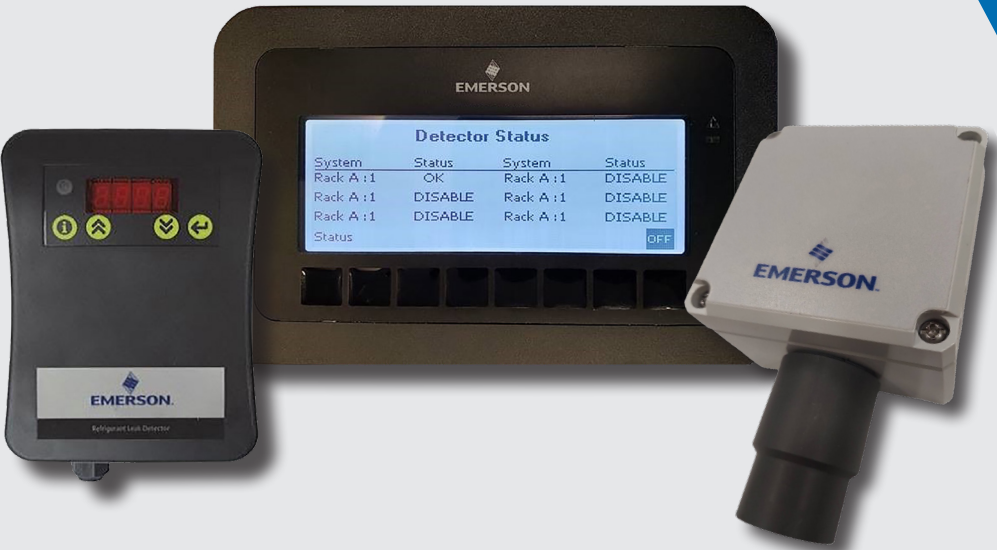


# Multi-Zone Leak Detector

## Application and Panel Manual



For Leak Detector firmware 5.35F01 and higher

# Contents

<b>1 Overview</b>	<b>1</b>
1.1 Parts and Ordering Information	1
1.2 Operation	2
1.3 Panel	2
1.4 Zone Terminal Blocks	3
1.5 Additional I/O Terminals	5
1.6 Power Connection Terminals	5
<b>2 Set Up Instructions</b>	<b>6</b>
2.1 Configuring Modbus Settings	6
2.2 Configuring BACnet Settings	6
2.3 Configuring Each Leak Detector Zone	7
2.4 Configuring Horn Silence Time	10
2.5 Configuring Relay Delays	10
2.6 Battery Backup Override	11
2.7 Configuring a Break Glass Safety Switch	11
2.8 Enabling and Disabling Zones	12
<b>3 Viewing Zone Status Screens</b>	<b>13</b>
<b>4 Table of Parameters</b>	<b>14</b>
<b>5 Uploading the Multi-Zone Refrigerant Leak Detector Description File to E2</b>	<b>18</b>
5.1 Licensing the Multi-Zone Leak Detector in the E2	19
5.2 Device Setup in the E2	19
5.2.1 E2 Serial Port Setup - Modbus	19
5.2.2 E2 Serial Port Set Up - BACnet MS/TP	20
5.3 Device Wiring	21
5.4 Connecting Communication Wires - Modbus	22
5.4.1 Connecting Communication Wires - BACnet MS/TP	22
5.5 Adding the Multi-Zone Refrigerant Leak Detector in E2	22
5.6 Commissioning Multi-Zone Refrigerant Leak Detector - Modbus	22
5.7 Commissioning Multi-Zone Refrigerant Leak Detector - BACnet MS/TP	23
5.8 Viewing E2 Status Screen	24
5.9 Resetting Spill Alarm	25

# 1 Overview

The Multi-Zone Leak Detector Application and Panel (P/N 851-4074) has a total of six (6) zones. The Visograph display provides a parts per million (PPM) reading. One MRLDS Halo-carbon and CO2 sensor can be connected in each zone. The Multi-Zone Leak Detector application is fully integrated with the E2, has relay outputs for third party devices, or can operate fully independently as a stand-alone device. Leak detector versions 5.32F12 and higher are BACnet MS/TP capable and can be used with E2E 4.09F04 and higher. The BACnet leak detector Description File for E2 is P/N 527-0600.

Each zone is capable of operating an audible and visible alarm based on user defined alarm and spill setpoints. In addition, each zone has the ability to trigger a circuit shutdown in the event of a spill.

The Leak Detector Panel comes equipped with a local strobe and horn. Optional hardware includes remote horn and strobes, MRLDS Halo-carbon and CO2 sensors, and battery backup panel.

## 1.1 Parts and Ordering Information

The table *Replacement Parts* below lists the replacement part ordering information for leak detector and its components.

Component Replacement Part Numbers	
Description	Emerson Part #
Programmed Leak Detector iPro-Genius with connectors *When ordering this part, specify the 525-10xx program found on the label affixed to the currently installed iPro (also found on the panel part number label on the top right corner of panel)	618-8003
IPX206D Expansion Module for iPro	318-8004
Visograph with the graphics loader, Display Interface for iPro	818-9205
120VAC to 24VAC, 50VA, Class 2 Transformer (T1-T8)	640-0041
120VAC to 24VAC, 10VA, Class 2 Transformer (T9-T14)	640-0039
Leak Detector Panel Relay Board	638-1125
“Zone MRLDS POWER” Green LED Indicator, 24VAC	150-4030
“Panel Power ON” Green LED Indicator, 120VAC	150-4032
“UPS CONNECTED” Blue LED Indicator, 102VAC	150-4034
Horn and Strobe	118-5112
Push Button Silence	851-4084

*Replacement Parts*

Description	Emerson Part #
Break Glass Safety Switch	118-4122
6 Zone Leak Detector Panel, All AC powered components	851-4074
6 Zone Leak Detector Panel, DC gas detector power, AC horn/strobe power	851-4550
Leak Detector Panel Relay Board 24VDC Version (compatible with 851-4550 panel only)*	638-1126
120VAC to 24VDC power supply (compatible with 851-4550 panel only)*	250-2541

*Replacement Parts*

Gas Detector Replacement Parts		
Description	Emerson Part #	Compatible Leak Panel PART#
Emerson MRLDS 250 R22 Gas Specific	809-0031	851-4074 or 851-4550
Emerson MRLDS 250 R404A Gas Specific	809-0034	
Emerson MRLDS 250 R407A Gas Specific	809-0035	
Emerson MRLDS 250 R407C Gas Specific	809-0036	
Emerson MRLDS 250 R407F Gas Specific	809-0037	
Emerson MRLDS 250 R410A Gas Specific	809-0038	
Emerson MRLDS 250 R422A Gas Specific	809-0039	
Emerson MRLDS 250 R422D Gas Specific	809-0040	
Emerson MRLDS 250 R448A Gas Specific	809-0041	
Emerson MRLDS 250 R449A Gas Specific	809-0042	
Emerson MRLDS 250 R513A Gas Specific	809-0043	851-4550 Only
Emerson MRLDS 250 R513A Gas Specific	809-0044	
Emerson SC 404A Gas Specific	809-1201	
Emerson SC 407A Gas Specific	809-1202	851-4074 or 851-4550
Emerson SC 448A Gas Specific	809-1203	
Emerson IR 0-5000ppm Carbon Dioxide	809-1215	
Emerson IR 0-10000ppm Carbon Dioxide	809-1216	

*Replacement Parts*

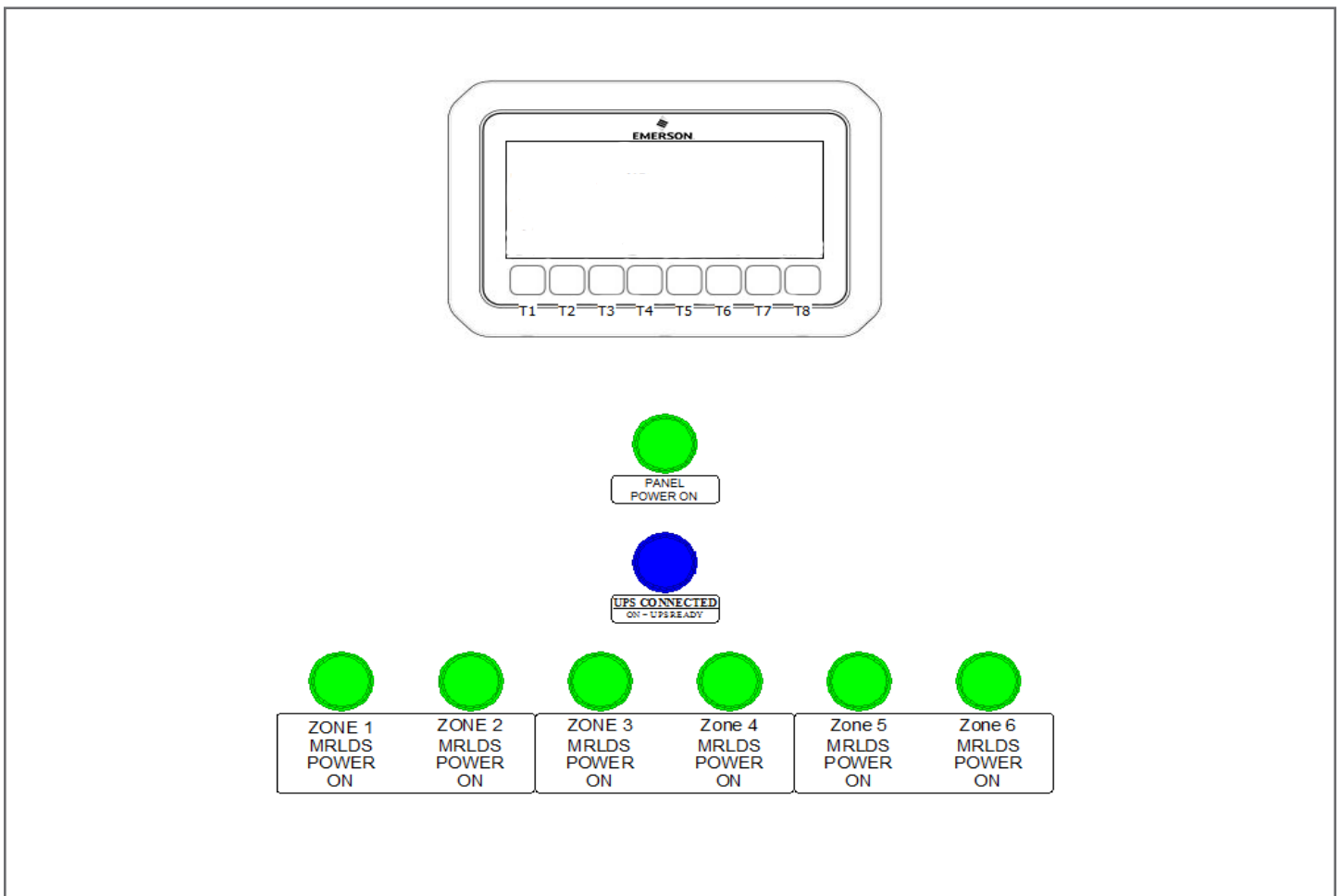
## 1.2 Operation

Each zone will operate a horn and strobe in the event of a leak. If the PPM reading that is sent to the panel has reached the user-configured parameter, the horn and strobe will be activated by a relay output.

If a leak is present and it is large enough to reach the spill parameter set by the user, the panel will trigger another set of relay outputs. Through the E2 software or third party system, a spill alarm can trigger a circuit shutdown. In the event that an alarm has been triggered, the user will be able to silence that alarm for a period of time that is user-configurable.

## 1.3 Panel

The user interface is located on the front panel. From here the user can view status, set parameters, and silence alarms from (in addition to alarm silence buttons located in each zone). Also located on the front panel are power indication lights for the system, each zone, and battery backup status (if an uninterruptible power supply UPS is required).



Front Lamps

## 1.4 Zone Terminal Blocks

Each zone has a dedicated control board to interface field wiring connections with factory wiring connections in the panel. The 538-1125 AC Zone Relay Board and Terminals (for 851-4074 panel only) illustration below shows an example of zone 1 board, terminal strip, and terminal descriptions.

**538-1125 AC Zone Relay Board and Terminals (for 851-4074 panel only)**

Brd #1	Zone	Description	Voltage/Rating
1	Zone 1	MRLDS 1 +	1-5V IN
2		MRLDS 1 -	0V
3		MRLDS 1 Shield (Ground)	Ground
4		iPro Analog Out 1 -	24VAC 10 mA MAX
5		iPro Analog Out 1 +	24VAC 10 mA MAX
6		MRLDS 1 24VAC Power Out	24VAC 1/2A MAX
7		MRLDS 1 24VAC Power Out	24VAC 1/2A MAX
8		Remote Horn/Strobe 24VAC Neutral	24VAC 4A MAX
9		Remote Horn Out 24VAC Hot	24VAC 1A MAX
10		Remote Strobe Out 24VAC Hot	24VAC 1A MAX
11		Indicator on 851-4084 Alarm Silence 24VAC Hot	24VAC 1A MAX
12		Zone 1 Dry Out - Normally Open Contact	120VAC @ 10A MAX
13		Zone 1 Dry Out - Common	120VAC @ 10A MAX
14		Zone 1 Dry Out - Normally Closed Contact	120VAC @ 10A MAX

538-1125 AC Zone Relay Board and Terminals (for 851-4074 panel only)

The 851-4550 Leak Detector Panel with DC powered gas detectors has a slightly different leak detector control board than the 851-4074 panel. The 851-4550 panel has a DC control board that is colored red for easy identification from its green AC counterpart in the 851-4074 panel. Additionally, the red 538-1126 DC control board is configured to provide DC power for installations using DC gas detectors. The red 538-1126 DC control board can only be used in the panel designed for it, P/N 851-4550.

**538-1126 DC Zone Relay Board and Terminals (for 851-4550 panel only)**

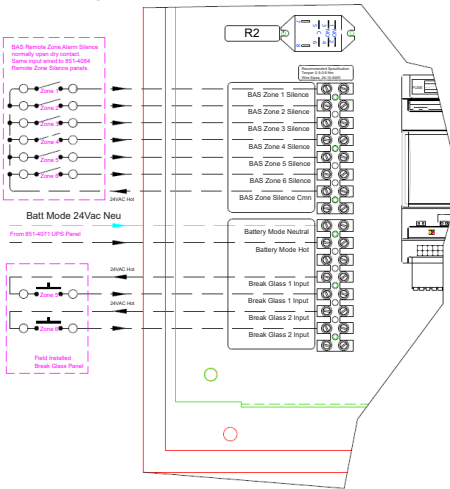
Brd #1	Zone	Description	Voltage/Rating
1	Zone 1	MRLDS 1 +	1-5V IN
2		MRLDS 1 -	0V
3		MRLDS 1 Shield (Ground)	Ground
4		iPro Analog Out 1 -	24VAC 10 mA MAX
5		iPro Analog Out 1 +	24VAC 10 mA MAX
6		MRLDS 1 24VAC Power Out	24VAC 15VA MAX
7		MRLDS 1 24VAC Power Out	24VAC 15VA MAX
8		Remote Horn/Strobe 24VAC Neutral	24VAC 4A MAX
9		Remote Horn Out 24VAC Hot	24VAC 1A MAX
10		Remote Strobe Out 24VAC Hot	24VAC 1A MAX
11		Indicator on 851-4084 Alarm Silence 24VAC Hot	24VAC 1A MAX
12		Zone 1 Dry Out - Normally Open Contact	120VAC @ 10A MAX
13		Zone 1 Dry Out - Common	120VAC @ 10A MAX
14		Zone 1 Dry Out - Normally Closed Contact	120VAC @ 10A MAX

538-1126 DC Zone Relay Board and Terminals (for 851-4550 panel only)

The full description of all terminals and connections is affixed to the inside of each panel door and is shown in the *Zone Terminal Descriptions* below.

