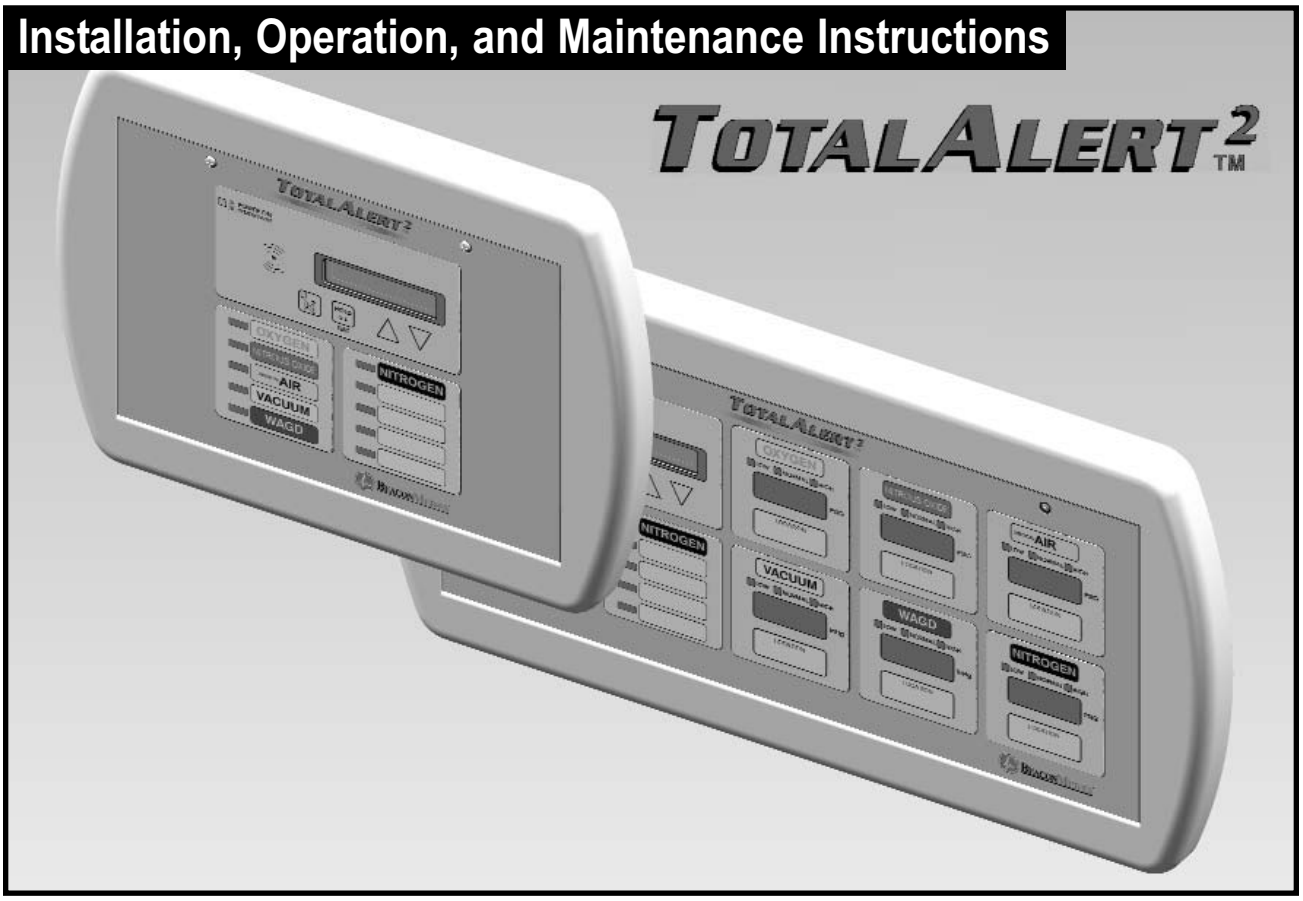
Installation, Operation, and Maintenance Instructions



BEACONMEDÆS®

6-847718-00 Rev. B00

Contents

Contents

Product Identification

Each alarm is identified by a model number, lot code and serial number.

Installation procedures vary depending on the alarm configuration.

The model number/lot code label is located on the inside of the alarm back box (Figure 1).

The serial number is located on the annunciator module board (Figure 2).

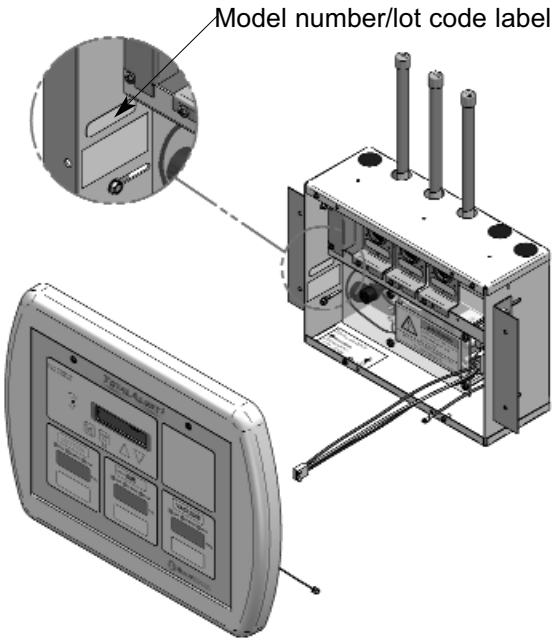


Figure 1: Product Identification Labels

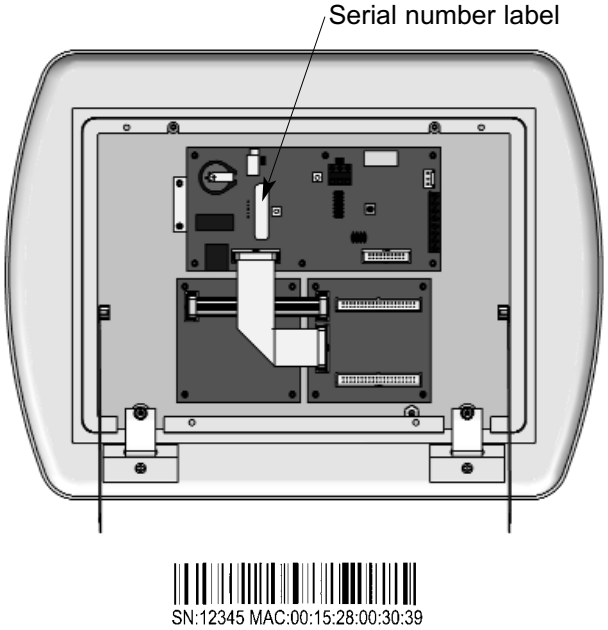
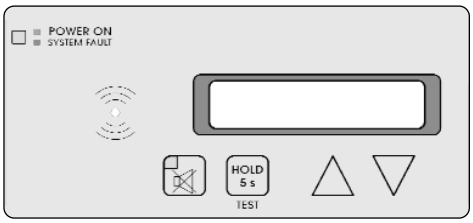


Figure 2: Product Serial Number

Alarm Modular Components

Annunciator Module

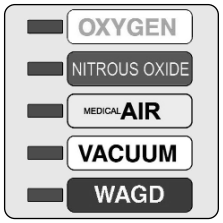


Features:

- User interface pushbuttons for alarm panel TEST function, audible alarm MUTE ⊠ and set-up increase △ and decrease ▽.
- Green alarm panel POWER ON indicator.
- Red flashing alarm system fault indicator.
- Red audible alarm mute indicator.
- Audible alarm
- General fault relay that activates on any alarm panel fault condition.
- Auxiliary relay that activates when the audible alarm is sounding.
- Alphanumeric two line by 20 character display (Master/Combo Alarms only).
- Embedded web server with web pages to view and set up alarm.
- 10Base-T Ethernet Jack.
- Ethernet LINK, TX and RX indicators.
- Heartbeat indicator.
- Event log.

Multiplexer Module

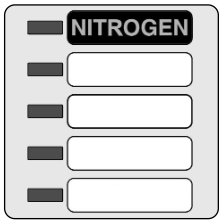
(Master/Combo Alarms only)
Features:



- Monitors up to 64 normally closed dry-contact switch signals.
- Five gas service indicators for normal (green) or abnormal (red) conditions.
- Signal inputs can be programmed to any of the gas service indicators.
- Adjustable brightness of LED indicators.
- Heartbeat indicator.

LED Module

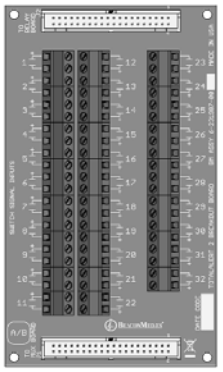
(Master/Combo Alarms only)
Features:



- Adds an additional five gas service indicators to a Multiplexer Module.

Breakout Board

(Master/Combo Alarms only)
Features:

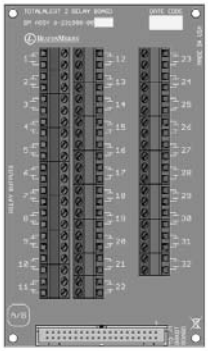


- Screw terminals for 32 dry-contact switch signals.
- Terminals accept 14 to 22 AWG wires.
- Connector for optional relay board.

Alarm Modular Components (Cont.)

Relay Board

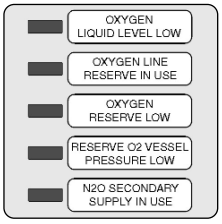
(Master/Combo Alarms only)
Features:



- Screw terminals for 32 dry-contact relay outputs. Dry contacts are normally-closed when alarm panel is powered.
- Relay contact ratings are 2 A @ 30 VDC/0.5 A @ 125 VAC.
- Terminals accept 14 to 22 AWG wires.

Multi-Signal Module

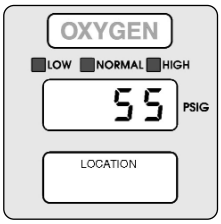
(Area Alarms only)
Features:



- Monitors up to five normally closed dry-contact switch signals.
- Separate indicators for each of five signals for normal (green) or abnormal (red) conditions.
- Available (optional) with separate dry-contact relay outputs for each of five signals.
- Adjustable brightness of LED indicators.

Digital Display Module

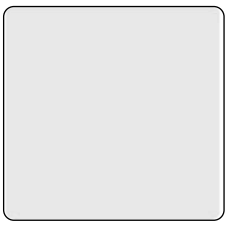
(Area/Combo Alarms only)
Features:



- Digital LED readout of system pressure signal transmitted from sensor module.
- Adjustable brightness of digital LED readout.
- Individual LED's indicate when system pressure/vacuum is HIGH (red), LOW (red), or NORMAL (green).
- Programmable high and low alarm thresholds.
- Adjustable audible alarm mute duration.
- Individual high and low alarm dry-contact relay outputs.
- Can transmit pressure or vacuum signal to another digital display module for remote applications.

Blank Module

Features:



- Reserves a space in alarm panel for future expansion.
- Used to fill unused alarm panel module locations.

Definition of Statements

Statements in this manual preceded by 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.

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

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

Definitions

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

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

Auxiliary Fault Relay
Single-pole double-throw dry-contact relay output located on annunciator module. Used to activate a remote alarm or building management system. The relay will activate whenever ANY audible alarm on panel is in progress. Pressing MUTE button on annunciator module deactivates relay until audible alarm is again reactivated.

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

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.

Definitions (Cont.)

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

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

Ethernet Hub
A device that connects many Ethernet devices together. All devices on the hub receive messages sent from all of the other connected devices.

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 double-throw dry-contact relay output located on annunciator module. Used to activate remote alarm or building management system. Relay will activate whenever ANY audible alarm on panel is in progress. Unlike Auxiliary Fault Relay, pressing MUTE button on annunciator module WILL NOT deactivate relay. 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 rough-in 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
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, such as TA2_12345, instead of an IP address, such as 192.168.2.3.

Remote Sensors
Pressure / vacuum sensors mounted outside of alarm panel back box. Sensor rough-ins 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 email 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 email by communicating with an SMTP server. The TotalAlert 2 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.

Definitions (Cont.)

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.

VFD
Vacuum Fluorescent Display

Alarm Configurations

All TotalAlert 2 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 (6-TA2M series) (Page 11)
- Area alarms (6-TA2A series) (Page 12)
- Combo alarms (6-TA2C series) (Page 14)

Alarm Configurations (Cont.)

Master Alarms

Master alarm panels include the following modular components:

- Annunciator module with VFD
- One multiplexer module
- One LED module
- One or two breakout boards
- One or two relay boards (Optional)

Master alarm panels can monitor 32 or 64 switched inputs.

Inputs can be assigned to any one of 10 gas service indicators.

2 line by 20 character vacuum fluorescent display shows signal names.

Optional dry contact relays are available for all signals.

Model Number Scheme:

6-TA2M _ _ _

32 or 64
Designates number of signals

R or blank
R = With Relays

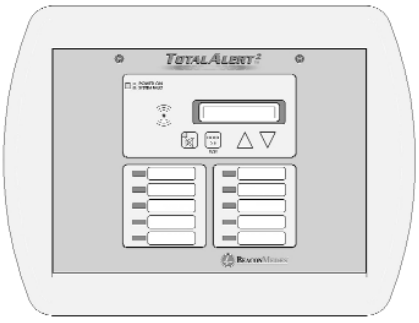


Figure 3: Master Alarm Panel

Example: P/N 6-TA2M32R

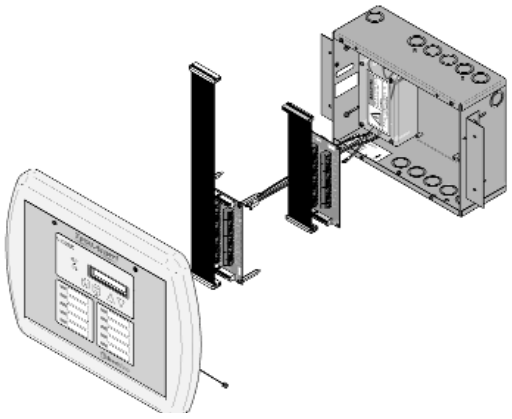


Figure 4: Master Alarm

Alarm Configurations (Cont.)

Area Alarms

Area alarm panels include the following modular components:

- Annunciator module
- 4 or 8 digital display, multi-signal or blank modules
- Sensors for all digital display modules (except 6-TA2AN series)

Area alarm panels may consist of any combination of digital display modules, multi-signal modules or blank modules.

If alarm panel is configured with digital display modules, pressure/vacuum sensors will be included for connection to pressure / vacuum pipeline (except 6-TA2AN series).

Sensors may be located inside alarm panel back box (local sensors) or outside alarm panel back box (remote sensors).

Local sensors must be connected to pressure / vacuum pipelines via copper tubing (Figure 5). Remote sensor may be mounted near pressure / vacuum pipeline and then wired to alarm panel (Figure 6).

Two alarm panel sizes support either 4 or 8 alarm modules.

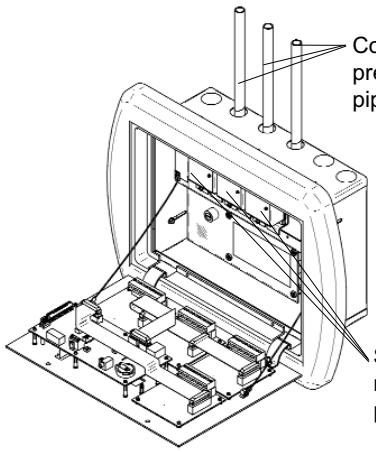


Figure 5: Local Sensors

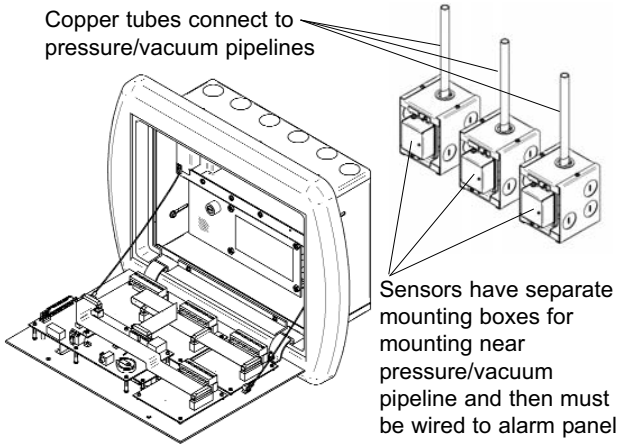


Figure 6: Remote Sensors

Model Number Scheme:

Position within alarm panel (Figures 7 and 8)

1 2 3 4 5 6 7 8

6-TA2A _ - _ _ _ _ _ _ _ _

L = Local Sensors
R = Remote Sensors
N = No Sensors

Designates type of alarm panel component from table

O	OXYGEN	DIGITAL DISPLAY MODULES
D	OXYGEN - 100 PSI	
X	NITROUS OXIDE	
A	MEDICAL AIR	
F	MEDICAL AIR - 100 PSI	
5	AIR (ISO)	
7	LABORATORY AIR	
2	O2-CO2	
4	O2-He	
C	CARBON DIOXIDE	
G	CARBON DIOXIDE - 100 PSI	
1	CO2-O2	
3	He-O2	
H	HELIUM	
V	VACUUM	
6	VACUUM (ISO)	
8	LABORATORY VAC	
W	WAGD	
N	NITROGEN	
9	INSTRUMENT AIR	
J	ARGON	
M	MULTI-SIGNAL MODULE	
R	MULTI-SIGNAL MODULE W/ RELAYS	
B	BLANK	

Alarm Configurations (Cont.)

Area Alarms (Cont.)

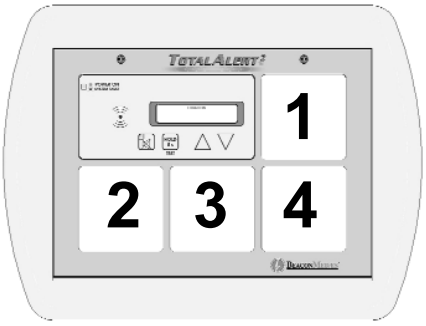


Figure 7: Small Area Alarm Front Panel

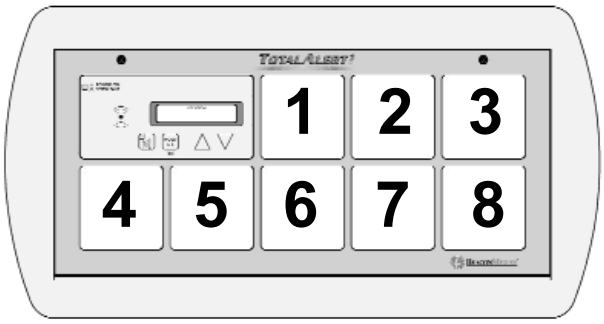


Figure 8: Large Area Alarm Front Panel

NOTE:
When an alarm panel is ordered with either local or remote sensors, ALL sensors will either be local or remote. Alarm panels with combination of local and remote sensors are not available.

NOTE:
Alarm panel components in table on previous page are listed in order of criticality. Unless otherwise specified, most critical component will fill position one, next less critical component will fill position two, etc. etc.

Example: Model Number 6-TA2AL-BOAV

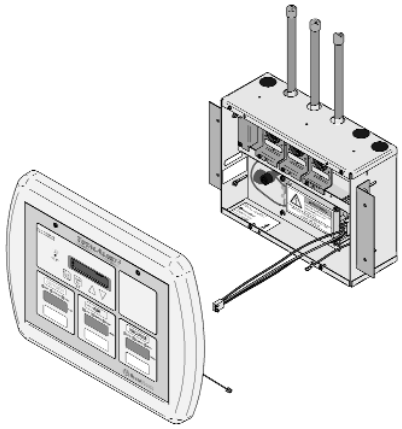


Figure 9: Small Area Alarm Panel

Example: Model Number 6-TA2AR-OXAVWNBB

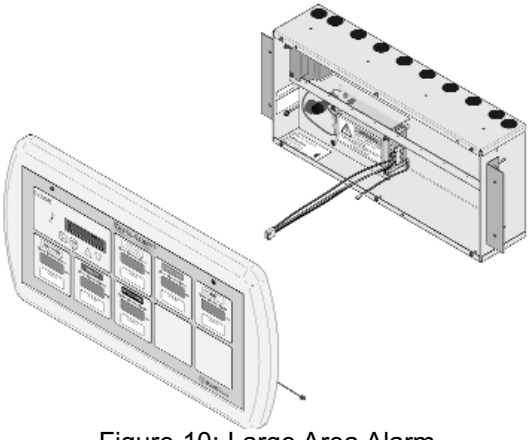


Figure 10: Large Area Alarm

Alarm Configurations (Cont.)

Combo Alarms

Combo alarms include the following modular components:

- Annunciator module with VFD
- One multiplexer module
- One LED module (Large Combo Only).
- One or two breakout boards
- One or two relay boards (Optional)
- 3 or 6 digital display or blank modules

Combo alarms can monitor 32 or 64 switched inputs.

Inputs can be assigned to any one of 5 (small combo) or 10 (large combo) gas service indicators.

Optional dry contact relays are available for all signals.

Combo alarms can also monitor up to 3 (small combo) or 6 (large combo) digital display modules.

NOTE:
Sensors on combo alarms are always remotely mounted.

O	OXYGEN	DIGITAL DISPLAY MODULES
D	OXYGEN - 100 PSI	
X	NITROUS OXIDE	
A	MEDICAL AIR	
F	MEDICAL AIR - 100 PSI	
5	AIR (ISO)	
7	LABORATORY AIR	
2	O2-CO2	
4	O2-He	
C	CARBON DIOXIDE	
G	CARBON DIOXIDE - 100 PSI	
1	CO2-O2	
3	He-O2	
H	HELIUM	
V	VACUUM	
6	VACUUM (ISO)	
8	LABORATORY VAC	
W	WAGD	
N	NITROGEN	
9	INSTRUMENT AIR	
J	ARGON	
B	BLANK	

NOTE:
Multi-signal modules are not allowed in combination alarms.

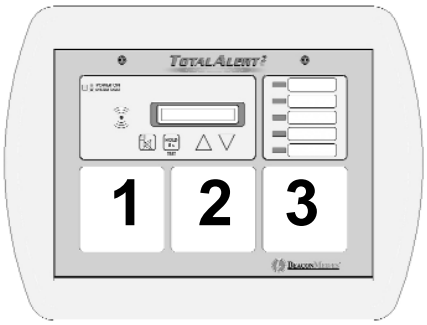
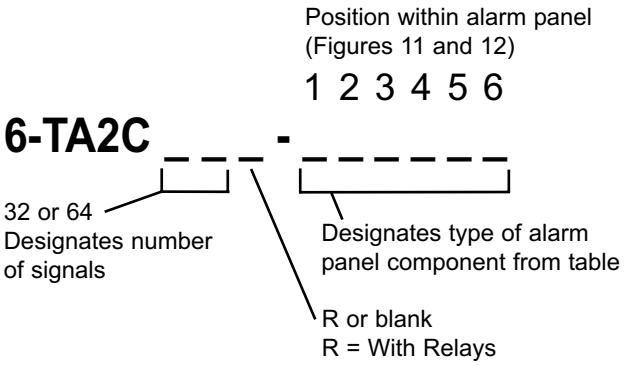


Figure 11: Small Combo Alarm Front Panel

Model Number Scheme:



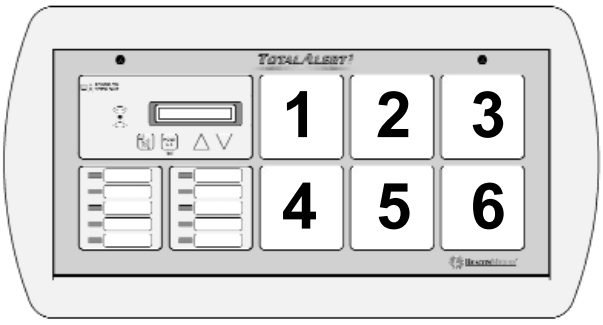


Figure 12: Large Combo Alarm Front Panel

Combo Alarms (Cont.)

Example: Model Number 6-TA2C32R-OAV

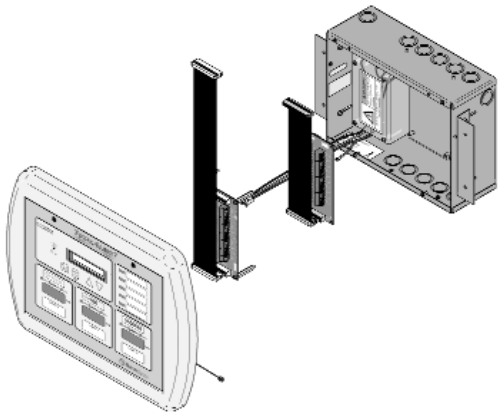


Figure 13: Small Combo Alarm Panel

Example: Model Number 6-TA2C64-OXAVWN

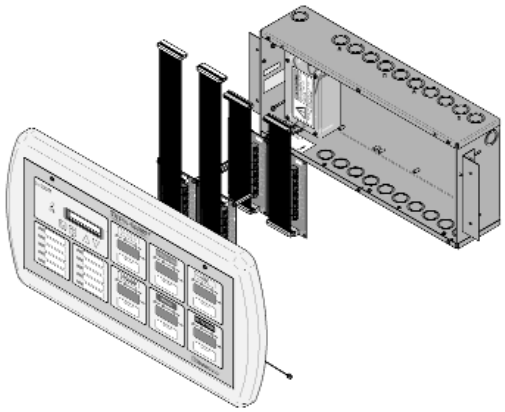


Figure 14: Large Combo Alarm Panel

Electromagnetic Compatibility

FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

ICES-003

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

EN 60601-1-2

Medical Electrical Equipment needs special precautions regarding EMC and needs to be installed and put into service according to the EMC information provided in this manual.

Portable and mobile RF communications equipment can affect Medical Electrical Equipment.

The use of accessories, transducers, and cables other than those specified by the manufacturer, may result in increased emissions or decreased immunity of the TotalAlert 2.

The TotalAlert 2 should not be used adjacent to, or stacked with, other equipment. If adjacent or stacked use is necessary, the TotalAlert 2 should be observed to verify normal operation in the configuration in which it will be used.

Electromagnetic Compatibility (Cont.)

EN 60601-1-2 (Cont.)

Guidance and manufacturer's declaration - electromagnetic emissions		
The TotalAlert 2 is intended for use in the electromagnetic environment specified below. The customer or the user of the TotalAlert 2 should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF emissions CISPR 11	Group 1	The TotalAlert 2 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class A	The TotalAlert 2 is suitable for use in all establishments other than domestic and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.
Harmonic emissions IEC 61000-3-2	Class A	
Voltage fluctuations/ Flicker emissions IEC 61000-3-3	Complies	

Guidance and manufacturer's declaration - electromagnetic immunity			
The TotalAlert 2 is intended for use in the electromagnetic environment specified below. The customer or the user of the TotalAlert 2 should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic Discharge (ESD) IEC 61000-4-2	±6 kV contact ±8 kV air	±6 kV contact ±8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30 %.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for input/output lines	±2 kV for power supply lines ±1 kV for input/output lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV differential mode ±2 kV common mode	±1 kV differential mode ±2 kV common mode	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short Interruptions and voltage variations on power supply input lines IEC 61000-4-11	<5 % U_T (>95 % dip in U_T) for 0,5 cycle <40 % U_T (>60 % dip in U_T) for 5 cycles <70 % U_T (>30 % dip in U_T) for 25 cycles <5 % U_T (>95 % dip in U_T) for 5 sec	<5 % U_T (>95 % dip in U_T) for 0,5 cycle <40 % U_T (>60 % dip in U_T) for 5 cycles <70 % U_T (>30 % dip in U_T) for 25 cycles <5 % U_T (>95 % dip in U_T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the TotalAlert 2 requires continued operation during power mains interruptions, it is recommended that the TotalAlert 2 be powered from an uninterruptible power supply or battery.
Power frequency (50/60 Hz) magnet- ic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

Electromagnetic Compatibility (Cont.)

EN 60601-1-2 (Cont.)

Guidance and manufacturer's declaration - electromagnetic immunity			
The TotalAlert 2 is intended for use in the electromagnetic environment specified below. The customer or the user of the TotalAlert 2 should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Conducted RF IEC 61000-4-6	3 Vrms 150 kHz to 80 MHz	3 Vrms	Portable and mobile RF communications equipment should be used no closer to any part of the TotalAlert 2, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d = 1{,}2\sqrt{P}$ $d = 1{,}2\sqrt{P}$ 80 MHz to 800 MHz $d = 2{,}3\sqrt{P}$ 800 MHz to 2,5 GHz where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in metres (m). Field strengths from fixed RF transmitters, as determined by an electromagnetic site survey, [a] should be less than the compliance level in each frequency range. [b] Interference may occur in the vicinity of equipment marked with the following symbol: 
Radiated RF IEC 61000-4-3	3 V/m 80 MHz to 2,5 GHz	3 V/m	

NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

[a] Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, and electromagnetic site survey should be considered. If the measured field strength in the location in which the TotalAlert 2 is used exceeds the applicable RF compliance level above, the TotalAlert 2 should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the TotalAlert 2.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.

Electromagnetic Compatibility (Cont.)

EN 60601-1-2 (Cont.)

Recommended separation distances between portable and mobile RF communications equipment and the TotalAlert 2

The TotalAlert 2 is intended for use in the electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the TotalAlert 2 can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the TotalAlert 2 as recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150 kHz to 80 MHz $d = 1,2\sqrt{P}$	80 MHz to 800 MHz $d = 1,2\sqrt{P}$	800 MHz to 2,5 GHz $d = 2,3\sqrt{P}$
0,01	0,12	0,12	0,23
0,1	0,38	0,38	0,73
1	1,2	1,2	2,3
10	3,8	3,8	7,3
100	12	12	23

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in metres (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.

NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

Master Alarms

1. Install alarm panel back box (Page 23).
2. Pull wire (Page 27).
3. Power supply wiring (Page 30).
4. Breakout board input wiring (Page 32).
5. Relay board wiring (Page 33).
6. Front panel installation (Page 40).
7. Ethernet wiring (Page 37).
8. General fault/Aux Relay wiring (if required) (Page 36).
9. Building automation system wiring (if required) (Page 37).
10. Labeling (Page 43).

Area Alarms

1. Install alarm panel back box (Page 23).
2. Install remote sensor back box (if required) (Page 24).
3. Pipeline connections (Page 25).
4. Pull wire (Page 27).
5. Power supply wiring (Page 30).
6. Front panel installation (Page 40).
7. Remote sensor wiring (if required) (Page 31).
8. Sensor installation (Local: Page 41, Remote: Page 42).
9. Ethernet wiring (Page 37).
10. Digital display module master/slave wiring (if required) (Page 35).
11. Digital display module high/low relay wiring (if required) (Page 36).
12. Multi-signal module input wiring (if required) (Page 34).
13. Multi-signal module relay output wiring (if required) (Page 35).
14. General fault/Aux Relay wiring (if required) (Page 36).
15. Labeling (Page 43).

Combo Alarms

1. Install alarm panel back box (Page 23).
2. Install remote sensor back box (Page 24).
3. Pipeline connections (Page 25).
4. Pull wire (Page 27).
5. Power supply wiring (Page 30).
6. Breakout board input wiring (Page 32).
7. Relay board wiring (Page 33).
8. Front panel installation (Page 40).
9. Remote sensor wiring (if required) (Page 31).
10. Remote sensor installation (Page 42).
11. Ethernet wiring (Page 37).
12. Digital display module master/slave wiring (if required) (Page 35).
13. Digital display module high/low relay wiring (if required) (Page 36).
14. General fault/Aux Relay wiring (if required) (Page 36).
15. Building automation system wiring (if required). (Page 37)
16. Labeling (Page 43).

Alarm Panel Back Box

Alarm panel back box will be one of two sizes. Height and depth of both size boxes are identical. Refer to Figure 15 for dimensions of both boxes.

If alarm panel is configured with digital display modules, sensor assemblies will be included for connection to pressure / vacuum pipeline.

Sensors may be located inside alarm panel back box (local sensors) or outside alarm panel back box (remote sensors).

If equipped with local sensors, copper tubes will extend from top of back box to be connected to pressure / vacuum pipeline.

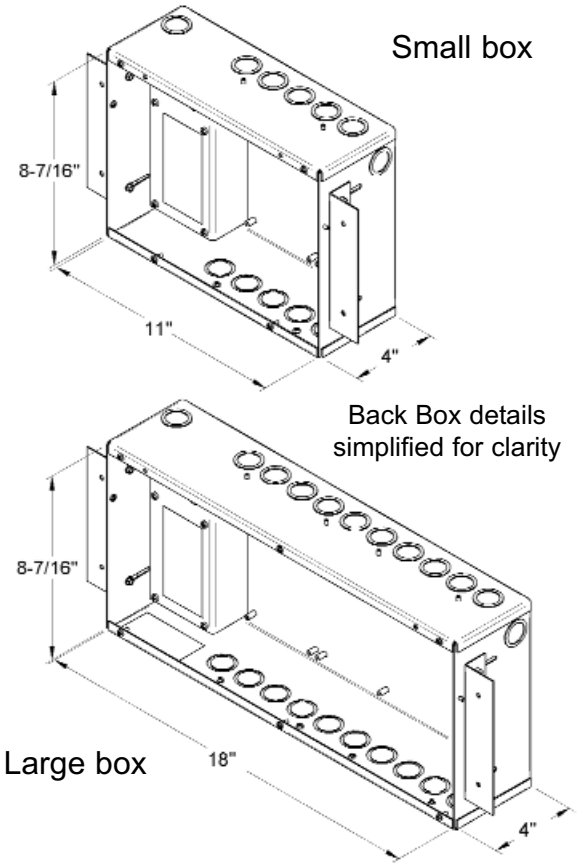


Figure 15: Alarm Panel Back Box Dimensions

1. Prepare rough wall opening large enough to accommodate alarm panel back box. Alarm panel back box must have rigid vertical members for support on both left and right sides. Power to alarm panel shall enter through lower left or top left conduit hole in back box.
2. Remove cardboard dust cover and insert alarm panel back box into wall opening. Secure with fasteners suitable for vertical supports (Figure 16).

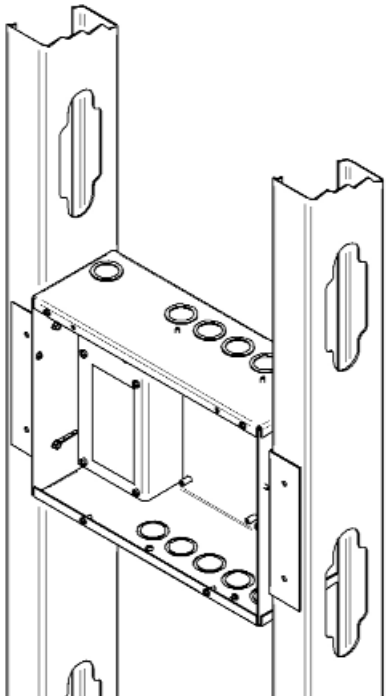


Figure 16: Back Box Mounting

3. Mounting brackets on each side of back box are adjustable and factory preset for 5/8” thick drywall. After drywall installation, front edge of back box should be flush with finished surface of wall. If needed, make any necessary bracket adjustments at this time (Figure 17).
4. Reinstall cardboard dust cover.

Alarm Panel Back Box (Cont.)

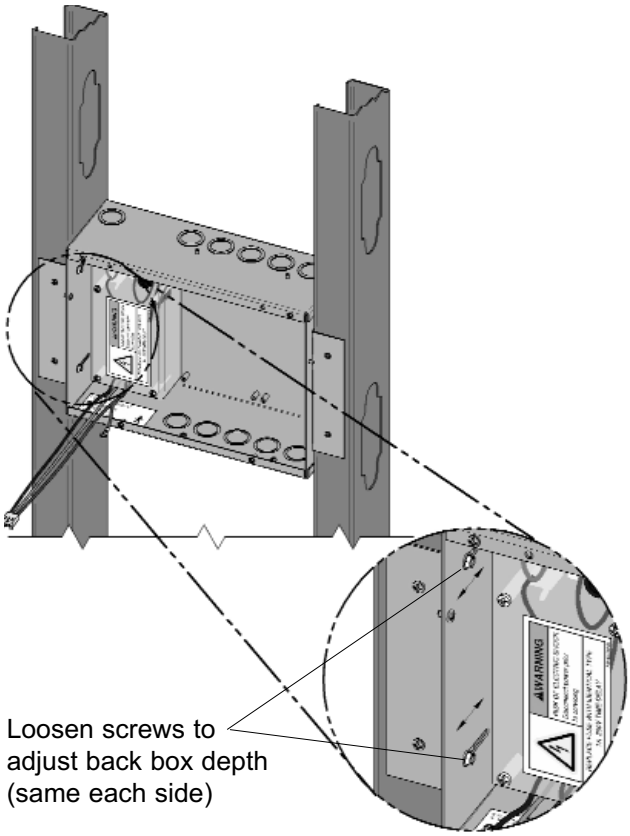


Figure 17: Mounting Bracket Adjustment

Remote Sensor Back Box

Alarm panels ordered with remote sensors are provided with separate metal boxes for each sensor. Mount each sensor box as follows:

1. Remove sensor rough-in from mounting box (Figure 18).
2. Using four mounting holes provided, attach box to a wall or other structural support (fasteners by others).
3. Reinstall sensor rough-in.

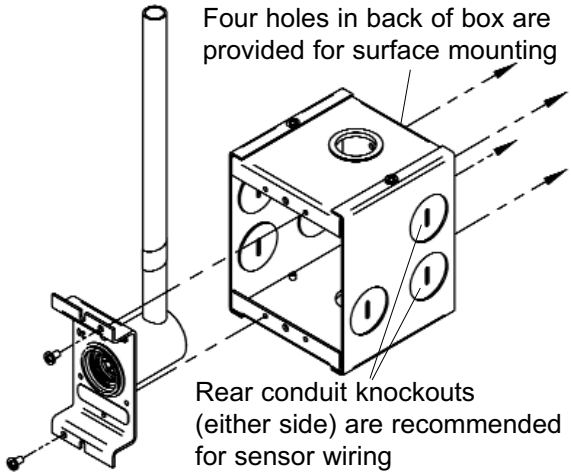


Figure 18: Remote Sensor Back Box

Pipeline Connection

Sensor Module

1. Braze copper extension tubes from sensor rough-in to appropriate pressure/vacuum piping system drops (Figure 19). Braze connections per procedures required by NFPA 99 or CAN/CSA-Z305.1. Use appropriate measures to prevent overheating and damage to internal components of sensor rough-in assemblies.
2. Perform standing pressure tests and cross connection tests as required by NFPA and CSA.

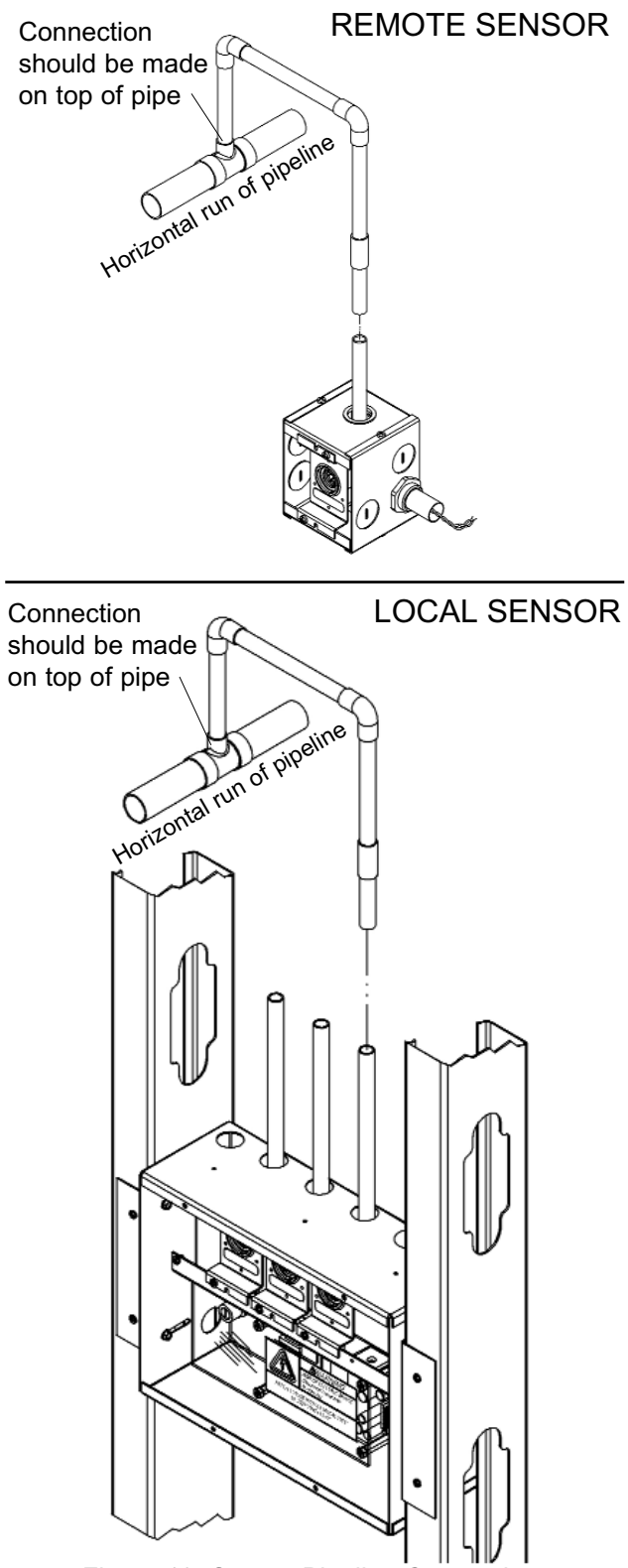
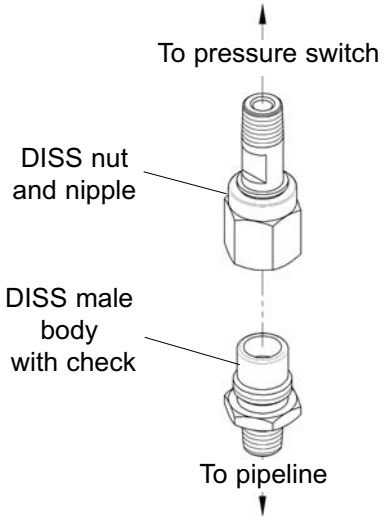


Figure 19: Sensor Pipeline Connection

Pipeline Connection

Pressure Switch

DISS (Diameter Index Safety System) connection kits are recommended for use when attaching pressure switches to pressure/vacuum pipeline. To utilize these kits, a 1/4-18 NPT female thread must be provided in piping system. All necessary components are included in each gas specific kit (Figure 20).



