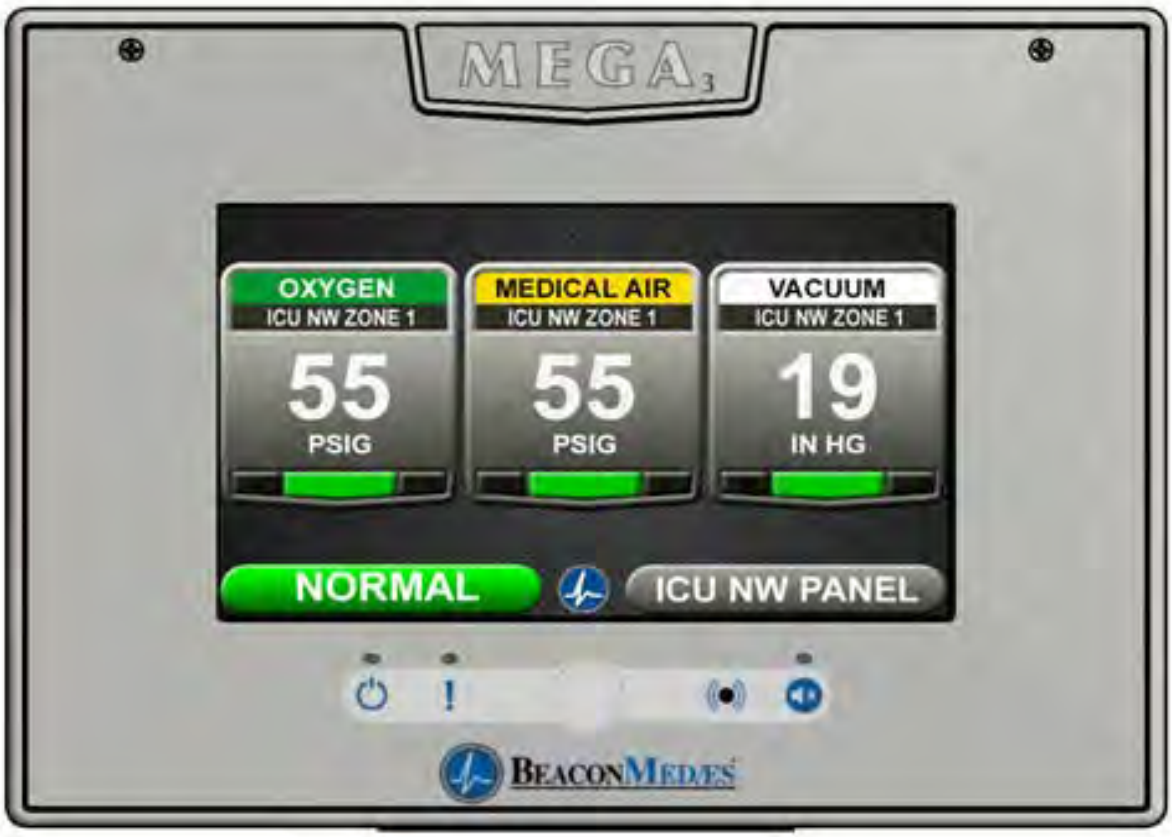
Installation, Operation and Maintenance Instructions



MEGA3 NFPA Medical Gas Notification System

Part number 4107 9016 59
Revision 03
August 27, 2015

BEACONMEDÆS®

Installation, Operation and Maintenance Manual
MEGA3 NFPA Medical Gas Notification System

This unit is purchased from: _____

Date purchased: _____

Model number: _____

Part number: _____

Option(s) included: _____

Any information, service or spare parts requests should be directed to:

BROWARD A&C
MEDICAL GAS SPECIALISTS
954-725-1470 Ext. 403

Part number 4107 9016 59
Revision 03
August 27, 2015

Table of Contents

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1.0 Introduction

1.1 Product Identification

Each alarm is identified by a Model number, Part number, and Lot Code.

Installation procedures vary depending on the alarm configuration.

The product ID label is located on the inside of the alarm back box (Figure 1).

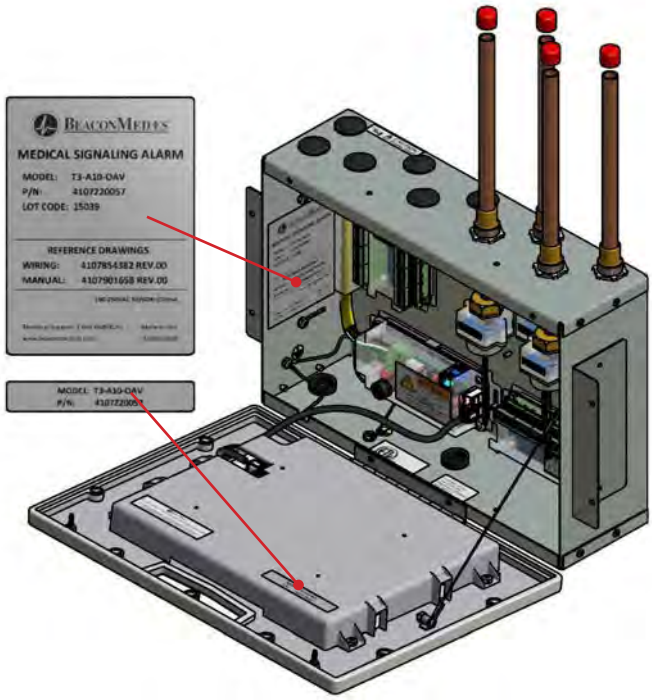


Figure 1: Product Identification Labels

1.2 User Interface Layout

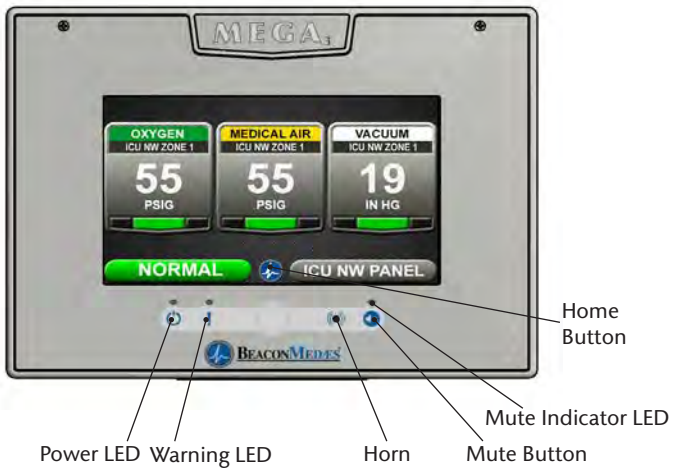


Figure 2: User Interface Layout

1.2.1 MEGA3 Features:

- 10.2" Touch Screen LCD display.
- Green alarm panel POWER LED indicator.
- Red alarm system WARNING LED indicator.
- Red alarm MUTE INDICATOR LED.
- Audible alarm horn
- Heartbeat LED to indicate proper operation on internal printed circuit boards and gas sensor assemblies.

1.2.2 Master Alarm

Features:

Monitors up to 40 normally closed dry-contact switch signals.

- Forty gas service indicators for normal (green) or abnormal (red) conditions.

1.2.3 Area Alarm

Monitors up to 8 digital gas sensors.

Features:

- Digital pressure/vacuum read out with Low/Normal/High indicators
- Rough-in box capable of holding 8 locally mounted sensors.
- Customizable Gas ID labels with location
- General fault relay that activates on any pressure/vacuum fault condition

1.2.4 Combination Alarm

Monitors a mix of normally closed dry-contact switch signals, 6 digital gas pressure/vacuum signals, and provides dry-contact relay outputs.

1.2.5 Boards

NOTE:		
I	=	4-20mA Inputs
X	=	Source Signal Inputs
Y	=	Dry-Contact Relay Outputs
D	=	Digital Gas Sensor Inputs

B05 Power Supply Board

Features:

- Supplies 24VDC to all circuit boards in the alarm

Figure 3: B05 Power Board

B06 Digital Gas Sensor Board

Features:

- Monitors the Pressure/Vacuum from the pipeline, and provides a gas-specific digital signal for the alarm.
- Heartbeat indicator to indicate proper operation.
- Embedded in gas sensor assembly.

Figure 4: B06 Digital Gas Sensor Board

B10, B11 NFPA Signal Input Board

Features:

- Monitors up to 20 normally closed dry-contact switch signals on each board
- Heartbeat indicator to signal proper operation.

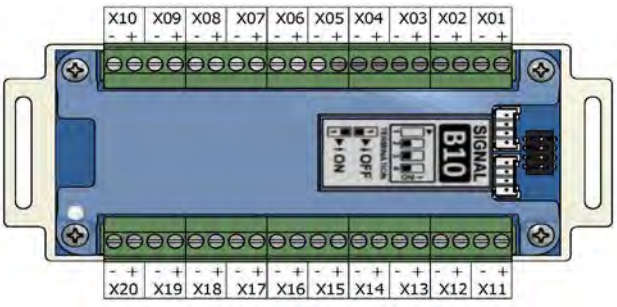


Figure 5: B10, B11 Signal Input Board

B40, B41, B42, B43 Relay Output Board

Features:

- Provides 16 normally closed dry-contact relay outputs for external monitoring.
- Heartbeat indicator to indicate proper operation.

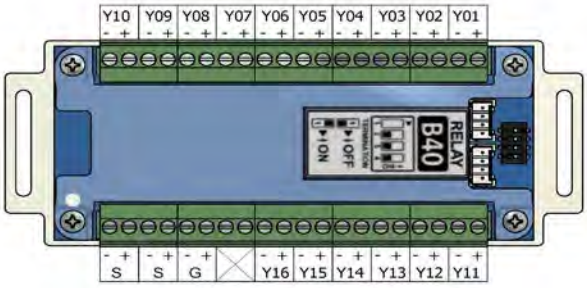


Figure 6: B40, B41, B42, B43 Relay Output Board

B50 4-20mA Combination Board

Features:

- Monitors up to 4 4-20mA inputs, 7 normally closed dry-contact switch signals, and provides 6 normally closed dry-contact relay outputs for external monitoring.
- Heartbeat indicator to indicate proper operation.

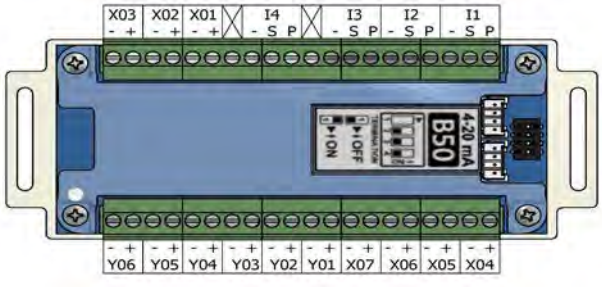


Figure 7: B50 4-20 mA Combination Board

B60 Gas Input Board

Features:

- Monitors up to 8 Digital Gas Sensor Boards. One normally closed dry-contact relay output is available and opens when any fault occurs.
- Heartbeat indicator to signal proper operation.

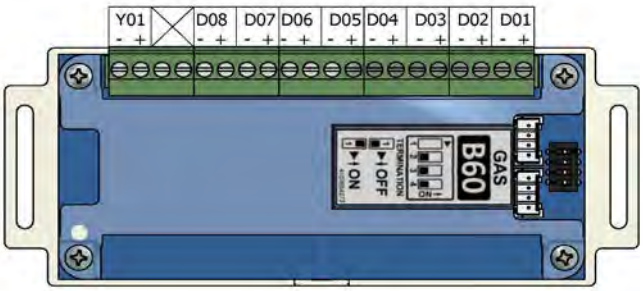


Figure 8: B60 Gas Input Board

B65 Gas Combination 3D, 10X, 6Y Board

Features:

- 3 Gas Sensors, 10 inputs, 6 outputs

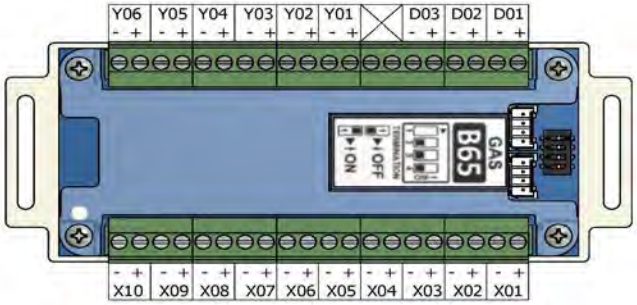


Figure 9: B65 Gas Combination 3D, 10X, 6Y Board

1.3 Definition of Statements

Statements in this manual preceded by the following words are of special significance.


WARNING: Means there is a possibility of injury or death to yourself or others.


CAUTION: Means there is a possibility of damage to unit or other property.


SHOCK HAZARD: Means there is a possibility of electric shock.


ATTENTION: Means precautions for handling electrostatic sensitive devices are to be observed.

NOTE: Indicates points of particular interest for more efficient and convenient operation.

1.4 Definitions

Address Resolution Protocol (ARP)
Protocol used by a device to learn the MAC address of another device so it can send an Ethernet packet.

Area Alarm Panel
Alarm panel that monitors medical gas and vacuum systems serving a specific area.

Combination Alarm Panel
Alarm panel that combines features of a master alarm panel and an area alarm panel.

4-20 mA
Input which monitors a two or three wire 4-20mA transducer.

Crossover Cable
Network cable that swaps transmit and receive pairs so cable can be used to connect two computers or devices without the use of a hub or switch.

Domain Name Server (DNS)
A device that has a list of device names matched to IP addresses. Browsers use this resource to locate the IP address of a named device. NetBIOS name service provides this function on a local network.

Dry-Contact
Electrical contact isolated or unconnected from any electrical source.

Dynamic Host Configuration Protocol (DHCP)
A protocol used by a server to assign IP addresses to devices and computers.

Electromagnetic Compatibility (EMC)
Verification that a product meets required standards for emissions of and immunity from electromagnetic energy in its intended environment.

Ethernet
A standard high-speed network medium specified by IEEE standard 802.3.

Ethernet Switch
A device that connects many Ethernet devices together with optimization. Message destinations are examined and passed only to the correct device.

Firewall
A computer or computer software that prevents unauthorized access to private data from outside computer users.

Gateway
A computer or device that connects two computer networks together (such as a private network and the Internet).

General Fault Relay
Single-pole single-throw dry-contact relay output. Used to activate remote alarm or building management system. Relay will open whenever ANY audible alarm on panel is in progress. General Fault Relay will deactivate only after alarm condition is corrected and alarm panel resumes normal status.

HyperText Transfer Protocol (HTTP)
Protocol used to manage the request and transfer of web pages to a computer.

Internet Protocol (IP) Address
Unique number that identifies a device on a network.

LED
Light Emitting Diode

Local Sensors
Pressure / vacuum sensors mounted inside alarm panel back box. Sensor assembly must be piped to medical gas / vacuum pipelines.

Media Access Control (MAC) Address
A unique hardware address of a device on an Ethernet.

Master Alarm Panel
Alarm panel that monitors medical gas and vacuum source equipment and main pipelines.

NetBIOS Name Service
Local method of addressing a device by name. This allows a web browser to reference a device by name instead of an IP address, such as 192.168.2.3.

Remote Sensors
Pressure / vacuum sensors mounted outside of alarm panel back box. Sensor assembly may be mounted separately or ganged together near pressure / vacuum pipelines. Sensors must then be wired to alarm panel.

Simple Mail Transfer Protocol (SMTP)
Protocol for sending e-mail on a network.

Subnet Mask
A binary number used to separate the network portion from the host portion of a network address.

SMTP Client
Computer or device that uses SMTP to send e-mail by communicating with an SMTP server. The MEGA3 alarm panel acts as an SMTP client.

SMTP Server
Computer or device that uses SMTP to receive email from an SMTP client and then transfer it across the internet.

Transmission Control Protocol (TCP)
Protocol used to send data streams between two devices. TCP guarantees reliable and in order data from sender to receiver.

User Datagram Protocol (UDP)
Protocol used to send short messages between computers. UDP does not guarantee reliable transmission (packets may be lost, duplicated or out of order), but is faster and more efficient than TCP.

1.5 Alarm Configurations

All MEGA3 alarm panels are factory pre- configured. Configuration of alarm panel varies dependent upon customer's requirements.

Three types of alarm panels are available.

- Master alarms
- Area alarms
- Combination alarms

1.5.1 Master Alarms

Master alarm panels include the following modular components:

- Signal input boards (B10, B11) that can accept 20 signals per board; maximum of 2 boards.
- Relay boards (B40, B41, B42, B43) that can be used to control 16 dry-contact signals per board; maximum of 4 boards.

Master alarm panels can monitor 20 or 40 switched inputs.

Inputs can be assigned to any gas service indicators.

Model Number Scheme:

_____ - _____ - __ -_____

Series - Configuration - Gas - Retrofit

See Model Number Chart in Section 1.6.

***Example*:**

MEGA3 Master 40X 32Y
Example Model Number: M3-M22

Figure 10: Master Alarm Front Panel

1.5.2 Area Alarms

Area alarm panels include the following modular components:

- Gas Sensor input board (B60) that can be used for up to 8 digital gas sensors.
- Digital gas sensor assembly, can be mounted locally in the rough-in box, remotely on the gas pipeline, or in a compatible BeaconMedæs Zone Valve Box. Maximum of 8 digital gas sensor assemblies per area alarm panel.

Area alarm panels may be configured for 1 to 8 gas inputs. If alarm is configured with gas inputs, the sensors will be included for connection to pressure/vacuum pipeline.

Sensors may be located inside the alarm rough-in (local sensors) utilizing the DISS inlet tube assemblies provided for brazing to the hospital pipelines.

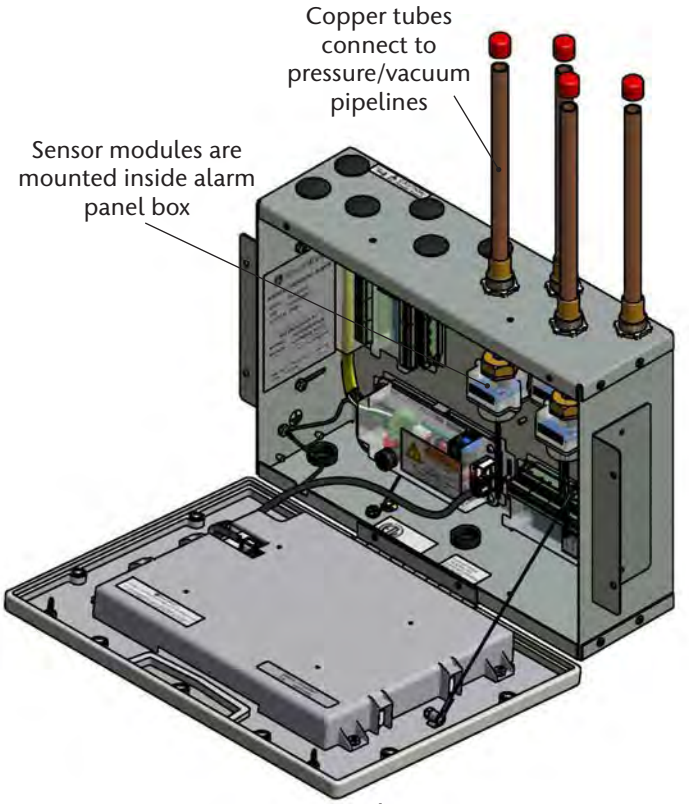


Figure 11: Local Sensors

Sensors may be located outside the alarm rough-in (remote sensors) utilizing the DISS inlet tube assembly or by an 1/4"NPT port.

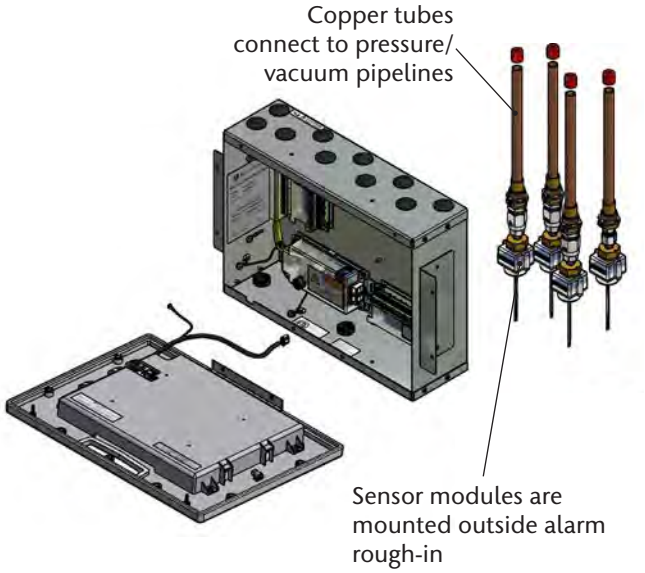


Figure 12: Remote Sensors

Model Number Scheme:

_____ - _____ - __ -_____

Series - Configuration - Gas - Retrofit

See Model Number Chart Section 1.6.

***Example*:**

MEGA3 Area OAV
Example Model Number: M3-A10-OAV

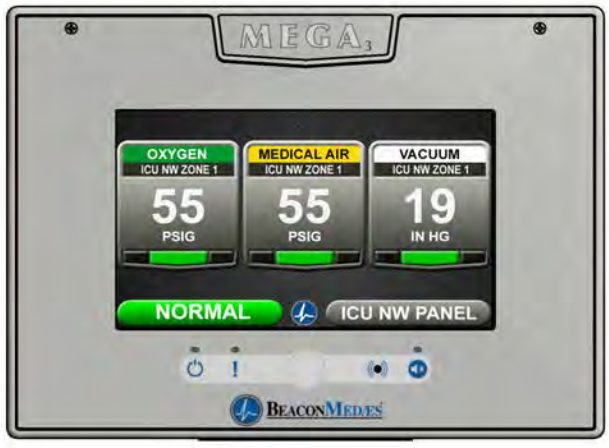


Figure 13: Area Alarm Front Panel

1.5.3 Gas Combination Alarms

Gas Combination alarms include the following modular components:

- B1X, B60 or B65 boards
- 4-20 mA Combination - Can be added to any alarms (if room)

Combination alarms can monitor 30 switched inputs.

Optional dry contact relays are available for all signals.

Combination alarms can also monitor up to 6 digital gas sensors.

Model Number Scheme:

_____ - _____ - __ -_____

Series - Configuration - Gas - Retrofit

See Model Number Chart on Section 1.6.

***Example*:**

MEGA3 Combination
20X 16Y 8D OVOV
Example Model Number: M3-C21-OVOV

Figure 14: Combination Alarm Front Panel

1.6 MEGA3 Medical Gas Notification System Parent Model Number Chart

M3 - ___ - _
B C

Variable B Alarm Type and Size	
Allowable Value	**Description**
M01	Master, 0 Inputs, 16 Relay Outputs
M10	Master, 20 Inputs
M11	Master, 20 Inputs, 16 Relay Outputs
M12	Master, 20 Inputs, 32 Relay Outputs
M13	Master, 20 Inputs, 48 Relay Outputs
M20	Master, 40 Inputs
M21	Master, 40 Inputs, 16 Relay Outputs
M22	Master, 40 Inputs, 32 Relay Outputs
A10	Area Alarm, Up to 8 Area Gases
C01	Combination, 10 Inputs, 6 Relay Outputs, Up to 3 Area Gases
C10*	Combination, 20 Inputs, Up to 6 Area Gases
C11*	Combination, 20 Inputs, 16 Relay Outputs, Up to 6 Area Gases
C12*	Combination, 20 Inputs, 32 Relay Outputs, Up to 6 Area Gases
C40	Combination, 7 Inputs, 6 Relay Outputs, 4 Inputs for 4-20mA devices
C41*	Combination, 27 Inputs, 6 Relay Outputs, 4 Inputs for 4-20mA devices
C44*	Combination, 7 Inputs, 6 Relay Outputs, 4 Inputs for 4-20mA devices, Up to 6 Area Gases

Notes:

* Limitations on Combination Panels:

- C10, C11, C12 Combinations
  - » 0-10 source signal Inputs used, Display up to 6 Area gases
  - » 11-20 source signal Inputs used, Display up to 4 Area gases
- C41
  - » 0-20 source signal Inputs used, Display up to 4 4-20mA devices
  - » 21-27 source signal Inputs used, Display up to two 4-20mA devices
- C44
  - » Display up to 6 gas badges maximum, combination of 4-20mA and area gases, with maximum 4 4-20mA badges.