851-4074 Multi-Zone Leak Detector Panel Terminal Legend				851-4074 Multi-Zone Leak Detector Panel Terminal Legend				851-4074 Multi-Zone Leak Detector Panel Terminal Legend				
Brd #1	Zone	Description	Voltage/Rating	Brd #3	Zone	Description	Voltage/Rating	Brd #5	Zone	Description	Voltage/Rating	
1	Zone 1	MRLDS 1 +	1-5V IN	1	Zone 3	MRLDS 3 +	1-5V IN	1	Zone 5	MRLDS 5 +	1-5V IN	
2		MRLDS 1 -	0V	2		MRLDS 3 -	0V	2		MRLDS 5 -	0V	
3		MRLDS 1 Shield (Ground)	Ground	3		MRLDS 3 Shield (Ground)	Ground	3		MRLDS 5 Shield (Ground)	Ground	
4		iPro Analog Out 1 -	24VAC 10 mA MAX	4		iPro Analog Out 3 -	24VAC 10 mA MAX	4		iPro Analog Out 5 -	24VAC 10 mA MAX	
5		iPro Analog Out 1 +	24VAC 10 mA MAX	5		iPro Analog Out 3 +	24VAC 10 mA MAX	5		iPro Analog Out 5 +	24VAC 10 mA MAX	
6		MRLDS 1 24VAC Power Out	24VAC 1/2A MAX	6		MRLDS 3 24VAC Power Out	24VAC 1/2A MAX	6		MRLDS 5 24VAC Power Out	24VAC 1/2A MAX	
7		MRLDS 1 24VAC Power Out	24VAC 1/2A MAX	7		MRLDS 3 24VAC Power Out	24VAC 1/2A MAX	7		MRLDS 5 24VAC Power Out	24VAC 1/2A MAX	
8		Remote Horn/Strobe 24VAC Neutral	24VAC 4A MAX	8		Remote Horn/Strobe 24VAC Neutral	24VAC 4A MAX	8		Remote Horn/Strobe 24VAC Neutral	24VAC 4A MAX	
9		Remote Horn Out 24VAC Hot	24VAC 1A MAX	9		Remote Horn Out 24VAC Hot	24VAC 1A MAX	9		Remote Horn Out 24VAC Hot	24VAC 1A MAX	
10		Remote Strobe Out 24VAC Hot	24VAC 1A MAX	10		Remote Strobe Out 24VAC Hot	24VAC 1A MAX	10		Remote Strobe Out 24VAC Hot	24VAC 1A MAX	
11		Indicator on 851-4084 Alarm Silence 24VAC Hot	24VAC 1A MAX	11		Indicator on 851-4084 Alarm Silence 24VAC Hot	24VAC 1A MAX	11		Indicator on 851-4084 Alarm Silence 24VAC Hot	24VAC 1A MAX	
12		Zone 1 Dry Out - Normally Open Contact	120VAC @ 10A MAX	12		Zone 3 Dry Out - Normally Open Contact	120VAC @ 10A MAX	12		Zone 5 Dry Out - Normally Open Contact	120VAC @ 10A MAX	
13		Zone 1 Dry Out - Common	120VAC @ 10A MAX	13		Zone 3 Dry Out - Common	120VAC @ 10A MAX	13		Zone 5 Dry Out - Common	120VAC @ 10A MAX	
14		Zone 1 Dry Out - Normally Closed Contact	120VAC @ 10A MAX	14		Zone 3 Dry Out - Normally Closed Contact	120VAC @ 10A MAX	14		Zone 5 Dry Out - Normally Closed Contact	120VAC @ 10A MAX	
Brd #2	Zone	Description	Voltage/Rating	Brd #4	Zone	Description	Voltage/Rating	Brd #6	Zone	Description	Voltage/Rating	
1	Zone 2	MRLDS 2 +	1-5V IN	1	Zone 4	MRLDS 4 +	1-5V IN	1	Zone 6	MRLDS 6 +	1-5V IN	
2		MRLDS 2 -	0V	2		MRLDS 4 -	0V	2		MRLDS 6 -	0V	
3		MRLDS 2 Shield (Ground)	Ground	3		MRLDS 4 Shield (Ground)	Ground	3		MRLDS 6 Shield (Ground)	Ground	
4		iPro Analog Out 2 -	24VAC 10 mA MAX	4		iPro Analog Out 4 -	24VAC 10 mA MAX	4		iPro Analog Out 6 -	24VAC 10 mA MAX	
5		iPro Analog Out 2 +	24VAC 10 mA MAX	5		iPro Analog Out 4 +	24VAC 10 mA MAX	5		iPro Analog Out 6 +	24VAC 10 mA MAX	
6		MRLDS 2 24VAC Power Out	24VAC 1/2A MAX	6		MRLDS 4 24VAC Power Out	24VAC 1/2A MAX	6		MRLDS 6 24VAC Power Out	24VAC 1/2A MAX	
7		MRLDS 2 24VAC Power Out	24VAC 1/2A MAX	7		MRLDS 4 24VAC Power Out	24VAC 1/2A MAX	7		MRLDS 6 24VAC Power Out	24VAC 1/2A MAX	
8		Remote Horn/Strobe 24VAC Neutral	24VAC 4A MAX	8		Remote Horn/Strobe 24VAC Neutral	24VAC 4A MAX	8		Remote Horn/Strobe 24VAC Neutral	24VAC 4A MAX	
9		Remote Horn Out 24VAC Hot	24VAC 1A MAX	9		Remote Horn Out 24VAC Hot	24VAC 1A MAX	9		Remote Horn Out 24VAC Hot	24VAC 1A MAX	
10		Remote Strobe Out 24VAC Hot	24VAC 1A MAX	10		Remote Strobe Out 24VAC Hot	24VAC 1A MAX	10		Remote Strobe Out 24VAC Hot	24VAC 1A MAX	
11		Indicator on 851-4084 Alarm Silence 24VAC Hot	24VAC 1A MAX	11		Indicator on 851-4084 Alarm Silence 24VAC Hot	24VAC 1A MAX	11		Indicator on 851-4084 Alarm Silence 24VAC Hot	24VAC 1A MAX	
12		Zone 2 Dry Out - Normally Open Contact	120VAC @ 10A MAX	12		Zone 4 Dry Out - Normally Open Contact	120VAC @ 10A MAX	12		Zone 6 Dry Out - Normally Open Contact	120VAC @ 10A MAX	
13		Zone 2 Dry Out - Common	120VAC @ 10A MAX	13		Zone 4 Dry Out - Common	120VAC @ 10A MAX	13		Zone 6 Dry Out - Common	120VAC @ 10A MAX	
14		Zone 2 Dry Out - Normally Closed Contact	120VAC @ 10A MAX	14		Zone 4 Dry Out - Normally Closed Contact	120VAC @ 10A MAX	14		Zone 6 Dry Out - Normally Closed Contact	120VAC @ 10A MAX	
15				15				15	Zone 5 Exhaust Fan Control Normally Open	120VAC @ 10A MAX		
16				16				16	Zone 5 Exhaust Fan Control Normally Open	120VAC @ 10A MAX		
1	All Zones	MRLDS 6 +	1-5V IN	1	All Zones	MRLDS 6 +	1-5V IN	1	All Zones	MRLDS 6 +	1-5V IN	
2		MRLDS 6 -	0V	2		MRLDS 6 -	0V	2		MRLDS 6 -	0V	
3		MRLDS 6 Shield (Ground)	Ground	3		MRLDS 6 Shield (Ground)	Ground	3		MRLDS 6 Shield (Ground)	Ground	
4		iPro Analog Out 6 -	24VAC 10 mA MAX	4		iPro Analog Out 6 -	24VAC 10 mA MAX	4		iPro Analog Out 6 -	24VAC 10 mA MAX	
5		iPro Analog Out 6 +	24VAC 10 mA MAX	5		iPro Analog Out 6 +	24VAC 10 mA MAX	5		iPro Analog Out 6 +	24VAC 10 mA MAX	
6		MRLDS 6 24VAC Power Out	24VAC 1/2A MAX	6		MRLDS 6 24VAC Power Out	24VAC 1/2A MAX	6		MRLDS 6 24VAC Power Out	24VAC 1/2A MAX	
7		MRLDS 6 24VAC Power Out	24VAC 1/2A MAX	7		MRLDS 6 24VAC Power Out	24VAC 1/2A MAX	7		MRLDS 6 24VAC Power Out	24VAC 1/2A MAX	
8		Remote Horn/Strobe 24VAC Neutral	24VAC 4A MAX	8		Remote Horn/Strobe 24VAC Neutral	24VAC 4A MAX	8		Remote Horn/Strobe 24VAC Neutral	24VAC 4A MAX	
9		Remote Horn Out 24VAC Hot	24VAC 1A MAX	9		Remote Horn Out 24VAC Hot	24VAC 1A MAX	9		Remote Horn Out 24VAC Hot	24VAC 1A MAX	
10		Remote Strobe Out 24VAC Hot	24VAC 1A MAX	10		Remote Strobe Out 24VAC Hot	24VAC 1A MAX	10		Remote Strobe Out 24VAC Hot	24VAC 1A MAX	
11		Indicator on 851-4084 Alarm Silence 24VAC Hot	24VAC 1A MAX	11		Indicator on 851-4084 Alarm Silence 24VAC Hot	24VAC 1A MAX	11		Indicator on 851-4084 Alarm Silence 24VAC Hot	24VAC 1A MAX	
12		Zone 6 Dry Out - Normally Open Contact	120VAC @ 10A MAX	12		Zone 6 Dry Out - Normally Open Contact	120VAC @ 10A MAX	12		Zone 6 Dry Out - Normally Open Contact	120VAC @ 10A MAX	
13		Zone 6 Dry Out - Common	120VAC @ 10A MAX	13		Zone 6 Dry Out - Common	120VAC @ 10A MAX	13		Zone 6 Dry Out - Common	120VAC @ 10A MAX	
14		Zone 6 Dry Out - Normally Closed Contact	120VAC @ 10A MAX	14		Zone 6 Dry Out - Normally Closed Contact	120VAC @ 10A MAX	14		Zone 6 Dry Out - Normally Closed Contact	120VAC @ 10A MAX	
15						15	Zone 6 Exhaust Fan Control Normally Open	120VAC @ 10A MAX		15	Zone 6 Exhaust Fan Control Normally Open	120VAC @ 10A MAX
16						16	Zone 6 Exhaust Fan Control Normally Open	120VAC @ 10A MAX		16	Zone 6 Exhaust Fan Control Normally Open	120VAC @ 10A MAX
89		General Alarm Out - Common - Dry Contact	120VAC @ 10A MAX	89		General Alarm Out - Common - Dry Contact	120VAC @ 10A MAX	89		General Alarm Out - Common - Dry Contact	120VAC @ 10A MAX	
90		General Alarm Out - Normally Open - Dry Contact	120VAC @ 10A MAX	90		General Alarm Out - Normally Open - Dry Contact	120VAC @ 10A MAX	90		General Alarm Out - Normally Open - Dry Contact	120VAC @ 10A MAX	
91	UPS Panel Status Indicator	120VAC in from UPS Status Indicator Output	Connect UPS Status Indicator Output here.	91	UPS Panel Status Indicator	120VAC in from UPS Status Indicator Output	Connect UPS Status Indicator Output here.	91	UPS Panel Status Indicator	120VAC in from UPS Status Indicator Output	Connect UPS Status Indicator Output here.	
92	UPS Panel Status Indicator	120VAC in from UPS Status Indicator Output	Controls Blue Indicator on this Panel Door.	92	UPS Panel Status Indicator	120VAC in from UPS Status Indicator Output	Controls Blue Indicator on this Panel Door.	92	UPS Panel Status Indicator	120VAC in from UPS Status Indicator Output	Controls Blue Indicator on this Panel Door.	
GRD		Earth Ground		GRD		Earth Ground		GRD		Earth Ground		
120V NEUT	Panel Control Power	120VAC Neutral - IN (Line or Optional UPS Panel 851-4071)	120VAC, 60Hz, Single Phase, 15A	120V NEUT	Panel Control Power	120VAC Neutral - IN (Line or Optional UPS Panel 851-4071)	(Connect UPS Power Out here if using 851-4071 UPS Panel)	120V NEUT	Panel Control Power	120VAC Neutral - IN (Line or Optional UPS Panel 851-4071)	(Connect UPS Power Out here if using 851-4071 UPS Panel)	
120V HOT		120VAC HOT - IN (Line or Optional UPS Panel 851-4071)		120V HOT		120VAC HOT - IN (Line or Optional UPS Panel 851-4071)		120V HOT		120VAC HOT - IN (Line or Optional UPS Panel 851-4071)		

