

# Microprocessor Module Replacement for Single-Zone Leak Monitors

## Instruction Manual 3015-5550

### 1. Scope

This instruction manual describes how to replace or upgrade the microprocessor module in your “new style” Single-Zone leak monitoring equipment (with serial numbers having the format “NU-xxxx”). It is assumed that you are familiar with the operation of the appropriate monitor. If necessary, refer to the instructions for detailed operation and maintenance information for each Single-Zone model.

The replacement process covers the following topics:

- Items Required
- Retrieving Current Configuration Data
- Preparation
- Microprocessor Module Removal
- Installing the New Microprocessor Module
- Configuration.



### 2. Items Required

- Replacement Microprocessor Module Kit (P/N: 3015-5549)
- Medium Phillips head screwdriver
- Medium standard slotted screwdriver
- Wrench for lock nut



**IMPORTANT:** Failure to comply with these instructions may void the warranty.

### 3. Retrieving Current Configuration Data

Your Single-Zone monitor has been configured for your specific installation. Prior to beginning this procedure it is highly recommended to collect setup and configuration data from your monitor so it can be verified and (if necessary) reloaded after the new microprocessor module is installed. Use the table in Section 7 to record current parameter settings.

**NOTE:** Note that a system hardware failure may make these values inaccessible or may reset them to default values in a “fail safe” mode. If the values are not accessible or do not match your installation, you should skip this step. If you need assistance, contact Bacharach Technical Support at (800) 736-4666 or (724) 334-5000.

### 4. Preparation

Prepare to remove the old microprocessor module by following the steps below.

- a. Disconnect power to the leak monitor and confirm that no power is present.



**WARNING:** Failure to remove power can cause damage to the monitor and can result in personal injury or death.

- b. Remove the two screws on the left edge of the front panel. See Figure 1 for locations.



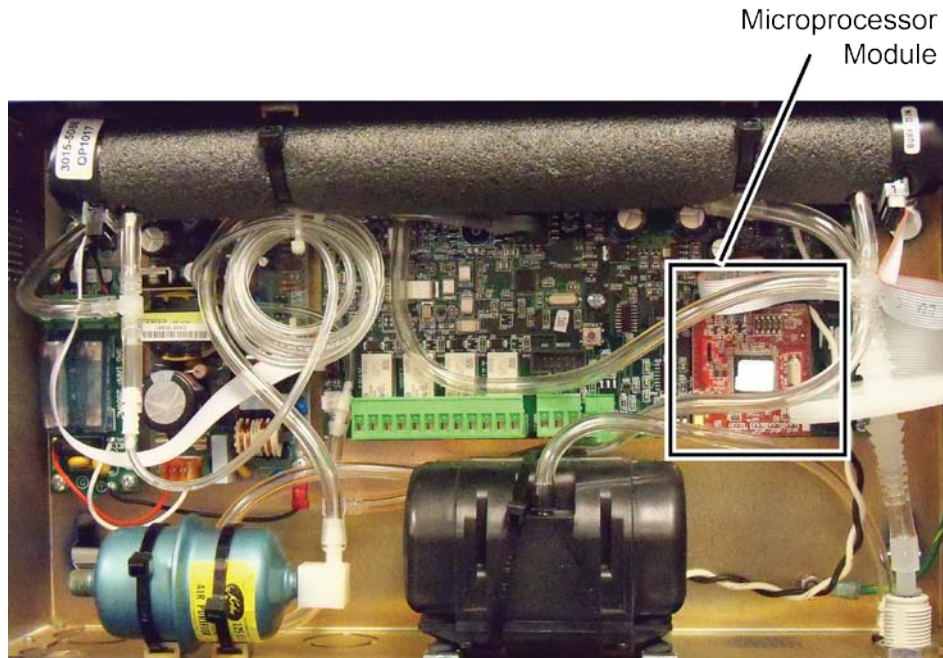
**Figure 1. Screw Locations on Single Zone Chassis**

- c. The front panel is hinged on the right side. Open the front panel and ground your body by touching an area of bare metal inside the chassis.