DISS Kit Model No:	Gas Service
6-120004-10	Oxygen
6-120004-11	Nitrous Oxide
6-120004-12	Medical Air
6-120004-13	Vacuum
6-120004-14	Nitrogen
6-120004-18	Instrument Air
6-120004-19	Evac. (WAGD)
6-120004-20	Carbon Dioxide
6-120004-21	CO2/O2
6-120004-22	O2/CO2
6-120004-23	He/O2
6-120004-24	O2/He
6-120004-25	Helium

Figure 20: Pressure Switch Pipeline Connection

Pull Wire

General Requirements

- Power all alarms from life safety branch of emergency power system as required by applicable standards.
- Protect all wiring from physical damage by raceways or conduit as required by applicable standards.
- Wire master panels directly to switches or sensors as required by applicable standards.
- 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.
- Avoid installing alarm panels near radio transmitters, electrical motors, or switchgear.

Wire Type And Size

All low voltage wiring must meet the following criteria:

- Copper wire no smaller than 22 AWG.
- Circuit length not to exceed 5000 feet.
- Cable must be twisted-pair shielded type. Multi-pair cables within one common shield are acceptable.

Wire Routing

Two holes or knockouts are provided for entrance of AC mains power. One hole on left side and one hole on top left of alarm panel back box.

NO OTHER HOLES SHOULD BE PUNCHED OR USED.

Several additional holes or knockouts are provided on right side of top panel and bottom for entrance of low voltage field wiring(Figures 21 and 22).

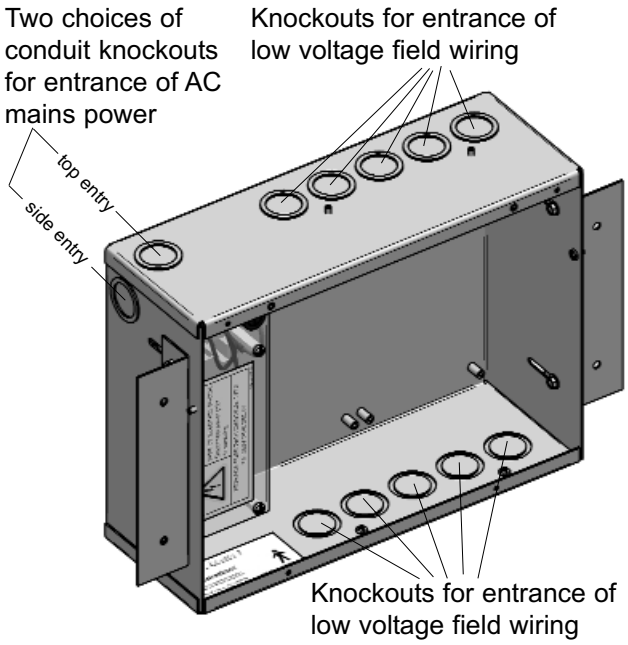


Figure 21: Wire Routing for Master / Combo Alarms

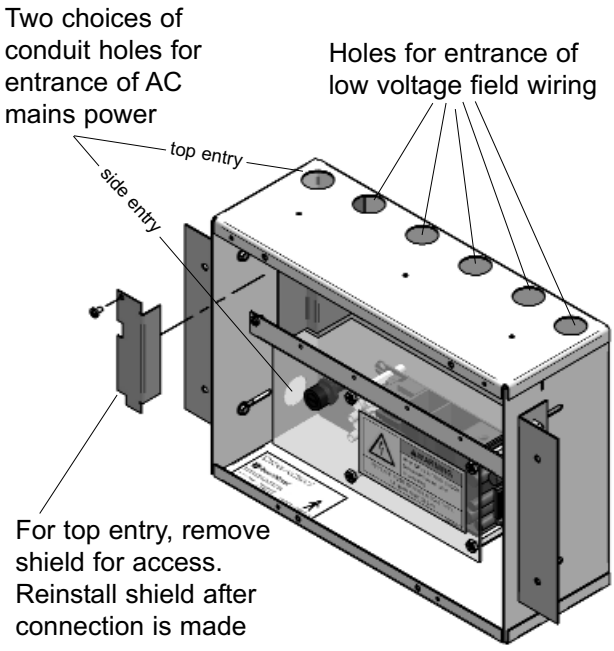


Figure 22: Wire Routing for Area Alarms

Determining Number Of Conductors

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

- **Digital display modules to sensors**

  Two conductors are required between each digital display module and sensor module (twisted pair).

  Refer to **Wiring Schematic 2** (Page 47).

- **Switched signal inputs**

  Two conductors 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 **Wiring Schematic 3** (Page 48) for multiplexer/breakout board.

  Refer to **Wiring Schematic 5** (Page 50) for multi-signal module.

  Refer to **Wiring Schematic 10** (Page 54) for pressure switches.

⚠CAUTION:

Do not connect TotalAlert 2 master/combo alarm to switch/relay contacts connected to any alarm panels other than those listed below:

- **TotalAlert 2**
- **MEGA2**
- **MEGA**

- **Relay outputs**

  Two conductors are required for each signal between relay output terminals and remote device (such as a building automation system).

  Refer to **Wiring Schematic 4** (Page 49) for multiplexer/relay board.

  Refer to **Wiring Schematic 7** (Page 52) for multi-signal module.

  Refer to **Wiring Schematic 8** (Page 53) for annunciator module.

  Refer to **Wiring Schematic 9** (Page 53) for digital display module.

- **Digital display module master/slave**

  Two panels may be connected together so digital display module pressure reading(s) of first panel will be duplicated at second panel.

  Two conductors for each digital display module must be routed from first alarm panel to second alarm panel.

  Refer to **Wiring Schematic 6** (Page 51).

- **Ethernet**

  An eight conductor category 5 network cable is required between each alarm panel to be networked and a facility's Ethernet hub or switch.

Power Supply

Alarm panels require 100 to 250 VAC 50/60 Hz. power. Refer to **Wiring Schematic 1** (Page. 46).

⚠WARNING:

RISK OF ELECTRIC SHOCK
Disconnect power at the circuit breaker before removing power supply shield.

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

1. Remove four nuts (area alarms) or screws (master or combo alarms) from plastic power supply shield.
2. Remove plastic shield from power supply.
3. Connect incoming line, neutral and ground wires to the terminal block.
5. Reinstall plastic power supply shield while making sure all high voltage wires are contained within plastic shield.
6. Secure plastic shield with four nuts (area alarms) or screws (master or combo alarms).

Remote Sensor

1. Identify each pair of field installed sensor wires inside alarm panel back box assembly.
2. Route each pair of sensor wires as shown in Figure 23 to appropriate digital display module. Each digital display module is labeled with the gas type. Verify the appropriate remote sensor wires are connected to correct digital display module.
3. Connect positive sensor wires to terminals 5 and 6 for each remote sensor and digital display module. Refer to **Wiring Schematic 2** (Page 47).

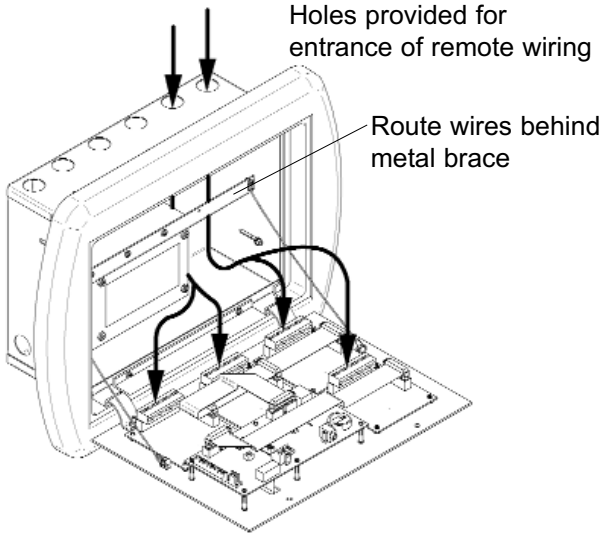


Figure 23: Remote Sensor Wire Routing

Breakout Board Inputs

A master or combo alarm with 32 signals has only one breakout board. Signals are numbered A1 through A32.

A master or combo alarm with 64 signals has two breakout boards. Signals are labeled A1 through A32 on breakout board A and B1 through B32 on breakout board B.

1. Identify each pair of field installed source equipment signal wires inside alarm panel back box assembly.
2. Route each pair of signal wires as shown in Figure 24 to appropriate terminals on breakout board(s).
3. Connect each pair of signal wires to desired breakout board terminals. The terminals are labeled “Signal 1” through “Signal 32”. Refer to **Wiring Schematic 3** (Page 48).

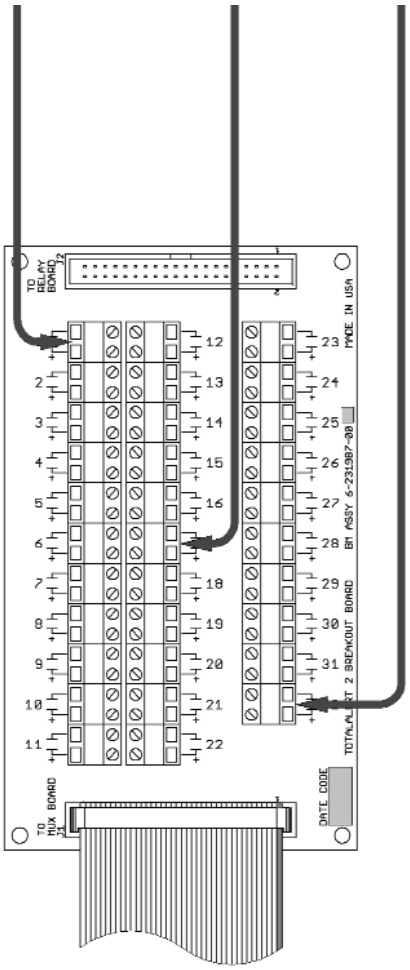


Figure 24: Breakout Board Wire Routing

NOTE:
Each pair of terminals labeled on the multi-signal module connector is labeled “+” and “COM”. 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.

⚠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.

⚠CAUTION:
Do not connect TotalAlert 2 master/combo alarm to switch/relay contacts connected to any alarm panels other than those listed below:

- **TotalAlert 2**
- **MEGA2**
- **MEGA**

Relay Board Outputs

A master or combo alarm with 32 signals has only one relay board. Signals are numbered A1 through A32.

A master or combo alarm with 64 signals has two relay boards. Signals are labeled A1 through A32 on relay board A and B1 through B32 on relay board B.

1. Identify each pair of field installed relay output signal wires inside alarm panel back box assembly.
2. Route each pair of relay output signal wires as shown in Figure 25 to appropriate terminals on relay board(s).
3. Connect each pair of signal wires to desired relay board terminals. The terminals are labeled “1” through “32”. Refer to **Wiring Schematic 4** (Page 49).

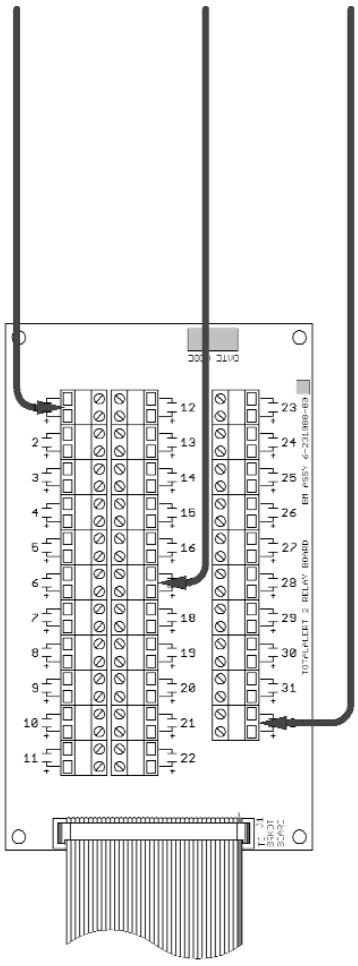


Figure 25: Relay Board Wire Routing

Multi-Signal Module Inputs

1. Identify each pair of field installed source equipment signal wires inside alarm panel back box assembly.
2. Route each pair of signal wires as shown in Figure 26 to appropriate multi-signal module.

⚠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 multi-signal module connector is labeled "+" and "COM". 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.

3. Connect each pair of signal wires to desired multi-signal module terminals. The terminals are labeled "Signal 1" through "Signal 5". Refer to **Wiring Schematic 5** (Page 50).

   Signal 1 corresponds to top row of indicators on front panel of multi-signal module. Signal 5 corresponds to bottom row (Figure 27).

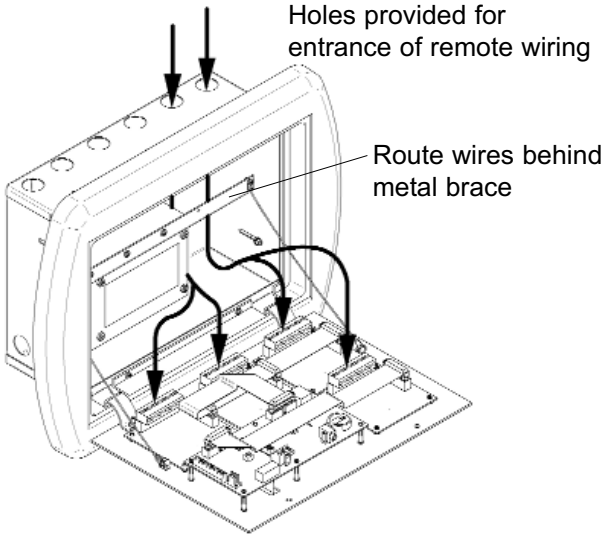


Figure 26: Source Equipment Wire Routing

⚠CAUTION:
Do not connect TotalAlert 2 master/combo alarm to switch/relay contacts connected to any alarm panels other than those listed below:

- **TotalAlert 2**
- **MEGA2**
- **MEGA**

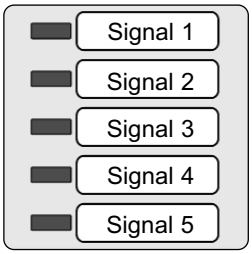


Figure 27: Multi-Signal Module Signal Numbering

Digital Display Module Master/Slave

Digital display modules of two alarm panels may be wired together in such a way that pressure readings of first panel can be duplicated at second panel.

Each digital display module has RS-422 digital outputs and inputs. By connecting digital output (master output) of first panel to digital inputs (slave input) of the second panel, second panel will duplicate pressure readings.

Connect the master output terminals of the sending digital display module to the slave input terminals of the receiving digital display module.

Refer to **Wiring Schematic 6** (Page 51).

Multi-Signal Module Relays

As an option, mutli-signal modules may be ordered with five output relays, one for each of five signals that multi-signal is capable of monitoring.

Each relay has a set of dry, normally-closed contacts that will open when an alarm is activated on corresponding front panel signal. For example, when an alarm condition activates on top multi-signal front panel alarm location (Signal 1), relay labeled “Signal 1” will activate opening its contacts. Relay contacts will remain open as long as alarm condition is active, even if audible alarm is silenced by MUTE button.

When alarm condition is corrected, relay contacts will close.

Relay contact ratings are 2 A @ 30 VDC/0.5 A @ 125 VAC.

Refer to **Wiring Schematic 7** (Page 52).

General Fault / Aux Relays

Annunciator Module General Fault Relay:

The annunciator module is supplied with an alarm panel general fault output relay.

This relay has a set of dry contacts that may be wired either normally open or normally closed.

The relay will activate when ANY alarm on 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 2 A @ 30 VDC/0.5 A @ 125 VAC. Refer to **Wiring Schematic 8** (Page 53).

Annunciator Module Auxiliary Relay:

The annunciator module is supplied with an additional auxiliary relay.

Auxiliary relay has a set of dry contacts that may be wired either normally open or normally closed.

Auxiliary relay will activate when ANY alarm on ENTIRE alarm panel is initiated. Auxiliary relay will deactivate when audible alarm is silenced by MUTE ⊠ button.

If alarm condition is still active when mute function cancels, auxiliary relay will reactivate.

Relay contact ratings are 2 A @ 30 VDC/0.5 A @ 125 VAC. Refer to **Wiring Schematic 8** (Page 53).

Digital Display Module High / Low Relays

Each digital display module is supplied with two separate output relays. One relay for high line pressure alarm and another for low line pressure alarm.

Each relay has a set of dry, normally-closed contacts that will open when an alarm is activated on corresponding front panel signal.

For example, when a low pressure alarm condition activates on digital display module front panel, relay labeled “Low Relay” will activate, opening its contacts.

Relay contacts will remain open as long as alarm condition is active, even if audible alarm is silenced by MUTE ⊠ button.

When alarm condition is corrected, relay contacts will close.

Relay contact ratings are 2 A @ 30 VDC/0.5 A @ 125 VAC.

Refer to **Wiring Schematic 9** (Page 53).

Ethernet

Alarms can be connected together in a TotalAlert alarm network.

Connect the network cable modular plug to annunciator module modular jack J9.

Building Automation System

TotalAlert 2 master and combo alarm panels are compatible with Johnson Controls Metasys® N2 building automation system.

Each alarm panel is field programmed with a unique N2 address.

Using this address, Johnson Controls system can monitor alarm panel status including digital pressure readings and programmed alarm set points.

Each alarm panel is connected to a common two-wire RS-485 serial computer interface bus. Two wires are connected to connector TB1 of annunciator module and then connected to common data bus.

Refer to **Wiring Schematic 11** (Page 55).

Building Automation System Mapping

NOTE:
The following information is intended to be used by Information Sytems or Building Automation personnel.

The state of each of the 64 switched inputs of a master or combo alarm is available using BI1 through BI64.

BI65 is true if there are any active alarms. For efficient single point monitoring, enroll BI65 in the BAS polling table.

BI66 indicates the state of the audible alarm.

Additional information is available using integer data points ADI1 through ADI5.

ADI1 = device serial number, low 2 bytes.

ADI2 = device serial number, high 2 bytes.

Building Automation System (Cont.)

ADI3 = device firmware version.

ADI4 = number of switched inputs indicating an alarm condition.

ADI5 = number of remote alarm modules indicating an alarm condition.

If you are planning to use the Metasys® building automation system with the TotalAlert 2, request the following file from BeaconMedaes technical support:

Filename: TotalAlert2v1.ddl


```
**********************************************
**********************
* BeaconMedæs TotalAlert2® Medical Gas Alarm
version 1.00
* Point Type Max Allowed
* ---------------------- -----------
* AD - Analog Data 32 (ADI & ADF read-only)
* BI - Binary Input
* Never map output points in a CS model and as
discrete objects.
* The N, N or Y, Y after the point label means:
* 1st one - Can be overridden
* 2nd one - Can be adjusted
**********************************************
**********************
@MODEL+
CSMODEL "TotalAlert2", "VND"
BITITLE "Inputs"
ADTITLE "Alarm Summary"
CSBI "BI1" ,Y,N,"INPUT_A1","Normal","Alarm"
CSBI "BI2" ,Y,N,"INPUT_A2","Normal","Alarm"
CSBI "BI3" ,Y,N,"INPUT_A3","Normal","Alarm"
CSBI "BI4" ,Y,N,"INPUT_A4","Normal","Alarm"
CSBI "BI5" ,Y,N,"INPUT_A5","Normal","Alarm"
CSBI "BI6" ,Y,N,"INPUT_A6","Normal","Alarm"
CSBI "BI7" ,Y,N,"INPUT_A7","Normal","Alarm"
CSBI "BI8" ,Y,N,"INPUT_A8","Normal","Alarm"
CSBI "BI9" ,Y,N,"INPUT_A9","Normal","Alarm"
CSBI "BI10" ,Y,N,"INPUT_A10","Normal","Alarm"
CSBI "BI11" ,Y,N,"INPUT_A11","Normal","Alarm"
CSBI "BI12" ,Y,N,"INPUT_A12","Normal","Alarm"
CSBI "BI13" ,Y,N,"INPUT_A13","Normal","Alarm"
CSBI "BI14" ,Y,N,"INPUT_A14","Normal","Alarm"
CSBI "BI15" ,Y,N,"INPUT_A15","Normal","Alarm"
CSBI "BI16" ,Y,N,"INPUT_A16","Normal","Alarm"
CSBI "BI17" ,Y,N,"INPUT_A17","Normal","Alarm"
CSBI "BI18" ,Y,N,"INPUT_A18","Normal","Alarm"
CSBI "BI19" ,Y,N,"INPUT_A19","Normal","Alarm"
CSBI "BI20" ,Y,N,"INPUT_A20","Normal","Alarm"
CSBI "BI21" ,Y,N,"INPUT_A21","Normal","Alarm"
CSBI "BI22" ,Y,N,"INPUT_A22","Normal","Alarm"
CSBI "BI23" ,Y,N,"INPUT_A23","Normal","Alarm"
CSBI "BI24" ,Y,N,"INPUT_A24","Normal","Alarm"
CSBI "BI25" ,Y,N,"INPUT_A25","Normal","Alarm"
CSBI "BI26" ,Y,N,"INPUT_A26","Normal","Alarm"
CSBI "BI27" ,Y,N,"INPUT_A27","Normal","Alarm"
CSBI "BI28" ,Y,N,"INPUT_A28","Normal","Alarm"
CSBI "BI29" ,Y,N,"INPUT_A29","Normal","Alarm"
CSBI "BI30" ,Y,N,"INPUT_A30","Normal","Alarm"
CSBI "BI31" ,Y,N,"INPUT_A31","Normal","Alarm"
CSBI "BI32" ,Y,N,"INPUT_A32","Normal","Alarm"
CSBI "BI33" ,Y,N,"INPUT_B1","Normal","Alarm"
CSBI "BI34" ,Y,N,"INPUT_B2","Normal","Alarm"
CSBI "BI35" ,Y,N,"INPUT_B3","Normal","Alarm"
CSBI "BI36" ,Y,N,"INPUT_B4","Normal","Alarm"
CSBI "BI37" ,Y,N,"INPUT_B5","Normal","Alarm"
CSBI "BI38" ,Y,N,"INPUT_B6","Normal","Alarm"
CSBI "BI39" ,Y,N,"INPUT_B7","Normal","Alarm"
CSBI "BI40" ,Y,N,"INPUT_B8","Normal","Alarm"
CSBI "BI41" ,Y,N,"INPUT_B9","Normal","Alarm"
CSBI "BI42" ,Y,N,"INPUT_B10","Normal","Alarm"
CSBI "BI43" ,Y,N,"INPUT_B11","Normal","Alarm"
CSBI "BI44" ,Y,N,"INPUT_B12","Normal","Alarm"
CSBI "BI45" ,Y,N,"INPUT_B13","Normal","Alarm"
CSBI "BI46" ,Y,N,"INPUT_B14","Normal","Alarm"
CSBI "BI47" ,Y,N,"INPUT_B15","Normal","Alarm"
CSBI "BI48" ,Y,N,"INPUT_B16","Normal","Alarm"
CSBI "BI49" ,Y,N,"INPUT_B17","Normal","Alarm"
CSBI "BI50" ,Y,N,"INPUT_B18","Normal","Alarm"
CSBI "BI51" ,Y,N,"INPUT_B19","Normal","Alarm"
CSBI "BI52" ,Y,N,"INPUT_B20","Normal","Alarm"
CSBI "BI53" ,Y,N,"INPUT_B21","Normal","Alarm"
CSBI "BI54" ,Y,N,"INPUT_B22","Normal","Alarm"
CSBI "BI55" ,Y,N,"INPUT_B23","Normal","Alarm"
CSBI "BI56" ,Y,N,"INPUT_B24","Normal","Alarm"
CSBI "BI57" ,Y,N,"INPUT_B25","Normal","Alarm"
CSBI "BI58" ,Y,N,"INPUT_B26","Normal","Alarm"
CSBI "BI59" ,Y,N,"INPUT_B27","Normal","Alarm"
CSBI "BI60" ,Y,N,"INPUT_B28","Normal","Alarm"
CSBI "BI61" ,Y,N,"INPUT_B29","Normal","Alarm"
CSBI "BI62" ,Y,N,"INPUT_B30","Normal","Alarm"
CSBI "BI63" ,Y,N,"INPUT_B31","Normal","Alarm"
CSBI "BI64" ,Y,N,"INPUT_B32","Normal","Alarm"
CSBI "BI65" ,Y,N,"ANY_ALARM","No_Alarms","Alarm"
CSBI "BI66" ,Y,N,"AUD_ALM","Off","On"
CSAD "ADI1" ,N,Y,"Serial_1",""
CSAD "ADI2" ,N,Y,"Serial_2",""
CSAD "ADI3" ,N,Y,"VERSION",""
CSAD "ADI4" ,N,Y,"NUMBER_LOCAL_ALARMS",""
CSAD "ADI5" ,N,Y,"NUMBER_REMOTE_ALARMS",""
CSAI "AI1",Y,N,"DDM1",""
CSAI "AI2",Y,N,"DDM2",""
CSAI "AI3",Y,N,"DDM3",""
CSAI "AI4",Y,N,"DDM4",""
CSAI "AI5",Y,N,"DDM5",""
CSAI "AI6",Y,N,"DDM6",""
CSAI "AI7",Y,N,"DDM7",""
CSAI "AI8",Y,N,"DDM8",""
```

Field Wiring Cable Shield Grounding

All field wiring cable shields must be grounded inside alarm panel back box.

A grounding screw is provided in upper right corner of area alarm back box (Figure 28).

Grounding screws are provided in top and bottom of master and combo alarm back boxes (Figure 29).

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

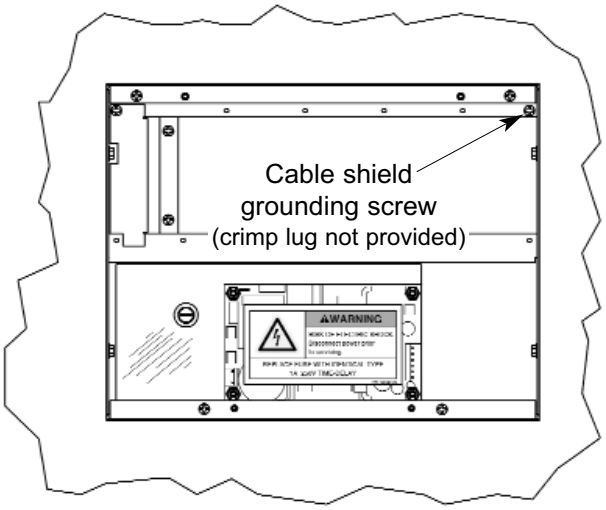


Figure 28: Cable Shield Grounding-Area

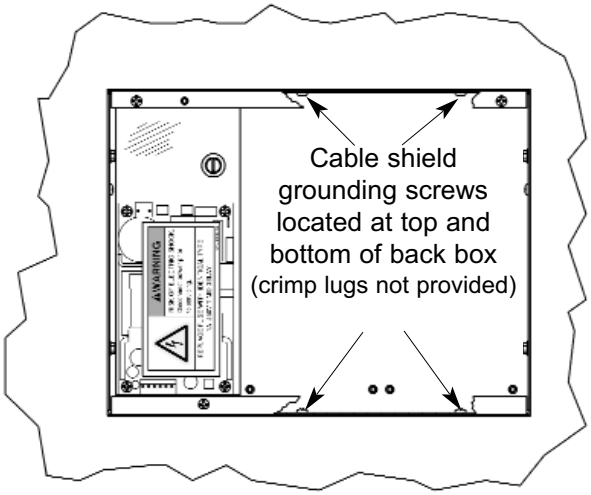


Figure 29: Cable Shield Grounding-Master/Combo

⚠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.

Front Panel Mounting

ATTENTION:
Observe Precautions for Handling
ELECTROSTATIC SENSITIVE DEVICES

1. Remove front panel assembly from static shielding shipping bag.
2. Remove front panel mounting screws from alarm panel back box assembly (Figures 30 and 31).
3. Remove lanyard mounting screws from alarm panel back box assembly (Figure 30 and 31).
4. Attach front panel to alarm panel back box using screws removed in step 2 (Figure 32).
5. Attach lanyards 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 power supply DC wire harness to J6 on annunciator module. Refer to **Wiring Schematic 1** (Page 46).

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

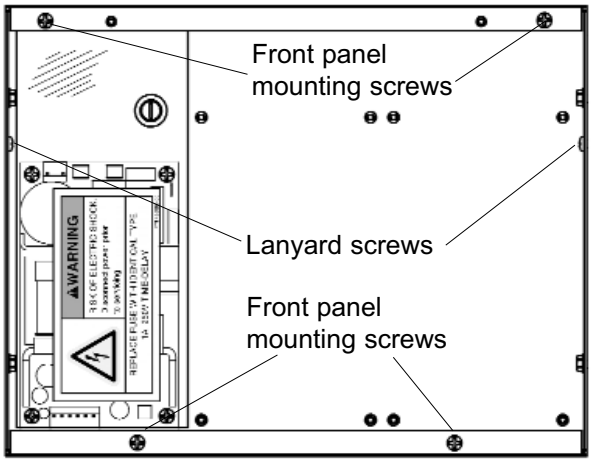


Figure 30: Master / Combo Panel Screws

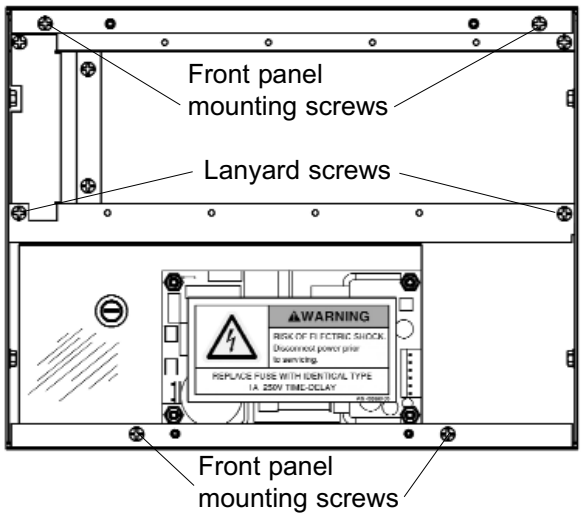


Figure 31: Area Alarm Panel Screws

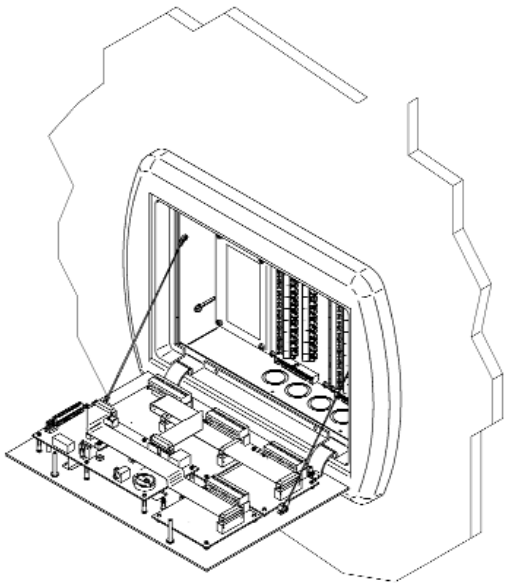


Figure 32: Attach Front Panel and Lanyards

Local Sensor

1. Remove sensor module from shipping carton.
2. Insert sensor into valve opening in pressure/vacuum service rough-in (Figure 33). An indexing pin provides for proper orientation and prevents gas service cross-connection. Push sensor all the way in and secure with (2) #6-32 x 1-1/4" screws. Repeat this process for all sensors within alarm panel.

NOTE:
Remove blue protective netting from sensor connector.

3. The digital display module(s) located on front panel assembly are factory wired with a harness and polarized two-pin connector for each sensor module. Each digital display module is labeled with the gas type. Match gas type of each sensor to gas type of each digital display module and join polarized connectors of sensor and digital display module harnesses.

NOTE:
Pressure/vacuum service rough-ins have been installed in a specific order to optimize sensor module wire routing.

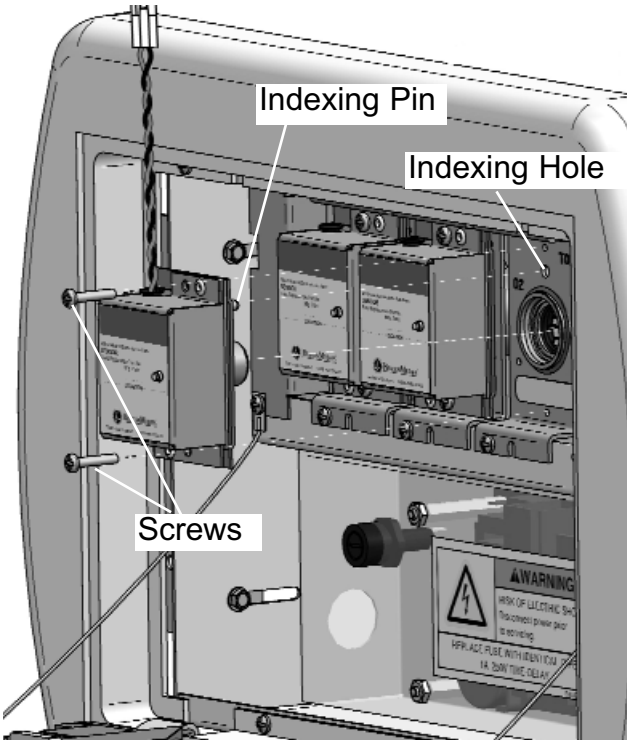


Figure 33: Local Sensor Mounting

Remote Sensor

1. Remove sensor module from shipping carton. Each sensor module is shipped with a wiring pigtail that has a two-pin polarized connector.
2. Wire nut pigtail to field installed wiring inside sensor mounting box. Note polarity of wiring and corresponding field wiring color or number for later.
3. Join polarized connector in sensor mounting box to mating connector on sensor module (Figure 34).

NOTE:
Remove blue protective netting from sensor connector.

4. Insert sensor into valve opening in sensor rough-in. An indexing pin provides for proper orientation and prevents gas service cross-connection. Push sensor all the way in and secure with (2) #6-32 x 1-1/4" screws.
5. Tuck excess wiring into open space behind sensor.

NOTE:
Do not ground shield drain wire at sensor.

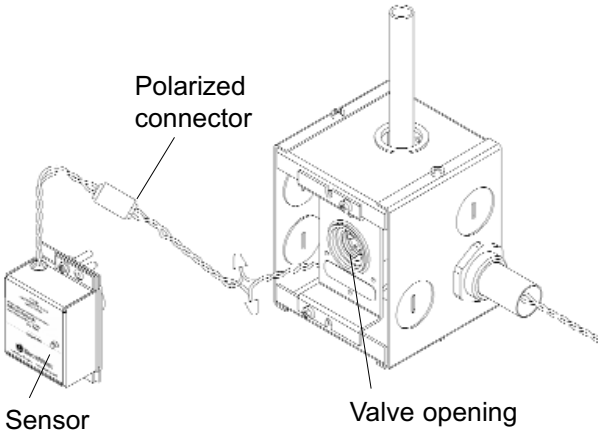


Figure 34: Remote Sensor Module Connection

Labeling

Multiplexer Module/LED Module

Label each LED using the provided gas service identification labels.

Multiplexer module LEDs are numbered 1 through 5 from top to bottom.

LED module LEDs are numbered 6 through 10 from top to bottom.

1. Apply gas identification label to insert.
2. Slide insert with label into pocket in front of multiplexer or led module (Figure 35).

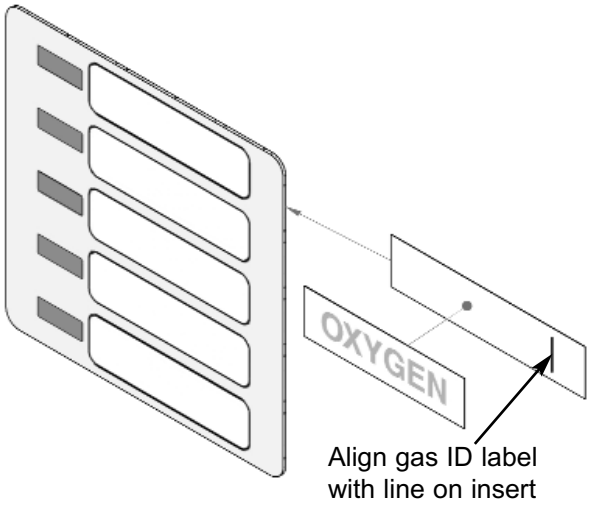


Figure 35: Multiplexer Module Labeling

Annunciator Module (Area Alarms)

Label annunciator module using provided panel location label.

1. Mark location on panel location label.
2. Slide location label into pocket in front of annunciator module (Figure 36).

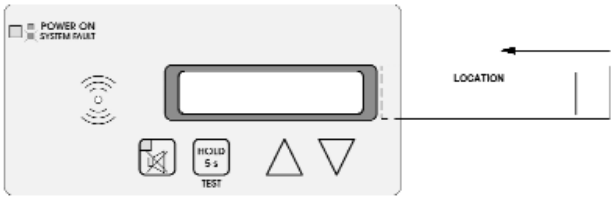


Figure 36: Annunciator Module Location Label

Labeling (Cont.)

Digital Display Module

Label each digital display module using provided location labels.

1. Mark location on location label.
2. Slide location label into pocket in front of digital display module (Figure 37).

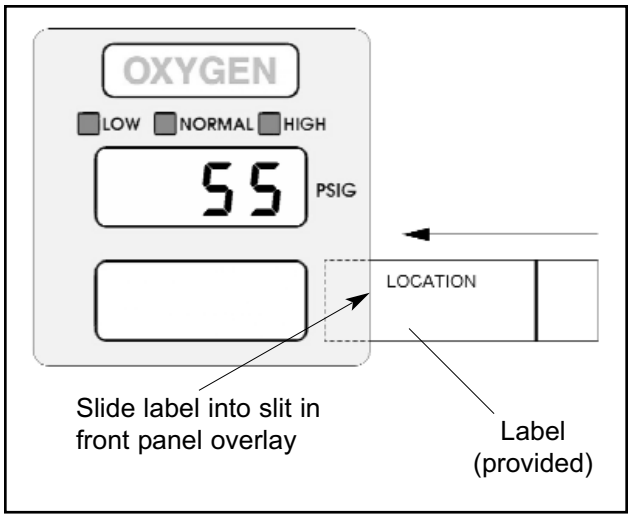


Figure 37: Digital Display Module

Multi-Signal Module

Label each multi-signal module using provided system status labels.

Blank system status labels are provided for custom signal names.

1. Slide system status labels into pockets in front of multi-signal module (Figure 38).

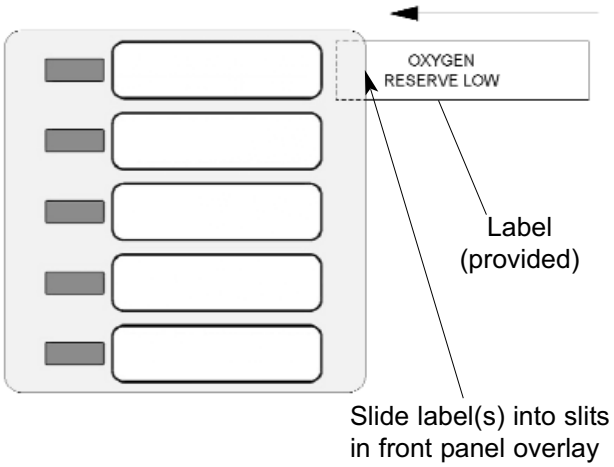


Figure 38: Multi-Signal Front Panel Labeling

Sensor Module

1. Mark location monitored by sensor in space provided on sensor label (Figure 39).

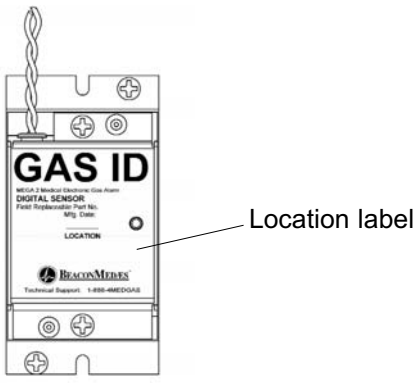


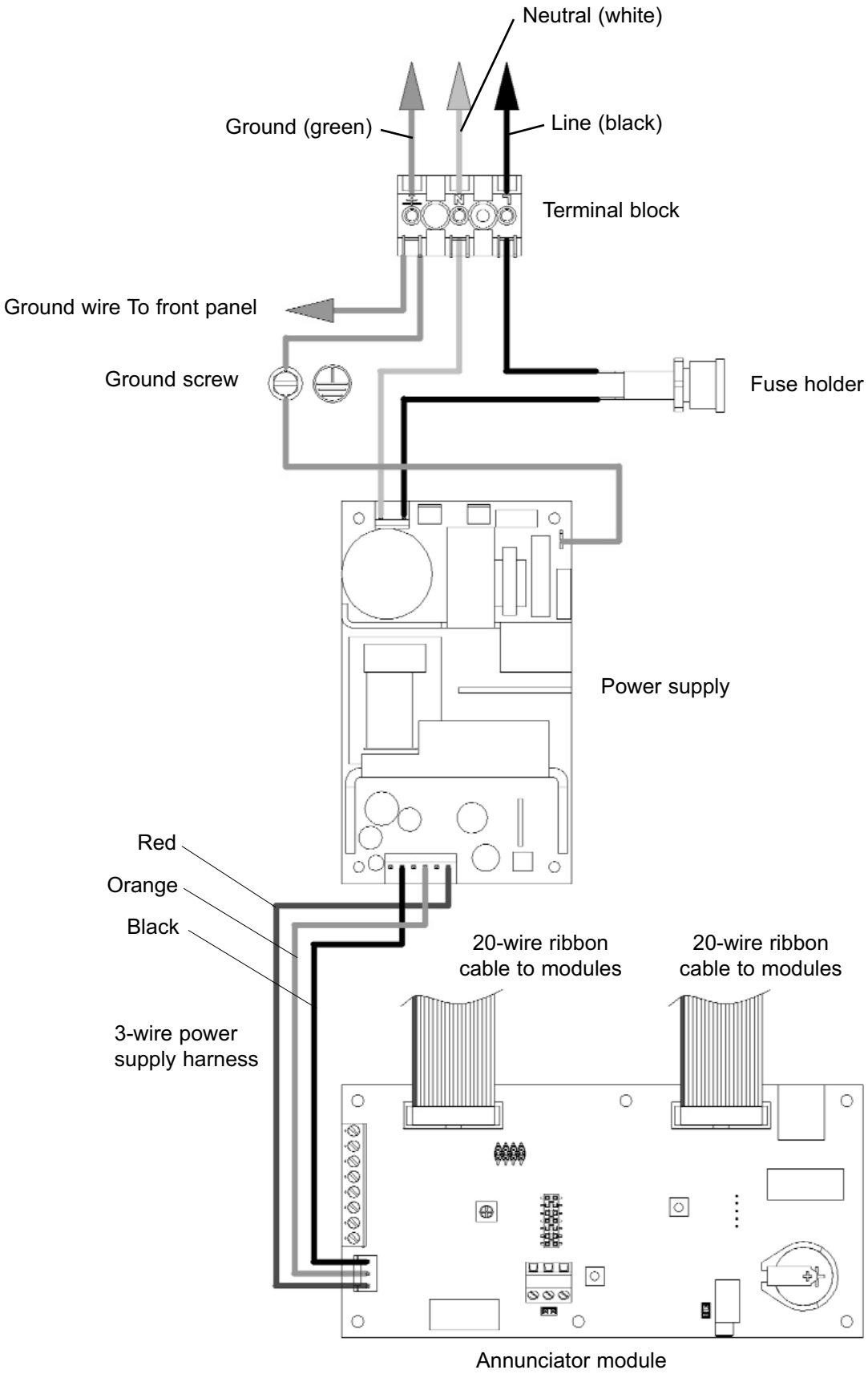
Figure 39: Sensor Module Location Label

The wiring schematics listed below are provided.

