

Modular Refrigerant Leak Detection Sensor (MRLDS 3500 ppm) Instructions (P/N 809-1012)

General

Emerson Retail Solutions specs a modular refrigerant leak detection sensor (MRLDS) P/N 809-1012 that continuously monitors for low-levels of refrigerants most commonly used in commercial refrigeration systems. The MRLDS communicates with the E2 controller via the Gateway board connected to the RS485 I/O Network, or via the analog input on a MultiFlex board.

Check the label provided on the printed circuit board to identify the options included with your sensor (**Figure 1**).

Sensor Location

Proper location of the refrigerant sensor is necessary to ensure accurate measurement of representative air samples.

Position the sensor:

- Indoors, inside a room area where air circulates freely.
- On a flat, interior surface.
- Approximately 12-18 inches (30-45 cm) from the floor.

Do not position the sensor:

- On surfaces in unheated areas (less than 0°C) unless using a model with a de-icer.
- Near heat sources, such as appliances, direct sunlight, or concealed pipes or chimneys.
- On walls subject to excessive vibration.
- In the direct path of an exhaust fan. Excessive air movement will disperse gas before it can be detected. If mounting in the path of excessive airflow cannot be avoided, it will be necessary to turn OFF air circulation for 1/4 to 1/2 hour, 4-6 times a day.

Mounting

The refrigeration monitor comprises two basic parts: the base and the cover (see **Figure 4** for dimensions). The cover incorporates the circuit board with the sensing elements.

1. Fasten the base to a junction box or other support. (The base has a number of openings to allow for mounting to various junction boxes.)



NOTE: For complete wiring diagrams and jumper setting information, refer to the MRLDS manual (P/N 026-1307).

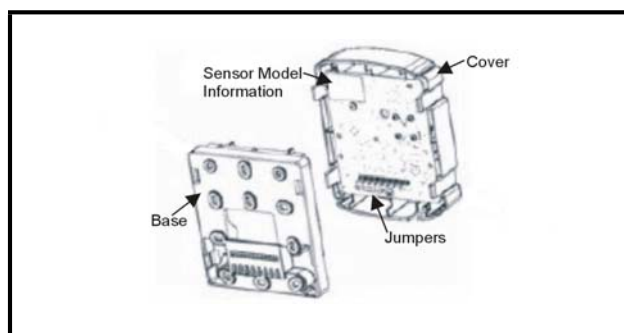



Figure 1 - Sensor Base And Cover



WARNING: The MRLDS unit must be always be powered by either a suitable UL 60950/CSA Certified power supply that is isolated from line voltage by double insulation, or an appropriately rated UL Listed/CSA Class 2 transformer. Failure to follow the above can result in serious personal injury or death.

2. Feed the power and signal wires through the rectangular opening in the base (**Figure 2**).
3. Connect the wires to the terminal connector located in the base, as indicated in **Figure 2**, and refer to the MRLDS manual for more information about wiring (P/N 026-1307).
4. The Modbus MRLDS must be connected to earth ground. Connect earth ground to the MRLDS ground terminal labeled . Connect to earth ground with 14 AWG wire that is less than 6 inches.
5. Align the two side tabs of the cover with the base and snap the cover onto the base.

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- Verify the cover is securely attached to the base by pulling on the top and bottom of the cover as shown in **Figure 3**.

