



# SenSmart Universal Gas Detector Series Installation Guide

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Flammable & Toxic Gas Detectors  
Smart Alarm Controllers  
Fire & Gas System Engineering  
Technical Service & Support



Warning: Read & understand contents of this manual prior to operation. Failure to do so could result in serious injury or death.

# A TRULY UNIVERSAL SERIES

The Universal Gas Detector Series consists of a common processor board connected to various combinations of input /output options. The models are based on wireless vs wired communications; and powering as follows:

## **SenSmart 4000**

Low-power, 4-20mA loop powered gas detector for toxic and oxygen detection. Includes a 4-20mA output.

## **SenSmart 5000**

10-30VDC powered gas detector for toxic, oxygen, combustible, VOC and CO<sub>2</sub> detection. This model adds a color backlit LCD display, and has Modbus and/or 4-20mA communications and relays available.

## **SenSmart 8000**

Battery powered wireless gas detector for toxic, oxygen, combustible and CO<sub>2</sub> detection. Available in either 900MHz or 2.4GHz models.

## **SenSmart 8000X**

10-30VDC powered wireless gas detector for toxic, oxygen, combustible and CO<sub>2</sub> detection. This model adds a color backlit LCD display.

***\* All models use RC Systems latest Smart Sensor technology, providing smarter gas detection with simplified solutions.***



SenSmart 4000



SenSmart 5000



SenSmart 8000

SenSmart 8000X

Universal Gas Detector Series

# GETTING STARTED

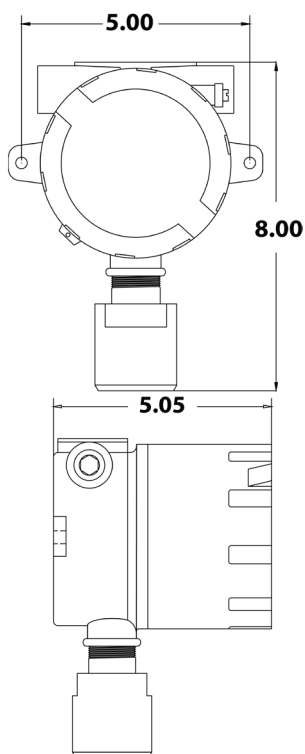
## *Gas Detector Installation and Power-up*

1

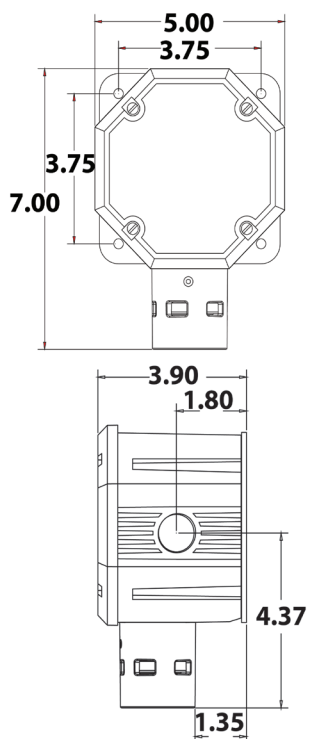
### Installation of Gas Detector

- A. Mount the Gas Detector in desired location.  
*(see Figure 1 for mounting dimensions.)*
- B. Remove windowed lid from unit.
  - 1. AL Enclosure unscrew lid and remove thumbscrew to access terminals
  - 2. PY Enclosure - unscrew (4) lid screws to access terminals
- C. Remove thumb screws and pull display to the side.  
(Aluminum Enclosure)

**Figure 1 - mounting dimensions**



Aluminium



Polycarbonate

# GETTING STARTED

## Power Up/Standard Output Installation

2

### SenSmart 4000

- A. Connect the +10-30VDC/4-20mA loop wires to terminals TB2.1 and TB2.2 *(See Figure 2)*