Call BeaconMedæs at 1-888-4MEDGAS (1-888-463-3427) for technical support.

Wiring Schematic 1: Power Supply

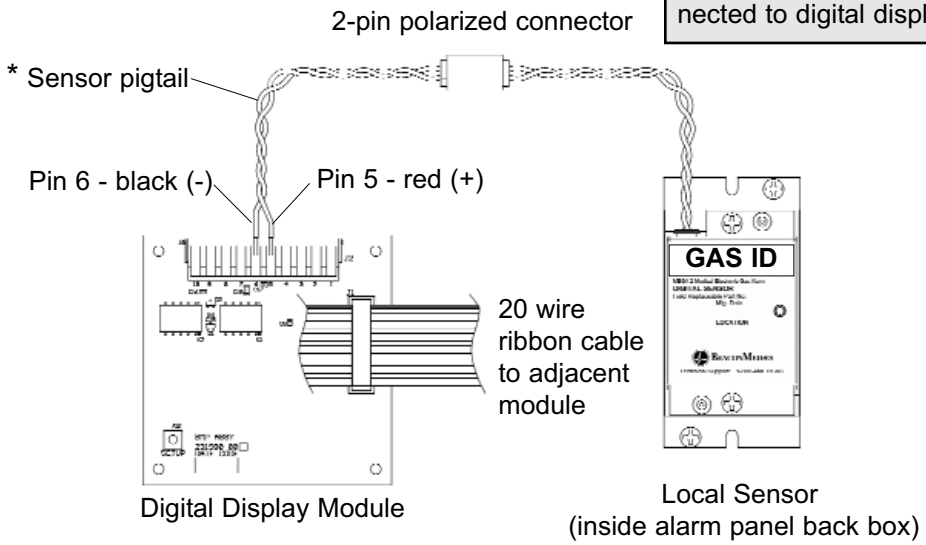
120 VAC mains power connections from life safety branch of the emergency electrical system



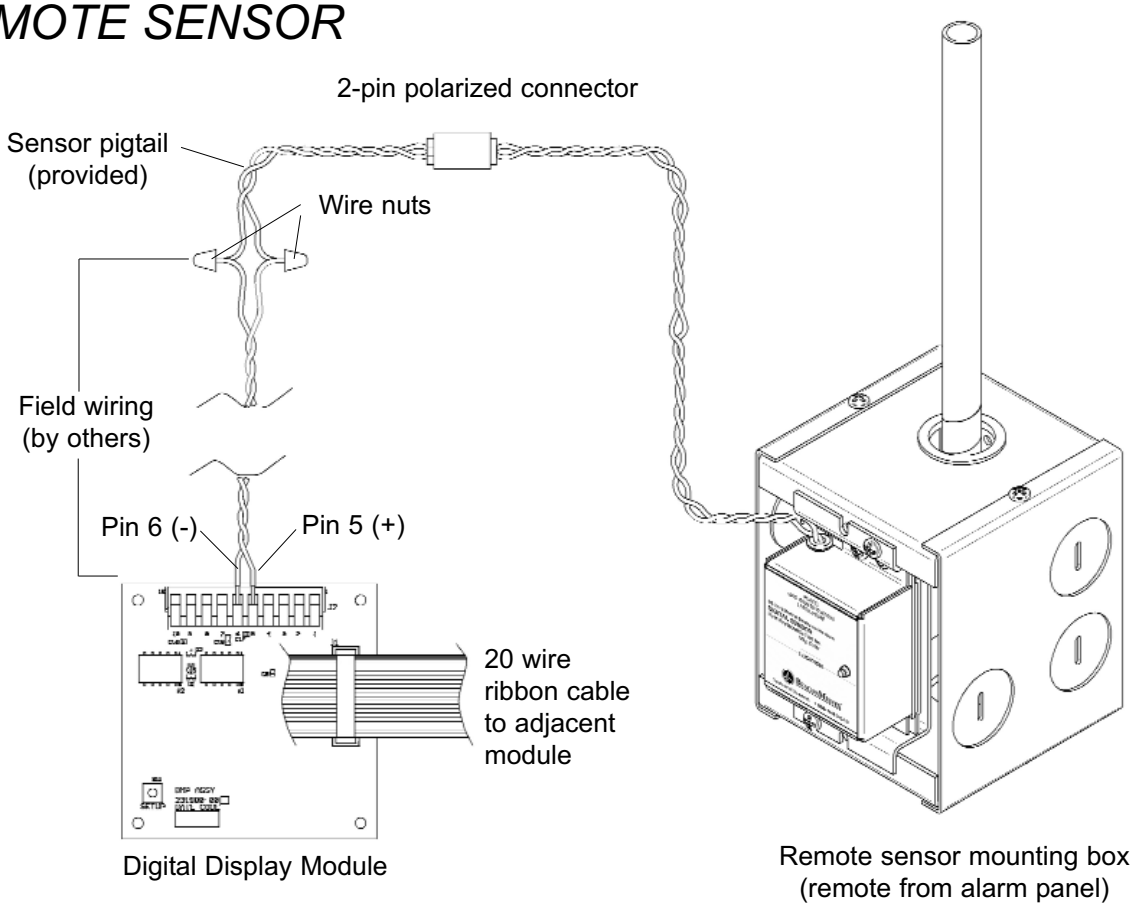
Wiring Schematic 2: Sensor Module to Digital Display Module

LOCAL SENSOR

*** NOTE:**
Sensor pigtails for local sensors are factory connected to digital display module.

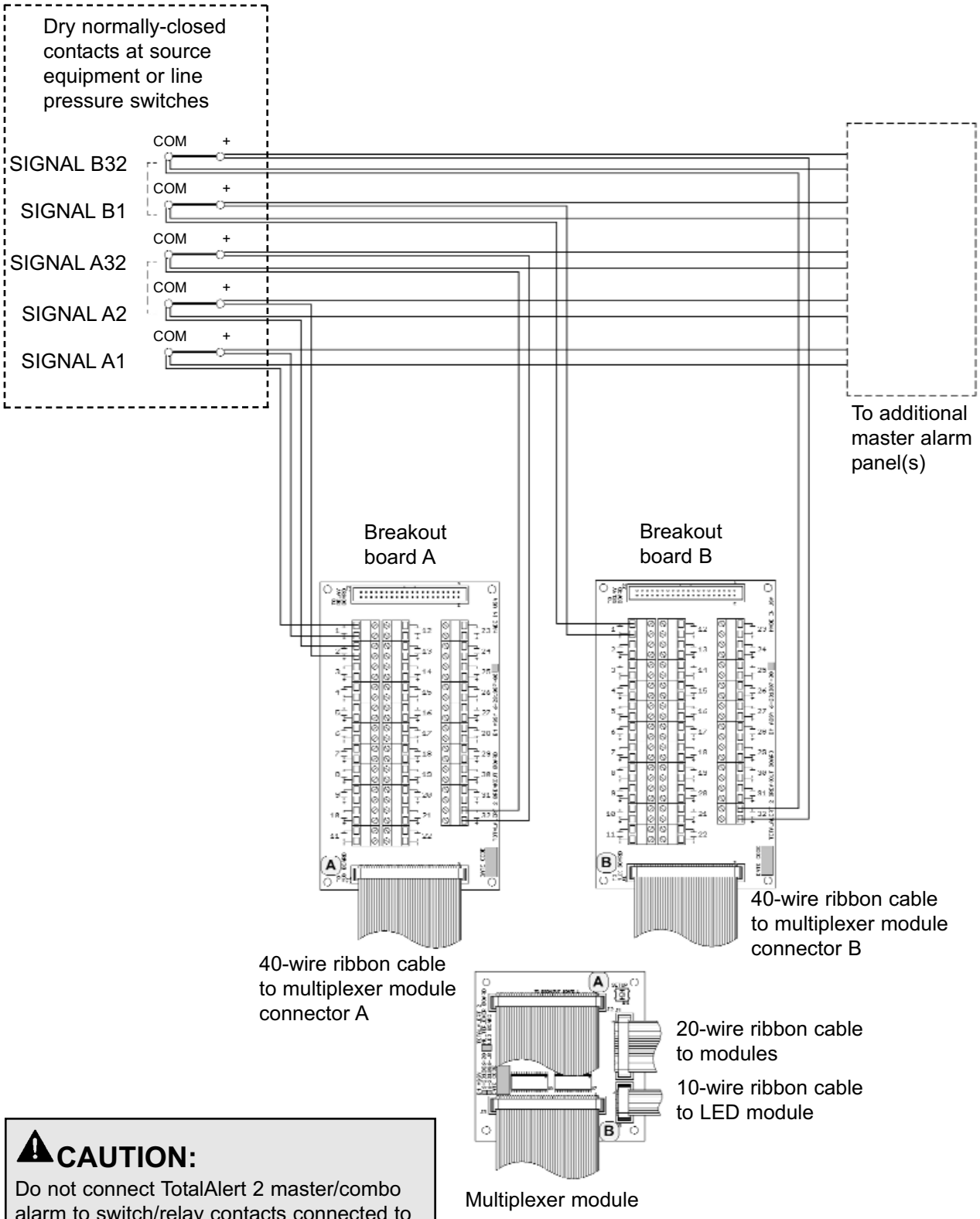


REMOTE SENSOR



NOTE:
Field wiring cable shields must be grounded at only one end, inside alarm panel back box. Refer to page 39 for details.

Wiring Schematic 3: Multiplexer / Breakout Boards



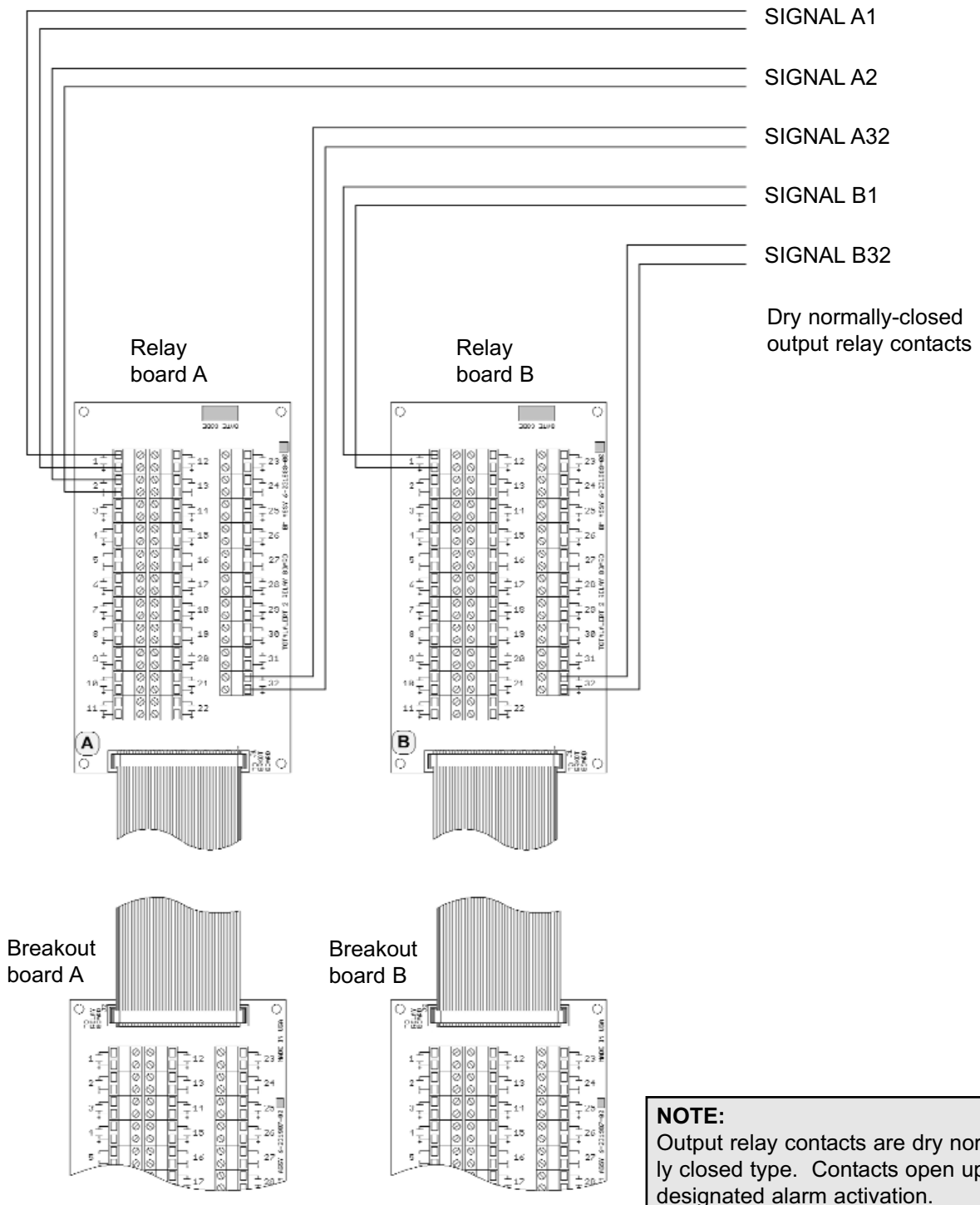
⚠CAUTION:

Do not connect TotalAlert 2 master/combo alarm to switch/relay contacts connected to any alarm panels other than those listed below:

- **TotalAlert 2**
- **MEGA2**
- **MEGA**

NOTE:
Field wiring cable shields must be grounded at only one end, inside alarm panel back box. Refer to page 39 for details.

Wiring Schematic 4: Relay Board



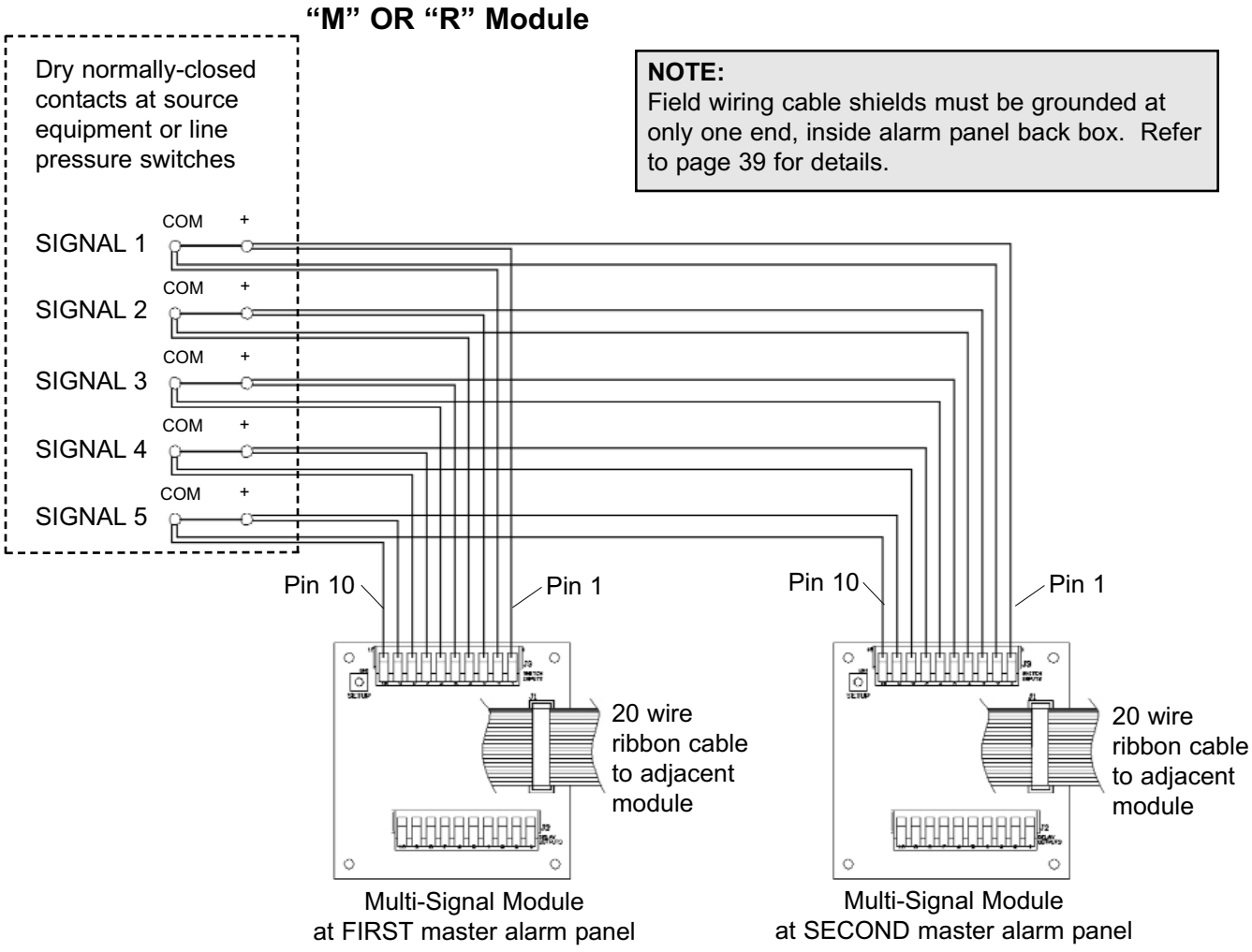
NOTE:
Field wiring cable shields must be grounded at only one end, inside alarm panel back box. Refer to page 39 for details.

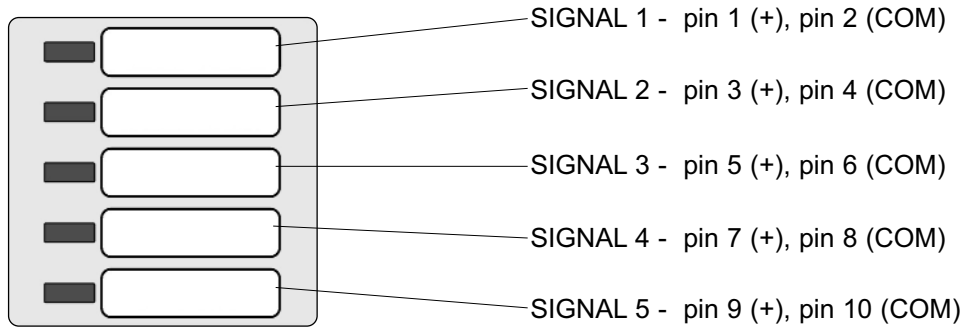
NOTE:
Output relay contacts are dry normally closed type. Contacts open upon designated alarm activation.

Pressing MUTE on Annunciator Module DOES NOT reset relay. Relay deactivates when alarm condition is corrected.

Relay contact ratings are 2 A @ 30 VDC/0.5 A @ 125 VAC.

Wiring Schematic 5: Multi-Signal Module Inputs





Multi-Signal Module front panel

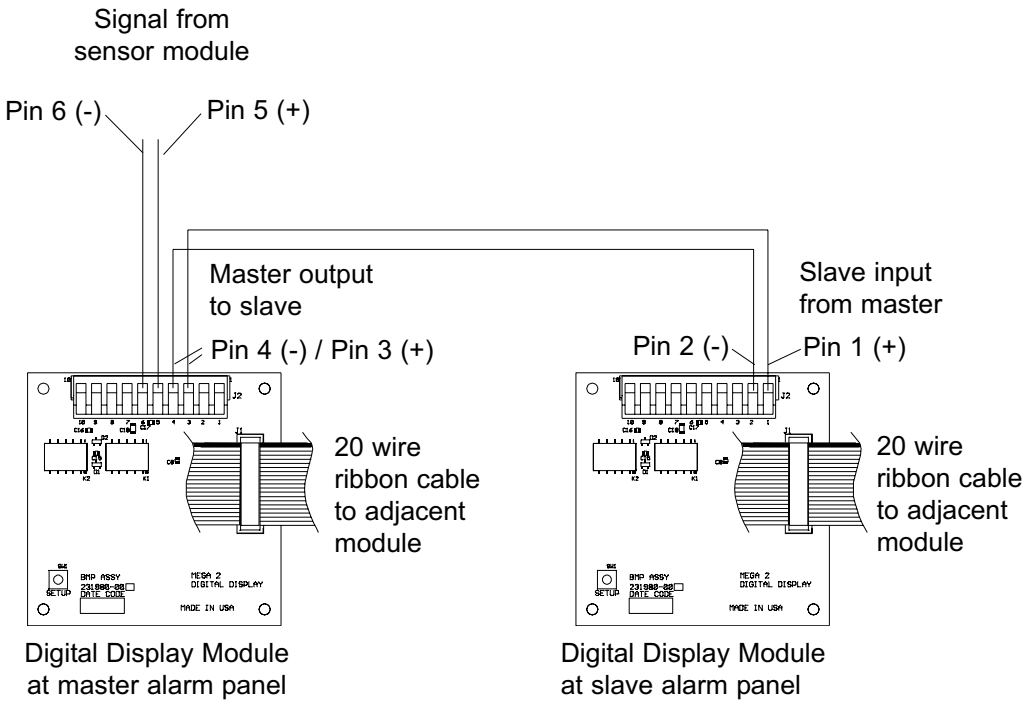
⚠CAUTION:

Do not connect TotalAlert 2 master/combo alarm to switch/relay contacts connected to any alarm panels other than those listed below:

- **TotalAlert 2**
- **MEGA2**
- **MEGA**

Wiring Schematic 6: Digital Display Module Master/Slave

NOTE:
Field wiring cable shields must be grounded at only one end, inside alarm panel back box. Refer to page 39 for details.



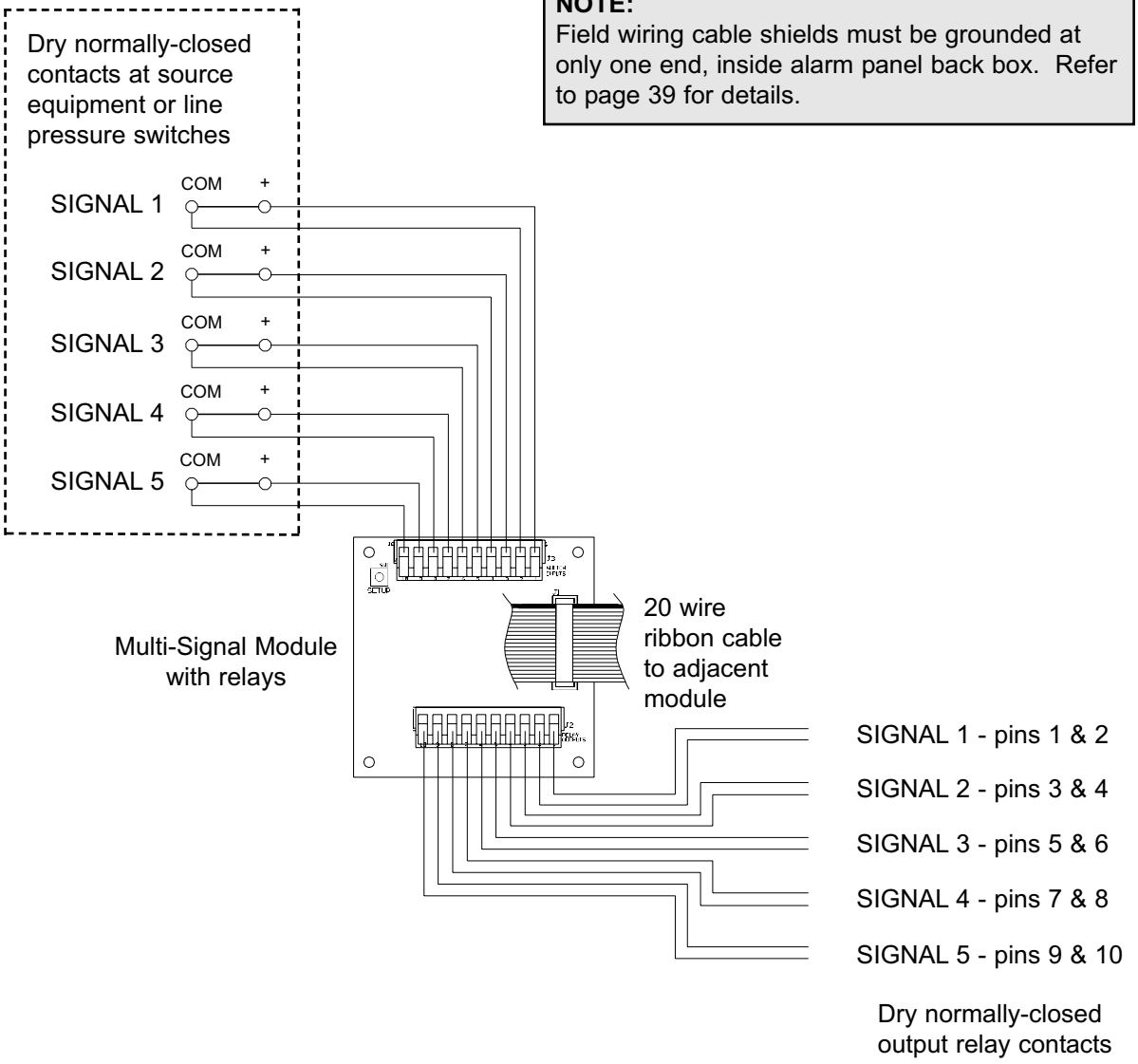
NOTE:
The above master to slave wiring configuration DOES NOT comply with NFPA 99 wiring guidelines for two required master panels.

If digital display modules are used for a master alarm, EACH master panel must be directly connected to a sensor module for each pressure/vacuum service.

Additional panels, if desired, may be connected as indicated above.

Wiring Schematic 7: Multi-Signal Module Relay Outputs

NOTE:
Field wiring cable shields must be grounded at only one end, inside alarm panel back box. Refer to page 39 for details.



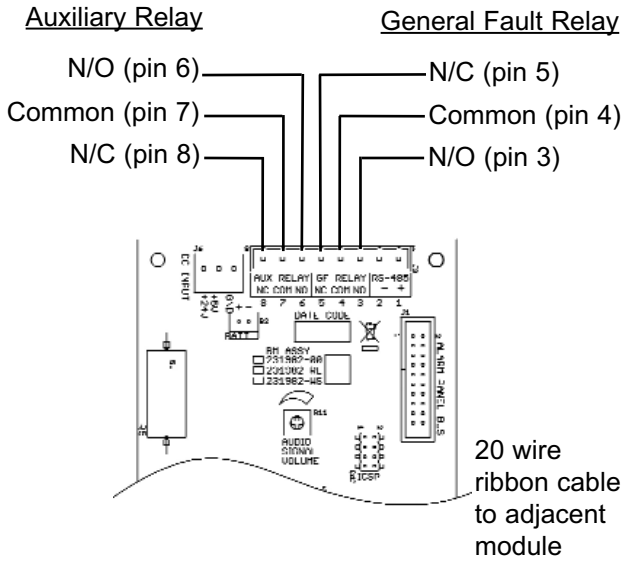
NOTE:
Output relay contacts are dry normally closed type.

Contacts open upon designated alarm activation. Contacts remain open until alarm condition is corrected.

Pressing MUTE on Annunciator Module WILL deactivate relay until audible alarm is again reactivated.

Relay contact ratings are 2 A @ 30 VDC/0.5 A @ 125 VAC.

Wiring Schematic 8: General Fault / Auxiliary Relays



Annunciator Module

NOTE:
General Fault Relay activates when ANY alarm on panel is in progress.

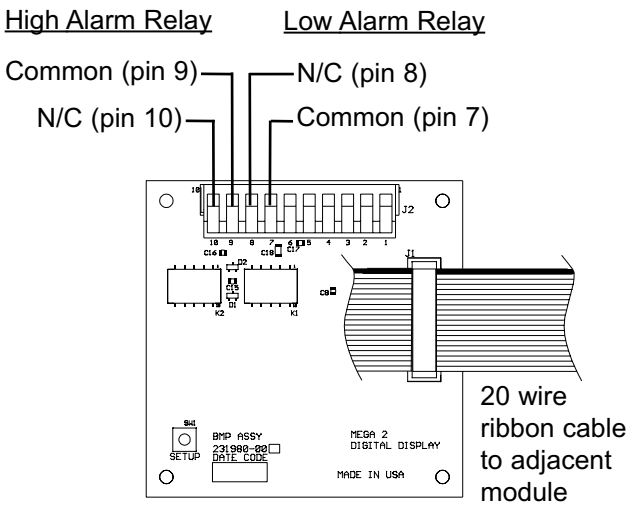
Pressing MUTE on Annunciator Module DOES NOT reset relay. Relay deactivates when alarm condition is corrected.

Auxiliary Relay (optional) activates when ANY audible alarm on panel is in progress.

Pressing MUTE on Annunciator Module WILL deactivate relay until audible alarm is again reactivated.

Relay contact ratings are 2A @ 30 VDC/0.5 A @ 125 VAC.

Wiring Schematic 9: Digital Display Module High / Low Relays



Digital Display Module

NOTE:
High Alarm Relay activates when high line pressure alarm on digital display module is in progress. When relay activates normally closed contacts open.

Pressing MUTE on Annunciator Module DOES NOT deactivate relay. Relay deactivates when high line pressure alarm condition is corrected.

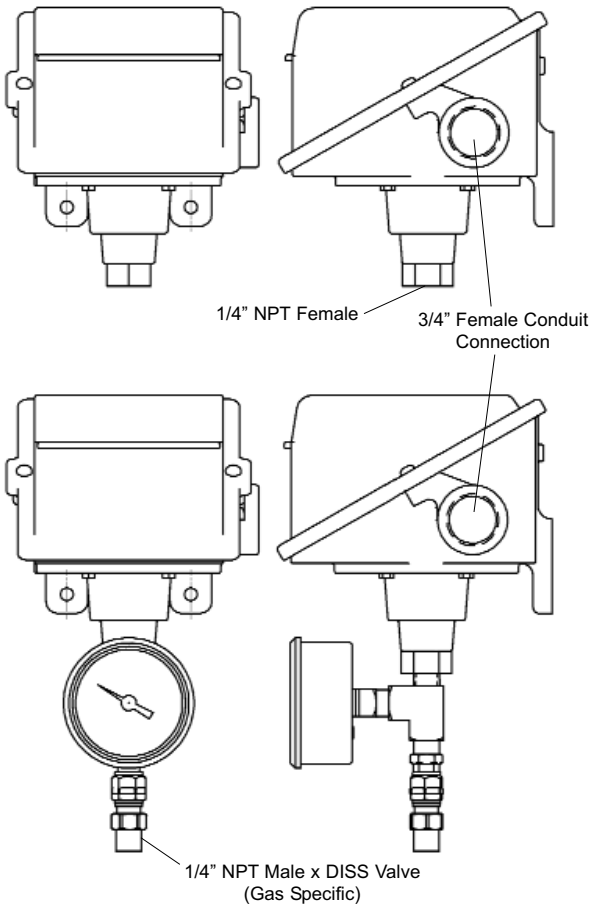
Low Alarm Relay activates when low line pressure alarm on digital display module is in progress. When relay activates normally closed contacts open.

Pressing MUTE on Annunciator Module DOES NOT deactivate relay. Relay deactivates when low line pressure alarm condition is corrected.

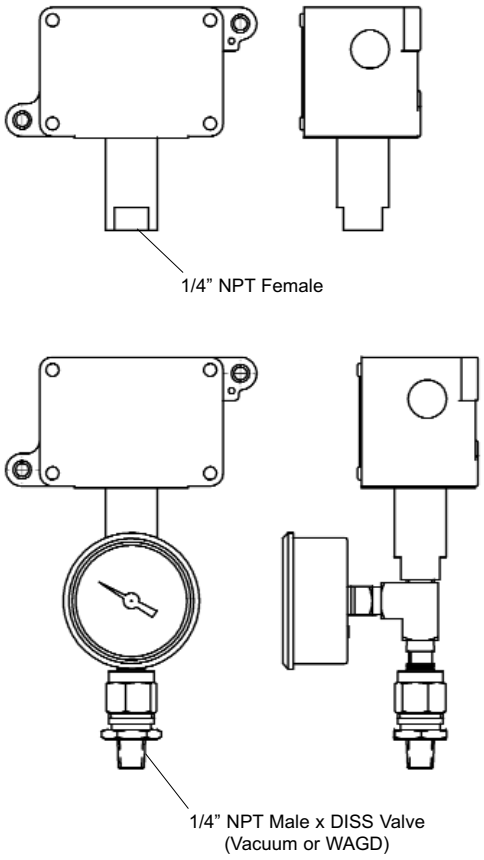
Relay contact ratings are 2A @ 30 VDC/0.5 A @ 125 VAC.

Wiring Schematic 10: Remote Pressure / Vacuum Switches

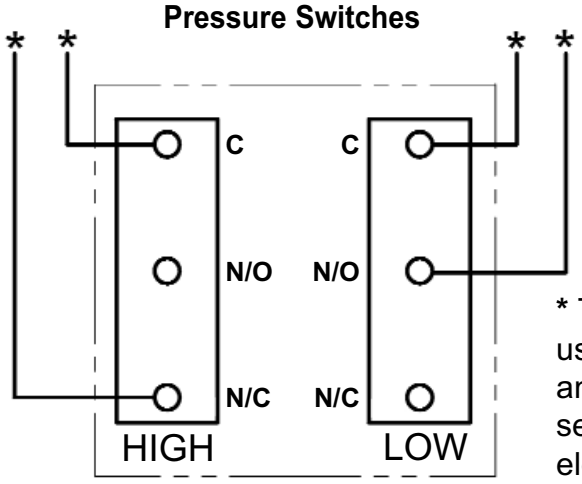
P/N 6-129030-XX thru 6-129032-XX Series Pressure Switches



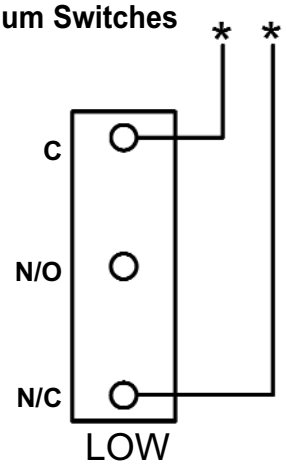
P/N 6-129033-XX Series Vacuum Switches



Typical Wiring Schematic for above Pressure Switches

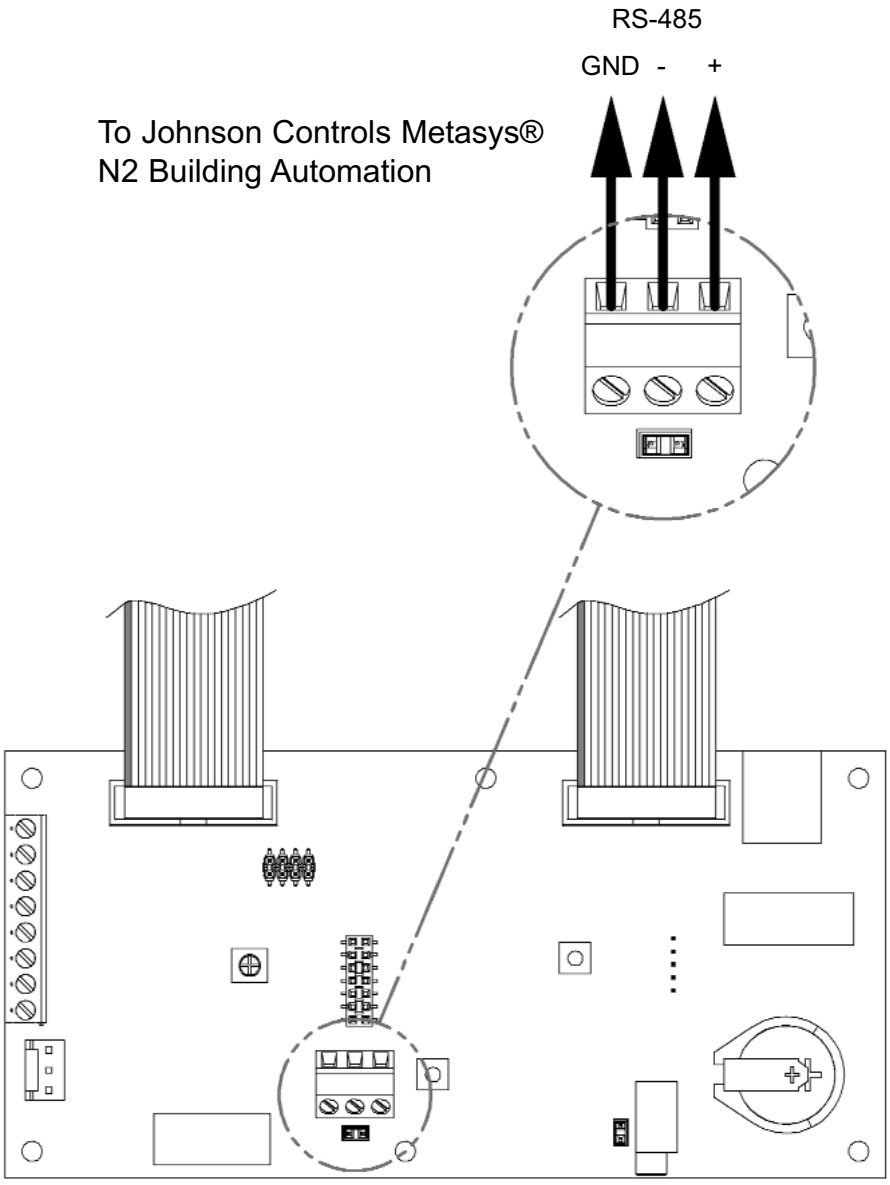


Typical Wiring Schematic for above Vacuum Switches



* Terminals to be used for TotalAlert 2 and other systems sensing fault on electrical contacts opening.

Wiring Schematic 11: Johnson Controls Metasys® N2 Connection



Annunciator Module

Master Alarm Panel

1. Turn on electrical power to alarm panel.
2. Make following observations:
   - POWER ON light illuminates on front of alarm panel.
   - Boot message is shown on vacuum fluorescent display.

     Booting...

     BeaconMedaes
     TotalAlert 2 System

     Version: [VERSION]
     SN 12345

     Browse at: http://
     TA2_12345

   - Alarm modules warm-up for ten seconds. During warm-up, no audible or visual alarms activated. After warm-up, audible and visual alarms are initiated for any active alarm.
3. Press MUTE button to silence audible alarm.
4. Make following observations:
   - If all signals are unprogrammed (factory default) LEDs will illuminate green for 10 seconds, then turn off.
   - If signals are assigned to LEDs, multiplexer and LED modules indicate current status for the signals and vacuum fluorescent display displays signal information.
   - Connected, but unprogrammed signals are shown on the vacuum fluorescent display.

     Unassigned
     Input [INPUT NUMBER]

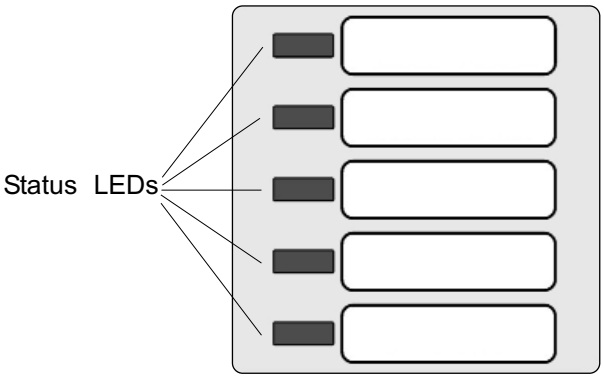


Figure 40: Multiplexer/LED Module

NOTE:
If any module appears to be malfunctioning, refer to **Troubleshooting Guide**.