Variable C Gas Type (Area and Combination Only)	
Allowable Value	**Description**
O	Oxygen
X	Nitrous Oxide
A	Medical Air
V	Medical Vacuum
W	WAGD
N	Nitrogen
C	Carbon Dioxide (CO2)
D	Oxygen 100 psig
F	Medical Air 100 psig
G	Carbon Dioxide 100 psig
9	Instrument Air
1	CO2-O2 (CO2 over 7%)
2	O2-CO2 (CO2 not over 7%)
3	HE-O2 (HE over 80%)
4	O2-HE (HE not over 80%)
7	Laboratory Air
8	Laboratory Vacuum
H	Helium
J	Argon
S	Surgical Air
B	AGSS
E	N2O-O2
M	Mixed Gas

NOTE:

Standard configurations listed above. For special configurations contact BeaconMedaes Customer Service (888) 463-3427.

2.0 Installation Procedures

2.1 Alarm Panel Rough-In Box

The rough-in box can be installed between 16" on center standard studs. Mounting ears on either side of the rough-in box are provided for attachment to studs, with depth adjustment to accommodate different thicknesses of wall board.

Knock out plugs are provided in the top and bottom of the box for routing of supply power, Ethernet CAT5 cable, gas sensor tubes, or other necessary wiring.

DO NOT drill rough-in box.

1. Prepare rough wall opening large enough to accommodate alarm rough-in box. Alarm rough-in box must have rigid vertical members for support on both left and right sides. Power to alarm panel shall enter through bottom left or top left conduit hole in rough-in box.
2. Remove cardboard dust cover and DISS tube assemblies (if included) and insert alarm rough-in box into wall opening. [Secure with fasteners suitable for vertical supports (Figure 16)].
3. Mounting brackets on each side of rough-in box are adjustable and factory preset for 5/8" thick drywall. After drywall installation, front edge of rough-in box should be flush with finished surface of wall. If needed, make any necessary bracket adjustments at this time (Figure 16).
4. Reinstall cardboard dust cover to prevent dust and debris from entering the rough-in box.

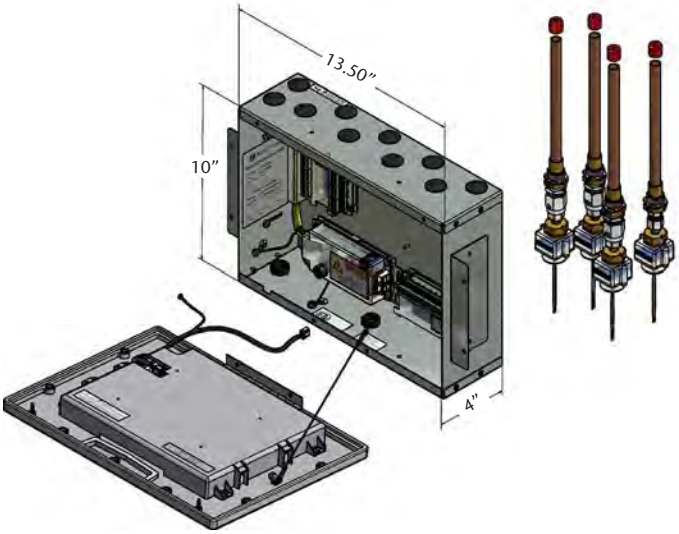


Figure 15: Alarm Panel Rough-In Box Dimensions

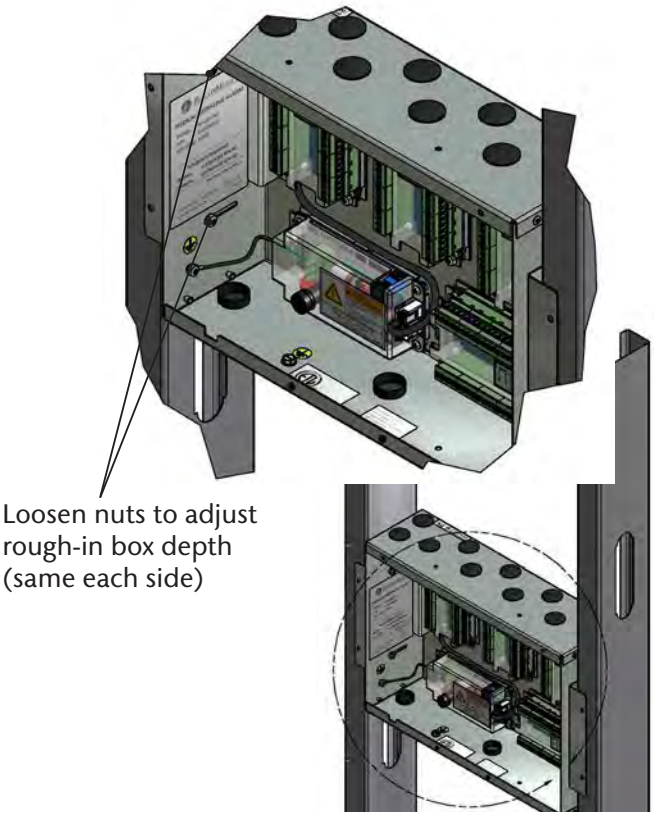


Figure 16: Mounting Bracket Adjustment

2.2 Gas Sensor Installation

2.2.1 Locally Installed Sensors

1. Locate copper adapter tube(s) packaged inside the alarm rough-in box.
2. Install tube(s) into the top of the rough-in box through the holes provided. Notice the Gas ID labels and position appropriately for connection to the hospital piping. **Apply Gas ID label provided with tube adapter to the inside of the rough-in box to identify the ports after walls are closed in.**
3. Braze copper adapter tube(s) to appropriate pressure/vacuum piping system drops (Figure 17). Braze connections per procedures required by NFPA 99 or CAN/CSA-Z7396.1-12. Use appropriate measures to prevent overheating.
4. Install the Gas Specific DISS check valve into the appropriate tube adapter.
5. Perform standing pressure test and cross connection tests as required by NFPA and CSA.

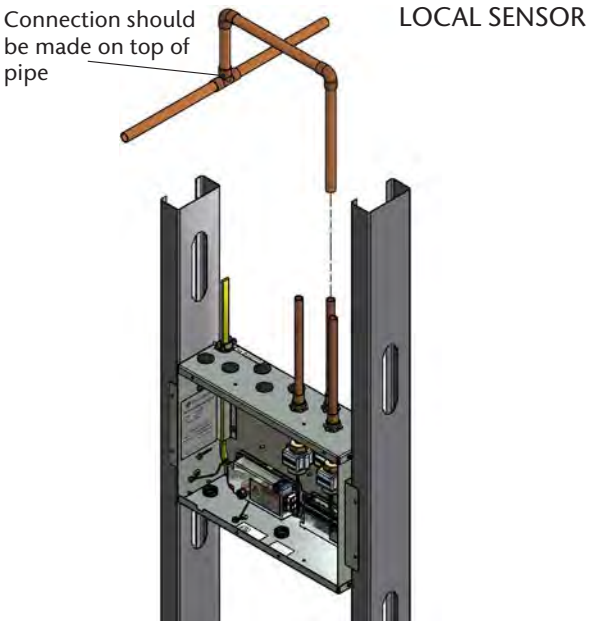


Figure 17: Sensor Pipeline Connection

2.2.2 Remotely Installed Sensors in Pipeline

1. Sensors can be installed onto the hospital pipeline.
2. Braze copper adapter tube(s) to appropriate pressure/vacuum piping system connections (Figure 18).
3. Braze connections per procedures required by NFPA 99 or CAN/CSA-Z7396.1-12
4. Use appropriate measures to prevent overheating.
5. Install the Gas Specific DISS check valve into the appropriate tube adapter.
6. Perform standing pressure test and cross connection tests as required by NFPA and CSA.

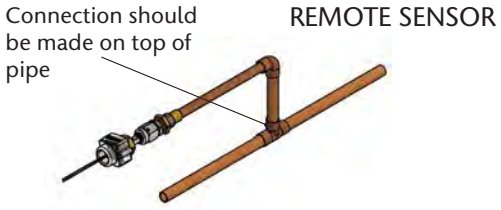


Figure 18: Remote Pipeline Installation

2.2.3 Remotely Installed Sensors in Zone Valve Box

1. Remote sensors can be installed in a compatible BeaconMedæs Zone Valve Box. (NOTE: copper adapter tube not needed for Zone Valve box installation (Figure 19).

2. For Zone Valve Box mounting, an additional Installation Kit is required, part number 4107 4016 25 for each sensor.

Figure 19: Zone Valve Box Location

2.3 Wiring

2.3.1 General Requirements

1. All alarms are to be powered from life safety branch of emergency power system as required by applicable standards.
2. Protect all wiring from physical damage by raceways or conduit as required by applicable standards.
3. Wire alarm panels directly to switches or sensors as required by applicable standards.
4. Wiring runs should be made with color coded wire. Record color, signal, and source of signal for each wiring lead to aid in connection of alarm finish components.
5. Avoid installing alarm panels near radio transmitters, electrical motors, or switch gear.

2.3.2 Wire Type and Size

All low voltage wiring must meet the following criteria:

- Copper wire no smaller than 22 AWG, conductor insulation at least 0.010in (0.25mm), jacket insulation at least 0.030in (0.76mm), rated for 300V and 60°C (140°F) minimum.
- Circuit length not to exceed 5000 feet.
- Cable must be twisted-pair shielded type. Multi-pair cables within one common shield are acceptable.

2.3.3 Determining Number of Conductors

The following rules along with references to this manual's schematics clarify wiring requirements.

- **Digital Gas Sensor Modules**

Two conductor cables (must be twisted pair type with shield) are required for each Gas Sensor module to the Gas Input board.

Refer to **NFPA Area Wiring Diagram (Section 3.2)**.

- **Switched signal inputs**

Two conductor cables (must be twisted pair type with shield) are required for each signal between the signal input terminals and the source signal switch.

These signals can originate at source equipment or from pressure switches mounted on main pressure / vacuum pipelines.

When two master alarms are required, the same switch / relay contacts can be wired to both alarm panels. (See CAUTION below).

Both pairs of wires should originate from switch/relay contacts.

Refer to **NFPA Master/Combination Wiring Diagram (Section 3.1/3.3)** for B1X, B50, B65 signal boards.

- **Relay outputs**

Two conductors are required for each signal between relay output terminals and remote device (such as a building automation system). Refer to the wiring requirements of the connecting device when selecting the appropriate type of conductors to use (i.e.. wire gauge, twisted or not, shielded or not.)

Refer to **NFPA Master/Combination Wiring Diagram (Section 3.1/3.3)** for B4X, B50, B65 signal boards.

2.3.4 Power Supply

A power supply assembly is provided with the alarm panel. The installer must use 18AWG copper supply wiring minimum with an insulation of not less than 1/32 inch (0.8mm) thick. Power supply shall be connected to a building installed circuit breaker. Circuit breaker shall be a maximum of 15 amps and marked as disconnecting means for the alarm panel. It is recommended that the circuit breaker be in close proximity to the alarm panel and properly selected according to local and national regulations.

⚠ CAUTION:

Do not connect MEGA3 master/combination alarm to switch/relay contacts connected to any alarm panels other than those listed below:

- **TotalAlert Infinity™**
- **TotalAlert 2**
- **MEGA3**
- **MEGA2**
- **MEGA**

Holes are provided in the top and bottom of the rough-in box for main power (Figure 20).

If power is entering from the top, it must be routed under the cable raceway.

NO OTHER HOLES SHOULD BE PUNCHED OR USED.

Several additional holes or knockouts are provided on the top panel and bottom for entrance of low voltage field wiring (Figure 20).

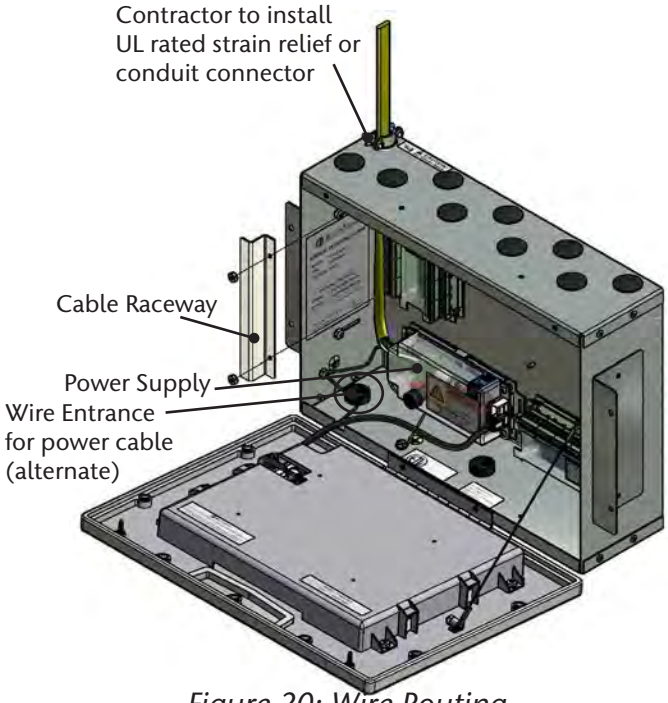


Figure 20: Wire Routing

NOTE:

All wiring shall be protected from physical damage by raceways or conduit in accordance with NFPA 70, National Electric Code.

Alarm panels require 100 to 250 VAC 0/60 Hz 250mA power. **NFPA Area Wiring Diagram (Section 3.2)**.

For NFPA 99 compliance, alarm panel must be connected to life safety branch of the emergency electrical system.

1. Remove four screws from plastic power supply shield.
2. Remove plastic shield from power supply.
3. Connect incoming line and neutral wires to the terminal block. Ground wire connects directly to the rough-in box (chassis) at the green screw below the power supply (Figure 21).
4. DO NOT remove or alter the Green factory installed ground wire from the terminal block to chassis.
5. Reinstall plastic power supply shield while making sure all high voltage wires are contained within plastic shield.
6. Secure plastic shield with four screws.

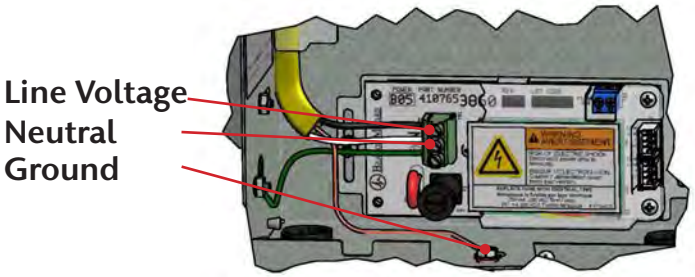


Figure 21: Supply Power Wiring

WARNING:

RISK OF ELECTRIC SHOCK

Disconnect power at the circuit breaker before removing power supply shield.

2.3.5 B60 Gas Input Board

An Area alarm has 8 Gas Inputs. Signals are numbered D01 thru D08. There is a single relay output for general gas fault notification.

1. Identify each pair of twisted gas sensor wires inside the alarm rough-in box.
2. Route each pair of sensor wires as shown (Figure 23) to appropriate terminals.
3. Connect each pair of sensor wires to terminal blocks noting the correct polarity Red (+), Black (-). **NFPA Area Wiring Diagram (Section 3.2)**

NOTE:

If gas sensor wires are landed on the terminal blocks in the same order as defined by the model number of the alarm panel, then initial setup will be easier and gas sensor channels will not need to be reconfigured." Example T3-A10-OAV means "O" Oxygen is defaulted to D01, "A" Medical Air is defaulted to D02, etc. See Section 1.6.

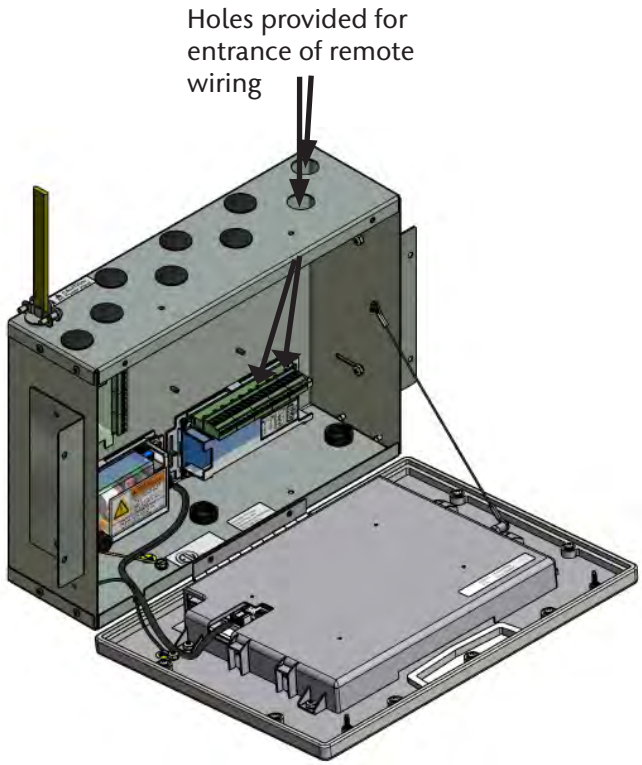


Figure 22: Remote Sensor Wire Routing

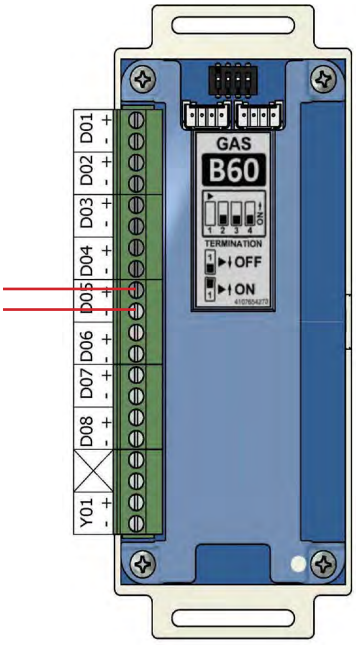


Figure 23: B60 Board Wire Routing

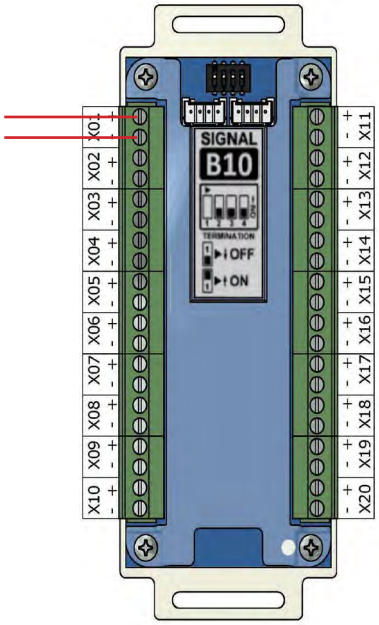


Figure 24: B1X Signal Board Wire Routing

2.3.6 B1X Signal Board

A Master or Combination alarm panel can contain multiple signal input boards; up to a maximum of 2 boards or 40 signal inputs.

B10 and B11boards are labeled X01 thru X20.

Identify each twisted pair of field installed signal input signal wires inside the alarm rough-in box.

Route each pair of signal input signal wires as shown in Figure 24 to appropriate terminals on input board(s).

Connect each pair of signal wires to terminal blocks noting the correct polarity (+,-). Refer to **NFPA Master/Combination Wiring Diagram (Section 3.1/3.3)**.

⚠ CAUTION:

Do not connect MEGA3 master/combination alarm to switch/relay contacts connected to any alarm panels other than those listed below:

- **TotalAlert Infinity™**
- **TotalAlert2**
- **MEGA3**
- **MEGA2**
- **MEGA**

⚠ CAUTION:

Source equipment signal wires must be connected to normally-closed, dry contacts. No electrical voltage can be present and contacts must be closed during normal equipment operation. When contacts open, an alarm condition will be activated.

NOTE:

Each pair of terminals labeled on the signal board connector is labeled "+" and "-". Ensure that when a source equipment dry contact is wired to two master panels, the same side of the dry contact is connected to the same terminal at both panels. For example, if the source equipment's normally closed contact is wired to the "+" of the first master panel, ensure it is also connected to the "+" terminal of the second master panel.

2.3.7 B4X Relay Output Board

A Master or Combination alarm can contain multiple relay output boards; up to a maximum of 4 boards with 16 relay outputs each. The B4X boards (B40, B41, B42, B43) utilize normally closed dry contact relay outputs.

The outputs on the B4X boards are labeled Y01 through Y16.

Identify each pair of field installed relay output signal wires inside the alarm rough-in box. Route each pair of relay output wires as shown in Figure 25 to the appropriate terminals on the relay board. Connect each pair of signal wires to the terminal blocks, noting the correct polarity (+,-). **Refer to NFPA Master/Combination Wiring Diagram (Section 3.1/3.3).**

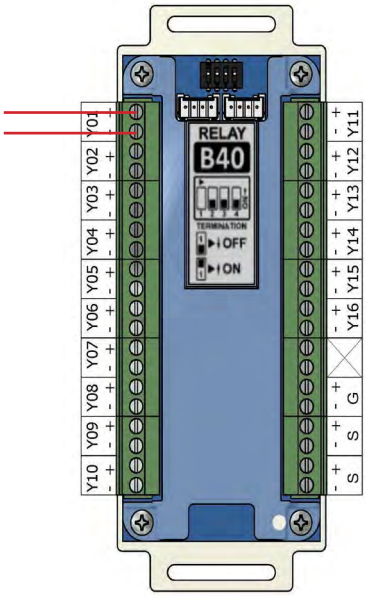


Figure 25: B4X Board Wire Routing

2.3.8 B50 4-20mA Combination Board

A Combination alarm can contain a B50 board that contains four 4-20mA inputs that can be used with a 2 or 3 wire transmitter. The board also contains seven signal inputs, which monitor normally closed signal inputs, and six normally closed dry contact relay outputs. Each alarm panel can have a maximum of one B50 board.

Identify each set of field installed 4-20mA input signal wires (2 or 3 wires per set) inside the alarm rough-in box. Route each set of input wires to the appropriate terminals on the B50 board. Connect each set of signal wires to the terminal blocks, noting the correct polarity (Figure 26).

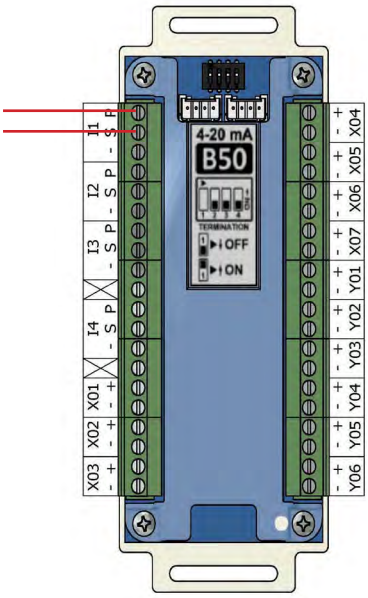


Figure 26: B50 Board Wire Routing

2.3.9 General Fault Relay

The B60 Gas Input board is supplied with an alarm panel general fault output relay.

This relay has a set of dry contacts that is wired normally closed.

The relay will activate when ANY alarm on the ENTIRE alarm panel is activated. Relay will remain activated as long as alarm condition is active, even if audible alarm is silenced by MUTE button.

When alarm condition is corrected, relay will deactivate. Relay contact ratings are 35A @ 30VDC / 3A @ 250VAC. Refer to **NFPA Area Wiring Diagram (Section 3.2).**

2.3.10 Field Wiring Cable Shield Grounding

All field wiring cable shields must be grounded inside alarm panel rough-in box.

Holes are provided in the top and bottom of the alarm rough-in box for grounding screws (Figure 27).

Shields from several cables may be wrapped together and crimped into one screw (by others).

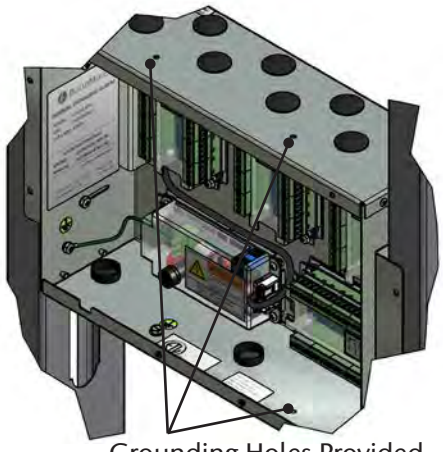


Figure 27: Cable Shield Grounding-Area

CAUTION:

Keep shield wires to ground screw as short as possible so they can not touch front panel circuit boards when front panel is closed.

2.4 Finish Assembly

2.4.1 Front Panel Mounting

ATTENTION:
Observe Precautions for Handling
ELECTROSTATIC SENSITIVE DEVICES

1. Remove front panel assembly from packaging.
2. Remove front panel mounting screws from alarm panel rough-in box assembly (Figures 28).
3. Remove lanyard mounting nut from alarm panel back box assembly (Figure 28).
4. Attach front panel to alarm panel rough-in box using screws removed in step 2 (Figure 29).
5. Attach lanyard to alarm panel back box using screws removed in step 3.
6. Remove nut from front panel grounding lug.
7. Install front panel grounding wire using nut removed in step 6.
8. Connect the grey cable on the front panel to the open power/communication port on the power supply.