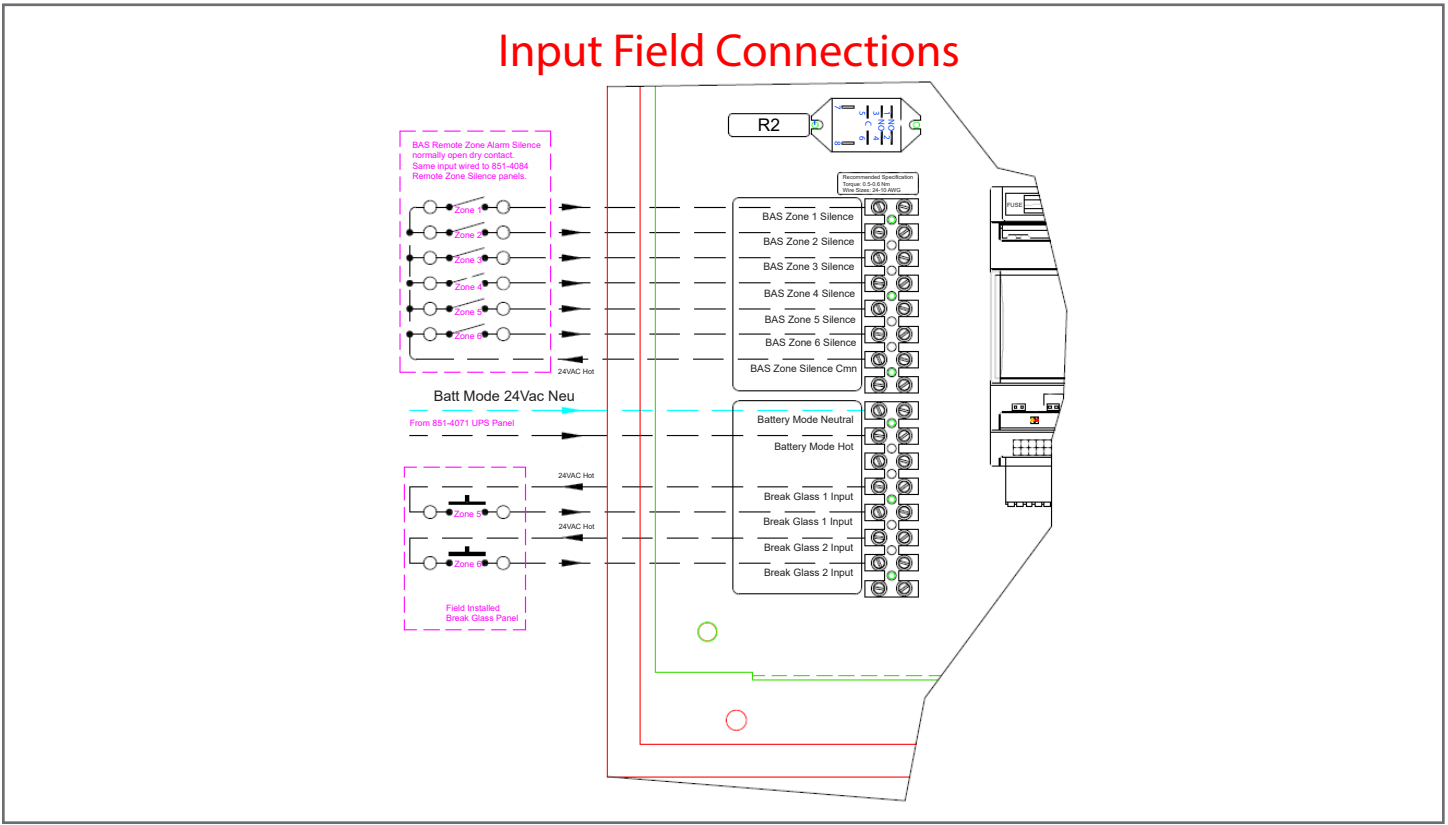
### Input Field Connections



### Zone Terminal Descriptions

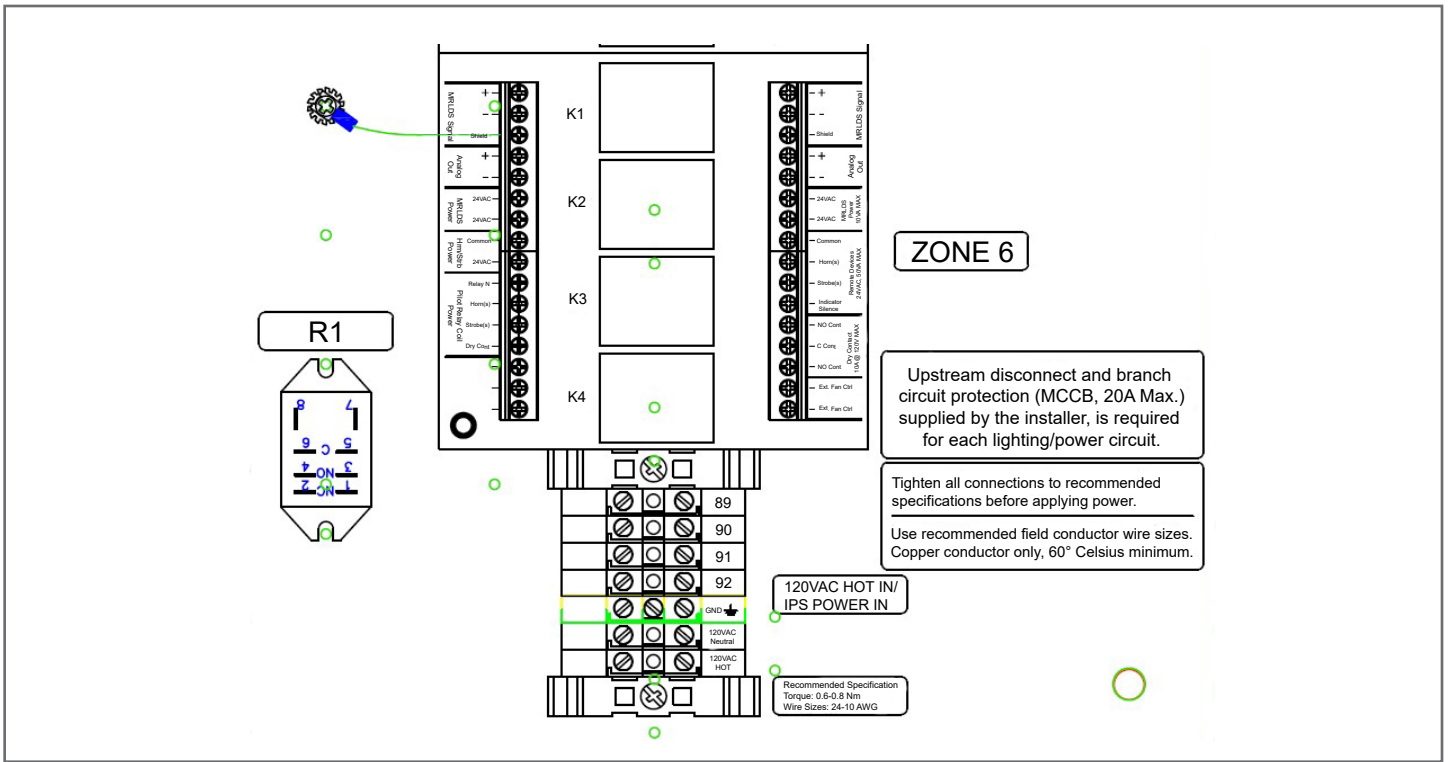
**NOTE:** Zones 5 and 6 have additional terminals for an optional break glass device and exhaust fan output.

# 1.5 Additional I/O Terminals



# 1.6 Power Connection Terminals

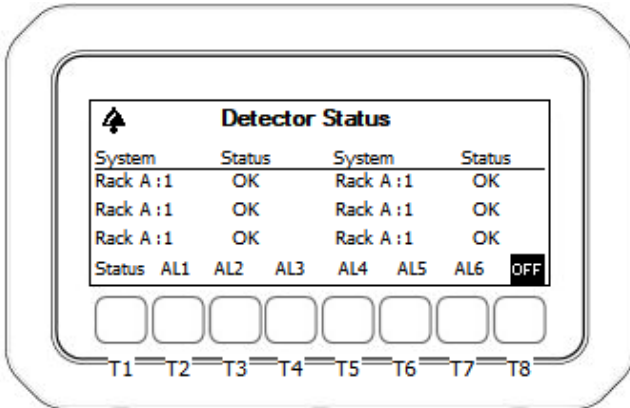
The field connections for supply power to the panel are made on the 120 VAC HOT IN/UPS POWER IN terminal block below the zone board.



## 2 Set Up Instructions

**NOTE:** When updating screen parameters on the Visograph, only one Visograph at a time may be connected to the Multi-Zone Leak Detector.

Press the corresponding button along the bottom labeled **(T1-T8)** to navigate to the desired item. Press **SET** once to enter edit mode, and use the up and down arrow keys to change values and press **SET** once to save the selected value.



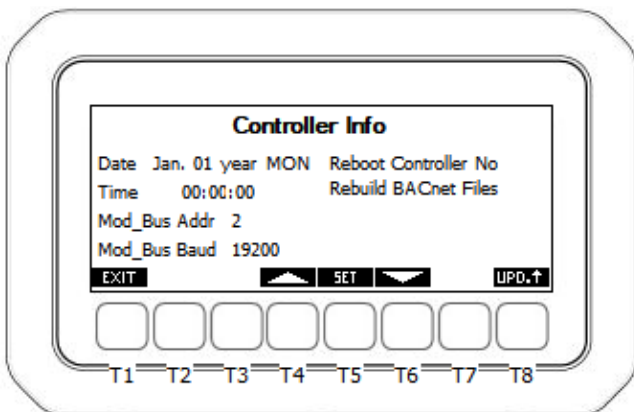
Main Screen

The main screen shows the associated refrigerated rack system and circuit number of each detector zone, which is listed under the **System** column. The zone status is shown under the **Status** column. Active alarms will cause the bell icon to flash in the upper left corner. Press and hold **OFF (T8)** to silence the alarm located on the panel. The strobe will remain on until the condition no longer exists and the alarm is manually reset.

The zones in alarm condition are indicated by flashing **AL1** through **AL6**, respectively. Each zone can be silenced by pressing the corresponding **T2** through **T7**. The zone alarm can be reset by holding the corresponding button for three (3) seconds.

**NOTE:** Alarm silence and reset functions on the main screen:  
T2 = AL1, T3 = AL2, T4 = AL3, T5 = AL4, T6 = AL5, T7 = AL5, T8 = OFF

### 2.1 Configuring Modbus Settings



Controller Info Screen

If the communication to the E2 will be using Modbus protocol, the Modbus address and baud rate must be configured before successful communication will occur.

To set controller information from the **Detector Status** screen:

1. Press and hold **T4** and **T5** for three (3) seconds.
2. The **Setup** screen will appear.
3. Use the up and down arrow keys to highlight and select **Controller Info** and press **SET**.
4. The **Controller Info** screen will appear.
5. Use the up and down arrow keys to highlight and set the date, time, and Modbus address.
6. Press **SET** after each selection to save changes.
7. After all Modbus settings have been configured, a controller reboot must be performed. Use the down arrow key to select **No** next to **Reboot Controller**, press **SET** to edit and use the arrow keys to select Yes. Press **SET** again. The controller will reboot and boot back up with the new settings applied.

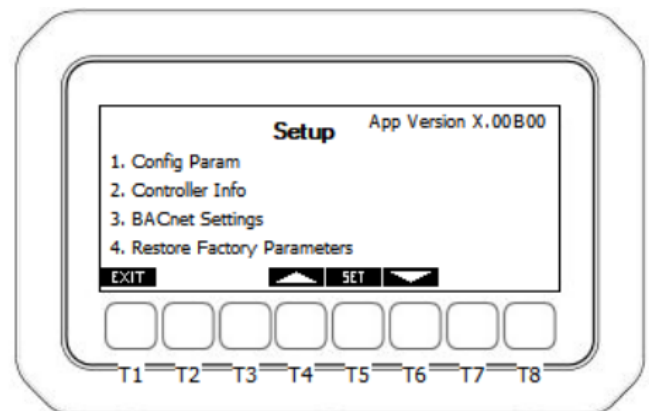
**NOTE:** Set the Modbus address to the next available address. Press SET after making each change to save your entries.

### 2.2 Configuring BACnet Settings

If the communication to the E2 will be using BACnet MS/TP protocol, the BACnet MS/TP settings must be configured before successful communication will occur.

To configure the BACnet Settings from the **Detector Status** screen:

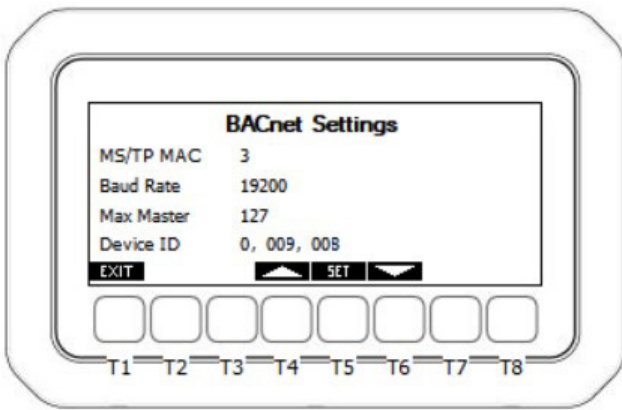
1. Press and hold **T4** and **T5** for three (3) seconds.
2. The **Setup** screen will appear.



BACnet Setup Screen

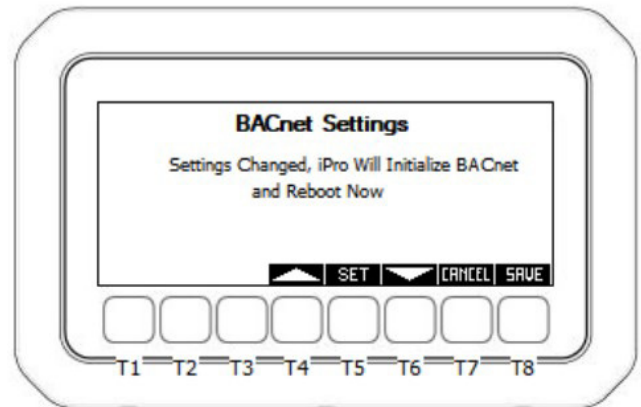


3. Scroll to **3. BACnet Settings** and press **SET** to enter.



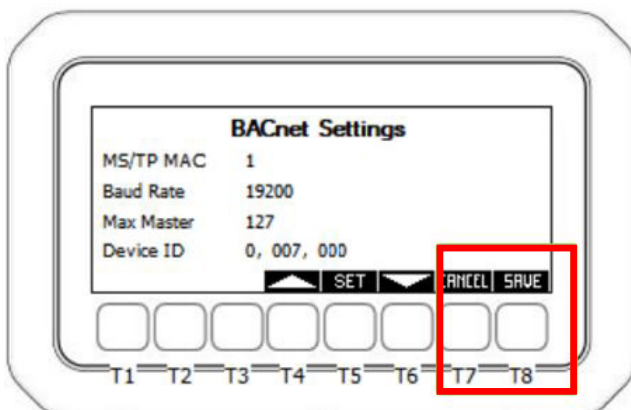
BACnet Settings Screen

Pressing **SAVE** will apply the changes made and the system will reboot.



BACnet Reboot Screen

4. **MS/TP MAC:** This parameter specifies the MS/TP network MAC address of the Leak Detector. Each BACnet device on the bus must have a unique number here. Enter a unique number between 0-127 and press **SET** to save.
5. **Baud Rate:** This parameter specifies how fast data is sent over the serial line. Set to match the baud rate of the serial port of the E2 controller.
6. **Max Master:** This parameter defines the value of the highest allowable address for master nodes on the network. Determine the highest MS/TP MAC address used on the bus and set **Max Master** equal to this value. *Example: If there are 40 controllers on the bus and the highest address is 40, set the max master of all 40 controllers to 40.*
7. **Device ID:** Enter the BACnet device identifier here. Enter a unique number for the MS/TP network in the range of 0-4, 194, 303.
8. When at least one (1) setting has been edited, a **CANCEL** option will appear above the **T7** key and a **SAVE** option above the **T8** key. Pressing **Cancel** will revert the system back to the previous settings and no change will be applied.



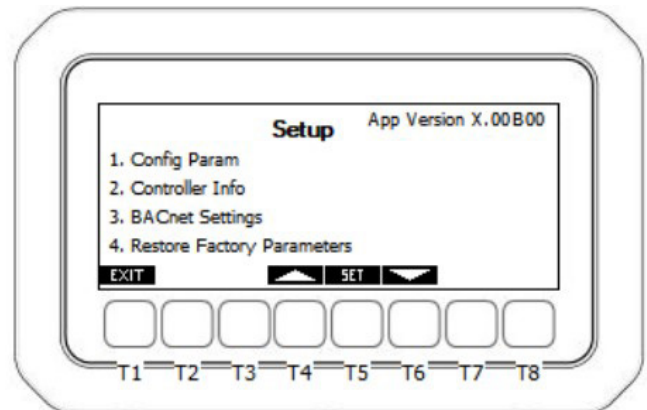
BACnet Save Settings

Once the Leak Detector is booted back up, it is ready for connection to E2.

