IRM-PM7
IRM-PM5

INTEGRATED ROOM - PRESSURE MONITOR MANUAL

Measure What Matters.

INTEGRATED ROOM - PRESSURE MONITOR

MANUAL

TABLE OF CONTENTS

IMPORTANT NOTES

The "Important Notes" header is used throughout this manual to call out important considerations that the reader should be aware of. Please take time to thoroughly read these sections.

⚠ Other setup and display parameters may be visible in the product, but not applicable to monitor environment solutions.

PRODUCT OVERVIEW

IRM-PM SERIES

The Integrated Room Pressure Monitor Series is engineered for critical environments requiring precise and reliable pressurization monitoring. Utilizing industrial-grade patented pressure sensing technology, the IRM-PM series delivers long-term, repeatable performance for enhanced safety assurance. It provides clear, unambiguous visual indication of room pressure status, complemented by audible alarms for immediate awareness. The intuitive touchscreen interface ensures straightforward operation, offering real-time space condition monitoring while minimizing user setup and commissioning efforts. Available with the option of a 7" display (IRM-PM7) or a 5" display (IRM-PM5).

IRM-PM7

The Integrated Room Pressure Monitor Solution consists of the following components:

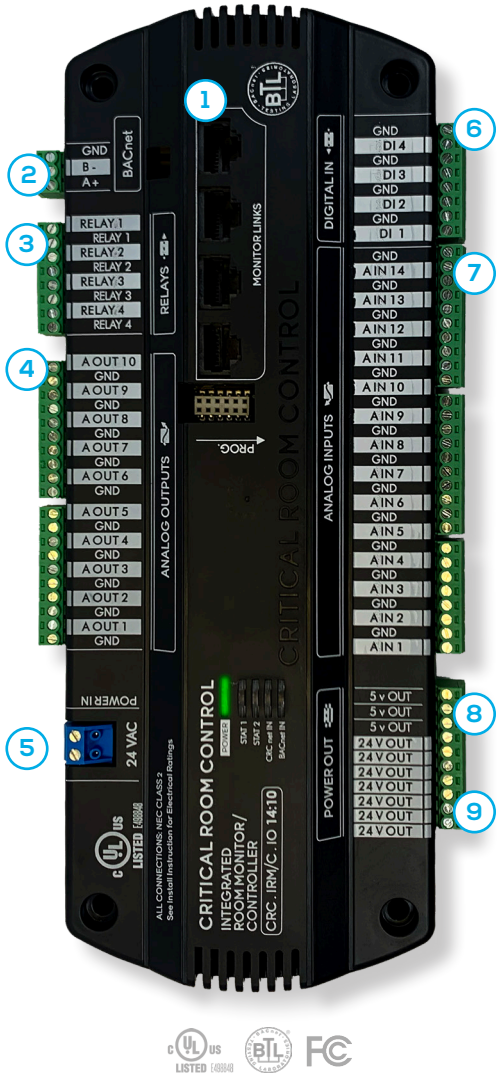
- 7" Room Pressure Monitor
- Room Pressure (1 Standard)
- Optional Accessories: Displays (up to 2 additional) and Room Pressure (up to 3 additional)

IRM-PM5

The Integrated Room Pressure Monitor Solution consists of the following components:

- 5" Room Pressure Monitor
- Room Pressure (1 Standard)
- Optional Accessories: Displays (up to 2 additional) and Room Pressure (up to 3 additional)

INTEGRATED ROOM I/O BOARD



SPECIFICATIONS

Dimensions	10.25 x 4 x 1.25 in
Input Power	24 VAC ± 10 %, 50/60 Hz, maximum 30 VA, Class 2
Onboard Power	5 @ 24 VDC (200 mA total max.) 3 @ 5 VDC (100 mA total max.)
Operating Temperature	32 to 158 °F (0 to 70 °C)
Storage Temperature	-40 to 158 °F (-40 to 70 °C)
Operating Humidity	10 to 70 % RH, non-condensing
Storage Humidity	10 to 70 % RH, non-condensing
Communication Protocol	BACnet® MS/TP (BTL - listed/tested)
Connectors	14 – 26 AWG wire
Listing	UL 916, C-UL, BTL
Manufactured Under	ISO 13485-2003

COMPONENTS

1. 4 Display ports
2. BACnet® MS/TP
3. 4 Relays (normally closed, 2 A @ 30 VDC)
4. 10 Analog outputs (configurable 0 to 10 VDC)
5. 24 VAC power in
6. 4 Digital inputs (normally closed)
7. 14 Analog inputs (configurable 0 to 10 VDC)
8. 5 VDC power to sensors
9. 24 VDC power to sensors

INTEGRATED ROOM 7 INCH DISPLAY

SPECIFICATIONS

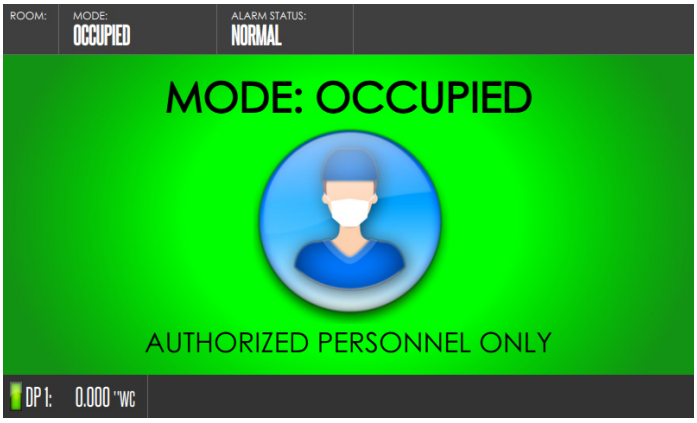
Dimensions	9 x 5.375 x 1.5 in.
Input Power	Supplied by I/O board via Cat6 cable
Cable Length	Up to 200 ft shielded Cat6 cable per display Up to 500 ft shielded Cat6 total for all connected displays
Operating Temperature	50 to 95 °F (10 to 35 °C)
Operating Humidity	0 to 95 % RH, non-condensing
Resolution	WVGA RGB 480 x 800 px
Display Type	Resistive touch

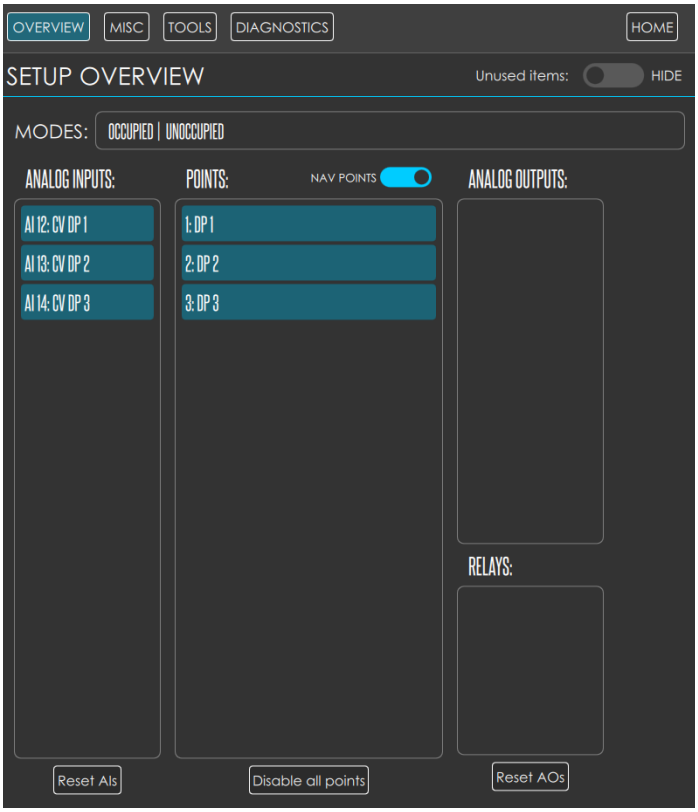
INTEGRATED ROOM 5 INCH DISPLAY

SPECIFICATIONS

Dimensions	6.9 x 4.55 x 1.15 in.
Input Power	Supplied by I/O board via Cat6 cable
Cable Length	Up to 200 ft shielded Cat6 cable per display Up to 500 ft shielded Cat6 total for all connected displays
Operating Temperature	50 to 95 °F (10 to 35 °C)
Operating Humidity	0 to 95 % RH, non-condensing
Resolution	WVGA RGB 480 x 800 px
Display Type	Resistive touch

