# TRIGA

Addressable Fire Alarm Control Panel
# TR-2100/TR-2100ECS

Manual

# Fire Alarm & Emergency Communication System Limitations

*While a life safety system may lower insurance rates, it is not a substitute for life and property insurance!*

**An automatic fire alarm system**—typically made up of smoke detectors, heat detectors, manual pull stations, audible warning devices, and a fire alarm control panel (FACP) with remote notification capability—can provide early warning of a developing fire. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire.

**An emergency communication system**—typically made up of an automatic fire alarm system (as described above) and a life safety communication system that may include an autonomous control unit (ACU), local operating console (LOC), voice communication, and other various interoperable communication methods—can broadcast a mass notification message. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire or life safety event.

The Manufacturer recommends that smoke and/or heat detectors be located throughout a protected premises following the recommendations of the current edition of the National Fire Protection Association Standard 72 (NFPA 72), manufacturer's recommendations, State and local codes, and the recommendations contained in the Guide for Proper Use of System Smoke Detectors, which is made available at no charge to all installing dealers. This document can be found at http://www.systemsensor.com/appguides/. A study by the Federal Emergency Management Agency (an agency of the United States government) indicated that smoke detectors may not go off in as many as 35% of all fires. While fire alarm systems are designed to provide early warning against fire, they do not guarantee warning or protection against fire. A fire alarm system may not provide timely or adequate warning, or simply may not function, for a variety of reasons:

**Smoke detectors** may not sense fire where smoke cannot reach the detectors such as in chimneys, in or behind walls, on roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level or floor of a building. A second-floor detector, for example, may not sense a first-floor or basement fire.

**Particles of combustion or "smoke"** from a developing fire may not reach the sensing chambers of smoke detectors because:

- Barriers such as closed or partially closed doors, walls, chimneys, even wet or humid areas may inhibit particle or smoke flow.
- Smoke particles may become "cold," stratify, and not reach the ceiling or upper walls where detectors are located.
- Smoke particles may be blown away from detectors by air outlets, such as air conditioning vents.
- Smoke particles may be drawn into air returns before reaching the detector.

The amount of "smoke" present may be insufficient to alarm smoke detectors. Smoke detectors are designed to alarm at various levels of smoke density. If such density levels are not created by a developing fire at the location of detectors, the detectors will not go into alarm.

Smoke detectors, even when working properly, have sensing limitations. Detectors that have photoelectronic sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast-flaming fires better than smoldering fires. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.

Smoke detectors cannot be expected to provide adequate warning of fires caused by arson, children playing with matches (especially in bedrooms), smoking in bed, and violent explosions (caused by escaping gas, improper storage of flammable materials, etc.).

**Heat detectors** do not sense particles of combustion and alarm only when heat on their sensors increases at a predetermined rate or reaches a predetermined level. Rate-of-rise heat detectors may be subject to reduced sensitivity over time. For this reason, the rate-of-rise feature of each detector should be tested at least once per year by a qualified fire protection specialist. Heat detectors are designed to protect property, not life.

**IMPORTANT! Smoke detectors** must be installed in the same room as the control panel and in rooms used by the system for the connection of alarm transmission wiring, communications, signaling, and/or power. If detectors are not so located, a developing fire may damage the alarm system, compromising its ability to report a fire.

**Audible warning devices such as bells, horns, strobes, speakers and displays** may not alert people if these devices are located on the other side of closed or partly open doors or are located on another floor of a building. Any warning device may fail to alert people with a disability or those who have recently consumed drugs, alcohol, or medication. Please note that:

- An emergency communication system may take priority over a fire alarm system in the event of a life safety emergency.
- Voice messaging systems must be designed to meet intelligibility requirements as defined by NFPA, local codes, and Authorities Having Jurisdiction (AHJ).
- Language and instructional requirements must be clearly disseminated on any local displays.
- Strobes can, under certain circumstances, cause seizures in people with conditions such as epilepsy.
- Studies have shown that certain people, even when they hear a fire alarm signal, do not respond to or comprehend the meaning of the signal. Audible devices, such as horns and bells, can have different tonal patterns and frequencies. It is the property owner's responsibility to conduct fire drills and other training exercises to make people aware of fire alarm signals and instruct them on the proper reaction to alarm signals.
- In rare instances, the sounding of a warning device can cause temporary or permanent hearing loss.

**A life safety system** will not operate without any electrical power. If AC power fails, the system will operate from standby batteries only for a specified time and only if the batteries have been properly maintained and replaced regularly.

**Equipment used in the system** may not be technically compatible with the control panel. It is essential to use only equipment listed for service with your control panel.

**Alarm Signaling Communications:**

- **IP connections** rely on available bandwidth, which could be limited if the network is shared by multiple users or if ISP policies impose restrictions on the amount of data transmitted. Service packages must be carefully chosen to ensure that alarm signals will always have available bandwidth. Outages by the ISP for maintenance and upgrades may also inhibit alarm signals. For added protection, a backup cellular connection is recommended.
- **Cellular connections** rely on a strong signal. Signal strength can be adversely affected by the network coverage of the cellular carrier, objects and structural barriers at the installation location. Utilize a cellular carrier that has reliable network coverage where the alarm system is installed. For added protection, utilize an external antenna to boost the signal.
- **Telephone lines** needed to transmit alarm signals from a premise to a central monitoring station may be out of service or temporarily disabled. For added protection against telephone line failure, backup alarm signaling connections are recommended.

**The most common cause** of life safety system malfunction is inadequate maintenance. To keep the entire life safety system in excellent working order, ongoing maintenance is required per the manufacturer's recommendations, and UL and NFPA standards. At a minimum, the requirements of NFPA 72 shall be followed. Environments with large amounts of dust, dirt, or high air velocity require more frequent maintenance. A maintenance agreement should be arranged through the local manufacturer's representative. Maintenance should be scheduled as required by National and/or local fire codes and should be performed by authorized professional life safety system installers only. Adequate written records of all inspections should be kept.

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# Installation Precautions

*Adherence to the following will aid in problem-free installation with long-term reliability:*

**WARNING - Several different sources of power can be connected to the fire alarm control panel.** Disconnect all sources of power before servicing. Control unit and associated equipment may be damaged by removing and/or inserting cards, modules, or interconnecting cables while the unit is energized. Do not attempt to install, service, or operate this unit until manuals are read and understood.

**CAUTION - System Re-acceptance Test after Software Changes:** To ensure proper system operation, this product must be tested in accordance with NFPA 72 after any programming operation or change in site-specific software. Re-acceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring. All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

**This system** meets NFPA requirements for operation at 0-49º C/32-120º F and at a relative humidity 93% ± 2% RH (non-condensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15-27º C/60-80º F.

**Verify that wire sizes are adequate** for all initiating and indicating device loops. Most devices cannot tolerate more than a 10% I.R. drop from the specified device voltage.

**Like all solid state electronic devices,** this system may operate erratically or can be damaged when subjected to lightning induced transients. Although no system is completely immune from lightning transients and interference, proper grounding will reduce susceptibility. Overhead or outside aerial wiring is not recommended, due to an increased susceptibility to nearby lightning strikes. Consult with the Technical Services Department if any problems are anticipated or encountered.

**Disconnect AC power and batteries** prior to removing or inserting circuit boards. Failure to do so can damage circuits.

**Remove all electronic assemblies** prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides or rear. Before making modifications, verify that they will not interfere with battery, transformer, or printed circuit board location.

**Do not tighten screw terminals** more than 9 in-lbs. Over-tightening may damage threads, resulting in reduced terminal contact pressure and difficulty with screw terminal removal.

**This system contains static-sensitive components.** Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. Use static suppressive packaging to protect electronic assemblies removed from the unit.

**Units with a touchscreen display** should be cleaned with a dry, clean, lint free/microfiber cloth. If additional cleaning is required, apply a small amount of Isopropyl alcohol to the cloth and wipe clean. Do not use detergents, solvents, or water for cleaning. Do not spray liquid directly onto the display.

**Follow the instructions** in the installation, operating, and programming manuals. These instructions must be followed to avoid damage to the control panel and associated equipment. FACP operation and reliability depend upon proper installation.

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# FCC Warning

**WARNING:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause interference to radio communications. It has been tested and found to comply with the limits for class A computing devices pursuant to Subpart B of Part 15 of FCC Rules, which is designed to provide reasonable protection against such interference when devices are operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his or her own expense.

**Canadian Requirements**

This digital apparatus does not exceed the Class A limits for radiation noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le present appareil numerique n'emet pas de bruits radioelectriques depassant les limites applicables aux appareils numeriques de la classe A prescrites dans le Reglement sur le brouillage radioelectrique edicte par le ministere des Communications du Canada.

# Software Downloads

In order to supply the latest features and functionality in fire alarm and life safety technology to our customers, we make frequent upgrades to the embedded software in our products. To ensure that you are installing and programming the latest features, we strongly recommend that you download the most current version of software for each product prior to commissioning any system. Contact Technical Support with any questions about software and the appropriate version for a specific application.

# Documentation Feedback

Your feedback helps us keep our documentation up-to-date and accurate. If you have any comments or suggestions about our online Help or printed manuals, you can email us.

Please include the following information:

- Product name and version number (if applicable)
- Printed manual or online Help
- Topic Title (for online Help)
- Page number (for printed manual)
- Brief description of content you think should be improved or corrected
- Your suggestion for how to correct/improve documentation

Send email messages to:

**info@trigaglobal.com**

or call +1 330-577-5199

This symbol (shown left) on the product(s) and / or accompanying documents means that used electrical and electronic products should not be mixed with general household waste. For proper treatment, recovery and recycling, contact your local authorities or dealer and ask for the correct method of disposal.

Electrical and electronic equipment contains materials, parts and substances, which can be dangerous to the environment and harmful to human health if the waste of electrical and electronic equipment (WEEE) is not disposed of correctly.

# Table of Contents

# Section 1: Introduction

The TR-2100R, TR2100B, TR-2100ECSR, and TR-2100ECSB are analog addressable fire alarm control panels (FACP), that meets the requirements of UL 864. The TR-2100ECSR and TR-2100ECSBare analog addressable fire control system combined with an Emergency Communication System that meet the requirements for Mass Notification as described in UL 864 and UL 2572.

The TR-R2100R and TR-R2100B are the same as the TR-2100 without the display. The TR-R2100 is used in a networked system where there is at least one TR-2100 in the system. When using the TR-R2100 as a standalone local unit, one LCD annunciator must be connected and the annunciator must be wired in conduit within 20'of the TR-R2100.

> **NOTE:** All references to the TR-2100 within this manual are applicable to the TR-2100R, TR2100B, TR-2100ECSR, TR-2100ECSB, TR-R2100R, and TR-R2100B unless otherwise indicated.

## 1.1 Basic System Overview

The TR-2100 base system is packaged as an assembled stack of 3 circuit boards mounted to an aluminum housing.

### 1.1.1 Hardware Features

- The basic TR-2100 panel contains one built-in signaling line circuit (SLC), which supports up to 159 sensors and 159 modules. Additional SLC loops can be added to increase overall point capacity.
- Additional TR-6815 SLC expanders supports 159 sensors and 159 modules for a maximum of 2,100 points per TR-2100 control panel.
- 9.0A of output power is available through 8 sets of terminals for notification and auxiliary applications. Each circuit is power limited per UL 864 and can source up to 3.0A (total output power must not exceed 9.0A). The constant auxiliary power load must not exceed 6.0A for normal standby.
- Built-in dual phone line, digital alarm communicator/transmitter (DACT), or IP technologies
- Reports events to central station by point or by zone
- UL-Listed for pre-action and deluge releasing systems
- Dedicated Form C trouble relay and two general purpose Form C programmable relays
- Can be used with up to 31 TR-RD2G, TR-RD2R, TR-RD1G, or TR-RD1R remote annunciators in any combination
- Supports the TR-5865-3, TR-5865-4, and TR-5880 LED annunciators[1]. See Section 4.12 and Section 4.13 for additional information on these models.
- Printing of event log available through the TR-5824[1] serial/parallel printer interface module
- Supports conventional 2-wire & 4-wire detectors using the 8 Flexput circuits or SLC zone modules
- Add six Flexput circuits with each TR-PS1 Remote Power Supply

1. The system supports a maximum of 63 SBUS devices in any combination.

### 1.1.2 Network System Hardware Features

- The default network setup can contain up to 32- TR-2100 panels connected.
- Network support for up to 32 sites
- Each building is referred to as a "site".
- Panels can be interconnected using CLASS B or CLASS A topology.
- Use the TR-NIC network card to network panels together. Copper wire or fiber-optic cable panel connectivity can be used within the same networked system.
- The network architecture provides true peer to peer capability allowing network survivability for all hardware that remains operational in the event of partial system failure.

### 1.1.3 Software Features

- 999 software zones, 999 output groups
- Advanced analog smoke detector features:
  - Three sensitivity settings (high, medium, low)
  - Automatic drift compensation
  - Maintenance alert region
  - Point status meets calibrated smoke test requirements for NFPA 72
  - Automatic day/night sensitivity adjustment
- "JumpStart AutoProgramming" feature for easy programming
- Non-volatile event history stores 1000 events per panel
- A choice of output patterns available for notification outputs, including ANSI 3.41 temporal signal
- Built-in synchronization appliance support for AMSECO®, Gentex®, System Sensor®, and Wheelock®

### 1.1.4 TR-2100ECS Features

- 15 recordable, one-minute messages that can be mapped to eight ECS buttons
- ECS messages can be selected as priority over fire
- Support of up to 15 TR-LOC2100 Local Operator Consoles
- Programmable trigger inputs from an external source, such as a Monaco system, to either the ECS-NVCM, ECS-RVM, TR-5880, any SLC input module, or Flexput module
- Support for up to 16 SBUS addressable amplifiers using a combination of TR-50W, TR-125W, TR-INT50W, or TR-DUAL50W for a maximum of 2,000 watts per system and up to 128 mappable speaker circuits
- Support for dual channel and backup audio using the TR-DUAL50W amplifier and TR-50WBU back-up amplifier
- Single enclosure for both Fire and Emergency Control System components
- Support for one ECS-NVCM
- Onboard supervised microphone

## 1.2 Terms Used in this Manual

The following terminology is used with the above mentioned control panels:

| Term | Description |
|---|---|
| SLC | Signaling line circuit |
| Module | The term module is used for all hardware devices except for SLC addressable devices and notification appliances. This includes the TR-2100 panel itself and the built-in power supply. It also refers to any (optional) TR-6815 SLC expansion modules. |
| Input Point | An addressable sensing device, such as a smoke or heat detector or a contact monitor device |
| Input Zone | A protected area made up of input points |
| Output Point (or "Output Circuit") | A notification point or circuit for notification appliances. Relay circuits and auxiliary power circuits are also considered output points |
| Group ("Output Group" or OPG) | A group of output points. Operating characteristics are common to all output points in a group. |
| Output (or "Cadence") Pattern | The pattern that the output will use, for example, Constant, March Code, ANSI 3.41. Applies to zones and special system events. See Appendix B for additional information. |
| Mapping | Mapping is the process of specifying which outputs are activated when certain events occur in the system. Section 7.2 explains mapping in detail. |
| Networking | Up to 32 panels can be networked. |
| Network System | Consist of any combination of 32 panels of these model numbers: TR-75, TR-2100, TR-2100ECS, and TR-R2100 |
| ECS | Emergency Communication System |
| SWIFT | Smart Wireless Integrated Fire Technology |

## 1.3  Compatible Products

Table 1.1 lists the products available for use with the TR-2100.

| Type of Device | Model | Description | |
|---|---|---|---|
| Addressable SLC Devices | Refer to the *Device Compatibility Document* and *SLC Wiring Manual* for a list of compatible devices. | | |
| SWIFT Wireless SLC Devices | Refer to the *SWIFT Wireless Manual* for a list of compatible devices. | | |
| Other Modules | TR-5824 Serial/Parallel Printer Interface Module | Allows a printer to be attached for the system for on-site logging. Four maximum per system. | |
| | TR-6815 SLC EXPANDER | Each TR-6815 supports up to 159 sensors and 159 modules. The maximum point count for Triga IDP devices is limited to 2,100 per panel. The TR-6815 supports System Sensor devices only. | |
| | TR-R2100R/B Remote Fire Panel without display | Same operation as TR-2100R/TR-2100B without display | |
| | TR-PS1 Intelligent Power Module | Provides additional power, six Flexput circuits, and two Form C relays. | |
| | TR-RD2G/R LCD Alarm Annunciator | 4x40 LCD annunciator. Same operation, similar appearance as onboard annunciator. Any combination of supported annunciators for a max of 63. | |
| | TR-RD1G/TR-RD1R LCD Alarm Annunciator | 4x20 LCD annunciator. Any combination of supported annunciators for a max of 31. | |
| | LCD Alarm Annunciator | 4x20 LCD annunciator. Any combination of supported annunciators for a max of 31. | |
| | 5860TR and 5860TG Trim Ring Kits for TR-RD1G/TR-RD1R | Trim ring kits for surface mounting the 5860 annunciator. 5860TG is gray, 5860TR is red. | |
| | TR-5865-3 and TR-5865-4 LED Annunciators | LED annunciator can display up to 30 LEDs (15 red and 15 yellow). TR-5865-4 has key switches for silence and reset, and a system trouble LED. | |
| | TR-5880 LED I/O Module | Driver for up to 40 LEDs. Interfaces with customized annunciator boards. In addition, the TR-5880 has eight generic switch input points. | |
| | TR-5883 General Purpose Relay Module | Provides 10 Form C relays. Designed to be driven by the TR-5880. Up to four TR-5883s can be used with each TR-5880 module. | |
| Audio Devices (for TR-2100ECS only) | TR-SW24 | 24 Switch expander | Refer to the *Triga ECS Series Installation Manual* PN LS10262-002TR-E for more info on these accessories. |
| | NVCM | Network Voice Control Module | |
| | TR-50W | 50 watt audio amplifier | |
| | TR-125W | 125 watt audio amplifier | |
| | TR-INT50W | 50 watt internal amplifier | |
| | TR-DUAL50W | Dual Channel amplifier | |
| | TR-50WBU | Backup daughter card | |
| | TR-CE4 | Provides 4 additional audio circuits for the TR-50W or the TR-125W | |
| | ECSRVM | Remote Voice Microphone | |
| | TR-LOC2100 | Local Operating Console | |
| Networking | TR-NIC | Network Interface Card | Refer to LS10172-00TR-E |
| | TR-FML | Fiber-Optic Multi Mode, Receiver | Refer to LS10178-00TR-E |
| | TR-FSL | Fiber-Optic Single Mode, Transmitter | |
| Wireless | TRW-GI | Wireless Gateway | Refer to the *SWIFT wireless Installation Manual* P/N LS10036-000TR-E for more information on these accessories. |
| | TRW-PHOTO | Wireless Photoelectric Smoke Detector | |
| | TRW-ACCLIMATE | Wireless Multi criteria photoelectric smoke detector with thermal (135°F) | |
| | TRW-HEAT-ROR | Wireless Heat Rate of Rise Heat Detector | |
| | TRW-HEAT | Wireless 135° fixed Heat Detector | |
| | TRW-MONITOR | Wireless Addressable Monitor module | |
| | TRW-RELAY | Wireless Addressable Relay module | |
| | TRW-B210W | 6" wireless base | |

**Table 1.1  TR-2100 Compatible Products**

| Type of Device | Model | Description |
|---|---|---|
| Miscellaneous | 7860 Telephone Cord | RJ31X cord for connecting phone line to the TR-2100 |
| | HFSS Software Suite | For communication and panel programming with a Windows-based computer. Enables remote viewing of detector status and event history. |
| | RBB | Remote Battery Box for mounting backup batteries up to 35AH that are too large to fit into the main control panel cabinet. Dimensions: 16" W x 10" H x 6" D (40.64 cm W x 25.4 cm H x 15.24 cm D) |

**Table 1.1  TR-2100 Compatible Products  (Continued)**

## 1.4  Related Documentation

Refer to the following documents for more information.

| Title | Document Number |
|---|---|
| SLC Wiring Manual | LS10179-000TR-E |
| Device Compatibility Document | LS10167-006TR-E |
| TR-5824 Printer Interface Module Install Sheet | LS10254-002TR-E |
| TR-PS1 Power Supply Manual | LS10259-002TR-E |
| TR-RD1G/R LCD Annunciator Install Sheet | LS10258-002TR-E |
| TR-RD2G/R LCD Annunciator | LS10261-002TR-E |
| TR-5865-3 and TR-5865-4 LED Annunciator | LS10255-002TR-E |
| TR-5880 LED Driver Module | LS10256-002TR-E |
| TR-5883 General Purpose Relay Module | LS10257-002TR-E |
| Triga ECS Series Manual | LS10262-002TR-E |
| ECS-RVM Install Sheet | 151451 |
| TR-SW24 Install Sheet | LS10264-002TR-E |
| TR-CE4 Install Sheet | LS10263-002TR-E |
| TR-INT50W Install Sheet | LS10119-003TR-E |
| TR-RPU Install Sheet | LS10152-003TR-E |
| ECS-NVCM Install Sheet | LS10169-001SK-E |
| TR-LOC2100 Install Sheet | LS10188-003TR-E |
| ECS-EMG Install Sheet | LS10191-001SK-E |
| TR-NIC Install Sheet | LS10172-003TR-E |
| TR-FML/FSL Install Sheet | LS10178-003TR-E |
| MRD-1H Releasing Disconnect | LS10231-000GE-E |

**Table 1.2  Related Documentation**

# Section 2: Agency Listings, Approvals, and Requirements

## 2.1  Federal Communications Commission (FCC)

The following information must be provided to the telephone company before the TR-2100 can be connected to the phone lines:

| | |
|---|---|
| Manufacturer: | Triga |
| Model Number: | TR-2100/ECS |
| FCC registration number: | US: HS9AL10A2100 |
| Ringer equivalence: | 1.0A |
| Type of jack: | RJ31X |
| Facility Interface Codes: | Loop Start:  02LS2 |
| Service Order Code: | 9.0F |

This equipment complies with Part 68 of the FCC rules and the requirements adopted by ACTA. On the inside cover of this equipment is a label that contains, among other information, a product identifier. If requested, this information must be provided to the telephone company.

A plug and jack used to connect this equipment to the premises wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by the ACTA. A compliant telephone cord (not provided) and modular jack must be utilized with this product. It is designed to be used with a modular jack that is also compliant.

The REN (ringer equivalence number) provided on this installation sheet is used to determine the number of devices that may be connected to the public switched telephone network. This number must not exceed 5.0. Since this product has an REN of 1.0A, the number of devices is limited. The REN number is embedded in the FCC registration number as 10A.

If the TR-2100 causes harm to the telephone network, the telephone company will notify you in advance that the temporarily discontinuance of service may be required. But if advance notice is not practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If this happens the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

If trouble is experienced with the TR-2100, for repair or warranty information, contactTriga at (330)577-5199 or www.trigaglobal.com. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the TR-2100 until the problem has been resolved.

This product cannot be adjusted or repaired in the field. It must be returned to the factory for service.

This equipment is not designed for use with party line service. Connection to party line service is subject to state tariffs. You may contact the state public utility commission, public service commission or corporation commission for information.

Since the TR-2100 is a commercial fire alarm panel, it must be connected upstream of all other equipment utilizing the phone lines. If you have questions about the installation, contact your telephone company or a qualified installer.

**WARNING:  FCC PART 15**
THIS DEVICE HAS BEEN VERIFIED TO COMPLY WITH FCC RULES PART 15. OPERATION IS SUBJECT TO THE FOLLOWING CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE RADIO INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

**CAUTION:  INSTALLATION AND TEST**
TO ENSURE PROPER OPERATION, THIS EQUIPMENT MUST BE INSTALLED ACCORDING TO THE ENCLOSED INSTALLATION INSTRUCTIONS. TO VERIFY THAT THE EQUIPMENT IS OPERATING PROPERLY AND CAN SUCCESSFULLY REPORT AN ALARM, THIS EQUIPMENT MUST BE TESTED IMMEDIATELY AFTER INSTALLATION, AND PERIODICALLY THEREAFTER, ACCORDING TO THE ENCLOSED TEST INSTRUCTIONS.

**CAUTION:  LINE IN USE**
IN ORDER FOR "ALARM DIALING EQUIPMENT" TO BE ABLE TO SEIZE THE PHONE LINE TO REPORT AN ALARM OR OTHER EVENT WHEN OTHER CUSTOMER EQUIPMENT (TELEPHONE, ANSWERING SYSTEM, COMPUTER MODEM, ETC.) CONNECTED TO THE SAME LINE IS IN USE, "ALARM DIALING EQUIPMENT" MUST BE CONNECTED TO A PROPERLY INSTALLED RJ31X JACK. THE RJ31X JACK MUST BE CONNECTED IN SERIES WITH, AND AHEAD OF, ALL OTHER EQUIPMENT ATTACHED TO THE SAME PHONE LINE. SERIES INSTALLATION OF AN RJ31X JACK IS DEPICTED IN THE FIGURE BELOW. IF YOU HAVE ANY QUESTIONS CONCERNING THESE INSTRUCTIONS, CONSULT YOUR TELEPHONE COMPANY OR A QUALIFIED INSTALLER ABOUT INSTALLING THE NECESSARY JACK AND ALARM DIALING EQUIPMENT.

## 2.2  Underwriters Laboratories (UL)

### 2.2.1  Requirements for All Installations

General requirements are described in this section. When installing an individual device, refer to the specific section of the manual for additional requirements. The following subsections list specific requirements for each type of installation (for example, Central Station Fire Alarm systems, Local Protected Fire Alarm systems, and so on). See Section 9.6 for information on releasing operation.

1.  All field wiring must be installed in accordance with NFPA 70 National Electric Code.
2.  Use the addressable smoke detectors specified in the *SLC Wiring Manual* and/or conventional detectors listed in the *Device Compatibility Document*.
3.  Use UL listed notification appliances compatible with the TR-2100 from those specified in the *Device Compatibility Document*.
4.  A full system checkout must be performed any time the panel is programmed.

Restricted Options:

•  The loss of AC signal is defaulted to 3 hours, but the system still allows settings from 0 - 30 hours. For UL certified installations, this number must be set from 1 to 3 hours.
•  The system allows the use of non-latching, spot type smoke detectors. This feature may not be used in commercial applications whereby a general alarm is sounded. It is intended for elevator recall, door holding applications, and hotel/motel room applications.
•  The system allows the Alarm Verification confirmation time to be set from 60 to 250 seconds. For UL certified installations the setting must be a minimum of 60 seconds.
•  The systems allows the Auto-resound time to be set to 24 or 4 hours. For UL certified installations that are utilizing SWIFT devices, the value must be set to 4 hours.
•  Call forwarding shall not be used.
•  When two count is used: detector spacing shall be cut in half, you shall not use the alarm verification feature, and no delay shall be used.
•  P.A.S. (positive alarm sequence) feature shall be used only with automatic detectors.

### 2.2.2  UL 864 9th and 10th Edition

•  Per the UL Continuing Certification Program, UL 864 9th edition fire alarm control equipment will retain certification after the roll-out of UL 10th edition (12/2/2018).
•  Installations of UL 864 10th Edition certified equipment are permitted to use UL864 9th Edition certified equipment when approved by the local Authority Having Jurisdiction (AHJ).

For product compliance, refer to the UL/ULC listing cards located on the UL online certification directory. https://iq.ulprospector.com

### 2.2.3  Requirements for Central Station Fire Alarm Systems

1.  Use both phone lines. Enable phone line monitors for both lines.
2.  You must program a phone number and a test time so that the TR-2100 shall automatically initiate and complete a test signal transmission sequence to its associated receiver at least once every 6 hours, using two phones or one phone line with Ethernet backup.
3.  The AC Loss Hours option must be set from 1-3 hours.
4.  If using wired Ethernet, you must program the corresponding account/subscriber ID and a test time so that the FACP shall automatically initiate a test signal transmission sequence to its associated receiver at least once every 6 hours.

### 2.2.4  Requirements for Local Protected Fire Alarm Systems

At least one UL listed supervised notification appliance must be used.

### 2.2.5  Requirements for Remote Station Protected Fire Alarm Systems

Minimum system requirements are one Triga addressable initiating device and either a 5220, Keltron 3158, or the built-in Digital Alarm Communicator Transmitter (DACT).

1.  Do not exceed the current draw load restrictions shown in Section 3.5.
2.  The AC Loss Hours option must be set from 1-3 hours.

### 2.2.6  Requirements for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment, NFPA 72

When using carbon monoxide detection the system must be monitored by a Supervising Station with emergency response, both aspects meeting the Standard for the Installation of Carbon Monoxide (CO) Detection and Warning Equipment, NFPA 72.

## 2.2.7  NFPA Requirements

The following is the minimum configuration to meet NFPA requirements.

| Model/Module | Description | Local | Releasing | Auxiliary | Remote Station | Central Station |
|---|---|---|---|---|---|---|
| TR-2100 | Control Unit | Y | Y | Y | Y | Y |
| 6861GIA | annunciator | Y | Y | Y | Y | Y |
| TR-R2100R, TR-R2100B | Remote unit | O | O | O | O | O |
| TR-6815 | SLC Expander | O | O | O | O | O |
| TR-5824 | Serial card | O | O | O | O | O |
| 5220 | Rev Polarity Module | O | O | Y | Y | O |
| TR-NIC | Network card | O | O | O | O | O |
| TR-FML | Fiber module | O | O | O | O | O |
| TR-FSL | Fiber module | O | O | O | O | O |
| Y = YES, N = NO, O = OPTIONAL | | | | | | |

**Table 2.1   NFPA Requirements for TR-2100 or TR-R2100**

| Model/Module | Description | Local | Releasing | Auxiliary | Remote Station | Central Station | Mass Notification (In-Building) | Emergency | EVAC |
|---|---|---|---|---|---|---|---|---|---|
| TR-2100ECS | Control Unit | Y | Y | Y | Y | Y | Y | Y | Y |
| 6861GIA | Annunciator | Y | Y | Y | Y | Y | Y | Y | Y |
| ECS-EMG | LED / switch card | Y | Y | Y | Y | Y | Y | Y | Y |
| 5220 | Direct Conn Module | O | O | Y | Y | O | N | O | N |
| TR-5824 | Serial/Parallel Interface | O | O | O | O | O | O | O | O |
| TR-5865-3, TR-5865-4 | Remote Annunciator | O | O | O | O | O | O | O | O |
| TR-5880 | Remote Annunciator | O | O | O | O | O | O | O | O |
| TR-5883 | Relay Module | O | O | O | O | O | N | O | N |
| TR-6815 | SLC expander | O | O | O | O | O | O | O | O |
| TR-NIC | Network card | O | O | O | O | O | O | O | O |
| ECS-NVCM | Network Voice Control Mod | O | O | O | O | O | O | O | O |
| TR-FML, TR-FSL | Network Fiber Mod | O | O | O | O | O | O | O | O |
| TR-RELAY | Control Mod | O | O | Y | O | O | N | O | N |
| TR-PS1 | Power Expander | O | O | O | O | O | O | O | O |
| RBB | Accessory cabinet | O | O | O | O | O | O | O | O |
| TR-DUAL50W | Amplifier | N | N | N | N | N | Y[1] | O | Y[1] |
| TR-50W | Amplifier | N | N | N | N | N | Y[1] | O | Y[1] |
| TR-125W | Amplifier | N | N | N | N | N | Y[1] | O | Y[1] |
| TR-SW24 | Switch Annunciator | N | N | N | N | N | Y | O | Y |
| ECS-RVM | Remote Voice Module | N | N | N | N | N | Y | O | Y |
| TR-INT50W | Amplifier | N | N | N | N | N | Y | O | Y |

Y = YES, N = NO, O = OPTIONAL
1. At least one of the following amplifiers is required for MNS operation as well as EVAC: TR-DUAL50W, TR-50W, TR-125W or TR-INT50W.

**Table 2.2  NFPA Requirements for TR-2100ECS**

# Section 3: Before You Begin Installation

This section of the manual is intended to help you plan your tasks to facilitate a smooth installation. Please read this section thoroughly, especially if you are installing a TR-2100 panel for the first time.

## 3.1 Inventory

When the TR-2100 shipment is received, check that all the parts have been included in the shipment. The shipment consist of one of each of the following:

- main circuit board with display
- backbox with door.
- plastic bag containing two keys, screws, cables, and ten 4.7K ohm end-of-line resistors
- manual

## 3.2 Environmental Specifications

It is important to protect the TR-2100 control panel from water. To prevent water damage, the following precautions should be followed when installing the units:

- Intended for indoor use in dry locations only
- Do not mount directly on exterior walls, especially masonry walls (condensation)
- Do not mount directly on exterior walls below grade (condensation)
- Protect from plumbing leaks
- Protect from splash caused by sprinkler system inspection ports
- Do not mount in areas with humidity-generating equipment (such as dryers, production machinery)

When selecting a location to mount the TR-2100 control panel, the unit should be mounted where it will NOT be exposed to: temperatures outside the range of 0°C- 49°C (32°F-120°F) or humidity exceeding 93% non-condensing.

## 3.3 Software Downloads

In order to supply the latest features and functionality in fire alarm and life safety technology to our customers, we make frequent upgrades to the embedded software in our products. To ensure that you are installing and programming the latest features, we strongly recommend that you download the most current version of software for each product prior to commissioning any system. Contact Technical Support with any questions about software and the appropriate version for a specific application. Software updates can be found at www.trigaglobal.com.

## 3.4 Electrical Specifications

Table 3.1 lists the terminal block on the TR-2100 as well as a description of each individual terminal and their respective electrical rating.

| Terminal Label | | Description | Rating | | Earth Ground Faults |
|---|---|---|---|---|---|
| | | | Voltage | Current | |
| B | | AC input (hot) | 240 VAC, 50/60 Hz | 2.8A | N/A |
| G | | Earth ground | N/A | N/A | N/A |
| W | | AC input (neutral) | 240 VAC, 50/60 Hz | 2.8A | N/A |
| X | [1]I/O 1 | Flexput Circuits | 24 VDC | 3.0 A notification and auxiliary power circuits | 0Ω |
| O | | | | 100 mA for initiation circuits | |
| X | [1]I/O 2 | Flexput Circuits | 24 VDC | 3.0 A notification and auxiliary power circuits | 0Ω |
| O | | | | 100 mA for initiation circuits | |
| X | [1]I/O 3 | Flexput Circuits | 24 VDC | 3.0 A notification and auxiliary power circuits | 0Ω |
| O | | | | 100 mA for initiation circuits | |
| X | [1]I/O 4 | Flexput Circuits | 24 VDC | 3.0 A notification and auxiliary power circuits | 0Ω |
| O | | | | 100 mA for initiation circuits | |
| X | [1]I/O 5 | Flexput Circuits | 24 VDC | 3.0 A notification and auxiliary power circuits | 0Ω |
| O | | | | 100 mA for initiation circuits | |
| X | [1]I/O 6 | Flexput Circuits | 24 VDC | 3.0 A notification and auxiliary power circuits | 0Ω |
| O | | | | 100 mA for initiation circuits | |

**Table 3.1  Terminal Descriptions and Electrical Specifications**

| Terminal Label | | Description | Rating | | | Earth Ground Faults |
|---|---|---|---|---|---|---|
| | | | | Voltage | Current | |
| X | [1]I/O 7 | Flexput Circuits | 24 VDC | | 3.0 A notification and auxiliary power circuits | 0Ω |
| O | | | | | 100 mA for initiation circuits | |
| X | [1]I/O 8 | Flexput Circuits | 24 VDC | | 3.0 A notification and auxiliary power circuits | 0Ω |
| O | | | | | 100 mA for initiation circuits | |
| B | SBUS1 OUT | SBUS communication | 5 VDC | | 100 mA | 0Ω |
| A | | | | | | |
| + | | SBUS power | 24 VDC | | 1.0 A | |
| - | | | | | | |
| B | SBUS1 IN | Used for Class A installations | | | | 0Ω |
| A | | | | | | |
| + | | | | | | |
| - | | | | | | |
| B | SBUS2 OUT | SBUS communication | 5 VDC | | 100 mA | 0Ω |
| A | | | | | | |
| + | | SBUS power | 24 VDC | | 1.0 A | |
| - | | | | | | |
| B | SBUS2 IN | Used for Class A installations | | | | 0Ω |
| A | | | | | | |
| + | | | | | | |
| - | | | | | | |
| N.C. | RELAY 1 | General Purpose Relay 1 | 24 VDC | | 2.5 A, resistive | N/A |
| C | | | | | | |
| N.O. | | | | | | |
| N.C. | RELAY 2 | General Purpose Relay 2 | 24 VDC | | 2.5 A, resistive | N/A |
| C | | | | | | |
| N.O. | | | | | | |
| N.C. | TROUBLE | Trouble Relay | 24 VDC | | 2.5 A, resistive | N/A |
| C | | | | | | |
| N.O. | | | | | | |
| S- | SLC OUT | SLC terminals | 32 VDC | | 150 mA | 0Ω |
| S+ | | | | | | |
| S- | SLC PGM | SLC Programming | 32 VDC | | 150 mA | 0Ω |
| S+ | | | | | | |
| S- | SLC IN | Used for Class A installations | | | | 0Ω |
| S+ | | | | | | |
| Ring | | Phone Line 1 Telco Ring | N/A | | | 0Ω |
| Tip | | Phone Line 1 Telco Tip | | | | |
| Ring | | Phone Line 1 Premises Ring | | | | |
| Tip | | Phone Line 1 Premises Tip | | | | |
| Ring | | Phone Line 2 Telco Ring | N/A | | | 0Ω |
| Tip | | Phone Line 2 Telco Tip | | | | |
| Ring | | Phone Line 2 Premises Ring | | | | |
| Tip | | Phone Line 2 Premises Tip | | | | |
| + | Battery | Battery Connection | 24 VDC | | 1.12 A | N/A |
| – | | | | | | |
| P7 | Data Network | Used for TR-NIC | 24 VDC | | 21 mA | 0Ω |

**Table 3.1  Terminal Descriptions and Electrical Specifications**

| Terminal Label | Description | Rating | | Earth Ground Faults |
|---|---|---|---|---|
| | | Voltage | Current | |
| P8 | Voice Network | Used For ECS-NVCM | 24 VDC | 59 mA | 0Ω |

**Table 3.1  Terminal Descriptions and Electrical Specifications**

1    Regulated for NAC circuits, special application when used for releasing or auxiliary power circuits

## 3.5  Calculating Current Draw and Standby Battery

This section is for helping you determine the current draw and standby battery needs for your installation.

### 3.5.1  Current Draw Worksheet Requirements

The following steps must be taken when determining TR-2100 current draw and standby battery requirements.

1. For the TR-2100, the worst case current draw is listed for the panel, addressable devices, and SLC expanders. Fill in the number of addressable devices and expanders that will be used in the system and compute the current draw requirements for alarm and standby. Record this information in the current draw worksheet on Line A.
2. Add up the current draw for all auxiliary devices and record in the table on Line B.
3. Add up the current draw for all notification appliance loads and record in the table on Line C.
4. For notification appliances and auxiliary devices not mentioned in the manual, refer to the device manual for the current ratings.
5. Make sure that the total alarm current you calculated, including current for the panel itself, does not exceed 9.0 A. This is the maximum alarm current for the TR-2100 control panel. If the current is above 9.0 A you will need to use a notification power expander(s) such as the TR-PS1 intelligent power expander, to distribute the power loads so that the TR-2100 or the power expanders do not exceed their power ratings. Refer to the current draw worksheets provided with the TR-PS1 manuals so you do not exceed their power ratings.
6. Alternatively, you may network additional TR-2100 panels to get additional power.
7. Complete the remaining instructions in the appropriate current draw worksheet for determining battery size requirements.

### 3.5.2  Current Draw Worksheet for Triga SLC Devices

Use Table 3.2 to determine current requirements during alarm/battery standby operation when SLC devices are installed. You can install up to 159 sensors per loop (2100 points max per panel) *and* 159 modules per loop (2,100 points max per panel). Copy this section if additional space is required.

| Device | # of Devices | Current per Device | | | Standby Current | Alarm Current |
|---|---|---|---|---|---|---|
| For each device use this formula: | This column | X | This column | | = | Current per number of devices. |
| Fire Panel (Current draw from battery) | 1 | Standby | 230 mA | | 230 mA | |
| | | Alarm: | 415 mA | | | 415 mA[1] |
| Addressable SLC Detectors | | | | | | |
| TR-PHOTO-W/-IV | | | | | mA | mA |
| TR-PHOTO-T-W/-IV | | | | | mA | mA |
| TR-PHOTO-R-W/-IV | | | | | mA | mA |
| TR-HEAT-W/-IV | | Standby: | 0.2 mA | | mA | mA |
| TR-HEAT-HT-W/-IV | | Alarm: | 4.5 mA[2] | | mA | mA |
| TR-HEAT-ROR-W/-IV | | | | | mA | mA |
| TR-OSI-RI | | SLC | Standby/Alarm: | 20 mA | mA | mA |
| | | Aux. Pwr | Standby: | 22 mA | mA | |
| | | | Alarm: | 20 mA | | mA |
| TR-DNR/DNRW[3] (non-relay) | | None, included with TR-PHOTO-R-W/-IV | | | | |
| TR-DNR[3] (with relay) | | None, included with  & TR-RELAY | | | | |
| TR-FIRE-CO-W/-IV | | SLC | Standby: | 0.20 mA | mA | |
| | | | Alarm: | 4.5 mA | | mA |
| TR-PTIR-W/-IV | | SLC | Standby: | 0.20 mA | mA | |
| | | | Alarm: | 4.5 mA | | mA |
| Addressable SLC Modules | | | | | | |
| TR-MONITOR | | Standby/Alarm | 0.375 mA | | mA | mA |
| TR-MINIMON | | Standby/Alarm | 0.375 mA | | mA | mA |
| TR-PULL-SA/TR-PULL-DA | | Standby/Alarm | 0.3 mA | | mA | mA |

**Table 3.2  Current Draw Worksheet for IDP SLC Devices**

| Device | # of Devices | Current per Device | | | Standby Current | Alarm Current |
|---|---|---|---|---|---|---|
| TR-MONITOR-2 | | Standby/Alarm: | | 0.75 mA | mA | mA |
| TR-MONITOR-10 | | Standby/Alarm: | | 3.5 mA | mA | mA |
| TR-CONTROL | | SLC | Standby | 0.375 mA | mA | |
| | | | Alarm: | 0.375 mA | | mA |
| | | Aux Pwr | Standby | 1.7 mA | mA | |
| | | | Alarm: | 6.5mA | | mA |
| TR-CONTROL-6 | | SLC | Standby | 2.65 mA | mA | |
| | | | Alarm: | 35 mA | | mA |
| | | Aux Pwr | Standby | 8 mA | mA | |
| | | | Alarm: | 20 mA | | mA |
| TR-RELAY | | Standby/Alarm: | | 0.255 mA | mA | mA |
| TR-RELAY-6 | | Standby: | | 1.9 mA | mA | |
| | | Alarm: | | 32 mA | | mA |
| TR-RELAYMON-2 | | Standby: | | 1.3 mA | mA | |
| | | Alarm: | | 24 mA | | mA |
| TR-ZONE | | Aux Pwr | Standby | 12 mA | mA | |
| | | | Alarm: | 90 mA | | mA |
| | | SLC | Standby: | 0.27 mA | mA | |
| | | | Alarm: | 5.1 mA | | |
| TR-ZONE-6 | | Aux Pwr | Standby | 50 mA | mA | |
| | | | Alarm: | 70 mA | | mA |
| | | SLC | Standby | 2.3 mA | mA | |
| | | | Alarm: | 40 mA | | mA |
| **SLC Accessories** | | | | | | |
| TR-B200SR-W/-IV Sounder Base | | Aux Pwr | Standby: | 0.5 mA | mA | |
| | | | Alarm: | 35 mA | | mA |
| | | SLC | Standby | 0.3 mA | mA | |
| TR-B200S-W/-IV Intelligent Sounder Base | | Aux Pwr | Standby: | 0.5 mA | mA | |
| | | | Alarm: (high vol) | 35 mA | | mA |
| | | SLC | Standby | 0.3 mA | mA | |
| TR-B200SR-LF-W/-IV Low Frequency Sounder Base | | Aux Pwr | Standby: | 1 mA | mA | |
| | | | Alarm: | 125 mA | | mA |
| TR-B200S-LF-W/-IV Intelligent Low Frequency Sounder Base | | Aux Pwr | Standby | 0.55 mA | mA | |
| | | | Alarm (high vol) | 140 mA | | mA |
| | | SLC | Standby | 0.30 mA | mA | |
| TR-B224RB-W/-IV Relay Base | | Standby/Alarm: | | 0.17 mA | mA | mA |
| RTS151 | | Alarm: | | 10 mA | | mA |
| RTS151KEY | | Alarm: | | 12 mA | | mA |
| TR-RA100Z | | Alarm: | | 10 mA | | mA |
| **SLC Isolator Devices** | | | | | | |
| TR-ISO (Isolator Module) | | Standby: | | 0.45 mA | mA | mA |
| | | Isolation: | | 17 mA | | |
| TR-ISO-6 (6 Fault Isolator Module) | | Standby: (per circuit) | | 0.45 mA | mA | |
| | | Isolation: (per circuit) | | 17 mA | | mA |
| TR-B224BI-W/-IV Isolator Base | | Standby: | | 0.45 mA | mA | |
| | | Isolation: | | 15 mA | | mA |
| **Accessories Modules[4]** | | | | | | |
| TR-6815 SLC Loop Expander | | Standby: | | 78 mA | mA | |
| | | Alarm: | | 78 mA | | mA |

**Table 3.2  Current Draw Worksheet for IDP SLC Devices  (Continued)**

| Device | # of Devices | Current per Device | | Standby Current | Alarm Current |
|---|---|---|---|---|---|
| TR-RD2G/R Remote LCD Annunciator | | Standby: | 27 mA | mA | |
| | | Alarm: | 53 mA | | mA |
| TR-RD1G/R Remote LCD Annunciator | | Standby: | 58 mA | mA | |
| | | Alarm: | 68 mA | | mA |
| TR-5824 Serial/Parallel Module | | Standby/Alarm: | 45 mA | mA | mA |
| TR-PS1 Power Supply | | Standby/Alarm (SBUS): | 10 mA | mA | mA |
| TR-5865-4 LED Annunciator (with reset and silence switches) | | Standby: | 35 mA | mA | |
| | | Alarm: | 145 mA | | mA |
| TR-5865-3 LED Annunciator Module | | Standby: | 35 mA | mA | |
| | | Alarm: | 145 mA | | mA |
| TR-5880 LED I/O Module | | Standby: | 35 mA | mA | |
| | | Alarm: | 200 mA | | mA |
| TR-5883 Relay Interface | | Standby: | 0 mA | mA | |
| | | Alarm: (22 mA/relay) | 220 mA | | mA |
| TR-50W Voice Amplifier with/without TR-CE4 | | Standby/Alarm (SBUS): | 10 mA | mA | mA |
| TR-125W Voice Amplifier with/without TR-CE4 | | Standby/Alarm (SBUS): | 10 mA | mA | mA |
| TR-INT50W Internal Amplifier | | Standby: | 52 mA | mA | |
| | | Alarm @ 25V: | 275 mA | | mA |
| | | Alarm @ 70V: | 310 mA | | mA |
| TR-DUAL50W Dual Voice Amp | | Standby/Alarm (SBUS): | 10 mA | mA | mA |
| TR-50WBU Back-Up Amplifier | | Standby/Alarm: | 10 mA | mA | mA |
| ECS-NVCM Voice Control Module | | Standby/Alarm: | 59 mA | mA | mA |
| ECS-RVM Remote Voice Module | | Standby: | 60 mA | | |
| | | Alarm: | 80 mA | | |
| TR-SW24 Switch Expander | | Standby: | 10 mA | mA | |
| | | Alarm: | 25 mA | | mA |
| TR-RPU Remote Paging Unit | | Standby: | 70 mA | mA | |
| | | Alarm: | 100 mA | | mA |
| TR-LOC2100 Local Operating Console | | Standby: | 87 mA | mA | |
| | | Alarm: | 133 mA | | mA |
| TR-LOC2100 Local Operating Console with one TR-SW24 Expander | | Standby: | 97 mA | mA | |
| | | Alarm: | 158 mA | | mA |
| TR-LOC2100 Local Operating Console with two TR-SW24 Expanders | | Standby: | 107 mA | mA | |
| | | Alarm: | 183 mA | | mA |
| Network Cards | | | | | |
| TR-NIC Network Interface Card | | Standby/Alarm: | 21 mA | mA | mA |
| TR-FML Fiber Optic Multi Mode | | Standby/Alarm: | 53 mA | mA | mA |
| TR-FSL Fiber Optic Single Mode | | Standby/Alarm: | 79 mA | mA | mA |
| Wireless Modules | | | | | |
| TRW-GI Wireless Gateway | | Max current using ext supply | 40 mA | mA | mA |
| | | Max current SLC Power | 24 mA | mA | mA |
| A    Total System Current | | | | | |
| Auxiliary Devices | Refer to devices manual for current rating | | | | |
| | | Alarm/Standby: | mA | mA | mA |
| | | Alarm/Standby: | mA | mA | mA |
| B    Auxiliary Devices Current[5] | | | | | |
| Notification Devices | Refer to device manual for current rating | | | | |

**Table 3.2  Current Draw Worksheet for IDP SLC Devices  (Continued)**

| | Device | # of Devices | Current per Device | | Standby Current | Alarm Current |
|---|---|---|---|---|---|---|
| | | | Alarm: | mA | | mA |
| | | | Alarm: | mA | | mA |
| | | | Alarm: | mA | | mA |
| C | Notification Appliances Current | | | | | mA |
| D | Total current ratings of all devices in system (line A + line B + C) | | | | mA | mA |
| E | Total current ratings converted to amperes (line D x 0.001): | | | | A | A |
| F | Number of standby hours | | | | H | |
| G | Multiply lines E and F. | | | **Total standby AH** | AH | |
| H | Alarm sounding period in hours. (For example, 5 minutes = 0.0833 hours) | | | | | H |
| I | Multiply lines E and H. | | | Total alarm AH | | AH |
| J | Add lines G and I. | | | | AH | |
| | Multiply by the Derating Factor | | | | 1.25 | |
| | Total ampere hours required[6] | | | | AH | |

**Table 3.2 Current Draw Worksheet for IDP SLC Devices (Continued)**

1   The FACP can only support 5 devices with LEDs on. The current draw has been added to the panels alarm current.
2   Total does not include isolator devices or accessory bases.
3   The TR-PHOTO-R-W is sold separately from the DNR. Current draw for the DNR + TR-PHOTO-R-W is calculated by increasing the "Number of Devices" column for each TR-PHOTO-R-W used with a DNR.
4   Maximum SBUS address capacity is determined by the amount of SBUS bandwidth consumed by each SBUS module. Refer to Section 4.6.2 for SBUS limitations.
5   If there are door holders in the system, there is no need to consider door holder current for alarm/battery standby, because power is removed during that time. However, during normal operation, door holders draw current and must be included in the 1.8 A total current that can be drawn from the panel.
6   Use next size battery with capacity greater than required.

## 3.5.3 Maximum Battery Standby Load

Tables 3.3 and 3.4 show the standby load calculations for the TR-2100 based on 24 and 90 hours of standby. The standby load calculations of line D in the Current Draw Calculation Worksheet must be less than the number shown in Tables 3.3 and 3.4 for the selected battery size, standby hour and alarm time. The numbers below have a built in 20% derating factor for the battery amp-hour capacity.

| Rechargeable Battery Size | 24 hr Standby, 5 mins. Alarm | 24 hr Standby, 15 min alarm | 24 hr Standby, 20 min alarm |
|---|---|---|---|
| 17AH | 535 mA | 473 mA | 442 mA |
| 18AH | 569 mA | 506 mA | 475 mA |
| 24AH | 769 mA | 706 mA | 675 mA |
| 33AH | 1.07A | 1.01A | 975 mA |
| 35AH | 1.14A | 1.07A | 1.04A |
| 40AH | 1.30A | 1.24A | 1.21A |
| 55AH | 1.80A | 1.74A | 1.71A |

**Table 3.3  Maximum Battery Standby Loads for 24 Hour Standby**

| Rechargeable Battery Size | 90 hr Standby, 5 min alarm | 90 hr Standby, 15 min alarm | 90 hr Standby, 20 min alarm |
|---|---|---|---|
| 33 AH | N/A | N/A | N/A |
| 40 AH | 347 mA | 331 mA | 322 mA |
| 55 AH | 480 mA | 464 mA | 456 mA |

**Table 3.4  Maximum Battery Standby Loads for 90 Hour Standby (FM applications only)**

**WARNING:   BATTERY SIZE**

TRIGA DOES NOT SUPPORT THE USE OF BATTERIES SMALLER THAN THOSE LISTED IN TABLES 3.3 AND 3.4. IF YOU USE A BATTERY TOO SMALL FOR THE INSTALLATION, THE SYSTEM COULD OVERLOAD THE BATTERY RESULTING IN THE INSTALLATION HAVING LESS THAN THE REQUIRED 24 HOURS STANDBY POWER. USE TABLE 3.3 AND TABLE 3.4 TO CALCULATE THE CORRECT BATTERY AMP HOUR RATING NEEDED FOR YOUR INSTALLATION. IT IS RECOMMENDED THAT YOU REPLACE BATTERIES EVERY FIVE YEARS.

# Section 4: Control Panel Installation

## 4.1  Mounting the Control Panel Cabinet

Read the environmental specifications in Section 3.2 before mounting the control panel cabinet. This will ensure that you select a suitable location.

The TR-2100 cabinet can be surface or flush mounted. Cabinet base dimensions are 24.75" H x 14.5" W. If you flush mount there should be 1.5" to 1.75" of cabinet extruding from the wall, this should be measured from either the top edge or bottom edge to the exterior side of the sheet rock. Do NOT flush mount in a wall designated as a fire break.

The TR-2100ECS cabinet can be surface or flush mounted. Cabinet base dimensions are 26.5" H x 20.0"W. If you flush mount the cabinet, there should be 1.5" to 1.75" of cabinet extruding from the wall, this should be measured from either the top edge or bottom edge to the exterior side of the Sheetrock. Do NOT flush mount in a wall designated as a fire break.
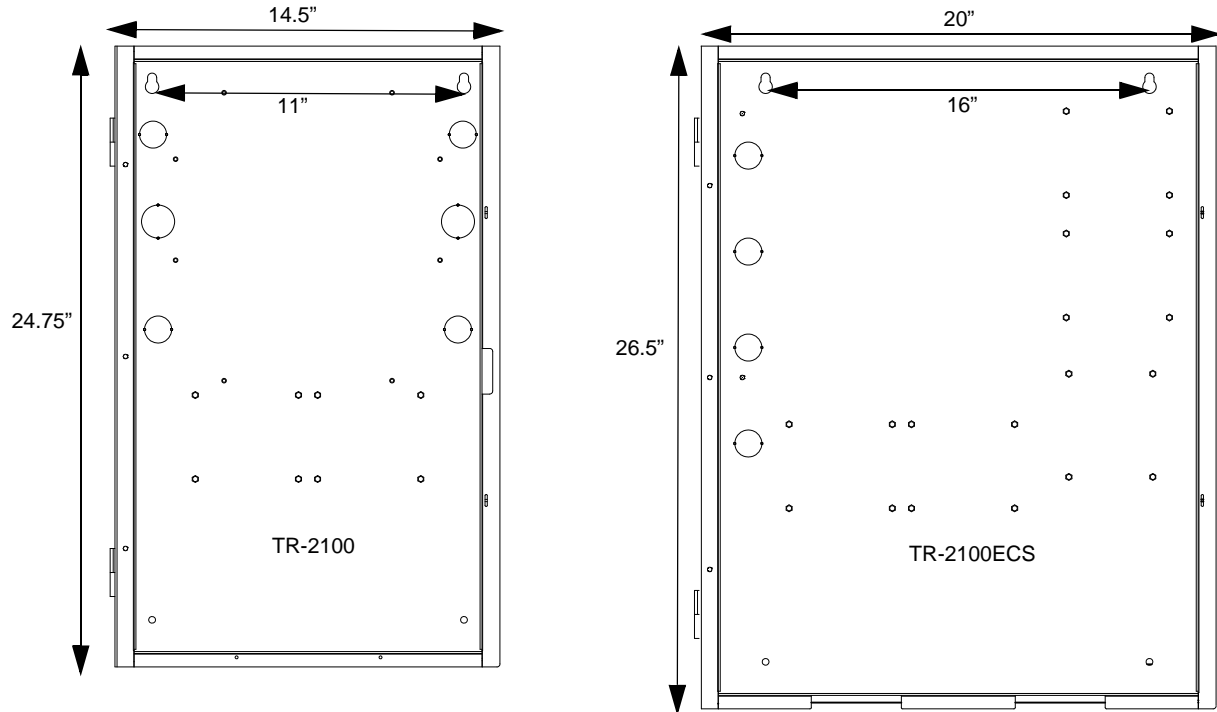
**Figure 4.1  FACP Cabinet Dimensions**

## 4.1.1  Preventing Water Damage

Water damage to the fire system can be caused by moisture entering the cabinet through the conduits. Conduits that are installed to enter the top of the cabinet are most likely to cause water problems. Installers should take reasonable precautions to prevent water from entering the cabinet. Water damage is not covered under warranty.

## 4.1.2  Removing the TR-2100 Assembly from the Housing

Should it ever be necessary to remove the control panel assembly from the cabinet for repair, do so by unscrewing the nuts that connect the control panel assembly to the cabinet. Do not attempt to disassemble the circuit boards.

## 4.1.3  Ethernet Connection

The Ethernet connect is used for IP communication. For port location, see the figure below.

## 4.2  Board Assembly Diagram

Trouble relay · programmable relays · AC power

ALARM · SUPERVISORY · TROUBLE · SILENCED · POWER

address DIP switch · data network · voice network · SLC · phone lines · USB port · Ethernet · battery connection · SBUS1 · SBUS2 · NAC/aux power circuits (8)
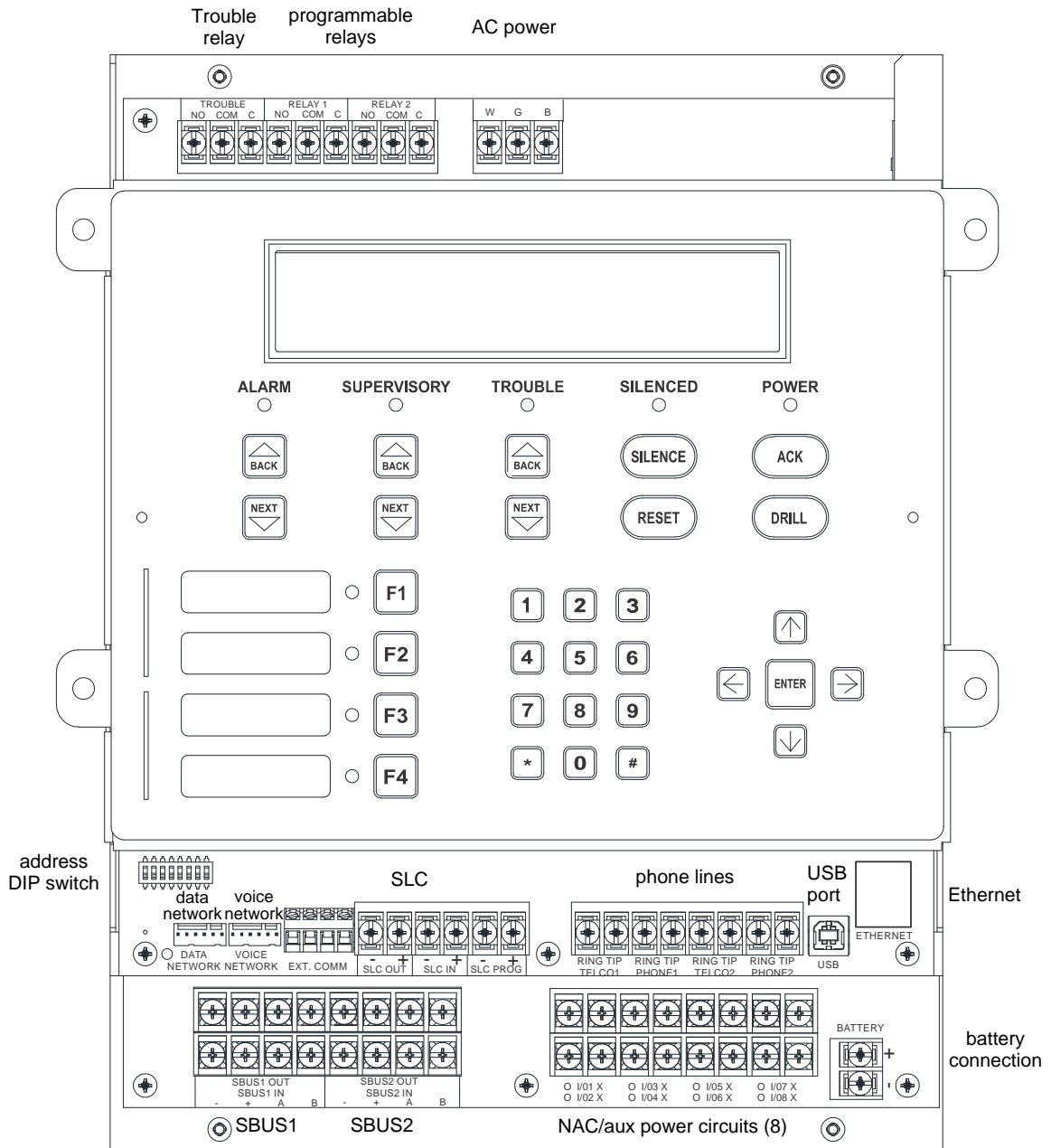
**Figure 4.2  TR-2100 Assembly Layout**

Figure 4.2 shows the circuit boards, metal housing and annunciator that attach the TR-2100 assembly to the cabinet. If you should need to remove the board assembly for repair, remove the four mounting nuts which hold the assembly in the cabinet. Then, lift the entire assembly out of the cabinet. Do not attempt to remove the circuit boards from the metal bracket.

