User Manual

Multiple Room Monitor

July 10, 2009
V2.0

SOFTWARE BUILD v6.1

Contents

Device Introduction

Critical Room Control's **Multiple Room Monitor** is an advance compact display module that continuously monitors up to four (4) individual rooms or points. The CRC-MRM allows the user to remotely monitor critical points. The CRC-MRM is excellently suited for healthcare, lab vivarium and manufacturing environments. The CRC-MRM incorporates a bright colorful touch LCD screen interface to display and alarm critical and non-critical points. The CRC-MRM is designed to be support both analog and network interface. This monitor is designed to be either recessed or surface mounted wherever monitoring is required. The CRC-MRM gives personnel a clear, accurate, and unambiguous indication of its environment and alarm status.

The CRC-MRM is capable of integration with building automation systems thru its onboard RS-485 Communication port or optional Daughter board. All menus are accessed through the intuitive touch screen that allows the user to quickly configure for the CRC-MRM to monitor multiple points.

SPECIFICATIONS:

Dimensions:

- Face plate: Height 6", Width 7.5", Depth 3.5"
- LCD Touch Screen: 4" Diagonal
- Optional 5.7" screen available

Network / Communications:

- RS485 physical network
- BACnet MS / TP
- MODBUS
- N2 – Johnson Controls

Controller:

- *Watchdog Function* – monitors its own operation to ensure that it is working properly
- Supports both BACnet, N2 and Modbus Networks / communication (RS485 Network)
- Optional multi-protocol daughter board supports BACnet IP and LON
- Multiple pre-set and custom data points
- Local configuration of data points
- Field changeable password
- Offers both audible pressure alarm AND audible remote alarm.
- Local and/or network points can be displayed

FEATURES:

- Bright / sunlight readable 4" or 5.7" **LCD touch screen**
- Device can be configured to monitor up to 4 rooms
- Display and alarm up to 5 user selectable data elements (points) for each of the four (4) rooms
- **Resistive touch control** - Use bare finger, gloved finger, or stylus to interact with LCD screen
- Clear and unambiguous display indication of rooms overall status and points
- Local alarm acknowledge (silence)
- In addition to the five (5) data elements (points), each room has an independent overall status with audible and visual alarm
- Each data element displays both a value and a status/alarm
- User can choose from multiple pre set and custom data elements (points)
- "Quick Config" feature allows engineer to quickly setup controller
- Field configurable easy and intuitive menus
- Audible Alarm Silence (on screen and remote)
- Supports multiple BMS protocols
- Communicates with CRC-RM

Operation

Main Screen

The main screen shows the overall status of up to 4 rooms along with one data element (point) for each room. Each room's status is indicated by an unambiguous green, amber, yellow, blue or red background indicating room status and alarm condition. Users can see each room's additional points by touching on a specific room number for detail screen.

Horizontal Status Bar (from CRC-RM):

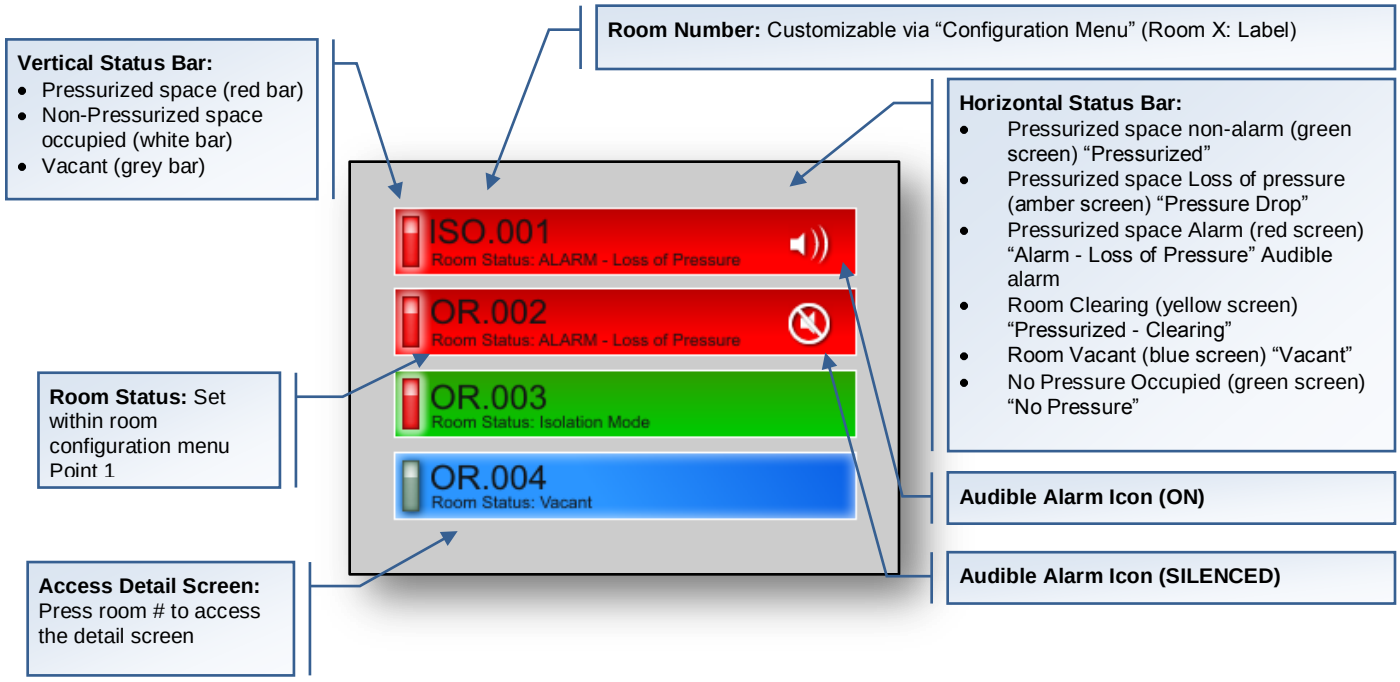
- Pressurized space non-alarm (green screen) "Pressurized"
- Pressurized space Loss of pressure (amber screen) "Pressure Drop"
- Pressurized space Alarm (red screen) "Alarm - Loss of Pressure" Audible alarm
- Room Clearing (yellow screen) "Pressurized - Clearing"
- Room Vacant (blue screen) "Vacant"
- No Pressure Occupied (green screen) "No Pressure"

