Zero Speed Switch Sensor, ZS09P

Features

- Self-contained unit incorporates sensor and relay
- Isolated outputs with 5 Amp switching capacity
- Operating voltages: 6-24VDC or 120VAC
- Senses magnetic or ferrous targets
- Use outdoors or in wash down areas
- Adjustable setpoint
- Diagnostic indicators
- Not rotation direction sensitive
- Relay latch option

Benefits

- Prevents equipment damage and material spoilage
- Prevents multiple conveyor "domino effect" stalled condition
- Over speed, under speed or zero speed sensing
- Prompt alert for stalled, over speed or zero speed conditions
- Easy interface to existing systems
- Reliable and effective

Overview

The ZS09P Zero Speed Switch Sensor is a self-contained device that combines sensor and switch for use in over speed, under speed, or zero speed applications. It senses magnetic and high iron content targets. Outputs are isolated and can be easily integrated with any controller or existing system. It is about the size of a prox switch, but incorporates intelligent speed sensing circuitry not found in simple on/off devices. Use the ZS09P Zero Speed Switch Sensor for switching control circuit loads up to 5 amps.

Operation

When motion is either detected or reaches setpoint (depending upon application), the relay output changes state. It remains in this state until under speed or zero speed condition occurs (depending upon application).
Specifications

Power Requirements:
Part No. ZS09P-120: 120VAC, 20mA, 50/60Hz
Part No. ZS09P-D: 6-24VDC, 69mA

Fuse: Internal 1/2 Amp non-replaceable fuse

Relay Output: (specify when ordering)
SPDT Form 'C' dry relay contact (Normally Open/Closed)
SPST Normally Open
SPST Normally Closed

Contact ratings:
5A, 240VAC
5A, 30VDC
Vibration resistance (function) NO/NC contact >15/5g
Shock resistance (destruction) >100g

Operating Frequency:
Hall Effect and Inductive (Geartooth): 0.02Hz - 10kHz
Hall Effect Only: 0.02Hz - 25kHz

Sensing Distance (Gap):
1/16" to 1/8" using Geartooth Wheel, Bolt Head, Key Stock, etc.
1/8" to 1/4" using Magnetic Disk.
1/8" to 5/8" using Magnet or Magnetic Disk.
(Magnetic target sensing distance based on Phares Electric Magnetic Disks and magnet types).

Minimum Geartooth Sizes:
1/8" geartooth length, width, depth and gap.

Geartooth Material:
High ferrous (iron) content.

Operating Temperature:
-40°F to 140°F

Weight:
6 oz.

Cable:
4 ft., 6 conductor, 22 AWG, unshielded
(Custom cable lengths available.)
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Dimensions (in inches)

Figure 1. Dimensions of ZS09P Zero Speed Switch Sensor

Wiring Connections

Figure 2. Zero Speed Switch Sensor wiring connections. There are LED indicators for Relay and Pulse. The Setpoint Adjust is a 12-turn trim pot that can be used to adjust the relay setpoint in the field. The default Adjustable Relay Trip Range is 1-100 RPM for zero speed applications.

ZS09P Part Numbers

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Input Voltage</th>
<th>Relay Output</th>
<th>Contact Rating</th>
<th>Load Type</th>
<th>Speed Switch Type</th>
<th>Setpoint</th>
</tr>
</thead>
<tbody>
<tr>
<td>ZS09P1-D</td>
<td>6-24 VDC</td>
<td>N.O./N.C.</td>
<td>5 A</td>
<td>5 A</td>
<td>Control Circuit or Logic Input</td>
<td>Adjustable or Fixed Setpoint</td>
</tr>
<tr>
<td>ZS09P2-D</td>
<td>6-24 VDC</td>
<td>N.O.</td>
<td>5 A</td>
<td>5 A</td>
<td>Self-Contained Sensor</td>
<td></td>
</tr>
<tr>
<td>ZS09P3-D</td>
<td>6-24 VDC</td>
<td>N.C.</td>
<td>5 A</td>
<td>5 A</td>
<td>Control Circuit or Logic Input</td>
<td></td>
</tr>
<tr>
<td>ZS09P1-120</td>
<td>120 VAC</td>
<td>N.O./N.C.</td>
<td>5 A</td>
<td>5 A</td>
<td>Self-Contained Sensor</td>
<td>Adjustable or Fixed Setpoint</td>
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</tr>
</tbody>
</table>
The ZS09P Zero Speed Switch Sensor needs a target for sensing and measuring speed. Sensor targets are sold separately.

Suitable targets are:
- Magnetic Disk
- Split Coupling
- Geartooth wheel, bolt head or key stock with high ferrous (iron) content

The TSA Box can be used to terminate sensor wiring for applications that require long cable runs. It can provide quick and convenient mounting for Phares Electric sensors.