

# ONGUARD®

**FG8800 SYSTEM**

**ADDRESSABLE INDUSTRIAL GAS/FIRE SAFETY PANEL**

## FG8800 GAS/FIRE PRODUCT MANUAL



***Fire and Gas System Integration  
in a Single Enclosure  
Touch Screen Operation  
Open Architecture  
Accommodates 19" Rack or  
Panel Mount***

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Publication REV A

# ALLESTEC FG8800 INDUSTRIAL GAS / FIRE CONTROL PANEL

**AUTOMATIC SUPPRESSION SYSTEM**  
RELEASE UPDATE VERSION 5/4/2012  
OPERATIONS MANUAL PART NUMBER FG8800-5140A

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Each node carries the following ATEX approval.



**THE CONTROL PANEL UTILITY MENU CODE VERSION  
MUST MATCH THIS OPERATIONS MANUAL .  
FOR CURRENT CODE UPDATES REFER TO ALLESTEC WEB SITE.**

**IMPORTANT: REFER TO SECTION 30 OF THIS MANUAL  
FOR CODE INFORMATION.**

CURRENT PRODUCTS	FIRMWARE VERSION	RELEASE DATE
THIS MANUAL VERSION A		
ONGUARD APPLICATION PROGRAM	2.67	1/04/06
INPUT NODE FG8800-1060	2.00	3/15/05
4-20MA NODE FG8800-1700	2.01	8/04/05
SOM NODE FG8800-1705	2.00	3/15/05
RELAY NODE FG8800-1725	2.00	3/15/05
MASTER CONTROLLER (MC)	2.01	9/10/05

Department \_\_\_\_\_

Name \_\_\_\_\_

Phone Number \_\_\_\_\_

Cell Number \_\_\_\_\_

Date \_\_\_\_\_

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# 1. INTRODUCTION

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The Allestec ONGUARD FG8800 gas/fire panel provides continuous surveillance of system components by interrogating intelligent devices connected to the panel through an addressable configuration. The powerful configuration manager emulates cause and effect logic processes enabling simple programming techniques of all system components. The system is designed to allow personnel familiar with conventional control panels to fully develop and utilize the features of the FG8800 without extensive training or special schooling. The system uses an "open concept" of simple I/O building scripts for each action of mapping a node. After several small scripts have been built, they can be mapped to other scripts or overlaid on open scripts allowing a multifunction logical connection.

## 1.1 UNDERSTAND AND READ THIS MANUAL COMPLETELY

**The administrator as well as any person that corresponds with the operation of this control panel must read and understand completely the entire operations manual. It is essential that this manual is READ COMPLETELY prior to implementing the examples contained herein. The chapter sections listed in the table of contents are in a methodical order. It is recommend the responsible administrator installing and operating the control panel start with this section and subsequently proceed through each and every chapter. It is imperative that each configuration is tested as described in section 21 prior to commissioning the system.**

## 1.2 CONTROL PANEL DESCRIPTION

The panel consists of a proprietary internal computer interfaced to a master control module. The master control module is internal to the control panel and is responsible for communicating between the computer and the field nodes as well as local system output relays. The system control panel consists of an EIA 19" rack, 3U in height, that measures 5.22" (132.5mm) high. The control panel's functions are controlled through a high quality color TFT touch screen and require no panel switches. All alarm controls are accomplished through the touch screen display. Remote alarm reset can be implemented through the addressable input nodes. The design criteria consist of hardware, software and firmware at all levels of integrity. Although primarily designed for industrial installations, the FG8800 can be utilized in commercial applications as well. A system consists of the FG8800 panel with the addition of any of the four field modules. Software is included with the panel and can be updated as necessary. Refer to drawing 1 for a complete overview and 2 to view an isometric view of the control panel.

## 1.3 SYSTEM ARCHITECTURE

□ The ONGUARD FG8800 control panel serves as the central processor for the entire system. The control panel connects to all field addressable nodes via a 4-wire bus (2 for power, and 2 for communication) that is continuously monitoring the input detectors and output appliance devices.

□ The nodes are scanned from the control panel for alarms, faults, warnings and other types of activity. A choice to monitor a class A or B bus configuration, is selectable.

□ All remote monitoring protocol devices such as Modbus and TCP/IP internet are connected directly to the control panel as well as the configuration video monitor.

□ System 24VDC power is supplied directly to the control panel rear terminal strip. Output nodes that power appliances can require their separate 24VDC input.

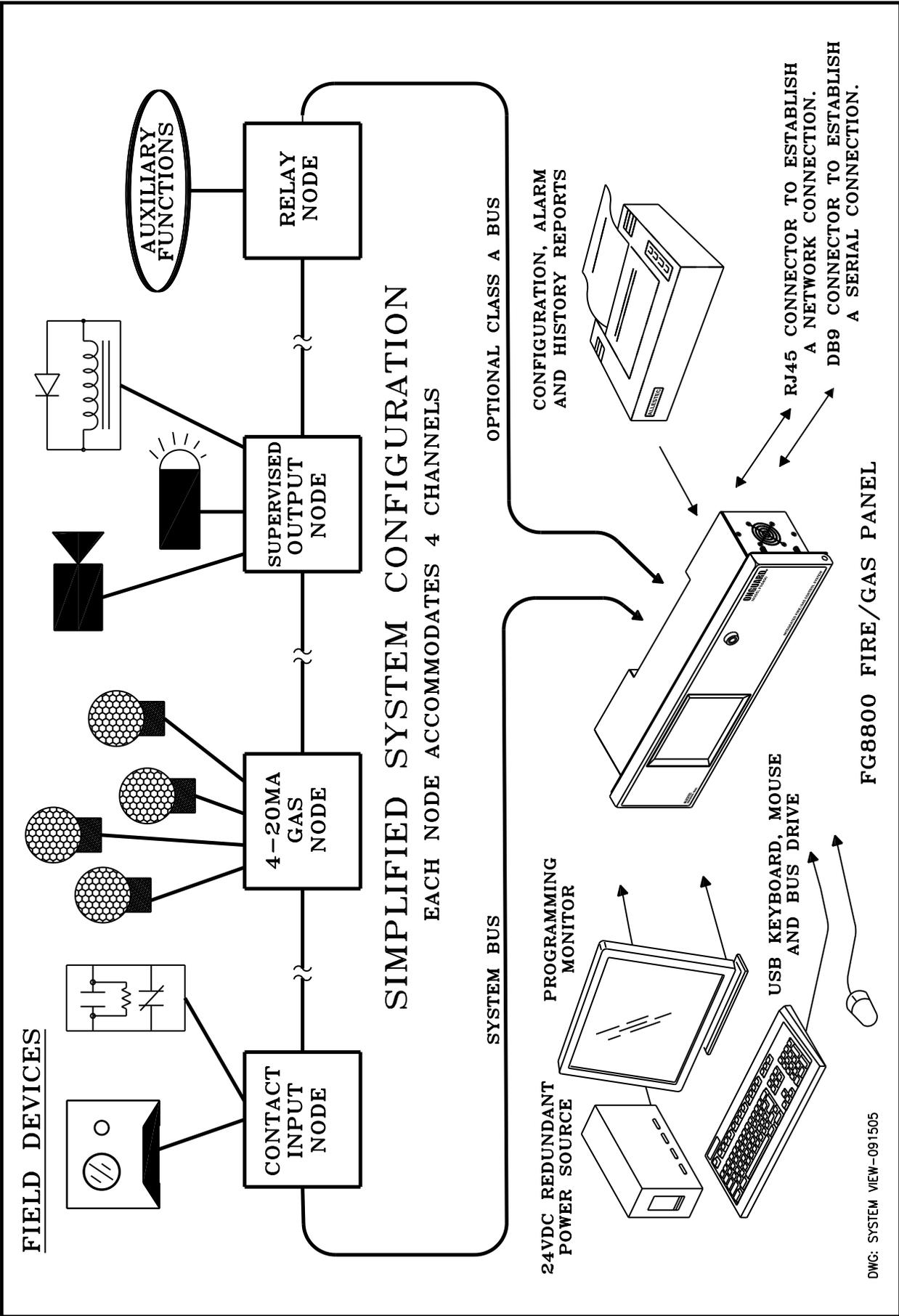
□ The control panel is very simple to setup. Just determine the amount of devices to connect to the input and output nodes. Each node accommodates 4 inputs or outputs and can be utilized in many configurations.

## 1.4 REQUIRED PROGRAMMING TOOLS

To program the control panel, a truly Windows compliant USB PC keyboard, USB mouse and a VGA video monitor connect to the front control panel. The external VGA monitor is utilized only during the configuration mapping of the nodes since this process requires a large screen. Once the control panel has been configured and programmed, the data can be saved to a USB bus drive or local flash memory and the connected peripherals can then be removed.

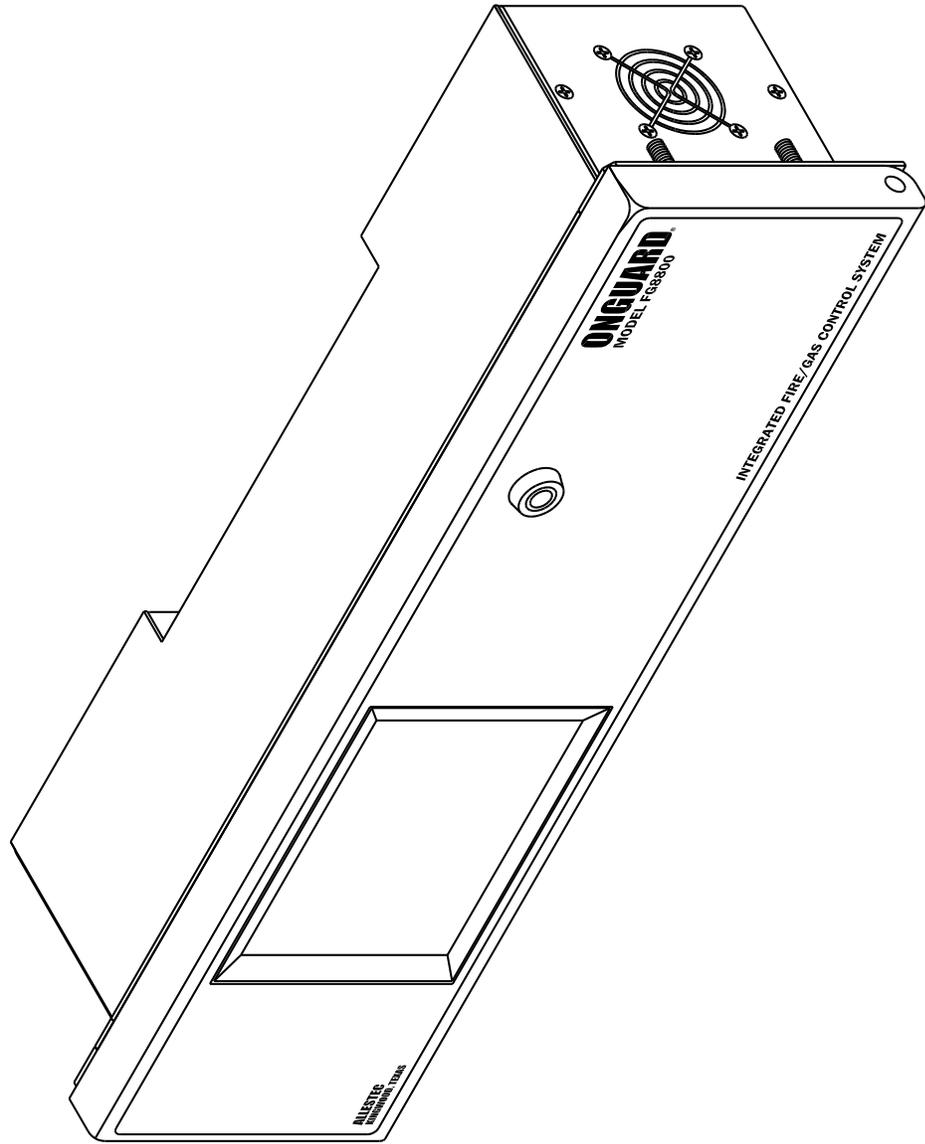
## 1.5 INFORMATION ACCESSIBILITY

All current events, configuration names, history information and other alarm events are easily accessible from queuing the panel display. Most of this information may be viewed instantly on the screen or can be printed on demand. Other protocol configurations are available through the standard Modbus output as well as other methods such as the optional TCP/IP interface.



DRAWING 1

ISOMETRIC VIEW OF THE FG8800 PANEL



DWG: ISOMETRIC-091505

DRAWING 2

## 2. SYSTEM HARDWARE INSTALLATION

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### 2.1 INSTALLATION SUGGESTIONS

Installation designers should design the location of all field devices as well as their input detectors and output appliances prior to installing the system. A complete point-to-point wire diagram should be available prior to programming to simplify procedurally how the system will come together. A node is the addressable module that connects to the system bus to monitor inputs and activate appliances. The word node is used interchangeably with module. Cause and effect charts can also assist in the ability to convey proper configuration techniques. Understand how the field nodes are connected and how their multi-channel inputs as well as outputs can be utilized to build the most efficient system.

This control panel is designed to indicate an alarm condition when the initiating devices connected to it detect change in conditions. These conditions may or may not represent a life-threatening condition. Also, evacuation of a building or area unnecessarily may subject individuals to an unnecessary hazard. Therefore, it is most important that the building owner, manager or representative promulgate, distribute, and/or post instructions describing steps to be taken when the gas/fire alarm control panel signals an alarm condition. These instructions should be developed in cooperation and conformance with representatives of the local authority having jurisdiction.

Along with the use of this instruction manual, the appropriate following standards and the manufacture's instructions for initiating and notification devices should be utilized to install and maintain a functioning fire alarm signaling system:

- NFPA 70 Nations Electrical Code
- NFPA 72 National Fire Alarm Code
- NFPA 101 Life Safety

For other standards that may apply contact the local authority having jurisdiction.

WIRING SHALL BE PER PLAN WITH RESPECT TO CONDUCTOR SIZE, TYPE AND QUANTITY. CONDUCTORS SHALL BE PERMANENTLY MARKED FOR FUTURE IDENTIFICATION. PERMANENT WIRE MARKERS SHALL BE USED TO IDENTIFY THE TERMINATIONS OF ALL CONDUCTORS WITHIN THE FACP, PULL BOXES AND OTHER PANELS (REF. NEC 760.10).

INSTALL EQUIPMENT AND CABLING IN A ORGANIZED AND WORKMANLIKE MANNER WHILE MAINTAINING PROPER SUPPORT. CABLES THAT ARE EXPOSED ON THE SURFACE OF CEILINGS AND SIDEWALLS MUST BE SUPPORTED BY THE STRUCTURE COMPONENTS OF A BUILDING IN A MANNER THAT PREVENTS DAMAGE FROM NORMAL USE. CABLES CAN BE SECURED TO STRUCTAL COMPONENTS BY STRAPS, STAPLES, HANGERS OR SIMILAR FITTINGS DESIGNED AND INSTALLED SO AS TO NOT DAMAGE THE CABLE (REF. NEC 760.6, UN760-08 760-0601.CDR).

### 2.2 MOUNTING THE CONTROL PANEL

Refer to drawing 3 to identify and mount the control panel in a standard EIA 19" high rack. Panel mounting is also an option for mounting on a flat surface. First, open the control panel door with the key provided. Utilize the supplied mounting hardware to mount the control panel. Install the panel in an environment that is free of airborne particles, rain and condensation. The panel is designed to be located in the interior of a building within a NEMA 1 classification.

### 2.3 PROPER WIRING TECHNIQUE

The use of stranded conductors is recommended in the installation of all connections. Stranded wires are less susceptible to breakage as well as vibrating out from a connection. Any terminal requiring a wire connection must be completely opened prior to inserting the wire. Strip wires so there is ¼" (6.35 mm) insulation removed. It is imperative there are no conductors that are nicked or cut within a wire when it is stripped. All bare wire strands must be twisted prior to inserting into the terminal strip. The terminal blocks are high quality strips that employ a "boxed elevator" style wire clamp. After the twisted wire is inserted into the terminal, hold it against the back of the terminal opening while tightening down on the setscrew.

IMPORTANT: After stripping the outer insulator of a wire cable, make sure that the twisted pair of wires from the cable remain twisted as much as possible to the terminal strip. This procedure retards reflected waves in the cable assembly.

**CAUTION: DO NOT USE DIFFERENT BUS WIRE SIZES IN THE INSTALLATION OF THE SYSTEM. DOING SO WILL CAUSE IMPEDENANCE MISMATCH AND REFLECTIVE WAVES THEREBY REDUCING THE ABILITY OF THE PANEL TO DISCRIMINATE BETWEEN DIGITAL SIGNALS. ALL BUS CONDUCTORS MUST BE OF THE SAME SIZE. DO NOT SPLICE THE BUS ANYWHERE**

#### **2.4 POWER SUPPLY AND CONNECTIONS**

The control panel must be connected to a dedicated primary electrical source that has a high degree of reliability and adequate capacity for this system as well as all connecting field devices. The only method of disconnecting this power source shall be available only to authorized personnel and clearly marked “**Fire Alarm Circuit Control**”. The control panel must be connected to a redundant 24VDC power source that has enough capacity to properly operate the system for 24 or 60 (depending on system type) hours standby and 5 minutes alarm, per NFPA 72 (Chapter 1). Batteries normally loose capacity with age, temperature and duty cycle. Batteries must be replaced when they fail to provide the control panel with the required standby and alarm power for performance at least two (2) times a year or more often if local requirements dictate. Always remove the power from the backup batteries first, then remove the primary power source. Wait at least 10 seconds to allow the supply voltages to decay before installing or removing any node, cable or wiring.

**CAUTION: DO NOT DISCONNECT THE POWER TO THE CONTROL PANEL WHILE THE ON-GUARD PROGRAM IS RUNNING OR ANY FILE IS OPENED. DOING SO COULLD RESULT IN THE CORRUPT OF MEMORY FLASH DATA. REFER TO SECTION 26.1 FOR MORE INFORMATION.**

Refer to drawing 4 to connect power to the panel and drawing 13 and 14 to power the field nodes. The panel operates from 18 to 30 VDC and requires a redundant 24V power source to comply with NFPA. To correctly size the power supply for the system, add the current of each node as well as the current supplied to all initiating and appliance devices, then add the current of the control panel into the figure. After adding all the devices, take 25% of the total current demand and add it back to the result for headroom during appliance turn-on surges and other current requirements. If the ambient temperature of the power supply is higher than 72 deg. F (22 deg. C), refer to the manufactures specifications to correctly de-rate the power supply for a rise in ambient temperature. Allow enough headroom for power conductors to provide current under these adverse circumstances:

1. Long power wire runs have voltage drops thereby delivering less voltage to the intended nodes.
2. Higher temperatures lessen the efficiency of carrying current through power wires.
3. Improper wiring and termination (loose set screws) of conductors decrease the efficiency of the power conductors, especially where vibration exists.
4. Aging conductors over time loose their ability to carry specified current.
5. Splicing wires is not recommended since it increases stray capacitance and inductance thereby impeding the performance of the data transfer.
6. Terminations with dissimilar connections will attribute to an electrolysis reaction thereby galvanizing the connection and increasing contact resistance.

Do not apply power to the panel until there has been a through inspection of all field and local panel wiring. The panel may be powered without connecting the bus to browse through the features.

**CAUTION: DO NOT ATTEMPT TO CONNECT OR DISCONNECT ANY FIELD WIRING OR POWER SOURCES WHILE THE SYSTEM IS ON LINE, DOING SO CAN CAUSE SYSTEM DAMAGE OR A POSSIBLE AGENT RELEASE.**

## 2.5 UTILIZING MORE THAN ONE POWER SUPPLY (PARALLEL CONNECTION)

On systems that utilize long enough lengths of cable to require a power supply at the middle or end of the system, the following criteria must be met:

1. **All power supplies must share a common negative.**
2. **Do not connect a switcher power supply to another switcher unless the manufacturer allows.**
3. **Some linear power supplies are capable of being connected in parallel.**
4. **All power supplies in the system connected in parallel MUST be turned on at the same time.**

## 2.6 SOURCING EXTERNAL POWER TO THE SUPERVISORY OUTPUT MODULE (SOM)

Installations that accommodate appliances that exceed the current carrying capability of the bus power load will require an external 24V source connection to the SOM. Most installations will require this technique. Refer to drawing 11 and locate terminals TB4-1&2 on the SOM. Connect a 24V power and negative wire here appropriately sized to accommodate the maximum current of all appliances when they are turned on.

NOTE: The application of 24VDC at this connection will connect the control panel and external power supply negative together.

Locate the shunt connected to J4 to the "SPARE" slot when utilizing the external 24V. This shunt location isolates the bus positive 24V from the external 24V. The external 24V input is supervised for power loss and will present a fault on loss of power. The SOM is capable of sourcing 24VDC @ 7.5 amps per channel. NOTE: The total maximum current the SOM can supply to all channels simultaneously is 20 amps @ 72 deg. F. Locate the shunt at J4 across the #1,2 pins when powering the SOM from the bus. The SOM utilizes a standard mini ATO series automotive fuse for each of the four channels.

## 2.7 BUS STYLE RESTRICTIONS

NOTE: Node field wire configurations that consist of T-Tap (parallel wiring) or Star configurations are prohibited. All addressable node circuits shall be continuous only.

## 2.8 BUS SPEED AND SYSTEM INTEGRITY

A design criteria dictates the maximum data transfer speed at the safest operating conditions for a given length of bus cable. However, another influence dictates the same criteria and that is the law of physics. The nominal polling rate is 25ms per node. An example is a system with 40 nodes will take 1 second to scan the entire bus.

System bus monitoring ensures the integrity of the alarm and continuously communicates with all nodes. The control panel will detect and report failure due to:

1. Broken or shorted wires.
2. Loss of node supply voltage.
3. Loss of communications with any node and will then subsequently issue a fault alarm.

A fault alarm notifies the administrator that broken or shorted wires exists so that a repair can be completed as soon as possible, and the integrity of the alarm system will be restored in a timely manner. The alarm integrity is assured by continuously communicating with every node in the system. The panel will report any bus failure so that the problem can be repaired to continue the integrity of the alarm system.

## 2.9 MOUNTING THE ADDRESSABLE NODES

Locate nodes in locations that have easy access and are able to easily connect to other nodes for the system bus. Input nodes are small enough to fit into some manual pull boxes directly. Other methods of mounting the nodes can include double gang switch boxes or 4" diameter round explosion proof junction boxes. Adapters are also available to connect the nodes to a DIN rail mount. Nodes that are not connected to a DIN connector are supplied with a round standoff to raise the assembly clear of its mounting panel. Since mounting panels supplied by customers range in different thicknesses, the mounting screws are not supplied. It is highly recommended to use stainless hardware when assembling the nodes to their panels. As indicated in the node field wiring drawings, connect the supplied ring terminal to a wire that terminates to earth ground. This connection ensures maximum surge protection from transients. Refer to the accessory list for part numbers. Many nodes can also be mounted in a single enclosure to connect to field devices creating a distributed configuration. These locations are determined by the area classification of atmospheric hazards and must be adhered to such regulations. The nodes shall be readily accessible where installed. **All nodes in the field as well as system drawings shall be clearly marked with the node ID.**

Refer to drawing 7 to identify the spacing of the mounting holes for the input and 4-20ma node and drawing 10 for the SOM and relay nodes. Each node accepts four 6-32 screws with a node mounting depth of .25" (6.35MM).

The time delay between the activation of an initiating device and the automatic activation of a local fire safety function shall not exceed 20 seconds. Effective January 1, 2002, the time delay between the activation of an initiating device and the automatic activation of a local fire safety function shall not exceed 10 seconds.

## **2.10 BUS POLLING TECHNIQUE**

The system interrogates each node on the bus in numerical address sequence when polling. The nodes responds to any alarm or fault conditions that may have occurred since the previous poll. If the node is interrogated but does not respond, the system repeats the interrogation for a total of three attempts. While in the Start of Loop bus mode (no return of the bus), if the node fails to respond for a total of three interrogations, a communication fault is created for that node.

The bus polling can be configured to be either single ended as Start of Loop, or Loop Back mode, (class A, refer to drawing 13, class B, refer to drawing 14). In the Loop Back mode, if the node fails to respond, i.e., short, open, hardware failure, for a total of three consecutive interrogations on the Start of Loop bus, a Loop Break fault is created and three interrogations are attempted on the End of Loop bus. If the node responds on the End of Loop bus, monitoring alarms continues normally. If the node does not respond to the End of Loop interrogation, a communication fault is created for that node. After issuing a communication fault, the system resets its configuration to interrogate the node on the Start of Loop bus on the next scan. The process will be repeated on subsequent scans.

## **2.11 DETERMINE CLASS A OR B WIRING**

Refer to drawing 13 to wire the control panel for class A and 14 for class B configuration. A 120 ohm ELR (end of line resistor) will be required at the end of the last node as indicated on the drawing for a class B configuration.

## **2.12 FIELD BUS WIRING**

Drawing 13 is indicates a class A configuration for the system bus. The class A configuration allows redundant passage of alarm signals. In this technique if one of the field bus lines is severed it does not interfere with the alarm signals. To properly operate this method the bus cable returning to the panel must be located in a separate raceway. Drawing 14 shows the more common class B wiring technique where the bus is connected utilizing a single terminating ELR. This bus wiring is the most common and economical since it is not require to return back to the control panel.

## **2.13 BUS COMMUNICATIONS and WIRE SPECIFICATION**

The communication cable is critical in that it must not be crimped or folded more than a 90 degree angle without a radius at least twice its diameter. One type of recommended bus to wire the nodes is Alpha P/ N 2466C or equivalent and can be utilized for small installations. This cable consists of two twisted pairs of wires that are 22 gage and a drain shield. The red and black is one twisted pair and the green and white is the other twisted pair. Each twisted pair contain their own shield. The drain conductor serves as a shield and is connected to earth ground only at one location whether class A or B is utilized. Refer to drawing 13 and 14 for more information. All wire conductors will be stranded.

**CAUTION: DO NOT CHANGE GAGE SIZE OF BUS WIRING WITHIN THE SAME RUN.  
DO NOT UTILIZE SPLICING DEVICES ANYWHERE ON THE BUS. BUS CUTS ARE  
ALLOWED ONLY AT THE TB1 TERMINAL.**

## **2.14 ADDITIONAL WIRE REQUIREMENTS**

Installations requiring high current capacity for driving notification appliance circuits are not to be powered through the bus resident power conductors but must be separately connected. Refer to drawing 11 to provide a separate power conductor to the supervise output module.

**IMPORTANT:** Systems requiring nodes demanding more current than the 4-wire bus can carry will be required to utilize heavier power conductors separate from the signal bus. In this case, the bus will contain two conductors with a shield wrapped in a PVC sheathe while the power conductor will contain two conductors large enough to sustain the required current to satisfy the nodes as well as their appliances.

### **2.15 CONNECTING NODES TO APPLIANCES**

After a full system configuration has been designed, the nodes can be attached to their proper input and outputs. Connect the node appliance as suggested in the typical field wiring as indicated drawings 8,9,11,and 12. Node appliances can be wired in now or added later, before or after all node ID's have been established. Adding node appliances later precludes any field wiring problems should they occur and makes troubleshooting easier if a problem occurs.

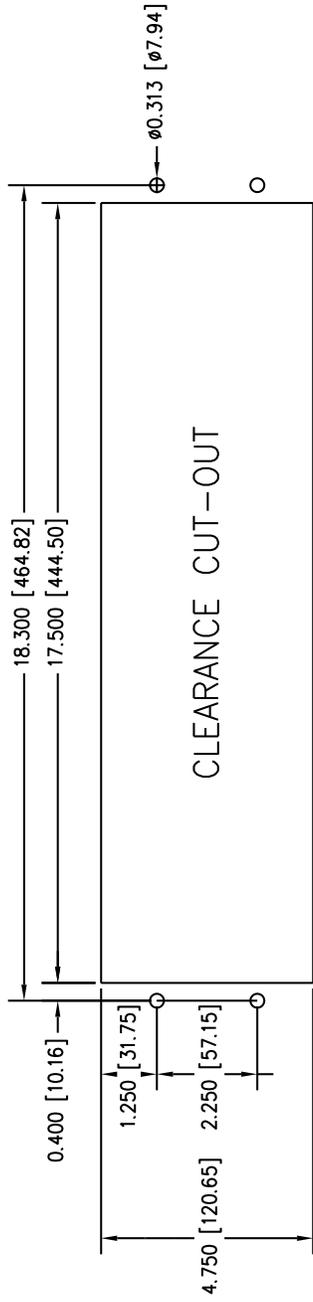
### **2.16 EARTH GROUND and CHASSIS**

Connect a wire (with 1 ohm or less) from the chassis ground terminal screw, located and indicated on the rear of the control panel. Refer to article 760 of the National Electrical Code for more information.

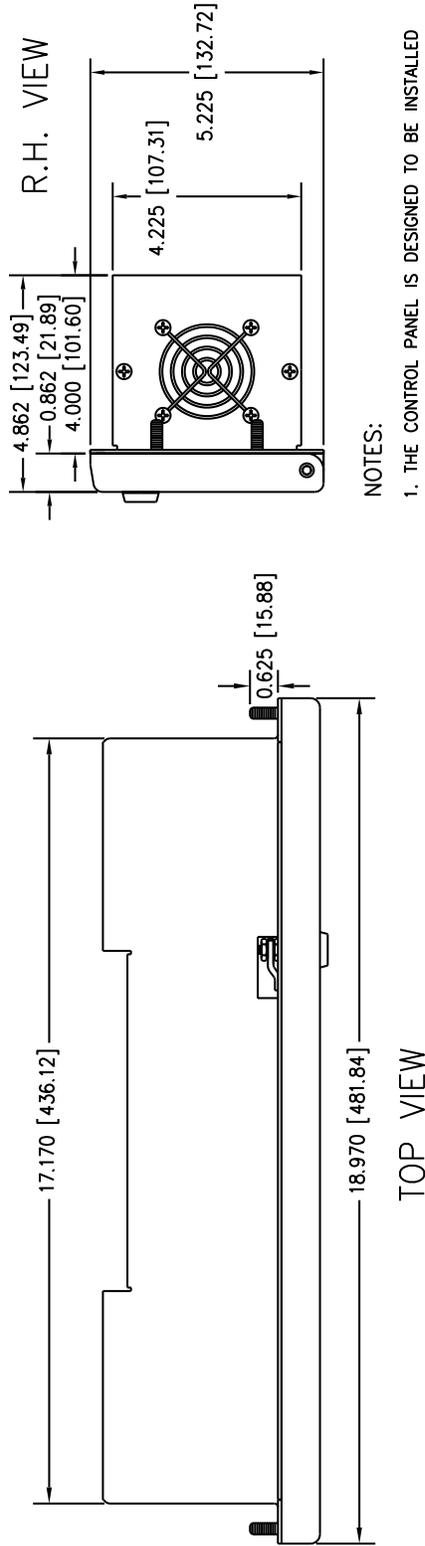
### **2.17 END OF LINE (ELR) SUPERVISING RESISTORS (Supplied)**

All end of line resistors are rated at least .25 watt for the input node and the supervised output module. A carbon composition resistor is recommended because of its robust construction. All resistors must have at least a 5% tolerance and be valued at 3.9K ohms. Refer to the figures relating to the nodes to establish proper connection. The resistors serve as a purpose to pass a small supervisory current through an open contact (relay or switch contact) to validate if an electrical connection has lost continuity (exp. a severed wire). The communications loop resistor is different in only that its value is 120 ohms and is only utilized once as indicated in drawing 14.

# RECOMMENDED PANEL CUT-OUT - FOR FLAT SURFACE MOUNTING -



## OVERALL DIMENSIONS



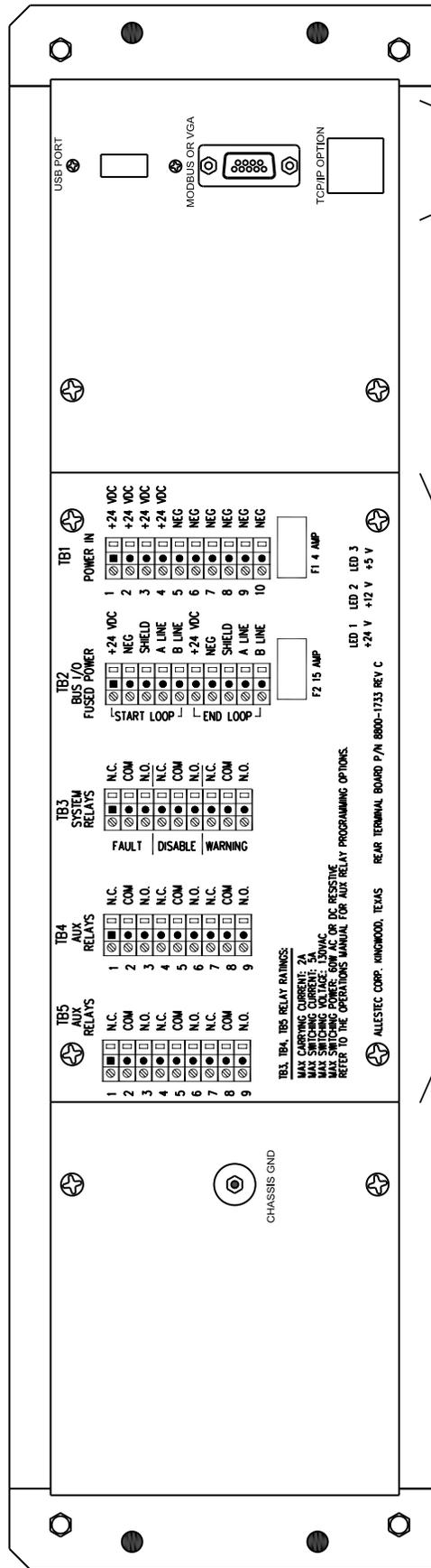
### NOTES:

1. THE CONTROL PANEL IS DESIGNED TO BE INSTALLED IN A EIA STANDARD 3U 19" RACK OR PANEL MOUNTED.
2. FOR PANEL MOUNTING, USE THE CLEARANCE CUT-OUT DIMENSIONS.
3. 1U = 1.75" OR 44.54MM
4. MOUNTING SCREWS ARE 1/4-20 X .625"
5. DO NOT RESTRICT THE VENTILATION AREAS ON EACH SIDE OF THE PANEL.