Vertical Status Bar (from CRC-RM)

- Pressurized space (red bar)
- Non-Pressurized space occupied (white bar)
- Vacant (grey bar)

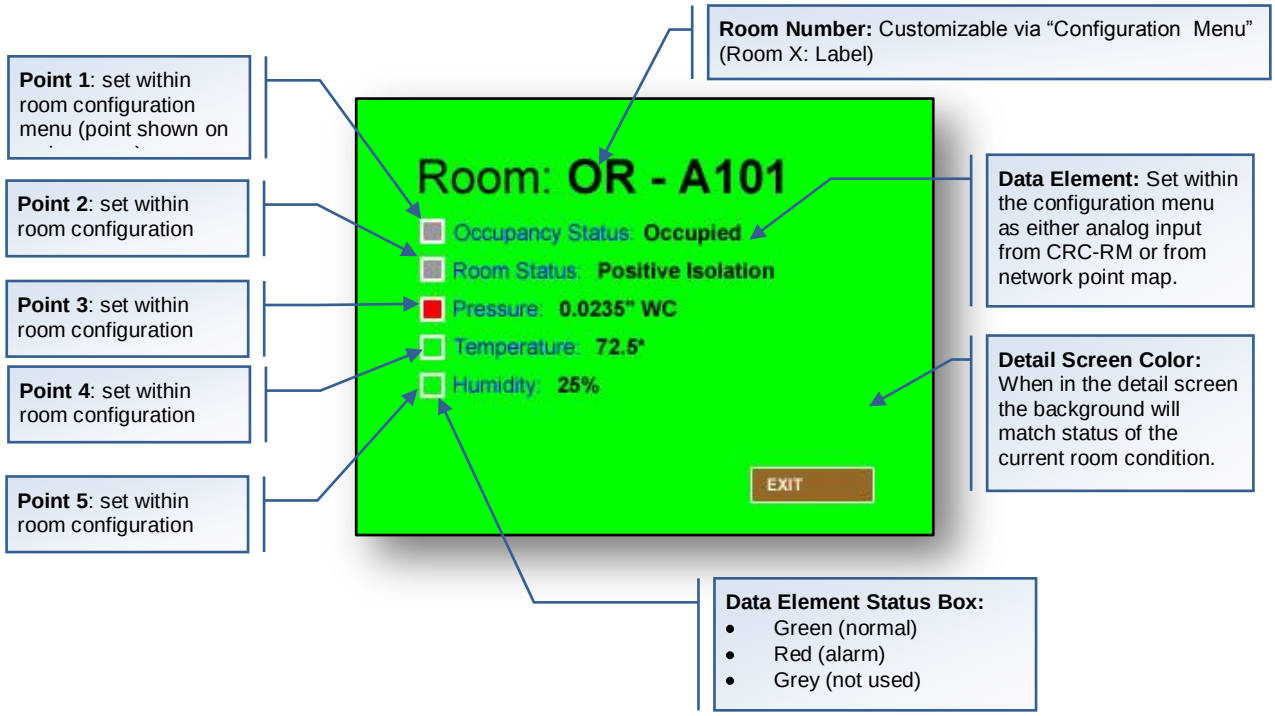
Alarming

If any of the monitored points within a room goes into alarm, its background will turn red, an audible alarm will sound, and a speaker icon will appear. To acknowledge / silence the audible alarm the user simply touches associated room and presses the "Silence Alarm" button located on each room's detail page. If a user acknowledges / silences a room's audible alarm, the room's background will remain red until the alarm condition is cleared. Each room's individual status bar includes an additional vertical bar located on the left giving the user indication of occupancy and room pressure state. The CRC-MRM can be configured to indicate as few as 1 and up to 4 spaces. If fewer than 4 spaces are being monitored the user can remove the unused spaces form the main screen.



Room Detail Screen

Each room has its own DETAIL SCREEN that displays the data elements (points) for that room. Each data element displays both a value (i.e. “Temperature: 68.3*”) and a status (red = alarm, green = normal, and grey = not used). A room’s DETAILED SCREEN is accessed by touching a room number on the main screen.



Data Element Value

Each of the four rooms can display up to 5 data elements on their DETAIL SCREEN. The first data element/point listed on the detailed screen will also be displayed with the associated room number on the MAIN SCREEN. Each of the four rooms can have five (5) independently configured data elements / points displayed independent from the other rooms on the CRC-MRM. For example, room “OR101” can be configured to read out that room’s Temp, Humidity, Occupancy Status, Isolation Status, and Pressure, while room “ANTI01” can be configured to read Lighting Levels, Door Status, Air Change Rate, Temp, and Humidity.

The CRC-MRM allows for network (RS-485), Hardwired (from CRC-RM) or a combination of both network and hardwired points. directly from the associated CRC-RM (Room Monitor).

Network device:

The CRC-MRM as a network device allows for:

- Display of “Room Status”, “Occupancy Status” or “Isolation Status”
- (5) data elements / points
- Point Alarming.

Non-network Hardwired from CRC-RM:

The CRC-MRM as a non-network or hardwired device allows for:

- Display of “Room Status”, “Occupancy Status” or “Isolation Status”
- Point Alarming.

Note: hardwired points available from CRC-RM are room status and alarm only. All other points are network only.

Detailed Data Element / Points

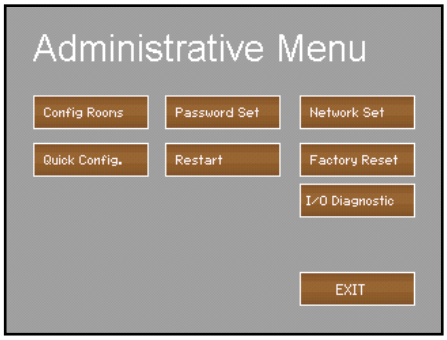
Each data element / point can be named to indicate what value you wish to monitor. The CRC-MRM includes already programmed standard point names. Each point also includes a status indicator box located to the left of the monitored point. These status indicators are individually controlled via the network. The status boxes can be activated to display the appropriate condition from the network:

- Green (normal)
- Red (alarm)
- Grey (not used).

Overall Room Status

Each room has its own status that indicates when a room's overall condition changes. Changes in status will change the room's background color and verbiage to the appropriate indication. The room's detailed screen will also display the appropriate background color associated with space condition.