PRESSURE MONITOR OVERVIEW





PM HOME SCREEN

ROOM: Displays room name

MODE: Displays current mode

ALARM STATUS: Displays current alarm status

MODE VISUAL: Displays mode name, icon and background color

POINT BANNER: Optimized to display 4 points
(10 total allowed, view via scrolling)

Click ROOM>>ADMIN>>SETUP to customize display

ADMIN MENU

OVERVIEW: Click to access setup overview menu

MISC: Click to access miscellaneous menu

TOOLS: Click to access tools menu

DIAGNOSTICS: Click to access diagnostics menu

HOME: Click to return to PM home screen

MODES: Click to access modes menu

Unused Items (Hide/Show): Toggle between used and all available selections

Reset (AIs | Points | AOs): Resets to unused

PM DEFAULTS (ENABLED)

To ensure proper configuration pair I/O Board with PM display during first power up.

Modes	Analog Inputs	Points	Analog Outputs	Relays
Occupied	AI 1	***1: DP 1 ****	AO1	RELAY 1
Unoccupied	AI 2	***2: DP 2***	AO2	RELAY 2
Mode 3	AI 3	***3: DP 3***	AO3	RELAY 3
Mode 4	AI 4	4: Room Temp	AO4	RELAY 4
Mode 5	AI 5	5: Room Humidity	AO5	
	AI 6	24: Mode	AO6	
	AI 7	25: AUX 1	AO7	
	AI 8	26: AUX 2	AO8	
	AI 9	27: AUX 3	AO9	
	AI 10	28: AUX 4	AO10	
	AI 11			
	AI 12: DP 1			
	AI 13: DP 2			
	AI 14: DP 3			

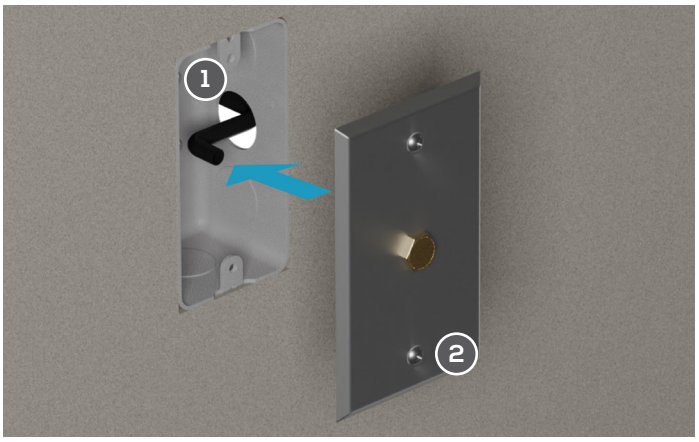
*Configured to show on Home Screen (Status Screen)

⚠ Scroll on the right side of the screen to view all the information.

INSTALLATION

INSTALLATION LOCATION FOR PRESSURE PICKUP

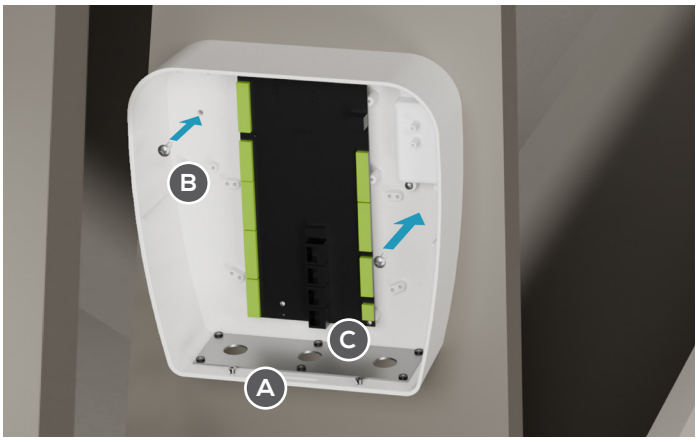
- 1 pressure pickup in the primary room
- 1 pressure pickup in the reference space
- Position both pressure pickups away from airflow diffusers/grilles, 7 feet or higher



1. Install a single gang box at each identified location. Connect pneumatic tubing to the back of each pressure pickup.
2. Secure the pressure pickups to the single-gang boxes with screws
3. Reference space tubing to the LO port on the differential pressure sensor.
4. Primary space tubing to the HI port on the differential pressure sensor.

INSTALLATION LOCATION FOR ENCLOSURE WITH DPS

- In the plenum space with access for wiring to the I/O board and tubing to the pressure pickup
- Ensure tubing is as short as possible, with equal length, diameter, temperature, and path