### 2.3 Configuring Each Leak Detector Zone

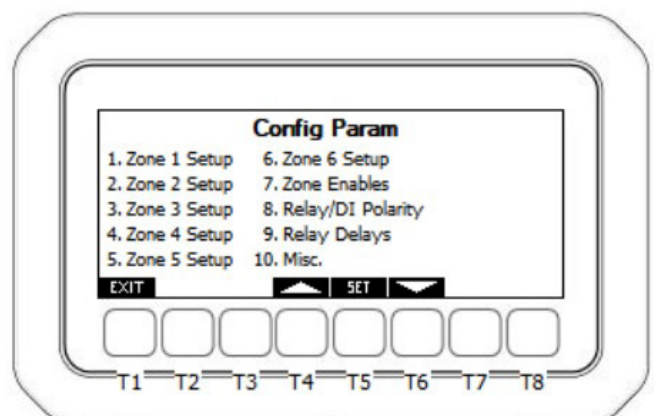
To configure the parameters, from the **Detector Status** Screen:

1. Press and hold **T4** and **T5** for three (3) seconds.
2. The **Setup** screen will appear.



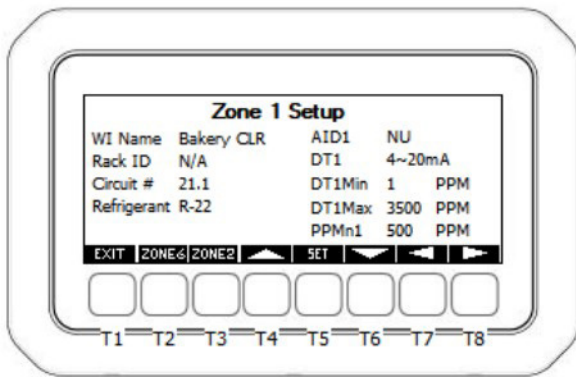
Leak Detector Setup Screen

3. Use the up and down arrow keys to highlight and select **Config Param**.



Leak Detector Configuration Screen

4. To configure each zone, select the corresponding **Zone X Setup**. This example will configure Zone 1 Setup, the steps are the same for **Zones 1-6**. Select **Zone 1** and press **SET**.



Leak Detector Zone 1 Setup Parameters Screen 1

On the **Zone 1 Setup** screen, each parameter in the table below can be edited by using the **T4/T6** keys to change values and the **T5 SET** key to save the selection. Scrolling between pages within the zone setup is done by using **T7/T8** keys. To advance to next or previous zone setup menu, use **T2** or **T3** shortcut keys. Configure each parameter in the *Zone 1 Parameters Page 1* table and see the instruction column of the table for required action.

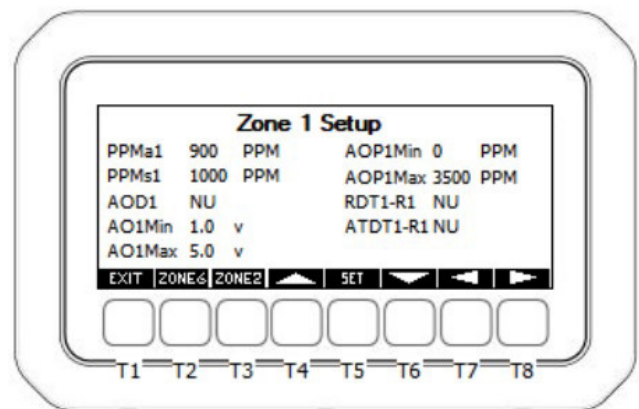
Parameter Name	Description	Instruction
WI Name	Represents the walk in cooler/freezer box name for the associated leak detection zone.	Select a walk in box name from the list and press <b>SET</b> to save.
Rack ID	Selects the corresponding refrigeration rack system that this zones refrigeration is physically piped to.	Select a rack system name from the list and press <b>SET</b> to save.
Circuit #	Represents the corresponding refrigeration circuit number for this leak detection zone.	Enter a circuit number and press <b>SET</b> to save.
Refrigerant	Selects the refrigerant gas type used for this zone.	Choose the gas type for this zone from the list and press <b>SET</b> to save.
AID1	AID1 selects which analog input will be used for the leak sensor signal input for zone 1.	Preset from factory, no action.
DT1	DT1 selects the voltage scale for the leak sensor signal input.	All Emerson MRLDS 250 Gas Specific Sensors, set 1-5V. For Emerson SC Gas Specific Sensors, set 0-10V Nonlinear.* For Emerson IR R744 Sensors, set 0-10V.

Zone 1 Parameters Page 1

Parameter Name	Description	Instruction
DT1 Min/DT1 Max	DT1 Min represents the PPM minimum value when the leak sensor is at minimum signal voltage. DT1 Max represents the PPM maximum value when the leak sensor is at maximum signal voltage.	Depending on sensors used, set Emerson part numbers to: <b>809-1001 = 1 PPM min. - 1000 PPM max.</b> <b>809-1012 = 1 PPM min. - 3500 PPM max.</b> <b>809-0035 = 1 PPM min. - 3500 PPM max.</b> <b>809-1020 = 1 PPM min. - 5000 PPM max.</b> <b>809-1201-1203 = Parameter not used, will be hidden on screen. Automatically calculated by equation.</b> <b>809-1215 = 1 DT Min. - 5000 DT Max.</b> <b>809-1216 = 1 DT Min. - 10000 DT Max.</b>
PPMn1 PPMa1 PPMs1	PPMn1 Represents the PPM level that must be reached by the leak sensor to trigger a notification. PPMa1 Represents the PPM level that must be reached by the leak sensor to trigger an alarm. PPMs1 Represents the PPM level that must be reached by the leak sensor to trigger a spill alarm.	Depending on sensors used, set Emerson part numbers to: For Walk-In Boxes using 809-1001, set 999 PPMn1, PPMa1, PPMs1. For Walk-In Boxes using 809-1012, 809-0031 to 0044, set 1000 PPMn1, PPMa1, PPMs1. For rack and/or machine rooms using 809-1012, 809-0031, to 0044 = 3000 PPMn1, PPMa1, PPMs1. For Walk In Boxes Using 809-1020, 809-1215, set 4999 PPMn1, PPMa1, PPMs1. For Walk In Boxes Using 809-1020, 809-1216, set 5000 PPMn1, PPMa1, PPMs1.

Zone 1 Parameters Page 1

Advance to the next page of setup parameters by pressing **T8**.

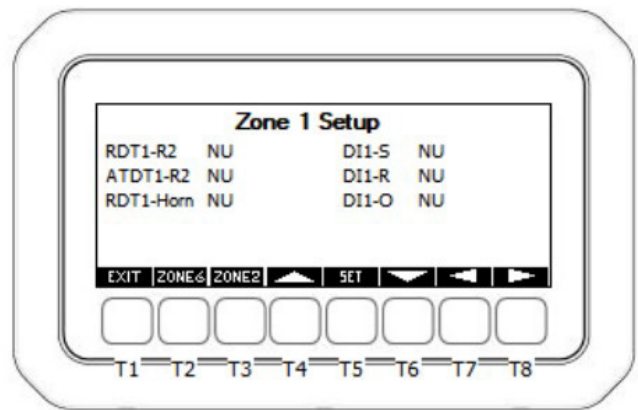


Leak Detector Zone 1 Setup Parameters Screen 2

Parameter Name	Description and Instruction	Instruction
<b>AOD1</b>	Selects the physical analog output number to be used for the zone analog output signal.	Preset from factory, no action.
<b>AO1Min/ AO1Max</b>	AO1Min is the minimum signal level that AOD1 will output at the minimum PPM level set by AOP1Min.  AO1Max is the maximum signal level that AOD1 will output at the maximum PPM level set by AOP1Max.	<b>AO1Min</b> - Set to 1.0 volts and press <b>SET</b> to save.  <b>AO1Max</b> - Set to 5.0 volts and press <b>SET</b> to save.
<b>AOP1Min/ AOP1Max</b>	AOP1Min is the minimum PPM level that corresponds to the output signal of AO1Min.  AOP1Max is the maximum PPM level that corresponds to the output signal of AO1Max.	All sensor part numbers, AO1P1Min:  AOP1Min-Set to 0 PPM and press <b>SET</b> to save.  Set AOP1Max according to the PPM value listed next to the part number of the gas detector installed:  809-1001 AOP1Max-Set to 1000 PPM and press <b>SET</b> to save.  809-1012, 809-0031 to 0044 (all MRLDS 250 Models): AOP1Max-Set to 3500 PPM and press <b>SET</b> to save.  809-1201 to 1203: AOP1Max-Set to 4000 PPM and press <b>SET</b> to save.  809-1020, 809-1215: AOP1Max-Set to 5000 PPM and press <b>SET</b> to save.  809-1216: AOP1Max-Set to 10000 PPM and press <b>SET</b> to save.
<b>RDT1-R1</b>	Relay 1 output assignment for detector 1.	Preset from factory, no action.
<b>ATDT1-R1</b>	Advisory type selection that would manage relay 1 for detector 1 (RDT1-R1.): Not Used, Notice, Alarm, Spill.	Preset from factory, no action.

*Zone 1 Parameters Page 2*

Advance to the next page of setup parameters by pressing **T8**.



*Leak Detector Zone 1 Setup Parameters Screen 3*

Parameter Name	Description and Instruction	Instruction
<b>RDT1-R2</b>	Relay 2 output assignment for Detector 1.	Preset from factory, no action.
<b>ATDT1-R2</b>	Advisory type selection that would manage relay 2 for detector 1: Not Used, Notice, Alarm, Spill.	Preset from factory, no action.
<b>RDT1-Horn</b>	Relay output assignment for the horn associated with detector 1.	Preset from factory, no action.
<b>DI1-S</b>	Digital input of Detector 1 used for Horn Silence.	Preset from factory, no action.
<b>DI1-R</b>	Digital input of Detector 1 used for Alarm Reset.	Preset from factory, no action.
<b>DI1-O</b>	Digital input of Detector 1 used for Alarm On.	Preset from factory, no action.

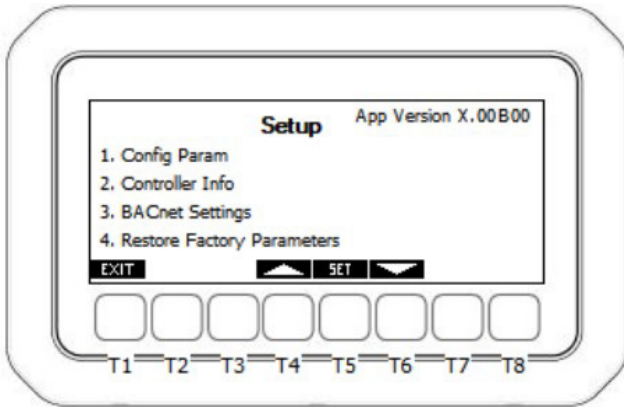
*Zone 1 Parameters Page 2*

After all parameters for Zone 1 setup have been reviewed and set, use the **T3** shortcut key to advance to the next zone, repeat the above setup steps for each installed Leak Detector zone.

## 2.4 Configuring Horn Silence Time

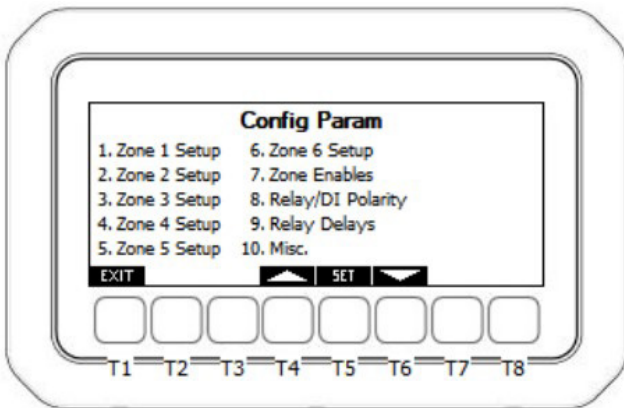
To configure the parameters from the **Detector Status** Screen:

1. Press and hold **T4** and **T5** for three (3) seconds.
2. The **Setup** screen will appear.



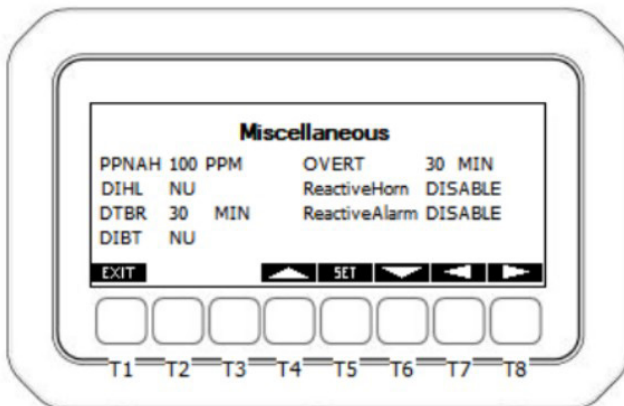
*Horn Silence Time Setup Screen*

3. Select **Config Param**.



*Horn Silence Time Configuration Screen*

4. Select **10. Misc** and press **SET**.

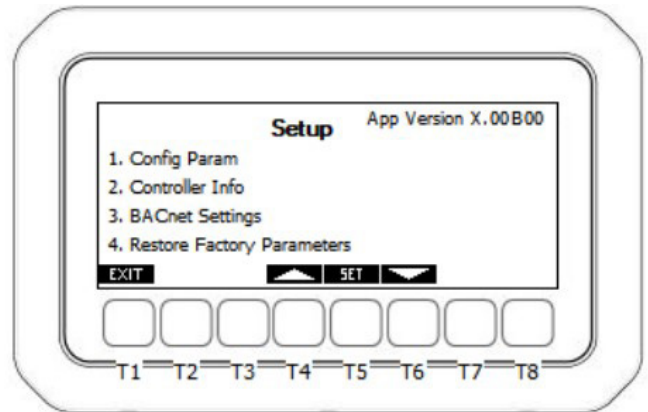


*Horn Silence Time Miscellaneous Screen*

5. Scroll to **DBTR** and adjust desired silence time.

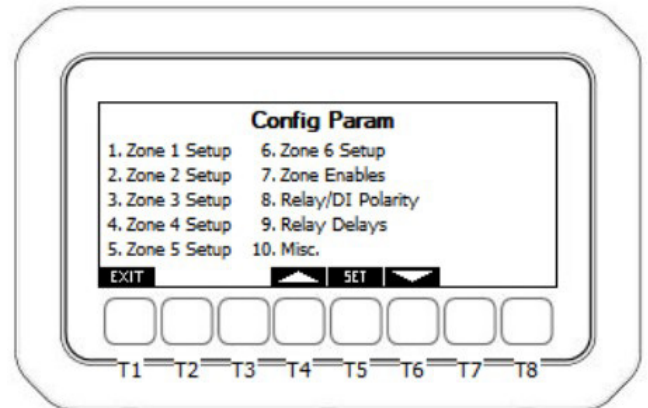
## 2.5 Configuring Relay Delays

1. To configure relay delay parameters, navigate to the **Setup** menu.



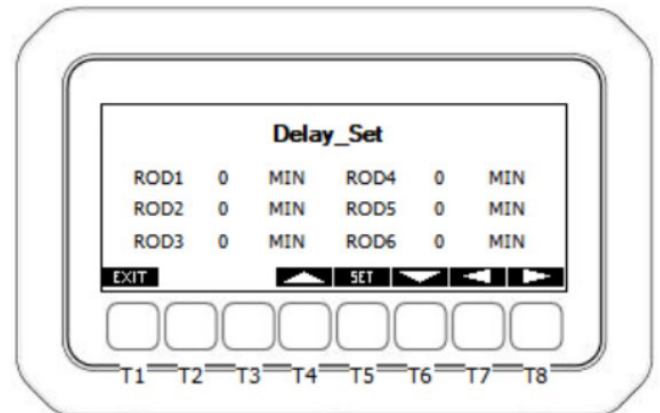
*Relay Delay Setup Screen*

2. Select **Config Param**.



*Relay Delay Configuration Screen*

3. Select **9. Relay Delays** and press **SET**.



*Set Delays Screen*

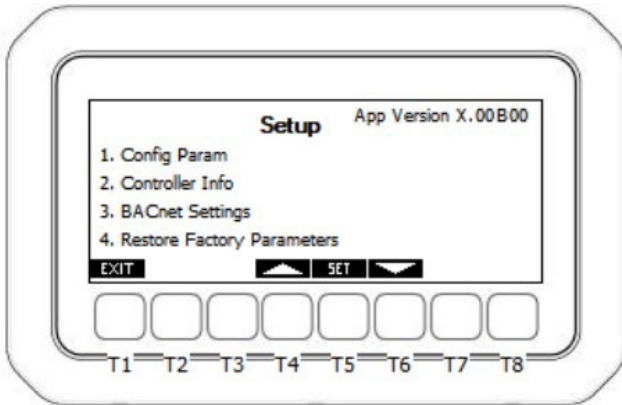
4. Set all delays in all pages to 0 min for no delay. Press **SET** to save each selection.