DWC: OVERALL-DIM-091505

# COMPLETE REAR VIEW OF THE FG8800 PANEL

NOTE:  
SYSTEM PROTOCOL PORT LOCATIONS MAY  
CHANGE LOCATIONS PER CUSTOMER REQUEST.

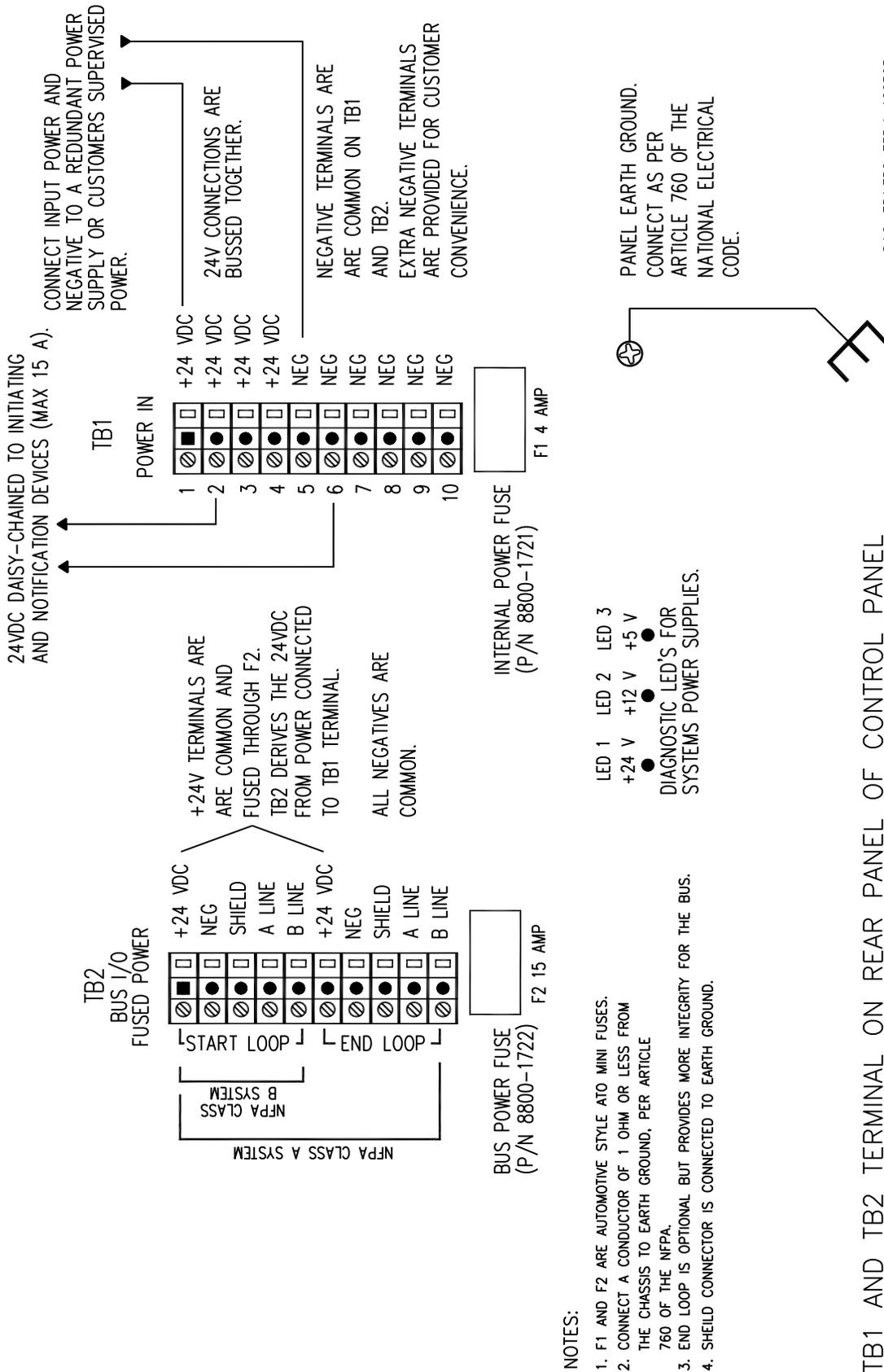


SYSTEM PROTOCOL  
PORTS

POWER, SYSTEM BUS, SYSTEM RELAYS,  
FUSES AND AUXILIARY RELAY CONNECTIONS

DWG: REAR-VIEW-PNL-010506

# CONTROL PANEL POWER AND BUS CONNECTIONS



DWG: TB1, TB2-TERM-120505

TB1 AND TB2 TERMINAL ON REAR PANEL OF CONTROL PANEL

DRAWING 5

# SYSTEM LOCAL ALARM AND AUXILIARY RELAYS

TB5 (OPTIONAL)  
AUX  
RELAYS

1	<input type="checkbox"/>	N.C.
2	<input checked="" type="checkbox"/>	COM
3	<input type="checkbox"/>	N.O.
4	<input type="checkbox"/>	N.C.
5	<input checked="" type="checkbox"/>	COM
6	<input type="checkbox"/>	N.O.
7	<input type="checkbox"/>	N.C.
8	<input checked="" type="checkbox"/>	COM
9	<input type="checkbox"/>	N.O.

TB4 (OPTIONAL)  
SYSTEM  
RELAYS

1	<input type="checkbox"/>	N.C.
2	<input checked="" type="checkbox"/>	COM
3	<input type="checkbox"/>	N.O.
4	<input type="checkbox"/>	N.C.
5	<input checked="" type="checkbox"/>	COM
6	<input type="checkbox"/>	N.O.
7	<input type="checkbox"/>	N.C.
8	<input checked="" type="checkbox"/>	COM
9	<input type="checkbox"/>	N.O.

TB3  
SYSTEM  
RELAYS

<input type="checkbox"/>	N.C.
<input checked="" type="checkbox"/>	COM
<input type="checkbox"/>	N.O.
<input type="checkbox"/>	N.C.
<input checked="" type="checkbox"/>	COM
<input type="checkbox"/>	N.O.
<input type="checkbox"/>	N.C.
<input checked="" type="checkbox"/>	COM
<input type="checkbox"/>	N.O.

FAULT | DISABLE | WARNING

FAULT RELAY IS FAIL SAFE AND  
AND CHANGES STATE ON ANY  
SYSTEM FAULTS. RELAY IS SHOWN  
WHEN SYSTEM IS NOT POWERED.  
DISABLE RELAY CHANGES STATE  
WHEN ANY CONFIGURATION IS  
UNLOADED.  
WARNING RELAY CHANGES STATE  
WHEN ANY WARNING ALARM  
OCCURS.

TB3, TB4, TB5 RELAY RATINGS:

MAX CARRYING CURRENT: 2A  
 MAX SWITCHING CURRENT: 5A  
 MAX SWITCHING VOLTAGE: 130VAC  
 MAX SWITCHING POWER: 60W AC OR DC RESISTIVE  
 REFER TO THE OPERATIONS MANUAL FOR AUX RELAY PROGRAMMING OPTIONS.  
 TB3, TB4 AND TB5 ON CONTROL PANEL ARE DRY CONTACT RELAYS.

NOTES:

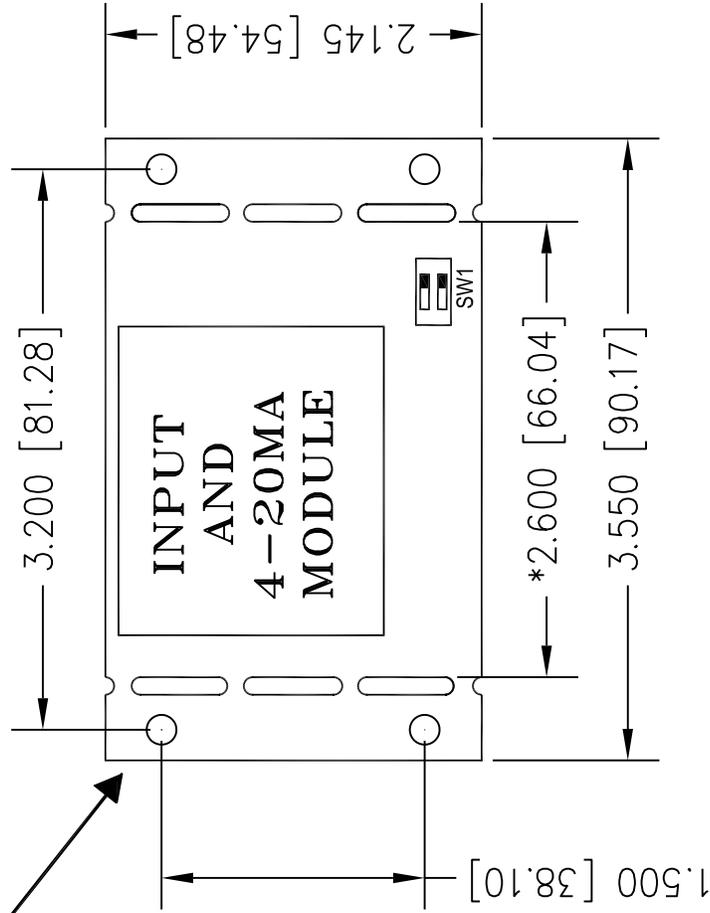
1. FAULT RELAY IS SHOWN WITH NO POWER APPLIED TO THE PANEL.
2. AUXILIARY RELAYS CAN BE UTILIZED TO SIGNAL PLC'S OR OTHER LOW POWER DEVICES. AUXILIARY RELAYS REQUIRE CUSTOM PROGRAMMING PER CUSTOMERS REQUEST.

# MODULE MOUNTING DIMENSIONS

**NOTES:**

1. DIN MOUNTING BRACKET (35MM) IS AVAILABLE. FOR THIS OPTION, SPECIFY PART NUMBER 8800-5121.
2. FOUR MOUNTING HOLE DIAMETERS = .170", [4.32MM].
3. \* FOR CONSTRAINT AREAS, ALLESTEC CAN REMOVE END TABS ALLOWING MODULE TO ACCOMMODATE A STANDARD ONE GANG ELECTRICAL SWITCH BOX.
4. TOLERANCES ARE = +/- .005 (.127).
5. INPUT & 4-20MA MODULE MAX DEPTH = .9" [22.86].

4 (6-32) SCREW COLLARS SUPPLIED WHEN DIN CONNECTOR IS NOT UTILIZED.



MODEL FG8800-1060 INPUT MODULE, FG8800-1725 RELAY MODULE

DWG: IM-4-20MA-MTGDIM-112005



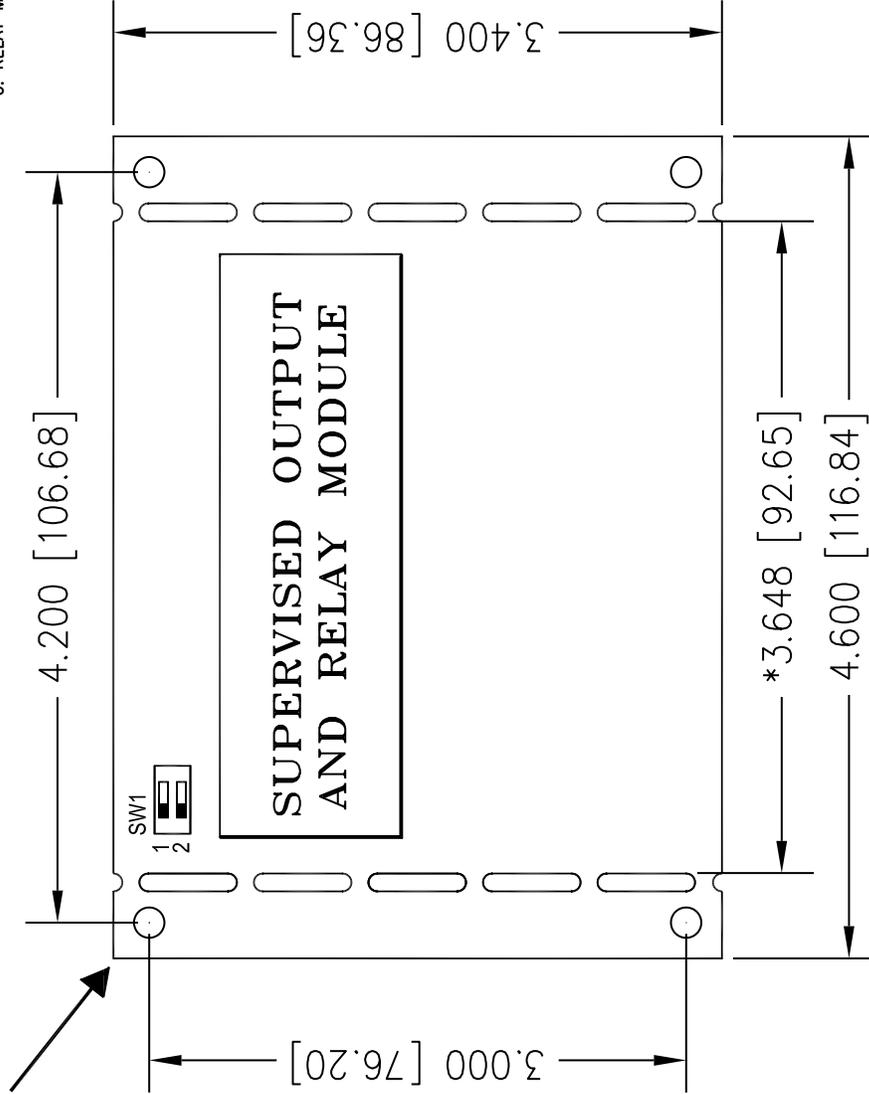


# MODULE MOUNTING DIMENSIONS

**NOTES:**

1. DIN MOUNTING BRACKET (35MM) IS AVAILABLE. FOR THIS OPTION, SPECIFY PART NUMBER 8800-5139
2. FOUR MOUNTING HOLE DIAMETERS = .170" [4.32MM].
3. \* FOR CONSTRAINT AREAS, ALLESTEC CAN REMOVE END TABS ALLOWING MODULE TO ACCOMMODATE A 4-0 ELECTRICAL JUNCTION BOX. TOLERANCES ARE = +/- .005 (-.127).
5. SOM MAX DEPTH = 1.5" [38.02].
6. RELAY MODULE MAX DEPTH = 1.5" [38.1].

4 (6-32) SCREW COLLARS SUPPLIED WHEN DIN CONNECTOR IS NOT UTILIZED.



MODEL FG8800-1705 SUPERVISED OUTPUT MODULE, 1725 RELAY MODULE

DWG: SOM-RM-MTGDIM-112005

# FIELD WIRING (EXAMPLES)

## SUPERVISED OUTPUT MODULE

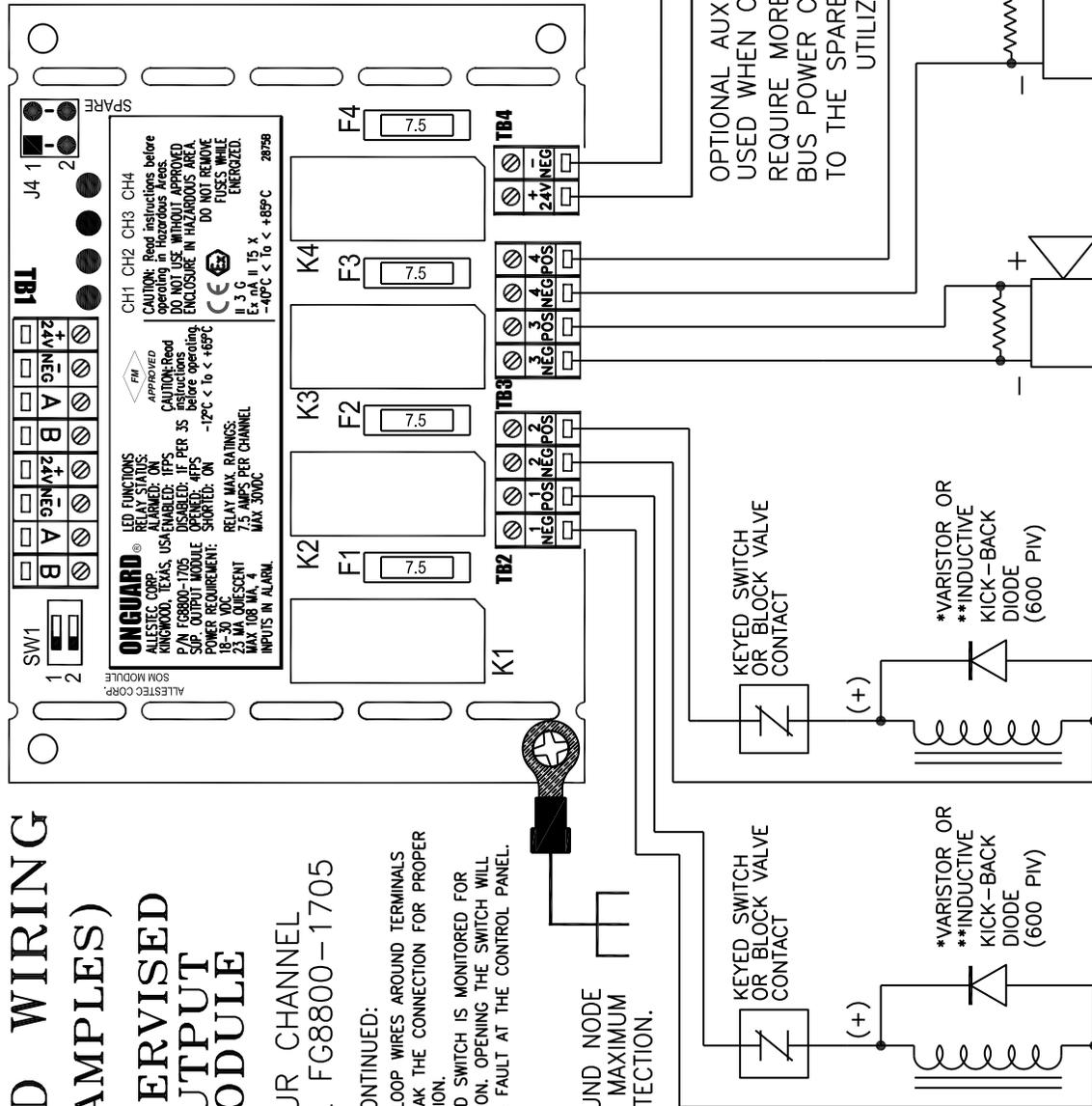
FOUR CHANNEL  
MODEL FG8800-1705

NOTES CONTINUED:

9. DO NOT LOOP WIRES AROUND TERMINALS  
TB1. BREAK THE CONNECTION FOR PROPER  
SUPERVISION.
10. THE KEYED SWITCH IS MONITORED FOR  
SUPERVISION. OPENING THE SWITCH WILL  
INITIATE A FAULT AT THE CONTROL PANEL.

EARTH GROUND NODE  
FRAME FOR MAXIMUM  
SURGE PROTECTION.

- NOTES:
1. DRAWING ILLUSTRATES SUGGESTED CONNECTIONS FOR OUTPUT DEVICES.
  2. OUTPUT APPLIANCE VOLTAGE POLARITIES ARE ILLUSTRATED IN ALARM CONDITION.
  3. UNUSED INPUTS DO NOT REQUIRE AN EOL RESISTOR - DISABLE THE CHANNEL IN THE PROGRAM.
  4. THIS MODULE IS INTENDED FOR 18-30VDC ONLY.
  5. MOVE THE JUMPER AT J4 FROM SPARE TO POSITION 1-2 IF THE MODULE IS POWERED FROM THE BUSS.
  6. BLOCK VALVE(S) ARE OPTIONAL AND MAY BE INSTALLED IN EITHER THE POSITIVE OR NEGATIVE POWER LINES.
  7. EACH CHANNEL CONTAINS A STANDARD 7.5A ATO AUTOMOTIVE MINI FUSE.
  8. DEPENDING ON MANUFACTURE, SEVERAL APPLIANCES CAN BE CONNECTED IN PARALLEL ON THE SAME CHANNEL.
- \*VARISTOR (MOV) OUR P/N 8800-1270. LITTLE FUSE P/N V39ZA05. PANASONIC P/N ERZ-V05D390.  
NOTE: THE MOV HAS NO POLARITY.  
\*\*INDUCTIVE KICK-BACK DIODE OUR P/N 8800-1236.  
INDUSTRY STANDARD 1N4006.



OPTIONAL AUX 24VDC INPUT.  
USED WHEN CONNECTED APPLIANCES  
REQUIRE MORE CURRENT THAN THE  
BUS POWER CAN PROVIDE. MOVE J4  
TO THE SPARE POSITION IF TB4 IS  
UTILIZED. NEGATIVE MUST  
SHARE SAME POWER  
SUPPLY NEGATIVE.

MAIN RELEASE RESERVE RELEASE

AUDIBLE DEVICE VISUAL DEVICE

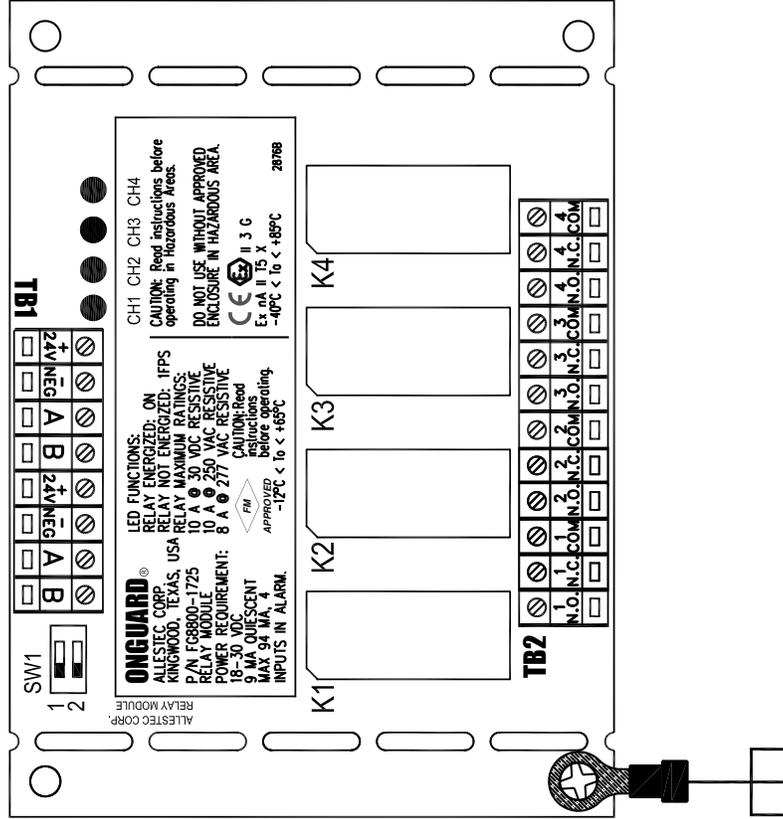
DWG: SOM-1705-FW-101205

# FIELD WIRING CONNECTIONS

## RELAY MODULE FOUR CHANNEL MODEL FG8800-1725

**NOTES:**

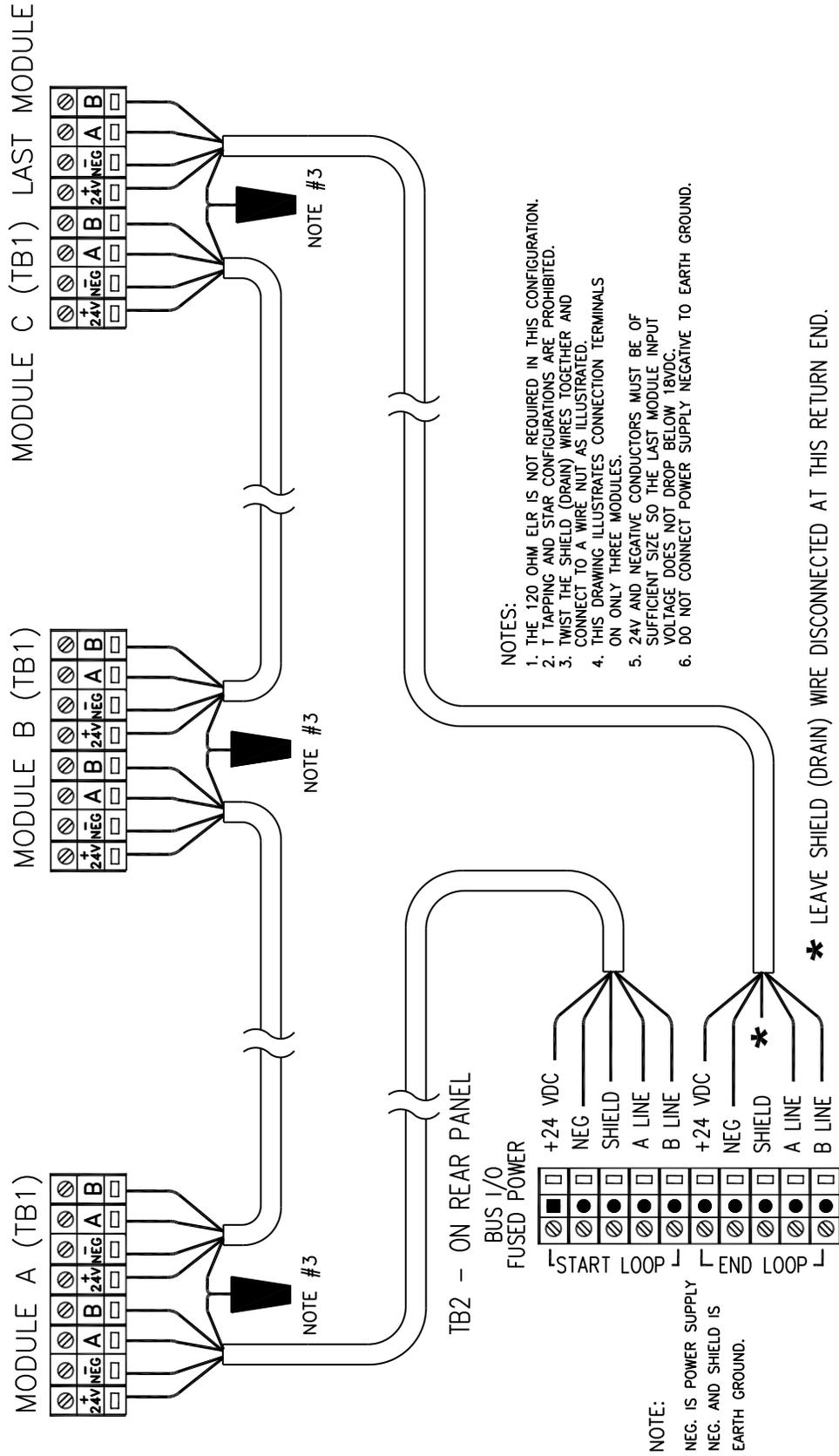
1. ALL RELAYS CONTAIN DRY CONTACTS.
2. REFER TO THE MODULE LABEL FOR RELAY CURRENT RATINGS.
3. DO NOT LOOP WIRES AROUND TERMINALS TB1. BREAK THE CONNECTION FOR PROPER SUPERVISION.



EARTH GROUND NODE  
 FRAME FOR MAXIMUM  
 SURGE PROTECTION.

# CLASS A LOOP BUS AND POWER ROUTING

TO SIMPLIFY ILLUSTRATIONS ONLY MODULE TERMINAL STRIPS ARE SHOWN.

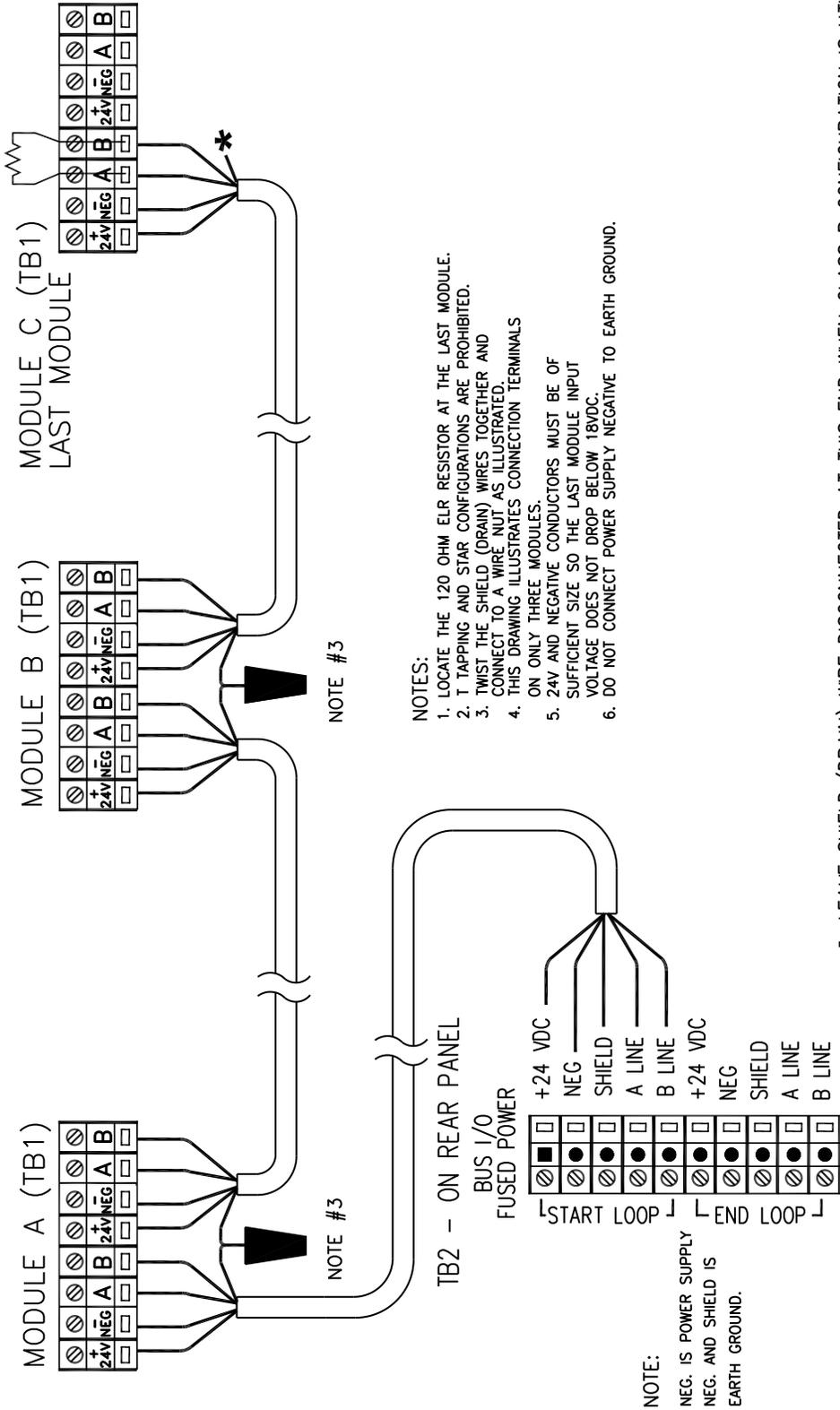


DWG: BUS-FW-A-112005

# CLASS B TERMINATED BUS AND POWER ROUTING

TO SIMPLIFY ILLUSTRATIONS ONLY MODULE TERMINAL STRIPS ARE SHOWN.

120 OHM ELR (FOR BUS ONLY)  
P/N 8800-1309



DWG: BUS-FW-B-112005

## 3. NODE SELECTION

---

### 3.1 DETERMINE WHICH NODE TO UTILIZE

In the context of this manual the terms node and module will be used interchangeable. Select the module or node below which best describes the proper use and function for the required configuration. At the printing of this manual there are currently 4 nodes.

### 3.2 INPUT NODE:

Refer to drawing 8. The 4-channel input node is designed to monitor normally open relay or switch dry contacts. Examples of the use of these contacts consist of but are not limited to: optical detectors, 4-wire smoke detectors, thermal detectors, pressure switches, personnel door contacts, agent discharge confirmed, etc. Inputs are supervised and in the event of an open conductor, a fault is issued. In the event of an alarm (contact closure), the node issues the alarm message to the control panel where appropriate action is taken based on the configuration.

Voting - Voting may be restricted to one node or acquired through several nodes. A single node is capable of voting up to four inputs.

Supervisory Resistors - This node requires 3.9K ohm supervisory resistors at each monitored input that is utilized. Unconnected inputs can omit an ELR by disabling their inputs and selecting this option in the F5 SETTINGS menu. Supervisory resistors must be located at the device contact and not at the node input. This node can be selected to activate the relay or supervised output module.

Other Uses - The node can also be configured to accept an input and display the action on the alarm screen but not activate any devices. An example is the system can monitor the contact of a pressure switch or a door contact for its change then display and record its action on the alarm menu.

### 3.3 4-20mA NODE:

Refer to drawing 9. This 4-channel node is currently designed to monitor industrial gas transmitters that source 4-20mA outputs with a reference calibration of high span of 50% LFL. The system interrogates each loop and identifies the signal level to determine the level of alarm based on the threshold levels. Each input has a high resolution power of 12 bits which equates to 4096 increments across the scale. Calibration and threshold levels are easily accomplished in the program menu. Three distinctive set points can be set up for each of the four channels. This node can be selected to activate the relay or supervised output module.

Voting - Voting may be restricted to one node or acquired through several nodes. A single node is capable of voting up to four inputs.

### 3.4 SUPERVISED OUTPUT MODULE (SOM):

Notification Appliance Activating The supervised output module (drawing 11) utilizes the reverse polarity switching technique for field appliances. The SOM sources a supervisory current through the current loop and switches polarity to the appliances and sources 24VDC on an alarm. This node also requires a 3.9K ohm end of line resistor for each channel output at the appliance location.