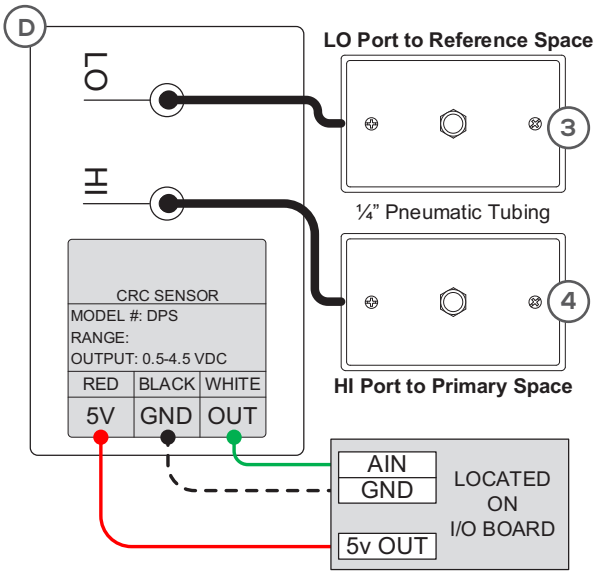


A. Remove the bottom screws to take off the enclosure lid.

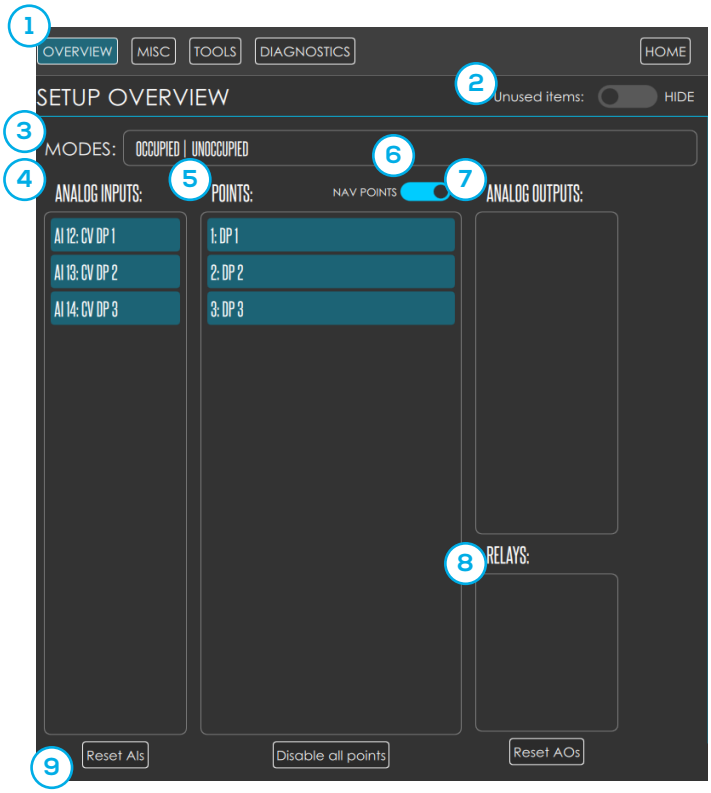
B. Mount the enclosure at the desired location using 2 mounting holes. (One needs to be field drilled)

C. Route Cat6 cable to the display and tubing to the pressure pickups through the knockouts as needed, the reattach the lid.

D. Reference the wiring diagram for termination details.



SETUP OVERVIEW SCREEN



SETUP OVERVIEW

GENERAL

The SETUP OVERVIEW is the main admin screen. From this screen, the administrator can quickly see how the display is currently configured. Users can then access Modes, Points, Analog Outputs, Relays, and other setup screens.

COMPONENTS

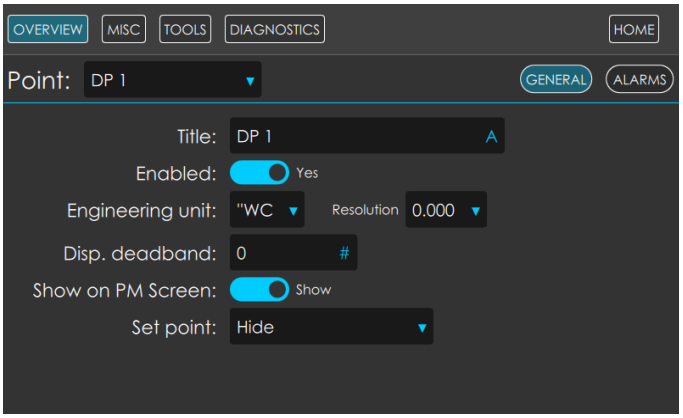
1. Top Menu: Allows the user to navigate between the top four admin screens.
2. Unused Items (Hide / Show): This control will allow the user to toggle between hiding and showing unused Points, AIs, and AOs.
3. MODES: Displays the modes that are currently enabled. Click on any of the modes to access the mode admin screens.
4. ANALOG INPUTS (AI): Indicates which Analog Inputs are being used. If an AI is currently being used, then the name of the point and whether it is configured to modify the point's current value (CV) or setpoint (SP) is displayed and highlighted in blue. Click on an AI's text to navigate to that AI's setup screen.
5. POINTS: Indicates which Points are being used. Click on a point's text to navigate to that Point's setup screen.
6. NAV POINTS: This control allows the user to either use the Point text as a button to enable / disable the Point or to navigate to the Point's setup screen.
7. ANALOG OUTPUT (AO): Indicates which Analog Outputs are being used. If an AO is currently being used, then the name of the point that is associated with that AO is displayed and highlighted in blue. Click on an AO's text to navigate to that AO's setup screen.
8. RELAYS: Indicates which relays are configured / used. Click on a specific relay to configure it.
9. Reset AIs | Reset Points | Reset AOs: Resets each respective item to unused.

POINT SETUP

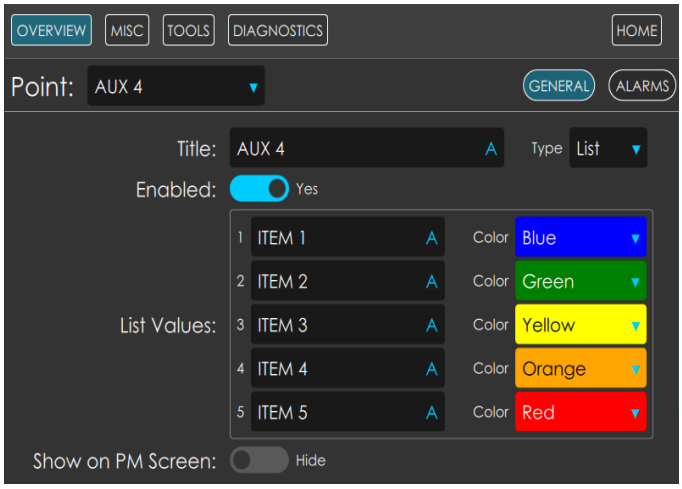
POINT SETUP (GENERAL)

Point data can be setup and configured via the General screen.

The Point Setup Screen is used to configure how point data is displayed for the room and this specific display.



VALUE POINT SETUP (GENERAL)



LIST POINT SETUP (GENERAL)

POINT SETUP (GENERAL) PARAMETERS

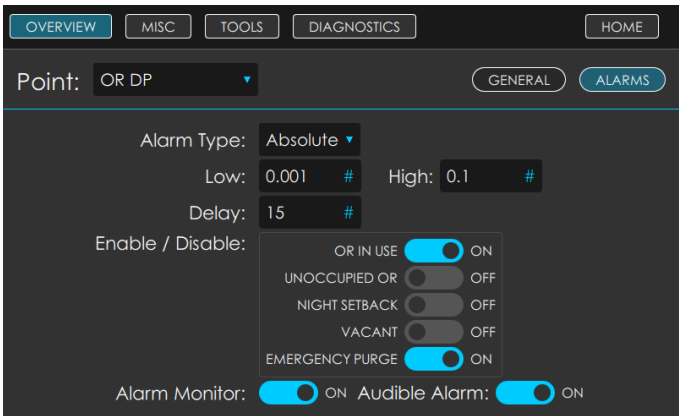
Parameter	Unit Selections	Description
Title	Alphanumeric Free Text (15 Character Limit)	Change the name of the point on this display.
Enabled	Yes/No	Point must be enabled to configure and use it.
Engineering unit	°, %, CFM, ACH, "WC, Pa, PPM, L/M, L/S, CMM, CMH, °F, °C	Value descriptor that appears after current and setpoint value.
Resolution	Up to 4 decimal places	Point value resolution for displaying current and setpoint values.
Disp. Deadband	Numerical Value	Creates a deadband where the current value will not update until it exceeds change in value ±.
Show on PM Screen	Show/Hide	Selecting "Yes" will display this point's value and alarms on the PM Screen.
Set point	Hide/Show/Show - Allow Change	If setpoint is not applicable, select "Hide". If the setpoint needs to be visible, select "Show". If the user needs to locally adjust setpoint, select "Show - Allow Change".
SP Password	Yes/No	Selecting "No" allows user to make changes to setpoint without requiring a password.
Setpoint Limit	Numerical Value	If setpoint is set to "Show - Allow Change", then the SP limits are enabled. Enter a low and high limit for users. This setting will only used within this display.
Type	Value/List	Select between value point type or list point type. Available configuration for Points 25-28.
List Values	Alphanumeric Free Text (15 Character Limit)	Custom text option can be assigned for List items 1-5. Available configuration for Points 24-28.
Color	Blue, Green, Yellow, Orange, Red, Red + Alarm	Select a color to be shown on display. Available configuration for Points 24-28.

