MRLDS-250
Quick Setup Guide

The Modular Refrigeration Leak Detection Sensor is Emerson's state-of-the-art infrared refrigerant gas detector that can detect a wide range of gases. The MRLDS-250 can be used on a stand-alone basis or integrated into supervisory controls. The MRLDS-250 can be used in locations that require continuous monitoring and to add gas detection solutions to an existing system.

The MRLDS-250 is available in two versions:

- The broadband gas detector is used as a general purpose gross leak detector and is factory tested and certified to +/- 35% accuracy.

- The gas specific versions come factory certified and calibrated with +/- 3% accuracy to the target refrigerant when there is a need for more accurate detection.
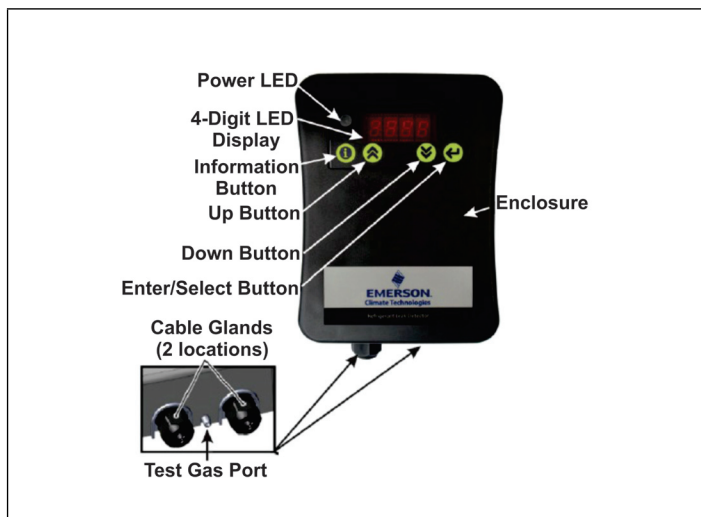

Figure 1 - MRLDS-250 Components

For complete part number and installation information, see the full MRLDS-250 manual (P/N 026-1315).

MRLDS-250 Installation
Mounting the MRLDS-250

1. To open the housing as received, use a flat blade screwdriver and depress the top latch. While pushing the latch, grasp the back edge of the housing near the latch and pull the back away.

2. Position the base to the pre-determined mounting location.

3. For Wall Mount, attach the MRLDS-250 base to the mounting surface using two #6 screws (provided) through two of the seven mounting holes (see *Figure 2*). For Junction Box Mount, attach the MRLDS-250 base to the junction box through the two junction box holes.
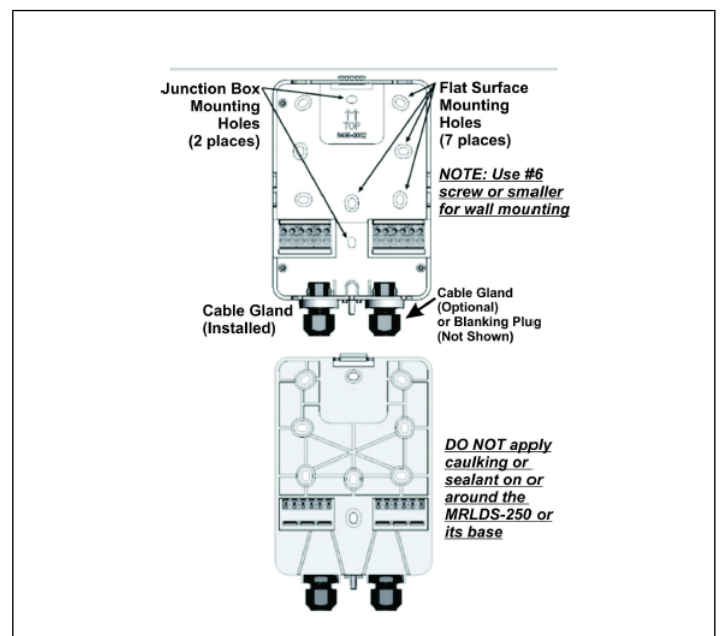

