



OPERATION & MAINTENANCE

MAGNETIC SPEED SWITCH

As with any electrical equipment, the Magnetic Speed Switch should be installed by trained personnel using appropriate safety practices per the National Electric Code, including electrical disconnect and lockout practices, reference ANSI Z244.1.

SECTION 1 - GENERAL

The PPI Magnetic Speed Switch is a preset inductive proximity switch. As the magnetic coupler rotates, it opens and closes an electrical circuit a preset number of times per revolution. The Magnetic Speed Switch is intended to be used with a PLC or similar device that can monitor the number of pulses per revolution and select a desired output. The exceptions are the stop switch models (*-SS) which have a built-in 4 second delay and can be connected to a relay.

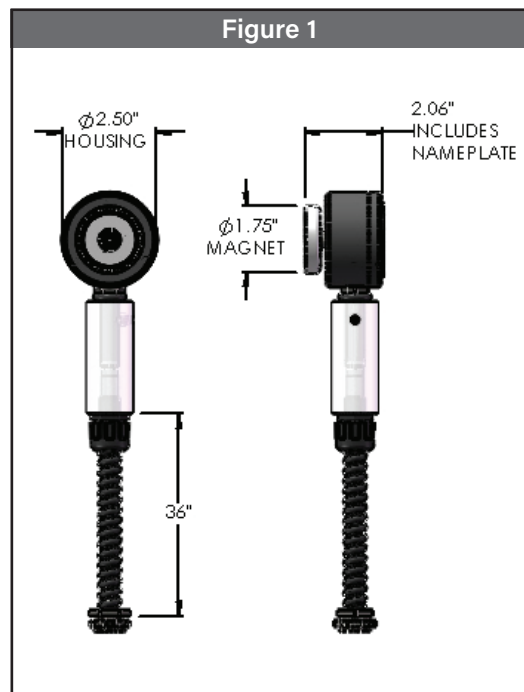
This device is not intended for use in hazardous areas as defined by the NEC, articles 500-504. Intrinsically safe Magnetic Speed Switches are not presently available.

SECTION 2 - SELECTION

The Magnetic Speed Switch is available in either 1, 2, 4, or 12 pulses per revolution. For most applications, a 1-pulse sensor will be suitable. Higher numbers of pulses result in higher resolution and quicker response, especially at lower speeds. The 12 pulse sensor is only available as a 3-wire DC and must be specified for NPN or PNP operation (See wiring diagrams in section 4).

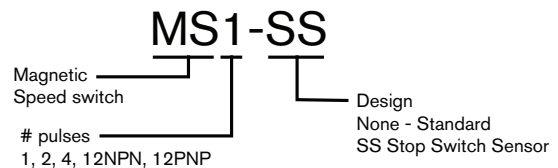
The standard magnetic coupler is 1-3/4" in diameter and is acceptable for most applications. The standard Magnetic Speed Switch requires a 2-1/8" clearance beyond the end of the shaft. (See Figure 1)

A stop switch option is available on many of the configurations. The stop switch is a normally open switch that has a built-in timer with a 4 second shut-down delay. After the sensor detects the first pulse, the switch closes. The switch remains closed as long as another pulse is detected within 4 seconds. Once 4 seconds pass with no pulse detected, the switch opens. The stop switch option is only available in AC. For part numbering reference, please see example to the right.



Speed Limits	
# pulses	Max RPM
1	700
2	550
4	250
12*	700

*12 pulse is DC NPN/PNP only



SECTION 3 - MOUNTING INSTRUCTIONS

1. Read and understand all instructions prior to installation.
2. De-energize and lock out equipment before beginning installation.
3. The Magnetic Speed Switch is to be installed on the end of a rotating shaft.
4. Attach the Magnetic Speed Switch to the end of the shaft as close to the center of the shaft as possible. Exact centering is not necessary, but offset mounting will result in wobbling of the Magnetic Speed Switch. Excessive wobbling, especially at high speeds, may cause the Magnetic Speed Switch to be thrown from the shaft.
5. Fasten cable guard (flexible conduit) into place with a zip-tie or some type of strap to help keep the unit in place.
6. Make sure that all moving parts are properly guarded to prevent accidental entanglement.
7. Make the electrical connections as directed below in the wiring instructions.



