

Remote Digital Display Alarm Indicator

For use with the EPU-MPS 0-100% LEL Gas Monitor

The Remote Digital Display Alarm Indicator provides continuous information on the status of PureAire's line of gas monitors, including the EPU-MPS 0-100% LEL combustible gas monitor. All PureAire safety monitors have a built-in mA output. The Remote Display Alarm easily connects to the monitor's input power and mA output connection. **An 18 AWG, three conductor, shielded control and instrumentation cable, Belden 8770 or equivalent, is recommended for the connection.** The maximum permissible cable length is 250 feet. The Remote Display can also be connected to a programmable logic controller (PLC), providing simultaneous alarm and status indications in multiple locations throughout the facility.



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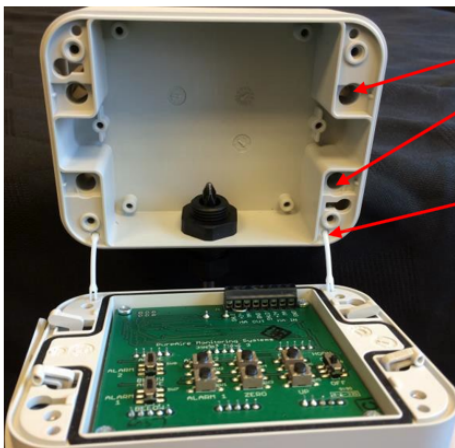
www.pureairemonitoring.com

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How to mount the Remote Display Alarm Indicator



- 1) Open the two side doors to expose the front panel screws.
- 2) Loosen the 4 screws to separate the front panel from the case.



Mount the case to a wall or other flat surface. There are 4 ea. through holes for fastening the case.

The case is designed to be flush mounted.

NOTE: The front cover can be removed from the case by gently pulling on the plastic hinges. (they will stay connected to the front cover). To connect the front cover, just push the plastic hinge into the case.

Mount the case to a wall or other flat surface. There are 4 ea. through holes for fastening the case.

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NOTE: The front cover can be removed from the case by gently pulling on the plastic hinges (they will stay connected to the front cover). To reconnect the front cover, just push the plastic hinge into the case.

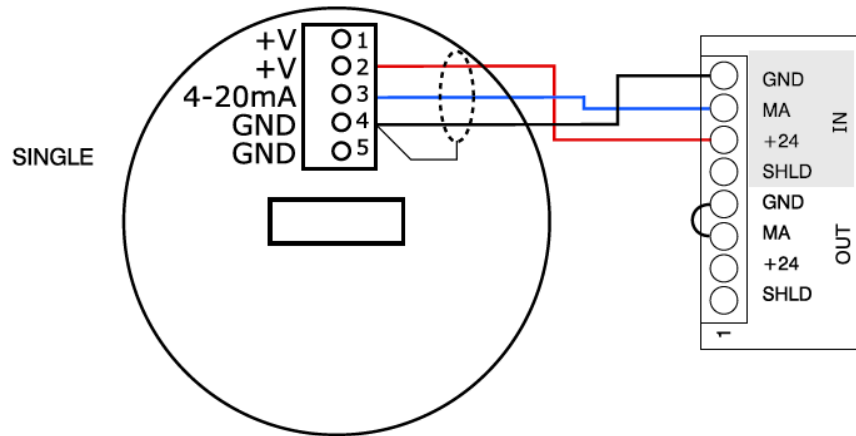
How to wire the Remote Display Alarm Indicator

An 18 AWG, three conductor, shielded control and instrumentation cable, Belden 8770 or equivalent, is recommended for the connection.

The Remote Display connects to the EPU-MPS 0-100% LEL via the monitor's 4-20 mA current output and 24 VDC power terminals. Wire the PWR terminal on the monitor to +24 on the display's IN terminal block, the 4-20 mA output terminal on the monitor to MA on the display's IN, and GND to GND. Terminate the cable shield at one end only (typically at the monitor chassis).

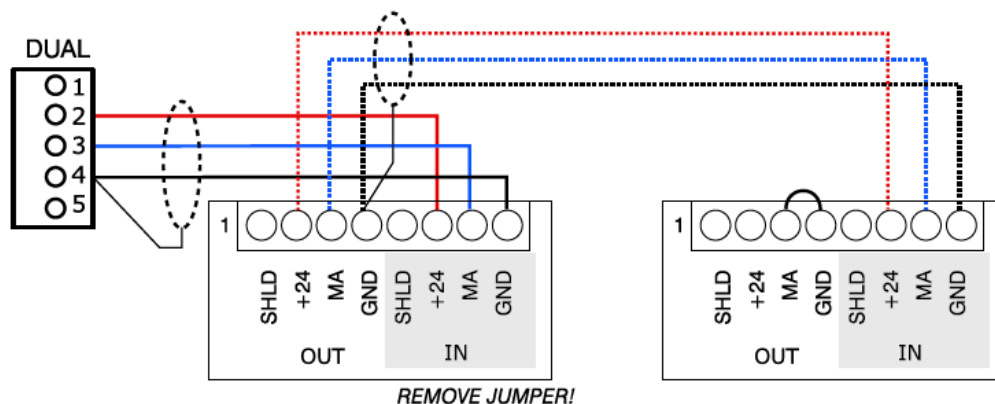
Single display (one EPU-MPS, one Remote Display):