NOTE:
Harness connector is keyed to prevent incorrect orientation. However, use care to ensure correct pin alignment.

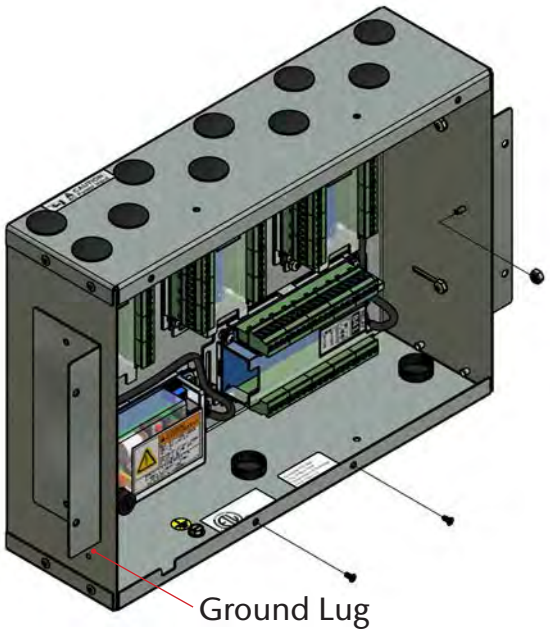


Figure 28: Front Panel Screws

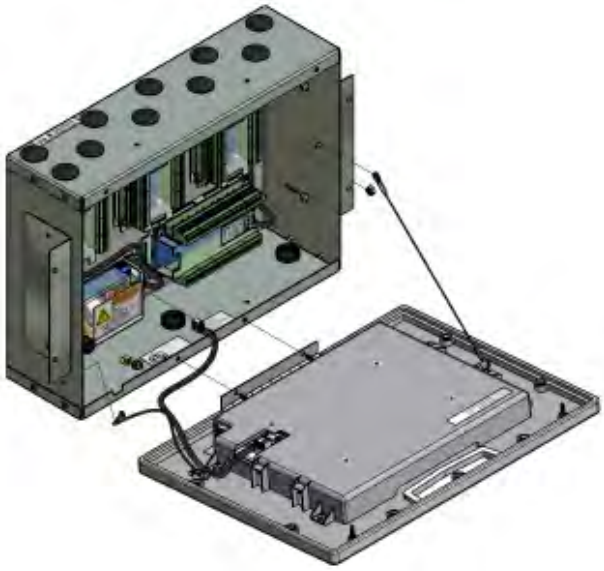


Figure 29: Attach Front Panel and Lanyard

2.4.2 Locally Installed Sensors

1. Remove sensor module from shipping carton.
2. Connect sensor with DISS fitting to the appropriate DISS check at the top of the rough-in box. Verify Gas ID labels match between the sensor and piping to ensure no cross connections occur. Repeat this process for all sensors within alarm panel.
3. Connect wires into input terminals of B60 board (See section 2.4.2).

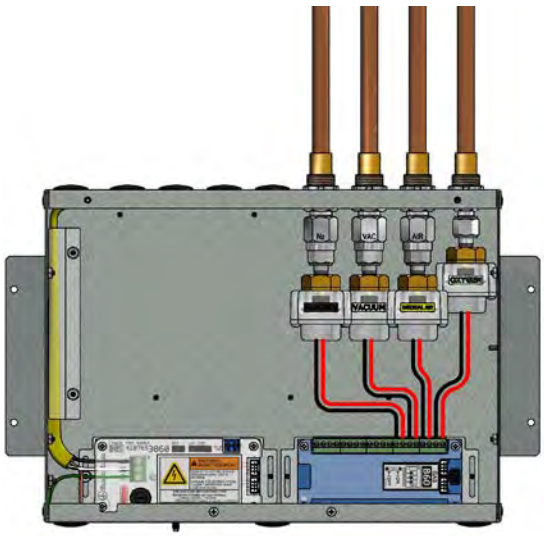


Figure 30: Local Sensor Mounting

NOTE:

If gas sensor wires are landed on the terminal blocks in the same order as defined by the model number of the alarm panel, then initial setup will be easier and gas sensor channels will not need to be reconfigured." Example T3-A10-OAV means "O" Oxygen is defaulted to D01, "A" Medical Air is defaulted to D02, etc. See section 1.6.

2.4.3 Remotely Installed Sensors in Pipeline

1. Remove sensor from shipping carton.
2. Connect sensor with DISS fitting to the appropriate DISS Check on the hospital pipeline or BeaconMedæs Zone Valve box. Verify Gas ID labels match between the sensor and piping to ensure no cross connections occur.
3. Wire nut pigtail to field installed wiring. Note polarity of wiring and corresponding field wiring color or number for later (See section 2.3.5).

NOTE:
Do not ground shield drain wire at sensor.

Figure 31: Remote Sensor Module Connection

3.0 Wiring Schematics

3.1 NFPA Master Wiring Diagram

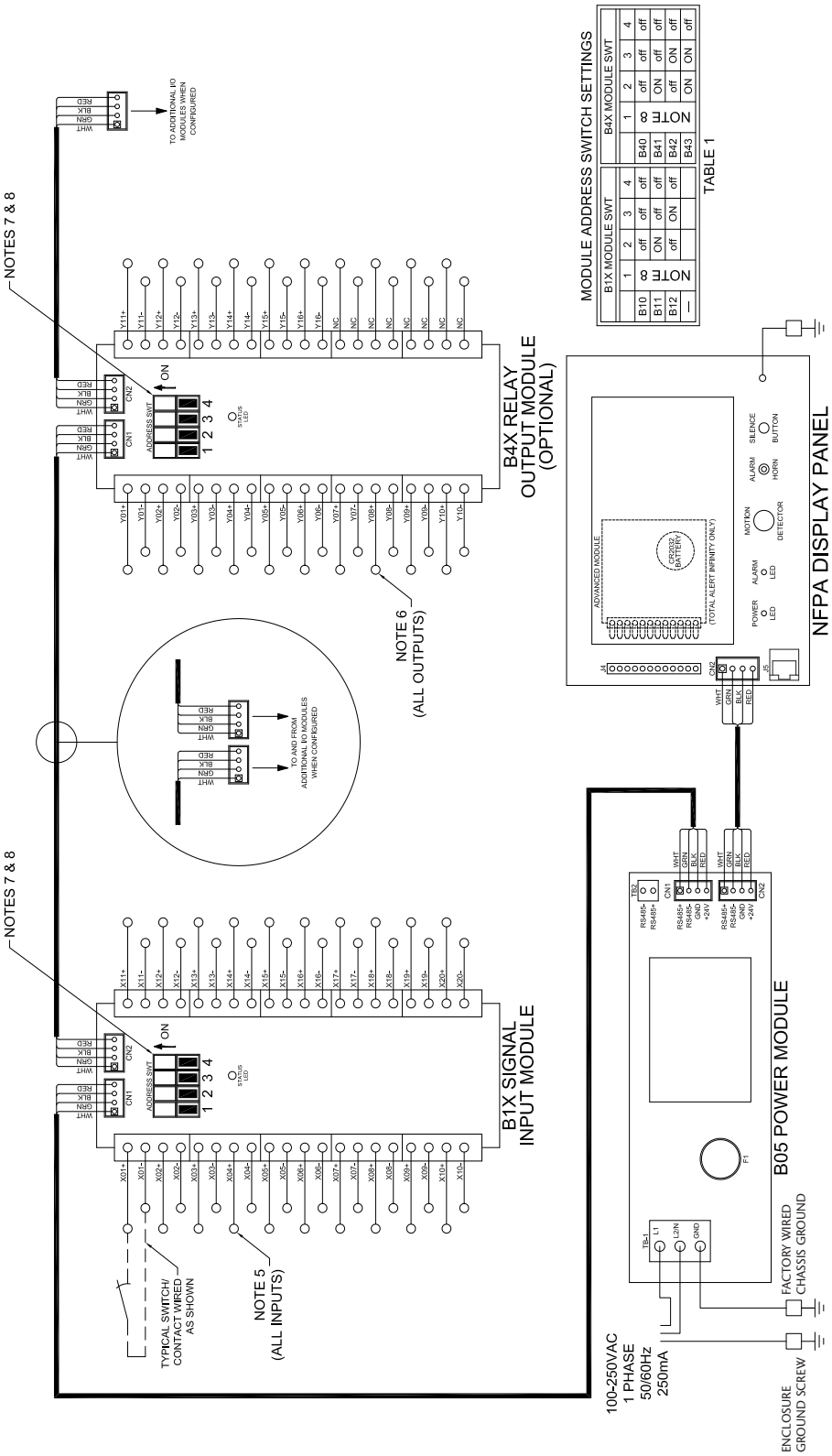


Figure 32: Wiring Diagram for NFPA MEGA3 Master Alarm

Notes:

1. MAIN DISCONNECT PROVIDED BY OTHERS
2. FIELD POWER WIRING TO BE COPPER RATED FOR 75°C MINIMUM
3. FIELD SIGNAL WIRING TO BE MINIMUM 22AWG MULTI-CONDUCTOR CABLE MUST BE TWISTED PAIR TYPE WITH SHIELD TOTAL CIRCUIT LENGTH NOT TO EXCEED 10,000' & MAX. 1K OHM RESISTANCE
4. - - - - - INDICATES FIELD WIRING OUTSIDE OF BOX.
5. INPUTS FROM DRY NORMALLY-CLOSED CONTACTS FROM SOURCE EQUIPMENT OR LINE PRESSURE SWITCHES.
6. RELAY OUTPUT CONTACTS RATED 3A / 30VDC MAX.
7. SEE MODULE LABEL TO SET MODULE ADDRESS (POSITIONS 2,3, & 4). VERIFY USING TABLE 1.
8. SET ADDRESS SWT POSITION 1 TO "ON" FOR LAST MODULE IN CHAIN ONLY.

3.2 NFPA Area Wiring Diagram

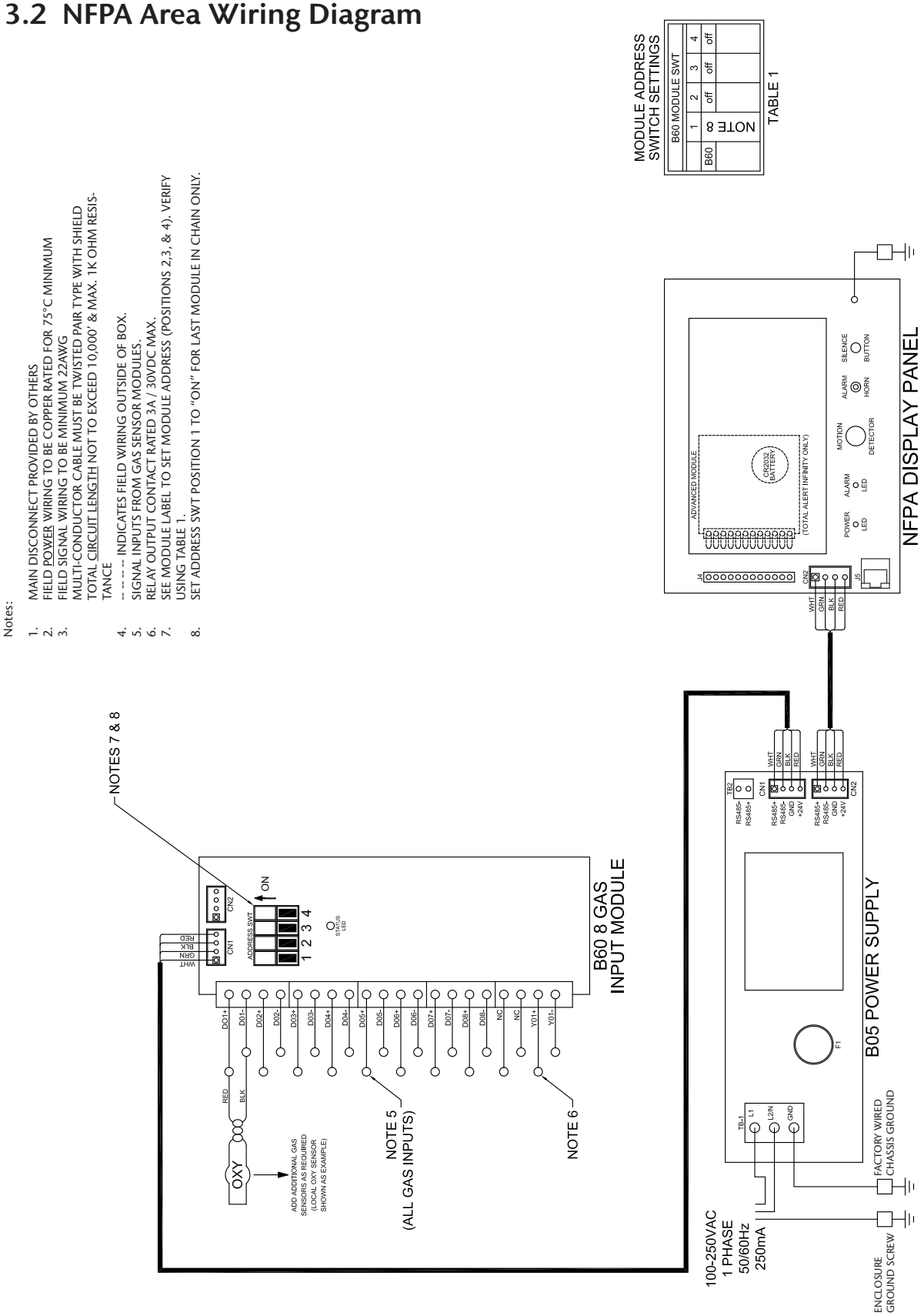
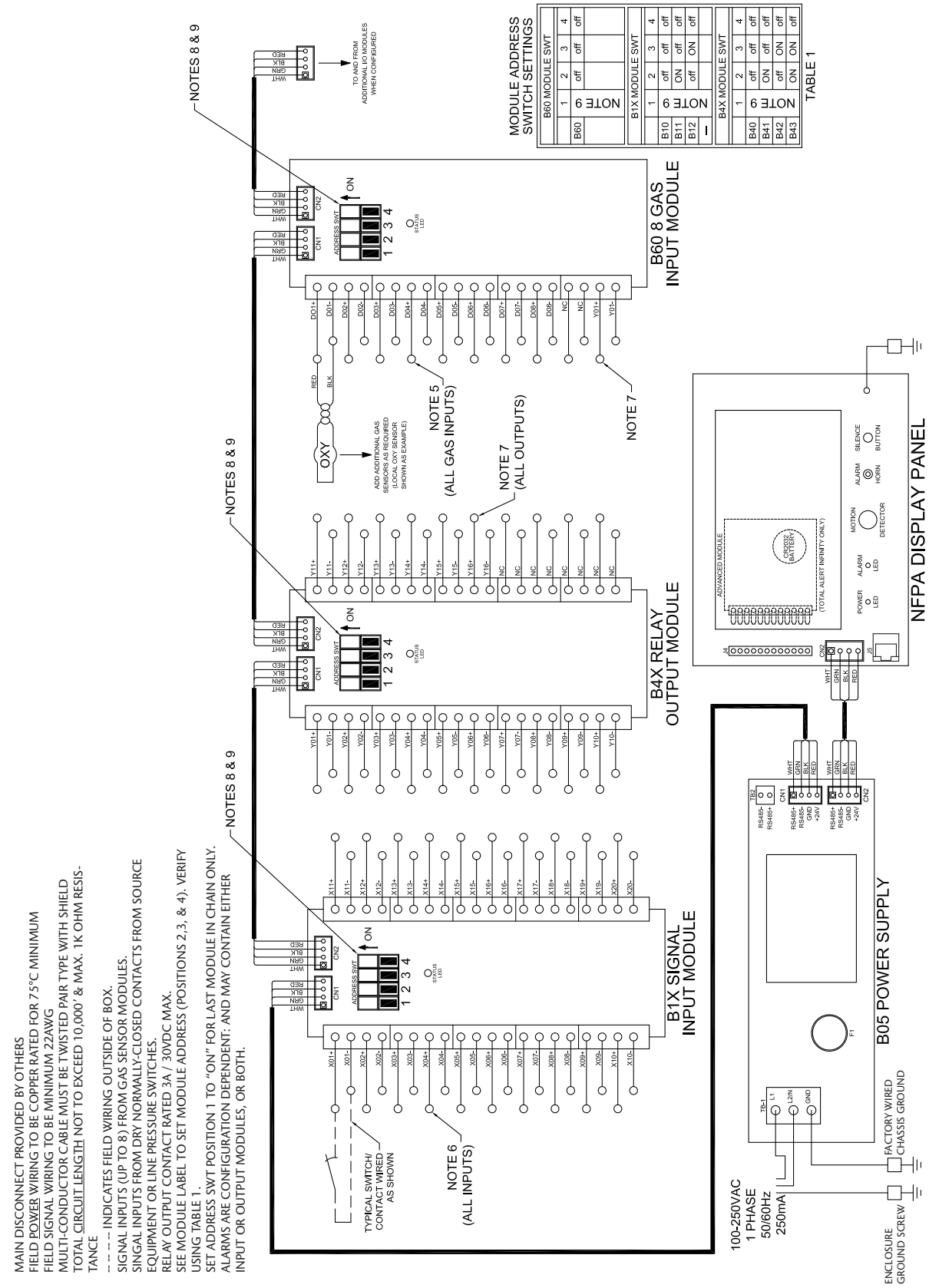


Figure 33: Wiring Diagram for NFPA MEGA3 Area Alarm

3.3 NFPA Combination Wiring Diagram



Notes:

1. MAIN DISCONNECT PROVIDED BY OTHERS
2. FIELD POWER WIRING TO BE COPPER RATED FOR 75°C MINIMUM
3. FIELD SIGNAL WIRING TO BE MINIMUM 22AWG MULTI-CONDUCTOR CABLE MUST BE TWISTED PAIR TYPE WITH SHIELD TOTAL CIRCUIT LENGTH NOT TO EXCEED 10,000' & MAX. 1K OHM RESISTANCE
4. - - - - - INDICATES FIELD WIRING OUTSIDE OF BOX.
5. SIGNAL INPUTS (UP TO 8) FROM GAS SENSOR MODULES.
6. SINGAL INPUTS FROM DRY NORMALLY-CLOSED CONTACTS FROM SOURCE EQUIPMENT OR LINE PRESSURE SWITCHES.
7. RELAY OUTPUT CONTACT RATED 3A / 30VDC MAX.
8. SEE MODULE LABEL TO SET MODULE ADDRESS (POSITIONS 2,3, & 4). VERIFY USING TABLE 1.
9. SET ADDRESS SWT POSITION 1 TO "ON" FOR LAST MODULE IN CHAIN ONLY.
10. ALARMS ARE CONFIGURATION DEPENDENT: AND MAY CONTAIN EITHER INPUT OR OUTPUT MODULES, OR BOTH.

Figure 34: Wiring Diagram for NFPA MEGA3 Combination Alarm

4.0 Operation

4.1 Overview

The MEGA3 Medical Gas Alarm is a touch-screen gas pressure and system monitoring alarm created for ease of use.

For convenience, it is shipped from the factory as a configured unit.

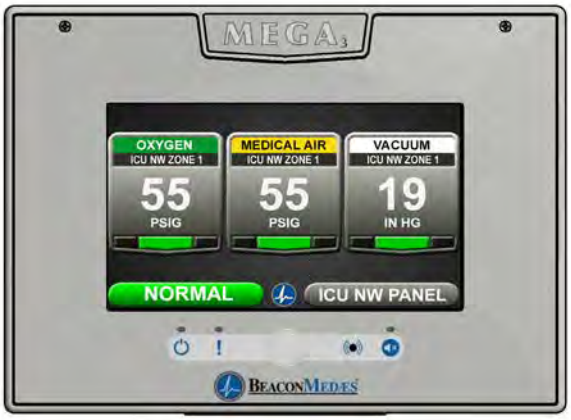


Figure 35: MEGA3 Alarm Main Screen

4.1.1 Main Screen

The first screen that users see on a configured unit is the MAIN screen. The MAIN screen is the main view for the alarm and shows the pressure status of all of the gases (area) or source signals (master) the alarm is monitoring.

NOTE:

The main screen will appear different depending on whether the alarm panel is configured as an area, master or combination.

An area alarm main screen will show gas badges, a master alarm main screen will show source signals, and a combination alarm main screen will show both gas badges and source signals.

4.1.2 Gas Badge

Every gas monitored by the alarm will have a gas badge which will show the following information:

- Gas being monitored
- Location where gas is being used
- Gas pressure value
- Gas pressure status (Low, Normal, or High)

Figure 36: Gas Badge

4.1.3 Source Signals

Every source signal monitored by the alarm will display the following information once configured:

- Equipment being monitored
- Location of the source equipment
- Signal being monitored
- Source signal status Red (open - in alarm) or Green (closed - normal).

The display can show the status of up to 40 signals. The hardware installed limits how many of the 40 signals can be used.

Figure 37: Source Signals

Figure 38: Combination Alarm Main Screen

4.1.4 Toolbar

Running from left to right across the bottom of the MAIN screen is the toolbar. The Normal toolbar is available when the alarm is operating in normal status and shows:

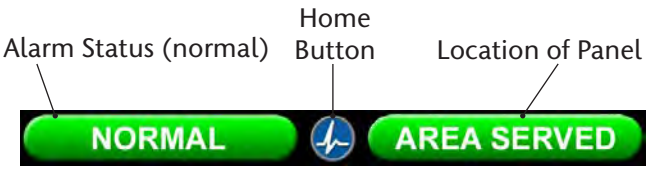


Figure 39: Normal Toolbar

To switch to the Icon toolbar, touch the HOME button.

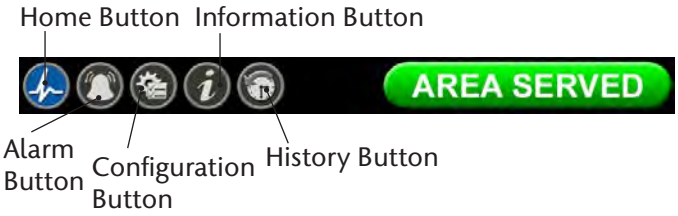


Figure 40: Icon Toolbar

Icons on the toolbar:

1. Home button. This icon button toggles to the MAIN screen.
2. Alarm button. This icon button toggles to the ACTIVE ALARM screen.
3. Configuration button. This icon button toggles to the CONFIGURATION screen.
4. Information button. This icon button toggles to the INFORMATION screen.
5. History button. This icon button toggles to the HISTORY screen. This screen is only available after upgrading to a TotalAlert Infinity™ series of alarms.

The button that corresponds to the screen currently in use will be blue.

4.1.5 Fault Status

If a gas sensor is measuring above or below the alarm level, the high or low pressure indicator on the gas badge will flash for the gas pressure out of range.

If a gas sensor becomes disconnected or shorted, both high and low indicators for that gas will flash and an error code and message will be displayed.

If a configured source signal becomes an open circuit and the source badge and the signal status will change from green to blinking red.

The Icon toolbar will appear, and the Alarm button will be flashing red. By default the screen will change to the Active Alarm Screen.

Figure 41: Fault Status

NOTE:

The Normal toolbar will automatically reappear when all faults are resolved.

Users can touch any flashing red light to go to the ACTIVE ALARM screen.

4.1.6 Display Screens

Active Alarm Screen

The ACTIVE ALARM screen provides detailed information about pressures or signals that are in alarm condition.

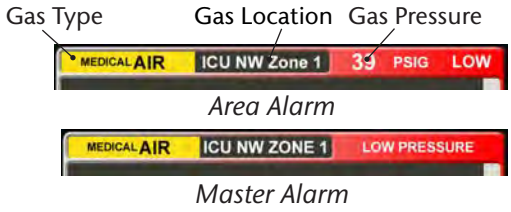


Figure 42: Active Alarm Screen

Configuration Screen

The CONFIGURATION screen is used to configure the alarm. The configuration screen is only accessible with a password. It is divided into three parts.

The top left section is the Display section. It contains a small representative view of the MAIN screen and buttons for configuring the MAIN screen.

The top right section is the Settings section. Tabs not accessible are grayed out.

The bottom section is the Icon toolbar.

Figure 43: Configuration Screen

Information Screen

The INFORMATION screen provides pertinent information about the alarm — including high and low alarm values and firmware details — in one central place.

