

# WSG WIRELESS 4-20mA SENSOR

## INTRODUCTION

The WSG Wireless 4-20mA sensor provides remote monitoring of 4-20mA transducers without running wires. Contact data is sent from the sensor to the WSG30 via an integrated 2.4GHz Wireless radio. The device can transmit its signal up to 300' indoors and even greater distances when it has line-of-site. The WSG30 series of Wireless sensors also feature mesh networking technology, which allows each sensor to be used as either a Wireless sensor/router or as a low-power battery operated sensor (also referred to as an end point). When used as a router, greater distances can be realized because each sensor/router adds another 300' of range to the system. The sensor comes with 3 AA alkaline batteries which will power the sensor for up to 2 years (end point mode). An optional plug-in power supply is also available, in which case the batteries function as backup power if main AC power fails (power supply required for router mode).



**NOTE:** Do not install the sensor in a dirty, humid, or corrosive environment. Do not install the sensor in close proximity to other 2.4GHz devices (WiFi, etc). Do not install the device inside of a metallic enclosure as this will impede it's ability to Wirelessly communicate with the WSG30 .

## PACKAGE CONTENTS

(1) Wireless 4-20mA Sensor      (3) AA Alkaline batteries      (1) 5VDC Power Supply  
 (1) Plastic drywall anchors      (1) #6 Metal tapping screws

## INSTALLATION SUMMARY

- 1) Locate the sensor serial number on the small white label inside the sensor enclosure .
- 2) Enter the serial number into the WSG30 using the web page or keypad.
- 3) Mount the sensor.
- 4) Attach power supply if using as a router and install the batteries.
- 5) Watch the LCD or web page to confirm that the sensor has connected with the WSG30.

## SENSOR REGISTRATION

Before you power-up the sensor you must enter the serial number, located on the small white label inside the sensor enclosure, into the WSG30. You can do this with the WSG30 web page or you can enter it using the WSG30 keypad (see Sensor Registration earlier in this manual). Just be sure to jot down the serial number before you attach the sensor to the wall.

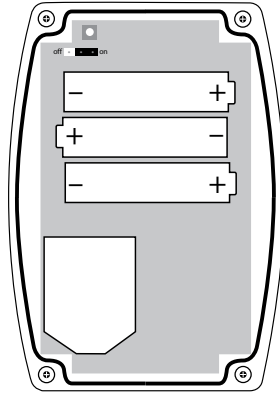
## BATTERY INFORMATION

The Wireless 4-20mA Sensor can be used with or without the internal 24VDC supply. When the internal supply is used to power the transducer the device must be powered by an external power supply, in which case the batteries are used as a backup in the event of a power failure. In this scenario the batteries will last approximately 15 hours.

When the 4-20mA sensor is used with the internal 24VDC supply disabled, you can operate it on battery power only. The approximate battery life is 2 years at a sampling frequency of 3 seconds.

## 24 VDC POWER SUPPLY

The Wireless 4-20mA sensor has a internal 24 VDC power supply that is intended to be used to power your 4-20mA transducer. It can provide up to 30mA of current. If your transducer does not require an external power supply then you can disable the 24V supply in the sensor by moving the 24VDC jumper on the circuit board to the OFF position. This will conserve battery power in the event of a power failure.



24V Supply in the on position

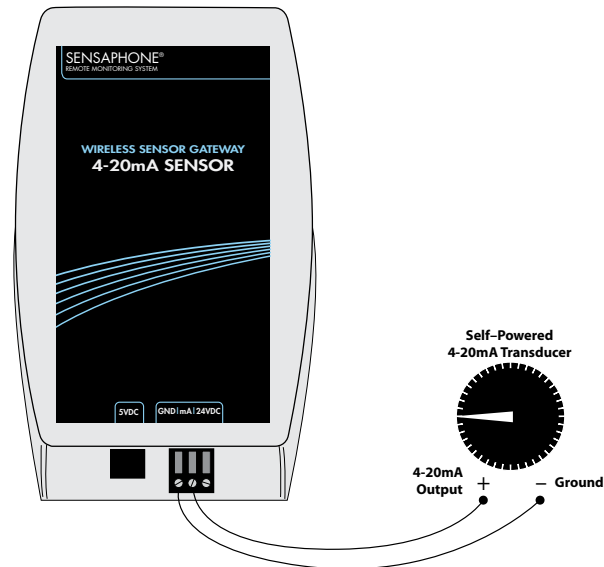
## WIRING THE 4-20MA TRANSDUCER

If you will be using the internal 24VDC supply, then connect the positive wire of your transducer to the 24VDC terminal on the sensor and connect the negative (or current output) wire of your transducer to the mA terminal on the sensor.



4-20mA Transducer using 24VDC power supply

If your transducer does not require an external 24V supply, then connect the current output wire from the transducer the mA terminal on the sensor and connect the ground wire from your transducer to the GND terminal on the sensor.



4-20mA sensor with self-powered transducer

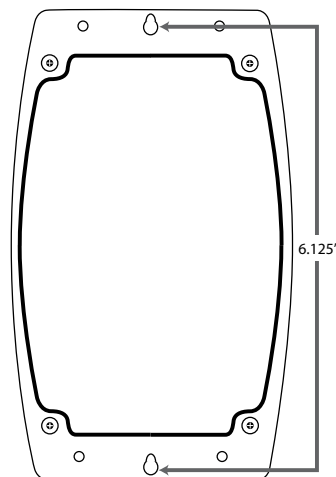
## BATTERY INSTALLATION

Remove the four screws on the bottom of the enclosure. Carefully separate the top of the enclosure from the bottom. Locate the three battery clips on the circuit board. Take note of the polarity markings identifying the positive and negative ends of the batteries. Install the batteries in the clips. Re-attach the top and bottom cover with the four screws.

## MOUNTING

The 4-20mA sensor can be mounted directly on a flat surface. Consideration should be given as to whether or not an electrical outlet will be required if using the optional power supply. Mount the sensor as high as possible to provide for optimal Wireless transmission. When installed within a building where the Wireless signal must travel through several obstructions, the sensor should be located within 300' of the WSG30 or within 300' of a sensor/router.

Use a pencil to mark the hole locations at the top and bottom of the housing. Install the drywall anchors (if necessary) to the wall. Attach the housing to the wall using #6 tapping screws.



## SOFTWARE CONFIGURATION

The Wireless 4-20mA sensor can provide a scaled value to match the calibrated range of your transducer. In the WSG30 web page, open the Sensor Edit screen for the Wireless 4-20mA Bridge sensor. Insert the Low (4mA) and High (20mA) values for your transducer into the Table Low and Table High fields. The WSG30 will display the scaled value. You may wish to include the units of measure in the Units field.

## SPECIFICATIONS

Operating Temperature Range: 32° to 122°F (0° to 50°C)

Operating Humidity: 5- 90% RH non-condensing

Battery Life (24VDC Supply enabled): 15 hours

Battery Life (24VDC Supply disabled): 2 years @ sampling interval = 3 seconds

Input Load: 260 Ohms

Accuracy:  $\pm 1\%$

Absolute Max Input Current: 23mA

Range (Indoor/Urban): Up to 300' (90m)

Transmit Power Output: 100mW (20dBm)

Operating Frequency: ISM 2.4 GHz

Power: (3) AA alkaline batteries and/or 5VDC (300mA) plug-in adapter

Dimensions: 6.8" x 3.5" x 1.5"

Housing: White plastic

\*Specifications subject to change without notice