- Wire the monitor's PWR, 4-20 mA (LEL/CURRENT) output, and GND to the IN terminal block on the Remote Display (+24, MA, GND respectively).
- Leave the jumper on the OUT terminal block of the Remote Display in place.



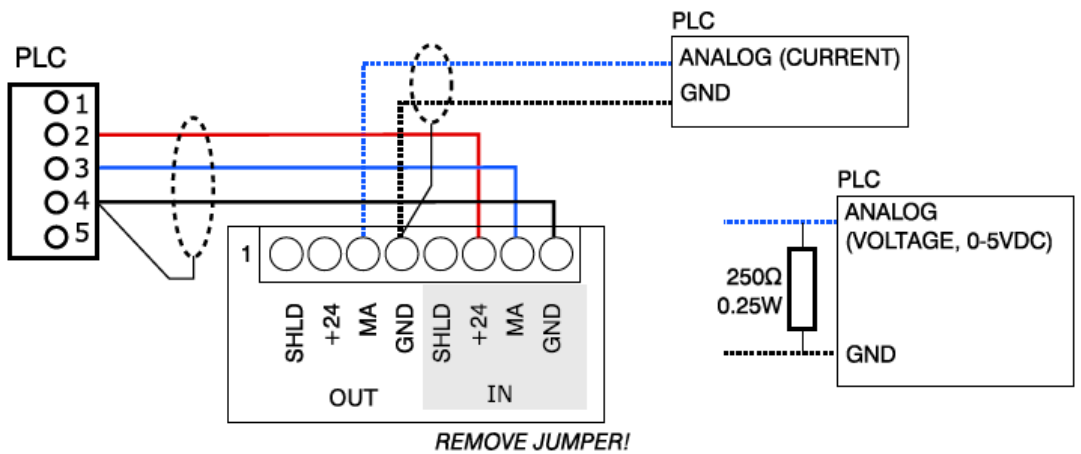
Dual displays (one EPU-MPS feeding two Remote Displays in series):

- Wire the monitor to the IN terminal block on the first Remote Display as above.
- Remove the factory jumper on the OUT terminal block of the first Remote Display.
- Wire OUT (+24, MA, GND, SHLD) of the first display to IN (+24, MA, GND, SHLD) of the second display.
- Leave the jumper on the OUT terminal block of the second (final) display in place.



PLC connection:

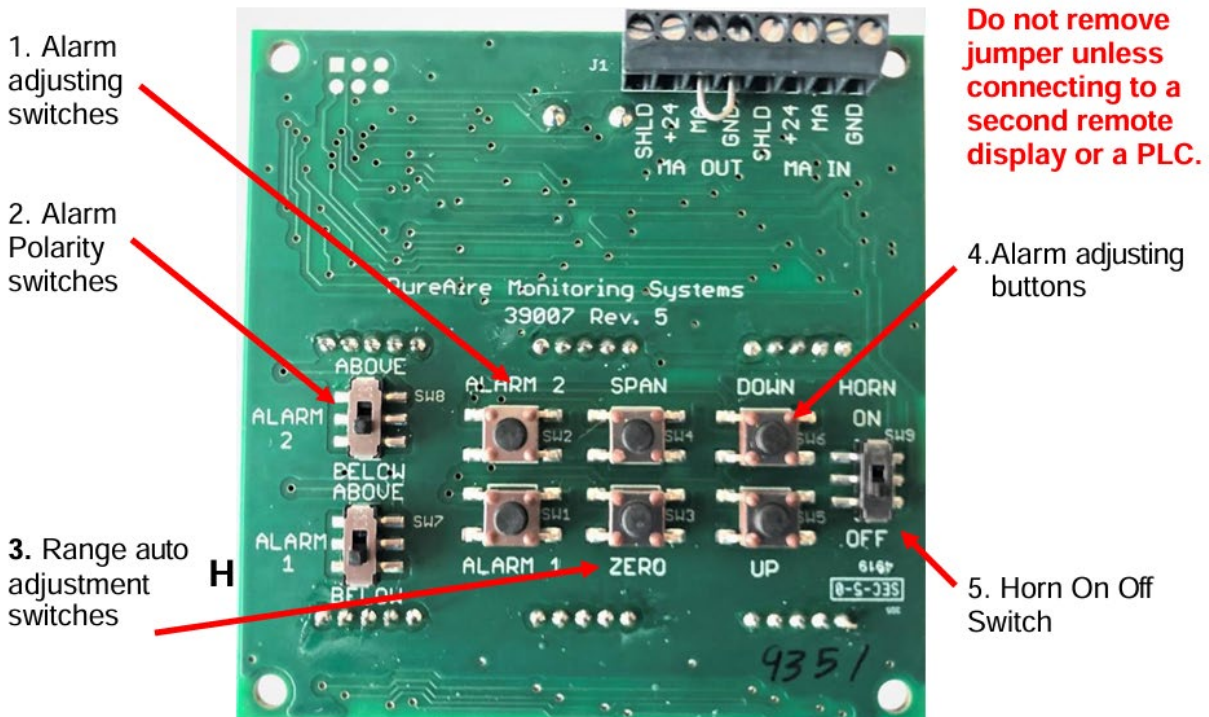
- Wire the monitor to the IN terminal block on the Remote Display as above.
- Remove the factory jumper on the OUT terminal block of the Remote Display.
- For a current-input PLC: connect MA (OUT) to the PLC's analog current input and GND (OUT) to the PLC's analog ground.
- For a 0-5 VDC voltage-input PLC: place a $250\ \Omega$, 0.25 W resistor across the PLC's analog input and GND, then connect MA (OUT) to the PLC analog input side of the resistor and GND (OUT) to the PLC ground side.