Solenoid Activating This node is designed to also activate solenoids as configured in the program menu. Solenoids and appliances can reside on the same node simply by dedicating these devices to their proper output in the program menu. It is imperative that inductive kick-back diodes or MOV's are properly utilized to prevent high voltage discharge from being induced into nearby wires. Refer to drawing 11 on how to connect solenoids to the module.

### 3.5 RELAY NODE:

Refer to drawing 12. Applications requiring auxiliary control or other relay functions can utilize this node. The relay node contains four independent SPDT form C dry contacts rated at 10 Amps each, 30VDC, or 125VAC. Dampers, fans, auxiliary equipment can be connected to this node.

**CAUTION: IF ANY DEVICE CONNECTED TO THE RELAY NODE IS INDUCTIVE, SUCH AS ANOTHER RELAY OR SOLENOID, INDUCTIVE KICK-BACK DIODES OR MOV'S (METAL OXIDE VARISTORS), MUST BE LOCATED DIRECTLY ACROSS THE COIL OF THE DEVICE OR DAMAGE TO THE RELAY NODE CONTACTS CAN OCCUR.**

### 3.6 STATUS LED's

Nodes contain LED's to provide indication on what their status is. The LED's also indicate when inputs are closed on the input node. It is imperative that the sections relating to disabling channels are read to fully understand their intent.

\* OUTPUT SHORTED IN QUIESCENT MODE

<b>LED STATUS</b>	<b>INPUT NODE</b>	<b>4-20mA GAS NODE</b>	<b>SOM</b>	<b>RELAY NODE</b>
1 FPS	CHANNEL ENABLED	POWER OK	CHANNEL FAULT ENABLED	RELAY OFF
1 FLASH EVERY 3S	CHANNEL DISABLED		CHANNEL FAULT DISABLED	
4 FPS	INPUT OPEN		* OUTPUT SHORTED OR TURNED ON	
STEADY ON	INPUT CLOSED		RELAY ON	RELAY ON
STEADY OFF	NO POWER	NO POWER	NO POWER	NO POWER

---

## 4. HARDWARE INTERFACE AND PORTS

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### 4.1 UTILIZING THE TOUCH SCREEN DISPLAY

Alarm acknowledging, silencing, resetting and other commands are implemented through the touch screen display. The display is designed to be used intuitively instead of analytically thereby reducing decision-making time by the administrator. Lightly touch a button or command line on the touch screen to invoke the command. If a finger is too large, a non-metallic object like a closed pen can be used as a stylus to touch the screen. Do not use an instrument that is sharply pointed as it will scratch the surface and do not drag any object across the surface. Use a household glass cleaner to clean the surface of the screen when the system is not on line.

### 4.2 CONNECTING PERIPHERALS TO THE CONTROL PANEL

Refer to drawing 15 on where to connect a VGA monitor, USB compliant keyboard and mouse to the control panel. The external peripherals are not required during activity condition and can remain disconnected until they are required for programming. During normal quiescent mode of the control panel, alarm modes and utility issues can be fully operated utilizing only the touch screen of the control panel. An external monitor is utilized only when a configuration is implemented, starting at selection #13. This section requires a large viewing area to make it easier to map the nodes. When an external monitor is utilized for other menu options, include a mouse to navigate easier. Both the external monitor and touch screen will function simultaneously. The Windows platform will be visible during non-programming modes on the attached monitor. The actual program is a 1/4 VGA format and will be displayed on the additional large monitor until the configuration menu is entered.

### 4.3 PRINTER

Prior to bringing the system on line, print reports to verify the system is in compliance with the manner it was programmed. The Onguard software supports different model Epson printers that are able to print through the USB drive. For more details refer to section 23.

### 4.4 MODBUS PORT

The Modbus connection utilizes a standard EIA DB9 connector and supplies an ASCII format. There are variations of this protocol since customers tend to utilize their own communication terminology. The Modbus directive is covered under a separate manual provided by Allestec.

### 4.5 TCP/IP INTERFACE PORT

This optional connection allows Internet connection to the control panel. The use of this connection requires custom software. The control panel cannot be remotely controlled utilizing this option but can be remotely viewed as indicated in NFPA directive.

### 4.6 VGA MONITOR PORT

Refer to drawing 15 to identify the monitor connector. The monitor is required when utilizing menu section #12, SYSTEM CONFIGURATION to allow efficient use of the programming menu. The monitor is also required to manage files in the control panel.

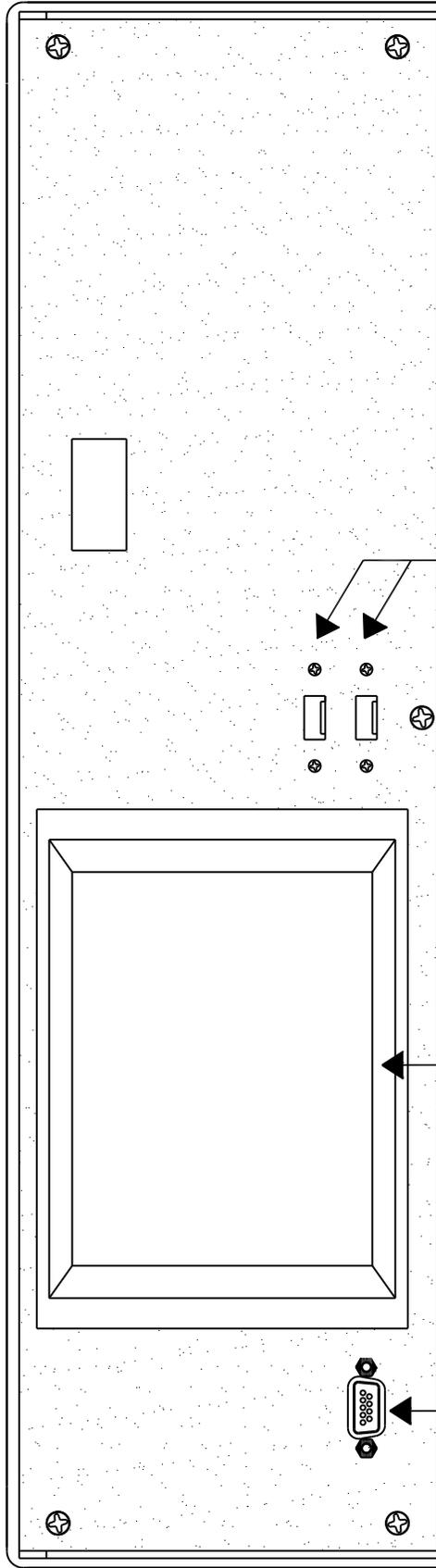
### 4.7 USB PORTS

The USB port supports the USB compliant keyboard and mouse. These two devices are connected to the ports when configuring a system. The USB port is also utilized for copying data for storage from the panel as well as updating software versions.

**CAUTION: LIKE ANY OTHER COMPUTER SYSTEM, DO NOT REMOVE USB DRIVE WHILE IT IS BEING READ FROM OR WRITTEN TO, DOING SO WILL CORRUPT THE SYSTEM FILES! VERIFY THAT THE DATA TRANSFER LED HAS STOPPED BLINKING BEFORE REMOVING THE BUS DRIVE.**

# FRONT VIEW - FG8800 PANEL - DOOR OPEN

NOTE:  
SYSTEM PROTOCOL PORT LOCATIONS MAY  
CHANGE LOCATIONS PER CUSTOMER REQUEST.



VGA MONITOR  
OUTPUT -  
REQUIRED FOR  
PROGRAMMING ONLY

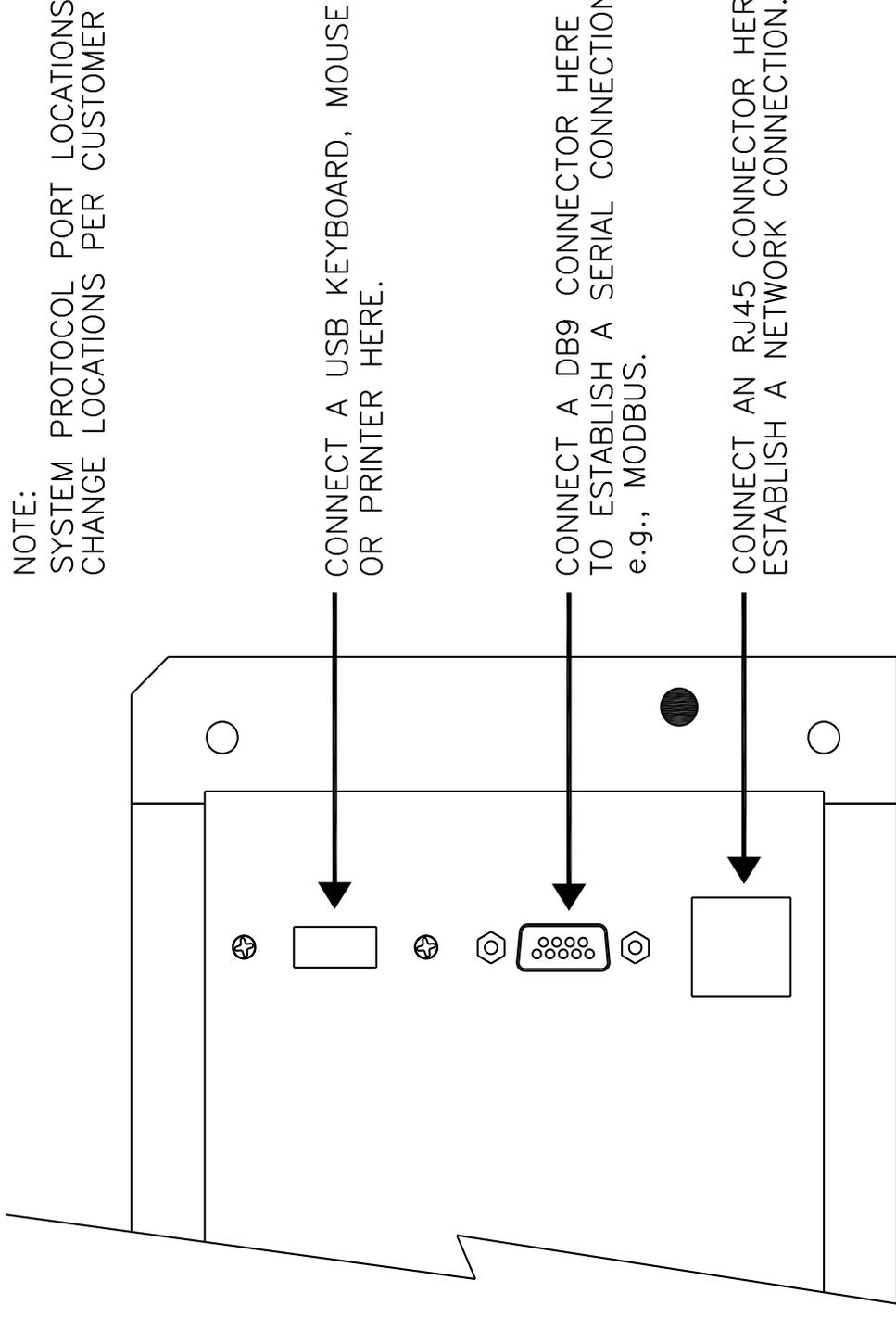
TOUCH SCREEN  
COLOR DISPLAY -  
CONTROL ENTIRE  
SYSTEM HERE

USB KEYBOARD  
AND MOUSE -  
REQUIRED FOR  
PROGRAMMING ONLY

DWG: FRONT-VIEW-PNL-112005

# PORT DEFINITIONS

NOTE:  
SYSTEM PROTOCOL PORT LOCATIONS MAY  
CHANGE LOCATIONS PER CUSTOMER REQUEST.



REAR VIEW FG8800 PANEL – RIGHT HAND SIDE

DWG: I-O-CONNECT-020105

## 5. SYSTEM STARTUP

---

### 5.1 CHECKLIST PROCEDURES

1. First completely read and fully understand this manual.
2. Install the panel as indicated in drawing 3.
3. Verify that the power supply is correctly connected as indicated in drawing 5.
3. Verify that the system bus is correctly wired as indicated in drawing 13 or 14.
4. Verify all node dipswitches are in the OFF position.
5. Verify all appliances and their ELR is correctly installed. This procedure will prevent any faults when the node channels are enabled.
6. Attach a VGA monitor to prepare for configurations and a printer for reports.
7. Attach a USB compliant keyboard and mouse to the panel.
8. Apply 24VDC power to the control panel and allow it time to initialize. The menu below will appear after preliminary initialization of the system which takes approximately 1 minute.



FIGURE 5. System main screen during node scanning.

### 5.2 SYSTEM INITIALIZING or RESTARTING

Anytime the system powers up or when the system initializes for whatever reason, it will execute the following instructions in this order:

1. Look for the onguardsetup.dat file on the flash \DiskC Drive
2. Is the file located?

#### YES

1. Load the onguardsetup.dat file into RAM.
2. Display nodes previously detected, if any.
3. Bus detects correct styles and current nodes, 0-....N or if one fails.

#### THEN

If the number of nodes detected on the bus **equals** the number of nodes stored in the onguardsetup.dat file, the system reloads active configurations and starts polling and monitoring alarms.

If the number of nodes detected on the bus **does not equal** the number of nodes stored in the onguardsetup.dat file the system displays a warning message, "SYSTEM NOT CONFIGURED" appears and does not load any configurations or monitor alarms.

#### NO

1. Indicates that the onguardsetup.dat file is not found.
2. Continues to detect nodes on the bus.
3. Creates the onguardsetup.dat file when the SAVE and CLOSE button is selected on the F5 menu.

### 5.3 ENABLING PASSWORDS

The control panel comes with the administrator password number 2222 installed. A keyboard must be connected to change passwords. Enter the F10 key and enter a default password that will be utilized within the program. Now enter and confirm the new password. A “backdoor” password 1793 overrides any existing passwords in case the user password is lost or it can remain as the dominant password. Other passwords than the two indicated here enables a more frequent beckon of the keypad.

### 5.4 DISPLAY SCREEN BRIGHTNESS

When the panel is powered up and initializes, the display is at a maximum brightness (maybe 10 seconds). Once the polling of the nodes begins the panel dims approximately 15% to extend the life of the CCFT. The display remains in this reduced power state until any alarms occur or the polling is suspended by an administrator, then it will restore to maximum brightness. Once an alarm is cleared or polling resumes, the display will return to its low brightness state after 15 minutes.

### 5.5 SELECTING BUS LOOP CONFIGURATION

The panel is capable of monitoring the bus by scanning a terminated configuration or continuous loop. Refer to section 2.11 for more details.

### 5.6 START OF LOOP Class B

Select the Start of Loop button for a class B configuration to control devices connected to TB2, A&B line connection (most common). Select OK. This single ended bus line requires the ELR as indicated in drawing 14.

### 5.7 LOOP BACK Class A

Select the LOOP BACK button for devices to be controlled from TB2 A&B line and END LOOP A&B connection. Select OK. This class A configuration requires both ends of the bus line to terminate at the control panel as indicated in drawing 13.

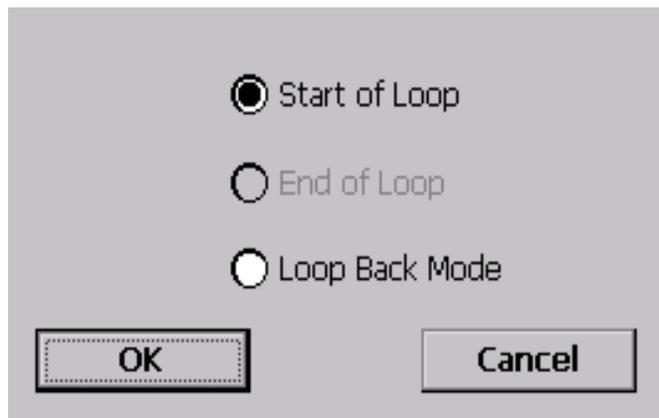


FIGURE 5.1 Selecting bus loop options as described in section 5.5.

## 5.8 UNDERSTANDING FIELD NODE ID ADDRESSES

After completing the wiring of a system the second step is to acquire node address so the control panel can communicate to unique addresses. If the nodes are installed, the administrator must physically go to each node and set their ID switch as they are entered into the system. It is advantageous to establish programming on a bench next to the control panel prior to installation. The node ID switch located on each node enables the search program to identify the next node ID to increment. Refer to Drawing 17 to properly select the node ID switch. The first node identified will be assigned the address 0, then 1,2 etc. Select a node that is best suited for the starting number (0) and turn ON its acquire address switch, SW1 -1 ON, SW1-2 OFF, as identified in drawing 17. After the node is identified, return SW1-1 to the OFF position and proceed to discover the next node and repeat. Nodes can have their ID number change if desired as indicated in section 25.6. **Once a node is identified, it cannot be removed from the bus unless it is disabled in the menu.** Refer to section 25 for more information. All nodes must have an ID address of 255 prior to starting section 5.8. New nodes are shipped with the ID address of 255. To

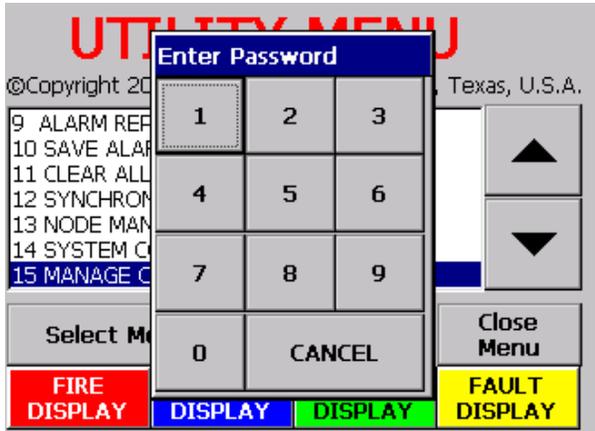


FIGURE 5.2 Enter a password.

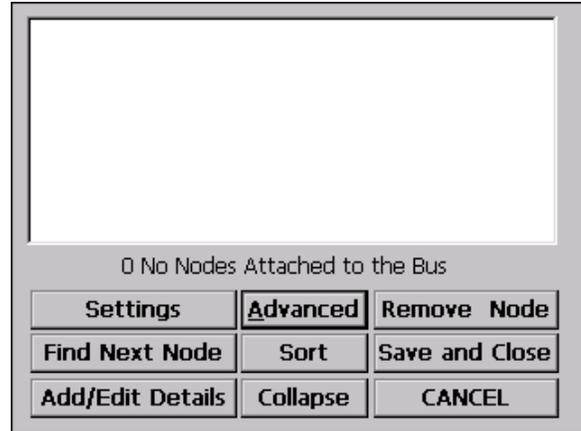


FIGURE 5.3 Ready to search nodes. NOTE: Only buttons pertaining to the startup procedure will appear until the first node is discovered and located in the above menu.

change a node address to 255 refer to section 25.

## 5.9 NODE ADDRESS SEQUENCE

It makes no difference where the nodes are physically located on the bus when procuring their ID. In special applications where alarm response time in milliseconds is critical, assign the input and gas nodes with the lowest address by procuring their ID first. Assign the SOM and relay node their address next. The system bus works by starting the scan with the lowest ID to the highest.

NOTE: The FIND NEXT NODE button in this menu searches nodes that are numerically in order and does not locate address which skip a number.

## 5.10 PROCURING FIELD NODE ID ADDRESSES ON A NEW INSTALLATION

1. When the display is in the quiescent mode, (ONGUARD) displayed, double tap the touch screen. No menu activity will return the ONGUARD display back.
2. In the utility menu select line #13, NODE MANAGEMENT, enter a password if it asks, then select the SELECT MENU ITEM button.
3. In figure 5.3 the blank screen display indicates there are currently 0 nodes attached to the bus.
4. Now, based on how the node addresses are to be incremented, select the first node on the system that is to be assigned ID #0 and locate the address ID switch (drawing17) to the ON position.
5. Now click on the FIND NEXT NODE button utilizing the mouse.
6. The panel will search the bus for the ONE node that has its ID switch ON. The node with the ID switch ON will appear in the menu screen with its 4 open channels "opened", in this case, the input node. Refer to figure 5.4.
7. Now, return the ID switch back to its OFF position.
8. **To physically identify this node later, label its ID on the node.**

**CAUTION: NO ALARMS CAN OCCUR UNTIL THE INDIVIDUAL CHANNELS ARE ENABLED IN THE SETTINGS MENU AND A CONFIGURATION FILE IS CREATED, #14 SYSTEM CONFIGURATION, OR F8 IS UTILIZED.**

NOTE: If two or more ID switches are **ON**, the next searched node **WILL NOT BE FOUND** and the message "NO MORE NODES FOUND" will appear.

9. The node in figure 5.4 appears with its 4 channels "open". Click on the COLLAPSE button to close the node, if desired.
10. Repeat this search procedure for all other nodes, remembering to turn ON the ID switch for only one node at a time to be addressed, then turn the switch back OFF.
11. Select the SAVE and CLOSE button to exit the node menu.
12. After identifying all nodes connected to the system, data can be entered into each node to identify its characteristics.
13. Figure 5.5 shows 4 nodes that have been selected for illustration purposes.

#### **5.11 ADDITIONAL INPUT NODE INFORMATION**

All field devices that contain a dry switch or relay contacts can connect to the input node as described below. All examples below can be completed in the system configuration.

1. Optical detectors connect to the input node and any time delays or voting will be addressed.
2. Manual pulls connect to the input node and the option to add or override time delays are addressed. NOTE: Alarm verification or timers are not permitted on manual alarm activation devices.
3. Four wire smoke detectors connect to the input node.
4. An audible remote silence switch connects to the input node and is addressed.
5. Door or other contacts connect to the input node. The option for the contact closure to proceed to an action alarm or remain as a message on the screen is addressed.
6. For systems employing a reserve extinguish tank to trip on a post fire or first tank fail condition, connect the pressure switch to the input node.

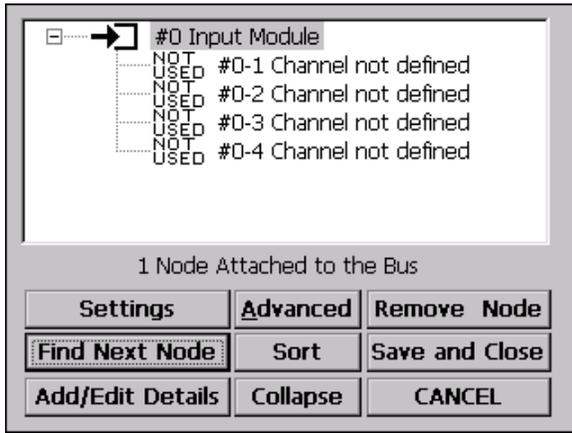


FIGURE 5.4 Input node open indicating its four undefined channels.

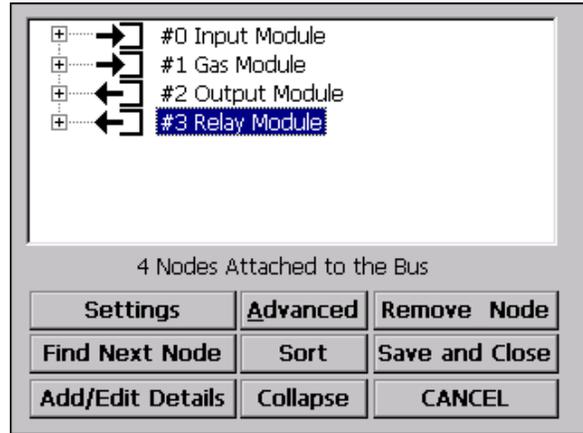


FIGURE 5.5 All four node channels collapsed.

### 5.12 NODE ID FORMAT

Node ID's are identified with the first digit indicating the node number and the second the channel. A node may have an address of 5-1 which indicates this node is number 5 and channel 1 is identified. All nodes follow the same formation. Nodes that have one or more of the four channels unused still have a node ID address.

### 5.13 NODE DEFAULT ADDRESS

All nodes are factory supplied with a factor default ID address of 255. When starting up a **new** system or **adding** nodes, they **must** always contain the default address of 255 or the search node command will produce no results as performed in this section. To reset a module to factory address of 255, refer to section 25.9.

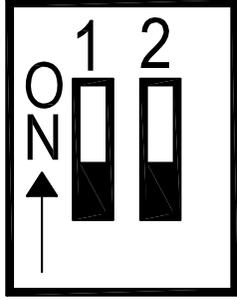
**5.14** The ADVANCED section is described in section 25.1.

### 5.15 OTHER NODE COMMON FUNCTIONS

- Select item #13, NODE MANAGEMENT, in the utility menu or select F5 on the keyboard.
- Click on the + sign to open a specific node tree. The default node name as well as its ID is indicated. Opening a node tree allows a complete view of all four channels.
- The node(s) can also be "collapsed" by pushing the collapse button or clicking on the (-) icon thereby indicating only the module name.
- Select the sort button to numerically locate all nodes in numeric order.
- Click on the scroll bar on the right side of the menu and scroll to any node desired.
- All four channels of the different nodes are identical. It is up to the installer to decide which of the four inputs to connect to input devices. Unused inputs do not require a supervisory resistor and are disabled as desired.

# ADDRESSABLE MODULE ID SWITCH

## SW1 ENLARGED



IMPORTANT: OBSERVE THE "ON" POSITION PRIOR TO SLIDING THE CONTACT POLE. SW1 IS ORIENTED DIFFERENTLY ON DIFFERENT MODULES. VERIFY THE CONTACT SLIDE IS NOT "PARTIALLY" MOVED.

EACH MODULE CONTAINS ONE PROGRAM SWITCH LIKE THE ONE ABOVE AND PERFORMS THE FUNCTIONS AS INDICATED TO THE RIGHT.

### NOTES:

1. ALL MODULES CONTAIN A 2 POSITION SLIDE SWITCH (SW1) TO ESTABLISH ID ADDRESSES AND TO RESET THE MODULES.
2. IT IS IMPERATIVE THE OPERATOR ADHERES TO THE DESIGNATED SWITCH SELECTIONS FOR THE SYSTEM TO FUNCTION PROPERLY.
3. REVIEW THE SWITCH FUNCTION DIAGRAM FOR PROPER SWITCH POLE POSITIONS.
4. ALL SWITCHES MUST BE IN THE "OFF" POSITION FOR THE SYSTEM TO PROPERLY FUNCTION IN THE ARMED MODE.

SW1 FUNCTION  
(SAME SWITCH)

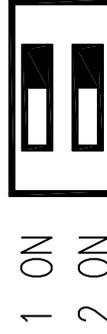
NORMAL MODE SETTINGS



ACQUIRE ADDRESS SETTINGS



RESET ADDRESS SETTINGS



DISALLOWED SETTINGS



## 6. CONFIGURATION ARCHITECTURE

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**CAUTION: UNDER NO CIRCUMSTANCES, DO NOT ALLOW ANY ADMINISTRATOR, PROGRAMMER, TECHNICIAN OR ANYONE TO CIRCUMVENT, ADD OR MODIFY THE ARCHITECTURE OR PROGRAM OF THE SYSTEM UNLESS THIS ADMINISTRATOR HAS FULLY READ AND UNDERSTANDS THIS MANUAL. DOING SO WILL RESULT IN THE INABILITY OF THE SYSTEM TO PERFORM PER THE MANUFACTURES SPECIFICATIONS.**

**CAUTION: IMPROPER CONFIGURATION(S) CAN RESULT IN UNDEFINED SYSTEM PERFORMANCE**

### 6.1 INTRODUCTION

Prior to creating configurations, it is imperative the administrator reads this section as well as the entire manual. The administrator must understand the structure of files and folders that reside in memory to alleviate any misunderstanding of process and techniques of operating the system. It is important that the administrator can navigate through Windows menu structures, folders and files effectively without impeding the system.

### 6.2 THE SYSTEM DISK

The control panel program, configurations and node information all reside in non-volatile flash memory called disk C. After the panel is powered and initializes, the necessary data that resides on disk C is then transferred to a RAM bank where it remains running the system.

### 6.3 THE ONGUARDSETUP.DAT FILE

The onguardsetup.dat is the node configuration file. This file contains all data the administrator inserts into the node (F5 menu) fields such as, name, location and edit fields. This file relates directly to how many nodes and their respective ID numbers are as they exist in the field. **Changing this file with a different version can invalidate the response of the panel.** In other words, the onguardsetup.dat file MUST match the quantity of nodes, their style and address.

When the system is powered and the external monitor is connected, click the mouse on the START button, go to Programs, then select EXPLORER. The folders currently visible are located in the flash memory. Double click on the Disk C and there are more files and folders. Towards the bottom of the file names will reside the onguardsetup.dat. If the Onguardsetup.dat data has been removed or is not available, the system will create this file from detected nodes. Refer to section 5.2 for more details.

### 6.4 CONFIGURATON OVERVIEW

To create configurations, the intended input node channel(s) is selected and located in an input window (SELECTED INPUT) and the connecting output node is located in the output window (SELECT OUTPUT). During a configuration all nodes attached to the system appear on the menu. The configuration is then saved and LOADED with a unique file name that can later be UNLOADED. Try to name a configuration consistent with its application or keep a separate note pad eluding to the configuration name. A new configuration can then be created utilizing unused channels of the same or different nodes, or other channels can be selected that already are configured. **EXAMPLE:** An input for an optical detector can be mapped to an output horn. The identical input for the optical can be mapped to a strobe in another configuration. The provision exists to UNLOAD a configuration utilizing one input of a node. Another configuration totally different can then be loaded utilizing the identical node input but create a complete different action. Configurations can be very simple (manual pull tripping a single tank) to complex operations (a cycle release configuration running at the same time as a dual tank release). It is imperative that the administrator establishing the configurations understands the consequences of cross zoning, voting, and adding time delays to nodes. There are currently 5 selections of configurations to choose from which incorporate specific tasks to perform common functions of the control panel. Go to the utility menu and select item #12 then select the correct configuration that best represents a node connection. Each configuration is described in detail starting with section 13.

**NOTE:** Configurations that are created and saved are not mapped together. They each reside independently in the MANAGE CONFIGURATIONS menu; however, they may SHARE a common node channel as just described above.

## **6.5 THE CONFIGURATION FOLDER**

The configuration folder contains all configurations that the administrator creates under utility menu #14, SYSTEM CONFIGURATION. When a configuration is created for the very first time, another file called mainconfigfile.txt is also created simultaneously and located into the configuration folder. The mainconfig.txt file contains the names of the configurations that are loaded. When a configuration is unloaded, its name is removed from the mainconfig.txt file then selectively located in the same folder. Configuration files are automatically copied into this .txt file and as more configurations are created, they are also included, increasing the file size. The unloaded .txt file can be copied to a USB bus drive and brought to a computer with notepad and be observed. On system initialization, only LOADED .txt files are loaded into memory ready for alarms. The purpose of viewing this information is so the administrator can have an understanding how files are stored. To view these files while the external monitor is connected, click the mouse on the START button, go to Programs, then select Explorer. The folders currently visible are located in the flash memory. Double click on the Disk C and there are more files and folders. Click on the configuration folder to view files created in the configuration section #13-18. If the system is new, no files are in the folder. Under normal circumstances the administrator does not have to access this folder but it is being pointed out for information purposes. Exit out of the configuration folder back to the \Disk C directory.

## **6.6 MANAGE CONFIGURATIONS - UTILITY MENU SELECTION #13**

Refer to section 24.

## **6.7 SAVE ALL ALARM HISTORY REPORTS UTILITY MENU SELECTION #7**

Refer to section 23.2.

## **6.8 IMPORTANT - WHAT ACTIONS DISABLES THE SYSTEM FROM ALARMING**

It is important to understand the procedures that prevent the system from alarming. Anytime the system stops polling there will be a FAULT relay action. Disabling a channel in the F5 SETTINGS section does not cause a system fault because this feature is intended to disable an unused channel. The following events below are basically set-up procedures and are intended to occur when an authorized personnel starts up or services the system.

1. Entering the SETTINGS in any node and not ENABLING the check-off box for a valid channel.
2. UTILITY MENU #11, NODE MANAGEMENT (F5) MENU - Whenever this selection is entered into the polling of the nodes suspends to allow modification.
3. UTILITY MENU #13, MANAGE CONFIGURATIONS: When this selection is selected the program suspends the polling of the nodes to allow modification of the configurations and EDITING capabilities.
4. UTILITY MENU #13, MANAGE CONFIGURATIONS: When a loaded configuration is UNLOADED it is DISABLED and will not function.
5. UTILITY MENU #12, SYSTEM CONFIGURATIONS or selecting F8.
6. The ONGUARD program is not loaded.
7. The system is not powered up.

## 7. BACKUP SYSTEM FILES

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### 7.1 IMPORTANT

It is imperative that the administrator has knowledge in copying files and navigating through Windows Explorer to perform the following tasks properly.

Do not power down the system unless proper protocol has been established or the LOSS OF DATA will result. Refer to section 26.1 to correctly power down the system.

### 7.2 WHEN TO SAVE THE SYSTEM REQUIREMENTS (Onguardsetup.dat)

1. After completing configuration(s) selected from the UTILITY MENU #14 SYSTEM CONFIGURATIONS.
2. Anytime a node is physically removed or added to the system. Refer to section 25 for this information.
3. To save changes made to the node configuration file select the SAVE and CLOSE button when exiting the F5 menu.