## 2.6 Battery Backup Override

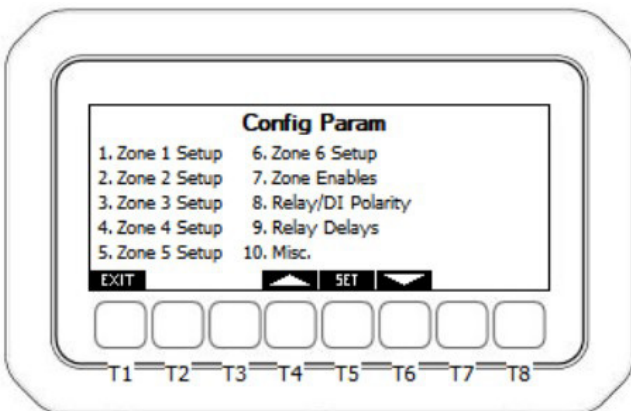
The **OverBatCMD** represents the command to override battery backup. The **OverDIBat** represents the digital input to the battery backup.

1. To configure battery backup override, navigate to the **Setup** menu.



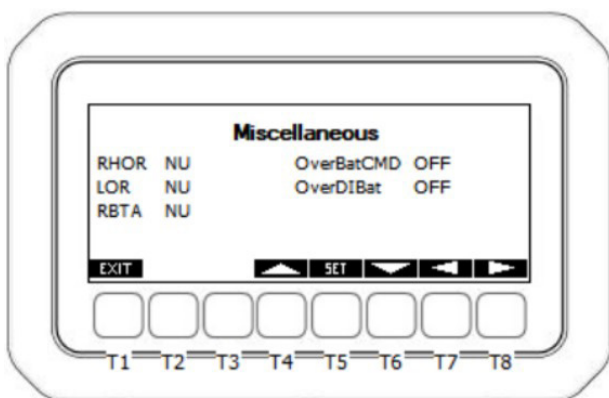
*Battery Backup Override Setup Screen*

2. Select **Config Param**.



*Battery Backup Configuration Screen*

3. Select **10. Misc.** and press **T8** to scroll over to page 2.



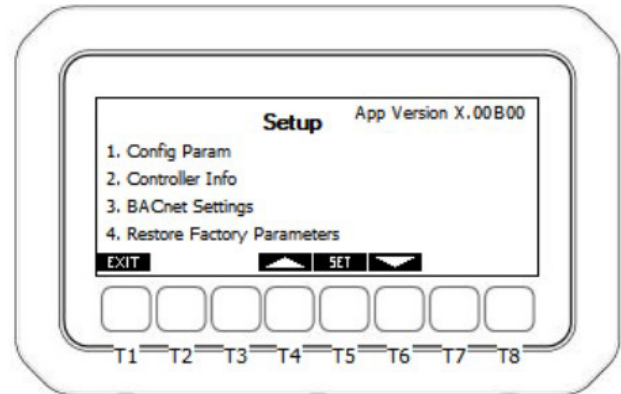
*Battery Backup Override Miscellaneous Screen*

4. Set **OverBatCMD** and **OverDIBat** to **OFF** and press **SET** to save.

## 2.7 Configuring a Break Glass Safety Switch

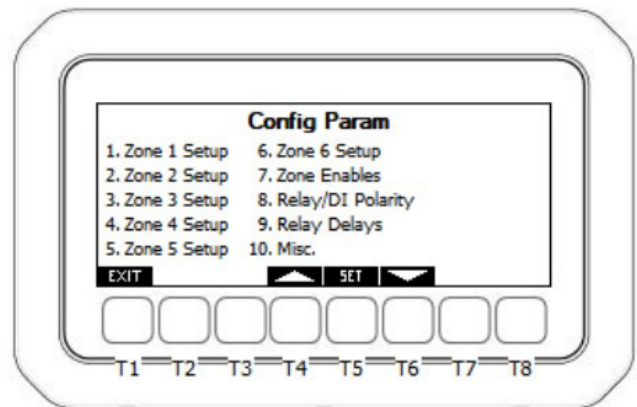
If the installation requires a Break Glass safety switch, the input will be connected to the alarm on digital inputs.

1. To configure a Break Glass safety switch, navigate to the **Setup** menu.



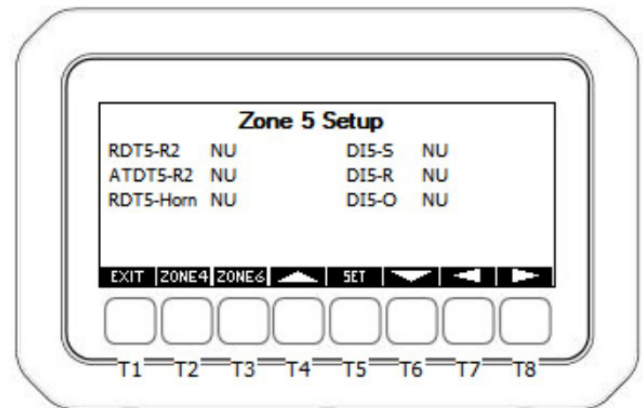
*Break Glass Safety Switch Setup Screen*

2. Select **Config Param**.



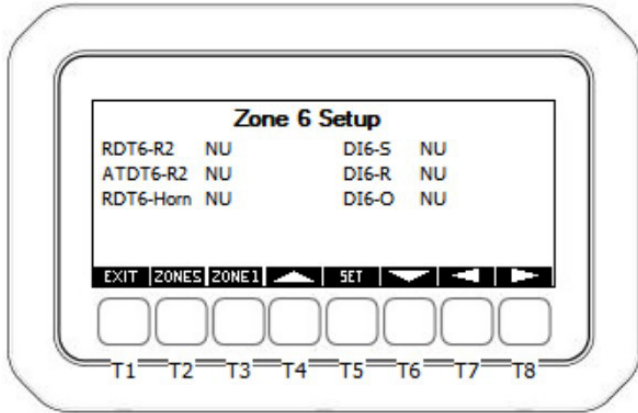
*Break Glass Safety Switch Configuration Screen*

3. Select **5. Zone 6 Setup** and press **T8** twice to scroll to screen 3.



*Break Glass Safety Switch Zone 5 Setup Screen*

4. Scroll down to parameter **DI5-0** and press **SET** to edit, select **DI8** from the list and press **SET** to save.
5. If a second Break Glass safety switch is required, press button **T3** to advance directly to **Zone 6 Setup**. Once in **Zone 6 Setup**, press **T8** twice to scroll to screen 3.



*Break Glass Safety Switch Zone 6 Setup Screen*

6. Scroll down to parameter **DI6-0** and press **SET** to edit, select **DI9** from the list, and press **SET** to save.
7. Press **Exit**. The Break Glass configuration is complete.

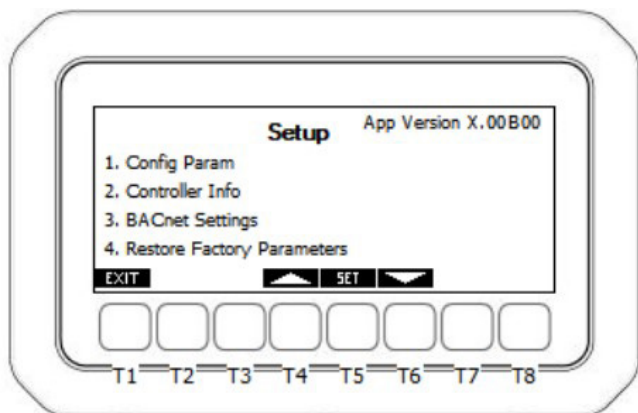
## 2.8 Enabling and Disabling Zones

Once zone setup has been completed for Zone 1 setup through Zone 6 setup, make sure each zone is enabled for operation. Zones that are not physically installed or in use should be set to **DISABLE**.

**NOTE:** Setting a zone to **DISABLE** will inhibit all leak detection and alarming capabilities permanently until the zone is set back to **ENABLE**.

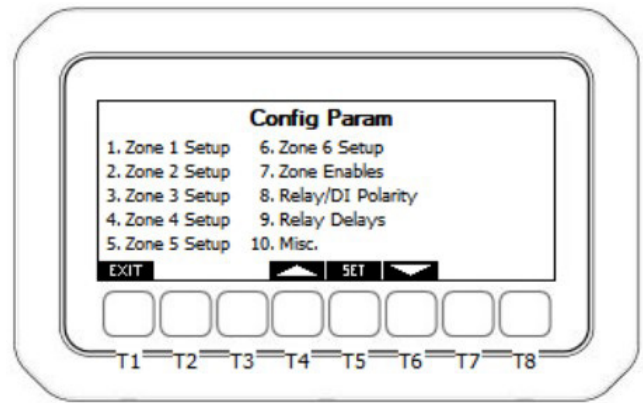
To configure the **Zone Enables** from the **Detector Status** screen:

1. Press and hold **T4** and **T5** for three (3) seconds.
2. The **Setup** screen will appear.



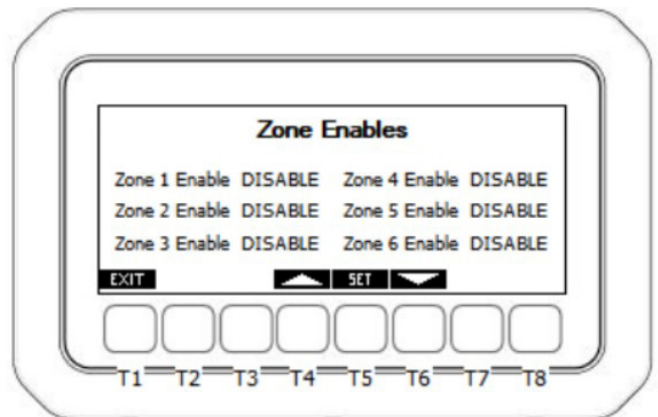
*Enabling and Disabling Zones Setup Screen*

3. Select **Config Param**.



*Enabling and Disabling Zones Configuration Screen*

4. Select **7. Zone Enables** and press **SET**.

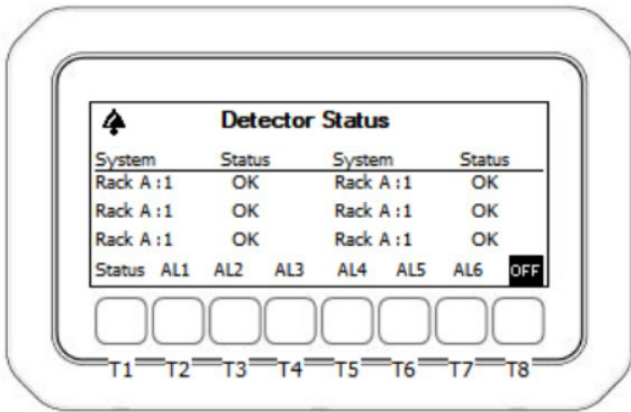


*Zone Enables Screen*

5. Scroll through each zone and set each zone that needs to be placed in operation to **ENABLE**.

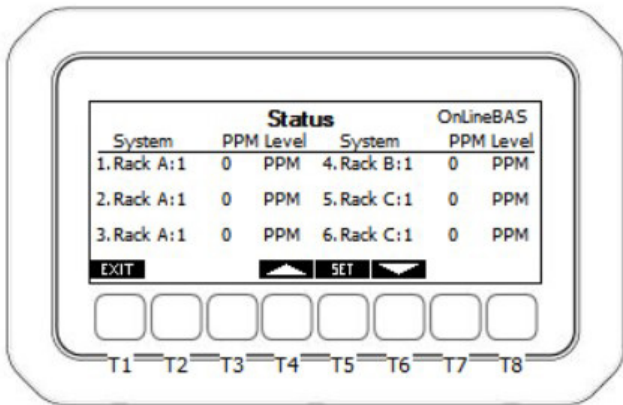
### 3 Viewing Zone Status Screens

To view a quick status of current PPM levels within each zone, press **T1** Status from the main **Detector Status** screen:



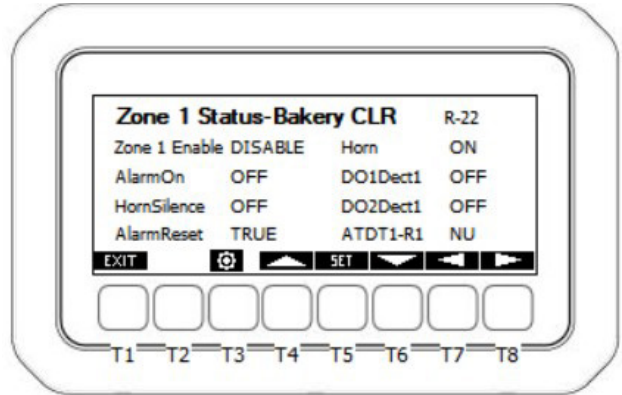
*Zone Detector Status Screen*

Pressing **T1** Status jumps to the PPM level status. The rack name and circuit number can be quickly viewed next to the associated PPM level of that zone.



*PPM Level Status Screen*

To enter the detailed individual zone status, scroll to the desired zone and press **SET**. For convenience the zone enable can be edited from the detailed zone status.



*Detailed Zone Status Screen*

Pressing the gear icon with button **T3** is a shortcut to the **Zone Setup** menu.