Device Configuration / Setup (Software)



Administrative Menu

The Administrative Menu is designed for access to CRC-MRM setup and administrative parameters. The Administrative menu is protected by a password accessed from Main screen. The Adminstrative menu is typically restricted to individuals in charge of configuring the CRC-MRM

Config. Rooms

This feature is used to configure the CRC-MRM and gives access to two (2) functions:

Room 1-4: Label

This is where the user designates the names for the four (4) spaces/rooms located on the main screen. Use the alpha/numeric keyboard to enter up to seven (7) letters, numbers or symbols.

Room 1-4: Points

Pressing this gives access to where you set-up the room alarm trigger and configure up to five (5) data elements (points) per room/space.

Room Alarm:

The room alarm is required to activate the CRC-MRM visual and audible alarms. These can be configured as:

- Analog Input Trigger (hardwired signal from CRC-RM)
- Network Trigger (signal from outside network BAS)

Data Point 1:

This point is configurable for both analog and network inputs. When configuring choose the appropriate point name by simply pressing the up and down arrows located on the left of the data point. This point unlike the remaining 4 points will be visible on main screen and the detail screen.

Data Points 2-5

This point is configurable for both analog and network inputs. When configuring chooses the appropriate point name by simply pressing the up and down arrows located on the left of the data point. These points are visible the detail screen only.

Analog Points (AIN 0-3)

These inputs are reserved for use with the CRC-RM (Room Monitor) and require connection to AIN 0-3. You can connect up to four (4) CRC-RM units to a single CRC-MRM. The CRC-MRM receives an analog signal from each of the four (4) CRC-RM units. These analog inputs from the CRC-RM are used to indicate room status and alarm conditions.

Network points

These points are open to the network mapping table and are used for naming only. The CRC-MRM offers multiple naming options. The user designates the placement of the naming function with the associated network point map value. Each individual data point can also indicate an alarm condition. (Please see network mapping chart)

Password Set

The CRC-MRM allows the user to change the password needed to access the Administrative Menu. If the password is set to blank (no characters entered), then users are not prompted to enter a password when accessing the main menu.
Factory default Password for Administrative Menu is: **9876**

- ***Password Field***
  Enter 0 to 4 numerical characters for Adminstration screen password.

- ***Screen timeout delay***
  This value indicates and sets the time in seconds before the CRC-MRM will time out and return to the main screen after the last touch of the screen.

  NOTE: *The Screen time*out delay feature is only applicable for the "Enter Password" screens, "Main Screen". This feature is not act*ive when* user is in the Administrative scre*ens.*

Quick Config Feature

The CRC-MRM offers a Quick Config feature that gives the installer a simple and fast way of setting up the CRC-MRM unit. This feature will walk the user through the main parameters required to set up the CRC-MRM. This feature can be accessed from both the main screen and the administrative screen. Administrators have the ability to remove Main Screen access to this feature after the unit is properly configured.

When pressing the "Begin" button, the user is presented with a series of screens that contain the parameters needed in order to properly configure this device. When the user finishes setting the parameters on the last screen, the device will restart.

The following two options are available on this screen:

- ***Begin button***
  Pressing this button starts the "Quick Config." process which consist of the different screens that are accessed from the Administrative Menu.

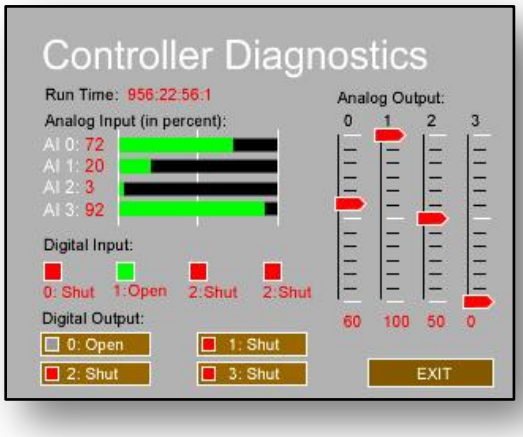
- ***Show / Don't Show***
  With this parameter, an administrator can remove Main Screen access to this feature.

Factory Reset

All user parameters (i.e. room number, password, etc.) are stored in non – volatile memory (EEPROM). Using the "Factory Reset" feature will erase all user entered parameters and restore original factory settings.

Diagnostic Screen

This screen allows the installer to easily trouble shoot connections to the CRC-MRM device. This screen visually shows the incoming signal for all analog and digital inputs, and allows the user to set individual Analog outputs or relays. The diagnostic screen also displays total controller run time.



- ***Run Time***
  Run time displays the total time that the unit has been powered in
  HOURS:MINUTES:SECONDS:MILLISECONDS

- ***Analog Input***
  Displays associated Analog In (AIN0-3) in bar form based on physical jumper inputs.
  IMPORTANT NOTE: our unit reads the full range of a mA signal – so receiving 10mA for a 4-20 signal will result in reading of 50%.

- ***Analog Output***
  Move the slider(s) up or down to vary the signal output. The value (in percentage of total signal output will be displayed at the bottom of the slider in red. Please Note that AO:0 and AO:1 are dedicated voltage outputs (0-5 or 0-10 volts) while AO:2 and AO:2 are dedicated 0-20mA outputs.

- ***Digital Input***
  Indicates the status of Digital Inputs (DI-0 thru 3).

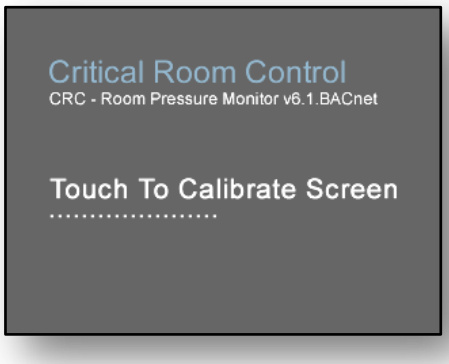
- ***Digital Output***
  User can open or close a relay by touching any of the Digital Output buttons (DO-0 thru 3).

Recalibrating Touch Screen

Sometimes when installing the unit, the installer will touch the screen on initial power up which may cause the screen's touch calibration to misalign. If the touch sensor does not register the correct position of the area being touched (i.e. unit beeps when touching a button, but the button does not seem to act as if it were being pressed), the user must recalibrate the screen.