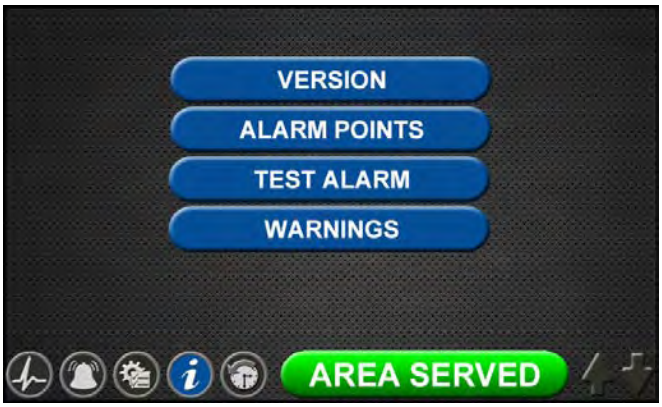


Figure 44: Information Screen

Version Tab

Touch the VERSION tab to view details about the:

- Series, code, and style of the alarm
- Firmware version for the main display board and additional boards

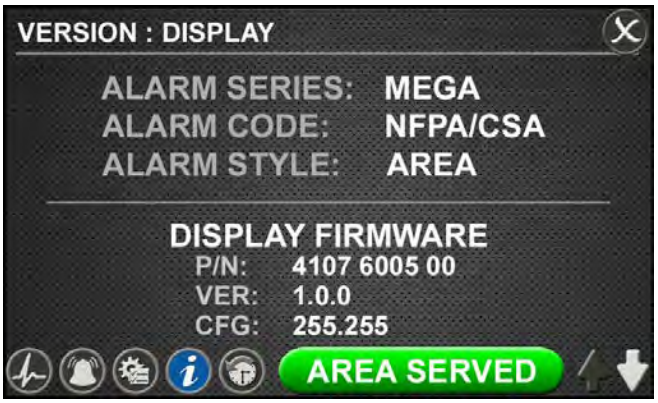


Figure 45: Version Tab

NOTE:

The version screens automatically scroll. Touch the blinking up or down arrow in the lower right to stop the automatic scroll and start the manual scroll.

Touch the X button in the upper right to close and return to the INFORMATION screen.

Alarm Points Tab

Touch the ALARM POINTS tab for a quick view of the alarm points—the low and high set points—for each gas badge (area alarm) or source signal configuration (master alarm).

Area Alarm

Master Alarm

Figure 46: Alarm Points Tab

This screen provides a complete view of the configuration and is a fast way to check items such as:

- Location where the pressure sensors and source signals are physically wired.
- Gases Monitored
- Areas Monitored
- Low and high pressure set points for area signals
- Source Signals Monitored

Touch the X button in the upper right to close and return to the INFORMATION screen.

Test Alarm Tab

Touch the TEST ALARM tab to run a quick test of the hardware.
The audible alarm will sound for one-to-two seconds to test that the horn is working properly.

The LEDs on the front of the alarm will illuminate as well to show that they are still functioning.

Warnings Tab

Touch the WARNINGS tab to view any possible active warnings that would include lost network communication with manually enrolled devices, lost connection to a connected/initialized board, or when a master signal input is wired, but not assigned/programmed to an alarm sign.

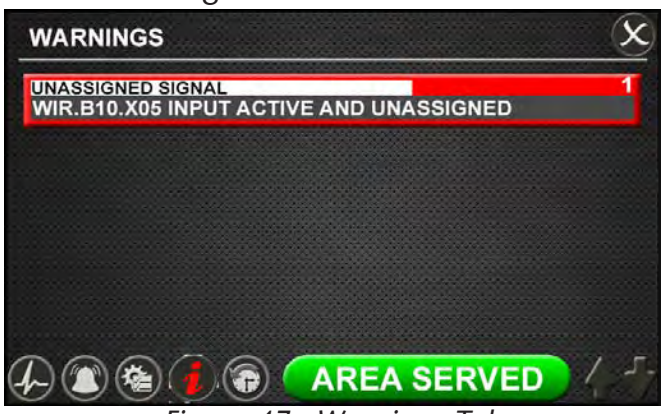


Figure 47: Warnings Tab

History Screen

NOTE:

This feature is only available in the TotalAlert Infinity™ series of alarms.

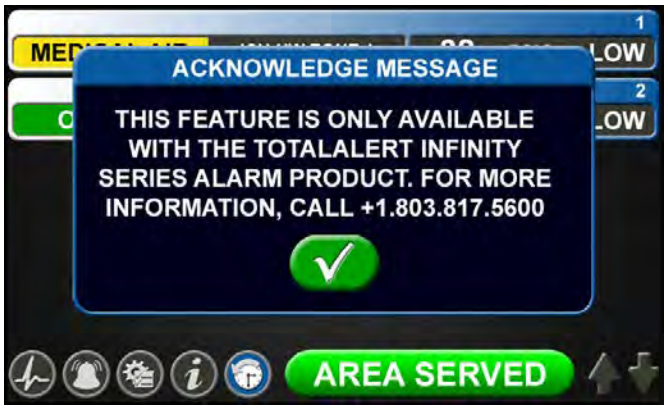


Figure 48: History Screen

4.2 Alarm Configuration

To set up or change the configuration of an alarm, start on the CONFIGURATION screen. Users are always prompted to enter the password when accessing this screen.

Figure 49: Password entry

Type the default password (121212), and touch the Enter button. You will be prompted to change the password if not done so previously (Figure 49).

The CONFIGURATION screen displays.

Normal Status Message/Panel ID Description

The MEGA3 alarm allows for customization of certain labels and messages.

Normal Status Message

To change the message that is communicated when the alarm is operating in normal status:

1. Touch the [A] button that is located to the left of the configuration screen (Figure 50).
2. Touch the Erase button on the keyboard to delete the existing message (Figure 51).

Figure 50: Configuration Screen

Figure 51: Normal Status Message screen

3. Enter the new word or message.
4. Touch the Save button.

Figure 52: Panel ID Description screen

Panel ID Description

To change the description of the location of the alarm panel:

1. Touch the [B] button that is located to the right of the configuration screen (Figure 50).
2. Touch the Erase button on the keyboard to delete the existing description (Figure 52).
3. Enter the new description.
4. Touch the Save button.

Figure 53: Area Alarm User Interface

4.3 Setting Up an Area Alarm

4.3.1 Configuring Gas Badges

The MEGA3 area alarm is designed to allow configuration of eight gas badges using the B60 board.

To configure the first badge to custom settings, touch the [1] button on the configuration screen (Figure 50).

Eight tabs are used for configuration (Figure 54). Tabs are listed in alphabetical order.

A = [GAS INPUT]	To change which wired input should be shown on the badge
B = GAS DESC	To change color codes based on standard and country
C = [GAS NAME]	To label the gas
D = AREA MONITORED	To edit the location label for a specific gas
E = [UNITS OF MEASURE]	To change the displayed unit of measure for the pressure/vacuum
F = LOW ALARM SETTINGS	To adjust the value that should indicate that the pressure is low
G = HIGH ALARM SETTINGS	To adjust the value that should indicate that the pressure is high
H = ZERO OFFSET	To make small adjustments to the displayed pressure based on user preference

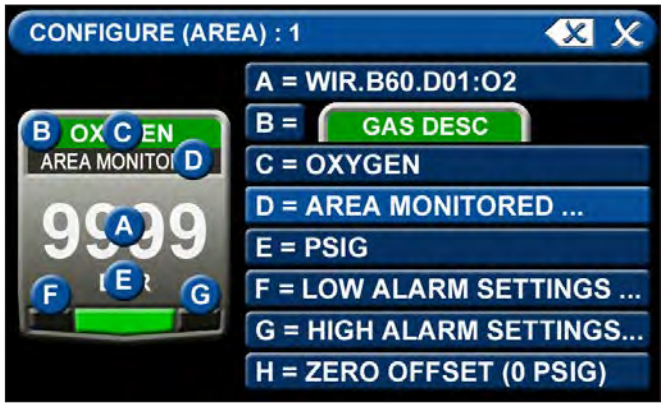


Figure 54: Configuring Gas Badges

A = [Gas Input] Tab

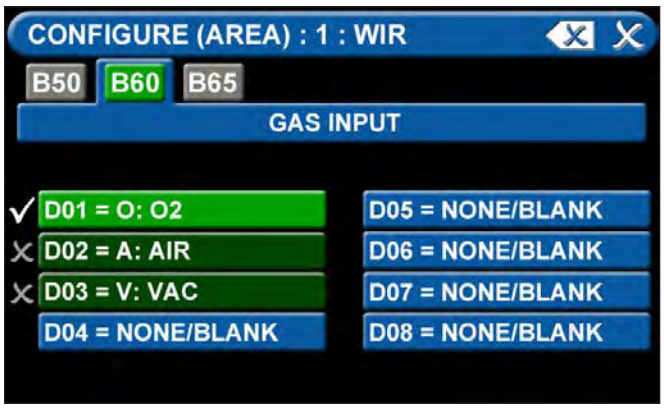


Figure 55: Gas Input Tab

To change which wired sensor should be displayed on that badge:

1. Touch the tab for the appropriate wired gas sensor.
2. Touch the Save button to close the screen.

B = Gas Desc Tab

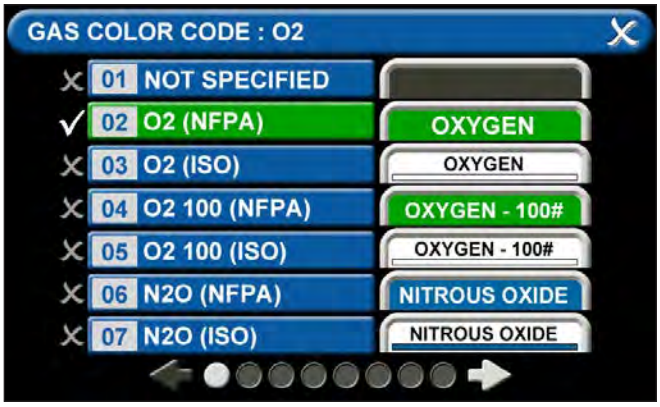


Figure 56: Gas Desc Tab

To change color codes based on your standard and country:

1. Scroll through the codes using the right and left arrows at the bottom of the screen.
2. Touch the tab for the appropriate code.
3. Touch the Save button when you see a check beside your selection.

Note: If the alarm default is correct, touch the X button in the upper right to close the screen.

C = [Gas Name] Tab

Figure 57: Gas Name Tab

Use the keyboard to change the gas name. Touch the [<ÁÑ] to toggle to symbols and extended Latin Characters. Touch the [1AZ] key to toggle back to letters and numbers.

D = Area Monitored Tab

Figure 58: Area Monitored Tab

To add locations to be monitored:

1. Touch an unused location tab.
2. Using the keyboard, enter the name of the location that you would like to monitor (e.g., ROOM 1). Enter multiple locations as needed (e.g., Room 1, Room 2, Room 5).
3. A check appears when the location is selected, the save button has to be pressed if the selection is new.

To edit the location information, touch the Pencil button.

E = [Units of Measure] Tab

Figure 59: Units of Measure Tab

To change the unit of measure:

1. Touch the tab for the appropriate unit of measure.
2. Touch the Save button to close the screen.

F = Low Alarm Settings Tab

Figure 60: Low Alarm Settings Tab

You can remove the low alarm set point or customize the low alarm set point.

To remove the low alarm set point:

1. Touch the NONE tab.
2. Touch the check on the CONFIRM SETTINGS CHANGE screen.

To customize the low alarm set point:

1. Touch the ADJUST tab.
2. Enter the new set point.
3. Touch the Save button.

G = High Alarm Settings Tab

Figure 61: High Alarm Settings Tab

You can remove the high alarm set point or customize the high alarm set point.

To remove the high alarm set point:

1. Touch the NONE tab.
2. Touch the check on the CONFIRM SETTINGS CHANGE screen.

To customize the high alarm set point:

1. Touch the ADJUST tab.
2. Enter the new set point.
3. Touch the Save button.

H = Zero Offset Tab

Figure 62: Zero Offset Tab

In some cases, facility dial gauges may show slightly different readings than the MEGA3 alarm (e.g., 46 PSI versus 44 PSI). To match the MEGA3 alarm exactly to a facility dial gauge:

1. Select the offset amount.
2. Touch the Save button to close the screen.

Configuring Additional Gas Badges

Configure additional gas badges by touching the number on the main configuration screen that corresponds with the gas badge and repeating the steps listed above.

4.3.2 Initial Setup for an Unconfigured Area Alarm

The SETUP INFORMATION screen is the first screen that users will see on an unconfigured alarm. (The MAIN screen is the first screen that users will see on a configured alarm.)

Password Setup - Unconfigured Alarm

- Touch the Configuration button.

Figure 63: Setup Information Screen

Entering the Password

The ENTER SECURITY PASSWORD screen appears.

Figure 64: Entering the Security Password

- Enter the security password. (The default password is **121212**.)
- Touch the Enter button.
- Touch Continue to advance to the CONFIGURATION screen.

Note:

If you would like to change the password, touch Change Password. Enter a 4-10 digit password, and touch the Enter button. Confirm the new password. Touch the X button in the upper right to close the SECURITY PASSWORD screen.

Figure 65: Changing the Security Password

- The CONFIGURATION screen will display as unconfigured and ready for setup.

Figure 66: Unconfigured Configuration Screen

Primary Settings Tab

The PRIMARY SETTINGS tab allows you to select the alarm type, initialize boards, and select gas inputs.

- Touch the PRIMARY SETTINGS tab

Alarm Type Tab

The ALARM TYPE screen defines which type of alarm will be displayed and drives later setup functions.

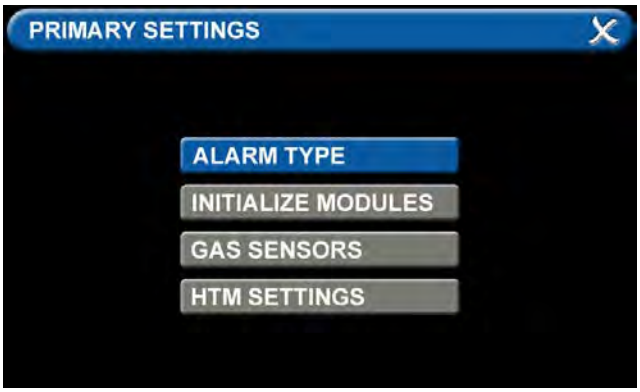


Figure 67: Alarm Type Tab

- Touch the ALARM TYPE tab.
- Choose a code style based on code requirements.

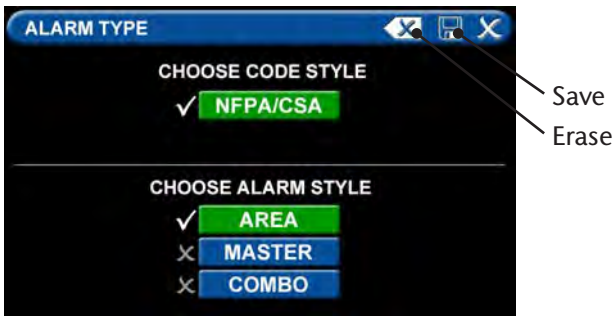


Figure 68: Choosing Code and Alarm Styles

- Touch the AREA tab
- Touch the Save button when you see checks beside your selections to save the settings and return to the PRIMARY SETTINGS screen.

Note: To clear your selections, touch the Erase button.

Initialize Modules Tab

The PRIMARY SETTINGS screen will now display with ALARM TYPE checked, INITIALIZE MODULES active, and the other tabs grayed out.

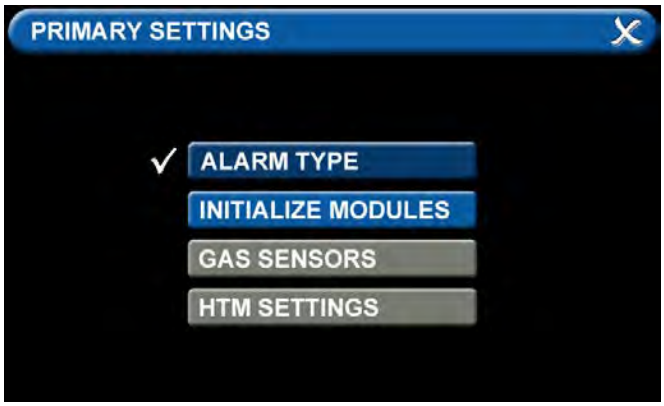


Figure 69: Initialize Modules Tab

- Touch the INITIALIZE MODULES tab.

The INITIALIZE MODULES screen is used to set up the boards that are installed. The boards function as the input/output hardware of the alarm.

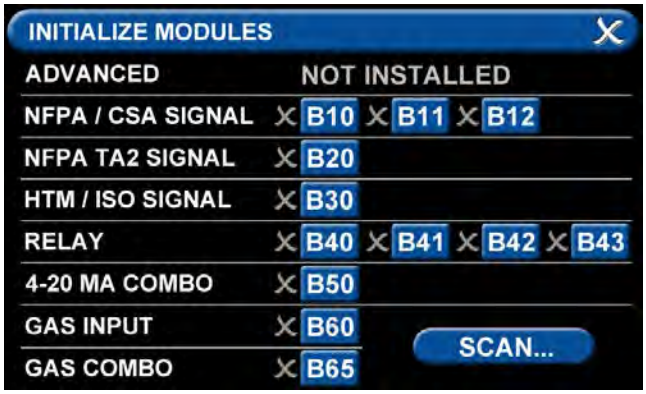


Figure 70: Initialize Modules Screen

At this point, you have two options:

1. Either touch the Scan button to prompt the alarm to autofill the screen for you.

OR

2. Complete the screen by selecting the boards installed in the alarm.

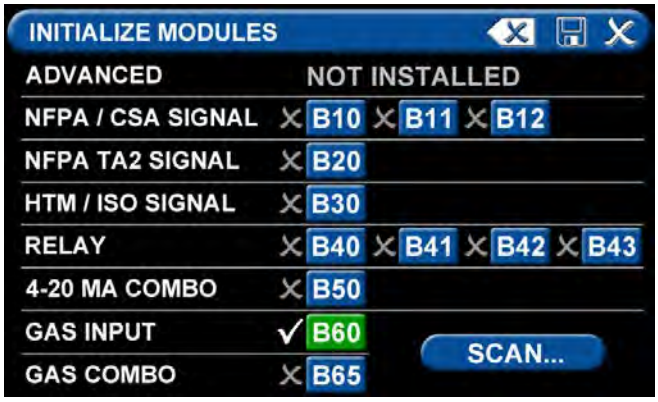


Figure 71: B60 board selected

Note:

THE GAS INPUT / B60 board must be selected during the configuration of an area alarm.

- Touch the Save button when you see checks beside your selections.

Gas Sensors Tab

The PRIMARY SETTINGS screen will now display with ALARM TYPE and INITIALIZE MODULES checked, GAS SENSORS active, and the last tab grayed out.

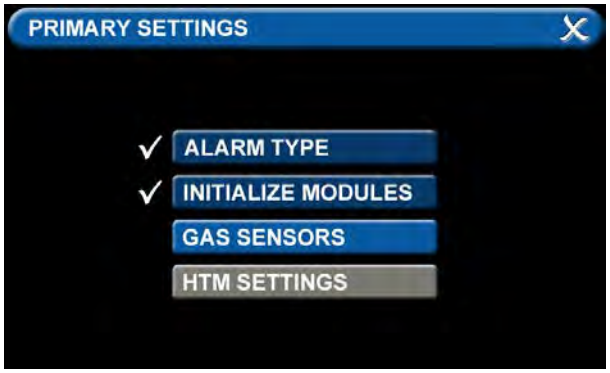


Figure 72: Gas Sensors Tab

- Touch the GAS SENSORS tab.

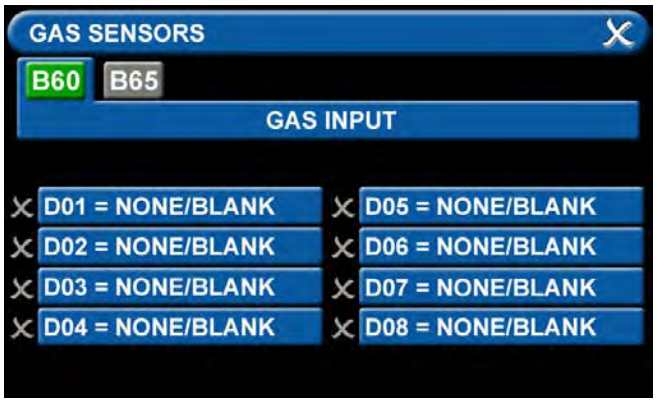


Figure 73: Gas Input Screen

Users may select up to eight different gases on the GAS INPUT screen. These gases correspond to the digital gas sensors wired into the GAS INPUT / B60 board (see section 2.4.2).

- To select the first gas, touch the D01 = NONE/BLANK tab.

Figure 74: Gas Sensors Screen

- Touch the right and left arrows at the bottom of the screen to scroll through additional gas choices, including options to create custom mixes. Select the gas that is wired into the D01 input on the GAS INPUT / B60 board.

Figure 75: Gas Choices

- Touch the Save button when you see a check beside your selection.
- (If an alarm sounds, press the Mute button on the panel under the screen and continue with setup.)
- Repeat to add additional gases.
- Touch the X button in the upper right to close the GAS SENSORS screen and return to the PRIMARY SETTINGS screen. The alarm will retain your information.
- Touch the X button in the upper right to close the PRIMARY SETTINGS screen. The alarm will retain your information.

4.4 Setting Up a Master Alarm

The master alarm monitors whether source equipment is working properly. Two independent hard wired alarms are required per facility to meet the 24-hour monitoring requirement in the NFPA 99 standard.

The information for the signals connected in the field needs to be entered into the alarm using the touch screen interface.

Figure 76: Master Alarm User Interface

To set up or change the configuration of an alarm, follow the steps outlined in the initial set-up for an unconfigured master alarm in section 4.4.

4.4.1 Configuring Source Badges

The MEGA3 alarm is designed to allow the setup and monitoring of 4 source badges. Each source badge has room for 10 source signal inputs (A-K) (Figure 78). Four tabs are used for the detailed configuration of each source signal input.

Note:

Maximum wired input signals allowed is 40.

Figure 77: Configuration Screen

To configure alarm points in the first badge, touch the [1] button in the numeric display.

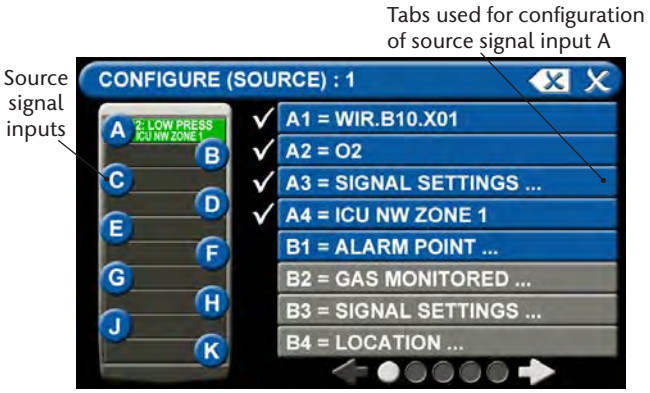


Figure 78: Configuration of alarm points

1 = ALARM POINT	To identify the location where the wires are landed
2 = GAS MONITORED	To choose the gas to be monitored
3 = SIGNAL SETTINGS	To select source signal description
4 = LOCATION	To add a location for the source signal

The four tabs for each source signal input are grouped together and named alphabetically (e.g., A1, A2, A3, A4 / B1, B2, B3, B4 / C1, C2, C3, C4 / etc.).

Users can scroll to the first tab for each source signal input by using the right and left arrows at the bottom of the screen. Or, to jump quickly to the first tab, simply touch the letter button on the grid on the left that corresponds to the source signal input (A-K) (Figure 78).

The first tab for each source signal input is highlighted and the remainder grayed out to ensure that users complete the setup in the correct order. The other three tabs will become available to you as you advance through setup.

A1 = Alarm Point Tab

Figure 79: Alarm Point Tab

To identify the location where the wires are landed:

1. Touch the tab for the appropriate board and terminal block. Ex: B10 board, X01 Terminal Block
2. Touch the Save button when you see a check beside your selection to go automatically to the GAS MONITORED screen.

A2 = Gas Monitored Tab

Figure 80: Gas Monitored Tab

To choose the gas to be monitored:

1. Scroll through the codes using the right and left arrows at the bottom of the screen.
2. Touch the tab for the appropriate gas.
3. Touch the Save button when you see a check beside your selection to go automatically to the SIGNAL SETTINGS screen.

