



MVR-SC

Refrigerant Leak Monitor

System Controller for MVR-300 Gas Detectors



Refrigerant Leak Detection

P/N: 1100-2184 | May 2019 Revision 0

User Manual

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1 Introduction

1.1 About this Manual

Thank you for investing in a Bacharach MVR-SC Refrigerant Leak Monitor. To ensure operator safety and the proper use of the system, please read the contents of this manual for important information on the operation and maintenance of the instrument.

1.2 Iconography

Alert	Icon	Description
Danger		An imminently hazardous situation which, if not avoided, will result in death or serious injury.
Warning		A potentially hazardous situation which, if not avoided, could result in death or serious injury.
Warning		Potential electrical shock hazard which, if not avoided, could result in death or serious injury.
Caution		A potentially hazardous situation which, if not avoided, could result in physical injury or damage to the product or environment. It may also be used to alert against unsafe
Important		Additional information on how to use the product.

1.3 General Safety Statements



DANGER: This product **HAS NOT** been designed for use in hazardous locations. Failure to comply may result in personal injury or death.



WARNING: NEVER connect the product's 24V DC inputs directly to AC power supply.



WARNING: DO NOT apply power until all wiring has been completed.



CAUTION: The protection provided by this product may become impaired if it is used in a manner not specified by the manufacturer. Modifications to this instrument, not expressly approved, will void the warranty.



CAUTION: DO NOT continue to use this equipment if there are any symptoms of malfunction or failure. In the case of such occurrence, de-energize the power supply and contact a qualified repair technician or the nearest Bacharach Service Center.



IMPORTANT: Before using this product, carefully read and strictly follow the instructions in the manual. Ensure that all product documentation is retained and available to anyone operating the instrument.



IMPORTANT: The MVR-SC must be installed by a suitably qualified technician who will install this unit in accordance with these instructions and the standards in their industry / country. This document is only intended as a guide, and the manufacturer bears no responsibility for the installation or operation of this unit.



IMPORTANT: Comply with all local and national laws, rules, and regulations associated with this equipment. Operators should be aware of the regulations and standards in their industry / locality for the operation of the MVR-SC.

2 Product Description

The MVR-SC Refrigerant Leak Monitor provides centralized monitoring and alarming for multi-occupant applications utilizing the MVR-300 Refrigerant Leak Detectors. The MVR-SC continuously monitors all connected devices for alarm and fault conditions and will provide alerts via the integrated color touchscreen, audible buzzer, and built-in relays.

2.1 MVR-SC Core Functions

Monitor a network of connected MVR-300 refrigerant leak detectors for the following:

- High or low PPM alarm events
- Hardware faults
- Network connectivity

The MVR-SC controller will respond to these events as follows:

- Alarm – activates the alarm relay, flashes the screen to RED, activates the audible buzzer
- Fault – activates the fault relay, flashes the screen to AMBER, activates the audible buzzer
- Communication Error – flashes the screen to BLUE, indicates warning on screen with the specific unit(s)

2.1.1 Home

After inactivity on the touchscreen, the system will always revert to the **Home** screen. When no alarms or warnings are active, this screen resumes a **System Normal** state.

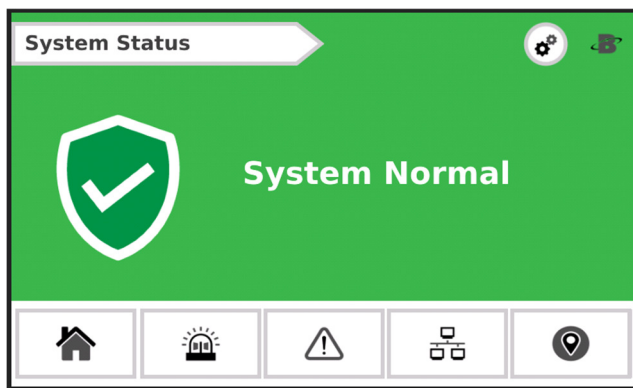







Figure 1 - Home Screen






2.1.2 Navigation Buttons

Most screens have the following navigation buttons:

Icon	Icon Name
	Home
	Alarm list
	Fault list
	Comm error
	Floor list

2.1.3 Status Icons

Each floor and room will use the following status icons:

Icon	Icon Name
	Alarm
	Fault
	Comm error
	Normal
	Not yet commissioned

2.1.4 Floor List

Each floor will designate the highest severity status from all devices on that floor.



Figure 2 - Floor List

2.1.5 Room/Device list (each floor)

Detailed view for each MVR-300 / room in the system grouped on a given floor.

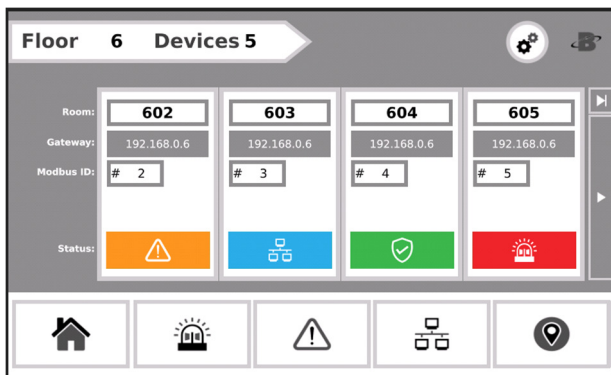


Figure 3 - Room/Device List

2.1.6 Settings

Use the settings screen for system configuration changes.

To access the **Settings** screen, tap the gear icon.

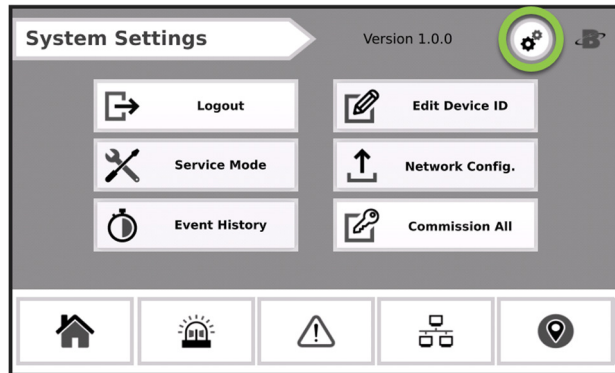


Figure 4 - System Settings

This screen is passcode protected to avoid unintentional changes. If not already logged in, the **Passcode** prompt will appear.



Figure 5 - Passcode

Enter the passcode for the MVR-SC controller to unlock and allow changes.



The default system passcode for the MVR-SC is **6388**.

2.2 System Components

2.2.1 MVR-SC Refrigerant Leak Monitor

The MVR-SC Refrigerant Leak Monitor (MVR-SC) provides centralized alarming and monitoring for all connected MVR-300 Leak Detectors.



2.2.2 MVR-300 VRF Refrigerant Leak Detector

The MVR-300 VRF Refrigerant Leak Detector (MVR-300) provides refrigerant leak detection for occupied rooms in VRF applications.



2.2.3 Ethernet Network Switch

An Ethernet network switch is used to provide connectivity between the MVR-SC Controller and individual gateways.



2.2.4 Gateway

A gateway is used to create small networks of MVR-300 Refrigerant Leak Detectors (up to 15 per gateway) to ease installation and troubleshooting.



2.2.5 Modbus EZ-Wire Kit

Perfectly sized and stripped, pre-bonded wire provides faster, more consistent installation to the MVR-300 Modbus port.



2.3 Hardware Overview

MVR-SC Refrigerant Leak Monitor

The MVR-SC provides centralized alarming and monitoring for all connected MVR-300 devices.