Area Alarm Panel

1. Turn on electrical power to alarm panel.
2. Make following observations:
   - Green POWER ON LED illuminates on front of alarm panel.
   - Alarm modules warm-up for ten seconds. During warm-up, no audible or visual alarms activated. After warm-up, audible and visual alarms are initiated for any active alarm.
3. Press MUTE button to silence audible alarm.
4. Pressurize piping system (medical gas and vacuum).
5. Make following observations:
   - Digital display modules display actual pipeline pressures or vacuum levels.
   - If digital display module pipeline pressures and vacuum levels are within pre-set limits, NORMAL LED is illuminated.
   - If digital display module pipeline pressures and vacuum levels are outside pre-set limits, status LEDs show HIGH or LOW.
   - If a fault code is displayed (-F1-, -F2-, -F3- or -F4-) refer to **Troubleshooting Guide**.
   - Multi-signal modules indicate current status from dry-contact switches. Unused signals can be disabled. Refer to **Set-Up Procedure**.

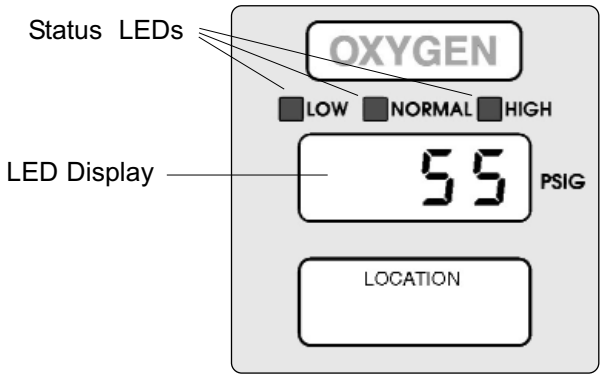


Figure 41: Digital Display Module

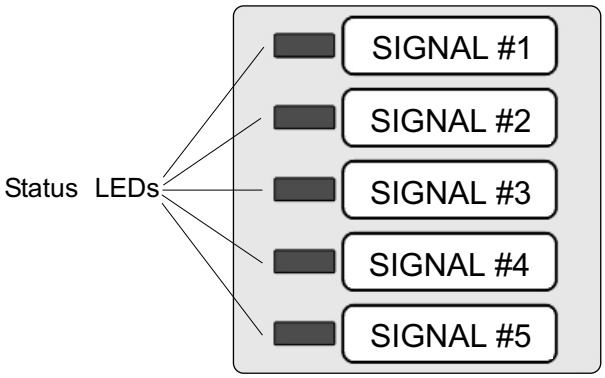


Figure 42: Multi-signal Module

Combo Alarm Panel

1. Turn on electrical power to alarm panel.
2. Make following observations:
   - POWER ON light illuminates on front of alarm panel.
   - Boot message is shown on vacuum fluorescent display.

     Booting...

     BeaconMedaes
     TotalAlert 2 System

     Version: [VERSION]
     SN 12345

     Browse at: http://
     TA2_12345

   - Alarm modules warm-up for ten seconds. During warm-up, no audible or visual alarms activated. After warm-up, audible and visual alarms are initiated for any active alarm.
3. Press MUTE button to silence audible alarm.
4. Pressurize piping system (medical gas and vacuum).
5. Make following observations:
   - Digital display modules display actual pipeline pressures or vacuum levels.
   - If digital display module pipeline pressures and vacuum levels are within pre-set limits, NORMAL indicator is illuminated.
   - If digital display module pipeline pressures and vacuum levels are outside pre-set limits, status indicators show HIGH or LOW.
   - If a fault code is displayed (-F1-, -F2-, -F3- or -F4-) refer to **Troubleshooting Guide**.
   - Multiplexer modules indicate current status from dry-contact switches.
   - Connected, but unprogrammed signals are shown on the vacuum fluorescent display.

     Unassigned
     Input [INPUT NUMBER]

Set-Up Procedures

Annunciator Module

Setup Using Front Panel Controls (Master and combo alarm panels)

Many parameters may be set using front panel controls, but some parameters must be set up using web pages.

NOTE:
Before setting up signals, fill out Master Alarm Signal Input Data table on page 138.

1. Press SETUP button on back of annunciator module to enter setup mode.

```
****    Device   ****
****    Setup    ****
```

```
Press 'TEST' for
the next item
```

```
Press ▲ or ▼ to
change the value
```

2. N2 Address

```
N2 Address
[VALUE]
```

This parameter is the Johnson Controls Metasys® N2 Address.

Possible values are:
1 - 255 (Factory default: 1)

3. Clear Network

```
Clear network
[YES/NO]
```

Answering 'Yes' will clear and rebuild the medical gas network.

4. Reset Users

```
Reset users
[YES/NO]
```

Answering Yes will clear all user ids and reset User 1 name and password to factory defaults:
Username: new
Password: new

5. Input gas type

```
Input XXX gas type
[GAS TYPE]
```

Sets the gas type for signal XXX.

Possible GAS TYPES are:
Oxygen
Nitrous Oxide
Medical Air
Vacuum
Nitrogen
Lab Air
Lab Vacuum
Argon
Instrument Air
WAGD
Carbon Dioxide
CO2-O2
O2-CO2
He-O2
O2-He
Helium
Custom
Unused
Dental Air

If gas type is set to 'Unused', step 5 is repeated for the next input number.

6. Input Message

```
Input XXX message
[Message]
```

Sets the alarm message for signal XXX.
There are several pre-programmed messages or a custom message can be selected. A custom message must be entered using web page setup.

Possible values depend on gas type selected in previous step (See Table 1).

7. Input lights LED

```
Input XXX lights
LED [LED Number]
```

Assigns LED to signal XXX.
Possible values are 1 - 10 for master and large combo alarms, and 1 - 5 for small combo alarms.

Annunciator Module (Cont.)

Signal	Oxygen	Nitrous Oxide	Medical Air	Vacuum	Nitrogen	Laboratory Air	Laboratory Vacuum	Argon	Instrument Air	WAGD	Carbon Dioxide	CO2-O2	O2-CO2	He-O2	O2-He	Helium	Custom Gas Type	Dental Air
Liquid Level Low	X	X			X			X									X	
High Line Pressure	X	X	X		X	X		X	X		X	X	X	X	X	X	X	X
Low Line Pressure	X	X	X		X	X		X	X		X	X	X	X	X	X	X	X
Reserve Pressure Low	X	X	X		X	X		X	X		X	X	X	X	X	X	X	X
Main Supply Lvl. Low	X	X			X			X			X	X	X	X	X	X	X	
2nd Supply in Use	X	X	X		X	X		X	X		X	X	X	X	X	X	X	X
Resrv. Supply in Use	X	X	X		X	X		X	X		X	X	X	X	X	X	X	X
Reserve Supply Low	X	X	X		X	X		X	X		X	X	X	X	X	X	X	X
System Malfunction			X	X		X	X		X	X							X	X
Thermal Shutdown			X	X		X	X		X	X							X	X
Service Required			X	X		X	X		X	X							X	X
Backup Vac Pump On				X			X			X							X	
Low Vacuum				X			X			X							X	
Low Water				X			X			X							X	
Dryer Malfunction			X			X			X								X	X
Dew Point High			X			X			X								X	X
Carbon Monoxide High			X			X			X								X	X
Change Filter			X			X			X								X	X
Receiver Water High			X			X			X								X	X
Separator Water High			X			X			X								X	X
Air Disch. Temp High			X			X			X								X	X
Backup Compressor On			X			X			X								X	X
Compressor Malfunc.			X			X			X								X	X
Cylinder Rsrv.in Use			X			X			X								X	X
Cylinder Reserve Low			X			X			X								X	X
Secondary Supply Low	X	X	X		X	X		X	X		X	X	X	X	X	X	X	X
Custom Message	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Table 1. Predefined Messages

Annunciator Module (Cont.)

Only unused LEDs and LEDs with the same gas type are available.

8. Return to step 5 for remaining inputs.
9. After setting up Input B32 the alarm panel will return to monitoring mode.
10. To return to monitoring mode without setting up every signal, press SETUP button again.

Reset Users and IP Configuration

1. While holding the SETUP button, press and release the RESET button.
2. Continue to hold the SETUP button for 5 seconds.
3. The parameters listed in Table 2 will be set to factory defaults.

Reset Factory Defaults

⚠CAUTION:
This procedure will revert annunciator module settings to factory defaults. There is no way to recover previously programmed settings after resetting factory defaults.

1. While holding the SETUP button, press and release the RESET button.
2. Continue to hold the SETUP button for 10 seconds.
3. The parameters listed in Tables 2 and 3 will be set to factory defaults.

Setting	Factory default
User 1 Name	new
User 2 Name	[Blank]
User 3 Name	[Blank]
User 1 Password	new
User 2 Password	[Blank]
User 3 Password	[Blank]
IP address mode	Try DHCP, then try fixed IP address
Subnet mask	255.255.255.0
Default fixed IP address	192.168.1.100
Default fixed subnet mask	255.255.255.0
Default fixed gateway	192.168.1.1
Automatic discovery	Enabled
Date/Time format	24 hours
SMTP server address	0.0.0.0 (unused)

Table 2. Reset Users and IP Config.

Setting	Factory default
Facility	[Blank]
Contact	[Blank]
Location	[Blank]
SMTP server name	[Blank]
Email address 1	[Blank]
Email address 2	[Blank]
Email address 3	[Blank]
Email address 4	[Blank]
Email address 5	[Blank]
All area locations	[Blank]
Peer network device list	Cleared (including manually entered devices)
Event log	Cleared
All signal gas types	Unused
All signal LEDs	0 (unassigned)
All signal locations	[Blank]
All signal messages	Input XXX
All custom gas types	"Custom"

Table 3. Reset Factory Defaults

Multiplexer Module

NOTE:
Normally, no setup is required for the multiplexer module. The following advanced setup procedures are available.

Setting Audible Alarm Repeat Time and Display Intensity:

Used to set time interval for reactivation of audible alarm after alarm MUTE button has been pressed.

1. Loosen two screws on front of alarm panel. Hinge open front cover.
2. Locate SETUP button on multiplexer module circuit board (Figure 43).
3. Press and release SETUP button. Audible alarm will chirp and multiplexer module front panel LED indicators will show current audible alarm repeat time as shown below:

Indicator Illuminated	Repeat Time
None	OFF
LED 1 - red	1 Min.
LED 2 - red	5 Min.
LED 3 - red	15 Min.
LED 4 - red	30 Min.
LED 1 - green	1 Hr.
LED 2 - green	2 Hr.
LED 3 - green	8 Hr.
LED 4 - green	12 Hr.
LED 5 - green	24 Hr.

4. Using either △ or ▽ buttons, select desired audible alarm repeat time.

NOTE:
To comply with the requirements of the City of New York Department of Buildings; Materials and Equipment Acceptance Division (M.E.A.), set audible alarm repeat time to 30 minutes.

5 Press and release TEST button on front of alarm panel. All LEDs will illuminate.

6. Select desired display brightness by pressing either △ or ▽ buttons. Each push will increase or decrease brightness of display. Audible alarm will chirp one time with each button press and two times when limit is reached.
7. Press and release TEST button to save changes. LEDs will sweep from top to bottom to indicate end of set-up sequence.
8. Multiplexer module will return to monitoring mode.

Multiplexer Module Board

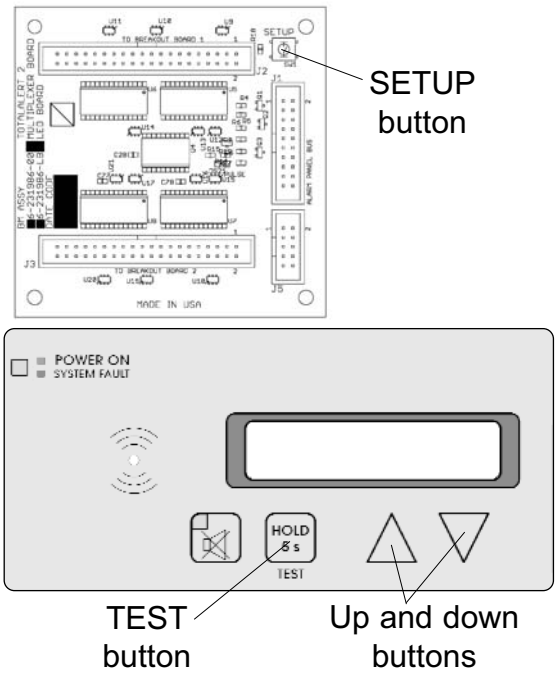


Figure 43: Multiplexer Programming Buttons

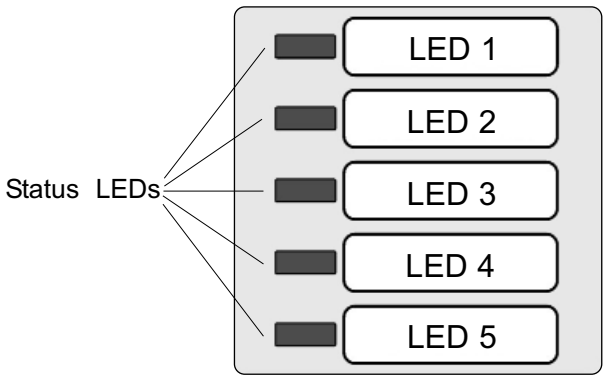


Figure 44: Multiplexer Module LEDs

Multiplexer Module (Cont.)

⚠CAUTION:
Communication parameters are factory set and should not be changed. These instructions are provided for programming replacement modules.

Setting Communication Parameters:

Address range is 0 to 255. Factory default setting is 8.

Network address is shown as a binary number on specific red and green front panel LEDs. A numeric value is assigned to each LED (Figure 45).

For example, if LEDs for bits 0 and 2 were illuminated, network address would be 5 (1 + 4 = 5).

1. Press and HOLD set-up button. Audible alarm will chirp when set-up button is first pushed and again two seconds later. Release button after second audible alarm chirp.
2. Multiplexer module front panel LEDs will show network address. If no LEDs are illuminated, address is 0.
3. Using either △ or ▽ buttons, select desired network address between 0 and 255.
4. Press and release TEST button to save changes. LEDs will sweep from top to bottom to indicate end of set-up sequence.
5. Multiplexer module will return to monitoring mode.

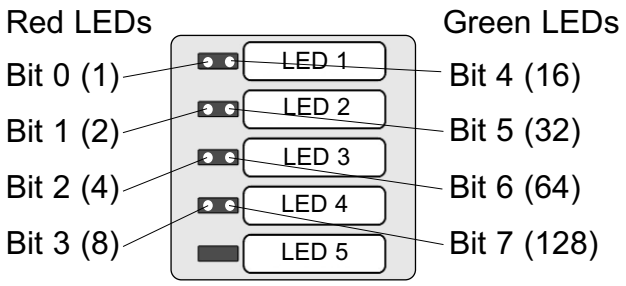


Figure 45: Binary data represented by LEDs

Digital Display Module

Digital display modules are shipped from the factory with the following settings:

Gas/Vacuum Service	Alarm Set Point	
	Low	High
Pressure (50 psig)	40 psig	60 psig
Pressure (100 psig)	80 psig	120 psig
Nitrogen, Instr. Air	140 psig	190 psig
Vacuum/WAGD	12 in Hg.	none

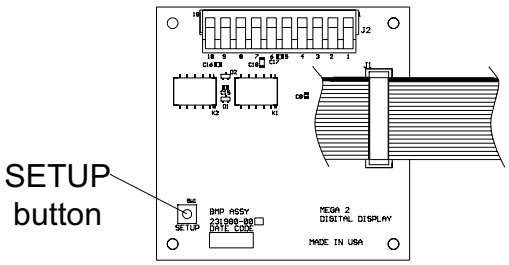
Changing units and alarm set points:

1. Loosen two screws on front of alarm panel. Hinge open alarm panel's front cover.
2. Locate SETUP button on circuit board of digital display module to be adjusted (Figure 46).
3. Press and release SETUP button. Audible alarm will chirp and **SEtI** will be displayed.
4. Press and release TEST button on front of alarm panel. Current unit of measure will be displayed. Select desired unit of measure by pressing either △ or ▽ buttons. Available units of measure are:

   H PA (kPa)
   PSI (psig)
   InHG (in Hg)
   mmHG (mm Hg)

5. Press and release TEST button. The LOW indicator will illuminate and **Lo** will be displayed. After two seconds current low alarm setting will be displayed. Select desired low alarm setting by pressing either △ or ▽ buttons. Low alarm setting ranges are:

Digital Display Module Board



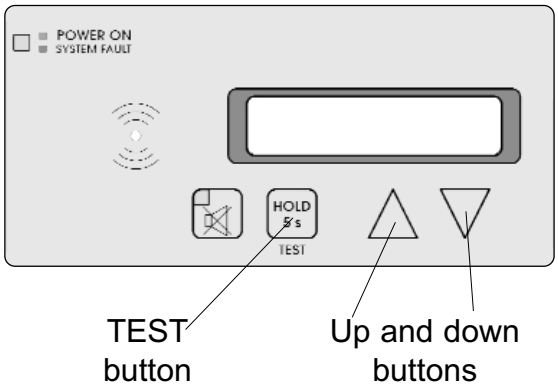


Figure 46: Digital Display Programming Buttons

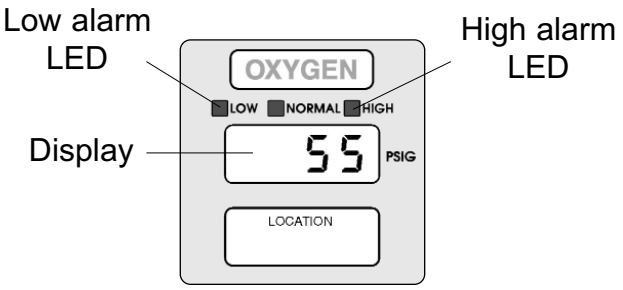


Figure 47: Digital Display Module

NOTE:
Audible alarm will chirp with each button push.

Digital Display Module (Cont.)

0 to 1380 (1725*) (kPa)
0 to 200 (250*) (psig)
0 to 32 (in Hg)
0 to 800 (mm Hg)

*N2 and instrument air only

6. Press and release TEST button. HIGH indicator will illuminate and Hi will be displayed. After two seconds current high alarm setting will be displayed. Select desired high alarm setting by pressing either △ or ▽ buttons. High alarm setting ranges are:

0 to 1380 (1725*) (kPa)
0 to 200 (250*) (psig)
0 to 32 or nonE (in Hg)
0 to 800 or nonE (mm Hg)

*N2 and instrument air only

7. Press and release TEST button to save changes. donE will be displayed for two seconds.
8. Digital display module will return to monitoring mode.

NOTE:
If module is idle for more than one minute during set-up procedure, module will chirp three times, return to monitoring mode and will default to previous settings. No changes to settings will be saved.

The set-up must be completed and the module must display donE in order for changes to be saved.

Digital Display Module-Advanced

Two additional levels of “advanced” set-up features are available.

The first advanced level, SEt2, is used to adjust communication related parameters.

⚠CAUTION:
Communication parameters are factory set and should not be changed. These instructions are provided for programming replacement modules.

Changing Communication Parameters

Addr (network address)

A network address uniquely identifies each digital display module in the alarm panel. Address range is 0 to 255.

For TotalAlert 2 alarm panels, this setting is programmed at the factory when the alarm panel is assembled and should not be changed.

bAUd (baud rate)

Used to set communication speed. User choices are 4800 or 9600.

Baud rate must be set to 9600. for TotalAlert 2 alarm panels.

ndF (network data format)

Defines data word length. Choices are 8 (bits) or 16 (bits). NDF must be set to 16 for TotalAlert 2 alarm panels.

PdF (pressure data format)

Defines data word length transmitted to a slave alarm panel. User choices are 8 (bits) or 16 (bits). Factory setting is 16.

1. Press and HOLD SETUP button for TWO seconds until SEt2 is displayed.
2. Press and release TEST button on front of alarm panel. Addr will be displayed for one second and then current network address. Select desired address by pressing △ or ▽ buttons.
   Each module must have a unique address.
3. Press and release TEST button. bAUd will be displayed for one second and then current baud rate. Select desired baud rate by pressing △ or ▽ buttons.
4. Press and release TEST button. ndF will be displayed for one second and then current network data format. Select desired data format by pressing △ or ▽ buttons.
5. Press and release TEST button. PdF will be displayed for one second and then current pressure data format. Select desired data format by pressing △ or ▽ buttons.
6. Press and release TEST button to save changes. donE will be displayed for two seconds.
7. Digital display module will return to monitoring mode.

NOTE:
If module is idle for more than one minute during set-up procedure, module will chirp three times, return to monitoring mode and will default to previous settings. No changes to settings will be saved.

Set-up must be completed and module must display donE in order for changes to be saved.

Digital Display Module-Advanced (Cont.)

The second advanced level, SEt3, is used to adjust other miscellaneous parameters as listed below:

Changing Miscellaneous Parameters

SErU (gas service identification)

Used to set digital display module's gas service identification for communication with a digital sensor.

User choices are:

O2	(oxygen)
n2O	(nitrous oxide)
Air	(medical air)
VAC	(vacuum)
n2	(nitrogen)
LAir	(lab air)
LVAC	(lab vacuum)
Ar9n	(argon)
IAir	(instrument air)
VA9d	(WAGD)
CO2	(carbon dioxide)
C-O2	(CO2/O2)
O2-C	(O2/CO2)
HEO2	(He/O2)
O2HE	(O2/He)
HE	(Helium)
nonE	(none)

oFFS (display offset)

Used to adjust digital module's display.

User choices are 0, 1, 2, -1, or -2.

Factory setting is 0.

rEPt (audible alarm repeat)

Used to set time interval for reactivation of audible alarm after alarm MUTE button has been pressed.

User choices are:

oFF

1, 5, 15, 30 (minutes), 1hr, 8hr, 12hr or 24hr (hour).

Factory setting is oFF.

When set to oFF, audible alarm will not reactivate after an active alarm has been silenced. Any new alarm will reactivate audible alarm.

Int5 (display intensity)

Used to adjust digital module's display brightness.

Factory setting is maximum intensity.

1. Press and HOLD SETUP button for FOUR seconds until SEt3 is displayed.
2. Press and release TEST button on front of alarm panel. SErU will be displayed for one second and then current gas service identification. Select desired gas service by pressing △ or ▽ buttons.
3. Press and release TEST button. oFFS will be displayed for one second and then current display offset. Select offset by pressing △ or ▽ buttons.
4. Press and release TEST button. rEPt will be displayed for one second and then current audible alarm repeat time. Select desired repeat time by pressing △ or ▽ buttons.
5. Press and release TEST button. Int5 will be displayed. Select desired display brightness by pressing △ or ▽ buttons. Each push will change brightness of display. Audible alarm will chirp one time with each push and two times when limit reached.
6. Press and release TEST button to save changes. donE will be displayed for two seconds.

Digital Display Module-Advanced (Cont.)

7. Digital display module will return to monitoring mode.

NOTE:
If module is idle for more than one minute during set-up procedure, module will chirp three times, return to monitoring mode and will default to previous settings. No changes to settings will be saved.

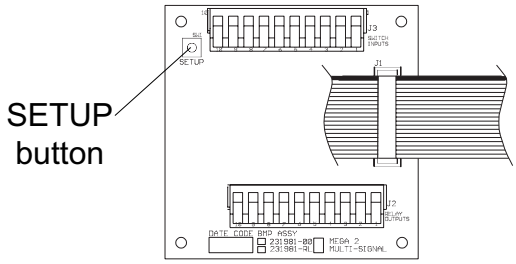
Set-up must be completed and module must display **donE** in order for changes to be saved.

Multi-Signal Module

Changing signal options:

1. Loosen two screws on front of alarm panel. Hinge open front cover.
2. Locate SETUP button on circuit board of multi-signal module to be adjusted (Figure 48).
3. Press and release SETUP button. Audible alarm will chirp and both green and red indicators for top location (Signal 1) will illuminate.
4. Using either △ or ▽ buttons, enable or disable Signal 1 location. When red indicator is illuminated, location is ENABLED. Turning off red indicator disables location. Signal locations can not be disabled if wired to a closed-contact circuit.
5. Press and release TEST button on front of alarm panel. Both green and red indicators for second location (Signal 2) will be illuminated.
6. Using either △ or ▽ buttons, enable or disable Signal 2 location. When red LED is illuminated, location is enabled. Turning off red LED disables location.
7. Repeat steps 5 and 6 above for remaining signal locations (Signal 3, 4, and 5).
8. Press and release TEST button to save changes. LEDs will sweep from top to bottom to indicate end of set-up sequence has been reached.
9. Multi-signal module will return to monitoring mode.

Multi-Signal Module Board



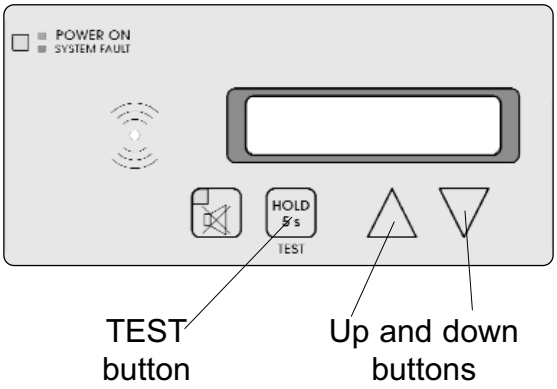


Figure 48: Digital Display Programming Buttons

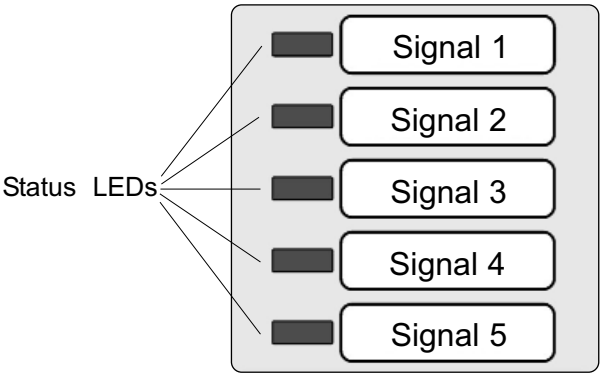


Figure 49: Multi-Signal Module LEDs

NOTE:
Audible alarm will chirp with each button push.

NOTE:
If module is idle for more than one minute during set-up procedure, module will chirp three times, return to monitor mode and will default to previous settings. No changes to settings will be saved.

Set-up must be completed in order for changes to be saved.

Multi-Signal Module-Advanced

Two additional levels of “advanced” set-up features are available. The first level is used to adjust basic communication related parameters. The second level is used to adjust alarm repeat time and display intensity.

⚠ CAUTION:
Communication parameters are factory set and should not be changed.

Setting Communication Parameters:

A network address uniquely identifies each alarm module in the alarm panel. Address range is 0 to 255.

Network address is shown as a binary number on specific red and green front panel LEDs. A numeric value is assigned to each LED (Figure 50)

For example, if LEDs for bits 1 and 2 were illuminated, network address would be 6 (2 + 4 = 6).

1. Press and HOLD set-up button. Audible alarm will chirp when set-up button is first pushed and again two seconds later. Release button after second audible alarm chirp.
2. Multi-signal alarm module front panel LEDs will show current network address. If no LEDs are illuminated, address is 0.
2. Using either △ or ▽ buttons, select desired network address between 0 and 255.
3. Press and release TEST button on front of alarm panel. Front panel LEDs (Bit 0 and Bit 4) will show current communication baud rate. If only Bit 4 LED is illuminated, baud rate is 4800. If BOTH Bit 0 and Bit 4 LEDs are illuminated, baud rate is 9600. Baud rate must be set to 9600 for TotalAlert 2 alarm panels.
4. Using either △ or ▽ buttons, select desired baud rate (4800 or 9600).
5 Press and release TEST button on front of alarm panel. Front panel LEDs (Bit 1 and Bit 5) will show current communication data format. If only Bit 5 LED is illuminated, data format is 8-bit word length (factory setting). If BOTH Bit 1 and Bit 5 LEDs are illuminated, data format is 16-bit word length.
6. Using either △ or ▽ buttons, select desired data format (8-bit or 16-bit).
7. Press and release TEST button to save changes. LEDs will sweep from top to bottom to indicate end of set-up sequence has been reached.
8. Multi-signal module will return to monitoring mode.

NOTE:
If module is idle for more than one minute during set-up procedure, module will chirp three times, return to monitoring mode and will default to previous settings. No changes to settings will be saved.

Set-up must be completed in order for changes to be saved.

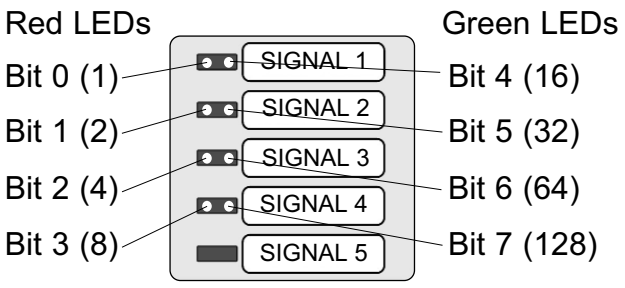


Figure 50: Binary data represented by LEDs

Multi-Signal Module-Advanced (Cont.)

Setting Audible Alarm Repeat Time and Display Intensity:

Used to set time interval for reactivation of audible alarm after alarm MUTE ⊠ button has been pressed.

1. Press and HOLD SETUP button. Audible alarm will chirp when SETUP button is first pushed, again after two seconds and a third time after four seconds. Release button after third audible alarm chirp. Multi-signal module front panel LED indicators will show current audible alarm repeat time as shown below:

Indicator Illuminated	Repeat Time
None	OFF
Signal 1 - red	1 Min.
Signal 2 - red	5 Min.
Signal 3 - red	15 Min.
Signal 4 - red	30 Min.
Signal 1 - green	1 Hr.
Signal 2 - green	2 Hr.
Signal 3 - green	8 Hr.
Signal 4 - green	12 Hr.
Signal 5 - green	24 Hr.

2. Using either △ or ▽ buttons, select desired audible alarm repeat time.

NOTE:
To comply with the requirements of the City of New York Department of Buildings; Materials and Equipment Acceptance Division (M.E.A.), set audible alarm repeat time to 30 minutes.

3 Press and release TEST button on front of alarm panel. All LED indicators will illuminate.

4. Select desired display brightness by pressing either △ or ▽ buttons. Each push will increase or decrease brightness of display. Audible alarm will chirp one time with each button push and two times when limit is reached.

5. Press and release TEST button to save changes. LEDs will sweep from top to bottom to indicate end of set-up sequence.

6. Multi-signal module will return to monitoring mode.

NOTE:
If module is idle for more than one minute during set-up procedure, module will chirp three times, return to monitoring mode and will default to previous settings. No changes to settings will be saved.

Set-up must be completed in order for changes to be saved.

Set-Up Network Interface

⚠CAUTION:
Have the facility's Information Systems personnel set up the network interface. If the set up is done improperly, equipment may not perform properly.

⚠CAUTION:
The information systems personnel should be notified before changing any of the network settings. Changing the settings could keep the equipment from working properly.

Equipment Required

- PC with an Ethernet connection
- PC with a web browser, such as Microsoft Internet Explorer
- Category 5 Ethernet cable (10BaseT) (if connecting through a switch or hub)
- Category 5 Ethernet crossover cable (if connecting PC directly to alarm)

Physical Connection

1a. Connect each device to an Ethernet switch or hub using a Cat-5 Ethernet cable (Figures 53-55).

NOTE:
It is best to use a switch instead of a hub because the devices communicate at 10 Mbits/s. A switch also improves network performance and keeps unnecessary traffic from being routed to the alarm.

1b. For direct connection to a PC without using a hub or switch, connect the device to the PC using a Cat-5 Ethernet crossover cable (Figure 52).

2. Verify the green LINK LED on the annunciator module illuminates (Figure 51).

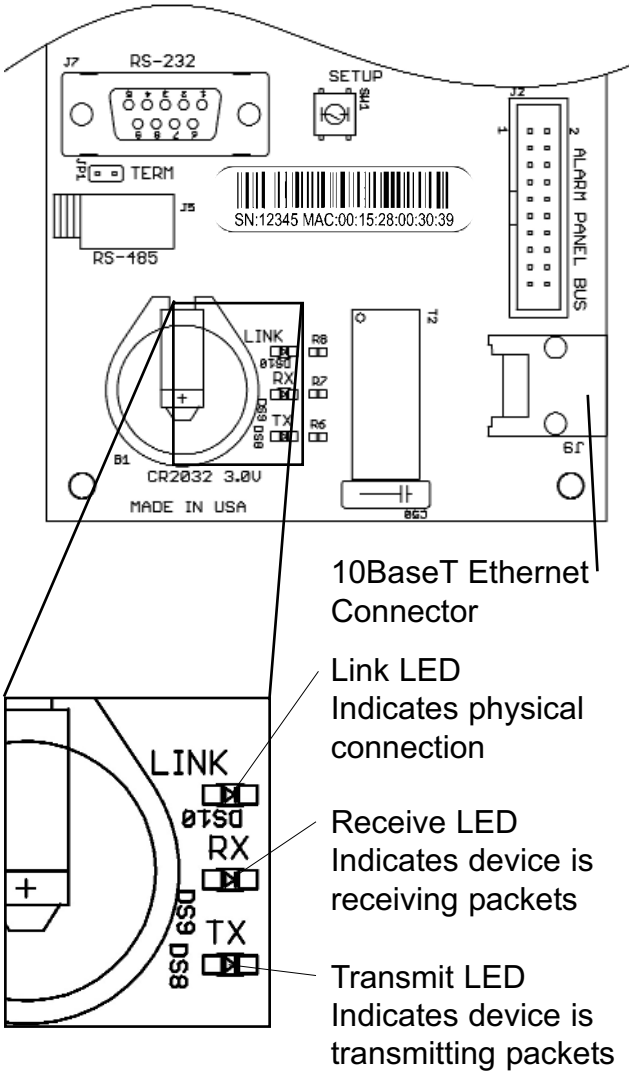


Figure 51 Ethernet status LEDs

Set-Up Network Interface (Cont.)

Addressing using DHCP (factory default)

1. Upon power-up, the device will search for a DHCP server. If a DHCP server is found, IP Address, subnet mask and gateway are automatically obtained.
2. If a DHCP server is not found, the fixed IP configuration will be used:
3. The device will check for a DHCP server every 3 minutes. If a DHCP server is found, fixed IP configuration will be discarded and the DHCP provided IP configuration will be used.

Addressing using fixed IP address

1. Upon power-up, the device will immediately begin using the fixed IP configuration.

Connecting to the alarm

1. Start a web browser such as Microsoft Internet Explorer.

2a. Enter the Device Name in the browser's address bar.

Device Name:
TA2_XXXXX where XXXXX is the device serial number.

2b. Enter the Device's IP address in the browser's address bar:

Example: http://192.168.1.100

NOTE:
To learn the IP address of a master or combo alarm, press and hold the TEST button on the front panel for 5 seconds. The IP address will be shown on the VFD.

Factory default fixed IP Configuration	
IP Address:	192.168.1.100
Gateway:	192.168.1.1
Subnet Mask:	255.255.255.0

NOTE:
Browsers can locate devices in the following three ways:

1. IP Address
   Example: http://192.168.1.100
2. Local name lookup using NetBIOS name service
   Example: http://TA2_12345

   This method works on a LAN if NetBIOS name lookup is enabled.
3. DNS name lookup
   Example:
   http://www.yourfacility.com/TA2_12345

   This method requires the device to be enrolled in the facility's DNS server.

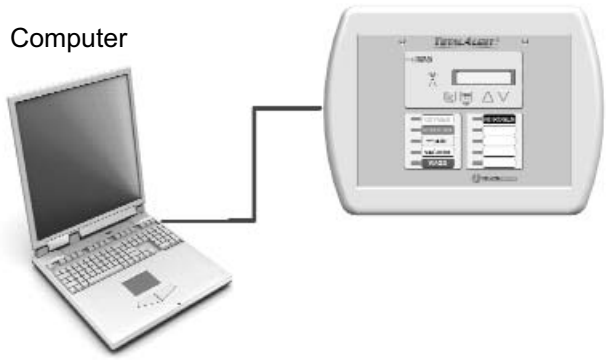


Figure 52 Direct Connection

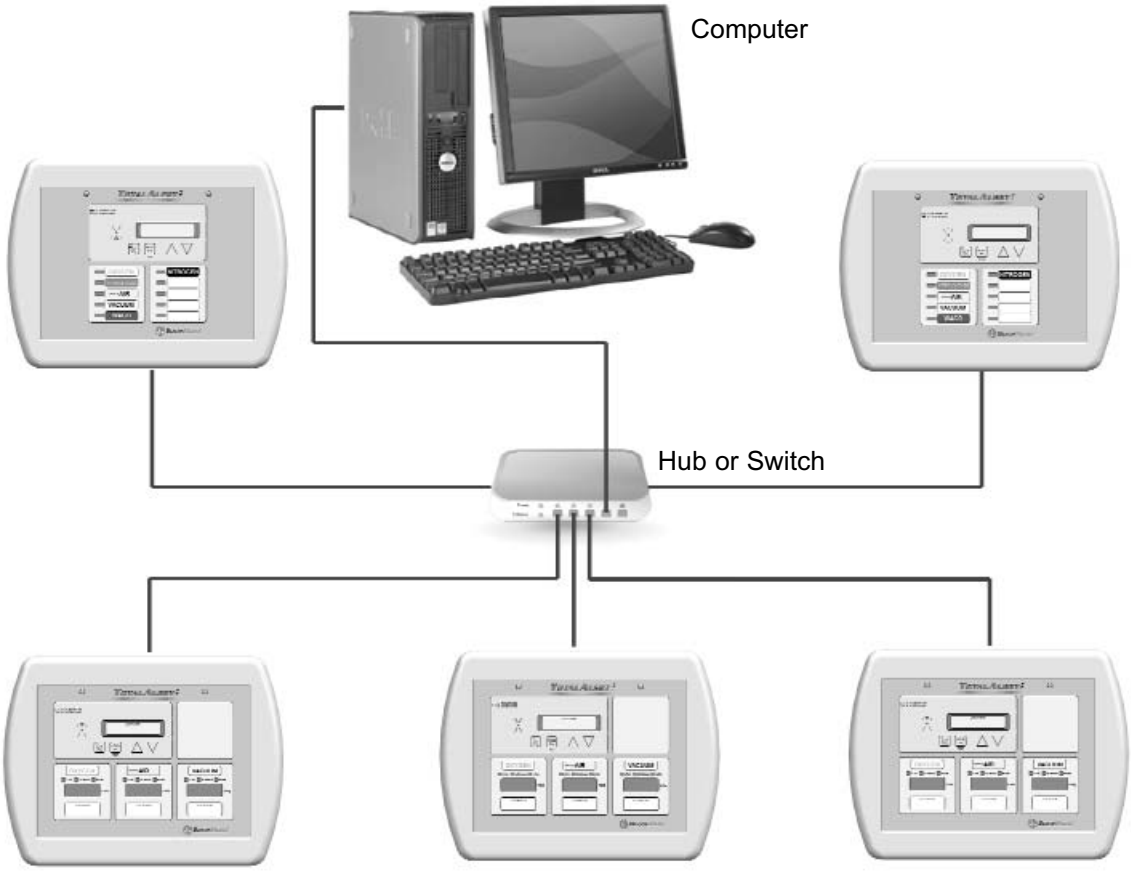


Figure 53 Simple Unmanaged Network

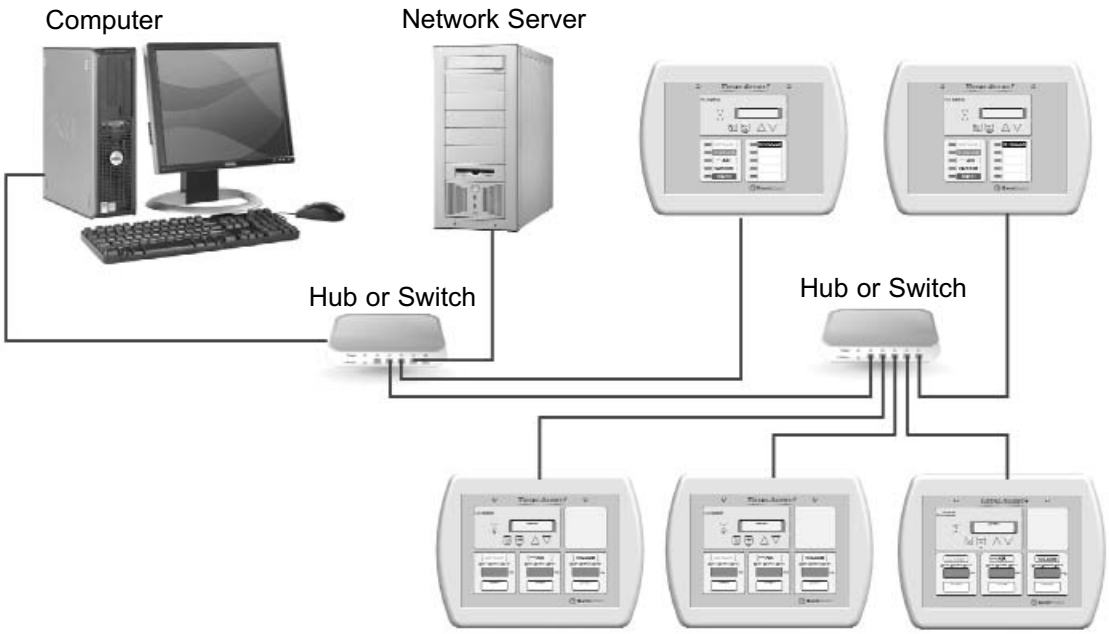


Figure 54 Simple Managed Network

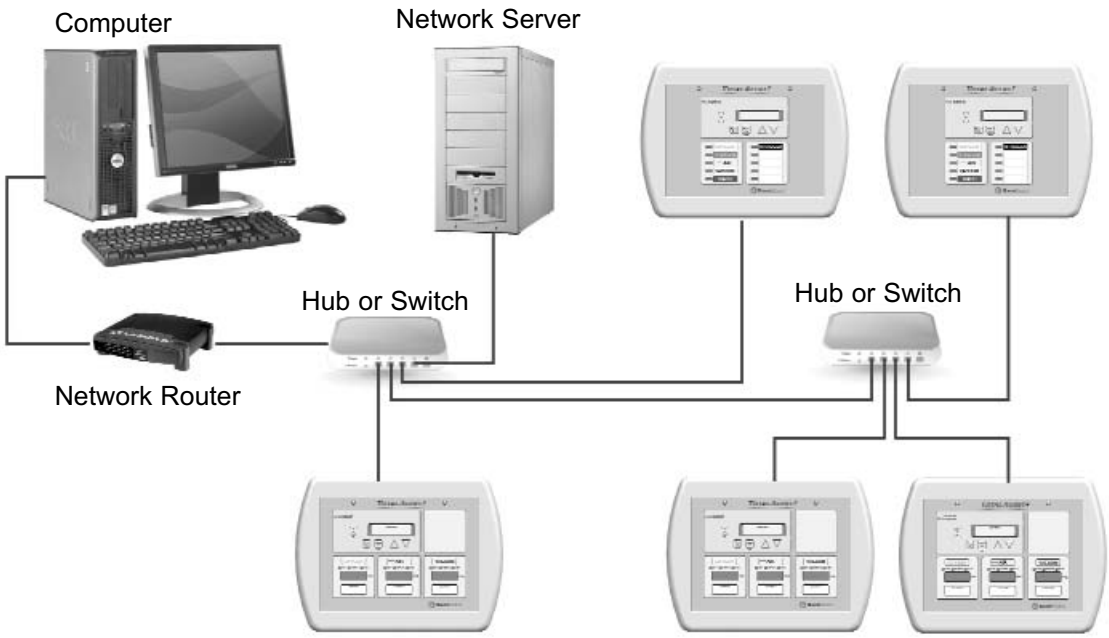


Figure 55 Complex Managed Network

Set-Up Using Web Pages

Accessing the Web Page

1. Start a web browser such as Microsoft Internet Explorer.

2a. Enter the Device Name in the browser's address bar.

