



Mini Sentry



Single
Point
Control

Models

MS-WA-12V

MS-WA-24V

MS-PP-12V

MS-PP-24V

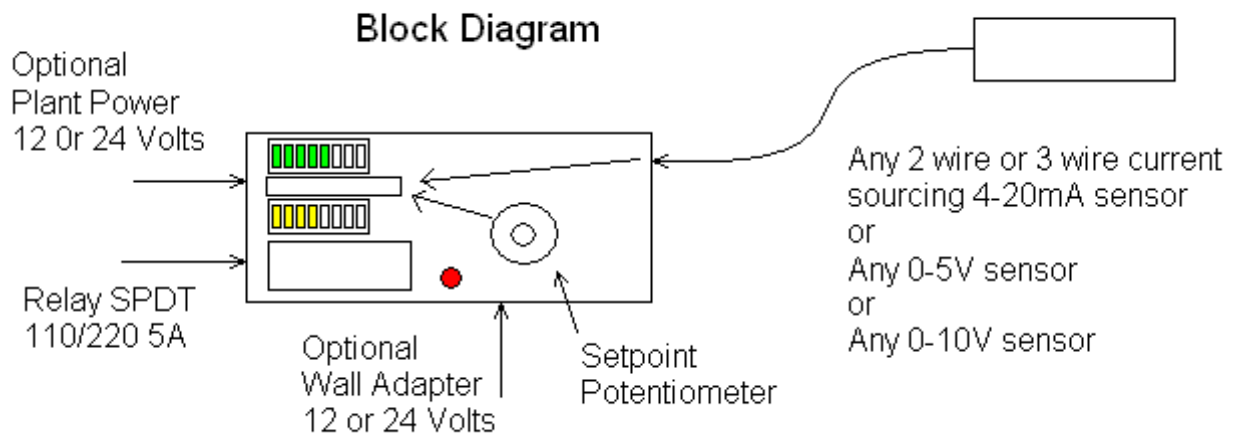


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Theory of Operation

The Mini Sentry operates a power relay when the sensor voltage gets higher than the setpoint voltage. The setpoint voltage is obtained from a potentiometer. The green bar graph LED shows the sensor output (zero volts or 4mA is shown with all the segments off. Full scale is shown with all the segments on. The left side displays the lower values. The yellow bar graph LED displays the set point level. The red LED indicates the relay has operated.

The Mini Sentry was designed to provide a low cost quick single point control. This allows the installer to provide a relay output for almost any sensor



The input circuit is configured to provide the measurement circuitry with a five volt signal. When the Mini Sentry is ordered, the part number suffix defined the input configuration.

- 005	0-5V input
- 010	0-10V input
- 420	4-20mA input
- 020	0-20mA input
-PRX	PNP proximity input

Operation

The Mini Sentry is set by adjusting the potentiometer shaft. As the control is turned clockwise, the threshold voltage is increased and the yellow bar graph display increases from left to right.

The bar graph display only gives an indication of the threshold or setpoint voltage in 500 mV steps. If a more precise voltage measurement is needed, a DMM can be connected between the center contact of the potentiometer and the upper contact (ground).

There is no scale or offset adjustments. There is a built in 2% hysteresis. The relay will not turn on until the signal is 50 mV above the setpoint and will not turn off until the signal is 50 mV below the setpoint. Thus is done to avoid excessive relay operation when the signal is close to the setpoint value.

If it is desired to have the relay operate when the signal is below the set point value, the normally closed (NC) contact of the relay can be used.

