VR SENSOR
Variable Reluctance Type
MODELS 10-7003, 10-7008, 10-7032

DESCRIPTION

The Eagle® Variable Reluctance (VR) Sensor is designed to measure signals from any rotating apparatus and transmit this information by low-voltage 2-conductor twisted pair cable back to an Eagle control unit located up to 2 miles away. This sensor can easily be identified by its bright red end-cap(s).

THEORY OF OPERATION

The Eagle Variable Reluctance sensor senses a target as it passes through the magnetic field of the internal pick-up coil, hence the term “variable reluctance”.

The target has to break the magnetic field fast enough to create an induced voltage in the coil, therefore, the minimum sensing speed is approximately 60 RPM. Adding additional targets will not increase the minimum sensing speed of the sensor!

The sensing distance from a target is directly proportional to the speed of the roller. (i.e. – At 60 RPM this sensor will detect a ½” target at 1/64”. The same target and sensor at 100 RPM will be detected at approximately ¼”).

INSTALLATION

1. Select the roller or shaft to be monitored. If a roller is to be monitored, be sure it is always contacting the belt.

2. Affix a target on the roller or shaft. Target should be a piece of key stock, 1/4-20 Hex Nut, etc. (Figure 1) Dents and notches are not recommended as targets.

3. Mount sensor firmly with hose clamps or U-bolts to prevent it from moving or working loose. Tape is NOT recommended as a fastener.

4. Before tightening, place sensor close enough to the target(s) to produce a strong, steady blinking on the sensor-head LED. The LED should blink in direct proportion to the roller speed. Effective distance between sensor and target(s) is approximately 1/64 inch to 3/4 inch depending on target mass and roller speed.

SPECIFICATIONS

<table>
<thead>
<tr>
<th>Model 10-7003</th>
<th>Model 10-7008</th>
<th>Model 10-7032</th>
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</thead>
<tbody>
<tr>
<td>Dimensions</td>
<td>4 in. x 1.3 in. O.D.</td>
<td>4.91 in x 1.30 in O.D.</td>
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<td>Sensor Type</td>
<td>Variable Reluctance Failsafe Output</td>
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<tr>
<td>Housing / Mounting</td>
<td>PVC / General Mount</td>
<td>PVC / Conduit Mount</td>
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<tr>
<td>Sensor Power Requirement</td>
<td>Current limited 12 VDC from Control Unit</td>
<td>Current limited 12 VDC from Control Unit</td>
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<tr>
<td>Sensor Cable</td>
<td>Unshielded Twisted Pair 16/2 - 50 Ft. with Connector</td>
<td>Unshielded Twisted Pair 16/2 - 3' Pigtail</td>
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<tr>
<td>Distance</td>
<td>Sensor to Control Unit - 2 Miles MAX</td>
<td>Sensor to Control Unit - 2 Miles MAX</td>
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<tr>
<td>Sensing Speed Range</td>
<td>60 RPM – 800 RPM</td>
<td>60 RPM – 800 RPM</td>
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</tbody>
</table>

FIGURE 1

![Diagram of VR Sensor Installation](image-url)
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10-7003 DIMENSIONS

10-7008 DIMENSIONS

10-7032 DIMENSIONS

GOLD ANODIZED ALUMINUM HOUSING LED INDICATOR 1 INCH N.P.T. THREADS

1 FOOT #16-2 PVC JACKET

1 INCH MALE N.P.T. THREAD

1 FOOT #16-2 PVC JACKET

DOCUMENT DATE: 3/6/18

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