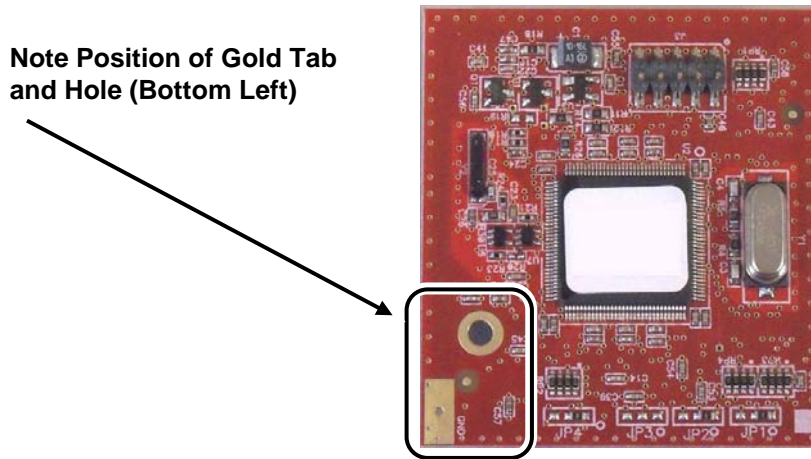
**WARNING:** Failure to touch the grounding area can allow static electricity on your clothing or body to damage the monitor or modules. Such damage is not covered under warranty.

- d. Disable alarms to prevent accidental activation during this procedure.
- e. Locate the microprocessor module, socketed on the bottom right side of the main circuit board. Refer to Figure 2 and Figure 3.



**Figure 2. Location of the Microprocessor Module**

- f. Note the orientation of the module, specifically the gold tab and hole oriented on the bottom left of the board. Refer to Figure 3.



**Figure 3. Orientation of Microprocessor Module**

## 5. Microprocessor Module Removal

Remove the installed microprocessor module by following the steps below.

- a. Grasp the left and right edges of the microprocessor module and gently pull outward away from the main board while rocking the microprocessor board left to right, until it comes free of the socket.
- b. Dispose of the removed microprocessor module in accordance with local regulations for electronic equipment.

## 6. Installing the New Microprocessor Module

Install the new microprocessor module by following the steps below. Depending on your hardware and the replacement kit that you receive, there are two different installation procedures. One method accommodates different hole sizes in the microprocessor board and the mother board, and uses two screws (0001-1552) and a female-threaded spacer (0304-8289). The other method accommodates the newer microprocessor board and mother board which have the same size holes, and uses a snap-in spacer (0304-8459). Follow the installation option that corresponds to the hardware that is supplied with your kit.

### OPTION A: Threaded Spacer and Two Screws

- a. Remove the main board from the enclosure by disconnecting all main board connectors, removing mounting screws, and carefully lifting the main board from the enclosure standoffs. (Note that this and other steps may not be required if your microprocessor board is already mounted as shown in Option A.)
- b. Attach the threaded standoff to the top of main board by routing one of the screws up through the underside of the main board and securing it to the standoff. Use Figure 3 as a guide.
- c. Remove the new microprocessor module from its packaging, handling the board by the edges only.
- d. Orient the new microprocessor so the gold tab and hole are at the bottom left corner (refer to Figure 3).
- e. Carefully align the two rows of pins on the back of the processor with the mating socket on the main circuit board in the Single Zone, then carefully press the microprocessor module firmly into the socket.

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**NOTE** As a guide, align the larger hole on the microprocessor module with hole in the standoff.

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**CAUTION** Be sure not to skip or offset the pins to the socket.

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- f. Feed the second securing screw through the hole in the processor board into the top of the threaded standoff and secure it using the screwdriver. See the figure below.