Device Name:
TA2_XXXXX where XXXXX is the device serial number.

2b. Enter the Device's IP address in the browser's address bar:

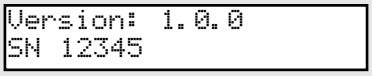
Example: http://10.10.5.10

3. After you enter the device name or IP address, the alarm's home page will be displayed (Figure 56).

NOTE:
To learn the IP address of a master or combo alarm, press and hold the TEST button on the front panel for 5 seconds. The IP address will be shown on the VFD.

NOTE:
To learn the name of a master or combo alarm, cycle the power on the alarm panel. The name will be shown on the VFD during the bootup sequence:

NOTE:
To learn the serial number of the alarm, cycle the power on the alarm panel. The serial number will be shown on the VFD during the bootup sequence:



The serial number can also be found on a label inside the alarm panel. Open the front panel and locate the bar code label on the annunciator module.

NOTE:
If you rename the alarm panel, you can still use the factory programmed device name to access the alarm home page.

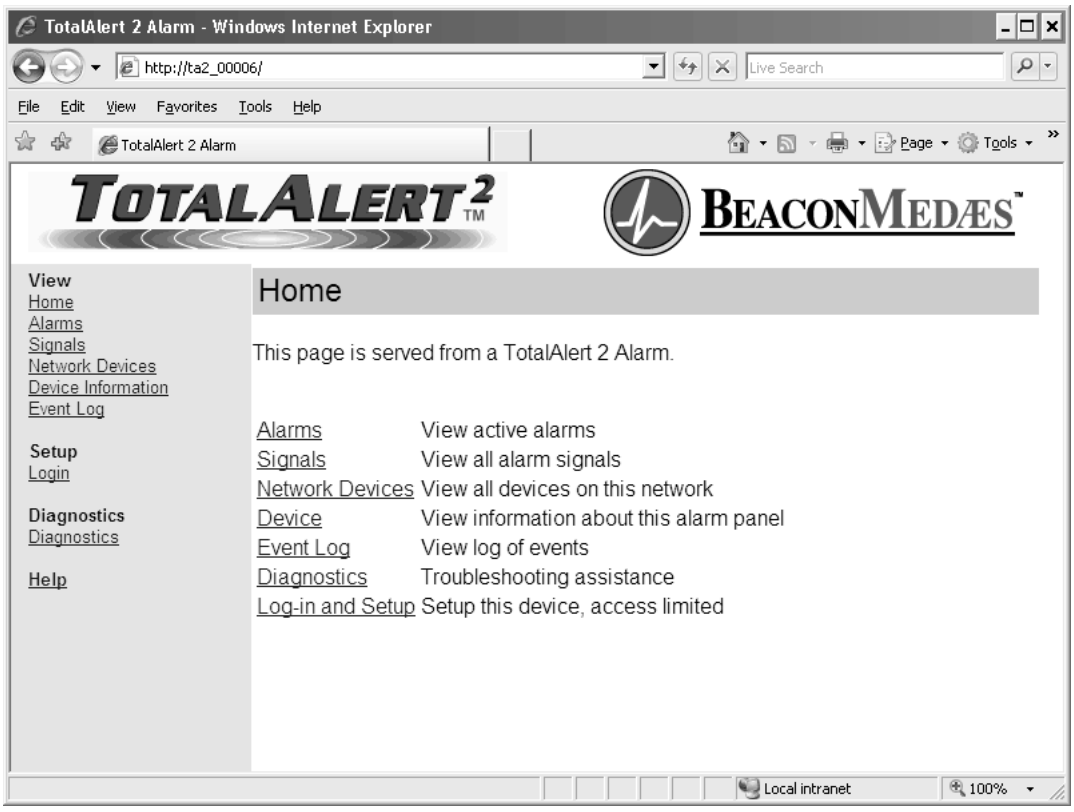


Figure 56: Typical alarm panel home page

Login in to Setup Pages

1. Click Log in and Setup or Login on the left pane.
2. The web browser will request a username and password (Figure 57).
3. The factory defaults are:

   Username: new

   Password: new
4. The left sidebar will now contain the setup links (Figure 58)

NOTE:
Logging in applies only to the computer on which the login occurs. If more than one PC is being used to access the alarm web pages, each one must be logged in individually. The computer stays logged in until the user closes the browser.

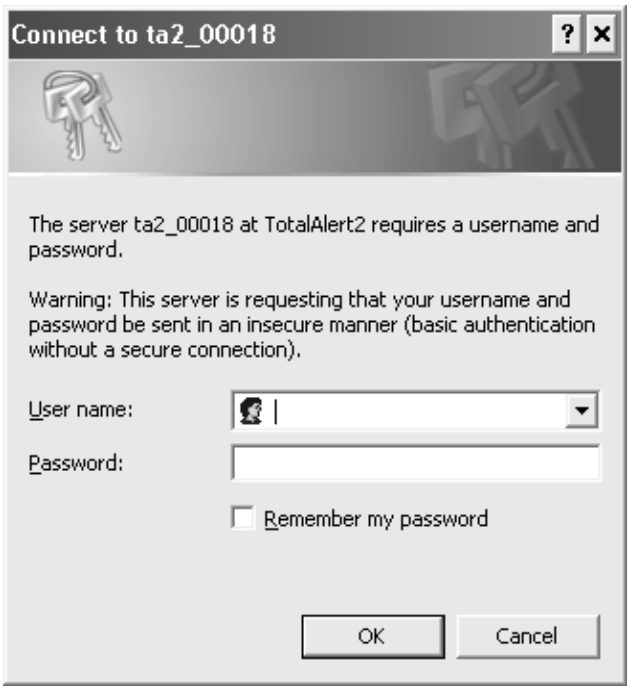


Figure 57: Login Dialog

⚠WARNING:
Change the factory programmed password after the first time you log in. Otherwise, inappropriate personnel may change settings which could endanger patient welfare. Refer to Administer Users on page 91.

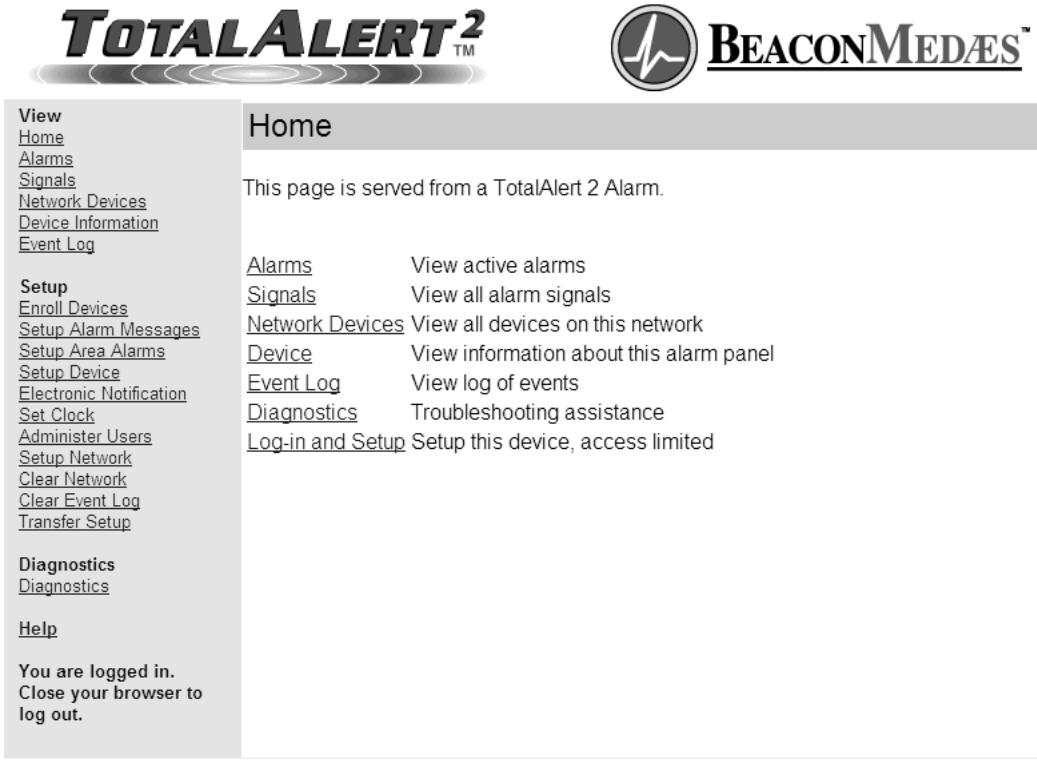
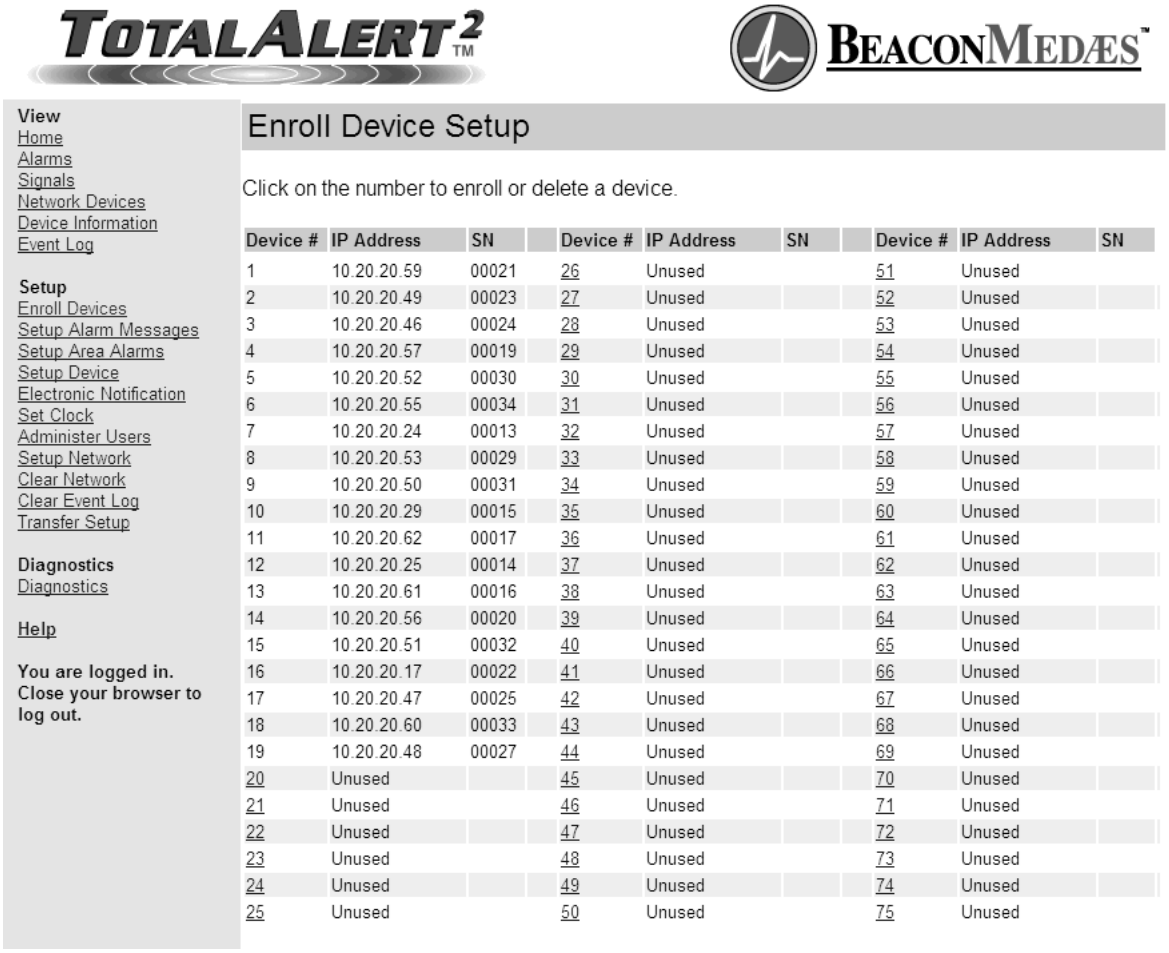


Figure 58: Logged in

Enroll Devices

Each TotalAlert 2 alarm panel keeps a list of up to 75 other devices on the medical gas network.

NOTE:
The factory default settings will cause all devices on the same subnet to be automatically discovered. Enroll Devices is only necessary if the alarm network is spread across multiple subnets.



Device #	IP Address	SN	Device #	IP Address	SN	Device #	IP Address	SN
1	10.20.20.59	00021	26	Unused		51	Unused	
2	10.20.20.49	00023	27	Unused		52	Unused	
3	10.20.20.46	00024	28	Unused		53	Unused	
4	10.20.20.57	00019	29	Unused		54	Unused	
5	10.20.20.52	00030	30	Unused		55	Unused	
6	10.20.20.55	00034	31	Unused		56	Unused	
7	10.20.20.24	00013	32	Unused		57	Unused	
8	10.20.20.53	00029	33	Unused		58	Unused	
9	10.20.20.50	00031	34	Unused		59	Unused	
10	10.20.20.29	00015	35	Unused		60	Unused	
11	10.20.20.62	00017	36	Unused		61	Unused	
12	10.20.20.25	00014	37	Unused		62	Unused	
13	10.20.20.61	00016	38	Unused		63	Unused	
14	10.20.20.56	00020	39	Unused		64	Unused	
15	10.20.20.51	00032	40	Unused		65	Unused	
16	10.20.20.17	00022	41	Unused		66	Unused	
17	10.20.20.47	00025	42	Unused		67	Unused	
18	10.20.20.60	00033	43	Unused		68	Unused	
19	10.20.20.48	00027	44	Unused		69	Unused	
20	Unused		45	Unused		70	Unused	
21	Unused		46	Unused		71	Unused	
22	Unused		47	Unused		72	Unused	
23	Unused		48	Unused		73	Unused	
24	Unused		49	Unused		74	Unused	
25	Unused		50	Unused		75	Unused	

Figure 59: Enroll Device Setup

1. Click on Enroll Devices to access the Enroll Devices Setup page (Figure 59).
2. Click on an unused Device # link to enroll a new device.
3. Enter the device IP address and Device Serial Number then click Submit (Figure 60).
4. The Enroll/Delete Device Complete page will be displayed (Figure 61).
5. Click Return to Enroll Devices to return the the Enroll Device Setup page.

NOTE:
Device # links are disabled for automatically enrolled devices.

NOTE:
Fixed IP addresses should be used for manually enrolled devices. If a manually enrolled device's IP address changed, the entry in the device list is NOT automatically updated.

Enroll Devices (Cont.)

Figure 60: Enroll/Delete Device

Figure 61: Enroll/Delete Device Complete

Setup Alarm Messages

This setup page is used to configure switched alarm signals.

1. Click Setup Alarm Messages to access the Alarm Message Setup page (Figure 62).

NOTE:
Before setting up signals, fill out Master Alarm Signal Input Data table on page 138.

NOTE:
These settings can be transferred from one TotalAlert 2 master or combo alarms to another master or combo alarm. Refer to Transfer Setup on page 98.

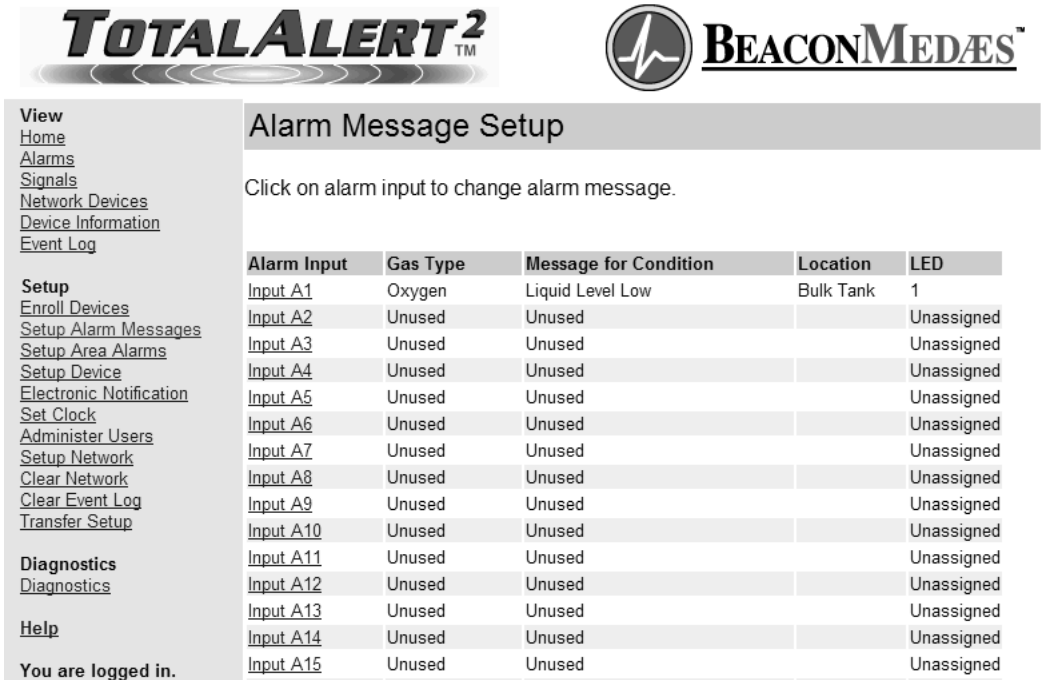


Figure 62: Alarm Message Setup

2. Click on the Alarm Input link for the signal to set up.
3. The Signal Setup - Step 1 page will be displayed (Figure 63).
4. Select the gas type from the drop-down menu then click Next.

NOTE:
If a custom gas type is required, select Custom from the Gas Type drop-down menu.

Setup Alarm Messages (Cont.)

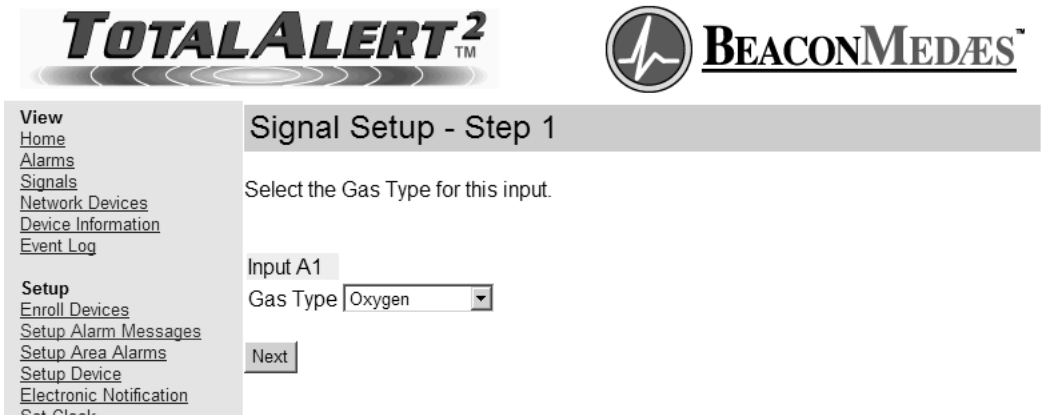


Figure 63: Signal Setup - Step 1

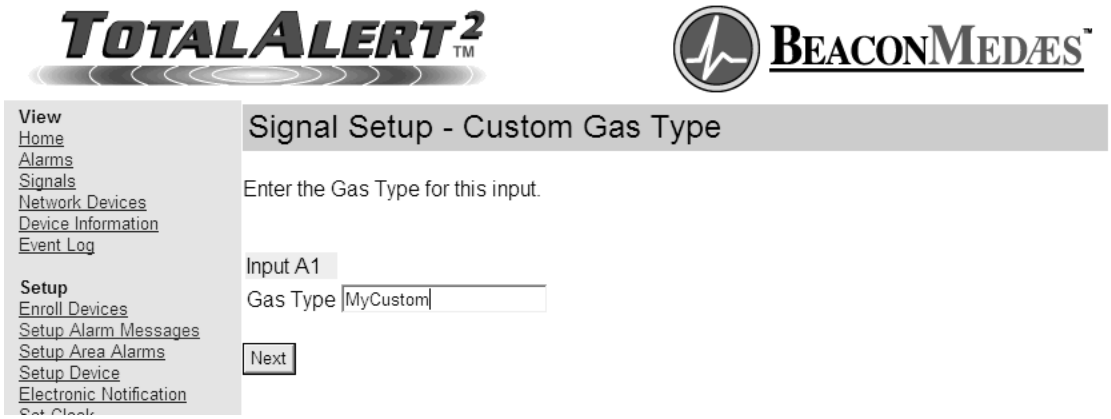


Figure 64: Signal Setup - Custom Gas Type

Figure 65: Signal Setup - Step 2

Set-Up Using Web Pages (Cont.)

Setup Alarm Messages (Cont.)

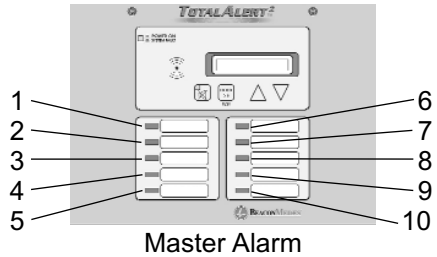
5. If Custom gas type was selected, enter the custom gas type and click next (Figure 64).
6. The Signal Setup - Step 2 page will be displayed (Figure 65).
7. Select the Message for the alarm input from the drop-down menu.

NOTE:
If a custom message is required, select Custom Message from the Message drop-down menu.

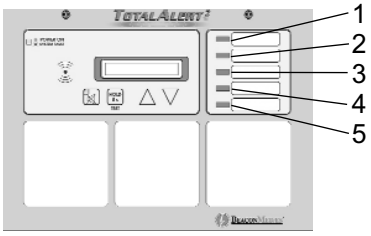
8. Select the LED number for the alarm input (Refer to Figure 66).

NOTE:
Only one type of gas can be assigned to each LED. After an LED has been assigned to a type of gas, that LED number is available only for that particular type of gas.

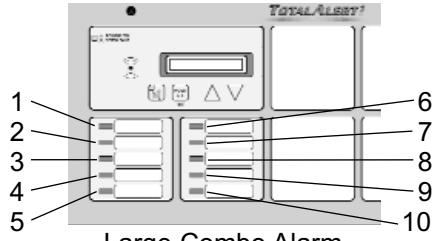
9. Enter the Location then click Next.
10. If Custom Message was selected, enter the custom message and click Next (Figure 67).
11. The Signal setup Summary page will be displayed (Figure 68).
12. To return to the Alarm Message Setup page click on the Return to Alarm Message Setup link.



Master Alarm



Small Combo Alarm



Large Combo Alarm

Figure 66: LED Numbering

Setup Alarm Messages (Cont.)

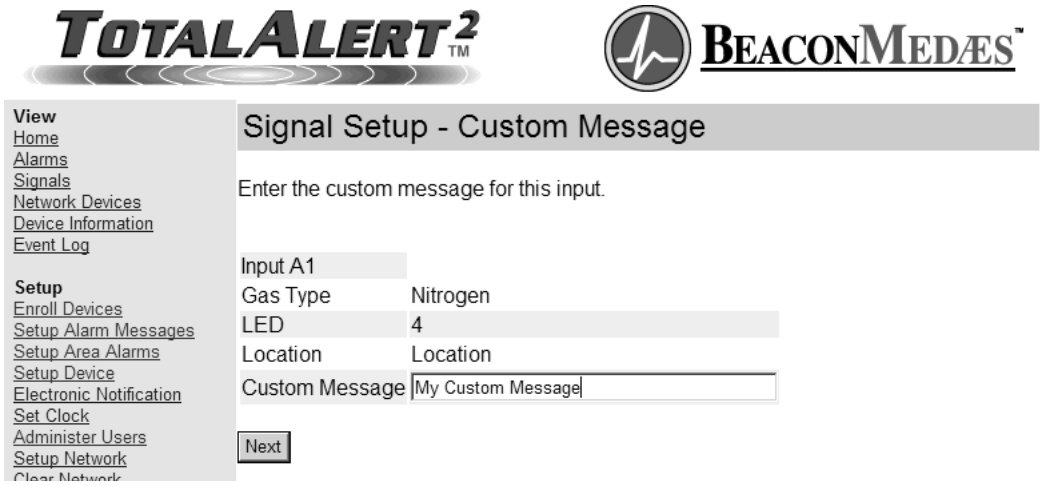


Figure 67: Signal Setup - Custom Message

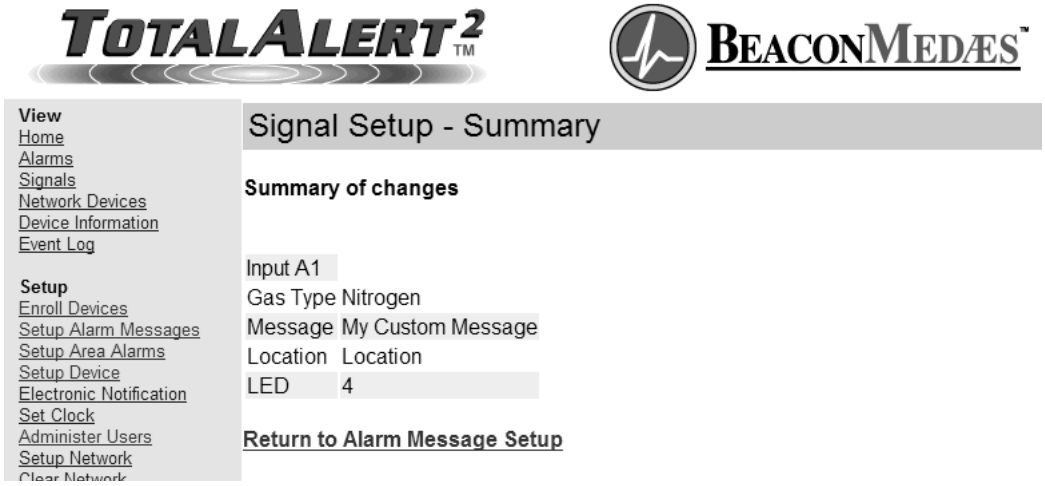


Figure 68: Signal Setup - Summary

Setup Area Alarms

This setup page is used to configure area alarm locations.

1. Click Setup Area Alarms to access the Area Alarm Setup page (Figure 69).
2. Click on the Module # link for the digital display module to set up.
3. The Area Alarm Setup - Step 1 page will be displayed (Figure 70).
4. Enter the location then click Next.
5. The Area Alarm Setup - Summary page will be displayed (Figure 71).
6. To return to the Area Alarm Setup page click on the Return to Area Alarm Setup link.

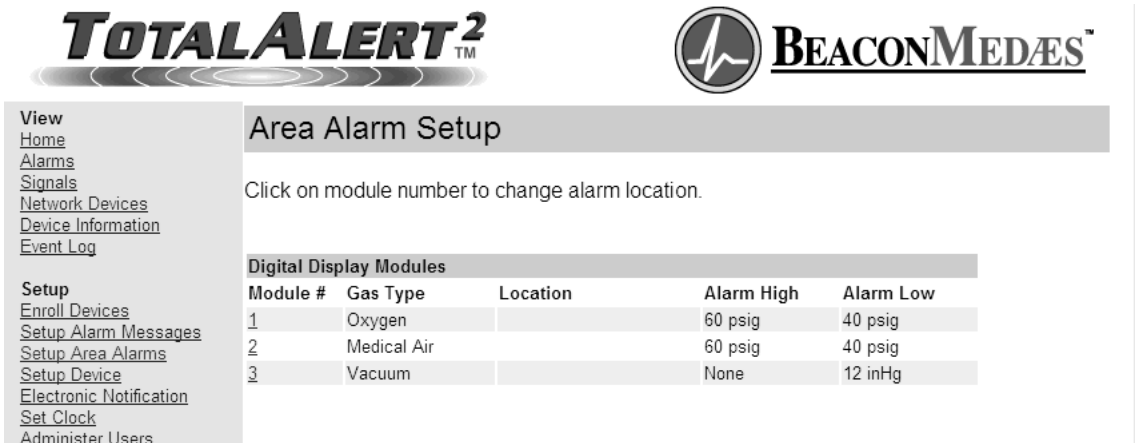


Figure 69: Area Alarm Setup

Setup Area Alarms (Cont.)

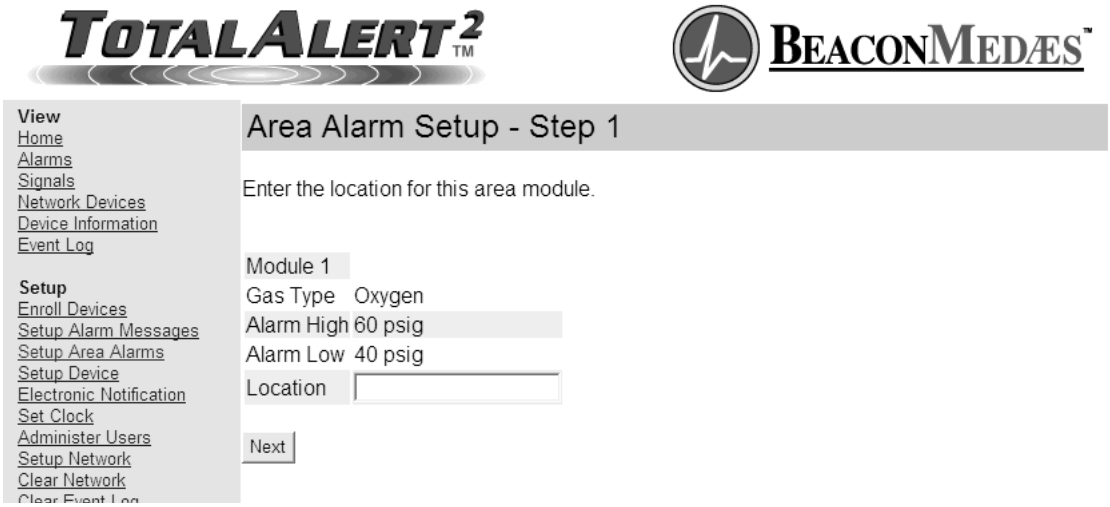


Figure 70: Area Alarm Setup - Step 1

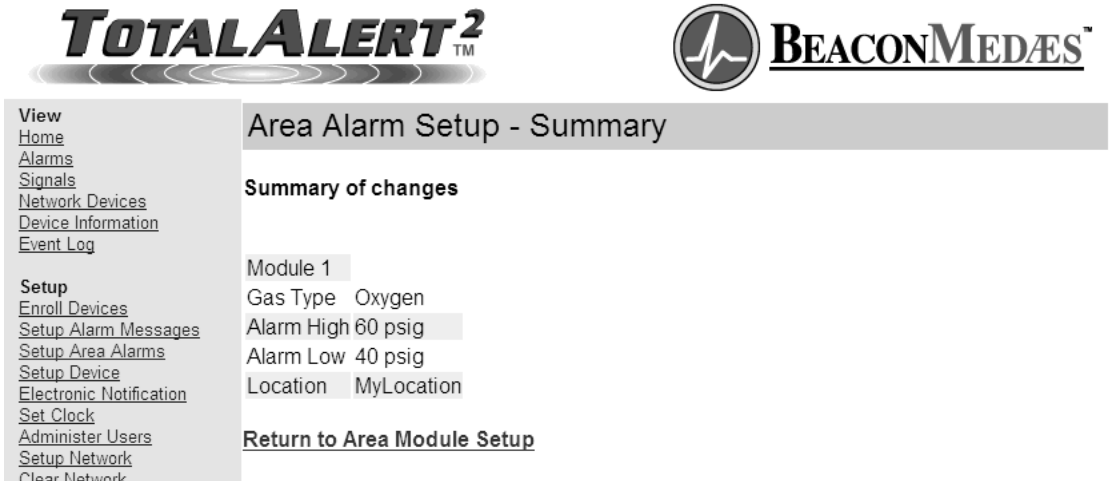


Figure 71: Area Alarm Setup - Summary

Setup Device

This setup page is used to configure alarm panel name, location, N2 address, facility description and contact information.

1. Click Setup Device to access the Setup Device page (Figure 72).
2. Enter the new device name.

   To access the web pages by using the name you have given it, NetBIOS Name Service over TCP/IP must be enabled on your computer (See Set-Up Network Interface on page 72).
   - Without the NetBIOS Name Service enabled, the device must be accessed by using its IP address.
   - To learn a master or combo alarm's IP address, press and hold the TEST button for 5s.
3. Enter the Location.
4. If the device will be connected to a Johnson Controls Metasys® building automation system, select the N2 address.
5. Enter the Facility Description.
6. Enter the Contact Information.
7. Click the Submit button.
8. The Device Setup Accepted page will be displayed (Figure 73).

NOTE:
The information in these fields identify the alarm panel that generated an alarm or an event. This information is displayed on the event log and on electronic notification messages.

Setup Device (Cont.)

Figure 72: Setup Device

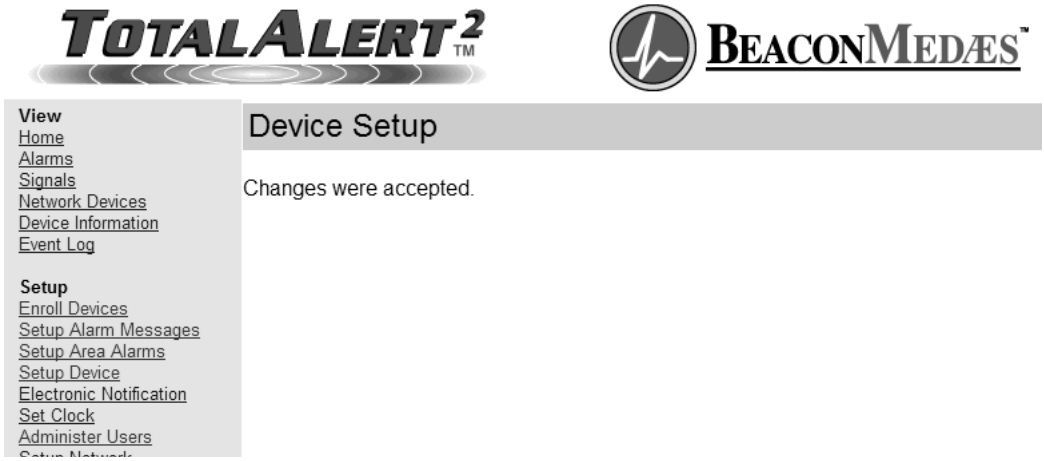


Figure 73: Device Setup Accepted

Electronic Notification

This setup page is used to configure electronic notification (email, pager, phone text message). The device acts as an SMTP client. An SMTP server is required for electronic notification to function.

NOTE:
Refer to your mobile device provider for text message email address format.

1. Click Electronic Notification to access the Electronic notification page (Figure 74).
2. Enter up to five email addresses then click Submit.
3. The Email Setup Accepted page will be displayed (Figure 75).

NOTE:
Email address 1 is also used as the email sender.

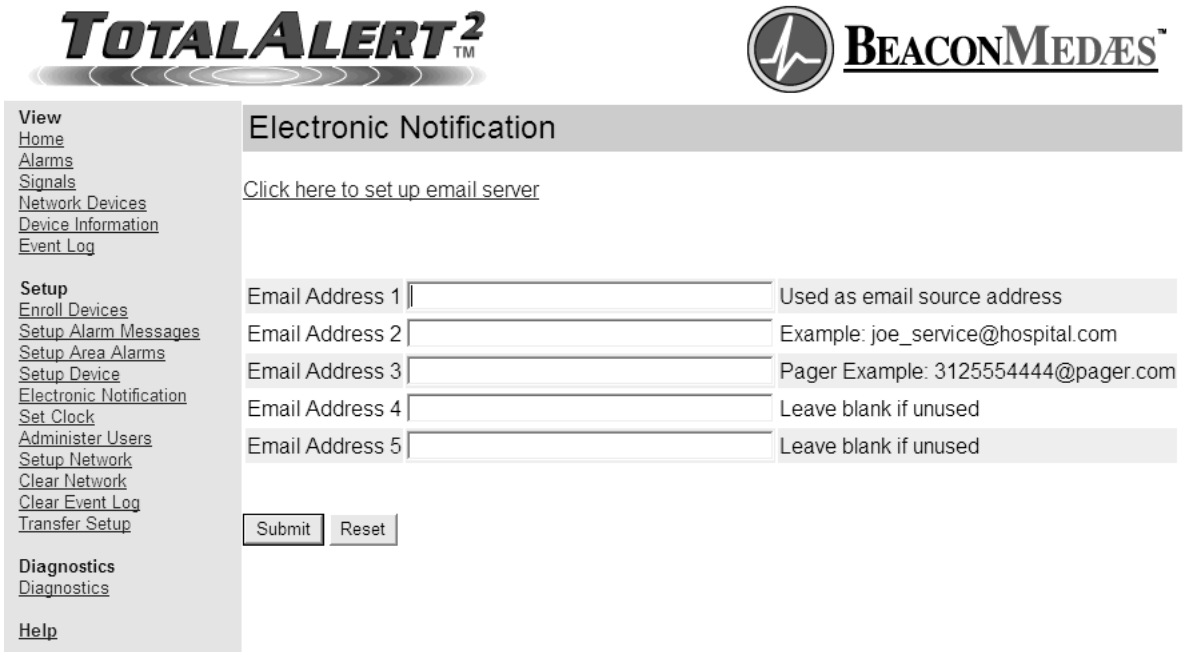


Figure 74: Electronic Notification

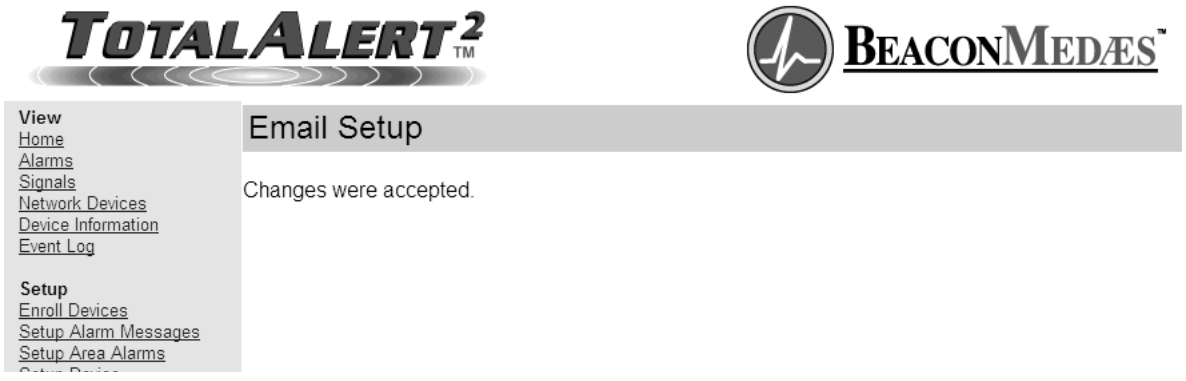


Figure 75: Email Setup Accepted

Electronic Notification - Server Setup

1. Click Electronic Notification to access the Electronic notification page (Figure 74).
2. Click on the link to set up email server (Figure 76).
3. Enter the SMTP server name or IP address then click Submit.
4. The Email Server Setup Accepted page will be displayed (Figure 77).

NOTE:
Obtain the SMTP server name or IP address from the facility's Information Systems department.

NOTE:
SMTP Server Address has priority over the SMTP Server Name. To use the SMTP Server Name, leave the SMTP Server Address blank.