### 7.3 HOW TO SAVE AND BACKUP THE SYSTEM REQUIREMENTS

The control panel allows the administrator to make a backup of the onguardsetup.dat file on the DISK C through the utility program. Whenever there is a change in the system, the backup file should be updated to reflect the actual onguardsetup.dat file. Backing up the onguardsetup.dat file through the UTILITY MENU automatically overwrites the existing file with the new one. The backup file remains on the DISK C flash drive. **The system files should also be stored on two separate medias at two different physical locations to be the safest.**

FIRST - BACKUP THE ONGUARDSETUP.DAT FILE ON THE LOCAL C DRIVE:

1. After node setup, configuration commitments and testing have been established and the system is in complete compliance, proceed with the following:
2. Make the backup file just prior to putting the system on line for monitoring use.
3. Navigate to the utility menu and select #16, BACKUP THE SYSTEM DATABASE, then select the SELECT MENU ITEM button.
4. Enter a valid password if the system asks then select the OK button.
5. An exact duplicate file of the onguardsetup.dat has been created in the same directory and is named onguardsetupbak.dat.
6. Copy the onguardsetupbak.dat to Disk C and rename it to onguardsetup.dat to restore the saved configuration.

SECOND- BACKUP THE CONFIGURATION FOLDER TO AN EXTERNAL USB BUS DRIVE:

**CAUTION: THE FOLLOWING BACKUP WILL TEMPORARILY DISRUPT SURVEILLANCE. DURING THIS TIME UNTIL THE PROGRAM IS BROUGHT BACK ON LINE.**

Use the external monitor to backup this file. While the ONGUARD screen is displayed, with the mouse RIGHT CLICK on the ONGUARD taskbar located at the bottom at the screen. Now left click on the "close window sign". The ONGUARD application will close. Now click on the START button, go to PROGRAMS, click on windows explorer. Insert a USB Bus drive in the connector. Wait approximately 10 seconds and the "HARD DISK" icon will appear. DOUBLE CLICK ON the Disk C folder. Copy the CONFIGURATION folder to the BUS drive. Wait 5 seconds after the BUS drive LED stops blinking then remove it from the panel. Go back to DISK C and double click on the ONGUARD word to bring the system back up. After the screen is visible with the time and date go to the far upper right side of the monitor screen and click on the X to close Windows Explorer.

THIRD - BACKUP TO THE SAME USB BUS DRIVE THE CONFIGURATION FOLDER LOCATED IN DISK C.

## 8. LOADING NODE DATA TO PREPARE CONFIGURATIONS

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NOTE: Nodes must be configured with text and control data prior to mapping to other nodes to identify their personalities.

**CAUTION: NODES MUST BE ENABLED OR THEY WILL NOT RESPOND TO AN ALARM. THE RELAY NODE IS ALWAYS ENABLED.**

### 8.1 GENERAL TEXT FIELD EDITING NOTES

All editable fields in this system adhere to the Windows standard of editing. The fields may be highlighted then deleted. In some cases, the fields can be cut and pasted into another section. These editing procedures are not covered in this manual and it is imperative that administrators of this system are familiar with Windows techniques of editing.

Each node contains fields that allow data to be entered to identify the unique characteristics such as location and other pertinent data. Figure 5.5 shows the four nodes we searched and their names appear. These names can be edited but the ID is fixed.

The **HORN ICON** is the only icon that affects the operation of the configuration on the F5 Node menu. Refer to section 19 for more details. Solenoids are captured in the F8 configuration menu and do not relate to the solenoid node icon.

NOTE: To simplify the following examples, the Input, Gas, Relay and SOM are the only nodes on the bus for this demonstration and will appear in the configuration windows.

### 8.2 NODE COMMON ATTRIBUTES

The nodes store some information in their local memory and do not get saved to the system. The items that are stored in each node's nonvolatile memory are the node ID number, the de-bounce time and the enable/disable flags. The 4-20ma node also stores its set-points locally. Based on this information, a node cannot be removed from one system and installed into another system without resetting the address and referring to section 25.

### 8.3 PLANNING NODE SELECTION FOR ALARM ACTIONS

Figure 9 indicates a typical menu to label nodes for alarm identifications. The objective in all configuration selections is to locate any channel from any input node to the SELECTED INPUT menu then locate any four channels from any output node to the SELECTED OUTPUT menu. With all configurations, there are exceptions, voting, time delays, etc. that can be mapped to the configuration. When all selected inputs and outputs are located in the bottom menu screens, any confirmed input will trip ALL OUTPUTS based on the exceptions.

After a configuration is completed and assigned a file name, the same node channel(s) can be utilized to trip other output devices under a different file name. After the nodes have been filled out with their pertinent information, they can now be mapped to activate other nodes through the configuration menus. There are five different configurations to select from. Select #12, SYSTEM CONFIGURATION, in the UTILITY MENU then choose the configuration.

## 9. INPUT NODE PREPARATION

The four nodes that were scanned for ID addresses in section 5.10 will now be loaded with data to identify their functional characteristics. For demonstration purposes node fields have been filled in as indicated in figure 9 and will be utilized as examples throughout this manual.

### 9.1 ADD/EDIT DETAILS

□ With the ONGUARD main menu displayed, select the F5 on the keyboard to bring up the node screen.

□ Highlight the input node then click the ADD/EDIT DETAILS button. The following menu appears as indicated in figure 5.4. The ADD/EDIT DETAILS menu is identical to all four nodes.

□ The NODE NAME text field in figure 9 is automatically displayed when the search has identified it. The node name field can have text entered, but always retain the original name (Input Module) in the text field so the node can be identified.

	Node Name	Comment
	Input Module	Edit
	Alarm Location	
	1 TURBINE OPTICAL	Edit
	2 ABORT ZONE 1	Edit
	3 PRESSURE SWITCH	Edit
	4 RESET STROBE	Edit
	Node ID# 0	Apply

FIGURE 9. ADD/EDIT DETAILS

□ Enter a name, location or other identification characteristic of each input in the ALARM LOCATION box as indicated in figure 9. Applications where the input node has unused inputs do not require any data in this field and can remain undefined.

**CAUTION: BECAUSE OF THE FLEXIBILITY OF THE SYSTEM, IN THE NODE NAME FIELD, ANY NAME CAN BE APPLIED TO ACCOMMODATE THE FUNCTION.**

□ Figure 13.6 indicates how the ALARM LOCATION field reflects the data that entered in the Add/Edit LOCATION. This ALARM LOCATION field appears to the right of the DEVICE NAME during an alarm. Enter pertinent data in reference to the alarm location or device as necessary. There are several examples for illustration purposes in figure 9. The ALARM LOCATION, such as the example turbine optical, can also be utilized as the device type as indicated in figure 9.

## 9.2 ICON SELECTION

□ Referring back to figure 9 to the far left, are icons in boxes that represent the device name. Select an icon that best represents the alarm style. When an alarm occurs, **the name to the right of the icon in figure 9.1 or 9.2** will appear in the **DEVICE NAME** column as indicated in figure 13.7.

□ Proceed to click on an icon for each channel as well as the master node icon (top box).

□ The **APPLY TO REST** button simply fills the same information in the remaining lower boxes.

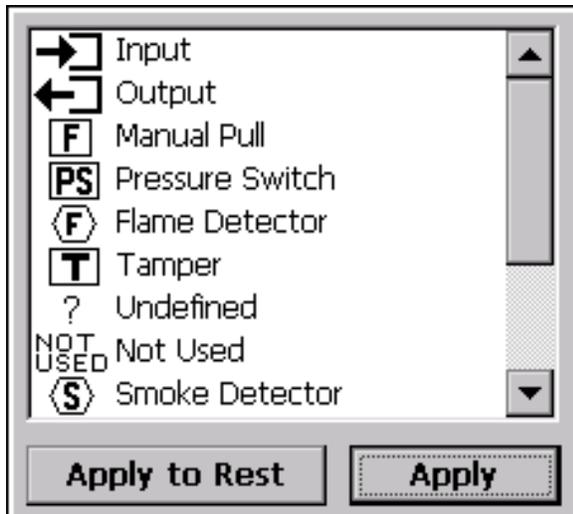


FIGURE 9.1 Icon Upper Menu

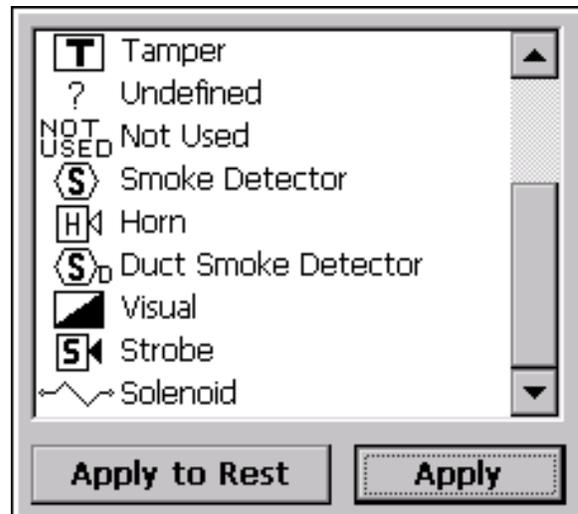


FIGURE 9.2 Icon Lower Menu

## 9.3 MEMO FIELDS

□ The EDIT button just below the COMMENT column allows a message for this node as indicated in figure 9.3. **During an alarm** this EDIT box can be quickly viewed at the alarm screen. The remaining four EDIT buttons to the right of the ALARM LOCATION allows messages (figure 9.4) for each of the four channels or any other relative information; however, this data is for reference storage and can be viewed by selecting the F5 key to enter the node screen. Each field can accommodate up to 256 characters. Unused channels do not require filling in the fields and can be left undefined.

□ For illustration purposes, the EDIT button was selected for channel 1 of the input node, indicating the turbine optical detector is located at ID address 0-1 (node #0, channel #1).

□ After inserting the input node EDIT DETAILS information, select the OK then APPLY button to save the information.

□ Now click on the SETTINGS button and refer to figure 9.5.

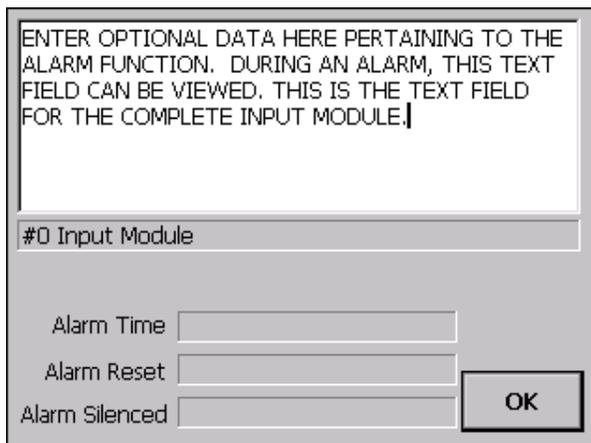


FIGURE 9.3 EDIT box for global node name.

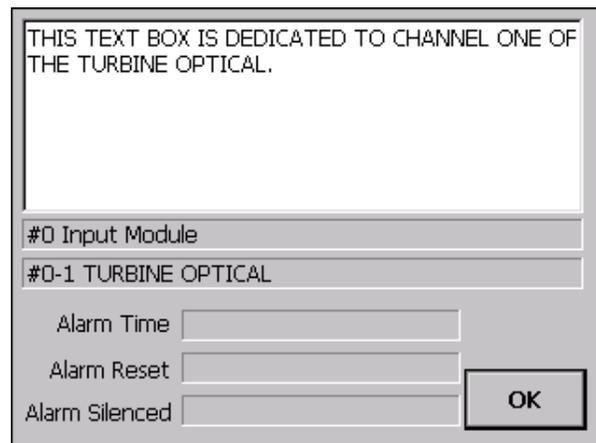


FIGURE 9.4 EDIT box for channel 1.

#### 9.4 SETTINGS SELECTON

□ With the input node still highlighted select the SETTINGS button.

□ Now check off a box to ENABLE the channel(s) that will be utilized in a configuration.

**CAUTION: A CHANNEL THAT IS NOT ENABLED WILL NOT ALARM.**

□ The disable can be used to temporarily turn off a channel for a service routine.

□ Disable a channel if it is unused **OR A FAULT WILL OCCUR AFTER A CONFIGURATION IS MADE.**

□ After node SETTING has been completed, it is ready to be expanded to show all channels and inserted the configuration window later.

Channel	Enabled
#0-1 TURBINE	<input checked="" type="checkbox"/> YES
#0-2 ABORT ZONE	<input checked="" type="checkbox"/> YES
#0-3 PRESSURE	<input checked="" type="checkbox"/> YES
#0-4 RESET	<input checked="" type="checkbox"/> YES

Debounce Time 320 milliseconds

Reset Node LED's Firmware V200 Apply

FIGURE 9.5 SETTINGS menu

**CAUTION: IF THERE ARE INPUT NODES VOTING, THE DE-BOUNCE TIME MUST BE EXPIRED ON ANY VOTED NODES PRIOR FOR AN ALARM ACTION TO TAKE PLACE.**

**CAUTION: INCREMENTING THE DE-BOUNCE TIME ADDS TIME TO THE ALARM RESPONSE.**

#### 9.5 RESETTING NODE LED's

□ Click on the RESET NODE LED's to reset the input node blinking LED's after an alarm or fault has occurred. For resetting LED's on all the nodes in a system simultaneously, select menu option #10 on the UTILITY MENU.

#### 9.6 SELECTING DE-BOUNCE

□ The DE-BOUNCE feature has been designed to prevent false alarms in electrically noisy installations. De-bounce time utilizes a digital filter and allows the administrator to select the amount of time *before* the node responds to an alarm signal to trip the control panel. Example: If the de-bounce time is set for 1024 milliseconds, the input signal (closure of a switch or sensor signal) has to remain steady for the entire 1024 milliseconds *before* an alarm is considered valid. If there is a disruption of the signal anytime during the 1024 milliseconds de-bounce period, the de-bounce starts over from zero. Example: An alarm (could be noise) occurs and the signal is present for 875 milliseconds of the 1024 millisecond period. An alarm will not occur. Once the De-bounce has expired, the alarm signal is then forwarded to the system bus.

The de-bounce is based on a formula:  $\text{de-bounce time}/62.5\text{ms} = 5$  timer periods required for the signal to remain steady for a valid alarm. The default setting is 320 milliseconds. This time can be only set at intervals of 62.5ms.

Another use for the de-bounce is to add time for UV only detectors to shunt out erroneous alarms from lighting or other UV emissions. Another use serves as a deterrent for false alarms by allowing the administrator to intelligently select a time delay appropriate for the task. The minimum de-bounce time is 64 milliseconds, the maximum is 16.32 seconds and applies to all four channels of the node.

□ After inserting the information in the settings menu, click on the APPLY button to proceed.

□ Click on the SAVE and CLOSE button to return to the main menu to proceed to continue with other nodes.

## 10. 4-20mA NODE PREPARATION

☐ Referring to figure 5.5, highlight and click the gas module name on the upper left menu.

### 10.1 ADD/EDIT DETAILS

☐ This form is identical to the input node. Follow sections 9.1 through 9.6 for filling out field information then click on the APPLY button. Notice that the NODE NAME was edited to accept the %LFL text. Figure 10 contains examples. After filling out the fields, select the APPLY button to proceed.

☐ Select the SETTINGS button.

FIGURE 10. ADD/EDIT DETAILS

### 10.2 SETTINGS SELECTON

☐ Check off a box to ENABLE the channel(s) that will be utilized in a configuration.

☐ Notice in figure 10.1 channel 4 was not enabled because in figure 10 example it was not used.

**CAUTION- A CHANNEL THAT IS NOT ENABLED WILL NOT ALARM.**

☐ The disable can be used to temporarily turn off a channel for a service routine

☐ Disable a channel if it is unused **OR A FAULT COULD OCCUR AFTER A CONFIGURATION IS MADE.**

### 10.3 DEBOUNCE TIME

Refer to section 9.6 for details.

FIGURE 10.1 SETTINGS

### 10.4 ENTER SET POINTS

☐ Refer to figure 10.1 and select the SET PT button to enter threshold settings.

☐ The bar graph in figure 10.2 is out of alignment until fully calibrated.

☐ For each of the three alarm set points on this channel click on the arrow ▲ to increase or ▼ decrease the alarm set point.

☐ The factory defaults are 30-40-50.

☐ The use of all three set points is not required.

☐ The channel does not have to be calibrated to select set points.

NOTE: Set points are prevented from interfering with adjoining values.

NOTE: Per agency restrictions, the HIGH and HIGH HIGH alarms are not allowed to increment above 60% LFL.

☐ The REAL TIME window displays the input current in milliamps for this channel and is not influenced by calibration.

☐ The percent value is a correct representation of the current AFTER calibration is completed.

☐ Select the esc key on the keyboard anytime to cancel this procedure.

FIGURE 10.2 Adjust Set Points

### 10.5 CALIBRATION

Referring to the field wiring diagram of drawing 9, a 4-20mA constant current source is required to connect to TB2 of the channel to calibrate.

As indicated in figure 10, channel #1 of node #1 was selected in the example and the name that was inserted for demonstration purposes, METER VALVE appears for this menu. This entire menu is only for channel one. The message NOT CALIBRATED appears until a successful calibration has been completed.

The tall blue bar to the far left in the graph on figure 10.4 and 10.3 represents the REAL TIME current being measured by the control panel and is also displayed in the REAL TIME window. This current is not affected by the calibration.

The green bar (shown at 5%) represents the low set point, yellow (15%) is for the HIGH and red (25%) is for the HIGH HIGH.

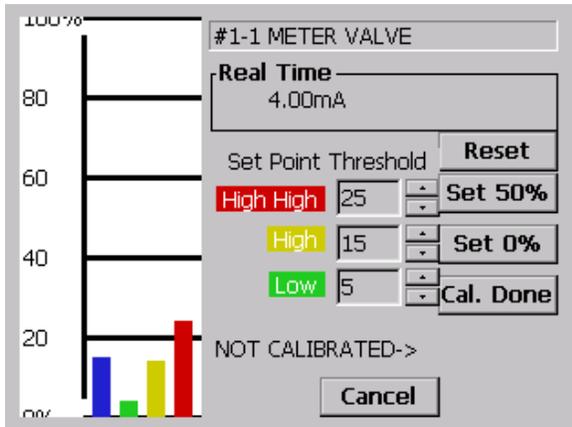


FIGURE 10.3 SET ZERO menu before SET 0% button is pushed with 4mA applied to input.

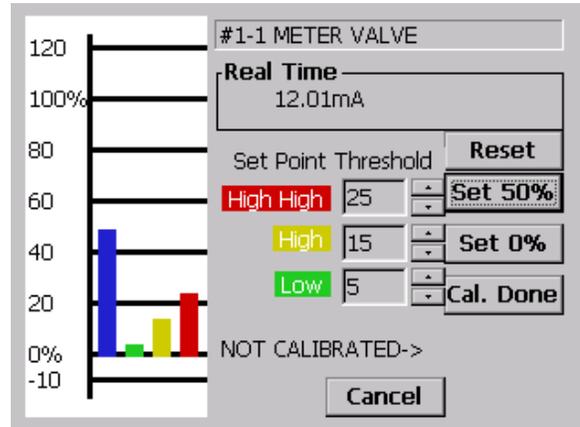


FIGURE 10.4 SET SPAN menu with 20.01 mA applied to same input.

Select the CALIBRATE button (figure 10.2) after the set point data has been entered.

Apply 4mA of current to this channel by reading the REAL TIME figures then click on the SET 0% button as indicated in figure 10.3.

Now apply 20mA to this channel as indicated in figure 10.4 and click on the SET 50% button for the span.

NOTE: If the current applied to the gas node is not within the applicable range, the message "THE 50% SETTING MUST BETWEEN 8 AND 25 MILLIAMPS appears.

Reduce the input current back to at least below the LOW threshold then select the CAL. DONE button to save the data. Now select the OK button.

After inserting the information, click on the APPLY button to proceed.

Click on the Cal. DONE button to save the data.

After channel one has been calibrated, use the same procedure to continue and calibrate the other three channels, if utilized.

### 10.6 RESET

The RESET button returns the calibration settings back to the DEFAULT level. The default level is Low = 30, High = 40, HIGH HIGH = 50. Use the RESET if a new gas sensor has been installed and then requires to be calibrated or if the calibration is restarted. Resetting the calibration requires that any active sensor on line to be recalibrated.

### **10.7 ALTERNATE CALIBRATION METHOD**

Manufacturers of gas sensors instruct different methods for obtaining local or remote calibration. In some cases calibration gas is utilized to connect to a gas sensor and then the 4-20mA node can then be calibrated. This method is called remote calibration and requires an administrator applying the gas at the sensor while someone else is setting the zero and span at the control panel. In a correctly installed 4-20mA system the current will not change due to field wiring. If the resistance of the wire connecting a 4-20mA sensor is so high that the sensor cannot deliver the voltage to drive the current through the loop, then the sensor can only be considered defective or incorrectly installed.

The use of 2.5% calibration gas is recommended for calibration. In this instance when the channel is properly calibrated the 2.5% gas flow will indicate 50% (blue bar) or half of the scale. The calibration method utilized here is based on the fact that the 2.5% gas concentration represents 50% of the 4-20mA scale, or 12mA sourced into the 4-20mA node.

### **10.8 GAS CONFIGURATION**

While in the F5 menu there is no alarm monitoring. Gas configuration is allowed ONLY in the direct connection mode as indicated in section 10. When a node is calibrated, the calibration data remains in the onguardsetup.dat file. Changing the node's ID does not affect the calibration or set points. All of the threshold levels and calibration settings are stored in the onguardsetup.dat file for the node.

### **10.9 SAVE NODE INFORMATION**

Item #1 in the UTILITY MENU, SAVE NODE REPORT, can be selected to summarize the information related to this Gas Node.

# 11. SUPERVISE OUTPUT (SOM) NODE PREPARATION

☐ Referring back to figure 5.5, highlight the output module name on the menu.

## 11.1 ADD/EDIT DETAILS

☐ This menu is similar to the input node. Follow sections 9.1 thru 9.6 for filling out field information then click on the APPLY button. Figure 11 contains examples of field devices.

☐ After the data in figure 11 has been filled click on the APPLY then the SETTINGS button.

## 11.2 SETTINGS SELECTON

Select the SETTINGS button to enter the menu of figure 11.1.

## 11.3 ENABLED

☐ As indicated in figure 11.1, check the boxes to ENABLE the channel(s) that will be utilized in a configuration.

**CAUTION - A CHANNEL THAT IS NOT ENABLED WILL NOT ALARM.**

## 11.4 SHORT MONITORING

If enabled the monitoring will create a fault if the field wires that are connected to an appliance are shorted together.

If a channel is being utilized for a solenoid (as in this example) or other type of coil, disable the short monitoring to prevent the system from announcing a fault. Under certain conditions, Allestec can assist in applications requiring a solenoid short supervision.

## 11.5 DEBOUNCE

The de-bounce time here is utilized exclusively for the output relays of this node and influences only the fault detection. Refer to section 9.6 for more details.

## 11.6 RESETTING NODE LED's

☐ Click on the RESET NODE LED's to selectively reset the SOM blinking LED's after an alarm or fault has occurred. For resetting LED's on all the nodes simultaneously, select menu option #10 on the UTILITY MENU.

☐ Click on the APPLY button when finished.

## 11.7 TESTING THE SOM FOR EXTINGUISHING

When disconnecting the extinguishing system discharge circuit for testing or maintenance, the extinguishing system must be isolated mechanically. Disconnecting the extinguishing system solely by software or electrically is not in compliance with agency restrictions.

Node Name		Comment
←	Output Module	Edit
Alarm Location		
SK	1 SKID STROBE	Edit
HK	2 SKID HORN	Edit
~	3 SOLENOID 1	Edit
~	4 SOLENOID 2	Edit
Node ID# 2		Apply

FIGURE 11. ADD/EDIT DETAILS

#2 Output Module		
	Enabled	Short Monitoring
#2-1 SKID STROBE	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> DISABLED
#2-2 SKID HORN	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> DISABLED
#2-3 SOLENOID 1	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> DISABLED
#2-4 SOLENOID 2	<input checked="" type="checkbox"/> YES	<input type="checkbox"/> DISABLED
Debounce Time 320 milliseconds		
Reset Node LED's	Firmware V200	Apply

FIGURE 11.1 SETTINGS

## 11.8 PRINT NODE INFORMATION

Item #1 in the UTILITY MENU, SAVE NODE REPORT, can be selected to summarize the information related to this node.

## 12. RELAY NODE PREPARATION

□ While in the UTILITY MENU, select #11, NODE MANAGEMENT, then highlight the relay node and then select the ADD/EDIT button.

□ Collapse or leave open the node tree then click once on the name to highlight it.

### 12.1 ADD/EDIT DETAILS

□ This form is identical to the input node. Follow sections 9.1 through 9.6 for filling out field information then click on the APPLY button. Figure 12 contains examples of field devices.

□ After the data in figure 12 has been filled click on the SETTINGS button.

### 12.2 SETTINGS SELECTION

□ The relay node remains always ENABLED.

□ The relay nodes do not affiliate with de-bounce times as the other nodes.

### 12.3 RESET NODE LED's

□ Click on the RESET NODE LED's to reset the input node blinking LED's after an alarm has occurred. For resetting LED's on all the nodes in a system simultaneously, select menu option #10 on the UTILITY MENU.

□ Click on the APPLY button when finished.

□ Click on the SAVE and CLOSE button to return to the main to print out the information or proceed to continue with other nodes.

### 12.4 PRINT NODE INFORMATION

Item #1 in the UTILITY MENU, SAVE NODE REPORT, can be selected to summarize the information related to this node.

The screenshot shows a form titled "ADD/EDIT Details" for a relay node. It has a table-like structure with columns for "Node Name" and "Comment". The "Node Name" column contains a list of alarm locations: "Relay Module", "1 CLOSE DAMPERS", "2 TURN OFF POWER", "3 TURN ON VENT FAN", and "4 Channel is undefined". Each row has a left arrow icon and an "Edit" button. At the bottom, there is a "Node ID# 3" field and an "Apply" button.

Node Name	Comment
Relay Module	Edit
Alarm Location	
1 CLOSE DAMPERS	Edit
2 TURN OFF POWER	Edit
3 TURN ON VENT FAN	Edit
4 Channel is undefined	Edit

Node ID# 3      Apply

Figure 12. ADD/EDIT Details

The screenshot shows the "SETTINGS" form for a relay node. It displays the node name "#3 Relay Module" and a status indicator "Enabled". Below this, there is a list of alarm locations: "#3-1 CLOSE", "#3-2 TURN OFF", "#3-3 TURN ON", and "#3-4 Channel is". At the bottom, there is a "Reset Node LED's" button, the text "Firmware V200", and an "Apply" button.

#3 Relay Module

Enabled

#3-1 CLOSE

#3-2 TURN OFF

#3-3 TURN ON

#3-4 Channel is

Reset Node LED's      Firmware V200      Apply

FIGURE 12.1 SETTINGS

# 13. DIRECT CONNECTION RELEASE Input node initializing

**CAUTION: ENTERING INTO ANY CONFIGURATION DISABLES THE SYSTEM FROM RESPONDING TO ALARMS. THE FAULT RELAY WILL TRIP UNTIL THE CONFIGURATION IS EXITED.**

## 13.1 SELECTING AN INPUT NODE TO TRIP AN SOM OR RELAY NODE

This selection allows configuring nodes without any time delays or logic exceptions. It is basically a "straight through connection" from input nodes to output nodes. The nodes that were previously scanned for an ID number in section 5.10 and loaded with data in sections 9 through 12 appear in two windows. The input style of nodes are on located on the left and output are on the right side of the screen. The nodes in either window can be expanded by clicking on the + to display each of the four channels or collapsed by clicking on the - sign.

□ The first step in establishing node mapping is to connect the channels of all nodes, one at a time, to an icon that best represents the intended action as indicated back in section 9.2 . Refer to figure 13 and highlight the Input Node and click on the + to expand the node tree. Notice the node name and alarm location data fields are visible from previous sections. The following example will illustrate the technique for mapping an Input node to a Relay and SOM.

□ The SORT button locates the nodes in numeric order.

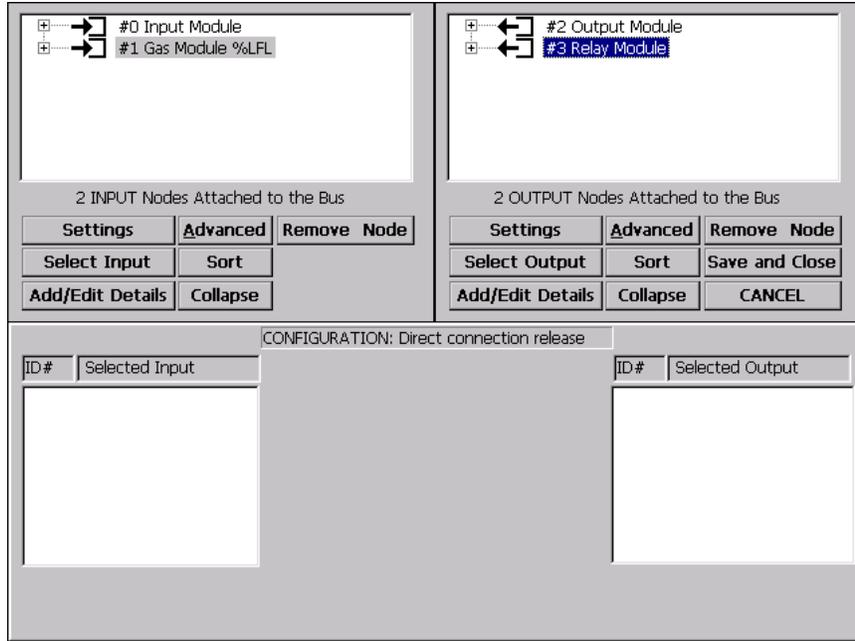


FIGURE 13 . Direct connection release - node trees are collapsed.

## 13.2 SELECT INPUT NODE CHANNEL TO TRIP OUTPUT NODES

□ Figure 13.1 shows the menu prior to clicking on a channel to locate it in the SELECTED INPUT screen.

□ The channel(s) on the left screen are prepared to map to the channel(s) on the right screen.

□ Now determine which input node channel to map to an output node on the right.

□ Double click on any input node channel to locate it in the lower box to prepare to map it to another node.

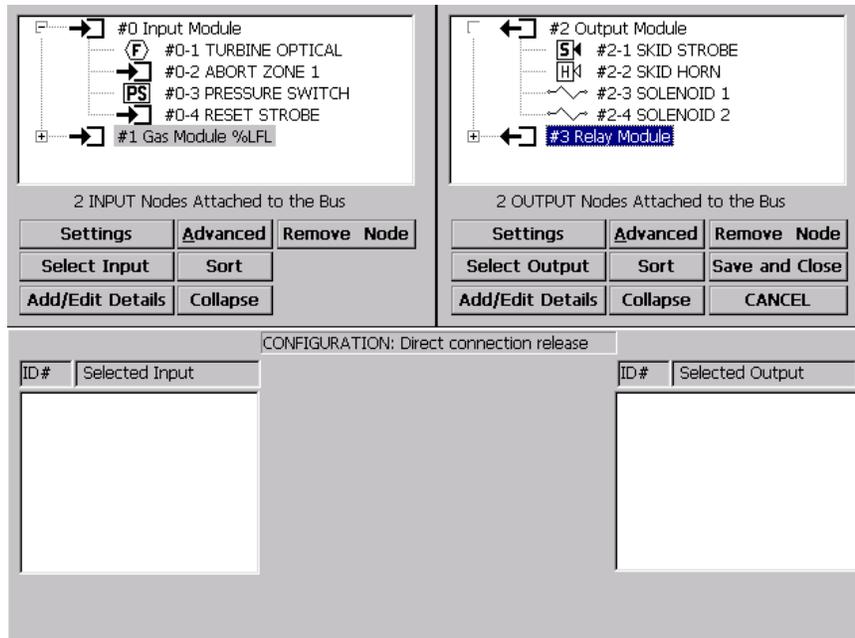


FIGURE 13.1 Input and output node trees are expanded open.



FIGURE 13.2

- The channel that was selected will now be copied to the SELECTED INPUT box below but can be unselected by double clicking on it.
- Now select the FIRE ALARM box then ACCEPT.

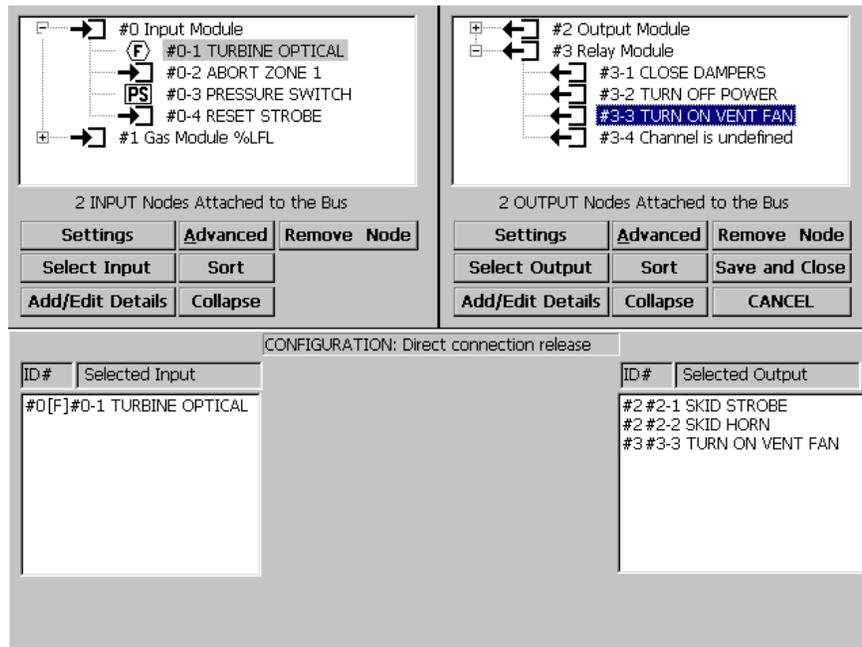


FIGURE 13.3 Selecting input nodes to trip outputs.

NOTE: About figure 13.2 – The **SELECT ALARM TYPE** box appears to enforce the decision by the administrator that the node channel chosen is indeed the correct one. The fire and gas alarm check boxes have no logic control on the system. The reset function is described in later sections does have control to how the system handles the input channel.