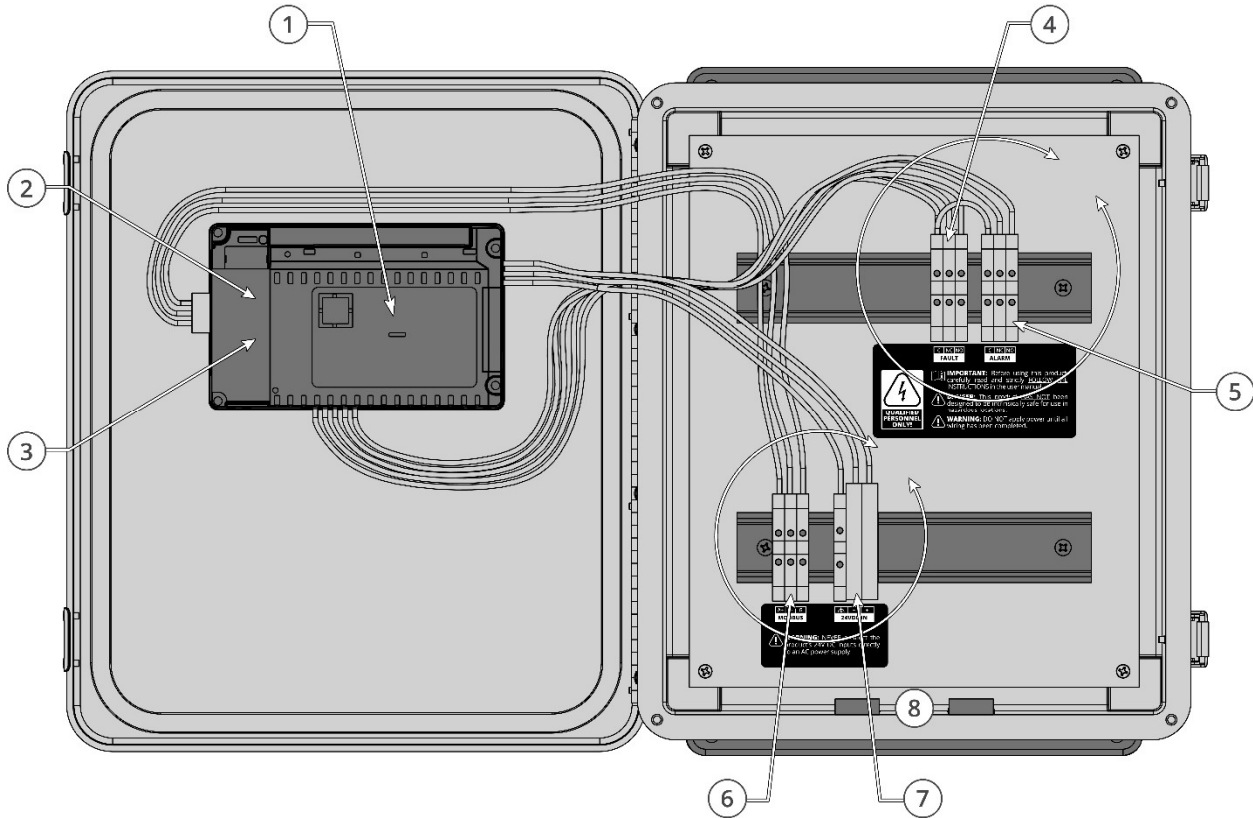


Figure 6 - MVR-SC Overview

#	Component Description
1	PLC / Touch Screen
2	USB Port
3	Ethernet Port
4	Fault Relay
5	Alarm Relay
6	Modbus Terminal Block
7	Power (24V DC IN)
8	Cable Entries (x4)

3 Installation

3.1 Network Overview



IMPORTANT: Prior to installation, download the MVR-SC floorplan spreadsheet available from **MyBacharach.com** or on the USB stick supplied with the controller. This spreadsheet has editable fields for Floor / Room and non-editable fields for Modbus ID and Gateway IP address. The floor and room fields are to be completed prior to installation in order to ensure correct wiring and function.

Up to 100 MVR-300 devices can be connected to the MVR-SC. These are to be grouped as Modbus RTU daisy-chain segments of up to 15 devices, terminating at a Gateway. Up to seven gateways can be used in a fully populated network.

Gateways connect via an Ethernet TCP network, through an Ethernet switch, to the MVR-SC. The MVR-SC provides centralized monitoring of all devices in the network, with a 15-second scan rate.

When creating the floorplan, follow these conditions:

- Keep daisy-chain segments of MVR-300 devices as near as possible to the gateway to which they connect.
- We recommend keeping this distance under 500 ft., if possible, for Modbus daisy-chain segments. As wire length increases, noise sources can accumulate, and a greater degree of attention to shielding and grounding is required.
- It is important that the designations in the floorplan spreadsheet “data.csv” exactly match the actual installed network. Any changes in the physical wiring must be reflected in the spreadsheet for the system to function.

The following diagram shows an example network using all seven Gateways.

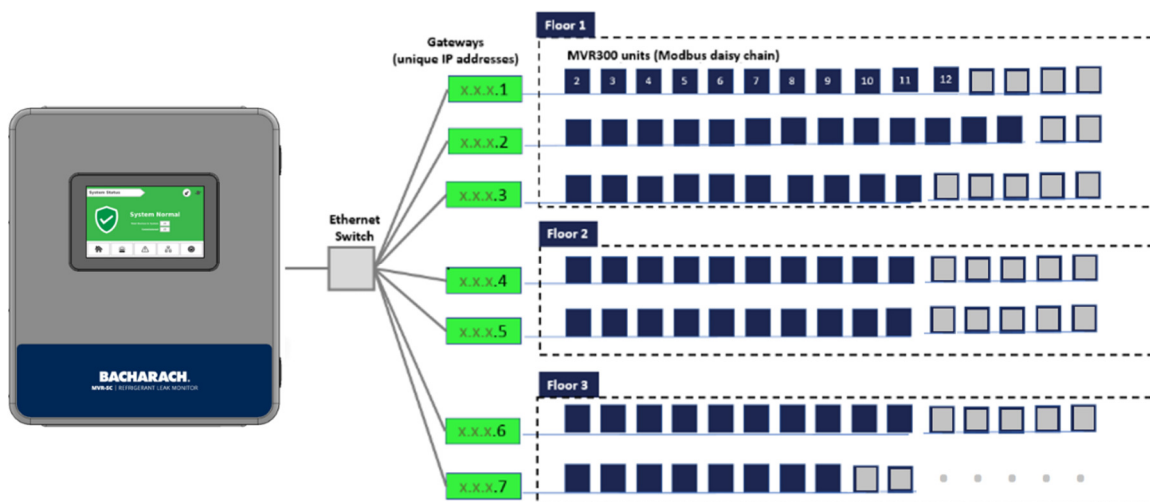


Figure 7 - Connection Diagram

Network Creating Notes:

- To mark devices to be on the same floor, those devices must have the same floor name (capitalization matters). The MVR-SC will display a new “floor” tile for each unique name appearing in the floorplan spreadsheet, up to 16 distinct values.
- The floor and room cells can be named with any combination of up to eight digits of letters and/or numbers.
- It is possible to hardwire up to 15 devices to the controller’s Modbus RTU port. To indicate these in the floorplan, fill in the cells at the bottom of the spreadsheet (rows with IP marked “Direct”).
- Each Gateway’s IP Address must be unique. If only one gateway is used, its IP address should be 192.168.0.1. The IP address for subsequent gateways would be 192.168.0.2, 192.168.0.3, etc.
- The 7th gateway, if used, has a limit of 10 devices. All other gateways have a limit of 15 devices.