## 4.3  Wiring Specifications

Induced noise (transfer of electrical energy from one wire to another) can interfere with telephone communication or cause false alarms. To avoid induced noise, follow these guidelines:

* Isolate input wiring from high current output and power wiring. Do not pull one multi-conductor cable for the entire panel. Instead, separate the wiring as follows:

| High voltage | AC power terminal |
| --- | --- |
| SLC loops | SLC In/Out Terminals |
| POTS reporting input/output | Phone line circuits, Ring Tip Telco, Phone Terminals |
| Notification circuits | I/O1-I/O8 Terminals |
| SBUS | SBUS1 In/Out Terminals, SBUS 2 In/Out Terminals |
| Relay circuits | Trouble, Relay 1, Relay 2 Terminals |

* Do not pull wires from different groups through the same conduit. If you must run them together, do so for as short a distance as possible or use shielded cable. Connect the shield to earth ground at the panel. You must route high and low voltages separately.
* Route the wiring around the inside perimeter of the cabinet. It should not cross the circuit board where it could induce noise into the sensitive microelectronics or pick up unwanted RF noise from the high speed circuits. See Figure 4.4 for an example.
* High frequency noise, such as that produced by the inductive reactance of a speaker or bell, can also be reduced by running the wire through ferrite shield beads or by wrapping it around a ferrite toroid.
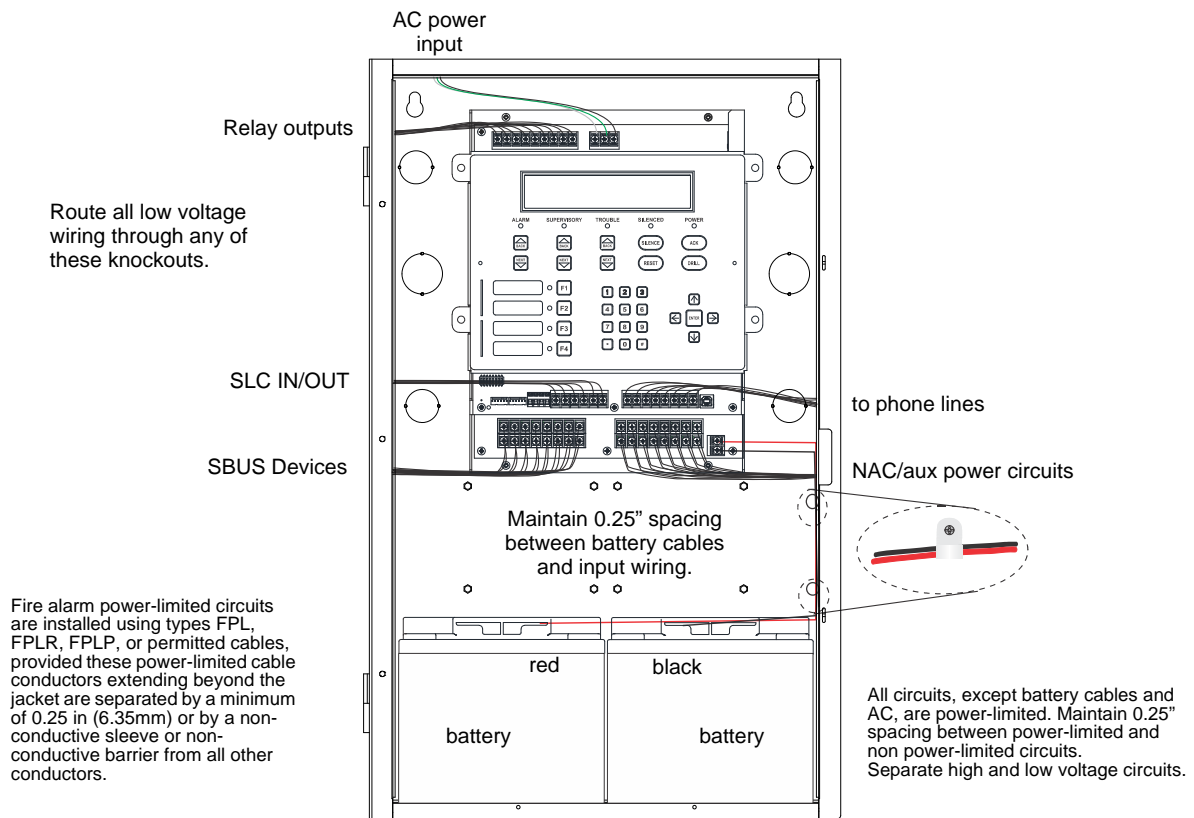
**Figure 4.3  Wire Routing Example for TR-2100**
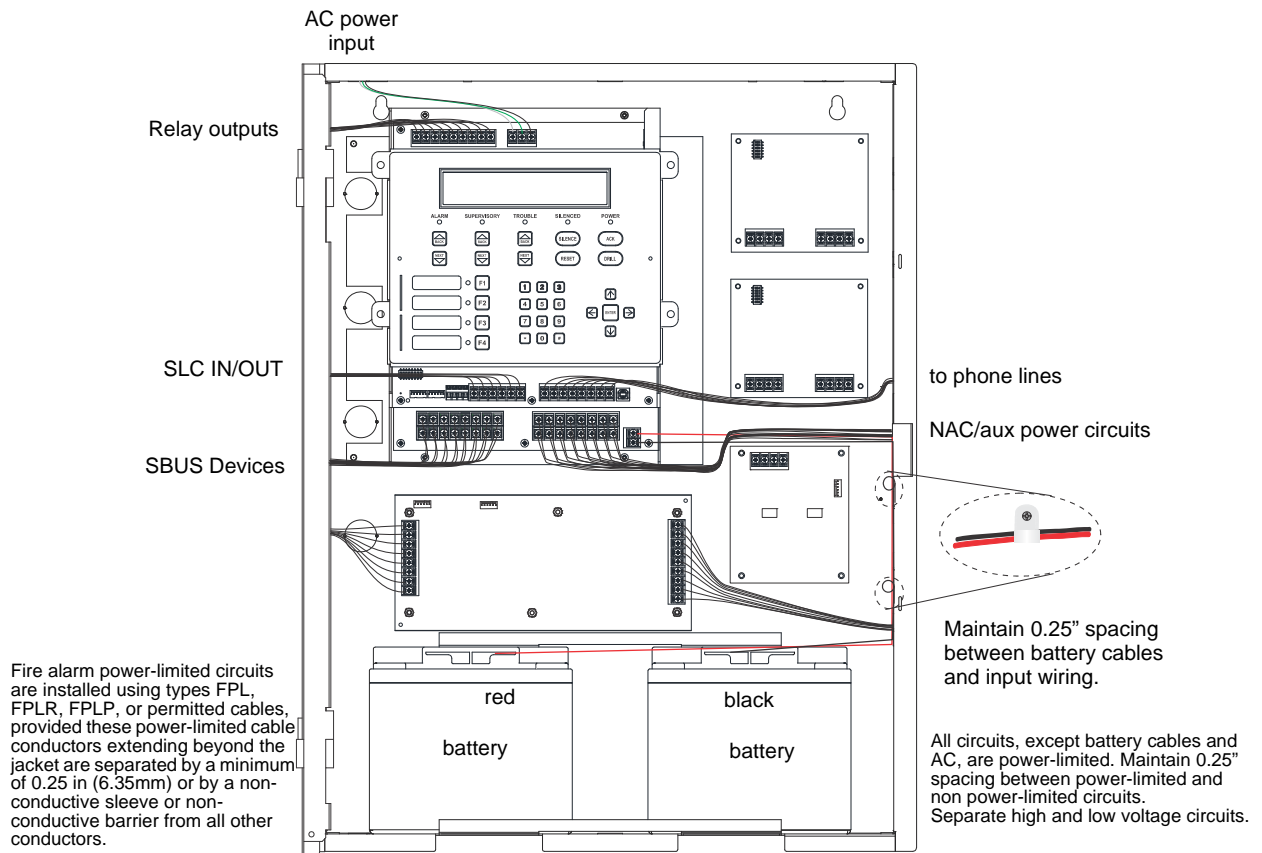
**Figure 4.4  Wire Routing Example for TR-2100ECS**

## 4.4  AC Power Connection

**WARNING:   RISK OF ELECTRICAL SHOCK AND EQUIPMENT DAMAGE**

SEVERAL DIFFERENT SOURCES OF POWER CAN BE CONNECTED TO THIS PANEL. DISCONNECT ALL SOURCES OF POWER BEFORE SERVICING. THE PANEL AND ASSOCIATED EQUIPMENT MAY BE DAMAGED BY REMOVING AND/OR INSERTING CARDS, MODULES OR INTERCONNECTING CABLES WHILE THIS UNIT IS ENERGIZED

The AC terminals are rated at 240VAC, 50/60 Hz, 2.8A.
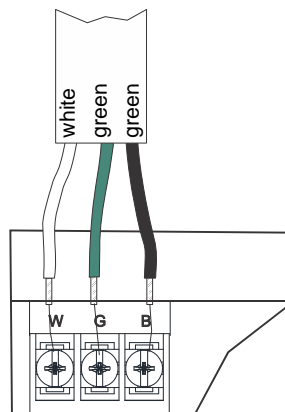


**Figure 4.5  AC Power Connection**

## 4.5  Battery Power

The batteries must be sealed lead acid type. Before connecting the batteries to the FACP, make certain that the interconnect cable between the batteries is <u>not</u> connected. Do not connect the battery jumper cable until the system is completely installed. Observe polarity when connecting the batteries.

⚠ **WARNING:   RISK OF PERSONAL INJURY**

BATTERY CONTAINS SULFURIC ACID WHICH CAN CAUSE SEVERE BURNS TO THE SKIN AND EYES AND CAN DESTROY FABRICS. IF CONTACT IS MADE WITH SULFURIC ACID, IMMEDIATELY FLUSH THE SKIN OR EYES WITH WATER FOR 15 MINUTES AND SEEK IMMEDIATE MEDICAL ATTENTION

The control panel battery charge capacity is 17 to 55 AH. Use 12V batteries of the same AH rating. Determine the correct AH rating as per the standby load calculation (see Section 3.5).

Wire batteries in series to produce a 24-volt equivalent. Do not parallel batteries to increase the AH rating. It is recommended to replace batteries every five years.
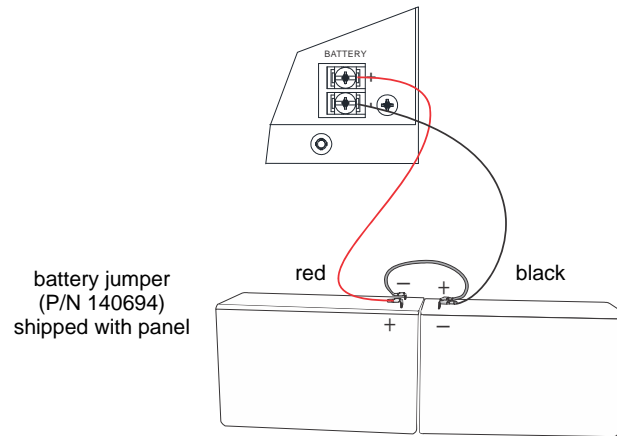


**Figure 4.6  Battery Connection**

## 4.5.1  Battery Accessory Cabinets

Model RBB or AB-55 accessory cabinets can be used when your backup battery requirements use batteries that are too large to fit into the main control panel cabinet. The RBB cabinet holds batteries up to the 35 AH size. The RBB dimensions are 16" W x 10" H x 6" D (40.64 cm W x 25.4 cm H x 15.24 cm D). The AB-55 Accessory cabinet holds batteries up to the 55AH size. The AB-55 dimensions are 20" W x 11.5" H x 7.5" D (50.8 cm W x 30.48 cm H x 19.05 cm D).

### Installing the RBB or AB-55 Accessory Cabinet and Batteries

To properly install the accessory cabinet and backup batteries, follow these steps:

1.   Mount the accessory cabinet. See Figure 4.7 for the four cabinet mounting holes.
   - If mounting onto drywall the accessory cabinet must be mounted onto 3/4-inch plywood. This is necessary because the weight of the batteries inside the accessory cabinet could cause the cabinet to pull away from the drywall.
   - When mounting on concrete, especially when moisture is expected, attach a piece of 3/4-inch plywood to the concrete surface and then attach the RBB/AB-55 cabinet to the plywood.
   - If using the battery cable extenders provided (P/N 140643), mount the RBB/AB-55 cabinet no more than 18" away from the main control panel cabinet. This will ensure that the battery cables reach the battery terminals.
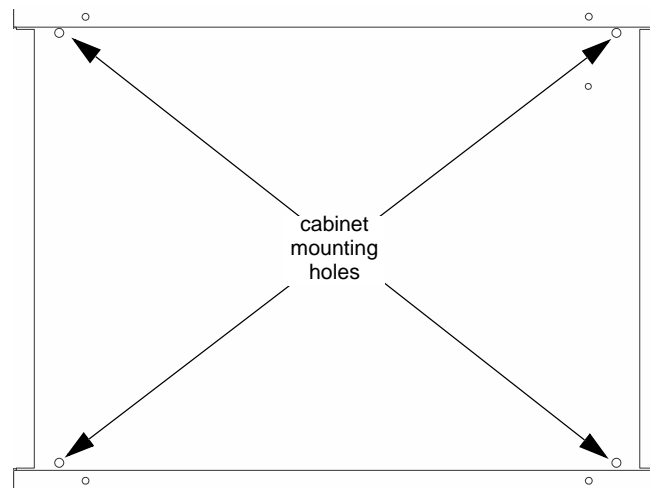
**Figure 4.7  RBB/AB-55 Cabinet Mounting Holes**

2.  Connect the main control panel battery cables to the battery cable extenders as shown in Figure 4.8.
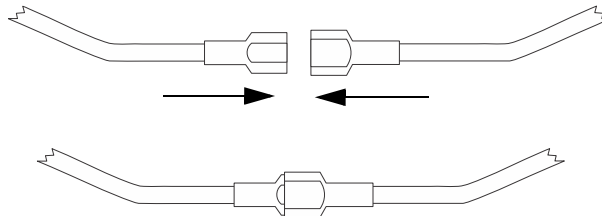


**Figure 4.8  Splicing Control Panel Battery Cable to RBB/AB-55 Battery Cable Extenders**

3.  Run extended battery cable from control panel cabinet through conduit to RBB/AB-55 cabinet as shown below.
4.  Connect battery leads to the backup battery terminals. Observe the proper polarity to prevent damage to the batteries or the control panel.
5.  Insert the RBB/AB-55 cover screws into the cover mounting holes and screw down most of the way. Do not tighten.
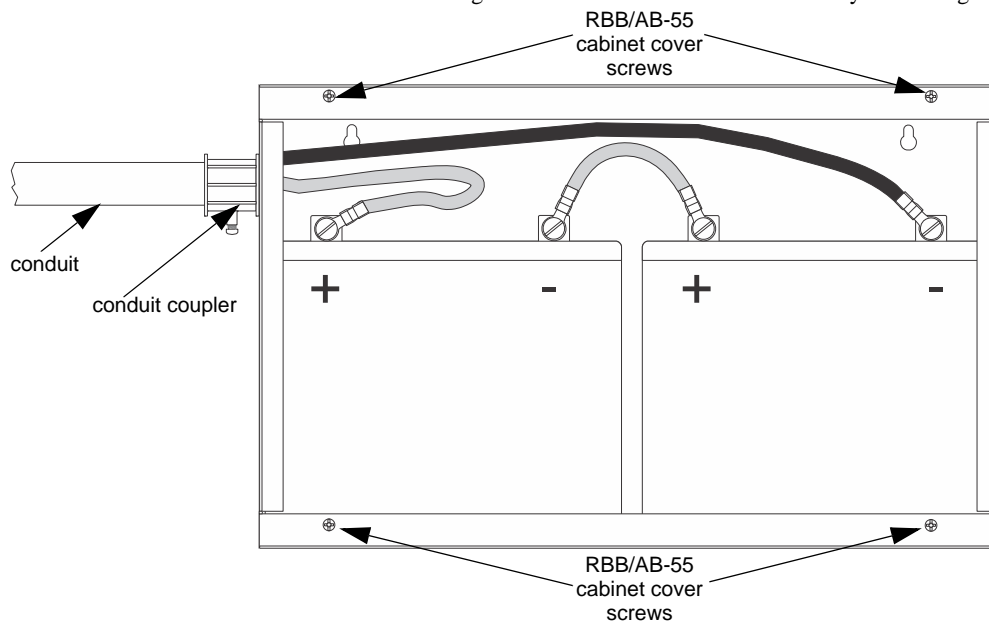


**Figure 4.9  Battery Connections in the RBB/AB-55 Cabinet**

**NOTE:**   Figure 4.4 is an example of how the wire connections can be routed. However, any other cabinet knock-outs (on either the main control panel or the RBB/AB-55 cabinet), that are not previously being used may be utilized to connect conduit between the two cabinets.

6.  Align the cover plate mounting keyhole over the cover mounting screws.

7.  Slide the cover into place and tighten the cover mounting screws.
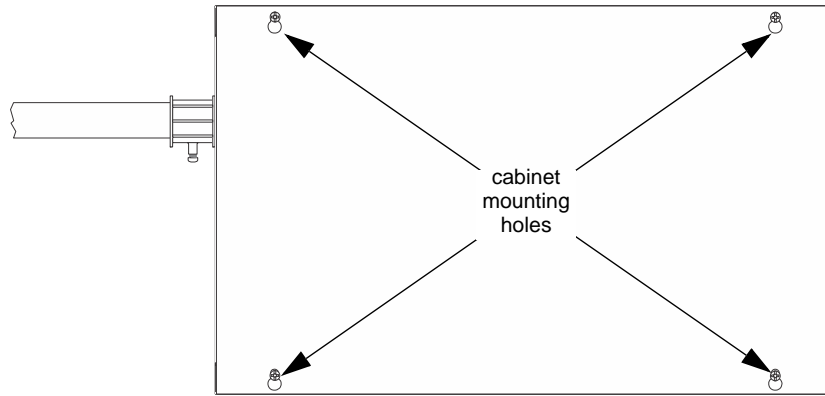


**Figure 4.10  Cover Plate Mounting Keyholes and Cover Mounting Screws Alignment**

## 4.6  SBUS Wiring

This section contains information on calculating SBUS wire distances and the types of wiring configurations (Class A and B).

### 4.6.1  Calculating Wiring Distance for SBUS Modules

The TR-2100 panel has two SBUS circuits which can support up to 1.0A of module load per SBUS circuit. When determining the type of wire and the maximum wiring distance that can be used, you will need to calculate loads for each SBUS to ensure that each SBUS does not exceed 1.0A.

To calculate the wire gauge that must be used to connect SBUS modules to the control panel, it is necessary to calculate the total worst case current draw for all modules on a single SBUS circuit. The total worst case current draw is calculated by adding the individual worst case currents for each module. The individual worst case values are shown in the table below. .

**NOTE:**  Total worst case current draw on a single SBUS cannot exceed 1 amp. If a large number of accessory modules are required, and the worst case current draw will exceed the 2 amps total, then the current draw must be distributed using TR-PS1 Power Expanders. Each TR-PS1 Power Expander provides an additional SBUS, with an additional 1 amp of SBUS current. Wiring distance calculations are done separately for each TR-PS1, and separately for each control panel SBUS.

| Model Number | Worst Case Current Draw |
|---|---|
| TR-RD1G/R, TR-RD2G/R Fire Annunciators | 0.120 amps |
| TR-6815 SLC Loop Expander | 0.078 amps |
| TR-5824 Serial/Parallel Printer Interface Module | 0.040 amps |
| TR-5880 LED I/O Module | 0.250 amps |
| TR-5865 LED Annunciator | 0.200 amps |
| TR-PS1 Intelligent Power Supply | 0.010 amps |
| TR-50W | 0.010 amps |
| TR-125W | 0.010 amps |
| ECS-NVCM Network Voice Control Module | 0.059 amps |
| ECS-EMG NVCM keypad | 0.06 amps |
| TR-DUAL50W | 0.010 amps |
| TR-DUAL50W with TR-50WBU | 0.010 amps |
| TR-NIC Network Interface Card | 0.021 amps |
| TR-F485C Fiber Converter | 0.125 amps |

**Table 4.1  SBUS Device Current Draw**

**NOTE:**  Refer to Table 3.2 for the maximum number of each type of device that can be used per system.

After calculating the total worst case current draw, refer to Table 4.2 below for the maximum distance the modules can be located from the panel on a single wire run. The table ensures 6.0 volts of line drop maximum. In general, the wire length is limited by resistance, but for heavier wire gauges, capacitance is the limiting factor.

These cases are marked in the chart with an asterisk (*). Maximum length can never be more than 6,000 feet, regardless of gauge used. The formula used to generate this chart is shown in the note below.The following formulas were used to generate the wire distance chart:

| Wiring Distance: SBUS Modules to Panel | | | | |
|---|---|---|---|---|
| Total Worst Case Current Draw (amps) | 22 Gauge | 18 Gauge | 16 Gauge | 14 Gauge |
| 0.100 | 1852 ft. | 4688 ft. | * 6000 ft. | * 6000 ft. |
| 0.200 | 926 ft. | 2344 ft. | 3731 ft. | 5906 ft. |
| 0.300 | 617 ft. | 1563 ft. | 2488 ft. | 3937 ft. |
| 0.400 | 463 ft. | 1172 ft. | 1866 ft. | 2953 ft. |
| 0.500 | 370 ft. | 938 ft. | 1493 ft. | 2362 ft. |
| 0.600 | 309 ft. | 781 ft. | 1244 ft. | 1969 ft. |
| 0.700 | 265 ft. | 670 ft. | 1066 ft. | 1687 ft. |
| 0.800 | 231 ft. | 586 ft. | 933 ft. | 1476 ft. |
| 0.900 | 206 ft. | 521 ft. | 829 ft. | 1312 ft. |
| 1.000 (Max) | 185 ft. | 469 ft. | 746 ft. | 1181 ft. |

**Table 4.2  Wire Distances Per Wire Gauge Using Copper Wire**

$$\text{Maximum Resistance (Ohms)} = \frac{6.0 \text{ Volts}}{\text{Total Worst Case Current Draw (amps)}}$$

$$\text{Maximum Wire Length (Feet)} = \frac{\text{Maximum Resistance (Ohms)}}{Rpu} * 500$$
(6000 feet maximum)

where: Rpu = Ohms per 1000 feet for various wire gauges (see table below)

| Wire Gauge | Ohms per 1000 feet (Rpu) |
|---|---|
| 22 | 16.2 |
| 18 | 6.4 |
| 16 | 4.02 |
| 14 | 2.54 |

**Table 4.3  Typical Wire Resistance Per 1000 ft. Using Copper Wire**

## ■ Wiring Distance calculation example:

Suppose a system is configured with the following SBUS modules:

2 - Module TR-RD2 Fire Annunciators

1 - TR-PS1 Intelligent Power Expander

1 - TR-5865 LED Annunciator

1 - TR-5824 Serial/Parallel Interface Module

The total worst case current is calculated as follows:

| | | |
|---|---|---|
| TR-RD2G-D Current Draw | = 2 x 0.120 amps | = 0.240 amps |
| TR-PS1 Current Draw | = 1 x 0.010 amps | = 0.010 amps |
| TR-5865 Current Draw | = 1 x 0.200 amps | = 0.200 amps |
| TR-5824 Current Draw | = 1 x 0.040 amps | = 0.040 amps |
| Total Worst Case Current Draw | | = 0.490 amps |

**Table 4.4  Worst Case Current Draw**

**NOTE:**   For assistance with SBUS calculations, please refer to www.trigaglobal.com.

Using this value, and referring to the Wiring Distance table, it can be found that the available options are:

 370 feet maximum using 22 Gauge wire

 938 feet maximum using 18 Gauge wire[

1493 feet maximum using 16 Gauge wire

2,362 feet maximum using 14 Gauge wire

## 4.6.2  Wiring Configurations

Figure 4.11 illustrates SBUS1 Class A wiring configuration and Figure 4.12 illustrates SBUS1 Class B configuration. SBUS 2 wiring configurations are the same as SBUS 1.
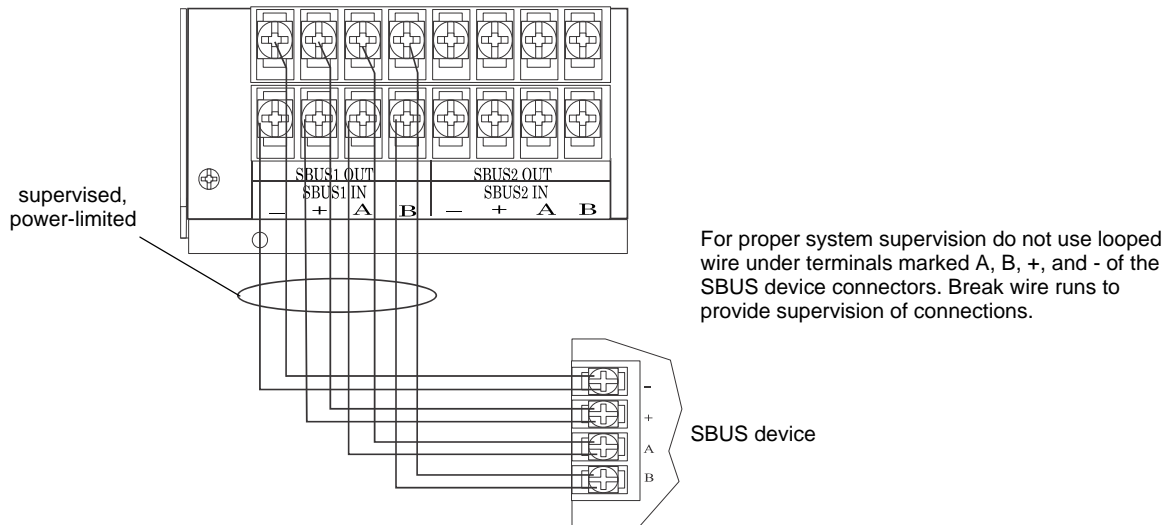


**Figure 4.11  SBUS Class A Wiring**
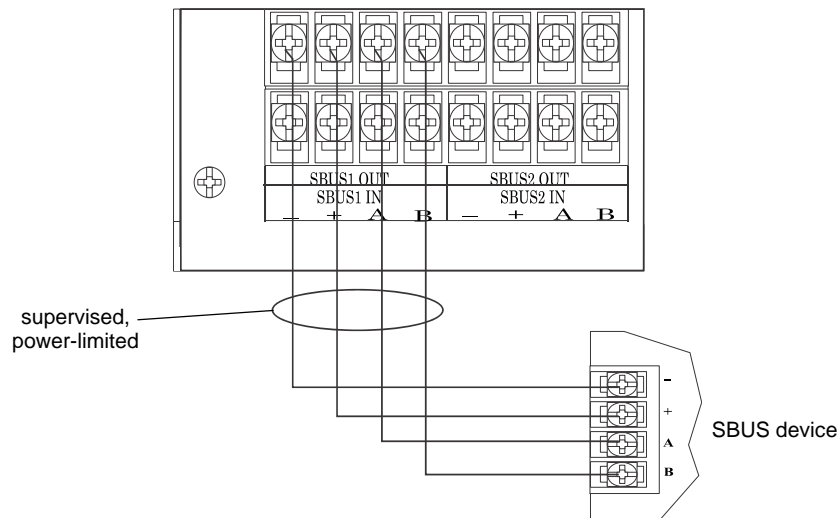


**Figure 4.12  SBUS Class B Wiring**

## 4.7  TR-RD1G/R Remote Annunciator Installation
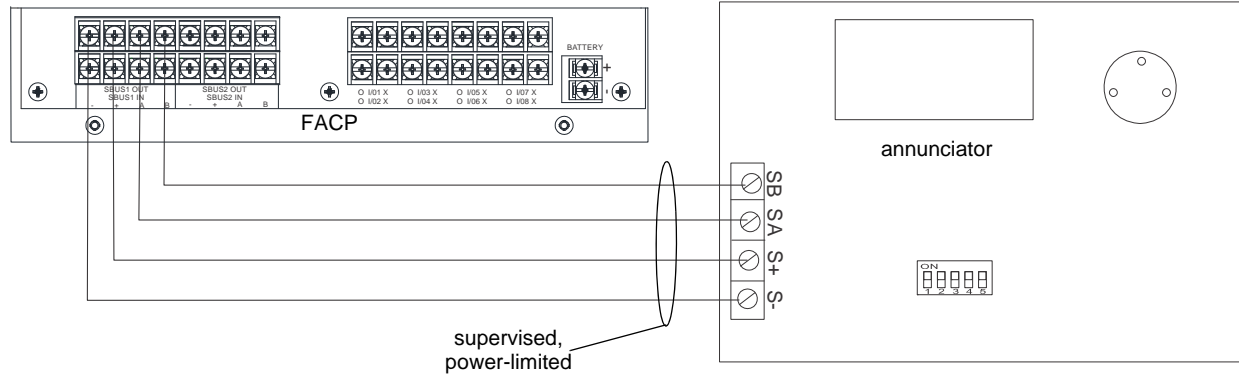


**Figure 4.13   Connection to the Panel**

The TR-RD1G/R is an optional remote annunciator. Up to 31 annunciators can be added to the TR-2100 system.
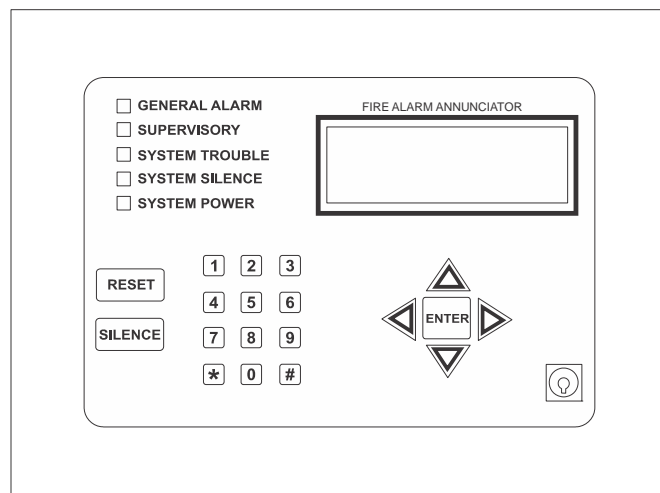


**Figure 4.14  TR-RD1G/R Remote Annunciator**

TR-RD1G/R installation involves the following steps:

1. Ensure the power is off at the panel.
2. Mount the TR-RD1G/R in the desired location (see Section 4.7.1).
3. Connect the TR-RD1G/R to the panel (see Figure 4.18).
4. Use the DIP switches on the back of the TR-RD1G-Rto assign an ID# to the annunciator (see Section 4.14.1).
5. The new TR-RD1G-R module must be added to the system through programming. JumpStart will add the module automatically (see Section 8.6.9). You can also add it manually (see Section 8.2.2). Select a name, if desired.

### 4.7.1  Mounting the TR-RD1G-R

This section of the manual describes mounting the remote annunciator. The annunciator can be flush- or surface-mounted. Figure 4.15 shows the parts of the annunciator. Instructions for disassembling and mounting appear on the following pages.
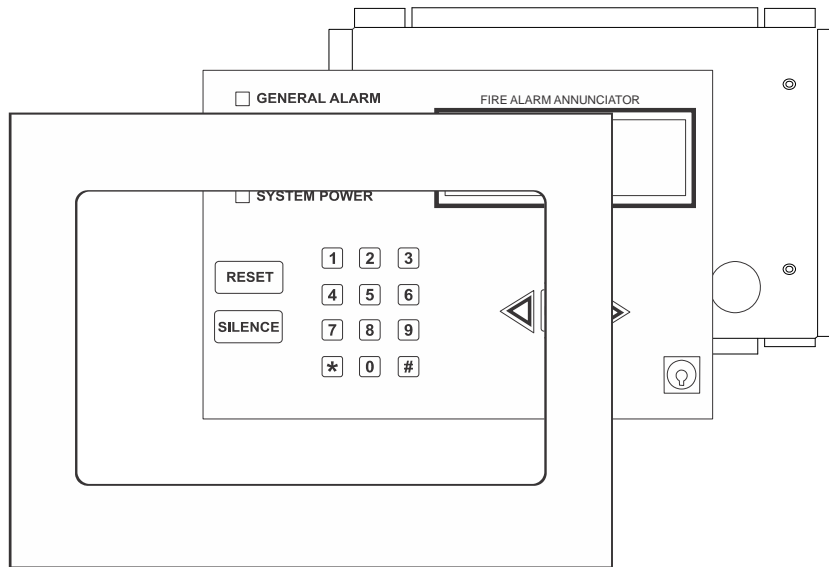
**Figure 4.15  TR-RD1G-RAnnunciator Parts**

The TR-RD1G/R comes from the factory fully assembled. You must disassemble it for mounting. To disassemble the annunciator, use a 5/64"2mm hex wrench to remove the set screws, located on the bottom of the annunciator bezel. (See Figure 4.16 for location of the set screws.)
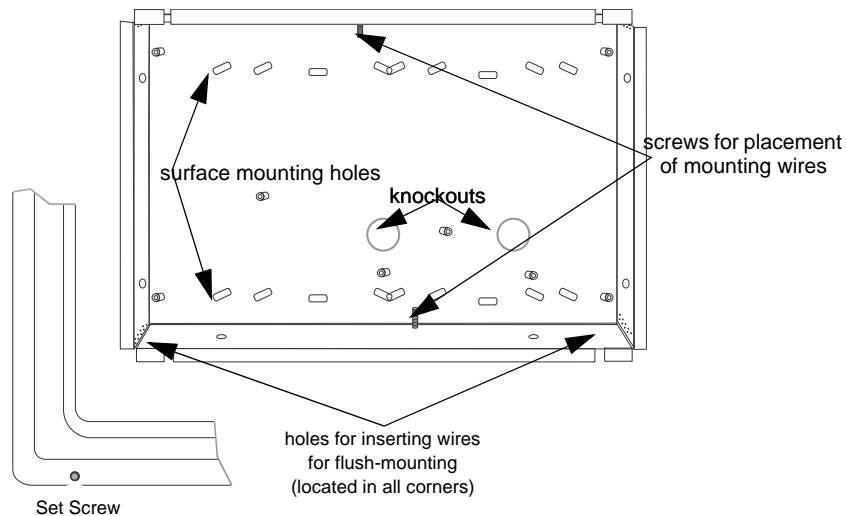


**Figure 4.16  Annunciator Backbox and Bezel Details**

## Flush Mounting

This section of the manual describes flush mounting. You can flush-mount with or without an electrical box.

### ■ Flush Mounting with an Electrical Box

The TR-RD1G/R annunciator can be used with the following types of electrical boxes: 4S, single-gang, and double-gang.

If an electrical box is used, the box must be 1-3/8" back from the face of the wall to accommodate the annunciator. Studs used with an electrical box must be 2x4" (or larger).

### ■ Flush Mounting Steps

1. Cut a hole in the sheet rock to the following dimensions: 8-1/4" W x 6-5/8"H. If an electrical box is used, the box must be 1-3/8" back from face of wall to accommodate the annunciator.
2. Remove knockout holes as needed for wires.
3. Fit the annunciator backbox into the hole and stabilize with mounting wires. Angle the mounting wires into the first hole past the sheet rock. Secure the wires behind the screws as shown in Figure 4.17. When all four wires are in place, the backbox should fit snugly into the hole in the sheetrock.
4. After the annunciator wiring to the panel has been completed (refer to Figure 4.18), replace the electronic assembly in the back box. Place the bezel over the back box and tighten the set screws on the bezel.

Attach second set of wires to top of backbox.



Secure wires behind screw.

Insert wires at an angle into the first holes past sheetrock.
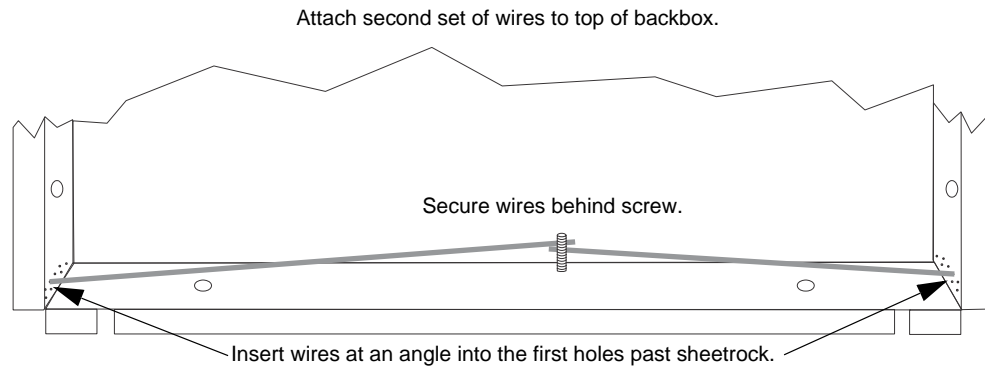
**Figure 4.17  Flush Mounting the Backbox**

## Surface Mounting

The TR-RD1G/R can be mounted directly to a surface or can be attached to a single, double, or four-square electrical box. Trim Ring Kit 5860TR/Gis available for use when surface mounting.

1.  Drill holes in the surface to match the screw holes on the backbox. Refer to Figure 4.16 for locations.
2.  Fit the trim ring over the backbox.
3.  Attach the backbox to the wall using screws provided.
4.  Wire the annunciator to the FACP as shown below.



supervised,
power-limited
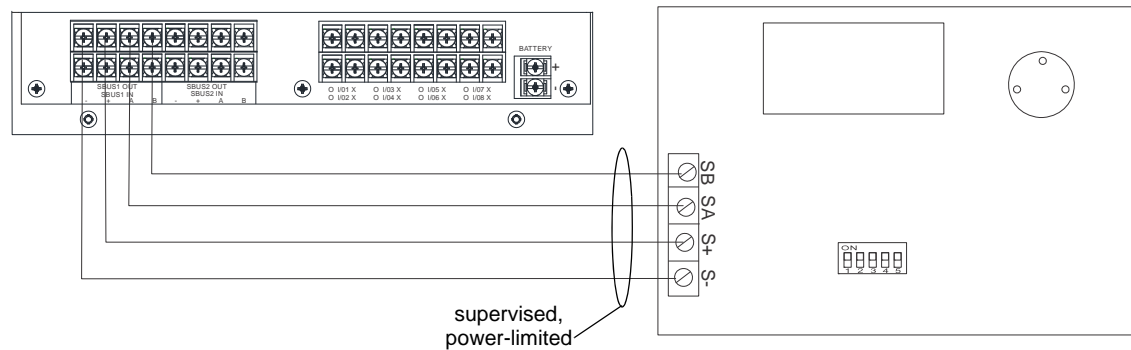
**Figure 4.18  TR-RD1G/R Connection to the Panel**

5.  Replace the electronic assembly in the backbox. Place the bezel over the backbox and tighten the set screws on the bezel. Refer to Figure 4.16 for location of set screws.

## 4.8  TR-RD2G/R Remote Annunciator Installation

The optional TR-RD2G/R Remote Annunciator can be surface or flush mounted.
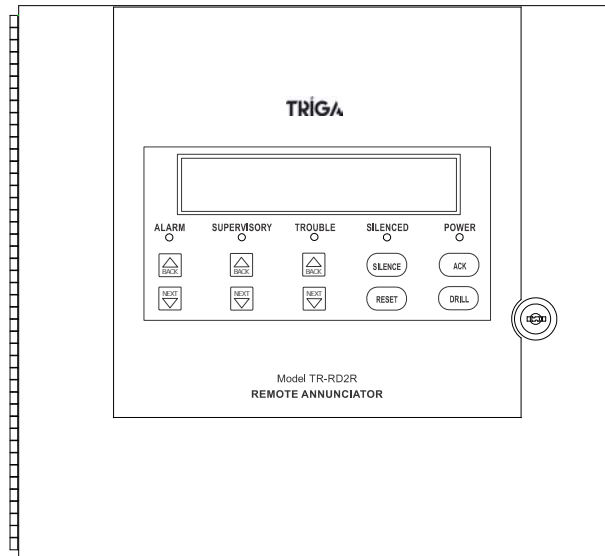


**Figure 4.19  TR-RD2G/R Remote Annunciator**

TR-RD2G/R installation involves the following steps:

1. Ensure power is off at the panel.
2. Mount the TR-RD2G/R in the desired location (see Section 4.8.1).
3. Connect the TR-RD2G/R to the panel (see Section 4.8.2).
4. Use the DIP switches on the back of the TR-RD2G/R to assign an SBUS ID# (see Section 4.14.1).
5. The TR-RD2G/R module must be added to the system through programming. JumpStart Auto-Programming will add the module automatically (see Section 8.6.9).

## 4.8.1  Mounting the TR-RD2G/R

This section of the manual describes mounting the remote annunciator. The annunciator can be flush or surface mounted.

### Flush Mounting

This section of the manual describes flush mounting. Follow these steps to flush mount theTR-RD2G/R.

1.  The back box dimensions are 9.25" W x 8.375" H. The minimum depth required is 2". Mount the backbox using the mounting holes shown below.
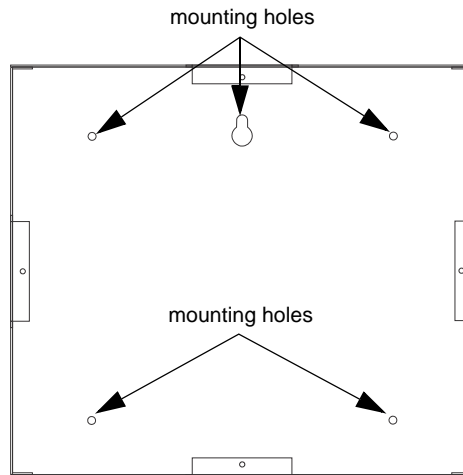


**Figure 4.20  TR-RD2G/R Backbox Mounting**

2.  Remove knockouts as needed for wires. There are 10 knockouts available, two on each side and two in the back of the cabinet.
3.  Wire the annunciator board to the main control panel as shown in Figure 4.23.
4.  Attach the annunciator and door assembly to back box as shown below using the supplied screws.
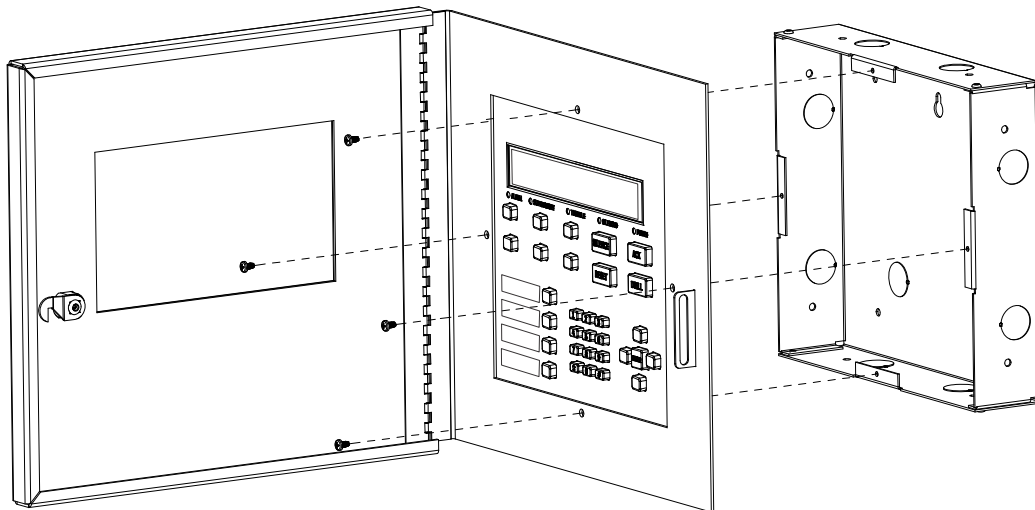


**Figure 4.21  Attaching Annunciator / Door Assembly to Backbox**

### Surface Mounting

The RA-100TR Red Trim Ring kit and RA-100TG Gray Trim Ring kit are available for use when surface mounting the TR-RD2G/R.

1.  Remove the desired knockout.
2.  Mark and pre-drill hole in the wall for the center top keyhole mounting bolt. Refer to Figure 4.20 for mounting hole locations.
3.  Install center top fastener in the wall with the screw head protruding.
4.  Place backbox over the top screw, level and secure.
5.  Mark and drill the left and right upper and lower mounting holes.
6.  Install remaining fasteners and tighten.
7.  Run wires to the control panel. Refer to Figure 4.23.

8.  Place the trim ring over the back box as shown below.
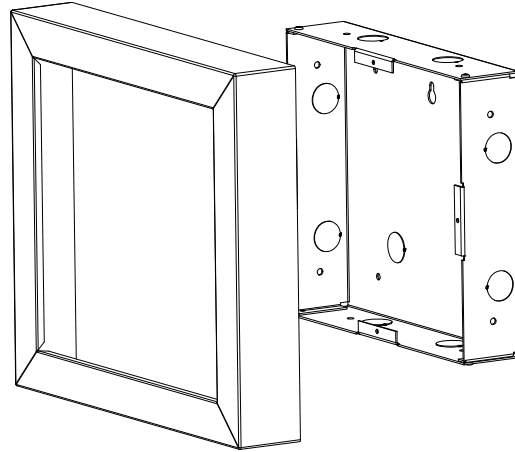


**Figure 4.22  Installing Trim Ring**

9.  Attach the door assembly to the backbox using the screws provided. Refer to Figure 4.21.

## 4.8.2  TR-RD2G/R Connection to the Panel

Connect the TR-RD2G/R to the panel as shown below.
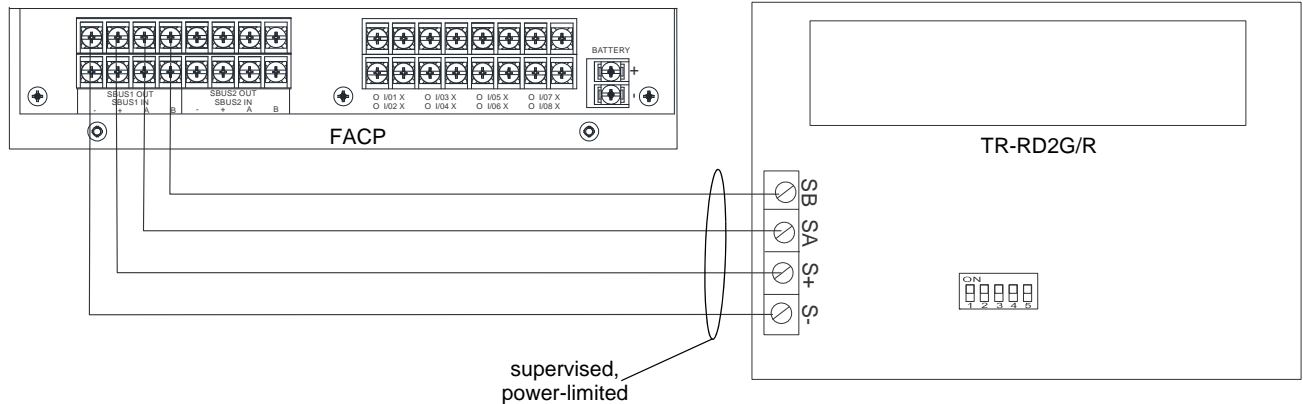


**Figure 4.23  TR-RD2G/R Connection to the Panel**

## 4.9  Temporary Programming Display

When a TR-R2100 is being initially set up, place a TR-RD2G/R on the panel at address 63 or a TR-RD1G/R at address 31 and power up the panel. This will initiate the Temporary Programming Display feature. This allows the TR-RD2G/R or TR-RD1G/R to act as the main annunciator for the TR-R2100 panel and allows access to the idle screen and menu system for programming. While in this mode, a trouble will be annunciated through the system to indicate the feature is being utilized. This is only available when no other annunciators are programmed into the system. When running JumpStart Auto-programming, the system will ask if the intention is to keep the display or remove it after programming.

When use of the Temporary Display is no longer necessary, power off the panel, remove the display, and power up the panel again.

## 4.10  TR-6815 Installation

The TR-6815 SLC expander lets you add additional addressable devices. The maximum number of SLC devices per panel is 2,100. The number of  s is limited by the maximum number of SBUS devices.

> **NOTE:**  An external TR-6815 will support wired or SWIFT SLC devices.

To install the TR-6815:

1.  Make sure power is off at the panel.
2.  Mount the TR-6815 in the TR-2100 cabinet, the TR-PS1 cabinet, or the TR-5815RMK remote mounting kit. Use the standoffs located under the control panel board assembly and secure with screws provided with the TR-6815. For additional information see the *TR-PS1 Installation Manual* or the *TR-5815RMK Installation Sheet*.
3.  Connect the TR-6815 to the control panel. (See Section 4.10.1.)
4.  Use the onboard DIP switches to select an SBUS ID#. (See Section 4.14.1.)

5.  Add the TR-6815 module to the system through programming. JumpStart will add the module automatically (see Section 7.1). You can also add it manually (see Section 8.2.2). Select a name, if desired (see "Naming Modules" on page 87).

You are now ready to connect SLC devices to the TR-6815 (see Section 8.5.1).

Figure 4.24 is a drawing of the TR-6815 board, showing the location of terminals and DIP switches.



DIP switches for setting IDs

to panel SBUS

to SLC loop

−  |  +  |  A  |  B
SBUS

SC-  |  S+  |  SC-  |  S+
SLC OUT  |  SLC IN
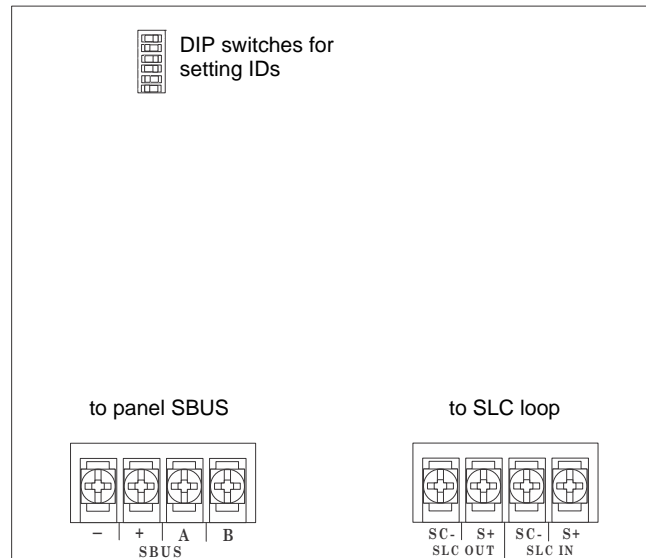
**Figure 4.24  TR-6815 Board**

## 4.10.1  TR-6815 Connection to the Panel

Connect the TR-6815 to the control panel as shown in Figure 4.25. After the TR-6815 is connected to the panel, it must be added to the system. This programming steps are described in Section 8.2.2.
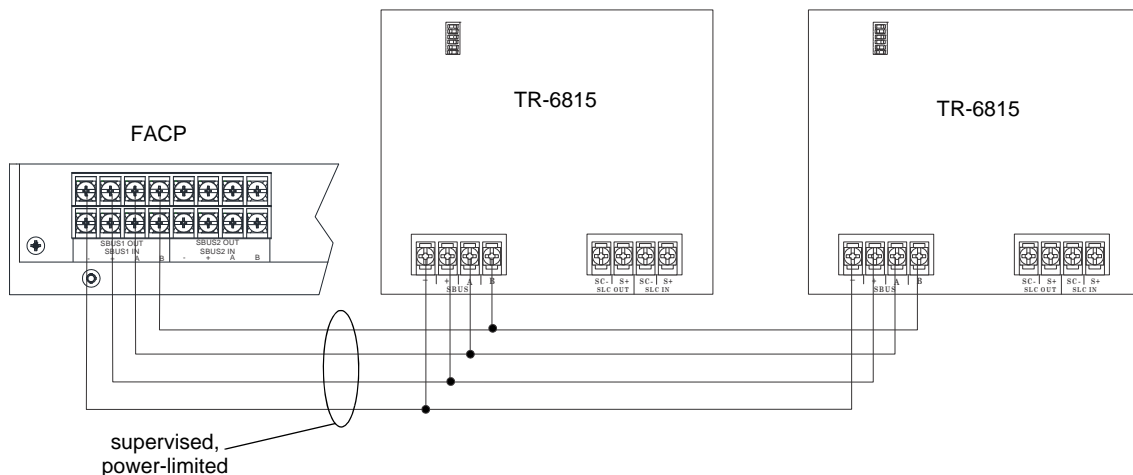


**Figure 4.25  TR-6815 Connection to Main Panel Assembly**

## 4.11  TR-5824 Serial/Parallel Interface Module Installation

The TR-5824 serial/parallel interface module allows you to connect a printer to the panel, so you can print a real-time log of system events. Instructions for installing the TR-5824 appear below. The TR-5824 is for ancillary use only.

TR-5824 installation involves the following steps:

1.  Ensure that all power has been removed from the FACP.
2.  Connect the TR-5824 to the FACP as shown in Figure 4.26.

**NOTE:**   There is a maximum of four TR-5824 modules allowed per panel.

3.  Use the DIP switches on the TR-5824 board to assign an SBUS ID# to the TR-5824 (see Section 4.14.1).

4.  Configure the TR-5824 device through programming. See Section 4.11.1 below.
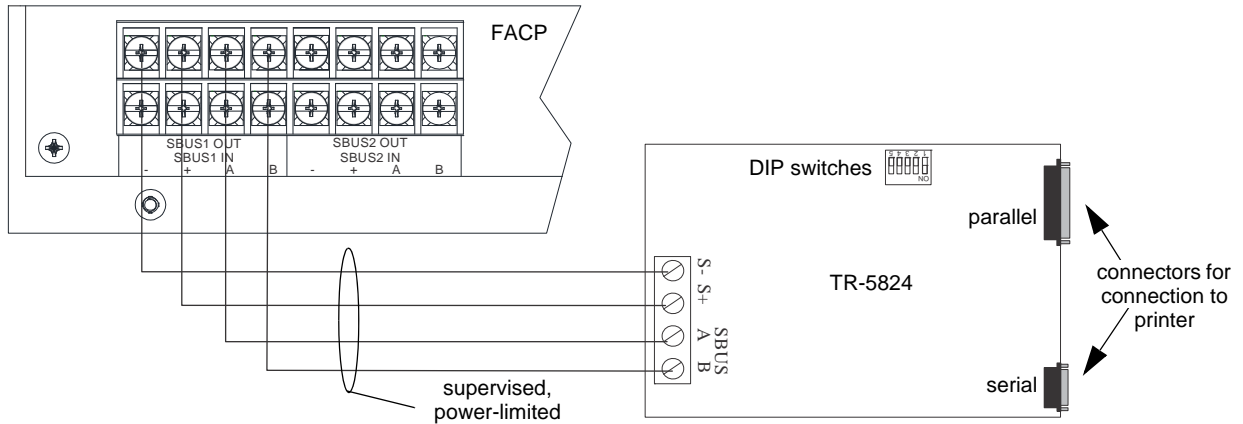


**Figure 4.26  TR-5824 Connection to the Panel**

## 4.11.1  Selecting TR-5824 Options

Configuring the TR-5824 includes the following steps:

1.  Add the module to the system. JumpStart will add the module automatically (see Section 7.1). You can also add it manually. See Section 8.2.2.
2.  Select a name, if desired (see "Naming Modules" on page 87).
3.  Select options for the printer and the output port.

### Printer and Output Port Options

1.  From the Main Menu, select 7 for Panel Programming.
2.  Select 1 for Module.
3.  Select 1 for Edit Module.
4.  From the list that displays, select the TR-5824 module you want to configure.
5.  Press right arrow twice to skip over the Enter Module ID and Enter Module Name options. A screen similar to the one shown in Figure 4.27 will display.
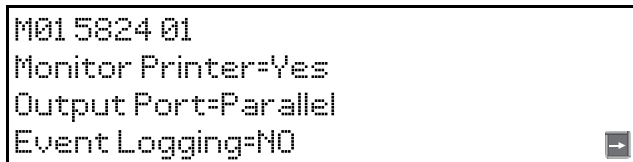


Select *Yes* if printer should be supervised for Out-of-Paper and Offline conditions.
Select type of printer, *Parallel* or *Serial*.
Event Logging is defaulted to *No*. Select *Yes* to enable.

**Figure 4.27  Selecting Printer and Output Port Options**

6.  Select options for the printer as needed for your installation. Most printers are parallel.

**NOTE:** When setting Monitor Printer to "Yes" the system defaults to printing only for the connected panels site. Use HFSS to configure the TR-5824 module to print for multiple sites.

7.  If you are using a serial printer, use the next screen to select serial port options as required for your printer. Refer to your printer manual if you need more information.

| Option | Choices |
| --- | --- |
| Baud Rate: | 75 - 19200 |
| Data Bits: | 5 - 8 |
| Stop Bits: | 0.5, 1, 2 |
| Parity: | None, Even, Odd |

**Table 4.5  Serial Printer Options**

## 4.12  TR-5880 LED I/O Module

The TR-5880 is an LED driver board that can be used in a wide variety of applications, including as an interface with most customized floor plan annunciator boards. The TR-5880 can drive up to 40 LEDs and has one PZT controller. The TR-5880 also has eight inputs for dry contact monitoring. The following sub-sections describe hardware installation. Refer to Section 8 for programming information.

