

# Sensor Data Sheet

# SENSALERT PLUS

# SENSIDYNE



**Combustible Gas - Infrared  
(0 - 100 %LEL)  
Part No. 823-0211-51  
FM Performance Certified <sup>1</sup>**

Minimum Indicated Concentration .....	3 %LEL
Repeatability .....	± 2% of Reading
Accuracy <sup>2</sup> .....	± 10% of Reading
Span Drift .....	< 10% change per year (typical)
Response Time (Rise) <sup>3</sup> .....	T <sub>60</sub> : < 12 seconds
Recovery Time (Fall) <sup>3</sup> .....	T <sub>10</sub> : < 60 seconds
Temperature Range .....	-25° to 75°C (-13° to 167°F)
Humidity Range (continuous) .....	0–99 %RH, non-condensing
Expected Sensor Life .....	5 years from Shipping Date
Recommended Calibration Flow Rate .....	500 to 1000 cc/min
SensAlert 4-Channel Controller.....	Compatible

<sup>1</sup> For use in an FM Approved SensAlert Plus Transmitter.  
<sup>2</sup> When unit is calibrated and serviced at recommended intervals.  
<sup>3</sup> Room Temperature.

### Special Calibration Considerations: **Infrared Combustible Sensor (PN 823-0211-51)**

#### Sensor Calibration

It is recommended that the SensAlert<sup>Plus</sup> IR sensor be calibrated every 6 months. With this sensor, the output is dependent on the combined Zero value and Span value, for this reason the sensor Zero Calibration and Span Calibration must be performed as separate steps in the overall Sensor Calibration. An IR sensor must not be zeroed without a coinciding span calibration and vice versa.

The sensor zero and span calibration gases must be at the same ambient temperature as the sensor.

The sensor zero may be calibrated with clean ambient air, bottled Zero Air, or bottled Nitrogen. Complete zeroing instructions are provided in Section 3.1 of the SensAlert<sup>Plus</sup> User Manual or SensAlert ASI User Manual.

It is recommended that this sensor's span be calibrated at the half-scale concentration of 50 %LEL of the target gas or Propane (with K-Factors as described below) as long as Methane is not the target gas. A sensor's span must be calibrated with Methane if that is the target gas. Complete span calibration instructions are provided in Section 3.2 of the SensAlert<sup>Plus</sup> User Manual or SensAlert ASI User Manual. Prior to calibration, the sensor must be set-up for calibration gas and k-factor, if applicable, per section 3.3 of the SensAlert<sup>Plus</sup> User Manual or SensAlert ASI User Manual.

**NOTE:** It is common to use Propane for calibration in conjunction with K-Factors. Methane has a different calibration curve and does not work with K-Factors.

The SensAlert<sup>Plus</sup> transmitter has the following preset K-Factors programmed into the system when Propane is the calibration gas: Methanol, Butadiene, Butane, Hexane. For other target gases you can enter a “Custom K-Factor.” A list of Propane K-Factors for Infrared Combustible sensors is shown below. Complete instructions for using K-Factors can be found in Section 3.3 of the SensAlert<sup>Plus</sup> User Manual or SensAlert ASI User Manual.

### Propane K-Factors for Infrared Combustible Sensors

The following table shows the variation in response for the Infrared Combustible sensor as K-Factors (multipliers). These figures are experimentally derived and are expressed relative to Propane.

**Using the K-Factor:** The respective Propane K-Factor is used to multiply the raw sensor reading to obtain the corrected displayed reading on the transmitter. The K-factor is set as a “Custom K-Factor within the “Sensor Adjustment” submenu of the System Configuration menu. Note the SensAlert Plus sensors will not operate above 100 %LEL. **Note:** The calibration gas concentration should not be adjusted when calibrating the sensor with Propane.