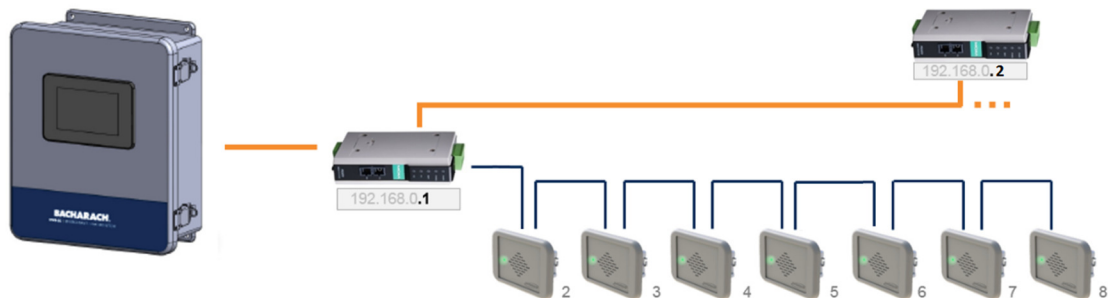


Figure 8 –Example of a Small Network

3.2 Floorplan Spreadsheet (CSV)

When editing the MVR-SC floorplan spreadsheet (data.csv) on a PC, it contains placeholder entries for all possible devices in the network.

Insert the USB stick into a computer that has Excel software installed.

1. Open the flash drive and click the example CSV file titled “data.csv.”

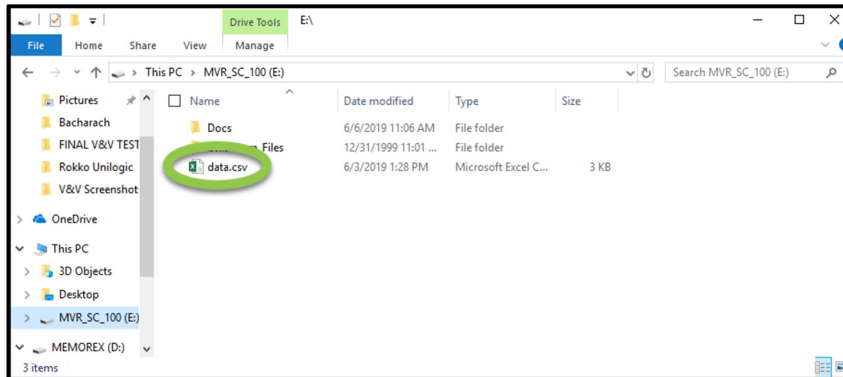
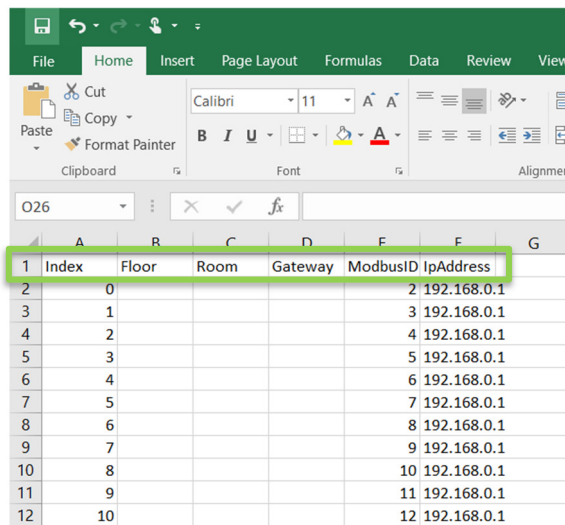


Figure 10 - Open the data.csv File

In this file, there are columns labeled: Index, Floor, Room, Gateway, ModbusID, and IpAddress. Of those six columns ONLY the entries for **Floor**, **Room**, and **Gateway** should be modified by the user.



Index	Floor	Room	Gateway	ModbusID	IpAddress
2	0			2	192.168.0.1
3	1			3	192.168.0.1
4	2			4	192.168.0.1
5	3			5	192.168.0.1
6	4			6	192.168.0.1
7	5			7	192.168.0.1
8	6			8	192.168.0.1
9	7			9	192.168.0.1
10	8			10	192.168.0.1
11	9			11	192.168.0.1
12	10			12	192.168.0.1

Figure 9 - The MVR-SC Floorplan Spreadsheet

2. Add the floors and rooms to match the floorplan that has been designed for this specific building layout.
3. Save the floorplan spreadsheet as a .csv format and upload it onto the USB stick at the device root folder. The filename must be named as “data.csv” or the MVR-SC will not be able to find the file when importing.
4. Upload the spreadsheet into the controller from the USB stick using the steps outlined in **Section 3.9** of this manual.

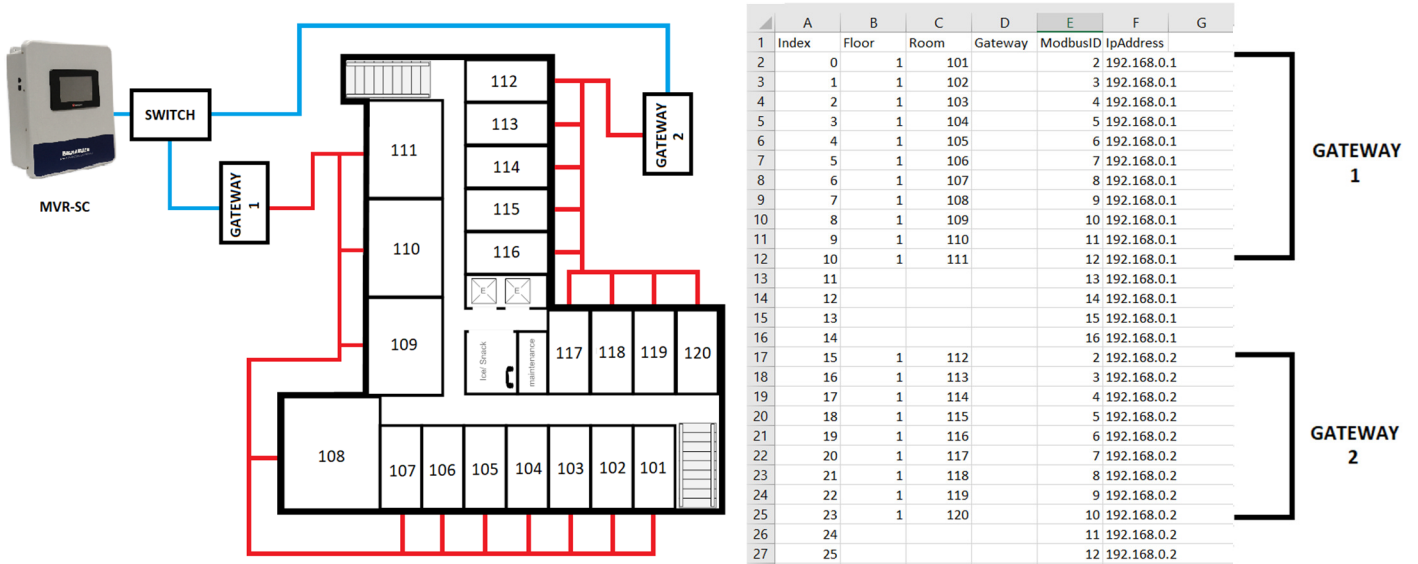


Figure 11 - Example Layout

Special Notes:

- There can be multiple gateways on a given floor. Or a single gateway can bridge across floors. However, pay attention long wire lengths which can be susceptible to electrical noise.
- The MVR-SC will display floors listed in the order they are encountered in the spreadsheet rather than alphabetical or numeric order.
- Every assigned room in the “data.csv” file must have a Modbus ID populated. Do not change these Modbus ID numbers from the defaults.
- The column titled “Gateway” is optional the value from that column will not be displayed on the MVR-SC.
- Do not add text into any text boxes to the right of Column F and/or below row 114, or the MVR-SC will not be able to read the file.