- Now open the SOM tree on the right menu by clicking on the + sign.
- Double click on the node channel(s) that will be activated by the SELECTED OUTPUT channel.
- Figure 13.3 illustrates that relay node channel 3 was selected for this example. SOM channels 1 and 2 were also selected.

### 13.3 RESULTANT

- Based on the example, when input node 0-1 is activated all three channels in the SELECTED OUTPUT menu will immediately activate. Refer to figure 13.6 for the alarm action.

### 13.4 VOTING CHANNELS WITHIN THE INPUT NODES

When 2 or more inputs are located into the SELECTED INPUT screen, the ENABLE VOTING box appears (not shown). Select the quantity of inputs required from the left menu to satisfy an output alarm on the right menu. The number of input nodes to vote MUST be in alarm for their de-bounce time period plus 300 milliseconds (simultaneously) for the alarm to be confirmed. Voting can be conducted between channels as well as nodes.

**CAUTION: THE PROCESS OF VOTING BETWEEN ALARM CHANNELS WILL SLOW THE ALARM RESPONSE TIME DOWN.**

### 13.5 SAVE THE CONFIGURATION

After completing the required configuration, click on the SAVE and CLOSE button to bring up the configuration menu. Notice the rectangle box is empty. As soon as a configuration is created, it will be inserted into this box as well as future configurations.

Type a file name that can later be mapped to this configuration. Notice in figure 13.6 this configuration name appears during an alarm.

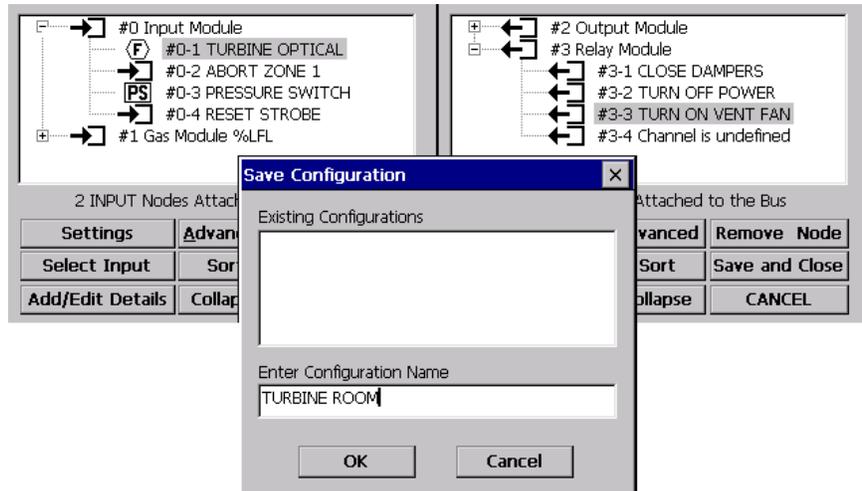


FIGURE 13.4 Creating and saving a configuration.

Now click on the OK button to save the configuration.

NOTE: When a configuration is created, it is automatically LOADED or “ready for an action”

Refer to section 24 to LOAD, UNLOAD and EDIT configurations.

### 13.6 TESTING THE CONFIGURATION TO ALARM ON A DIRECT CONNECTION RELEASE

#### 13.7 SYSTEM FIRE ALARM MENU

Once a configuration has been created it is immediately loaded in the configuration file folder and is ready for use. Based on the configuration that was just completed, when channel 1 of node 0 turns on the output channels that were located into the SELECTED OUTPUT screen activate. Trip channel one of the input node to put it into alarm. The following screen will appear in figure 13.5. Select the fire alarm button on the touch screen, the local audible alarm will turn off and the menu appears as in figure 13.6. The local fire alarm signal will silence. Notice the configuration name for the group of devices appears.



FIGURE 13.5 Fire alarm button

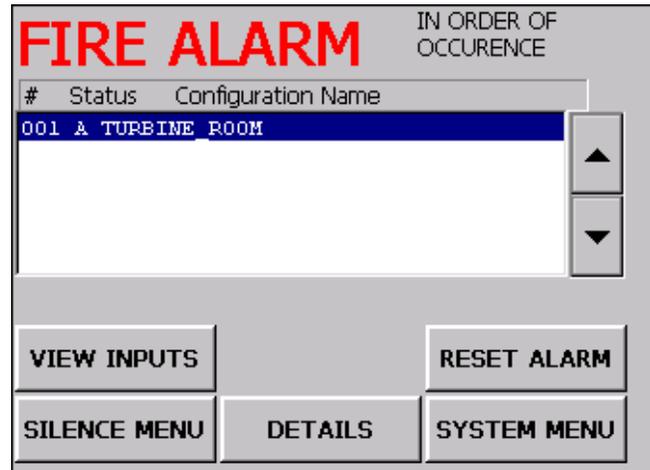


FIGURE 13.6 Fire alarm menu

#### 13.8 FIRE ALARM MENU

The SILENCE MENU allows audible appliances to be silenced. Reoccurring alarms on the same channel will activate the audible devices again. Refer to section 19.

The DETAILS brings up the menu in figure 13.8. It indicates and records when the highlighted alarm in the menu has occurred, been reset or silenced for this #1 event. Select the OK button to go back to the FIRE ALARM menu then select the SYSTEM MENU BUTTON.

Any subsequent fire alarm configurations will be located in this menu on the next line item.

□ Select the VIEW INPUTS button as indicated in figure 13.7 to view the node details as well as any other input alarms associated with this configuration. Selecting the VIEW INPUTS allows individual viewing of each input node contained in the configuration.

- Select EXIT to return to the previous menu.
- Select the RESET button to clear the alarm. If the alarm has not been cleared, it will reappear.
- To view the alarm history, go to figure 27 and select the FIRE DISPLAY button.
- To erase the alarm history, refer to section 27, #9.
- The DEVICE NAME and ALARM LOCATION is the data that was placed in the ADD/EDIT DETAILS field back in figure 9.1. Remember, the DEVICE NAME was an icon selection.
- The STATUS column indicates the real time activity of this channel and the 'A' indicates the alarm is active and "R" indicates the alarm has been cleared.

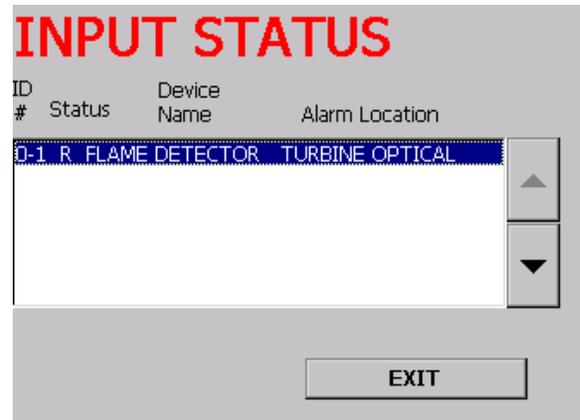


FIGURE 13.7 Node data and status.

### 13.9 DETAILS MENU

The data in figure 13.8 comes from the ADD/EDIT details that was entered in figure 9.4.

- The #0 Input Node is the editable field located in the NODE NAME field . #0 indicates the node ID 0.
- The #0-1 TURBINE OPTICAL is from the ALARM LOCATION field. #0-1 indicates node ID #0, channel 1.

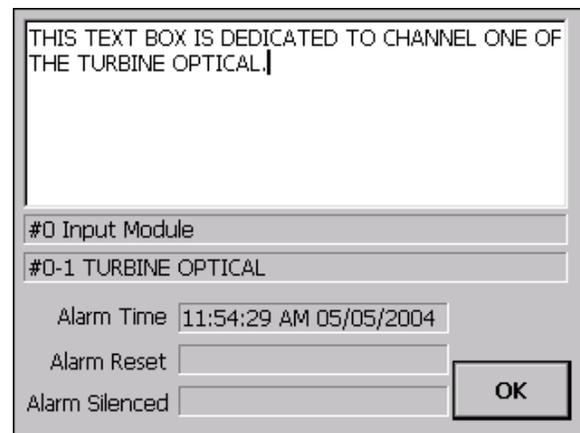


FIGURE 13.8 Details menu

### 13.10 VOTING SEQUENCING

As described in section 13.4, if the amount of initiating devices selected to vote is not attained, a WARNING message will occur to indicate there is a potential for an alarm that must be investigated. Also, if initiating alarms enter the input node sequentially, the first alarm(s) will be a WARNING followed by the FIRE menu when the voting is satisfied. Only when a voted alarm receives all its alarms simultaneously will the WARNING be omitted and the FIRE menu will appear. The warning alarm sequencing allows events to be recorded in the order they are received. Voting menus must be reset as well as the fire alarm menu to reset the panel. The WARNING alarm on any configuration trips the WARNING relay on the panel is indicated in drawing 6.

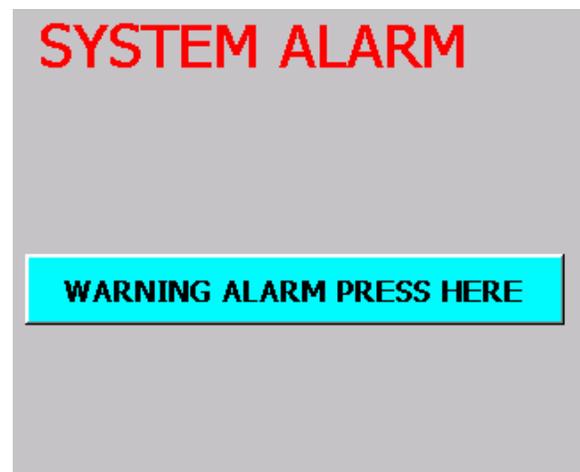


FIGURE 13.9 Warning on a first alarm when voting.

### 13.11 SYSTEM FAULT ALARM MENU

The input alarm circuit on the node ID 0, channel 1 is opened to demonstrate a fault. Select the FAULT ALARM button in figure 13.10 to bring up the FAULT ALARM in figure 13.11. Figure 13.11 shows the FAULT ALARM menu.

□ To silence the panel audible alarm, select the silence button. If the fault alarm remains unattended, the audible alarm will resound within 30 minutes.

□ The DETAILS button brings up the fault menu. It indicates and records when the fault occurred and has been silenced or reset.



FIGURE 13.10 Fault alarm button

### 13.12 FAULT ALARM MENU

The FAULT ALARM menu identifies that node ID #0, channel 1 has a SUPERVISION FAIL and the STATUS indicates the fault is Active. A supervision fail is when an ELR is not installed or a conductor on that channel has become loose.

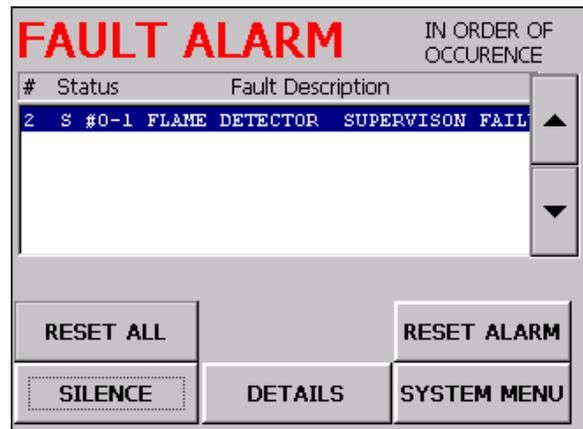


FIGURE 13.11 Fault menu

## 14. DIRECT CONNECTION W/DELAY RELEASE Input node initializing

### 14.1 SELECTING AN INPUT NODE TO TRIP AN SOM OR RELAY NODE -

This configuration is identical to the DIRECT CONNECTION RELEASE except this menu expects a time delay to be entered in the SECONDS window. Select input channels to map to output channels as demonstrated in section 13. This configuration should be used only with devices that contain a solenoid. When the configuration is complete, give it a unique file name.

### 14.2 ENTER TIME DELAY

Refer to figure 14 and type in the time in seconds or use the ▲ or ▼ arrow to adjust the time. Enter up to 9999 seconds. When this time expires the solenoid will turn on.

Enter from 10 to 9999 seconds for a solenoid on time. After this time expires, the solenoid will turn off.

**14.3 VOTING** Refer to section 13.4, Voting channels within the input nodes.

### 14.4 ABORT OPTION

In section 9.1 channel 2 of the input node was named abort. Any of the 4 fields could have been named abort but once it is selected as indicated in figure 14.1, it then becomes associated with that configuration. Now when the Pre-Discharge Delay is counting down and the abort switch is pushed, the timer will stop counting as long as the switch is held in and the word ABORT ACTIVE will appear as indicated in figure 14.4. Releasing the abort switch will commence the timing. The abort does not influence the solenoid on time.

**CAUTION: UTILIZING THE ABORT WILL AFFECT THE TIME REQUIRED FOR EXTINGUISHING.**

### 14.5 RESULTANT

Once any initiating device from the SELECTED INPUT window enters into alarm, the Pre-Discharge time in the SECONDS window will commence and when t = zero, the selected devices in the SELECTED OUTPUT window will initiate at the same time and remain ON for the duration of the Solenoid On Time. Follow the example menus in figures 13.1 through 13.6 to configure this menu.

FIGURE 14. Direction connection with delay.

FIGURE 14.1. Loading the configuration with data.

□ Select the DELAY button to view the counter as indicated in figure 14.4.

NOTE: If the time delay is short and the menu is entered late, the time may have already expired.

□ During alarm time countdown, the FIRE STATUS indicator will read ACTIVE as long as this channel is in alarm, however the alarm will continue in progress.

**14.6 VOTING SEQUENCING** Refer to section 13.10.

**14.7 MORE CONFIGURATIONS**

□ Configurations can be made utilizing the same nodes but in a different logic. An example is a DIRECT CONNECTION with time delay and unique file name has an optical detector tripping a solenoid in 30 seconds. Now, there is a manual pull from a different node address connected to the same solenoid but through a DIRECT CONNECTION W/O delay and has its unique file name. So when the optical commences the time delay starts, then if the manual pull is tripped, the manual pull will instantly override the time delay and trip the solenoid. It is “building blocks” like these two configuration files that can create more complex logic.

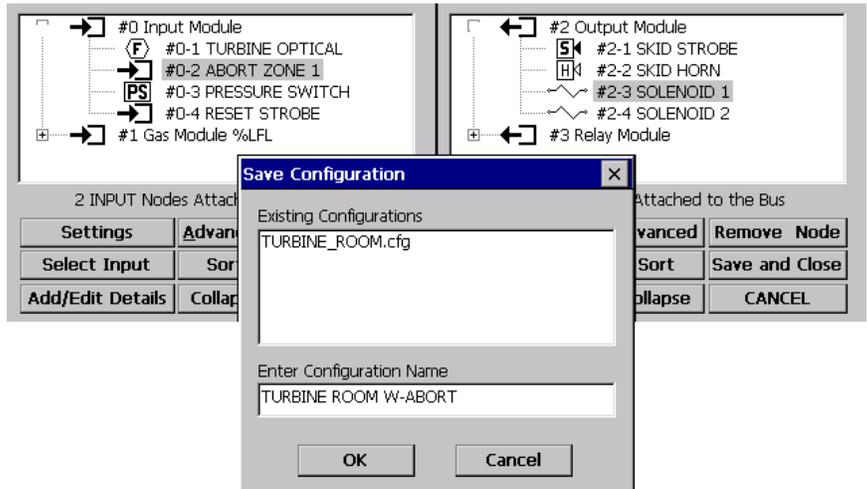


FIGURE 14.2. Naming the configuration.

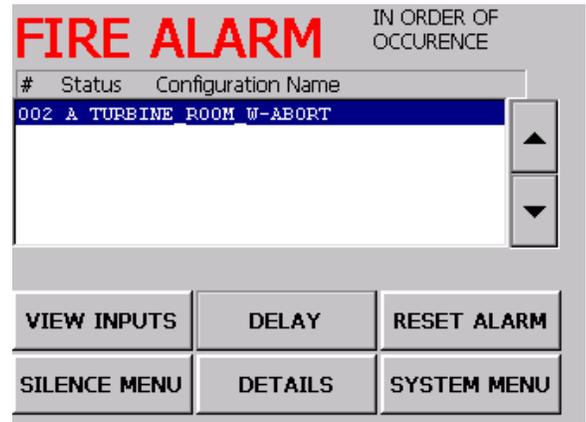


FIGURE 14.3 Creating the alarm.



FIGURE 14.4 Selecting Delay times button and pushing the abort switch.

# 15. DIRECT CONNECTION RELEASE 4-20mA node initializing

## 15.1 SELECTING A 4-20mA NODE FOR TRIPPING AN SOM OR RELAY NODE

This configuration is similar as selecting the input node in section 13 except the gas node is selected here. NOTE: This is the only configuration allowed to utilize the gas node selection.

## 15.2 SELECT A GAS CHANNEL

Refer to figure 15 and select the + on the gas node tree to open the 4 channels to prepare for configurations.

This example illustrates one gas node but it is possible there could be more.

Double click on one or more of the four channels of the gas node to locate it in the SELECTED INPUT screen. In this example two gas channels were selected. The SELECT ALARM TYPE menu in figure 15.1 appears.

If the selection of the gas node channel was not correct, simply double click on it to locate it where it originated.

Check mark the GAS ALARM box then the ACCEPT box.

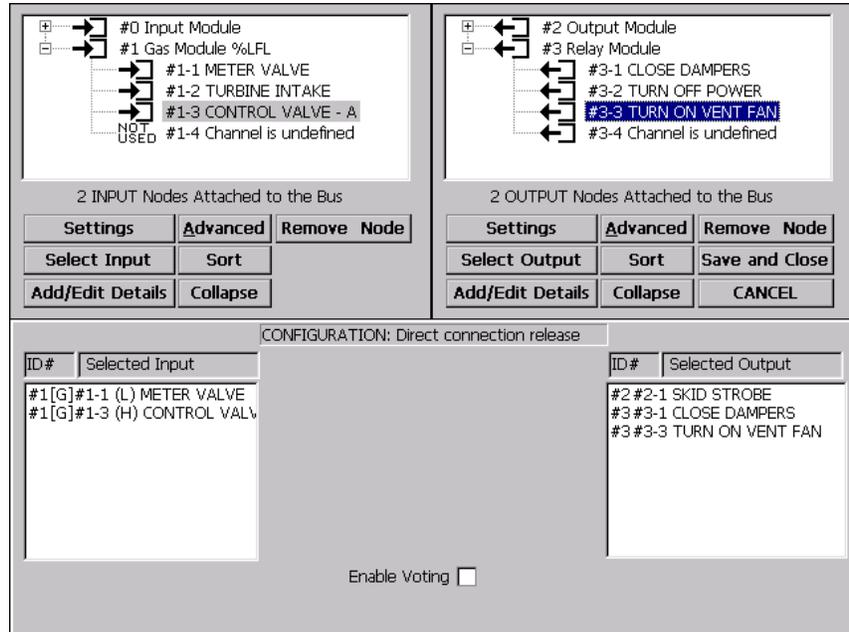


FIGURE 15. Direction connection from gas to relay node.

## 15.3 SELECT A SET POINT THRESHOLD

The SELECT THRESHOLD box appears as indicated in figure 15.2 and it is at this location to check off the alarm set point box for this channel. Then select the ACCEPT button.

For this example channel 1, METER VALVE LOW alarm was selected along with the control valve. Note back in figure 10.3 the low alarm of this channel was set at 5% LFL.

NOTE: To alarm on the other two set points for this same channel, a complete new configuration would have to be made. If a new configuration is made, the same or different appliances can be selected.

In this example, channel 3 was chosen to trip on the HIGH alarm. This channel was selected to trip at 15% LFL.



FIGURE 15.1 Select the gas alarm box .

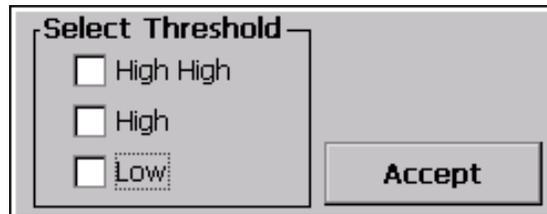


FIGURE 15.2 Select the threshold level.

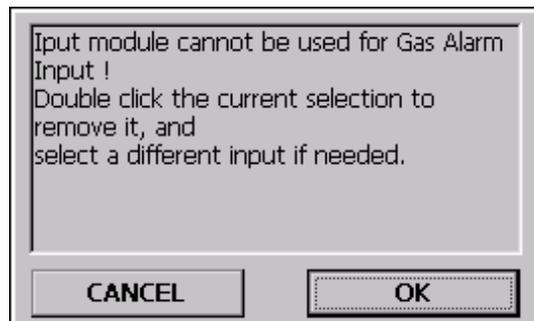


FIGURE 15.3 Error message when trying to select an input node for gas.

- Now select output appliances to trip from the gas inputs. In this example the SOM ID node #2, channel 1 and the relay node ID #3 channels 1 & 3 were selected.
- Upon completion of mapping the node channels, click on the SAVE and CLOSE button to bring up the CONFIGURATION screen. In this example the configuration was named "TURBINE ROOM - GAS".
- At this point the configuration was loaded in the CONFIGURATION folder and can be viewed by going to the UTILITY MENU and selecting #13 MANAGE CONFIGURATIONS. The configuration is ready for use.

**15.4 RESULTANT**

When a LOW alarm on channel1 or HIGH alarm on channel 3 occurs in the SELECTED INPUT screen, all three devices will activate in the SELECTED OUTPUT screen. Notice in figure 15 that on the gas alarm SELECTED INPUT both channels identify the THRESHOLD level.

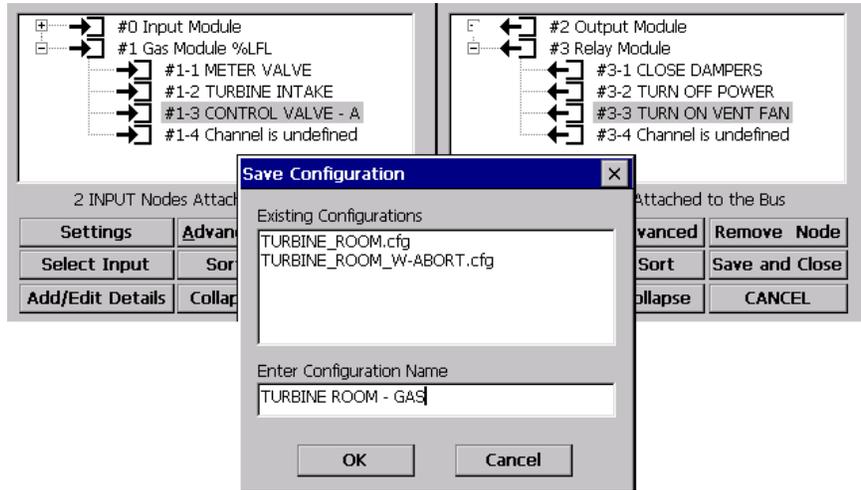


FIGURE 15.4 Create a configuration.



FIGURE 15.5 Select gas alarm button.

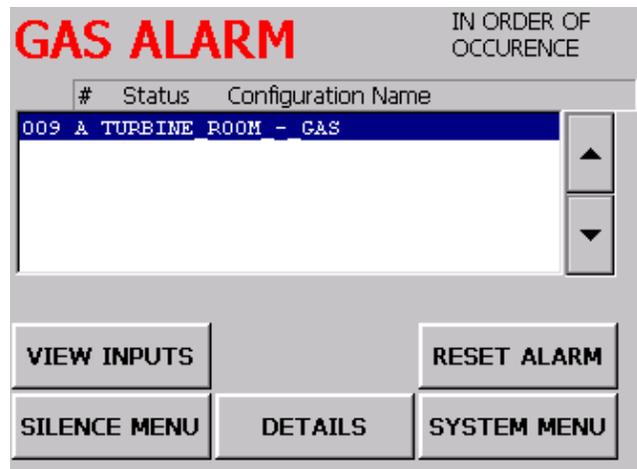


FIGURE 15.6 Gas alarm menu.

**15.5 TESTING THE GAS NODE CONFIGURATION FOR AN ALARM**

Slowly increase the current entering into the input of the gas node under observation. In this example, channel 1 is what was named the meter valve. When the current (gas concentration) level is equal to or exceeds the SETPOINT level (LOW ALARM = 5%), the alarm will occur. Refer to figure 15.5 and select on the "GAS ALARM PRESS HERE" button. The menu in figure 15.6 appears and allows further investigation of the alarm. If there is an audible appliance configured, select the silence menu (described in detail in section 19). Notice the 2 inputs in figure 15.7 that were included in this configuration. Also note that input 1-1 is in alarm. To further investigate this alarm select the GAS LEVEL button.

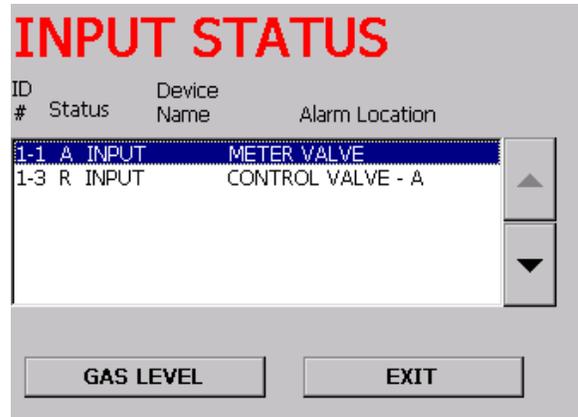


FIGURE 15.7 VIEW INPUTS selected.

### 15.6 VIEW THE ALARM

After selecting the GAS LEVEL button the graph in figure 15.8 appears. It is formatted as the original menu where the SET POINTS are entered. The menu is color on the monitor so to identify the colors for this manual the REAL TIME bar is the left side, then LO THRESHOLD and HIHI. Notice the REALTIME DATA is 9% and the LOW THRESHOLD is at the setting of 5%. The REAL TIME DATA is the actual current represented in % of the scale.

NOTE: It may take a few seconds after selecting the GAS CHART button before the bar graph can construct the data and appear.

### 15.7 DETAILS DATA

After viewing the bar graph, return the input current below the alarm threshold, select the DONE button then the DETAILS button to bring up the message screen as shown in figure 15.9. This menu indicates the time of the alarm as well as the note field from the EDIT menu in the SETTINGS section. Notice the GAS MODULE %LFL text in figure 15.9 which was inserted back in figure 10. The #1 is identifying node ID #1. Select the OK button to return back to the GAS ALARM MENU then RESET the alarm.

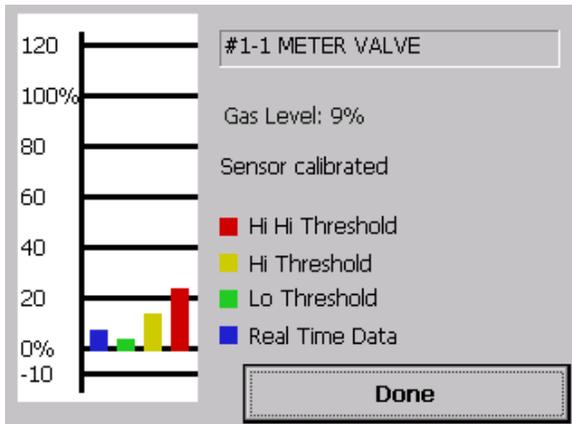


FIGURE 15.8 Gas chart alarm screen

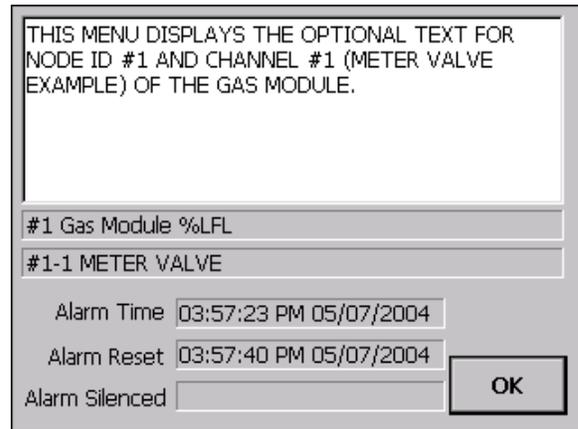


FIGURE 15.9 Details screen

### 15.8 FAULT ANNUNCIATION

If the 4-20mA loop is opened or the current drops below -9% of the scale, a fault message will occur. Select the FAULT ALARM button and the FAULT ALARM menu will appear. A fault was created for this channel and under the STATUS name is the letter "A" (active) indicating the fault input current is still below the -9%. The STATUS letter will change to an "R" (reset) if the fault input current is brought back to normal operating limits. Next to the STATUS is #1-1 which indicated node ID #1, channel 1. The FAULT DESCRIPTION identifies that the loop current fell below the -9% range. This description can also identify a short or open in the 4-20mA loop.

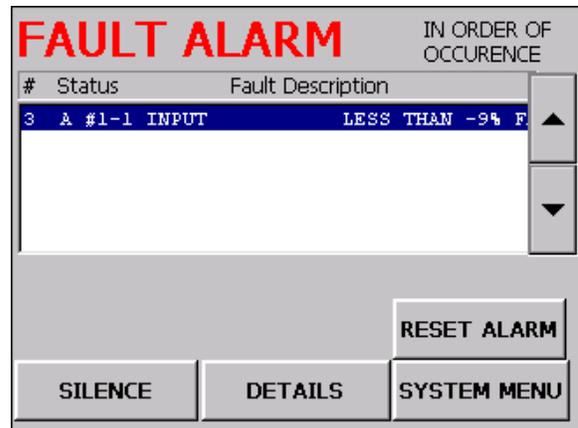


FIGURE 15.10 Fault alarm screen

### 15.9 VOTING BETWEEN GAS CHANNELS

If more than one channel of the gas node is located in the SELECTED INPUT box as indicated in figure 15, the VOTING box appears. Select the voting quantity to satisfy the alarm condition. When alarm(s) appear but do not satisfy the voting condition, a WARNING alarm will occur as indicated in figure 13.9. Select the WARNING button and then the DETAILS button to acquire the node channel address. As other alarms appear which do not attain the voting requirement, use the scroll buttons (figure 15.6) to view and select the specific alarm. Once the voting has been attained, the GAS ALARM button (figure 15.5) will appear. Select this button and proceed to any of the alarms appearing on the menu to view the GAS CHART. Alarms must return below their set point to be reset and the WARNING alarms must be reset. NOTE: Gas warning menus after selecting figure 13.9 currently do not indicate gas concentration levels but indicate which sensor is in alarm.

## 16. DUAL MODE RELEASE Input node initializing

---

### 16.1 SELECTING AN INPUT NODE TO TRIP AN SOM OR RELAY NODE

The dual mode release is a configuration that requires two solenoids, two releasing agents and a line pressure switch. This configuration utilizes a second tank as a backup mode in the event the pressure switch does not function or if the fire is too large in magnitude for the first release to extinguish the fire. The cause and effect for this configuration is described in detail below.

### 16.2 CAUSE AND EFFECT RESULTS

When receiving an alarm from the input node:

There are various sequence of operations that can be executed depending on the real time status of a fire. The options that are listed below account for when this release configuration is utilized.

#### A. CAUSE

The SOM is activated, the MAIN solenoid timing starts, but the fire is manually extinguished **prior** to the MAIN cycle time expiring.

#### B. EFFECT

The display will start counting down from its pre-selected time until the time expires. The display will continue to count down unless the alarm is reset (providing the proper exception is checked off, figure 16) or the configuration is committed to the release of the first tank.

#### C. CAUSE

The SOM is activated, the MAIN solenoid timing starts, the fire remains until the countdown expires and the MAIN solenoid trips thereby extinguishing the fire. The pressure switch changes state within 7 seconds.

#### D. EFFECT

The MAIN agent release is sufficient enough to extinguish the fire and the RESERVE solenoid is never activated.

#### E. CAUSE

The SOM is activated, the MAIN circuit timing starts and counts down to zero, the pressure switch changes state within 7 seconds. The fire is of sufficient magnitude to continue after the MAIN solenoid trips.

#### F. EFFECT

The display commences its second timing sequence on the RESERVE solenoid and upon the expiration of the timing, the RESERVE solenoid trips.

#### G. CAUSE

The SOM is activated, the MAIN circuit timing starts, the pressure switch does not change state within 7 seconds.

#### H. EFFECT

The RESERVE solenoid will automatically turn on.

Figure 16 displays the dual release mode configuration menu prior to mapping the nodes or making exceptions. Select the CANCEL button to exit if this menu is not the correct.

**16.3 SELECT DEVICE INPUTS**

The first step is to expand the input node by clicking on the + symbol and then double click on the specific channels required to trip the release.

For the alarm device and pressure switch check the fire alarm box in the SELECT ALARM TYPE menu (figure 13.2).

Figure 16.1 indicates one optical detector on channel 1 as well as a pressure switch (required) on channel 3 were selected for the two inputs.

**16.4 SELECT PRESSURE SWITCH INPUT**

Now highlight the pressure switch in the SELECTED INPUT screen then click on the SELECT PRESSURE SWITCH button. Notice in figure 16.1 the pressure switch is displayed below the SELECT PRESSURE SWITCH button. The pressure switch can also be selected from another node.

**16.5 SELECT TIME DELAY**

Enter the time for the PRE-DISCHARGE DELAY and the RESERVE RELEASE DEAY solenoids. This time can be up to 9999 seconds as long as the second delay is 7 seconds longer than the PRE-DISCHARGE timer.

NOTE: The two time delays are independent of each other and both commence countdown simultaneously.

**16.6 SELECT DEVICE OUTPUTS**

Now expand the SOM on the other side and double click on two solenoids (required).

For this example, relay node ID #3, channel 2 was also selected.

NOTE: If other devices are located in the SELECTED OUTPUT box, they too will turn on as soon as the PRE-DISCHARGE DELAY times down to 0 seconds.