A3 = Signal Settings Tab

Figure 81: Signal Settings Tab

To select source signal input text:

1. Touch the NONE/BLANK tab.
2. Scroll through the options using the right and left arrows at the bottom of the screen.
3. Touch the tab for the appropriate option
4. Touch the Save button when you see a check beside your selection to save the selection and return to the SIGNAL SETTINGS screen.
5. Touch the X button in the upper right to go automatically to the LOCATION screen.

A4 = Locations Tab

Figure 82: Locations Tab

To add source locations being monitored:

1. Touch a blank location tab.
2. Using the keyboard, enter the name of the location for the source equipment being monitored (e.g., ROOM 1). Enter multiple locations as needed (e.g., Manifold Room, Roof Top, Source Room).
3. Touch the Save button to close the screen and return to the SOURCE LOCATION screen.
4. Make sure the location you selected is highlighted in green, and touch the save button in the upper right to save and return to the CONFIGURE (SOURCE) screen.

Note: To edit the location information, touch the Pencil button.

Configuring Additional Source Badges

Configure alarm points on additional source badges by touching the number on the numeric display that corresponds with the source badge and repeating the steps listed above.

4.4.2 Initial Setup of an Unconfigured Master Alarm

The SETUP INFORMATION screen is the first screen that users will see on an unconfigured alarm.

(The MAIN screen is the first screen that users will see on a configured alarm).

Figure 83: Setup Information Screen

- Touch the Configuration button.

Entering the Password

The ENTER SECURITY PASSWORD screen appears.

Figure 84: Entering the Security Password

- Enter the security password. (The default password is **121212**.)
- Touch the Enter button.
- Touch Continue to advance to the CONFIGURATION screen.

Note:

If you would like to change the password, touch Change Password. Enter a 4-10 digit password, and touch the Enter button. Confirm the new password. Touch the X button in the upper right to close the SECURITY PASSWORD screen.

Figure 85: Changing the Security Password

- The CONFIGURATION screen will display as unconfigured and ready for setup

Primary Settings Tab

The PRIMARY SETTINGS tab allows you to select the alarm type and initialize boards.

- Touch the PRIMARY SETTINGS tab.

Alarm Type Tab

The ALARM TYPE screen defines which type of alarm will be displayed and drives later setup functions.

- Touch the ALARM TYPE tab.

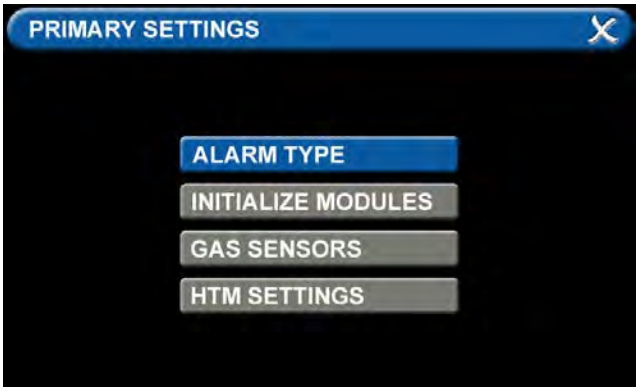


Figure 86: Alarm Type Tab

- Choose a code style based on code requirements.
- Touch the MASTER tab.

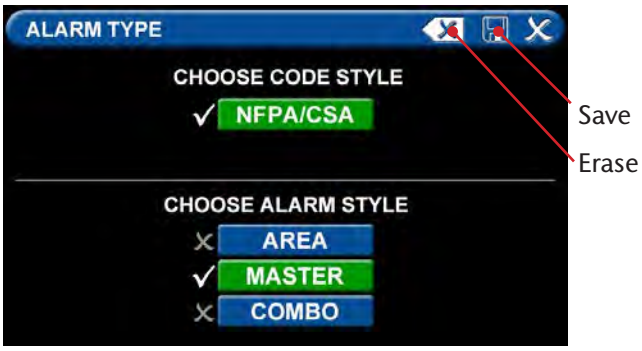


Figure 87: Choosing Code and Alarm Styles

- Touch the Save button when you see checks beside your selections to close the screen and return to the PRIMARY SETTINGS screen.

Note: To clear your selections, touch the Erase button.

Initialize Modules Tab

The PRIMARY SETTINGS screen will now display with ALARM TYPE checked and INITIALIZE MODULES active.

- Touch the INITIALIZE MODULES tab.

The INITIALIZE MODULES screen is used to set up the boards that are installed. The boards function as the input/output hardware of the alarm.

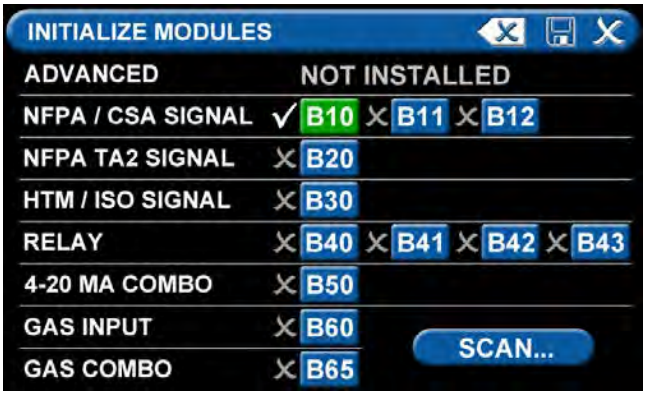


Figure 88: Initialize Modules Screen

At this point, you have two options:

1. Either touch the Scan button to prompt the alarm to autofill the screen for you.

OR

2. Complete the screen by selecting the boards installed in the alarm.

Touch the Save button when you see checks beside your selections.

The PRIMARY SETTINGS screen will now display with ALARM TYPE and INITIALIZE MODULES highlighted and checked and the other tabs grayed out.

- Touch the X button in the upper right to close and return to the CONFIGURATION screen.

4.5 Setting Up a Combination Alarm

The combination alarm combines the functionality of an area alarm and a master alarm. It monitors two things:

- Gases and their pressures.
- Source equipment.

Two independent hard wired alarms monitoring source equipment are required per facility to meet the 24-hour monitoring requirement in the NFPA 99 standard.

For convenience to the customer, the MEGA3 Medical Gas Alarm is shipped from the factory as a configured unit. However, the information for the signals connected in the field need to be entered into the alarm using the touch screen interface.

Figure 89: Combination Alarm User Interface

4.5.1 Configuring Source Badges

- Follow the steps for configuring source badges on a master alarm (section 4.4.1).

4.5.2 Configuring Gas Badges

- Follow the steps for configuring gas badges on an area alarm (section 4.3.1).

4.5.3 Initial Setup of an Unconfigured Combination Alarm

The SETUP INFORMATION screen is the first screen that users will see on an unconfigured alarm.

(The MAIN screen is the first screen that users will see on a configured alarm).

Figure 90: Setup Information Screen

- Touch the Configuration button.

Entering the Password

The ENTER SECURITY PASSWORD screen appears.

Figure 91: Entering the Security Password

Enter the security password. (The default password is **121212.**)

- Touch the Enter button.
- Touch Continue to advance to the CONFIGURATION screen.

Figure 92: Changing the Security Password

Note:

If you would like to change the password, touch Change Password. Enter a 4-10 digit password, and touch the Enter button. Confirm the new password. Touch the X button in the upper right to close the SECURITY PASSWORD screen.

- The CONFIGURATION screen will display as unconfigured and ready for setup.

Primary Settings Tab

The PRIMARY SETTINGS tab allows you to select the alarm type and initialize boards.

- Touch the PRIMARY SETTINGS tab.

Alarm Type Tab

The ALARM TYPE screen defines which type of alarm will be displayed and drives later setup functions.

- Touch the ALARM TYPE tab.

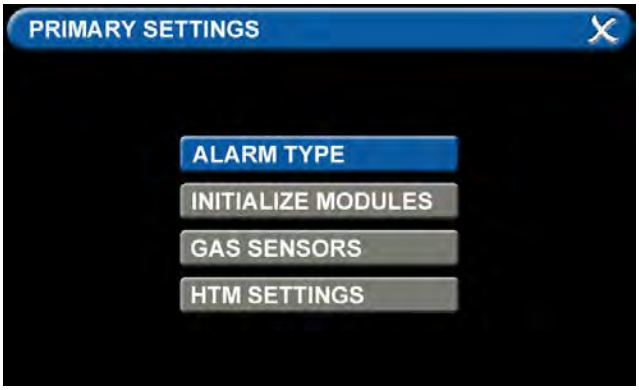


Figure 93: Alarm Type Tab

- Choose a code style based on code requirements.
- Touch the COMBO tab.

Figure 94: Choosing Code and Alarm Styles

- Once the desired tabs are selected, touch the Save button to save the selection an go back to the PRIMARY SETTINGS screen.

Note: To clear your selections, touch the Erase button.

Initialize Modules Tab

The PRIMARY SETTINGS screen will now display with ALARM TYPE checked and INITIALIZE MODULES active.

- Touch the INITIALIZE MODULES tab.

The INITIALIZE MODULES screen is used to set up the boards that are installed. The boards function as the input/output hardware of the alarm.

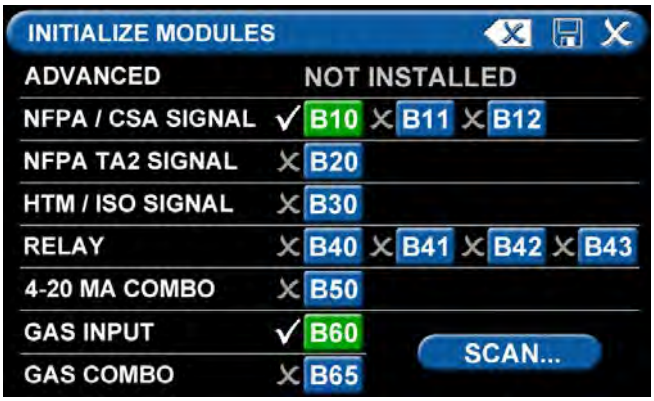


Figure 95: Initialize Modules Screen

At this point, you have two options:

1. Either touch the Scan button to prompt the alarm to autofill the screen for you.

OR

2. Complete the screen by selecting the boards installed in the alarm.

Touch the Save button when you see checks beside your selections.

Gas Sensors Tab

The PRIMARY SETTINGS screen will now display with ALARM TYPE and INITIALIZE MODULES checked, GAS SENSORS active, and the last tab grayed out.

- Touch the GAS SENSORS tab

B60 Board

Users may select up to six different gases on the GAS INPUT screen. These gases correspond to the digital gas sensors wired into the GAS INPUT / B60 board.

Note: This setup accommodates:

- Three source badges (10 signals each) and two gas badges = five total badges
- Two source badges (10 signals each) and four gas badges = six total badges
- One source badge (10 signals) and six gas badges = seven total badges
- To select the first gas, touch the D01=NONE/BLANK tab.
- Touch the right and left arrows at the bottom of the screen to scroll through additional gas choices, including options to create custom mixes. Select the gas that is wired into the D01 input on the GAS INPUT / B60 board.

Figure 96: Gas Choices

- Touch the Save button when you see a check beside your selection. (If an alarm sounds, press the Mute button on the panel under the screen and continue with setup).
- Repeat to add additional gases.
- Touch the X button in the upper right to close the GAS SENSORS screen and return to the PRIMARY SETTINGS screen. The
- alarm will retain your information.

B65 Board

The GAS SENSORS screen defaults to the B60 board, so users will see a MODULE NOT INITIALIZED message.

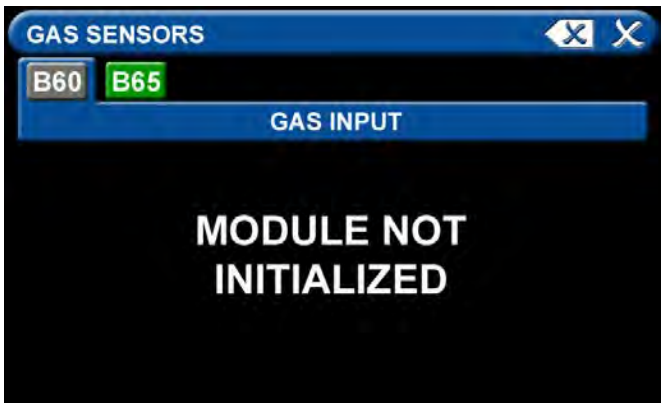


Figure 97: B60 Module not initialized

- Touch the B65 tab to go to the GAS COMBO screen.

Users may select up to three different gases on the GAS COMBINATION screen. These gases correspond to the digital gas sensors wired into the GAS COMBINATION / B65 board.

Note: This setup accommodates:

- 10 Source Inputs
- 3 Gas Sensors
- 6 Relay Outputs
- To select the first gas, touch the D01=NONE/BLANK tab.
- Use the right and left arrows at the bottom of the screen to scroll through additional gas choices, including options to create custom mixes. Select the gas that is wired into the D01 input on the GAS COMBINATION / B65 board.
- Touch the Save button when you see a check beside your selection. (If an alarm sounds, press the Mute button on the panel under the screen and continue with setup).
- The GAS COMBINATION screen will now display with the D01=[X] checked

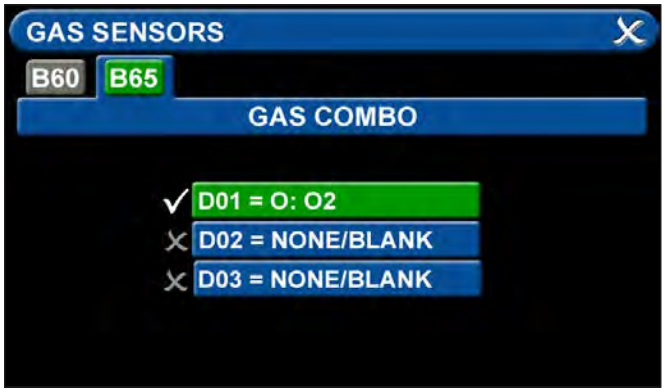


Figure 98: B65 screen

- Repeat the above steps to select up to two additional gases.

4.5.4 Miscellaneous Tab

Users can customize certain aspects of the MEGA3 Alarm's appearance and functionality. Aspects of functionality that can be adjusted include the date and time settings.

- Touch the MISCELLANEOUS tab.

Figure 99: Miscellaneous Screen

4.6 Additional Components

4.6.1 4-20mA Devices

To configure a 4-20mA device for monitoring, start on the CONFIGURATION screen. Users are always prompted to enter the password when accessing this screen.
Type the password, and touch the Enter button.

The CONFIGURATION screen displays.

Figure 100: Configuration screen

The MEGA3 alarm is designed to allow configuration of four gas badges using the B50 board to monitor 4-20mA devices. The alarm must be set as an Area panel or Combination panel. See Alarm Type Tab in Section 4.3.2.

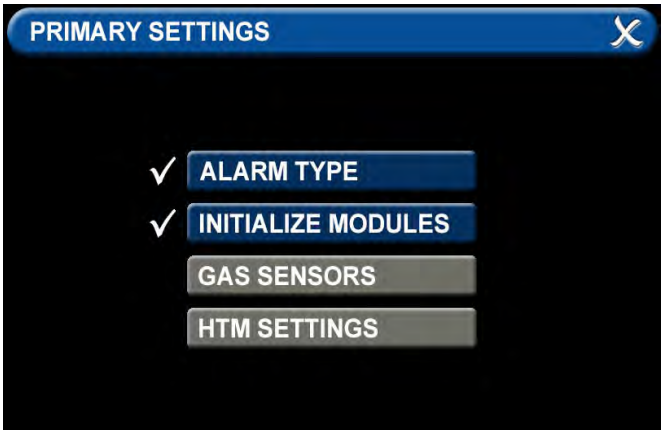


Figure 101: Primary Settings screen

After configuring the Alarm Type, the B50 board must be initialized. Select "Initialize Modules" on the Primary Settings Screen.

Press the "Scan" button to make sure the B50 board is set up, as it should turn green. Once the B50 board is green, press the "Save" icon to exit the screen. Exit the "Primary Settings" screen.

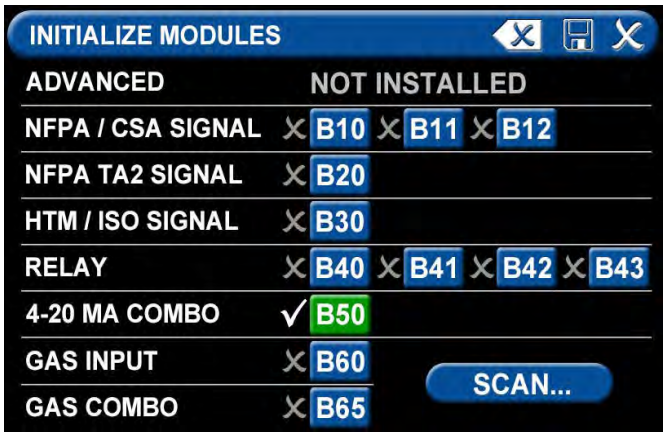


Figure 102: initialize Modules screen

To configure the first badge to custom settings, touch the corresponding number button in the numeric display that represents the badge to be configured. If a badge needs to be added, press the "+" for additional badges.
Eight tabs are used for configuration. Tabs are listed in alphabetical order (Figure 103).

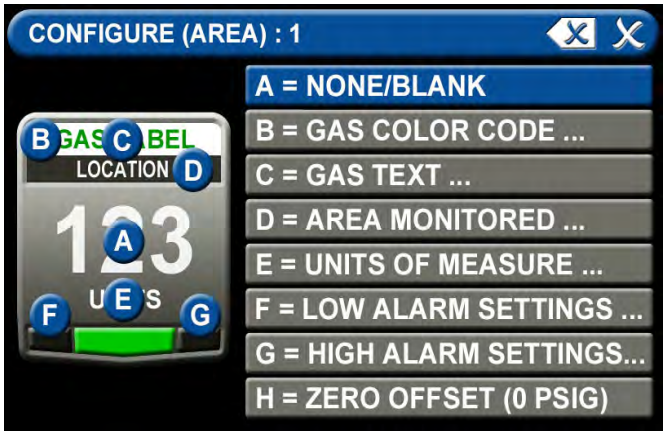


Figure 103: Configure Area screen

A = [Gas Input] Tab
The B50 should be green and there should be 4 choices (I01, I02, I03, I04). Select the wired input to be displayed on that badge:

Touch the tab for the appropriate wired gas sensor.

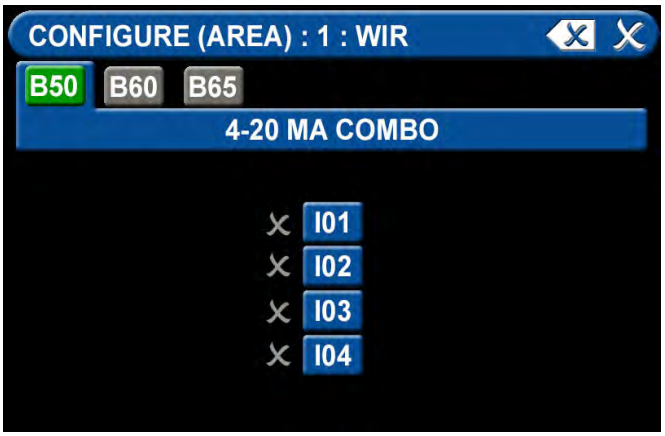


Figure 104: B50 Tab, 4-20 mA

Touch the Save button to close the screen.

B = Gas Desc Tab
To assign a color code for the device:

1. Scroll through the codes using the right and left arrows at the bottom of the screen. Custom colors are located on pages 7-8.
2. Touch the tab for the appropriate code.
3. Touch the Save button when you see a check beside your selection.

Figure 105: Gas Color Code Tab

C = [Gas Name] Tab
Use the keyboard to assign a device name. Type in the name of the device to be monitored. Touch the [<ÁÑ] to toggle to symbols and extended Latin Characters. Touch the [1AZ] key to toggle back to letters and numbers.
Touch the Save button when complete.

Figure 106: Gas Text Keyboard

D = Area Monitored Tab
To add locations to be monitored:

1. Touch an unused location tab.
2. Using the keyboard, enter the name of the location that you would like to monitor (e.g., ROOM 1). Enter multiple locations as needed (e.g., Room 1, Room 2, Room 5).
3. A check appears when the location is selected, the save button has to be pressed if the selection is new.

To edit the location information, touch the Pencil button.

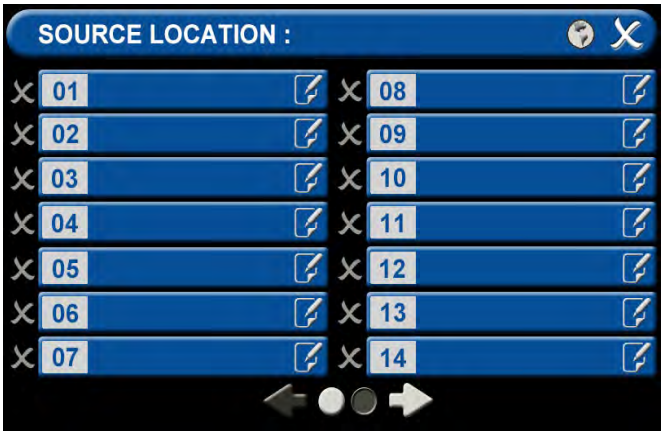


Figure 107: Source Location

E = [Units of Measure] Tab
To set up the 4-20mA device:

1. Touch the tab for "4MA=" to set the low measurement point of the device (zero for example) and press the save button to exit.

1. Touch the tab for “20MA=” to set the high measurement point of the device (100 for example) and press the save button to exit.
2. Touch the tab for “Units=” to set the method of measurement (percent for example), type in the measurement type and press the save button to exit.
3. Touch the X button in the upper right to close the screen.

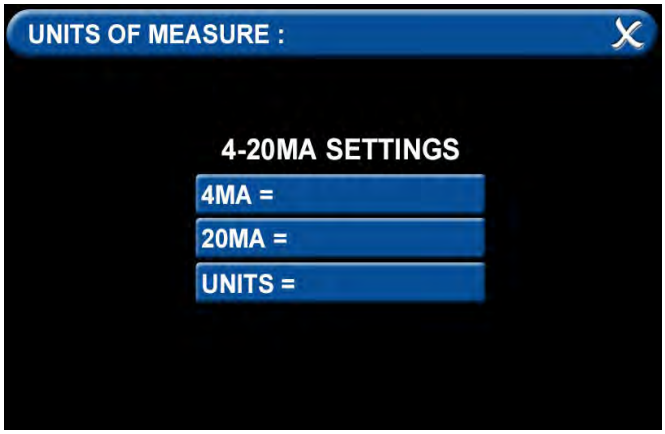


Figure 108: Units of Measure Tab

F = Low Alarm Settings Tab
You can remove the low alarm set point or customize the low alarm set point.

To remove the low alarm set point:

1. Touch the NONE tab.
2. Touch the check on the CONFIRM SETTINGS CHANGE screen.

To customize the low alarm set point:

1. Touch the ADJUST tab.
2. Enter the new set point.
3. Touch the Save button.

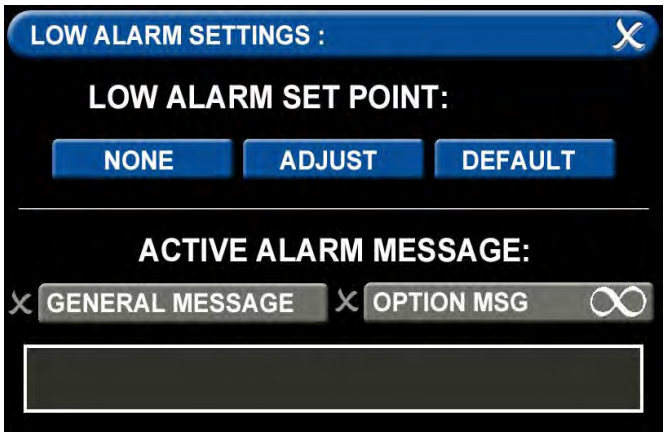


Figure 109: Low Alarm Settings

G = High Alarm Settings Tab
You can remove the high alarm set point or customize the high alarm set point.
To remove the high alarm set point:

1. Touch the NONE tab.
2. Touch the check on the CONFIRM SETTINGS CHANGE screen.

To customize the high alarm set point:

1. Touch the ADJUST tab.
2. Enter the new set point.
3. Touch the Save button.

Configuring Additional 4-20mA Devices

Configure additional 4-20mA devices by touching the number on the numeric display that corresponds with the gas badge and repeating the steps listed above.