3.3 Gateway IP Address

Each gateway in the system requires a unique IP address.

The MVR-SC connects to up to seven gateways, using the following default IP address scheme.

Order	IP for Gateway	MVR-300 device count
1	192.168.0.1	15
2	192.168.0.2	15
3	192.168.0.3	15
4	192.168.0.4	15
5	192.168.0.5	15
6	192.168.0.6	15
7	192.168.0.7	10

The IP address for each Gateway may need to be changed by the user, since gateways ship with default IP 192.168.0.1. This can be done using a windows PC and the free Moxa utility.

Steps to change Gateway IP addresses:

1. Connect the first Gateway to be changed to a PC using its Ethernet port. Power the gateway with 24VDC.
2. Download MGate Manager utility for windows from:
 - a. <https://moxa.com/en/products/industrial-edge-connectivity/protocol-gateways/modbus-tcp-gateways/mgate-mb3170-mb3270-series#resources>
 - b. [Direct Zip download link](#)
3. Open the MGate Manager utility. Press the “Search” Button.

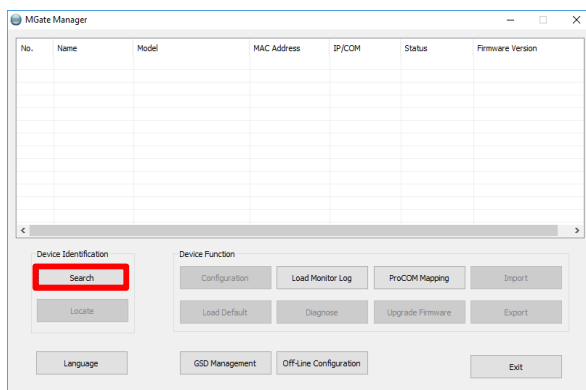


Figure 12 – Mgate Manager utility for Windows

4. Choose **Broadcast Search** to search for any connected gateways.

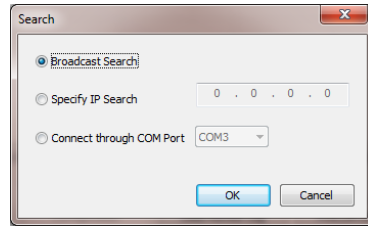


Figure 13 – Broadcast Search

5. When discovered, the Gateway should show up in the table. Select its row and press **Configuration**.
 - a. Note: if this step requires a password it is “moxa”

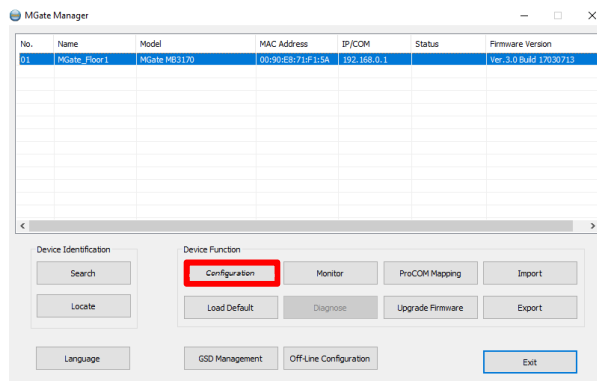


Figure 14 – Gateway Configuration

6. Navigate to the **Network** tab (the second tab).

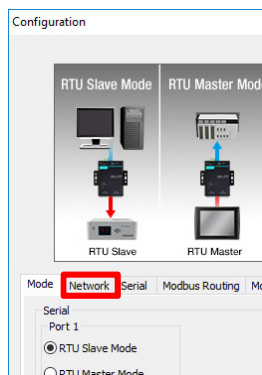


Figure 15 - Network tab

7. In the Network tab, the IP can be set to a new value. Change the IP from “192.168.0.1” to the IP that corresponds with the Gateway index (1 – 7) from the chart above.

- If this gateway is the first in the network, its IP address is already correct – 192.168.0.1. If it is the second, change the last digit to be 192.168.0.2, etc.

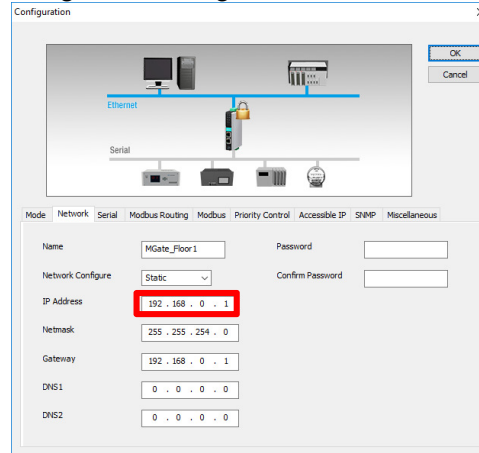


Figure 16 - Network Setting OK screen

- Repeat this process for the remaining gateways in the system.



The gateways contain powerful built-in troubleshooting features. If system troubleshooting is required, please reach out to Bacharach Product Support for relevant documentation and support.

3.4 Hardware Installation

Mount the MVR-SC in an accessible location for viewing alerts and responding to alarm conditions.



Environment: place the MVR-SC in an indoor setting free from the risk of exposure to water, high humidity or any hazardous conditions.



Accessibility: ensure that the MVR-SC's touch screen is readily accessible for viewing alerts and responding to alarm conditions.

Connect the controller to a 24VDC supply capable of at least 1 Amp output.



WARNING: Do not apply power until all wiring is in place.

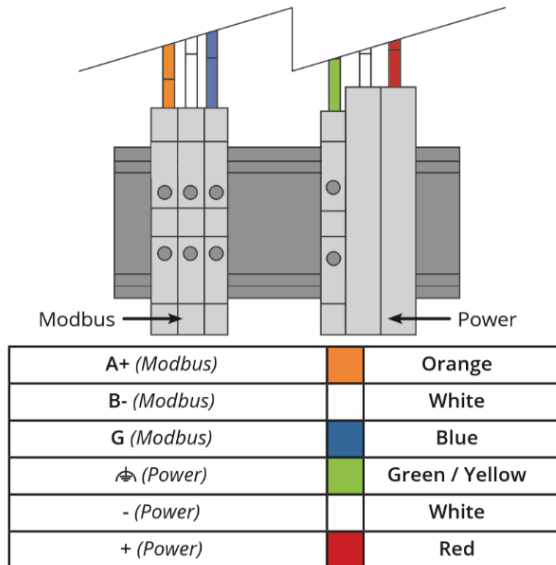


Figure 17 - Modbus Wiring

Near to the 24V DC is a terminal block for direct Modbus RTU connections.

This is to be used for troubleshooting or very small direct-connected networks with less than 15 units. A typical large floorplan should be divided into segments connecting via Gateways, as described earlier.

3.5 Connecting Relays: Alarm, Fault

If used, connect the relay output(s) to equipment that will be triggered by each relay.

Note: Take care to ensure proper wiring for intended function: normally open and / or normally closed.