Please use the following steps to recalibrate touch screen:

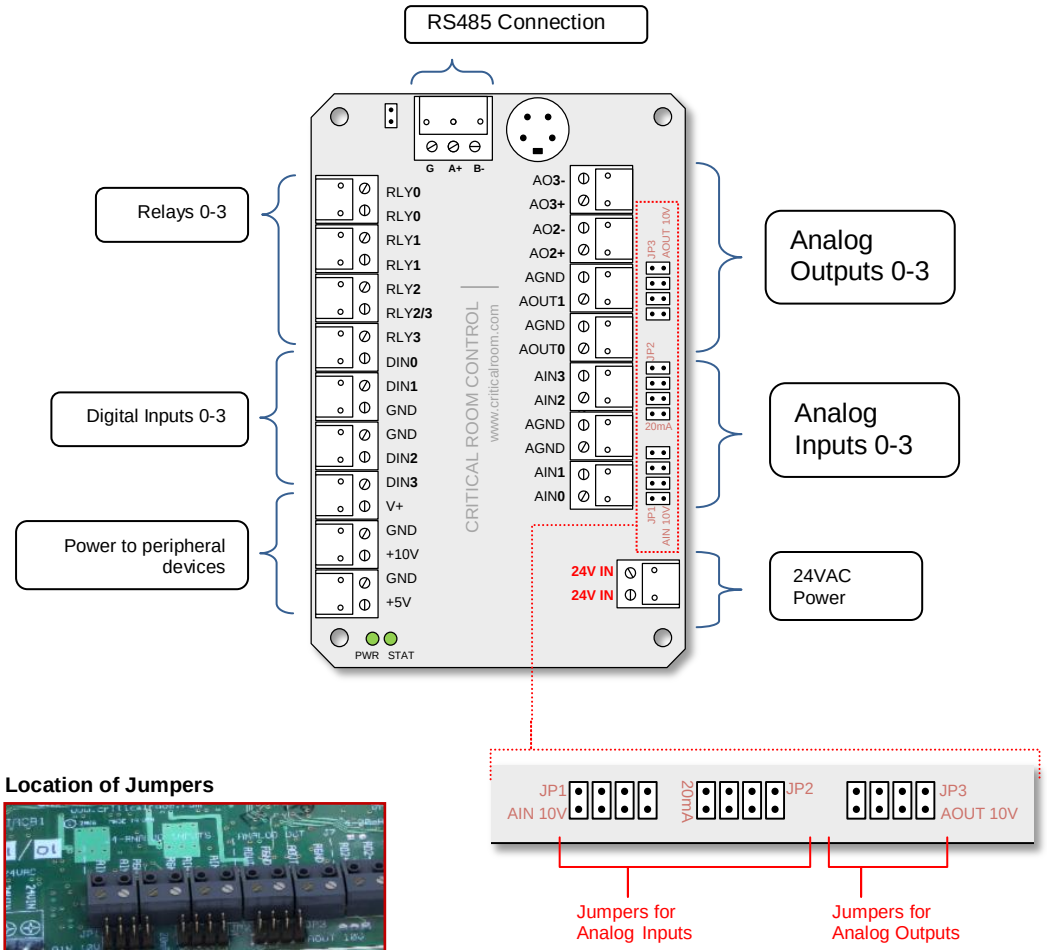
- Power cycle the controller (remove power then power up)
- Press anywhere on the Startup Screen before the text ""Initializing Controller - Please Wait"
- Follow the prompts to touch the screen in different areas. - The controller will then restart itself with the new touch calibration - no further steps are needed.



Hardware Inputs / Outputs

General Inputs and Outputs

The following diagram outlines the general inputs and outputs of the CRC – Multiple Room Monitor. Please see wiring diagram on following page for typical installation.



Location of Jumpers

Jumper settings for Analog Inputs:

	4-20mA	0-10 Volts	0-5 Volts
Analog In 0	JP1-0	JP2-0	No Jumper
Analog In 1	JP1-1	JP2-1	No Jumper
Analog In 2	JP1-2	JP2-2	No Jumper
Analog In 3	JP1-3	JP2-3	No Jumper

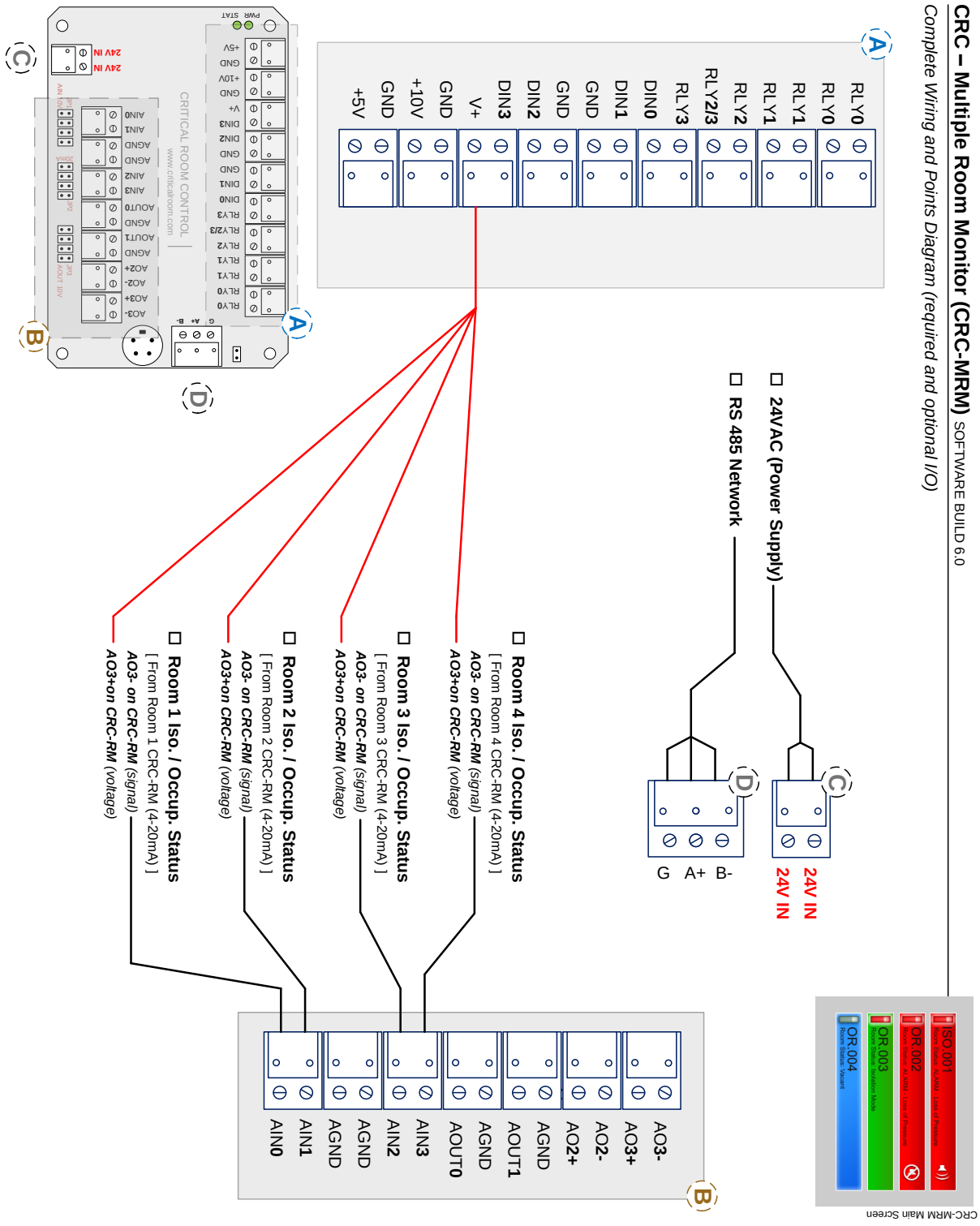
NOTE: *Note: When using a hardwire connection between the CRC-RM and CRC-MRM you must jump JP2 on the CRC-MRM*