## 4 Table of Parameters

Parameter Name	Description
WI Name Zone 1	Selects the walk-in box name for Zone 1
WI Name Zone 2	Selects the walk-in box name for Zone 2
WI Name Zone 3	Selects the walk-in box name for Zone 3
WI Name Zone 4	Selects the walk-in box name for Zone 4
WI Name Zone 5	Selects the walk-in box name for Zone 5
WI Name Zone 6	Selects the walk-in box name for Zone 6
Rack ID Zone 1	Selects the refrigeration system name to which this zone is physically piped
Rack ID Zone 2	Selects the refrigeration system name to which this zone is physically piped
Rack ID Zone 3	Selects the refrigeration system name to which this zone is physically piped
Rack ID Zone 4	Selects the refrigeration system name to which this zone is physically piped
Rack ID Zone 5	Selects the refrigeration system name to which this zone is physically piped
Rack ID Zone 6	Selects the refrigeration system name to which this zone is physically piped
Circuit # Zone 1	Selects the refrigeration circuit number for this zone
Circuit # Zone 2	Selects the refrigeration circuit number for this zone
Circuit # Zone 3	Selects the refrigeration circuit number for this zone
Circuit # Zone 4	Selects the refrigeration circuit number for this zone
Circuit # Zone 5	Selects the refrigeration circuit number for this zone
Circuit # Zone 6	Selects the refrigeration circuit number for this zone
Refrigerant Zone 1	Selects the refrigerant gas type for this zone
Refrigerant Zone 2	Selects the refrigerant gas type for this zone
Refrigerant Zone 3	Selects the refrigerant gas type for this zone
Refrigerant Zone 4	Selects the refrigerant gas type for this zone
Refrigerant Zone 5	Selects the refrigerant gas type for this zone
Refrigerant Zone 6	Selects the refrigerant gas type for this zone
ENDT1	Leak detector # 1 is enabled
ENDT2	Leak detector # 2 is enabled
ENDT3	Leak detector # 3 is enabled
ENDT4	Leak detector # 4 is enabled
ENDT5	Leak detector # 5 is enabled

Parameter Name	Description
ENDT6	Leak detector # 6 is enabled
DT1	Leak detector 1 type. 1-5V, 0-10V, and 4-20mA
DT2	Leak detector 2 type. 1-5V, 0-10V, and 4-20mA
DT3	Leak detector 3 type. 1-5V, 0-10V, and 4-20mA
DT4	Leak detector 4 type. 1-5V, 0-10V, and 4-20mA
DT5	Leak detector 5 type. 1-5V, 0-10V, and 4-20mA
DT6	Leak detector 6 type. 1-5V, 0-10V, and 4-20mA
DT1Min	Leak detector 1 minimum PPM value at 1 or 0 V, depending on the type
DT1Max	Leak detector 1 maximum PPM value at 1 or 0 V, depending on the type
DT2Min	Leak detector 2 minimum PPM value at 1 or 0 V, depending on the type
DT2Max	Leak detector 2 maximum PPM value at 1 or 0 V, depending on the type
DT3Min	Leak detector 3 minimum PPM value at 1 or 0 V, depending on the type
DT3Max	Leak detector 3 maximum PPM value at 1 or 0 V, depending on the type
DT4Min	Leak detector 4 minimum PPM value at 1 or 0 V, depending on the type
DT4Max	Leak detector 4 maximum PPM value at 1 or 0 V, depending on the type
DT5Min	Leak detector 5 minimum PPM value at 1 or 0 V, depending on the type
DT5Max	Leak detector 5 maximum PPM value at 1 or 0 V, depending on the type
DT6Min	Leak detector 6 minimum PPM value at 1 or 0 V, depending on the type
DT6Max	Leak detector 6 maximum PPM value at 1 or 0 V, depending on the type
PPMn1	Leak detector 1 Notice parameter
PPMa1	Detector 1 Alarm parameter
PPMs1	Detector 1 Spill parameter
PPMn2	Detector 2 Notice parameter
PPMa2	Detector 2 Alarm parameter
PPMs2	Detector 2 Spill parameter
PPMn3	Detector 3 Notice parameter
PPMa3	Detector 3 Alarm parameter
PPMs3	Detector 3 Spill parameter



Parameter Name	Description
PPMn4	Detector 4 Notice parameter
PPMa4	Detector 4 Alarm parameter
PPMs4	Detector 4 Spill parameter
PPMn5	Detector 5 Notice parameter
PPMa5	Detector 5 Alarm parameter
PPMs5	Detector 5 Spill parameter
PPMn6	Detector 6 Notice parameter
PPMa6	Detector 6 Alarm parameter
PPMs6	Detector 6 Spill parameter
PPNAH	Alarm-Spill Hysteresis
RDT1-R1	Relay 1 output assignment for detector 1. Controlled by selection in ATDT1-R1
RDT2-R1	Relay 1 output assignment for detector 2. Controlled by selection in ATDT2-R1
RDT3-R1	Relay 1 output assignment for detector 3. Controlled by selection in ATDT3-R1
RDT4-R1	Relay 1 output assignment for detector 4. Controlled by selection in ATDT4-R1
RDT5-R1	Relay 1 output assignment for detector 5. Controlled by selection in ATDT5-R1
RDT6-R1	Relay 1 output assignment for detector 6. Controlled by selection in ATDT6-R1
RHOR	General horn relay assignment
ATDT1-R1	Advisory type selection that would manage relay 1 for Detector 1 (RDT1-R1)
ATDT2-R1	Advisory type selection that would manage relay 1 for Detector 2 (RDT2-R1)
ATDT3-R1	Advisory type selection that would manage relay 1 for Detector 3 (RDT3-R1)
ATDT4-R1	Advisory type selection that would manage relay 1 for Detector 4 (RDT4-R1)
ATDT5-R1	Advisory type selection that would manage relay 1 for Detector 5 (RDT5-R1)
ATDT6-R1	Advisory type selection that would manage relay 1 for Detector 6 (RDT6-R1)
LOR	General advisory light relay assignment
RDT1-R2	Relay 2 output assignment for detector 1. Controlled by selection in ATDT1-R2
RDT2-R2	Relay 2 output assignment for detector 2. Controlled by selection in ATDT2-R2
RDT3-R2	Relay 2 output assignment for detector 3. Controlled by selection in ATDT3-R2
RDT4-R2	Relay 2 output assignment for detector 4. Controlled by selection in ATDT4-R2
RDT5-R2	Relay 2 output assignment for detector 5. Controlled by selection in ATDT5-R2

Parameter Name	Description
RDT6-R2	Relay 2 output assignment for detector 6. Controlled by selection in ATDT6-R2
ATDT1-R2	Advisory type selection that would manage relay 2 for Detector 1 (RDT1-R2)
ATDT2-R2	Advisory type selection that would manage relay 2 for Detector 2 (RDT2-R2)
ATDT3-R2	Advisory type selection that would manage relay 2 for Detector 3 (RDT3-R2)
ATDT4-R2	Advisory type selection that would manage relay 2 for Detector 4 (RDT4-R2)
ATDT5-R2	Advisory type selection that would manage relay 2 for Detector 5 (RDT5-R2)
ATDT6-R2	Advisory type selection that would manage relay 2 for Detector 6 (RDT6-R2)
RBTA	Relay assignment for back up battery. Output managed by DIBT
RDT1-Horn	Relay output assignment for the horn associated with Detector 1
RDT2-Horn	Relay output assignment for the horn associated with Detector 2
RDT3-Horn	Relay output assignment for the horn associated with Detector 3
RDT4-Horn	Relay output assignment for the horn associated with Detector 4
RDT5-Horn	Relay output assignment for the horn associated with Detector 5
RDT6-Horn	Relay output assignment for the horn associated with Detector 6
DIHL	Digital input assignment to silence the general horn
DTBR	Horn delay time before activating
DI1-S	Digital input of Detector 1 used for Horn Silence
DI1-R	Digital input of Detector 1 used for Alarm Reset
DI1-O	Digital input of Detector 1 used for Alarm On
DI2-S	Digital input of Detector 2 used for Horn Silence
DI2-R	Digital input of Detector 2 used for Alarm Reset
DI2-O	Digital input of Detector 2 used for Alarm On
DI3-S	Digital input of Detector 3 used for Horn Silence
DI3-R	Digital input of Detector 3 used for Alarm Reset
DI3-O	Digital input of Detector 3 used for Alarm On
DI4-S	Digital input of Detector 4 used for Horn Silence

Parameter Name	Description
DI4-R	Digital input of Detector 4 used for Alarm Reset
DI4-O	Digital input of Detector 4 used for Alarm On
DI5-S	Digital input of Detector 5 used for Horn Silence
DI5-R	Digital input of Detector 5 used for Alarm Reset
DI5-O	Digital input of Detector 5 used for Alarm On
DI6-S	Digital input of Detector 6 used for Horn Silence
DI6-R	Digital input of Detector 6 used for Alarm Reset
DI6-O	Digital input of Detector 6 used for Alarm On
DIBT	Digital input as battery backup alarm
REHR	Reactive Horn Relay
REASR	Reactive Alarm/Spill Relay
ROD1	ON delay Relay 1
ROD2	ON delay Relay 2
ROD3	ON delay Relay 3
ROD4	ON delay Relay 4
ROD5	ON delay Relay 5
ROD6	ON delay Relay 6
ROD7	ON delay Relay 7
ROD8	ON delay Relay 8
RFD1	OFF delay Relay 1
RFD2	OFF delay Relay 2
RFD3	OFF delay Relay 3
RFD4	OFF delay Relay 4
RFD5	OFF delay Relay 5
RFD6	OFF delay Relay 6
RFD7	OFF delay Relay 7
RFD8	OFF delay Relay 8
ROD9	ON delay Relay 9
ROD10	ON delay Relay 10
ROD11	ON delay Relay 11
ROD12	ON delay Relay 12
ROD13	ON delay Relay 13
ROD14	ON delay Relay 14

Parameter Name	Description
ROD15	ON delay Relay 15
RFD9	OFF delay Relay 9
RFD10	OFF delay Relay 10
RFD11	OFF delay Relay 11
RFD12	OFF delay Relay 12
RFD13	OFF delay Relay 13
RFD14	OFF delay Relay 14
RFD15	OFF delay Relay 15
RLP1	Polarity of RL1
RLP2	Polarity of RL2
RLP3	Polarity of RL3
RLP4	Polarity of RL4
RLP5	Polarity of RL5
RLP6	Polarity of RL6
RLP7	Polarity of RL7
RLP8	Polarity of RL8
DIP1	Polarity of DI01
DIP2	Polarity of DI02
DIP3	Polarity of DI03
DIP4	Polarity of DI04
DIP5	Polarity of DI05
DIP6	Polarity of DI06
DIP7	Polarity of DI07
DIP8	Polarity of DI08
DIP9	Polarity of DI09
DIP10	Polarity of DI010
DIP11	Polarity of DI011
RLP9	Polarity of RL9
RLP10	Polarity of RL10
RLP11	Polarity of RL11
RLP12	Polarity of RL12
RLP13	Polarity of RL13
RLP14	Polarity of RL14
RLP15	Polarity of RL15
DIP12	Polarity of DI12
DIP13	Polarity of DI13

Parameter Name	Description
DIP14	Polarity of DI14
DIP15	Polarity of DI15
DIP16	Polarity of DI16
DIP17	Polarity of DI17
DIP18	Polarity of DI18
DIP19	Polarity of DI19
DIP20	Polarity of DI20
AID1	Analog input of Detector 1
AID2	Analog input of Detector 2
AID3	Analog input of Detector 3
AID4	Analog input of Detector 4
AID5	Analog input of Detector 5
AID6	Analog input of Detector 6
AOD1	Analog output of Detector 1
AOD2	Analog output of Detector 2
AOD3	Analog output of Detector 3
AOD4	Analog output of Detector 4
AOD5	Analog output of Detector 5
AOD6	Analog output of Detector 6
AO1Min	Min analog output of Detector 1
AO1Max	Max analog output of Detector 1
AO2Min	Min analog output of Detector 2
AO2Max	Max analog output of Detector 2
AO3Min	Min analog output of Detector 3
AO3Max	Max analog output of Detector 3
AO4Min	Min analog output of Detector 4
AO4Max	Max analog output of Detector 4
AO5Min	Min analog output of Detector 5
AO5Max	Max analog output of Detector 5
AO6Min	Min analog output of Detector 6
AO6Max	Max analog output of Detector 6
AOP1Min	Min PPM of analog output of Detector 1
AOP1Max	Max PPM of analog output of Detector 1
AOP2Min	Min PPM of analog output of Detector 2
AOP2Max	Max PPM of analog output of Detector 2
AOP3Min	Min PPM of analog output of Detector 3

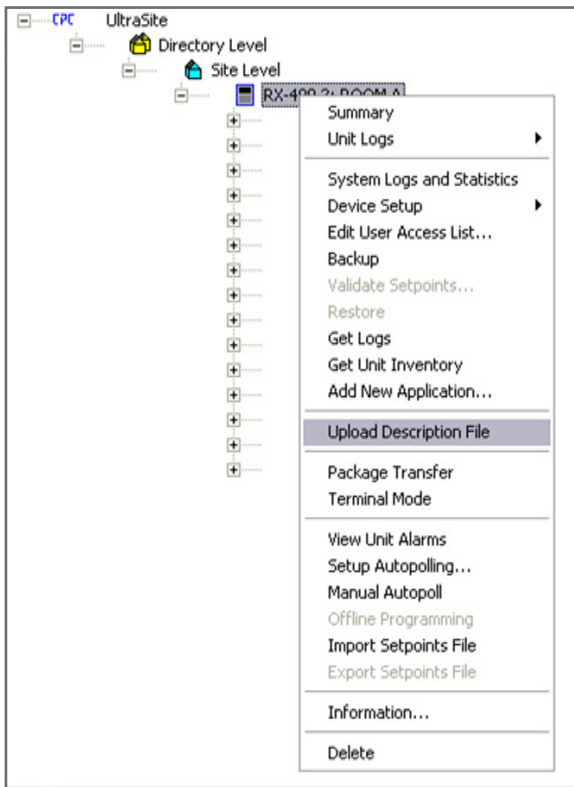
Parameter Name	Description
AOP3Max	Max PPM of analog output of Detector 3
AOP4Min	Min PPM of analog output of Detector 4
AOP4Max	Max PPM of analog output of Detector 4
AOP5Min	Min PPM of analog output of Detector 5
AOP5Max	Max PPM of analog output of Detector 5
AOP6Min	Min PPM of analog output of Detector 6
AOP6Max	Max PPM of analog output of Detector 6
OVERT	Override time
RODR1	ON delay IPX106D Relay 1
RODR2	ON delay IPX106D Relay 2
RODR3	ON delay IPX106D Relay 3
RODR4	ON delay IPX106D Relay 4
RODR5	ON delay IPX106D Relay 5
RODR6	ON delay IPX106D Relay 6
RFDR1	OFF delay IPX106D Relay 1
RFDR2	OFF delay IPX106D Relay 2
RFDR3	OFF delay IPX106D Relay 3
RFDR4	OFF delay IPX106D Relay 4
RFDR5	OFF delay IPX106D Relay 5
RFDR6	OFF delay IPX106D Relay 6
RLPR1	Polarity of IPX106D Relay 1
RLPR2	Polarity of IPX106D Relay 2
RLPR3	Polarity of IPX106D Relay 3
RLPR4	Polarity of IPX106D Relay 4
RLPR5	Polarity of IPX106D Relay 5
RLPR6	Polarity of IPX106D Relay 6

*Table of Parameters*

# 5 Uploading the Multi-Zone Refrigerant Leak Detector Description File to E2

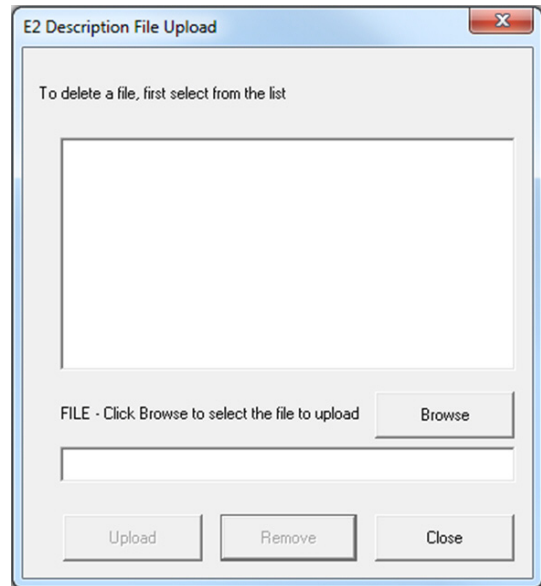
**NOTE:** UltraSite32 Software should be installed to perform uploading of Description Files.