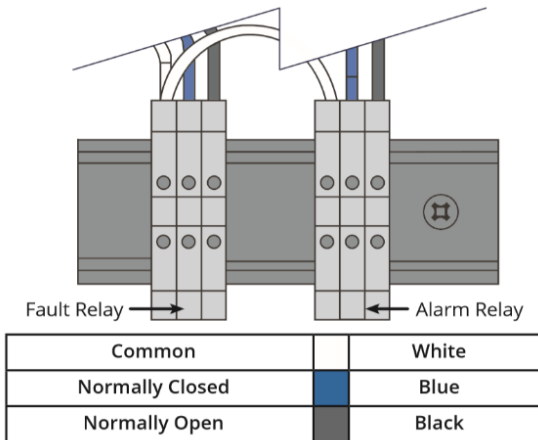


Figure 18 - Wiring Relays

3.6 Battery for Persistent Memory

When 24V DC power is lost to the MVR-SC, a backup battery is used to save the current state of the system, including the event history and the date and time settings.

This **MUST** be activated by pulling out the plastic spacer separating the battery from its contacts. This plastic spacer is labelled with “**Pull out to activate battery**”.



If this step was skipped, and a system state loss occurs after fully commissioning, re-upload the floorplan from the USB and select **Commission All** from the settings menu to reconnect all devices.

3.7 Connecting Ethernet Gateways

Connect the Ethernet output from the controller to the gateway(s).

Note: If multiple gateways are in use, their Ethernet ports may be daisy chained or an optional Ethernet switch can be used to connect all gateways and the controller onto the same local subnetwork.

Connect the Modbus cable to the gateway output as depicted below.

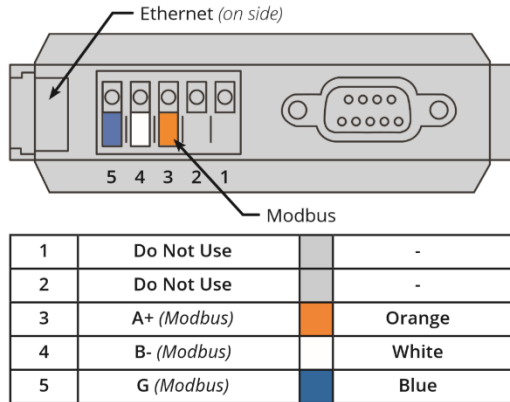


Figure 19 - Wiring Gateways

Each gateway can support a maximum of 15 MVR-300 devices connected in a daisy chain fashion using the Modbus network cable.

Leave no more than 12 inches (30 cm) for the wire tie-off to each MVR-300.

The shield cable may be left floating or tied to electrical GND at the controller only.

3.8 Connecting MVR-300s

Connect the first MVR-300 device's Modbus port (3-wire) to the gateway. The unique location on the network for each device will be a combination of its Modbus ID (number 2 through 16), and the unique IP address of the gateway to which they are connected.

Additional resources for the MVR-300 are available online. To download these resources, visit **myBacharach.com** or use the direct link: <http://bit.ly/2wr9eMn>.

Wiring Notes:

- The gateway provides the link between the MVR-SC and small groups of MVR-300 devices, up to 15 per gateway.
- Cable type recommended: Belden 3106, 1.5 twisted-pair/shielded.
- Daisy-chain only, minimizing the total Modbus run length for best performance.
- The best practice is to leave no more than 12-inches (30.5 cm) for the wire tie-off to each device in order to keep the Modbus wiring as close to a true daisy-chain as possible.

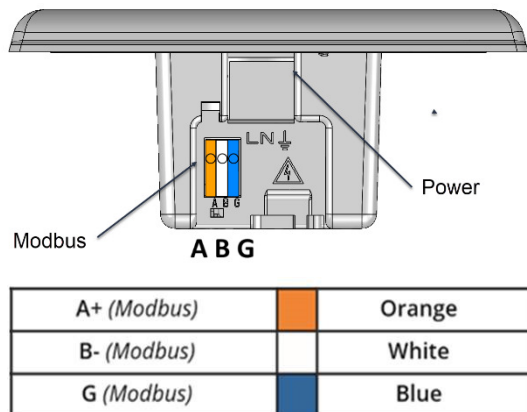


Figure 20 - Wiring the MVR-300

Tip: An EZ-wire connection is available, and perfectly matched to the Modbus wiring terminal on the MVR-300, which can ensure faster, more consistent wiring.



3.9 Upload Floorplan Spreadsheet

1. Power up the MVR-SC. When the System Startup (Home) screen appears, access **System Settings** (gear icon).

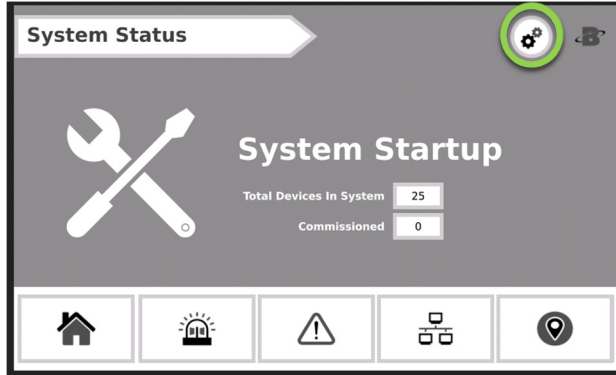


Figure 21 - System Status screen

2. After the System Setting screen appears, insert the USB stick containing the floorplan spreadsheet into the USB slot of the controller.

Note: Instructions on filling out this spreadsheet are described earlier in this manual in **Sections 3.1 and 3.2**.

3. Press **Network Config**, and then press “**Upload CSV**” to upload the floorplan spreadsheet **data.csv** from the root folder of the USB stick.

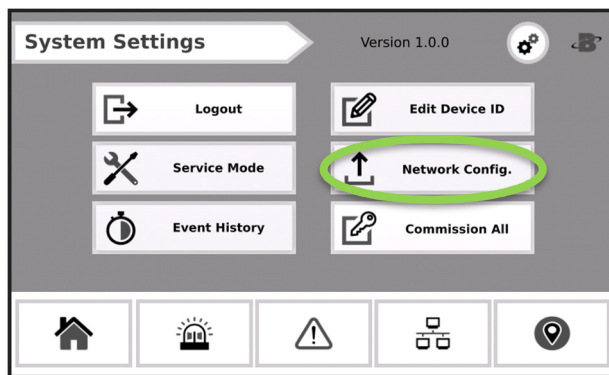


Figure 22 - System Settings screen

A success message will indicate that the upload is complete.

3.10 Commissioning

Each MVR-300 ships with default Modbus ID set to 1. These can be set in either of two methods:

1. **Modbus ID Auto-assign:**
Automatically connect and set IDs using the integrated Magnetic Switch to pair each MVR-300 to its install location.
2. **Set Modbus ID Manually:**
Use the RS485 port on the controller to manually set the Modbus IDs, and then install according to the floorplan, while keeping track of assigned Modbus IDs.

3.11 Method 1: Modbus ID Auto-assign

1. MVR-300 devices can be auto-assigned their Modbus ID using a 2-person verification technique.
This process gives the added advantage of physically verifying that each connected device is correctly installed in the assigned room location.
2. Open the **Settings Screen** (gear icon) and then enter the passcode. (If the passcode has not been entered, the **Device Modbus Pairing** Screen will not be accessible).
3. On the MVR-SC touch screen, tap the pin icon in the bottom right of the screen to advance to the “Floors” screen and then tap the floor that is to be commissioned.