3

### SenSmart 5000 and SenSmart 8000X

- A. Connect 10-30VDC power lead to TB2.1 *(See Figure 3)*
- B. Connect Common lead to TB2.3 *(See Figure 3)*
- C. Connect signal lead to TB2.5 (4-20mA Out) *(See Figure 3)*
- D. For SenSmart 8000X wireless network setup, please refer to the Universal Gas Detector Manual

4

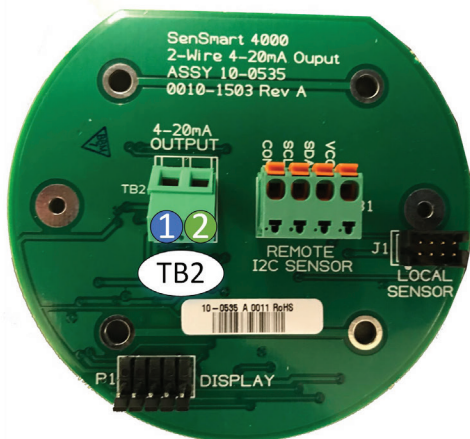
### SenSmart 8000

- A. Ensure 3.6V Lithium D Cell battery is installed observing proper polarity
- B. Hold magnet over UP/ON key to turn gas detector on
- C. For SenSmart 8000 wireless network setup, please refer to the Universal Gas Detector Manual

**Figure 2 - SenSmart 4000 wiring**

**TB2.① - +10-30VDC/4-20mA  
(non-polar)**

**TB2.② - +10-30VDC/4-20mA  
(non-polar)**

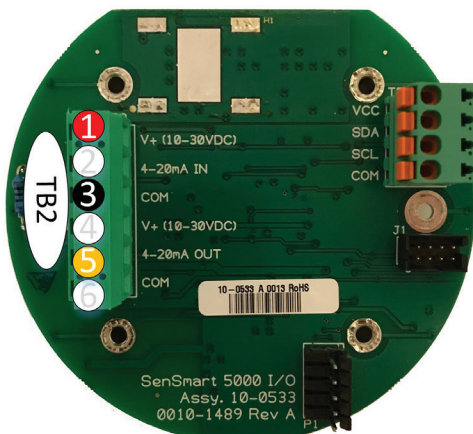


**Figure 3 - SenSmart 5000/8000X wiring**

**TB2.① - 10 to 30VDC  
Positive (+)**

**TB2.③ - 10 to 30VDC  
Common (-)**

**TB2.⑤ - 4-20mA Output**



# FINALIZE INSTALLATION

1

1. Replace display and tighten thumb screws.
2. Replace enclosure lid.
3. Apply power to unit and observe power up screen.
4. After the warm up period, observe gas type and gas concentration on screen.
5. Using the magnet wand, swipe Down Key on the display. Follow on-screen prompts to perform calibration.
6. Swipe the Edit key to enter Cal Mode.
7. Apply a clean Zero Gas , using the Calibration Cup or be sure there is no background target gas in the monitored area. After the reading is stable, swipe the Edit key to set the Zero Calibration. To skip the Zero calibration, and go to the Span calibration, swipe the Next key. Once a message that the Zero calibration was completed successfully has been displayed, proceed to the next step.
8. Apply the correct, as indicated, span gas. After the reading is stable, swipe the Edit key to set the Span Calibration. To skip the Span Calibration, swipe the Next key. When a message that the Span Calibration was completed successfully is displayed, the gas detector will exit back to the Data Display Screen.
9. Remove the calibration gas. Once the Cal Purge Delay has expired, normal alarm and relay functionality will be restored.