NOTE: *Both JP1 and JP2 should* ***NOT*** *be jumped for the same input*

Jumper settings for Analog Outputs:

	4-20mA	0-10 Volts	0-5 Volts
Analog Out 0 - *Dedicated Voltage*	NA	JP3 -0	No Jumper
Analog Out 1 - *Dedicated Voltage*	NA	JP3 -1	No Jumper
Analog Out 2 - *Dedicated 4-20mA*	NA	NA	NA
Analog Out 3 - *Dedicated 4-20mA*	NA	NA	NA

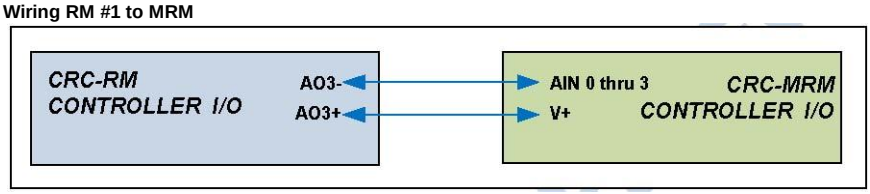
Wiring Diagram



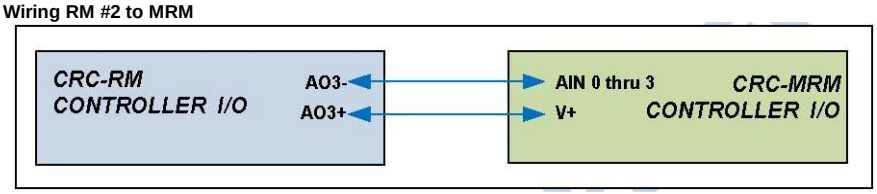
Wiring Guide

The CRC-MRM is designed to accommodate up to 4 CRC-RM monitors. Wiring of up to four (4) remote CRC-RM units is shown below.

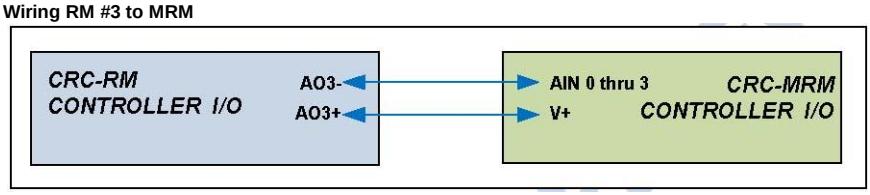
Wiring RM #1 to MRM



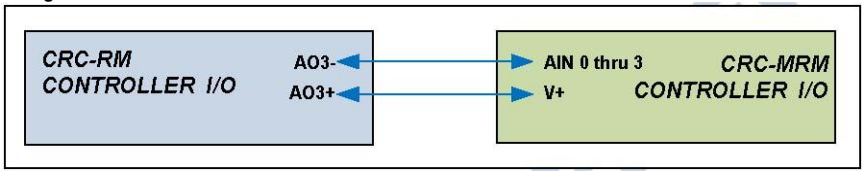
Wiring RM #2 to MRM



Wiring RM #3 to MRM



Wiring RM #4 to MRM



Note: When using a hardwire connection between the CRC-RM and CRC-MRM you must jump JP2 on the CRC-MRM

Network

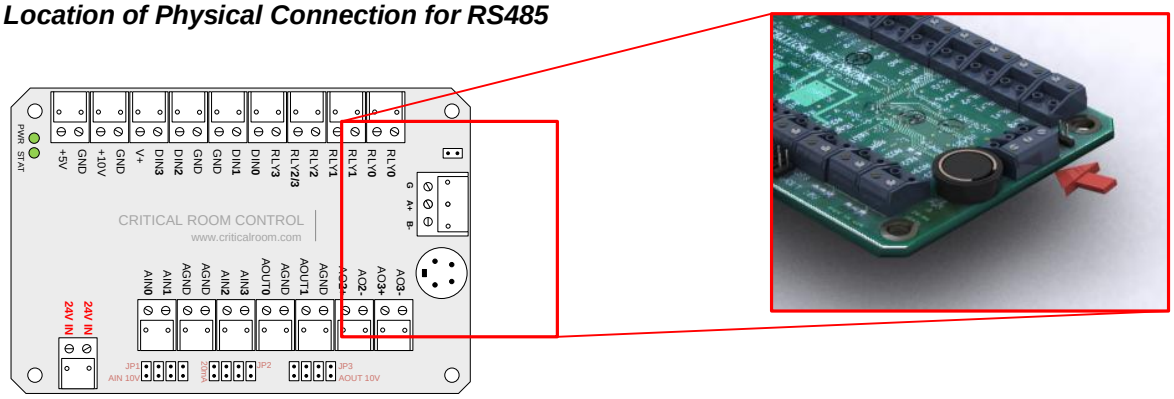
Overview

Critical Room Control's Multiple Room Monitor's built in network interface is used to communicate to external systems and devices (i.e. Building Automation Systems, routers, etc.) internal parameters / settings, sensor readings (analog and digital input signals), and room conditions that the device is reading. The network interface is also used to set values within the device (i.e.; temperature and humidity readings), and control parameters (i.e. remote alarming).