## 4.12.1  TR-5880 Board Layout

Figure 4.28 shows the locations of screw terminals for connection to the panel and contact monitor wiring, pin connectors for connecting LEDs and the DIP switch for selecting an SBUS ID number for the TR-5880.

dry contact inputs- supervised, power-limited
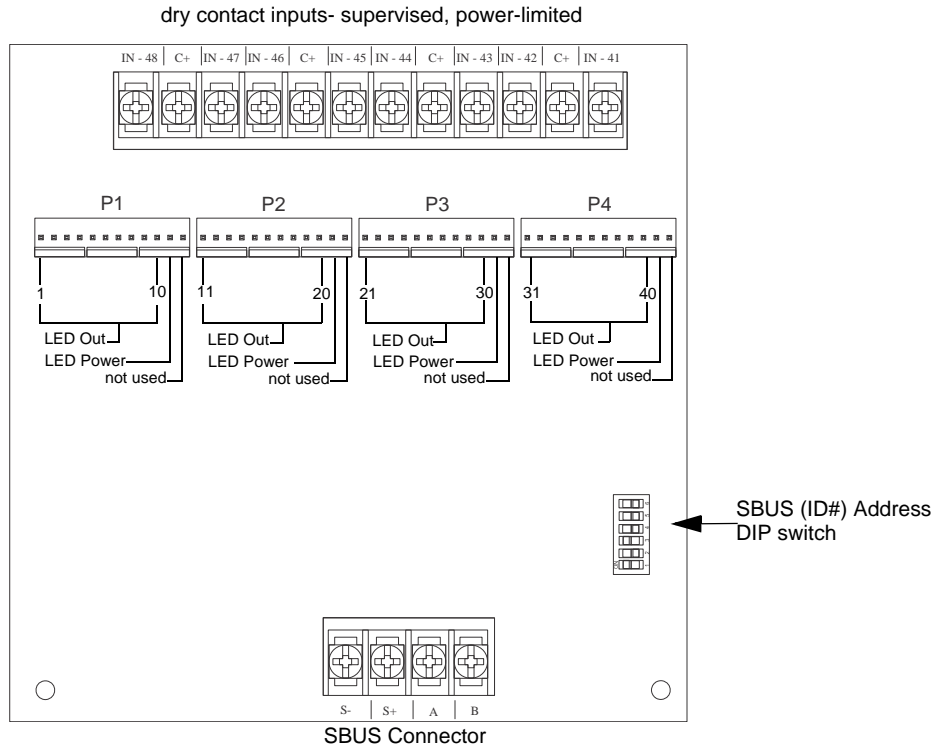


**Figure 4.28  TR-5880 Board Layout**

## 4.12.2  FACP Connection

The TR-5880 connects to the panel via the SBUS. Make connections as shown in Figure 4.29. After the TR-5880 is connected to the panel, it must be added to the system. This programming step is described in Section 8.2.2.
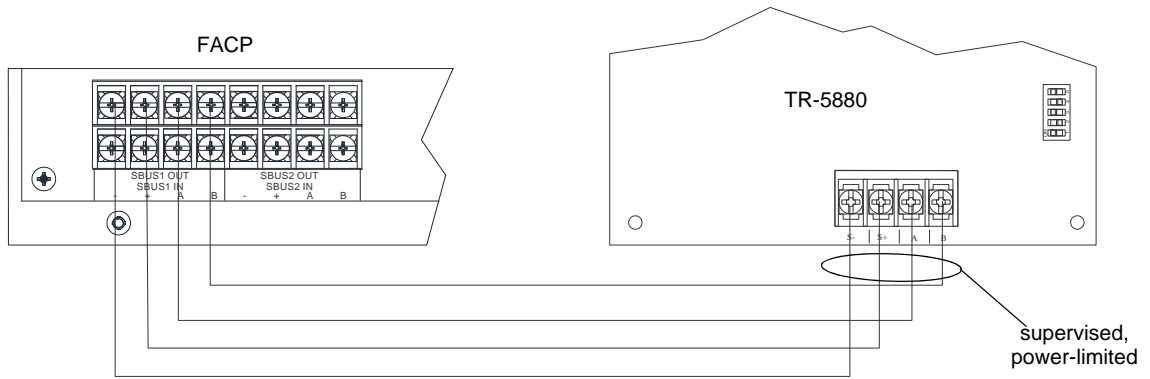


**Figure 4.29  TR-5880 Connection to Main Control Panel Assembly**

## 4.12.3  LED Wiring

There are four 12-pin connectors on the TR-5880 board for connecting LEDs. Each LED gets its power from Pin 11. Internal resistors are sized so that there is approximately 10 mA of current for each LED; no series resistors are required. LED outputs can be mapped to output circuits. See Section 8.5.3 for programming details.

Wire the LEDs as shown in Figure 4.30.

On connector P1, Pin 12 is an open collector output for controlling a piezo. If used, the TR-5880 piezo will match the piezo pattern of the onboard or remote annunciator.

**NOTE:**   The circuit connected to "Open Collector Output" (last pin on P1) must be current limited so that no more than 100 mA of current is allowed to flow into the open collector transistor.
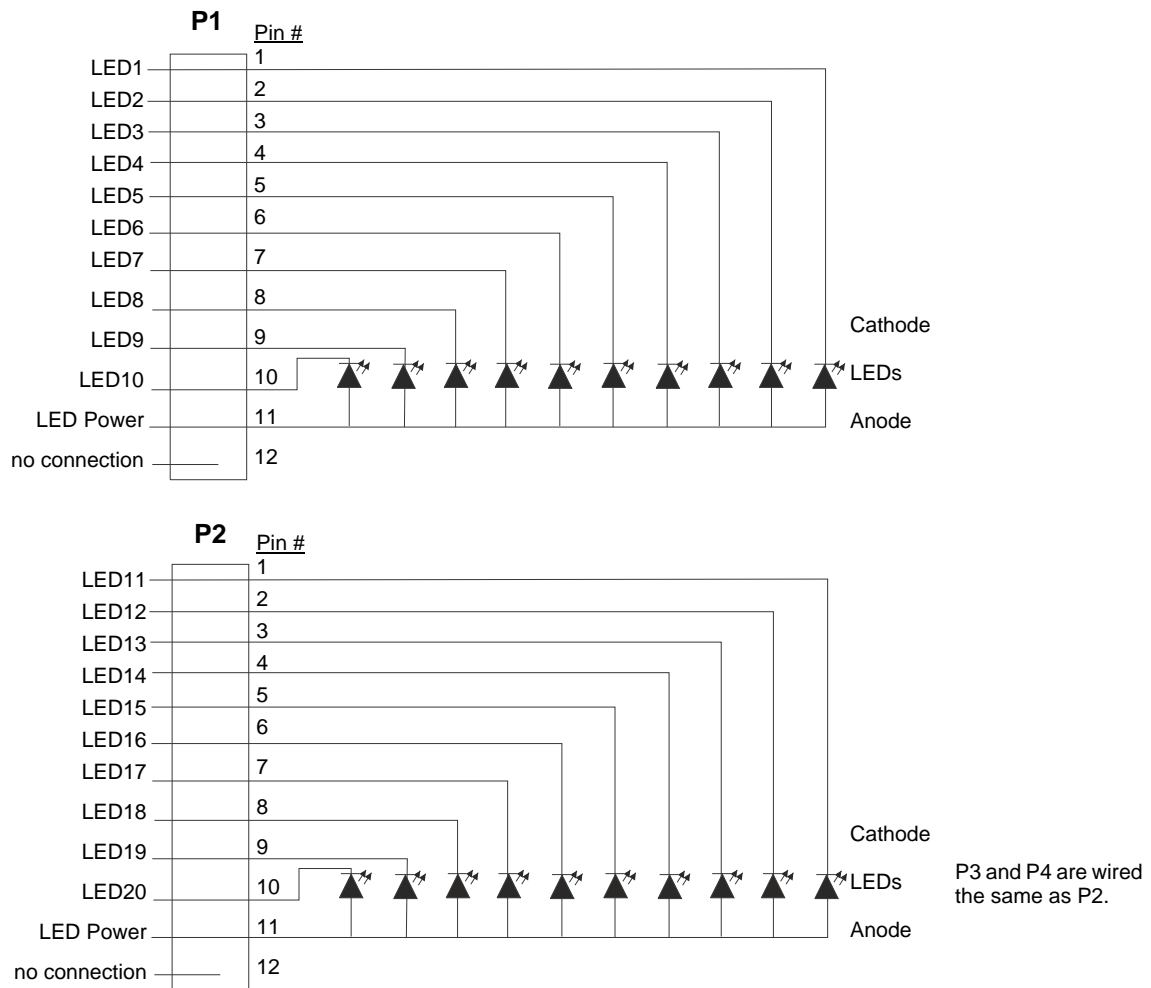
**Figure 4.30  TR-5880 Board Layout**

## 4.12.4  Dry Contact Wiring

The 8 input circuits on the TR-5880 board are for monitoring switch inputs. Any type of switch supported by the control panel can be used with the TR-5880. For example, you can use a TR-5880 to monitor pull stations, water flow, tamper, reset, or silence switches.

Wire dry contacts as shown in Figure 4.31. Notice grouping of terminals. Power terminals are shared by two inputs.
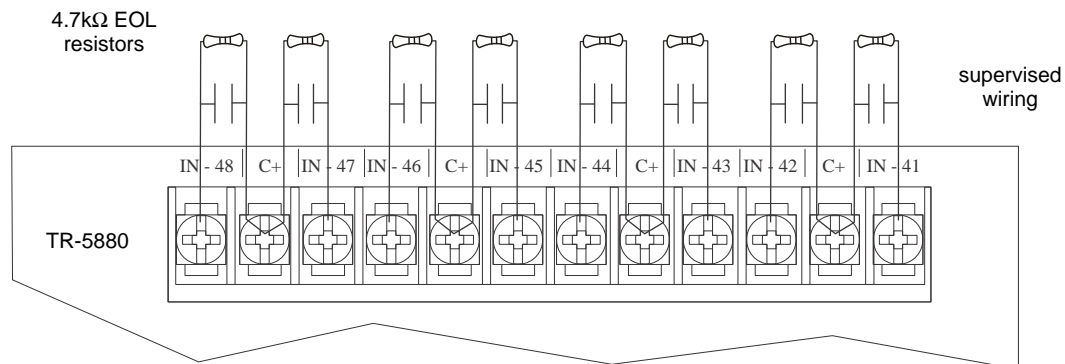


**Figure 4.31  Dry Contact Wiring**

## 4.13  TR-5865-3 / TR-5865-4 LED Annunciator Installation

The TR-5865-3 and TR-5865-4 are LED annunciators. The TR-5865-4 has 30 mappable LEDs, remote fire system silence and fire system reset key switches, and a general system trouble LED. The TR-5865-3 has 30 mappable LEDs only. These are arranged as 15 pairs of red (typically used for alarm) and yellow (typically used for trouble) LEDs.

Installation of the TR-5865-3 and TR-5865-4 is identical. The keyswitches and the trouble LED follow the behavior of other system annunciators and do not require any installation steps. The following sub-sections describe how to install the TR-5865-3 and TR-5865-4 hardware. Refer to Section 8 for programming information.

**NOTE:** This manual uses "TR-5865" when referring to aspects of the TR-5865-3 and TR-5865-4 that are common to both models.
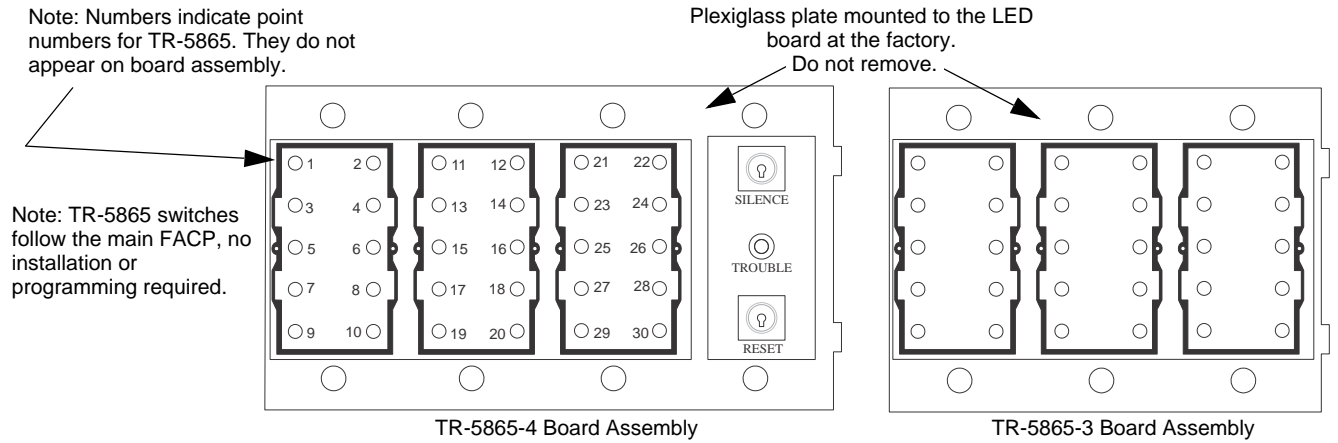


**Figure 4.32  TR-5865-3 and TR-5865-4 Assembly (Front View)**

## 4.13.1  FACP Connection

The TR-5865 connects to the panel via the SBUS. Make connections as shown below. After the TR-5865 is connected to the panel, it must be added to the system. This programming step is described in Section 8.2.2.
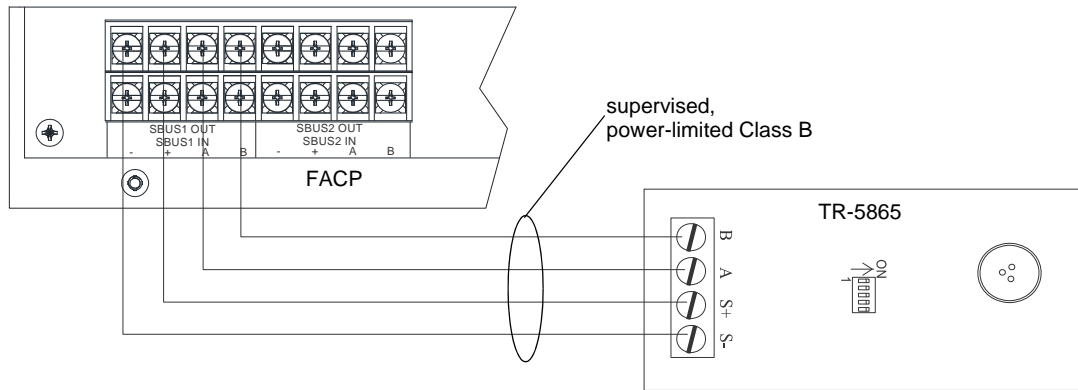


**Figure 4.33  TR-5865 Connection to the FACP**

## 4.13.2  TR-5865 Mounting

Mount the TR-5865-4 to a standard 4-gang electrical box. Mount the TR-5865-3 to a standard 3-gang electrical box. In Figure 4.34, the TR-5865-4 attached to a 4-gang box, is used as an example.
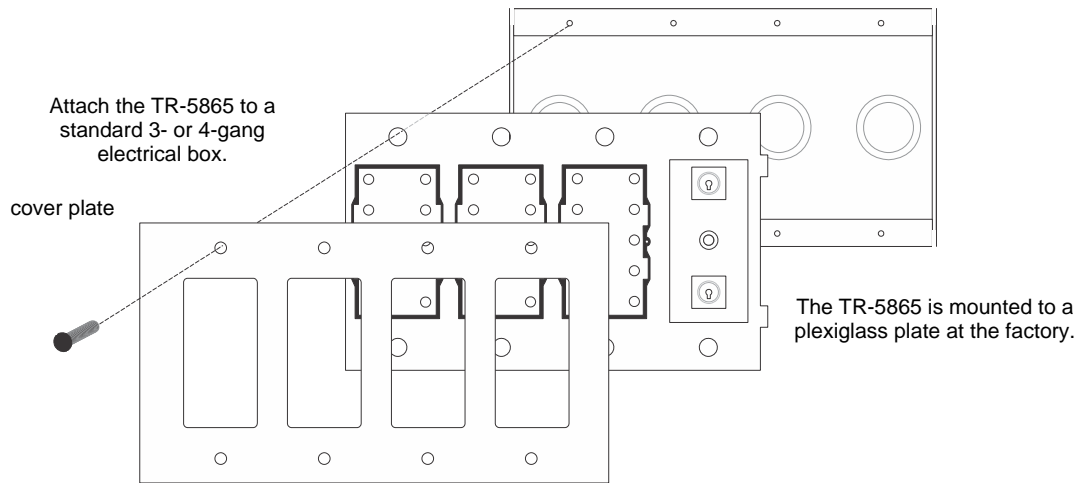


**Figure 4.34  TR-5865 Mounting Example**

The TR-5865 ships with a set of zone description labels that can be inserted into the TR-5865 board assembly. These labels can be used in a typewriter or can be written on by hand. Slide the labels under the plexiglass as shown in Figure 4.35. The LEDs will show through the label when illuminated.
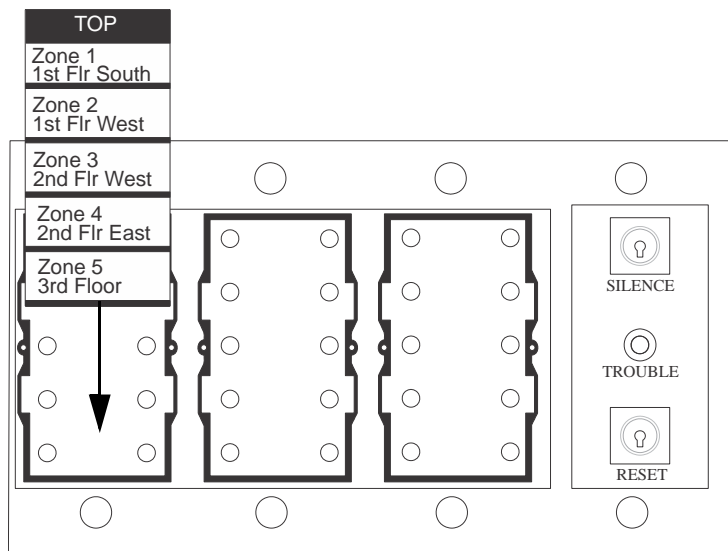


**Figure 4.35  Inserting Zone Description Labels**

## 4.14  Configuring SBUS Modules

This section describes how to configure any system hardware modules that have been added to the system.

### 4.14.1  Assigning SBUS Module IDs

SBUS devices on a panel are addressed from 1 to 63 and are connected to either SBUS 1 or SBUS 2. Although the addressing scheme allows 63 SBUS devices to be connected to a panel, the actual number is limited by current draw and SBUS bandwidth usage as discussed below. When installing a hardware module (see Table 4.1 for a list of compatible devices), you must use the DIP switches on the module to assign an ID number to the module. Address zero is an invalid address and is not allowed.

Figure 4.36 shows all possible DIP switch positions and their correlation to a numerical ID. For example, to select ID 2, place DIP switch 2 in the up or on position.

ON

OFF
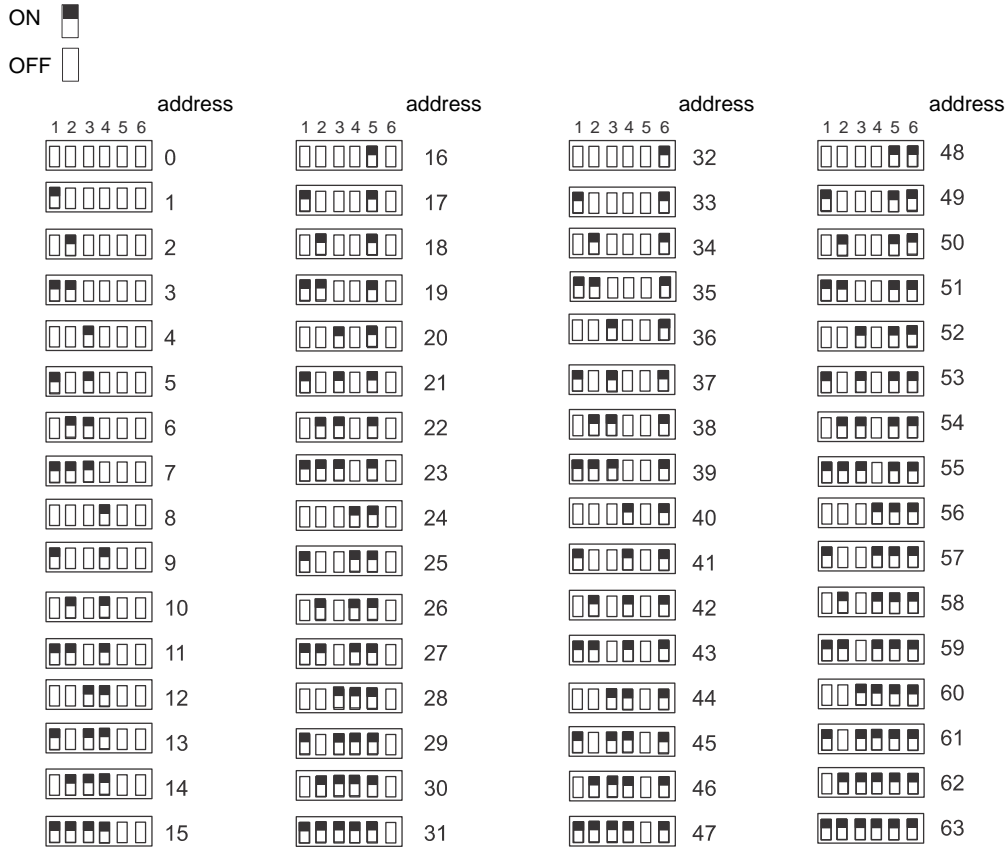


**Figure 4.36  Possible SBUS Module Addresses**

Refer to Section 8.2 to edit, add, delete, and view module list.

## 4.14.2  SBUS Bandwidth Considerations

Each SBUS device generates a certain amount of traffic on the SBUS. Generally, the amount of traffic generated depends on the type of SBUS device. To help you figure out the SBUS bandwidth usage of a given collection of devices, a tool is available on the Triga website (www.trigaglobal.com). The tool will serve as a guide to help determine how heavily loaded an SBUS is with respect to bandwidth. We recommend you use this tool if you plan to have more than eight SBUS devices per SBUS. Remember to include devices that are on TR-PS1 SBUS repeaters in your list of devices for SBUS bandwidth calculations. Refer to Section 4.6.1.

## 4.15  Telephone Connection

Connect the telephone lines as shown in Figure 4.37. The 7860 phone cord is available from Triga for this purpose. If you do not use the model 7860 to connect to the phone lines, the wire used for the connection must be 26 AWG or larger diameter wire.

A number of programmable options are available for customizing telephone lines. These options are described in "Phone Lines" on page 99.
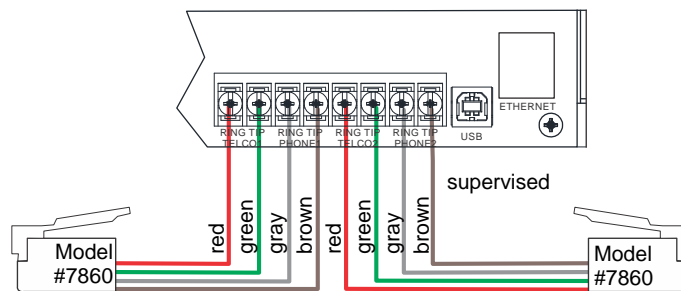


**Figure 4.37  Connection of Telephone Lines**

## 4.16 Flexput I/O Circuits

The eight Flexput circuits are an innovative and versatile feature of the control panel. They can be used as: Class A or B notification circuits, Class A or B initiation circuits (either 2- or 4-wire detectors), or as auxiliary power (resettable, continuous, sounder base sync, or door holder).

The polarity of the Flexput terminals differs depending on whether the circuit is programmed as an input or an output circuit. If the circuit is programmed as an input circuit (for a detector or normally open contact) the X terminal is negative and O terminal is positive. If the circuit is programmed as an output circuit (Aux power or NAC) then the X terminal is positive and the O terminal is negative.

**NOTE:** Where power to a device or appliance is supplied over a separate pathway from the notification appliance and/or SLC, the operation of the power pathway shall meet the performance requirements of the, notification appliance, and/or signaling-line circuit(s) and the power circuit shall be defined by the applicable class in the product installation wiring diagram/instructions consistent with the operation of the particular power pathway.

### 4.16.1 Conventional Notification Appliance

This sub-section of the manual explains how to install conventional notification appliances for Class A and Class B configurations.

### Class B Notification Wiring

You must use an appliance listed in the *Device Compatibility Document*.

To install a circuit:

1.  Wire Class B notification appliances as shown in Figure 4.38.
2.  Configure the circuit through programming (see Section 8.5).
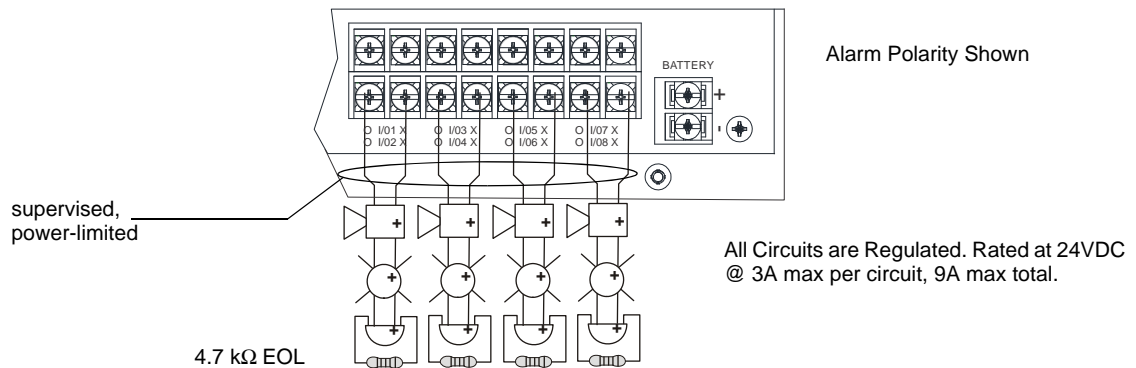


**Figure 4.38  Class B Notification Appliance Circuit Wiring**

Maximum voltage drop is 3V per Class B notification.

| Current | Maximum Impedance |
| --- | --- |
| 1.0A | 3Ω |
| 1.5A | 2Ω |
| 2.0A | 1.5Ω |
| 2.5A | 1.2Ω |
| 3.0A | 1.0Ω |

**Table 4.6  Maximum Impedance Class B**

### Class A Notification Wiring

You must use an appliance listed in the *Device Compatibility Document*.

To install a Class A notification appliance circuit:

1.  Wire the Class A notification appliances as shown in Figure 4.39.

**CAUTION:  SYSTEM SUPERVISION**

FOR PROPER SYSTEM SUPERVISION DO NOT USE LOOPED WIRE UNDER TERMINALS MARKED – AND + OF THE NAC CIRCUIT. BREAK WIRE RUNS TO PROVIDE SUPERVISION OF CONNECTIONS.

2.    Configure the circuit for Class A in programming (see Section 8.5).
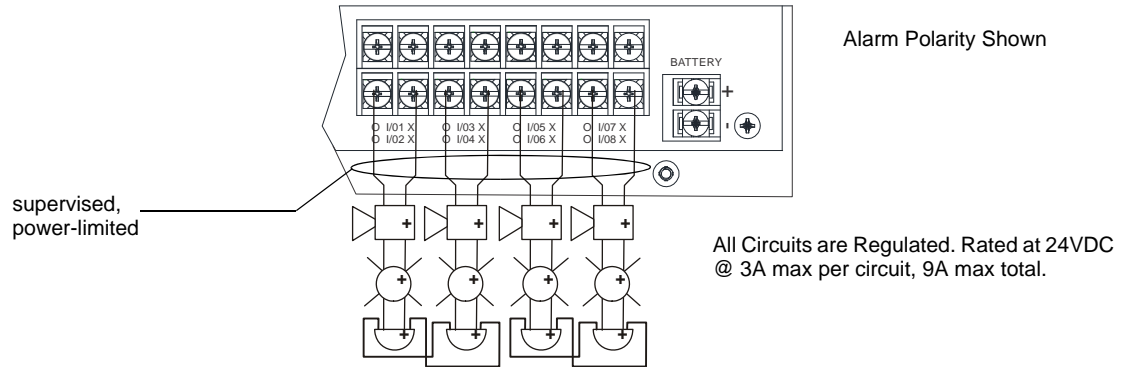


**Figure 4.39  Class A Notification Appliance Circuit Wiring**

**NOTE:**   In programming any point that uses multiple Flexput circuits, the lowest Flexput circuit number is used to refer to the circuit pair. For example, Figure 4.39 uses both Flexput circuit 1 and 2, so in programming, these would be referred to as point 1.

Maximum voltage drop is 3V per Class A circuit. See Table 4.7.

| Current | Maximum Impedance |
|---------|-------------------|
| 1.0A | 3Ω |
| 1.5A | 2Ω |
| 2.0A | 1.5Ω |
| 2.5A | 1.2Ω |
| 3.0A | 1.0Ω |

**Table 4.7  Maximum Impedance Class A**

## 4.16.2  Conventional Input Switch Circuits

This section of the manual explains how to install conventional initiating devices for Class A or Class B configurations.

### Class B Inputs

You can connect conventional Class B switches, such as waterflow switches and pull stations, directly to the Flexput circuits of the control panel.

To install a Class B switch, do the following.

1.    Wire the Class B switch as shown in Figure 4.40.
2.    Configure the circuit through programming (see Section 8.5).
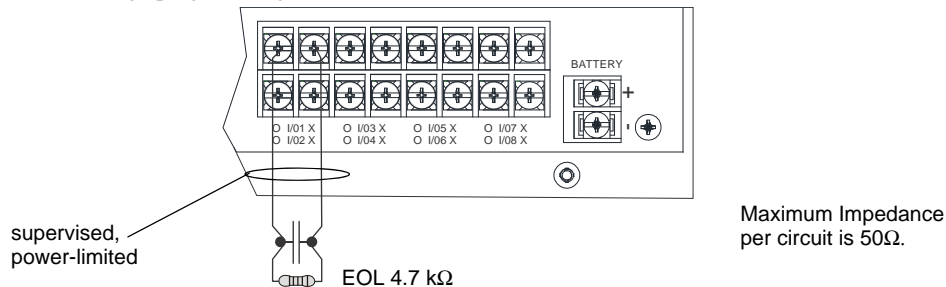


**Figure 4.40  Class B Input Switches**

### Class A Inputs

You can connect conventional Class A switches, such as waterflow switches and pull stations, directly to the Flexput circuits of the control panel.

To install a Class A switch:

1.    Wire the Class A switch as shown in Figure 4.41.

2.   Configure the circuit through programming (see Section Section 8.5).

Flexput Circuit 1 and 2 are
used as an example. Any
Flexput pair can be used.

BATTERY

Maximum Impedance
per circuit is 50Ω.

O I/01 X   O I/03 X   O I/05 X   O I/07 X
O I/02 X   O I/04 X   O I/06 X   O I/08 X

supervised,
power-limited
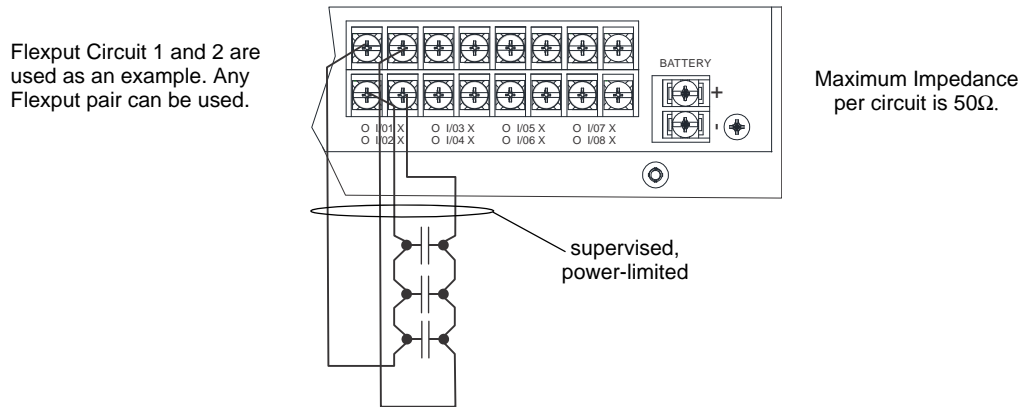
**Figure 4.41  Class A Initiating Switches**

> **NOTE:**   In programming any point that uses multiple Flexput circuits, the lowest Flexput circuit number is used to refer to the circuit pair. For example, Figure 4.41 uses both Flexput circuit 1 and 2, so in programming it would be referred to as point 1.

## 4.16.3  Installing 2-Wire Smoke Detectors

Any compatible, UL-listed two-wire smoke detector can be used with the control panel. Refer to the *Device Compatibility Document* for a list of devices. Figures 4.42 and 4.43 illustrate how to connect a UL-listed 2-wire detector to the control panel.

### Installing 2-Wire Class B Smoke Detectors

To install a Class B two-wire smoke detector, wire as shown in Figure 4.42.

Flexput Circuit 8 is used as an
example. Any Flexput circuit
can be used

BATTERY

O I/01 X   O I/03 X   O I/05 X   O I/07 X
O I/02 X   O I/04 X   O I/06 X   O I/08 X

Maximum Impedance per circuit is 50Ω.

supervised,
power limited

EOL 4.7 kΩ

+       +

-       -
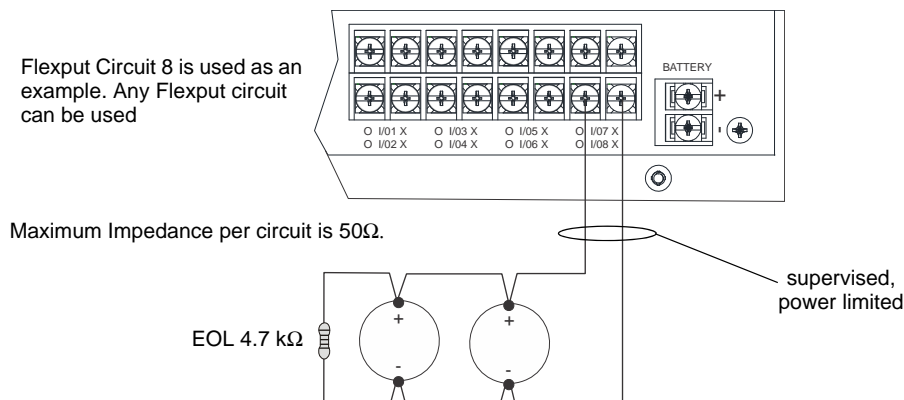
**Figure 4.42  Two-Wire Class B Smoke Detector**

### Installing 2-Wire Class A Smoke Detectors

To install a Class A two-wire smoke detector, wire as shown below.

Flexput Circuit 1 and 2 are
used as an example. Any
Flexput pair can be used.

BATTERY

O I/01 X   O I/03 X   O I/05 X   O I/07 X
O I/02 X   O I/04 X   O I/06 X   O I/08 X

Maximum Impedance per circuit is 50Ω.

supervised,
power limited

+

+

+       -

Any 2-wire smoke detector listed in
the *Device Compatibility Document*
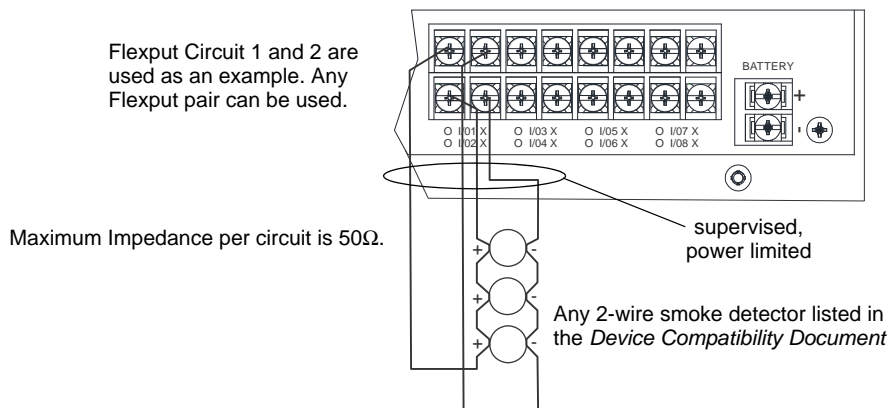
**Figure 4.43  Two-Wire Class A Smoke Detector Connections**

> **NOTE:** In programming any point that uses multiple Flexput circuits, the lowest Flexput circuit number is used to refer to the circuit pair. For example, Figure 4.43 uses both Flexput circuit 5 and 6, so in programming it would be referred to as point 5

### 4.16.4  Installing 4-Wire Smoke Detectors

Any compatible, UL-listed four-wire smoke detector can be used with the control panel. Refer to the *Device Compatibility Document* for a list of devices. Figures 4.44 and 4.45 illustrate how to connect a UL-listed four-wire detector to the control panel.

#### Installing a Class B 4-Wire Smoke Detectors

Figure 4.44 illustrates how to install a 4-wire Class B smoke detector.

Conventions used for wiring 4-wire Class B loops:

1.  Up to four Class B 4-wire smoke detector loops can be connected to the control panel at once.
2.  Each Class B loop input is paired with a unique power source as shown below.
3.  Each loop gets smoke power from the even numbered Flexput circuit and the contact input is connected to the odd numbered Flexput circuit.
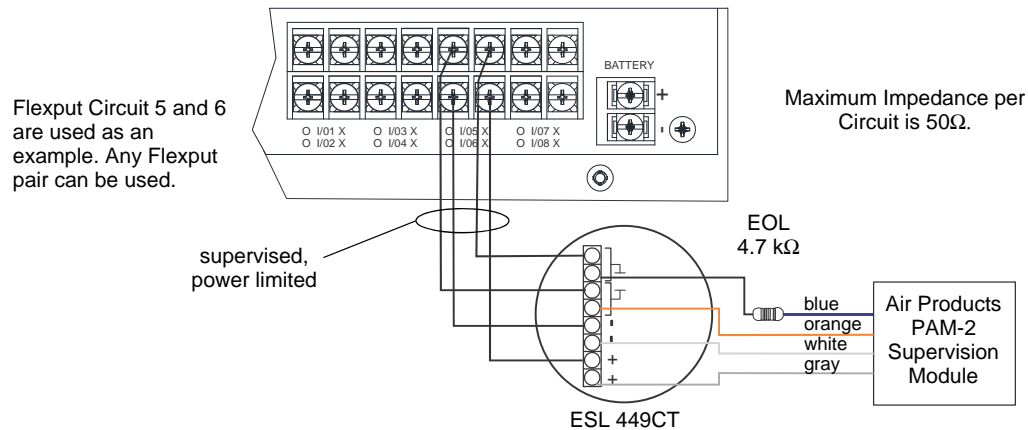


**Figure 4.44  Class B 4-Wire Smoke Detector Connections**

> **NOTE:** In programming any point that uses multiple Flexput circuits, the lowest Flexput circuit number is used to refer to the circuit pair. For example, Figure 4.44 uses both Flexput circuit 5 and 6, so in programming it would be referred to as point 5.

#### Installing 4-Wire Class A Smoke Detectors

Figure 4.45 illustrates how to install a 4-wire Class A detector. Conventions used for wiring 4-wire Class A loops:

1.  Up to two Class A 4-wire loops can be connected to the control panel at once.
2.  The wiring class of the external power source must match the wiring class of the device being powered.

3.   Smoke power is supplied to each Class A loop as shown below.
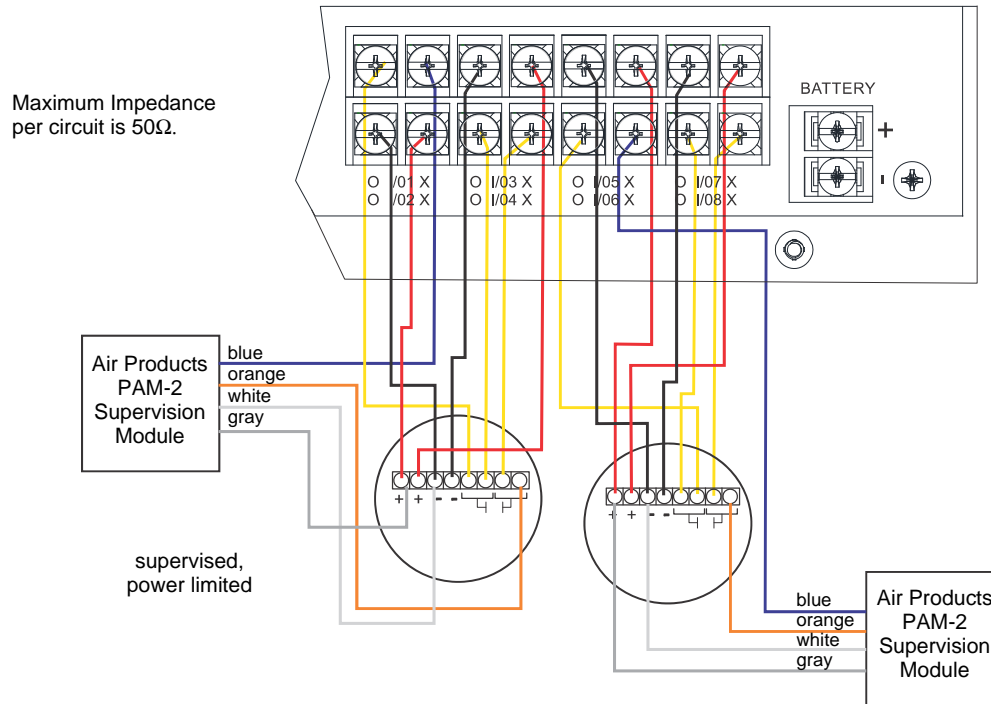


**Figure 4.45  Class A 4-Wire Smoke Detector Connections**

**NOTE:**   In programming, any point that uses multiple Flexput circuits are always referred to as the lowest Flexput circuit number used. For example, Figure 4.45 uses Flexput circuits 1, 2, 3 together and 4, 5, 6 together. In programming (1, 2, 3) would be referred to as point 1, and (4, 5, 6) would be referred to as point 4.

## 4.16.5  Auxiliary Power Installation

Flexput Circuits 1-8 on the control panel can be used as auxiliary power circuits. The four types of auxiliary power available are:

• Door Holder Power
• Constant Power
• Resettable Power
• Sounder Sync Power

Auxiliary power circuits are power limited. Each circuit can source up to 3A (total current for all Flexput circuits must not exceed 9.0 A in alarm, and 6A when used as constant auxiliary power in normal standby).

To install an auxiliary power circuit:

1.   Wire the Flexput circuit(s) that will be used for auxiliary power. See Figure 4.2 for location of Flexput circuits. When used as auxiliary power, terminals labeled "O" are negative, terminals labeled "X" are positive.
2.   Configure the auxiliary power output through programming (see Section 8.5).

### Door Holder Power

Door holder power is intended for fire door applications. When there are no fire system alarms in the system and the panel has AC power, door holder circuits have 24 volt power present at their terminals. Any fire system alarm will cause power to disconnect. Power will be re-applied when the fire system is reset. If AC power is not present, the auxiliary door holder power will be disconnected to conserve the battery backup. When AC power is restored, power is immediately restored to the door holder circuits.

Use a UL-listed door holder for this application. Refer to the *Device Compatibility Document* for compatible door holder list.

### Constant Power

Use constant power for applications that require a constant auxiliary power source. Power is always present at constant circuits.

### Resettable Power

Resettable power is typically used to power beam detectors, flame detectors and conventional 4-wire smoke detectors. For circuits selected as Resettable, 24-volt power is always present at the terminals unless a fire system reset occurs. If a fire system reset occurs, power is disconnected from the terminals for 30 seconds, then re-applied. Refer to the *Device Compatibility Document* for compatible four wire smoke detectors.

### Sounder Sync Power

Sounder Sync Power continuously outputs the System Sensor synchronization pattern and is intended for use with TR-B200S sounder bases.

## 4.17  Onboard Relays (Conventional)

The control panel has two built-in programmable relays and a built-in trouble relay. All relays are Form C rated at 2.5 A @ 24VDC.
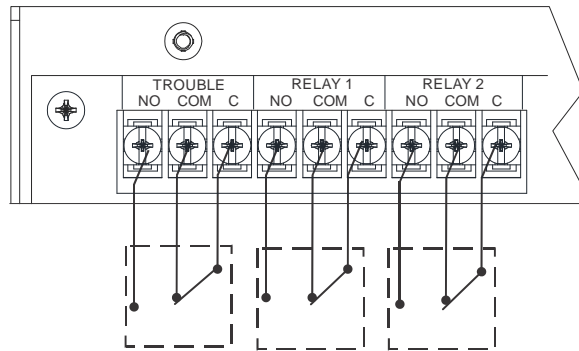


**Figure 4.46  Conventional Relay Circuits**



Connect to power-limited sources only.
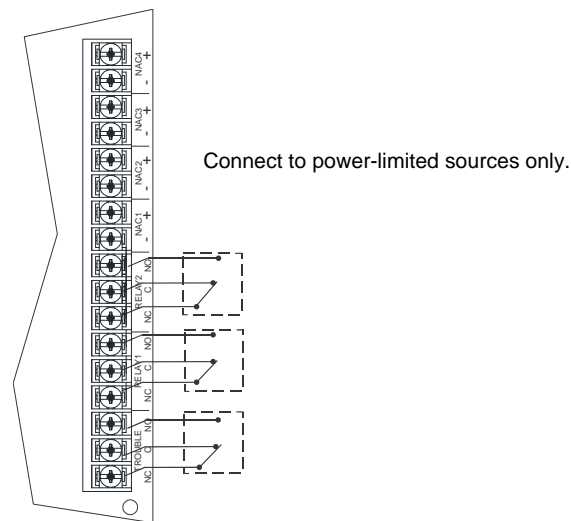
**Figure 4.47  Conventional Relay Circuits**

### 4.17.1  Trouble Relay

The control panel has a dedicated Form C trouble relay. The relay provides a normally open and a normally closed contact. The trouble relay will deactivate under any trouble condition.

**NOTE:**   The NC contact is the relay contact that is closed when the panel has power and there are no trouble conditions.

### 4.17.2  Programmable Relays

The control panel has two Form C programmable relays. Each relay provides a normally open and a normally closed contact.

To install one or two programmable relays, follow these steps.

1.    Wire Relay 1 and/or Relay 2 as needed for your application. See Figure 4.2 for the location of the relay terminals.
2.    Configure the relay through programming (see Section 8.5).

## 4.18  Remote Station Applications

### 4.18.1  Keltron Model 3158 Installation

The control panel is compatible with Keltron Model 3158, used for direct connection to a Keltron receiver. The 3158 reports alarms, supervisories, and troubles.

The steps for connecting the 3158 to the control panel. Refer to the 3158 installation instructions for complete information.

1.    Wire the 3158 to the control panel as shown in the connection list.
2.    Wire the 3158 within 20 feet of the control panel. Wiring must be enclosed in conduit.
3.    Program control panel Relay 1 for alarm.
4.    Program Flexput circuit 5 for alarm.

5.    Program Flexput circuit 6 for supervisory non latching.

| Terminal # | Connects To | Terminal # | Connects To |
|---|---|---|---|
| 3158 Term. 1 | To Keltron receiving equipment | 3158 Term. 8 | Control panel Relay 1 COM |
| 3158 Term. 2 | To Keltron receiving equipment | 3158 Term. 9 | Control panel I/O6 O |
| 3158 Term. 3 | Earth ground | 3158 Term. 10 | Control panel I/O6 X |
| 3158 Term. 4 | Not used; no connection. | Control panel I/O5 X | Control panel Relay 1 NO |
| 3158 Term. 5 | Control panel SBUS OUT + | Control panel Relay 1 COM | Control panel Trouble COM |
| 3158 Term. 6 | Control panel SBUS OUT – | Control panel Relay 1 NO | Control panel Trouble NC |
| 3158 Term. 7 | Control panel I/O5 O | | |

**Table 4.8  Keltron 3158 to Control Panel Connections**

## 4.18.2  City Box Connection Using the 5220 Module

This section describes how to connect the control panel to a local energy municipal fire alarm box or "city box" as required by NFPA 72 Auxiliary Protected Fire Alarm systems for fire alarm service. The city (master) box is an enclosure that contains a manually operated transmitter used to send an alarm to the municipal communication center which houses the central operating part of the fire alarm system.

City Box Standby Current: 0 (Notification supervision current accounted for in control panel draw.)

Alarm Current: 1 Amp for 1 second 27.2 VDC max.

The maximum coil and wire resistance (combined) must not exceed 30 ohms.

To install the 5220 for city box connection:

1.    Use one of the knockouts on the right side of the control panel to connect the 5220 using a short piece of conduit (must not exceed 20 feet in length).
2.    Wire the 5220 to the control panel as shown in Figure 4.48. This drawing also shows how to connect the city box coil to terminals 3 and 4 on the 5220. Do not install an EOL resistor in the terminals of the Flexput circuit used for this application.
3.    Connect earth ground wire to the 5220 chassis with mounting screw.
4.    Program the Flexput circuit as a notification circuit. Assign this NAC to an output group that is mapped to activate with non silenceable constant output in response to a system general alarm condition. Refer to Section 8.5.2. It is not possible to reset the remote indication until you clear the condition and reset the control panel.



Not suitable for remote station protected premise service where separate transmission circuits are required for fire supervisory (if applicable), and trouble signals.

Flexput circuit 1 used as an example. Any Flexput circuit could be used

All circuits off the 5220 are non-power limited and all wiring is non-supervised. The wiring off the main control is still power limited and supervised.

**Figure 4.48  City Box Connection**

### 4.18.3  Using the Addressable Relay Module for City Box Connection

Wire the Relay module as shown in Figure 4.49.
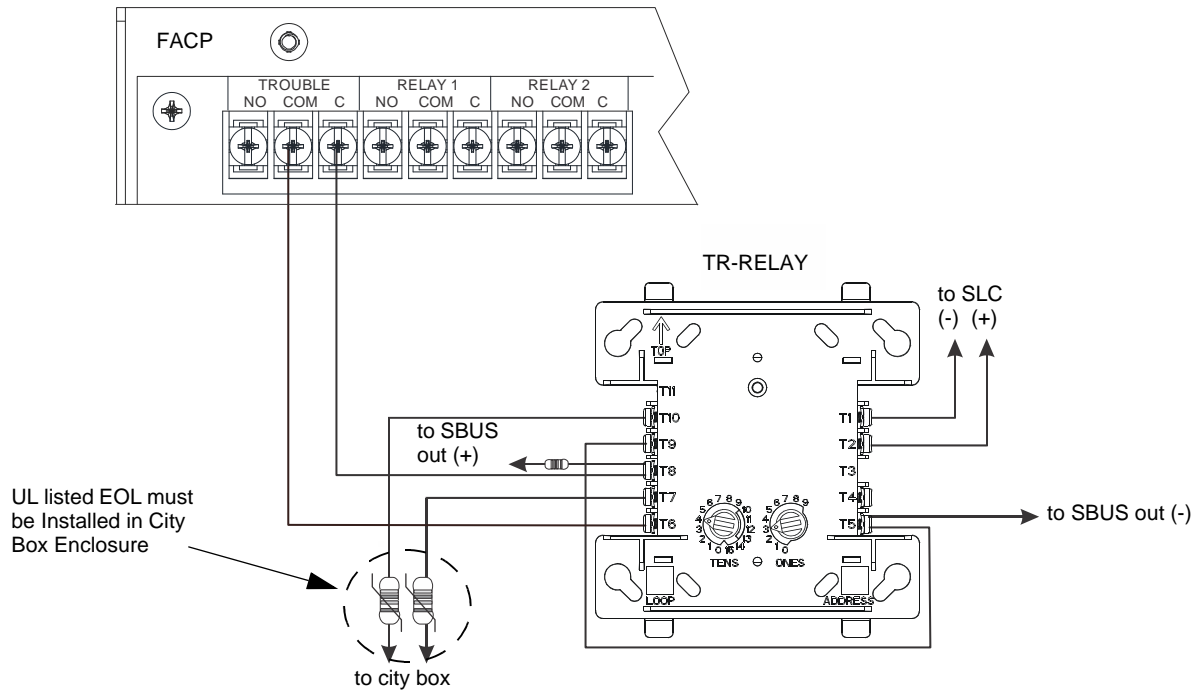


**Figure 4.49  Relay Module for City Box Connection**

### 4.18.4  NFPA 72 Polarity Reversal

> **NOTE:**   Intended for connection to a polarity reversal circuit of a control unit at the protected premises having compatible rating.

#### Using the 5220 Module

When the 5220 is wired and programmed for polarity reversal, it reports alarm and trouble events to a remote site. Alarms will override trouble conditions and it will not be possible to reset the remote indicator until the condition is cleared and the control panel is reset.

If an alarm condition occurs, the alarm relay will close, overriding the trouble condition.

Standby Current: 100 mA, 24 VDC
Alarm Current: 100 mA, 24 VDC

To install the 5220 for polarity reversal, follow the steps below:

1. Locate the knockout on the right side of the control panel cabinet to connect the 5220 using a short piece of conduit (must not exceed 20 feet in length).
2. Wire the 5220 to the control panel using the four-wire pigtail provided as shown in Figure 4.50. This diagram also shows how to connect the 5220 to the remote indicator. Do not install an EOL resistor in the terminals of the Flexput circuit used for this application.
3. Connect earth ground wire to the 5220 chassis with mounting screw.
4. Program the Flexput circuit as a notification circuit, refer to Section 8.5.2. Assign the NAC circuit to an output group that is mapped to activate with non silenceable constant output in response to a system general alarm condition.

5. If necessary, adjust loop current using the potentiometer (R10) on the 5220 board. Normal loop current is 2-8 mA with a 1k ohm remote station receiving unit. Maximum loop resistance is 3k ohm.
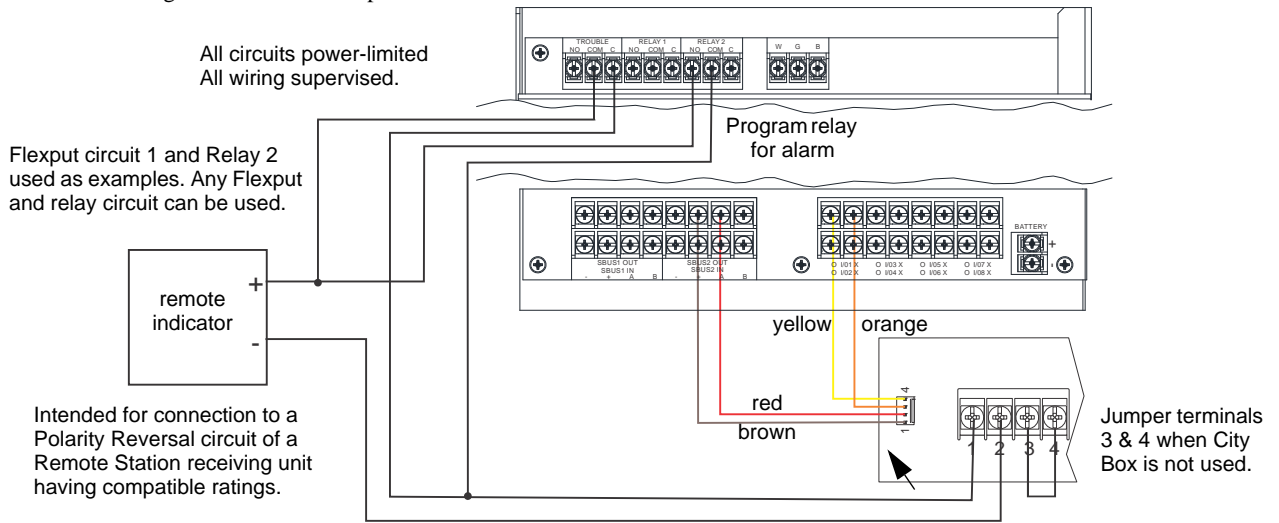


**Figure 4.50 Polarity Reversal Connection Using the 5220 Module**

## 4.18.5 Transmitter Activated by Dry Contacts

This section describes the connection of a UL 864 listed remote station transmitter to the TR-2100 dry relay contacts. The TR-2100 FACP contacts must be supervised by the remote station transmitter module using end-of-line resistors (ELRs) with a value determined by the transmitter manufacturer. Power is also provided by the remote station transmitter manufacturer. Refer to the remote station transmitter manufacturer's manual for details.
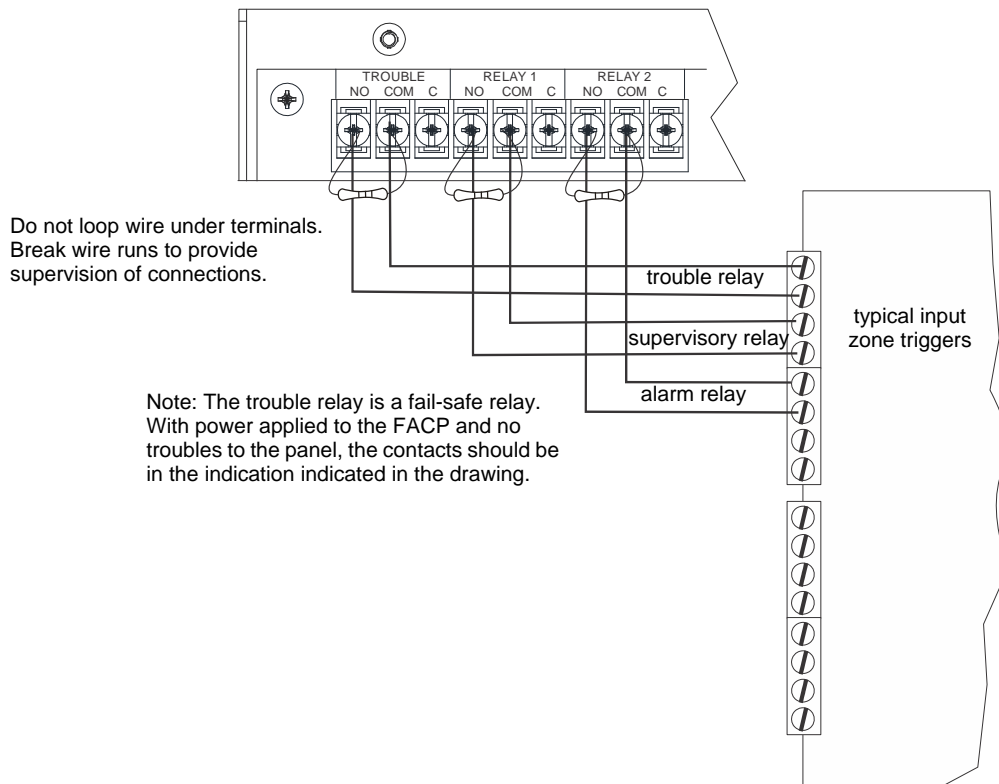


**Figure 4.51 Transmitter Activated by Dry Contacts**

**Notes**

# Section 5: Networking

## 5.1 Network System Hardware Features

TR-2100 panels can be networked to create a virtual system that is larger than 2,100 addressable points. Each additional TR-2100provides another 2,100 addressable points to the network total. For example, a network of 32- TR-2100panels provides a maximum addressable point capacity of 67,200 points (2,100 x 32 = 67,200).

### 5.1.1 Networked Sites

A networked site is a logical group of TR-2100 panels that behave as though the logical group is one large control panel. Each building is referred to as a "site." All panels in a site operate as a single panel. The control functions like reset, silence and alarm activation operate across the entire site. There can be one or more logical sites within a networked system. The maximum number of sites within a network system is limited to 32 panels in the network with each site comprised of only one panel.

### 5.1.2 Wiring Options to Connect Networked Panels

1. Fiber Optic Single Mode - must use the TR-NIC and TR-FSL for up to 30dB loss of signal separation. TR-FSL connects to the network using 9/125 micron single-mode fiber
2. Fiber Optic Multi-Mode - must use the TR-NIC and TR-FML for up to 8dB loss of signal separation. TR-FML connects to the network using 62.5/125 micron multi-mode fiber
3. Twisted Pair Copper Wire - must use the TR-NIC to provide up to 3,000 feet of separation.

All methods of panel connectivity can be used within the same networked system. The network architecture provides true peer to peer capability allowing network survivability for all hardware that remains operational in the event of partial system failure.

## 5.2 Model TR-R2100

The TR-R2100 provides the same power and point capacity of a TR-2100 panel, but does not include any user interface. It is used in networked systems where added power and/or point capacity is required but where additional user interface is not needed.