POINT SETUP

POINT SETUP (ALARMS)

The Point Setup (Alarms) Screen is used to configure how point data is alarmed for the room and this specific display.

⚠ A point's alarm status is continuously transmitted to all connected displays and can be read by BACnet®.



POINT SETUP (ALARMS)

POINT SETUP (ALARM) PARAMETERS

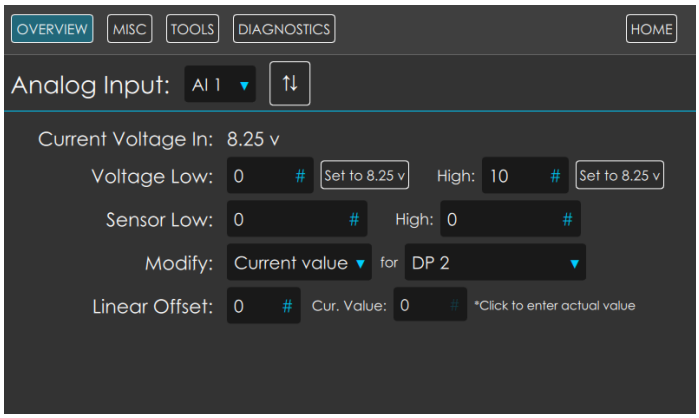
Parameter	Unit Selections	Description
Alarm Type	Absolute, Relative	Absolute alarm is triggered if the current value exceeds the high limit or falls below the low limit. Relative alarm is triggered if the current value is higher than the setpoint plus the Over value or lower than the setpoint minus the Under value.
Low/High	Numerical Value	Alarm limit conditions for absolute alarm.
Under/Over	Numerical Value	Alarm limit conditions for relative alarm. The point must have an associated setpoint.
Delay (sec)	Numerical Value	Set the desired delay time for alarm to activate, in seconds.
Enable/Disable (mode)	ON/OFF	Selecting ON will enable the point alarm for associated mode.
Alarm Monitor	ON/OFF	Selecting ON will elevate the point alarm to a display alarm and bring visibility to the Audible Alarm parameter.
Audible Alarm	ON/OFF	Selecting ON will enable the audible point alarm. Activation conditions are set via Enable/Disable parameters.

⚠ To fully activate alarm behavior, mode alarm, Alarm Monitor, and Audible Alarm must be set to ON.

ANALOG INPUT SETUP

ANALOG INPUT SETUP TYPES

The Analog Input screen allows the user to configure the Analog Inputs. Analog inputs can be used to change the current or setpoint values within the system.



ANALOG INPUT

ANALOG INPUT SETUP PARAMETERS

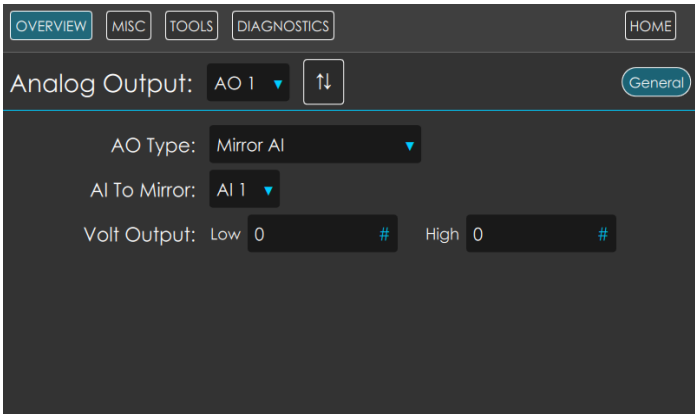
Parameter	Unit Selections	Description
Move AI [⇅]:	AI1-14	Move the settings for this analog input to another analog input (e.g., AI 1 to AI 7).
Current Voltage In	0.00V	Displays the current measured voltage for the selected Analog Input.
Voltage Low	0-10V	Enter the low-end voltage range (0-10V) for this Analog Input.
Set Voltage Low	0-10V	Populates the Voltage Low field with the Current Voltage In.
Voltage High	0-10V	Enter the high-end voltage range (0-10V) for this Analog Input.
Set Voltage High	0-10V	Populates the Voltage High field with the Current Voltage In.
Sensor Low	Numerical Value	Enter the low limit for the device connected to this Analog Input.
Sensor High	Numerical Value	Enter the high limit for the device connected to this Analog Input.
Modify	Unused Current value Setpoint	Unused: Turns this Analog Input off. Current Value: Assigns the calculated value as a Current Value for the selected point. Setpoint: Assigns the calculated value as a Setpoint for the selected Point.
Modify for	Enabled Points	Select an enabled point to assign the Current Value or Setpoint.
Offset	Numerical Value	Digital calibration value applied to the Current Value. Click # to enter manually.
Current Value	Numerical Value	Displays the calculated current value. Click # to enter measured current value and auto-calculate Offset.

ANALOG OUTPUT SETUP

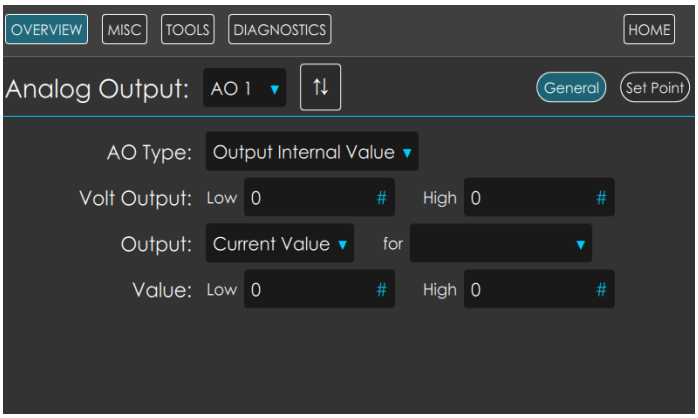
ANALOG OUTPUT SETUP TYPES

Mirror AI or AO: Configures the AO to mirror another AI or AO.

Output Internal Value: Configures the AO to adjust its voltage signal to represent the current value or setpoint of a specific Point.