Physical Network

The Room Pressure Monitor comes with built in RS485 network capabilities. Connection to the RS485 requires a three wire bus consisting of a positive, negative, and ground / common wire. Typically, devices on a RS485 network are a series circuit or "Daisy-Chained" together.

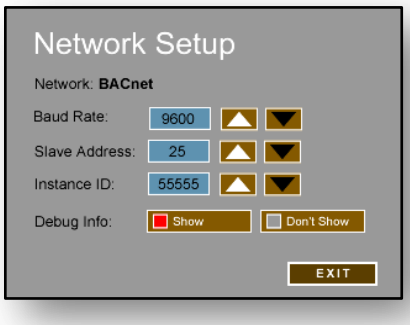
Location of Physical Connection for RS485



BACnet Protocol

The CRC-MRM unit can be factory preprogrammed to support BACnet MS/TP communications. Our device allows slave values to be set from 0 – 254, and baud rates from 9,600 to 115,200 (BACnet MS/TP specs currently only support baud rates up to 38,400). Instance ID values range from 1 – 4,194,304 (22 bit number).*TIP: remember that slave addresses have to be unique for each device on a specific MS/TP trunk, while Instance IDs have to be unique for each device on the overall BACnet network.*

- ***Baud Rates:*** 9600, 38,400, 56,200, 115,200
- ***Slave Address:*** 0 - 254
- ***Instance ID:*** 1 - 4,194,304
  Debug Info: If selected, this feature will display network traffic and device communication information on the main screen.



BACnet Point Map

Binary Value (BV - Object Type "5") *** ENUMERATED VALUE ***

Point	Address (Object Number)	Values / Ranges
Room 1 Audible Alarm Status	BV 0	0 or 1. (1 = Alarm, 0 = Silence)
Room 2 Audible Alarm Status	BV 1	0 or 1. (1 = Alarm, 0 = Silence)
Room 3 Audible Alarm Status	BV 2	0 or 1. (1 = Alarm, 0 = Silence)
Room 4 Audible Alarm Status	BV 3	0 or 1. (1 = Alarm, 0 = Silence)

Analog Value (AV - Object Type "2") ***32 Bit Float / "Real" Value***

Point	Address (Object Number)	Values / Ranges
Room 1		
Point 1	AV 0	Point Dependent
Point 1 Status	AV 20	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 2	AV 1	Point Dependent
Point 2 Status	AV 21	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 3	AV 2	Point Dependent
Point 3 Status	AV 22	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 4	AV 3	Point Dependent
Point 4 Status	AV 23	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 5	AV 4	Point Dependent
Point 5 Status	AV 24	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 2		
Point 1	AV 5	Point Dependent
Point 1 Status	AV 25	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 2	AV 6	Point Dependent
Point 2 Status	AV 26	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 3	AV 7	Point Dependent
Point 3 Status	AV 27	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 4	AV 8	Point Dependent
Point 4 Status	AV 28	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 5	AV 9	Point Dependent
Point 5 Status	AV 29	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 3		
Point 1	AV 10	Point Dependent
Point 1 Status	AV 30	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 2	AV 11	Point Dependent
Point 2 Status	AV 31	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 3	AV 12	Point Dependent
Point 3 Status	AV 32	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 4	AV 13	Point Dependent
Point 4 Status	AV 33	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 5	AV 14	Point Dependent
Point 5 Status	AV 34	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 4		
Point 1	AV 15	Point Dependent
Point 1 Status	AV 35	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 2	AV 16	Point Dependent
Point 2 Status	AV 36	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 3	AV 17	Point Dependent
Point 3 Status	AV 37	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 4	AV 18	Point Dependent
Point 4 Status	AV 38	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Point 5	AV 19	Point Dependent
Point 5 Status	AV 39	2="No Status" (Grey DEFAULT), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 1 Overall Status **	**AV 40**	0 = "No Signal", 1 = "Pressurized", 2 = "Pressure Drop", 3 = "Pressure Alarm", 4 = "Clearing", 5 = "No Pressure", 6 = "Vacant"
Room 2 Overall Status **	**AV 41**	0 = "No Signal", 1 = "Pressurized", 2 = "Pressure Drop", 3 = "Pressure Alarm", 4 = "Clearing", 5 = "No Pressure", 6 = "Vacant"
Room 3 Overall Status **	**AV 42**	0 = "No Signal", 1 = "Pressurized", 2 = "Pressure Drop", 3 = "Pressure Alarm", 4 = "Clearing", 5 = "No Pressure", 6 = "Vacant"
Room 4 Overall Status **	**AV 43**	0 = "No Signal", 1 = "Pressurized", 2 = "Pressure Drop", 3 = "Pressure Alarm", 4 = "Clearing", 5 = "No Pressure", 6 = "Vacant"

*** In order to write a value to the **Overall Status** of a room (AV 40 - 43), you must first select "Network Trigger" for Room Alarm located within in the administrative menu on the "Room Points" config screen*

N2 Point Map

Analog Input Points (AI)

Point	Address (Object Number)	Values / Ranges
Analog Input 0	1	0 to 1023 (Linear to voltage input)
Analog Input 1	2	0 to 1023 (Linear to voltage input)
Analog Input 2	3	0 to 1023 (Linear to voltage input)
Analog Input 3	4	0 to 1023 (Linear to voltage input)

Binary Input (BI) - READ ONLY

Point	Address (Object Number)	Values / Ranges
Digital Input 0	1	0 or 1 (0 = shorted contact)
Digital Input 1	2	0 or 1 (0 = shorted contact)
Digital Input 2	3	0 or 1 (0 = shorted contact)
Digital Input 3	4	0 or 1 (0 = shorted contact)

