

LDM Series Monitor Calibration Procedure

This procedure describes how to calibrate LDM series monitors without the use of the MCT150 calibration tool. This includes LDM150, LDM150R, and Multipoint LDM series monitors.

Initial Switch Configuration

1. Unscrew and remove the cover from the unit. Locate the high-lighted area in Figure 1.



Figure 1

2. Ensure that DIP switches 1 and 2, labeled in Figure 2, are ON to avoid alarm delay during adjustments. Alternative switch configurations for future modifications are provided in Table 1.

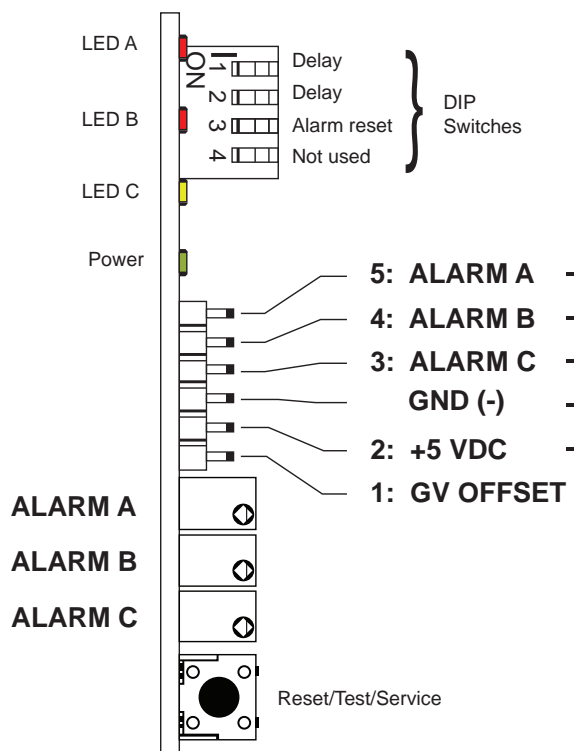


Figure 2

Table 1

n° 1	n° 2	Alarm Delay
ON	ON	No alarm relay
OFF	ON	1 minute alarm delay
ON	OFF	10 minute alarm delay
OFF	OFF	30 minute alarm delay

3. Ensure DIP switch 3 is OFF (to the right). This allows for manual reset of alarm LEDs by the user by lightly clicking the black Reset/Test button during adjustment. **Do not hold down the button, as this will activate service mode.** DIP switch 4 can remain OFF as it is unused.

Alarm LED Behavior

The alarm LED will illuminate when outside air voltage/ppm reading has surpassed the set alarm threshold, indicating the presence of refrigerant or gas in the space.

Typically, the yellow LED indicates low gas concentration (Alarm C), and the red LEDs indicate medium (Alarm B) and high gas concentration (Alarm A).

Voltage Measurement

Using a multimeter/voltmeter:

1. Touch the black test lead to the ground lead of the LDM system (labeled GND (-) in Figure 2).
2. Touch the red test lead to the desired system lead from Figure 2 to read voltages or setpoints. The GV offset lead represents the voltage reading of the sensor.

Setting Thresholds for General Leak Sensitivity

To set alarm thresholds to the minimum detection setpoint, ensuring the alarm triggers to a leak of any concentration:

NOTE: Alarm C corresponds to the lowest desired ppm threshold, followed by Alarm B then Alarm A.

Alarm Threshold Calibration

1. Begin by adjusting the blue alarm potentiometer to locate the zero (natural) reading of the space, starting with Alarm C at the lowest concentration threshold.
 - a) Turn the potentiometer counterclockwise in 1/4-turn (90°) increments, pausing after each adjustment to allow the alarm LED to illuminate, if applicable. Counterclockwise rotation lowers the alarm threshold until the setpoint is found (LED illuminates).
2. Once the LED illuminates:
 - a) Rotate the same potentiometer clockwise by one to two 1/4-turn increments. After each adjustment, lightly press the black Reset button. Clockwise rotation raises the alarm threshold to place it slightly above the desired setpoint (LED extinguishes).
 - b) Continue this process until the LED extinguishes immediately after pressing the Reset button, indicating that the sensor is reading just below the new threshold.

At this point, the system is highly sensitive to any leaks or contamination within the monitored space.

Adjusting Alarms B and A

This calibration process described above can be repeated when adjusting setpoints of Alarms B and A if applicable to the space/user or set to nearby thresholds for a more sensitive system overall.

Setting Thresholds Based on Calibration Gas Exposure (Performing a "Bump Test")

To set alarm thresholds based on specific parts-per-million (ppm) gas concentrations exposed to the LDM unit:

Alarm Threshold Calibration

1. Begin by exposing the LDM sensor to the target gas concentration.
2. Maintain continuous exposure of gas to the unit's sensor for three minutes to allow the voltage reading to stabilize.

3. While still holding calibration gas directly to the sensor:

If the alarm LED illuminated before the three minute wait period:

- a) Turn the corresponding alarm potentiometer clockwise in 1/4 -turn (90°) increments, lightly pressing the black Reset/Test button after each adjustment.
- b) Once the LED extinguishes immediately after pressing the button, the alarm threshold for the corresponding ppm exposure has been reached.

If the alarm LED did not illuminate after the three minute wait period:

- c) Turn the corresponding alarm potentiometer counterclockwise in 1/4-turn increments, pausing for a moment after each adjustment to allow the alarm LED to illuminate, if applicable.
- d) Once the LED illuminates, make one to two final adjustments turning the same potentiometer clockwise 1/4-turn increments. After each adjustment, lightly press the black manual Reset/Test button.
- e) Once the LED extinguishes immediately after pressing the button, the alarm threshold for the corresponding ppm exposure has been reached.

Adjusting the alarm potentiometer one to two increments of 1/4-turns above the exposed setpoint value allows the system to maintain high sensitivity to leaks while minimizing false alarms.

4. Adjusting Alarms B and A:

Repeat steps 1 - 3 for with Alarms B and A, exposing the same unit to progressively higher ppm gas concentration targeted for each threshold.

Reminder: When adjusting higher alarm thresholds (B and A), lower-level alarm LEDs (C and B, respectively) will remain illuminated because the sensor continues to detect previously set gas concentration levels. Be sure to observe and calibrate based on the correct LED associated with the alarm threshold being adjusted.

Potentiometer Sensitivity

Each 1/4-turn of system potentiometers changes the voltage reading by ~0.1 V.

We recommend replacing the LDM unit sensor annually to maintain maximum accuracy and ensure consistent system calibration.