IMPORTANT: Do not remove the factory jumper on the OUT terminal block unless you are connecting a second Remote Display or a PLC.

Identification of switches and controls

1. **Alarm Adjusting Switches** – These switches are used to select the alarm level to be adjusted. For the EPU-MPS 0-100% LEL, they are factory set at 20% LEL for Alarm 1 and 40% LEL for Alarm 2. (*Normally set at the factory*)
2. **Alarm Polarity Switches** – These switches are used to select when the alarms will activate. For the EPU-MPS 0-100% LEL (a combustible gas monitor), the alarm switches are set to **"Above"**. If the readings go above the setpoint (e.g., 20% LEL for AL1 or 40% LEL for AL2), the internal horn and LEDs will activate. (*Normally set at the factory*)
3. **Range Auto Adjustment Switches** – These switches are used to adjust the zero and full scale reading on the Remote Display Alarm Indicator. When the EPU-MPS is sending a 4 mA or 20 mA signal, pushing these switches will automatically adjust the zero and full scale readings on the Remote Digital Display (0% LEL at 4 mA; 100% LEL at 20 mA).
4. **Alarm Adjusting Buttons** – These buttons are used to increase (UP) or decrease (DOWN) the alarm settings.
5. **Horn On/Off Switch** – This switch is used to turn the internal audio horn on and off. In the On position, any alarm will activate the audible horn. To disable the internal horn, turn the switch to Off.



Do not remove the jumper unless connecting to a second Remote Display or a PLC.

How to Setup and Operate the Remote Display

CAUTION: Entering the set up menus will disable the real time LEL readings.

After wiring the Remote Display to your EPU-MPS 0-100% LEL monitor, turn on the power to the monitor. During the 45 second warm-up, the Remote Display will illuminate the yellow FAULT LED and the display will read "FLt", indicating that the monitor is in fault. This will clear automatically after the monitor completes its 45 second warm-up.



During warm up



After warm up (fault cleared)

During warm-up: Display shows "FLt" with the yellow FAULT LED lit.

After warm-up (fault cleared): Display shows the live LEL reading (typically 0 in clean air) with no fault LED.

How to set the zero and full-scale range

This procedure adjusts the Remote Display to compensate for the length of cable between the EPU-MPS monitor and the Remote Display Alarm Indicator. It must be performed in the field after installation.

Entering the EPU-MPS user menu:

1. Hover the magnetic wand over the RIGHT key on the EPU-MPS to reach the password entry screen.
2. Enter your password, or the factory default "557", using the wand.
3. Wait for "Passcode Accepted" to scroll across the display.
4. Wand RIGHT again to enter the main user menu. The screen should read "4-20 mA Loop".
5. Wand RIGHT once more to enter the 4-20 mA loop sub-menu. The screen should now show "Set 4mA Zero".

Setting the zero (4 mA / 0% LEL):

1. With "Set 4mA Zero" on the screen, wand RIGHT to enter the menu. The monitor's output loop is now latched at 4 mA.
2. On the back of the Remote Display, press and hold the ZERO button for 3 seconds. The display will reset and automatically adjust itself to 0% LEL.
3. If necessary, use the UP / DOWN in the monitor's menu to fine-tune the zero reading.