*Internal Float Values (ADF) - READ & WRITE **

Point	Address (Object Number)	Values / Ranges
Room 1 Point 1 Value	1	32 Bit Float - Display Value
Room 1 Point 2 Value	2	32 Bit Float - Display Value
Room 1 Point 3 Value	3	32 Bit Float - Display Value
Room 1 Point 4 Value	4	32 Bit Float - Display Value
Room 1 Point 5 Value	5	32 Bit Float - Display Value
Room 2 Point 1 Value	6	32 Bit Float - Display Value
Room 2 Point 2 Value	7	32 Bit Float - Display Value
Room 2 Point 3 Value	8	32 Bit Float - Display Value
Room 2 Point 4 Value	9	32 Bit Float - Display Value
Room 2 Point 5 Value	10	32 Bit Float - Display Value
Room 3 Point 1 Value	11	32 Bit Float - Display Value
Room 3 Point 2 Value	12	32 Bit Float - Display Value
Room 3 Point 3 Value	13	32 Bit Float - Display Value
Room 3 Point 4 Value	14	32 Bit Float - Display Value
Room 3 Point 5 Value	15	32 Bit Float - Display Value
Room 4 Point 1 Value	16	32 Bit Float - Display Value
Room 4 Point 2 Value	17	32 Bit Float - Display Value
Room 4 Point 3 Value	18	32 Bit Float - Display Value
Room 4 Point 4 Value	19	32 Bit Float - Display Value
Room 4 Point 5 Value	20	32 Bit Float - Display Value

*Internal Int Values (ADI) 16 BIT Integer - READ & WRITE**

Point	Address (Object Number)	Values / Ranges
Room 1 Point 1 Status	1	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 1 Point 2 Status	2	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 1 Point 3 Status	3	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 1 Point 4 Status	4	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 1 Point 5 Status	5	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 2 Point 1 Status	6	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 2 Point 2 Status	7	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 2 Point 3 Status	8	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 2 Point 4 Status	9	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 2 Point 5 Status	10	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 3 Point 1 Status	11	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 3 Point 2 Status	12	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 3 Point 3 Status	13	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 3 Point 4 Status	14	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 3 Point 5 Status	15	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 4 Point 1 Status	16	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 4 Point 2 Status	17	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 4 Point 3 Status	18	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 4 Point 4 Status	19	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 4 Point 5 Status	20	2="No Status" (Grey), 1="Normal" (Green), 0 = "Alarm" (Red)
Room 1 Overall Status **	21	0 = "No Signal", 1 = "Pressurized", 2 = "Pressure Drop", 3 = "Pressure Alarm", 4 = "Clearing", 5 = "No Pressure", 6 = "Vacant"
Room 2 Overall Status **	22	0 = "No Signal", 1 = "Pressurized", 2 = "Pressure Drop", 3 = "Pressure Alarm", 4 = "Clearing", 5 = "No Pressure", 6 = "Vacant"
Room 3 Overall Status **	23	0 = "No Signal", 1 = "Pressurized", 2 = "Pressure Drop", 3 = "Pressure Alarm", 4 = "Clearing", 5 = "No Pressure", 6 = "Vacant"
Room 4 Overall Status **	24	0 = "No Signal", 1 = "Pressurized", 2 = "Pressure Drop", 3 = "Pressure Alarm", 4 = "Clearing", 5 = "No Pressure", 6 = "Vacant"

** The N2 Protocol does **not** support polling (COS) for Internal Analog Values (floats and integers), so the values under ADI and ADF will not show in a COS (poll for changes) response.*

*** To **WRITE** a value to the **Overall Status** of a room (ADI 21 - 24), you must first select "Network Trigger" for Room Alarm located within the administrative menu on the "Room Points" config screen*

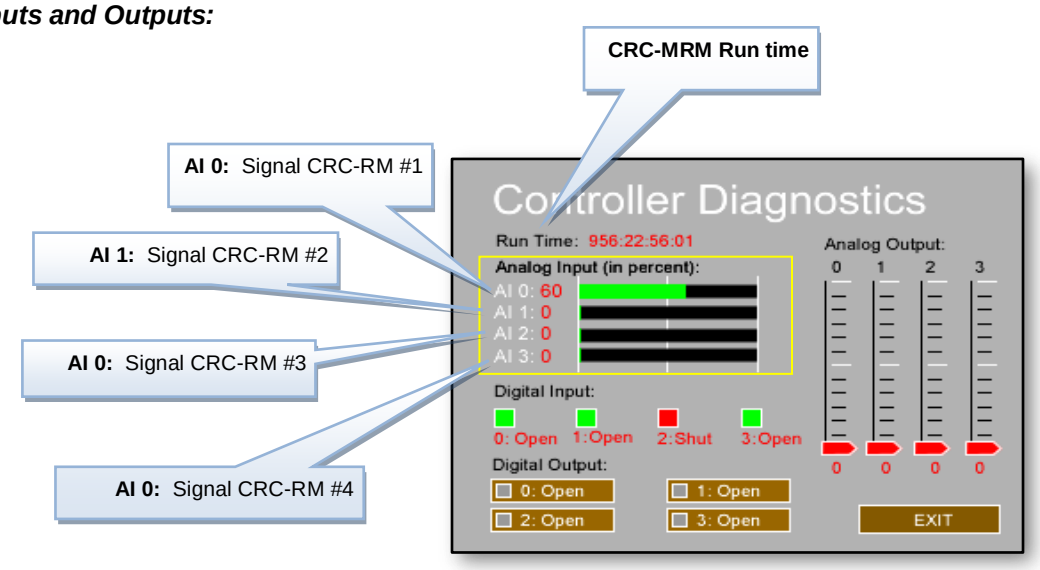
Trouble Shooting

Diagnostic Screen - General I/O Trouble Shooting

When trouble shooting issues with an installation of a CRC-MRM unit, one of the first actions that an installer should do is to use the diagnostic screen introduced on page12 of this manual. This screen allows the installer to easily trouble shoot connections to the CRC-RM device by displaying the incoming signal for all analog and digital inputs while allowing the user to set individual Analog outputs or relays.

Please use the following diagram to confirm that the CRC-MRM is receiving an input signal from peripheral devices such as CRC-RM.

Analog Inputs and Outputs:



General steps to solve connectivity / operational issues:

If you are having problems with the controller, complete these following steps to ensure that the unit is configured and installed properly.

1. **Reset All Parameters to Factory Defaults**
   This will reset any parameter that may have been incorrectly set or may be conflicting with the proper operation of this unit. Within the Admin Menu – select Factory Reset, press “Reset Controller” and exit screen.
2. **Enter / Confirm Setup Parameters**
   Set the correct parameters within the setup screens for proper operation of the unit.
3. **Confirm Proper Wiring to back of Controller**
   Confirm that all peripheral devices are wired correctly to the back of the device and that the proper jumpers are set (please see page 12 for proper jumper setting and wiring).
4. **Confirm Input Signal on Diagnostic Screen**
   Review diagnostic screen to confirm proper input signals are being sensed by the unit. (Each CRC-RM that is connected regardless of status will show an analog signal in bar form.).