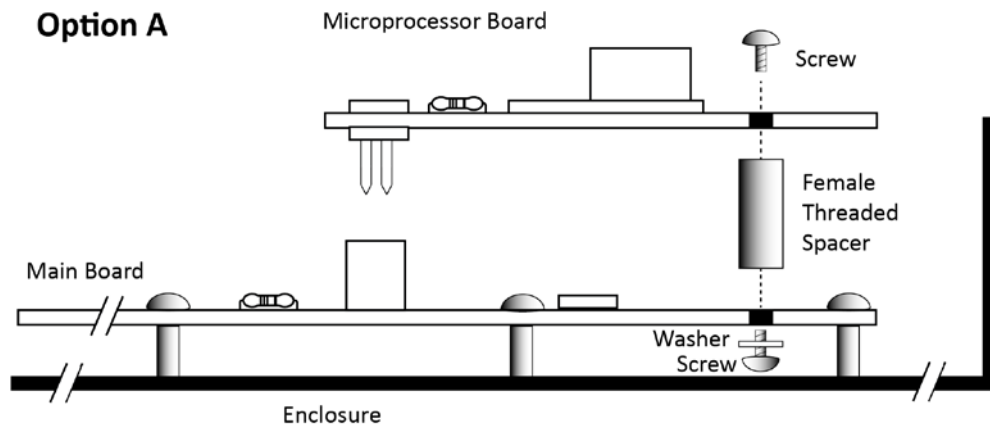


Figure 4. Option A Installation

- g. Re-attach the main board to the enclosure by carefully placing the main board onto the enclosure standoffs and securing it with the screws removed earlier.
- h. Re-attach only the main board connectors that you removed in step (a).
- i. Continue with Step 7: Configuration

**OPTION B: Snap-in Spacer**

- a. Insert the plastic snap-in spacer into the securing hole on the mother board. See figure below.

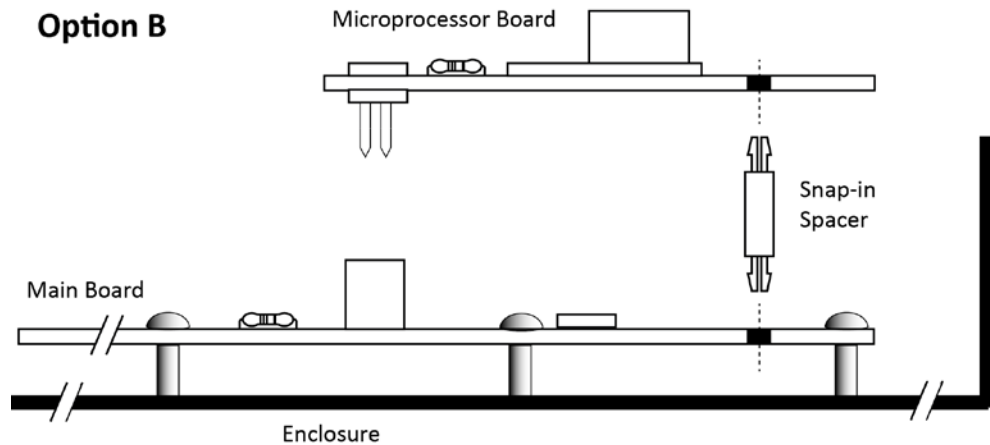


Figure 5. Option B Installation

- b. Remove the new microprocessor module from its packaging, being careful to handle the board by the edges only.
- c. Remove all foam packing material from top and bottom headers.
- d. Orient the new microprocessor so the gold tab and hole are at the bottom left corner (refer to Figure 3).
- e. Carefully align the two rows of pins on the back of the processor with the mating socket on the main circuit board of the Single-Zone, while simultaneously aligning the snap tab on the spacer with the hole in the microprocessor board.



**NOTE:** As a guide, align the larger hole on the microprocessor module with the top of the snap-in spacer. If aligned properly, the pins will align with the main board socket and the hole in the microprocessor board will align with the top connector of the snap-in spacer.



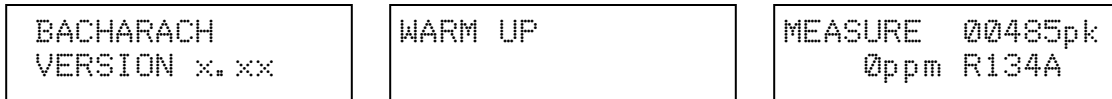
**IMPORTANT:** Be sure not to skip or offset the pins to the socket.