Combustible Gas/Vapor	Propane K-Factor	Combustible Gas/Vapor	Propane K-Factor
Acetone	2.4	Hexane	1.6
Butadiene	2.5	Isobutane	1.3
Butane	1.2	Isopropanol	2.0
Cyclopentane	0.8	Methanol	0.6
Cyclohexane	2.8	Methyl Ethyl Ketone	2.0
Dimethyl Ether	1.0	MIBK	3.3
1,4-Dioxane	3.1	Pentane	1.2
Ethane*	0.8	Propane	1.0
Ethanol	1.4	Propylene	1.8
Ethyl Acetate	1.4	Styrene	3.4
Ethylene	2.4	Tetrahydrofuran	1.7
Ethylene Oxide	2.2	Toluene	2.9
Ethyl Ether	1.3	o-Xylene	1.4
Heptane	2.0		

### Moisture Barrier

The Hydrophobic Moisture Barrier (p/n 821-0201-01) must be used in applications where splashing, sprays or condensation could contaminate the sensor.

### Test-on-Demand Cell

There is no Test-On-Demand cell available for this sensor.

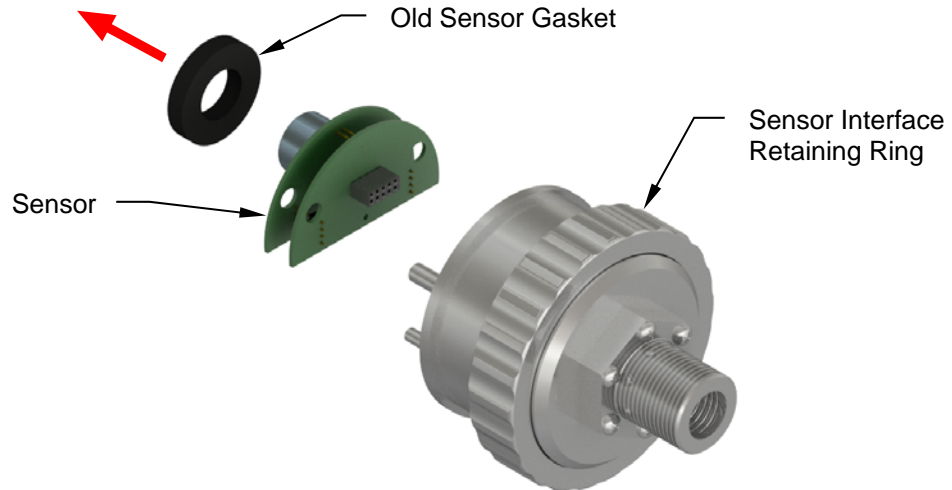
#### IMPORTANT

Information about substances not listed in this table was unavailable at the time of this printing. Listed K-Factors are not warranted, but can be used to estimate the %LEL concentration of substances from direct readings of Methane and Propane. K-Factors can be used to obtain approximate direct readings of %LEL concentration of substances by calibration with Methane or Propane. Error varies from one sensor to another and with the age of the sensor. The typical K-Factor conversion error can be as high as 20-30%. In order to achieve the most accurate detection of a substance, calibration should be performed using a known %LEL concentration of the substance.

## Sensor Gasket Installation Instruction

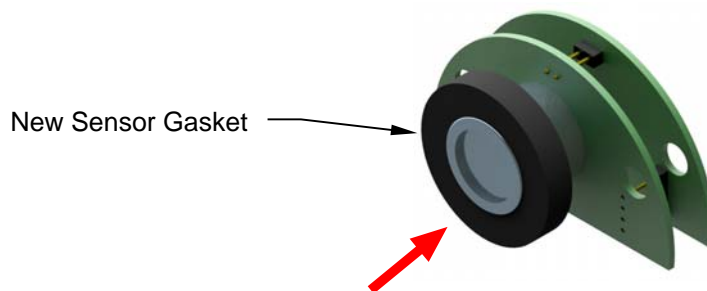
Remove Sensor by sliding it off the two Interface Pins. Remove and discard old Sensor Gasket.

**Note: If no gasket is found on Sensor, check inside the Sensor Holder.**



**Caution: Handle Sensor with care and keep Sensor Cavity clean.**

Install new Sensor Gasket over Sensor until flush with Sensor face as shown.



**Caution: Do not touch face of Sensor.**