## 5.3 Network Wiring

When networking a group of TR-2100 and/or TR-R2100 panels, you must use the TR-NIC to link the panels together. See Figure 5.1 and Figure 5.2, for internal mounting or external mounting of TR-NIC option.
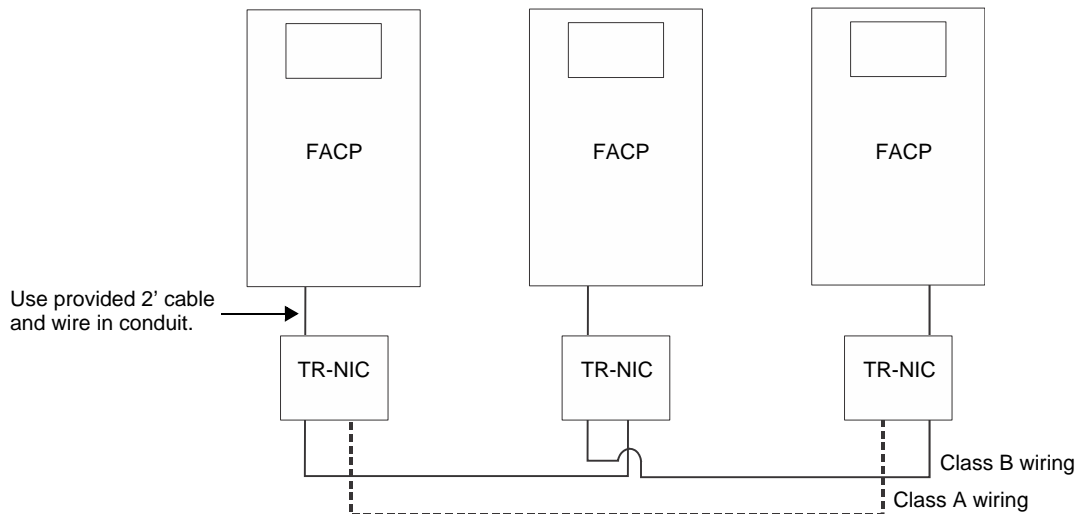


**Figure 5.1  External TR-NIC Wiring Option**
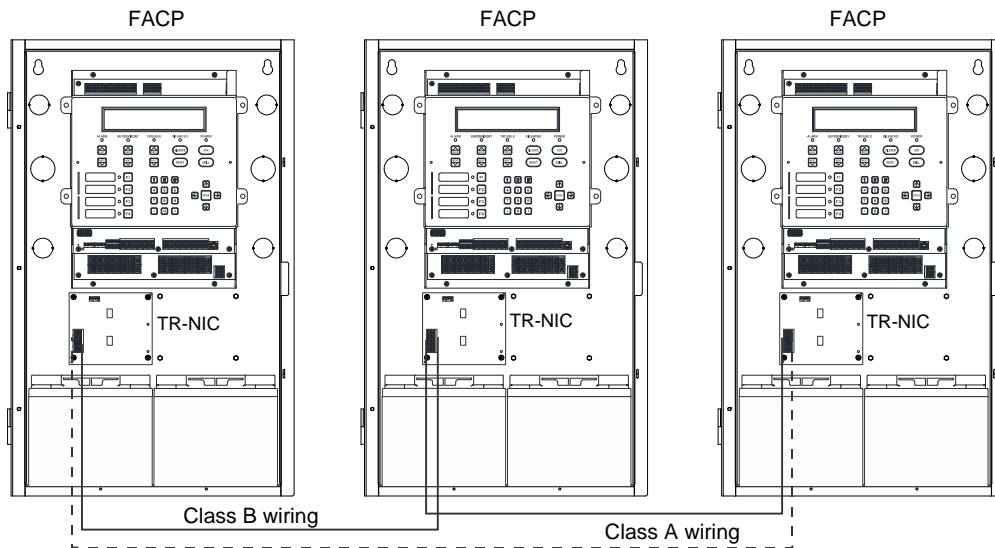
**Figure 5.2  Internal TR-NIC Wiring Option**

## 5.4  TR-NIC Wiring Options

Networking a group of TR-2100 panels requires the use of a network interface card with each panel. The TR-NIC connects to other net-worked units using unshielded, twisted-pair wiring or fiber optic cable.
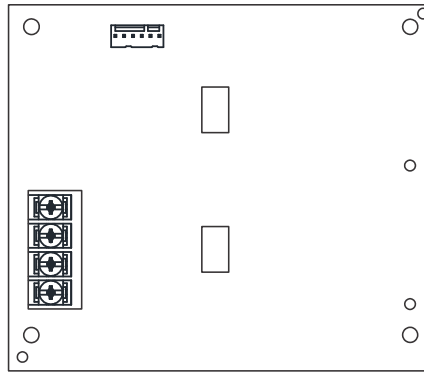


**Figure 5.3  TR-NIC Network Interface Card**

### 5.4.1  Fiber Loop Modules

Two types of fiber- optic modules are available to use to transmit and receive communication with the TR-NIC. For more information, see the *TR-FML/ TR-FSL Installation Instructions* P/N LS10178-003TR-E.



TR-FSL Single-Mode Fiber Module                    TR-FML Multi-Mode Fiber Module
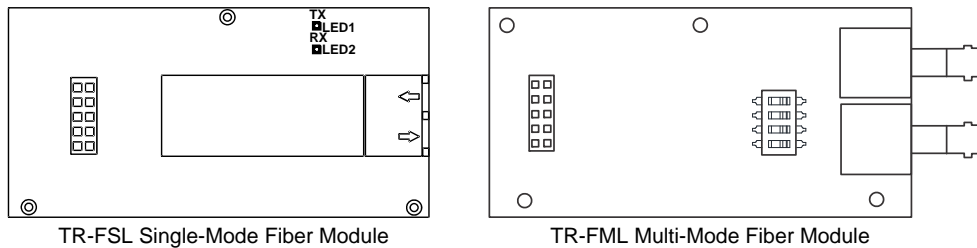
**Figure 5.4  Types of Fiber Loop Modules**

The TR-FML (Fiber-Optic Multi-Mode) and TR-FSL (Fiber-Optic Single-Mode) are plug-in fiber loop modules. The two types of fiber optic modules are used as one channel to transmit or receive communications with the TR-NIC, ARCNET communication circuit.

The following describe the two types of fiber optic modules.

- The TR-FML is a fiber module that allows the multi-mode fiber to network between nodes.
- The TR-FSL is a fiber module that allows the single-mode fiber to network between nodes.

Each fiber loop module can Transmit (TX) and Receive (RX) fiber-optic cable connecting to the TR-NIC. Up to two fiber loop cards can be added to the TR-NIC, and both cards may be combined in the same configuration.
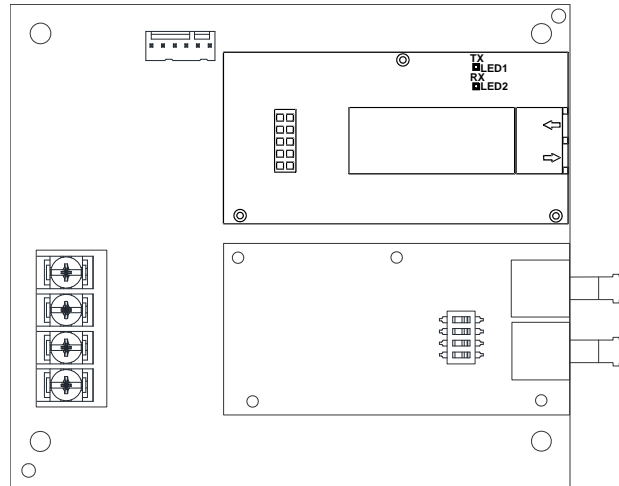


**Figure 5.5  TR-NIC with Fiber Loop Modules**

## Accessory Mounting Kits

The TR-NIC can be mounted within the TR-2100 cabinet or in the TR-NIC-KIT accessory cabinet. The TR-NIC-KIT includes the TR-NIC, cabinet with door, cable, and mounting hardware. The accessory kits are available if you want to install the TR-NIC outside of the TR-2100 cabinet.

## 5.4.2  TR-NIC Installation

The TR-NIC is designed to mount on one of the SLC expander standoff sets inside the cabinet or remotely using the accessory cabinet.

Use the following steps to mount the TR-NIC inside the TR-2100.

1.  Place the TR-NIC on one of the SLC expander standoff sets.
2.  Use the 6-pin cable included with TR-NIC to connect the TR-2100 to the TR-NIC. Connect the TR-NIC to the pin connector on the control panel labeled Data Network.
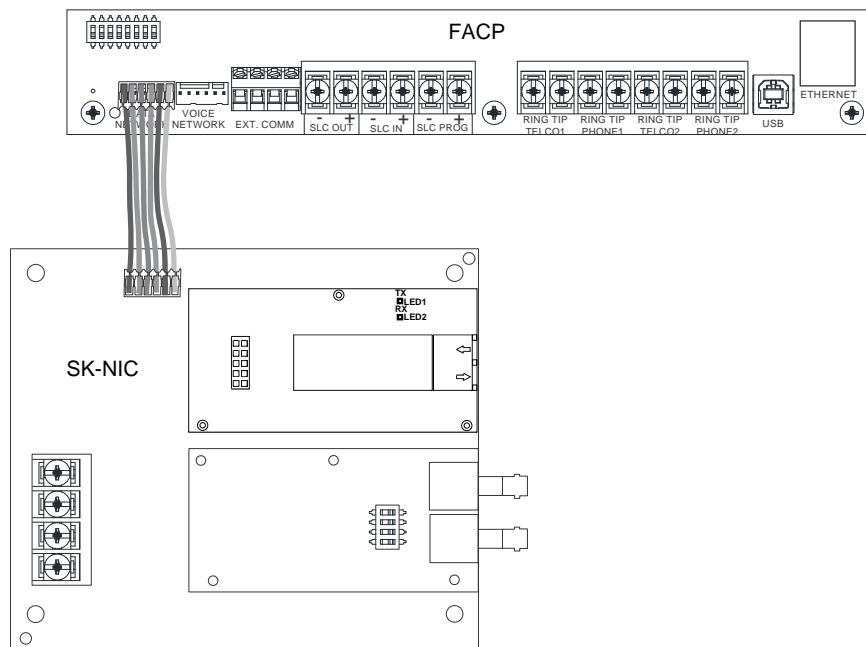


**Figure 5.6  Panel to TR-NIC Connection**

3.  Each TR-NIC has the ability to monitor for earth ground faults on the twisted pairs connected to Port 1 of its terminal block TB2. Earth fault detection for any wiring at Port 2 of TB2 is done at the next/previous TR-NIC due to these wiring connections being connected to Port 1 of TB2 at the next/previous TR-NIC.
4.  Unused optic ports on fiber loop modules must have their dust caps placed on the port.

5.  Based on the type of data medium chosen, run the twisted pair wiring/fiber optic cable to the next TR-NIC using a class B or class A wiring method. A combination of both medium types can be used. See Figure 5.7, Figure 5.8, Figure 5.9, and Figure 5.10 for TR-NIC wiring examples.

## 5.4.3 TR-NIC Remote Mounting

Follow the steps above except, the 6-pin cable that runs from the TR-NIC to the TR-2100 must be run in conduit. Refer to Figure 5.1.

## 5.4.4 Wiring

### Unshielded Twisted Pair Wiring between Multiple Panels

Unshielded twisted pair wiring between multiple panels is shown in Figure 5.7. Class X wiring is shown with a dotted line.
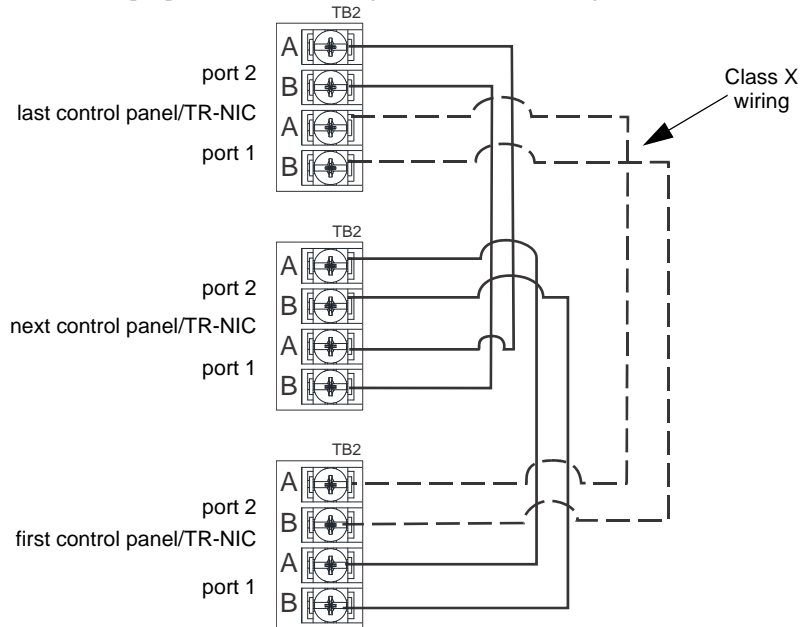


**Figure 5.7  Twisted Pair Wiring Configuration**

## Fiber Optic Multi-Mode Wiring between Multiple Panels

Fiber optic cable between multiple panels is shown in Figure 5.8 and Figure 5.9. Class X is shown with a dotted line.
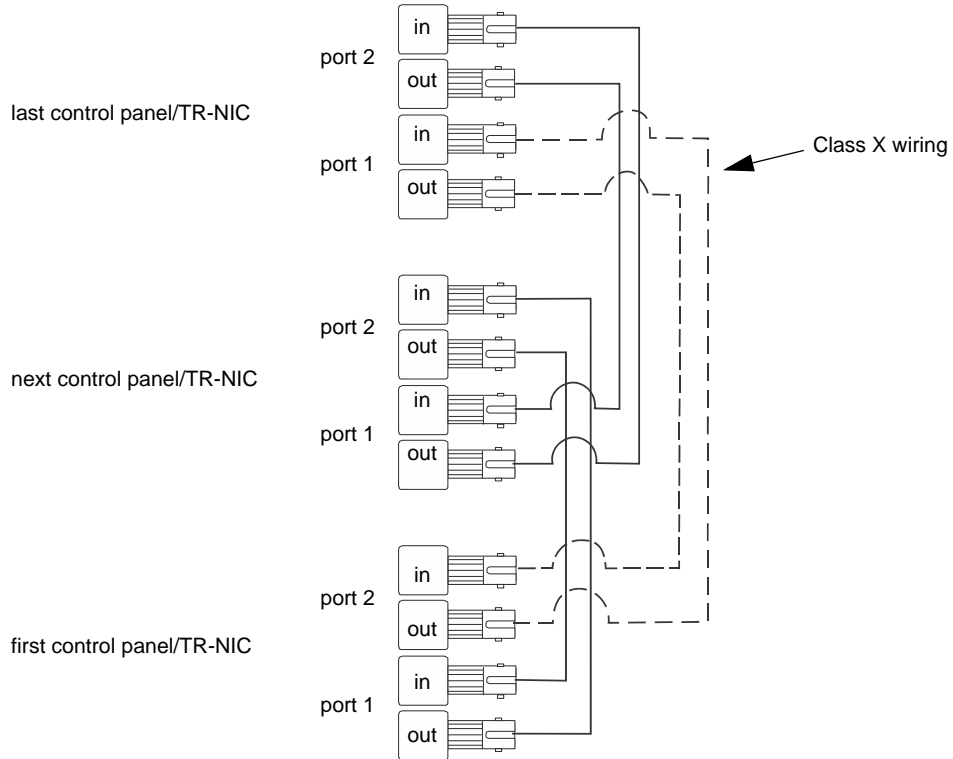
**Figure 5.8  Fiber-Optic Wiring Multi-Mode Example**
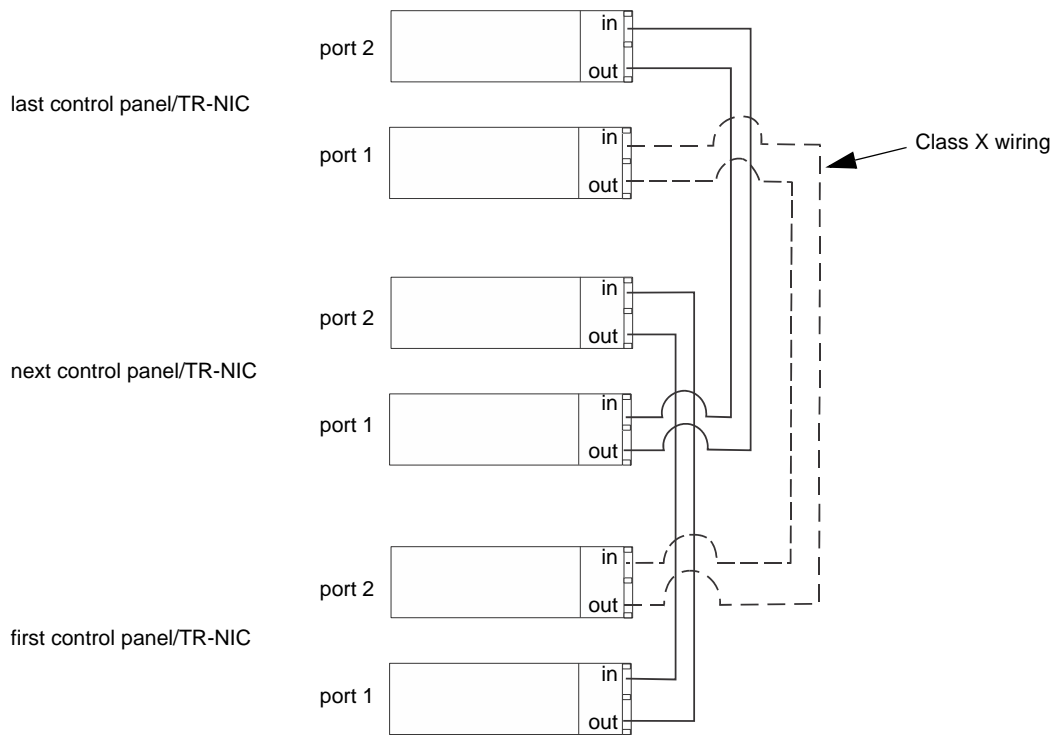
**Figure 5.9  Fiber-Optic Wiring Single-Mode Example**

### Fiber Optic and Twisted Pair Wiring between Multiple Panels

A mixture of fiber optic cable and twisted pair wiring between multiple panels is shown in Figure 5.10. Class X cabling is shown with dotted line.
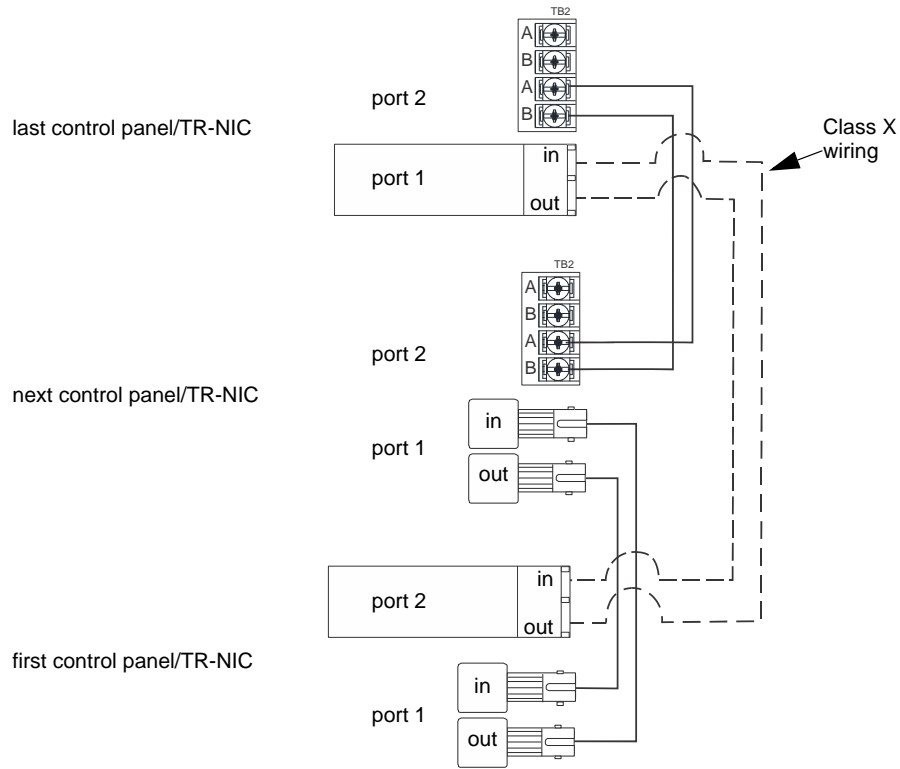


**Figure 5.10  Twisted-Pair and Fiber-Optic Combination Wiring Example**

## 5.5  Setting the Network ID for Each Panel

**NOTE:**  It is important that much thought is given when choosing the network IDs for each panel. It is difficult to change the IDs once panel programming has begun.

Use the DIP switch positions 1 through 6 to set the network ID for each panel. Note that switches 7 and 8 are not used and should remain in the OFF position. See the figure below for possible DIP switch settings. Address 0 is an invalid address and cannot be used.
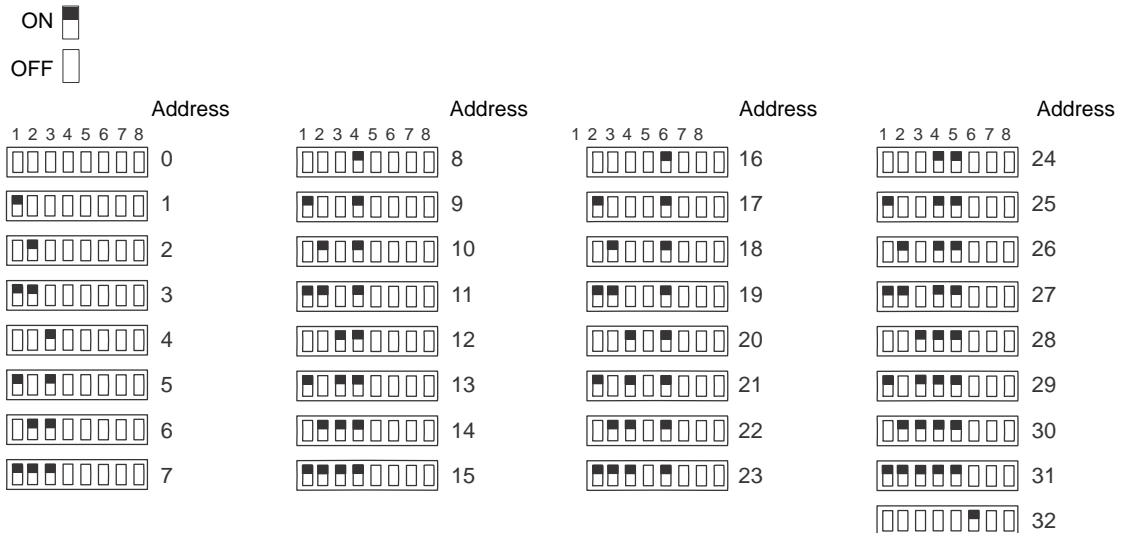


**Figure 5.11  NetworkID Settings**

# Section 6: Network Management

## 6.1 Network Diagnostics

### 6.1.1 Ping Panel

The Ping Panel menu allows you to continually ping any panel programmed into the network. As the selected panel is being pinged, the Ping Panel screen will display the reply time, minimum and maximum reply times, and sent and received counters.

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 5 for Network Diagnostics.
3. Press 1 to enter the Ping Panel Menu.
4. Press the up or down arrow key to select Network Panel ID. Press ENTER to Ping panel.

### 6.1.2 Data Network Status

The Data Network Status screen will display statistics that are indicators of Network performance.

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 5 for Network Diagnostics.
3. Press 2 to enter the Data Network Status Menu.

### 6.1.3 Voice Network Status

The Voice Network Status screen will display statistics that are indicators of Network performance.

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 5 for Network Diagnostics.
3. Press 3 to enter the Voice Network Status Menu.

## 6.2 Network Programming

This section of the manual describes how to program network options using the built-in annunciator. All options described in this section can be programmed using HFSS. You must use HFSS to edit site assignments.

> **NOTE:   Off-site Event Troubles**
> These troubles appear when an event in another site activates Output Groups due to intra-site mapping. The following list of events may occur.
> • Off-site Fire/Supervisory Event
> • Off-site Advisory Event
> • Off-site ECS Event
> After the Alarm/Event is reset/restored in the site that caused it, these events restore automatically when the Output Group is set to OFF. Off-site events are logged in Event History.

### 6.2.1 Learn Network

The Learn Network menu shows you all of the panels connected to the network. Any panel that has been programmed into the network will appear as a "member." Any panel that is connected to the network but not programmed into the network will appear as a "guest." You can add guest panels to the network by changing their status to member in this menu. Panels showing OK are currently responding on the network. Panels not showing OK have either been removed or are not responding due to networking problems. See Section 6.1 for Network Diagnostics.

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 6 for Network Programming.
3. Press 1 to enter the Learn Network Menu.
4. Press ENTER to add or remove panels connected to the network as "member" or "guest".

> **NOTE:**   If adding panels to network, the system will automatically run the Sync Network Options. You will be required to select which panel to distribute network options from. See Section 6.4.

#### Incompatible Panel

If you try to add an incompatible panel as a member to the network, Learn Network fails and an error message appears.

The incompatible panel remains a "guest". To continue, remove the incompatible panel from the network.

### 6.2.2 Edit Network Names

The Edit Network menu allows you to edit the panel name and edit the panels site name.

#### Edit Panel Names

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 6 for Network Programming.
3. Press 2 to enter the Edit Network Names menu.
4.  Press 1 to Edit Panel Name. Choose Panel to edit.

See Appendix A for a list of available characters and their numeric designators.

## 6.2.3 Edit Panel ID

This menu option allows you to change the current Network Panel ID. It is best to carefully consider the network ID setting for each panel. Take into account any future panels that will be added to the network (future wiring of two buildings together). The Network Panel ID setting has to be unique for each panel on the network.

This menu will allow you to change the currently assigned Network Panel ID to the current Network ID dip switch setting. The system will be down as the panel needs to reboot in order to complete the transition.

When using the PC configuration software to program the panels, the Network Panel ID will be locked from future editing. The only way to change it will be to restore defaults and use this menu again.

### Edit the Network Panel ID

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 6 for Network Programming.
3. Press 3 to enter the Edit Panel ID menu.
4. If the Network Panel ID is changed and valid, the system will ask you to confirm the change. If it is not correct, you can change the dip switches at this time.
5. Press up to select YES and press ENTER to confirm.

## 6.2.4 Computer Access

An installer at the panel site can initiate communications between the panel and a computer running HFSS. (See also Section 9.4). In order for this communication to function properly, both the computer (running the software) and the control panel must have matching computer access numbers and computer codes.

To program computer access information:

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 6 for Network Programming.
3. Press 4 to enter the Computer Access menu.
4. Enter the computer access number (up to 6-digits), then press ENTER.
5. Enter the computer code, then press ENTER.

## 6.2.5 Access Codes

Access codes provide the user access to the control panel functions. Each access code can be customized for each user. This feature allows some users the ability to access the programming and other higher level panel functions, while other users may only need access to the lower level functions (such as, preforming fire drills or acknowledging trouble conditions). Access codes can only be assigned by someone with an Administrator profile. Refer to Section 9.2.1 on page 107 for more information on administrative permissions. Once an access code has been assigned by an administrator, a user has the ability to change it.

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 6 to access the Network Programming Menu.
3. Select 5 to access the Access Codes.

    The display reads:                   *Select Profile 01*

                                         *Fire Fighter's Key*
4. Press the up or down arrow key to select the Access Code you want to edit.
5. Then, press ENTER.

### Profile Edit Menu

From the Profile Edit Menu, the user can change their name and access code only.

#### ■ Edit Name

6. See Appendix A for a list of available characters and their numeric designators.
7. Then press ENTER to finish.

#### ■ Edit Access Code

8. Enter new access code (minimum of 4 digits, maximum of 7 digit).
9. Press ENTER.
10. Enter code again. Press ENTER.

## 6.2.6 Communicator Options

Communicator options provides the configuration for reporting events to a central station.

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 6 for Network Programming.
3. Press 6 to enter Communicator Options menu.

## Communicator Assignments

Each panel on the TR-2100 network specifies which communicator is used for reporting. The network capability of the TR-2100 system allows all panels to use the same communicator providing an economical solution for reducing the number of paths required for reporting purposes. A communicator is specified by panel number. The network communicators will be used to report events according to the communicator report table.

## Communicator Miscellaneous

When using the SIA reporting format, the communicator sends information according to the SIA Reporting Type. The selections for this option are:

1. pi modifier (default)
2. Panel ID

**NOTE:**  Only the SIA format sends the panel ID when reporting.

## Receiver Configuration

The TR-2100 network can report events to as many as 68 receivers. See Appendix B for panel/receiver relationship numbers. Each receiver can be a phone number and reporting format. Phone numbers can be up to forty digits long.

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 6 for Network Programming.
3. Press 6 to enter Communicator Options Menu.
4. Select 3 for Receiver Configuration.
5. Select Panel to Program and press ENTER.
6. Enter the receiver number that you want to report to. The receiver numbers available will correspond with what panel number you entered. Receiver numbers are populated based on panel number and audited to allow only the 4 appropriate receivers. See Appendix B for receiver number.

Available Format choices are:

- Contact ID
- SIA500
- SIA8
- SIA20
- Ethernet
- UNUSED

## Communicator Reporting Table

The Communicator Report Table specifies event reporting for each panel on the network. Each row in the table specifies a panel, event types to report, primary and backup receiver numbers, and report by point or zone. Associated with the receivers are account number and daily test option. The table can have up to 99 rows.

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 6 for Network Programming.
3. Press 6 to enter Communicator Options menu.
4. Select 4 for Communicator Reporting Table.
5. Press * to add rows, Press ENTER to edit data
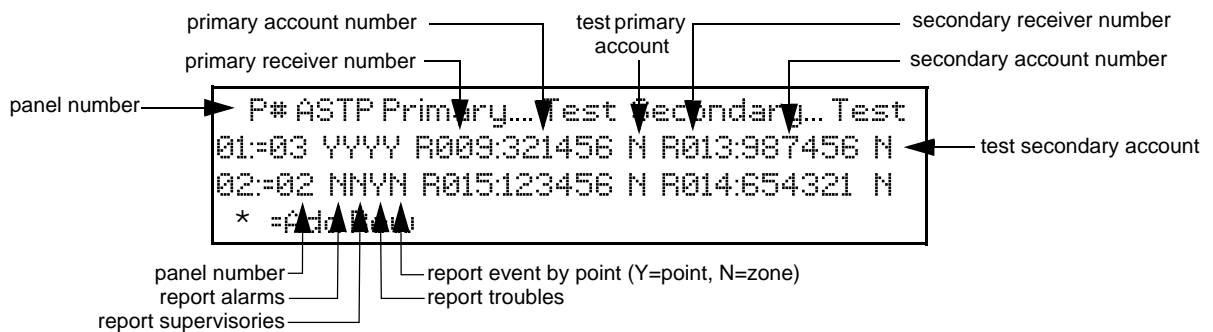


**Figure 6.1  Communicator Reporting**

## 6.3  Voice Options

### 6.3.1  Edit Timers

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 6 for Network Programming.
3. Select 7 for Voice Options.
4. Choose Site.
5. Select 1 for Edit Timers

#### Control Lockout

The Control Lockout countdown timer is set to the programmed value when an LOC gains ECS Control. The timer starts over upon any key press at the ECS Control LOC. While the Control Lockout timer is active, an LOC of equal priority must request ECS control. The Control Lockout timer is cleared when ECS Control is relinquished. The Control Lockout timer does not apply to ECS Super User control.

Select Immediate/Timer/Never

Range 0-720 min/0-59 sec

#### Auto Reset ECS MIC Triggered Event

If the Timer is selected, the event will automatically reset after being active for the programmed time. If Event Disabled is selected, the event will not be allowed to be activate from an LOC Station. Selecting Never will require an emergency system reset to be performed to reset the event.

Select Never/Timer/Event Disabled, Range from 1-240 min

| ECS Timer | Option |
|---|---|
| Control Lockout | Immediate/Timer/Never |
| Auto Reset ECS MIC Triggered Event | Never/Timer/Event Disabled |
| Auto Reset ECS Event 1 | Never/Timer/Event Disabled |
| Auto Reset ECS Event 2 | Never/Timer/Event Disabled |
| Auto Reset ECS Event 3 | Never/Timer/Event Disabled |
| Auto Reset ECS Event 4 | Never/Timer/Event Disabled |
| Auto Reset ECS Event 5 | Never/Timer/Event Disabled |
| Auto Reset ECS Event 6 | Never/Timer/Event Disabled |
| Auto Reset ECS Event 7 | Never/Timer/Event Disabled |
| Auto Reset ECS Event 8 | Never/Timer/Event Disabled |

**Table 6.1  Auto Reset ECS MIC Triggered Event Timer Menu**

### 6.3.2  Edit Voice Commands

When a voice output group is selected to be activated by a zone, the cadence pattern choice does not apply. For voice output groups, one of six system wide voice commands will activate instead of the cadence pattern.

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 6 for Network Programming Menu.
3. Select 7 for Voice Options.
4. Choose Site.
5. Select 2 for Edit Voice Commands.
6. Select the command you wish to edit:
   - Fire Alarm
   - Fire System Aux 1
   - Fire System Aux 2
   - Fire Zone Aux 1
   - Fire Zone Aux 2
   - Fire Prealarm
   - Emergency Communication 1
   - Emergency Communication 2
   - Emergency Communication 3
   - Emergency Communication 4
   - Emergency Communication 5
   - Emergency Communication 6
   - Emergency Communication 7
   - Emergency Communication 8
   - Fire Supervisory
   - System Alert 1-5

- Trouble
- Fire Interlock Release
- Fire Interlock Alert
- Custom Emergency Comm
- Emergency Supervisory
- CO Alarm
- CO Supervisory

7. Select whether a Message or Tone Only should be played. If Message is selected, choose the desired message for the command.
8. Select the tone to be played between messages. (High-Lo, ANSI Whoop, Cont. Whoop, ANSI, March Code, California, Steady, Alert Tone, or No Tones).

**NOTE:** 520Hz tones are available when using the ECS-NVCM, TR-INT50W, or TR-DUAL50W amplifiers. These include ANSI 520, Temp 4 520, Steady 520. See the *Device Compatibility Document* for a list of compatible speakers.

9. Select how many times you want the message to repeat. (None, 1 - 14, or Continuous).
10. Select the initial delay time (0, 3, 4, 8, 12, 16, 20, 24, 28).
11. Select the inter message delay time (4 to 32 seconds, in 4 second increments).
12. Select Y or N to allow message to continue to play after Mic release.
13. Select Y or N to allow message to restart on a new activation.

## 6.4 Sync Network Options

If after making changes to network programming, the distribution of network options fail, the system will report a trouble of network options out of sync. Use this menu to redistribute changed options to the rest of the network. The user will be required to choose a panel to source the options from. Scroll down through the informational message and press ENTER to view the Select Source screen.

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 6 for Network Programming Menu.
3. Select 8 for Sync Network Options.
4. Select which panel to source the options from.

last time the date and time were updated on panel

If two panels have the same chk sum, the network options are in sync.

```
   Select Source Last Modified Chk sum
01 = Panel 1 07/28/21 12:20 0F8B
02 = Panel 2 07/30/21 09:45 0F8A
03 = Panel 3 07/31/21 09:46 0F8A
```
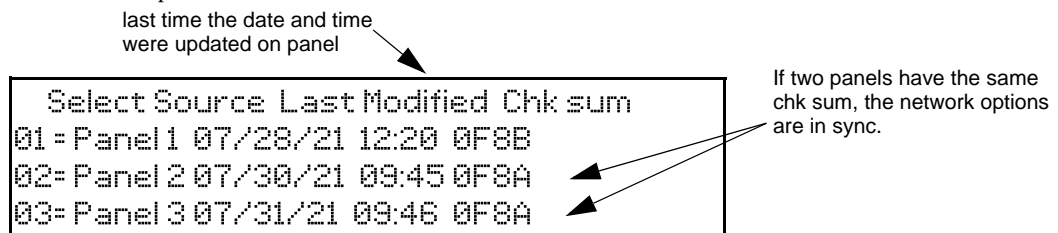
**Figure 6.2  Sync Network Options**

**NOTE:** If you try to sync with the network and an incompatible panel is found, an error message will display.

## 6.5  Network Management Quick Reference

| Menu | Options/Defaults | | | Comments | |
|---|---|---|---|---|---|
| Learn Network | Guest or member | Add or remove panels into the network | | See Section 6.2.1 | |
| Edit Network Names | Panel Names | Network Panel ID | Edit Panel Names | See Section 6.2.2 | |
| | Site Names | Edit Site Member | Edit Site Names | | |
| Edit Panel ID | Change current panel ID | | | See Section 6.2.3 | |
| Computer Access | Computer Access Number | *123456 | | See Section 6.2.4 | |
| | Computer Code | *0 | | | |
| Access Codes | Select Profile (01 - 20) | Edit Name | | Profile 1 is the profile that dictates what functions the Firefighter Key has access to. Because this is the profile for a keys, the user name and the access code can not be edited for this profile. | |
| | | Edit Access Code | | | |
| Communicator Options | Communicator Assignments | Select Panel | Primary | 0=unused | See Section 6.2.6 |
| | Communicator Miscellaneous | SIA Options | Enable pi SIA Modifier | See, "Communicator Miscellaneous" | |
| | | | Include Panel ID in SIA Reporting | | |
| | Receiver Configuration | Select Panel | Select Receiver | Receiver Number | See, "Receiver Configuration" |
| | | Receiver Format | Contact ID | | |
| | | | SIA500 | | |
| | | | SIA8 | | |
| | | | SIA20 | | |
| | | | Ethernet | | |
| | | | UNUSED | | |
| | | Receiver Credentials | | | |
| | Communicator Report Table | | Panel | See, "Communicator Reporting Table". | |
| | | | Report Alarms | | |
| | | | Report Supervisory | | |
| | | | Report Troubles | | |
| | | | Report Events by Point | | |
| | | | Primary Receiver | | |
| | | | Primary Account | | |
| | | | Test Primary Account | | |
| | | | Secondary Receiver | | |
| | | | Secondary Account | | |
| | | | Test Secondary Account | | |

**Table 6.2  Network Management Quick Reference Chart**

| Menu | Options/Defaults | | | Comments | |
|---|---|---|---|---|---|
| Voice Options | Choose Site | Edit Timers | Control Lockout | Immediate/Timer/Never | See Section 6.3.1 |
| | | | Auto Reset ECS Event 1-8 | Never/Timer/Event Disabled | |
| | | | Auto Reset ECS MIC Triggered Event | | |
| | | Edit Voice Commands | Fire Alarm | See Section 6.3.2 | |
| | | | Fire System Aux 1 | | |
| | | | Fire System Aux 2 | | |
| | | | Fire Zone Aux 1 | | |
| | | | Fire Zone Aux 2 | | |
| | | | Fire Supervisory | | |
| | | | Fire Prealarm | | |
| | | | Custom Emergency Comm | | |
| | | | Emergency Communication 1-8 | | |
| | | | System Alert 1-5 | | |
| | | | Trouble | | |
| | | | Fire Interlock Release | | |
| | Choose Site | Edit Voice Commands | Fire Interlock Alert | See Section 6.3.2 | |
| | | | Emergency Supervisory | | |
| | | | CO Alarm | | |
| | | | CO Supervisory | | |
| Sync Network Options | | | | See Section 6.4 | |

**Table 6.2  Network Management Quick Reference Chart (Continued)**

# Section 7: Programming Overview

This section of the manual is intended to give you an overview of the programming process. Please read this section of the manual carefully, especially if you are programming the control panel for the first time.

The JumpStart Auto-programming feature automates many programming tasks and selects default options for the system. JumpStart should be at least once when you are installing the system. See Section 7.1 for details. After you run JumpStart, you may need to do some additional programming depending on your installation. Section 8 of this manual covers manual programmable options in detail.

Programming the panel can be thought of as a four part process. You must program:

- Network options. This affects how all panels in the network work together. (see Section 6 for details).
- System options. These are options that affect general operation of the panel. (see Section 8.6 for details).
- Options for input points and zones. These are primarily options that control the detection behavior of devices. (see Section 8.3 and Section 8.5 for details).
- Options for output points and groups. This includes selecting characteristics for output groups and mapping output circuits to output groups. (see Section 8.4 for details).

## 7.1  JumpStart Auto-Programming

The JumpStart Auto-Programming feature allows for faster system setup. When you run JumpStart AutoProgramming, the panel searches for expanders and SLC devices not currently in the system. The new devices are added in their default configuration. At the end of the Jump-Start you can choose to not accept the new devices and go back to the configuration you had before. JumpStart saves the installer from having to program options for each device. Depending on the application, the installer may need to make some changes after JumpStart completes.

See Section 7.1.3 for complete details about running JumpStart.

### 7.1.1  Input Points

The first JumpStart on the panel in default configuration will determine the number and type of input points (detectors or contact monitor modules) on each SLC loop. JumpStart Auto-Programming assigns the correct detector type (heat, ionization or photoelectric), so the installer does not need to edit the device type for detectors. Any contact monitor modules on the system will be assigned type "Manual Pull." The installer will need to manually change the switch type if manual pull is not correct.

The first JumpStart AutoProgramming creates one zone (Zone 1) and assigns all input points to Zone 1. Zone 1 is mapped to Output Group 1.

### 7.1.2  Output Points

The first JumpStart AutoProgramming on a panel in default configuration creates three output groups and assigns output circuits as follows:

**Circuits 1-8**  Configured as Notification and assigned to Group 1.

**Circuit 9 (Relay 1)**  Assigned to Group 998.

**Circuit 10 (Relay 2)**  Assigned to Group 999.

**Addressable output points (Relay modules)**  All addressable relay devices will be configured as "Output Pt" (general purpose output point) and assigned to Group 1.

**NOTE:**   Relay output is constant even if the zone activating the relay is programmed with an output pattern.

### 7.1.3  Running JumpStart Auto-Programming

Run JumpStart Auto-Programming immediately after you have addressed and connected all input devices (detectors, pull stations, and so on) and output devices (notification appliances, relays, and so on).

**NOTE:**   If you need to install a few devices after you have run JumpStart, you can install them manually or run JumpStart again at a later time. JumpStart will keep user options, such as names, for devices already installed. Follow instructions in Section 7 for configuration.

To run JumpStart AutoProgramming, follow these steps.

1.  Login to the panel and access the main menu.
2.  Select 7 for Panel Programming.
3.  Select 6 for JumpStart AutoProgramming.
4.  The message "The system will be shut down during JumpStart." Press ENTER to accept.
5.  The message, "SLC FAMILY TRIGA" appears. press ENTER.
6.  A series of messages displays for the next several seconds. JumpStart scans the SLC loops for devices. This can take several minutes, depending on the number of devices attached.
7.  If a Temp Programming Display is being used to initially setup an TR-R2100, a message will appear for selecting to install the display or not. If the display is to stay in the system for normal annunciation, select "Yes". Otherwise select "No" and the display will be removed." See Section 4.9.
8.  When the message "Configuring System Done" displays, press any key to continue.

9.   Select one of the following options from the menu that displays.

| 1 - Review System | Press 1 if you need to review the JumpStart configuration. The Review System menu will appear. Press 1 to review Entire System or Press 2 for Changes Only. |
|---|---|
| 2 - Repeat JumpStart | Press 2 if you need to rerun JumpStart for any reason. |
| 3 - Accept Changes | 1. If you are ready to make the JumpStart configuration permanent, select 3.<br><br>2. The system will ask you if the installation contains any addressable duct detectors. If there are none, select 2 for No and skip to Step 8. If the system contains duct detectors, select 1 for Yes and continue with Step 3.<br><br>3. From the list that displays, select the SLC that contains the duct detectors.<br><br>4. The first photoelectric or ionization detector on the system will display. Select 1 for DUCT and 2 for NonDUCT.<br><br>5. Press up arrow to select the next detector. Select 1 for DUCT and 2 for NonDUCT. Continue until all duct detectors have been selected. (Note: You can move backwards through the list with down arrow).<br><br>6. When you reach the last detector on this device, press left arrow.<br><br>7. The system will ask you if there are any duct detectors used. If there are, select 1 for Yes and the message will ask, Have All Addressable Duct Detectors Been Identified? Left arrow for "No", Right arrow for "Yes". If there are no more duct detectors, continue with Step 8.<br><br>8. The system will restart with the saved JumpStart configuration.<br><br>9. After the system resets, it will use the new JumpStart configuration. |
| 4 - Discard Changes | If you want to discard the changes, and keep the configuration you had before running this JumpStart press 4. |

## 7.2  Mapping Overview

This section of the manual is a high level overview of mapping.

Mapping is an important concept with the control panel. In general terms, mapping is assigning or linking events to outputs that will activate when events occur. You do this by assigning input points to input zones, output points to output groups and then linking or mapping zones and output groups.

Figure 7.1 is a brief overview of the concept of mapping. The next several pages of the manual show these subjects in detail.

In its simplest application, mapping determines which outputs are activated by which inputs.
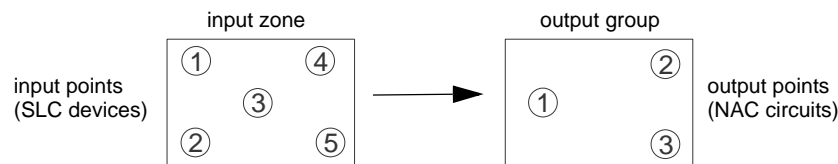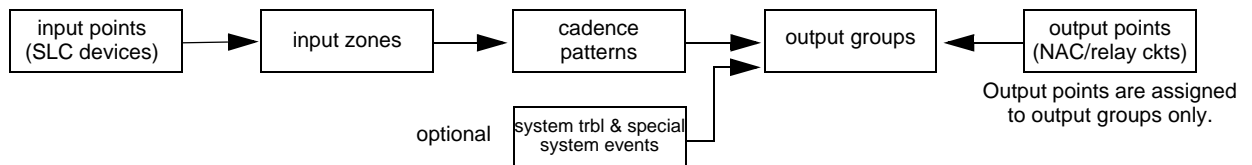


**Figure 7.1  Mapping Overview**

NOTE: Mapping cannot be programmed through the annunciators. It can only be programmed through the HFSS Software Suite.

## 7.2.1  Input Point Mapping

Input points are assigned to input zones, as Figure 7.2 shows. Any input point can be assigned to any input zone. (Input points can be assigned to one zone only. An input point can be designated as "Unused," which means it has not been assigned to a zone).
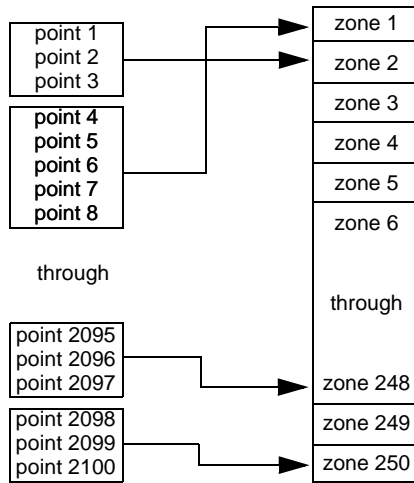
**Figure 7.2  Input Point Assignment Example**

## 7.2.2  Output Circuit Mapping

Figure 7.3 is a simple example showing how to assign notification and relay output circuits to groups.
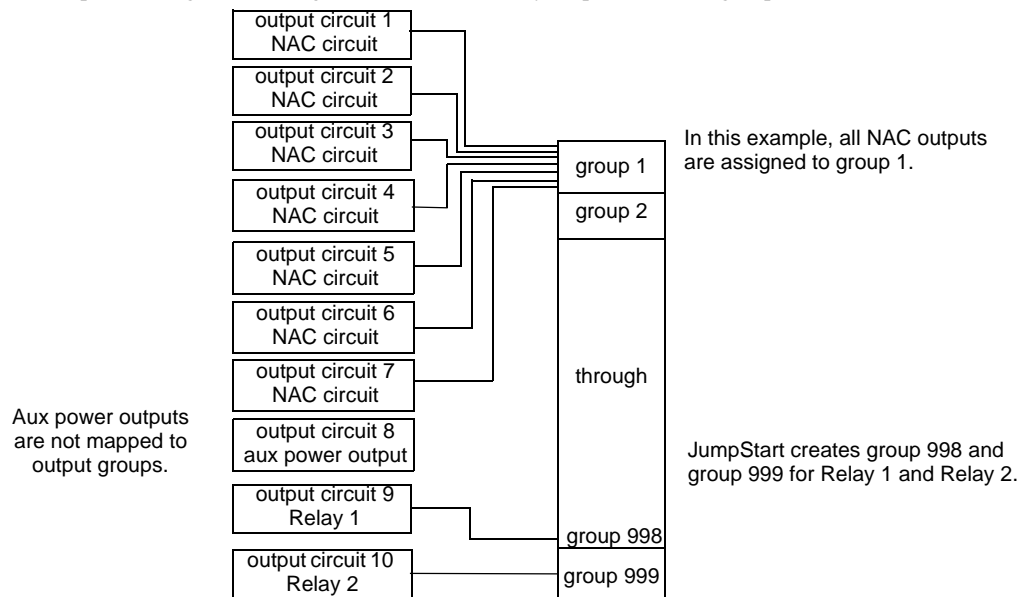
**Figure 7.3  Assigning Output Circuits to Groups (Example)**

## 7.2.3  Event Mapping

There are 11 types of Zone events, 14 types of Panel events, and 40 types of Site events that can be mapped. For each event type, you can activate the output groups with specific output patterns. Mapping examples are shown in Figures 7.4, 7.5, and 7.6.

| System | Zone | Panel | Site |
|---|---|---|---|
| **Fire** | Manual Pull Alarm | System Aux 1 Alarm | Fire Drill |
| | Water Flow Alarm | System Aux 2 Alarm | General Fire Alarm |
| | Detector Alarm (heat or smoke detectors) | | General Fire Supervisory |
| | Zone Aux 1 Alarm | | General Fire Pre-Alarm |
| | Zone Aux 2 Alarm | | |
| | Interlock Alert | | |
| | Interlock Release | | |
| | Pre-Alarm | | |
| | Fire Supervisory | | |
| | Status Point | | |
| | CO Alarm | | |
| | CO Supervisory[1] | | |
| **Emergency** | | | LOC ECS 1-8 Alarm |
| | | | General ECS Alarm |
| | | | General ECS Supervisory |
| | | | Point ECS 1-8 Alarm |
| **Advisory** | Trouble | SBUS Expander Trouble | General Trouble |
| | Status Point Active | SBUS Class A Trouble | Site Silenced |
| | | SLC Loop Trouble | Voice Aux In 1-8 Alarm |
| | | AC Loss Trouble | F1 Key Active |
| | | Battery Trouble | F2 Key Active |
| | | Ground Fault Trouble | F3 Key Active |
| | | Phone Line Trouble | F4 Key Active |
| | | Reporting Account Trouble | Voice Aux in 1-2 |
| | | Printer Trouble | System Mic Active |
| | | Aux Power Trouble | Background Music |
| | | System Switch Trouble | |
| | | Output Group Trouble | |

1    Temporal 4 and other recognized coding should not be used for NAC circuits mapped to CO supervisory events
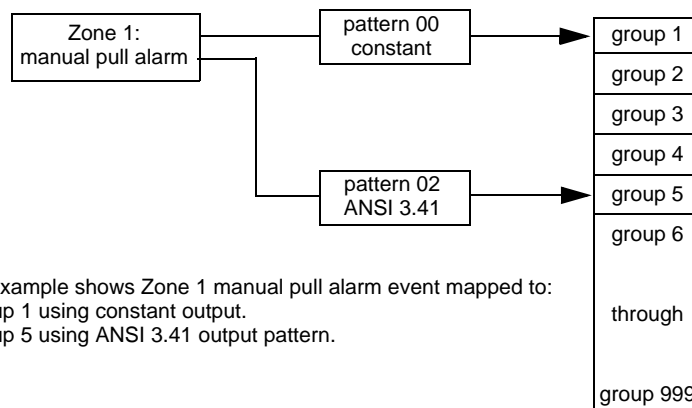


**Figure 7.4  Example of Zone Events Mapped to Output Groups and Patterns**
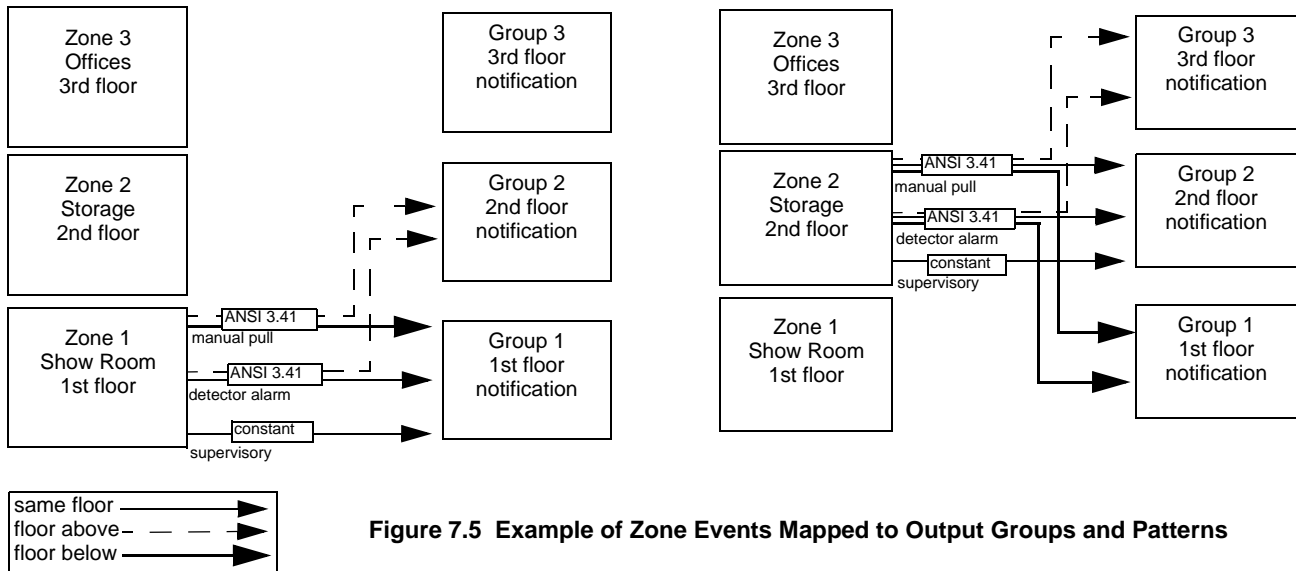
**Figure 7.5  Example of Zone Events Mapped to Output Groups and Patterns**
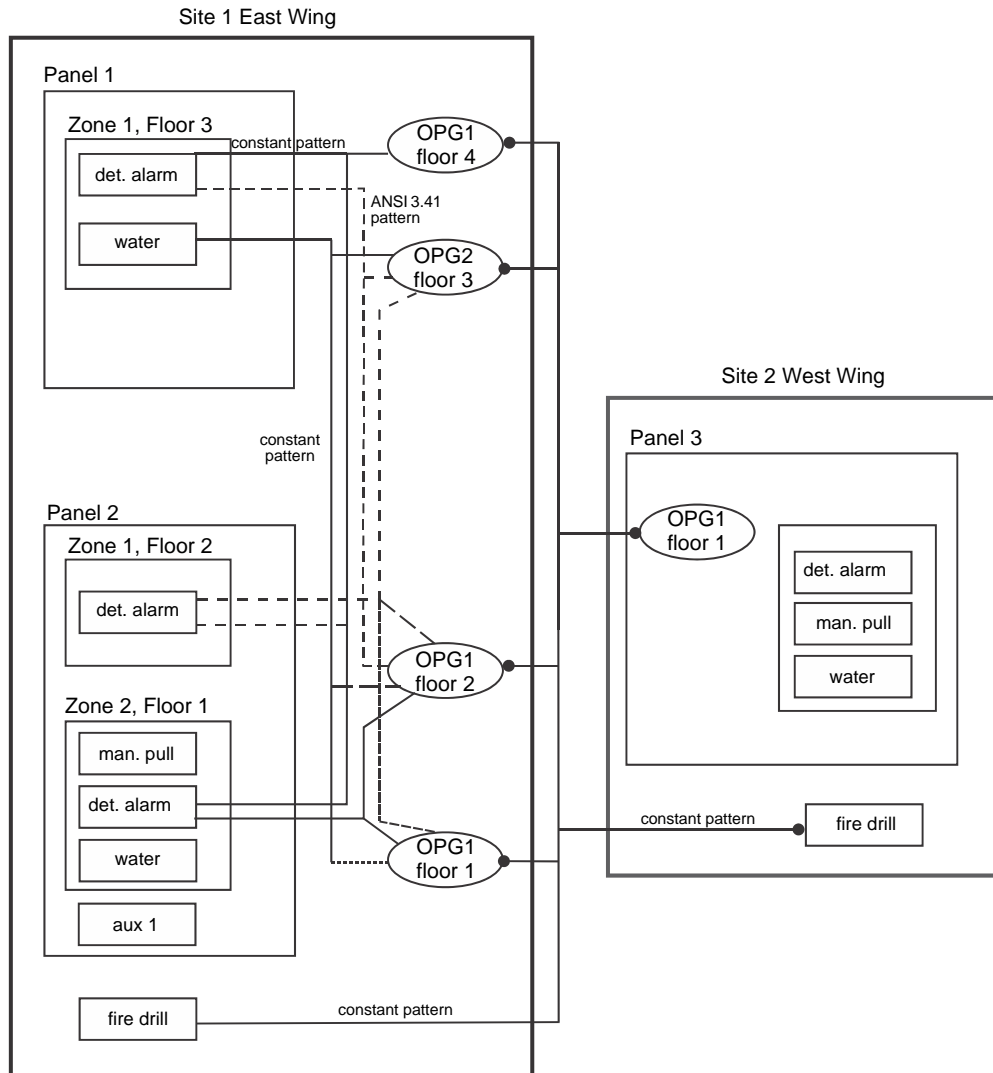


**Figure 7.6  Example of Event Mapped to Output Groups and Patterns within a Networked Site**

## 7.2.4  Mapping LED Points

Figure 7.7 is a simple example showing how LED points are mapped to zones and output groups. Typically you would create two output groups for each zone, one for alarms and one for troubles. (LED points are available when models TR-5865-3/4 and/or TR-5880 are used with the system).

### Mapping LEDs to Zones and Output Groups

| Zone 1 manual pull alarm | → | **Output group 1** red LED 1 <br><br> alarm outputs (horns, strobes, etc.) | An alarm in Zone1 will activate red LED1 and any other required outputs. |
| Zone 1 detector alarm | | | |
| Zone 1 trouble | → | **Output group 2** yellow LED 2 <br><br> maintenance room sounder | A trouble in Zone1 will activate yellow LED2 plus any other needed outputs. (In this example, it activates a sounder in the maintenance room.) |
| Zone 2 manual pull alarm | → | **Output group 3** red LED 3 <br><br> alarm outputs (horns, strobes, etc.) | An alarm in Zone2 will activate red LED3 and any other required outputs. |
| Zone 2 detector alarm | | | |
| Zone 2 trouble | → | **Output group 2** yellow LED4 | A trouble in Zone2 will activate yellow LED4. |

**Figure 7.7  Example of LED Points Mapped to Output Groups (applies to Models TR-5865-3/4 and TR-5880)**

## 7.2.5  Mapping LED Points for a Networked System

An alarm in Zone 1, Panel 1 could activate the red LED in Output Group of Panel 1, 2, and 8.

| Panel 1 Zone 1 Manual Pull Alarm | Output Group 1 red LED1 alarm output (horn, strobes, etc.) | | Panel 2 Zone 1 | Output Group 1 Red LED | | Panel 8 Zone 1 | Output Group 1 Red LED |
| Panel 1 Zone 1 Detector Alarm | Output Group 2 | | Panel 2 Zone 2 | Output Group 2 | | Panel 8 Zone 2 | Output Group 2 |
| Panel 1 | | | Panel 2 | | | Panel 3 | |
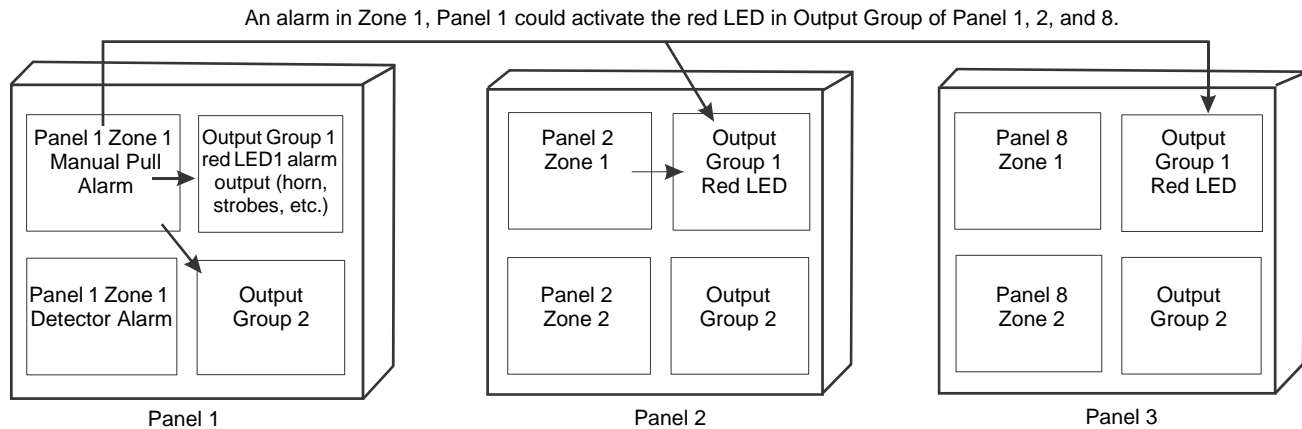
Note: If the panels are not in the same site, the mapping must be set to non-latching to disable the LED when the Trouble/Alarm is cleared.