- f. Ensuring that the pins are properly aligned and the snap-in spacer is in place and properly aligned, press the microprocessor module firmly into the socket while simultaneously securing it to the snap-in spacer.
- g. Continue with Step 7: Configuration

## 7. Configuration

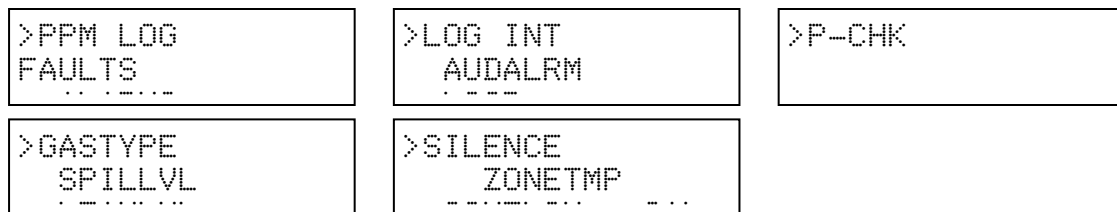
Configure the leak monitor by following the steps below.

- a. **POWER-UP:** Apply power to the leak monitor and wait for the power-up sequence to complete. Note that the yellow fault light may flash at this time. The green power LED will flash to indicate that the monitor is in Warm Up Mode. The monitor takes about 15 minutes to warm up; after which, the MONITOR ON light glows steadily and the Data Display screen is displayed.



**Figure 6. Startup, Warmup, and Data Display Screens**

- b. **ACCESS FUNCTION SCREENS:** Function screens are used to set up the monitor. After the microprocessor board has been replaced, you must verify your monitor's new configuration settings against the previous settings that you collected in Section 3. With the monitor in Display Mode (solid green LED), access the menu by pressing any keypad button.
- c. **COMPARE CURRENT AND SAVED SETTINGS:** Use the keypad buttons to move the arrow (>) on the display to highlight each function. Verify that the value of each function matches the previously collected settings. (Refer to the table on the next page.)



**Figure 7. Function Screens**

- d. **EDIT SETTINGS AS NEEDED:** If a setting needs to be changed, be sure that the desired function is highlighted first (see previous step). With the desired function highlighted, you can edit the value by pressing the ENTER button and then by using the keypad to scroll through the displayed data and change the value associated with that function. Press ENTER to save newly entered values. Press the QUIT button to return to the previous screen without saving.

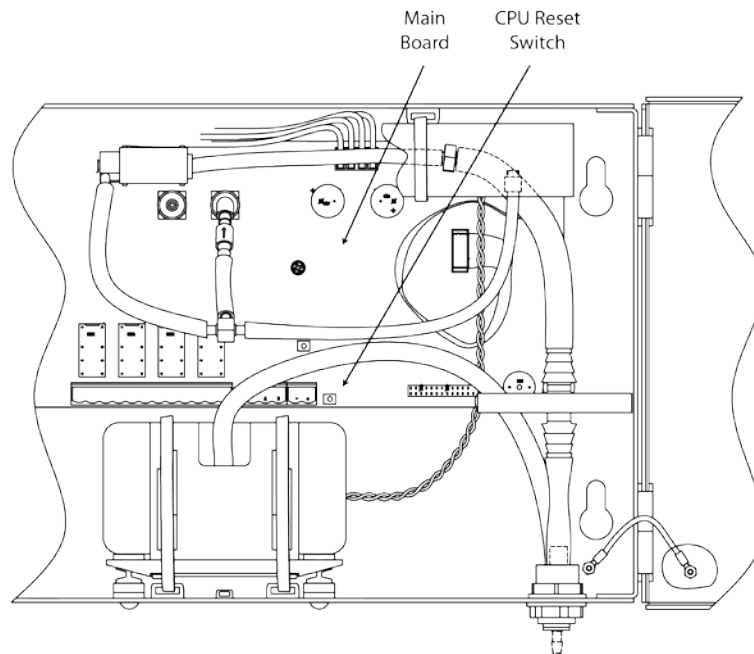
**NOTE** If no buttons are pressed within 90 seconds after selecting a function, the monitor returns to the **Data Display** screen.