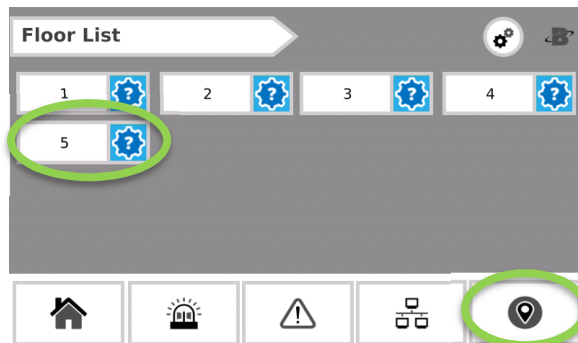


Figure 23 - Floor List screen

4. Tap the tile with the first room that is to be commissioned.

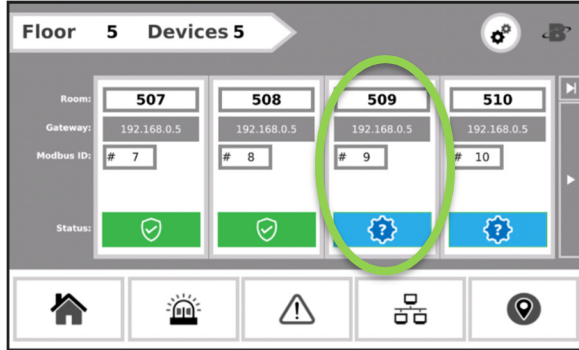


Figure 24 – Tap the tile of room to commission

This should open the **Device Modbus Pairing** Screen.

5. At the physical MVR-300 device, have a co-worker tap the Magnetic Switch A (marked with a single dot “•”) with the magnetic wand for less than a second, and then pull the magnetic wand away.

This action will put the MVR-300 into Commissioning Mode” and it should beep when the wand is being pulled away (releasing Magnetic Switch A).

Note: Optionally, the MVR-300 may be taken out of this mode by doing the same tap and pull-away action on the lower Magnetic Switch B location (marked with a double dot “••”).

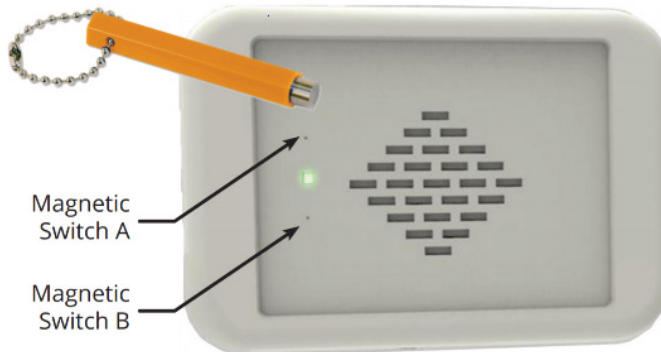


Figure 25 – The MVR-300

6. Back at the MVR-SC touchscreen, after the device has been put into the “Commissioning Mode”, tap **Commission Device**. When the device has successfully commissioned, a “Success” message will appear. If the commission was unsuccessful, an “Unable to Contact Device” message should appear and the network wiring should be checked.

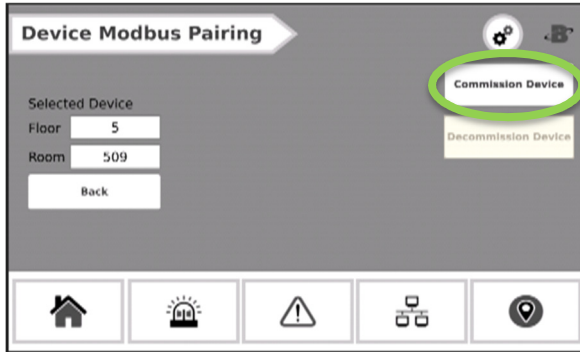


Figure 26 - Device Pairing

7. After the commission is successful, tap the “Back” button to go back to the devices screen.

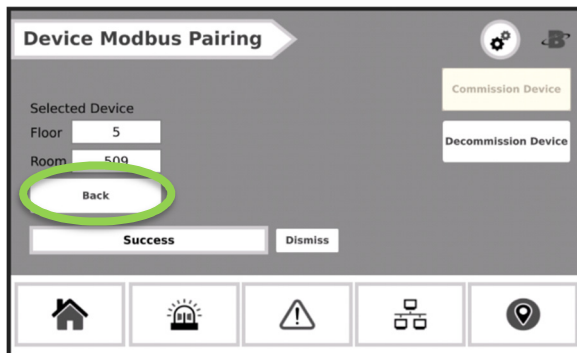


Figure 27 - Once commission is successful, tap Back

8. On the **Devices Screen** there should be a green checkmark on the device that was just commissioned signaling that the commission was successful.

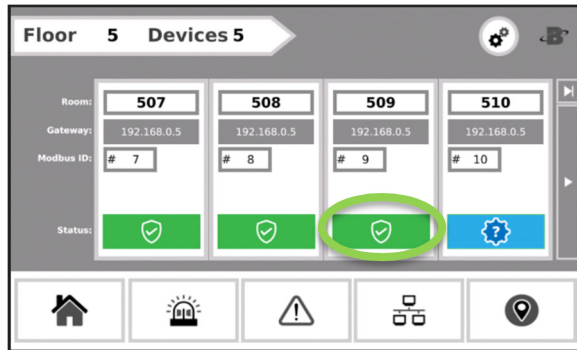


Figure 28 - Green checkmark appears

9. Repeat these steps for each room on a floor and each floor in the building until all MVR-300 devices have been commissioned. When all devices have been commissioned the green “System Normal” splash will display on the Home Screen.

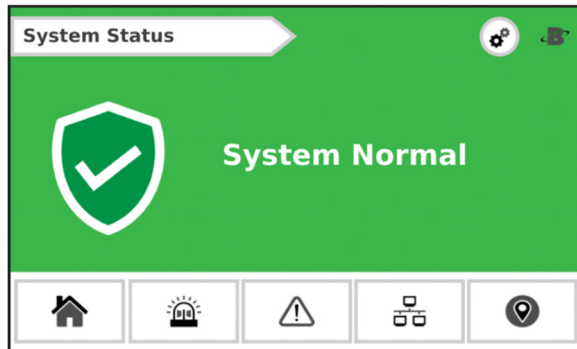


Figure 29 - System Normal screen

3.12 Method 2: Set Modbus ID Manually

Modbus IDs can be manually assigned to the MVR-300 devices prior to wiring.

Wire a single MVR-300's Modbus port to the controller's Modbus terminal block. It is recommended to use the EZ-wire kit available with the MVR-SC controller for ease.

1. From **Settings**, open the **Set Modbus ID** screen to select and apply a specific Modbus ID.
2. Tap **Search** to connect to the device. If the unit does not have factory Modbus ID #1, this can be restored by doing a factory reset.

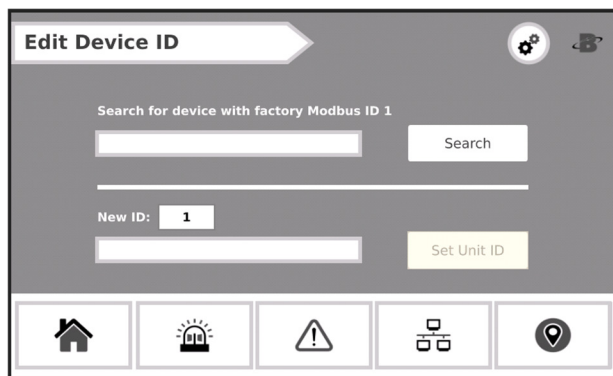
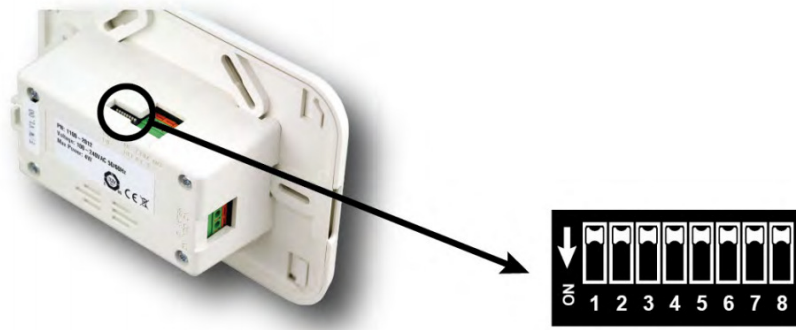


Figure 30 - Set Modbus ID

In case the MVR-300 has had its Modbus ID changed to some ID other than the default address 1, do the following to reset to factory settings:

- a. Power OFF the MVR-300. Set dipswitch-8 to the ON position.
- b. Power ON the MVR-300 (buzzer should sound). Reset dipswitch-8 to the OFF position (buzzer should turn off).