SECTION 4 - WIRING INSTRUCTIONS

1. Read and understand all wiring, selection, and mounting instructions prior to installation. If necessary, contact a PPI Applications Engineer.
2. Disconnect and lockout power before starting wiring procedure. Do not apply a voltage across the wires until a load such as a relay circuit has been installed. The sensor may be permanently damaged if prematurely powered.
3. To maintain reliability, use proper external wire protection. All Magnetic Speed Switch conduit ends have PG-7 male threads and a nut for conduit connection. Conduit protection of the entire wiring circuit is recommended.
4. The inductive proximity sensor installed in the Magnetic Speed Switch is factory set. There is no setup required and no maintenance is required in the future. Wiring diagrams follow on the next page.

CAUTION:

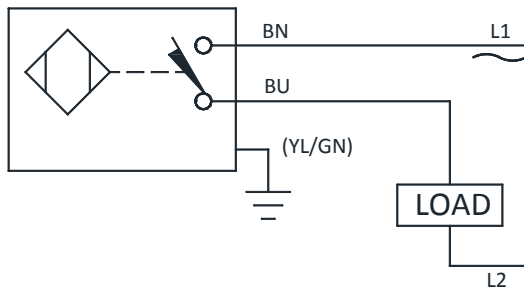
Do Not...

- use an incandescent light bulb as a load. The extremely high cold current will cause an overload condition.
- operate without a load. A dead short will result and may cause irreparable damage.
- directly operate a motor with the sensor. Always use a motor starter, relay, or other appropriate device.

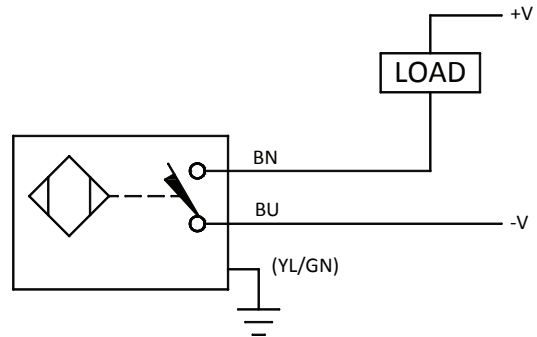
WIRING DIAGRAMS

	MS1, MS2, MS4		MS1-SS, MS2-SS, MS4-SS	MS12PNP, MS12NPN
Type	2 wire AC/DC inductive proximity sensor normally open with resettable short circuit protection		2 wire AC inductive proximity sensor normally open with standard 4 second hold	3 wire DC inductive proximity sensor normally open with resettable short circuit protection
	AC	DC	AC	
Operating Voltage	20 – 250V AC	10 – 300V DC NPN or PNP	20-132V AC	10 – 30V DC (NPN or PNP, Depending on model)
Current	3-100 mA	3-100 mA	5-300 mA	<= 200 mA
Off State Leakage	<1.7 mA	<1.7 mA	<1.7 mA	<0.1 mA
Voltage Drop	<6V	<6V	<5V AC	<1.8V

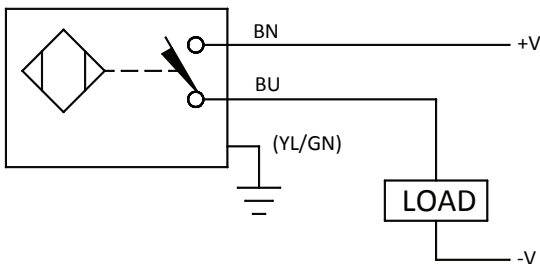
2 WIRE AC CIRCUIT WIRING DIAGRAM



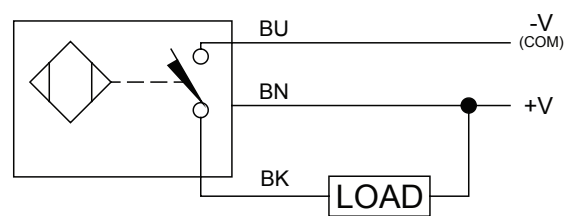
2 WIRE DC SINKING (NPN) CIRCUIT WIRING DIAGRAM



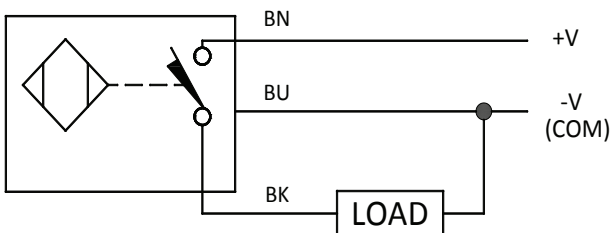
2 WIRE DC SOURCING (PNP) CIRCUIT WIRING DIAGRAM



3 WIRE DC SINKING (NPN) CIRCUIT WIRING DIAGRAM



3 WIRE DC SOURCING (PNP) CIRCUIT WIRING DIAGRAM



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