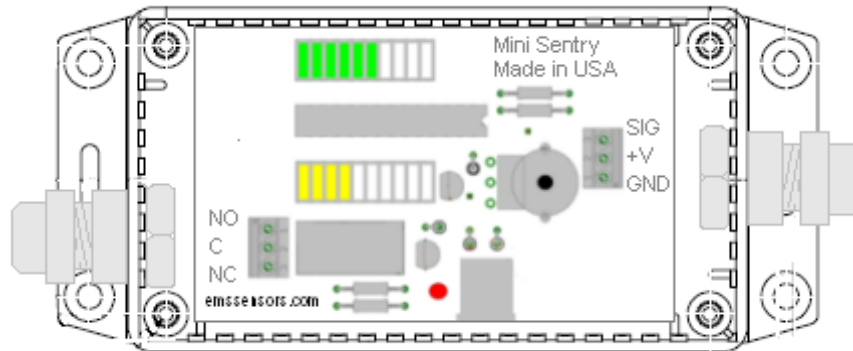
The Mini Sentry looks at the sensor output as a 0-5V signal. A 0-5V signal can be wired directly to the Mini Sentry. Other sensor types require the input circuitry to convert the signal to a 0-5V signal. For example, a 4-20 mA signal is converted to a 0-5V signal such that the full range of the 4-20 mA sensor is now seen across the 0-5V range.

Temperature	Current	Voltage
140	20 mA	5.0V
50	12 mA	2.5V
-40	4 mA	0V

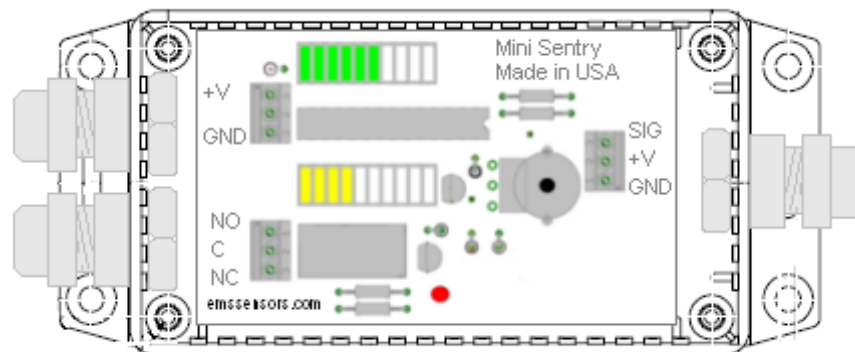
For proximity sensor applications a voltage sourcing sensor (PNP) type is needed. The input circuitry is designed to drop the voltage below 5V. The potentiometer is then adjusted to the mid range and the relay should turn on and off as the target comes into and out of proximity to the sensor.

Two Basic Type of Mini Sentry

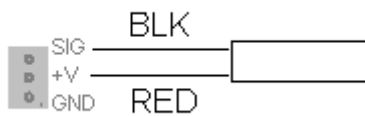
Wall Adapter Powered



Plant DC Powered

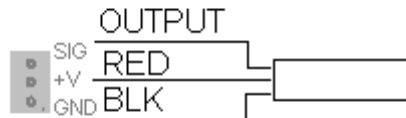


Wiring



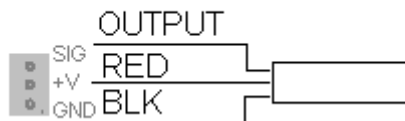
Two Wire Configuration

- 420 (4-20mA)
- 020 (0-20mA)



Three Wire Configuration

Some current loop sensors can run on 12V. However, we recommend that any current loop sensors be matched to 24V versions of the Mini Sentry.