4.6.2 Relay Output Board (B4X Board)

To configure a Relay Output, start on the CONFIGURATION screen. Users are always prompted to enter the password when accessing this screen.

Type the password, and touch the Enter button.

The CONFIGURATION screen displays.

Figure 110: Configuration Screen

The B40 (or B41, B42, B43) board must be initialized. Touch Primary Settings from the right side menu, then select "Initialize Modules". Press the "Scan" button to make sure the B40 board is set up, as it should turn green. Once the B40 board is green, press the "Save" icon to exit the screen. Exit the "Primary Settings" screen.

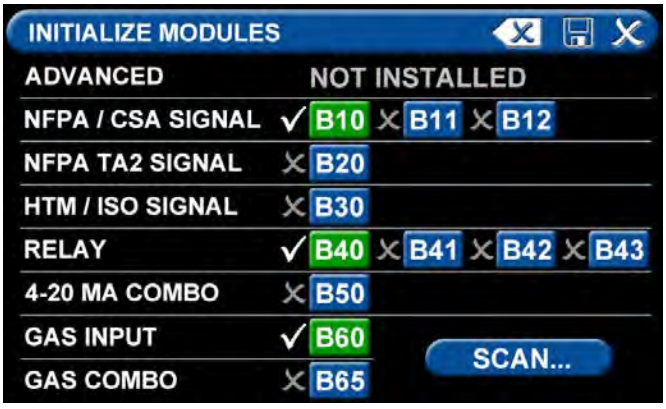


Figure 111: Initialize Modules Screen

The next step is to select the "Relay Outputs" from the menu on the Configuration Screen. The B40 board should be highlighted in Green (or other Relay Output board installed in the rough-in box).

Select the signal that corresponds to the output wires on the relay board (Y01 for example).

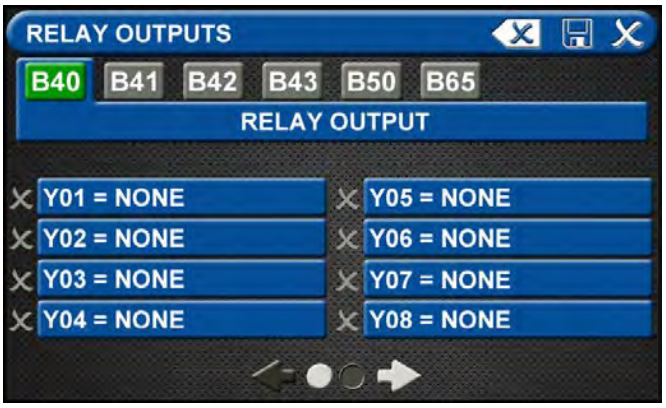


Figure 112: Relay Outputs Screen

After selecting the signal, you will need to assign it to an alarm signal to send. Select "Wired" on the Relay Output screen if the signal to be relayed is wired into the rough-in box.

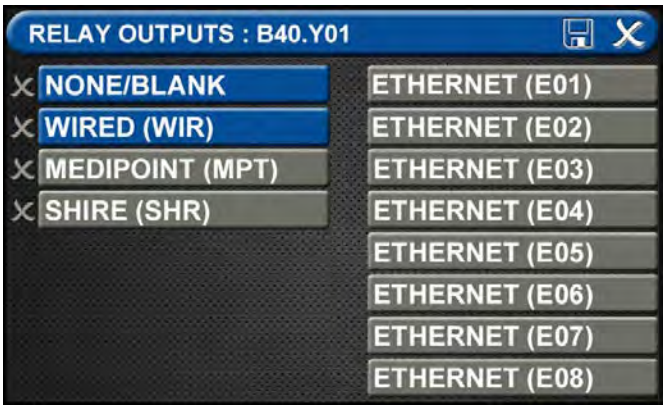


Figure 113: Relay Output Signal

There are four choices for the relay output signal.

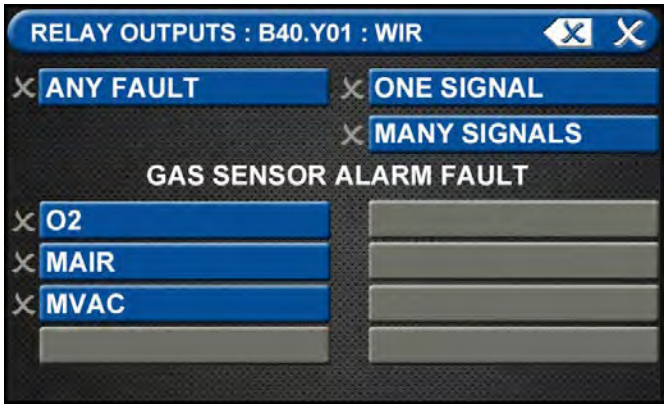


Figure 114: Relay Output Signals Screen

1. A single "Any Fault" which will report a general alarm fault if any of the alarm signals on the alarm go into alarm condition. To select "Any Fault", press the blue "Any Fault" to change it to green with the check mark. Then press Save to return to Relay Outputs and set up additional outputs.
2. "One Signal" reports a single signal through the relay output. When pressing "One Signal," the next step is to assign the signal to be transmitted. On the Relay Output screen, select the Input Signal to be transmitted (X01 from the B10 board for example). Press Save to return to the Relay Outputs screen.

Figure 115: Relay Output One Signal

3. "Many Signals" allows the user to group multiple signals on a single relay output. If any of the signals goes into alarm condition, the relay output will report an alarm condition. Press "Many Signals" to move to the Relay Output screen and select from 1 to 10 signals to group together. Select the number 01 to start, then select the first signal to be grouped by pressing the corresponding number on the Relay Output (such as X01 from the B10 board). Press Save to return to the Many Signal Relay Output screen. Next select 02 to capture the second signal to be monitored. Repeat up to a grouping of 10 signals.

Figure 116: Relay Output Many Signals

4. "Gas Sensor Alarm Fault" allows the user to report a fault condition based on a gas sensor through the relay output. When choosing Gas Sensor Alarm Fault, select the gas sensor to be monitored from the list. Press Save to return to the Relay Outputs screen.

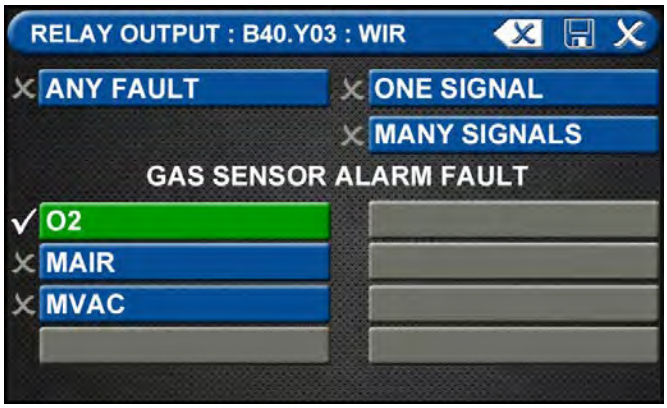


Figure 117: Gas Sensor Alarm Fault

5.0 Retrofit

Retrofit Kits Include:

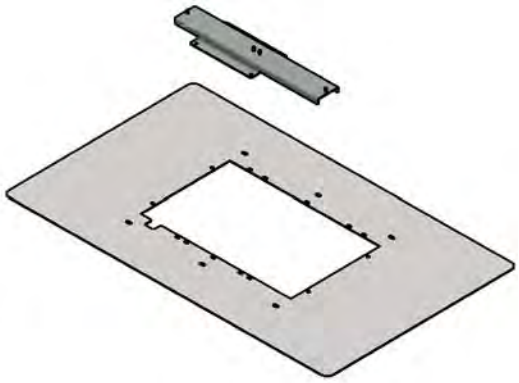


Figure 118: TA2/MEGA2/Others 8-Gas Trim Kit

4107 2206 15 Contents	
Qty	**Description**
1	Trim Plate Retrofit 16x27
1	Adapter Bracket, Power Supply 2-Position
4	Hardware #6-32 x 1/4" long Pan Head Machine screw

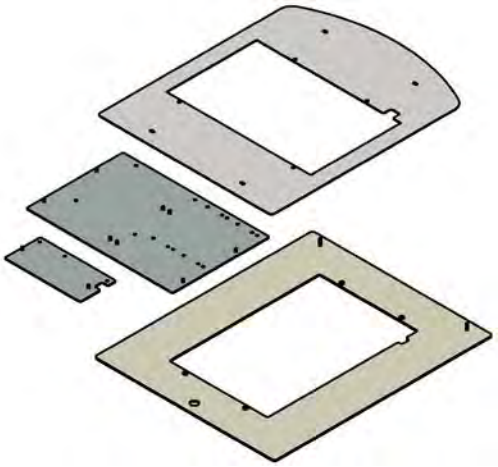


Figure 119: TotalAlert[1] Trim Kit

4107 2206 16 Contents	
Qty	**Description**
1	Trim Plate Retrofit TotalAlert[1] Single
1	Trim Plate Retrofit TotalAlert[1] Double
1	Adapter Bracket, Power Supply
1	Adapter Bracket, I/O Modules
4	Hardware #6-32 x 1/4" long Pan Head Machine screw

NOTE: Due to the nature of retrofit installations, you will have parts left over when finished.

5.1 Retrofit of TotalAlert[2] Area Alarm Panel (4-gas, 8-gas) and MEGA2 Alarms

NOTE: The existing Digital Gas Sensors will be reused for the new alarm.

5.1.1 Remove Components from Existing Alarm

1. Open old alarm panel to be retrofitted and ensure that the retrofit kit to be installed is correct according to the number of Signal Inputs, Relay outputs, and/or Gas Sensor signals (See Appendix A).
2. Ensure that you have the additional trim kit if retrofitting a TotalAlert2/MEGA2, 8-Gas alarm (4107220615).
3. Test Master alarm signals to validate wiring and document all signal wires coming into the box with alarm type and locations prior to disconnecting the front panel. This information will be required to setup the new alarm.
4. Turn off the supply power to the alarm.

CAUTION: Verify that power has been turned off prior to working on the alarm.

5. Remove and discard the front panel from the existing alarm.
6. Remove the old power supply

5.1.2 Install New Power Supply

Mega Master / Area 4 Gas

a. Install the metal standoff bracket that is included with the retrofit kit onto the studs the power supply was removed from.
b. Mount the new Power Supply (B05) to the bracket using the nuts provided (Figure 120).

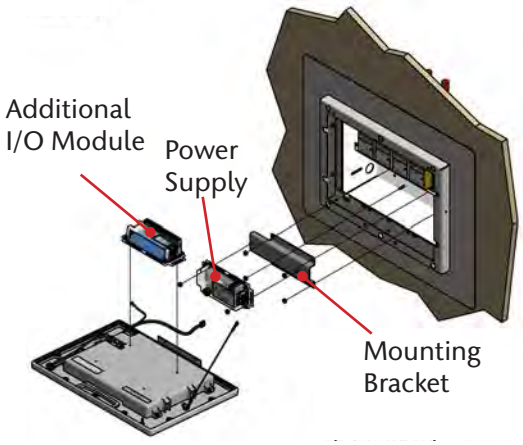


Figure 120: Power Supply, Module Mounting

TA2/MEGA2 Area 8 Gas

a. Install the 2 position metal standoff bracket that is included with the additional trim kit onto the studs the power supply was removed from (Figure 121).
b. Mount the new Power Supply (B05) and the B60 gas input board to the bracket using the nuts provided with the modules.

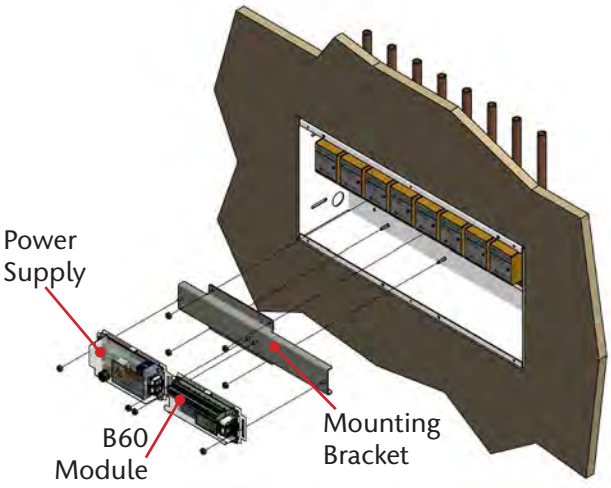


Figure 121: Power Supply, Module Mounting

1. Locate the Ground cable attached to the power supply and connect the ring terminal end to the rough-in box for chassis ground. Use the self-drilling screw provided.
2. Remove the 4 corner screws from the power supply cover and remove the cover.
3. Connect the supply power Line and Neutral wires to the terminal block.
4. Connect the supply power Ground wire directly to the rough-in box.
5. Replace the power supply cover and screws.

5.1.3 Install New Components

1. Determine the best placement of the remaining I/O modules inside of the rough-in box.

NOTE: I/O Modules and Power Supply will need to be daisy chain connected via the grey cables supplied with each I/O module.

2. Mount the I/O Modules inside the rough-in box using the supplied hardware.
3. Connect the grey cable(s) provided; from the power supply to the white sockets on the I/O modules in a daisy chain manner (Figure 122).

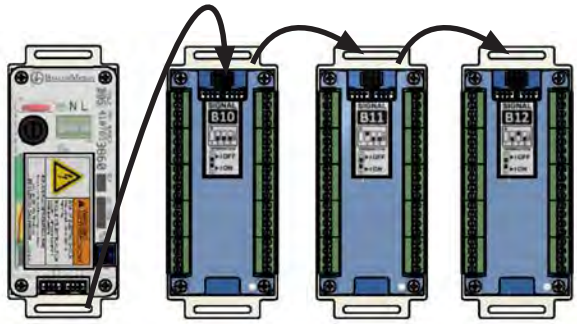


Figure 122: Daisy Chain of Power Supply

4. The last module in the chain needs to have the #1 DIP switch set to "ON" (Figure 123). Refer to the module ID label.

Figure 123: DIP Switch Setting

5. Connect all input signal / output signal / gas sensor wiring to their respective modules. Refer to the wiring diagram on the Quick Setup Guide for instructions.

5.1.4 Install Trim Plate

MEGA Master / Area 4 Gas

a. Install trim plate assembly to rough-in box using the provided screws and/or drywall anchors. Slots in the trim plate will align with existing holes in the rough-in box flanges (Figure 124).

NOTE: Trim ring portion can be removed from the trim plate if the surrounding wall area is in good condition. Mounting of the trim ring only to the rough-in box will result in a cleaner retrofit installation.

TA2/MEGA2 Area 8 Gas

a. Remove the trim ring from the standard trim plate and install the wide 27" wide x 16" tall trim plate from retrofit option kit (4107220615). Screws are provided in the option kit for attaching the trim ring to the trim plate (Figure 124).
b. Install trim plate assembly to rough-in box using the provided screws and/or drywall anchors. Slots in the trim plate will align with existing holes in the rough-in box flanges.

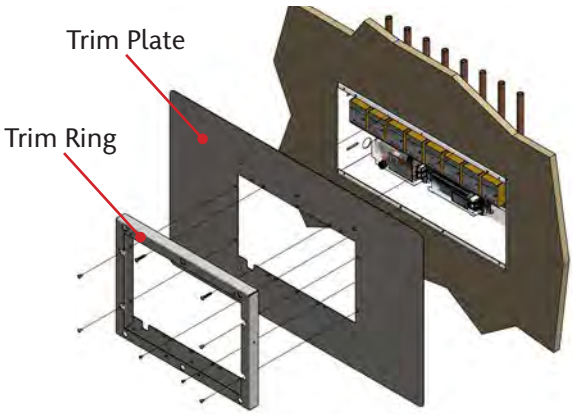


Figure 124: Retrofit Area Trim Panel

1. Mount the Front Panel assembly to the trim ring using the countersink sheet metal screws provided on the trim ring (Figure 125).
2. Connect the lanyard to the threaded extension on the right side of the trim ring.
3. Connect the grey cable from the Front Panel to the other white socket on the Power Supply board.
4. Connect the ground cable from the Front Panel to the rough-in box using the provided self-drilling screw.
5. Turn on the supply power to the alarm and wait for the alarm to boot up.
6. Setup the new alarm by referring to the Quick Setup guide.

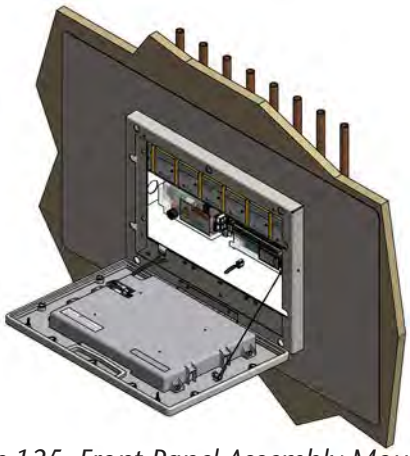


Figure 125: Front Panel Assembly Mounting

5.2 Retrofit of TotalAlert[1] Alarm Panels

5.2.1 Remove Components from Existing Alarm

1. Open old alarm panel to be retrofitted and ensure that the retrofit kit to be installed is correct according to the number of Signal Inputs, Relay outputs, and/or Gas Sensor signals (See Appendix A).
2. Ensure that you have the additional trim kit for retrofitting a TotalAlert1 Single or Double alarm panel (4107220616).
3. Test Master alarm signals to validate wiring and document all signal wires coming into the box with alarm type and locations prior to disconnecting the front panel. This information will be required to setup the new alarm.
4. Turn off the supply power to the alarm.

CAUTION: Verify that power has been turned off prior to working on the alarm.

5. Remove and discard the front panel from the existing alarm. For TotalAlert1 Double, remove the door from the hinges, remove the lock set and set aside, and discard the door.

NOTE: For TotalAlert1 alarms, all internal components will need to be removed and replaced with new components.

6. Remove and discard of all the components from the alarm rough-in box.
7. Ensure that no low voltage signal wiring is pulled through the input power knockouts inside of the rough-in box.
8. Mount new power supply adapter bracket (small bracket included with kit 4107220616) reusing the hardware and location from the old power supply (Figure 126).

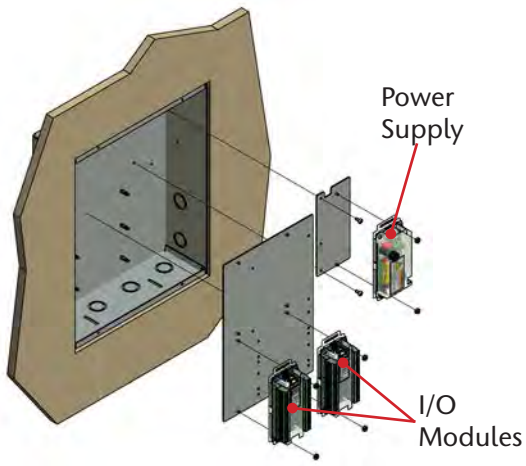


Figure 126: MEGA3™ Adapter Bracket Mounting Single

9. Snap the I/O module adapter bracket (large bracket included with kit 4107220616) onto the standoffs at the rear of the rough-in box (Figure 127).

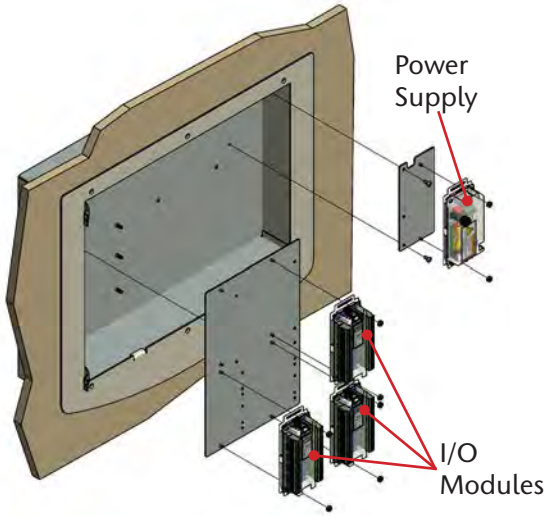


Figure 127: MEGA3™ Double Adaptor Bracket Mounting

5.2.2 Install Gas-Specific Sensors (Area or Combination alarms only)

Local Sensors

1. Install the MEGA3™ gas specific transducers following your records from the disassembly.

NOTE: If a DISS demand check valve is not in place then one will need to be installed to comply with NFPA 99.

CAUTION: Ensure that the pressure on the pipeline in the alarm area has been released before removing any components from the pipeline connection.

2. Remove any existing fittings or adapters from the gas tube in the rough-in box.
3. Install the gas specific DISS demand check valve from the supplied tubing package into the appropriate gas tube. To prevent gas leaks, wrap Teflon tape a minimum of three times around the fitting pipe threads.
4. Tighten the adapter until you feel resistance; then turn the fitting 2 full turns.

NOTE: If the gas transducer needs to be repositioned in the rough-in box or thread size / fitting style is not compatible; use the included fitting kits to adapt or relocate as needed. Fitting/adapter kit needs to be installed upstream from the DISS connection at the gas sensor.

5. Install the gas specific transducer.
6. Tighten the DISS nut until you feel resistance.
7. Repeat steps 2-6 until all of the gas specific transducers are installed.
8. Verify that the gas specific transducers are in the appropriate places by referring to your records from the disassembly.
9. Return pressure to each gas sensor, one gas at a time and check for leaks. Make any adjustments or corrections as needed.

Remote Sensors

1. Sensors are packaged loose so they can easily be installed remotely.
2. Remote sensors are installed directly to the pipeline outside of the rough-in box. Pipeline connections are to be made to the top of the pipe.

NOTE: If a DISS demand check valve is not in place then one will need to be installed to comply with NFPA 99.

CAUTION: Ensure that the pressure on the pipeline in the alarm area has been released before removing any components from the pipeline connection.

3. Remove any existing fittings or adapters from the gas tube.
4. Install the gas specific DISS demand check valve from the supplied tubing package into the appropriate tube. To prevent gas leaks, wrap Teflon tape a minimum of three times around the fitting pipe threads.
5. Tighten the adapter until you feel resistance; then turn the fitting 2 full turns.

NOTE: If the DISS demand check thread size is not compatible with the existing tubing connection; use the included fitting kits to adapt as needed. Fitting/adapter kit needs to be installed upstream from the DISS connection at the gas sensor.

6. Install the gas specific transducer.
7. Tighten the DISS nut until you feel resistance.
8. Repeat steps 3-7 until all of the gas specific transducers are installed.
9. Verify that the gas specific transducers are in the appropriate places by referring to your records from the disassembly.
10. Return pressure to each gas sensor, one gas at a time and check for leaks. Make any adjustments or corrections as needed.

NOTE: Remote sensors can also be installed in compatible BeaconMedæs Zone Valve boxes with additional adapter kit (4107401625). One required for each sensor.

5.2.3 Install New Power Supply

1. Mount the new Power Supply (B05) to the adapter bracket using the nuts provided (Figures 126 - 129).
2. Locate the Ground cable attached to the power supply and connect the ring terminal end to the rough-in box for chassis ground. Use the self-drilling screw provided.
3. Remove the 4 corner screws from the Power Supply cover and remove the cover.
4. Connect the supply power Line and Neutral wires to the terminal block.
5. Connect the supply power Ground wire to the rough-in box.
6. Replace the power supply cover and screws.

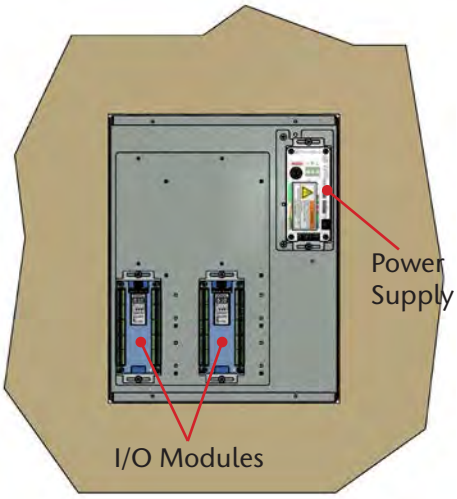


Figure 128: MEGA3 Single Module Positions

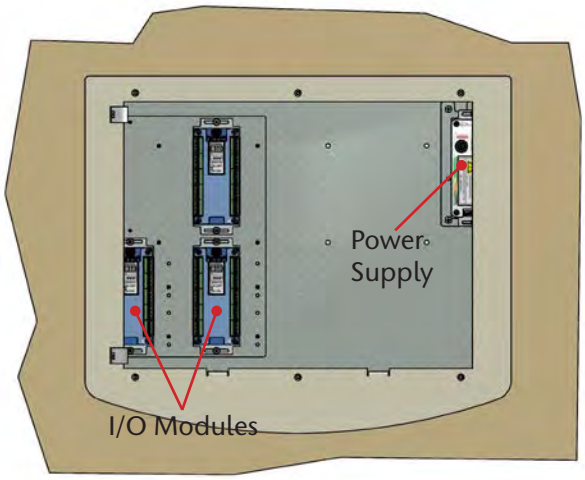


Figure 129: Double Module Positions

5.2.4 Install New Components

1. Mount the I/O Modules to the large adapter bracket using the nuts provided.

NOTE: I/O Modules and Power Supply will need to be daisy chain connected via the grey cables supplied with each I/O module (See figure 122).