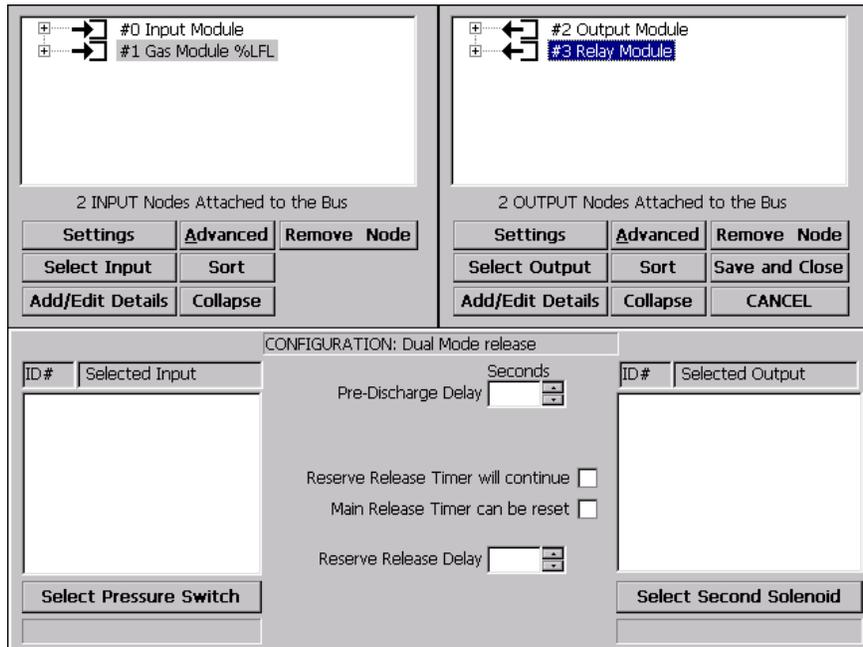


FIGURE 16. Dual release menu - preparing to configure.

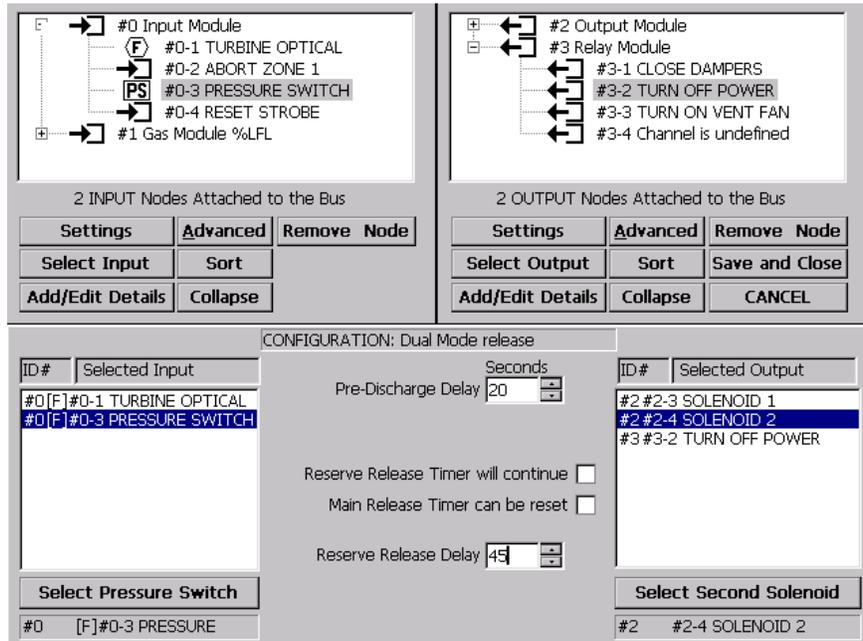


FIGURE 16.1 Input / output node mapping and selecting exceptions.

### 16.7 SELECT 2nd SOLENOID

☐ Highlight the second solenoid channel then click on the SELECT SECOND SOLENOID button. Notice that the solenoid is displayed below the SELECT SECOND SOLENOID button.

### 16.8 EXCEPTION BOXES

☐ Check the exception boxes if required:

☐ VOTING - Refer to section 13.4, Voting channels within the input nodes.

☐ RESERVE RELEASE TIMER WILL CONTINUE

If left unchecked, the time sequence will continue even though the input node alarm has gone away. If the box is checked and the alarm goes away during countdown, the RESERVE countdown will stop and hold until reset, never tripping.

☐ MAIN RELEASE TIMER CAN BE RESET

If checked, the main release cannot be reset prior to the 1st discharge if the input node alarm clears. If voting, none of the inputs can be reset.

☐ Click on the SAVE and CLOSE button after verifying the correct configuration map is established.

☐ Just type a file name that is windows appropriate in the bottom configuration field then click the OK button.

### 16.9 SAVE THE CONFIGURATION

☐ SAVING CONFIGURATIONS A configuration file name can contain up to 128 characters and cannot contain \ / : \* ? " | characters.

☐ The configuration file has been located in the configuration folder and is armed.

### 16.10 TESTING THE DUAL MODE RELEASE CONFIGURATION FOR AN ALARM

Once a configuration has been created it is immediately loaded in the configuration file folder and is ready for use. For this example, node ID #0, channel 1 will be set into alarm by shorting across channel one of the input node. The FIRE ALARM menu appears as indicated in figure 13.5. Select the FIRE ALARM button to bring up the FIRE ALARM menu. This menu operates similar to previous menus.

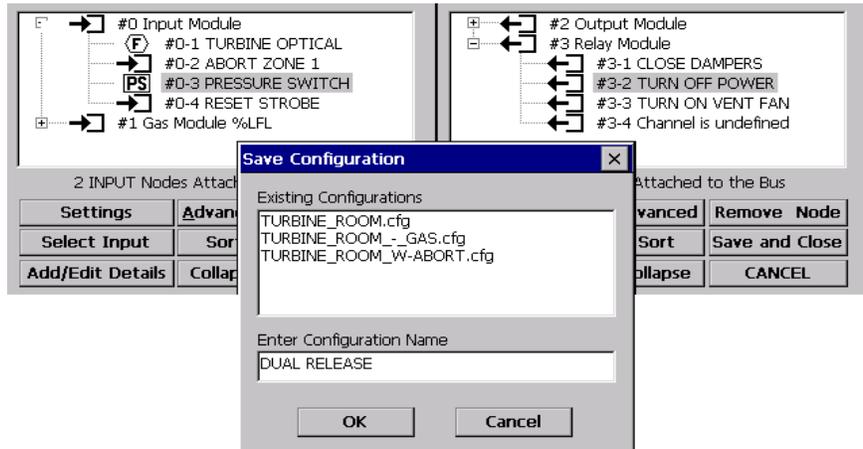


FIGURE 16.2 Saving the configuration. In this example the configuration file name is called “dual release”.

### 16.11 FIRE ALARM MENU ITEMS (FIGURE 16.4)

☐ The DEVICE NAME and ALARM LOCATION is the data that was placed in the ADD/EDIT DETAILS field back in figure 9.2.

□ The STATUS column indicates the real time activity of this channel and the “A” indicates the alarm is active. The device in alarm is no longer active after the RESET ALARM button is selected, then the letter “R” will appear.

□ As other alarms appear, they will be located in time occurrence order. Use the scroll arrows to the right of the alarm window if too many alarms fill the screen and the lower rows are out of view.

□ When the DETAILS button is selected, the menu in figure 9.3 appears. Remember back in section 16.5, 20 seconds was entered in the PRE-DISCHARGE DELAY window and 45 seconds in the RESERVE RELEASE DELAY.

□ The fire status ACTIVE sign (figure 16.5) turns to INACTIVE if the alarm device contacts open. The timers will continue to count based on the exceptions located in the check boxes and the real-time device in alarm.

□ Select the RETURN TO ALARM MENU to go back to figure 16.5.

### 16.12 PRESSURE SWITCH ACTIVATION

□ Figure 16.4 indicates when the first timer expired. If the pressure switch does not change state within 7 seconds, the second time is truncated and the reserve tank trips. In this example, the pressure switch is connected to node ID #0, channel 3, figure 9, and is activated shortly after the first timer expires. At this point in time, this action is recorded as a second alarm input. The reserve timer will continue to countdown until T=0 and the second tank trips.

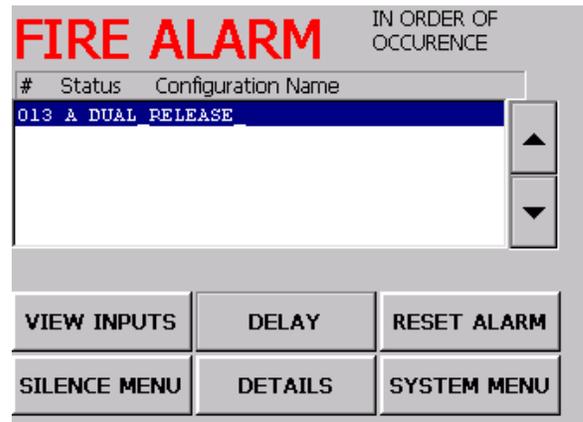


FIGURE 16.3 Fire alarm menu

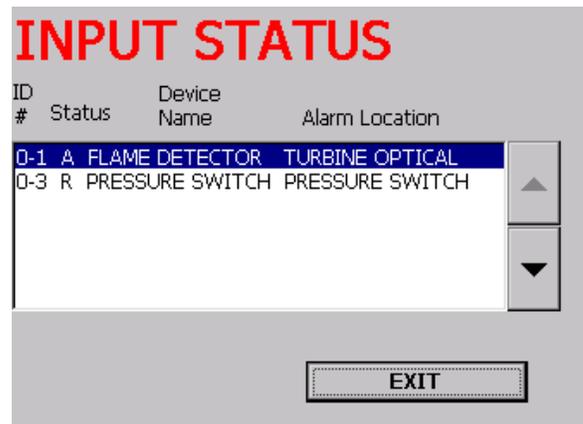


FIGURE 16.4 Input status menu indicating two alarm inputs from the configuration named “Dual Release”.

### 16.13 VOTING SEQUENCING Refer to section 13.10

### 16.14 LOCATING OTHER NODE CHANNELS IN THE SELECTED OUTPUT SCREEN

□ As indicated in figure 16.1, this example loaded relay node ID #3, channel 2 in the SELECT OUTPUT SCREEN. Any node channel(s) loaded into this screen will activate IMMEDIATELY upon expiration of the FIRST timer and are precluded from any timing issues. If the administrator does not want to complicate a configuration by adding another output device, a separate configuration can be made in the DIRECT CONNECTION with delay, section #13.

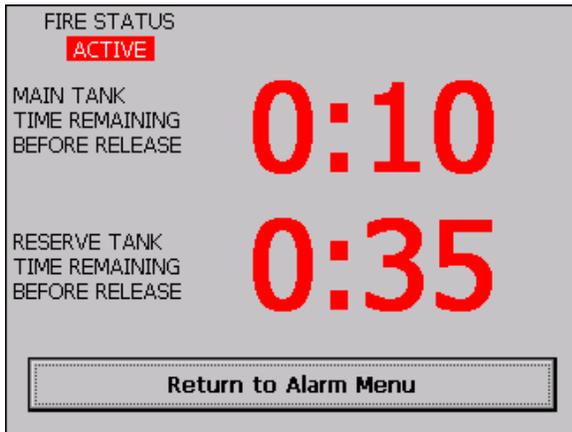


FIGURE 16.5 Dual time count down

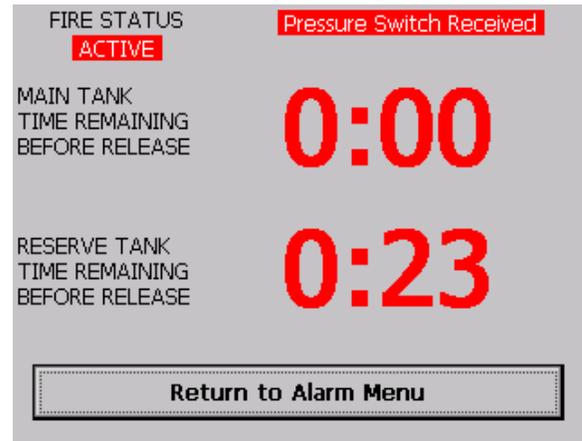


FIGURE 16.6 Pressure switch monitor

## 17. WATER MIST (CYCLE) RELEASE

---

Selection #14 of the UTILITY MENU allows the use of mist systems that correspond to NFPA 750. This configuration allows variable time delays for the mist on/off cycling as well as pause modes. Notice in figure 17 the center of the menu designates this is a CYCLE MIST release.

NOTE: For the proper real-time function of this configuration to work properly, the device in alarm must be NON-LATCHING.

### 17.1 APPLICATIONS

The water mist configuration can be programmed to cycle the mist delivery to obtain maximum effectiveness in fire suppression while utilizing a minimal amount of water. Applications include industrial electrical equipment, flammable liquid pumping and storage facilities, co-generation power plants, oil refineries, etc.

### 17.2 OPERATION

The water mist configuration is designed to operate in fire systems that utilize non-latching detectors. The control panel monitors the detector(s) fire relay status and determines if a continued mist application is necessary, should the fire continue.

Upon receiving a confirmed fire signal from the input node, the pre-discharge delay timing sequence will commence until its time expires. During this time the program counts down to initiate its first discharge cycle. The mist solenoid will cycle on and off in a timing sequence pre-programmed by the administrator. There is a provision to stipulate the quantity of complete cycles. After the pre-programmed cycle counts (mist on & mist off) have been satisfied, the program will enter into a pause mode, maintaining the count down in seconds. After the expiration of the pause mode, the program will suspend its timing sequences if the fire has been extinguished. If the fire persists, the node will enter into its second timing sequence. The number of timing sequences is usually determined by the capacity of the water supply and selected in the CYCLE COUNT window. Select a timing sequence that will deplete the water supply should the fire persists.

### 17.3 PRE-DISCHARGE DELAY

Refer to figure #17.1 and enter a time of up to 999 seconds in the PRE-DISCHARGE DELAY window. This initial timing allows for other functions and activity to take place such as audible alarms before the actual release is committed. No release action occurs during this event until the MIST ON TIME initiates. If other devices are also located into the SELECTED OUPUT box they will also not be activated and remain on **continuously** whether all the delays expire or if the alarm is reset.

### 17.4 MIST ON TIME

Enter a time of up to 999 seconds in the MIST ON TIME window that corresponds to a correct delay. Upon expiration of the PRE-DISCHARGE DELAY, the MIST ON TIME initiates the solenoid while the count down time progresses.

### 17.5 MIST OFF TIME

Enter a time of up to 999 seconds in the MIST OFF TIME window that corresponds to a correct delay. Upon expiration of the MIST ON TIME the solenoid deactivates while the count down time progresses.

### 17.6 PAUSE INTERVAL and CYCLE COUNT

After the pre-programmed quantity of mist on/off cycles have completed, the following events will occur: The program enters into a PAUSE INTERVAL mode based on the amount of time inserted into the window (up to 999 seconds). Subsequent actions are taken based on the two following scenarios:

- A. During the PAUSE INTERVAL, if the fire input signal is no longer valid, (indicating the fire is extinguished) then at the end of the time delay, the program will terminate at the first cycle.
- B. If the fire remains after the pause mode time expires, the program will continue to sequence starting with the MIST ON TIME and MIST OFF TIME based on how many counts are inserted into the CYCLE COUNT window.

Note that there are time selections in the example of figure 17.1. The maximum amount of CYCLE COUNTS is 999.

Figure 17 displays the cycle mist configuration prior to mapping the nodes or making exceptions. Figure 17.1 displays exception boxes that were filled.

### 17.7 SELECT DEVICE INPUTS

The first step is to expand the input node menu and double click on any channel required to trip the mist release.

Figure 17.1 shows that a turbine optical for the SELECTED INPUT was selected. If a selection is mistakenly loaded, simply double click on it to undo the operation.

### 17.8 SELECT MIST SOLENOID

Because other outputs can be located in the same SELECTOR OUTPUT screen, the solenoid must be discretely selected as shown at the bottom of the screen in figure 17.1.

Highlight the solenoid then select the SELECT MIST SOLENOID button.

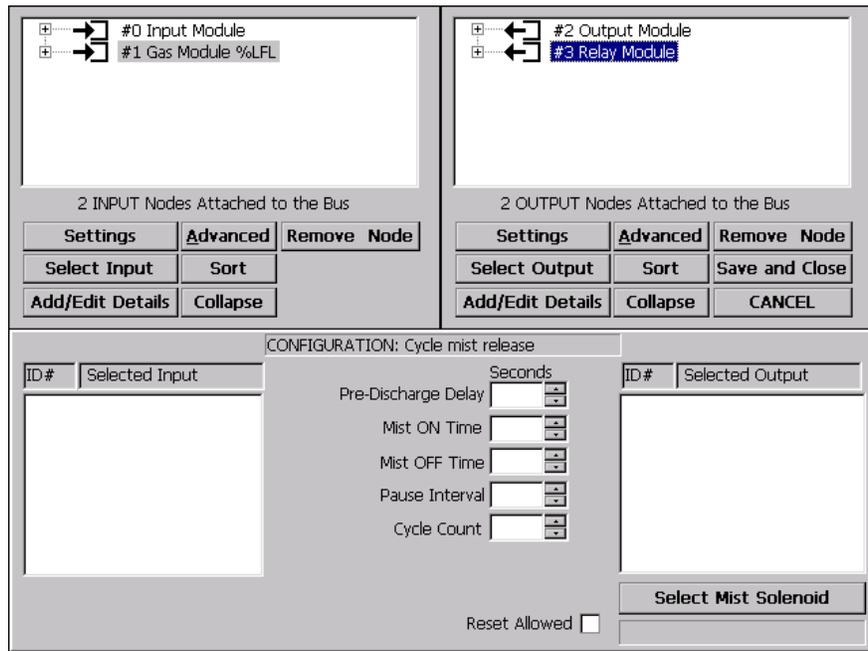


FIGURE 17. Preparing to configure the cycle mist release.

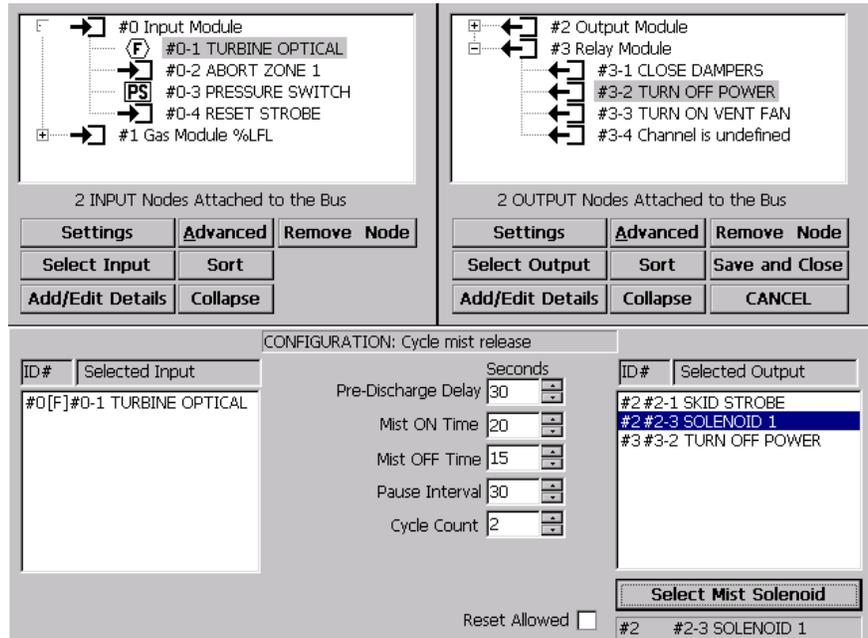


FIGURE 17.1 Selecting node channel inputs and outputs.

**17.9 SELECT OTHER NODE CHANNELS**

For this example, the SOM ID #2, channel 1 and the RELAY node ID #3, channel 2 was also entered into the SELECTED OUTPUT screen in lieu of creating another configuration.

**17.10 RESET ALLOWED**

To prevent the CYCLE RELEASE timing from being reset once it has started, click on this box.

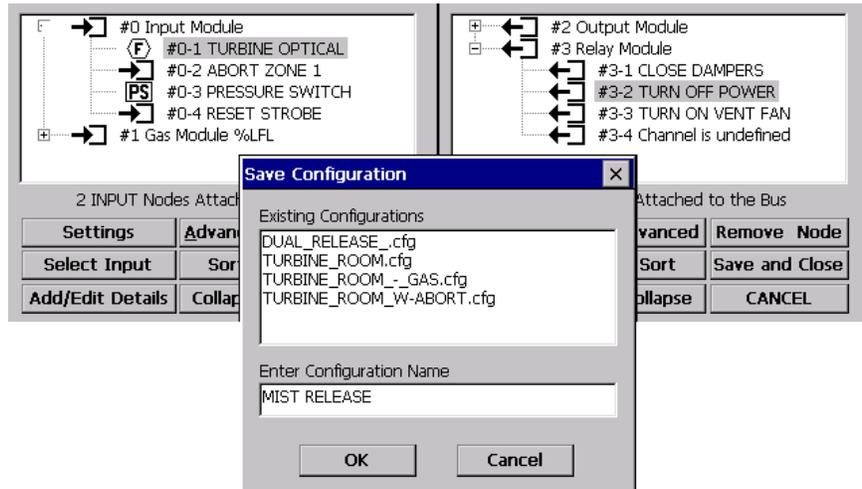


FIGURE 17.2 Naming the mist configuration.

**17.11 VOTING SEQUENCING** Refer to section 13.8.

**17.12 SAVING THE CONFIGURATION**

Refer to figure 17.2 and in this example the file name “Mist Release” is given to the configuration. A configuration file name can contain up to 128 characters and cannot contain \ / : \* ? “ | characters.

- The configuration file has been located in the configuration folder.
- Refer to section 24 for details on configuration management.

**17.13 TESTING THE CYCLE MIST RELEASE CONFIGURATION FOR AN ALARM**

Once a configuration has been created it is immediately loaded in the configuration file folder and is ready for use. For this example, node ID #0, channel 1 will be set into alarm by shorting across the input. The FIRE ALARM menu appears (figure 13.5). Select the FIRE ALARM button to bring up the FIRE ALARM menu. This menu operates like the previous menus.

- Select the VIEW INPUTS to see all inputs associated with this configuration.
- To view the dynamic time screen select the DELAY button and the menu in figure 17.5 appears.
- When the PRE-DISCHARGE time commences to 0, the SELECT MIST SOLENOID from section 17.8 will start to cycle.
- The other two devices selected in section 17.9 will turn on but will **not** be included in the cycle.

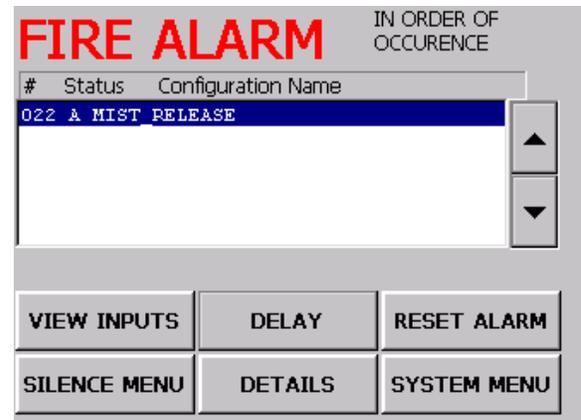


FIGURE 17.3 Selecting the fire menu.

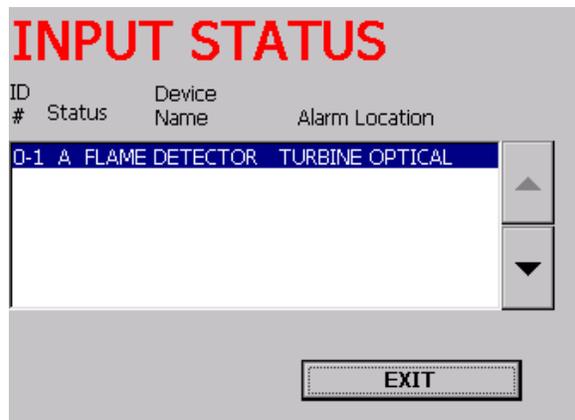


FIGURE 17.4. Selecting the view inputs button.

□ Based on the data entered in figure 17.1 the alarm will commit to the delays and reset boxes until all events have completed.

□ The FIRE STATUS indicator in figure 17.5 indicates the real-time of the alarm input.

#### 17.14 RESET THE ALARM

If manual intervention takes over the alarm in count-down, it can be reset by pressing the RETURN TO ALARM DISPLAY button then pressing the RESET ALARM button. Reset the WARNING alarm if it has occurred.

The screen displays the following information:

Indicator	Value
FIRE STATUS	ACTIVE
PRE-DISCHARGE TIME	0:02
MIST ON TIME	0:20
MIST OFF TIME	0:15
CYCLE COUNT	2
PAUSE MODE TIME	0:30

A button at the bottom is labeled "Return to Alarm Menu".

FIGURE 17.5 Time sequence menu.

THIS IS THE TEXT MEMO FIELD FROM THE ADD/EDIT DETAILS SECTION. NOTICE BELOW THE INPUT MODULE ID #0, CHANNEL 1, WHICH WAS NAMED THE TURBINE OPTICAL, INITIATED THE ALARM.

#0 Input Module

#0-1 TURBINE OPTICAL

Alarm Time 01:51:57 PM 05/10/2004

Alarm Reset 01:52:45 PM 05/10/2004

Alarm Silenced [ ]

OK

FIGURE 17.6 Mist release details.

# 18. DEDICATED APPLIANCE RESET

Select F8 to choose the DEDICATED INPUT RESET configuration. A dedicated input from the input node allows appliance(s) that are loaded into the SELECTED OUTPUT window of a configuration to be remotely reset. First, there must be a configuration utilizing an output device in order to turn it off. The SOM or relay node can be utilized to trip appliances but the SOM provides line supervision. To demonstrate this configuration, a DIRECT CONFIGURATION RELEASE is selected from section 13.2 where the TURBINE OPTICAL alarm trips three appliances, including a STROBE. A DEDICATED INPUT RESET configuration (figure 18) will be created to turn off the strobe after the alarm input initiates it.

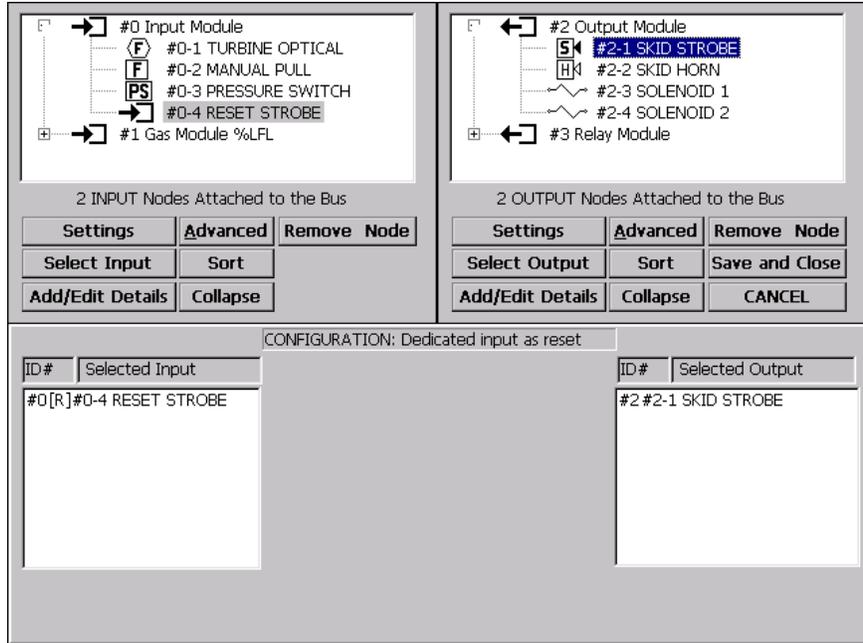


FIGURE 18. Dedicated Appliance Reset Configuration. Utilizing channel 4 of the input node to reset the strobe in the SELECTED OUTPUT. Channel 4 was named reset strobe back in the ADD/EDIT DETAILS in section 9 knowing it would be used in this example.

Once the input node channel one is activated, the alarm will occur to turn on the HORN, STROBE and VENT FAN as the configuration of figure 13.3 indicates. In order to implement the remote strobe reset, a second configuration is created as indicated in figure 18. Channel four of the input node will include a momentary pushbutton switch to turn off the strobe. NOTE: The initiating device connected to the input node can be latching or non-latching.

### 18.1 CREATE THE DEDICATED RESET

□ In this example, after selecting the DEDICATED INPUT RESET configuration, open the input node and double click the channel named RESET STROBE to copy it into the SELECTED INPUT box.

□ Select the RESET FUNCTION box.

□ Open the SOM node and double click the SKID STROBE channel to copy it into the SELECTED OUTPUT box.

NOTE: Any device located in the SELECTED OUTPUT window will be RESET utilizing this configuration and cannot be alarmed again until the input alarm condition has been reset.

□ Assign an appropriate configuration name similar to figure 18.3 and save it.



FIGURE 18.1 Select the reset function box.

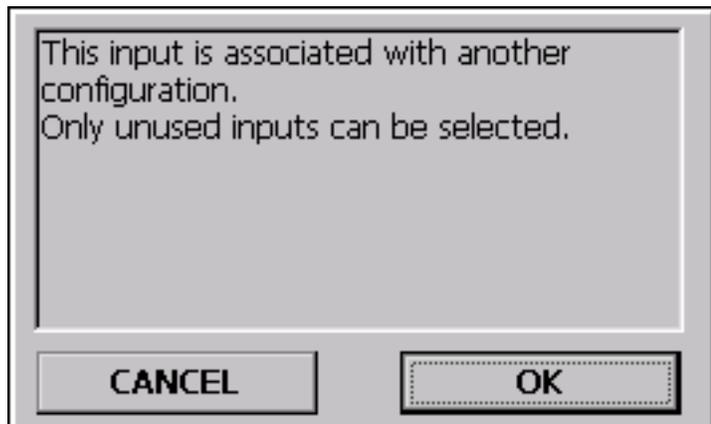


FIGURE 18.2 This message appears if the selected input node channel has been utilized in another configuration. The configuration to reset the strobe is DEDICATED and therefore should be the only function assigned to this node input.

Both configurations are armed and ready for commands.

### 18.2 TEST THE DEDICATED RE-SET

Tripping channel one of the input node, TURBINE OPTICAL, will activate the SOM channel one (SKID STROBE) and channel two (SKID HORN). The relay node, VENT FAN channel will also activate.

The FIRE ALARM button appears. Select the button to review the FIRE ALARM menu, figure 18.4.

The two SOM and one relay node channels activate based on the configuration in figure 13.3.

If there was data inserted in the EDIT field, the DETAILS button can be selected to review the data.

At this time the alarm can be reset if the TURBINE OPTICAL input is cleared.

But in this example the STROBE on channel one of the SOM will be reset.

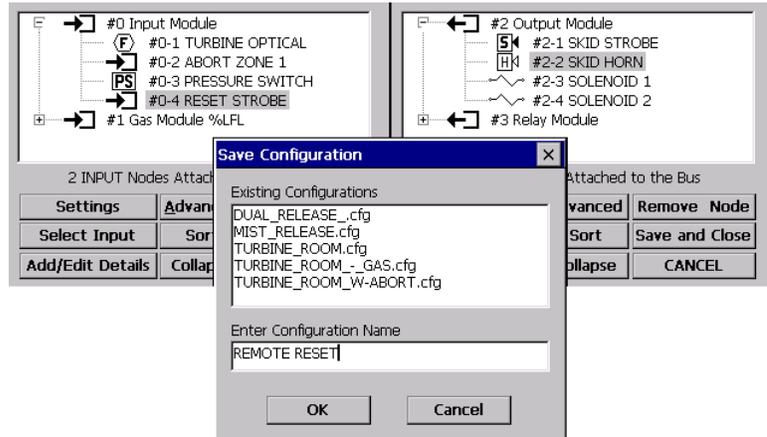


FIGURE 18.3 Creating a configuration and naming it remote reset.

### 18.3 RESETTING THE STROBE (EXAMPLE)

Now trip channel four of the input node to turn off the STROBE.

Both alarms are ACTIVE as indicated under the STATUS column but the STROBE has been turned off.

Since this is a multiple alarm, to view data in the line #2 alarm, use the scroll button then select the appropriate button to view the DETAILS or RESET.

Technically there are two alarms in the FIRE ALARM menu. Each alarm will have to be RESET individually by scrolling to the intended alarm and resetting it.

NOTE: The original configuration that created the alarm will be required to initiate again to turn the strobe back on after the alarms have been reset.

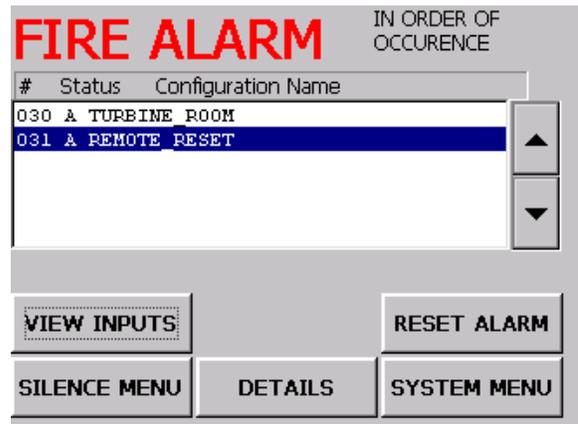


FIGURE 18.4 First, the turbine optical on node 0-1 was tripped, then the remote reset button on node 0-4 was pushed to reset the strobe.

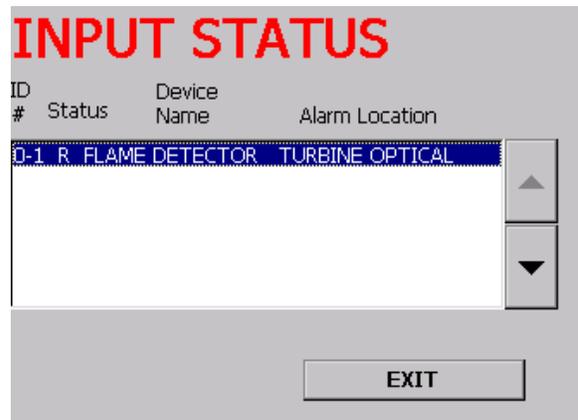


FIGURE 18.5 Selecting the view inputs of the turbine room configuration from figure 18.4.