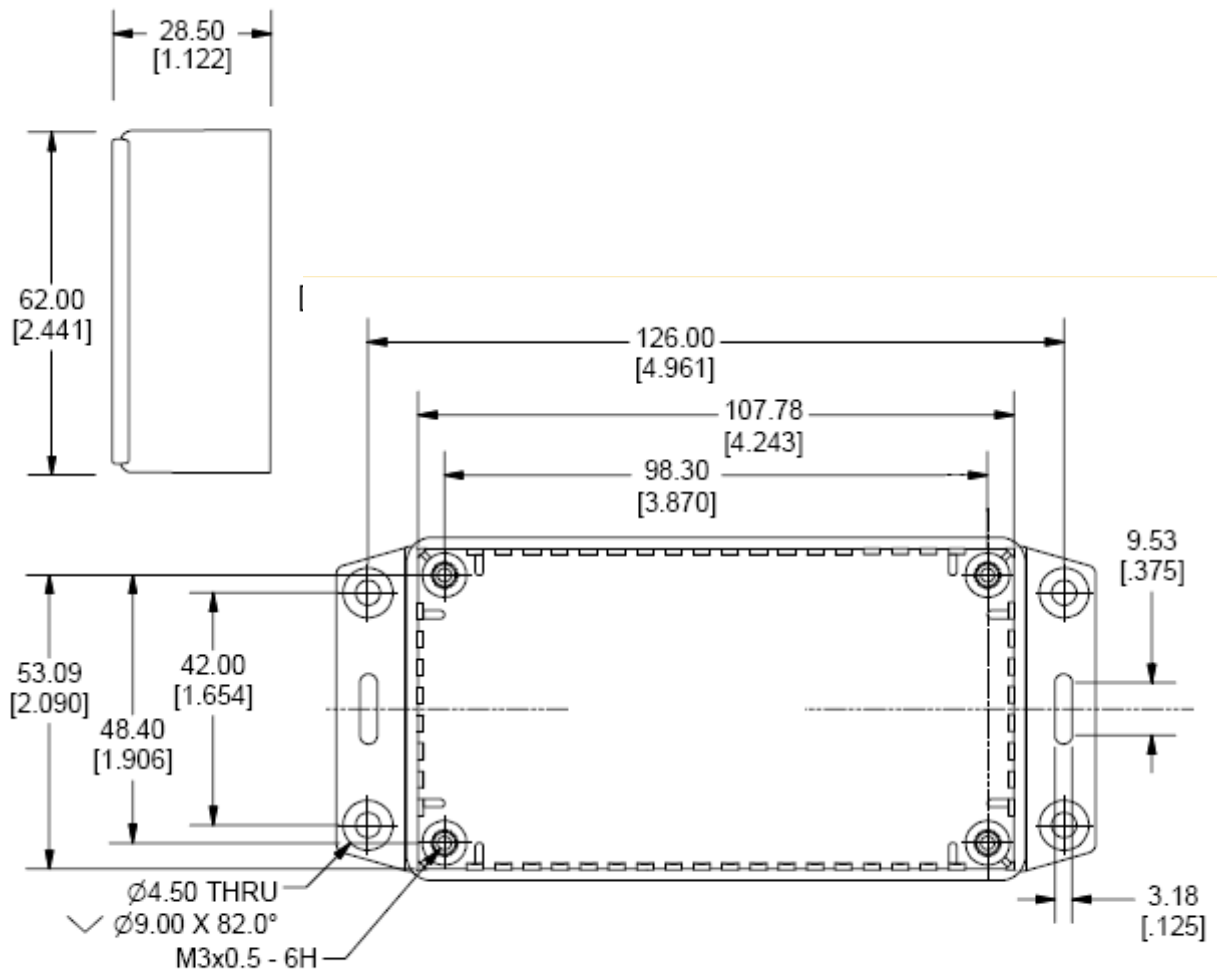
Three Wire Configuration

- 050 (0-5V)
- 010 (0-10V)
- PRX (pnp proximity)

It is important to specify the voltage type (12V or 24V) that is required by the sensor.

Various proximity sensors have differing color codes. Care should be taken to avoid shorting out or damaging the Mini Sentry.

Mechanical



Specifications

Cable Glands: 1/4" NPT

Wall adapter: 2.1mm center positive

Output Relay: 110/220VAC 5A SPDT

Process LED: Green

Setpoint LED: Yellow

Relay Operate LED: Red

Hysteresis: 2%