2. Connect the grey cable(s) provided; from the power supply to the white sockets on the I/O modules in a daisy chain manner.
3. The last module in the chain needs to have the #1 DIP switch set to "ON" (See Figure 123). Refer to the module ID label.
4. If alarm is an Area or Combination with local sensors, consider the position and placement of the pressure transducers before drilling or mounting any components. Use the sensor adapter kits provided to relocate the sensors if required.
5. Connect all input signal / output signal / gas sensor wiring to their respective modules. Refer to the wiring diagram on the Quick Setup Guide for instructions.

5.2.5 Install Trim Plate

1. Remove the trim ring from the standard trim plate and install the corresponding trim plate from retrofit option kit (4107220616) (Figures 130 & 131). Screws are provided in the option kit for attaching the trim ring to the trim plate. TotalAlert[1] Double also requires switching over the door lock set to the new trim plate.
2. Install trim plate assembly to the rough-in box using the holes that align to the rough-in box flanges (TotalAlert[1] Single), or attach trim plate assembly to the existing hinges (TotalAlert[1] Double).

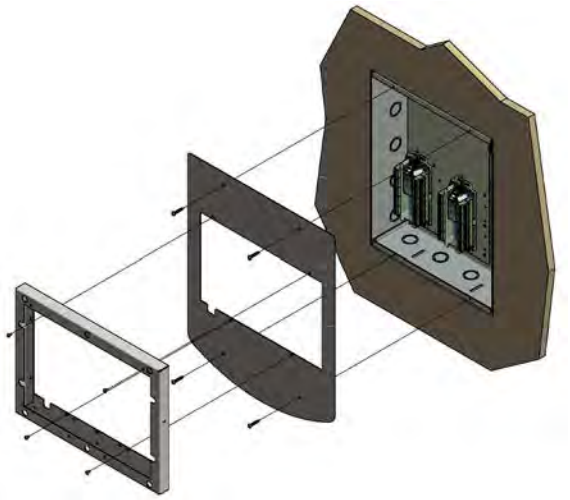


Figure 130: MEGA3™ Single Trim Plate Installation

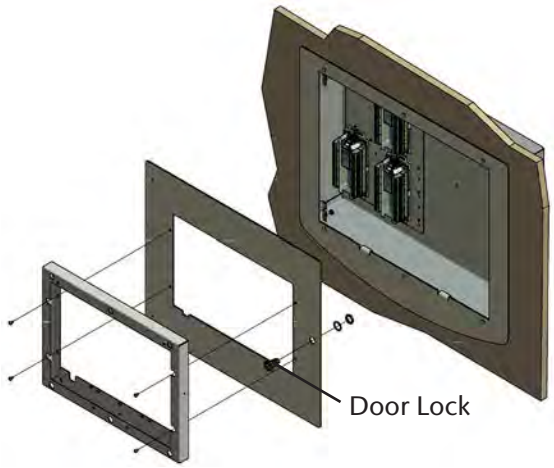


Figure 131: MEGA3™ Double Trim Plate Installation

3. Mount the Front Panel assembly hinge to the trim ring using the countersink sheet metal screws provided on the trim ring (Figures 132 - 134).
4. Connect the lanyard to the threaded extension on the right side of the trim ring.
5. Connect the grey cable from the Front Panel to the white socket on the Power Supply board.
6. Connect the Ground cable from the Front Panel to the rough-in box.
7. Turn on the supply power to the alarm and wait for the alarm to boot up.
8. Setup the new alarm by referring to the Quick Setup guide.

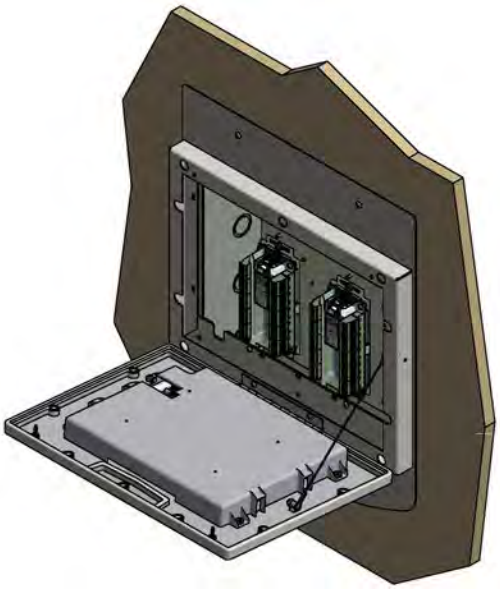


Figure 132: MEGA3™ Single Mount Front Panel Assembly

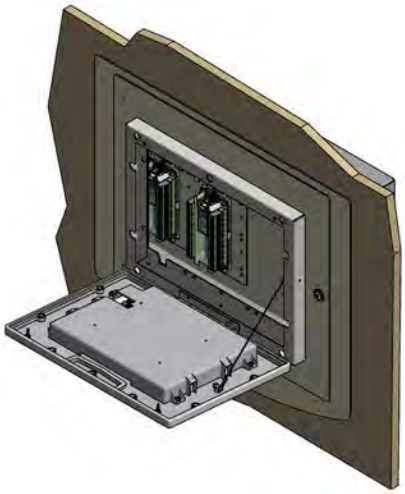


Figure 133: MEGA3™ Double Mount Front Panel Assembly

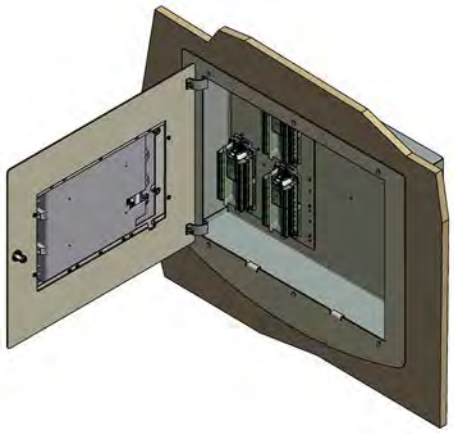


Figure 134: MEGA3™ Double Mount Front Panel Assembly

5.3 Retrofit of Other Alarm Panels

5.3.1 Remove Components from Existing Alarm

1. Open old alarm panel to be retrofitted and ensure that the retrofit kit to be installed is correct according to the number of Signal Inputs, Relay outputs, and/or gas sensor signals (See Appendix A).
2. If alarm to be retrofit has a rough-in box greater than 20 inches wide, you will need the optional trim kit (4107220615) to cover the existing box.
3. Test Master alarm signals to validate wiring and document all signal wires coming into the box with alarm type and locations prior to disconnecting the front panel. This information will be required to setup the new alarm.
4. Turn off the supply power to the alarm.

CAUTION: Verify that power has been turned off prior to working on the alarm.

5. Remove and discard the front panel from the existing alarm.
6. Remove and discard of all the components from the alarm rough-in box.
7. Ensure that no low voltage signal wiring is pulled through the input power knockouts inside of the rough-in box.
8. Remove any studs and screws flush with the rough-in box.
9. Remove all sharp edges and burrs from open knockouts and from the inside of the rough-in box.
10. Remove all existing regulatory compliance labels from the inside of the rough-in box.
11. Clean the inside of the rough-in box to remove all of the metal shavings and dirt.

5.3.2 Determine Proper Placement of New Components

1. Determine the proper placement of the MEGA3™ Retrofit Alarm components inside of the rough-in box. Refer to Appendix A and illustrations for recommended placement.

NOTE: I/O Modules and Power Supply will need to be daisy chain connected via the grey cables supplied with each I/O module (See Figure 122) The last module in the chain needs to have the #1 DIP switch set to "ON" (See Figure 123).

2. If alarm is an Area or Combination with local sensors, consider the position and placement of the pressure transducers before drilling or mounting any components. Use the sensor adapter kits provided to relocate the sensors if required.

5.3.3 Install Gas-Specific Sensors (Area or Combination alarms only)

Local Sensors

1. Install the MEGA3™ gas specific transducers following your records from the disassembly.

NOTE: If a DISS demand check valve is not in place then one will need to be installed to comply with NFPA 99.

CAUTION: Ensure that the pressure on the pipeline in the alarm area has been released before removing any components from the pipeline connection.

2. Remove any existing fittings or adapters from the gas tube in the rough-in box.
3. Install the gas specific DISS demand check valve from the supplied tubing package into the appropriate gas tube. To prevent gas leaks, wrap Teflon tape a minimum of three times around the fitting pipe threads.
4. Tighten the adapter until you feel resistance; then turn the fitting 2 full turns.

NOTE: If the gas transducer needs to be repositioned in the rough-in box or thread size / fitting style is not compatible; use the included fitting kits to adapt or relocate as needed. Fitting/adapter kit needs to be installed upstream from the DISS connection at the gas sensor.

5. Install the gas specific transducer.
6. Tighten the DISS nut until you feel resistance.
7. Repeat steps 2-6 until all of the gas specific transducers are installed.
8. Verify that the gas specific transducers are in the appropriate places by referring to your records from the disassembly.
9. Return pressure to each gas sensor, one gas at a time and check for leaks. Make any adjustments or corrections as needed.

Remote Sensors

1. Sensors are packaged loose so they can easily be installed remotely.
2. Remote sensors are installed directly to the pipeline outside of the rough-in box. Pipeline connections are to be made to the top of the pipe.

NOTE: If a DISS demand check valve is not in place then one will need to be installed to comply with NFPA 99.

CAUTION: Ensure that the pressure on the pipeline in the alarm area has been released before removing any components from the pipeline connection.

3. Remove any existing fittings or adapters from the gas tube.
4. Install the gas specific DISS demand check valve from the supplied tubing package into the appropriate tube. To prevent gas leaks, wrap Teflon tape a minimum of three times around the fitting pipe threads.
5. Tighten the adapter until you feel resistance; then turn the fitting 2 full turns.

NOTE: If the DISS demand check thread size is not compatible with the existing tubing connection; use the included fitting kits to adapt as needed. Fitting/adapter kit needs to be installed upstream from the DISS connection at the gas sensor.

6. Install the gas specific transducer.
7. Tighten the DISS nut until you feel resistance.
8. Repeat steps 3-7 until all of the gas specific transducers are installed.
9. Verify that the gas specific transducers are in the appropriate places by referring to your records from the disassembly.
10. Return pressure to each gas sensor, one gas at a time and check for leaks. Make any adjustments or corrections as needed.

NOTE: Remote sensors can also be installed in compatible BeaconMedæs Zone Valve boxes with additional adapter kit (4107401625). One required for each sensor.

5.3.4 Install Power Supply

NOTE: Alarm panels require 100 to 250 VAC 50/60Hz power. Refer to wiring schematics located on the quick setup guide included. For NFPA 99 compliance, alarm panel must be connected to the life safety branch of the emergency electrical system.

1. Position the power supply module in the rough-in box to verify the fit prior to installation.
2. Mount the power supply using the provided nuts or self-drilling screws
3. Locate the Ground cable attached to the power supply and connect the ring terminal end to the rough-in box using the provided self-drilling screw.
4. Remove the 4 corner screws from the power supply cover and remove the cover.
5. Connect the supply power Line and Neutral wires to the terminal block.
6. Connect the supply power Ground wire to the rough-in box.
7. Replace the power supply cover and screws.

5.3.5 Install I/O Modules

1. Position the Input/Output modules in the rough-in box to verify the fit prior to installation.
2. Mount each I/O module using the provided nuts or self-drilling screws.
3. Connect the grey cable(s) provided; from the Power Supply to the white sockets on the I/O modules in a daisy chain manner (See Figure 122).
4. The last module in the chain needs to have the #1 DIP switch set to “ON” (See Figure 123). Refer to the module ID label.
5. Connect all input signal / output signal / gas sensor wiring to their respective modules. Refer to the wiring diagram on the Quick Setup Guide for instructions.

5.3.6 Install Trim Components

The standard retrofit alarm kit comes with a 20" x 16" trim plate assembly which will work for most of the typical installations (Figure 135). In some cases the trim plate is not needed and the existing rough-in box / wall opening can be covered by using the trim ring alone; in that case, remove the 20" x 16" trim plate prior to installing the trim ring to the wall/rough-in box.

For retrofitting of larger 8-gas rough-in panels (up to 24" wide), an optional trim plate kit is required (4107220615) to cover the larger wall opening (Figure 136). If this is required, remove the 20" x 16" trim plate from the trim ring and install the 27" x 16" trim plate prior to installing the trim assembly to the wall/rough-in box. *Note the orientation of the square notches on the trim ring and plate.

1. Position the trim plate over the rough-in box and determine the best mounting method for your case. Use a level to check that the trim plate is plumb.
2. Mark the mounting locations on the drywall using the trim plate as your guide.
3. Install the drywall anchors provided as needed.
4. Reposition the trim plate and install the screws provided into the anchors and/or directly into the rough-in box.

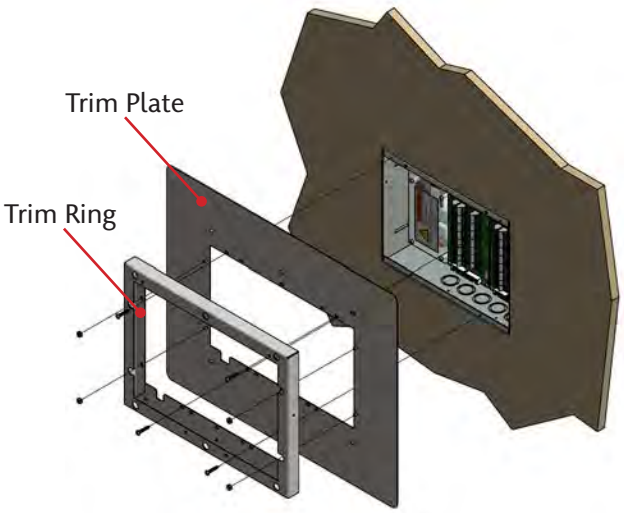


Figure 135: Standard Trim Plate Assembly

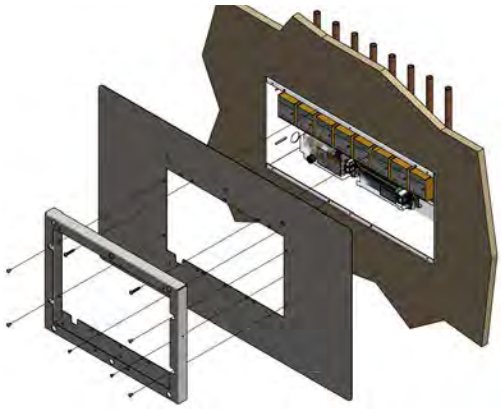


Figure 136: Optional Retrofit Area Trim Panel

5.3.7 Install Front Panel

1. Mount the Front Panel assembly to the trim ring using the countersink sheet metal screws provided on the trim ring.
2. Connect the lanyard to the threaded extension on the right side of the trim ring (Figure 137).
3. Connect the grey cable from the Front Panel to the white socket on the Power Supply board.
4. Connect the Ground cable on the Front panel to the rough-in box using the provided self-drilling screw.
5. Turn on the supply power to the alarm and wait for the alarm to boot up.
6. Setup the new alarm by referring to the Quick Setup guide.

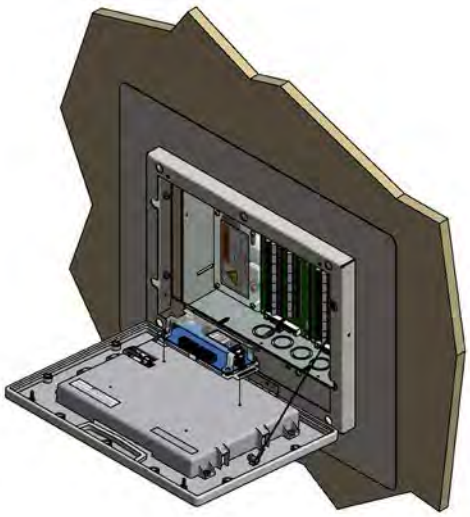


Figure 137: Front Panel Installation

Appendix A:

Variable A Alarm Type and Size	
Allowable Value	**Description**
A10	Area Alarm, Up to 8 Area Gases
M01	Master, 0 Inputs, 16 Relay Outputs
M10	Master, 20 Inputs
M11	Master, 20 Inputs, 16 Relay Outputs
M12	Master, 20 Inputs, 32 Relay Outputs
M13	Master, 20 Inputs, 48 Relay Outputs
M20	Master, 40 Inputs
M21	Master, 40 Inputs, 16 Relay Outputs
M22	Master, 40 Inputs, 32 Relay Outputs
C01	Combination, 10 Inputs, 6 Relay Outputs, Up to 3 Area Gases
C10	Combination, 20 Inputs, Display up to 6 Area Gases
C11	Combination, 20 Inputs, 16 Relay Outputs, Display up to 6 Area Gases
C12	Combination, 20 Inputs, 32 Relay Outputs, Display up to 6 Area Gases
C40	Combination, 7 Inputs, 6 Relay Outputs, 4 Inputs for 4-20mA devices
C41	Combination, 27 Inputs, 6 Relay Outputs, 4 Inputs for 4-20mA devices
C44	Combination, 7 Inputs, 6 Relay Outputs, 4 Inputs for 4-20mA devices, Up to 6 Area Gases (maximum display of 6 gas badges, in combination of 4-20mA and gas sensors)

Notes:
*** Limitations on Combination Panels:**

- C10, C11, C12 Combinations
  - » 0-10 source signal Inputs used, Display up to 6 Area gases
  - » 11-20 source signal Inputs used, Display up to 4 Area gases
- C41
  - » 0-20 source signal Inputs used, Display up to 4 4-20mA devices
  - » 21-27 source signal Inputs used, Display up to 2 4-20mA devices
- C44
  - » Display up to 6 gas badges maximum, combination of 4-20mA and area gases, with maximum 4 4-20mA badges.

Retrofit Alarm Models

M3- ___ - ___ - R
A B

NOTE: For Area Alarm panels, sensor assemblies are not specific to "Remote" or "Local" installations. It is not necessary to designate the installation type in the model numbering.

Variable B Gas Type (Area and Combination Only)	
Allowable Value	**Description**
O	Oxygen
X	Nitrous Oxide
A	Medical Air
V	Medical Vacuum
W	WAGD
N	Nitrogen
C	Carbon Dioxide (CO2)
D	Oxygen 100 psig
F	Medical Air 100 psig
G	Carbon Dioxide 100 psig
9	Instrument Air
1	CO2-O2 (CO2 over 7%)
2	O2-CO2 (CO2 not over 7%)
3	HE-O2 (HE over 80%)
4	O2-HE (HE not over 80%)
7	Laboratory Air
8	Laboratory Vacuum
H	Helium
J	Argon
S	Surgical Air
B	AGSS
E	N2O-O2
M	Mixed Gas

Example: MEGA3™ Master Alarm Retrofit with 40 Inputs and 32 Relay Outputs
Example Model Number: M3-M22-R

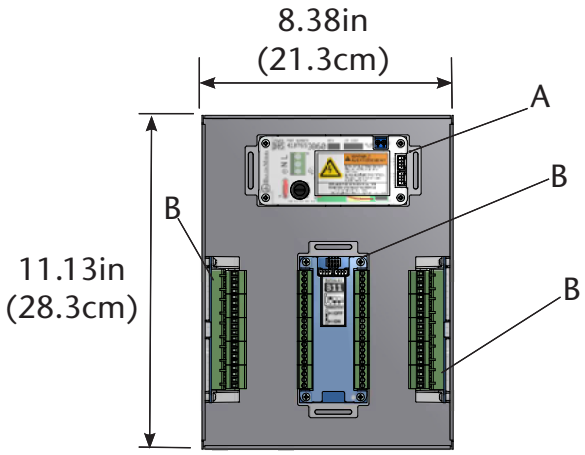
Example: MEGA3™ Retrofit AREA Alarm with 4 gases - Oxygen, Nitrous Oxide, Medical Air, and Vacuum
Example Model Number: M3-A10-OXAV-R

Example: MEGA3™ Combination Retrofit Alarm with 10 Inputs, 6 Relay Outputs, and 3 gases - Oxygen, Medical Air, and Medical Vacuum
Example Model Number: M3-C01-OAV-R

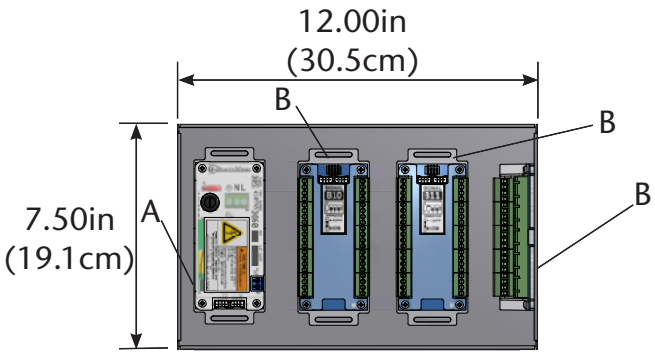
Typical Retrofit Layouts (Recommended Installation)

Module Components	
Letter Designator	**Description**
A	B05 Power Supply
B	B10-B12 Module (Signals, 20 Inputs)
C	B20 Module (TotalAlert2 Retrofit only, 64 Inputs)
D	B40-B43 Module (16 Relay Out)
E	B50 Module (4-20mA, 4 devices, 7 inputs, 6 outputs)
F	B60 Module (Gas Input, 8 gases, 1 output)
G	B65 Module (Combination, 3 gases, 10 inputs, 6 outputs)

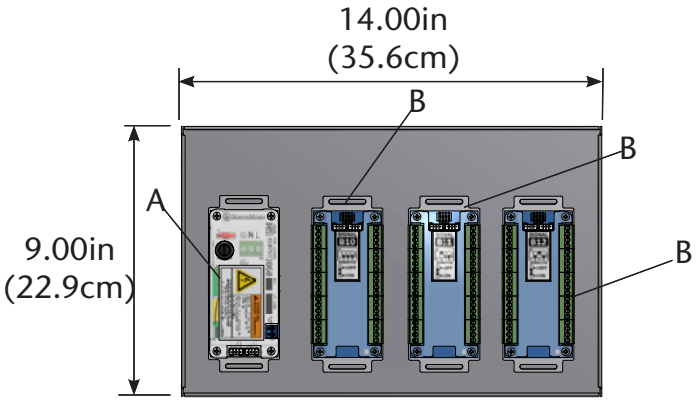
Dimensions



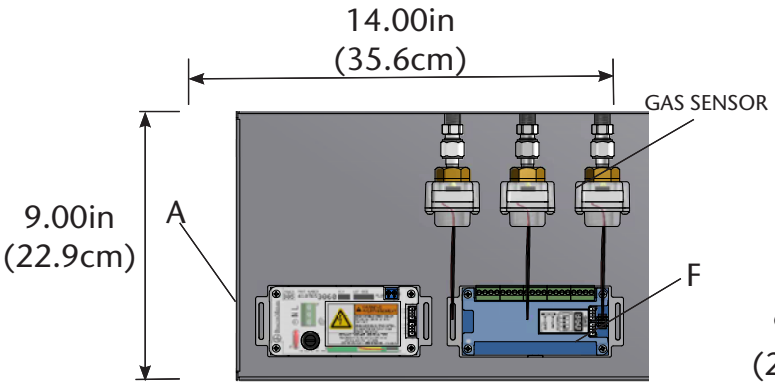
Multi-Signal Alarm from Medaes, Ohmeda, or Ohio