**Figure 7.8   Example of Expanding Mapping of LED Points Across Panels**

## 7.3  Programming Using the HFSS Software Suite

You can use the HFSS Software Suite to program the control panel onsite (personnel will need to be onsite during the upload or download process). HFSS is a software package that lets you easily program the control panel using a Windows-based computer. HFSS is needed for Mapping. When using HFSS, you can set up the programming options for the panel, save the options in a file, then download the file to the panel. You can connect to the control panel directly using the onboard USB or Ethernet. Updates are available at www.trigaglobal.com.

## 7.4  Programming Using an Annunciator

You can program the control panel from a system annunciator, using either the control panel's onboard annunciator or a TR-RD1G/R or TR-RD2G/R remote annunciator.

The following subsections describe programming basics, including a description of editing keys available for programming and how to move through programming menus. Section 8 contains specific information about individual programming options.

📑 **NOTE:**   Output mapping cannot be programmed through the onboard and remote annunciators. Mapping is only available through the HFSS Software Suite.

### 7.4.1  Entering / Exiting Panel Programming

#### Entering Program Mode

1.   Login to the panel. (Refer to Section 9.2.1).
2.   Select 7 for the Programming Menu. See Section 8 for detailed information and Section 7.5 for a quick reference listing all programmable options and JumpStart defaults.

#### Exiting Program Mode

When you have completed working with the menus, press the left arrow several times until you exit from the Programming Mode. Two prompts will display. At the first prompt, a message appears indicating to exit the Program Menu (select Yes or No as appropriate). At the second prompt, a message indicates if the user accepts all changes. If you select No, any changes you have made since you entered the Program Menu will have no effect.

#### Moving Through the Menus

Figure 7.9 shows how to move through the menu screens, using the main menu screen as an example.

The first line of the display identifies the menu.

The option available for editing displays on the second row. An equal sign (=) follows the option number.

```
► <Main Menu>              Panel 2      ↑
  2=Point Functions
  3 Event History
  4 Set Time & Date                     ↓
```

Arrows on the LCD indicate that there are more options available by pressing the up/down arrow keys.

[ENTER] Press Enter to select the desired option.    [↑] Press the up/down arrow keys to move through the menus. [↓]

**Figure 7.9  Moving through Program Menu**

#### Selecting Options and Entering Data

There are several ways to make programming selections using the control panel depending on which screen you are currently viewing. The chart below is a generic explanation.

| To | Press |
|---|---|
| Select from a menu | Enter the number of the option. |
| Enter numeric data | Press the appropriate number on the annunciator. |
| Enter text (alphanumeric data) | Enter each character individually using the Up and Down arrow keys until the one you wish to select displays. Then press right arrow to select the character. See Appendix A for a complete list of characters. |
| Select from a scrolling list | Use up arrow and down arrow to move through a list of available options. When the option you want to select is displayed, press ENTER. |

**Table 7.1  Menu Options**

## 7.5 Programming Menu Quick Reference

This section of the manual lists all Panel Programming options in the order they appear on the sub-menus. Default settings are indicated in text or marked with an asterisk (*). The comments column provide quick information and a reference to a section (if applicable) which has more detailed information.

| Menu | | | Options/Defaults | | Comments |
|---|---|---|---|---|---|
| Module | Edit Module | Select Module | Edit Module ID | | See Section 8.2.1 |
| | | | Enter Module Name | | |
| | | | Edit Module specific options | | |
| | Add Module | TR-5824 Serial/Parallel/IO | | | See Section 8.2.2 |
| | | TR-RD2G/R LCD Annunciator | | | |
| | | TR-RD1G/R LCD Annunciator | | | |
| | | TR-6815 SLC Loop Expander | | | |
| | | TR-PS1 Power Supply | | | |
| | | TR-5880 LED/IO Module | | | |
| | | TR-5865-LED Annunc. Module | | | |
| | | TR-50W Voice Amplifier[1] | | | |
| | | TR-125W Voice Amplifier[1] | | | |
| | | TR-DUAL50W Voice Amplifier[1] | | | |
| | | ECS-NVCM Network Voice Control Module[1] | | | |
| | | ECSRVM Remote Voice Module[1] | | | |
| | | TR-NIC Network Interface Card | | | |
| | Delete Module | Select Module | | | See Section 8.2.3 |
| | View Module List | Select Module | | | See Section 8.2.4 |

**Table 7.2 Programming Menu Quick Reference Chart**

| Menu | | | Options/Defaults | | | Comments |
|---|---|---|---|---|---|---|
| Zone | Edit Zone | Select Zone | Edit Zone Name | | | Section See "Edit Zone Name" on page 88. |
| | | | Zone Properties | Verification Type | *1-Count | See "Edit Zone Properties" on page 88. |
| | | | | | 2-Count | |
| | | | | | Alarm Ver. | |
| | | | | | PAS | |
| | | | | | SNGL ILOCK | |
| | | | | | DBL ILOCK | |
| | | | | Heat Temp Set | 135° to 190°F | SLC device. See "Edit Zone Properties" on page 88. |
| | | | | Smoke Sensitivity | Low | See "Edit Zone Properties" on page 88. |
| | | | | | Medium | |
| | | | | | High | |
| | | | Zone Accessory Opt | Single/Multi-station Cadence | 00-23 | See "Zone Accessory Options" on page 90. |
| | | | | CO Single/Multi station Cadence | 00-23 | |
| | | | | Local Zone | Yes | |
| | | | | | No | |
| | View Zone Points | Select Zone | | | | See Section 8.3.2 |
| Group | Edit Group | Select Group | Group Name | | | See "Edit Group Name" on page 90. |
| | | | Group Properties | Voice Group | Y or N | See "Edit Group Properties" on page 90. |
| | | | | Switch | 1-64 | |
| | | | | Template Override | Y or N | |
| | | | | Allow Sys Override | Y or N | |
| | | | | Dynamic Act/Template Override Cadence | 00-23 (See Appendix B.) | |
| | View Group Points | Select Group | | | | See Section 8.4.2 |
| | Edit OPG Template | Select template | Modify name and which output groups are in template | | | See Section 8.4.3 |

**Table 7.2  Programming Menu Quick Reference Chart (Continued)**

| Menu | | Options/Defaults | | | | | Comments |
|---|---|---|---|---|---|---|---|
| Point | Devices on Internal SLC and External TR-6815 | Enter Pt | Select Module | UNUSED | | | See Section 8.5 |
| | | | | SWITCH 2, 3, 4, | MANUAL PULL | | |
| | | | | | WATERFLOW | *LATCH | |
| | | | | | | NON-LATCH | |
| | | | | | FIRE SUPERVSY | *LATCH | |
| | | | | | | NON-LATCH | |
| | | | | | FIRE DRILL | | |
| | | | | | SILENCE | | |
| | | | | | RESET | | |
| | | | | | P.A.S. ACK | | |
| | | | | | ZONE AUX1 | *LATCH | |
| | | | | | | NON-LATCH | |
| | | | | | ZONE AUX2 | LATCH | |
| | | | | | | NON-LATCH | |
| | | | | | SYSTEM AUX1 | LATCH | |
| | | | | | | NON-LATCH | |
| | | | | | SYSTEM AUX2 | LATCH | |
| | | | | | | NON-LATCH | |
| | | | | | DETECTOR | | |
| | | | | | FIRE TAMPER | LATCH | |
| | | | | | | NON-LATCH | |
| | | | | | MANUAL RELEASE | | |
| | | | | | INTERLOCK | | |
| | | | | | STATUS POINT | | |
| | | | | | CO DETECTOR SWITCH | | |
| | | | | | CO SUPERVISORY DETECTOR SWITCH | LATCH | |
| | | | | | | NON-LATCH | |
| | | | | | ECS INPUT | LATCH | |
| | | | | | | NON-LATCH | |
| | | | | | ECS TAMPER | LATCH | |
| | | | | | | NON-LATCH | |
| | | | | | ECS SUPER-VISORY | LATCH | |
| | | | | | | NON-LATCH | |
| | | | | | TROUBLE_MON | | |
| | | | | NOTIF 2,3,4, | OUTPUT PT | Select Group | |
| | | | | | AUX CONST | | |
| | | | | | AUX RESET | | |
| | | | | | AUX DOOR | | |

**Table 7.2  Programming Menu Quick Reference Chart (Continued)**

| Menu | | Options/Defaults | | | | | Comments |
|---|---|---|---|---|---|---|---|
| Point (cont.) | Devices on Internal SLC and External TR-6815 | Enter Pt | Select Sensor | RELAY 2,3,4, | OUTPUT PT | Select Group | See Section 8.5 |
| | | | | | AUX RESET | | |
| | | | | | AUX DOOR | | |
| | | | | DETECTOR 2,3,4, | 2-WIRE SMOKE | Select Zone | |
| | | | | W. Gateway 2,3,4, | | | |
| | | | | W SWITCH 2,3,4,5 | Same as SWITCH | | |
| | | | | W-RELAY 2,3,4,5 | Same as Relay | | |
| | | | | UNUSED | | | |
| | | | | DETECTOR 2,3,4 | PHOTO | No Accessory base | |
| | | | | | | SDR BAS | Single station or Multi station Silence or Non-Silence |
| | | | | | | RLY BAS | |
| | | | | | | I-SdrBa (Intelligent Sounder Base) 2,3,4, | Latch or non-latch, Single station or Multi station, Silence or Non-Silence, volume high (default) or low |
| | | | | | ION | No Accessory base | |
| | | | | | | SDR BAS | Single station or Multi station Silence or Non-Silence |
| | | | | | | RLY BAS | |
| | | | | | | I-SdrBa (Intelligent Sounder Base) 2,3,4, | Latch or non-latch, Single station or Multi station, Silence or Non-Silence, volume high (default) or low |

**Table 7.2  Programming Menu Quick Reference Chart (Continued)**

| Menu | | Options/Defaults | | | | | Comments | |
|---|---|---|---|---|---|---|---|---|
| Point (cont.) | Devices on Internal SLC and External TR-6815 | Enter Pt | Select Sensor | DETECTOR 2,3,4 | HEAT[2,3,4] | | No Accessory base | |
| | | | | | | SDR BAS | Single station or Multi station Silence or Non-Silence | |
| | | | | | | RLY BAS | | |
| | | | | | | I-SdrBa (Intelligent Sounder Base) 2,3,4, | Latch or non-latch, Single station or Multi station, Silence or Non-Silence, volume high (default) or low | |
| | | | | | PHOTO DUCT 2,3,4 | | No Accessory base | |
| | | | | | | DCT RLY | | |
| | | | | | ACCLIMATE 2,3,4, | | No Accessory base | |
| | | | | | | SDR BAS | Single station or Multi station Silence or Non-Silence | |
| | | | | | | RLY BAS | | |
| | | | | | | I-SdrBa (Intelligent Sounder Base) | Latch or non-latch, Single station or Multi station, Silence or Non-Silence, volume high (default) or low | |
| | | | | | HEAT HT 2,3,4, | | No Accessory base | |
| | | | | | | SDR base | Single station or Multi station Silence or Non-Silence | |
| | | | | | | RLY base | | |
| | | | | | | I-SdrBa (Intelligent Sounder Base) | Latch or non-latch, Single station or Multi station, Silence or Non-Silence, volume high (default) or low | |
| | | | | | PHOT-HEAT 2,3,4, | | No Accessory base | |
| | | | | | | SDR BAS | Single station or Multi station Silence or Non-Silence | |
| | | | | | | RLY BAS | | |
| | | | | | | I-SdrBa (Intelligent Sounder Base) | Latch or non-latch, Single station or Multi station, Silence or Non-Silence, volume high (default) or low | |
| | | | | | BEAM[2,3,4,] | | | |
| | | | | SUP DET 2,3,4 | Same function as DETECTOR | LATCH | | |
| | | | | | | NON-LATCH | | |

**Table 7.2  Programming Menu Quick Reference Chart (Continued)**

| Menu | | Options/Defaults | | | | Comments | |
|---|---|---|---|---|---|---|---|
| Point (cont.) | Devices on Internal SLC and External TR-6815 | Enter Pt | Select Sensor (cont.) | CO FIRE [2,3,4,] | CO ALARM/FIRE ALARM | No Accessory base | |
| | | | | | | SDR BAS | Single station or Multi station Silence or Non-Silence |
| | | | | | | RLY BAS | |
| | | | | | | I-SdrBA (Intelligent Sounder Base) | Latch or non-latch, Single station or Multi station, Silence or Non-Silence, volume high (default) or low |
| | | | | | CO ALARM/FIRE SUPR | No Accessory base | |
| | | | | | | SDR BAS | Single station or Multi station Silence or Non-Silence |
| | | | | | | RLY BAS | |
| | | | | | | I-SdrBA (Intelligent Sounder Base) | Latch or non-latch, Single station or Multi station, Silence or Non-Silence, volume high (default) or low |
| | | | | | CO SUPR/ FIRE ALARM | No Accessory base | |
| | | | | | | SDR BAS | Single station or Multi station Silence or Non-Silence |
| | | | | | | RLY BAS | |
| | | | | | | I-SdrBA (Intelligent Sounder Base) | Latch or non-latch, Single station or Multi station, Silence or Non-Silence, volume high (default) or low |
| | | | | | CO SUPR/ FIRE SUPR | No Accessory base | |
| | | | | | | SDR BAS | Single station or Multi station Silence or Non-Silence |
| | | | | | | RLY BAS | |
| | | | | | | I-SdrBA (Intelligent Sounder Base) | Latch or non-latch, Single station or Multi station, Silence or Non-Silence, volume high (default) or low |
| | | | | W-Detector [2,3,4,5] | Photo [2,3,4,5] | See Section 8.5 | |
| | | | | | Photo-Heat [2,3,4,5] | | |
| | | | | | Heat [2,3,4,5] | | |
| | | | | W-SUP DET [2,3,4,5] | Same as W-Detector | | |

**Table 7.2  Programming Menu Quick Reference Chart (Continued)**

| Menu | | Options/Defaults | | | | Comments |
|---|---|---|---|---|---|---|
| Point (cont) | Internal Power and External Power | Enter Pt /Select Function | Select Sensor | UNUSED | | | See Section 8.5 |
| | | | | B NOTIF | NOTIF OUTPUT | Select Group Super-vised Yes or No | |
| | | | | | CONTROL CIRCUIT | | |
| | | | | A NOTIF | NOTIF OUTPUT | Select Group Super-vised Yes or No | |
| | | | | | CONTROL CIRCUIT | | |
| | | | | AUX PWR | CONSTANT | | |
| | | | | | AUX RESET | | |
| | | | | | AUX DOOR | | |
| | | | | | AUX SYNC[6] | | |
| | | | | B SWITCH | MANUAL PULL | Latch and Non-Latch feature only appear for WATERFLOW, FIRE SUPERVISORY, FIRE TAMPER, ZONE AUX1, ZONE AUX2, SYSTEM AUX1, SYSTEM AUX2, ECS INPUT, ECS TAMPER, and ECS SUPERVISORY. | |
| | | | | | WATER-FLOW | | |
| | | | | | FIRE SUPER-VISORY | | |
| | | | | | FIRE TAMPER | | |
| | | | | | FIRE DRILL | | |
| | | | | | SILENCE | | |
| | | | | | RESET | | |
| | | | | | P.A.S. ACK | | |
| | | | | | ZONE AUX 1 | | |
| | | | | | ZONE AUX2 | | |
| | | | | | SYSTEM AUX1 | | |
| | | | | | SYSTEM AUX2 | | |
| | | | | | MANUAL RELEASE | | |
| | | | | | INTERLOCK | | |
| | | | | | ECS INPUT | If ECS INPUT is selected choose associated EVENT | |
| | | | | | ECS TAMPER | | |
| | | | | | ECS SUPERVISORY | | |
| | | | | | STATUS POINT | | |
| | | | | A SWITCH | Same as B SWITCH | | See Section 8.5.2 |
| | | | | B DETECT | 2-WIRE SMOKE | | |
| | | | | | 4-WIRE SMOKE | | |
| | | | | | CO 4 WIRE DET | | |
| | | | | | CO 4 WIRE SUP DET | Latch | |
| | | | | | | Non-Latch | |
| | | | | A DETECT | 2-WIRE SMOKE | | |
| | | | | | 4-WIRE SMOKE | | |
| | | | | | CO 4 WIRE DET | | |
| | | | | | CO 4 WIRE SUP DET | Latch | |
| | | | | | | Non-Latch | |
| | | Select Group or Zone Number | | | | | Group or Zone selection will appear depending on the function selected |
| | | Edit Name | | Enter Name | | | |
| | TR-5880/TR-5865/TR Series Amplifiers | Enter Point # | | UNUSED | | | See Section 8.5.3 and Section 8.5.4 |
| | | | | NOTIF | | | |
| | | Select Group | | | | | |
| | | Edit Name | | Enter Name | | | |
| | TR-RVM, ECS-NVCM | Enter Pt /Select Function | | UNUSED | | | See Section 8.5.5 |
| | | | | SWITCH[7] | SUPERVISORY | | |
| | | | | | TAMPER | | |

| | Menu | | Options/Defaults | | | Comments |
|---|---|---|---|---|---|---|
| System Options | Communication Options | Auto Time Test | Set the Hour | *02:00AM | | See "Auto Test Time" on page 99. |
| | | | Set the Minutes | | | |
| | | | Select AM/PM | | | |
| | | | Enter Interval | 24 hrs,12 hrs, *6 hrs, 4 hrs | | |
| | | Phone Lines | For each phone line (1 & 2) select: | | | |
| | | | Dialing Prefix | Up to 9 digits | *none | See "Phone Lines" on page 99. |
| | | | # of Answer Rings | Range: 00-15 | *06 | Number of rings before panel answers a call from a computer |
| | | | Select Dialing Option | TT | *TT | Touch Tone |
| | | | | TT/PL | | TouchTone alternating with pulse |
| | | | | PULSE | | Pulse dialing |
| | | | Rotary Pulse Format | U = 60/40 | *U | See "Phone Lines" on page 99. |
| | | | | E = 66/34 | | |
| | | | Dial Tone Disabled | Y or N | *N | |
| | | | Monitor Line | Y or N | *N | |
| | | | Answering Machine Bypass | Y or N | *N | |
| | | | Phone Line Unused | Y or N | *N | |
| | | Edit Ethernet | IP Address | | | See "Edit Ethernet" on page 101. |
| | | | Subn Mask SubNet | | | |
| | | | Default Gateway | | | |
| | | | DHCP Enable | | | |
| | | AlarmNet Timers | Ethernet Supervise | 75 sec, 90 Sec, 3 min, 5 min, 1 hr, 24 hrs, 30 days, None | *5 Minutes | See "AlarmNet Timers" on page 101. |
| | | | Old Alarm Time | 10 min, 15 min, 30 Minutes, 1 hr, 2 hrs, 4 hrs, 8 hrs, 12 hrs, 24hrs, none | *30 Minutes | |
| | Communication Options | Phone Line Gains | Dialing | High | *High | See "Phone Line Gains" on page 101. |
| | | | | Low | | |
| | | | | Normal | | |
| | | | Reporting | Low | *Low | |
| | | | | Normal | | |
| | | | | High | | |

**Table 7.2  Programming Menu Quick Reference Chart (Continued)**

| Menu | | Options/Defaults | | | Comments |
|---|---|---|---|---|---|
| | Daytime/Nighttime Sensitivity | Enable/Disable | Yes | *No | See "AlarmNet Timers" on page 101. |
| | | | No | | |
| | | Day Start | Enter time | *6:00AM | |
| | | Night Start | Enter time | *6:00PM | |
| | | Days of the Week | Select days | *-MTWTF- | |
| | Holiday Days | Holidays 1 to 18 | Enter dates | *01/01, 07/04, 12/24, 12/25 | See Section 8.6.3. |
| System Options cont. | Time Options | Water Flow Delay | 0 - 90 Seconds | *1 sec | Water Flow delay is the number of seconds before a water flow alarm is generated. See "Water Flow Delay" on page 102 |
| | | Alarm Verify | 60 to 250 seconds | *60 sec | See "Alarm Verify" on page 103. |
| | | Low AC Report Time | 0 - 30 hours | *3 hrs | See Section 8.6.4. |
| | | AC Freq: | 50 Hz | *60Hz | See "Change AC Line Frequency" on page 103. |
| | | | 60 Hz | | |
| | | | Internal | | |
| | | Clock Display Format | AM/PM | *AM/PM | See "Clock Format (AM/PM or Military)" on page 103. |
| | | | MIL | | |
| | | Auto-resound | 4 hours | *24 hours | See "Auto-Resound (4 or 24 hours)" on page 103. |
| | | | 24 hours | | |
| | Miscellaneous Options | SYNC Strobes when Silenced | Y | *N | See "Strobes Active when Silenced" on page 103. |
| | | | N | | |
| | | Auto Display Events | Y | *N | See "Auto Display Events" on page 103. |
| | | | N | | |
| | Daylight Saving Options | Auto Daylight Saving Time | Y | *Y | See "Daylight Saving Time Start and End" on page 104. |
| | | | N | | |
| | | DST Start | Select week: 1st, 2nd, 3rd, 4th or Last | Select month | See "Daylight Saving Time Start and End" on page 104 |
| | | DST End | | | |
| | Edit Banner | Refer to Appendix A. | | | See Section 8.6.7. |
| | SLC Family | Triga | | | See Section 8.6.8. |
| Jump Start AutoPrg | | | Y (Yes) | | See Section 8.6.9. |
| | | | N (No) | | |
| Restore Defaults | | | Y (Yes) N (No) | | See Section 8.7. |
| Voice Options[1] | VCM Maintenance | PC Connection | | | See Section 8.8. |
| | | Local Recording | | | |
| | Edit Voice Settings | Enable Dual Channel System | | | |
| *=Default | | | | | |

**Table 7.2  Programming Menu Quick Reference Chart (Continued)**

1    Requires ECS module programmed into the panel.
2    Available on internal SLC.
3    Available on external TR-6815 expander.
4    Available with Triga SLC family.
5    Requires wireless gateway.
6    AUX SYNC setting is only applicable for the TR-B200S Intelligent Sounder Base.
7    Requires ECS module programmed into the panel.

# Section 8: Programming

This section of the manual describes how to manually program the control panel from the built-in annunciator. Each subsection discusses these menu options in detail. All options described in this section can be performed using the HFSS Software Suite.

> **NOTE:** JumpStart auto-programming should be run Before any customized programming is performed. Thoroughly test the system after running JumpStart because it automatically programs the system, searching for and configuring all SLC and SBUS devices it finds. JumpStart allows you to confirm the integrity of the installation prior to performing any custom programming. After determining that the hardware is properly installed, custom programming can be performed.

## 8.1 UL 864 / UL 2572 Programming Requirements

| NOTICE TO USERS, INSTALLERS, AUTHORITIES HAVING JURISDICTION, AND OTHER INVOLVED PARTIES: |
|---|
| This product incorporates field programmable software. In order for the product to comply with the requirements in the Standard for Control Units and Accessories for Fire Alarm Systems, UL 864 and UL 2572, certain programming features or options must be limited to specific values or not used at all as indicated below. |

| Programming Option | Menu Item | Permitted in UL 864 (Y/N) | Permitted in UL 2572 (Y/N) | Possible Settings | Settings Permitted in UL 864 | Settings Permitted in UL 2572 |
|---|---|---|---|---|---|---|
| Time Options | Auto-resound | Yes | Yes | 4 hrs, 24hrs | 4 hours if using SWIFT devices 24 hours if using other devices | 4 hours if using SWIFT devices 24 hours if using other devices |
| Time Options | Low AC Report Delay | Yes | Yes | 0-30 hours | 1-3 hours | 1-3 hours |
| Communication Options | Auto Test Time | Yes | Yes | 4, 6, 12, and 24 hrs | 4 or 6 hours | 4 or 6 hours |
| Silencing Options | Auto Silence | Yes | Yes | 0-60 minutes | 3-60 minutes | 3-60 minutes |
| Display Oldest Event | Y (Enabled) | Yes | Yes | Yes or No | Yes | Yes |
| | N (Disabled) | No | No | Yes or No | No | No |
| Initial Delay | 0-28 | Yes | Yes | 0-28 hours | 3 hours | 3 hours |
| Alarm Verification[1] | Alarm Verification | Yes | Yes | 60-250 seconds (Confirmation period) | 0-60 seconds | 0-60 seconds |
| Manual Release Switch[2] | Manual Release | Yes | Yes | 0-120 seconds (delay period) | 0-30 seconds (delay period) | 0-30 seconds (delay period) |
| Auto Reset ECS MIC Triggered Event | Auto Reset ECS MIC Triggered Event | Yes | Yes | Never Timer Event Disabled | Never Timer Event Disabled | Never Timer Event Disabled |
| ECS Input | ECS Input | Yes | Yes | Latching Non-Latching | Latching | Latching |
| Event Priority | CO Alarm | No | No | Yes & No | No | No |

**Table 8.1 Programming Requirements**

1   When 2-count delay is active, you cannot use the alarm verification.
2   The Manual Release Switch shall override any pre-discharge delays resulting in an immediate release or start of the Manual Release Delay period. The delay period shall be 30 seconds or less from the activation of the switch to the actuation of the releasing device(s).
3   Temporal 4 and other recognized coding should not be used for NAC circuits mapped to CO supervisory events.

## 8.2 Modules

This section lists the options available under the module option in the Panel Programming. The following modules are available for the control panel: TR-5824 serial/parallel/IO printer interface module, TR-RD2G/R, and TR-RD1G/R LCD remote annunciators, TR-6815 SLC Loop Expander for SLC devices, TR-PS1 power supply,TR-5880 LED I/O module, TR-5865 LED annunciator Module, TR-50W, TR-125W, TR-INT50W, TR-DUAL50W audio amplifiers, ECS-NVCM network voice control module, TR-RVM remote voice module, and TR-NIC network interface card.

### 8.2.1 Edit Modules

The features that can be edited when this option is selected are module ID, module name, or features that are specific to the module to be edited.

To edit an existing module:

1.  Login to the panel. The panel will automatically go to the main menu.
2.  Select 7 for Panel Programming.

> **NOTE:** If you are working on a networked system you will need to select which panel you want to program.

3.  Press 1 to enter Module Menu.
4.  Press 1 to edit a module.
5.  Use the up or down arrow key to select the module you wish to edit.Then press ENTER.

### Editing Module ID

6.  Press the up or down arrow key to modify the module ID.

📄 **NOTE:** You cannot edit the module ID for any internal devices, the ECS-NVCM, or the TR-NIC.

### Naming Modules

You can assign an English name to a system hardware module to make it easier to recognize on a display.

7.  If you wish to edit the module's name, press ENTER on the module's name. Then, press the number keys corresponding to the character for the module's, name (or press right arrow key to bypass editing the name).

📄 **NOTE:** See Appendix A for editing names.

Default name for the Internal SLC module (no customization) →

```
Internal SLC Loop
Module ID: 97
Internal SLC
<Module Name>                    More→
```

Use the up or down arrow key to select the mode.
Press the number until the desired character is shown.
Press left/right arrow key to move. →

```
<Enter Module Name> Enter: Accept
Internal Power Supply
 1[abc]  2[def]  3[ghi]   4[jkl] 5[mno]
 6[pqr]  7[stu]  8[vwx]9[yz ]0[Spc]
```
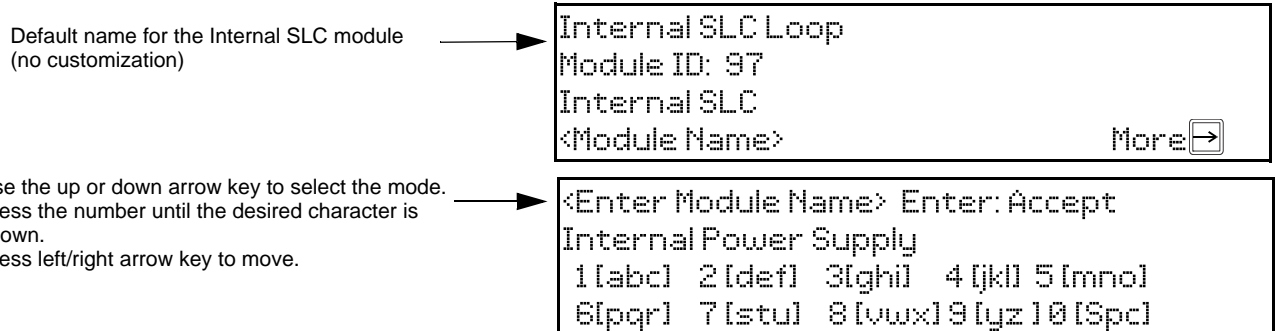
**Figure 8.1  Edit Module Name Programming Screen Example**

### Changing Module Options

Each module has a unique set of options that specifically applies to the functionality of the module being edited.

8.  Use the left and right arrow keys to move between available options.
9.  Option settings are edited by pressing the up or down arrow key or using the keypad for numerical entry.

## 8.2.2 Adding a Module

If you need to add a new hardware module to the system, follow these steps.

1.  Login to the panel.
2.  Select 7 for Program Menu.
3.  Press 1 to enter Module Menu.
4.  Press 2 to add a module.
5.  From the next screen, use the up or down arrow to choose a module type to add from the <New Module Type> screen.

    The screen will display "Adding module [#]..." for a few moments. You will be returned to the <New Module Type> screen where you can add additional modules if desired.

You must save changes when you exit the Program Menu or the new module will not be added.

📄 **NOTE:** If you add a module that has not been physically connected, the panel will go into trouble after it reinitializes (when you exit the Program Menu). When the new module is attached, the trouble will correct itself automatically.

## 8.2.3 Deleting a Module

To delete a module, follow these steps:

You must be in the Main Menu to perform this task. If necessary, login to the panel.

1.  Select 7 for Panel Programming.
2.  Press 1 to enter module menu.
3.  Select the desired module.
4.  Press 3 to delete a module.
5.  Select the module to be deleted.
6.  A warning screen will display. If you want to proceed with deleting the module, select Yes. To cancel, select No.

## 8.2.4 View Module List

To view a list of all modules, follow these steps:

You must be in the Main Menu to perform this task.

1.  Login to the panel.
2.  Select 7 for Panel Programming.

3.    Press 1 to enter module menu.
4.    Press 4 to view list. Use the up or down arrow key to scroll though list.

## 8.3  Zone

Through the zone option in Panel Programming you can edit and view zone points. Selections made here affect all detectors and switches in the zone. Up to 999 zones can be used in each panel.

### 8.3.1  Edit Zone

Features that can be edited through the Edit Zone option are zone name, zone properties (which includes, zone type, and detector sensitivity), zone output mapping, and zone accessory options.

To edit a zone, follow these steps:

1.    Login to the panel.
2.    Select 7 for Program Menu.
3.    Press 2 to enter Zone Menu.
4.    Press 1 to edit a zone.
5.    Enter the zone number, then press ENTER.

#### Edit Zone Name

6.    Press 1 to edit the selected zone name. You can use words to display a descriptive name for a zone.

**NOTE:**  See Appendix A for editing names.

#### Edit Zone Properties

Zone properties consist of alarm delay characteristics, heat detector sensitivity, and smoke detector sensitivity.

1.    Do steps 1 through 5 of Section 8.3.1.
2.    Press 2 to edit the properties of the selected zone.

Zone number being programmed ———►
Z001
Type:1-Count_ _ _ _   ◄——— Detection type also selected from this screen (see Table 8.2).
Heat Sensitivity: [135]Farenheit   ◄——— Select the temperature that will cause heat detectors in this zone to go into alarm. Range: 135°-190°
Smoke Sensitivity: [LOW ]
Select the sensitivity: ———► LOW, MEDIUM, or HIGH
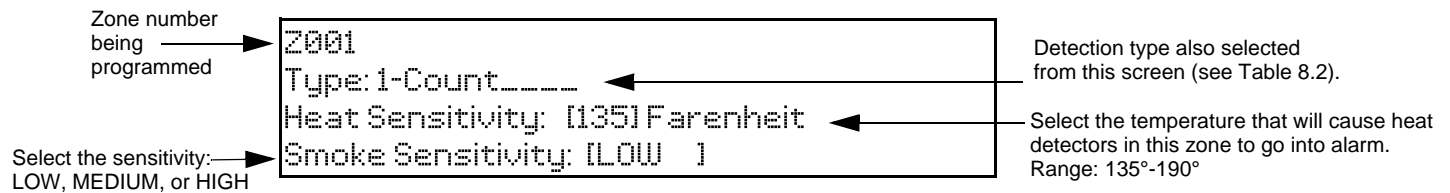
**Figure 8.2  Edit Zone Properties**

**NOTE:**  You only see smoke sensitivity on the TR-2100 if the daytime/nighttime sensitivity is off under the System Options. (See Section 8.6.2). Otherwise, if you have Daytime/Nighttime Sensitivity on, this will bring up a Smoke Sens Day and Night, 2 separate widgets with sensitivity as being either low, medium, or high for each.

#### ■ Alarm Delay Characteristics

The programmed zone type is provided for user reference only. Use HFSS to modify the zone type.

Table 8.2 lists the alarm delay characteristics and a description of each.

| Type of Delay | Description |
|---|---|
| 1-Count[1] | One Count (No Delay). When this option is enabled, an alarm occurs immediately when a single device of any of the following types goes into alarm: detector, manual pull, water flow, Aux1 or Aux2. This is considered the most typical operation and is the default for all zones. |
| 2-Count | When this type of alarm delay is used, two or more detectors within the zone must go into alarm in order for the zone to report an alarm. Switches of type manual pull, water flow, Detector Switch, Aux1 and Aux2 are an exception; they will cause an alarm when only one switch is in alarm.<br>When a single detector is in alarm in a 2-Count zone, the system enters a pre-alarm condition. In a pre-alarm condition, the touchpad PZT beeps and the annunciator display indicates that a pre-alarm has occurred. If the zone has been mapped to an output group for the pre-alarm event, the output group will activate. The pre-alarm will not be reported to the central station. |
| Alarm Verification | Alarm verification is an optional false alarm prevention feature that verifies an alarm condition by resetting the smoke detector. If the alarm condition still exists by the time the reset cycle has completed, the detector will go into alarm. If the detector is no longer in alarm, no report will go to the central station. The alarm verification sequence is ignored if the zone is already in alarm. |

**Table 8.2  Alarm Delay Types**

| Type of Delay | Description |
|---|---|
| PAS-Positive Alarm Sequence[2] | This option is intended to be used with an acknowledge switch. An alarm is delayed for 15 seconds, giving on-site personnel a chance to investigate the alarm. If the acknowledge switch is not activated within 15 seconds, an alarm occurs automatically.<br>If this option is enabled for a zone, the zone will respond to an alarm condition as follows:<br>✓ The zone will not go into alarm for 15 seconds to allow an on-site operator to activate the acknowledge switch.<br>✓ If the operator does not press the acknowledge switch within 15 seconds, the zone will go into alarm.<br>✓ If the operator presses the acknowledge switch within 15 seconds, a 180-second time-frame will begin counting down. This time-frame allows the operator to investigate the cause of the alarm.<br>✓ If the operator performs a reset within 180 seconds, the alarm will not occur.<br>✓ If the operator does not perform a reset within 180 seconds, an alarm will occur automatically.<br>✓ The PAS feature will be overridden if another alarm occurs. |
| Alternate P.A.S. - Positive Alarm Sequence[2] | An improved version of PAS is available with software version 6.04 or higher, for use with the TR-RD2G and TR-RD2R only. Existing systems with PAS enabled will still function normally.<br>The PAS option will program an automatic, addressable detector to delay panel activation (including alarm relay and communicator) for a period of 15 seconds plus a delay time of up to three minutes. When a detector triggers an alarm, the onboard piezo sounds immediately, but the mapped output groups (e.g. NACs, control/relay modules) are prevented from activating for 15 seconds. This inhibit time is factory set and cannot be changed.<br>Pressing the ACK key during the 15 second inhibit time will start a timer which prevents activation of the mapped output groups for an additional time duration for up to three minutes and display a countdown for the three minute delay. After the delay, the mapped output groups will activate if the source of the alarm is not cleared. If a second alarm occurs during either time delay, the alarm will be processed immediately, causing activation of the appropriate output groups.<br>If PAS is enabled,<br>✓ the onboard piezo sounds immediately.<br>✓ the control panel LCD display will indicate a PAS-alarm event and the active point.<br>✓ output groups (NACs and control/relay modules) of associated zones will be inhibited from activating for a factory-set duration of 15 seconds.<br>✓ pressing the ACK key will start a timer which inhibits output activation for additional time delay of up to three minutes.<br>✓ a second alarm occurring at any time during either time delay will cause immediate activation of all associated outputs. |
| SNGL ILOCK | See Section 9.6.1 for single interlock releasing operation. |
| DBL ILOCK | See Section 9.6.2 for double interlock releasing operation. |

**Table 8.2  Alarm Delay Types (Continued)**

1    TR-FIRE-CO and other CO detectors can only be installed in a 1 count zone. They will operate as a 1- count point regardless of the programmed zone type (i.e. Alarm Verification, 2 count, etc.).
2    PAS operation requires the approval of the local Authority Having Jurisdiction. Alarm Verification, two-count, single interlock releasing, and double interlock releasing cannot be used while PAS is enabled.

### ■ Heat Detector Sensitivity

Use this feature to set the temperature at which high temperature detectors will respond. All detectors in the zone will respond in the same way. The range for TR-HEAT-HT heat detectors is from 135°F to 190°F.

The high temperature heat detectors are absolute temperature devices. This means that they respond to an alarm immediately if the temperature in the zone goes above the programmed temperature.

3.    Enter the temperature at which the heat detector will respond, or use the up or down arrow to scroll through the range or enter directly from the number keys on the annunciator, then press ENTER.

### ■ Smoke Detector Sensitivity

**NOTE:** Drift compensation is automatic for all smoke detectors (photoelectric and ionization). The feature is always in effect. No programming is required. See Section 9.3.11 for information about how to check if a detector is in UL compliance.

All detectors in the zone will respond as programmed in this menu location.

| Type of Smoke Detector | Choices | Comments |
|---|---|---|
| TR-PHOTO and TR-PHOTO-T | Low (3.5% obscurity) | If the day/night sensitivity option is selected, you can have different sensitivity settings during the day and at night. You can determine the days of the week that Day/Night Sensitivity will automatically adjust. You can also designate specific days as Holidays. Holiday and weekend days use night sensitivity for the entire day. |
| TR-PHOTO and TR-PHOTO-T | Medium (2.5% obscurity) | |
| TR-PHOTO and TR-PHOTO-T | High (1.5% obscurity) (Default) | |
| DNR with TR-PHOTO or TR-PHOTO-R | Low (2.5% obscurity) | |
| DNR with TR-PHOTO or TR-PHOTO-R | Medium (2.0% obscurity) | |
| DNR with TR-PHOTO or TR-PHOTO-R | High (1.5% obscurity) (Default) | |

**Table 8.3  SD, IDP and SK Detector Sensitivity Choices***

1. Detectors are suitable for Open Area Protection within the listed air velocity range. Typically, this range is 0 - 4,000 ft/min for photoelectric detectors and 0 - 1,200 ft/min for ionization detectors. Be sure to confirm this range before installing the detector by referring to the

Manufacturer's Installation Instructions.
2. Detectors will default to Open Area Protection (High Sensitivity). Where applicable, detectors will only be compliant with UL 268 7th Edition if they remain programmed to open area.
3. The alarm and threshold limits determined by the control unit interconnected to detectors that employ a special application mode/configuration are designed and shipped from the factory with the Detector Sensitivity Setting set to an acceptable Open Area Protection sensitivity being the default mode of operation.
The special application mode/configuration shall not be activated at the control unit without a deliberate action by the user to initiate the special application mode through an alternate detector sensitivity selection setting. Additionally, the extended label should be modified at this address to include the phrase 'SPECIAL APPLICATIONS' or 'SPECIAL APPS' for compliance with UL 864 requirements. Please refer to the FACP Programming/Installation Instructions for further instructions on altering extended labels.

**NOTE:**  Automatic drift compensation is always in effect for all detectors. See Section 9.3.11 for information about how to check if a detector is in compliance.

4.   Use the up or down arrow to scroll through the range or enter directly from the number keys on the annunciator, then press ENTER.

### Zone Accessory Options

1.   Login to the panel.
2.   Select 7 for Program Menu.
3.   Press 2 to enter Zone Menu.
4.   Press 1 to edit a zone.
5.   Enter the zone number, then press ENTER.
6.   Press 3 to edit the Zone's Accessory options.

Single or Multi-Station cadence pattern (choose from Patterns 00 to 02, 23). See Appendix C.

CO Single and Multi-Station Cadence (choose from Cadence Patterns 00 to 02, 23).

**NOTE:**  The B200S Intelligent Sounder base provides the recommended CO cadence pattern.

Local Zone (choose Y or N, for Yes or No).

**NOTE:**  If the SLC protocol is changed from SD to IDP/SK series and the cadence is no longer valid for IDP/SK, the zone cadence will be set to constant on.

## 8.3.2  View Zone Points

To view the points in a zone, follow these steps:

1.   Login to the panel. The panel will automatically go to the main menu.
2.   Select 7 for Panel Programming.
3.   Press 2 to enter zone menu.
4.   Press 2 to view zone points.
5.   Enter the number of the zone you wish to view, then press ENTER.

## 8.4  Group

An output group is made up of output points that have been programmed to respond in the same way. Output groups simplify programming because you only have to program the output characteristics that are common to all of the group points once, instead of programming each individual point. Once you have defined the characteristics of output groups, you can assign each point to the appropriate group. All valid output points are assigned to only one output group. Unused points are not assigned to any output group. Up to 999 output groups can be defined per panel.

## 8.4.1  Edit Group

In the Edit Group option, you can program the name of an output group and change the properties of that group.

To edit a group, follow these steps:

1.   Login to the panel. The panel will automatically access the Main Menu.
2.   Select 7 for Panel Programming.
3.   Press 3 to enter Group Menu.
4.   Press 1 to edit the Group.
5.   Enter the number of the group you want to edit, then press ENTER.

### Edit Group Name

6.   To edit the Group Name, press 1.

You can use words to display a descriptive name for a group.

**NOTE:**  See Appendix A for editing names.

### Edit Group Properties

7.   To edit the group properties, Press 2 from the Edit Group Menu.

The Edit Group Menu allows you to select options for each group for the following items:

> **NOTE:** These settings only apply to non-voice groups.

- Select Y for voice group and N for non-voice group.
- Select / Dynamic Activation switch number: used when the group is defined as a voice group; or as a non-voice group where Dynamic Activation is used. This option links the output group with a voice select switch on an ECS-RVM, ECS-NVCM, or switch expander for dynamic activation/deactivation. See "Activating Output Groups Dynamically" on page 123 for more information.
- Template Override is shown when set to Yes.
- Dynamic Activation is shown if a non-voice group is assigned to a Select/Dynamic Activation switch number
- Dynamic Activation / Template Override Cadence (shown when the Template override is set to Yes or if a non-voice group is assigned a Select/Dynamic Activation switch number): this setting sets the cadence of the non-voice group mapped to voice select switch when activated using dynamic activation or by a template. See "Activating Output Groups Dynamically" on page 123 and Section 8.5 for more information.

### ■ Defining Output Group Type

Each output group is defined as either a voice output group or a non-voice output group. Output points that are audio circuits (all circuits on the TR-50W, TR-125W, TR-DUAL50W, TRINT50W, and TR-CE4) can only be assigned to voice output groups. Output points that are non-voice circuits (all other points and circuits that are on all modules except the TR-50W, TR-125W, TR-DUAL50W, TR-INT50W, and TR-CE4) are assigned to non-voice output groups.C

Each of the output groups defined as voice can be mapped to a particular switch and LED on the ECS-NVCM, TR-RVM, and TR-SW24. This allows the user to see the state of the voice groups assigned to the switches.

This also lets the user individually select which areas they want to do a live page into. Output groups not defined as voice groups can also be assigned to these switches as long as there is a voice group already assigned to the group. This allows for dynamically activating/deactivating both voice and strobes/other outputs in an area with a single button press. See "Activating Output Groups Dynamically" on page 123.

### ■ Silencing Options

The following silencing options are available for each output group.

| Optional Timers | Description |
|---|---|
| Silence Inhibit | Timed Silence after Inhibit. If this option is selected, the output group must be audible for a programmed number of minutes before it can be silenced. If the condition that caused the output to activate has not cleared during the time-frame, the output can be silenced. If you select this option, select the timeframe in the delay field. Range is 0-60 minutes. |
| Auto Silence | Silenceable. The output group will automatically silence after the timer expires. Range is 0-60 minutes. |
| Auto Unsilence | If this option is selected, the output group can be silenced for a programmed time-frame. If the condition that caused the output to activate has not cleared during the time-frame, the output reactivates. If you select this option, select the time-frame in the delay field. Range is 0-60 minutes. |
| Startup Delay | When an alarm is generated, the output group will not activate until the timer expires assuming the event is still active. Range is 0-120 Seconds. |
| Silence Reset Across Sites | If this option is selected from the Network Programming Menu, in (4-40 display), the "Edit Silence-Reset Option" appears. In the (4x20 display), the "Edit Sil-Rst Opt" appears. The default value for "Silence-Rset Across Sites" is No. |
| Silence Reset from Non-ECS Display | If the user selects Yes in this option, the user can Silence-Reset all panels/sites from any panel in any site. After the user selects Yes, the options, "Reset Fire System" and "Reset Emergency System" appear. Both options appear whether or not the panel has ECS. If the user selects No in this option, the non-ECS panel will do a "Fire Reset" and no Menu appears. Other sites will not be affected. |
| Silence Reset from Multi-Site Display | In a Multi-Site Display, if the user selects "Silence" or "Reset", no action is required. |

**Table 8.4  Silencing Options**

## 8.4.2  View Group Points

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 7 for Panel Programming.
3. Press 3 to enter group menu.
4. Press 2 to view group points.
5. Enter the group number, then press ENTER.

## 8.4.3  Edit OPG Template

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 7 for Panel Programming.
3. Press 3 to enter group menu.
4. Press 3 to edit OPG Template.
5. Enter the Template number, then press ENTER
6. Press ENTER on the template name to edit the name.

You can use words to display a descriptive name for a group.

 **NOTE:** See Appendix A for editing names.

7.  Right arrow to the OPG and select YES or NO to select which output groups to include in the template.

## 8.5  Point

You may need to change characteristics of individual input points (detectors and switches) even after using JumpStart AutoProgramming. This section explains how to change options for: type of input point; latching/non-latching status (switches); and name and zone/group assignment of a point.

### 8.5.1  Point Programming For TR-6815 Module

To program for points on an TR-6815 module, follow these steps:

1.  Login to the panel. The panel will automatically access the Main Menu.
2.  Select 7 for Panel Programming.
3.  Press 4 to enter Point Menu.
4.  Press the up or down arrow key to select the desired module. Refer to Section 7.5 for available choices. Then press ENTER.
5.  Select S for sensor or M for module.
6.  Enter the number of the point you want to edit, then press ENTER.
7.  Select the type of device by pressing the up or down arrow key. Refer to the table below under the column heading "Type Selection" for a list of choices.

| Type Selection | Function | Latching Option | Comments |
|---|---|---|---|
| UNUSED | | | Select for SLC points that are unused. |
| DETECTOR | PHOTO | | Spot photoelectric detectors. |
| | ION | | Spot ION detectors |
| | HEAT | | Spot heat detector. |
| | PHOTO DUCT | | Duct photoelectric detector. |
| | ACCLIMATE | | Acclimate photoelectric detector. |
| | HEAT HT | | High temperature heat detector. |
| | PHOTO-HEAT | | Photoelectric detector with heat sensor. |
| | BEAM | | Beam smoke detector. |
| SUP DET | PHOTO | Latching Non Latching | Use this option when you want a detector to indicate a supervisory alarm. |
| | ION | | |
| | HEAT | | |
| | PHOTO DUCT | | |
| | ACCLIMATE | | |
| | HEAT HT | | |
| | PHOTO-HEAT | | |
| | BEAM | | |
| CO SMOKE DETECTOR | CO ALRM / FIRE ALRM | | No Accessory Base, Sounder base, Relay Base, or Intelligent Sounder base. Bases can be set for Single station or Multi station, Silence or Non-Silence, Latching or non-latching. Intelligent sounder bases can have volume set for high or low. |
| | CO ALRM / FIRE SUPR | | |
| | CO SUPR / FIRE ALRM | | |
| | CO SUPR / FIRE SUPR | Latching Non Latching | Supervisory switches can be latching or non-latching. |
| W-DETECTOR | PHOTO | | Wireless photoelectric detectors |
| | ACCLIMATE | | Wireless acclimate photoelectric detector |
| | HEAT | | Wireless heat detector |
| W-SUP DET SWITCH | Same as W-Detector | Latching Non Latching | Wireless photoelectric detectors |
| SWITCH | MANUAL PULL | | Use this switch type for manual pull stations. This input is always latched. The switch can clear only when an alarm is reset. This switch type has the highest fire priority; it overrides any other type of fire alarm. |
| | WATERFLOW | Latching Non Latching | Use this switch type for monitoring water flow in a sprinkler system. Switch closure will cause a sprinkler alarm. Water flow switches can be programmed as latching or non-latching. You can program a delay of up to 90 seconds to be used with a water flow switch. The delay allows for normal, brief changes in sprinkler system water pressure. The water flow alarm will not activate unless the switch is active for the programmed delay time. If a delay is used, the system begins counting down when the switch closes. If the switch opens (restores) before the timer expires, a water flow alarm is not generated. If the water flow switch remains closed after the timer expires, a water flow alarm will be generated. |
| | FIRE SUPERVISORY | Latching Non Latching | Use this switch type for tamper monitoring of sprinklers and other fire protection devices. If a contact closes, a sprinkler supervisory event will be generated. Supervisory switches can be latching or non-latching. |
| | FIRE DRILL | | System-level, non latching switch. This switch is an alternative way of causing a fire drill. It has the same operation as the fire drill option available from the annunciator. When the switch is activated, a fire drill begins; when the switch is de-activated, the fire drill ends. |

**Table 8.5  Programming Options for TR-6815 Modules**

| Type Selection | Function | Latching Option | Comments |
|---|---|---|---|
| SWITCH (cont.) | SILENCE | | This system-level switch is an alternative way to silence the fire system. It has the same effect as pressing the Silence key. |
| | RESET | | This system-level switch is an alternative way to reset the fire system. It has the same effect as pressing the Reset key. |
| | P.A.S. ACK | | Positive acknowledge switch. This switch must be used in zones programmed as Positive Alarm Sequence (see "Edit Zone Properties" on page 88). If an acknowledge switch closes when an alarm or trouble condition is not already in progress, a trouble will occur. You must use a UL listed normally open, momentary switch type. The switch must be rated at 5V, 100 mA (minimum) and be used with an EOL resistor for supervision. |
| | ZONE AUX1 | Latching | Use these switch types if you want to monitor special zone-level conditions (such as dry contact from a remote power supply). |
| | | Non Latching | |
| | ZONE AUX2 | Latching | |
| | | Non Latching | |
| | SYSTEM AUX1 | Latching | Use these switch types if you want to monitor special system-wide conditions (such as dry contact from a remote power supply). |
| | | Non Latching | |
| | SYSTEM AUX2 | Latching | |
| | | Non Latching | |
| | DETECTOR | | Used to monitor conventional 4-wire detectors, a contact closure will generate a detector alarm event. |
| | FIRE TAMPER | Latching | Performs identically to a supervisory switch, but will be indicated as a tamper switch on the LCD annunciator. |
| | | Non Latching | |
| | MANUAL RELEASE | | Manual release switch |
| | INTERLOCK | | Interlock release switch input. |
| | STATUS POINT | | |
| | ECS INPUT | Latching | User also has ECS Event Number 1-8 option for ECS INPUT. Only available when an ECS-NVCM/ is installed in the system. |
| | | Non Latching | |
| | ECS TAMPER | Latching | |
| | | Non Latching | |
| | ECS SUPERVISORY | Latching | |
| | | Non Latching | |
| | CO DETECT SWITCH | | CO Detector Switch |
| | CO SUPERVISORY DETECT SWITCH | Latching | CO Supervisory Detector Switch |
| | | Non Latching | |
| | TROUBLE_MON | | Use this switch type to monitor trouble from external devices. Trouble monitors are used in HVAC operations. |
| NOTIF | OUTPUT PT | Select Group | Output point, a general use notification type. Use for driving standard notification appliances. |
| | AUX CONST | | Use constant power for applications that require a constant auxiliary power source. Power is always present at constant circuits. |
| | AUX RESET | | Use for auxiliary power, resettable applications. See "Resettable Power" on page 51 for a description of how this option operates. |
| | AUX DOOR | | Use for auxiliary power, door holder applications. For example, if you were using an auxiliary power supply for door holders, you would use this option. See "Door Holder Power" on page 51 for a description of how this option operates. |
| RELAY | OUTPUT PT | Select Group | Output point, a general use relay type. Use for applications requiring a relay, such as fan shutdown, elevator recall, and so on. |
| | AUX RESET | | Use for auxiliary power, resettable applications. See "Resettable Power" on page 51 for a description of how this option operates. |
| | AUX DOOR | | Use for auxiliary power, door holder applications. For example, if you were using an auxiliary power supply for door holders, you would use this option. See "Door Holder Power" on page 51 for a description of how this option operates. |

**Table 8.5  Programming Options for TR-6815 Modules (Continued)**

| Type Selection | Function | Latching Option | Comments |
|---|---|---|---|
| Detector | 2-Wire Smoke | | |
| W-Gateway | | | Wireless Gateway |
| W-SWITCH | Same as SWITCH | | |
| W-Relay | Same as Relay | | When a wireless relay is in use, module device count must be limited to 109 modules per loop. This includes wired and wireless modules that are on the same loop. The module address must be within 1-109. |

**Table 8.5  Programming Options for TR-6815 Modules (Continued)**

## 8.5.2  Point Programming For Internal or External Power Module (TR-PS1)

To program for an internal or external power module points:

1. Login to the panel. The panel will automatically access the Main Menu.
2. Select 7 for Panel Programming.
3. Press 4 to enter point menu.
4. Press the up or down arrow key to select the desired module. Refer to Section 7.5 for available choices, then press ENTER.
5. Enter the number of the circuit or point you wish to edit, then press ENTER.
6. Select the type by pressing the up or down arrow key, then press ENTER.
7. Select the function by pressing the up or down arrow key, then press ENTER.
8. If the point supports latching press the up or down arrow key to select latching or non-latching, then press ENTER.
9. Select the zone or group by pressing the up or down arrow key, then press ENTER.
10. If the point supports not being supervised, press the up or down arrow key to select supervised or non-supervised, then press ENTER.
11. Press ENTER to edit point name. See Appendix A for help with editing text. Or, Press right arrow key to skip point name edit.
12. Repeat Steps 1 through 11 for all circuits.

| Choices | Type Selections | Function Selections for each Type | Comments |
|---|---|---|---|
| Enter Point | | | |
| Select Type | UNUSED | | |
| | B NOTIF | NOTIF OUTPUT | User also has Supervised/Unsupervised option |
| | | CONTROL CIRCUIT | |
| | A NOTIF | Same as B NOTIF | |
| | AUX_PWR | CONSTANT | Constant auxiliary power |
| | | AUX RESET | Resettable auxiliary power |
| | | AUX DOOR | Door holder auxiliary power |
| | | AUX SYNC | |
| | B SWITCH | MANUAL PULL | Refer to comments column of Table 8.5 for description of these options. Latch or Non-latching feature only appears for WATERFLOW, FIRE SUPERVISORY, FIRE TAMPER, ZONE AUX1, ZONE AUX2, SYSTEM AUX1, SYSTEM AUX2, ECS INPUT, ECS TAMPER, and ECS SUPERVISORY. |
| | | WATERFLOW | |
| | | FIRE SUPERVISORY | |
| | | FIRE TAMPER | |
| | | FIRE DRILL | |
| | | SILENCE | |
| | | RESET | |
| | | P.A.S. ACK | |
| | | ZONE AUX1 | |
| | | ZONE AUX2 | |
| | | SYSTEM AUX1 | |
| | | SYSTEM AUX2 | |
| | | MANUAL RELEASE | |
| | | INTERLOCK | |
| | | STATUS POINT | |
| | | ECS INPUT | User also has ECS Event Number 1-8 option for ECS INPUT.Only available when a ECS-NVCM is installed in the system. |
| | | ECS TAMPER | |
| | | ECS SUPERVISORY | |
| | A SWITCH | Same as B SWITCH | |

**Table 8.6  Menu Choices for Internal/External Power Module**

| Choices | Type Selections | Function Selections for each Type | Comments |
|---|---|---|---|
| Select Type (cont.) | B DETECT | 2-WIRE SMOKE | Used for Class B, 2-wire detectors. |
| | | 4-WIRE SMOKE | Used for Class B, 4-wire detectors. |
| | | CO 4-WIRE DET | Used for Class B, 4-wire CO detectors. |
| | | CO 4-WIRE SUP DET | Latching or Non-latching used for Class B, 4-wire CO Supervisory detectors |
| | A DETECT | 2-WIRE SMOKE | Used for Class A, 2-wire detectors. |
| | | 4-WIRE SMOKE | Used for Class A, 4-wire detectors. |
| | | CO 4-WIRE DET | Used for Class A, 4-wire CO detectors. |
| | | CO 4-WIRE SUP DET | Latching or Non-latching used for Class A, 4-wire CO Supervisory detectors |
| Select Zone/Group | | | Group or Zone selection will appear depending on the type selected. |
| Edit Name | | | See Appendix A. |

**Table 8.6  Menu Choices for Internal/External Power Module (Continued)**

## 8.5.3  Point Programming for TR-5880/TR-5865 Modules

To program the TR-5880/TR-5865 module output points:

1. Login to the panel. The panel will automatically go to the Main Menu.
2. Select 7 for Panel Programming.
3. Press 4 to enter Point Menu.
4. Press the up or down arrow key to select the desired module. Refer to Section 7.5 for available choices. Then press ENTER.
5. Enter the point number, then press ENTER.
6. Press the up or down arrow key to select the type (notification or unused)., then press ENTER.
7. Press the up or down arrow key to select the desired group., then press ENTER.
8. Press ENTER to edit point name. See Appendix A. Or, Press right arrow key to skip point name edit.
9. Repeat Steps 1 through 8 for all output points.
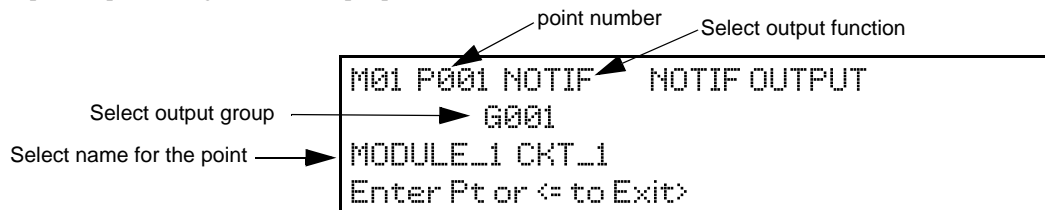


**Figure 8.3  Programming Output Points Screen for TR-5880 and TR-5865 Modules**

10. To use TR-5880 as Input point, Enter point number 41 - 48. Then press ENTER.
11. Press the up or down arrow key to select type (switch or unused), then press ENTER.
12. Press the up or down arrow key to select the desired function, then press ENTER.
13. If the point supports latching press the up or down arrow key to select latching or non-latching, then press ENTER.
14. Press the up or down arrow key to select the desired group/zone, then press ENTER.
15. Edit point name Or Press right arrow key to skip module name edit.
16. Repeat steps 10 through 15 for all input points.
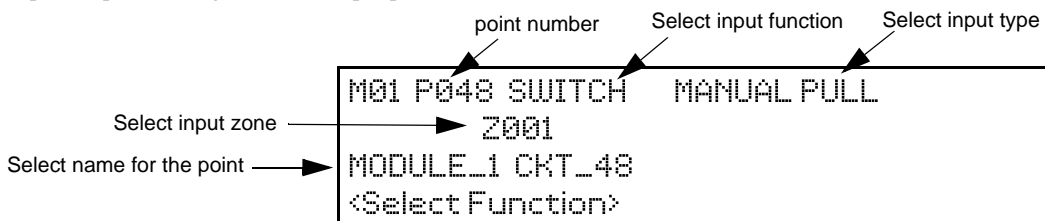


**Figure 8.4  Programming Input Points Screen for TR-5880 and TR-5865 Modules**

## 8.5.4  Point Programming for ECS Amplifiers

To program module points:

1. Login to the panel. The panel will automatically go to the main menu.
2. Select 7 for Panel Programming.
3. Press 4 to enter point menu.
4. Press the up or down arrow key to select the desired module. Refer to Section 7.5 for available choices. Then press ENTER.
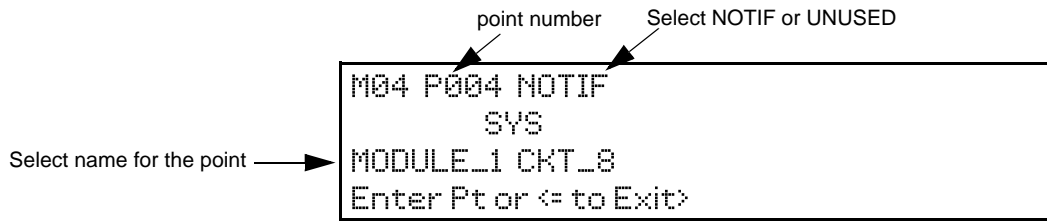


**Figure 8.5  Programming Points Screen for ECS Amplifier Modules**

5. Enter the point number, then press ENTER. Points 5-8 on TR-50W or TR-125W will not be available unless the TR-CE4 is installed.
6. Press the up or down arrow key to select the type (notification or unused), then press ENTER.
7. Press ENTER to edit point name. See Appendix A. Or Press right arrow key to skip point name edit.
8. Repeat Steps 1 through 7 for all points.