Figure 2 - Front and Back of the MRLDS-250 Base

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Wiring and Configuration

Either 24VAC or 24VDC may be used to power the MRLDS-250. Connect wiring to the appropriate terminal locations. Use two wires, between 14 and 22 AWG. Refer to **Figure 3** for AC wiring (left) or DC wiring (right):
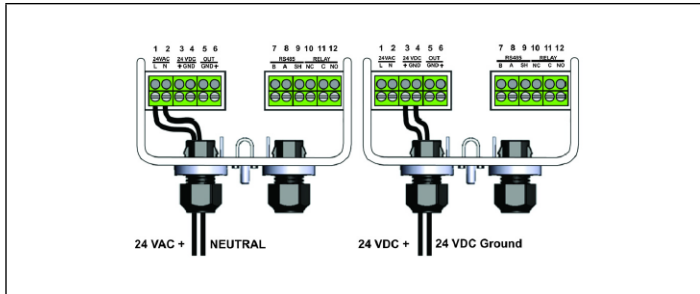

Figure 3 - Supply and Power Wiring Options

WARNING: *The MRLDS-250 must be powered by:*

- A suitable UL 60950/CSA certified power supply that is isolated from line voltage by double insulation.
- An appropriately rated UL listed/CA Class 2 Transformer; a 10VA Transformer is recommended.
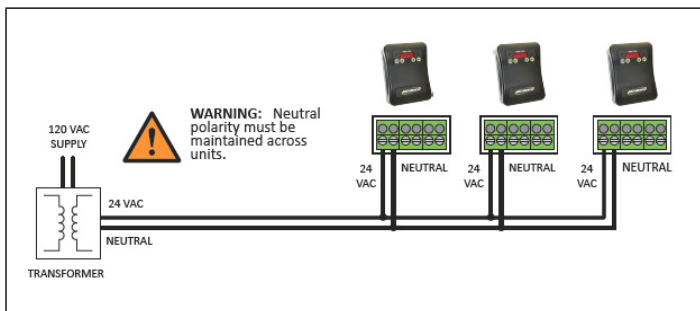- For multiple devices cascaded, a 50VA Class 2 Transformer is recommended.

Figure 4 - Power Wiring of a Device Network

The MRLDS-250 provides an analog output signal that is proportional to the level of gas detected. Connect two 18 to 20 AWG wires to terminal block positions **5** and **6** (see **Figure 5A**), noting ground and signal polarity.

Make relay connections (**NO**, **NC**, or both) using 18 to 20 AWG wires to terminal block positions **10**, **11**, and **12** (see **Figure 5B**), noting normally open, normally closed, and common connectors.
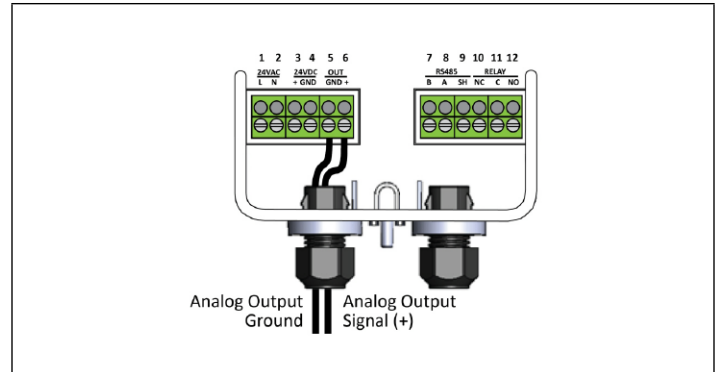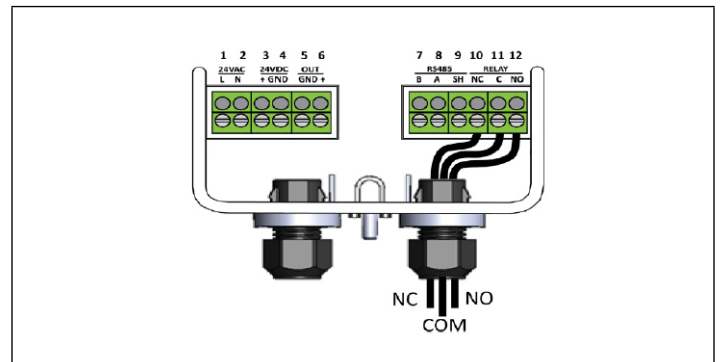