#### **18.4 CONNECTING A SWITCH TO THE INPUT NODE**

Knowing which inputs are not utilized on an input node for other initiating devices, connect a momentary N.O. pushbutton switch with a supervising resistor to an UNUSED channel. Wire the pushbutton into one of the four channels as indicated in Drawing 8, utilizing a 3.9K ELR .

#### **18.5 FAULT ALARM**

If the connection to the input node REMOTE RESET channel is opened when the fire panel is in the quiescent mode, a system fault will be created.

## 19. SILENCING AN AUDIBLE DEVICE AT THE CONTROL PANEL

This section explains the procedure to silence an audible device locally at the control panel. There must already be configuration(s) that trips an audible device. The configuration utilized in figure 13.3 will be tripped into alarm to demonstrate this feature. This configuration required the HORN ICON to be selected as indicated in figure 19.1. The TURBINE OPTICAL will trip the horn which can be silenced. In this example a horn is utilized for the device to be silenced; however, any type of audible device can be utilized but the HORN ICON must be selected (AT THE SOM). When an alarm occurs, the horn can be silenced at the touch screen and will reactivate on any successive alarms mapped to this device.

FIGURE 19. Add/Edit details of the input node.

FIGURE 19.1 Add/Edit details of the SOM.

### 19.1 RESULTANT - TESTING THE INPUT NODE CONFIGURATION FOR AN ALARM

Upon activation of NODE ID#0-1, TURBINE OPTICAL, channels one and two of the SOM immediately alarm. Channel three of the relay node also activates because it was also included in the configuration.

□ Select the fire alarm button and the menu 19.2 appears indicating the initiating alarm action.

□ Select the DETAILS button to view any data that was entered in previous sections.

□ The alarm can be totally reset at this time by pushing the RESET ALARM button.

□ Select the VIEW INPUTS button to observe any input devices associated with this configuration.

□ EXIT.

□ Select the SILENCE MENU button in figure 19.2 to enter the OUTPUT DEVICES screen as indicated in figure 19.4.

□ The STATUS indicates that this device is: A = ON, (default on alarm) or S = SILENCED.

□ The DEVICE NAME appears and indicates node ID #2, channel 2 is the SKID HORN.

□ If more audible devices were selected in the Configuration, they would appear in the same menu and can be selectively highlighted using the scroll bars.

□ After selecting a device name with the scroll bars, select the SILENCE SINGLE DEVICE button to silence it.

FIGURE 19.2 Creating the alarm.

FIGURE 19.3 Selecting the view inputs button.

□ If the administrator wants to manually reinstate the audible device, select the TURN ON SILENCED DEVICE button. These buttons toggle the highlighted device on & off.

□ Notice in figure 19.5 the STATUS indicates the device is off.

□ If there are more than one audible devices in alarm in this configuration, the SILENCE ALL DEVICES can be selected.

NOTE: Any incoming alarm will re-initialize the appliance based on the configuration created.

□ Select the DONE button to go back to the FIRE ALARM menu.

□ An audible device can be reset first without silencing it if the initiating alarm has cleared.

□ Another configuration it could be mapped to this same skid horn turning it on if it was already silenced.

NOTE: The horn icon must be select at the SOM PRIOR to creating the configuration or the device name will not display the horn data.

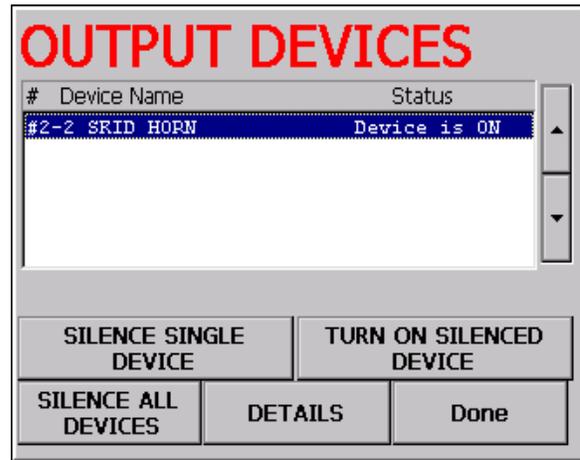


FIGURE 19.4 Silence menu selected indicating the horn is turned on.

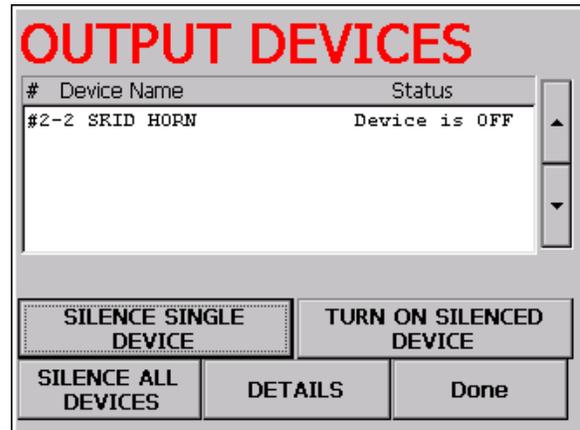


FIGURE 19.5 Silence single device button is selected thereby turning the horn off.

## 20. CONFIGURING ALARMS WITH NO OUTPUT ACTION

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NOTE: This section will be included in later software releases.

Configurations can be created for applications that utilize the GAS or DIRECT CONNECTION RELEASE where the local panel is alarmed but there is no output node action taken. This style of configuration is useful for recording input actions that will not result in activating an output node but the administrator can acknowledge the alarm. After an alarm has been activated it will follow the standard procedures of bringing up the gas or fire alarm display and enabling the administrator to reset it. Once reset, go to the appropriate alarm box at the bottom of the UTILITY menu and select the proper button to view the recorded action.

### 20.1 CREATING A DIRECT CONFIGURATION WITH THE INPUT NODE

Go to the F8 menu and select the DIRECT CONNECTION RELEASE configuration menu. Open the input node window and select the input(s) which will be necessary to trip the control panel. After selecting the desired input(s), select the SAVE AND CLOSE button then give the configuration a filename to save it to the folder. Test the alarm sequence for integrity.

### 20.2 CREATING A DIRECT CONFIGURATION WITH THE 4-20mA NODE

Go to the F8 menu and select the DIRECT CONNECTION RELEASE configuration menu. Open the gas node window and select input(s) which will be necessary to trip the control panel. Select the set point level at which point to trip a local alarm. After selecting the desired input(s), select the SAVE AND CLOSE button. Give the configuration a name to save it to the configuration folder. Test the alarm sequence for integrity.

---

## 21. TESTING ALARM CONFIGURATIONS

---

### 21.1 PRIOR TO TESTING CONFIGURATIONS

At the end of each configuration section is an example on how to test it. Although there are examples throughout, the administrator must follow procedures then go back to each configuration to test.

### 21.2 TESTING CONFIGURATIONS

To test configurations refer to section 24 and follow instructions for LOADING and UNLOADING configurations. UNLOAD all configurations except the one(s) to test. It is recommended that each configuration is tested by itself and not when other unrelated configurations are LOADED. This procedure allows the administrator to focus on the specific task. More complex configurations that share common nodes can then be tested as a group after selectively testing each one independently. When a configuration is ready for testing, activate the associated node and verify proper operations of all devices. Proceed to UNLOAD the tested configuration and LOAD the next one to be tested. The administrator has the option to test all configurations after independently testing each one. REMEMBER to LOAD configurations that are to be utilized when the system is in monitoring mode. It is OK to leave configurations UNLOADED when the system is in monitoring mode as long as the administrator is aware of the situation. An UNLOADED configuration is the same as never creating it in the first place.

**CAUTION: REMOVE SOLENOID(S) FROM THEIR TANKS PRIOR TO TESTING THE SYSTEM TO PREVENT ACCIDENTAL AGENT DISCHARGE. Refer to section 21.3 if the administrator chooses to disable a configuration with a solenoid.**

### 21.3 DISABLING THE SYSTEM FROM AGENT RELEASING

There are several techniques to disable the system from tripping the suppression agent. Based on the local authority having jurisdiction, select one or more of the procedures to disable the system.

1. MECHANICAL—The most secure method is to physically remove the solenoid from the release tank. Make sure the solenoid pin is reset after testing prior to connecting back to the release tank.

**WARNING — THE SYSTEM DOES NOT KNOW IF A SOLENOID IS REMOVED FROM A RELEASE TANK.**

2. ELECTRICAL— Insert a block valve in series with the solenoid circuit as indicated in drawing 11. When the block valve is opened, the current path to the solenoid is interrupted and at the same time a fault is created for that channel.
3. ELECTRONIC— Entering UTILITY MENU #13, MANGE CONFIGURATONS, and UNLOAD a configuration with a solenoid is another option as described in section 24.2.

### 21.4 ROUTINE TESTING

Establish a standard testing routine based on the authority having jurisdiction or more frequently if the situation demands.

### 21.5 ALARMS WHILE THE SYSTEM IS DISABLED

As always, precautionary measures should be kept in place whenever a system is in a disable mode. The local authority having jurisdiction will have procedures to follow.

As indicated in section 6.8, while in the MANAGE CONFIGURATION menu, #13, the polling is suspends, a fault is created and therefore no alarms will result; however, due to the characteristics of the nodes, the following events will occur when exiting the manage configuration menu.

1. If a gas configuration is LOADED, the following events will occur: If there is a gas alarm that occurred then went away and then the menu is then exited, the alarm will not be detected.
2. If a fire configuration is LOADED (input, or SOM node is utilized), the following events will occur: If there is an alarm that occurred then went away and then the MANAGE CONFIGURATION is then exited, the alarm will be detected.

## 22. MULTIPLE ALARMS

### 22.1 SYSTEM ALARM MENU

The SYSTEM ALARM menu is a template with corresponding alarm buttons which do not change location on the menu. Anytime there is an alarm the FIRE, GAS, WARNING and FAULT button will remain in the same location on the menu.

If multiple alarms occur from **different style** nodes as indicated in figure 22, it is up to the administrator attending the event to select the proper style of alarm (gas, fire, warning, fault). **If no action is taken, the system will continue to execute the configurations based on their timely occurrences.**

After selecting an alarm button, the current menu will indicate MORE ALARMS as indicated in the example of figure 22.1 to remind the administrator to go back to the SYSTEM ALARM menu and select other active alarm(s).

The MORE ALARMS button will appear whether the *new* alarm is from an input or 4-20mA node. The RETURN TO ALARM MENU button will appear if *new* alarms occur within the same or different node.

### 22.2 SELECTING A SPECIFIC ALARM

In example 22.1, if more than one alarm appears in the same window, use the scroll bars to the right of the alarm window to highlight the desired alarm action then select the proper submenu button to proceed with other detailed events.

### 22.3 SELECTING THE DETAILS BUTTON WITH MULTIPLE ALARMS

During an alarm, the DETAILS button can be selected for the device initiating the alarm. On multiple alarms be aware of the specific alarm to scroll to on the FIRE ALARM menu prior to entering the DETAILS menu. The menu indicates what the node name is as well as its ID.

### 22.4 HISTORY BUFFER

The data available on the alarm screens can be reviewed at a later time because the events were recorded. Refer to section 23.2 for more information. It is important to be aware that the information in these fields remains there and subsequent alarms will appear below old entries. To erase the alarm buffer navigate to the UTILITY MENU and select #9 CLEAR ALL HISTORY DATA. The GAS, FIRE, WARNING or FAULT menus allow subsequent alarms to be recorded in the alarm window as they occur.



FIGURE 22. Two simultaneous alarms.

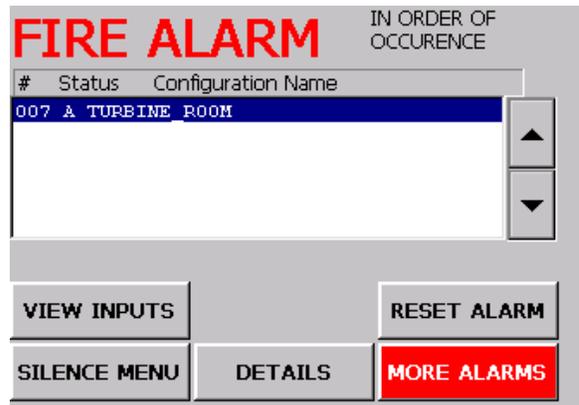


FIGURE 22.1 Viewing the fire alarm menu when another alarm arrives.

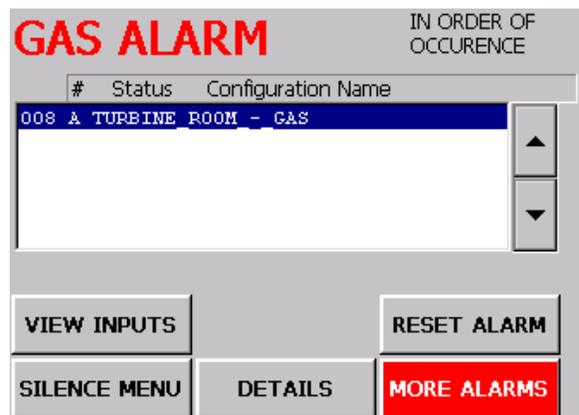


FIGURE 22.2 Selecting the more alarms button from figure 22.1.

NOTE: The control panel allows the ability to toggle between the different current alarms.

## 23. ALARM SEQUENCING, HISTORY and REPORTS

### 23.1 ALARM SEQUENCING

Every alarm is tagged with an ascending number representing which order it occurred. When menu number 9 is selected, CLEAR ALL ALARM HISTORY DATA, all the alarm tags in the color display buttons are reset to 0. Example: After resetting the alarm history data, and then if there is a fire alarm, it is tagged number 1. If a fault alarm happens to occur next, it is tagged with number 2. The system tags alarms in order based on their occurrences, not their style. This sequence of tagging is important to allow alarms to be tracked in the order they occur. This order establishes a telltale of events which can be backtracked to the initiating alarm while not discriminating on its style. Style is referred to whether the alarm is a fire, gas, warning or fault. To observe this action, refer to figure 13.6 where a fire alarm was demonstrated. The FIRE ALARM is tagged as number 1. Referring to figure 13.9 and the FAULT ALARM is tagged number 2 because it was the second event to occur.

### 23.2 SAVE TO PRINT OPTIONS #1 through 7

UTILITY MENU selections #1 through 7 saves the indicated report files to the REPORTS folder in DISK C and the file names can be viewed by selecting #8, ALARM REPORT FILE MANAGER. Figure 23.1 has some examples of reports that were saved and can be distinguished by their similar name in the UTILITY MENU, figure 23. Reports that are selected again will retain the same name but their time stamp will be later.

The history file was created by selecting #7, SAVE ALL ALARM HISTORY REPORTS. This report provides an overview of all reports.

NOTE: Each additional file created in the REPORT FILE MANAGER window contains only the latest events since the previous save.

Select these options whenever a backup is to be made or preparing to copy the files to a USB bus drive. An example of one of the file structures is as follows:

HISTORY\_20051107145154

This number can be broken down as follows:

YEAR DATE MILITARY TIME  
2005 1107 14:51:54

NOTE: When UTILITY MENU number 9 is selected, CLEAR ALL ALARM HISTORY DATA, only the history recorded in the DISPLAY buttons in figure 23 are erased.

### 23.3 ALARM REPORT FILE MANAGER #8

The ALARM REPORT FILE MANAGER assimilates the files from menu selections #1-7. These files can be managed with the following selections.

Refer to section 23.6 on how to transfer the following reports to a USB bus drive and print them out.

SAVE ALL- this option prepares all files from #1 through 7 to be copied to the USB bus drive.

SAVE SELECTED - this option allows specific files to be saved.

DELETE ALL- prepares all files in the report file manager to be deleted.

DELETE SELECTED - deletes the selected files.

DONE - Return to the UTILITY MENU.

### 23.4 REPORT FILE MANAGER FILE SIZE

To the right of each file saved is their file size.

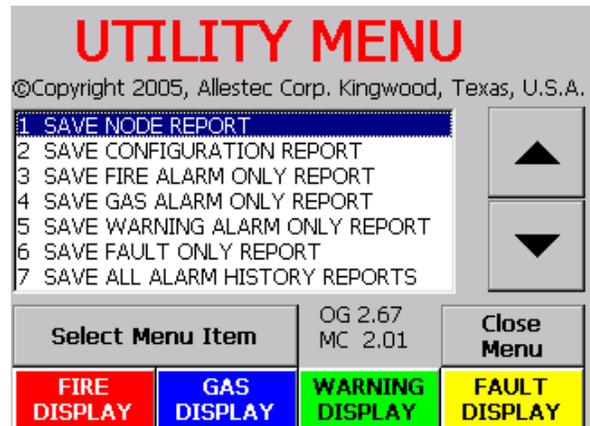


FIGURE 23. Save report selections.

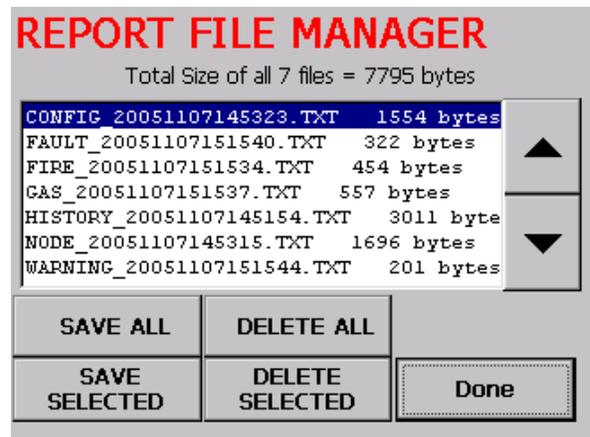


FIGURE 23.1 Seven saved history reports.

## 23.5 PRINTING HISTORY FILES

**CAUTION: IT IS RECOMMENDED TO TRANSFER FILES OR PRINT DOCUMENTS DURING SYSTEM SETUP TO AVOID ANY INTERFERENCE WITH THE CONTROL PANEL.**

There are three methods to obtain the reports generated from the program and all reports end with a .txt suffix for the availability of printing on text editors.

### DIRECT VIEWING (CONNECT A VGA MONITOR TO THE CONTROL PANEL)

1. Bring up Microsoft WordPad which resides on the control panel Desktop and view the prints in the word editor. Navigate up to the Disk C then to the REPORTS folder. Make sure the TYPE of file is a .txt (text format) then select the report to open and view it.

### 2. PRINT THE REPORTS FROM A PERSONAL COMPUTER

Copy the reports from the REPORT folder, residing on DISK C to a USB drive then print it out on a text editor from a computer. Refer to section 23.4 to navigate through the ALARM REPORT FILE MANAGER then place a USB bus drive in one of the ports to transfer the reports.

### 3. PRINT THE REPORTS DIRECTLY FROM THE CONTROL PANEL

Connect an Epson® printer to the USB port to print directly from the panel. It is beyond the scope of this manual to teach how to set up PC printers. Refer to the printer documentation for more information. Bring up the information to print as indicated in paragraph 1. To print the file from paragraph #1 utilizing WordPad, when the FILE is selected to print the selection of LPT1 must be utilized. Proceed to print the document. The included Epson driver 1.2.5.2 supports the following Epson printers below and are supported by the FG8800 control panel:

#### 4 Ink Cartridge Color Models:

Stylus Color 440, 640, 670, 740, 740i, 760, 777 and 777i

Stylus C20UX, C20SX, C40UX, C40S, C40SX, C41UX, C41SX, C41Plus, C42UX, C42SX, C42S, C42Plus, C43UX, C43SX, C44UX, C44Plus, C45, C46, C60, C61, C62, C63, C64, C65, C66, C80, C82, C83, C84, C85, C86

Stylus CX3100, CX3200, CX4500, CX4600, CX5100, CX5200, CX5300, CX5400, CX6300, CX6400, CX6500, CX6600

#### 6 Ink Cartridge Color Models:

Stylus Photo 780, 790, 820, 825, 890, 900, 915, 950, 960, 1280

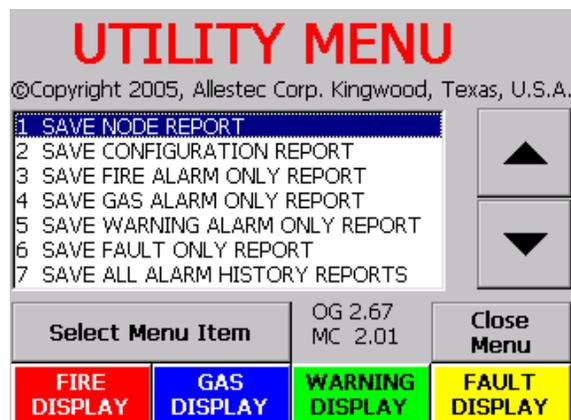
Stylus Photo R200, R210, R300, R310, R320, RX500, RX510, RX600

## 23.6 QUICK SELECT ALARM HISTORY

The four styles of alarms, FIRE, GAS, WARNING or FAULT can be viewed while in the UTILITY MENU. During standard operations and procedures as event data accumulates, the old data will be instantly available by navigation to the UTILITY MENU and selecting one of the four color display buttons, as indicated in figure 23.2.

## 23.7 CLEAR ALL ALARM HISTORY DATA #9

This selection deletes the history in these four DISPLAY buttons; however, the data file is also automatically saved prior to deleting as indicated in section 23.3.



▲ ▲ ▲ ▲  
FIGURE 23.2 Select the FIRE, GAS, WARNING or FAULT button to view historical alarm events that were available during an

## 24. MANAGE CONFIGURATIONS

The selection #13 in the UTILITY MENU, MANAGE CONFIGURATIONS allows each unique configuration that was created from the UTILITY MENU #12, SYSTEM CONFIGURATION to be enabled or disabled. Figure 24 shows six configurations with four files UNLOADED. When a configuration file is LOADED, it is considered enabled and ready for use. When a configuration is UNLOADED it is disabled. If there are other LOADED configurations mapped to the same node, they will still operate. Each time a configuration is created, given a file name and the DONE button is selected, the configuration is then recorded to the CONFIGURATION FILE MANAGEMENT menu. When the configuration enters this menu, it is automatically in the "LOADED" mode which is the term utilized to identify this configuration is active and CAN ALARM. REMEMBER, the node channels which are utilized in a configuration must be ENABLED (refer to the F5 SETTINGS section). The following items describe the function of each button.

**CAUTION: UNLOADING A CONFIGURATION DISABLES THE FUNCTION FROM EXECUTING THE INTENDED TASK.**

### 24.1 LOAD A CONFIGURATION

When a configuration is completed and saved, it is automatically LOADED in this menu and is currently ready for use. To LOAD configurations which are UNLOADED use the scroll arrows to the right of the menu, highlight the desired configuration and select the LOAD button. Loading a configuration activates its properties.

### 24.2 UNLOAD A CONFIGURATION

When a configuration is UNLOADED it is taken out of service through the software but can be LOADED anytime when the panel is in the quiescent mode. If there are other configurations mapped to the same node, they will not be affected. Use the scroll bar to highlight a configuration to UNLOAD then select the UNLOAD button. Use the UNLOAD to temporarily disable a configuration. UNLOADING any configuration trips the DISABLE relay located at TB3 as long as ANY configuration is unloaded.

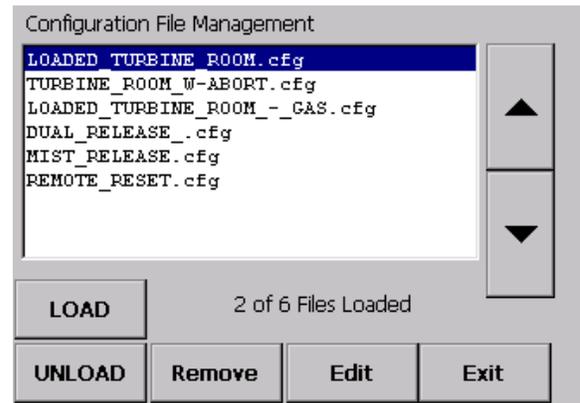


FIGURE 24. Five configurations from previous examples, four unloaded.

NOTE: When all configurations are UNLOADED, the node polling is suspended and the fault relay trips.

NOTE: When LOADING or UNLOADING a configuration, the highlight bar descends to the next lower configuration

NOTE: Configurations that are created and saved are not mapped together. They each reside independently in the MANAGE CONFIGURATIONS menu. However, they may *SHARE* a common node channel if they were mapped to it. An example is where a configuration is completed then another configuration is created utilizing the same channel on the target node.

### 24.3 PROCEDURE TO UNLOAD A CONFIGURATION

Because UNLOADING a configuration disables an intended function, there is an automatic fault created and a decision must be made. This process requires the administrator to select one of two items when unloading a configuration:

1. Reset a beckoning FAULT disable warning and confirm the configuration will never be utilized again. An example here is where a release zone is physically removed from operation.
2. Allow the beckon command to continue as a reminder that the configuration is DISABLED and some time later the configuration will be LOADED again.

Refer to figure 24 and highlight a configuration to be UNLOADED.

- Select the UNLOAD button.
  - The message in figure 24.1 will appear.
- NOTE: If this message is left unattended for more than 30 seconds, the system will automatically commit and UNLOAD the configuration. The UNLOAD will occur even if the configuration is LOADED again without exiting the menu.
- Click on OK to UNLOAD the configuration to continue and select the EXIT button.
  - More configurations can also be unloaded.
  - The FAULT relay located at TB3 trips and THE SYSTEM SUSPENDS NODE POLLING.
  - When the EXIT is selected from the MANAGE CONFIGURATIONS menu the FAULT ALARM menu automatically appears as shown in figure 13.10.
  - The DISABLE relay located at TB3 trips.
  - When the FAULT ALARM button is selected (figure 13.10), the FAULT ALARM menu appears as shown in figure 24.2.
  - Select the SILENCE button and the “A” turns to a “S”, the FAULT relay remains in the same condition, the audible alarm silences, the FAULT and DISABLE RELAY remains ON.
  - If the FAULT ALARM screen was to be left unattended, this menu would remain and accumulate alarms every 30 minutes unless a field device alarm comes in. Each time another unattended DISABLE alarm is received, it is located onto the next lower text line in the menu.
  - When the RESET button is selected the menu in figure 24.3 appears with the DISABLE ALARM REMINDER note.

**The system requires the administrator to make a decision at this point:**

- (A) Selecting the CONTINUE button will resume the fault condition every 30 minutes. The configuration remains UNLOADED. Select the STOP ALARMS button to finish and commit to the disable.
- (B) To stop alarms:  
Select STOP ALARMS button.



FIGURE 24.1 This message appears after selecting unload.

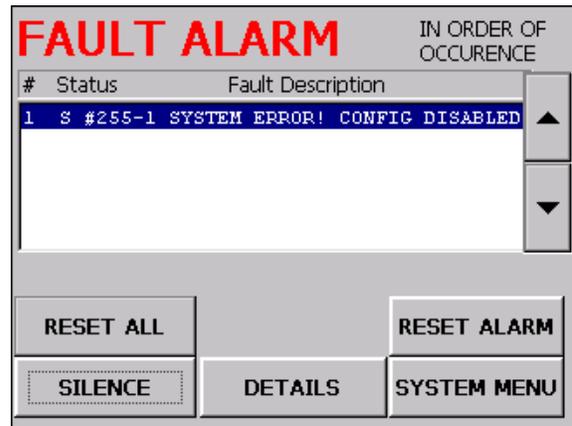


FIGURE 24.2 A fault alarm is created. Reoccurring alarms will appear every 30 minutes unless further action is taken.

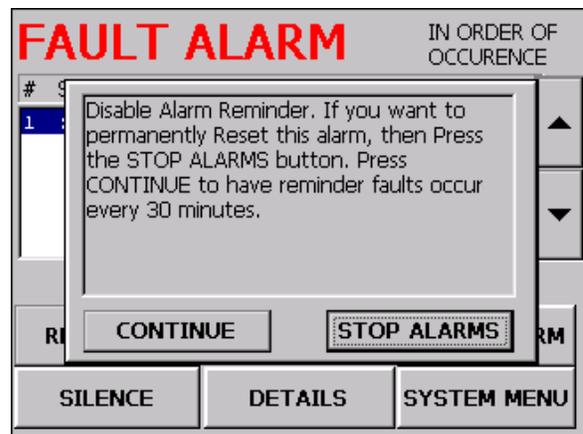


FIGURE 24.3 Select the reset function box.

□ The reminder message in figure 24.4 appears and selecting the OK button will remove the beckon message screen of the selected configuration(s). The configuration(s) will be UNLOADED. The fault will be removed as well as the disable relay action. The UTILITY menu will return.

NOTE: If the message in figure 24.4 is left unattended for more than 30 seconds the system will automatically commit to the disable configuration and the UTILITY menu will return.

□ If the MANAGE CONFIGURTION menu is reviewed the selected configuration is DISABLED.

NOTE: Do not reload the configuration until the STOP ALARMS button has been selected to complete the DISABLE. It will take 30 minutes for the menu in figure 24.4 to reappear to proceed with the disable, then it is safe to go to the MANAGE CONFIGURATIONS menu and load the configuration again.



FIGURE 24.4 Select the reset function box.

#### 24.4 EDIT A CONFIGURATION

Highlight the configuration with the scroll arrows that requires editing. Select the EDIT button. The configuration is brought back to the point just prior to saving. Add or delete channels, change timing or other related functions to the configuration menu as required. After completing the modifications select the DONE button. The configuration file name will rename the same.

#### 24.5 REMOVE A CONFIGURATION

Highlight a configuration to be removed. Then unload it if it is loaded. Proceed to remove it. If this configuration is utilized in conjunction with another configuration a warning message will occur.

#### 24.6 ALARMS WHILE IN MANAGE CONFIGURATIONS MENU

As always, precautionary measures should be kept in place whenever a system is in a disable mode. While in MANAGE CONFIGURATIONS, the node polling is suspended, a fault is created and therefore no alarms will result; however, due to the characteristics of the nodes, the following events will occur when exiting the manage configuration menu.

1. While in the MANAGE CONFIGURATIONS MENU and a gas configuration is LOADED, the following events will occur: If there is a gas or fault alarm that occurred then went away and then the MANAGE CONFIGURATION is then exited, the alarm will not be detected.
2. While in the MANAGE CONFIGURATIONS MENU and a fire configuration (input, or SOM node is utilized) is LOADED, the following events will occur: If there is an alarm or fault that occurred then went away and then the MANAGE CONFIGURATION is then exited, the alarm will be detected.
3. When an input or SOM node configuration is UNLOADED, the nodes will still detect faults.

## 25. ADDING, REMOVING, RESETTING and DETECTING NODES

### 25.1 ADVANCE MENU

Select the F5 on the keyboard or UTILITY MENU #11 to enter into the node menu. Select the ADVANCE button. This menu allows diagnostics of the field nodes for their presence and gives the ability to change node addresses.

### 25.2 NODE DETECTION DIAGNOSTIC

This menu allows the system to scan all the nodes that are physically connected to the bus independent of their enable or loaded status. The results will return their status as indicated in figure 25. Select the NODE DETECTION DIAGONISTIC button and the system will scan all nodes in the field and report their status. After the initial node ID's have been located on the bus and are displayed, click the STOP button and the system automatically checks to verify nodes with address 255. Example 25 indicates the four nodes attached to the bus. The node diagnostic can be utilized in the class A or B configuration, although the actual detection is executed on the START LOOP scan.

NOTE: If more than one node contains a duplicate address (such as 255) the diagnostic will not correctly detect them.

### 25.3 NODE SETTINGS

The report displays a global status of the SETTINGS menu. The first column is the node ID then the style of node. The next column indicates the Enable status followed by a 0 or 1 for each channel, 0 indicating disable and 1, enabled. The last column is the de-bounce time selected.

### 25.4 ADDING ONE NODE AT A TIME

Adding a node requires that the system be turned off to electrically connect the node to the bus. The node may be inserted anywhere in the bus during system shutdown time. When utilizing the ADVANCE feature, both poles of SW1 on the node must be off. If the node is added to the end of a single ended terminated configuration, the ELR must be moved to that new node.

After the node is securely in place and wired correctly, turn on the system power. The system will initialize and will continue to discover only the original nodes. When a new node is added to the bus, the system will not detect a skip in a node address. Remember, a new node must have an ID address of 255.

After the system initializes, select F5 button and enter the ADVANCE menu.

☐ Select the NODE DETECTION DIAGNOSTIC button and allow the count to reach 255. In the example of Figure 25.1 an SOM was detected.

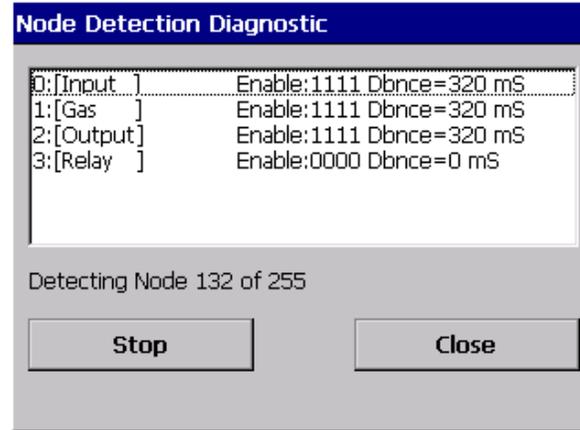


FIGURE 25. Advance menu

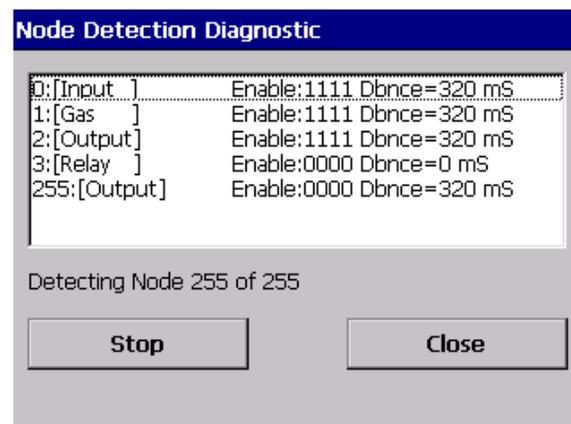


FIGURE 25.1 Detecting an added node.