- c. Hold the magnet wand to Magnetic Switch A (marked with a single dot “•” on the MVR-300) for 60 seconds. The device should beep at the end of 60 seconds to indicate reset.
- d. Remove the magnet wand and cycle power. The MVR-300 will have reverted to default settings including default Modbus ID 1.
- e. Specify a unique ID for the MVR-300 – this can a number 2 through 16, inclusive.
- f. Tap **Set Unit ID** to apply this ID.



Figure 31 - Set Unit ID

- g. Repeat the above steps for each device. Keep track of the assigned IDs and install according to the floorplan spreadsheet.

4 Operation

4.1 Overview of Normal Operation

The MVR-SC provides centralized monitoring of all segments in the network with a 15-second scan rate.

4.2 Alarm Detection

The MVR-SC controller will provide instantaneous details for any MVR-300 in the network experiencing an alarm condition.

To respond to an alarm event:

1. Tap **Mute** to silence the alarm. This will mute the buzzer at the controller for 30-minutes.
2. Tap **Details** to open the **Devices in Alarm** screen to view the device(s) impacted.

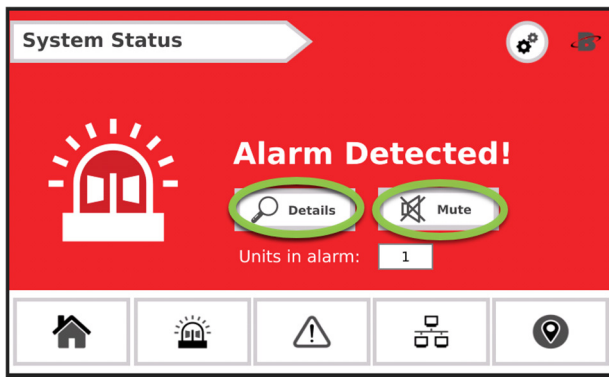


Figure 32 - Alarm Detected screen

The **Devices in Alarm** screen will list a single Device/Room tile for each MVR-300 in active alarm. Each tile will also indicate the severity status and network details for the MVR-300.

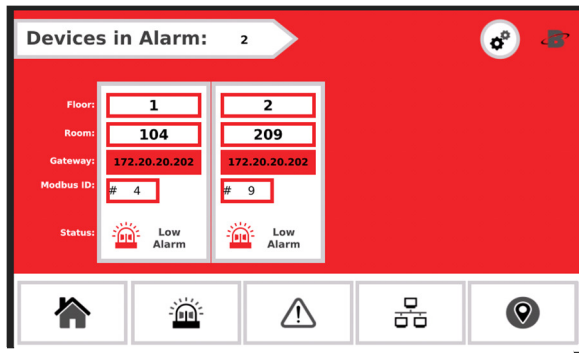


Figure 33 - Devices in Alarm screen

4.3 Fault Detection

The MVR-SC controller will provide instantaneous details for any MVR-300 in the network experiencing a hardware fault condition.

To respond to a Fault event:

1. Tap **Mute** to silence the alert. This will mute the buzzer at the controller for 30-minutes.
2. Tap **Details** to open the **Devices in Fault** screen to view the device(s) impacted.

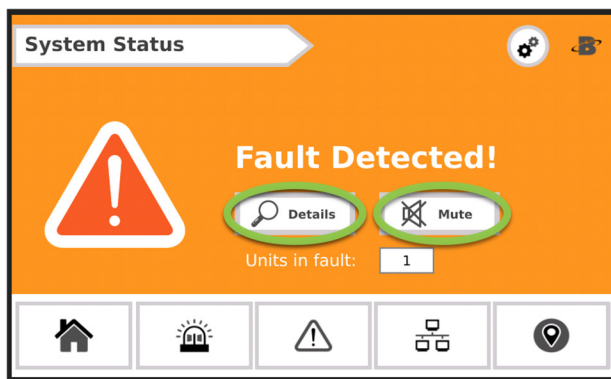


Figure 34 - Fault Detected screen

The **Devices in Fault** screen will list the Floor/Room location, status, and network details for each MVR-300 found to be in fault.

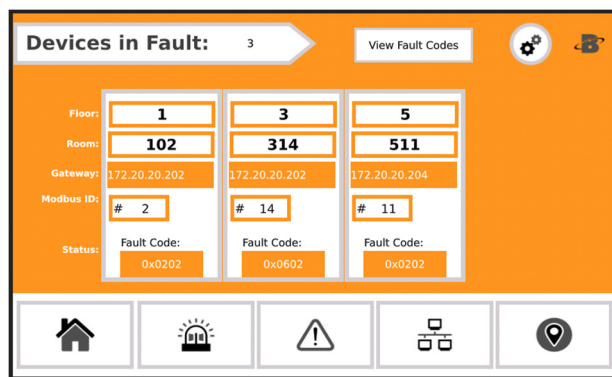


Figure 35 - Devices in Fault screen

4.4 Communication (Comm.) Error

After several unsuccessful attempts to communicate with a commissioned MVR-300 device, the MVR-SC will change the device status to Comm. Error and this condition will be indicated with an alert.

To respond to a **Comm. Error** event:

1. Tap **Details** to open the **Comm. Error** screen to view the device(s) impacted.

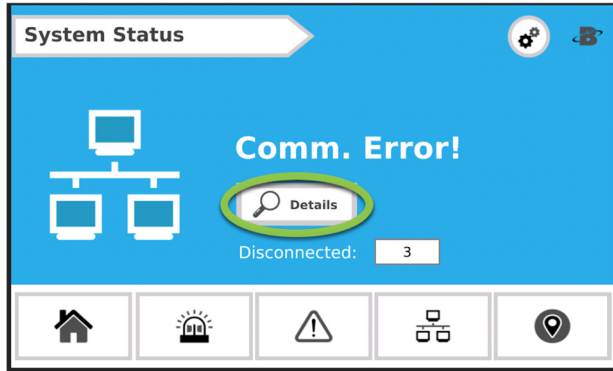


Figure 36 – System Status screen

The **Comm. Error** screen will list the Floor/Room location, status, and network details for each affected MVR-300.

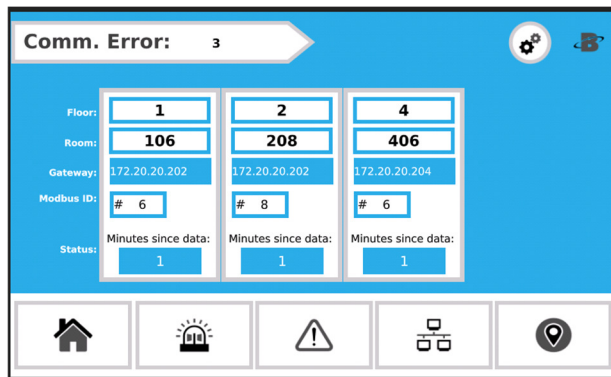
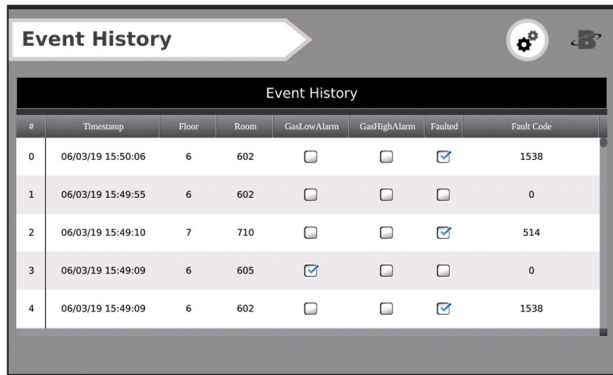


Figure 37 - Comm. Error screen

4.5 Event History

The MVR-SC will save new **Alarm** or **Fault** events to the **Event History**. This can be accessed from the **Setting** screen. The event history is a rolling list of 100 entries. In addition, entries tagged as neither alarm nor fault are created when a device status clears to normal.