Use the table below to enter pre-procedure settings and to confirm them after the new microprocessor board is installed.

Setting	Value	✓	Description
GASTYPE			Used to select of any one of the gas types listed for monitoring. Use the keypad to select the desired gas type, and then press ENTER to save the selection and return to the previous screen.
LEAKLVL			Sets the Leak Alarm level, adjustable from 1 to 300 ppm. Factory default is 100 ppm. Note that the Leak Alarm level cannot be set higher than either the Spill or Evacuate Alarm levels. Use the keypad to set the desired Leak Alarm level, and then press ENTER to save that level and return to the previous screen.
SPILLVL			Sets the Spill Alarm level, adjustable from no lower than the Leak Alarm level to a maximum value of 500 ppm, but not higher than the Evacuate Alarm level. Use the keypad to set the desired Spill Alarm level, and then press ENTER to save that level and return to the previous screen.
EVACLVL			Sets the Evacuate Alarm level, adjustable from no lower than the Spill Alarm level to 9999 ppm. Use the keypad to set the desired spill level alarm level, and then press ENTER to save that level and return to the previous screen.
LOG INT			Sets the interval at which measurements are logged to memory from 1 to 9999 minutes. Factory default is 10 minutes. Note that the logged measurements can be viewed using the PPM LOG function. Use the keypad to enter the desired value, and then press ENTER to save that value and return to the previous screen.
LOOP			Adjusts the loop factor of the 4–20 mA current loop. Factory default is 0.016 mA per ppm, which provides an output range of 0 ppm (4 mA) to 1,000 ppm (20 mA). Use the keypad to set the desired loop factor, and then press ENTER to save that value and return to the previous screen.
AUDALRM			Allows the monitor's internal audible alarm to be associated with any function of the monitoring system. Factory default is OFF. Use the keypad to select the desired audible alarm function, and then press ENTER to save that value and return to the previous screen. Values are: <ul style="list-style-type: none"> <li>• OFF</li> <li>• ANY ALARM</li> <li>• SYSTEM FAULT</li> <li>• LEAK ALARM</li> <li>• SPILL ALARM</li> <li>• EVAC ALARM</li> <li>• MONITOR STOPPED</li> </ul> <p><b>NOTE:</b> MONITOR STOPPED indicates there is a critical system fault, and the monitor is no longer functioning correctly.</p>
CLOCK			Sets the monitor's date and time. Use the keypad to enter the correct date and time, and then press ENTER to save those values and return to the previous screen. Note that time is displayed in a 24 hour format, while the date is displayed as mm/dd/yy.
SILENCE			Used to enter a length of time for which the internal audible alarm and the external alarm are turned OFF when the front panel SILENCE button is pressed. The factory default is 300 seconds (5 minutes). If the cause of the alarm/fault has not been cleared at the end of this time period, the internal audible alarm and the external alarm device are reactivated. Use the keypad to enter the desired time period, and then press ENTER to save that value and return to the previous screen.

Setting	Value	✓	Description
SQUELCH			Sets a value of between 0.0 and 99.9 ppm that prevents the display of measurements below that value. Factory default is 0 ppm. For example, if the squelch setting is set to 50 ppm, then the monitor will not display measurements that are below that value. Use the keypad to enter the desired value, and then press ENTER to save that value and return to the previous screen.
ZONETMP			Used to enter the temperature of the area being monitored in °C, thus giving a more accurate ppm reading. The factory default is 25°C. Use the keypad to enter the desired temperature, and then press ENTER to save that value and return to the previous screen.
CAL			Used to change the monitor's calibration factor. This function is to be used ONLY with instructions from a Bacharach Service Center.
P-CHK			This Pressure Check function displays the current manifold pressure and the stored ambient pressure in psia, along with the difference between these two pressures and the current fault code (if any).

- e. After setting all of the parameters, press the CPU reset button on the bottom edge at the center of the main circuit board. The monitor will restart to the desired values and enter the warm-up state.



**Figure 8. Location of the CPU Reset Switch**

- f. After warmup is complete, confirm that there are no faults indicated.  
 g. Close the front panel and reinstall the panel screws.





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