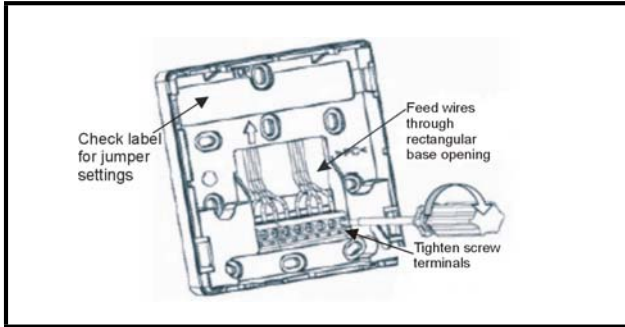


Figure 2 - Sensor Base Opening With Screw Terminals

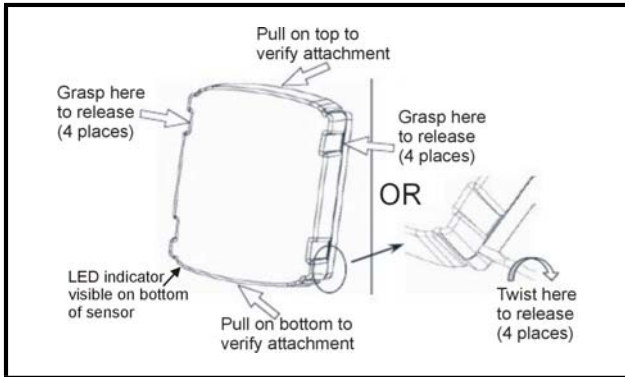


Figure 3 - Attaching And Removing The Cover

Specifications

Power Requirements	24 VAC, $\pm 20\%$, 50/60 Hz, Class 2
Wiring	14 AWG max, Class 2 copper wiring
Power Consumption	Less than 2.7 watts
Output Options	1-5V, 10 K Ohm load RS485 Modbus RTU
Operating Temp.	32 to 149°F (-22 to 149°F with de-icer*) 0 to 65°C (-30 to 65°C with de-icer*)
Humidity	0 to 99% non-condensing
Size	4.5" x 3.5" x 1.6"
Weight	.35 lbs. (160 g)
Pollution Degree	2
Installation Category	II
Range	0 to 3500 ppm

Table 1 - MRLDS Unit Specifications

Minimum Detection	75 ppm
Pressure	Operating 10.2 to 15.7 PSIA
Repeatability	± 30 ppm at 150 ppm
Linearity	± 30 ppm from 75-150 ppm, $\pm 20\%$ of reading from 150 to 1000 ppm $\pm 30\%$ of reading from 1000 to 3500 ppm
Warm-up Time	30 minutes

Table 1 - MRLDS Unit Specifications

Diagnostics and LED Indicators

The MRLDS has three LEDs for quick status indication.

MRLD S LEDs	STATUS INDICATION
Green	Lights during normal operation
Red	Flashes at 0.5 Hz during start-up. Turns ON solid if concentration reading exceeds 175 ppm
Yellow	Flashes at 0.5 Hz if power supplied is outside set limits. Turns ON solid during other fault conditions.

Table 2 - MRLDS LEDs

For analog output models, a fault condition is signaled by setting the voltage to 0.5V, which indicates the MRLDS needs to be replaced.

MRLDS Dimensions

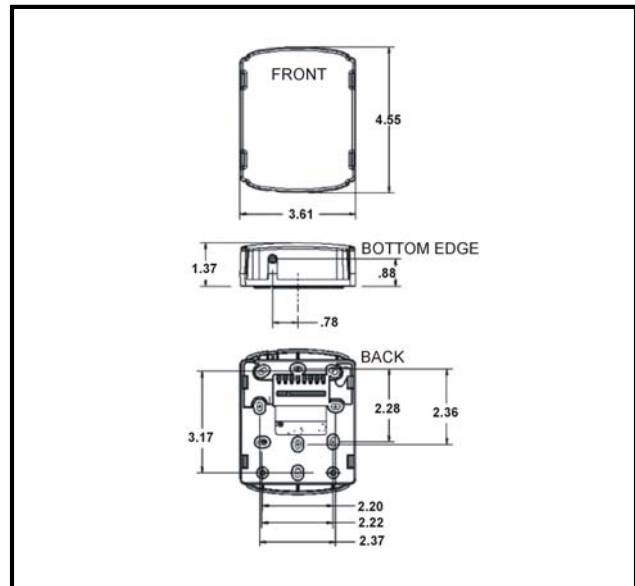


Figure 4 - MRLDS Dimensions In Inches