

Micro-controlled, Field-adjustable, Multi-setpoint Speed Monitor

The **PROX-MICRO Proximity Switch** is a non-contacting speed sensing device which converts pulses from a ferrous target to an electrical signal. The speed monitor uses a microcontroller and proprietary internal software to precisely monitor the RPM rate of the rotating ferrous target(s). Time between pulses is compared to application appropriate user-defined settings.

The **PROX-MICRO** is packaged in a NEMA 4/5 enclosure with a transparent Lexan™ cover for dust and moisture protection.

Benefits:

- Large sensing range:
 - 6 – 30,000 RPM based on 1 pulse per revolution
 - 1 – 7,500 RPM based on 4 pulses per revolution
 - 0.1 – 3000 RPM based on 60 pulses per revolution
- Under Speed monitoring: 20-99% of running speed
- Easy to program and field adjustable
- Status and Relay indicating LEDs
- Non-contact sensing – not directly coupled to a shaft
- Powder-coated cast aluminum housing with Lexan™ cover

Proximity sensor features:

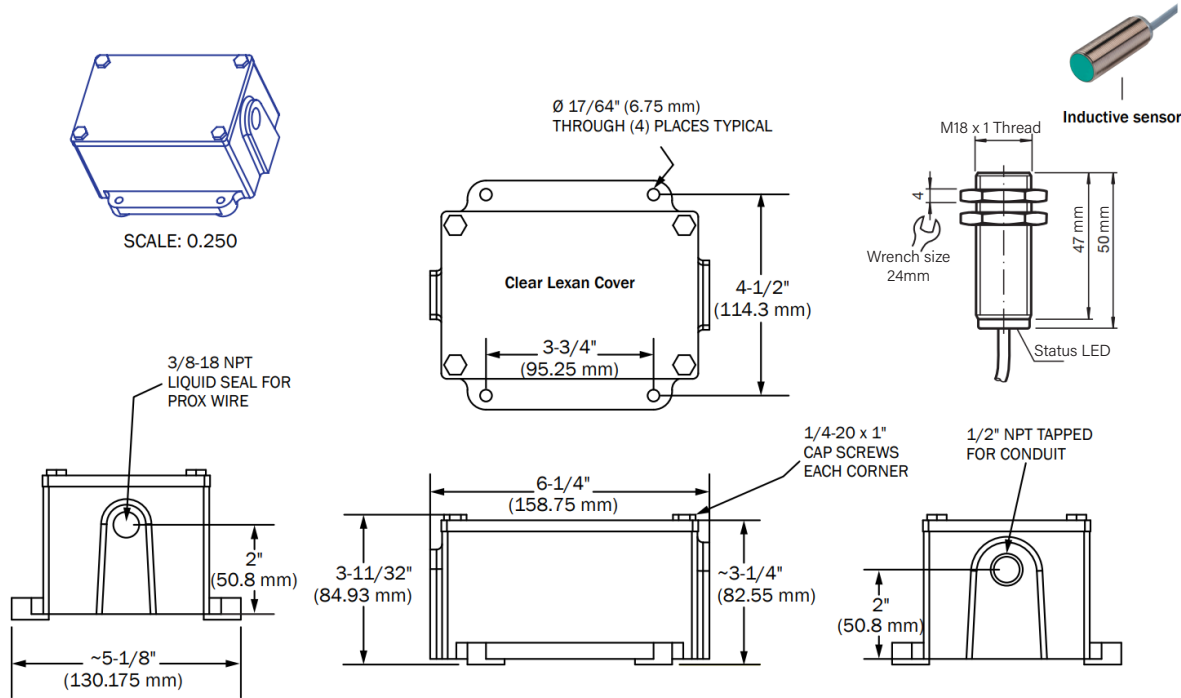
- 10-30 VDC NPN M18mm Shielded N.O.
- 500 Hz, 6' (1.83 m) cable
- 0.315" (8.0 mm) sensing distance
- Will pick up any ferrous material – magnet not required