## 8.5.5  Point Programming for ECS-NVCM and ECS-RVM

To program module points:

1. Login to the panel. The panel will automatically go to the main menu.
2. Select 7 for Panel Programming.
3. Press 4 to enter point menu.
4. Press the up or down arrow key to select the desired module. Refer to Section 7.5 for available choices. Then press ENTER.
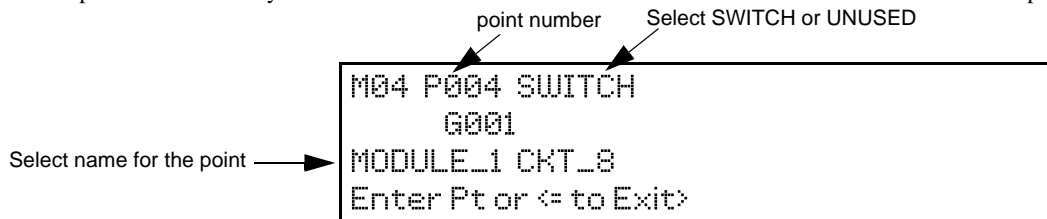


**Figure 8.6  Programming Points Screen for the ECS-NVCM or TR-RVM Modules**

5. Enter the point number. Press ENTER.
6. Press the up or down arrow key to select the type (switch or unused). Press ENTER.
7. Press the up or down arrow key to select the desired Function (See Table 8.7). Press ENTER.
8. Press ENTER to edit point name. See Appendix A or Press right arrow key to skip point name edit.
9. Repeat Steps 1 through 8 for all points.

| Choices | Type Selections | Function Selections for each Type | Comments |
|---|---|---|---|
| TR-5880 (output) | UNUSED | | |
| | NOTIF (outputs pt 1-40) | NOTIF OUTPUT | |
| | | CONTROL CIRCUIT | |

**Table 8.7  Choices for Point Programming Modules**

| Choices | Type Selections | Function Selections for each Type | Comments |
|---|---|---|---|
| TR-5880 (input 41-48) | SWITCH | MANUAL PULL | Refer to comments column of Table 8.5 for description of these options. Latch or Non-latching feature only appears for WATERFLOW, FIRE SUPERVISORY, FIRE TAMPER, ZONE AUX1, ZONE AUX2, SYSTEM AUX1, SYSTEM AUX2, ECS INPUT, ECS TAMPER, and ECS SUPERVISORY. |
| | | WATERFLOW | |
| | | FIRE SUPERVISORY | |
| | | FIRE TAMPER | |
| | | DETECTOR | |
| | | FIRE DRILL | |
| | | SILENCE | |
| | | RESET | |
| | | P.A.S. ACK | |
| | | ZONE AUX1 | |
| | | ZONE AUX2 | |
| | | SYSTEM AUX1 | |
| | | SYSTEM AUX2 | |
| | | MANUAL RELEASE | |
| | | INTERLOCK | |
| | | STATUS POINT | |
| | | ECS INPUT | User also has ECS Event Number 1-8 option for ECS INPUT, ECS TAMPER, and ECS SUPERVISORY functions in both TR-5880 and ECS-NVCM/ECS-RVM choices. |
| | | ECS TAMPER | |
| | | ECS SUPERVISORY | Only available when an ECS-NVCM is installed in the system to the ECS-RVM choice part. |
| 5496 | UNUSED | | |
| | B NOTIF | NOTIF OUTPUT | supervised |
| | | CONTROL CIRCUIT | not supervised |
| | A NOTIF | NOTIF OUTPUT | |
| | | CONTROL CIRCUIT | |
| | AUX_PWR | CONSTANT | |
| | | AUX RESET | |
| | | AUX DOOR | |
| | | AUX SYNC | Cannot be supervised |
| TR-5865 | UNUSED | | |
| | NOTIF | NOTIF OUTPUT | |
| | | CONTROL CIRCUIT | |
| ECSAmplifiers (TR-50/125W) | UNUSED | | |
| | NOTIF | | |

**Table 8.7   Choices for Point Programming Modules  (Continued)**

| Choices | Type Selections | Function Selections for each Type | Comments |
|---|---|---|---|
| ECSRVM, -NVCM | UNUSED | | |
| | SWITCH | MANUAL PULL | Refer to comments column of Table 8.5 for description of these options. Latch or Non-latching feature only appears for WATERFLOW, FIRE SUPERVISORY, FIRE TAMPER, ZONE AUX1, ZONE AUX2, SYSTEM AUX1, SYSTEM AUX2, ECS INPUT, ECS TAMPER, and ECS SUPERVISORY |
| | | WATERFLOW | |
| | | FIRE SUPERVISORY | |
| | | FIRE TAMPER | |
| | | FIRE DRILL | |
| | | SILENCE | |
| | | RESET | |
| | | P.A.S. ACK | |
| | | ZONE AUX1 | |
| | | ZONE AUX2 | |
| | | SYSTEM AUX1 | |
| | | SYSTEM AUX2 | |
| | | MANUAL RELEASE | |
| | | INTERLOCK | |
| | | STATUS POINT | |
| | | ECS INPUT | User also has ECS Event Number 1-8 option for ECS INPUT, ECS TAMPER, and ECS SUPERVISORY functions in both TR-5880 and ECS-NVCM/ECS-RVM choices. Only available when an ECS-NVCM is installed in the system to the ECS-RVM choice part. |
| | | ECS TAMPER | |
| | | ECS SUPERVISORY | |
| | | VOICE AUX STATUS 1-2 | |
| | | BACKGROUND MUSIC | |
| | | VOICE AUX ECS 1-4 | |

**Table 8.7   Choices for Point Programming Modules  (Continued)**

# 8.6  System Options

This section of the manual explains how to customize software options that affect general operation of the system. This includes such items as: Communication Options, Daytime/Nighttime Sensitivity, Holiday Days, Time Options, Miscellaneous Options, Daylight Saving Options, Edit Banner, and SLC Family. Refer to each individual subsection for complete instructions.

## 8.6.1 Communication Options

### Auto Test Time

To access the Auto Test Time screen:

1.   Login to the panel. The panel will automatically go to the main menu.
2.   Select 7 for Panel Programming.
3.   Select 5 for System Options.
4.   From the next menu, select 1 for Communication Options.
5.   Select 1 for Auto Test Time.
6.   Enter the hour you desire the control panel to send an automatic test report (or press the up or down arrow key), then press ENTER.
7.   Enter the minutes (or press the up or down arrow key), then press ENTER.
8.   Select AM or PM by pressing the up or down arrow key, then press ENTER.
9.   Select Report Time Interval by pressing the up or down arrow key, then press ENTER. Time Interval selections are 24hr, 12hr, 6hr and 4 hr.

**NOTE:**   AM and PM are only available if the panel "Clock Options" are set for AMPM mode. Otherwise the clock is in military time and AMPM is not selectable

### Phone Lines

To access the phone lines screen:

1.   Login to the panel. The panel will automatically go to the main menu.
2.   Select 7 for Panel Programming.
3.   Select 5 for System Options.
4.   From the next menu, select 1 for Communication Options.
5.   Select 2 for the phone Lines.

6.    Select Phone Line to be edited (1 or 2) by pressing the up or down arrow key, then press ENTER.

phone line to edit
(selected in previous screen)

dialing prefix- up to 9 characters
can be used for PBX, dial-out
codes, a pause, etc.

number of rings before the panel
answers a call from a computer

dialing choice:
touchtone, pulse, both

monitor line: Y/N

```
Line:1          Prefix:_____        Rings:06
Dial Type:TT    Dial Format:U◄─Disable:N
Monitor:N    Ans.Mach.Bypass:Y \Unused:N
```

dial tone detection disabled: Y/N

phone line unused:Y/N

answering machine bypass: Y/N

dial format: U=US or E=European
US format = 60/40msec make/break
European=66/34 msec make/break

**Figure 8.7  Phone Lines Editing Screen**

### ■ Dialing Prefix

Enter up to 9 characters to be used for such things as PBX dial-out codes, a pause, and so on. The following special characters are available:

| # | Pound (or number) key on the telephone |
|---|----------------------------------------|
| * | Star key on the telephone |
| , | Comma (character for 2-second pause) |

Use the number buttons on the annunciator or the up- and down-arrow keys to select special characters. Special characters begin displaying after "9".

7.    Enter a dialing prefix (if needed), then press ENTER. Or Press the right arrow to bypass the dialing prefix option.

### ■ Number of Answer Rings

This option is used in conjunction with the HFSS Software Suite. Use this option to determine the number of rings before the panel answers a call from the computer. The range is 00-15 rings. This option is factory-programmed as 06 rings, which should be compatible for most installations where the answering machine bypass feature is used. You may need to adjust it depending on the installation's telephone system.

The selection made here must match the programming for this option in the Communication Configuration dialog box of HFSS.

8.    Enter the desired number of answer rings, then press ENTER.

### ■ Dial Option

9.    Press the up or down arrow key to select the dial option, then press ENTER.

| Dial Option | Description |
|-------------|-------------|
| PULSE | If this option is selected, only pulse dialing will be used for this phone line. |
| TT | Touch-tone dialing. If this option is selected, only touch-tone dialing will be used for this phone line. |
| TT/PL | Touch-tone alternating with pulse. If this option is selected, the communicator will first attempt to use touch-tone. It will switch to pulse if touch-tone is not successful on the first attempt. It will continue to alternate between TT and pulse for additional attempts. |

**Table 8.8  Dial Options**

### ■ Dial Format

10.   Press the up or down arrow key to select the pulse ratio for rotary dialing option, then press ENTER.
      Options are:

| U | U.S. standard format. Uses the 60 msec / 40 msec make/break ratio. |
|---|-------------------------------------------------------------------|
| E | European format. Uses the 66 msec / 34 msec make/break ratio. |

### ■ Dial Tone Detection Disabled

11.   Select Y (do disable) or N (don't disable) by pressing the up or down arrow key, then press ENTER.

### ■ Monitor Line

Enable the line monitor for each phone line that will be used. See Figure 8.7 for the location of this field on the phone lines screen. When the phone line monitor has been enabled for a phone line, a trouble condition will occur if the line is not connected. If a phone line will not be used, it must be disabled.

12.   Select Y (monitor line) or N (don't monitor line) by pressing the up or down arrow key, then press ENTER.

### ■ Answering Machine Bypass

This option is used in conjunction with HFSS. This feature ensures that an answering machine will not interfere with communication between the panel and the computer. If an answering machine is used at the panel site, enable this feature; if an answering machine is not used, disable the feature.

This option is factory-programmed as No (disabled).

The selection made here must match the programming for this option in the Communication Configuration dialog box of HFSS.

13. Select Y (answering machine bypass enabled) or N (answering machine bypass disabled) by pressing the up or down arrow key, then press ENTER.

### ■ Phone Line Unused

This option is used so that you can set unused phones lines to "Yes", so no auto-test will be sent through that line.

This option is factory programmed as No.

14. Select Y or N by pressing the up or down arrow key, then press ENTER.

## Edit Ethernet

1. Login to the panel. The panel will automatically go to the main menu.
2. Select 7 for Panel Programming.
3. Select 5 for System Options.
4. From the next menu, select 1 for Communication Options.
5. Select 3 for Edit Ethernet.

IP address
default gateway

```
MAC: 00-1E-1E-40-04-71
  IP: 158.100.051.093      Sub: 255.255.252.000
GW: 158.100.048.254                    DHCP: Y
<DHCP Enable>
```

subnet mask
DHCP Enable: Y/N

**Figure 8.8  Edit Ethernet Message**

## AlarmNet Timers

1. Login to the panel. The panel will automatically go to the main menu.
2. Select 7 for Panel Programming.
3. Select 5 for System Options.
4. From the next menu, select 1 for Communication Options.
5. Select 4 for AlarmNet Timers.
6. The available options for AlarmNet Timers are as follows: *default
   • Ethernet: None, 75 seconds, 90 seconds, 3 minutes, *5 minutes, 1 hour, 24 hours, 30 days.
   • Old Alarm: None, 10 minutes, 15 Minutes,*30 Minutes, 1 Hour, 2 Hours, 4 Hours, 6 Hours, 12 Hours, 24 Hours.
     (Sets how long an undeliverable alarm is retried for delivery to the Central Station. If the message is not validated, it is retried until the old alarm time is reached or the message is validated).

```
Ethernet: 5 Minutes
Old Alarm: 30 Minutes
<Ethernet Supervision>
```

**Figure 8.9  AlarmNet Timers**

## Phone Line Gains

1. Login to the panel. The panel will automatically go to the main menu.
2. Select 7 for Panel Programming.
3. Select 5 for System Options.
4. From the next menu, select 1 for Communication Options.
5. Select 5 for Phone Line Gains
6. The available options: *default
• Dialing Gain:
   – Low = 9 DB Attenuation
   – Normal = 6 DB Attenuation
   – *High = 3 DB Attenuation
• Reporting Gain:
   – *Low = 9 DB Attenuation
   – Normal = 6 DB Attenuation
   – High = 3 DB Attenuation

## 8.6.2  Daytime/Nighttime Sensitivity

If you need to change the time that sensitivity levels take effect (that is, the time that "Day" and "Night" begin, as well as the days of the week), follow these steps.

1.  Login as the Installer using the Installer Code.
2.  Select 7 for Program Menu.
3.  Select 5 for System Options.
4.  Select 2 for Day/Night Sense.

    A screen similar to the one shown in "Changing Day/Night Sensitivity Time and Days" on page 102 will display.

In this example, daytime sensitivity will be observed between 6:00AM and 6:00PM Monday through Friday. Nighttime sensitivity levels will be observed between 6:00PM and 6:00AM Monday through Friday and all day Saturday and Sunday.

```
Daytime/Nighttime Sensitivity:  NO  ◄
Day Start:      06:00AM
Night Start:    06:00PM
Days of week: -MTWTF-
```
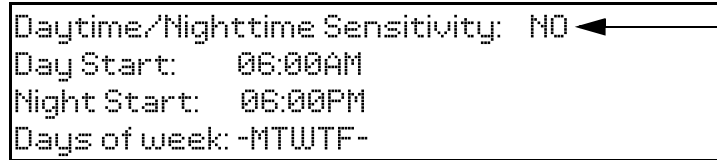
Enable Day/Night
If disabled, daytime sensitivity is in effect at all times. Sensitivity levels are programmed in the Zones menu.

**Figure 8.10  Changing Day/Night Sensitivity Time and Days**

## 8.6.3  Holiday Days

Up to 18 dates can be designated as holidays. When the Day/Night Sensitivity is enabled, all photoelectric smoke detectors in the system will use night sensitivity for the entire day on days designated as holidays (see Section "Daytime/Nighttime Sensitivity" on page 102).

To add or change a holiday, follow these steps.

1.  Login as the Installer using the Installer Code.
2.  Select 7 for Program Menu.
3.  Select 5 for System Options.
4.  Select 3 for Holiday Days.

    A screen similar to that shown in "Select Holidays Screen" on page 102 will display.

pre-programmed holidays

programmable holiday locations

```
                    Enter Holidays
01/01  07/04  12/24  12/25  __/__   __/__
__/__   __/__  __/__   __/__  __/__   __/__
__/__   __/__  __/__   __/__  __/__   __/__
```
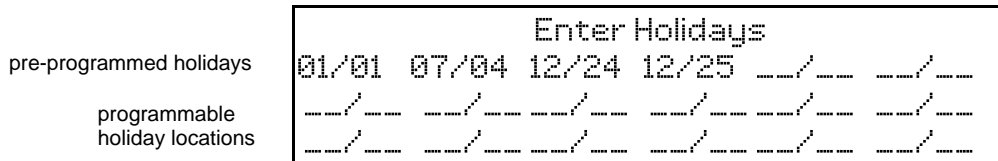
**Figure 8.11  Select Holidays Screen**

> **NOTE:** For most installations, the holiday programming will need to be performed each year to ensure the correct dates.

5.  Select the holiday schedules you want to edit (1- holidays 1 - 9, 2- holidays 10 - 18).
6.  Enter the month of the holiday, then press ENTER. Enter the day of the month for the holiday, then press ENTER.
7.  Repeat steps 6 for any remaining holidays you want to program.

## 8.6.4  Time Options

Through this programming option you can set the water flow delay time, alarm verification time, AC report delay, AC-Frequency, Auto-Resound, and Clock Format.

### Water Flow Delay

You can program a delay of 0-90 seconds (zero means no delay) to be used in conjunction with a water flow switch. The delay is system-wide. All water flow switches on the system will use the same delay period.

To access the screen for programming water flow delay, follow these steps:

1.  Login to the panel. The panel will automatically go to the main menu.
2.  Select 7 for Panel Programming.
3.  Select 5 for System Options.
4.  Select 4 for Time Options.

A screen similar to the one shown below will display.

delay in seconds before
waterflow alarm occurs (00-90)

```
Water Flow Delay: 01s    Alarm Verify: 060s
AC Report Delay: 06h     AC-Frequency: 60Hz
Clock Format: AMPM       Auto-Resound: 24Hr
<Water Flow Delay (0-90s)>
```

**Figure 8.12  Water Flow Delay Programming Screen**

5.  Enter the number of seconds (0 to 90) to delay a water flow switch alarm, then press ENTER.

### Alarm Verify

You can set the alarm verification time from 60 to 250 seconds (default is 60 seconds).

To set the alarm verification:

6.  Enter the desired number of seconds for the alarm verification time.
7.  Press right arrow key or ENTER to make your selection and move to the next programming option.

### AC Report Delay

**NOTE:**   You must select 1-3 hours in UL central station installations and UL remote signaling installations.

You can adjust the number of hours before a low AC report will be sent to the central station.

 To program low AC report delay, follow these steps continued from step 7.

8.  Enter the number of hours (0-30) before a low AC report will be sent to the central station, then press ENTER.

### Change AC Line Frequency

The panel's AC line frequency is selectable for 50, 60 Hz, or Internal. AC Frequency feature dictates how the control panel will calculate time based on the AC line frequency used in the installation site. The "Internal" option can be used in areas where the AC line frequency is not dependable and you want the panel to calculate time from the internal crystal. The internal crystal is not as accurate as the AC power source and internal 60 Hz or 50 Hz should normally be selected. The panel defaults to the 60 Hz selection.

To change the AC line frequency:

9.  Select 50Hz, 60Hz or Intl, by pressing the up or down arrow key, then press ENTER.

### Clock Format (AM/PM or Military)

To change the system clock display format:

10. Select AMPM (for AM/PM display format) or MIL (for military or 24 hr display format) by pressing the up or down arrow key, then press ENTER.

### Auto-Resound (4 or 24 hours)

The system resound time period can be modified from the default value 24 hours to 4 hours. This setting adjusts when the FACP will automatically resound events after being silenced. Set this option to 4 hours when using SWIFT devices

## 8.6.5  Miscellaneous Options

Through this programming option you can do strobe synchronization during silence, and auto display event.

To edit Miscellaneous options:

1.  Login to the panel. The panel will automatically go to the main menu.
2.  Select 7 for Panel Programming.
3.  Select 5 for System Options.
4.  Select 5 for Miscellaneous Options

### Strobes Active when Silenced

When "SYNC Strobe:" is selected as Y (Yes), the strobes will continue to flash when the system is silenced and will stop flashing when the system is reset.

**NOTE:**   The "SYNC Strobe" only functions with outputs that use a synchronized output pattern.

5.  Press the up or down arrow key to toggle this selection between Y (Yes) or N (No).
6.  Press right arrow key or ENTER to make your selection and move to the next programming option.

### Auto Display Events

When this feature is programmed Y (Yes), the highest priority event of the system in control will automatically display on the control panel and remote annunciators after there has been no activity on any system touch pad for two minutes.

7.   Press the up or down arrow key to toggle this selection between Y (Yes) or N (No).
8.   Press right arrow key or ENTER to make your selection and move to the next programming option.

## 8.6.6  Daylight Saving Options

To edit Daylight Saving Time:

1.   Login to the panel. The panel will automatically go to the main menu.
2.   Select 7 for Panel Programming.
3.   Select 5 for System Options.
4.   Select 6 for Daylight Saving Option.

### Automatic Daylight Saving Adjustment

The control panel has an automatic DST (Daylight Saving Time) adjustment feature. If this feature is not enabled (set to *No*), the Daylight Saving Time change is not made to the system clock.

To enable or disable DST adjustment continue programming:

5.   Select Y (enabled) or N (disabled) by pressing the up or down arrow key, then press ENTER.

### Daylight Saving Time Start and End

This option lets you to adjust the week and month Daylight Saving Time (DST) starts and ends. For this feature to work, you must enable (set to *Yes*) the Automatic Daylight Savings Adjustment option under Daylight Savings Options. The default values for the DST Start and End are:

DST Start: The second Sunday in March
DST End: The first Sunday in November

To set the start and end for Daylight Saving Time:

6.   Press the up or down arrow key to select the week (1st, 2nd, etc.) Daylight Saving Time starts, then press ENTER to make your selection and move to the month setting.
7.   Press the up or down arrow key to select the month (January – December) Daylight Saving Time starts, then press ENTER to make your selection and move to the DST End option.
8.   Press the up or down arrow key to select the week (1st, 2nd, etc.) Daylight Saving Time ends, then press ENTER to make your selection and move to the month setting.
9.   Press the up or down arrow key to select the month (January – December) Daylight Saving Time ends, then press ENTER.

## 8.6.7  Edit Banner

The banner is the message that displays on the panel LCD when the system is normal; that is, when no alarms or troubles exist and the system menus are not in use. A custom banner of up to 40 characters can be created. This will automatically be centered when shown.

If a custom message is not created, the system will use the internal banner. You cannot change the internal banner.

To customize the banner display message:

1.   Login to the panel. The panel will automatically go to the main menu.
2.   Select 7 for Panel Programming.
3.   Select 5 for System Options.
4.   Select 7 for Edit Banner. (See Appendix A for instructions on how to edit the banner)
5.   Select each letter by pressing the up or down arrow key to change modes and using the number keys to select characters, then press right arrow key to move to the next character.
6.   When done, press ENTER to save the custom banner.

## 8.6.8  SLC Family

The TR-2100supports Intelligent Device Protocol (IDP)SLC devices.

1.   Login to the panel.
2.   Select 7 to access the program menu.
3.   Select 5 to access System Options.
4.   Select 8 for SLC Family. The type, "Triga" displays.

## 8.6.9  JumpStart Auto-Programming

**NOTE:**   JumpStart Auto-Programming is used to auto learn the system hardware after devices have been added or removed from the system. Hardware devices which remain the same between repeat JumpStart will retain any customized text or options associated with the device. It is best to carefully consider the Network ID setting for each panel before the first JumpStart Auto-Programming is performed. Once this is done, the panel must be defaulted back to factory defaults if the network ID settings need to change.

To run JumpStart, do the following.

1.   Login to the panel. The panel will automatically go to the Main Menu.
2.   Select 7 for Panel Programming.
3.   Select 6 for JumpStart.
4.   Press ENTER to accept the warning screen.

5. Follow the remaining on screen instructions.
6. Press ENTER to confirm. See Section 7.1.3.

## 8.7  Restore Defaults

This option allows you to restore the panel back to factory defaults. All programming will be lost.

1. Login to the panel. The panel will automatically go to the main menu.
2. Select 7 for Panel Programming.
3. Select 7 for Restore Defaults.
4. Press the up or down arrow key to select YES or NO from the warning screen. Then, press ENTER.

## 8.8  Voice Options

Through this Programming Menu, you can modify the messages programmed into an -NVCM. You can also modify other voice settings.

### 8.8.1  VCM Maintenance

The VCM Maintenance menu is used to program custom messages into the VCM. Messages can be recorded locally using the microphone.

1. Select 7 for Panel Programming.
2. Select 8 for Voice Options.
3. Select 1 for VCM Maintenance.

### 8.8.2  Voice Settings

1. Select 7 for Panel Programming.
2. Select 8 for Voice Options.
3. Select 2 for Voice Settings.

#### Enable Dual Channel System

This option allows you to select whether dual channel is enabled in the system. For dual channel capabilities the system must only contain dual channel voice hardware.

1. Press the up or down arrow key to select YES or NO for enabling the system as dual channel. Then press ENTER.

# Section 9: System Operation

Operation of the control panel is user friendly. Menus guide you step-by-step through operations. This section of the manual is an overview of the operation menus. Please read this entire section carefully before operating the panel.

## 9.1 Annunciator Description

Figure 9.1 shows the annunciator that is part of the control panel board assembly.
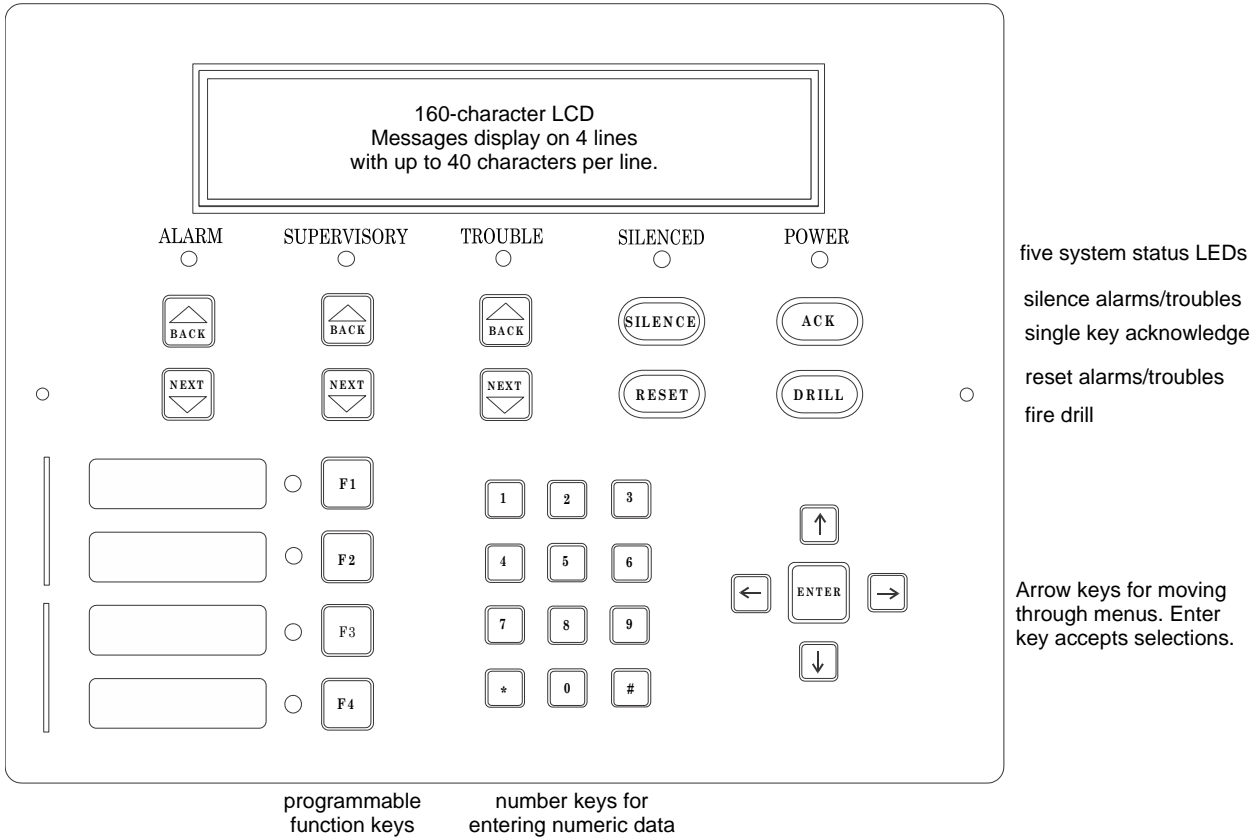


**Figure 9.1  Control Panel Annunciator**

### 9.1.1 LCD Display

The control panel LCD displays system messages, annunciates alarms, supervisories and troubles, provides status information, and prompts for input. These messages can be up to 160 characters, displaying over four lines of 40 characters each. Annunciator keys beep when they are pressed.

### 9.1.2 Banner

The banner is the message that displays on the control panel when the system is in normal mode (no alarm or trouble condition exists and menus are not in use). A customize message can be created that will display instead of the internal (default) message. See Section 8.6.7 for information on editing the banner.
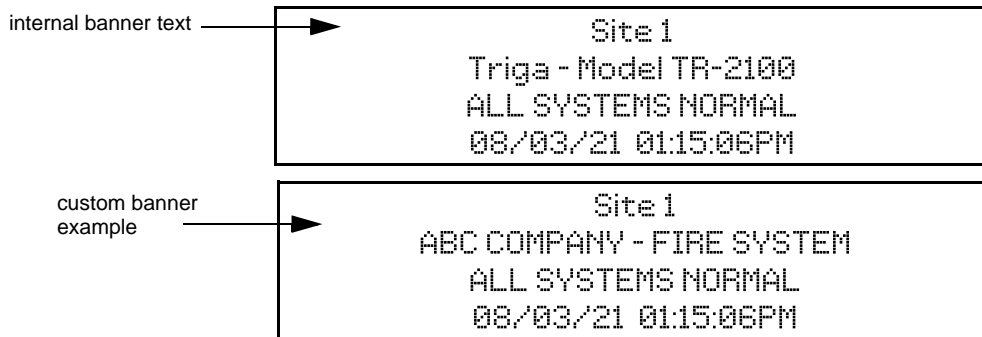


**Figure 9.2  Banner Display Examples**

## 9.2　Menu System

The control panel is easy to operate from the Main Menu. To view the Main Menu press the ENTER or right arrow key on the control panel or remote annunciator. This will bring up the panel login menu, as described in Section 9.2.1. Once validated, the user will be able to access the Main Menu as shown in Section 9.2.2. Select the desired option. You will be prompted for as access code if required.

The control panel supports up to 20 access codes. The profile for each access code (or user) can be modified through the network programming option (see Section 6.2.5 for access code programming).

### 9.2.1　Panel Login Menu

After pressing ENTER, and 1 for the login menu, a screen will prompt for the type of access account, Administrator or User. An administrator has the ability to modify user accounts and view the cybersecurity log. The User account has access to panel programming.

#### Admin Profiles

After initial power-up, the TR-2100 requires a password change and user account setup before programming. Only Admin1 will be active. Using the login for Admin1, the default password (0000000) must be changed to a new, unique password. This new password must be 7-digits and cannot be sequential or easily guessed. If the password is not changed, a default password trouble will appear on the panel.

There is a maximum of two administrator profiles available. After the administrator account is set up, you must create a User account(s). Only a User account has the ability to program the control panel. There is a maximum of 18 User accounts available.

Admin accounts can:

- View cybersecurity logs with date/time stamp
- Edit name to user profiles
- Enable/disable user profiles
- Modify access codes of user profiles
- Edit access to panel functions
- Change computer access code
- Restore factory default settings to the panel

#### User (Installer) Profiles

There are two programming levels which will access the Programming screens. From either of the screens, access to specific system and device features or programming may be obtained. An "Installer" can program local panel data relating to device types, zoning, messages, control panel functions, etc. A "Multi-site Installer" can program panel data across a network. A user has the ability to change their administrator-assigned password after it has been assigned for the first time. Refer to Section 6.2.5 on page 64.

- Profile 1 is the profile used that dictates what functions to which the Fire Fighter Key has access. Because this is the profile used for a key, the User Name and the Access Code cannot be edited.
- Profile 2 is defaulted as "Installer" and profile 3 is defaulted to "Multi-Site Installer". Profiles 4-18 are empty profiles available for assignment. User profiles 2-18 can be edited for name and panel functions. Table 9.1 lists the panel functions that can be selected for each user profile.

| Type of Function | Selectable Functions |
|---|---|
| Panel Operations | System Reset |
| | System Silence |
| | System Ack |
| | Fire Drill Key |
| | *F1 Function Key |
| | *F2 Function Key |
| | *F3 Function Key |
| | *F4 Function Key |

**Table 9.1　User Profile Selectable Panel Functions**

| Type of Function | Selectable Functions |
|---|---|
| Panel Menus | System Tests |
| | Fire Drill Menu |
| | Indicator Test |
| | Walk Test-No Report |
| | Walk Test -With Report |
| | Communicator Test |
| | Clear History Buffer |
| | Point Functions |
| | Disable/Enable Point |
| | Point Status |
| | Set SLC Device Address |
| | SLC Single Device Locater |
| | SLC Multiple Device Locater |
| | I/O Point Control |
| | Event History |
| | Set Time & Date |
| | System Information |
| | Network Diagnostics |
| | Network Programming |
| | Panel Programming |
| | Send/Receive Firmware Update |
| *Function Keys are only available on the TR-RD2G/R LCD annunciator. | |

**Table 9.1  User Profile Selectable Panel Functions**

### Invalid Password/Panel Timeout

If a password is entered incorrectly or is not a valid password, the panel will display an error message. You must hit ENTER or the left arrow key and re-enter the password correctly. After ten invalid attempts, the panel will panel will lock for 30 seconds and then you can try again. However, if the password has been forgotten, record the 20-character code displayed on the panel and contact Technical Services. After proper authentication, the password will be supplied.

## 9.2.2  Main Menu Overview

The chart below is a brief overview of the Main Menu. These options are described in greater detail throughout this section of the manual.

| Main Menu Options | Description |
|---|---|
| 1- System Tests | Access to Fire Drill, Indicator Test, Walk Tests, Communicator Test, Clear History Buffer, Manual AlarmNet Registration and Manual Communicator Reset. |
| 2- Point Functions | Enable/disable points, Point Status, SLC Single Device Locater, SLC Multiple Device Locater, and I/O Point Control. |
| 3- Event History | Display event history on the LCD. See Section 9.3.3 for more information. |
| 4- Set Time & Date | Set time and date for the system |
| 5- Network Diagnostics | Ping Panel, Data Network Status, and Voice Network Status |
| 6- Network Programming | Access Learn Network, Edit Network Names, Edit Panel ID, Computer Access, Access Codes, Communicator Options, Voice Options, Sync Network Options |
| 7- Panel Programming | Brings up a set of menus for programming the panel. These options are described in detail in Section 8. |
| 8- System Information | Menus to view information about the panel such as model, ID, serial number, revision, send or receive firmware updates and feature registration activation |

**Table 9.2  Main Menu Options**

## 9.2.3  Using the Menus

| To move through the menus: | Use the up and down arrow key to move the cursor through the options in a menu. Use the left arrow key to move to a previous menu. |
|---|---|
| To select an option: | Enter the number of the option, or press ENTER if the option has the = symbol next to it. |
| Exit Menu | Press the left arrow. |

# 9.3  Basic Operation

## 9.3.1  Setting Time and Date

**NOTE:**   The panel's time is as accurate as the input AC power line frequency and may drift over time if the frequency fluctuates.

1.  Select 4 for Set Date & Time.
2.  Make changes in the fields on the screen. Use right arrow to move through the fields. Use the up or down arrow key to select options in the fields.
3.  When the date and time are correct, press ENTER.

## 9.3.2  Disable / Enable a Point

1.  Select 2 for Point Functions.
2.  Select 1 for Disable/Enable Point.

### Disable / Enable NACs by Template

1.  Press 1 for Disable NACs by Template, or press 2 to Enable NACs by Template.
2.  Use the up or down arrow key to move through the list of templates. Press ENTER to select the current template.

### Disable / Enable NACs by Group

1.  Press 3 to Disable NACs by Group, or press 4 to Enable NACs by Group.
2.  Use the up or down arrow key to move through the list of groups. Press ENTER to select the group highlighted.

### Disable / Enable Zone Points

1.  Press 5 to Disable Zone Points, or press 6 to Enable Zone Points.
2.  Use the up or down arrow key to move through the list of zones. Press ENTER to select the zone highlighted.

### Disable / Enable Point

1.  Press 7 to Disable /Enable Point.
2.  Choose module.
3.  Use the up or down arrow key to choose point and press ENTER.
4.  Press right arrow to disable or enable point.

### Inhibit Output Group

Inhibiting an output group prevents the group from being utilized by system mapping. While inhibited, no event in the system can activate the output group.

1.  Press 8 to inhibit output group.
2.  Use the up or down arrow key to select the group to be inhibited.
3.  Press right arrow to inhibit the group.
4.  Press right arrow again to enable the group.

## 9.3.3  View Event History

Use the View Event History feature to display events on LCD. From the Main Menu, press 3 to select Event History. Events will begin displaying with most recent events first.

The panel can store up to 1000 events. When it reaches its 1000-event capacity, it will delete the oldest events to make room for the new events as they occur. In networked setups, each panel stores up to 1000 of its own events. When viewing Event History in the panel, the newest 500 events from every panel in the site will be displayed. When using the HFSS Software Suite, all 1000 events from every panel in the network will be uploaded.

On multi-site displays, pressing ENTER or right arrow brings you directly into View Event History and allows you to view the Event History from every panel in each of the sites that the multi-site display is assigned to.

### To clear the event history

From the Installer menu select 1 for System Tests. From the test menu select 6 Clear History Buffer. In network systems, this clears the History Buffer of all panels in the site.

### Single Key Acknowledge

This feature allows the user to press the ACK and display the oldest un-acknowledged event in the system. Pressing ACK again will acknowledge the event, then display the next oldest un-acknowledged event without pressing the arrow keys.

**NOTE:**   This system has the capability to acknowledge across the ECS network.

## 9.3.4  Conduct a Fire Drill

This system test initiates a Fire Drill alarm and activates Fire Drill mapping for 10 minutes or until a user manually exits the fire drill.

1.    From the Main Menu, press 1 for System Tests.
2.    Press 1 for Fire Drill. You will be prompted to press ENTER.
3.    The drill will begin immediately after you press ENTER.
4.    Press any key to end the drill. (If you do not press any key to end the fire drill manually, it will time out automatically after ten minutes.)

If a fire drill switch has been installed, activating the switch will begin the drill; deactivating the switch will end the drill.

## 9.3.5  Conduct an Indicator Test

The indicator test checks the annunciator LEDs, PZT, and LCD display.

1.    From the Main Menu, press 1 for System Tests.
2.    Press 2 for Indicator Test. The system turns on each LED several times, beeping the PZT as it does so. At the same time it scrolls each available character across the LCD. A problem is indicated if any of the following occurs:
     - An LED does not turn on
     - You do not hear a beep
     - All four lines of the LCD are not full

This test will run for approximately 15 minutes or until the user manually exits. You can press any key to end manually while the test is still in progress. When the test ends, you will be returned to the Test Menu.

## 9.3.6  Conduct a Walk Test

Walk Test is a feature which allows one person to test the fire alarm system. The Walk Test will run for 4 hours or until the user manually exits. If an alarm or pre-alarm condition is occurring in the system, you will not be able to enter the walk test. A walk test may only be initiated if the test is enabled in the user profile.

1.    From the Main Menu, press 1 for System Tests.

**CAUTION:  ALARM VERIFICATION**
IF ANY ALARM VERIFICATION ZONES ARE BEING USED, THE USER WILL BE ASKED IF THEY WISH TO DISABLE ALARM VERIFICATION DURING WALK TEST. THIS OCCURS FOR EITHER WALK TEST OPTION.

2.    Select 3 for Walk Test-No Report. The LCD will display "WALK TEST STOPPED" on Line 1 and "ENTER = start test" on Line 3. Enter the time period you wish the NAC circuit to be active for each alarm (06 to 180 second), if you select this option, central station reporting will be disabled while the test is in progress.

      Select 4 for Walk Test-with Report. The LCD will display "WALK TEST STOPPED" on Line 1 and "ENTER = start test" on Line 3. Enter the time period you wish the NAC circuit to be active for each alarm (06 to 180 seconds) If you select this option, central station reporting will occur as normal during the walk test.

      The panel generates a TEST report to the central station when the walk test begins. During a walk test, the panel's normal fire alarm function is completely disabled, placing the panel in a local trouble condition. All zones respond as 1-Count zones (respond when a single detector is in alarm) during a walk test. Each alarm initiated during the walk test will be reported and stored in the event history buffer.

3.    Press ENTER to end the walk test. The system will reset. The panel will send a "TEST RESTORE" report to the central station.

If you do not end the walk test manually within four hours, it will end automatically. If there is an alarm or pre-alarm condition in the system, you will not be able to enter the walk test.

**NOTE:**   The panel does not do a full 30 second reset on resettable power outputs. As soon as the device is back to normal, the panel is ready to go to the next device.

## 9.3.7  Conduct a Communicator Test

1.    From the Main Menu, press 1 for System Tests.
2.    Select 5 for Communicator Test. The screen will display "Manual communicator test started". When the test is completed, you will be returned to the Test Menu. A manual communicator test requires that at least one daily test in the network be enabled in communicator programming.
3.    The Manual communicator test will be communicated out both Phone Lines and Ethernet paths if they are all programmed. Each manual communicator test will alternate between one of the Phone Line paths and one of the AlarmNet paths.

## 9.3.8  Manual AlarmNet Registration

1.    From the Main Menu, press 1 for System Tests.
2.    Select 8 for Register AlarmNet. The screen will display and ask for confirmation. Feedback will be given if the command was sent or not.

## 9.3.9  Silence Alarms or Troubles

Press SILENCE to turn off silenceable outputs and annunciator PZTs. If an external silence switch has been installed, activating the switch will silence alarms or troubles. If you are already using system menus when you press SILENCE, you will not need to enter your code.

> **NOTE:**   Alarm and trouble signals that have been silenced, but the detector remains un-restored, will resound every 4 or 24 hours depending on user selection until the detector is restored. Refer to "Auto-Resound (4 or 24 hours)" on page 115.

> **NOTE:**   This system has the ability to silence control panels across the ECS network.

> **NOTE:**   For ECS systems, pressing silence at an LOC will only silence the system in control. See Section 9.4.1.

## 9.3.10  Reset Alarms

Press RESET to perform a control panel reset. If an external reset switch has been installed, activating the switch will reset fire alarms.

> **NOTE:**   Multi-Site displays do not reset multiple sites. To reset a site, enter a Multi-Site Installer access password, select a site from the list of Sites, and then press Silence or Reset button to continue. This option will occur whether the Network was programmed No/Yes for "Silence-Reset Across Sites". Also, this option allows the user to select Reset Fire System and Reset Emergency Communication System whether or not the panel has ECS. If the user selects No, the non-ECS panel will do a fire reset within the site and no other sites will be affected.

> **NOTE:**   For ECS Systems, pressing reset at an LOC will prompt the user for which system they want to reset. See Section 9.4.1.

### Reset Communicator

This option allows the user to Reset the Communicator. The LCD will display:

"Resetting Communicator… Please Wait"

You will be returned to the Main Menu when the reset is complete.

The Communicator is not allowed to be reset when alarms or supervisories are active. Communicator Reset is not allowed if any of the following are active:

- Fire Alarm
- Fire Supervisory
- Fire Pre-Alarm
- CO Alarm
- CO Supervisory
- ECS Alarm
- ECS Supervisory

## 9.3.11  Check Detector Sensitivity Through Point Status

The control panel constantly monitors smoke detectors to ensure that sensitivity levels are in compliance with NFPA 72. Detectors are sampled every three hours.

If sensitivity for a detector is not in compliance, the panel goes into trouble, generating a Calibration Trouble condition. A detector enters a Calibration Maintenance state to indicate that it is approaching an out of compliance condition (but is currently still in compliance).

When a Calibration Trouble condition occurs, the central station receives a detector trouble report ("373" + Zone # for Contact ID format; "FT" + Zone # in SIA format).

To check sensitivity for an individual detector, follow the steps below.

1. From the Main Menu, press 2 for Point Functions.
2. Press 2 for Point Status.
3. Select the module where the point you want to check is located.
4. Enter the number of the point you want to check and press ENTER.

A screen similar to those shown below will display.

Example of detector in compliance

detector ID

```
Det-Photo              3.5% ob/ft
MODULE_97 POINT_101
[Z001][M97:P_101]        Clean Air = 059
NORMAL                        >= MORE
```

percent obscurity per foot

detector state

Example of detector not in compliance

blanks indicate detector not in compliance

```
Alarm Threshold=169  (3.5% ob/ft)
Maint Threshold=083   Trble Threshold=094
Clear Air=058    (01%)     Avg Clear Air=056
                              Peak=059(02%)
```

```
Det-Photo                ___% ob/ft
MODULE_97 POINT_101
[Z001][M97:P_101] A058
CAL TRBLE >= MORE
```

detector state          current value

Possible states:
• NORMAL: detector sensitivity in compliance with UL and not in alarm
• ALARM: detector in alarm
• CAL MAINT: detector needs maintenance, but not yet in trouble
• CAL TRBLE: detector not in compliance with NFPA72
(Other trouble states could override this message.)

```
Alarm Threshold=169  (___% ob/ft)
Maint Threshold=083   Trble Threshold=094
Clear Air=058    (01%)     Avg Clear Air=056
                              Peak=059(02%)
```

Example of CO detector in compliance

detector ID          percent obscurity per foot

```
CO SMOKE               2.0%
MODULE_33 SENSOR_4
[Z001][M33:004] AXXX
```

```
Sensitivity = 2.0%
CO = xxx ppm
```

**Figure 9.3  Checking Detector Sensitivity Compliance**

You can print the detector status by uploading the detector status to, and printing from the HFSS Software Suite.

## 9.3.12  View Status of a Point

1.  From the Main Menu, press 2 for Point Status.
2.  From the list that displays, press ENTER to select the module where this point is located. Next, enter the point to display. The screen that displays will show you if the point has a trouble and will provide sensitivity compliance information. (See Section 9.3.11 for complete information about detector sensitivity compliance.)

## 9.3.13  View Alarms or Troubles

When the system is in alarm or trouble, you can press down arrow to view the location of an alarm or trouble.

## 9.3.14  System Information

From the Main Menu, press 8 to access the System Information menu.

### About the Panel

Press 1 to access About Panel to view the panel model, serial number, system version number, and date.

### Send/Receive Firmware Updates

The TR-2100 has the ability to be updated in the field. The latest TR-2100 Firmware Update Utility can be downloaded from the Triga website, www.trigaglobal.com. Once a panel has been updated using the Firmware Update Utility, you can use Send/Receive firmware updates to propagate the firmware to the other panels in the network.

1.  Press 2 to send a firmware update or press 3 to receive a firmware update from the System Information menu. Available panels are listed in the menu.
2.  Use the up or down arrow key to select a panel to send/receive an update to/from. Press ENTER to start the update process.

### Feature Activation

This menu is used to activate/register additional features.

1. Press 4 from the System Information menu. This option will bring up the Feature Activation menu.
2. Press 1 to enter a six digit activation code or press 2 to review the features already activated in this panel.

### Ethernet Info

Press 5 from the System Information menu for Ethernet Information.

```
<Ethernet Info>
MAC Address 00-D0-2D-20-68-94  CRC: 0000
IP: 000.000.000.000    Sub: 000.000.000.000
GW: 000.000.000.000    DHCP: Y
```

### AlarmNet Info

Press 6 from the System Information menu for AlarmNet Info.

- Cell Strength: 0 to 100%
- Status: Registered/Not Registered

### AlarmNet Temporary PIN

Press 7 from the System Information menu to enter an AlarmNet Temporary PIN. This is issued by AlarmNet to register a new panel in case the existing FACP is ever replaced.

## 9.4 Event Priority

This section describes how the event activations are handled by the control panel with regards to priority.

### 9.4.1 System Control

The TR-2100ECS control panel integrates both a fire and emergency system into one. When events are active from both systems the control panel makes intelligent decisions to determine which system should be controlling outputs. This is called System Control. This manual will refer to the fire or emergency systems having System Control, this means that the system has an active alarm or supervisory event that has a higher event priority than an active alarm or supervisory event from the other system. For this consideration, the control panel looks at the highest priority event active on each system. When both systems are active, the system with control will activate System Override. System Override is activated on the lower priority, non-System Control panel system (fire or emergency system.)

### 9.4.2 System Override

System Override temporarily disengages output group activations from the system being overridden. This is done to not provide conflicting messages and signaling and help with reducing confusion of the building occupants.

When output groups are supposed to be active but are not because System Control has activated System Override, they are re-activated every 30 seconds for 2-3 seconds to indicate to the building occupants that there is still an event active. This will only occur when the system with System Control is not using the output group. The System Override option is programmable for non-voice output groups on a per output group basis through the panel output group programming menus and in HFSS. In these places the option is called Allow System Override and defaults to YES. It is also possible to not reactivate the output groups every 30 seconds when System Override is active on a per system basis. This option is programmable in HFSS.

There are times when you would not want to allow System Override for an output group. For example: fire is programmed to an elevator relay to bring the elevator to the bottom floor for fire only. If fire and ECS are active with ECS being the higher priority event, you still need the elevator to move to the bottom floor and only audible and visual notification appliances must be overridden. In this case, the output group assigned to the relay would be set to NO on the Allow System Override setting. See Section 8.4.1 to edit group properties.

### 9.4.3 Event Priority

Each event type (see Table 9.3) has a priority level assigned to it. When more than one event type is active, the panel uses the Event Priority Table to determine which event mapping to use to control output groups. The Event Priority Table can be modified using HFSS. It is strongly recommended that before each installation a risk analysis is done by the stake holders (property owners, AHJ, occupants, etc…) to determine which events take precedence over others.

The Emergency LOC Alarm entry in the Event Priority Table encompasses all ECS Alarm Events that can be activated from an LOC (LOC Mic Triggered ECS Alarm and LOC ECS 1 Alarm through LOC ECS 8 Alarm). By default, these events do not have a priority - they can be activated in any order. A programming option in HFSS exists to force a priority scheme for the LOC ECS Alarm Events. When this option is enabled, the lower numbered the ECS event is, the higher priority it has (e.g. LOC ECS 1 Alarm is higher priority than LOC ECS 8 Alarm). With this priority scheme, once a higher priority ECS Event has been activated, an ECS reset must be performed before a lower priority ECS Event can be activated.

The Event Priority Table contains the following events for modification.

| Fire System | Emergency System |
|---|---|
| Fire Manual Pull Alarm | Emergency LOC Alarm |
| Fire Detector Alarm | Emergency 1 Point Alarm |

**Table 9.3  Event Priority**

| | |
|---|---|
| Fire Water Flow Alarm | Emergency 2 Point Alarm |
| Fire Interlock Release Alarm | Emergency 3 Point Alarm |
| Fire Zone Aux 1 Alarm | Emergency 4 Point Alarm |
| Fire Zone Aux 2 Alarm | Emergency 5 Point Alarm |
| Fire System Aux 1 Alarm | Emergency 6 Point Alarm |
| Fire System Aux 2 Alarm | Emergency 7 Point Alarm |
| | Emergency 8 Point Alarm |
| | Emergency Voice Aux 1 Alarm |
| | Emergency Voice Aux 2 Alarm |
| | Emergency Voice Aux 3 Alarm |
| | Emergency Voice Aux 4 Alarm |
| CO Alarm | |
| Fire Pre-Alarm | |
| Fire Interlock Alert | |
| | Emergency Supervisory |
| Fire Supervisory | |
| CO Supervisory | |
| Trouble | |
| Site F Key Status | |
| System Status | |

**Table 9.3  Event Priority**

**NOTE:**   Status Points, Status Voice Aux 1, Status Voice Aux 2, and Background Music are contained within the System Status event priority. All fire, emergency, and system troubles are prioritized into the Trouble Event Priority.

## 9.4.4  Priority Rules

1.  Event priorities can be changed only within, not between, priority levels (defined by bold lines in Table 9.3).
2.  Emergency LOC Alarm must always higher than Emergency 1-8 Point Alarm and Emergency Voice Aux 1-4 Alarm.
3.  ECS events do not need to be in order by ECS number.

## 9.4.5  Other Priority Considerations

There are other considerations to take into account when the same event is acting on the same output group (an event being mapped to an output group.) These are prioritized in order of appearance.

- For the Voice System using the dual channel, normal mapping takes priority over alert mapping. Example: Zone 1 Manual Pull is mapped to Voice Group 1 as an Alert 1 mapping and Zone 2 Manual Pull is mapped to Voice Group 1 as a normal mapping. If Zone 1 and Zone 2 Manual Pull events are active, Voice Group 1 will annunciate the Fire Alarm message defined in the Voice Settings for the panel's assigned site.
- For voice system utilizing dual channel, normal mapping takes priority over alert mapping. Example: Zone 1 Manual Pull is mapped to Voice Group 1 as an Alert 1 mapping and Zone 2 Manual Pull is mapped to Voice Group 1 as a normal mapping. If Zone 1 and Zone 2 Manual Pull events are active, Voice Group 1 will annunciate the Fire Alarm message defined in the Voice Settings for the panel's assigned site.
- Event priority is considered here based on the Event Priority Table above.
- If an output group is mapped both directly and through an output group template to an event, the direct map gets priority. Example: Template 1 Contains Group 1. Zone 1 Manual Pull is mapped to Template 1 and Group 1 using constant and ANSI patterns respectively. If Zone 1 Manual Pull is active, Group 1 will output ANSI.
- When an event is mapped to an output group from multiple zones, the lower numbered zone gets priority. Example: Zone 1 Manual Pull and Zone 2 Manual Pull are mapped to Group 1 using constant and ANSI patterns respectively. If Zone 1 and Zone 2 Manual Pull events are active, Group 1 will output constant.

## 9.5  Operation Mode Behavior

The control panel can be in one or more of seven conditions at any given moment: Normal, Alarm, Pre-alarm, Supervisory, Trouble, Silenced, and Reset. Table 9.4 describes the behavior of the panel in each of these modes.

When looking at the LCD, the screen will display FIRE for the "Fire System", or CO for the "CO System". The highest priority event will display first and include the event count (see the figure below).

Press the down arrow to view the location and type of alarm supervisory or trouble. If the panel is programmed to Auto Display Event, information describing the highest priority active event will display on the first two lines.

```
FIRE:ALARM   SUPERVISORY   TROUBLE
     CO:ALARM   SUPERVISORY
EMERGENCY:ALARM   SUPERVISORY
         <Press⬇for status>
```

**Figure 9.4  Highest Priority Event Display**

site          panel number          module number

```
FIRE ALARM Waterflow Sw
[Site 01: Panel 01]  [Z001]  [M97:M031]
              FIRE <ALM>
          <Press ↓ for status>
```
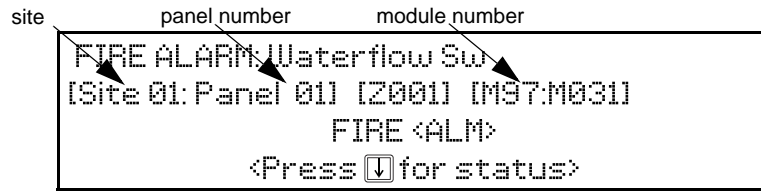
**Figure 9.5  Event Display after Two Minutes Sitting Idle**

| Operating Mode | Occurs When | System Behavior | In This Mode You Can |
|---|---|---|---|
| Normal | No alarm, supervisory, or trouble condition exists and menus are not in use. | SYSTEM POWER LED is on.<br>The All Systems Normal display indicates that the system is in normal mode. The current date and time display on the last line of the LCD. | Enter the appropriate code, or rotate the key to activate the Main Menu. |
| Alarm | A smoke detector goes into alarm or a pull station is activated.<br><br>CO detector goes into alarm.<br><br>If more than 3 categories are active at a single time, the screen will display as shown. | The system will report events to the central station. The onboard annunciator will sound loud, steady beeps to distinguish alarm signals. For a fire alarm, the sequence is a loud steady beep.(Any notification devices attached to the system will also sound). For an ECS Alarm, the sequence is four seconds on, one second off.<br>The GENERAL ALARM LED will turn on.<br>The LCD displays a screen similar to this one.<br><br>```\n          Site 1\n        FIRE: ALARM\n    EMERGENCY: ALARM\n        <Press ↓ for status>\n```<br>Pressing the down arrow will display the location macro, date/time stamp, and site/panel number if applicable.<br><br>```\n          Site 1\n    CO: ALARM\n\n        <Press ↓ for status>\n```<br>Pressing the down arrow key to view the type and location of alarm. (Message will alternate with the date/time display.)<br><br>```\n    FIRE: ALARM SUPERVISORY TROUBLE\n        CO: ALARM\n  EMERGENCY: ALARM SUPERVISORY\n      SYSTEM: TROUBLE\n``` | Press the down arrow to view the alarm. A screen similar to this one displays.<br><br>```\nSite 1 Panel 1\nFIRE ALARM: Waterflow Sw\nSBUS 97 MODULE 3\n08/03/21 01:45:52PM\n```<br>Press SILENCE and enter an Access Code (or activate the key) to silence the annunciator (and any notification devices attached to the system).<br>When the alarm condition clears, press RESET and enter a code (or activate the key) to restore the panel to normal. |

**Table 9.4  Panel Operating Modes**

| Operating Mode | Occurs When | System Behavior | In This Mode You Can |
|---|---|---|---|
| Supervisory | The system detects a supervisory condition.<br><br>A Supervisory with a CO detector. | The system will report events to the central station. The onboard annunciator sounds a loud, pulsing beep to distinguish supervisory signals. For fire supervisory signals, the sequence is two seconds on, two seconds off. For ECS supervisory signals, the sequence is two seconds on, three seconds off.<br>The SUPERVISORY LED will turn on.<br>The LCD displays a screen similar to this one.<br><br>```\n                    Site 1\n              FIRE: SUPERVISORY\n\n              <Press ⬇ for status>\n```<br><br>Pressing the down arrow to display the location macro, date/time stamp, and site/panel, if applicable.<br><br>```\n                    Site 1\n              CO: SUPERVISORY\n\n              <Press ⬇ for status>\n```<br><br>Press the down arrow to view the type and location of the Supervisory event. The message will alternate with the time/date display. | Press the down arrow to view the fire supervisory condition. A screen similar to this one displays.<br><br>```\nSite 1 Panel 1\nFIRE SUPERVISORY: Supervisory Sw\nSBUS 97 MODULE 3\n08/03/21 01:45:52PM\n```<br><br>Press SILENCE and enter an Access Code (or activate the key) to silence the annunciator.<br>Once the supervisory condition has been corrected, the system will restore automatically. |
| Trouble | A system trouble condition occurs.<br><br>A trouble condition with a CO detector | The system will report events to the central station. The onboard annunciator sounds a loud, pulsing beep in the sequence 0.75 second on, eight seconds off.<br>The SYSTEM TROUBLE LED will turn on.<br>The LCD displays a screen similar to this one.<br><br>```\n                    Site 1\n              FIRE: TROUBLE\n\n              <Press ⬇ for status>\n```<br><br>Press the down arrow to display the location macro, date/time stamp, and site/panel, if applicable.<br><br>```\n                    Site 1\n              CO: TROUBLE\n\n              <Press ⬇ for status>\n```<br><br>Press the down arrow to view the type and location of the Trouble event. The message will alternate with the time/date display. | Press down arrow to view the fire trouble. A screen similar to this one displays.<br><br>```\nSite 1 Panel 1\nFIRE TROUBLE: Supervisory Sw\nSBUS 97 MODULE 32\n08/03/21 01:45:52PM\n```<br><br>Press SILENCE to silence the annunciator.<br>Once the trouble condition has been fixed, the system will restore itself automatically. |
| Pre-alarm | A single detector trips in a 2-Count zone. (2-Count means two detectors must trip before an alarm is reported.) | The touchpad piezo beeps.<br>The LCD displays a screen similar to this one.<br><br>```\n                    Site 1\n              FIRE: PREALARM\n\n              <Press ⬇ for status>\n```<br><br>Press the down arrow to display the location macro, date/time stamp, and site/panel, if applicable. | Press down arrow to view the Prealarm. A screen similar to this one displays.<br><br>```\nSite 1 Panel 2\nFIRE PREALARM: Det-Photo\nSBUS 97 MODULE 33\n08/03/21 01:45:52PM   1 of 1\n```<br><br>All system operations are available in this mode. |
| Reset | The RESET button is pressed followed by a valid code, if necessary. | All LEDs are on briefly then the LCD displays "RESET IN PROGRESS". If the reset process completes normally, the date and time normal mode screen displays. | Menus are not available during the reset process. |

**Table 9.4  Panel Operating Modes (Continued)**

| Operating Mode | Occurs When | System Behavior | In This Mode You Can |
|---|---|---|---|
| Silenced | An alarm or trouble condition has been silenced but still exists. To silence alarms and troubles, press SILENCE followed by the Installer or User Code, if necessary. | The SYSTEM SILENCE LED is on. The SYSTEM TROUBLE, SUPERVISORY, and/or GENERAL ALARM LED (depending on condition) is on. The annunciator (and any notification devices attached to the system) will be silenced. | Press down arrow to view the location of the alarm, supervisory, or trouble. When the condition no longer exists, the SYSTEM SILENCED and SYSTEM TROUBLE LED, SUPERVISORY and/or GENERAL ALARM LEDs turn off. |

**Table 9.4  Panel Operating Modes (Continued)**

### 9.5.1 Multi-Site Annunciator and Multi-Site User Access

Multi-site annunciators are unique as they can display the status and event history of all sites they are assigned to. These displays can be especially useful in guard shacks or security centers. A multi-site display is indicated by the words "Multi-Site Display" at the top of the idle screen.