Figure 5A - Analog Output Wiring

Figure 5B - Sample Relay Output Wiring

NOTE: For MODBUS network communications wiring, use only 18-24 AWG shielded twisted pair wire with 120 ohm characteristic impedance.
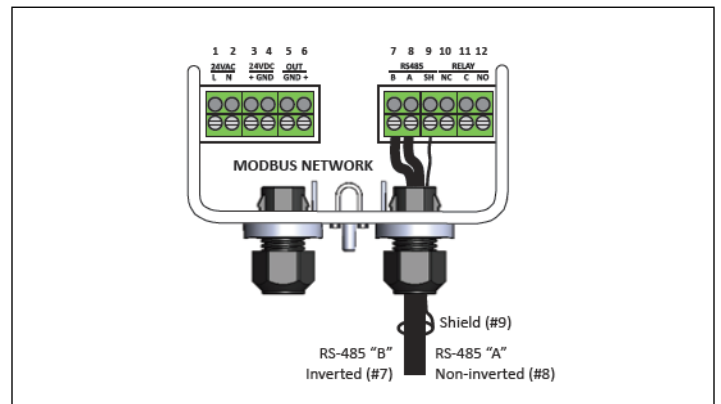

Figure 6 - MODBUS Network Communication Wiring

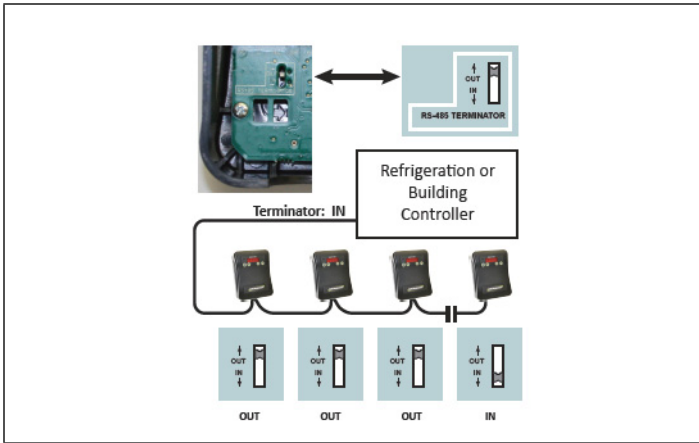**NOTE:** Be sure to enable the termination resister on the device at each end of the network (see *Figure 7*):

Figure 7 - Termination Resister Setting

Set Up Analog Output Type and Scaling

1. For Analog Output, look for **P.-03** on the parameter list then press the Enter 🔘 button.

2. Set the desired output by pressing Up 🔼 or Down 🔽 to select the type designated as follows:
   - 00 Selects 0-5V
   - 01 Selects 1-5V (Default)
   - 02 Selects 0-10V
   - 03 Selects 2-10V
   - 04 Selects 4-20mA

3. Press the Enter 🔘 button to save.

4. For Scaling, look for **P.-16** on the parameter list then press the Enter 🔘 button.

5. This will allow you to select the full scale PPM value that represents the maximum analog output (for example: 1000PPM = 5V when 1-5V output range was selected for **P.-03**). Use Up 🔼 or Down 🔽 to adjust the value and set it to **1000PPM**.

6. Press the Enter 🔘 button to save the setting.

MRLDS-250 Modbus Setup
Setting Up Modbus Address and Baud Rate

1. Press and hold the ⓘ information button for five seconds to activate the parameter list.

2. For the Address, look for **P.-10** on the parameter list then press the Enter 🔘 button.

3. Set the desired address by pressing Up 🔼 or Down 🔽 and press the Enter 🔘 button to save.

4. For the Baud Rate, look for the **P.-13** parameter then press the Enter 🔘 button.

5. Select **00** for 9600 Baud or **01** for 19200 Baud. Press the Enter 🔘 button to save.

How to Add an MRLDS-250 to the E2 Controller

1. MRLDS-250 is only native on E2 Enhanced Controllers with firmware version 4.08F03; otherwise you need to add a description file and license key.