NOTE: Both AL1 and AL2 LEDs will be illuminated during this step.

4. Wand LEFT to exit the 4 mA sub-menu.

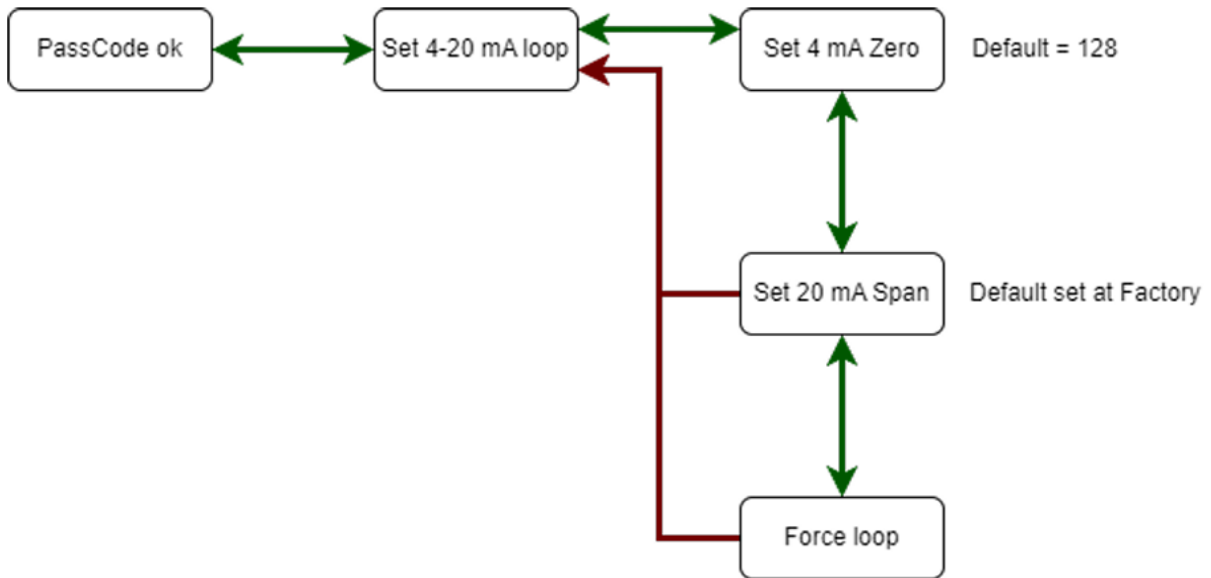
Setting the full scale (20 mA / 100% LEL):

1. Wand DOWN to highlight "Set 20mA Span", then wand RIGHT to enter. The monitor's output loop is now latched at 20 mA.
2. On the back of the Remote Display, press and hold the SPAN button for 3 seconds. The display will reset and automatically adjust itself to show 100 (100% LEL).
3. If necessary, use the UP / DOWN in the monitor menu to fine-tune the full scale reading.
4. Wand LEFT repeatedly to back out of the user menus. The EPU-MPS will return to the measuring mode.

CAUTION: If the monitor is in the measuring mode and the ZERO push button is pressed, "Err" will be displayed on the Remote Display and no readings will be recorded. **If the SPAN button is pressed while the monitor is in the measuring mode, the Remote Display will automatically adjust to 100%.** You will need to repeat the above adjustment procedure for the Remote Display to mirror the monitor. **NEVER PUSH THE SPAN BUTTON IN THE MEASURING MODE.**



- Up – Increases the value
- Down – Decreases the value
- Right – Next level of menu hierarchy
- Previous – Returns to previous level of menu hierarchy
- Enter – Enters information into the microprocessor



How to set the internal alarms on the Remote Display

The Remote Display has two user selectable alarms with separate horn tones to identify Alarm 1 from Alarm 2. For the EPU-MPS 0-100% LEL, both alarms, unless specified otherwise, are preset at the factory as:

LEL 0-100%: AL1 = 20% LEL and AL2 = 40% LEL

**Please note that alarm levels can be changed in the field.*

To set Alarm 1:

Press and hold the Alarm 1 button for two seconds to enter the alarm change mode. The display will show the current alarm setting and the right-most decimal point will be lit. Use the UP or DOWN buttons to increase or decrease the alarm value. When done, press the Alarm 1 button for 2 seconds to return to the monitoring mode.

To set Alarm 2:

Press and hold the Alarm 2 button for two seconds to enter the alarm change mode. The display will show the current alarm setting and the left-most decimal point will be lit. Use the UP or DOWN buttons to increase or decrease the alarm value. When done, press the Alarm 2 button for 2 seconds to return to the monitoring mode.

For combustible gas monitoring (LEL), ensure the Alarm Polarity switches on the main board remain set to "Above" so that the alarms activate when the LEL concentration rises above the setpoint.