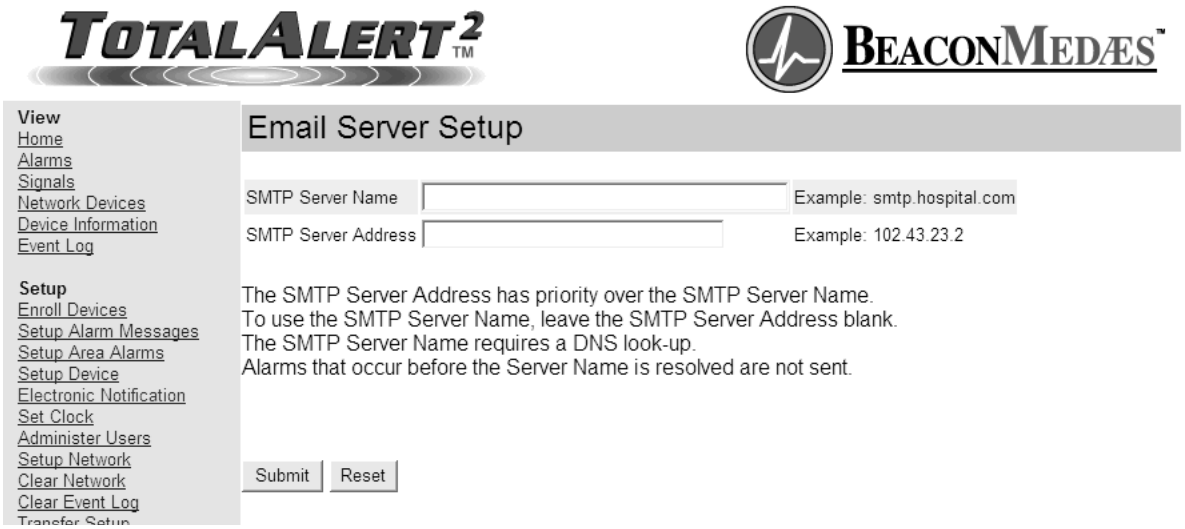


Figure 76: Email Server Setup

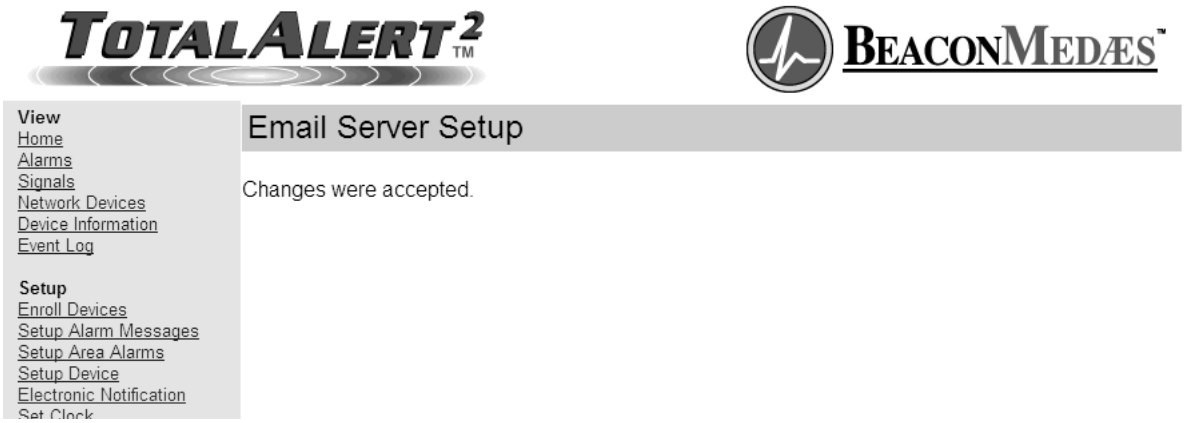


Figure 77: Email Server Setup Accepted

Set Clock

1. Click Set Clock to access the Set Clock page (Figure 78).
2. Select the current time and date from the drop-down menus.
3. Click the check box if time information should be displayed in 12 hour format.
4. Click Submit.
5. The Set Clock Accepted page will be displayed (Figure 79).

NOTE:
The clock is used to date/time stamp web pages and event log entries.

NOTE:
Clock setup uses 24 hour clock format.

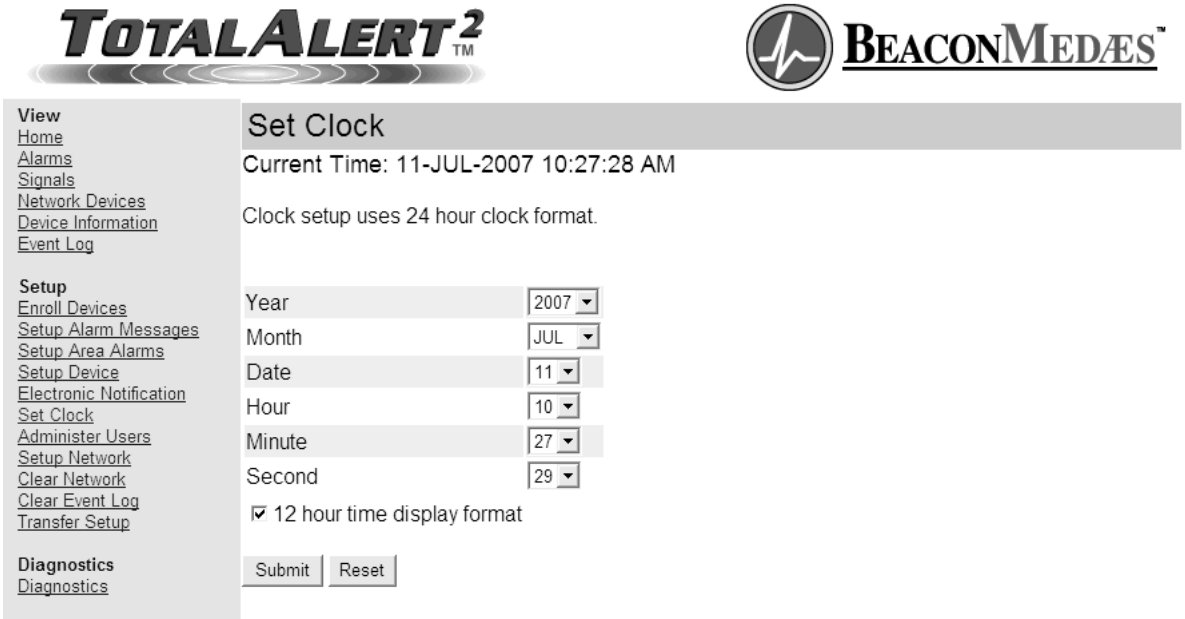


Figure 78: Set Clock

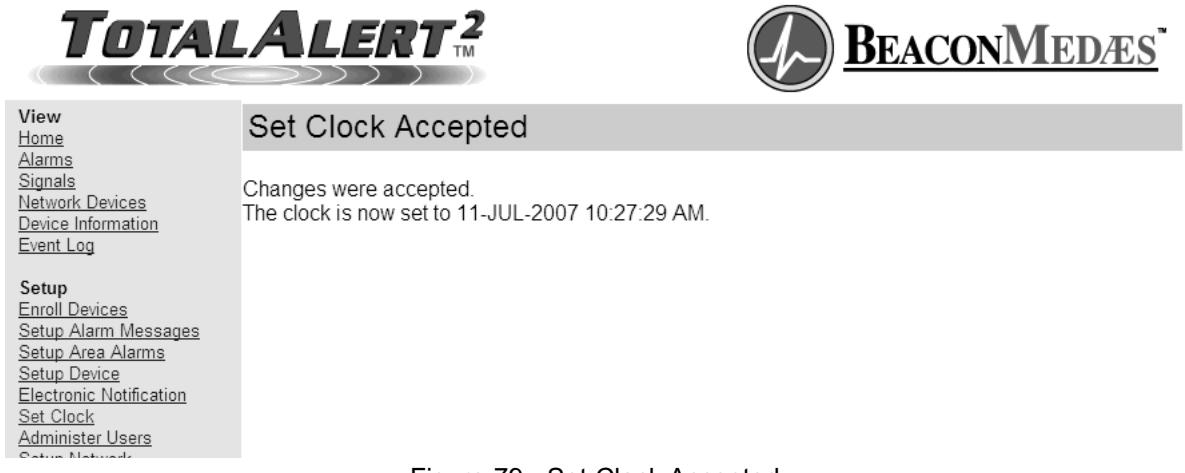


Figure 79: Set Clock Accepted

Administer Users

1. Click on Administer Users to access the User Administration page (Figure 80).
2. Enter user names and passwords then click Submit.
3. The User Setup Accepted page will be displayed (Figure 81).

⚠WARNING:
Change the factory programmed password after the first time you log in. Otherwise, inappropriate personnel may change settings which could endanger patient welfare.

NOTE:
For security reasons, only User 1 has access to change user names and passwords.

NOTE:
User names and passwords are case sensitive.

NOTE:
If you forget your username or password, they can be reset to factory defaults. For master and combo alarms, refer to Reset Users on page 59. For area alarms, refer to Reset Users and IP Configuration on page 61.

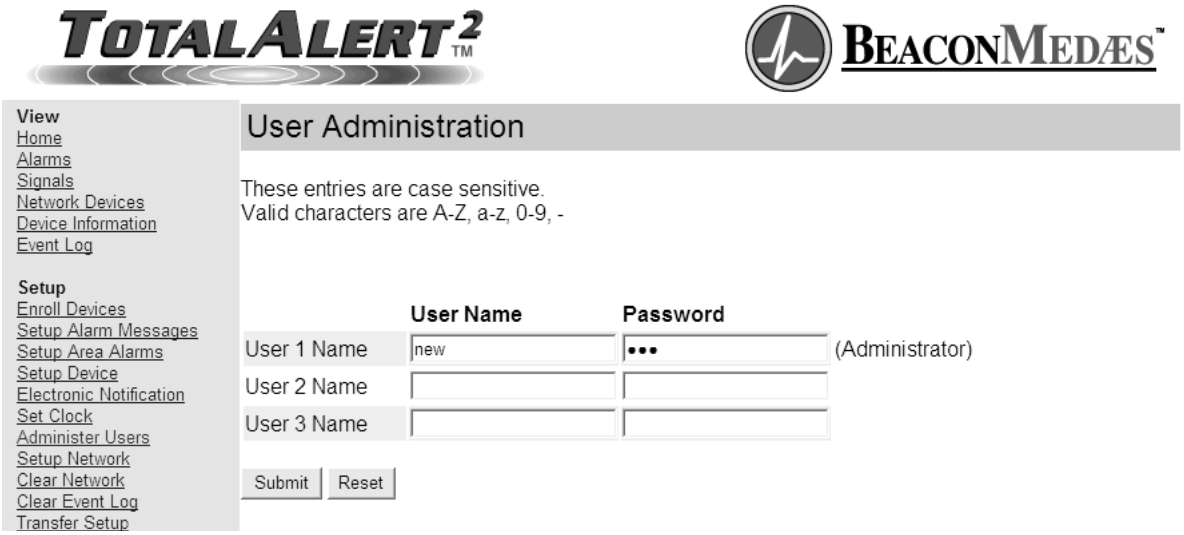


Figure 80: User Administration

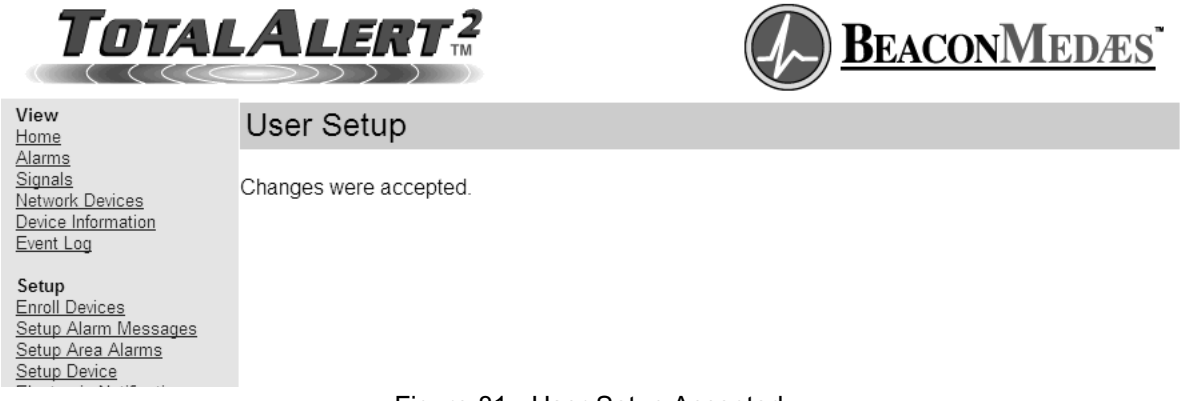


Figure 81: User Setup Accepted

Setup Network

1. Click Setup Network to access the Network Setup page (Figure 82).

   The current IP configuration is shown under Current Settings.

2. Select the IP Addressing mode.
3. If Use fixed IP address is selected, enter the Fixed IP address, Fixed subnet mask and Fixed gateway.
4. To disable automatic discovery broadcasts, uncheck the Automatic Discovery check box.
5. Click Apply to save the new settings.
6. The Network Setup Accepted page will be displayed (Figure 83).

⚠CAUTION:
The Information Systems personnel should be notified before changing any of the network settings. Changing the settings could keep the equipment from working properly.

NOTE:
To learn more about the network settings, refer to Set up Network Interface on page 72.

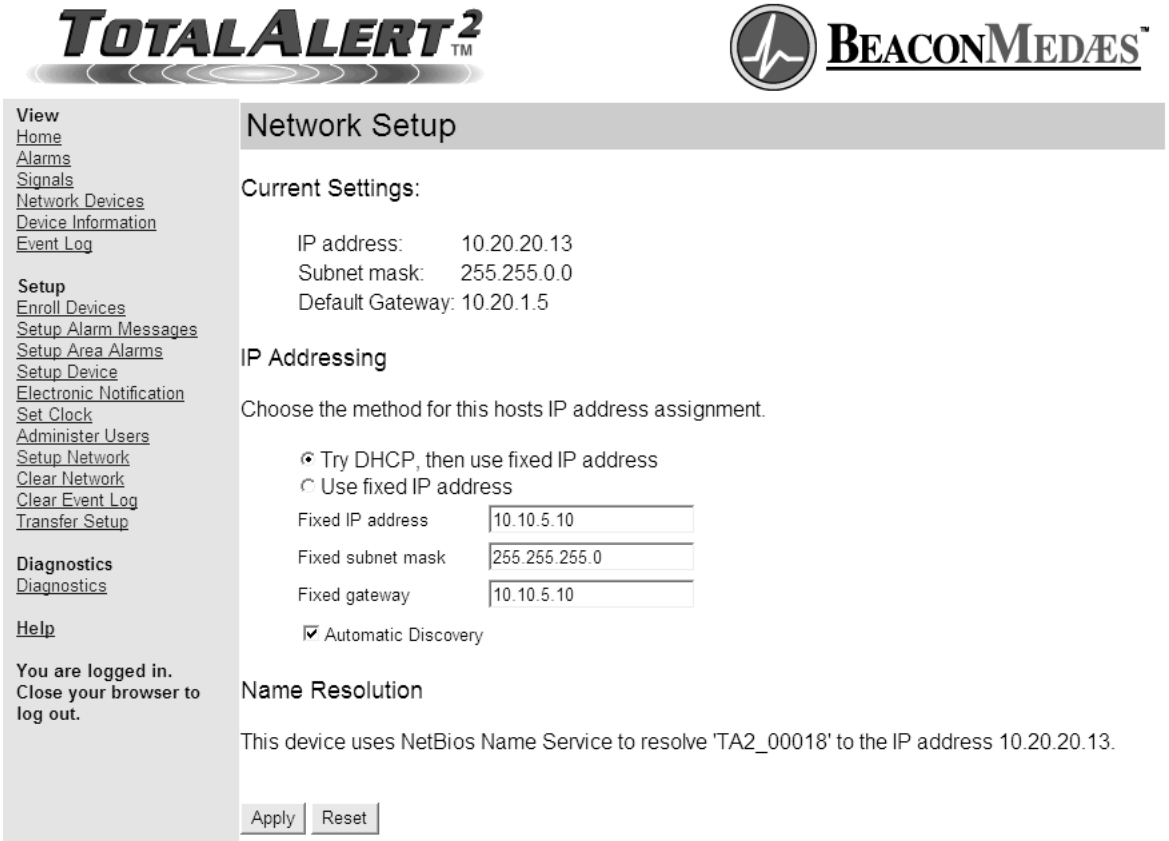


Figure 82: Network Setup

Setup Network (Cont.)

Figure 83: Network Setup Accepted

Clear Network

Clear Network clears and refreshes the device list memory for all devices on the alarm network.

1. Click Clear Network to access the Clear Network page (Figure 84).
2. Click Clear Network.
3. The confirm clear network dialog will be displayed (Figure 85).
4. Click OK to clear the network.
5. The Clear Network Accepted page will display (Figure 86)

NOTE:
Clear network only refreshes devices on the same subnet as the device that issued the clear network command.
Manually enrolled devices are not refreshed by clear network.

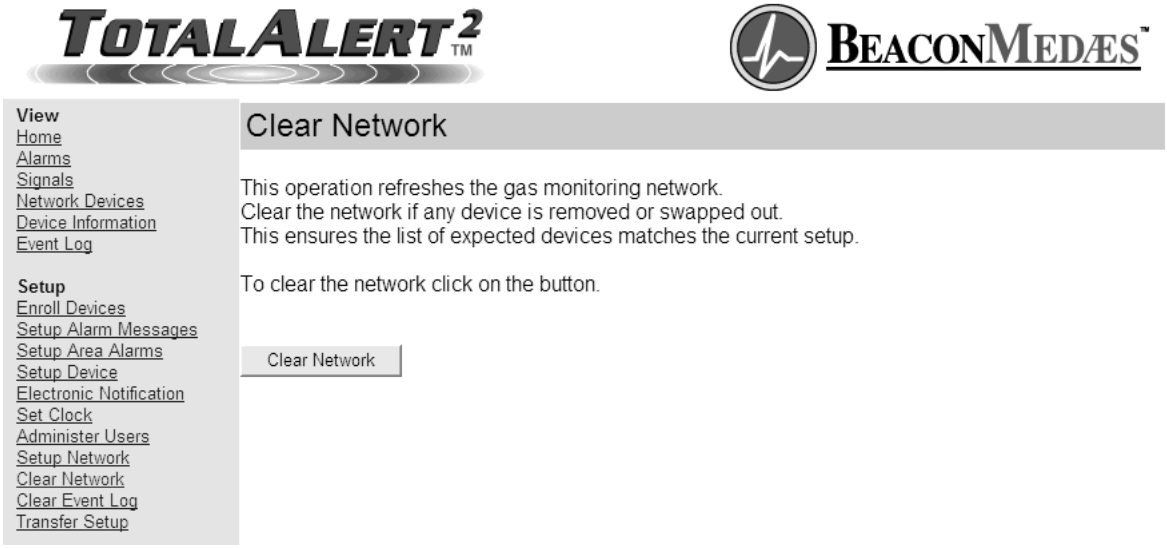


Figure 84: Clear Network

Figure 85: Confirm Clear Network

Figure 86: Clear Network Accepted

Clear Event Log

1. Click Clear Event Log to access the Clear Event Log page (Figure 87).
2. Click Clear Event Log.
3. The confirm clear event log dialog will be displayed (Figure 88).
4. Click OK to clear the event log.
5. The Event Log page will display (Figure 89)

⚠CAUTION:
Be sure to save the event log prior to clearing it. It is impossible to recover the event log after it is cleared.

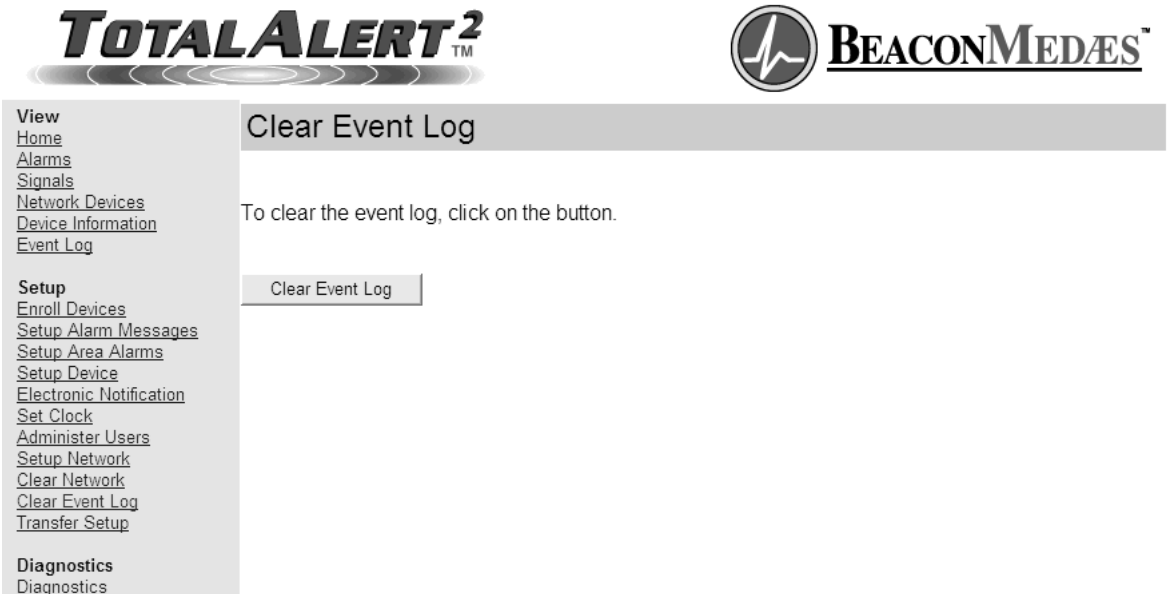


Figure 87: Clear Event Log

Figure 88: Confirm Clear Event Log

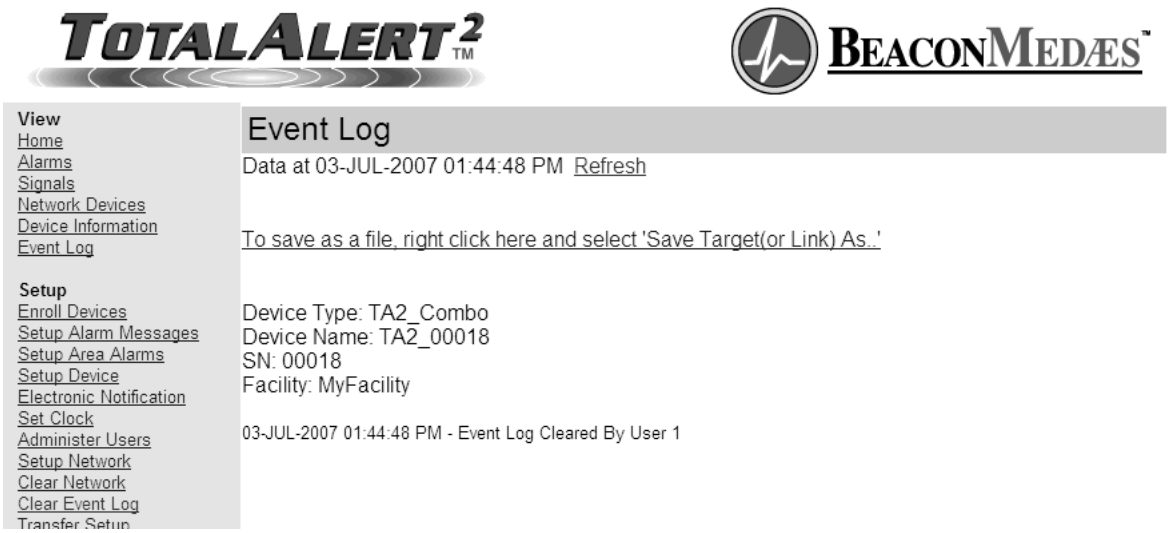


Figure 89: Event Log Cleared

Transfer Setup

1. Click Transfer Setup to access the Transfer Setup page (Figure 90).
2. A list of compatible master alarms will be displayed.
3. Click on the link for the alarm that will receive the settings.
4. Click Transfer Setup to transfer the settings (Figure 91).
5. The Transfer Setup Complete page will be displayed (Figure 92)

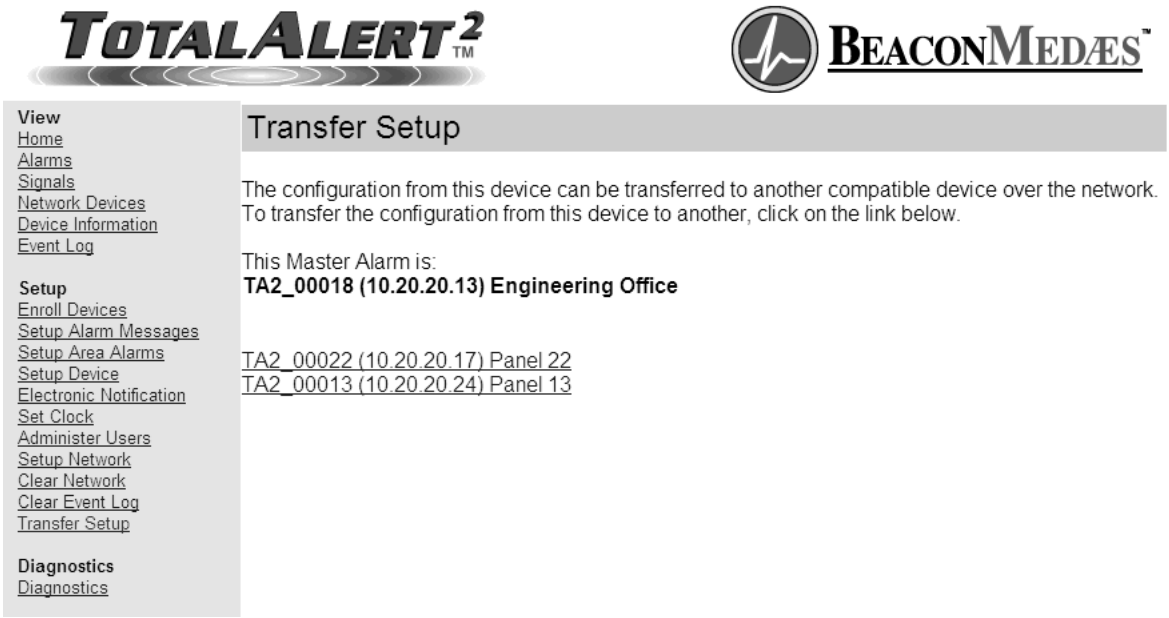


Figure 90: Transfer Setup List

Figure 91: Transfer Setup

Figure 92: Transfer Setup Complete

Monitoring Mode

Monitoring mode is the normal operating mode of the TotalAlert 2 system.

Annunciator Module

- If there are no local or remote alarm conditions, the VFD shows

```
   No Alarms
```

  The message scrolls to prevent display burn-in.

- If alarm conditions exist, the VFD shows

  Local alarm signals

```
GGGGGGGGG LLLLLLLLLL
MMMMMMMMMMMMMMMMMMMM
```

  G = signal gas type
  L = signal location
  M = alarm message

  Remote alarm signals

```
LLLLLLLLLLLLLLLLLLL
GGGGGGGGG MMMMMMMMMM
```

  G = signal gas type
  L = signal location
  M = alarm message

- Connected, but unprogrammed signals are shown as

```
Unassi9ned
Input XXX
```

  X = Signal number

- Local communications errors are shown as:

```
MMMMMMMMMMM Addr X
Offline
```

  M = module type
  X = module address

- Remote alarm communications errors are shown as:

```
Lost connection with
Device: DDDDDDDDDDD
```

  where
  D = Device name (or serial number if device name is unknown)

Multiplexer / LED Module

- If all signals assigned to an LED are normal (switch contacts closed), green indicator for gas service is illuminated.
- If an alarm occurs on any signal assigned to an LED (switch contacts open), audible alarm activates and red indicator for gas service flashes.
- When front panel alarm MUTE button is pressed, audible alarm is silenced. Alarm indicator remains illuminated, but does not flash.
- Visual indicator will remain illuminated as long as alarm condition remains.
- If audible alarm repeat time has been set, audible alarm will reactivate, and visual indicator will again flash after specified time.

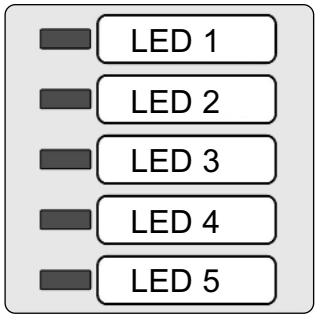


Figure 93: Multiplexer Module

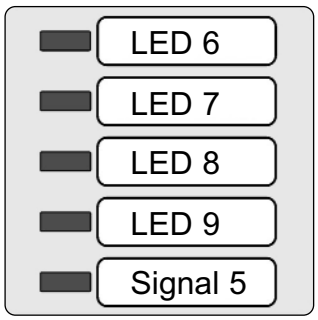


Figure 94: LED Module

Digital Display Module

Digital display modules monitor pipeline pressure or vacuum.

- The LED display indicates pipeline pressure or vacuum.
- If piping pressure or vacuum level is within high and low alarm limits, green NORMAL indicator is illuminated.
- If pressure or vacuum level drops to, or below, low alarm set-point, audible alarm activates and red LOW indicator flashes.
- If pressure or vacuum level rises to, or above, high alarm set-point, audible alarm activates and red HIGH indicator flashes.
- When front panel alarm MUTE button is pressed, audible alarm is silenced. Alarm indicator remains illuminated, but does not flash.
- Visual indicator will remain illuminated as long as alarm condition remains.
- If audible alarm repeat time has been set, audible alarm will reactivate, and visual indicator will again flash after specified time.

NOTE:
Sensor faults will be displayed as -F1-, -F2-, -F3- or -F4- error codes. Refer to troubleshooting section for details.

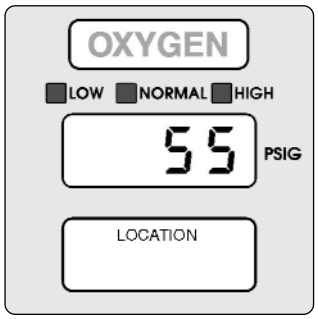


Figure 95: Digital Display Module

Multi-Signal Module

Multi-Signal modules monitor up to five dry-contact switches.

- If the signal is normal (switch contacts closed), green indicator for signal is illuminated.
- If an alarm occurs (switch contacts open), audible alarm activates and red indicator for signal flashes.
- When front panel alarm MUTE button is pressed, audible alarm is silenced. Alarm indicator remains illuminated, but does not flash.
- Visual indicator will remain illuminated as long as alarm condition remains.
- If audible alarm repeat time has been set, audible alarm will reactivate, and visual indicator will again flash after specified time.

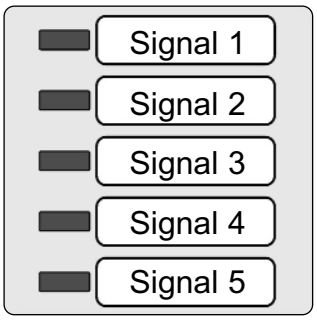


Figure 96: Multiplexer Module

Browsing Alarm Web Pages

Accessing the Web Page

1. Start a web browser such as Microsoft Internet Explorer.

2a. Enter the Device Name in the browser's address bar.

Device Name:
TA2_XXXXX where XXXXX is the device serial number.

2b. Enter the Device's IP address in the browser's address bar:

Example: http://10.10.5.10

3. After you enter the device name or IP address, the alarm's home page will be displayed (Figure 96).

NOTE:
To learn the IP address of a master or combo alarm, press and hold the TEST button on the front panel for 5 seconds. The IP address will be shown on the VFD.

NOTE:
To learn the name of a master or combo alarm, cycle the power on the alarm panel. The name will be shown on the VFD during the bootup sequence:

```
Browse at:    http://
TA2_12345
```

NOTE:
To learn the serial number of the alarm, cycle the power on the alarm panel. The serial number will be shown on the VFD during the bootup sequence:

```
Version: [VERSION]
SN 12345
```

The serial number can also be found on a label inside the alarm panel. Open the front panel and locate the bar code label on the annunciator module.

SN:12345 MAC:00:15:28:00:30:39

NOTE:
If you rename the alarm panel, you can still use the factory programmed device name to access the alarm home page.

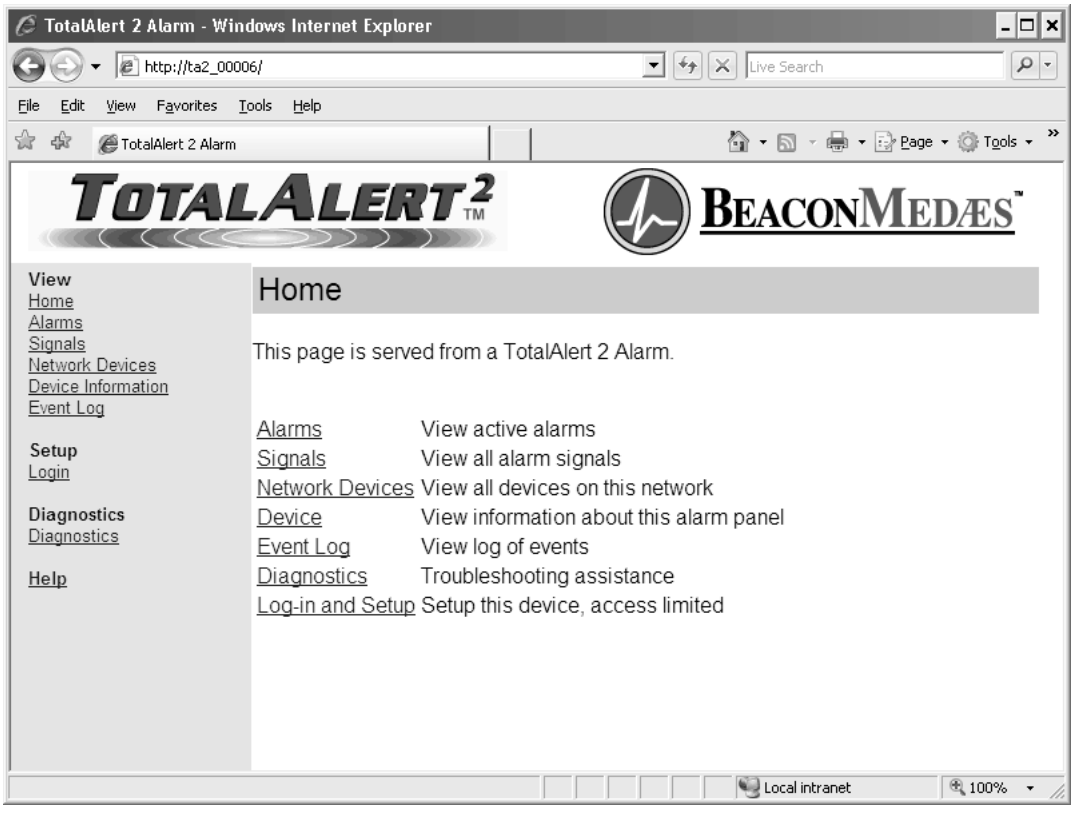


Figure 97: Typical alarm panel web page

Operation

Current Alarms

1. Click Alarms to view current alarms (Figure 98).
2. Click Refresh to view the most recent information.
3. Click on Module # link to view alarm module details.

NOTE:
The Current Alarms page provides a snapshot of the current alarm conditions. If a new alarm occurs, the page is not updated until the page is reloaded by clicking on Alarms or Refresh links.

Source Alarms
Local alarm conditions for switched alarm signals from a multiplexer or multi-signal module.

Digital Display Module Alarms
Local alarm conditions for digital display modules.

Remote Area Alarms
Remote alarm conditions for area alarms monitored by this master or combo alarm.

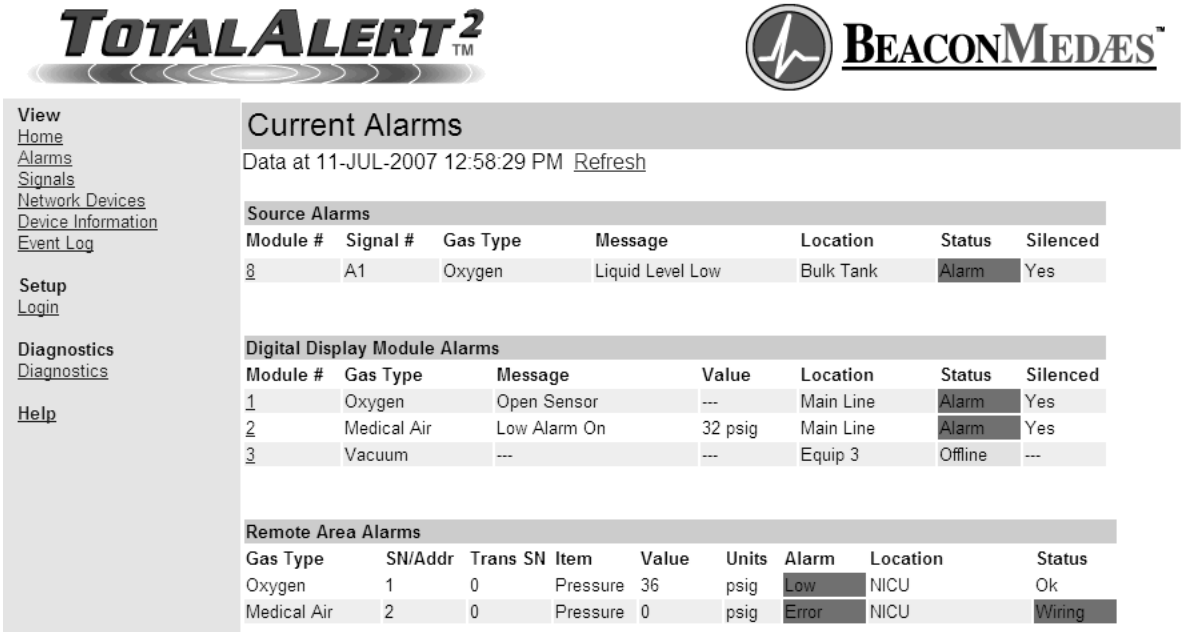


Figure 98: Current Alarms

Signals

1. Click Signals to view all local signals monitored by this alarm panel (Figure 99).
2. Click Refresh to view the most recent information.
3. Click on Module # link to view alarm module details.

NOTE:
The Alarm Signals page provides a snapshot of the current alarm conditions. If a new alarm occurs, the page is not updated until the page is reloaded by clicking on Signals or Refresh links.

Source Alarm Signals

Local alarm signals for switched alarm signals from a multiplexer or multi-signal module.

Digital Display Modules

Local alarm signals for digital display modules.

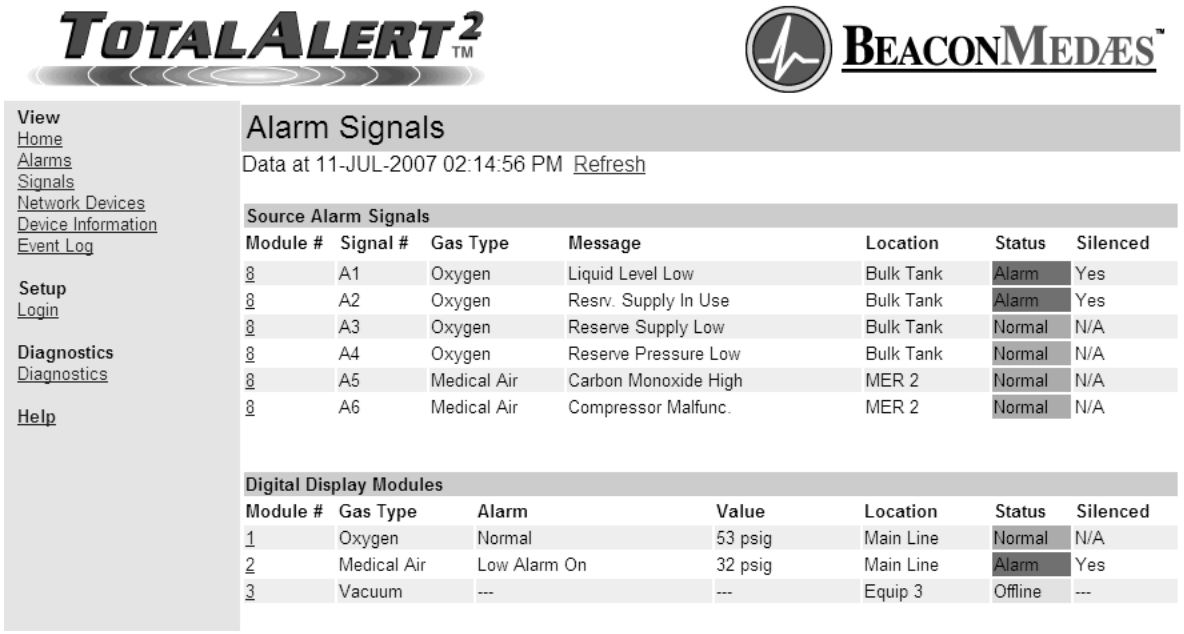


Figure 99: Signals

Network Devices

1. Click Network Devices to view the Network Devices page (Figure 100).
2. Click Refresh to view the most recent information.
3. Click the Device link to jump to the home page of the listed alarm.

NOTE:
The Network Devices page provides a snapshot of the current alarm network. If a device is added to the network the page is not updated until the page is reloaded by clicking on Network Devices or Refresh links.