ANALOG OUTPUT (MIRROR AI)



ANALOG OUTPUT (OUTPUT INTERNAL VALUE)

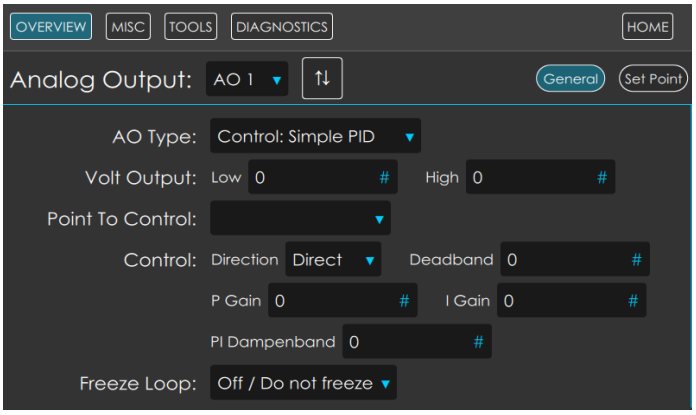
ANALOG OUTPUT SETUP PARAMETERS

Parameter	Selections	Description	Mirror AI	Mirror AO	Output Internal Value
AI to Mirror	Enabled AI's	Select an enabled Analog Input signal to mirror.	●		
AO to Mirror	Enabled AO's	Select an enabled Analog Output signal to mirror.		●	
Volt Output Low	0-10V	Enter the low end voltage range for this Analog Output using values between 0-10V.	●	●	●
Volt Output High	0-10V	Enter the high end voltage range for this Analog Output using values between 0-10V.	●	●	●
Output	Current Value Set Point	Select desired output value (current value or setpoint).			●
for	Enabled Points	Select an enabled point that has the current value or setpoint value to drive this AO's voltage signal.			●
Value Low	Numerical Temp Value	Enter the low end of the temperature range to be used when varying this AO's voltage signal.			●
Value High	Numerical Temp Value	Enter the high end of the temperature range to be used when varying this AO's voltage signal.			●

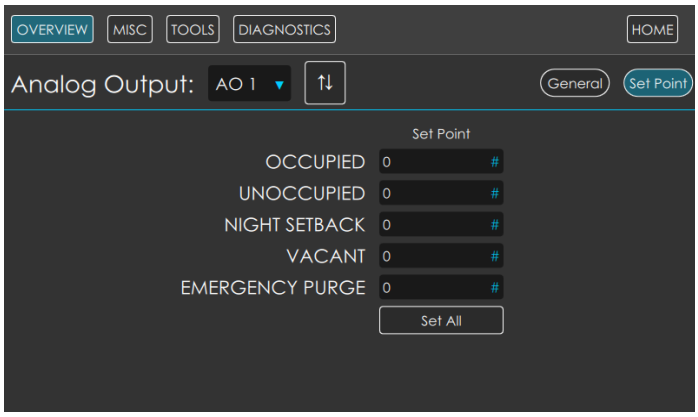
ANALOG OUTPUT SETUP

ANALOG OUTPUT (CONTROL: SIMPLE PID)

Used to control a single variable to desired setpoint.



ANALOG OUTPUT (MIRROR AI)



ANALOG OUTPUT (OUTPUT INTERNAL VALUE)

Parameter	Unit Selections	Description
AO Type	Multiple	Enter AO Type: Control Simply PI (Used to control a single variable to the desired setpoint).
Analog Output	AO 1 - 10	Enter the desired which controller (1-10) analog output number to configure the parameters.
↑↓	AO 1 - 10	Enables the user to assign the setup parameters to the desired analog output number on the controller.
Volt Output Low	0 - 10V	Enter the low end voltage range for this Analog Output using values between 0-10V
Volt Output High	0 - 10V	Enter the high end voltage range for this Analog Output using values between 0-10V
Point to Control	Enabled Points	Select the desired enabled point to be controlled by this analog output.
Control: Direction	Direct Reverse	Set output control based on process variable: Direct: Rise in control process variable increases controlleranalog output voltage Reverse: Rise in control process variable decreases controller analog output voltage
Control: Deadband	0.0-100.0	Set ±range the control system does not respond to changes to the input above or below controlled variable setpoint
Control: P Gain	0.01 - 100.0	Set the P Gain (Proportional Gain). Increasing this value will enhance the system's response to the error between the controlled variable and the setpoint. (NOTE: For optimal performance, the P Gain should maintain a 3:1 ratio with the I Gain and should never be set lower than the I Gain.)
Control: I Gain	0.01 - 100.0	Set the I Gain (Integral Gain). Increasing this value will enhance the system's response to the accumulated error between the controlled variable and the setpoint. (NOTE: For optimal performance, the I Gain should maintain a 1:3 ratio with the P Gain and should never exceed the value of the P Gain.)
Control: PI "Dampening" Dampenband	0.0-100.0	Set the PI Dampenband to the ± deadband value range around the setpoint. This will allow the IRC controller to reduce the response of the controlled variable as it approaches the desired setpoint.
Freeze Loop	Off/Do not freeze DI1 (when closed) DI2 (when closed) DI3(when closed) DI4 (when closed)	Freeze Loop: Set to off, unless using direct pressure control with a door contact. The door contact will freeze the control position when the door is opened, and the door contact is wired to a digital input.

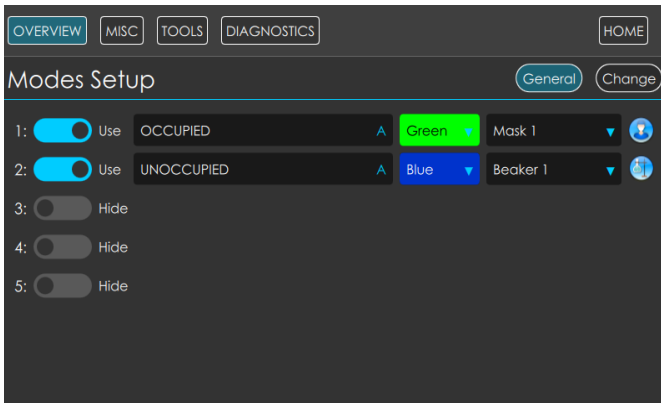
⚠ For optimal performance, the P Gain should maintain a 3:1 ratio with the I Gain and should never be set lower than the I Gain.

MODE SETUP

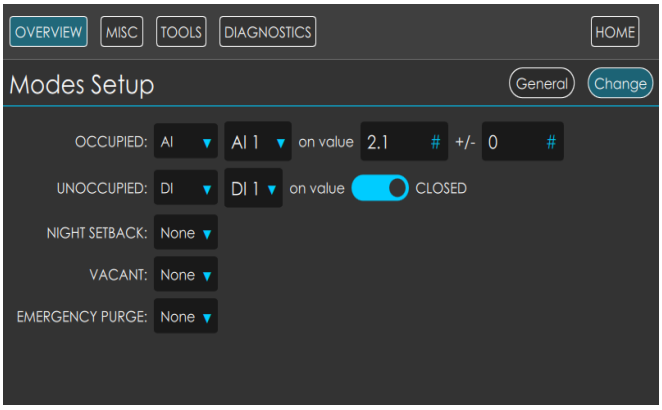
MODE SETUP

General: Mode Setup screen allows the user to configure and customize up to 5 modes. Modes can be used to indicate room's usage / occupancy and configured with different display and alarm settings.

Change: The mode change screen allows the user to setup analog input or digital inputs to trigger a mode change.



MODE SETUP (GENERAL)



MODE SETUP (CHANGE)

MODE SETUP (GENERAL)

Parameter	Unit Selections	Description
Use/Hide	Use/Hide	Selecting "Use" will enable the selected mode on this display.
Mode Text	Alphanumeric Free Text (15 Character Limit)	Custom text option for each defined mode that is displayed on Main status and More Info screens.
Background Color	Green, Blue, Yellow, Orange, Red, Grey	Selectable screen color to be used with each mode that is displayed on Main status screen when mode is active.
Icon	Stop Hand, Caution Triangle, Air Flow, Bed, Mop, Mask 1, Mask 2, DNA, Beaker 1, Beaker 2	Selectable icon to be used with each mode. Will be displayed on Main Status screen when mode is active.

