



Model ZS11, Motion Detector Module

Features

- Sensor interface for over speed, under speed and zero speed measurement
- Three independent adjustable relay outputs via single sensor input
- Compatible with various sensor types
- Universal AC and DC input voltages
- Isolated relay outputs
- Frequency input
- Diagnostic LED's
- DIN Rail Mount

Benefits

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

Overview

Simple On/Off Sensor + ZS11 Motion Detector Module = Zero Speed Switch

The ZS11 Motion Detector Module is an interface between simple on/off sensors and control circuitry enabling over speed, under speed and zero speed measurement.

The ZS11 Motion Detector Module is particularly useful in applications where more than one sensor is used at a single point of measure to determine varying speeds. The ZS11 contains three relay outputs which operate via a single sensor input signal. Each relay output is adjustable, providing three independent speed level settings in one module.

The ZS11 is useful in applications where environmental conditions, such as high temperature, prohibit the use of certain electronics. In these cases, the sensor is installed in the prohibitive area and wired to the ZS11 Motion Detector Module which is located out of the prohibitive area. Use for applications in locations classified as hazardous only when properly coupled with UL approved intrinsically safe barriers and sensors.

For high temperature sensors, see our Digital Output Hall Effect Sensors and Geartooth Sensors.

The ZS11 can be integrated with existing industrial control systems or used as a stand-alone unit. It is DIN rail mountable for easy installation.



Motion Detector Module, ZS11

Detail

The Phares Electric Model ZS11 Motion Detection System consists of the ZS11 Motion Detector Module, Sensor and Sensor Target, all sold separately. The Sensor Target can be a bolt head, gear tooth, key stock, magnet, reflector, or other target depending upon type of Sensor used.

The ZS11 Motion Detector Module supplies 12 VDC to an external Sensor. The Sensor must be 3 wire, sourcing (PNP) or sinking (NPN) signal. Sensor input signal is configured via two position selector switch located at the top right of the terminal strip.

The ZS11 Motion Detector Module uses frequency input from various types of sensors to determine the presence of motion or the lack thereof. Use the ZS11 for over speed, under speed, and zero speed applications.

Sensor types compatible with the ZS11:

- Hall Effect
- Photoeye
- Inductive
- Capacitive
- Encoder

The Sensor Target is installed/located at the point of measure. Motion is detected when the rotating Target triggers the Sensor. When motion is either detected or reaches setpoint, the relay outputs change state. They remain in this state until either under speed or zero speed condition occurs, depending upon the application.



Figure 1. Indicators and Terminal Block

The ZS11 Motion Detector Module has 5 diagnostic LED's. These LED's indicate Power, Pulses from Sensor input signal and Relay status. LED's are labeled Power, Pulse, Relay 1, Relay 2, and Relay 3. There are 3 trim pots which are used for adjusting the Relay setpoints.



Motion Detector Module, ZS11

Specifications

Power Requirements

Part No. ZS11-A: 100-240 VAC, 116mA, 50/60Hz

Part No. ZS11-D: 9-36 VDC, 116mA

Circuit Protection

Internal ½ amp fuse (non-replaceable)

Sensor

Input Signal: 12VDC, 3 wire, sourcing (PNP) or sinking (NPN)

Dimensions (in inches)

4-5/8" Wide x 3-1/2" High* x 3-3/4" Deep

*including DIN Rail Mount and Terminal Block

Relay Output:

3 SPDT Form 'C' dry relay contacts (N.O./N.C.)

Contact Rating:

5A at 120VAC; 5A at 30VDC

ZS11 Part Numbers

Part Number	Input Voltage	Relay Output	Contact Rating	Load Type	Speed Switch Type	Setpoint
ZS11-A	100-240 VAC	3 Relays N.O./N.C.	5 A	Control Circuit or Logic Input	External Sensor Required (Sold Separately)	3 independent adjustable or fixed setpoints
ZS11-D	9-36 VDC	3 Relays N.O./N.C.	5 A	Control Circuit or Logic Input	External Sensor Required (Sold Separately)	3 independent adjustable or fixed setpoints

Accessories

The following examples of ZS11 Zero Speed Switch Systems consist of:

- ZS11 Motion Detector Module
- Sensor (sold separately)
- Magnetic Disk Sensor Target (sold separately)
- Terminal Strip Assembly (TSA) Box (sold separately)