1. Connect to E2 using UltraSite32 (refer to UltraSite32 TCP/IP Connection Manual (P/N 026-1002).
2. Launch the UltraSite program and Login. Type **USER** in the Username and **PASS** in the Password fields.
3. Double click to open the Directory Level to view the Site Level. Refer to *Description File Upload graphic* below.
4. Right click on **Site Level** and click **Connect**.
5. Double click on **Site Level** and locate the E2 Unit where the Multi-Zone Refrigerant Leak Detector will be installed.
6. Right click on the unit and select **Upload Description File**.



*Description File Upload*

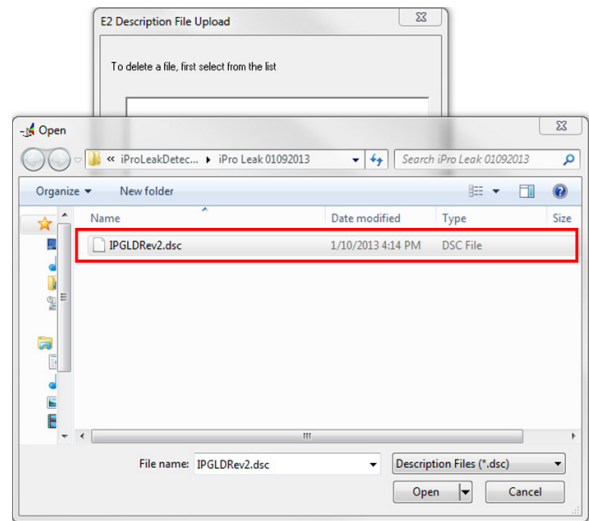
7. Click the **Browse** button.



*E2 Description File Upload*

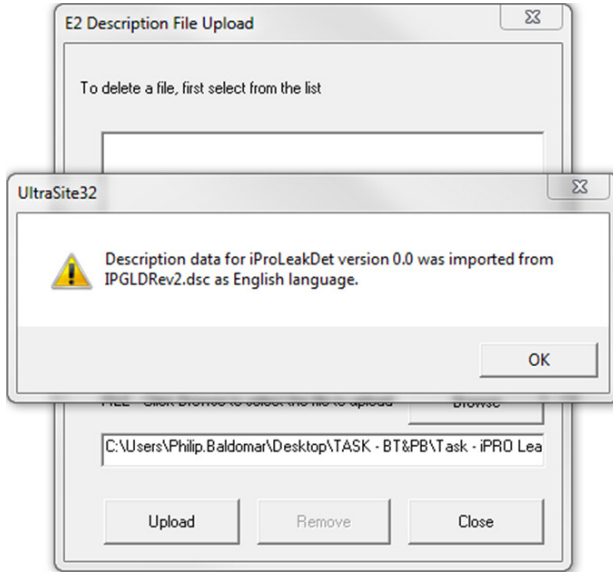
8. Browse the computer and select the appropriate description (\*.dsc) file for the Multi-Zone Refrigerant Leak Detector.

**NOTE:** Select the appropriate Description File for the communication type with E2. Leak Detector 5.32F12 and later supports BACnet MS/TP. The BACnet MS/TP file P/N is 527-0600 and the Modbus file P/N is 527-0389. To use BACnet MS/TP with Leak Detector and E2, the E2 must be 4.09F04 or later and Leak Detector 5.32F12 or later.



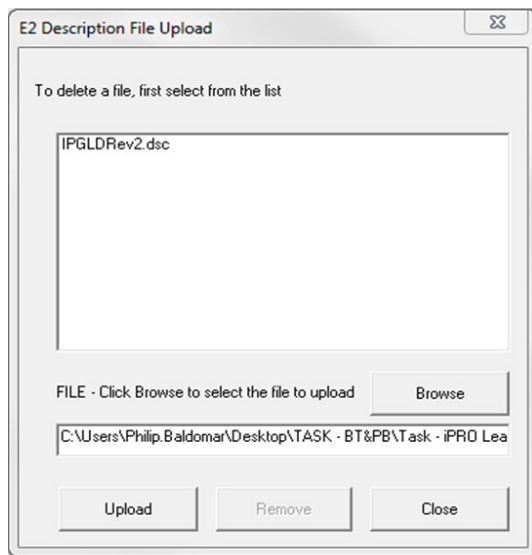
*E2 Description File Upload*

- Click **OPEN**.
- Click **UPLOAD**. A window will appear with a message that the Description File was imported, click **OK**.



*E2 Description File Upload*

- The description (\*.dsc) file will appear inside the box.



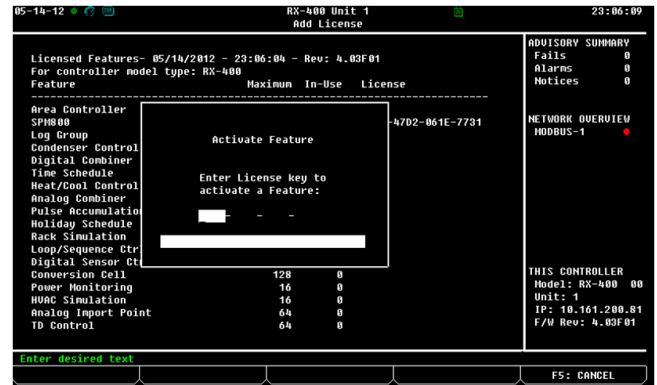
*E2 Description File Upload*

- Once completed, disconnect from the E2 unit.
- Reboot the E2 controller.

## 5.1 Licensing the Multi-Zone Leak Detector in the E2

If the BACnet description file (P/N 527-0600) will be used for leak detector communication, no license key is required, there will be 10 instances of Leak Detector available by default.

- Log on to the E2 controller and Press **Menu** **&7** **9**.
- Press **F1** to add the license for the Description File.
- Enter the 16-digit number provided from Technical Support.
- Press **Enter**.



*Adding License*

## 5.2 Device Setup in the E2

### 5.2.1 E2 Serial Port Setup - Modbus

- Log into to E2 by pressing the **Log In/Out** button.
- Type **USER** in the Username and **PASS** in the Password fields.
- Press **Menu** **&7** **3** **1** to enter General Controller Info setup.
- Press **F2** twice move to **C3: Serial Tab**.



*Serial Port Set Up*

5. Highlight **COM6 Connection** value:

- Press **F4** for the Look Up menu and select **MODBUS-1** (if **MODBUS-1** is being used, select **MODBUS-2** or **MODBUS-3**).
- Press the **Enter** to set configuration.
- Set the MODBUS Connection as follows: (Press **F4** to select options and set the configuration.)

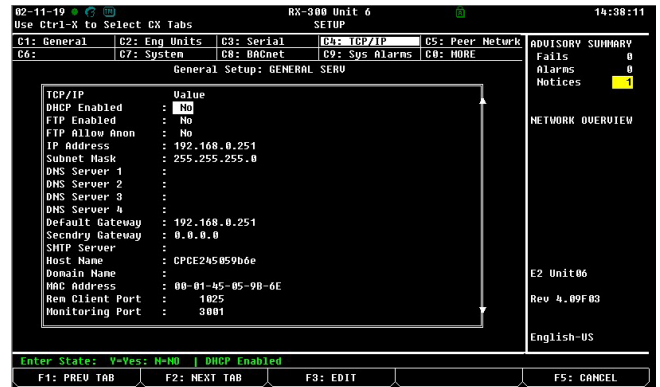
- » COM2 Baud: 9600
- » COM2 Data Size: 8
- » COM2 Parity: None
- » COM2 Stop Bits: 1

6. Press **Save** to save changes.

7. Press **Home** to go back to the Home screen.

- c. **COM4 Baud** - Default setting is 9600; this must be changed to 19.2k or 38.4k. (All devices connected to the same COM port should be set to the same baud rate).

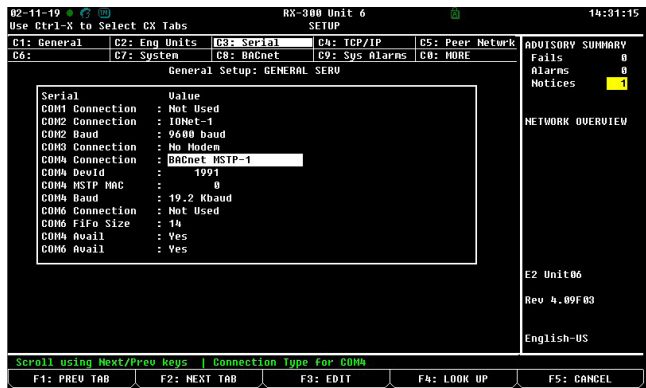
4. Now the BACnet MS/TP specific settings must be configured. From the Home screen on E2 press **Alt** + **T** on the keypad to navigate to this screen:



BACnet TCP/IP Tab

### 5.2.2 E2 Serial Port Set Up - BACnet MS/TP

1. Login to E2 with **Username: user; Password: pass**
2. Press **Alt** + **M** on the E2 keyboard to access the serial tab of the general controller setup screen. This screen will have a connection field for all available COM ports on the E2. Highlight the COM port connection you will be using for BACnet MS/TP and press **F4** (**LOOKUP**) and select BACnet MS/TP -1, -2, or -3 from the list of network types.



BACnet MS/TP Serial Port Set Up

3. Three fields will become visible underneath the COM4 Connection that pertain to the way the device communicates:

- a. **COM4 DevId** - This is the E2 BACnet Device ID; set this to a unique number from all other BACnet nodes on the network in the range of 0-4194303.
- b. **COM4 MSTP MAC** - This is the E2 BACnet MSTP MAC address; set this to a unique number for E2 in the range of 1-127. Each BACnet device on the network must have its own unique MS/TP MAC for successful communication.

5. Press **Ctrl** + **\*8** at the same time to reach the **BACnet** tab:



BACnet General Setup Screen

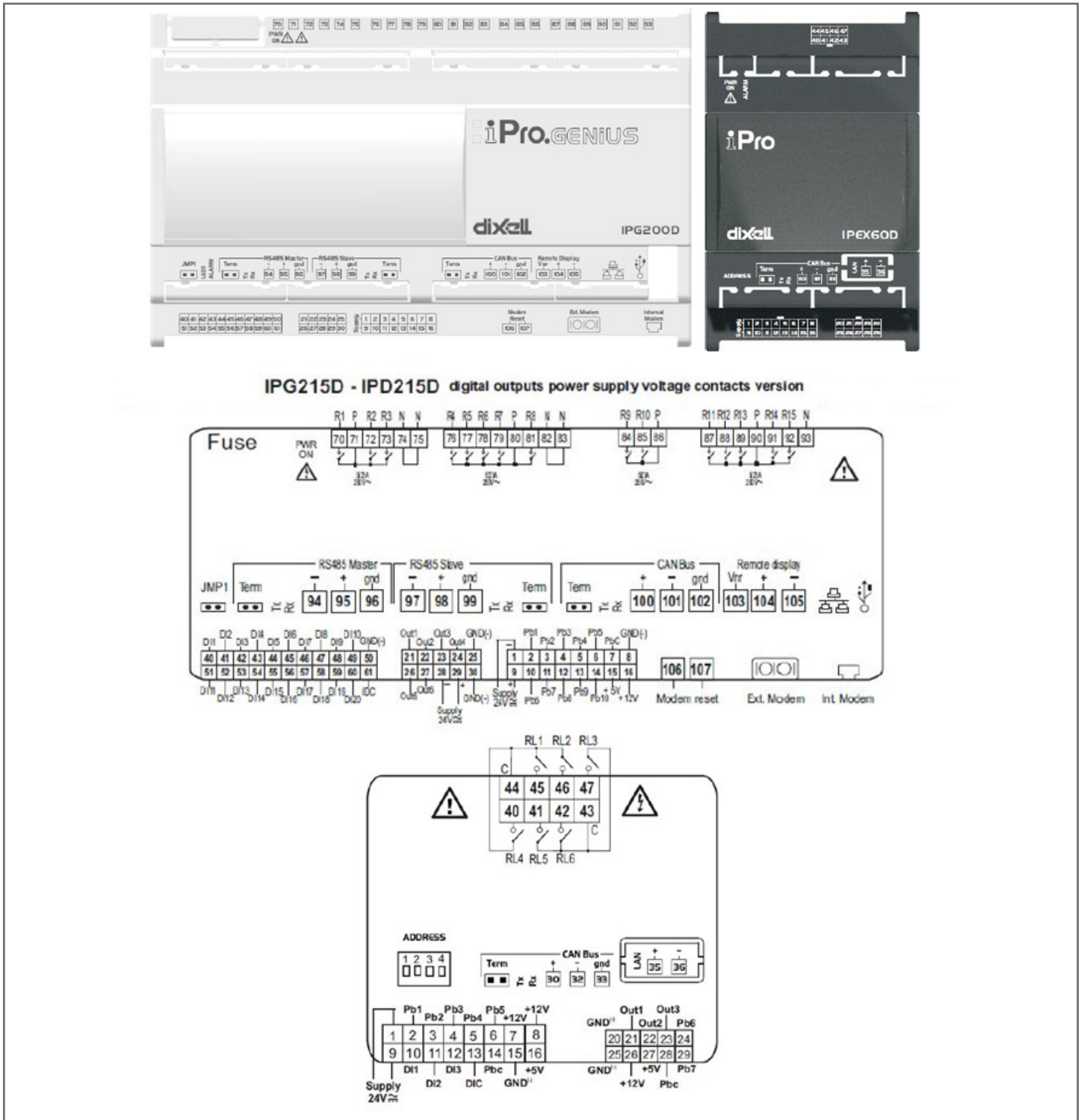
6. These settings must be configured in the **BACnet** tab:

- a. **Max Master** - The default setting is 127, edit and change the value to be equal to the highest BACnet MAC address that E2 will communicate with on any of its three (3) COM ports. Determine what BACnet MS/TP devices are connected to E2's COM ports, then determine the highest MS/TP MAC address of all the devices. Set the E2 **Max Master** equal to the highest MS/TP MAC address determined.
- b. **Max Info Frames** - This is the max number of BACnet frames E2 can transmit per token. Set to 36.