MODE SETUP SCREEN (CHANGE)

Parameter	Unit Selections	Description
Input Selection	AI DI NONE	AI: Select to trigger mode change based on voltage signal (0 -10 VDC) to analog input. DI: Select to trigger mode change based on binary signal (open/close) to digital input. NONE: No trigger for mode change.
Input Trigger	AI Input Selection: AI 1-14 DI Input Selection: DI 1-4	Select a specific AI or DI to use for mode change trigger.
On Value	AI Mode: 0-10V DI Mode: ON, OFF	Set the specific AI or DI value that will trigger the mode change.
+/- Voltage Threshold	Only applicable to AI Mode. Not to exceed set AI On Value.	Enter a voltage range for the mode change triggering event. This value gives a deadband on either side of the "On " value voltage that will cause the mode to be changed.

⚠ Mode changes triggered by an Analog Input (AI) or Digital Input (DI) happen only once and won't keep the controller in that mode continuously. After a mode change is triggered, it won't happen again until the DI or AI moves outside the triggering range and then back within it. For example, if a mode change is triggered when DI 1 closes, it won't trigger another change until DI 1 opens and then closes again.

RELAY SETUP

RELAY SETUP TYPES

Unused: Not Used

Mirror DI: Configures the relay to mirror the open/close state of a DI.

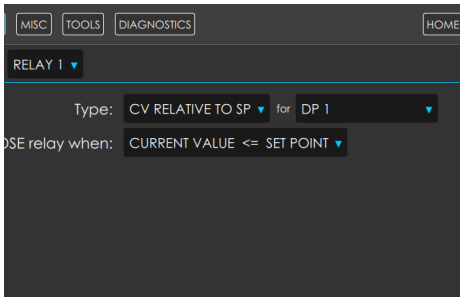
Invert DI: Configures the relay to invert the open/close state of a DI.

CV Relative to SP: Configures the relay to open/close based on a Point's current value compared to setpoint.

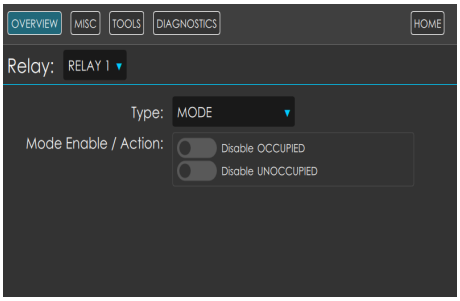
Alarm State: Configures the relay to open/close based on a Point's alarm state.

Mode: Configures the relay to open/close based on change of mode.

RELAY SETUP (MIRROR DI)



RELAY SETUP (CV RELATIVE TO SP)



RELAY SETUP (MODE)

RELAY SETUP

Parameter	Unit Selections	Description	Mirror DI	Invert DI	CV Relative to SP	Alarm State	Mode
DI to Mirror	Enabled DI's	Configures the relay to mirror the behavior of an assigned DI. Ex: If selected DI is open (0V) the relay will be open. When DI is closed the relay will close.	•				
DI to Invert	Enabled DI's	Configures the relay to invert the behavior of an assigned DI. Ex: If selected DI is open (0V) the relay will be close. When DI is closed the relay will open.		•			
for	Enabled Points	Selectable Point for CV to Relative SP function.			•	•	
CLOSE relay when	CURRENT VALUE <= SETPOINT CURRENT VALUE < SETPOINT CURRENT VALUE >= SETPOINT CURRENT VALUE > SETPOINT	Configures the relay to close based on the Point's value compared to setpoint.			•		
CLOSE relay when	IN ALARM NOT IN ALARM	Configures the relay to close based on the Point's alarm state.				•	
Mode Enable Action	Enable/Disable Open RLY/Close RLY	Enable to drive relay behavior based on mode change. Configures relay to open/close based on mode change.					•

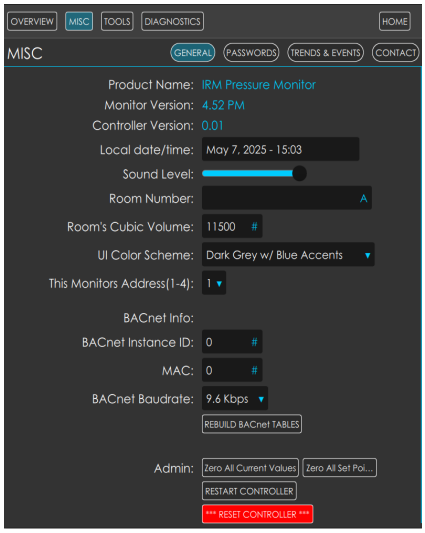
MISC. SETUP (GENERAL)

MISC. SETUP

General: Contains general settings and BACnet configuration parameters.

Passwords: Allows for configuration to secure the display with a password.

Contact: Provides contact information for support.

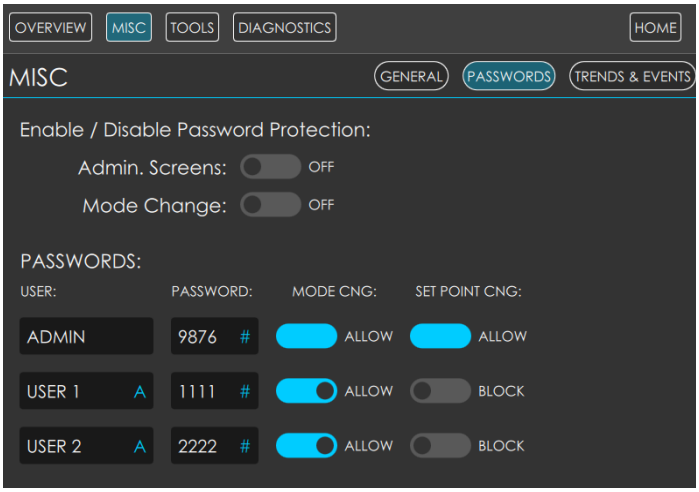


MISC SETUP

MISC. SETUP (GENERAL)

Parameter	Unit Selections	Description
Product Name	N/A	Contains the product name.
Monitor / Controller/ Database Version	N/A	Contains the current build for this display and attached I/O board.
Local date / time	Date (MM:DD:YYYY) Time (24 Hour)	Used for date / time stamp for event log and trend logs.
Sound Level	Adjustable volume slidebar	Sets the audible alarm volume.
Room Number	Alphanumeric Selection (15 character limit)	Customizable room name/number displayed locally on PM and MV screens.
Room's Cubic Volume	Numeric Value (ft^3)	Enter the volume of the room in cubic feet (length x width x height). The value entered here will drive air change rate calculations.
UI Color Scheme	Dark Grey w/ Blue Accents Dark Grey w/ Yellow Accents Dark Purple w/ Green Accents Dark Blue w/ Green Accents Brown w/ Green Accents Brown w/ Blue Accents Additional: Custom Selections	Select the color scheme for background and text color.
This Monitor's Address	1-4	Each display connected to the same I/O board must have a unique display address, starting with 1. ⚠ Each display connected must have a unique selection to properly communicate with the Integrated Room Controller.
BACnet® Instance ID:	(0-4,194,304)	Enter a BACnet® Instance ID (0- 4,194,304), unique to this I/O board.
MAC	1-126	Enter a MAC address (1-126), unique to this I/O board.
Baud Rate	9.6 Kbps, 19.2 Kbps, 38.4 Kbps, 57.6 Kbps 76.8 Kbps	Select a baud rate for this I/O board.
Rebuild BACnet TABLES	N/A	Press this button to rebuild the BACnet points list after any configuration changes are made from the Overview menu.
Zero All Current Values / setpoints	N/A	These buttons can be used to reset values that were set via BACnet or AI. Will not effect Current Values or setpoints that are driven by control or AI functions.
Restart Controller	N/A	This button to restart the this I/O board.