# OPTION INSTALLATION

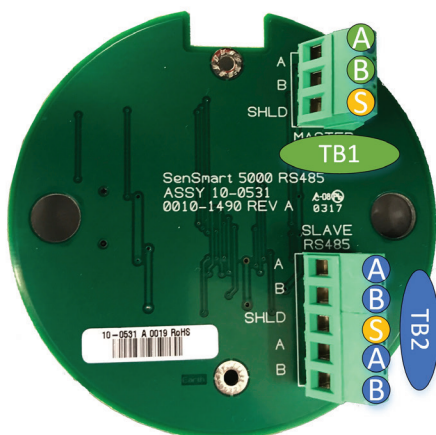
## 1 10-0531 SenSmart 5000 RS485 Modbus Option

- A. RS485 Modbus Master Port – TB1 provides a Modbus Master Port. Please refer to the Universal Gas Detector Manual for Communication Port setup.
- B. RS485 Modbus Slave Port – A and B terminals are tied together to allow for the daisy chaining of gas detectors along a Modbus network. (Refer to Universal Gas Detector Manual for Communication Port Setup)

**Figure 4 - RS-485 Modbus option wiring**

**TB1** – RS485 Modbus Master Port

**TB2** – RS485 Modbus Slave Port



# OPTION INSTALLATION

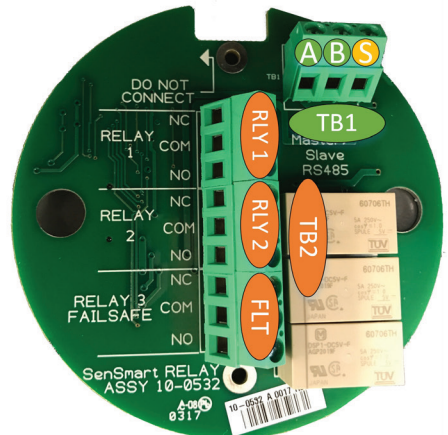
## 1 10-0532 SenSmart 5000 RS485 Modbus / Relay Option

- A. RS485 Modbus Master/Slave Port – TB1 provides a Modbus Master/Slave Port, which is programmable from the gas detector. Please refer to the Universal Gas Detector Manual for Communication Port setup.
- B. Relay Outputs – 2 programmable 5A SPDT Relays (RLY1 and RLY2) with a single dedicated failsafe fault relay (see Figure 6). (Refer to Universal Gas Detector Manual for Communication Relay Setup)

**Figure 5 - RS-485 Modbus/Relay option wiring**

**TB1** – RS485 Modbus Master/Slave Port

**TB2** – Relay Terminals



# SPECIFICATIONS

<b>Power Supply</b>	SenSmart 4000	Loop Powered 10-30 VDC at <.75 watt
	SenSmart 5000 SenSmart 8000X	10-30 VDC at < 6.5 watts with relay board (SenSmart 5000 only all relays energized)
	SenSmart 8000	Replaceable internal D-cell lithium battery; 9 months Toxic/Oxygen and 6 months LEL operation
<b>4-20mA Output</b>	SenSmart 4000	2-wire 4-20mA current Sink. Max loop R is 600 ohms with nominal 24VDC power supply
	SenSmart 5000 SenSmart 8000X	3-wire 4-20mA current source. Max loop R is 750 ohms with nominal 24VDC power supply
<b>Modbus Output</b>	SenSmart 5000	MODBUS slave ports
<b>Wireless Output</b>	SenSmart 8000 SenSmart 8000X	FHSS 900 MHz and 2.4 Ghz Wireless
<b>Relay Output</b>	SenSmart 5000	3x programmable alarm relays with 5A capability
<b>Enviornmental</b>	ALL	Operating range -40°C to +60°C Sensors include sensor heater for low temperature operation Relative humidity to 95% for IR; to 85% noncondensing when using electrochemical sensors
<b>Approvals</b>	SenSmart 4000 SenSmart 5000	CSA Class I, Div1, Group A, B, C, D , Class I, Zone 1, Group IIC, T4
	ALL	CSA Class I, Div 2 Groups A, B, C, D, Class I, Zone 2, Group IIC, T4
<b>Warranty</b>	ALL	5 year limited warranty For sensor warranty see sensor specifications sheet.



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