- c. **PDU Timeout** - This is the amount of time in seconds between re-transmissions of an APDU requiring acknowledgment for which no acknowledgment has been received. Enter a value of **30** in this field.
- d. **APDU Retries** - This is the maximum amount of times that an APDU shall be retransmitted. Enter a value of **3** in this field.
- e. **TimeSync Period** - This is the number of minutes between time synchronization broadcasts. Enter a value of **1440** here.
- f. **UTC TimeSync** - This toggles the time sync broadcast to use coordinated universal time mode. Toggle this field to **NO**.

### 5.3 Device Wiring



## 5.4 Connecting Communication Wires - Modbus

If the communication protocol between Leak Detector and E2 is using Modbus, connect the RS485 wiring to the RS485 slave terminal on the iPro controller, terminals 97, 98, 99. The polarity of the + and - wires is reversed between the E2 serial port and the leak detector serial port.



Multi-Zone Leak Detector Wiring

**NOTE:** The polarity of the MODBUS connection between E2 and the Multi-Zone Refrigerant Leak Detector is reversed.

### 5.4.1 Connecting Communication Wires - BACnet MS/TP

The BACnet MS/TP connection should be wired in a daisy chain topology, no star or T configurations are allowed. Connect the BACnet network cable to the three terminal connector on the E2 COM port you wish to assign as BACnet MS/TP. Connect the network cable to the leak detector on the RS485 master port terminals 94, 95, 96.

Reverse the polarity of +/- on the RS485 cable between the E2 serial port and the leak detector serial port. Emerson specs General Cable 92454A (Emerson P/N 135-0600) shielded twisted pair cables for use as BACnet MS/TP wiring.

## 5.5 Adding the Multi-Zone Refrigerant Leak Detector in E2

1. Press **Menu** **& 7 & 7 & 2** to open the **Connected I/O Boards and Controllers** setup.
2. Press **F2** twice to move to **C4: Third Party** tab. Highlight the Multi-Zone Refrigerant Leak Detector application and enter the number of devices under **Quantity**.

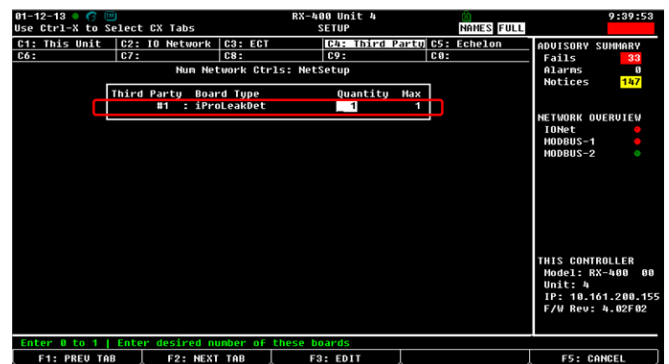


Third Party Tab

3. Press **Save** to save changes.
4. Press **Home** to go back to the Home screen.

## 5.6 Commissioning Multi-Zone Refrigerant Leak Detector - Modbus

1. Press **Menu** **& 7 & 7 & 1** to enter the **Network Summary** screen.
2. Highlight the Multi-Zone Refrigerant Leak Detector to be commissioned and press **F4**.

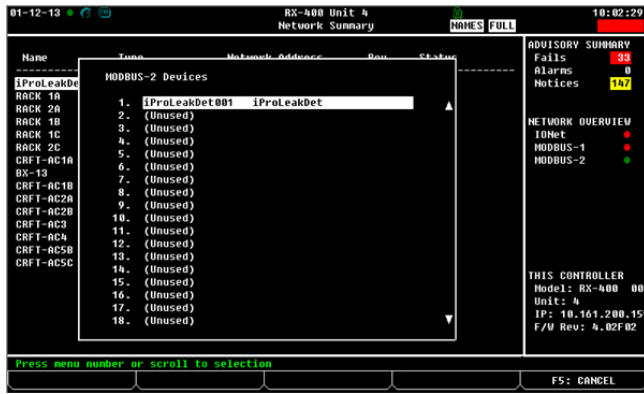


Network Summary Screen

3. If a box with **Select Network** appears on the screen, select the MODBUS number where the device was configured.

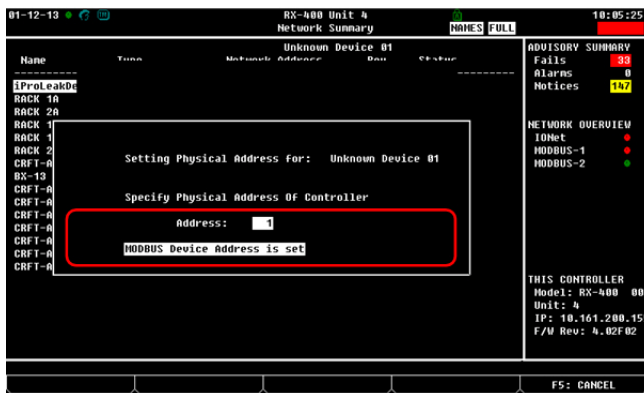


- Select address for the device and press **Enter**.



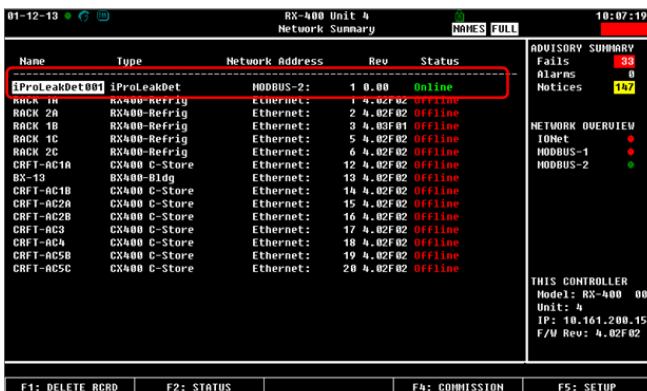
Network Summary Screen

- This screen will appear. Press **Enter** to continue.



Network Summary Screen

- Press **Enter** to save the assigned address.
- Press **Home** button to return to the Home screen.  
Press **Menu** **6** **7** **1** to enter the Network Summary screen.
- The Multi-Zone Refrigerant Leak Detector should appear **ONLINE** after a few seconds.



Network Summary Screen

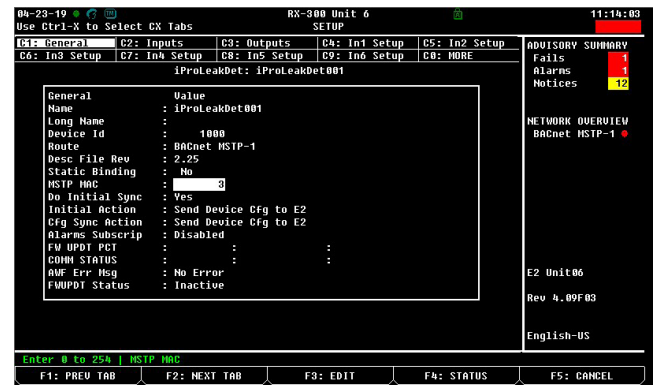
## 5.7 Commissioning Multi-Zone Refrigerant Leak Detector - BACnet MS/TP

- Login to the E2 and press **Alt** + **N** to reach the Network Summary screen.



BACnet MS/TP Network Summary Screen

- Press **F5** (Setup) to enter device setup in the General tab. Set **Do Initial Sync** to **Yes**, **Initial Action to Send Device Cfg to E2**, and **Cfg Sync Action to Send Device Cfg to E2**. Press **Enter** to save and exit back to Network Summary screen.



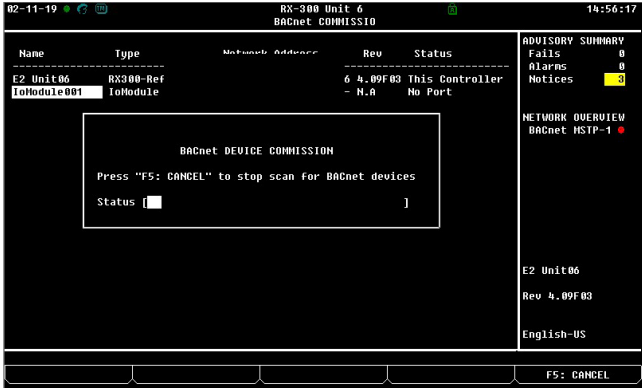
BACnet MS/TP General Screen

- Highlight the device and press **F4** commission for a list of networks. Select the BACnet MS/TP route assigned to the COM port.



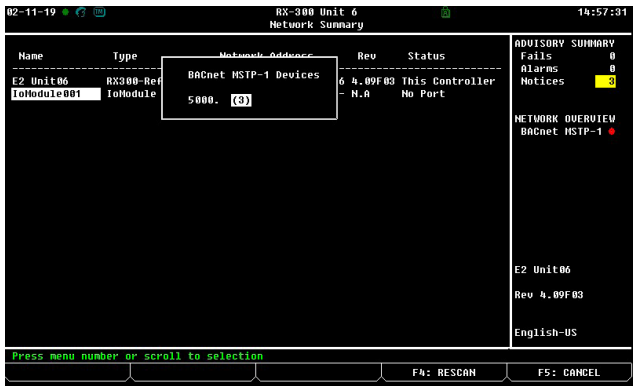
BACnet MS/TP Select Network

4. E2 will scan for available BACnet MS/TP devices.



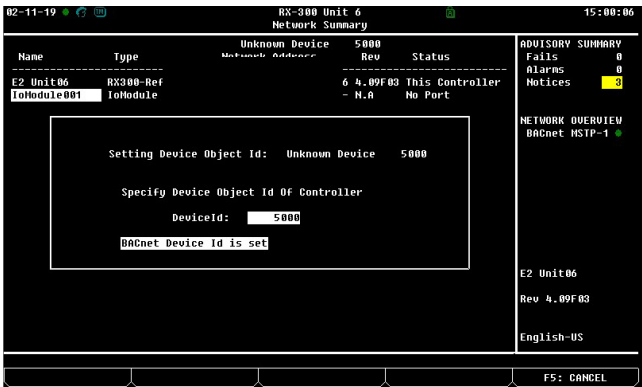
BACnet MS/TP Device Commission

5. E2 will display a list of the MS/TP devices discovered during the scan. The number in parenthesis is the BACnet MAC address and the 6-digit number adjacent to it is the BACnet Device ID. Select the device you want to commission and press **Enter** on the E2 keypad.



BACnet MS/TP Devices

6. Press **Enter** again on E2 keypad and then E2 will display BACnet Device ID is set:



BACnet MS/TP Device ID is Set

7. Press **Enter** to save and exit back to the Network Summary screen:

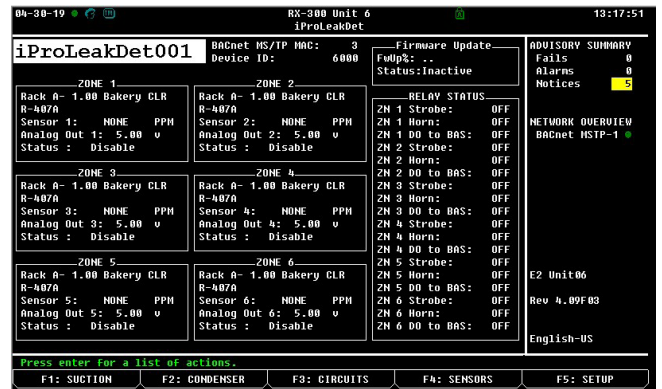


BACnet MS/TP Device Status Online

8. The device status should now change to **Online** in green. Allow approximately five (5) minutes for initial communication startup and synchronization to complete before editing parameters.

## 5.8 Viewing E2 Status Screen

Press **Alt** + **N** to reach the Network Summary page. Highlight the Multi-Zone Refrigerant Leak Detector and press **Enter**.



Viewing Status

## 5.9 Resetting Spill Alarm

When the Leak Detector version 5.32F12 or later is communicating with E2, the zone spill alarms can be reset from E2. Once the zone PPM has fallen back below the spill setpoint (PPMs), the alarm can be reset.

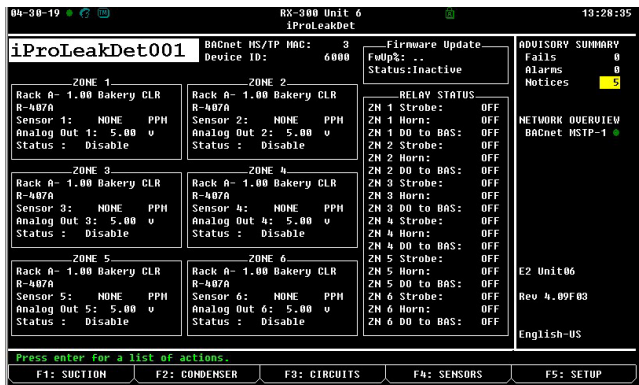
Perform the following steps at E2 to reset a zone spill alarm:

1. Login to the E2 controller and press **Alt** + **N** keys at the same time to reach the Network Summary page:



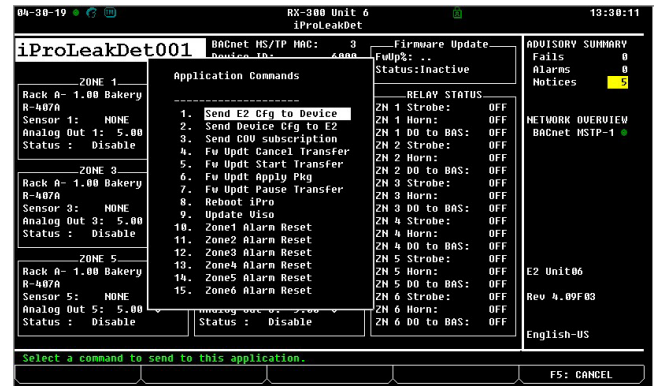
Resetting Spill Alarm Network Summary Screen

2. Scroll down and highlight the Leak Detector and press **F2 STATUS** to reach the status screen.



Resetting Spill Alarm Status Screen

3. With the Leak Detector controller name highlighted, press **Enter** on the E2 keyboard.
4. A pop-up window will appear, select **9. Application Commands**.



Resetting Spill Alarm Application Commands Screen

5. The zone alarm resets are performed by using the Zone1 Alarm Reset-Zone6 Alarm Reset application command. After selecting the desired application command, the window will automatically close and E2 will perform the application command.
6. After a zone alarm resets the status, the zone box should go back to OK and the horn, strobe and E2 relays should return to off in the Relay Status box.

**NOTE:** In order to reset a zone spill alarm, the zone PPM level must be below the PPM level set by parameter PPMs in the Leak Detector.

026-1313 R5

For Technical Support call 833-409-7505 or email [ColdChain.TechnicalServices@Emerson.com](mailto:ColdChain.TechnicalServices@Emerson.com)

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