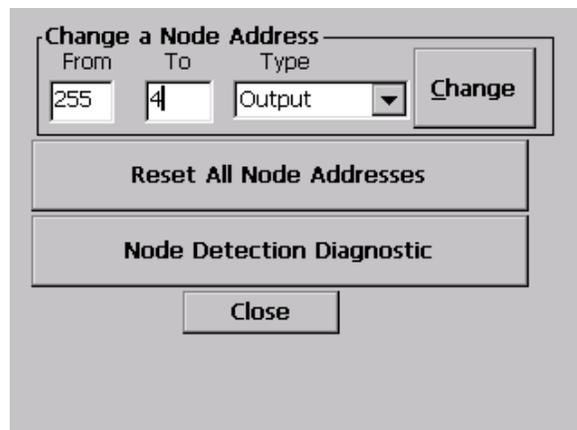


FIGURE 25.2 Changing an SOM ID from

NOTE: Unlike the FIND NEXT NODE button, this search does not look for the nodes to be in sequential numerical order. This search indicated the actual node count in the field.

□ Now refer to CHANGE A NODE ADDRESS menu and type in the next node ID, in this case, number 4. Choose the correct style of node, in this case an SOM, then select the CHANGE button.

□ The newly installed SOM now has been reassigned from ID 255 to 4.

□ To synchronize the new node with the onguardsetup.dat file, the system must be closed and restarted as described in section 26.1.

□ Return to the SETTINGS and ADD/EDIT details of this node and fill in the necessary information.

NOTE: If more than one node was added utilizing the ADVANCE feature, the NODE DETECTION would indicate each of their address as 255. This identical address is OK as long as each node is a different style. If the nodes are the same style (like two input nodes) then when the address is change for one the other will also change. Again, refer to section 5.10 when more than one is added to the bus.

## **25.5 ADDING MORE THAN ONE NODE TO THE SYSTEM**

Since the ADVANCE NODE DETECTION DIAGNOSTIC cannot seek more than one node with an address of 255, the administrator will need to add nodes with their default address 255 to the system. After this task is complete refer to section 5.10 for initializing the newly installed nodes.

## **25.6 CHANGE A NODE ADDRESS**

Refer to FIGURE 25.2 and select the TYPE of node to change the address and insert the new node address in the FROM and TO window then select the CHANGE button. If a successful CHANGE was implemented the message "THE OPERATION WAS SUCCESSFUL" will occur. If an incorrect entry is made into the FROM box the message "THERE IS NO NODE OF THAT TYPE WITH THAT FROM ADDRESS" will appear. If an incorrect entry is made into the TO box the message "THERE IS ALREADY A NODE WITH THAT TO ADDRESS" will appear. Now select the CLOSE button then select the SAVE and CLOSE button to save this new field address to the onguardsetup.dat file.

## **25.7 RESETTING ALL NODE ADDRESSES TO DEFAULT ID 255 WHILE CONNECTED TO THE BUS**

The selection in the ADVANCE menu resets all nodes and data on the bus to their factory default 255. This procedure may be selected if the administrator would like to start over to change all node ID addresses simultaneously. If this is the case, then the nodes must be rediscovered by returning to section 5.10 of this manual.

## **25.8 RESETTING SELECTIVE NODE ADDRESS TO DEFAULT ID 255 WHILE CONNECTED TO THE BUS**

All nodes are shipped with their default address of 255 so they can be assigned an ID address. If nodes are connected on their bus, power down the system as described in section 26.1.

Resetting nodes to ID #255 through power up reset:

If nodes are currently connected to the control panel, the panel must be shutdown and power turned off as indicated in section 26.1. Locate SW1-1 ON, SW1-2 to the ON position of the node(s) requiring address reset. Turn on the control panel power for only 5 seconds then turn it off. The nodes reset the address during the 5 second power-up stage. RETURN ALL NODE SW1 SWITCHES BACK TO OFF. Now apply power back to the control panel. The control panel will now search for all nodes with their ID's and omit nodes with factory setting address of 255. Refer to section 5.10 to scan for the nodes with address of 255. They will then be assigned the next ID number above the last active ID.

## **25.9 RESETTING A NODE ADDRESS TO DEFAULT ADDRESS 255 THAT IS REMOVED FROM THE BUS**

To selectively reset a node ID that is removed from the system, simply locate the SW1-1 and SW1- 2 on, apply 24VDC to the power input (observing polarity) for 5 seconds, then remove the power. Now return both switch poles of SW1 to OFF.

## 25.10 REMOVING A NODE

To remove a node from the system, first verify that there are not other configurations targeting this node. Go to the UTILITY MENU and select #1, SAVE NODE REPORT and review any other configurations that may be mapped to this node. To remove a node, any relating configurations must be first UNLOADED in the MANAGE CONFIGURATIONS menu. If there are other configurations mapped to this node they must be re-mapped as the administrator requires.

**CAUTION: NOT REMOVING ALL ASSOCIATED CONFIGURATIONS TO THIS NODE CAN RESULT IN A SYSTEM MALFUNCTION.**

1. Remove any configuration(s) that are mapped to this node in the MANAGE CONFIGURATIONS menu.
2. Go to the node to be removed and locate the SW1 switch. Carefully turn ON SW1-1 (Acquire address setting).
3. While in the ONGUARD main screen, select F5 on the keyboard to bring up the node menu, highlight the node to remove, then select the REMOVE NODE button to proceed.
5. Shutdown the system and bus power as described in section 26.1 then physically remove the node.
6. Restart the system then go into the MANAGE CONFIGURATIONS menu and verify the configurations that should be LOADED.
7. Test the system to ensure the integrity is correct.

NOTE: Removing a node leaves an ID address void. This void is OK. If installing a new node later on, change its ID to the removed node ID.

NOTE: When the REMOVE NODE button is selected, the system automatically sets this node address to 255.

## 26. REDEFINING A SYSTEM TO START OVER

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### **CAUTION: THE FOLLOWING PROCEDURES DISABLE THE CONTROL PANEL FROM DETECTING ALARMS**

Under special circumstances the administrator may want to revert back to where the system was prior to implementing any activity. It is important to note that all data stored in the system will be eliminated and should be backed up, if necessary. To proceed with this process, it is apparent that all necessary precautions have been made to protect any areas this control panel has supervised. Connect a VGA monitor and mouse to its port located on behind the front panel. If the ONGUARD screen is active, right-click on the mouse then click on the close icon. Click on the START then navigate to PROGRAMS, then click on WINDOWS EXPLORER. Double click on the DISKC.

1. Highlight the **Onguardsetup.dat** file, right click the mouse, click on Delete, then YES. This is the file that contains all node entry data.
2. Highlight the **onguardsetupbak.dat** file, right click the mouse, click on Delete, then YES. This is the backup of the file above created in section 7.3.
3. Delete the **CONFIGURATION** folder and all files in this folder. This folder is the location of all the configurations that are created.
4. Delete the **REPORTS** folder and delete all files in this folder.
5. Now, select the X box to exit out of the Explorer menu to go back to the Windows CE.net screen.
6. To also reset the nodes, refer to section 25. The nodes are not required to be reset if the same node ID's are utilized.
7. Proceed with section 26.1

### **CAUTION: THE PROCESS OF SIMPLY REMOVING POWER FROM AN ACTIVE PROGRAMMED CONTROL PANEL WITHOUT PROPER PROCEDURES COULD RESULT IN THE LOSS OF ALL STORED DATA AND, OR THE ACTIVATION OF OUTPUT APPLIANCES.**

#### **26.1 PROPERLY SHUT DOWN THE SYSTEM**

1. Verify the system is in its quiescent mode as indicated on figure 5.
- A: To continue the purge as in section 26, go to START, Suspend, then click OK to restart the system for a reinitialize. All data in reference to the control panel has be reset.
- B: Or to turn off the system, go to START, then click suspend, wait for the screen to go black, then turn off power.

### **CAUTION: IF THE SYSTEM IS SHUT DOWN FOR ANY REASON, THEN OTHER CONFIGURATIONS OR ANY OTHER TYPE OF FILE FROM AN EXTERNAL SOURCE IS LOADED, THE CORRECT OPERATION OF THE SYSTEM IS NOT GUARANTEED TO FUNCTION PROPERLY.**

## 27. ACCESSING THE UTILITY MENU

While the ONGUARD screen is displayed, tap twice quickly and firmly anywhere on the touch screen to recall the utility menu. Press the CLOSE MENU button to return to the main display. Refer to figures 27 through 27.2 for the menu selections. Use the scroll arrows or a mouse to navigate to the desired selection.

### 27.1 MENU DESCRIPTION

Utility menu selections are described below. Other menu selections which require more information are referred to other areas of this manual. Scroll through the menu to become familiar with its contents. All other utility menu selections will be covered in following sections.

NOTE: Refer to drawings 4 and 15 for USB printer port connection.

Refer to section 23.2 on managing files #1-7.

#### 1. SAVE NODE REPORT

Procures data from menu #11 and copies the data the administrator wrote for node descriptions and locations to the ALARM REPORT MANAGER. This information is stored in a file called onguardsetup.dat and is described in detail in section 6.3.

#### 2. SAVE CONFIGURATION REPORT

Procures data from configuration menu #12 and copies it to the ALARM REPORT FILE MANAGER.

#### 3. SAVE FIRE ALARM ONLY REPORT

Procures fire alarm reports and copies them to the ALARM REPORT FILE MANAGER.

#### 4. SAVE GAS ALARM ONLY REPORT

Procures gas alarm reports and copies them to the ALARM REPORT FILE MANAGER.

#### 5. SAVE WARNING ALARM ONLY REPORT

Procures warning alarm reports and copies them to the ALARM REPORT FILE MANAGER. These are configurations that voted and did not meet the requirement of a voted alarm.

#### 6. SAVE FAULT ONLY REPORT

Procures fault alarm reports and copies them to ALARM REPORT FILE MANAGER.

#### 7. SAVE ALL ALARM HISTORY REPORTS

Provides a complete overview of alarms in selections #1-6 and copies them to the ALARM REPORT FILE MANAGER. Refer to section 23.3.

#### 8. ALARM REPORT FILE MANAGER

Insert a USB bus drive in the connector of the alarm panel prior to entering this selection. All alarms that are created are saved to this menu with a .txt extension. These files can be copied to a USB bus drive and read from a text editor such as a word processor program. Refer to section 23.4 for more detail.

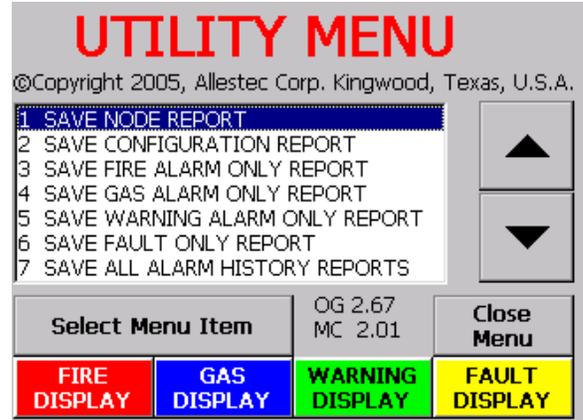


FIGURE 27 Top view of menu.

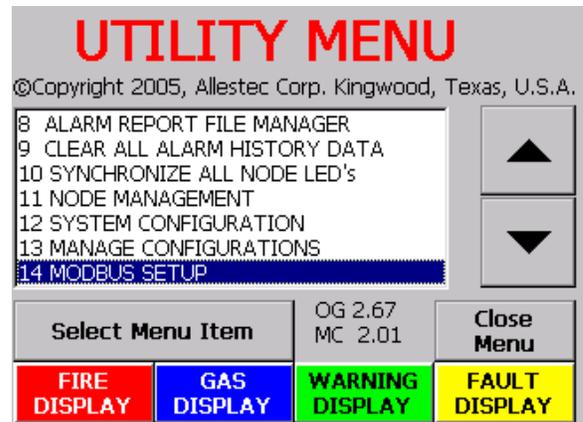


FIGURE 27.1 Mid view of menu.

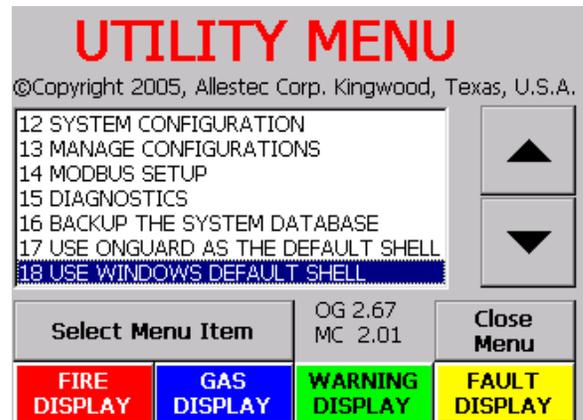


FIGURE 27.2 Bottom view of menu.

9. CLEAR ALL ALARM HISTORY DATA

Deletes all data in the UTILITY MENU four DISPLAY buttons at the bottom of the screen and saves the reports per section 23.7.

10. SYNCHRONIZE ALL NODE LED'S

Synchronizes out-of-order blinking LED's on the nodes after change of activity.

11. NODE MANAGEMENT

Node data settings and parameters are entered in this menu.

12. SYSTEM CONFIGURATIONS

Maps input nodes to output nodes.

13. MANAGE CONFIGURATIONS

Allows editing of established configurations. Configurations can be activated (loaded) or unloaded. A command allows unused configurations to be deleted.

14. MODBUS SETUP

Allows the baud rate and other port configurations. This option is described in detail in a separate document.

15. DIAGNOSTIS

This section allows the administrator the ability to record events for evaluation. This selection is only utilized in conjunction with an Allestec representative.

16. BACKUP THE SYSTEM DATABASE

Allows the system configurations to backup the data in case the primary file gets corrupted. This command creates a file from the onguardsetup.dat file (see section 7) and calls the new file copyofonguard-setup.dat. NOTE: Fully understand the operation of the system prior to utilizing this command.

17. USE ONGUARD AS THE SYSTEM SHELL

After a complete system has been tested and backed up, select this menu item. The complete system will restart and initialize displaying only the ONGUARD menu. This process enables any items related to the CE operating system to be omitted from the full-sized menu. When this function is complete, there will be no user interface interaction between the control panel and the Windows CE operating system. This procedure of disabling the CE user interface prevents unauthorized entry into the CE operating system.

**CAUTION: DURING THE RESETTING OF THE PANEL TO THE ONGUARD SHELL, THERE WILL BE NO ALARM MONITORING (APPROXIMATELY 30 SECONDS).**

18. USE WINDOWS AS A DEFAULT SHELL

Selecting this option restores the control panel to its level of operation prior to selecting #17.

**CAUTION: DURING THE RESTORING OF THE PANEL TO THE WINDOWS SHELL, THERE WILL BE NO ALARM MONITORING (APPROXIMATELY 30 SECONDS).**

## 29. SYSTEM FAULTS

Any fault occurring in the system will bring up the fault menu as indicated in figure 29 and identify the style of fault. The failsafe fault relay located at the SYSTEM ALARM TB3 terminal will change state. Refer to drawing 6. Select the fault alarm button to enter the FAULT ALARM menu. Select the SILENCE button to silence the fault. The audible fault alarm will occur every 30 minutes until the problem has been resolved. Locate and resolve the fault problem in a timely manner.

### 29.1 COMMUNICATION FAILURE

If there is a communication failure, the inability to properly scan a node, the problem is recorded as indicated in figure 29.1, the error message is as follows: The bus utilizes the first channel of a non communicating node to convey the address of the problem node. In example figure 29.1 the bus was severed just before the SOM and fault nodes. The FAULT alarm records the fault as node 3-1 and 2-1 indicating nodes 3 & 2 are not responding. This indication does NOT indicate channel one of each node because the COMMUNICATION FAILURE note is visible.

If the bus interrogation function receives a failure it does not immediately report a fault. The failure is analyzed to assure the safest method to eliminate false alarms at the fastest speed allowed. An ID 255 communication error is a bus loop problem.

### 29.2 COMMUNICATION FAULTS ON A TERMINATED CLASS B BUS (Selecting the Start of Loop when invoking Ctrl-F7).

#### BUS SHORT:

A direct short between the A and B bus lines will result in all nodes to report their ID and name to the FAULT ALARM menu. The alarm menu will be similar to figure 29.1 except in our example the FAULT ALARM will indicate all 4 nodes that are attached to the bus.

#### A OR B LINE OPEN:

Since the nodes are scanned starting from the lowest ID address to the highest and regardless where they are located physically on the bus, the following action will take place: A bus open anywhere on the A or B conductor will result in faults for all nodes located after the open (between the open and the terminating resistor. The FAULT DESCRIPTION field will indicate a communication error for all nodes unable to report their presence on the bus.

#### 24VDC LOSS:

A loss of power to the bus will result in all nodes to report their faults to the menu. If the power loss occurs down line from the panel, then all nodes after that power loss will report their fault status. The FAULT DESCRIPTION field will indicate a communication error for all nodes unable to report their presence on the bus.



FIGURE 29. Select the fault button.

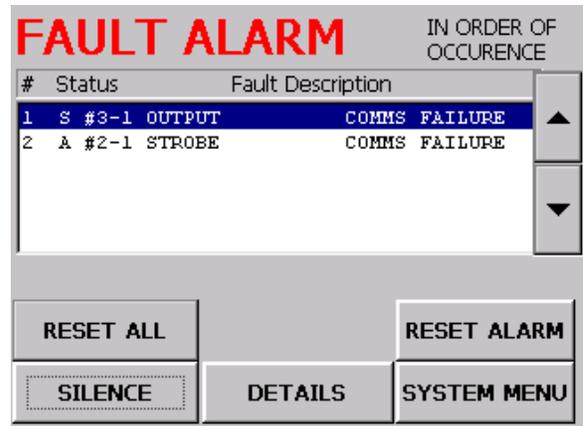


FIGURE 29.1 Communication failure as described in sections 29.2.

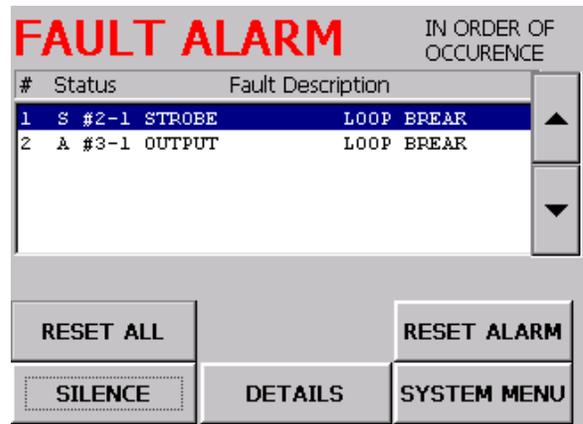


FIGURE 29.2. Loop break failure as described in sections 29.3.

### 29.3 COMMUNICATION FAULTS ON A RETURN CLASS A BUS (Selecting Loop back mode when invoking Ctrl-F7).

If the system is unable to poll a node in loop back mode, a fault is issued and below are examples that may occur.

#### BUS SHORT:

A bus short creates unreasonable circumstances that may omit some nodes to report their ID. It is apparent that this problem be resolved in the utmost timely manner. The system will attempt to display any messages that get through and report their fault to the menu.

#### A OR B LINE OPEN:

Upon detecting an open in the loop A or B conductor, a fault will be issued and will indicate loop break failure(s), example figure 29.2. All nodes after the bus break to the TB2 end loop will report their ID's to the FAULT ALARM menu. At this point the fault can be cleared but the ONGUARD menu will now indicate: Loop Break: Alarms active.

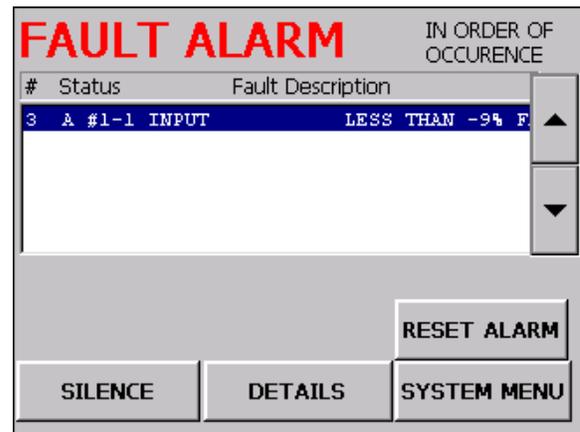


FIGURE 29.3 Fault alarm menu indicating channel 1 of the gas node is below 9%.

Once the fault is cleared it will not return unless another malfunction occurs. After resetting the fault, a file is recorded to a memory array that indicates the current location of nodes in respect to the bus break. The system now monitors part of the nodes on the START loop then returns to the END loop to monitor at that location. The system is now capable of operating actions correctly but the bus is in need of a immediate repair. Close the ONGUARD program and turn off the control panel as described in section 26.1 then proceed to repair the bus condition. Upon initialization, the system will search all node locations and eliminate the Loop Break message. Verify that the Ctrl-F7 menu is selecting the Loop Back mode. NOTE: Anytime the ONGUARD menu indicates a Loop Break, the fault relay will change state.

### 29.4 IMPROPER BUS SELECTION

If the bus (refer to figure 5.1) is selected that does not match a field wired loop as indicated in drawing 12, a fault alarm will occur.

### 29.5 INPUT NODE FAULTS

The input node will create a fault if an input field wire is open or the ELR is not installed. Line supervision integrity is monitored by sending a small current through the input loop. While in MANAGE CONFIGURATIONS and a configuration is LOADED utilizing this node: If there is a fault that occurred and went away and then the menu is exited, the fault will be detected. The fault will not be created if the channel is disabled whether a configuration is loaded or unloaded.

### 29.6 SUPERVISORY OUTPUT NODE (SOM) FAULTS

The SOM monitors for a field short (across the ELR) or open conductor in the appliance loop. Checking the box that indicates SHORT MONITORING in the SETTINGS menu will ENABLE the channel to monitor for shorts. Refer to section 11.4 for more details. If the external 24VDC is removed from the SOM and J4 is located in the SPARE slot or absent, drawing 11, a fault will occur to indicate a loss of the external 24VDC.

When in MANAGE CONFIGURATIONS and a configuration is LOADED utilizing this node: If there is a fault that occurred and went away and then the menu is exited, the fault will be detected. While the control panel is in quiescent mode and an SOM node configuration is UNLOADED, the node will still detect faults. The fault will not be created if the channel is disabled whether a configuration is loaded or unloaded.

### **29.7 4-20mA GAS NODE FAULTS**

If the 4-20mA loop is opened or the current drops below -9% of the scale, a fault message will occur. While in the MANAGE CONFIGURATIONS MENU and a gas configuration is LOADED; if there is a gas fault alarm that occurred then went away and then the MANAGE CONFIGURATION is then exited, the alarm will not be detected. The fault will not be created if the channel is disabled whether a configuration is loaded or unloaded. Refer to section 15.8 for more details.

### **29.8 RELAY NODE**

The relay node has dry relay contact outputs and are not monitored for supervision. However, the node is monitored for integrity.

### **29.9 EARTH GROUND FAULT**

The system, including the field nodes, will detect and report an Earth ground fault under these circumstances: If any devices 24V power comes in contact with Earth ground which includes a resistance of 100K ohms or less. Or: If any devices power supply negative comes in contact with Earth ground which includes a resistance of 11K ohms or less. These ground faults can be caused by but not limited to water condensing in junction boxes, insects building nests where the apparatus resides, debris such as corrosion or particles coming in contact with the apparatus, improper wiring (connecting power supply negative to Earth ground), etc.

### **29.10 ADMINISTRATOR ASSERTED FAULTS BELOW TRIP THE FAULT RELAY**

#### **29.11 CONFIGURATION FAULT - Selecting F8 or line #12 in the utility menu**

The fault relay changes state when entering into the configuration menu. The FAULT returns to normal when completing a configuration or exiting a configuration. On entering the configuration mode ALL ALARMS ARE IGNORED AND THE PANEL STOPS MONITORING THE BUS so an alarm function will not activate until leaving the configuration mode.

#### **29.12 NODE MANAGEMENT FAULT- Selecting F5 or line #11 in the utility menu**

When selecting the NODE MANAGEMENT menu, the node polling stops because dynamic changes are expected from the administrator. The FAULT relay changes state as long as this menu is serviced. Upon exiting the menu the polling will resume and the FAULT relay will resume normal condition.

#### **29.13 MANAGE CONFIGURATION FAULT- Selecting line #13 in the utility menu or Ctrl F11**

When selecting the MANAGE CONFIGURATION menu there is a FAULT issued and polling is suspended. The node polling stops because dynamic changes are expected from the administrator. Refer to section 24.6 for more information.

#### **29.14 UNLOAD ALL CONFIGURATIONS**

When in the MANAGE CONFIGURATIONS menu and if ALL configurations are UNLOADED, the FAULT relay will remain changed even after exiting this menu. If one or more configurations are loaded, the fault relay resumes normal mode.

## 30. SOFTWARE AND FIRMWARE UPDATES

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### 30.1 SOFTWARE MIGRATION

Software and operating systems have been improving towards a more refined and efficient method of performing computing tasks. To keep in compliance with technology, codes, and improvements, there will be periodic software and firmware updates available from Allestec. It is possible to upgrade firmware versions and not software, or vice versa. A revision in the operations manual does not necessarily indicate there will be a change in the code versions, or vice versa. Depending on the upgrade of software, charges may be incurred to the customer. Instructions will be included with any upgrades as necessary. Refer to the Allestec website and navigate to the FG8800 control panel for any information relating to upgrades. Since this system is scaleable, there will be updates as necessary.

### 30.2 SYSTEM CONTROL VERSION (ONGUARD.EXE)

To identify the system main version code, select the UTILITY menu and the box at the lower part of the screen (figure 23) to identify the version number, in this case OG 2.67. This code is the main operating program that the administrator interfaces with and executes programs. The MC code version below this number indicates the master controller code which resides on the mother board.

### 30.3 NODE FIRMWARE

Each node has a unique code version and is available by selecting #11, NODE MANAGEMENT, of the UTILITY MENU or selecting F5 on the keyboard. When in the node screen highlight the node to view and select the SETTINGS button for that node. Select the APPLY button when finished. The firmware versions are stated at this location. NOTE: this code is upgradeable only by sending the node to Allestec.

## 31. MAINTENANCE and TROUBLESHOOTING

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Although the FG8800 was designed to last, like any electronic instrument, there is always the possibility that something can fail. Therefore a regular test program should be followed and documented to make sure that each part of the system is tested as described in section 7 of the NFPA 72 or more often if dictated by local code requirements. Malfunctioning units must be replaced or repaired immediately by factory authorized service personnel in order to insure continued safe and reliable operation of the control alarm system. Periodic inspection and testing should be performed in accordance with local applicable codes and standards.

If the system is connected to the fire department, etc., or actuates an internal system, disarm the appropriate outputs before servicing to prevent agent actuation. (Refer to Operation for procedures). Notify the fire department and personnel at the facility that a system test is being performed so that any alarm sounding can be ignored during the test. Notify the fire department before resetting the system. Inspecting, testing and maintenance of the fire alarm panel should be performed in accordance with NFPA 72, The Nation Fire Alarm Code and all applicable local codes.

THE FOLLOWING STATEMENTS ASSIST IN LOCATING PROBLEMS:

**Alarms do not execute as configured.**

- The configuration in question is UNLOADED.
- The initiating or notification devices are not correctly wired.
- The node channel is not ENABLED.
- There was no configuration made for the appropriate node.

**When alarms occur, a bus fault is presented on the screen.**

- Most likely this problem is due to the power supply not providing enough power to its intended field devices. When the alarm occurs, the voltage is brought to a level that is unacceptable to the control panel. Another problem associated with this fault is the wires carrying current to the field devices are too small. Also, some low-cost notification appliances contain large capacitors that can instantaneously lower the power supply voltage at the onset of an alarm. To test these problems, go to the last device on the bus and measure the voltage at that device while it is in alarm. The voltage should not be below 18V.

**Unexplainable faults or errors occur in the system intermittently.**

- The power supply is inducing noise on the system power grid.
- There could be loose terminal screw connections.
- Incorrect styles of communications bus cables were used in the system or splices were installed between nodes.
- The ELR for the bus is not there or improperly installed.

**When searching for nodes the system cannot find them.**

- The node has not had its ID reset to 255 or the ID switch is not on. Refer to section 25.

Any suspected problems or product manual discrepancies should be submitted to Allestec by email at [info@allestec.com](mailto:info@allestec.com). Please state your company name, your name and phone number. For the control panel issues state the number of nodes attached to the system, terminated or continuous loop configuration and any other information to help diagnose the system. It is important to list the version release as stated in section 30.

## 32. PART NUMBERS AND ACCESSORIES

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SYSTEM COMPONENTS	PART NUMBER
24VDC CONTROL PANEL WITH SOFTWARE [DISPLAY UPWARD VIEWABLE]	FG8800-1-24V
24VDC CONTROL PANEL WITH SOFTWARE [DISPLAY DOWNWARD VIEWABLE]	FG8800-2-24V
4 CHANNEL INPUT NODE	8800-1060
4 CHANNEL 4-20MA NODE	8800-1700
4 CHANNEL SUPERVISE OUTPUT MODULE	8800-1705
4 CHANNEL RELAY NODE	8800-1725
<b>ACCESSORIES</b>	
OPERATIONS MANUAL	8800-5140-REV A
TERMINAL STRIP SCREWDRIVER	8800-2614
END OF LINE RESISTOR - BUS 120 OHMS, 5%	8800-1309
END OF LINE RESISTOR - FIELD DEVICES 3.9K OHMS, 5%	8800-1211
35MM DIN MOUNTING ADAPTER [INPUT AND 4-20MA NODE]	8800-5121
35MM DIN MOUNTING ADAPTER [SOM AND RELAY NODE]	8800-5139
STANDOFF SPACER TO RAISE NODE FROM MOUNTING SURFACE	8800-1398
USB COMPLIANT KEYBOARD	8800-2718
USB MOUSE	8800-2720
VARISTOR [FOR SOLENOID VALVE]	8800-1270
DIODE - POLARITY SENSITIVE [FOR SOLENOID VALVE]	8800-1236
FUSE - 4A CONTROL PANEL	8800-1721
FUSE - 15A SYSTEM POWER FOR FIELD BUS	8800-1722

**NOTICE: When ordering additional components for the system, provide the code versions as indicated in section 30.2 and 30.3.**

## 33. SPECIFICATIONS

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### ELECTRICAL

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SYSTEM OPERATING VOLTAGE, CONTROL PANEL MAXIMUM CURRENT NO ATTACHED DEVICES OR LOCAL RELAYS	18 □ 30 VDC REDUNDANT POWER REQUIRED 1.0 AMP @ 24 VDC
8800□1060 INPUT NODE:	24 VDC □ 20 mA QUIESCENT, 35 mA ALARMED
8800□1700 4-20MA GAS NODE:	24 VDC □ 14 mA QUIESCENT, 14 mA ALARMED
8800□1705 SUPERVISED OUTPUT MODULE	24 VDC □ 23 mA QUIESCENT, 108 mA
8800□1725 RELAY NODE	24 VDC □ 9 mA QUIESCENT, 94 mA ALARMED
FOUR DRY RELAY CONTACTS, ONE PER CHANNEL	10A @ 30 VDC RESISTIVE, 250 VAC RESISTIVE

### MECHANICAL

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DIMENSIONS□REFER TO DRAWINGS	
CONTROL PANEL NET WEIGHT	13 lbs, 5.89 kg

### ENVIRONMENT

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FIELD NODE OPERATING TEMPERATURE	0 degrees F TO 150 degrees F -17 degrees C TO 65 degrees C
CONTROL PANEL OPERATING TEMPERATURE	32 degrees F TO 130 degrees F 0 degrees C TO 55 degrees C
PACKAGING AND ENVIRONMENTAL EXPO-	NEMA 1

## **34. WARRANTY AND RETURN POLICY**

### **TERMS AND AGREEMENT**

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Allestec Corporation warrants the components and labor for three years from control date stamped on the system identification label. Allestec identifies each system by their unique serial number stamped on the components as well as an electronic serial number. Allestec will repair any component found by us to be defective in workmanship or materials. This warranty does not apply to any part or product that has been subjected to misuse, improper installation, transfer of ownership, or any type of alterations.

Items under warranty sent to Allestec just to “check out” will be charge for diagnosing something there may not be. This procedure prevents customers from sending units in on an as needed basis for us to verify operation. If a product is in warranty it will be repaired at no charge.

There are no implied warranties of merchantability, fitness or other implied warranties or representations for any of Allestec's products except the warranty specified herein. In no event shall Allestec be liable for any consequential, special or other damages attributable to our product except as specified herein. The foregoing obligations are in lieu of all other obligations and liabilities including negligence, and of all warranties of merchantability or fitness for a particular purpose or otherwise, express, or implied, in fact or in law, and state Allestec's entire and exclusive liability and buyer's exclusive remedy for any claim of damages in connection with the sale of furnishing of the products, their design, suitability for use, installation, or operation. Buyer is solely responsible for the proper installation, maintenance and use of the components and Allestec will in no event be liable for any special, incidental or consequential damages whatsoever.

It is agreed that when a customer, distributor, representative, end user purchases any of the FG8800 systems or components that it is their responsibility to send back the product under warranty. The product under warranty is to be returned to Allestec or its distributor, pre-paid by the entity returning the product. Under no circumstances Allestec will send a product to a customer then wait for the warranty item to return. Allestec will return the warranty item by its selected carrier on a standard delivery time. If the customer requires to accelerate the process, the customer agrees to pay any additional expediting costs relating to the transaction.