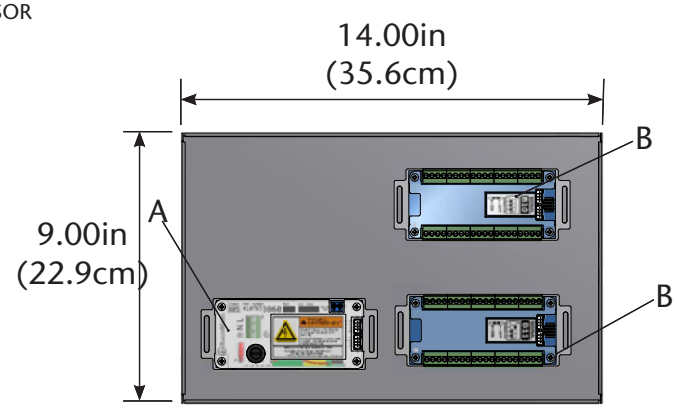
Digital I and II Alarm from Chemetron



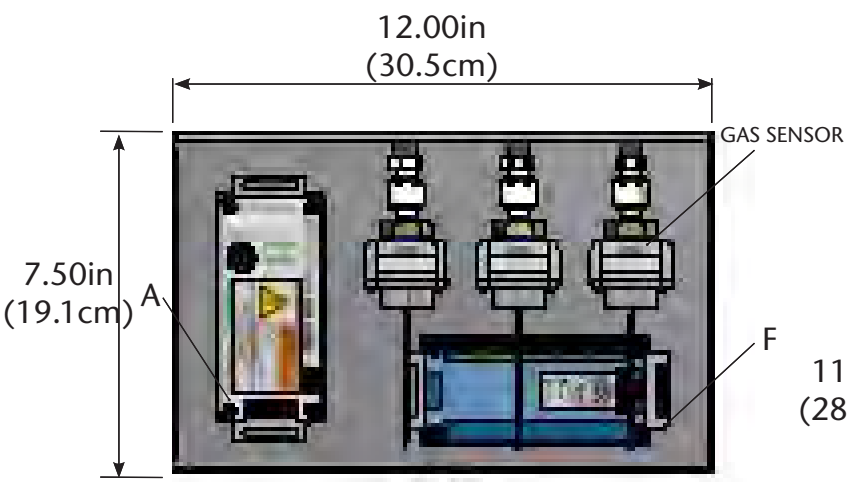
MedPlus Medical Gas Alarm from Hill-Rom or Medaes or Alert1 and 2 Series Alarm from Amico



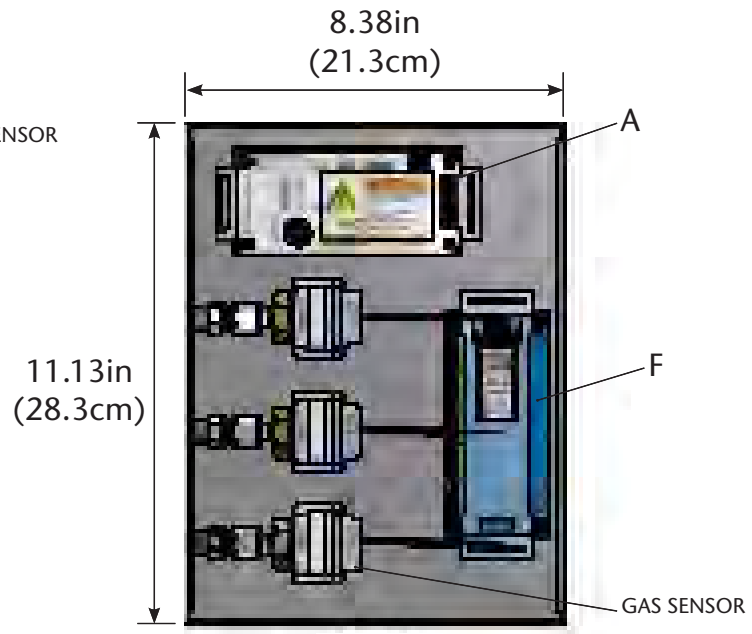
MedPlus Medical Gas Alarm from Hill-Rom or Medaes or Alert1 and 2 Series Alarm from Amico



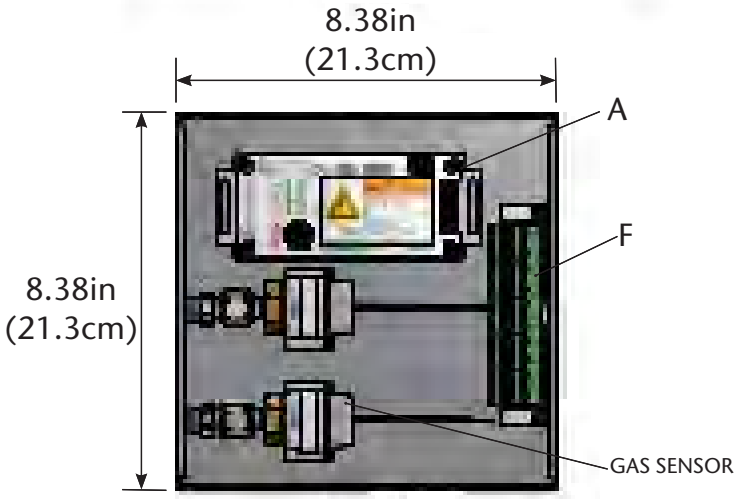
MedPlus Medical Gas Alarm from Hill-Rom or Medaes or Alert1 and 2 Series Alarm from Amico



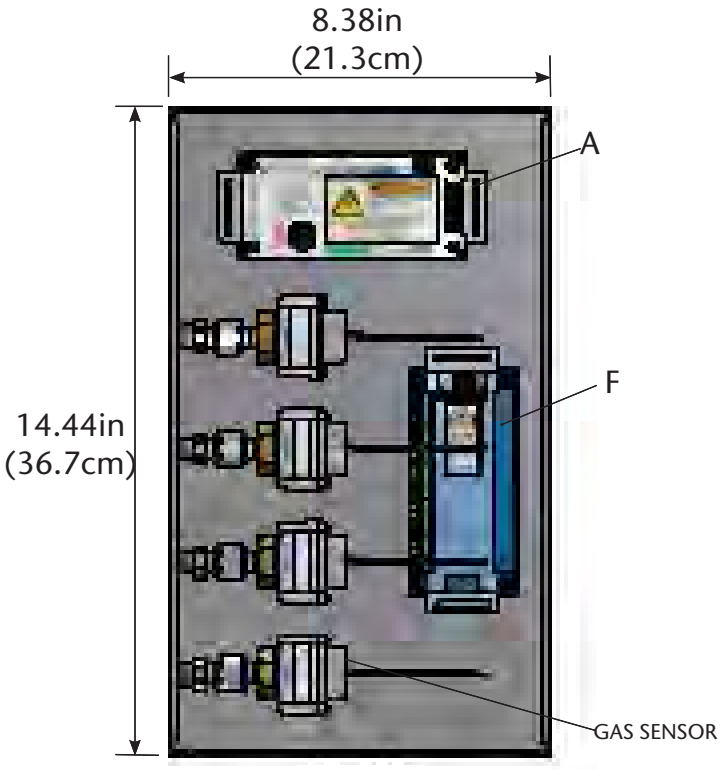
Digital I and II Alarm from Chemetron



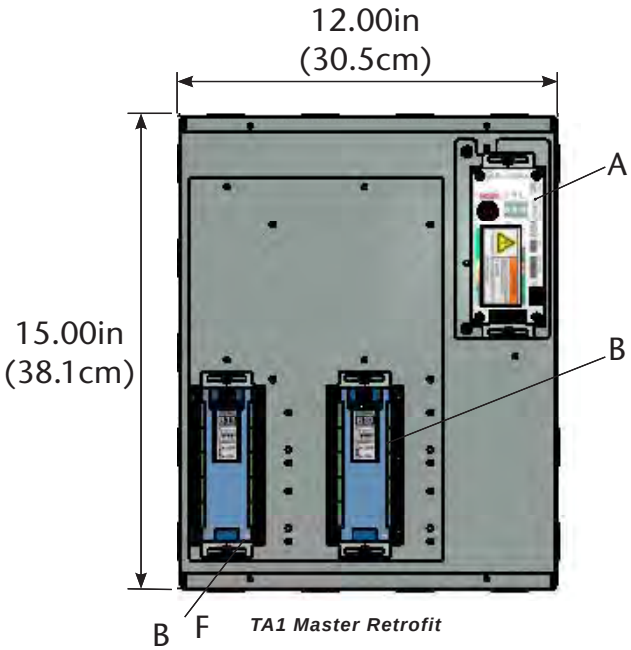
Line Pressure Alarms from Medaes, Ohmeda, or Ohio



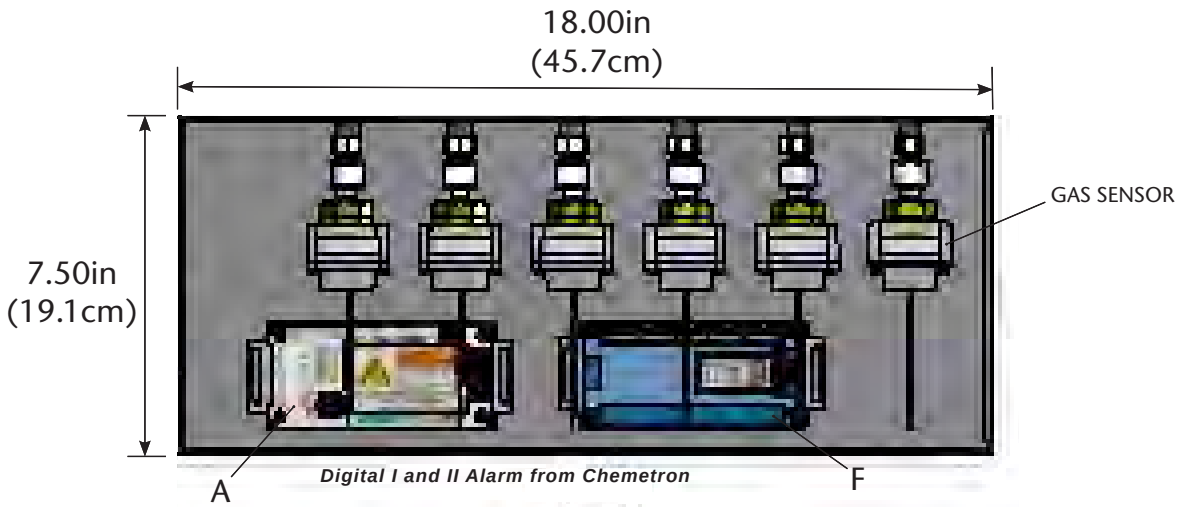
Line Pressure Alarms from Medaes, Ohmeda, or Ohio



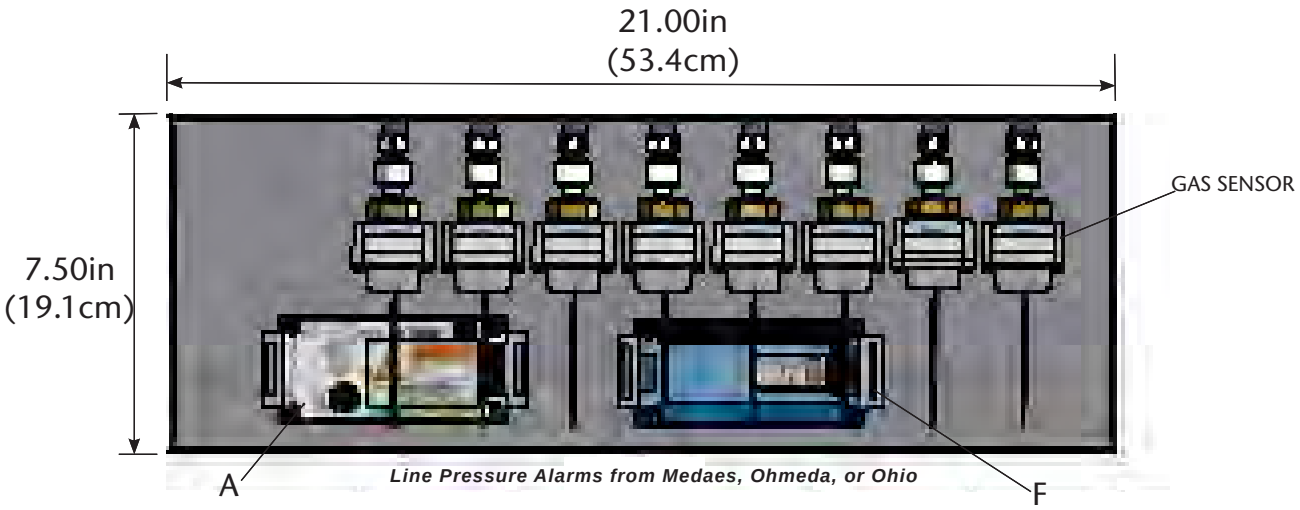
Line Pressure Alarms from BeaconMedaes, Medaes, Ohmeda, or Ohio



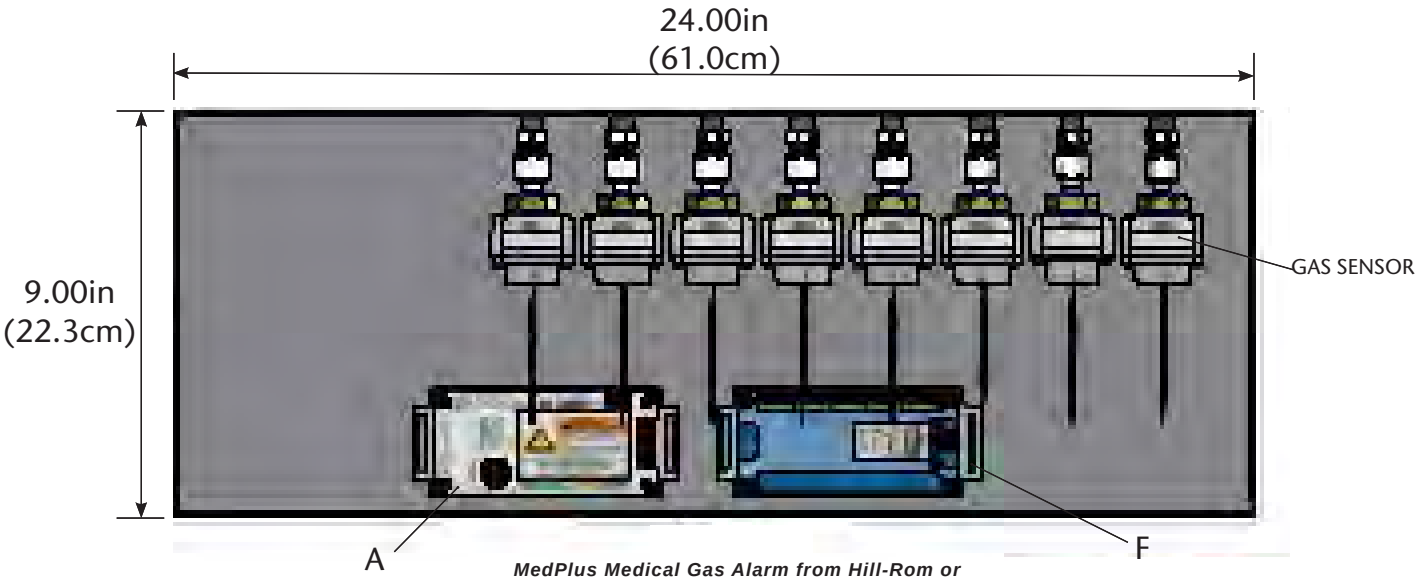
TA1 Master Retrofit



Digital I and II Alarm from Chemetron



Line Pressure Alarms from Medaes, Ohmeda, or Ohio



MedPlus Medical Gas Alarm from Hill-Rom or Medaes or Alert 1 and 2 Series Alarm from Amico

6.0 Maintenance

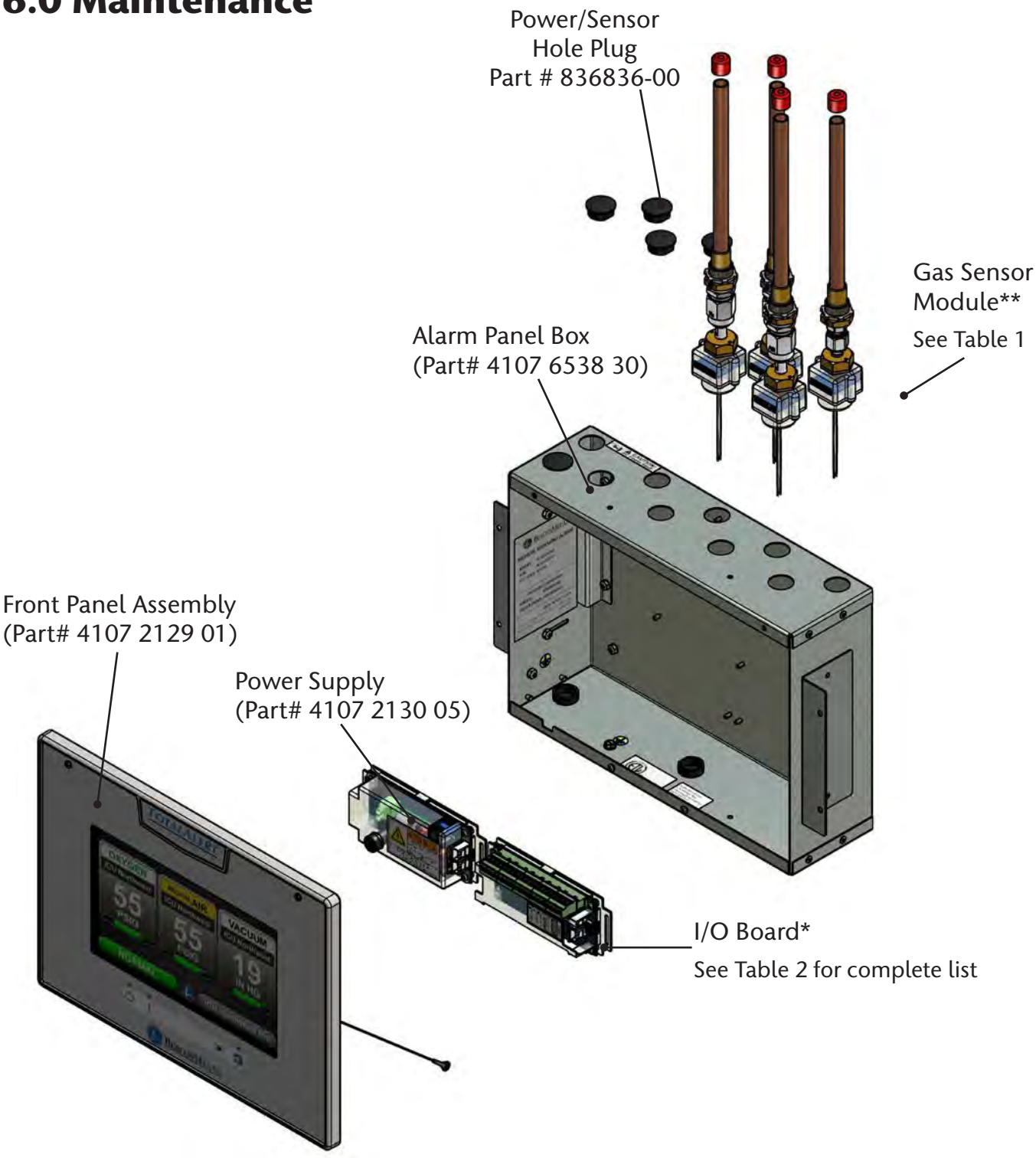


Figure 138: Maintenance

***Table 1: Gas Sensor Module Options (Service replacement only)**

Part Number	Gas Sensor Assembly
4107 4016 54	O2 Sensor Assembly
4107 4016 55	N2O Sensor Assembly
4107 4016 56	MedAir Sensor Assembly
4107 4016 57	Vac Sensor Assembly
4107 4016 58	N2 Sensor Assembly
4107 4016 59	IAIR Sensor Assembly
4107 4016 60	WAGD Sensor Assembly
4107 4016 61	CO2 Sensor Assembly
4107 4016 62	CO2-O2 Sensor Assembly
4107 4016 63	O2-CO2 Sensor Assembly
4107 4016 64	HE-O2 Sensor Assembly
4107 4016 65	O2-HE Sensor Assembly
4107 4016 66	HE Sensor Assembly
4107 4016 67	LAB-AIR Sensor Assembly
4107 4016 68	LAB-VAC Sensor Assembly
4107 4016 69	O2-100 Sensor Assembly
4107 4016 70	MedAir-100 Sensor Assembly
4107 4016 71	CO2-100 Sensor Assembly
4107 4016 72	AR Sensor Assembly
4107 4016 73	AGSS Sensor Assembly
4107 4016 74	O2-N2O Sensor Assembly

****Table 2: I/O Boards**

Part Number	I/O Boards	Description
4107 4016 37	B05 Power Module	Power supply
4107 4016 38	B1X (Signal Input Board)	20 Inputs
4107 4016 41	B4X (Relay Board)	16 Relay Outputs
4107 4016 42	B50 (4-20mA Combination Board)	4 Inputs for 4-20mA Signals
4107 4016 43	B60 (Gas Input Board)	8 Gases
4107 4016 44	B65 (Gas Combination Board)	3 Gases, 7 Inputs, 6 Relay Outputs

Cleaning:

Use clean dry microfiber cloth or soft lint-free cloth to remove any smudges located on the touchscreen. Make sure not to apply too much pressure on the screen when cleaning it. Never use paper towels or tissue paper which contain wood fibers that will scratch any plastic surface.

Periodic Maintenance:

Inspect the alarm periodically and perform a self test (see Section 4.1.6 - Information Screen). This ensures proper operation of the alarm. Any damaged components inside the alarm should be replaced by a authorized BeaconMedæs service technician.

7.0 Troubleshooting

Symptom	Possible Cause	Corrective Action
No LED power indicator illuminated on alarm front panel	AC power is not turned on	Check AC power source.
	Blown power supply fuse	Replace fuse.
	AC power wiring is not connected	Check AC entrance wiring at power supply terminals.
	Power supply DC wire harness is not connected properly between the power supply and the main board	Check connections on each end including orientation of cable connectors. Reconnect if necessary.
	Faulty power supply assembly	Replace power supply
No green "heartbeat" power indicator is illuminated on connected boards	Board has not been initialized	Initialize board per instructions in manual.
	Board dip switches are not set correctly.	Set dip switches per diagram on board label.
	Cable not connected correctly	Check cable connections between boards.
No green "heartbeat" power indicator is illuminated on gas sensor	Sensor not connected to the Gas Input Board.	Verify correct sensor connection to Gas Input Board.
	Gas Input Board does not have power (no "heartbeat")	Verify that Gas Input Board has been initialized and that dip switches are set correctly. See item 2 above.
Fast green "heartbeat" power indicator is illuminated on gas sensor (2 beats per second)	Sensor is reading out of range	Verify gas pressure in pipeline. If normal, replace sensor.
Red LED illuminated above warning indicator (!).	Active warning	Navigate to the warning screen by pressing the Information button, then selecting Warnings.
Lost Connection Warning	Alarm has lost network communication with manually enrolled device	Correct communication problem with networked device or remove the enrolled device from the Enrolled Devices list.
	The alarm has lost connection to a connected/ initialized board.	Check connections and cable to board.
Input active and Unassigned Warning	Master signal input is wired, but not assigned/programmed to an alarm signal	Assign the wired input to a valid alarm signal.
Sensor active and Unassigned Warning	Sensor is wired to the sensor input board, but not assigned/programmed	Assign the wired gas sensor to a valid gas input.
F1 displayed on Area badge	Gas sensor is not connected or has shorted.	Check gas sensor connection. If connection is good, replace sensor.
F2 displayed on Area badge	Gas sensor is reading below range (fault low).	Verify gas sensor connections and pipeline pressure. If connection and pressure are good, replace sensor.
F3 displayed on Area Badge	Gas sensor is reading above range (fault high).	Verify gas sensor connections and pipeline pressure. If connection and pressure are good, replace sensor.
F4 displayed on Area Badge	Gas sensor connected is wrong type of gas.	Connect the correct type gas sensor.

Troubleshooting (continued)

Symptom	Possible Cause	Corrective Action
Area Display pressure/ vacuum reading not matching pipeline.	Bad gauge on pipeline	Verify gauge used on pipeline
	Incorrect unit of measure	Check unit of measure, if incorrect, reprogram unit of measure.
	Gas sensor out of calibration	Adjust Zero Offset to correct reading. (Note: there is a max of 3 psi / 3 “hg offset adjustment). If sensor cannot be adjusted enough, replace sensor.
High or Low alarm, with normal pressure displaying on Area display	Alarm set points have been changed.	Verify / correct alarm set points.
Screen is blank, power on LED is illuminated	Screen backlight will time out and shut off. Motion sensor will awaken screen when motion is sensed within 5 ft of screen.	If screen does not awaken when approaching alarm, touch screen to awaken. Possible bad motion sensor.
Audible alarm reactivates a short period of time after Silence button has been pressed	A new alarm condition has occurred.	If alarm condition previously silenced, self corrects and then reactivates again, the alarm panel treats this as a new alarm condition.

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