MISC. (PASSWORDS)



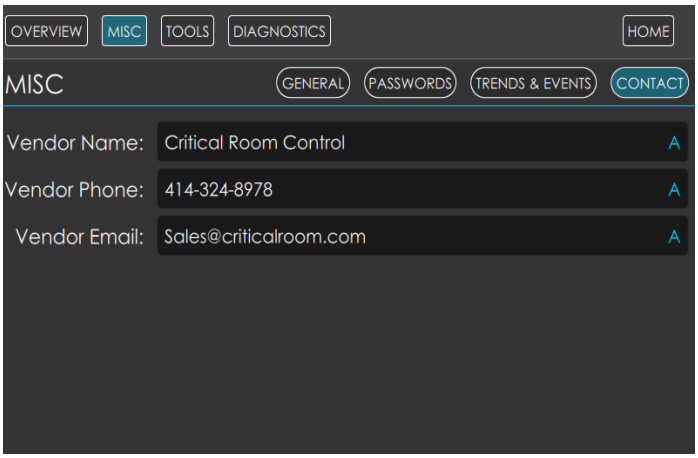
MISC. (PASSWORDS)

MISC. (PASSWORDS)

Parameter	Unit Selections	Description
Enable / Disable Password Protection	ON/OFF	Selecting ON will require user password to access the specific screen. Selecting OFF will allow any user to access the specific screen.
Admin	N/A	Default naming. Not user adjustable.
User 1 User 2	Alphanumeric Selection	Enter a meaningful title for this user such as "Nurse", "Cleaning Staff", etc. This field is for reference only and appears only on this page.
Password	Numeric Value (up to 4 Digits)	Enter a 1-4 digit numeric password for each user.
Mode Change	ALLOW/BLOCK[1]	If "ALLOW" is selected, the user can enter their password to change the mode. If "BLOCK" is selected, the user cannot change the mode even with a password.
Setpoint Change	ALLOW/BLOCK[1]	If "ALLOW" is selected, the user can enter their password to change a Point's setpoint. If "BLOCK" is selected, the user cannot change a Point's setpoint even with a password.

[1]Admin setup defaulted to allow. Not user adjustable.

MISC. (CONTACT)



MISC. (CONTACT)

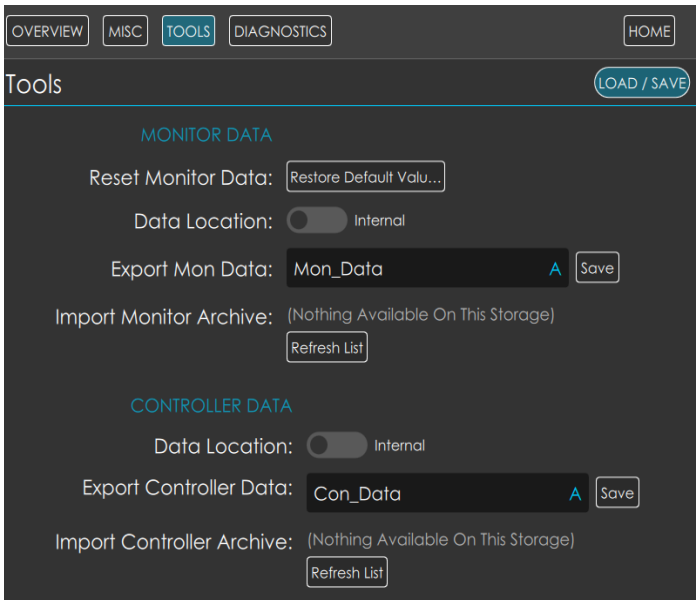
MISC. (CONTACT)

Parameter	Unit Selections	Description
Vendor Name	Alphanumeric Selection	Enter contact name for local support.
Vendor Phone	Numeric Selection	Enter contact phone for local support.
Vendor Email	Alphanumeric Selection	Enter contact email for local support.

TOOLS (LOAD/SAVE)

LOAD/SAVE

Load/Save: This screen allows the user to archive/save, restore, or clone system data locally or to a micro SD card located on the back of the display.



TOOLS (LOAD/SAVE)

TOOLS (LOAD/SAVE)

Parameter	Unit Selections	Description
Restore Monitor Data	Restore Default Values	This will reset all parameters to their factory default values - on this display only.
Data Location	Internal / SD Card	Selecting "Internal" stores the information in internally non-volatile memory, which retains data even when powered off. The SD card (Micro SD HC) is located behind the display, allowing users to save multiple monitor / controller configuration files, provided each file has a unique name.
Export Mon Data Export Controller Data	Alphanumeric Selection (15 character limit)	Enter a file name and save. The monitor / controller configuration will be saved internally or to an SD card, depending on the selected "Data Location." Once saved, the file will appear on the import list.
Import Monitor Archive Import Controller Archive	Load / Erase	Lists the current archived files available for loading. You can choose to "Load" or "Erase" a file. Note: The list will show archived files based on the selected "Data Location."

DATA PARAMETERS FOR LOAD/SAVE

Monitor Data	Controller Data
Point Title	Point Enable
Point Eng. Units	Point Display Deadband
Point Resolution	Point Alarm Type
Point Show on PM Screen	Point Alarm Under/Over
PM Screen	Point Alarm Low/High
Point Setpoint	Point Mode Alarm
Point Alarm Monitor	Point Alarm Delay
Point Audible Alarm	Analog Inputs
Mode Names	Analog Outputs
Mode Enabler	Relays
Sound Level	Mode Change
Room Name	BACnet Info
UI Color Scheme	Cubic Volume
Monitor Address	
Point Order	

DIAGNOSTICS

DIAGNOSTICS

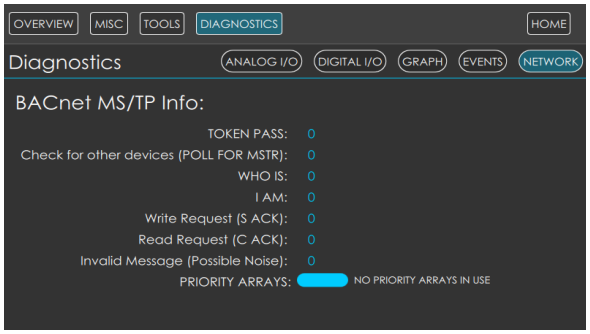
Analog I/O: The Analog I/O Diagnostic screen helps users troubleshoot analog inputs and outputs on the IRM. Each input and output has a slider showing its current voltage and range. If the voltage is outside this range, the text and outline turn orange. If the voltage is manually overridden, the lock icon will appear.

Digital I/O: The Digital I/O Diagnostic screen helps users troubleshoot by showing the current values of digital inputs and relays. It also provides basic information on how the relays are used. Since digital inputs can control multiple functions at once, their specific uses are not listed on this screen.

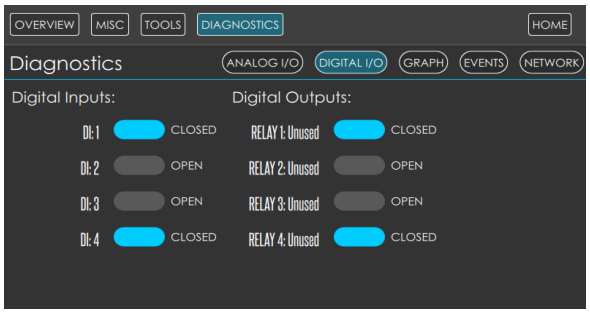
Graphing: The graph screen lets users plot up to 4 data points and their setpoints to help troubleshoot or confirm controller settings and outputs. The IRC automatically records each point's current value and setpoint, along with every Analog Input's and Output's voltage, over the past two hours.