LIMITATION OF WARRANTY AND LIABILITY

Seller warrants the goods sold hereunder, under normal use and service as described in the user's manual, shall be free from defects in workmanship and material for twenty-four (24) months, or the length of time specified in the operator's manual, from the date of shipment to the customer. This warranty period is inclusive of any statutory warranty. This limited warranty is subject to the following exclusions:

a. **Unless specifically authorized in a separate writing by Seller, Seller makes no warranty with respect to, and shall have no liability in connection with, products that are not properly power isolated.**

b. **Seller does not provide any warranty on finished goods manufactured by others or on any other consumable materials. Only the original manufacturer's warranty applies.**

c. **Unless specifically authorized in a separate writing by Seller, Seller makes no warranty with respect to, and shall have no liability in connection with, goods which are incorporated into other products or equipment, or which are modified by any person other than Seller.**

d. **Seller does not provide any warranty on finished goods that are not installed or wired according to the product installation guide.**

TO THE EXTENT OF THE LAW, THE EXCLUSIVE REMEDY OF THE USER OR BUYER, AND THE LIMIT OF THE SELLER'S LIABILITY FOR ANY AND ALL LOSSES, INJURIES, OR DAMAGES CONCERNING THE GOODS (INCLUDING CLAIMS BASED ON CONTRACT, TORT, NEGLIGENCE, STRICT LIABILITY OR OTHERWISE) SHALL BE THE RETURNED TO SELLER AND THE REFUND OF THE PRICE OF GOODS, OR, AT THE OPTION OF SELLER, THE REPLACEMENT OR REPAIR GOODS. IN NO EVENT SHALL SELLER BE LIABLE FOR ANY SPECIAL, CONSEQUENTIAL OR INCIDENTAL DAMAGES.

UNLESS OTHERWISE EXPRESSLY PROVIDED ON THE DOCUMENTATION HEREOF, AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, SELLER WARRANTS ONLY THAT THE GOODS COVERED HEREBY WILL CONFORM TO THE DESCRIPTION ON THE DOCUMENTATION HEREOF, THAT SELLER WILL CONVEY GOOD TITLE THERETO, FREE FROM ANY LIEN OR ENCUMBRANCE, AND THAT SAID GOODS WILL BE FREE FROM DEFECTS IN MATERIAL AND WORKMANSHIP UNDER NORMAL USE AND SERVICE AND PROVIDED SAID GOODS HAVE NOT BEEN REPAIRED, ALTERED OR NEGLECTED AND HAVE BEEN HELD IN NORMAL INDOOR STORAGE PRIOR TO INSTALLATION. ANY CLAIM ON ACCOUNT OF DEFECTIVE GOODS OR FOR ANY OTHER CAUSE WHATSOEVER WILL CONCLUSIVELY BE DEEMED WAIVED BY PURCHASER UNLESS WRITTEN NOTICE THEREOF IS GIVEN TO SELLER WITHIN 12 MONTHS OF SHIPMENT OF THE GOODS TO WHICH SUCH CLAIM RELATES. SELLER WILL BE GIVEN REASONABLE OPPORTUNITY TO INVESTIGATE ALL CLAIMS, AND NO GOODS OR PARTS THEREOF MAY BE RETURNED BY PURCHASER TO SELLER UNTIL AFTER RECEIPT BY PURCHASER OF DEFINITE SHIPPING INSTRUCTIONS FROM SELLER. GOODS SO RETURNED WILL BE REPAIRED OR REPLACED WITHOUT CHARGE. SELLER SHALL RESERVE THE EXCLUSIVE RIGHT TO ASSIGN FACTORY REPRESENTATIVES IN THE REPAIR OR MODIFICATION OF GOODS SUPPLIED HEREIN.

SELLER MAKES NO WARRANTY WHATSOEVER WITH RESPECT TO PRODUCTS, ACCESSORIES OR PARTS FURNISHED BY SELLER BUT NOT MANUFACTURED BY SELLER. SUCH PRODUCTS, ACCESSORIES OR PARTS WILL CARRY ONLY THE WARRANTY, IF ANY, OF THE MANUFACTURER THEREOF, AND SELLER HEREBY ASSIGNS TO PURCHASER ALL OF ITS RIGHTS AND INTEREST IN THE WARRANTIES, IF ANY PROVIDED BY THE MANUFACTURERS OF SUCH PRODUCTS, ACCESSORIES AND PARTS TO THE EXTENT THAT THIS ASSIGNMENT IS NOT PROHIBITED BY THE TERMS OF ANY AGREEMENT BETWEEN SELLER AND THE SAID MANUFACTURERS.

THERE IS NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. THERE IS NO OTHER WARRANTY, EXPRESSED OR IMPLIED, EXCEPT SUCH AS IS EXPRESSLY SET FORTH HEREIN. SELLER WILL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR SPECIAL DAMAGES FOR ANY BREACH OF WARRANTY OR ANY DAMAGES FOR NEGLIGENCE OR FOR THE COST OF REMOVAL, TRANSPORTATION OR REINSTALLATION OF DEFECTIVE OR REPLACEMENT GOODS. SELLER'S LIABILITY AND PURCHASER'S EXCLUSIVE REMEDY SHALL BE EXPRESSLY LIMITED TO THE REPAIR OF DEFECTIVE GOODS, OR THE SHIPMENT OF EQUIVALENT GOODS F.O.B. THE SHIPPING POINT INDICATED ON THE INVOICE HEREOF, OR THE REPAYMENT OF THE PURCHASE PRICE UPON RETURN OF THE GOODS TO SELLER WITH SELLER'S APPROVAL, OR THE GRANTING OF A REASONABLE ALLOWANCE ON ACCOUNT OF ANY DEFECTS, AS SELLER IN ITS SOLE DISCRETION MAY ELECT.

Buyer and all users are deemed to have accepted this LIMITATION OF WARRANTY AND LIABILITY, which contains the complete and exclusive limited warranty of Seller. This LIMITATION OF WARRANTY AND LIABILITY may not be amended, modified or its terms waived, except by writing signed by an Officer of Seller.