Note: The Fault Code is stored as a decimal value and should be converted back to a hex or binary value for easier interpretation of the specific fault codes.

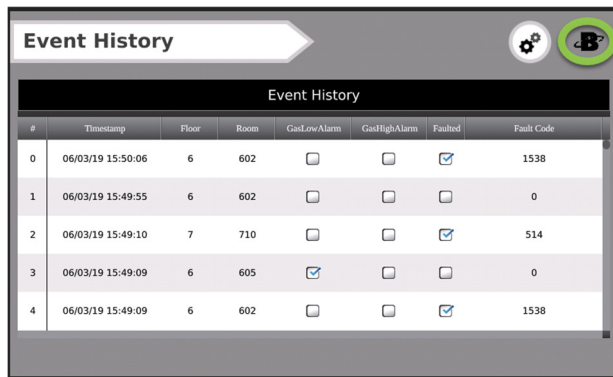


#	Timestamp	Floor	Room	GasLowAlarm	GasHighAlarm	Failed	Fault Code
0	06/03/19 15:50:06	6	602	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1538
1	06/03/19 15:49:55	6	602	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0
2	06/03/19 15:49:10	7	710	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	514
3	06/03/19 15:49:09	6	605	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0
4	06/03/19 15:49:09	6	602	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1538

Figure 38 - Event History screen

The Time and Date can be set using the UniApps utility.

1. Press and hold the **"B"** icon in the upper right corner for 3 seconds.



#	Timestamp	Floor	Room	GasLowAlarm	GasHighAlarm	Failed	Fault Code
0	06/03/19 15:50:06	6	602	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1538
1	06/03/19 15:49:55	6	602	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0
2	06/03/19 15:49:10	7	710	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	514
3	06/03/19 15:49:09	6	605	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0
4	06/03/19 15:49:09	6	602	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1538

Figure 39 - Press and hold the "B" icon

2. Tap **UniApps** from the pop-up menu that appears.

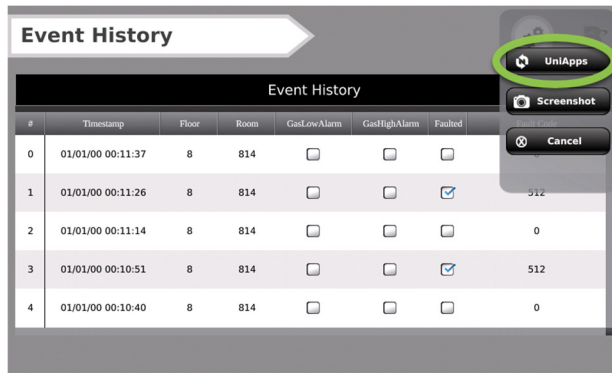


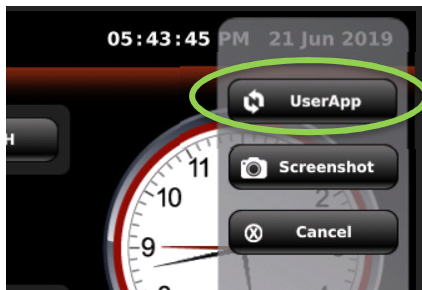
Figure 40 - Tap UniApps

3. Select the **System** tab, and then **Time & Date**. Choose the date from the calendar tool on the left side of the screen and the time from the right side of the screen.



Figure 41 - Choosing the time and date

4. To return to the home page, press and hold the upper right corner again for 3 seconds. From the dropdown menu, choose UserApp.



4.6 Service Mode Screen

This utility will disable the audible buzzer and set the relays to their default (normal) position for 30 minutes in order to facilitate maintenance on the network or MVR-300 devices. To access the Service Mode Screen:

1. Open the Settings screen (gear icon in upper right) and tap the **Service Mode** button.
2. Tap **Apply** to begin a 30-minute countdown. A timer appears once activated. Tapping **Apply** a second time will restart the countdown again to 30 minutes.

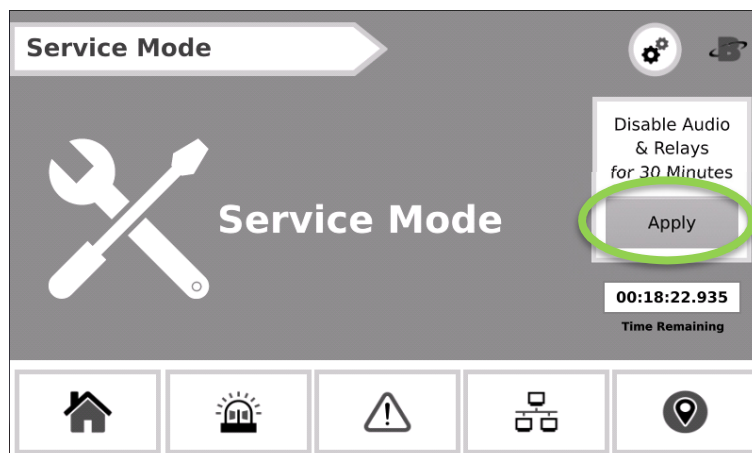


Figure 42 - Service Mode screen

5 Additional Information

5.1 Disposing of the Instrument

EU-wide regulations governing the disposal of electrical and electronic appliances which have been defined in the EU Directive 2012/19/EU and in national laws have been effective since August 2012 and apply to this device.

Common household appliances can be disposed of using special collecting and recycling facilities. However, this device has not been registered for household usage. Therefore, it must not be disposed of through these channels. The device can be returned to your national Bacharach Sales Organization for disposal. Please do not hesitate to contact Bacharach if you have any further questions on this issue.

5.2 Service Center Locations

Prior to shipping equipment to Bacharach, visit www.mybacharach.com for a Returned Merchandise Authorization Number (RMA #). All returned goods must be accompanied by an RMA #. Pack the equipment securely (in its original packing, if possible), as Bacharach cannot be held responsible for any damage incurred during shipping to our facility.

Location	Contact Information	Shipping Address
United States	Phone: +1 724 334 5000 Toll Free: +1 800 736 4666 Fax: +1 724 334 5001 Email: help@mybacharach.com	Bacharach, Inc. 621 Hunt Valley Circle New Kensington, PA 15068, USA ATTN: Service Department
Europe	Phone: +353 1 284 6388 Fax: +353 1 284 6389 Email: help@mybacharach.com	Bacharach, Inc. D13 Santry Business Park, Swords Road, Santry, Dublin 9, D09 KN72, Ireland ATTN: Service Department
Canada	Phone: +1 905 882 8985 Fax: +1 905 882 8963 Email: support@bachcan.ca	Bacharach, Inc. 10 West Pearce Street, Unit 4 Richmond Hill, Ontario L4B 1B6, Canada ATTN: Service Department