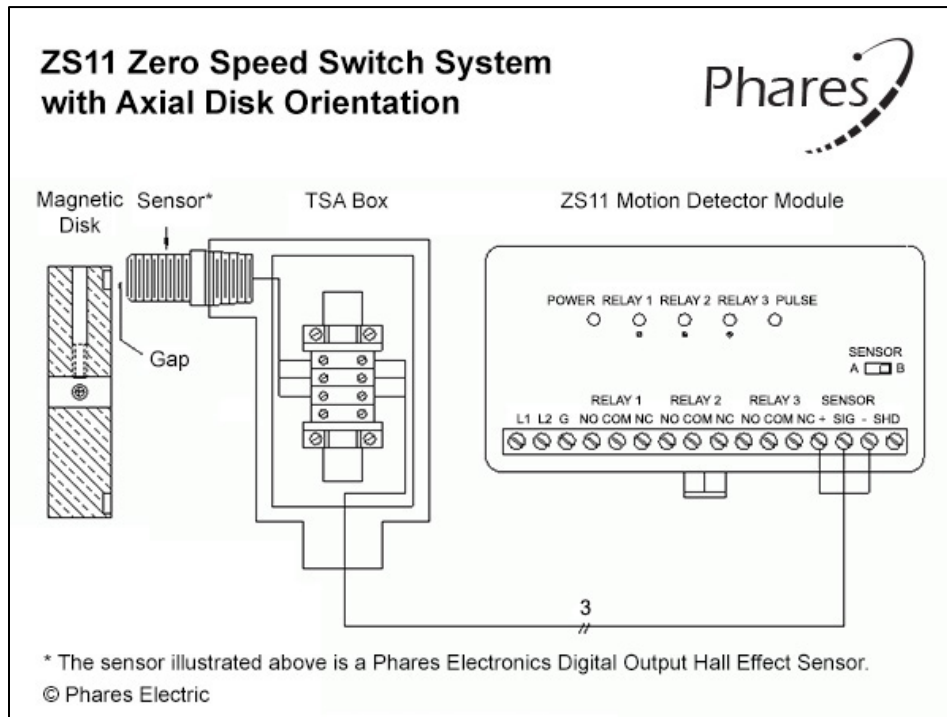


Figure 2. ZS11 Motion Detector Module system utilizing an Axial magnetic disk.

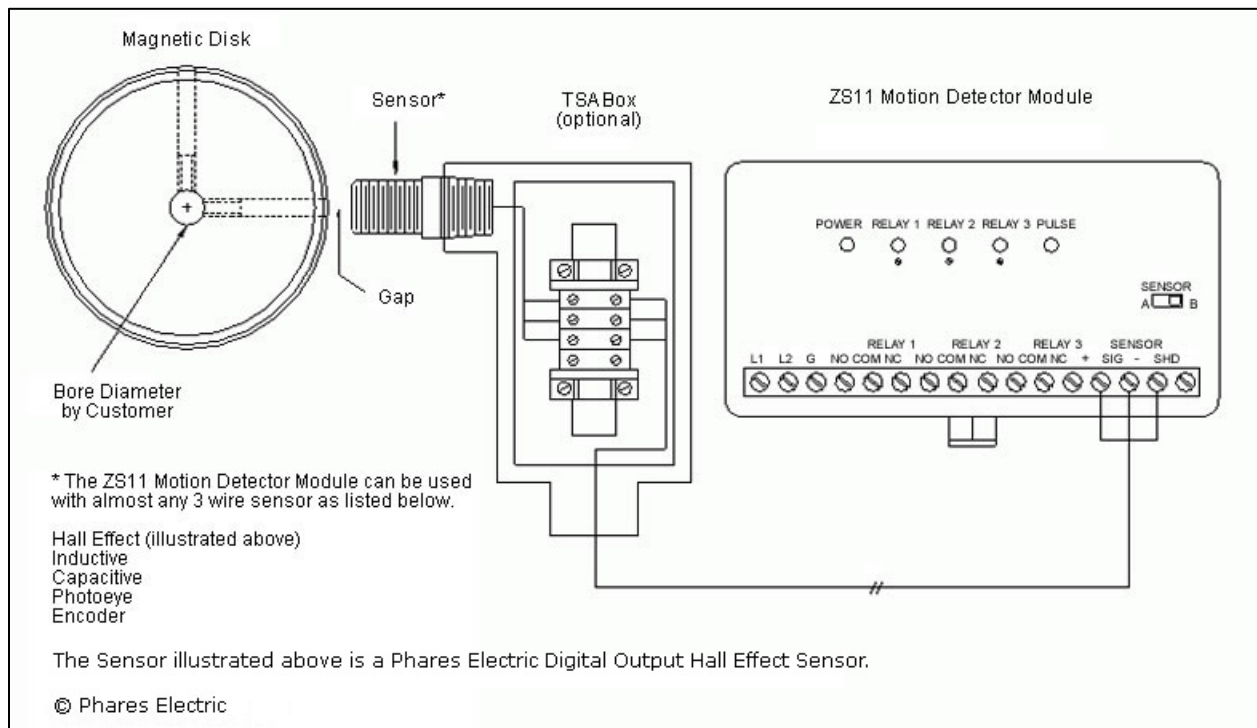


Figure 3. ZS11 Motion Detector Module system utilizing a Radial magnetic disk.