2. Contact Customer Service to obtain a license key:
   a. Phone Number: 770-425-2724 Option 4
   b. Email: Solutions.CustomerService@Emerson.com

3. Add the description file using UltraSite.

4. Reboot the controller after the upload.

5. Load the license key on the E2 by logging in and then press [Menu], [7], [9].

6. Press **F1** for **ADD FEATURE** and enter the License Key.

7. Add the MRLDS-250 by pressing [Menu], [7], [7], [2] to access Connected I/O Boards and Controllers.

8. Press **F2** twice to select **C4: Third Party** tab.

9. Scroll down to **MGS250** and enter the quantity of MRLDS-250 devices up to the maximum indicated.

10. Press the [⟶] button to save.

11. Press [Menu], [7], [7], [1] for Network Summary or [Alt]+[N].

12. Scroll down to the **MGS250** and press **F4** for **COMMISSION**.

13. Select the address the MRLDS-250 is set to and press [Enter] to confirm.

14. The MRLDS-250 should be **Online** on the E2 Network Summary (press [Alt]+[N]).

How to Configure Alarm Setup on the E2 Controller

1. Press [Menu], [5] and then select **MGS250**.

2. Press **F5** for **SETUP** and **F2** to select **C2: Set Points**.

3. Set the parameters depending on the System Requirement and press the [⟶] button to save.

MRLDS to MultiFlex I/O
How to Set a MultiFlex Input Point

1. An input point on a MultiFlex board consists of two terminals. One of these terminals labeled as **SIG** reads the signal from the sensor, while the other, labeled **0v** is where the sensor ground wire is connected:
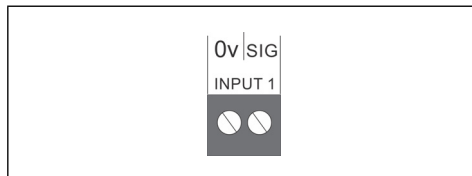

Figure 8 - MultiFlex Input Point

2. The Analog Output Signal (**+**) should go to (**SIG**) terminal of the MultiFlex board and the Ground (**GND**) should go to (**0v**) terminal of the board.

3. The **DIP** switch setting of the MultiFlex board terminal for the MRLDS-250 should be in the OFF position (see *Figure 9*) because it supplies its own voltage signal to the point:
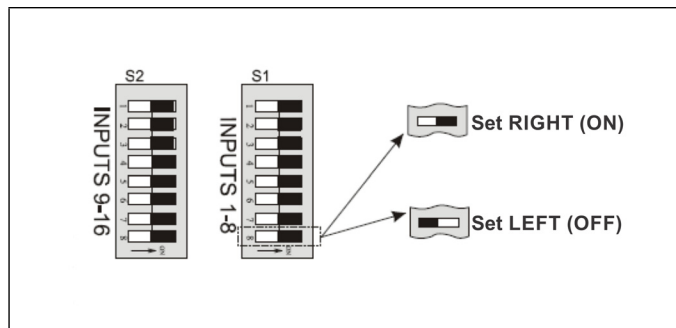

Figure 9 - MultiFlex Input Dip Switches

How to Set the Input Type on the E2 Controller

1. Press [Menu], [*8], [1] to go to the Input Status Screen.

2. Select the input point where the MRLDS-250 is connected, and press **F1** for **SETUP**. Press [1] for **Analog**.

3. Highlight **Sensor Type** and press **F4** for **LOOK UP**. Select **Linear** and press [Enter] to confirm.

4. Navigate down to **Eng Units** and press **F4** for **LOOK UP**. Select **PPM 33** and press [Enter] to confirm.

5. Set the **Low End Point** and **HighEnd Point** equivalent to the range set on **P-.03** for **Analog Output**.

6. Set the **Low End EU** and the **High End EU** equivalent to PPM Scaling set on **P.-16**.

7. For the **Low End Limit**, set it to **-10%** of **Low End EU** and for the **HighEnd Limit**, set it to **+10%** of **High End EU**.

8. Press the [⟲] button to save.

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