Network: BACnet® MS/TP Info lists BACnet® network data to help debug BACnet® MS/TP communication issues.

DIAGNOSTICS (ANALOG I/O)



DIAGNOSTICS (NETWORK)



DIAGNOSTICS (DIGITAL I/O)

MODES & POINTS

Type	Parameter	Default Description	Notes
Modes	1	OCCUPIED	
Modes	2	UNOCCUPIED	
Modes	3	NIGHT SETBACK	
Modes	4	VACANT	
Modes	5	EMERGENCY PURGE	
Points	1	DP 1	
Points	2	DP 2	
Points	3	DP 3	
Points	4	ROOM TEMP	
Points	5	ROOM HUMIDITY	
Points	24	MODE	=Mirror of current mode Maintain Default Point Setup
Points	25	AUX 1	
Points	26	AUX 2	
Points	27	AUX 3	
Points	28	AUX 4	

IRM OVERVIEW

OVERVIEW

The Integrated Room BACnet® stack is fully tested and certified by BACnet® Testing Lab (BTL). The Integrated Room PIC list can be found from BACnet® International.

⚠ After any configuration changes are made from the Overview menu, the user must press "Rebuild BACnet® Tables" from the MISC. menu to refresh the current BACnet® points list.

OBJECT NAME PREFIX

The Integrated Room allows adding a custom prefix to all AV, BV, and MSV object names for a device. To do this, write the desired prefix to the device object's location property, followed by a ":". The characters before the ":" will be added as a prefix to all object names.

For example, writing "MSP_BLDG3_:" to the location property will change all object names. "ROOM TEMP: CV" will become "MSP_BLDG3_ROOM TEMP: CV".

CHANGING POINT OBJECT'S NAME

The object name property for all BACnet® points linked to a specific Integrated Room point can be customized. To do this, write the new name followed by a ":" to the object name property of the AV point (AV 1000-1027) you want to change.

For example, writing "CHILLER TEMP : CV" to AV 1003's object name property will change all related AV and MSV points (ex: AV 1115 will read "CHILLER TEMP : AL H/OVR").

RS485 WIRING

Connecting to the RS485 network requires a three-wire conductor: positive, negative, and ground/common. Devices on an RS485 network are connected in a series circuit, or "daisy-chained."

An MS/TP EIA-485 network should use a three-wire shielded twisted pair cable with an impedance of 100-130 ohms. The capacitance between conductors should be less than 100 pF per meter. Both foil and braided shields are acceptable.

The maximum segment length is 4,000 feet using 18 AWG wire, with up to 32 nodes per segment. The network should not have T connections. Terminations of 120 ohms ±5% should be at each end of the segment, with no additional terminations at intermediate nodes.

COV SUBSCRIPTIONS

Change of value subscriptions are available on the following points:

- Point's Current Value (AV 1000 – AV 1027)
- Point's Current Set Point (AV 1084 – AV 1111)
- Point's Alarm Status (MSV 1196 – MSV 1223)
- AI Voltage In (AV 2168 – AV 2181)
- AO Voltage Out (AV 2790 – AV 2799)
- Room's Current Mode (MSV 5001)
- Room's Alarm Status (MSV 5002)
- Room's Drop-in Pressure Status (MSV 5006)

PRIORITY ARRAYS

Priority Arrays are available on the following AV points:

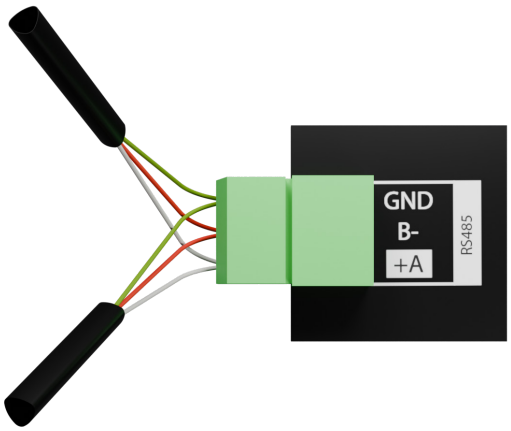
- Point's Current Value (AV 1000 – AV 1027)
- Point's Current Set Point (AV 1084 – AV 1111)

⚠ The Integrated Room can be restarted via BACnet®. To restart via BACnet®, send a warm or cold start command using the password "crcRestart" and it will restart in 5 seconds.

Restarting it will not power cycle or restart the display.

Adding an object name property prefix or modifying an Integrated Room object name property ONLY effect the OBJECT NAME property within BACnet®.

BACnet® MS/TP WIRING



BACnet® POINTS

Below are the default key BACnet® points which support the Integrated Room Monitor Environment products. Additional BACnet® points may be visible on the IRM-PM7 and IRM-PM5. Please refer to Integrated Room Complete BACnet® points list for complete BACnet® information.

IRM-PM SERIES DEFAULT BACnet® POINTS

Object Instance	Object Name	Description	Writable?	Units
AV 1000	DP 1: CV	Current value for DP 1 (Point 1)	Y	"WC
AV 1001	DP 2: CV	Current value for DP 2 (Point 2)	Y	"WC
AV 1002	DP 3: CV	Current value for DP 3 (Point 3)	Y	"WC
AV 1112	DP 1: AL H/OVR	Alarm high limit for DP 1 (Point 1)	Y	"WC
AV 1113	DP 2: AL H/OVR	Alarm high limit for DP 2 (Point 2)	Y	"WC
AV 1114	DP 3: AL H/OVR	Alarm high limit for DP 3 (Point 3)	Y	"WC
AV 1140	DP 1: AL L/UNDR	Alarm low limit for DP 1 (Point 1)	Y	"WC
AV 1141	DP 2: AL L/UNDR	Alarm low limit for DP 2 (Point 2)	Y	"WC
AV 1142	DP 3: AL L/UNDR	Alarm low limit for DP 3 (Point 3)	Y	"WC
AV 1168	DP 1: AL DLY	Alarm delay time for DP 1 (Point 1)	Y	Per Second
AV 1169	DP 2: AL DLY	Alarm delay time for DP 2 (Point 2)	Y	Per Second
AV 1170	DP 3: AL DLY	Alarm delay time for DP 3 (Point 3)	Y	Per Second
MSV 1196	DP 1: AL STAT	Alarm status for DP 1 (Point 1)	N	1 = Normal 2 = Caution 3 = Alarm
MSV 1197	DP 2: AL STAT	Alarm status for DP 2 (Point 2)	N	1 = Normal 2 = Caution 3 = Alarm
MSV 1198	DP 3: AL STAT	Alarm status for DP 3 (Point 3)	N	1 = Normal 2 = Caution 3 = Alarm
MSV 5001	DEVICE CUR MODE	Current mode for device	Y	1= Occupied 2= Unoccupied
MSV 5002	DEVICE RM AL STAT	State of alarm for device	N	1 = Normal 2 = Caution 3 = Alarm
MSV 5006	DEVICE DROP IN PRES AL	Pressure alarm for any DP (Point 1,2,3)	N	1= No Alarm/Caution 2= Alarm

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Measure What Matters.

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