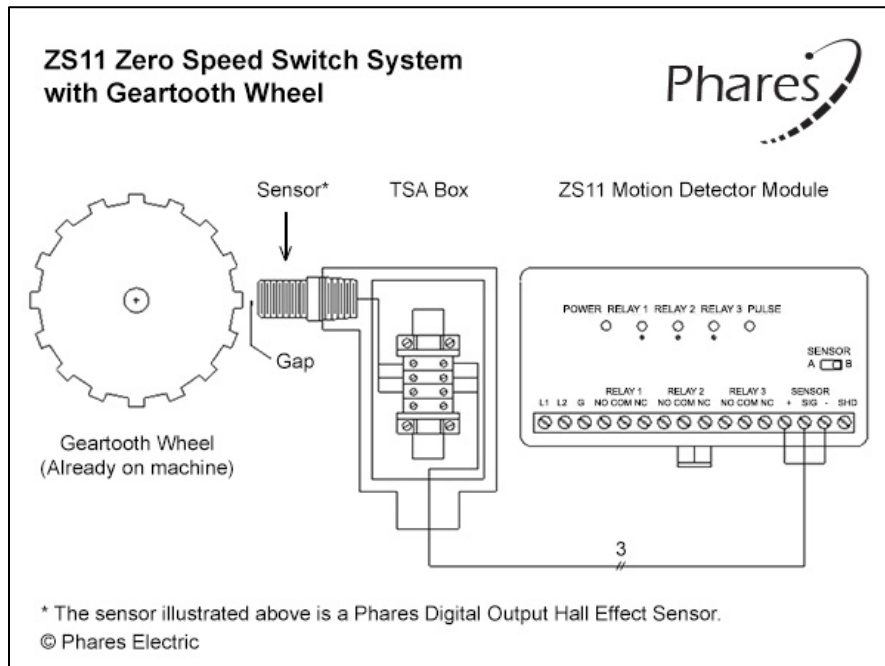


Figure 4. ZS11 Motion Detector Module system utilizing a Geartooth Wheel.



Motion Detector Module, ZS11

Sensor Targets

The ZS11 Zero Speed Switch System 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

Sensors

Phares Electric Digital Output Hall Effect Sensors and Geartooth Sensors are simple on/off non-contact switching devices. Digital output signal is clean, fast and switched without bounce – an inherent problem with mechanical contact switches. They are magnetically activated switches that detect the motion, position, or change in field strength of an electromagnet, a permanent magnet, or a ferromagnetic material with an applied magnetic bias.

Phares Electric' Hall Effect Sensors and Geartooth Sensors are produced in a variety of sizes. Please refer to our website PharesSensors.com for part numbers, or contact us for assistance with choosing a sensor for your application.

Sensor Features

Hall Effect Sensor

- Non-contact switching
- Digital output signal
- Large operating temperature range from -40° F to 300° F
- Wide operating voltage range from 3.6 to 24 VDC
- Omnipolar sensing
- Use outdoors or in wash down areas
- Vibration tolerant
- RoHS compliant

Geartooth Sensor

- Non-contact switching
- Digital output signal
- Large operating temperature range from -40° F to 300° F
- Wide operating voltage range from 4.5 to 24 VDC
- Ferromagnetic target sensing
- Omnipolar magnetic target sensing
- Use outdoors or in wash down areas
- Vibration tolerant
- First-tooth detection
- Not rotation direction sensitive
- RoHS compliant

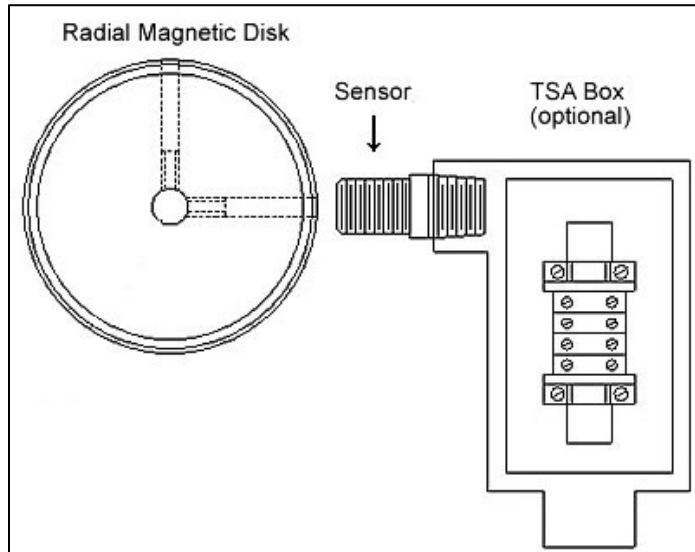
Terminal Strip Assembly Box

Figure 5. Sensor mounted with Terminal Strip Assembly (TSA) Box.

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.

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