- The ACK, DRILL, RESET and F-Macro keys are disabled until a multi-site user access code has been entered and a specific site has been selected.
- Multi-site Annunciator silencing rules:
    - If any of the assigned sites are silenced, the Silenced LED will be lit.
    - Silence key will only silence the sound from the multi-site annunciator on which the silence key was pressed. This is called being Locally Silenced. If Locally Silenced is enabled on a multi-site annunciator, it will be indicated by a blinking Silenced LED.
    - If any new troubles, supervisory, pre-alarms, or alarms are triggered in any assigned sites, Locally Silenced annunciator will resound.
    - If a multi-site annunciator is locally silenced for 4 or 24 hours depending on user selection (see "Auto-Resound (4 or 24 hours)" on page 103), the locally silenced annunciator will resound.
- The TR-2100 Menu System is disabled on a multi-site annunciator. Pressing the Right or Enter keys will bring you straight into event history for assigned sites. To get into the menu system, a multi-site user password must be entered and then a site must be selected from the site selection menu. Once this is done you will have access to the idle screen of that site and the annunciator will temporarily act like a single site annunciator.
- A multi-site annunciator will sound the highest priority tone from the sites it is assigned to.

A multi-site display is created in Module programming in the edit properties menu for an annunciator. See Section 8.2.1. An annunciator cannot be programmed as a multi-site display when it is associated with an ECS-NVCMECS or ECS-RVM in an ECS system.

> **NOTE:** A multi-site display is created in Module programming in the edit properties menu for an annunciator. See Section 8.2.1.

> **NOTE:** An annunciator cannot be programmed as a multi-site display when it is associated with an ECS-NVCM or ECS-RVM in an ECS system.

## 9.6  Releasing Operations

The control panel supports two types of releasing: Double Interlock Zone and Single Interlock Zone. The Double Interlock Zone operation requires an interlock switch input in the system, and the Single Interlock Zone does not. An interlock switch is typically a dry-contact pressure switch.

When Single or Double Interlock Zone releasing is selected using HFSS, the software suite will automatically default the following system parameters. Defaults can be modified through programming.

- Output Group 2 is created. Output Group 2 will be defaulted as a "Detector Alarm" output group for all releasing zones. NAC [98:001] is assigned to Output Group 2.
- Output Group 3 is created. Output Group 3 will be defaulted as a "Interlock Release Alert" output group for all releasing zones. NAC [98:002] is assigned to Output Group 3.
- Output Group 4 is created. Output Group 4 will be defaulted as "Interlock Release Alarm" output group for all releasing zones. NAC circuit [98:003] is assigned to Output Group 4.

> **NOTE:** The installer must define which input points will be used for detectors, manual release switches, or interlock/pressure switches. For manual release operation, Installer must use an FM approved/ UL listed releasing manual station

> **NOTE:** For manual release operations, an FM approved/ UL listed releasing manual station must be used. Refer to the *Device Compatibility Document* for approved releasing devices.
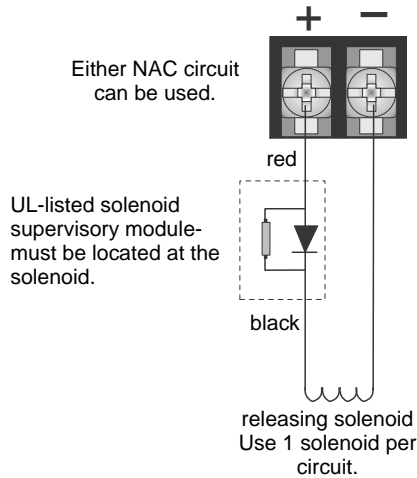
**Figure 9.6  Wiring Configuration for Solenoid**

**NOTE:**  For releasing operations, a manual releasing disconnect switch is required per UL 864. Refer to the *MRD-1H Series Document* for installation instructions.

## 9.6.1  Single Interlock Zone Releasing

A single interlock zone utilizes a minimum of two addressable detectors and a designated manual release switch.

⚠ **CAUTION:  ADDRESSABLE DETECTORS/MANUAL RELEASE SWITCH**
ONLY ADDRESSABLE DETECTORS CAN BE USED. NO CONVENTIONAL DETECTORS CAN BE USED. EACH SINGLE INTERLOCK ZONE INPUT REQUIRES AT LEAST ONE MANUAL RELEASE SWITCH.

### Conditions Required for an Interlock Release Alert Output Activation

If any single addressable detector is activated, the "Interlock Release Alert" output will activate. This alerts the user that the initial stages required for a release condition are present. (Refer to Table 9.5).

### Conditions Required for a Detector Alarm and Interlock Release Alarm Output Activation

If two or more addressable detectors, or a manual release switch activate, the "Detector Alarm" and "Interlock Release Alarm" outputs will activate. (Refer to Table 9.5 below.)

| Inputs | Output Results | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1st Addressable Detector | | X | | X | | X | | X |
| 2nd Addressable Detector | | | X | X | | | X | X |
| Manual Release Station | | | | | X | X | X | X |
| | Normal | Interlock Release Alert | | Interlock Release Alarm and Detector Alarm | | | | |

**Table 9.5  Single Interlock Zone Operation**

⚠ **CAUTION:  DETECTOR SPACING**
DETECTORS MUST BE INSTALLED AT 0.7 TIMES THE LINEAR SPACING AS DESCRIBED IN NFPA 72

## 9.6.2  Double Interlock Zone Releasing

A Double Interlock Zone uses a minimum of two addressable detectors, a designated manual release switch, and an interlock switch input. An interlock switch is typically a dry-contact pressure switch and will be referred to as an interlock/pressure switch in this document. Only addressable detectors can be used. No conventional detectors can be used.

### Conditions Required for an Interlock Release Alert  Output Activation

If any single addressable detector is activated, the "Interlock Release Alert" output will activate. This alerts the user that the initial stages required for a release condition are present. (Refer to Table 9.6.)

### Conditions Required for a Detector Alarm Output Activation

If two addressable detectors, a manual release switch is activated, or an interlock switch is active, the "Interlock Release Alert" and "Detector Alarm" outputs will activate.

### Conditions Required for an Interlock Release Alarm Output Activation

Any release requires the activation of an interlock switch, and either a manual release switch or 2 activated addressable detectors. When these conditions are met, the "Interlock Release Alarm" and "Detector Alarm" outputs will activate, and the "Interlock Release Alert" outputs will deactivate.

| Inputs | Output Results | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1st Addressable Detector | | X | | X | | X | | X | | X | | X | | X | | X |
| 2nd Addressable Detector | | | X | X | | | X | X | | | X | X | | | X | X |
| Manual Release Station | | | | | X | X | X | X | | | | | X | X | X | X |
| Interlock/Pressure Switch | | | | | | | | | X | X | X | X | X | X | X | X |
| | Normal | Interlock Release Alert | Interlock Release Alert and Detector Alarm | | | | | | Interlock Release Alert and Detector Alarm | | | | | | | |

**Table 9.6  Double Interlock Zone Operation**

## 9.7  Smoke Alarm Verification

Figure 9.7 illustrates how the Smoke Alarm Verification cycle operates.



| reset period | restart period | confirmation period |
|---|---|---|
| 12 seconds | 16 seconds | 60-250 seconds (programmable) |
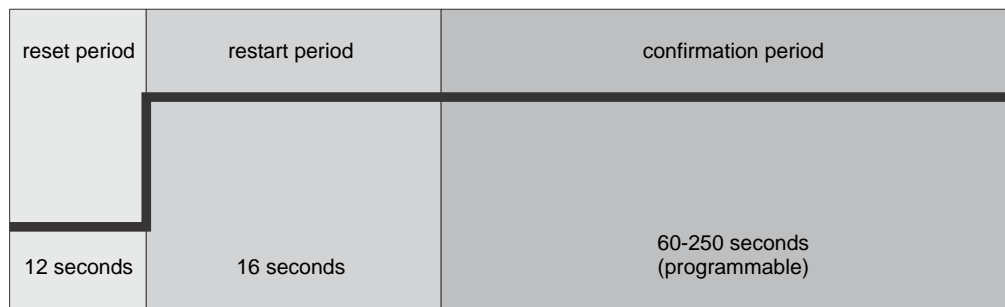
**Figure 9.7  Smoke Verification Cycle**

During the Confirmation Period if there is no alarm indication then the system will return to normal operation.

## 9.8  Function Keys

The function keys on the TR-2100 have multiple features. Their macro key functionality can simplify the disabling, activating, or inhibiting points or groups respectively. They can also be used as a status type activation event and for activating Map Inhibit. Each F-Key macro can hold 50 events.

To access the F-Key Recording menu:

1. From the idle screen, press and hold the F-Key for 5 seconds.
2. Enter a PIN with F-Key macro recording privileges, if prompted.

### 9.8.1  Recording an F-Key Macro

1. Access the F-Key Recording menu and select the 'Start FKEY Recording' option.
2. The panel will return to the idle screen. Notice the 4th line on the display now alternates with "F# Key Recording", where # is the number of the F-Key being recorded.
3. Any Disabling or Activating of points, output groups, or templates from the site at this point will be programmed into the macro. Do this by going to any annunciator within the site and entering Main Menu > Point Functions and use Disable/Enable Point or use I/O Point Control to: disable output groups or individual points, or activate individual points.
4. Once you are finished with disabling or activating points/output groups, enter the F-Key Recording Menu again and select the 'End F-KEY Recording' option.
5. The panel will return to the idle screen.

### 9.8.2  Aborting an F-Key Macro Recording Session

1. After an F-Key macro recording session has been started, the session can be canceled at any time by accessing the F-Key Recording menu and selecting 'Abort F-KEY Recording' option.
2. The panel will return to the idle screen.

### 9.8.3  Erasing an F-Key Macro

1. If an F-Key macro has already been recorded, you can erase it by accessing the F-Key Recording menu and selecting the 'Erase F-KEY Macro' option.
2. The panel will return to the idle screen.

### 9.8.4  Using a Recorded F-Key Macro

1.  From the idle screen on any annunciator in the site, press the F-Key you want to activate.
2.  Once finished, to deactivate the macro press the F-Key again.

### 9.8.5  F-Key Status Event

When an F-Key is enabled, it activates its corresponding F-Key Active event. This is a status type event that can activate outputs without showing any status on annunciator displays. This should be used for ancillary purposes only.

### 9.8.6  F-Key Map Inhibit

The F-Keys have the ability to disable event - output group mapping for the purpose of simulating that the map doesn't exist. This can be setup to allow for testing purposes where notification of an entire building is not desired during the test. This option is programmable for each output group map through HFSS.

When an F-Key is active and a map in the system is set to be disable by Map Inhibit, the system will show a trouble event indicating it as such.

# Section 10: Emergency Communication System Operation

## 10.1 Overview

The TR-2100ECS control panel and accessories provides features to meet the requirements for a Mass Notification Systems as described in NFPA 72 and is compliant with the UL 2572 standard. The ECS (Emergency Communication System) is integrated with the fire alarm and voice evacuation functions of the control panel. In a networked panel system, only one panel can be chosen to be the voice evacuation/ECS panel for the site.

There are two ways for activating ECS in the TR-2100ECS panel:

**ECS Point Activations** ECS Point Activation involves using pre-determined ECS Alarm input points to activate ECS Alarm events. These events cause output areas to activate based on mapping that is programmed into the system at installation. This is very similar to the traditional mapping that the fire system has utilized to date.

**Manual LOC Activations** Manual LOC Activation involves using the LOC ECS interface to activate ECS Events, choose output areas, and speak through a microphone. These selections are not pre-determined and allow the user to make system functionality decisions when the event is actually happening. This requires the activation of Manual ECS State which bypasses ECS Point Activations. See Section 10.2.3.

## 10.2 LOC Functionality

An LOC (Local Operating Console) consists of either the ECS series panel (ECS-NVCM Network Voice Control Module and the Fire Alarm Control Panel) or the TR-2100LOC (ECS-RVM Remote Voice Module and its associated TR-RD2G/R keypad.) An LOC is created by adding an ECS-NVCM or ECS-RVM to the system and associating a keypad to it. The LOC provides eight buttons for activating the ECS messages, a button to gain and request ECS Control, and a microphone for live paging. There can be up to 16 LOC devices in the system. In a networked panel system, all of the LOCs must be connected through SBUS to the panel that includes the ECS-NVCM.

### 10.2.1 Keys and LEDs

This section outlines the functionality of the keys and LEDs on the ECS-NVCM and ECS-RVM expander modules.

#### ECS Control Key

Pressing the ECS Control Key will do one of two things:

1. Enter Message Mode of the LOC ECS interface (including trying to gain ECS Control if the user doesn't have it already).
2. Relinquish ECS Control if pressed while in Message Mode.

#### ECS Control LED

The ECS Control LED is used to indicate the status of ECS Control in the system. When the LED is on solid, the LOC has ECS Control within the system. When the LED is blinking, another LOC has gained ECS Control in the system.

#### ECS Message Keys

ECS Message Keys are used in Message Mode to select which ECS Message is to be played. If pressed when the LOC does not have ECS Control, the system will automatically try to gain ECS Control before allowing the ECS Event to be activated. See Section 10.2.2.

#### ECS Message LEDs

The red ECS Message LEDs indicate the active ECS Message and any previously active ECS messages. The green LEDs indicate the ECS Message was selected in message mode and that the LOC has ECS control.

1. For ECS Point Activation, the red ECS Message LEDs will illuminate on each LOC to indicate which ECS messages have been activated in automatic ECS state.
2. In Manual ECS State, the red ECS Message LEDs will indicate which ECS message has been activated at an LOC. See Section 10.2.3.
3. The green ECS Message LEDs will activate for the LOC that activated the ECS Message.

#### Select Keys

The Select Keys are used to toggle which output areas are active.

1. If Message Mode is active (see Section 10.2.5), the Select Keys will activate output which areas for the active message to be played in (also activates the red Select Key LED).

**NOTE:** For LOC-activated emergency alarm events, if an area is programmed through mapping to be active, that area is automatically selected and can not be deactivated using the Select Keys.

2. If Fire Page Mode is active (see Section 10.2.5), the Select Keys will toggle which areas the microphone audio is distributed to (also toggles the green Select Key LED).

#### Select Key LEDs

The Select Key LEDs are used to indicate which output areas are active for a microphone page or system events.

* Green LEDs: active areas for microphone paging.

**NOTE:** These are only active when the microphone PTT (push-to-talk) is engaged. Blinking indicates one or more associated network page destination panels are unable to output the page.

• Red LEDs: active areas for system events.

📄 **NOTE:** When system is Dual Channel Enabled, blinking LEDs indicate the area is active for an alert message.
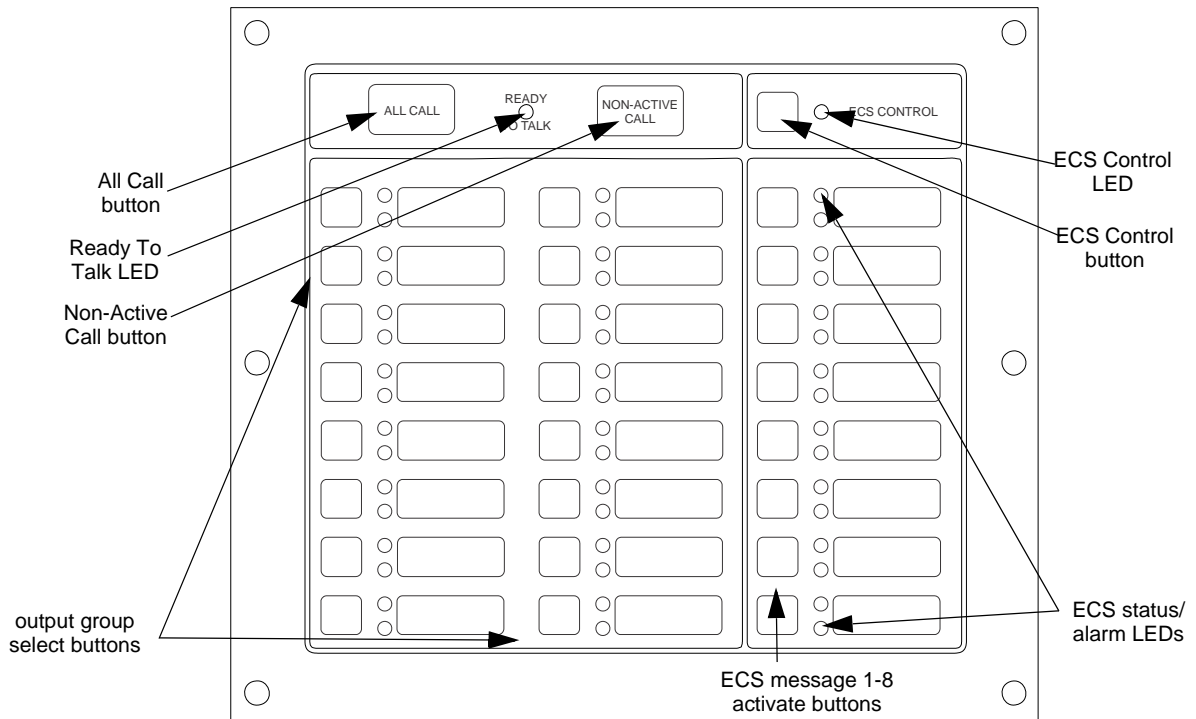
**Figure 10.1  Front View of ECS Keypad**

## 10.2.2  Gaining ECS Control

When attempting to gain ECS Control, there are three things that govern whether or not ECS Control can be obtained:

1. LOC Priority.
2. LOC Lockout.
3. User profile access control.

### LOC Priority

LOCs are assigned (through panel or HFSS programming of the ECS-NVCM and ECS-RVM) an LOC priority of low, normal, or high. LOCs with a higher priority are always able to gain control from a lower priority LOC.

### LOC Lockout

When LOCs are programmed to the same priority, the setting LOC lockout applies. LOC lockout will not allow an LOC to gain ECS Control from the LOC with ECS Control until one of three things happen:

1. The LOC lockout timer expires. Once the LOC lockout timer expires, an attempt to gain ECS Control can be made again.

📄 **NOTE:** The lockout timer must be programmed to expire sometime other than Never.

2. The user at the second LOC requests ECS Control from the LOC with ECS Control and that LOC grants the request. (See Section 10.2.7). If the ECS lockout timer expires while an ECS Control request is in progress, the system will automatically pass ECS Control to the requesting LOC.
3. The user at the second LOC enters an access code with the ECS Super User profile option.

The LOC lockout timer can be set between immediate and 12 hours in increments of 1 second or it can be set to never expire. The default setting is 30 seconds. The LOC lockout timer is restarted upon any key press at the LOC with ECS control. The LOC lockout timer is cleared when ECS Control is relinquished.

### User Profile Access Control

The user will need to enter an access code containing the ECS Control Request or ECS Super User profile option to gain ECS Control. ECS Control Request and ECS Super User profile options will be mutually exclusive to the system. If the access code has ECS Super User, the ECS Control Request is ignored and activations by that user are always as ECS Super User.

## 10.2.3  Manual ECS

After gaining ECS Control the system enters the LOC ECS interface which allows you to activate the Emergency System and allows for Emergency Paging. Once an emergency event has been activated the panel enters a Manual ECS State. In this state, all ECS Alarm programmed points that are currently in alarm in the system are changed to an active state. The display status screen reflects this when viewing the system for status. Any outputs that were activated by the ECS Alarm programmed points are deactivated until Manual ECS state is exited. Only an ECS Reset can exit the Manual ECS State. If a user gains ECS Control at an LOC and does not activate an ECS message, the system will automatically generate an ECS Supervisory indicating such. This prevents an LOC from being in an undesired state of ECS Control when an actual event emerges.

There are two modes for interacting with the LOC ECS interface when in Manual ECS State:

- Message Mode
- Fire Page Mode

These two modes allow you to quickly toggle areas of output for a desired message or to speak to a microphone for ECS Paging.

After gaining ECS Control, the system is in Fire Page Mode of the Manual ECS State.

### Switching between Fire Page Mode and Message Mode

At any time while in ECS Control, you can switch between Fire Page Mode and Message Mode. Fire Page Mode is entered by simply engaging the microphone.

1.  Message Mode: Use the ECS Message keys to toggle which message/event to output to the system. Use the Select Keys to toggle output areas to play the current ECS Message in. The Select Key's red LED will toggle on/off with the activation/deactivation of the area is now receiving the message. Any non-voice groups assigned to this Select Key will also toggle with their Activation Cadence. See SectionActivating Output Groups Dynamically.
2.  Fire Page Mode: Use the Select Keys while the microphone is active to toggle which areas to do an ECS Microphone Page to. The Select Key's green LED will toggle on/off with the activation/deactivation of the ECS Microphone Page to the area.

### Activating Output Groups Dynamically

This method allows the system to be setup with minimal or no system mapping. When in Manual ECS State and operating in Message Mode the user can dynamically activate/deactivate output areas for system notification to take place in. The Select Key red LED will become lit and the circuits in the output group(s) will become active and play the currently active ECS event message when activated. When deactivated, the Select Key red LED will become unlit and the circuits in the output group(s) will become inactive. Non-voice output groups can also be assigned to Select Keys and will toggle on/off using the activation cadence assigned to it in output group programming. This is available in the panel and in HFSS. Refer to Section 8.4.1 for information on editing groups.

## 10.2.4  Fire Page Mode

Fire Page Mode allows the user to press the Select Keys to toggle which output areas to speak to over the microphone. The green LEDs next to the Select Keys will activate or deactivate.

```
┌─────────────────────────────────────────┐
│            FIRE PAGE MODE                │
│   SELECT KEYS: Toggle Output Areas       │
│          Microphone Active               │
│  Release Microphone for MESSAGE MODE     │
└─────────────────────────────────────────┘
```

When Fire is set to higher priority than ECS in user programming, and NACs are active due to a release alarm, ECS functions and the microphone will be disabled. In this instance, NACs take higher priority over ECS messages. The screen will display the following.

```
┌─────────────────────────────────────────┐
│            FIRE PAGE MODE                │
│   Fire Alarm Priority Higher than ECS    │
│  Microphone and SELECT KETS Disabled     │
│   MESSAGE Disabled for MESSAGE MODE      │
└─────────────────────────────────────────┘
```

## 10.2.5  Message Mode

In Message Mode, the user is able to press the ECS message Keys to choose a message and press the Select Keys to activate or deactivate which output areas the message will be played. This will activate or deactivate the green and red LEDs next to the ECS Message Keys and the red LEDs next to the Select Keys.

```
┌─────────────────────────────────────────┐
│              MESSAGE MODE                │
│  ECS MESSAGE KEYS: Choose Message        │
│   SELECT KEYS: Toggle Output Areas       │
│  Engage Microphone for FIRE PAGE MODE    │
└─────────────────────────────────────────┘
```

When Fire is set to higher priority than ECS in user programming, and NACs are active due to a release alarm, ECS functions and the microphone will be disabled. In this instance, NACs take higher priority over ECS messages. The screen will display the following.

```
              MESSAGE MODE
      Fire Alarm Priority Higher than ECS
      MESSAGE and SELECT KETS Disabled
   Microphone Disabled for FIRE PAGE MODE
```

## 10.2.6  Custom ECS Event

Custom ECS events allows the user to generate an ECS event and speak a custom message using the microphone. Once the user is done speaking the message, the tone and any associated strobes will continue to be active in the output areas.

To generate a Custom ECS Event:

1. Gain ECS Control using the ECS Control Key when there is not an ECS Event active.
2. Activate the microphone.
3. Choose desired output areas using the Select Keys.
4. Speak custom message into microphone.

## 10.2.7  Passing ECS Control

Passing of ECS Control is allowed when two LOC units have the same priority. When it is possible to pass control, a prompt (similar to Figure 10.2) will display in which the user can request control from the LOC with ECS Control, enter an access code with the ECS Super User profile option to override the other LOC, or wait for the lockout timer to expire (if applicable).

```
GAIN ECS CONTROL OPTIONS MENU
1=Request ECS Control from LOC
2 Gain ECS Control as ECS Super User
3 Wait for Lockout Timer to Expire 30
```

**Figure 10.2  Request ECS Control with Lockout Timer Active**

When passing ECS Control between two ECS Super Users, the user is not shown the prompt screen. Instead, a request for ECS Control is automatically made. Additionally, the lockout timer does not apply for ECS Super User.

When a request for ECS Control is made, the LOC with ECS Control will be shown a screen (similar to Figure 10.3), even when in another menu, except programming menus, indicating that another LOC is requesting ECS Control. The piezo buzzer on the LOC with ECS Control sound when an ECS Control request is active to alert a nearby operator of the request.

```
          Relinquishing ECS Control
           Automatic ECS Timer: 30
1=Cancel, Keep ECS Control
2 Accept, Relinquish ECS Control
```

**Figure 10.3  Another LOC is Requesting ECS Control**

Once ECS Control is passed to another LOC, the new user will assume the system AS IS. This means that the event that was set to be playing at the previous LOC and all output areas it was playing in do not change.

## 10.2.8  Exit ECS Control Menu

The user can exit the LOC ECS interface by pressing the left arrow key. The user will be returned to the idle screen which indicates that the LOC still has ECS control.

## 10.2.9  Relinquish ECS Control

Relinquishing ECS Control is accomplished by pressing the ECS Control Key from within Message Mode. A screen will be displayed to ensure the user wants to relinquish ECS Control. ECS Control will be automatically relinquished after a time-out on this screen. When ECS Control is relinquished, the system stays in the Manual ECS State. ECS Control can then be gained by another LOC or again at the same LOC.

```
 Relinquishing ECS Control
  Automatic ECS Timer: 30
1=Cancel, Keep ECS Control
2 Accept, Relinquish ECS Control
```
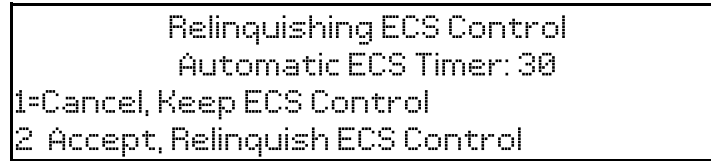
**Figure 10.4  Relinquish ECS Control**

## 10.2.10  ECS Reset

An ECS reset is accomplished by pressing the RESET button from an LOC. The user will be prompted to reset either the fire system or emergency system. After an ECS reset, the LOC will automatically exit the LOC ECS interface.

**NOTE:** In order to perform an ECS reset, the display must be associated with the ECS-NVCM or ECS-RVM. Refer to Figure 10.6.2.

## 10.3  ECS Super User

The ECS Super User access code profile function provides the ability to override all ECS Control rules and gain ECS Control. The ECS Super User is the highest priority user in the system. The ECS Super User has several features that differ from the normal user:

1. Any alarm activated while under ECS Super User Control needs to be reset using an ECS Super User function enabled access code.
2. LOC priority and LOC lockout timer are ignored when passing ECS Control between ECS Super Users at LOC consoles. If another ECS Super User attempts to gain ECS Control from an LOC, an ECS Control request is presented to the ECS Super User at the LOC that currently has ECS Control.

## 10.4  ECS Point Functionality

Any input point in the system can be configured as an ECS input. The Point ECS 1-8 Alarm input types can be used to trigger predetermined ECS events for output areas. ECS-NVCM or ECS-RVM points can be programmed to trigger Voice Aux events that can allow external audio to be played through the emergency system.

## 10.4.1  ECS Point Activations

ECS points can only activate outputs and be placed into an alarm state if the system is not in Manual ECS State. ECS points have no priority and all are allowed to be activated. If the ECS point is a higher priority than the Fire System, then the system will play the highest event message through all ECS mapped outputs.

For example: Emergency 1 Point Alarm is higher priority than Emergency 2 Point Alarm. Emergency 1 Point Alarm has message 1 mapped to through groups 1 and 2. Emergency 2 Point Alarm has message 2 playing through groups 2 and 3. If a point for Emergency 1 Point Alarm and a point for Emergency 2 Point Alarm are both active, the system will play message 1 through groups 1, 2, and 3.

Once Manual ECS State is active, points in Alarm state switch to an Active state. When the points are changed to the Active state, they do not activate any system mapping or turn any outputs on. Any points that are activated while in Manual ECS are also placed into the Active state and are not allowed to activate any mapping. The system idle screen will show an ECS Alarm for any points in the Active state, and the detailed description of the point will show the point as Active.

After an ECS Reset, any ECS points that are still active will again be put into Alarm.

## 10.4.2  ECS-NVCM and ECS-RVM Points

The ECS-NVCM and ECS-RVM modules contain two programmable input points. These can be programmed as any conventional switch input type. These also have the ability to be programmed as a trigger for bringing external audio into the system. These special point types are: ECS Voice Aux In 1-4 Alarm, Voice Aux In 1-2 Status, Background Music. When activated if the event has the highest Event Priority of all activated events, it will activate the Aux In input to all outputs defined by the respective event program mapping.

**NOTE:** Background Music is only allowed to be mapped to circuit 8 of the TR-DUAL50W amplifiers to ensure correct active supervision.

## 10.5  Amplifier Programming

### 10.5.1  Adding an Amplifier

To add a new amplifier to the system, follow these steps:

1. Login as the Installer using the Installer Code.
2. Select 7 for Panel Programming menu.
3. Press 1 to enter Module menu.

4.    Press 2 to add a module.
5.    From the next screen, add an ECS-AMP.

The screen will display "Adding module [#]..." for a few moments. You will be returned to the New Module Type screen where you can select another module(s) if desired.

You must save changes when you exit the Program Menu or the new module will not be added. For more information, see Section 8.2.2.

If you Add a Module that has not been physically connected, the panel will go into trouble after it re-initializes (when you exit the Program Menu with changes accepted). When the new module is attached, the trouble will restore automatically the next time you power up the FACP.

## 10.5.2  Editing an Amplifier

When editing amplifiers, the features that may be edited are: module ID, module name, amplifier module, TR-CE4 installed (Yes or No), and output voltage. To edit an existing module:

1.    Login as the Installer using the Installer Code.
2.    Select 7 for Program Menu.
3.    Press 1 to enter module menu.
4.    Press 1 to edit a module.
5.    Use the up or down arrow key to select the module you wish to edit.
6.    Press the right arrow key or ENTER to move to next selection.

## 10.6  LOC Programming

LOC Priority is a programmable option for the following ECS devices:

•    ECS-NVCM
•    ECS-RVM

Each device is assigned a priority level: Low, Normal, or High.

## 10.6.1  Adding an LOC

To add new LOCs to the system, follow these steps:

1.    Login as the Installer using the Installer Code.
2.    Select 7 for Panel Programming menu.
3.    Press 1 to enter Module menu.
4.    Press 2 to add a module.
5.    From the next screen, add either an ECS-NVCM (max 1 per site) or ECS-RVM (max 15 per site).

The screen will display "Adding module [#]..." for a few moments. You will be returned to the <New Module Type> screen where you can select another a name for the module(s) if desired.

6.    Add a compatible LCD Annunciator, if desired, to associate with each ECS-NVCM or ECS-RVM.

You must save changes when you exit the Program Menu or the new module will not be added. For more information see Section 8.2.2.

**NOTE:**  If you add a module to panel programming that has not been physically connected, the panel will go into trouble after it re-initializes (when you exit the Program Menu). When the new module is attached, the trouble will restore automatically the next time you power up the system.

## 10.6.2  Editing an LOC

Settings that are specific to an LOC are modified by editing the ECS-NVCM or ECS-RVM expander module of the LOC. These options may include: number of switch expanders installed, microphone type, microphone gain, auxiliary gain, tone gain, message gain, keypad priority, associated keypad, Port 1 used, Port 2 used, Select Switch, Panel, and Network Paging.

**NOTE:**  You can also use HFSS to edit an LOC.

To edit an existing module:

1.    Login to the panel. The panel will automatically go to the Main Menu.
2.    Select 7 for Program Menu.
3.    Press 1 to enter module menu.
4.    Press 1 to edit a module.
5.    Use the up or down arrow key to select the module you wish to edit.
6.    Press the right arrow key or ENTER to move to next selection.

### LOC Priority

Each device is assigned a Priority level: Low, Normal, or High. This is modified by editing the LOC's ECS-NVCM or ECS-RVM module. By default, the ECS-NVCM has a high LOC priority. The ECS-RVM is defaulted to normal LOC priority.

### LOC Association

To create an LOC, an annunciator must be associated to an ECS-NVCM or ECS-RVM. This done by editing the ECS-NVCM or ECS-RVM module and selecting the correct annunciator for the associated device. During JumpStart, the ECS-NVCM is automatically associated with the internal annunciator. The association for other LOC consoles in the system must be performed in programming.

## 10.7  Using the Microphone

### 10.7.1  Microphone Functionality

Each microphone in the system is capable of providing convenience, fire or emergency paging. A convenience or fire page can be made anytime the emergency system does have System Control (see Section 9.4.1). When the emergency system has been activated and has System Control, the user must gain ECS Control to do an emergency page.

The microphones are housed within the ECS Series panel enclosure and the TR-LOC2100/TR-RPU cabinets. A maximum of 16 microphones can be installed in the system.

### 10.7.2  Custom ECS Event

This event is activated by gaining ECS Control at a LOC and using the microphone without any ECS event already active in the Manual ECS State. In this case, the Mic Triggered ECS Alarm mapping and General ECS Alarm mapping will be activated and stay activated until a different ECS event is activated at the LOC or the user resets the Emergency Communication System.

### 10.7.3  Fire Page

A fire page can only occur when any of the following events occur.
* Only the Fire System is active.
* Both Fire and the Emergency Systems are active and the highest priority active fire event is programmed to be of higher priority than the highest priority active emergency event.
* Only the Fire System is active, the user has gained ECS control, and custom ECS event is a lower priority than the fire alarm.

**NOTE:**   If Fire and Emergency Systems are active and the Emergency System is of a higher priority, a fire page is NOT allowed. An LOC must gain ECS Control in order to do any live voice.

### 10.7.4  Emergency Page

An emergency page can occur when:
* Only the emergency system is active and the user has gained ECS Control.
* Both fire and the emergency systems are active and the highest priority active emergency event is programmed to be of higher priority than the highest priority active fire event and the user has gained ECS Control.
* Only fire system is active, the Emergency LOC Alarm priority is higher than the active fire system event and the user has gained ECS Control. This will trigger the ECS system and enable mapping for 'Mic Triggered ECS Alarm' and 'General ECS Alarm'.

### 10.7.5  Paging

If there are no active emergency or fire system events, the microphone at an LOC can be used for paging by following these steps:
1. Push the PTT (push-to-talk) button on the microphone.
2. Use the Select Keys on the LOC to toggle the output areas to page to with the microphone (illuminates the green LEDs). The Ready to Talk LED will illuminate after an output area has been activated.
3. Speak into the microphone.
4. Release PTT button when finished.
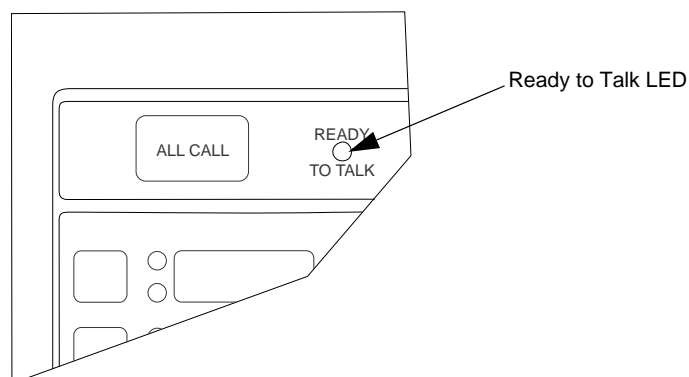
## 10.8  Recording Custom Messages

The ECS Series ECS-NVCM comes with 15 recordable message slots. Message 1-15 can be recorded from: the microphone, Aux Input, or by using the ECS Message Management utility of HFSS. All messages can be a maximum of one minute.

When in the record mode, the ECS-NVCM keys will function as follows:
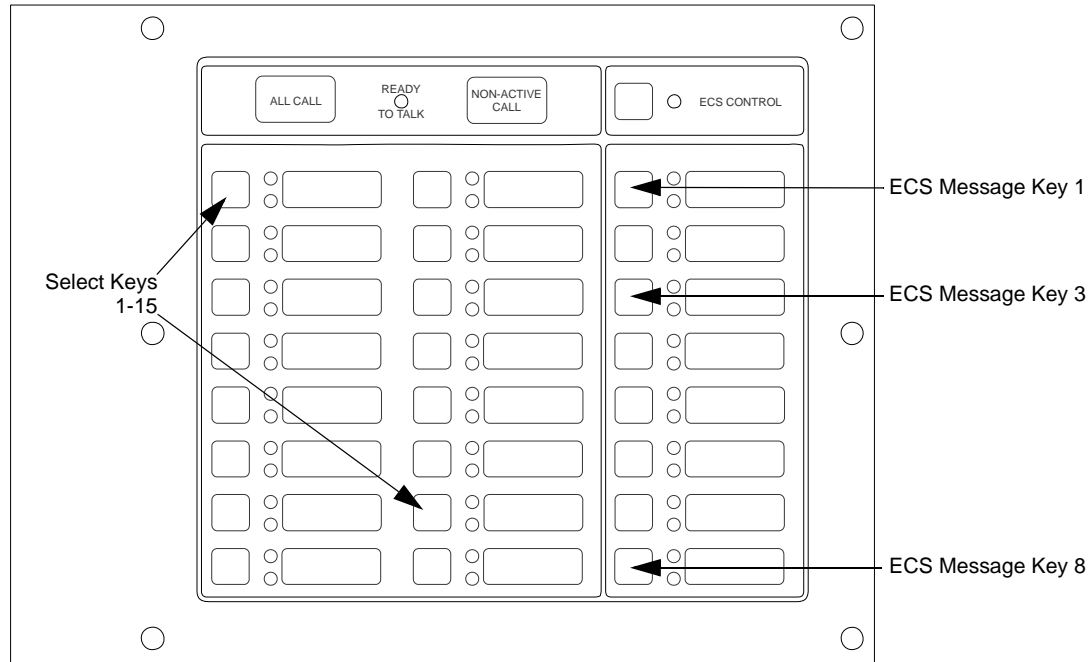


| Key | Function |
|---|---|
| ECS Message Key 1 | Select message slot to record |
| ECS Message Key 3 | Start and stop recording from Aux Audio Input |
| ECS Message Key 8 | Erase user message 1-15 |
| Select Keys 1-15 | Message storage lot 1-15 |

While in the Local Record mode, Select Keys 1-15 will be used to reference message slots 1-15. The associated green Select Key LED will indicate that a message is currently programmed in the corresponding slot. When there is no message recorded (or the message is erased), the associated green Select Key LED will be off. While recording a particular message, the associated red Select Key LED will turn on until recording is completed. The Select Key 1-15 will be used to playback a recorded message or to select the message slot to record to or erase.

When in the Local Record mode, the ECS-NVCM LEDs will function as follows:

| Switch LED | Active LED Status | Action |
|---|---|---|
| Select key 1-15 Green LED | On | Message is currently programmed in this slot |
| Select key 1-15 Red LED | On | Message recording is in progress |
| Select key 1-15 Green/Red LED | Off/Off | Message slot is empty |
| Select key 1-15 Red LED | Flashing | Message is being played back or message is selected for recording |

### 10.8.1  Recording Messages 1-15 Using Aux Audio Input

Recording messages from the Aux Audio Input enables you to load customized, pre-recorded messages into an ECS message location.

Follow these steps to record a user message using Aux Audio Input.

1.    Wire a speaker cable with 1/8" mini plug to the Aux AUDIO GND and IN terminals. Refer to Figure 10.5.

2. Plug the mini plug into the Line Out/Headphone jack on a PC or laptop.



plug in speaker cable
to Audio/Line Out

terminal block connection on
ECS-NVCM
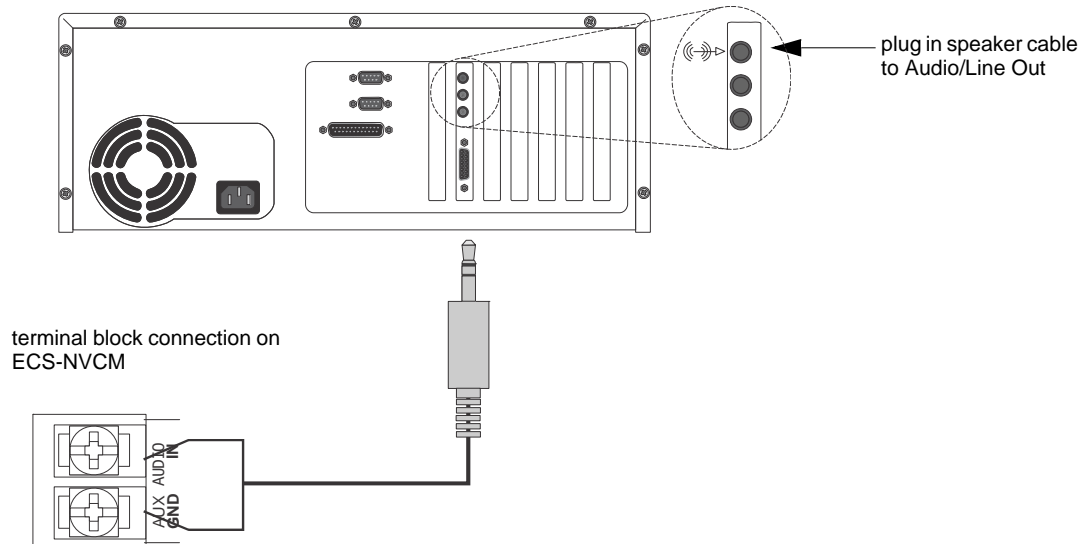
**Figure 10.5  AUX Audio Connection for Recording**

3. Enter programming mode at main control panel.
4. Select 8 for Voice Options.
5. Select 1 for VCM Maintenance.
6. Select 2 Local Recording.
7. Select the amplifier and circuit for the audio to play through during programming. A user would generally pick the audio circuit that is in closest proximity to them.

**NOTE:**   The keypad will light the green Select Key LED for message slots that are occupied. If a message is already stored in the desired slot, then you must erase the message first. (see Section 10.8.3).

8. Press ECS Message Key 1 to enter the message slot selection mode. Then, press the Select Key 1-15 that corresponds to the message slot that you wish to record to. The associated Select Key red LED will begin flashing, indicating that the message slot is ready for recording.
9. Simultaneously press ECS Message Key 3 and start playing the audio source on the PC or laptop.
10. When the audio file from the PC is finished playing, press ECS Message Key 3 again to stop the recording. The Select Key green LED will come on.
11. To playback the recorded message, press the Select Key 1-15 that was just recorded to.

### Recording with Aux Audio Input Example

The user wants to record into memory slot 2 via the Aux Audio Input channel.

Upon entering the Local Recording mode via the keypad menu, the keypad will light the Select Key green LEDs 1-15 for each occupied message slot.

If a message already exists in message slot 2, it must first be erased. Press ECS Message Key 8, then press Select Key 2, (see Section 10.8.3). When the message has been erased Select Key 2's green LED will turn off.

To record a message, press ECS Message Key 1, then press Select Key 2 (this will use message slot 2 for the recording). Select Key 2's red LED will begin flashing.

Press ECS Message Key 3 while simultaneously pressing play on the PC to start recording the Aux Audio Input. When the PC message is done, press ECS Message Key 3 to stop recording. Select Key 2's red LED will stay on until processing is completed. Select Key 2's green LED comes on after the recording is completed.

Pressing Select Key 2 will start a playback of the recorded message.

## 10.8.2  Recording Messages 1-15 Using the Microphone

Messages can be recorded into the ECS system by using the onboard microphone.

Follow these steps to use the microphone to record your message:

1. Enter programming mode at main control panel.
2. Select 8 for Voice Options.
3. Select 1 for VCM Maintenance.
4. Select 2 Local Recording.

5.  Select the amplifier and circuit for the audio to play through during programming. A user would generally pick the audio circuit that is in closest proximity to them.

**NOTE:**   The keypad will light the green Select Key LED for message slots that are occupied. If a message is already stored in the desired slot, then you must erase the message first. (See Section 10.8.3).

6.  Press ECS Message Key 1 to enter the message slot selection mode. Then, press the Select Key 1-15 that corresponds to the message slot that you wish to record to. The associated Select Key red LED will begin flashing, indicating that the message slot is ready for recording.
7.  Press the push-to-talk (PTT) button on the microphone and speak your message.
8.  Release the PTT button on the microphone to save your message. The Select Key green LED for this location will turn on.
9.  To playback the recorded message, press the Select Key 1-15 that was just recorded to.
10. If you are not satisfied with the recorded message, erase it (see Section 10.8.3) and then repeat steps 1 through 7.

### Recording with Microphone Example

User wants to record a message to message slot 5 via the microphone.

Upon entering the Local Recording mode via the keypad menu, the keypad will light the Select Key green LEDs for 1-15 for each occupied message slot.

If a message already exists in message slot 5, it must first be erased. Press ECS Message key 8, then press Select Key 5, (see Section 10.8.3). When the message has been erased Select Key 5's green LED will turn off.

To record a message, press ECS Message Key 1, press Select Key 5 (this will use message slot 5 for the recording). Select Key 5's red LED will begin flashing.

Press the push-to-talk button on the microphone and speak your message. Release the PTT button to save your message. Select Key 5's red LED stays on until processing is completed. Select Key 5's green LED comes on after the recording is completed.

Pressing Select Key 5 will start a playback of the recorded message.

## 10.8.3  Erasing User Message

To erase the message stored in message slot 1-15, follow these steps:

1.  Enter programming mode at main control panel.
2.  Select 8 for Voice Options.
3.  Select 1 for VCM Maintenance.

**NOTE:**   The keypad will light the green Select Key LEDs for message slots that are occupied (can be erased).

4.  Select 2 Local Recording.
5.  Select the amplifier and circuit for the audio to play through during programming. A user would generally pick the audio circuit that is in closest proximity to them.
6.  Press ECS Message Key 8 on the keypad, press the Select Key 1-15 that you wish to erase. The Select Key red LED will stay on until the erase is done. When erased, the Select Key green LED by corresponding to the message slot you erased will go off.

## 10.8.4  Using HFSS Voice Message Load Software

The HFSS Voice Message Load Software is a software support utility that is used to download recorded messages (in .SKE format stored on your PC hard drive) to the various message locations of the ECS Series keypad. Messages can be uploaded from the ECS-NVCM, stored, and used again in similar installations.

To read/write .SKE formatted messages to and from the main panel, follow these steps:

1.  Make sure that panel is in Normal mode.

2.   Connect the PC to the USB port on the FACP using a standard USB cable. The TRS-NVCM will use the USB on the FACP.
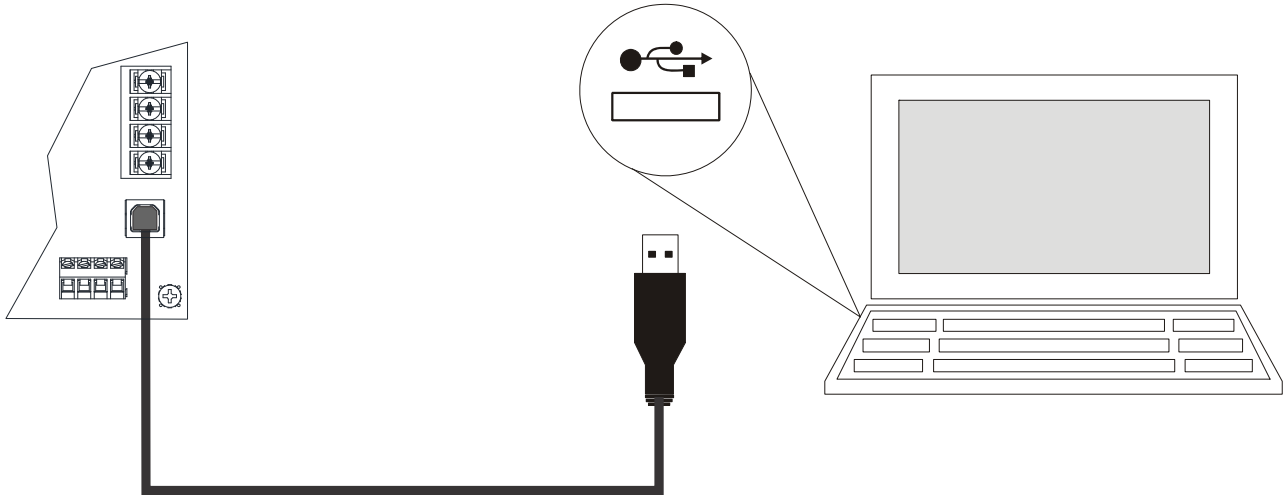


**Figure 10.6  USB Cable Connections**

3.   Run the Voice Message Load software.
4.   Select "Read from Panel" to read a message and store onto your hard drive, or "Write to Panel" to transfer a .SKE formatted message to the panel.
5.   Select the appropriate message location you wish to read/write.
6.   Enter the file name you wish to transfer (Press "Browse" to display a list of files.)
7.   Press "Start" to start the transfer.

## 10.9  Network Paging

Network paging allows live voice paging between panels across the network. The TR-NVCM, Network Voice Control Module, is needed for network paging. For more information, see the *Triga ECS Series installation manual*.

The network paging source is the panel in the network from which the microphone paging originates. Only one panel in the network can be the source panel at a time.

A network paging destination panel is a panel in the network that is receiving the network paging. Many panels can be selected as a destination panel for the network paging. Network paging functions as an All Call on the destination panel(s) - all speaker circuits will be activated with the network paging audio on a destination panel.the following need to be considered:

### 10.9.1  Priority

1.   Local microphone has a higher priority than network paging (a user can page from their local panel even if the local panel is currently receiving a network voice page).
2.   Network Paging is higher priority than alarm and alert messages/tones.
3.   Network paging uses a VBus channel. In a dual channel system, network paging will use either VBus 1 or VBus 2. If both buses are in use, network paging will overtake one of them.

### 10.9.2  Configuration

1.   The ECS-NVCM Select Switches need to be programmed for network paging.
     •   Program the switches to select one or more panels as destination panels.
     •   Each switch can only be programmed for either output group activation or network paging activation.
2.   To use network paging: cue the microphone and press the Select switch(es) that correspond to the panel(s) desired to receive network paging. Only one panel can source network paging at a time. The first panel to activate network paging is the source until that panel discontinues use of network paging.
3.   The panel that is the Network Paging source will continue to play any alarms that are active as long as the alarm circuits aren't outputting the microphone page.

# Section 11: Reporting

This section lists receivers that are compatible with this control panel, and the reporting codes sent by the control panel for SIA and Contact ID formats.