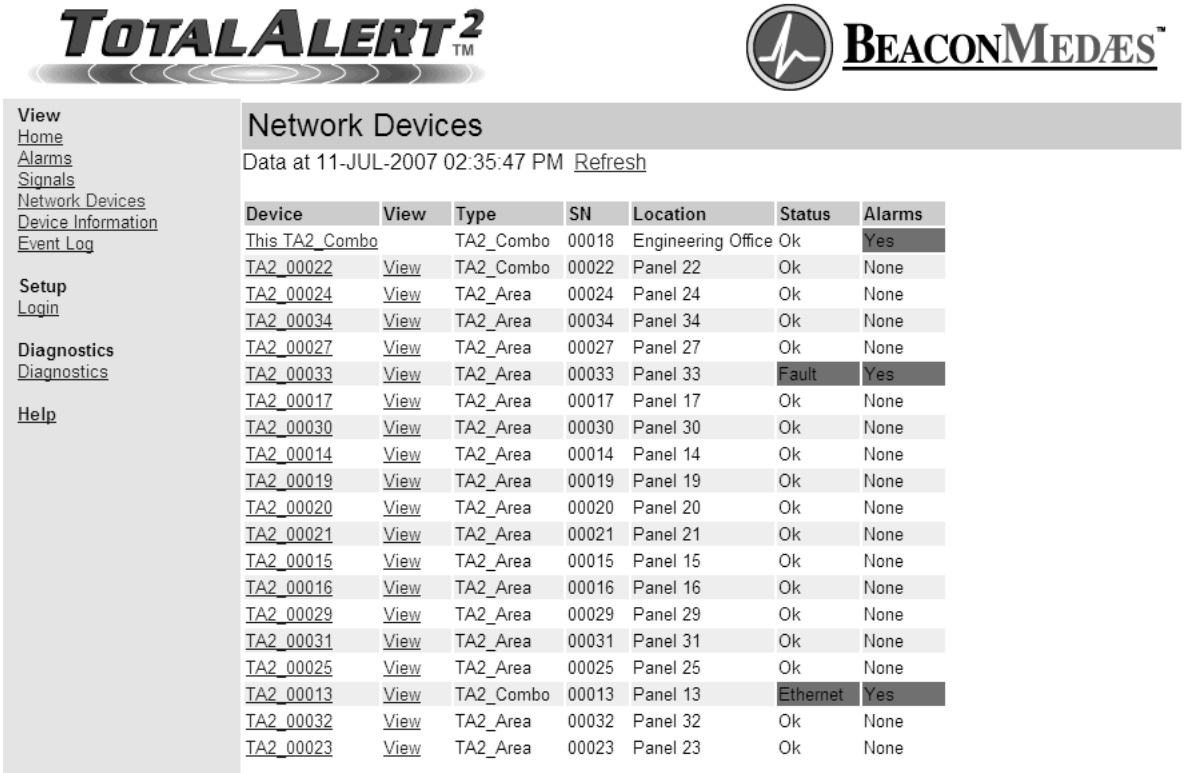


Figure 100: Network Devices

View Device

1. From the Network Devices page, click View to view the status of a remote device (Figure 101).
2. Click Refresh to view the most recent information.
3. Click the Back to Network Devices to return to the Network Devices page.

NOTE:
The View Device page provides a snapshot of the current alarm remote device. If the status changes the page is not updated until the page is reloaded by clicking on Refresh link.

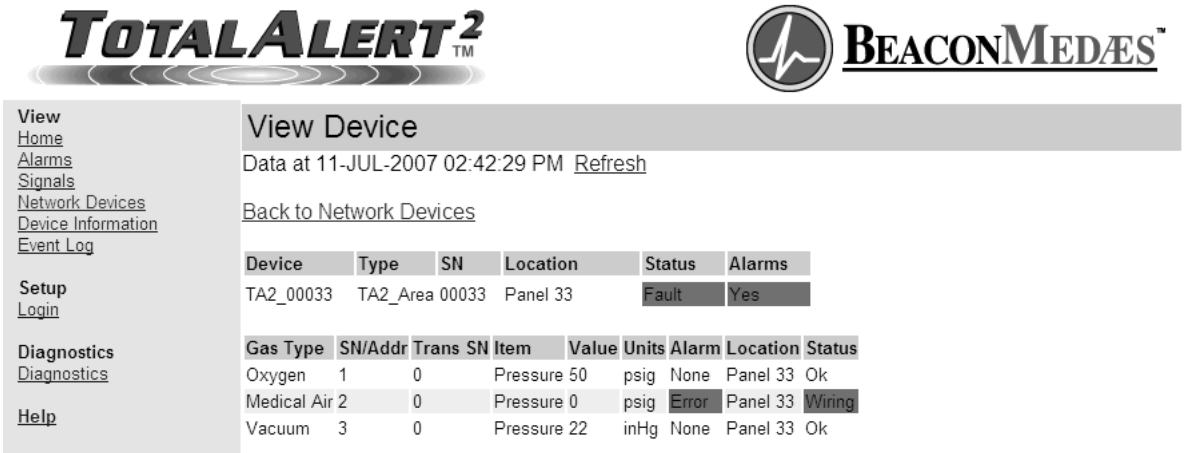


Figure 101: View Remote Device

Device Information

Click Device Information to view the Device Information page (Figure 102).

Figure 102: Device Information

Event Log

1. Click Event Log to view the Event Log page (Figure 103).
2. Click Refresh to view the most recent information.
3. Right click the link to save the event log to a file.

NOTE:
The Event Log page provides a snapshot of the event log. If a new event occurs th page is not updated until the page is reloaded by clicking on Event Log or Refresh links.

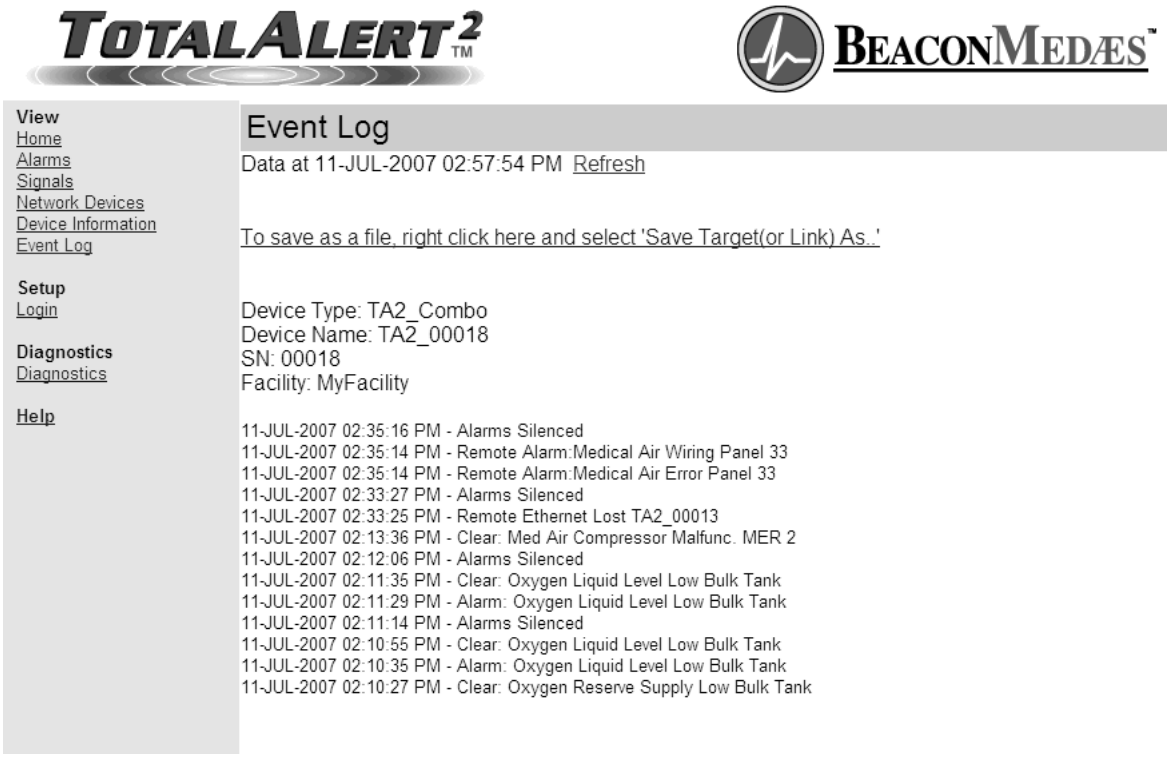


Figure 103: Event Log

Diagnostics

Click Diagnostics to view the diagnostics page (Figure 104).

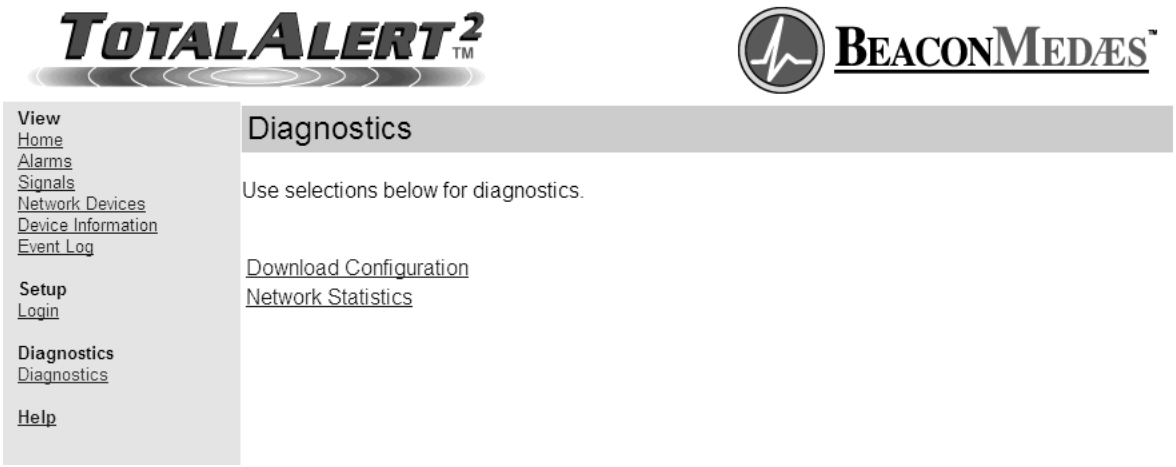


Figure 104: Diagnostics

Download Configuration

1. From the Diagnostics page, click Download Configuration to view the Download Configuration page (Figure 105).
2. Click Click here to view the alarm configuration (Figure 106).
3. Right click the link to save the alarm configuration to a file.

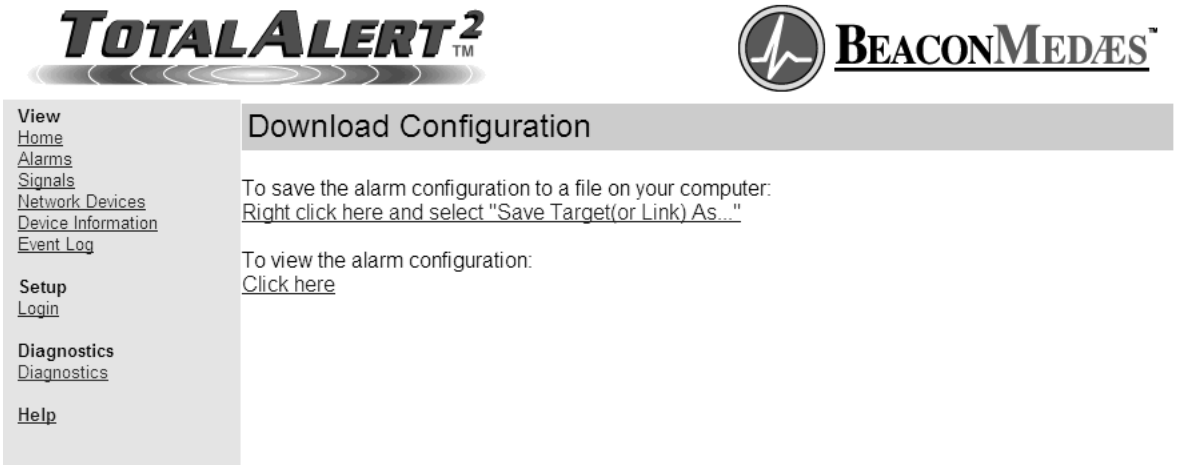


Figure 105: Download Configuration

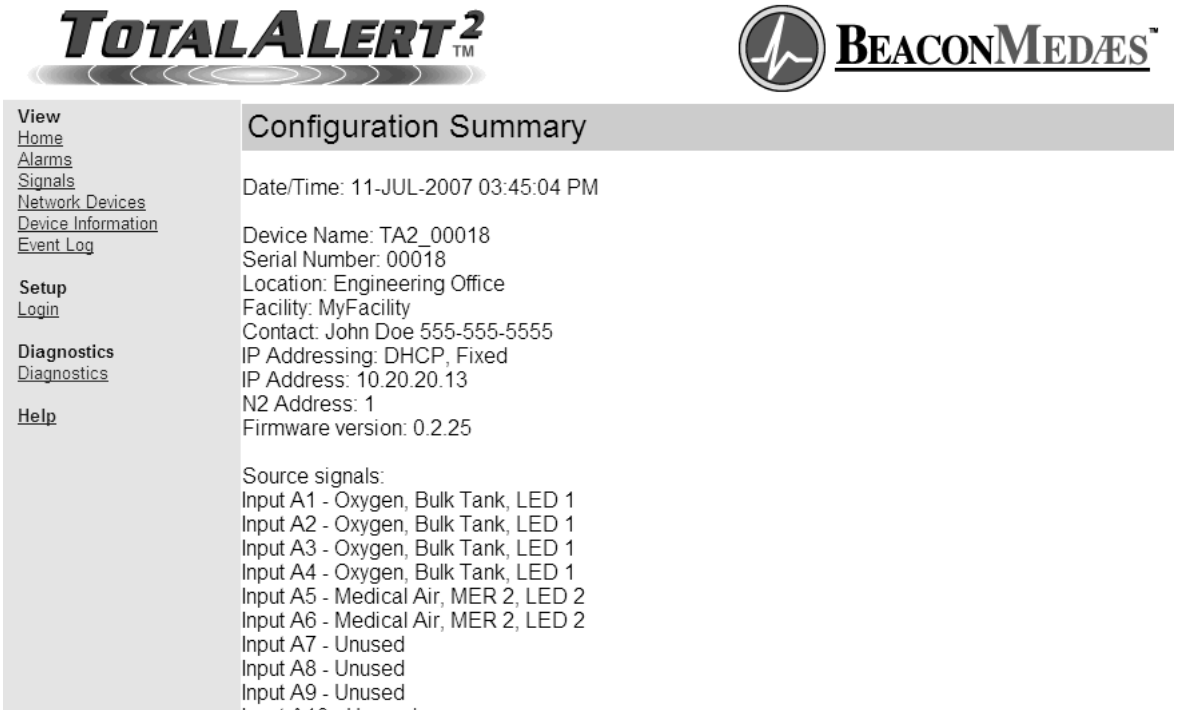


Figure 106: Configuration Summary

Network Statistics

1. From the Diagnostics page, click Network Statistics to view the Network Statistics page (Figure 107).
2. Click Refresh to view the most recent information.

NOTE:
The Network Statistics page provides a snapshot of the network statistics. The page is not updated until the page is reloaded by clicking on Refresh link.

Network Statistic Definitions:

IP Address
Current IP address used by the device.

Subnet Mask
Current Subnet Mask used by the device.

Gateway
Current Gateway address used by the device

Primary DNS
Current Domain Name Server address used by the device.

MAC Address
Device's unique Ethernet address.

Received Packets
Number of Ethernet packets received (including broadcast and unicast).

Unicast Packets
Number of Ethernet unicast packets sent.

Broadcast Packets
Number of Ethernet broadcast packets sent.

SMTP Server IP
SMTP (Email) Server IP address.

SMTP Server Name
SMTP (Email) Server name.

MEGAIO Sends
Local RS-485 packets sent from annunciator module to other alarm modules.

MEGAIO Receives
Number of local RS-485 packets received by annunciator module from other alarm modules.

MEGAIO Collisions
Number of local RS-485 collisions detected.

MEGAIO Framing Errors
Number of local RS-485 framing errors detected.

MEGAIO Overrun Errors
Number of local RS-485 buffer overrun errors detected.

MEGAIO Retries
Number of local RS-485 packets re-sent by annunciator module.

MEGAIO Timeouts
Number of local RS-485 commands sent by annunciator module with no response received.

MEGAIO Bad Checksum
Number of local RS-485 packets received with incorrect checksum.

MEGAIO Bad Data
Number of local RS-485 packets received with incorrect data in the message.

Peer Requests
Number of remote area data requests sent by master or combo alarm.

Peer Responses Received
Number of remote area data responses received by master or combo alarm.

Peer Responses Sent
Number of remote area data responses sent by area or combo alarm.

Peer Retries
Number of remote area data requests re-sent by master or combo alarms.

Peer ARP Timeouts
Number of remote area data request ARP timeouts.

Peer No Memory
Number of attempts to add another device when the device list is full (Already 75 remote devices).

Network Statistics (Cont.)

N2 Address
Johnson Controls Metasys® N2 Address

Timer
Annunciator module microprocessor internal timer.

Timer Wraps
Annunciator module microprocessor internal timer wraps.

Emails Attempted
Number of emails attempted.

Emails Sent
Number of emails actually sent.

Email Queue Overruns
Number of emails lost due to queue overruns.

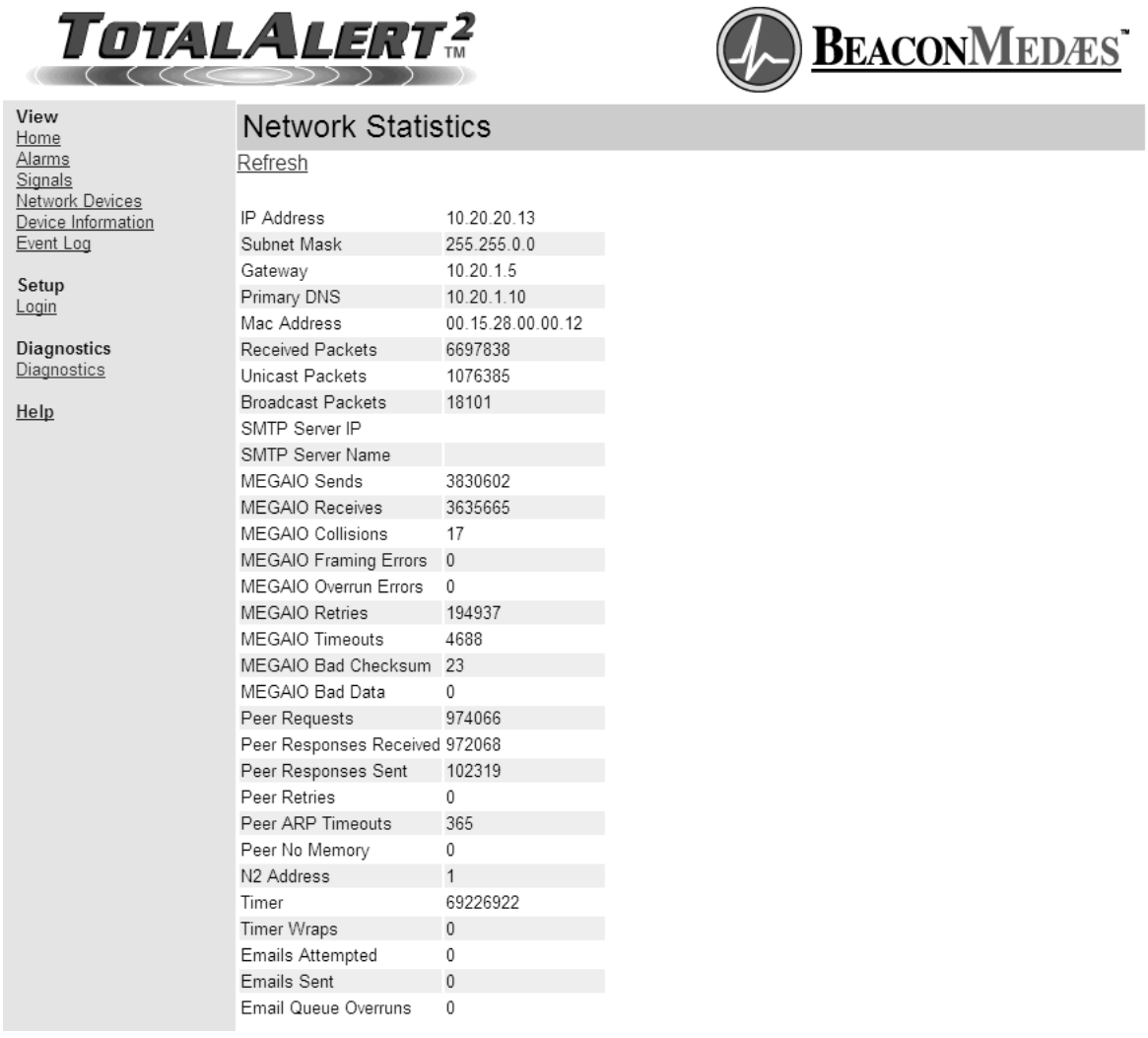
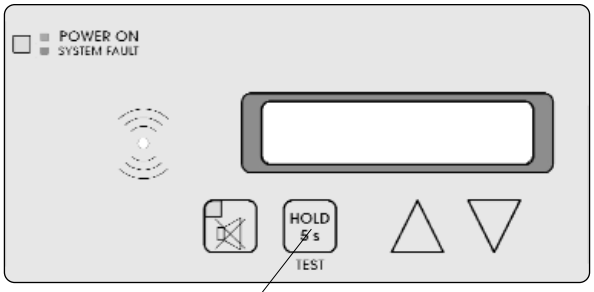


Figure 107: Network Statistics

Alarm System

Periodic testing of alarm system is recommended. Alarm modules have built-in self-test modes.

Front panel TEST button will initiate self-test mode on all alarm panel modules at same time.



Front panel TEST button

Figure 108: Alarm Panel Test button

Annunciator Module

Press and hold the front panel TEST button for 5 s to initiate the following sequence:

- **Audible Alarm Test**
  Audible alarm sounds and VFD displays for 1 s.

```
    Audible Test
```

- **LED Test**
  VFD displays for 9 s while other modules perform LED tests.

```
      LED Test
```

- **VFD Test**
  VFD scrolls the following message on both rows

```
Test    ABCDEFGHIJKLMNOPQRSTUVWXYZ
Test    ABCDEFGHIJKLMNOPQRSTUVWXYZ
```

- **Checksum and IP Address Display**
  VFD displays checksum and device IP address for 5 s.

```
Checksum: CCCC SSS
IP: XXX.XXX.XXX.XXX
```

  C = 4 hex digit checksum
  S = Ok if checksum is correct or
  Bad if checksum is incorrect
  X = IP Address

- **Signal Display**
  VFD displays each signal parameter for 2 s.
  If the gas type for the signal is Unused the input gas type is displayed for 0.5 s.

```
Input XXX Gas Type
GGGGGGGGGGGGGGG
```

```
Input XXX Message
MMMMMMMMMMMMMMMMMMM
```

```
Input XXX Location
LLLLLLLLL
```

```
Input XXX
LED D
```

Annunciator Module (Cont.)

X = Signal number
G = Gas type
M = Message
L = Location
D = LED number

- Results of checksum test is recorded in the event log.
- Test messages received from other alarm modules are recorded in the event log.
- Module returns to monitoring mode.

Multiplexer Module

Press and hold the front panel TEST button for 5 s to initiate the following sequence:

- Audible alarm sounds for 1 s.
- Each green LED is displayed in sequence for 0.5 s.
- Each red LED is displayed in sequence for 0.5 s.
- Software revision is displayed as follows:
  - Expressed as a three digit number (e.g. 1.0.2).
  - Each digit of number is displayed separately for 2 s and separated from the next digit by a 1 s flashing of all indicators.
  - Each number is displayed in a binary code where each LED indicator has a binary value (Figure 109.).
  - Example: Software revision 1.0.2 would be displayed as follows:
    - First digit is determined by 2 s illumination of top left LED (bit 0 = number 1).
    - All LEDs illuminate for 1 s.
    - Second digit is determined to be 0 because no LEDs are illuminated for 2 s.
    - All LEDs illuminate for 1 s.
    - Third digit of is determined by 2 s illumination of 2nd red LED (Bit 1 = number 2).
- After all three digits of software revision have been displayed, all LEDs illuminate for 1 s before displaying the module's network address.
- Network address is displayed for 2 s in a binary code where each LED has a binary value (Figure 109).
- All LEDs illuminate for 1 s.
- Module returns to monitoring mode.

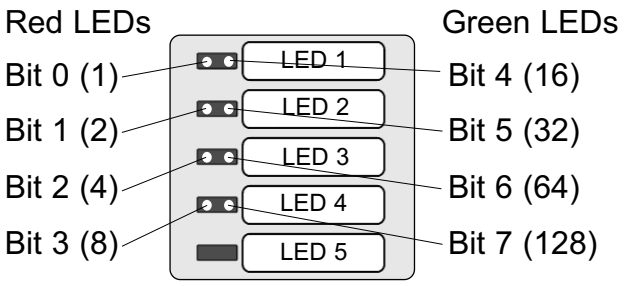


Figure 109: Binary data represented by LEDs

Digital Display Module

Press and hold the front panel TEST button for 5 s to initiate the following sequence:

- Audible alarm sounds for 1 s as tESt is displayed.
- LED display segments and LOW, NORMAL, and HIGH indicators illuminate in sequence for 0.5 s.
- Firmware revision (e.g. 2.0.0) is displayed for 2 s.
- Addr is displayed for 1 s then module's network address is displayed for 2 s.
- Units of measure setting (e.g. PSI) is displayed for 2 s.
- Lo is displayed for 1 s, LOW alarm LED is illuminated, and current low alarm set point is displayed for 2 s.
- Hi is displayed for 1 s, HIGH alarm LED is illuminated, and current high alarm set point is displayed for 2 s.
- Module returns to monitoring mode.

Multi-Signal Module

Press and hold front panel TEST button for 5 s to initiate following sequence:

- Audible alarm sounds for 1 s.
- All red and green LEDs flash for 5 s.
- Software revision is displayed as follows:
  - Expressed as a three digit number (e.g. 1.0.2).
  - Each digit of number is displayed separately for 2 s and separated from the next digit by a brief flashing of all indicators.
  - Each number is displayed in a binary code where each multi-signal module LED has a binary value (Figure 110.).
  - Example: Software revision 1.0.2 would be displayed as follows:
    - First digit is determined by 2 s illumination of top left indicator (bit 0 = number 1).
    - All LEDs quickly flash.
    - Second digit is determined to be 0 because no indicators are illuminated for 2 s.
    - All LEDs quickly flash.
    - Third digit of is determined by 2 s illumination of 2nd red indicator (Bit 1 = number 2).
- After all three digits of software revision have been displayed, all LEDs illuminate for 1 s before displaying the module's network address.
- Network address is displayed for 2 s in a binary code where each multi-signal module LED has a binary value (Figure 110.).
- All LEDs illuminate for 1 s and module returns to monitoring mode.

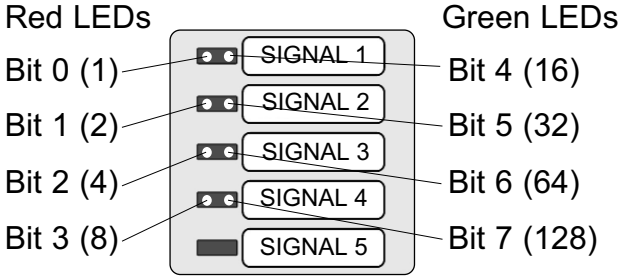


Figure 110: Binary data represented by LEDs

Power Supply

Power Supply Assembly:
The power supply assembly converts AC mains power to +5 and +24 volts DC. AC mains power can be any value between 100 and 250 VAC. In order to verify power supply assembly is functioning correctly, perform following procedure.

1. Loosen two front panel screws and open alarm panel.
2. If no indicator lights or LED displays are illuminated on front of alarm panel, first verify internal fuse is good (Figures 111 and 112). If fuse is good, continue this procedure.
3. Using a digital volt meter, measure DC voltage between black (-) and orange (+) wires where power supply harness plugs into annunciator module (Figure 26). **When making measurements, do not disconnect cable from annunciator board**. Insert meter probes into back of white plastic connector.
4. Verify DC voltage is 4.5 to 5.5 volts.
5. Measure voltage between black (-) and red (+) wires.
6. Verify DC voltage is 22.0 to 26.0 volts.

⚠WARNING:

RISK OF ELECTRIC SHOCK
The remainder of this procedure requires removal of the clear plastic power supply shield. Even if fuse is removed, the high voltage input wiring remains energized.

7. If voltages above are not within specification, verify correct AC input power as follows:
8. Remove four keps nuts and plastic shield from power supply. Do not disconnect wires from fuse holder or harness from power supply.
9. Position plastic shield (wires attached) so that power supply's AC input connector is accessible.
10. Using a digital volt meter, measure AC voltage between white (neutral) and black (line) wires on back of power supply connector (Figure 27). Verify AC input voltage is 100 to 250 volts.
11. If AC input voltage is within specification, replace power supply assembly.

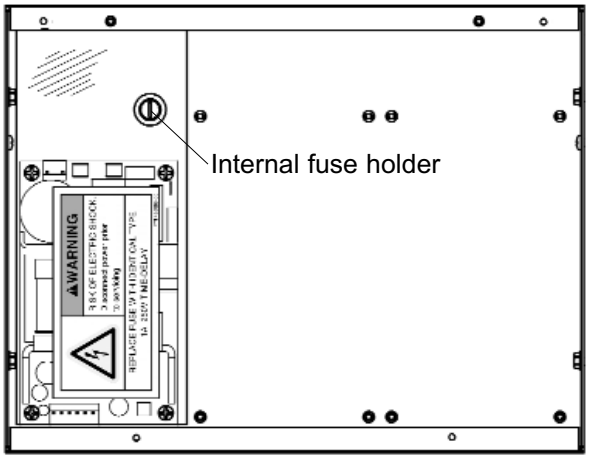


Figure 111: Master / Combo Panel Internal Fuse

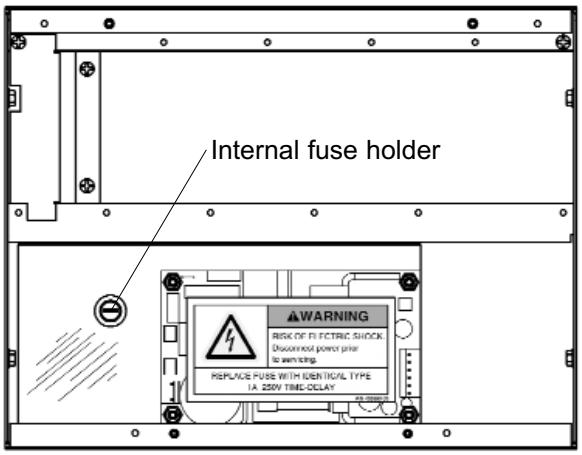


Figure 112: Area Alarm Panel Internal Fuse

Troubleshooting Guide

Symptom	Possible Cause	Corrective Action
1) No visual indicators illuminated on entire alarm panel	a. AC power is not turned on. b. Blown internal fuse. c. AC power wiring is not connected. d. Power supply DC wire harness is not connected properly between power supply and annunciator board e. Faulty power supply assembly.	a. Check AC power source. b. Replace fuse. c. Check AC entrance wiring at power supply terminals. Verify two-pin plastic connector is plugged into power supply circuit board. d. Check connections on each end including orientation of cable connectors. Reconnect if necessary. e. Replace power supply assembly.
2) No visual indicators illuminated on isolated module(s). Green annunciator module POWER indicator is illuminated.	a. 20-wire ribbon cable(s) between annunciator module and multiplexer, multi-signal or digital display module(s) not connected. b. Faulty 20-wire ribbon cable. c. Faulty multiplexer, digital display or multi-signal module. d. Faulty annunciator module.	a. Reconnect ribbon cable(s). b. Replace faulty cable. c. If alarm panel contains another working alarm module, unplug ribbon cable from working module and connect to non-working module. If module does not illuminate, replace faulty alarm module. d. Replace faulty annunciator module.
3) Constant audible alarm that can not be silenced by pressing front panel MUTE ⊠ button. Red annunciator module ALARM SYSTEM FAULT indicator is flashing.	a. Annunciator module microprocessor not running. b. Power supply voltage(s) low. c. Faulty annunciator module.	a. Verify green PULSE LED on annunciator circuit board is flashing. If LED is not flashing, replace faulty annunciator module. b. Check power supply voltages Refer to Power Supply Testing (Page 119). If power supply voltages are low, replace power supply assembly. c. Replace faulty annunciator module.
4) Visual indicators are dimly illuminated or vary in brightness between one or more multiplexer, multi-signal or digital display modules. Front panel green POWER indicator is illuminated brightly.	a. Programmable display intensity levels have been set too low or at different values between modules. b. Faulty multiplexer, multi-signal or digital display module.	a. Reset display intensity values for each module. Refer to **Set-Up** instructions: Page 62 - Multiplexer module Page 67 - Digital display module Page 71 - Multi-signal module b. Replace faulty module.

Troubleshooting Guide (Cont.)

Symptom	Possible Cause	Corrective Action
5) Constant audible alarm that can not be silenced by pressing front panel MUTE button. Green annunciator module POWER indicator is illuminated. No visual alarm on any multiplexer, digital display or multi-signal module.	a. Faulty multiplexer, multi-signal or digital display module. b. Faulty 20-wire ribbon cable. c. Faulty annunciator module.	a. Disconnect alarm modules one at a time from 20-wire ribbon cables. If disconnecting a module cancels audible alarm, replace that faulty module. b. After all modules have been disconnected from 20-wire ribbon cables, disconnect each cable, one at a time from annunciator module. If disconnecting ribbon cable cancels alarm, replace that faulty cable. c. If both 20-wire ribbon cables have been removed from annunciator module, and audible alarm has not cancelled, replace faulty annunciator module.
6) Flashing visual indicator on multiplexer, multi-signal or digital display module and audible alarm that can not be silenced by pressing front panel MUTE button. When MUTE button is pressed, visual indicator continues to flash.	a. 20-wire ribbon cable not connected well to annunciator module. b. 20-wire ribbon cable not connected well to multiplexer, multi-signal or digital display module with visual alarm. c. Faulty 20-wire ribbon cable. d. Faulty annunciator module. e. Faulty multiplexer, digital display or multi-signal module.	a. Reconnect ribbon cable(s). b. Reconnect ribbon cable(s). c. Replace faulty ribbon cable. d. Cause an alarm condition (by unplugging field wiring connector) on another module that is connected to same 20-wire ribbon cable. Verify visual indicators on this test module stop flashing when MUTE button is pressed. If visual indicators continue to flash, replace faulty annunciator module. e. If visual indicators on test module (step d) stop flashing when MUTE button is pressed, replace faulty module.
7) Audible alarm activates when it should, but sound level is too low.	a. Audible alarm volume is set too low. b. Faulty annunciator module.	a. Adjust alarm volume potentiometer located on annunciator module clockwise to increase. Factory default setting is max. clockwise position (max. volume). b. Replace faulty annunciator module.

Troubleshooting Guide (Cont.)

Symptom	Possible Cause	Corrective Action
8) Audible alarm does not sound when visual indicator is illuminated. Pressing front panel MUTE ⊠ button causes visual indicator to stop flashing but remain illuminated.	a. 20-wire ribbon cable not connected well to annunciator module. b. 20-wire ribbon cable not connected well to multiplexer, digital display, or multi-signal module with visual alarm. c. Faulty 20-wire ribbon cable. d. Faulty annunciator module. e. Faulty digital display or multi-signal module.	a. Reconnect ribbon cable(s). b. Reconnect ribbon cable(s). c. Replace faulty ribbon cable. d. Cause an alarm condition (by unplugging field wiring connector) on another module that is connected to same 20-wire ribbon cable. Verify audible alarm on this test module activates. If audible alarm does not activate, replace faulty annunciator module. e. If audible alarm on test module (step d) activates, replace faulty multiplexer, digital display or multi-signal module.
9) Audible alarm reactivates a short period of time after MUTE ⊠ button has been pressed.	a. A new alarm condition has occurred. b. Programmable alarm repeat function has reactivated audible alarm.	a. If alarm condition previously silenced self-corrects and then reactivates again, alarm panel treats as a new alarm condition. Flashing visual indicators represent new alarm conditions. After being silenced, visual indicators will stop flashing, but remain illuminated. b. Set alarm repeat value at desired time interval. Refer to **Set-Up** instructions: Page 62 - Multiplexer module Page 67 - Digital display module Page 71 - Multi-signal module
10) Multi-signal alarm will not activate on one master alarm when source contacts open. Second master works correctly.	a. Field wiring mis-connection. b. Faulty multi-signal module.	a. Correct field wiring. Verify multi-signal module is connected to correct source equipment switch. b. Replace faulty multi-signal module.
11) Multiplexer alarm will not activate on one master alarm when source contacts open. Second master works correctly.	a. Field wiring mis-connection. b. Faulty breakout board. c. Faulty multiplexer module.	a. Correct field wiring. Verify multi-signal module is connected to correct source equipment switch. b. Replace faulty breakout board. c. Replace faulty multiplexer module.

Symptom	Possible Cause	Corrective Action
12)Multi-signal alarm will not activate on either master alarm when source contacts open.	a. Field wiring mis-connection.	a. Correct field wiring. Verify common wire of both master panels are connected to same side of source equipment switch.
13)Multiplexer alarm will not activate on either master alarm when source contacts open.	a. Field wiring mis-connection.	a. Correct field wiring. Verify common wire of both master panels are connected to same side of source equipment switch.
14)Multiplexer alarm activates incorrect signal (Example: A2 instead of B2).	a. 40-pin ribbon cable from multiplexer module connected to wrong breakout board.	a. Connect 40-pin ribbon cable to correct breakout board. Breakout board and multiplexer board connectors are labeled 'A' or 'B'.
15)All multiplexer signals in alarm condition.	a. 40-pin ribbon cable from multiplexer module disconnected from breakout board.	a. Connect 40-pin ribbon cable to breakout board.
16)One or more multi-signal alarms are in alarm condition even though they are not wired to source equipment.	a. Unused signals have not been turned off.	a. Perform programming procedure in order to turn off unused signals. Refer to **Set-Up** instructions (Page 69).
17)VFD indicates `Unassigned Input XXX` where `XXX` indicates the signal number.	a. Input is closed circuit but signal has not been programmed.	a. Program signal. Refer to Set-Up instructions: Page 59 - Front panel controls Page 80 - Web pages
18)VFD indicates `MMMMMMMMMMMM AddrXXX Offline` where `MMMMMMMMMMMM` indicates the module type and `XXX` indicates the module's network address.	Multiplexer, digital display or multi-signal module has lost communication with annunciator module because: a. 20-pin ribbon cable disconnected from module. b. Module's network parameters have been incorrectly programmed. c. Module has been intentionally removed. d. Faulty multiplexer, digital display or multi-signal module.	a. Connect 20-pin ribbon cable to offline module. b. Reprogram module's network parameters. Refer to Set-Up instructions: Page 63 - Multiplexer module Page 66 - Digital display module Page 70 - Multi-signal module c. Perform a Clear Network to force alarm panel to re-scan for devices. Refer to Set-Up instructions: Page 59 - Front panel controls Page 94 - Web pages d. Replace faulty module.

Troubleshooting Guide (Cont.)

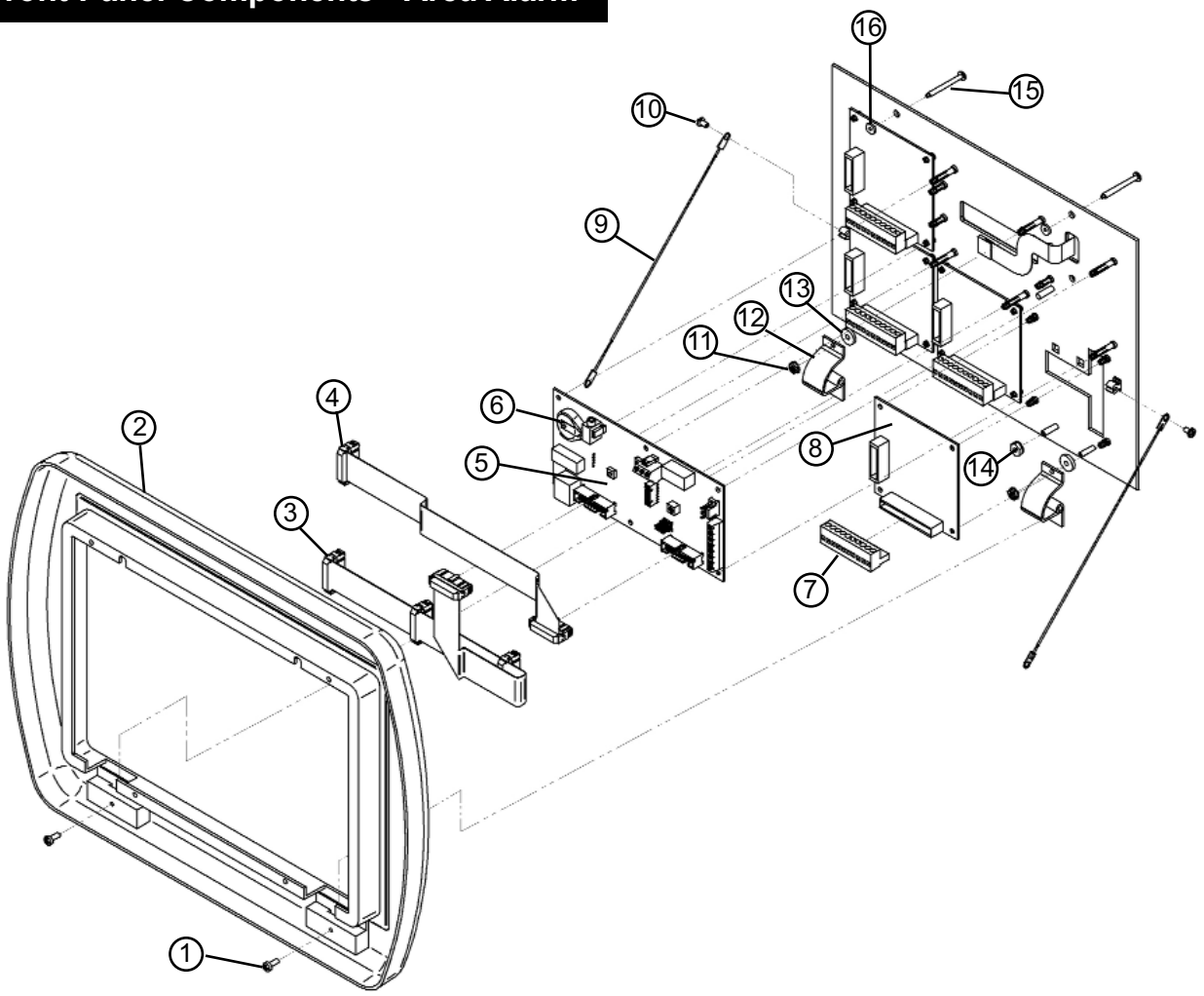
Symptom	Possible Cause	Corrective Action
19) High or low pressure alarm activated when digital display indicates pressure or vacuum is within normal limits.	a. Alarm set-points have been changed. b. Faulty digital display module.	a. Use digital display module test mode (Page 117) to check current set-points. If incorrect, reprogram low and/or high alarm set-pints. Refer to **Set-Up** instructions (Page 64). b. Replace faulty digital display module.
20) Pressure or vacuum digital display does not match pressure or vacuum levels in pipeline.	a. Incorrect digital display "unit of measure". b. Faulty digital display module. c. Faulty sensor module.	a. Use digital display module test mode (Page 117) to check current unit of measure (PSI, in Hg, kPa, mm Hg). If incorrect, reprogram unit of measure. Refer to **Set-Up** instructions (Page 64). b. If alarm panel contains another working digital display module, remove field wiring connector from suspect module and connect to working (test) module. Temporarily program gas id, and units to match the sensor module. If test module provides correct reading, replace faulty digital display module. c. If test module in step b above also gives incorrect display, replace faulty sensor module.
21) Low alarm with -F2- display on digital display module.	Pressure or vacuum signal to digital display module out of measurement range (too low) as a result of: a. No pressure or vacuum in pipeline. b. Faulty digital display module. c. Faulty sensor module.	a. Apply appropriate pressure or vacuum to pipeline. b. If alarm panel contains another working digital display module, remove field wiring connector from suspect module and connect to working (test) module. Temporarily program gas id, and units to match the sensor module. If test module provides any reading other than -F2-, replace faulty digital display module. c. If test module in step b above also gives -F2-, replace faulty sensor module.

