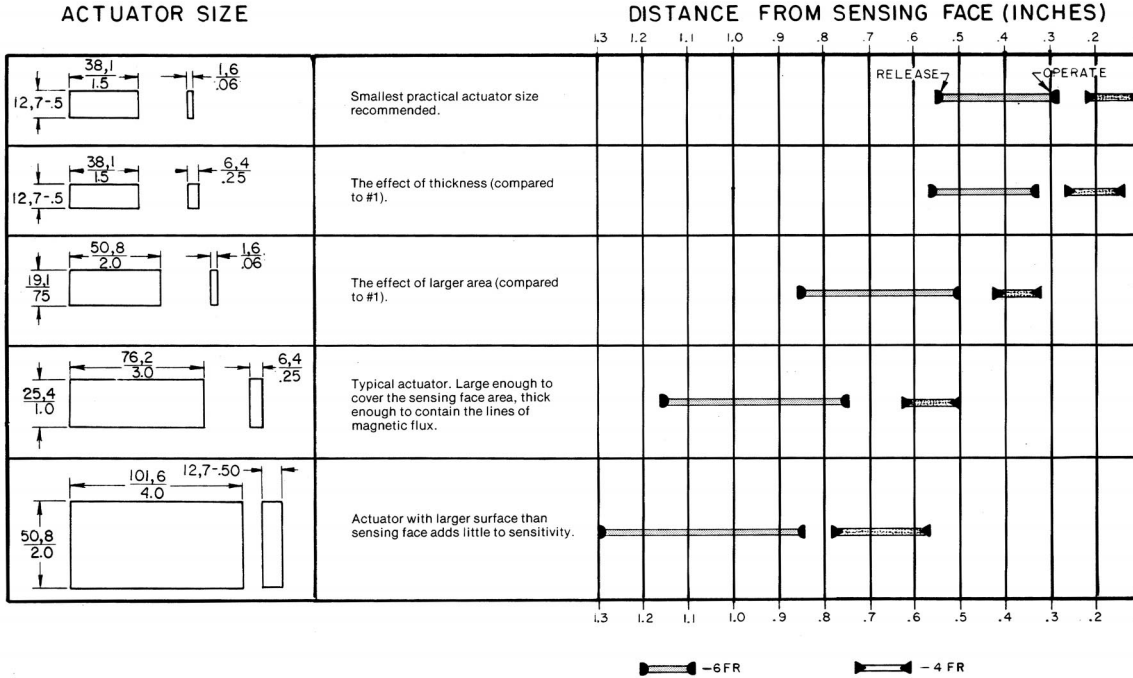


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### EFFECTS OF TEMPERATURE ON SENSITIVITY

For proper operation over the total temperature range [with typical actuator (#4)], use a minimum overtravel of 0.150 in. (3,8mm) and minimum release travel of 0.250 in. (6,35mm). Overtravel and release travel will differ for smaller actuators.

### MASS OR ACTUATOR SIZE VS SENSITIVITY



Proximity

### MAGNETIC ATTRACTION

The switch exerts a magnetic force on the actuator. The actuator should be secured to prevent its being drawn to the sensing face.

1. Do not subject the switch to the influence of strong magnetic fields. External permanent magnets should be a minimum of 6 inches (152mm) from the switch.
2. Ferromagnetic materials (other than the actuator) should be at least 3 inches (76,2mm) from the sensing face.
3. Arc suppression networks must be used in inductive circuits.
4. These switches should not be subjected to severe shock.
5. Mount on solid support and protect from vibration.
6. The switch may fail to release if adjacent steel parts are too close, or if quantities of metallic chips are attracted to the sensing face.
7. Do not subject reed switches to high inrush currents.
8. Each 4/6FR contains a glass reed switch and a magnet, and should be handled and applied accordingly.