PROX-MICRO	
Conduit Entry	Power/signal wires: 1/2" NPT PROX wire: 3/8"
Input Voltage	85~305 VAC 50/60 Hz <i>It can also operate at 24 VDC in its present configuration if required.</i>
Supply Current	110 mA maximum / 1 watt
Output	Single Pole 10-A SPDT Relay 250 VAC
Frequency Range	Controller: 0.1 Hz to 500 Hz Sensor: 500 Hz
Memory	Nonvolatile, 10-year retention
Temperature	-40° to +158°F (-40° to +70°C)
Inductive Sensor	3/4" opening required

Application Considerations:

- Verify PROX-MICRO is compatible with voltage, process, temperature, construction and area classification.
- Sensor distance (0.315" [8.0 mm]) must be correct, secure and maintained for consistent operation.
- Proximity sensor detects the presence and absence or distance of metals, and should be located where the rotational process can be appropriately monitored.
- Install PROX-MICRO according to National Electrical Code and/or local standards.
- Seal all conduit entries to the enclosure.
- Close transparent cover immediately upon program completion to minimize exposure to dust and weather.
- Do not use this device in explosive areas or locations classified as hazardous. The PROX-MICRO is not designated for NEMA 7, 8, 9 or 10 locations.



PROX-MICRO Specifications

Proximity Switch	3-Wire NPN type, 6V~30 VDC, 12 VDC power from board
Conduit Entry	Power/signal wires: 1/2" NPT PROX wire: 3/8"
Speed Range	0.1 Hz - 500 Hz (dependent upon pulses per 1 rotation)
Calibration Range	20% to 99% of calibrated running speed
Input Voltage	85 VAC - 305 VAC @ 50/60 Hz <i>It can also operate at 24 VDC in its present configuration if required.</i>
Power Consumption	4 Watt (0.35 Amp @ 120 VAC)
Output Relay	Single Pole, Double Throw (SPDT), 10 Amp @ 250 VAC, or 30 VDC/Resistive load
Accuracy	+/- 1% of calibrated set point
Start-up Delay (SDLY)	0 to 2 minutes
Alarm Delay (ADLY)	0 to 1 minute
Status LED	Input Pulse / Alarm Indication (blink rate change)
Temperature Range	-40° to +160° F (-40° to +71° C)
Memory	Nonvolatile, 10-year retention

Speed Conversions and Range Calculations

Operating range and conversion calculations from Hz to RPM are dependent upon the number of pulses per each revolution. With one pulse per revolution, 1 Hz is equal to 60 RPMs (one pulse per second X 60 seconds per min = 60 RPMs). The minimum speed is 0.1 Hz, which is 1 pulse every 10 seconds.

Pulses may be manipulated by adding or subtracting vanes, bolt heads, spokes, holes, etc. in the monitoring device wheel or hub. The inductive proximity sensor detects ferrous (iron) metals best, but can also sense other metals. Sensing distance may vary depending on the metal and pulse/vane configuration. The PROX-MICRO is supplied with a 500 Hz sensor.

Programming Specifications

Low Speed alarm settings are percentage variables based on the normal calibrated running speed of 100%. The Under Speed value range is 20-99% of Full Speed.

Calibration: Once rotation has reached running speed, calibration is performed by pressing and holding the push-button. Status LED will blink 4 times to indicate calibration was accepted. Sensor requires 3 consistent pulses to accept rotation speed as a valid calibration value.

Start-Delay (SDLY): Range = 0 to 2 minutes. The SDLY trimmer can be rotated clockwise to delay the Relay / Alarm response at power-up, to allow ample time for the monitored shaft to reach normal operating speed. This allows calibration to take place during a temporary over-ride of the relay/alarm, when relay is wired as part of the shut-down system. Each indicator mark represents approximately 15 seconds. NOTE: SDLY function only occurs at power-up.

Alarm Delay (ADLY): Adjustable from 0 to 60 seconds to delay the relay prior to switching to an alarm condition. This feature can be used to ignore random temporary lapse in rotation speeds that can otherwise cause a nuisance alarm during normal operation. Each indicator mark represents ~5 seconds. A Relay indicator LED will change states during Alarm conditions

Status LED: The Status LED will slowly blink (about 1 per second) as pulses occur at the proximity sensor. If pulses stop, the status LED will change to a fast-blink, typically followed by an alarm condition (after ADLY timer expires).