Symptom	Possible Cause	Corrective Action
22) Low alarm with -F1- display on digital display module.	No pressure or vacuum signal to digital display module as a result of: a. Sensor wiring disconnected. b. Incorrect sensor type (analog) connected. c. Faulty digital display module. d. Faulty sensor module.	a. Correct sensor wiring. If sensor is mounted remotely, verify field wiring continuity and polarity from sensor to digital display module connector pins 5 (+) and 6 (-). b. Replace sensor with correct type (digital). c. If alarm panel contains another working digital display module, remove field wiring connector from suspect module and connect to working (test) module. Temporarily program gas id, and units to match the sensor module. If test module provides any reading other than -F1-, replace faulty digital display module. d. If test module in step c above also gives -F1-, replace faulty sensor module.
23) High alarm with -F3- display on digital display module.	Pressure or vacuum signal to digital display module out of measurement range (too high) as a result of: a. Shorted sensor wiring. b. Faulty digital display module. c. Faulty sensor module. d. Digital sensor connected to digital display module with gas ID set to nonE.	a. Correct sensor wiring. b. If alarm panel contains another working digital display module, remove field wiring connector from suspect module and connect to working (test) module. Temporarily program gas id, and units to match the sensor module. If test module provides any reading other than -F3-, replace faulty digital display module. c. If test module in step b above also gives -F3-, replace faulty sensor module. d. Program gas ID in digital display module.

Troubleshooting Guide (Cont.)

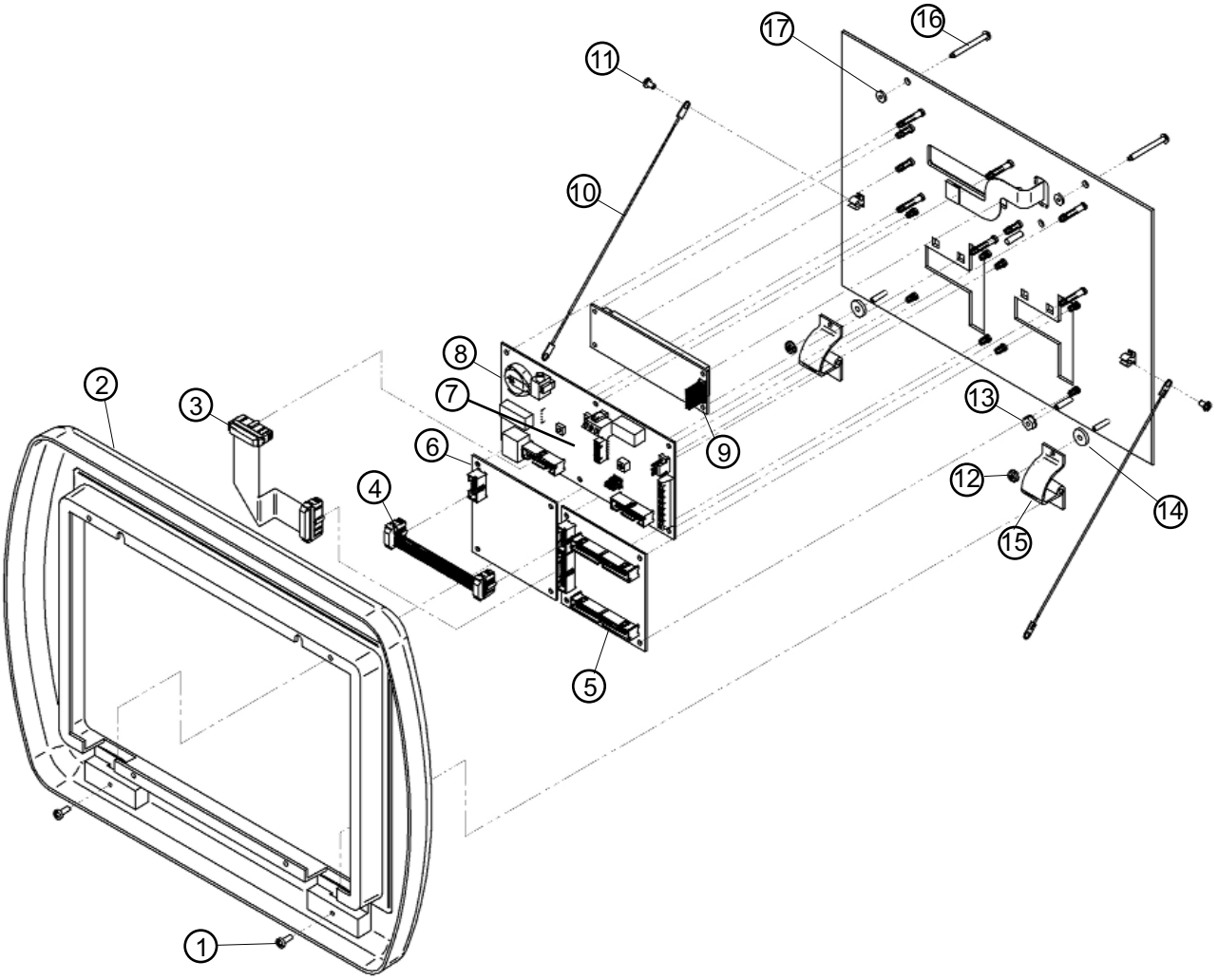
Symptom	Possible Cause	Corrective Action
24) High and low alarm with -F4- display on digital display module.	Gas/vacuum service mismatch between digital display module and digital sensor module as a result of: a. Sensor wired to wrong digital display module. b. Digital display module programmed with the wrong service.	a. Correct sensor wiring. b. Program digital display module for the correct gas/vacuum service. Refer to **Set-Up** instructions (page 67).
25) High alarm with 190 to 200 display on digital display module.	a. Digital sensor connected to digital display module with gas ID set to nonE.	a. Program gas ID in digital display module.
26) No blinking LED on digital sensor module.	No power to digital sensor due to: a. Faulty wiring. b. Faulty digital sensor module.	a. Correct sensor wiring. b. Replace digital sensor module.
27) Fast blinking LED on digital sensor module.	Sensor out of range: a. Vacuum digital sensor module connected to pressure service. b. Pressure digital sensor module connected to vacuum service. c. Faulty digital sensor module.	a. Verify piping connections. Vacuum sensor maximum overpressure: 30 psi. b. Verify piping connections. c. Replace digital sensor module.
28) VFD indicates Lost connection with Device: DDDDDDDDDDD where DDDDDDDDDDD indicates the device name (or serial number if device name is unknown)	a. A remote alarm panel has become disconnected from the Ethernet network. b. A remote alarm panel has been intentionaly removed or replaced.	a. Reconnect remote alarm to the network. b. Perform a Clear Network to force alarm panel to re-scan for remote devices. Refer to Set-Up instructions: Page 59 - Front panel controls Page 94 - Web pages
29. VFD stalled with Booting...	a. Annunciator module firmware corrupted (possibly due to failed firmware update attempt). b. Faulty annunciator module.	a. Reprogram module firmware (BeaconMedaes personnel must perform this procedure). b. Replace annunciator module.

Front Panel Components - Area Alarm



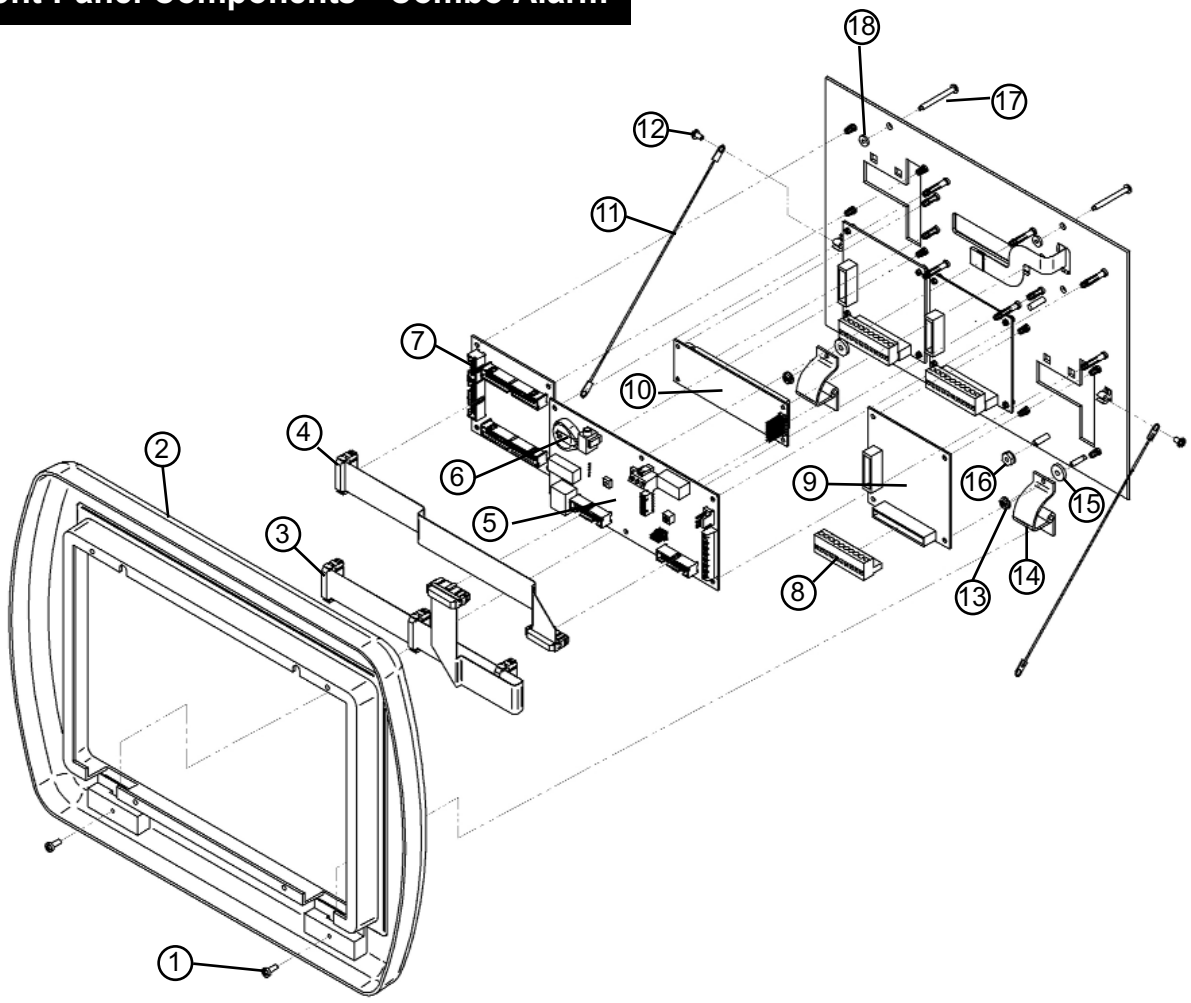
ITEM	MODEL NUMBER	DESCRIPTION
1	6-814653-00	Screw - #6-32 x 3/8", Pan Head, Self-Tapping
2	6-616585-00	Trim Frame, Front Panel, Small
-	6-616586-00	Trim Frame, Front Panel, Large
3	6-868170-00	Ribbon Cable, Panel Bus, Bottom Row, 20 Conductor, Small
-	6-868171-00	Ribbon Cable, Panel Bus, Bottom Row, 20 Conductor, Large
4	6-868168-00	Ribbon Cable, Panel Bus, Top Row, 20 Conductor, Small
-	6-868169-00	Ribbon Cable, Panel Bus, Top Row, 20 Conductor, Large
5	6-231982-WS	Circuit Board - Annunciator Module w/Web Server (includes item 6)
6	6-867510-00	Battery, 3.0V, Lithium Coin Cell
7	6-865316-00	Field Wiring Connector - Digital Display/Multi-Signal Module
8	6-231980-00	Circuit Board - Digital Display Module (includes item 7)
-	6-231981-00	Circuit Board - Multi-Signal Module (includes item 7)
-	6-231981-RL	Circuit Board - Multi-Signal Module with Relays (includes item 7))
9	6-838104-00	Lanyard
10	6-814669-00	Screw - #6-20 x 1/4", Pan Head, Self-Tapping
11	6-827530-00	Nut, Keps, #6-32
12	6-838983-00	Hinge, Front Panel
13	205295	Door Spacer
14	6-827533-00	Nut, Keps, #8-32
15	6-811674-00	Screw - #6-32 x 1-5/16", Pan Head, Dog Point
16	6-621501-00	Gasket

Front Panel Components - Master Alarm



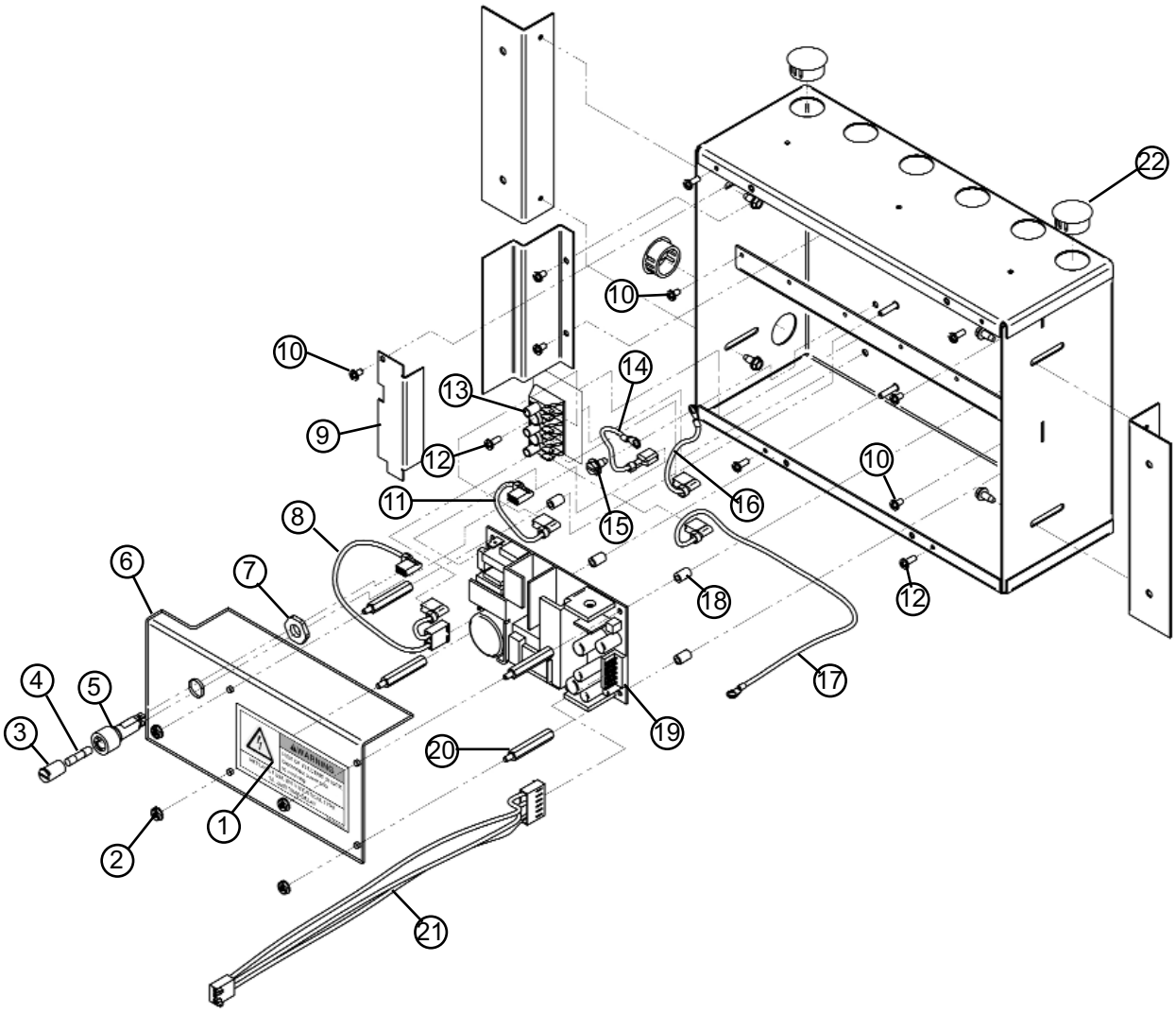
ITEM	MODEL NUMBER	DESCRIPTION
1	6-814653-00	Screw - #6-32 x 3/8", Pan Head, Self-Tapping
2	6-616585-00	Trim Frame, Front Panel, Small
3	6-868166-00	Ribbon Cable, Panel Bus, Master, 20 Conductor
4	6-868167-00	Ribbon Cable, LED, 10 Conductor
5	6-231986-00	Circuit Board - Multiplexer
6	6-231986-LB	Circuit Board - LED
7	6-231982-WS	Circuit Board - Annunciator Module w/Web Server (Includes item 8)
8	6-867510-00	Battery, 3.0V, Lithium Coin Cell
9	6-868067-00	Display Module, Vacuum Fluorescent
10	6-838104-00	Lanyard
11	6-814669-00	Screw - #6-20 x 1/4", Pan Head, Self-Tapping
12	6-827530-00	Nut, Keps, #6-32
13	6-827533-00	Nut, Keps, #8-32
14	205295	Door Spacer
15	6-838983-00	Hinge, Front Panel
16	6-811674-00	Screw - #6-32 x 1-5/16", Pan Head, Dog Point
17	6-621501-00	Gasket

Front Panel Components - Combo Alarm



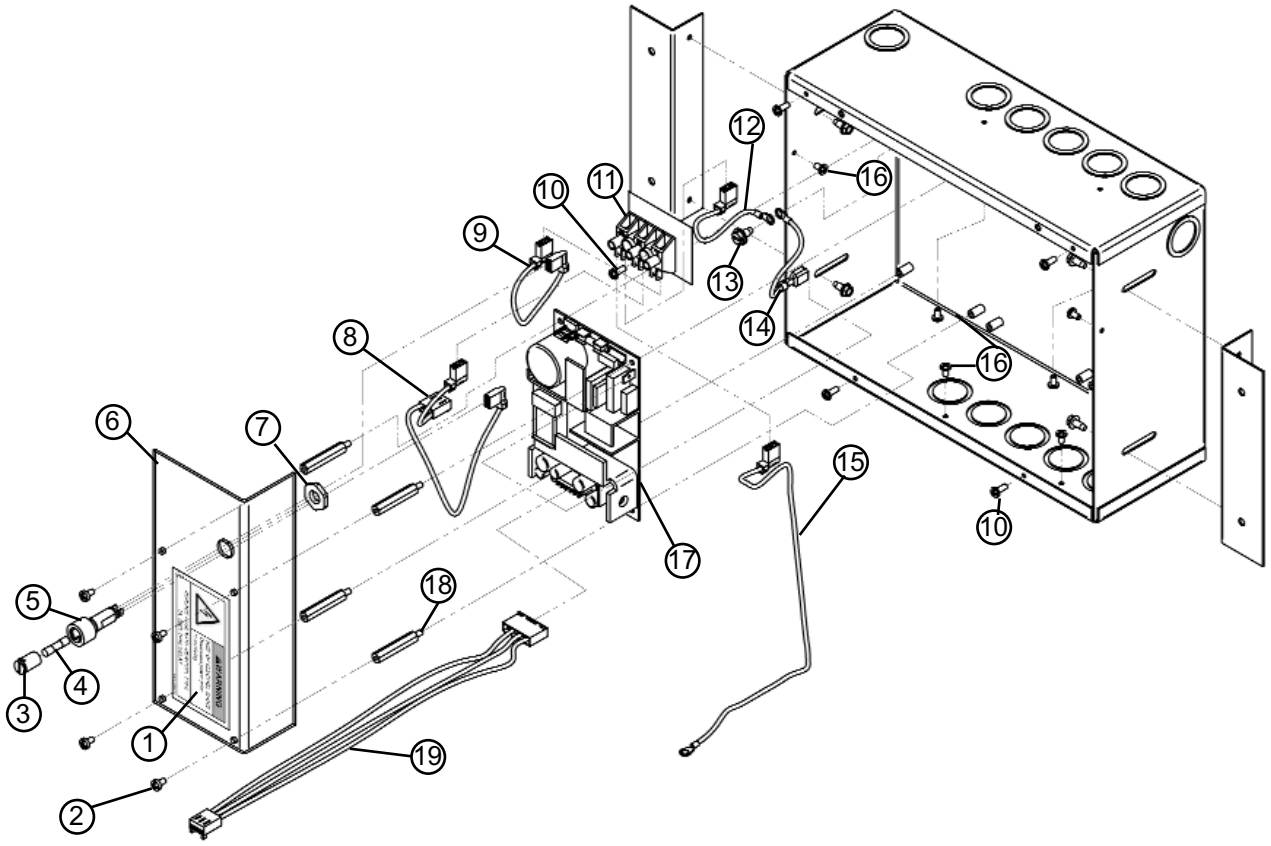
ITEM	MODEL NUMBER	DESCRIPTION
1	6-814653-00	Screw - #6-32 x 3/8", Pan Head, Self-Tapping
2	6-616585-00	Trim Frame, Front Panel, Small
-	6-616586-00	Trim Frame, Front Panel, Large
3	6-868170-00	Ribbon Cable, Panel Bus, Bottom Row, 20 Conductor, Small
-	6-868171-00	Ribbon Cable, Panel Bus, Bottom Row, 20 Conductor, Large
4	6-868168-00	Ribbon Cable, Panel Bus, Top Row, 20 Conductor, Small
-	6-868169-00	Ribbon Cable, Panel Bus, Top Row, 20 Conductor, Large
5	6-231982-WS	Circuit Board - Annunciator Module w/Web Server (includes item 6)
6	6-867510-00	Battery, 3.0V, Lithium Coin Cell
7	6-231986-00	Circuit Board - Multiplexer
8	6-865316-00	Field Wiring Connector - Digital Display/Multi-Signal Module
9	6-231980-00	Circuit Board - Digital Display Module (includes item 8)
10	6-868067-00	Display Module, Vacuum Fluorescent
11	6-838104-00	Lanyard
12	6-814669-00	Screw - #6-20 x 1/4", Pan Head, Self-Tapping
13	6-827530-00	Nut, Keps, #6-32
14	6-838983-00	Hinge, Front Panel
15	205295	Door Spacer
16	6-827533-00	Nut, Keps, #8-32
17	6-811674-00	Screw - #6-32 x 1-5/16", Pan Head, Dog Point
18	6-621501-00	Gasket

Back Box Components - Area Alarm



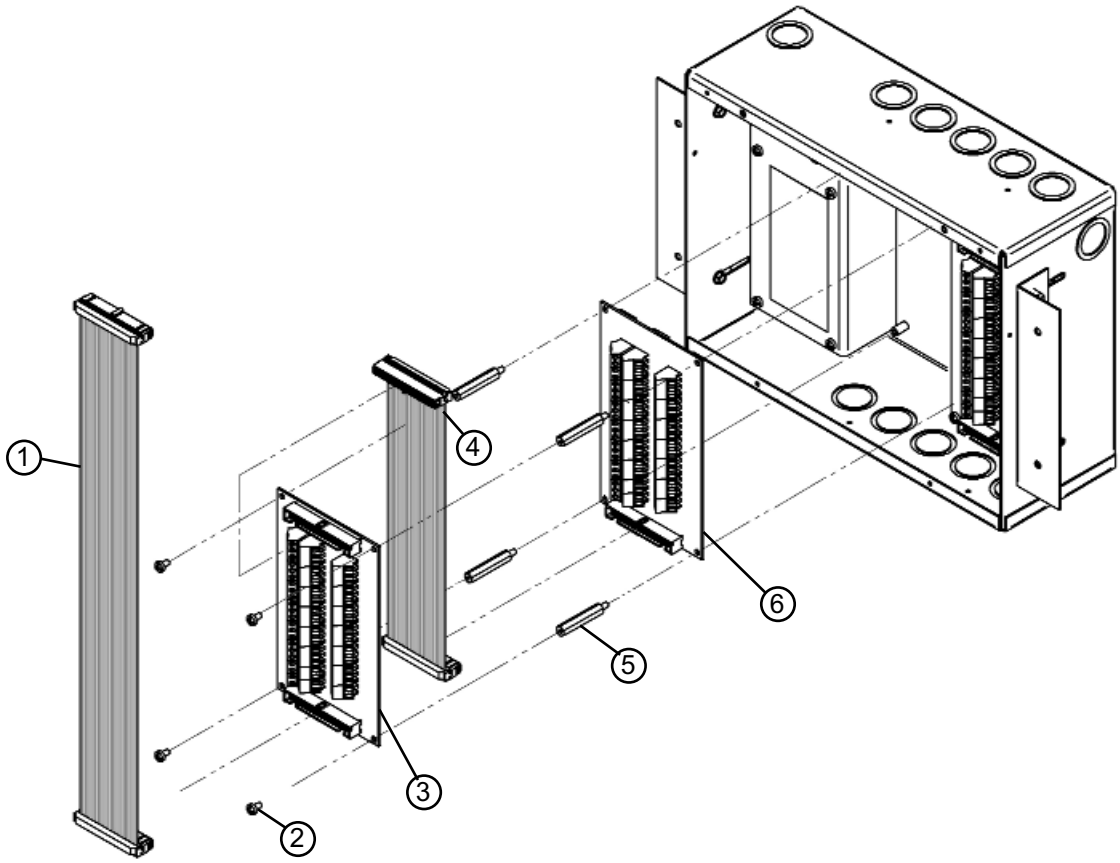
ITEM	MODEL NUMBER	DESCRIPTION
1	6-435989-00	Label, Warning
2	6-827530-00	Nut, Keps, #6-32
3	Included in Item 5	Cap - Fuse Holder
4	6-865546-00	Fuse - 1.0 Amp, 250VAC, Time Delay
5	6-865500-00	Fuse Holder
6	6-616506-00	Shield, Protective, Power Supply
7	Included in Item 5	Nut - Fuse Holder
8	6-231942-00	Wire Harness - AC Input
9	6-425458-00	Shield, Protective, Front
10	6-814669-00	Screw - #6-20 x 1/4”, Pan Head, Self-Tapping
11	6-231944-00	Wire Harness - Terminal Block to Fuse
12	6-814653-00	Screw - #6-32 x 3/8”, Pan Head, Self-Tapping
13	205523	Terminal Block
14	6-231938-00	Wire Harness - Ground
15	6-814008-00	Screw, Grounding
16	6-231943-00	Wire Harness - Ground (4”)
17	6-231943-01	Wire Harness - Ground (15”)
18	6-831904-00	Spacer
19	6-867540-00	Power Supply Assembly
20	6-829628-00	Standoff
21	6-231936-01	Wire Harness - DC Output (16-1/2”)
22	6-836836-00	Plug, Finishing

Back Box Components - Master / Combo Alarm



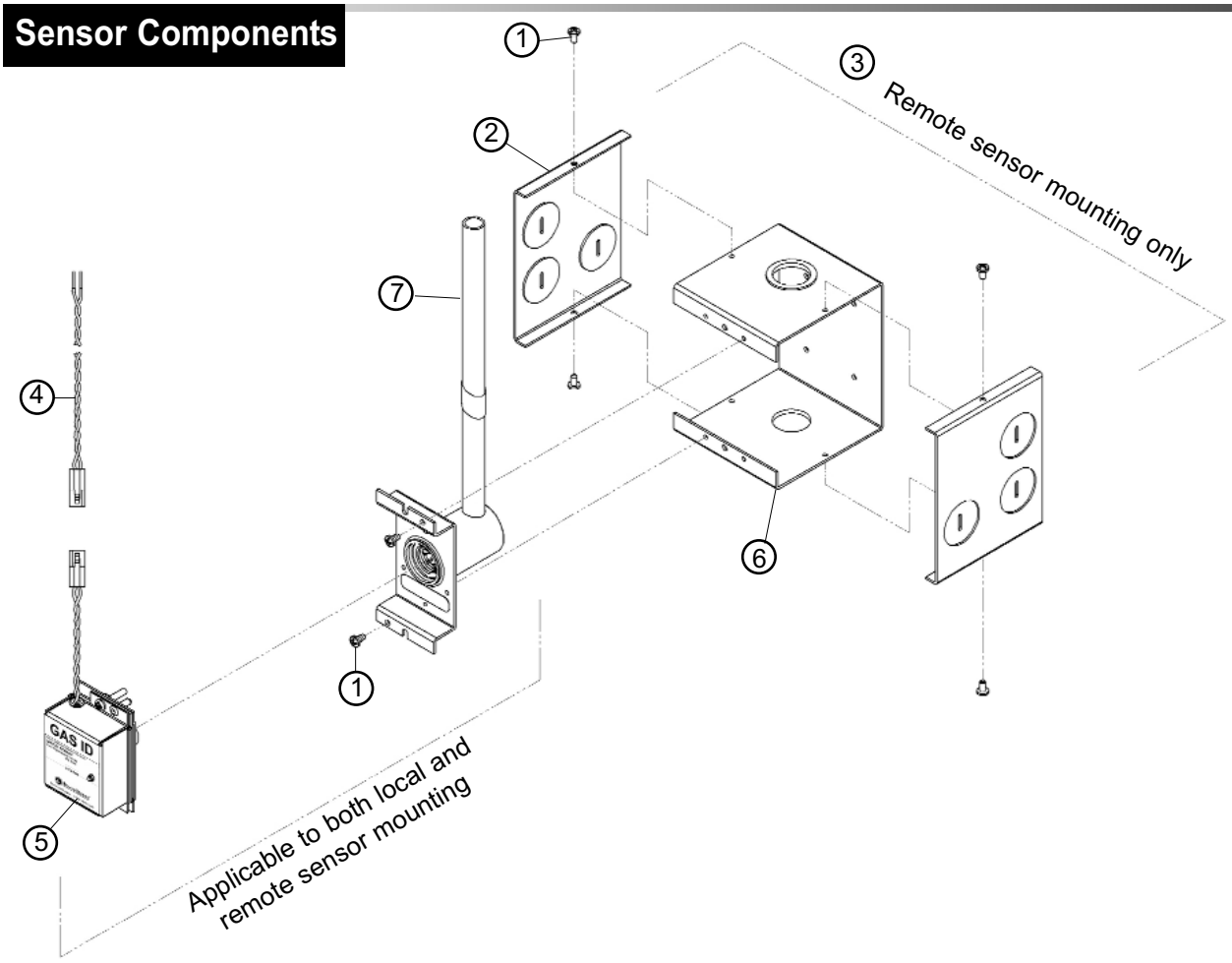
ITEM	MODEL NUMBER	DESCRIPTION
1	6-435989-00	Label, Warning
2	6-827530-00	Nut, Keps, #6-32
3	Included in Item 5	Cap - Fuse Holder
4	6-865546-00	Fuse - 1.0 Amp, 250VAC, Time Delay
5	6-865500-00	Fuse Holder
6	6-616506-00	Shield, Protective, Power Supply
7	Included in Item 5	Nut - Fuse Holder
8	6-231942-00	Wire Harness - AC Input
9	6-231944-00	Wire Harness - Terminal Block to Fuse
10	6-814653-00	Screw - #6-32 x 3/8”, Pan Head, Self-Tapping
11	205523	Terminal Block
12	6-231943-00	Wire Harness - Ground (4”)
13	6-814008-00	Screw, Grounding
14	6-231938-00	Wire Harness - Ground
15	6-231943-01	Wire Harness - Ground (15”)
16	6-814669-00	Screw - #6-32 x 1/4”. Pan Head, Self-Tapping
17	6-867540-00	Power Supply Assembly
18	6-829628-00	Standoff
19	6-231936-00	Wire Harness - DC Output

Breakout and Relay Board Components - Master / Combo Alarm



ITEM	MODEL NUMBER	DESCRIPTION
1	6-868172-00	Ribbon Cable, Multiplexer, 40 Conductor
2	6-811608-00	Screw - #6-32 x 1/4”, Pan Head
3	6-231987-00	Circuit Board - Breakout
4	6-868173-00	Ribbon Cable, Relay, 40 Conductor
5	6-829628-00	Standoff
6	6-231988-00	Circuit Board - Relay

Sensor Components



ITEM	MODEL NUMBER	DESCRIPTION
1	6-814669-00	Screw - #6-20 x 1/4", Pan Head, Self-Tap
2	6-425428-00	End Cap
3		Sensor Mounting Assy. (incl. items 1,2,6,& 7
-	6-129340-10	Oxygen
-	6-129340-11	Nitrous Oxide
-	6-129340-12	Medical Air
-	6-129340-13	Vacuum
-	6-129340-14	Nitrogen
-	6-129340-16	Air (ISO)
-	6-129340-17	Vacuum (ISO)
-	6-129340-18	Instrument Air
-	6-129340-19	WAGD
-	6-129340-20	Carbon Dioxide
-	6-129340-21	CO2/O2
-	6-129340-22	O2/CO2
-	6-129340-23	He/O2
-	6-129340-24	O2/He
-	6-129340-25	Helium
-	6-129340-26	Lab Air
-	6-129340-27	Lab Vacuum
-	6-129340-28	O2 (100 PSI)
-	6-129340-29	Air (100 PSI)
-	6-129340-30	CO2 (100 PSI)
-	6-129340-31	Argon

ITEM	MODEL NUMBER	DESCRIPTION
4	6-231935-00	Sensor Pigtail
5		Digital Sensor
-	6-232460-00	Oxygen
-	6-232461-00	Nitrous Oxide
-	6-232462-00	Medical Air
-	6-232463-00	Vacuum
-	6-232464-00	Nitrogen
-	6-232465-00	Helium
-	6-232466-00	Lab Air
-	6-232467-00	Lab Vacuum
-	6-232468-00	Instrument Air
-	6-232469-00	WAGD
-	6-232470-00	Carbon Dioxide
-	6-232471-00	CO2/O2
-	6-232472-00	O2/CO2
-	6-232473-00	He/O2
-	6-232474-00	O2/He
-	6-232476-00	Air (ISO)
-	6-232477-00	Vacuum (ISO)
-	6-232478-00	Oxygen (100PSI)
-	6-232479-00	Air (100 PSI)
-	6-232480-00	CO2 (100 PSI)
-	6-232481-00	Argon
6	6-425555-00	Mounting Box

ITEM	MODEL NUMBER	DESCRIPTION
7		Console Rough-In
-	6-233010-00	Oxygen
		O2 (100 PSI)
-	6-233011-00	Nitrous Oxide
-	6-233012-00	Medical Air
		Air (100 PSI)
		Lab Air
-	6-233013-00	Vacuum
		Lab Vacuum
-	6-233014-00	Nitrogen
-	6-233016-00	Air (ISO)
-	6-233017-00	Vacuum (ISO)
-	6-233018-00	Instrument Air
-	6-233019-00	WAGD
-	6-233020-00	Carbon Dioxide
		CO2 (100 PSI)
-	6-233021-00	CO2/O2
-	6-233022-00	O2/CO2
-	6-233023-00	He/O2
-	6-233024-00	O2/He
-	6-233031-00	Argon

Labeling

ITEM	MODEL NUMBER	DESCRIPTION
1	6-435000-01	Label Set, Gas ID
2		Label, Gas ID
		(20/Sheet)
-	6-435000-10	Oxygen
	6-435000-11	Nitrous Oxide
-	6-435000-12	Medical Air
-	6-435000-13	Vacuum
	6-435000-14	Nitrogen
	6-435000-16	Air (ISO)
-	6-435000-17	Vacuum (ISO)
	6-435000-18	Instrument Air
-	6-435000-19	WAGD
-	6-435000-20	Carbon Dioxide
-	6-435000-21	CO2/O2
-	6-435000-22	O2/CO2
-	6-435000-23	He/O2
-	6-435000-24	O2/He
	6-435000-25	Helium
-	6-435000-26	Lab Air
-	6-435000-27	Lab Vacuum
-	6-435000-28	O2 (100 PSI)
-	6-435000-29	Air (100 PSI)
-	6-435000-30	CO2 (100 PSI)
-	6-435000-31	Argon
3	6-435985-00	Labels, System Status, Multi-Signal
4	6-435986-00	Labels, Location, Digital Module
5	6-435995-00	Label Set, Location, Panel, Area

Field Installation Kits

Field installation kits include everything required to replace a blank module with a digital display module or a multi-signal module. Digital display module kits include sensors.

ITEM	MODEL NUMBER	DESCRIPTION
1		Digital Display Module
-	6-290980-10	Oxygen
-	6-290980-11	Nitrous Oxide
-	6-290980-12	Medical Air
-	6-290980-13	Vacuum
-	6-290980-14	Nitrogen
-	6-290980-16	Air (ISO)
-	6-290980-17	Vacuum (ISO)
-	6-290980-18	Instrument Air
-	6-290980-19	WAGD
-	6-290980-20	Carbon Dioxide
-	6-290980-21	CO2/O2
-	6-290980-22	O2/CO2
-	6-290980-23	He/O2
-	6-290980-24	O2/He
-	6-290980-25	Helium
-	6-290980-26	Lab Air
-	6-290980-27	Lab Vacuum
-	6-290980-28	O2 (100 PSI)
-	6-290980-29	Air (100 PSI)
-	6-290980-30	CO2 (100 PSI)
2		Multi-Signal Module
-	6-290981-00	W/O Relays
-	6-290981-RL	W/ Relays

Notes

Master Alarm Signal Input Data

Breakout Board Input	Gas/Vacuum Type	LED Number (1-10)	Alarm Message	Location
A1				
A2				
A3				
A4				
A5				
A6				
A7				
A8				
A9				
A10				
A11				
A12				
A13				
A14				
A15				
A16				
A17				
A18				
A19				
A20				
A21				
A22				
A23				
A24				
A25				
A26				
A27				
A28				
A29				
A30				
A31				
A32				

Master Alarm Signal Input Data (Cont.)

Breakout Board Input	Gas/Vacuum Type	LED Number (1-10)	Alarm Message	Location
B1				
B2				
B3				
B4				
B5				
B6				
B7				
B8				
B9				
B10				
B11				
B12				
B13				
B14				
B15				
B16				
B17				
B18				
B19				
B20				
B21				
B22				
B23				
B24				
B25				
B26				
B27				
B28				
B29				
B30				
B31				
B32				

Warranty

BeaconMedæs warrants the equipment it manufactures to be free of defect in materials or workmanship when installed and operated in accordance with instructions for the following periods. All of the periods commence upon shipment or at start up, whichever period terminates earlier.

This warranty covers all necessary parts and labor required for correction of the defect whether by any or all of repair, replacement, or credit, which election shall be made by BeaconMedæs at it's sole discretion.

This warranty requires the owner to ensure that the equipment is 1) started up or placed in service by an authorized representative of BeaconMedæs, which includes the completion and forwarding to BeaconMedæs of an appropriate start-up checklist, 2) certified in accordance with NFPA 99, most recent edition, by a properly qualified verification agency, and 3) maintained in strict accordance with Operation and Maintenance instructions provided with the product.

Warranty claims will be honored only after examination by BeaconMedæs and only when such examination shall disclose to BeaconMedæs' reasonable satisfaction that such equipment has not been damaged in shipment or installation, improperly installed, operated outside of any published operating limits (including but not limited to temperature, pressure, humidity, or ventilation), improperly or inadequately maintained, field modified in any way, improperly repaired, or in any other way improperly applied or used.

All claims against this warranty require prompt notification, within the warranty period, of any seeming defect. Failure to promptly notify BeaconMedæs of the seeming defect will invalidate all warranties.This warranty excludes damage or defect caused by shipping, acts of God, fire, war, labor difficulties, action of government, or other cause beyond the reasonable control of BeaconMedæs.

This warranty is given in lieu of all other warranties, expressed or implied, including implied warranties of fitness for a particular purpose and merchantability.

In no event shall BeaconMedæs be liable for damages in excess of the value of the defective product, nor shall BeaconMedæs be liable for any direct, special or consequential damages, loss of profit of any kind, or for loss of use of the products.

	Standard Warranty Periods		
	From Shipment	From Startup	Limitation:
LifeLine Medical Air Systems	30 months	24 months	Bare Compressor as below.
LifeLine Bare Compressors	36 months	30 months	Normal consumables warranted as below.
Compressor Head valves	12,000 operating hours or 4 years		
Compressor Rings and Bearings	8,000 operating hours or 3 years		
LifeLine Desiccant Dryer Systems	30 months	24 months	The "441 Valve" in all LifeLine dryers is warranted for 10 (Ten)Years
LifeLine Lubricated Vane Vacuum	30 months	24 months	
LifeLine Oilless Vane Vacuum	30 months	24 months	Vane Life varies with horsepower. Vane Replacement may be required within this interval. Refer to manual for detail.
LifeLine Liquid Ring Vacuum	30 months	24 months	
LifeLine Dynamic Vacuum	30 months	24 months	
Lifeline Claw (standard lubricant)	30 months	24 months	
Lifeline Claw (O2 Assured)	30 months	24 months	
Pipeline products	30 months	24 months	

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BEACONMEDÆS®

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