## 11.1 Receivers Compatible with the Control Panel

Table 11.1 shows receivers compatible with the control panel.

| Manufacturer | Model | Format |
|---|---|---|
| Honeywell | Model 9800 | SIA and Contact ID |
| | Model 9000 (SIA formats) | SIA |
| Honeywell Security | AlarmNet 7810-ir | IP Receiver, Contact ID only |
| Ademco | MX8000 | SIA and Contact ID |
| | Model 685 (Contact ID ) | Contact ID |
| Sur-Gard | SG-MLR2-DG (V. 1.64 or higher) | SIA and Contact ID |
| Osborne Hoffman | Quickalert | SIA and Contact ID |

**Table 11.1  Receivers Compatible with the Control Panel**

| Event Description | SIA Reporting Format | | | | Contact ID Reporting Format | | | |
|---|---|---|---|---|---|---|---|---|
| | Module ID # (If Any) | SIA pi Modifier | | SIA | Qualifier | Event Code | Group # | Contact # |
| | | SIA Event Codes | Parameter | Fixed Length Format NN - panel ID XX- SBUS ID ZZZ- Zone # PPPP- Point # GGG- Group # E- Emergency # RRRR-Receiver # | | | | |
| **System Events** | System Events are reported when either "Report by Point" or Report by Zone is selected | | | | | | | |
| AC power low trouble | | AT | 0 | ATNN000000 | 1 | 301 | 00 | 000 |
| AC power low trouble restore | | AR | 0 | ARNN000000 | 3 | 301 | 00 | 000 |
| Auto dialer test communications trouble line 1 | | YC | 1 | YCNN000001 | 1 | 350 | Receiver # | 001 |
| Auto dialer test communications trouble line 1 restore | | YK | 1 | YKNN000001 | 3 | 350 | Receiver # | 001 |
| Auto dialer test communications trouble line 2 | | YC | 2 | YCNN000002 | 1 | 350 | Receiver # | 002 |
| Auto dialer test communications trouble line 2 restore | | YK | 2 | YKNN000002 | 3 | 350 | Receiver # | 002 |
| Automatic test normal | | RP | 0 | RPNN000000 | 1 | 602 | 00 | 000 |
| Automatic test off normal | | RY | 0 | RYNN000000 | 1 | 608 | 00 | 000 |
| Battery voltage trouble | | YT | Exp. ID | YTNNXX0000 | 1 | 302 | Exp. ID | 000 |
| Battery voltage trouble restore | | YR | Exp. ID | YRNNXX0000 | 3 | 302 | Exp. ID | 000 |
| Date changed event | | JD | 0 | JDNN000000 | 1 | 625 | 00 | 000 |
| ECS Reset | | OR | 1 | ORNN000001 | 1 | 401 | 00 | 001 |
| Emergency System Overridden | | QS | 0 | QSNN000000 | 1 | 244 | 00 | 000 |
| Emergency System Overridden Restore | | QR | 0 | QRNN000000 | 3 | 244 | 00 | 000 |
| Fire drill has begun | | FI | 0 | FINN000000 | 1 | 604 | 00 | 000 |
| Fire drill has ended | | FK | 0 | FKNN000000 | 3 | 604 | 00 | 000 |
| F1 Mapping Inhibited | | FT | 2001 | FTNN002001 | 1 | 570 | 00 | 001 |
| F1 Mapping Inhibited Restoral | | FJ | 2001 | FJNN002001 | 3 | 570 | 00 | 001 |
| F2 Mapping Inhibited | | FT | 2002 | FTNN002002 | 1 | 570 | 00 | 002 |
| F2 Mapping Inhibited Restoral | | FJ | 2002 | FJNN002002 | 3 | 570 | 00 | 002 |
| F3 Mapping Inhibited | | FT | 2003 | FTNN002003 | 1 | 570 | 00 | 003 |
| F3 Mapping Inhibited Restoral | | FJ | 2003 | FJNN002003 | 3 | 570 | 00 | 003 |

**Table 11.2  Reporting Formats Table**

| | SIA Reporting Format | | | Contact ID Reporting Format | | | |
|---|---|---|---|---|---|---|---|
| | SIA pi Modifier | | SIA | | | | |
| Event Description | Module ID # (If Any) | SIA Event Codes | Parameter | Fixed Length Format NN - panel ID XX- SBUS ID ZZZ- Zone # PPPP- Point # GGG- Group # E- Emergency # RRRR-Receiver # | Qualifier | Event Code | Group # | Contact # |
| F4 Mapping Inhibited | | FT | 2004 | FTNN002004 | 1 | 570 | 00 | 004 |
| F4 Mapping Inhibited Restoral | | FJ | 2004 | FJNN002004 | 3 | 570 | 00 | 004 |
| Fire Reset | | OR | 0 | ORNN000000 | 1 | 401 | 00 | 000 |
| Fire System Overridden | | FS | 0 | FSNN000000 | 1 | 245 | 00 | 000 |
| Fire System Override Restore | | FR | 0 | FRNN000000 | 3 | 245 | 00 | 000 |
| Ground fault condition trouble | | YP | Exp. ID | YPNNXX0000 | 1 | 310 | Exp. ID | 000 |
| Ground fault condition trouble restore | | YQ | Exp. ID | YQNNXX0000 | 3 | 310 | Exp. ID | 000 |
| Initial power up | | RR | 0 | RRNN000000 | 1 | 305 | 00 | 000 |
| Local programming aborted or ended with errors | | LU | 0 | LUNN000000 | 1 | 628 | 00 | 000 |
| Local programming begin | | LB | 0 | LBNN000000 | 1 | 627 | 00 | 000 |
| Local programming ended normally | | LS | 0 | LSNN000000 | 1 | 628 | 00 | 000 |
| Network node trouble (panel missing) | | EM | Panel ID | EMNNNN0000 | 1 | 334 | Panel ID | 000 |
| Network node trouble restore (panel no longer missing) | | EN | Panel ID | ENNNNN0000 | 3 | 334 | Panel ID | 000 |
| OPG Inhibit Trouble | | FT | Group # + 1000 | FTNN001GGG | 1 | 320 | 00 | Group # |
| OPG Inhibit Trouble Restore | | FJ | Group # + 1000 | FJNN001GGG | 3 | 320 | 00 | Group # |
| OPG Inhibit of Releasing Group | | SS | Group # + 1000 | SSNN001GGG | 1 | 203 | 00 | Group # |
| OPG Inhibit of Releasing Group Restore | | SR | Group # + 1000 | SRNN001GGG | 3 | 203 | 00 | Group # |
| Phone line 1 trouble detected | | LT | 1 | LTNN000001 | 1 | 351 | 00 | 000 |
| Phone line 1 trouble restore | | LR | 1 | LRNN000001 | 3 | 351 | 00 | 000 |
| Phone line 2 trouble detected | | LT | 2 | LTNN000002 | 1 | 352 | 00 | 000 |
| Phone line 2 trouble restore | | LR | 2 | LRNN000002 | 3 | 352 | 00 | 000 |
| Printer is off-line trouble | | VZ | Exp. ID | VZNNXX0000 | 1 | 336 | Exp. ID | 000 |
| Printer is off-line trouble restore | | VY | Exp. ID | VYNNXX0000 | 3 | 336 | Exp. ID | 000 |
| Printer is out of paper trouble | | VO | Exp. ID | VONNXX0000 | 1 | 335 | Exp. ID | 000 |
| Printer is out of paper trouble restore | | VI | Exp. ID | VINNXX0000 | 3 | 335 | Exp. ID | 000 |
| Releasing Notif/Control Circuit Disabled | pi Exp. ID | SS | Point # | SSNNXXPPPP | 1 | 203 | Exp. ID | Point # |
| Releasing Notif/Control Circuit enabled | pi Exp. ID | SR | Point # | SRNNXXPPPP | 3 | 203 | Exp. ID | Point # |
| Remote programming aborted or ended with errors | | RU | 0 | RUNN000000 | 1 | 413 | 00 | 000 |
| Remote programming ended normally | | RS | 0 | RSNN000000 | 1 | 412 | 00 | 000 |
| Repeater ground fault trouble | | EM | 0103 | EMNN000103 | 1 | 334 | Panel ID | 103 |
| Repeater ground fault trouble restore | | EN | 0103 | ENNN000103 | 3 | 334 | Panel ID | 103 |
| Repeater missing trouble | | EM | 0100 | EMNN000100 | 1 | 334 | Panel ID | 100 |
| Repeater missing trouble restore | | EN | 0100 | ENNN000100 | 3 | 334 | Panel ID | 100 |
| Repeater Rx1 communication trouble | | EM | 0101 | EMNN000101 | 1 | 334 | Panel ID | 101 |
| Repeater Rx1 communication trouble restore | | EN | 0101 | ENNN000101 | 3 | 334 | Panel ID | 101 |
| Repeater Rx2 communication trouble | | EM | 0102 | EMNN000102 | 1 | 334 | Panel ID | 102 |
| Repeater Rx2 communication trouble restore | | EN | 0102 | ENNN000102 | 3 | 334 | Panel ID | 102 |
| SBUS Class A supervision lost | | ET | Exp. ID | ETNNXX0000 | 1 | 333 | Exp. ID | 000 |

**Table 11.2  Reporting Formats Table (Continued)**

| Event Description | SIA Reporting Format | | | | Contact ID Reporting Format | | | |
|---|---|---|---|---|---|---|---|---|
| | SIA pi Modifier | | | SIA | | | | |
| | Module ID # (If Any) | SIA Event Codes | Parameter | Fixed Length Format NN - panel ID XX- SBUS ID ZZZ- Zone # PPPP- Point # GGG- Group # E- Emergency # RRRR-Receiver # | Qualifier | Event Code | Group # | Contact # |
| SBUS Class A supervision restore | | ER | Exp. ID | ERNNXX0000 | 3 | 333 | Exp. ID | 000 |
| SBUS expander trouble | | ET | Exp. ID | ETNNXX0000 | 1 | 333 | Exp. ID | 000 |
| SBUS expander trouble restore | | ER | Exp. ID | ERNNXX0000 | 3 | 333 | Exp. ID | 000 |
| SLC class A supervision trouble | | ET | Exp. ID | ETNNXX0000 | 1 | 331 | Exp. ID | 000 |
| SLC class A supervision trouble restore | | ER | Exp. ID | ERNNXX0000 | 3 | 331 | Exp. ID | 000 |
| SLC programming ended, system active | | TE | 0 | TENN000000 | 3 | 607 | 00 | 000 |
| SLC programming started, system shut down | | TS | 0 | TSNN000000 | 1 | 607 | 00 | 000 |
| SLC short circuit trouble | | ET | Exp. ID | ETNNXX0000 | 1 | 332 | Exp. ID | 000 |
| SLC short circuit trouble restore | | ER | Exp. ID | ERNNXX0000 | 3 | 332 | Exp. ID | 000 |
| Time changed event | | JT | 0 | JTNN000000 | 1 | 625 | 00 | 000 |
| Unable to report to account trouble | | RT | Receiver # | RTNN00RRRR | 1 | 354 | 00 | Receiver # |
| Unable to report to account trouble restore | | YK | Receiver # | YKNN00RRRR | 3 | 354 | 00 | Receiver # |
| User access code changed | | JV | 0 | JVNN000000 | 1 | 602 | 00 | 000 |
| User initiated manual dialer test | | RX | 0 | RXNN000000 | 1 | 601 | 00 | 000 |
| Walk test begin | | TS | 0 | TSNN000000 | 1 | 607 | 00 | 000 |
| Walk test end | | TE | 0 | TENN000000 | 3 | 607 | 00 | 000 |
| **Zone Events** | **Zone events are reported only when "Report by Zone" is selected** | | | | | | | |
| Auxiliary power trouble | | FT | 0000 | FTNN000000 | 1 | 320 | 00 | 000 |
| Auxiliary power trouble restore | | FJ | 0000 | FJNN000000 | 3 | 320 | 00 | 000 |
| CO Detector Alarm | | GA | Zone # | GANN000ZZZ | 1 | 162 | 00 | Zone # |
| CO Detector Alarm Restore | | GH | Zone # | GHNN000ZZZ | 3 | 162 | 00 | Zone # |
| CO Detector Supervisory Alarm | | GS | Zone # | GSNN000ZZZ | 1 | 200 | 00 | Zone # |
| CO Detector Supervisory Alarm Restore | | GR | Zone # | GRNN000ZZZ | 3 | 200 | 00 | Zone # |
| CO Detector Trouble | | GT | Zone # | GTNN000ZZZ | 1 | 373 | 00 | Zone # |
| CO Detector Trouble Restore | | GJ | Zone # | GJNN000ZZZ | 3 | 373 | 00 | Zone # |
| Detector Alarm | | FA | Zone # | FANN000ZZZ | 1 | 110 | 00 | Zone # |
| Detector Alarm Restore | | FH | Zone # | FHNN000ZZZ | 3 | 110 | 00 | Zone # |
| Detector trouble | | FT | Zone # | FTNN000ZZZ | 1 | 373 | 00 | Zone # |
| Detector trouble restore | | FJ | Zone # | FJNN000ZZZ | 3 | 373 | 00 | Zone # |
| ECS Switch Trouble | | QT | 0 | QTNN000000 | 1 | 242 | 00 | 000 |
| ECS Switch Trouble Restore | | QJ | 0 | QJNN000000 | 3 | 242 | 00 | 000 |
| ECS Supervisory/Tamper Alarm | | QS | 0 | QSNN000000 | 1 | 241 | 00 | 000 |
| ECS Supervisory/Tamper Alarm Restore | | QR | 0 | QRNN000000 | 3 | 241 | 00 | 000 |
| ECS Output Group Trouble | | QT | Group # +1000 | QTNN001GGG | 1 | 320 | 00 | Group # |
| ECS Output Group Trouble Restore | | QJ | Group # +1000 | QJNN001GGG | 3 | 320 | 00 | Group # |
| External Reset/Silence/Fire Drill switch trouble | | UT | 0000 | UTNN000000 | 1 | 373 | 00 | 000 |
| External Reset/Silence/Fire Drill switch trouble restore | | UJ | 0000 | UJNN000000 | 3 | 373 | 00 | 000 |
| LOC Mic Activated ECS Alarm | | QA | 0 | QANN000000 | 1 | 220 | 00 | 000 |

**Table 11.2  Reporting Formats Table (Continued)**

| Event Description | Module ID # (If Any) | SIA Event Codes | Parameter | Fixed Length Format NN - panel ID XX- SBUS ID ZZZ- Zone # PPPP- Point # GGG- Group # E- Emergency # RRRR-Receiver # | Qualifier | Event Code | Group # | Contact # |
|---|---|---|---|---|---|---|---|---|
| | | | **SIA pi Modifier** | **SIA** | **Contact ID Reporting Format** | | | |
| LOC Mic Activated ECS Alarm Restore | | QH | 0 | QHNN000000 | 3 | 220 | 00 | 000 |
| LOC/Point ECS # Alarm | | QA | Emergency # | QANN0E0000 | 1 | 220 + Emergency # | 00 | 000 |
| LOC/Point ECS # Alarm Restore | | QH | Emergency # | QHNN0E0000 | 3 | 220 + Emergency # | 00 | 000 |
| Manual pull switch alarm | | FA | Zone # | FANN000ZZZ | 1 | 115 | 00 | Zone # |
| Manual pull switch alarm restore | | FH | Zone # | FHNN000ZZZ | 3 | 115 | 00 | Zone # |
| Manual pull switch trouble | | FT | Zone # | FTNN000ZZZ | 1 | 373 | 00 | Zone # |
| Manual pull switch trouble restore | | FJ | Zone # | FJNN000ZZZ | 3 | 373 | 00 | Zone # |
| Notification output trouble | | FT | Group # + 1000 | FTNN001GGG | 1 | 320 | 00 | Group # |
| Notification output trouble restore | | FJ | Group # + 1000 | FJNN001GGG | 3 | 320 | 00 | Group # |
| Positive Alarm Sequence acknowledge switch trouble | | FT | Zone # | FTNN000ZZZ | 1 | 373 | 00 | Zone # |
| Positive Alarm Sequence acknowledge switch trouble restore | | FJ | Zone # | FJNN000ZZZ | 3 | 373 | 00 | Zone # |
| SLC LED Module trouble | | ET | 0000 | ETNN000000 | 1 | 333 | 00 | 000 |
| SLC LED Module trouble restore | | ER | 0000 | ERNN000000 | 3 | 333 | 00 | 000 |
| Status Point Types Trouble | | UT | 0 | UTNN000000 | 1 | 379 | 00 | 000 |
| Status Point Types Trouble Restore | | UJ | 0 | UJNN000000 | 3 | 379 | 00 | 000 |
| Supervisory Detector Alarm | | FS | Zone # | FSNN000ZZZ | 1 | 200 | 00 | Zone # |
| Supervisory Detector Alarm Restore | | FR | Zone # | FRNN000ZZZ | 3 | 200 | 00 | Zone # |
| Supervisory/Tamper Alarm | | FS | Zone # | FSNN000ZZZ | 1 | 200 | 00 | Zone # |
| Supervisory/Tamper alarm condition restore | | FR | Zone # | FRNN000ZZZ | 3 | 200 | 00 | Zone # |
| Supervisory/Tamper switch trouble | | FT | Zone # | FTNN000ZZZ | 1 | 373 | 00 | Zone # |
| Supervisory/Tamper switch trouble restore | | FJ | Zone # | FJNN000ZZZ | 3 | 373 | 00 | Zone # |
| System-based AUX1 switch alarm | | UA | 1000 | UANN001000 | 1 | 140 | 01 | 000 |
| System-based AUX1 switch alarm restore | | UH | 1000 | UHNN001000 | 3 | 140 | 01 | 000 |
| System-based AUX1 switch trouble | | UT | 1000 | UTNN001000 | 1 | 373 | 01 | 000 |
| System-based AUX1 switch trouble restore | | UJ | 1000 | UJNN001000 | 3 | 373 | 01 | 000 |
| System-based AUX2 switch alarm | | UA | 2000 | UANN002000 | 1 | 140 | 02 | 000 |
| System-based AUX2 switch alarm restore | | UH | 2000 | UHNN002000 | 3 | 140 | 02 | 000 |
| System-based AUX2 switch trouble | | UT | 2000 | UTNN002000 | 1 | 373 | 02 | 000 |
| System-based AUX2 switch trouble restore | | UJ | 2000 | UJNN002000 | 3 | 373 | 02 | 000 |
| Voice Aux ECS1 Alarm | | UA | 3 | UANN003000 | 1 | 171 | 00 | 000 |
| Voice Aux ECS 1 Alarm Restore | | UH | 3 | UHNN003000 | 3 | 171 | 00 | 000 |
| Voice Aux ECS 2 Alarm | | UA | 4 | UANN004000 | 1 | 172 | 00 | 000 |
| Voice Aux ECS 2 Alarm Restore | | UH | 4 | UHNN004000 | 3 | 172 | 00 | 000 |
| Voice Aux ECS 3 Alarm | | UA | 5 | UANN005000 | 1 | 173 | 00 | 000 |
| Voice Aux ECS 3 Alarm Restore | | UH | 5 | UHNN005000 | 3 | 173 | 00 | 000 |
| Voice Aux ECS 4 Alarm | | UA | 6 | UANN006000 | 1 | 174 | 00 | 000 |
| Voice Aux ECS 4 Alarm Restore | | UH | 6 | UHNN006000 | 3 | 174 | 00 | 000 |

**Table 11.2  Reporting Formats Table (Continued)**

| Event Description | SIA Reporting Format | | | | Contact ID Reporting Format | | | |
| | SIA pi Modifier | | | SIA | | | | |
| | Module ID # (If Any) | SIA Event Codes | Parameter | Fixed Length Format NN - panel ID XX- SBUS ID ZZZ- Zone # PPPP- Point # GGG- Group # E- Emergency # RRRR-Receiver # | Qualifier | Event Code | Group # | Contact # |
|---|---|---|---|---|---|---|---|---|
| Water flow switch alarm | | SA | Zone # | SANN000ZZZ | 1 | 113 | 00 | Zone # |
| Water flow switch alarm Restore | | SH | Zone # | SHNN000ZZZ | 3 | 113 | 00 | Zone # |
| Water flow switch trouble | | ST | Zone # | STNN000ZZZ | 1 | 373 | 00 | Zone # |
| Water flow switch trouble Restore | | SJ | Zone # | SJNN000ZZZ | 3 | 373 | 00 | Zone # |
| Zone-based AUX1 switch alarm | | UA | Zone # + 1000 | UANN001ZZZ | 1 | 140 | 01 | Zone # |
| Zone-based AUX1 switch alarm restore | | UH | Zone # + 1000 | UHNN001ZZZ | 3 | 140 | 01 | Zone # |
| Zone-based AUX1 switch trouble | | UT | Zone # + 1000 | UTNN001ZZZ | 1 | 373 | 01 | Zone # |
| Zone-based AUX1 switch trouble restore | | UJ | Zone # + 1000 | UJNN001ZZZ | 3 | 373 | 01 | Zone # |
| Zone-based AUX2 switch alarm | | UA | Zone # + 2000 | UANN002ZZZ | 1 | 140 | 02 | Zone # |
| Zone-based AUX2 switch alarm restore | | UH | Zone # + 2000 | UHNN002ZZZ | 3 | 140 | 02 | Zone # |
| Zone-based AUX2 switch trouble | | UT | Zone # + 2000 | UTNN002ZZZ | 1 | 373 | 02 | Zone # |
| Zone-based AUX2 switch trouble restore | | UJ | Zone # + 2000 | UJNN002ZZZ | 3 | 373 | 02 | Zone # |
| **Point Events** | **Sensors 1–159 are reported as Points 1–159, modules 1–159 are reported as Points 201–359.** | | | | | | | |
| An unexpected SLC device has been detected | pi Exp. ID | XE | Point # | XENNXXPPPP | 1 | 380 | Exp. ID | Point # |
| An unexpected SLC device has been removed | pi Exp. ID | XI | Point # | XINNXXPPPP | 3 | 380 | Exp. ID | Point # |
| Auxiliary power disabled | pi Exp. ID | FB | Point # | FBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| Auxiliary power enabled | pi Exp. ID | FU | Point # | FUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Auxiliary power Trouble | pi Exp. ID | FT | Point # | FTNNXXPPPP | 1 | 320 | Exp. ID | Point # |
| Auxiliary power trouble restore | pi Exp. ID | FJ | Point # | FJNNXXPPPP | 3 | 320 | Exp. ID | Point # |
| Background Music Switch is Trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 379 | Exp. ID | Point # |
| Background Music Switch is Trouble Restored | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 379 | Exp. ID | Point # |
| Background Music Switch is Disabled | pi Exp. ID | UB | Point # | UBNNXXPPPP | 1 | 580 | Exp. ID | Point # |
| Background Music Switch is Enabled | pi Exp. ID | UU | Point # | UUNNXXPPPP | 3 | 580 | Exp. ID | Point # |
| CO Detector Trouble | pi Exp. ID | GT | Point # | GTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| CO Detector Trouble Restore | pi Exp. ID | GJ | Point # | GJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| CO Detector Disabled | pi Exp. ID | GB | Point # | GBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| CO Detector Enabled | pi Exp. ID | GU | Point # | GUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Detector Alarm | pi Exp. ID | FA | Point # | FANNXXPPPP | 1 | 110 | Exp. ID | Point # |
| Detector Alarm restore | pi Exp. ID | FH | Point # | FHNNXXPPPP | 3 | 110 | Exp. ID | Point # |
| Detector Disabled | pi Exp. ID | FB | Point # | FBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| Detector Enabled | pi Exp. ID | FU | Point # | FUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Detector Trouble | pi Exp. ID | FT | Point # | FTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| Detector Trouble restore | pi Exp. ID | FJ | Point # | FJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| Detector CO Alarm | pi Exp. ID | GA | Point # | GANNXXPPPP | 1 | 162 | Exp. ID | Point # |
| Detector CO Alarm Restore | pi Exp. ID | GH | Point # | GHNNXXPPPP | 3 | 162 | Exp. ID | Point # |
| Detector CO Supervisory Alarm | pi Exp. ID | GS | Point # | GSNNXXPPPP | 1 | 200 | Exp. ID | Point # |
| Detector CO Supervisory Alarm Restore | pi Exp. ID | GR | Point # | GRNNXXPPPP | 3 | 200 | Exp. ID | Point # |
| ECS Alarm # Point Alarm | pi Exp. ID | QA | (EPPP) E - Emergency # PPP - Point # | QANNXXEPPP | 1 | 220 + Emergency # | Exp. ID | Point # |

**Table 11.2  Reporting Formats Table (Continued)**

| | SIA Reporting Format | | | | Contact ID Reporting Format | | | |
|---|---|---|---|---|---|---|---|---|
| | SIA pi Modifier | | | SIA | | | | |
| Event Description | Module ID # (If Any) | SIA Event Codes | Parameter | Fixed Length Format NN - panel ID XX- SBUS ID ZZZ- Zone # PPPP- Point # GGG- Group # E- Emergency # RRRR-Receiver # | Qualifier | Event Code | Group # | Contact # |
| ECS Alarm # Point Alarm Restore | pi Exp. ID | QH | (EPPP) E - Emergency # PPP - Point # | QHNNXXEPPP | 3 | 220 + Emergency # | Exp. ID | Point # |
| ECS Alarm # Point Trouble | pi Exp. ID | QT | Point # | QTNNXXPPPP | 1 | 242 | Exp. ID | Point # |
| ECS Alarm # Point Trouble Restore | pi Exp. ID | QJ | Point # | QJNNXXPPPP | 3 | 242 | Exp. ID | Point # |
| ECS Alarm # Point Disabled | pi Exp. ID | QB | Point # | QBNNXXPPPP | 1 | 243 | Exp. ID | Point # |
| ECS Alarm # Point Enabled | pi Exp. ID | QU | Point # | QUNNXXPPPP | 3 | 243 | Exp. ID | Point # |
| ECS Supervisory/Tamper Alarm | pi Exp. ID | QS | Point # | QSNNXXPPPP | 1 | 241 | Exp. ID | Point # |
| ECS Supervisory/Tamper Alarm Restore | pi Exp. ID | QR | Point # | QRNNXXPPPP | 3 | 241 | Exp. ID | Point # |
| ECS Supervisory/Tamper Trouble | pi Exp. ID | QT | Point # | QTNNXXPPPP | 1 | 242 | Exp. ID | Point # |
| ECS Supervisory/Tamper Trouble Restore | pi Exp. ID | QJ | Point # | QJNNXXPPPP | 3 | 242 | Exp. ID | Point # |
| ECS Supervisory/Tamper Disabled | pi Exp. ID | QB | Point # | QBNNXXPPPP | 1 | 243 | Exp. ID | Point # |
| ECS Supervisory/Tamper Enabled | pi Exp. ID | QU | Point # | QUNNXXPPPP | 3 | 243 | Exp. ID | Point # |
| ECS NAC Trouble | pi Exp. ID | QT | Point # | QTNNXXPPPP | 1 | 320 | Exp. ID | Point # |
| ECS NAC Trouble Restored | pi Exp. ID | QJ | Point # | QJNNXXPPPP | 3 | 320 | Exp. ID | Point # |
| ECS Control Circuit Trouble | pi Exp. ID | QT | Point # | QTNNXXPPPP | 1 | 320 | Exp. ID | Point # |
| ECS Control Circuit Trouble Restored | pi Exp. ID | QJ | Point # | QJNNXXPPPP | 3 | 320 | Exp. ID | Point # |
| ECS Relay Trouble | pi Exp. ID | QT | Point # | QTNNXXPPPP | 1 | 320 | Exp. ID | Point # |
| ECS Relay Trouble Restored | pi Exp. ID | QJ | Point # | QJNNXXPPPP | 3 | 320 | Exp. ID | Point # |
| ECS Notification Trouble | pi Exp. ID | QT | Point # | QTNNXXPPPP | 1 | 320 | Exp. ID | Point # |
| ECS Notification Trouble Restored | pi Exp. ID | QJ | Point # | QJNNXXPPPP | 3 | 320 | Exp. ID | Point # |
| External Reset/Silence/Fire Drill switch disabled | pi Exp. ID | UB | Point # | UBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| External Reset/Silence/Fire Drill switch enabled | pi Exp. ID | UU | Point # | UUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| External Reset/Silence/Fire Drill switch trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| External Reset/Silence/Fire Drill switch trouble restore | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| Interlock switch alarm (Water Release Zone) | pi Exp. ID | FA | Point # | FANNXXPPPP | 1 | 110 | Exp. ID | Point # |
| Interlock switch alarm restore (Water Release Zone) | pi Exp. ID | FH | Point # | FHNNXXPPPP | 3 | 110 | Exp. ID | Point # |
| Interlock switch disabled | pi Exp. ID | FB | Point # | FBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| Interlock switch enabled | pi Exp. ID | FU | Point # | FUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Interlock switch trouble (Water Release Zone) | pi Exp. ID | FT | Point # | FTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| Interlock switch trouble restore (Water Release Zone) | pi Exp. ID | FJ | Point # | FJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| LOC Mic Activated ECS Alarm | pi Exp. ID | QA | 0 | QANNXX0000 | 1 | 220 | Exp. ID | 000 |
| LOC Mic Activated ECS Alarm Restore | pi Exp. ID | QH | 0 | QHNNXX0000 | 3 | 220 | Exp. ID | 000 |
| LOC ECS # Alarm | pi Exp. ID | QA | Emergency # | QANNXXE000 | 1 | 220 + Emergency # | Exp. ID | 000 |

**Table 11.2  Reporting Formats Table (Continued)**

| Event Description | SIA Reporting Format | | | | Contact ID Reporting Format | | | |
| | SIA pi Modifier | | | SIA | | | | |
| | Module ID # (If Any) | SIA Event Codes | Parameter | Fixed Length Format NN - panel ID XX- SBUS ID ZZZ- Zone # PPPP- Point # GGG- Group # E- Emergency # RRRR-Receiver # | Qualifier | Event Code | Group # | Contact # |
|---|---|---|---|---|---|---|---|---|
| LOC ECS # Alarm Restore | pi Exp. ID | QH | Emergency # | QHNNXXE000 | 3 | 220 + Emerge ncy # | Exp. ID | 000 |
| Manual pull switch alarm | pi Exp. ID | FA | Point # | FANNXXPPPP | 1 | 115 | Exp. ID | Point # |
| Manual pull switch alarm restore | pi Exp. ID | FH | Point # | FHNNXXPPPP | 3 | 115 | Exp. ID | Point # |
| Manual pull switch disabled | pi Exp. ID | FB | Point # | FBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| Manual pull switch enabled | pi Exp. ID | FU | Point # | FUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Manual pull switch trouble | pi Exp. ID | FT | Point # | FTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| Manual pull switch trouble restore | pi Exp. ID | FJ | Point # | FJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| Manual release switch alarm (Water Release Zone) | pi Exp. ID | FA | Point # | FANNXXPPPP | 1 | 110 | Exp. ID | Point # |
| Manual release switch alarm restore (Water Release Zone) | pi Exp. ID | FH | Point # | FHNNXXPPPP | 3 | 110 | Exp. ID | Point # |
| Manual release switch disabled | pi Exp. ID | FB | Point # | FBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| Manual release switch enabled | pi Exp. ID | FU | Point # | FUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Manual release switch trouble (Water Release Zone) | pi Exp. ID | FT | Point # | FTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| Manual release switch trouble restore (Water Release Zone) | pi Exp. ID | FJ | Point # | FJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| Notification output point disabled | pi Exp. ID | FB | Point # | FBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| Notification output point enabled | pi Exp. ID | FU | Point # | FUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Notification output point trouble | pi Exp. ID | FT | Point # | FTNNXXPPPP | 1 | 320 | Exp. ID | Point # |
| Notification output point trouble restore | pi Exp. ID | FJ | Point # | FJNNXXPPPP | 3 | 320 | Exp. ID | Point # |
| Positive Alarm Sequence acknowledge switch disabled | pi Exp. ID | FB | Point # | FBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| Positive Alarm Sequence acknowledge switch enabled | pi Exp. ID | FU | Point # | FUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Positive Alarm Sequence acknowledge switch trouble | pi Exp. ID | FT | Point # | FTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| Positive Alarm Sequence acknowledge switch trouble restore | pi Exp. ID | FJ | Point # | FJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| Status Point Trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 379 | Exp. ID | Point # |
| Status Point Trouble Restored | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 379 | Exp. ID | Point # |
| Status Point is Disabled | pi Exp. ID | UB | Point # | UBNNXXPPPP | 1 | 580 | Exp. ID | Point # |
| Status Point is Enabled | pi Exp. ID | UU | Point # | UUNNXXPPPP | 3 | 580 | Exp. ID | Point # |
| Supervisory/Tamper Alarm | pi Exp. ID | FS | Point # | FSNNXXPPPP | 1 | 200 | Exp. ID | Point # |
| Supervisory/Tamper Alarm Restore | pi Exp. ID | FR | Point # | FRNNXXPPPP | 3 | 200 | Exp. ID | Point # |
| Supervisory/Tamper point disabled | pi Exp. ID | FB | Point # | FBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| Supervisory/Tamper point enabled | pi Exp. ID | FU | Point # | FUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Supervisory/Tamper point trouble | pi Exp. ID | FT | Point # | FTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| Supervisory/Tamper point trouble restore | pi Exp. ID | FJ | Point # | FJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| System-based AUX1 switch alarm | pi Exp. ID | UA | Point # | UANNXXPPPP | 1 | 140 | Exp. ID | Point # |
| System-based AUX1 switch alarm restore | pi Exp. ID | UH | Point # | UHNNXXPPPP | 3 | 140 | Exp. ID | Point # |
| System-based AUX1 switch disabled | pi Exp. ID | UB | Point # | UBNNXXPPPP | 1 | 571 | Exp. ID | Point # |

**Table 11.2  Reporting Formats Table (Continued)**

| Event Description | SIA Reporting Format | | | | Contact ID Reporting Format | | | |
|---|---|---|---|---|---|---|---|---|
| | SIA pi Modifier | | | SIA | | | | |
| | Module ID # (If Any) | SIA Event Codes | Parameter | Fixed Length Format NN - panel ID XX- SBUS ID ZZZ- Zone # PPPP- Point # GGG- Group # E- Emergency # RRRR-Receiver # | Qualifier | Event Code | Group # | Contact # |
| System-based AUX1 switch enabled | pi Exp. ID | UU | Point # | UUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| System-based AUX1 switch trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| System-based AUX1 switch trouble restore | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| System-based AUX2 switch alarm | pi Exp. ID | UA | Point # | UANNXXPPPP | 1 | 140 | Exp. ID | Point # |
| System-based AUX2 switch alarm restore | pi Exp. ID | UH | Point # | UHNNXXPPPP | 3 | 140 | Exp. ID | Point # |
| System-based AUX2 switch disabled | pi Exp. ID | UB | Point # | UBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| System-based AUX2 switch enabled | pi Exp. ID | UU | Point # | UUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| System-based AUX2 switch trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| System-based AUX2 switch trouble restore | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| Voice Aux ECS 1 Point Alarm | pi Exp. ID | UA | (3PPP) PPP - Point # | UANNXX3PPP | 1 | 171 | Exp. ID | Point # |
| Voice Aux ECS 1 Point Alarm Restore | pi Exp. ID | UH | (3PPP) PPP - Point # | UHNNXX3PPP | 3 | 171 | Exp. ID | Point # |
| Voice Aux ECS 2 Point Alarm | pi Exp. ID | UA | (4PPP) PPP - Point # | UANNXX4PPP | 1 | 172 | Exp. ID | Point # |
| Voice Aux ECS 2 Point Alarm Restore | pi Exp. ID | UH | (4PPP) PPP - Point # | UHNNXX4PPP | 3 | 172 | Exp. ID | Point # |
| Voice Aux ECS 3 Point Alarm | pi Exp. ID | UA | (5PPP) PPP - Point # | UANNXX5PPP | 1 | 173 | Exp. ID | Point # |
| Voice Aux ECS 3 Point Alarm Restore | pi Exp. ID | UH | (5PPP) PPP - Point # | UHNNXX5PPP | 3 | 173 | Exp. ID | Point # |
| Voice Aux ECS 4 Point Alarm | pi Exp. ID | UA | (6PPP) PPP - Point # | UANNXX6PPP | 1 | 174 | Exp. ID | Point # |
| Voice Aux ECS 4 Point Alarm Restore | pi Exp. ID | UH | (6PPP) PPP - Point # | UHNNXX6PPP | 3 | 174 | Exp. ID | Point # |
| Voice Aux ECS Point Trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 379 | Exp. ID | Point # |
| Voice Aux ECS Point Trouble Restore | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 379 | Exp. ID | Point # |
| Voice Aux ECS Point Disabled | pi Exp. ID | UB | Point # | UBNNXXPPPP | 1 | 580 | Exp. ID | Point # |
| Voice Aux ECS Point Enabled | pi Exp. ID | UU | Point # | UUNNXXPPPP | 3 | 580 | Exp. ID | Point # |
| Voice Aux Status 1 Switch is Trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 379 | Exp. ID | Point # |
| Voice Aux Status 1 Switch is Trouble Restored | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 379 | Exp. ID | Point # |
| Voice Aux Status 1 Switch is Disabled | pi Exp. ID | UB | Point # | UBNXXPPPP | 1 | 580 | Exp. ID | Point # |
| Voice Aux Status 1 Switch is Enabled | pi Exp. ID | UU | Point # | UUNXXPPPP | 3 | 580 | Exp. ID | Point # |
| Voice Aux Status 2 Switch is Trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 379 | Exp. ID | Point # |
| Voice Aux Status 2 Switch is Trouble Restored | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 379 | Exp. ID | Point # |
| Voice Aux Status 2 Switch is Disabled | pi Exp. ID | UB | Point # | UBNNXXPPPP | 1 | 580 | Exp. ID | Point # |
| Voice Aux Status 2 Switch is Enabled | pi Exp. ID | UU | Point # | UUNNXXPPPP | 3 | 580 | Exp. ID | Point # |
| Water flow switch alarm | pi Exp. ID | SA | Point # | SANNXXPPPP | 1 | 113 | Exp. ID | Point # |
| Water flow switch alarm restore | pi Exp. ID | SH | Point # | SHNNXXPPPP | 3 | 113 | Exp. ID | Point # |
| Water flow switch disabled | pi Exp. ID | SB | Point # | SBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| Water flow switch enabled | pi Exp. ID | SU | Point # | SUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Water flow switch trouble | pi Exp. ID | ST | Point # | STNNXXPPPP | 1 | 373 | Exp. ID | Point # |

**Table 11.2  Reporting Formats Table (Continued)**

| Event Description | SIA Reporting Format | | | | Contact ID Reporting Format | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| | SIA pi Modifier | | | SIA | | | | |
| | Module ID # (If Any) | SIA Event Codes | Parameter | Fixed Length Format NN - panel ID XX- SBUS ID ZZZ- Zone # PPPP- Point # GGG- Group # E- Emergency # RRRR-Receiver # | Qualifier | Event Code | Group # | Contact # |
| Water flow switch trouble restore | pi Exp. ID | SJ | Point # | SJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| Zone-based AUX1 switch alarm | pi Exp. ID | UA | Point # | UANNXXPPPP | 1 | 140 | Exp. ID | Point # |
| Zone-based AUX1 switch alarm restore | pi Exp. ID | UH | Point # | UHNNXXPPPP | 3 | 140 | Exp. ID | Point # |
| Zone-based AUX1 switch disabled | pi Exp. ID | UB | Point # | UBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| Zone-based AUX1 switch enabled | pi Exp. ID | UU | Point # | UUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Zone-based AUX1 switch trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| Zone-based AUX1 switch trouble restore | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| Zone-based AUX2 switch alarm | pi Exp. ID | UA | Point # | UANNXXPPPP | 1 | 140 | Exp. ID | Point # |
| Zone-based AUX2 switch alarm restore | pi Exp. ID | UH | Point # | UHNNXXPPPP | 3 | 140 | Exp. ID | Point # |
| Zone-based AUX2 switch disabled | pi Exp. ID | UB | Point # | UBNNXXPPPP | 1 | 571 | Exp. ID | Point # |
| Zone-based AUX2 switch enabled | pi Exp. ID | UU | Point # | UUNNXXPPPP | 3 | 571 | Exp. ID | Point # |
| Zone-based AUX2 switch trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| Zone-based AUX2 switch trouble restore | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| System-based Wireless Gateway Trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| System-based Wireless Gateway Trouble - restore | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 373 | Exp. ID | Point # |
| Wireless Gateway Trouble | pi Exp. ID | UT | Point # | UTNNXXPPPP | 1 | 373 | Exp. ID | Point # |
| Wireless Gateway Trouble restore | pi Exp. ID | UJ | Point # | UJNNXXPPPP | 3 | 373 | Exp. ID | Point # |

**Table 11.2  Reporting Formats Table (Continued)**

## 11.2  SIA - Panel PI Modifier Reporting

Events are sent to the central station as a variable length string:

The event format is:

> EEZZZZ

Where:

> EE      Event code (2 characters)
>
> ZZZZ   Event parameter (up to four digits – not zero filled)

1.   The account number is sent using an account block that is separate from the event block
2.   Multiple events can be sent within a single event block. Events are separated by a "/" character.
3.   Event parameter can be either a zone, point or module number.
4.   When reporting by point is enabled, the communicator uses a "pi" event to supersedes the actual point event to report the module the point is linked to.
5.   Panel ID is not sent in the SIA event parameters.

For Example see Table 11.3:

| Event | Report Zone/ Point | Panel ID | Module | Zone ZZZZ | Point ZZZZ | Fields Sent | SIA Event Data |
|---|---|---|---|---|---|---|---|
| Fire Alarm-Zone | Zone | n/a | n/a97 | 15 | n/a | EE-ZZ | FA15 |
| Fire Alarm-Zone | Zone | n/a | n/a | 05 | n/a | EE-Z | FA5 |
| Fire Alarm-Point | Point | n/a | 01 | n/a | 123 | EE-ZZ /EE-ZZZ | pi01/FA123 |
| Fire Alarm-Point | Point | n/a | 33 | n/a | 203 | EE-ZZ /EE-ZZZ | pi11/FA203 |
| Expander Trouble | n/a | n/a | 11 | n/a | n/a | EE-ZZ | ET11 |
| Auto Test | n/a | n/a | n/a | n/a | n/a | EE-Z | RP0 |
| Battery Trouble-Panel 32 | n/a | n/a | 98 | n/a | n/a | EE-ZZ | YT98 |
| Battery Trouble-Expander 18 | n/a | n/a | 18 | n/a | n/a | EE-ZZ | YT18 |
| SLC Loop Shorted | n/a | n/a | 44 | n/a | n/a | EE-ZZ | ET44 |
| Program Begin Panel ID=32 | n/a | n/a | n/a | n/a | n/a | EE-Z | LB0 |
| Program Begin Panel ID= 22 | n/a | n/a | n/a | n/a | n/a | EE-Z | LB0 |
| AC Power Loss - Panel 22 | n/a | n/a | 98 | n/a | n/a | EE-Z | AT0 |
| Fire Trouble | Point | n/a | 97 | n/a | 200 | EE-ZZ /EE-ZZZ | pi97/FT200 |
| Fire Trouble | Zone | n/a | 97 | 01 | n/a | EE-Z | FT1 |
| Fire Trouble-Nac | Point | n/a | 98 | n/a | Nac Circuit 7 | EE-ZZ /EE-Z | pi98/FT7 Z=Pt. # |
| Fire Trouble-Nac | Zone | n/a | 98 | n/a | Nac Circuit 7 | EE-ZZZ | FT400 ZZZ=OPG# |

**Table 11.3  SIA- Panel - PI Modifier Reporting Examples**

## 11.3  SIA – Panel Communicator

(Differences/additional features are underlined)

Events are sent to the Central Station Receiver as a fixed length string:

The event format is:

    EEPPMMZZZZ

Where

    EE    Event code (2 characters)

    PP    Panel number (2 digits – Zero Filled) (valid range from 1 to 64)

    MM    Module number (2 digits – Zero Filled) (valid range from 1 to 98, typically
            Module information)

    ZZZZ  Event parameter (4 digits – Zero Filled) (typically Point, Zone or Circuit
            information)

1. The Event field will contain 10 digits including the 2 digit event code (EE), 2 digit panel ID (PP), 2 digit Module Number (MM) and a 4 digit Event Parameter (ZZZZ).
2. Based on the actual Event Code, the Module Number or Event Parameter fields might not contain pertinent information. In that case the field will contain zeros.
3. The account number is sent using an account block that is separate from the event block.
4. Multiple events can be sent within a single event block. Events are separated by a "/" character.
5. Event parameter can be a Zone, Point or Circuit Number.
6. "pi" modifier event is not used.
7. Panel can be set to report by either Point or Zone.

For examples see Table 11.4 below.

| Event | Report Zone/ Point | Panel ID PP | Module MM | Zone ZZZZ | Point ZZZZ | Fields Sent | SIA Event Data |
|---|---|---|---|---|---|---|---|
| Fire Alarm-Zone | Zone | 32 | n/a | 15 | n/a | EE-PP-MM-ZZZZ | FA32000015 |
| Fire Alarm-Zone | Zone | 32 | n/a | 05 | n/a | EE-PP-MM-ZZZZ | FA32000005 |
| Fire Alarm-Point | Point | 32 | 01 | n/a | 123 | EE-PP-MM-ZZZZ | FA32010123 |
| Fire Alarm-Point | Point | 21 | 33 | n/a | 203 | EE-PP-MM-ZZZZ | FA21330203 |
| Expander Trouble | n/a | 15 | 11 | n/a | n/a | EE-PP-MM-ZZZZ | ET15110000 |
| Auto Test | n/a | 32 | n/a | n/a | n/a | EE-PP-MM-ZZZZ | RP32000000 |
| Battery Trouble-Panel 32 | n/a | 32 | 98 | n/a | n/a | EE-PP-MM-ZZZZ | YT32980000 |
| Battery Trouble-Expander 18 | n/a | 32 | 18 | n/a | n/a | EE-PP-MM-ZZZZ | YT32180000 |
| SLC Loop Shorted | n/a | 01 | 44 | n/a | n/a | EE-PP-MM-ZZZZ | ET01440000 |
| Program Begin | n/a | 32 | n/a | n/a | n/a | EE-PP-MM-ZZZZ | LB32000000 |
| Program Begin | n/a | 22 | n/a | n/a | n/a | EE-PP-MM-ZZZZ | LB22000000 |
| AC Power Loss- Panel 22 | n/a | 22 | 98 | n/a | n/a | EE-PP-MM-ZZZZ | AT22980000 MM = 00 |
| Fire Trouble | Point | 22 | 97 | n/a | 200 | EE-PP-MM-ZZZZ | FT22970200 |
| Fire Trouble | Zone | 22 | 97 | 1 | n/a | EE-PP-MM-ZZZZ | FT22970001 MM = 00 |
| Fire Trouble-NAC | Point | 22 | 98 | n/a | NAC Circuit 7 | EE-PP-MM-ZZZZ | FT22980007 ZZZZ=Pt. # |
| Fire Trouble-NAC | Zone | 22 | 98 | n/a | NAC Circuit 7 | EE-PP-MM-ZZZZ | FT22980007 ZZZZ=OPG # |

**Table 11.4  SIA Reporting Examples**

# Section 12: Testing and Troubleshooting

## 12.1  Troubleshooting

This section of the manual offers suggestions for troubleshooting hardware problems. Please read this section if you encounter a problem when installing the control panel. If these suggestions do not solve your problem or if you encounter a problem that is not listed here, contact Triga Technical Support at +1 330-577-5199 for assistance.

### 12.1.1  Common Problems

| Problem | Possible Cause / Suggested Actions |
|---|---|
| Trouble message "DBL ADDR" (Double Address) displays on LCD. | An address has been assigned to more than one detector. Correct the address following the procedure described for devices in the *SLC Wiring Manual.* |
| Auxiliary power or notification circuits have incorrect polarity. | Correct polarity. For notification and auxiliary power circuits: When in alarm or powered, terminals labeled "X" are positive, terminals labeled "O" are negative. |
| SLC devices are not being recognized (trouble message "Missing" displays). | Check hardware connections. If devices are physically connected, make sure wiring is correct. Refer to the *SLC Wiring Manual*. For TR-6815 devices, make sure the device connects to the TR-6815 via the SLC OUT terminals. There can be only one SLC loop on the main panel and on each TR-6815 module. Do not connect devices to terminals labeled SLC IN. |
| | Make sure SLC devices have been addressed properly. For information on device addressing, refer to the *SLC Wiring Manual*. |
| | Make sure correct polarity has been observed for SLC device wiring. For information on wiring, refer to the *SLC Wiring Manual*. |
| SLC devices are not being recognized (trouble message "Missing" displays on the annunciator). | Check that SLC loop impedance is within the required range.<br>To measure impedance, use the following procedure:<br>1.  Disconnect both wires from the terminal block at the panel (SLC devices can remain connected).<br>2.  Measure the impedance from positive to negative and from negative to positive. Both measurements should be greater than 500 k ohms. If the installation uses T-taps, test each T-tap individually.<br>3.  Temporarily connect the positive wire to the negative wire of the SLC loop at the point farthest from the panel (SLC devices can remain connected).<br>4.  Measure the impedance from positive to negative and from negative to positive wires that were disconnected from the panel in step 1. Both measurements must be less than 50 ohms. |
| The panel indicates a ground fault trouble condition (trouble message "GROUND FAULT" displays). | An earth ground fault occurs when the panel senses an unexpected flow of current from one or more of its terminals to the earth connection (Terminal 2).<br>Isolate the wiring that is causing the fault by removing wiring connections one at a time until the earth fault is no longer present. Pause at least five seconds after removing a wire before removing the next one. |
| TR-6815 module that has been physically connected to the panel but is not being recognized. | Check the status of the module's green LED. If it flashes in the pattern half second on/ half second off, it is likely that the device has not been added to the system through programming. JumpStart will add any modules connected to the panel. If you have already run JumpStart, modules can be added manually. (Refer to Section 8.2.2).<br>Check that the correct ID for the module has been set through the DIP switches. Assign ID#1 to the first module and ID#2 to the second.<br>If the wiring between the device and the panel is correct, measure the voltage from the Terminal (+) to Terminal (-). Voltage should be in the range 27.2-27.4V when AC power is present.<br>If the green LED is not flashing, the likely cause is incorrect wiring from between the device and the panel. |

**Table 12.1  Troubleshooting**

## 12.2  Periodic Testing and Maintenance

To ensure proper and reliable operation, it is recommended that system inspection and testing be scheduled monthly or as required by national and/or local fire codes. Testing should be done by a qualified service representative if a malfunction is encountered.

**Before Testing**

1.  Notify the fire department and/or central alarm receiving station.
2.  Notify facility personnel of a test so that alarm sounding devices are ignored during the test period.
3.  When necessary, activation of Notification Appliances can be prevented by the DISABLE function.

**Testing**

1.  Activate a input via an alarm initiating device and check that the correct outputs activate (Notification Appliances sound/flash, relays activate, alarm indicator lights). Reset system. Repeat for each alarm initiating device.
2.  Momentarily open the following circuits one at a time and check for a trouble sign:
    •  Notification Appliance Circuits
    •  Initiating devices
3.  If new batteries were installed, wait 48 hours before completing this step. Remove AC power, activate initiating device and check that:
    •  The alarm indicator lights.

• All active Notification Appliances sound.

Measure battery voltage while the Notification Appliances are sounding. Replace any battery with terminal voltage less than 85% of rating. Reapply AC power and reset the system.

## 12.3  Event History

The event history can be useful for tracking or recalling a trouble condition.

To view event history:

1. Login to the panel.
2. Press 3 to select Event History.
3. Press the up or down arrow key to view events in the history buffer.

## 12.4  Built-in Troubleshooting and Testing Tools

The fire control panel has several built-in testing and troubleshooting tools that can be utilized to save time while testing and troubleshooting points and SLC devices.

### 12.4.1  SLC Device Locater

SLC device locater can be used to locate a device on a SLC loop.

Follow these steps to locate a particular SLC device:

1. Select 2 for Point Functions from the Main Menu.
2. Select 4 for SLC Single Device Locater.

   A message similar to the one shown below will display.

```
The system will be shut down during SLC
device locating.

⬅ = Back                    [Enter] to Accept
```

**Figure 12.1  Shut Down Warning**

3. Press ENTER to accept, or left arrow to Exit.

   If left arrow is chosen you will exit back to the Point Function menu.

   If ENTER is chosen the system will cease normal operation leaving the premise unprotected.
4. Select the SLC loop.
5. Enter the SLC address of the device you wish to locate.

   The LED on the selected device will start flashing.
6. Press left arrow key to exit the SLC Device Locater.

**NOTE:**   Once you exit, the system will resume normal operation.

### 12.4.2  SLC Multiple Device Locater

This feature is the same as SLC Single Device Locater, except you can locate up to 8 devices on a single search.

Follow these instructions to locate multiple SLC devices:

1. Select 2 for Point Functions from the Main Menu.
2. Select 5 for SLC Multiple Device Locater.

   A message similar to the one shown below will display.

```
The system will be shut down during SLC
device locating.

⬅ = Back                    [Enter] to Accept
```

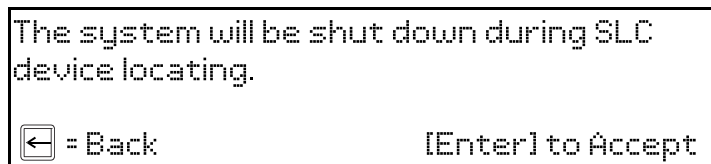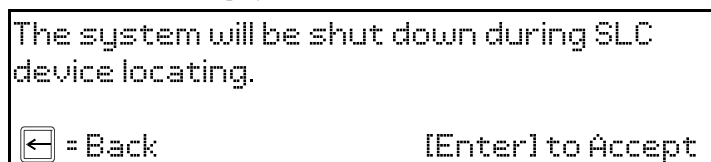**Figure 12.2  Shut Down Warning**

3. Press ENTER to accept, or left arrow to Exit.

   If left arrow is chosen you will exit back to the Point Function menu.

   If ENTER is chosen the system will cease normal operation leaving the premise unprotected.
4. Select the SLC loop.
5. Enter up to 8 SLC addresses for the devices you wish to locate.

   The LEDs on the selected devices will start flashing.

6. Press the left arrow key to exit SLC Multiple Device Locater.

> **NOTE:** Once you exit, the system will resume normal operation.

### 12.4.3 I/O Point Control

This feature allows you to toggle any output on or off and trip any input device. This can be useful to test a point's output mapping. I/O Point Control can only be accessed if enabled in the user profile.

Follow these steps to control an I/O point:

1. Select 2 (Point Functions) from the Main Menu.
2. Select 6 (I/O Point Control).
3. Select the module the point is on.
4. Make any selections specific to the module selected in the previous step.
5. Use the up or down arrow key to select the point you wish to test.
6. Press ENTER to toggle (Active/Inactive) Output.
7. Press the left arrow key to exit.

### 12.4.4 Earth Fault Resistance

Table 12.2 lists the earth fault resistance detection for each applicable terminal on the FACP.

| Function | Terminal Label | | Low Biased | | High Biased | |
|---|---|---|---|---|---|---|
| | (Values in Ohms) | | High Trip | High Restore | Low Trip | Low Restore |
| Flexput Notification Circuits | X | I/O 8 | – | – | 0 | 0 |
| | O | | 0 | 0 | – | – |
| | X | I/O 7 | – | – | 0 | 0 |
| | O | | 0 | 0 | – | – |
| | X | I/O 6 | - | - | 0 | 0 |
| | O | | 0 | 0 | - | - |
| | X | I/O 5 | - | - | 0 | 0 |
| | O | | 0 | 0 | - | - |
| | X | I/O 4 | - | - | 0 | 0 |
| | O | | 0 | 0 | - | - |
| | X | I/O 3 | - | - | 0 | 0 |
| | O | | 0 | 0 | - | - |
| | X | I/O 2 | - | - | 0 | 0 |
| | O | | 0 | 0 | - | - |
| | X | I/O 1 | - | - | 0 | 0 |
| | O | | 0 | 0 | - | - |
| SBUS Communication | B | SBUS1 OUT | - | - | 0 | 0 |
| | A | | - | - | 0 | 0 |
| SBUS Power | + | | 0 | 0 | - | - |
| | - | | - | - | 0 | 0 |
| SBUS Communication | B | SBUS1 IN | - | - | 0 | 0 |
| | A | | - | - | 0 | 0 |
| SBUS Power | + | | 0 | 0 | - | - |
| | - | | - | - | 0 | 0 |
| SBUS Communication | B | SBUS2 OUT | – | – | 0 | 0 |
| | A | | – | – | 0 | 0 |
| SBUS Power | + | | 0 | 0 | – | – |
| | – | | – | – | 0 | 0 |

**Table 12.2 Earth Fault Resistance Detection Chart**

| Function | Terminal Label | | Low Biased | | High Biased | |
|---|---|---|---|---|---|---|
| | (Values in Ohms) | | High Trip | High Restore | Low Trip | Low Restore |
| SBUS Communication | B | SBUS 2 IN | – | – | 0 | 0 |
| | A | | – | – | 0 | 0 |
| SBUS Power | + | | 0 | 0 | – | – |
| | – | | – | – | 0 | 0 |
| SLC Terminals | - | SLC OUT | - | - | 0 | 0 |
| | + | | 0 | 0 | - | - |
| | - | SLC IN | - | - | 0 | 0 |
| | + | | 0 | 0 | - | - |
| EXT. COMM | B | | - | - | 0 | 0 |
| | A | | - | - | 0 | 0 |
| | + | | 0 | 0 | - | - |
| | - | | - | - | 0 | 0 |
| Any wire to wire fault impedance is 0 ohms. | | | | | | |

**Table 12.2  Earth Fault Resistance Detection Chart  (Continued)**

# Section 13: Installation Records

This section of the manual is for you to use if you wish to track how points, zones, and groups have been programmed.

## 13.1 Detector and Module Point Record

Use Table 13.1 to record detector points (up to 159 per SLC loop) installed on the onboard SLC loop and make a copy of Table 13.2 to record installed modules (up to 159 per SLC loop).

| Module | Address | Zone / Group | Description | Module | Address | Zone/ Group | Description |
|---|---|---|---|---|---|---|---|
| Onboard | 1 | | | Onboard | 2 | | |
| Onboard | 3 | | | Onboard | 4 | | |
| Onboard | 5 | | | Onboard | 6 | | |
| Onboard | 7 | | | Onboard | 8 | | |
| Onboard | 9 | | | Onboard | 10 | | |
| Onboard | 11 | | | Onboard | 12 | | |
| Onboard | 13 | | | Onboard | 14 | | |
| Onboard | 15 | | | Onboard | 16 | | |
| Onboard | 17 | | | Onboard | 18 | | |
| Onboard | 19 | | | Onboard | 20 | | |
| Onboard | 21 | | | Onboard | 22 | | |
| Onboard | 23 | | | Onboard | 24 | | |
| Onboard | 25 | | | Onboard | 26 | | |
| Onboard | 27 | | | Onboard | 28 | | |
| Onboard | 29 | | | Onboard | 30 | | |
| Onboard | 31 | | | Onboard | 32 | | |
| Onboard | 33 | | | Onboard | 34 | | |
| Onboard | 35 | | | Onboard | 36 | | |
| Onboard | 37 | | | Onboard | 38 | | |
| Onboard | 39 | | | Onboard | 40 | | |
| Onboard | 41 | | | Onboard | 42 | | |
| Onboard | 43 | | | Onboard | 44 | | |
| Onboard | 45 | | | Onboard | 46 | | |
| Onboard | 47 | | | Onboard | 48 | | |
| Onboard | 49 | | | Onboard | 50 | | |
| Onboard | 51 | | | Onboard | 52 | | |
| Onboard | 53 | | | Onboard | 54 | | |
| Onboard | 55 | | | Onboard | 56 | | |
| Onboard | 57 | | | Onboard | 58 | | |
| Onboard | 59 | | | Onboard | 60 | | |
| Onboard | 61 | | | Onboard | 62 | | |
| Onboard | 63 | | | Onboard | 64 | | |
| Onboard | 65 | | | Onboard | 66 | | |
| Onboard | 67 | | | Onboard | 68 | | |
| Onboard | 69 | | | Onboard | 70 | | |
| Onboard | 71 | | | Onboard | 72 | | |
| Onboard | 73 | | | Onboard | 74 | | |
| Onboard | 75 | | | Onboard | 76 | | |
| Onboard | 77 | | | Onboard | 78 | | |
| Onboard | 79 | | | Onboard | 80 | | |
| Onboard | 81 | | | Onboard | 82 | | |
| Onboard | 83 | | | Onboard | 84 | | |
| Onboard | 85 | | | Onboard | 86 | | |
| Onboard | 87 | | | Onboard | 88 | | |

**Table 13.1  Installation Record of Onboard Devices**

| Module | Address | Zone / Group | Description | Module | Address | Zone/ Group | Description |
|---|---|---|---|---|---|---|---|
| Onboard | 89 | | | Onboard | 90 | | |
| Onboard | 91 | | | Onboard | 92 | | |
| Onboard | 93 | | | Onboard | 94 | | |
| Onboard | 95 | | | Onboard | 96 | | |
| Onboard | 97 | | | Onboard | 98 | | |
| Onboard | 99 | | | Onboard | 100 | | |
| Onboard | 101 | | | Onboard | 102 | | |
| Onboard | 103 | | | Onboard | 104 | | |
| Onboard | 105 | | | Onboard | 106 | | |
| Onboard | 107 | | | Onboard | 108 | | |
| Onboard | 109 | | | Onboard | 110 | | |
| Onboard | 111 | | | Onboard | 112 | | |
| Onboard | 113 | | | Onboard | 114 | | |
| Onboard | 115 | | | Onboard | 116 | | |
| Onboard | 117 | | | Onboard | 118 | | |
| Onboard | 119 | | | Onboard | 120 | | |
| Onboard | 121 | | | Onboard | 122 | | |
| Onboard | 123 | | | Onboard | 124 | | |
| Onboard | 125 | | | Onboard | 126 | | |
| Onboard | 127 | | | Onboard | 128 | | |
| Onboard | 129 | | | Onboard | 130 | | |
| Onboard | 131 | | | Onboard | 132 | | |
| Onboard | 133 | | | Onboard | 134 | | |
| Onboard | 135 | | | Onboard | 136 | | |
| Onboard | 137 | | | Onboard | 138 | | |
| Onboard | 139 | | | Onboard | 140 | | |
| Onboard | 141 | | | Onboard | 142 | | |
| Onboard | 143 | | | Onboard | 144 | | |
| Onboard | 145 | | | Onboard | 146 | | |
| Onboard | 147 | | | Onboard | 148 | | |
| Onboard | 149 | | | Onboard | 150 | | |
| Onboard | 151 | | | Onboard | 152 | | |
| Onboard | 153 | | | Onboard | 154 | | |
| Onboard | 155 | | | Onboard | 156 | | |
| Onboard | 157 | | | Onboard | 158 | | |
| Onboard | 159 | | | | | | |

**Table 13.1  Installation Record of Onboard Devices (Continued)**

## 13.2  Additional SLC Devices

Use the table below to record devices installed on additional TR-6815 modules. Make a copy of this page if additional pages are needed.

| Module | Addr | Zone / Group | Description | Module | Addr | Zone/ Group | Description |
|--------|------|--------------|-------------|--------|------|-------------|-------------|
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**Table 13.2  Installation Record of Devices Installed on TR-6815**

## 13.3  Conventional Output Point Record

This chart can be used to keep track of how conventional output points (circuits) have been configured.

| Point/Circuit | Group | Description |
|:---:|:---:|:---:|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |
| 7 | | |
| 8 | | |

# Appendix A: Editing Text Using the Built-In Programmer

This section contains tables of programmable characters that may be used for device, module, site, template, group, and zone names or phone numbers. T9 style editing is used.

## A.1 Characters Used for Editing Text

Table A.1 lists the available characters and their associated numeric designator. When programming:

1. Use the Up or Down arrow key to scroll to the mode wanted.
2. Press the number shown in Table A.1 until the character wanted is shown.
3. Arrow left and right for position, and press enter to accept.

| Lower Case Letters | | | | | | | |
|---|---|---|---|---|---|---|---|
| abc | 1 | def | 2 | ghi | 3 | jkl | 4 |
| mno | 5 | pqr | 6 | stu | 7 | vwx | 8 |
| yz | 9 | Spc | 0 | | | | |
| **Upper Case Letters** | | | | | | | |
| ABC | 1 | DEF | 2 | GHI | 3 | JKL | 4 |
| MNO | 5 | PQR | 6 | STU | 7 | VWX | 8 |
| YZ | 9 | Spc | 0 | | | | |
| **Numbers and Special Characters** | | | | | | | |
| 1 [ ] | 1 | 2 ( ) | 2 | 3 . , | 3 | 4 : ; | 4 |
| 5 ' " | 5 | 6 ? ! | 6 | 7 ' / | 7 | 8 – + | 8 |
| 9 = - | 9 | 0 | 0 | * & @ | * | # $ | # |

**Table A.1  Character Table**

## A.2 Example Name Edit

1. Press the up or down arrow to select upper case letters mode, Press 2 until "F" appears.
2. Press the up or down arrow to change mode to lower case letters, Press 3 until "i" appears.
3. Press 6 until "r" appears.
4. Press 2 until "e" appears.
5. Press 0 to space, then continue to next word using the same process.
6. Press ENTER to accept.

**NOTE:**  After three seconds of no change, a letter will automatically be accepted. Also, pressing the next number will automatically accept the previous choice.

```
<Module Name>        Enter: Accept
Fire Door _ _
  1[abc]  2[def]  3[ghi]   4[jkl]    5[mno]
  6[pqr]  7[stu]  8[vwx]  9[yz ]  0[Spc]
```

**Figure A.1  Edit Name Example**

# Appendix B: Expanded Receiver/Panel Relationship

The available receiver number will correspond with what panel number you entered. Receiver numbers are populated based on panel number and audited to allow only the 4 appropriate receivers. See Section 6.2.6.

| Panel | Available Receiver Numbers | | | |
|---|---|---|---|---|
| 1 | 1 | 2 | 3 | 4 |
| 2 | 5 | 6 | 7 | 8 |
| 3 | 9 | 10 | 11 | 12 |
| 4 | 13 | 14 | 15 | 16 |
| 5 | 17 | 18 | 19 | 20 |
| 6 | 21 | 22 | 23 | 24 |
| 7 | 25 | 26 | 27 | 28 |
| 8 | 29 | 30 | 31 | 32 |
| 9 | 33 | 34 | 35 | 36 |
| 10 | 37 | 38 | 39 | 40 |
| 11 | 41 | 42 | 43 | 44 |
| 12 | 45 | 46 | 47 | 48 |
| 13 | 49 | 50 | 51 | 52 |
| 14 | 53 | 54 | 55 | 56 |
| 15 | 57 | 58 | 59 | 60 |
| 16 | 61 | 62 | 63 | 64 |
| 17 | 65 | 66 | 67 | 68 |
| 18 | 69 | 70 | 71 | 72 |
| 19 | 73 | 74 | 75 | 76 |
| 20 | 77 | 78 | 79 | 80 |
| 21 | 81 | 82 | 83 | 84 |
| 22 | 85 | 86 | 87 | 88 |
| 23 | 89 | 90 | 91 | 92 |
| 24 | 93 | 94 | 95 | 96 |
| 25 | 97 | 98 | 99 | 100 |
| 26 | 101 | 102 | 103 | 104 |
| 27 | 105 | 106 | 107 | 108 |
| 28 | 109 | 110 | 111 | 112 |
| 29 | 113 | 114 | 115 | 116 |
| 30 | 117 | 118 | 119 | 120 |
| 31 | 121 | 122 | 123 | 124 |
| 32 | 125 | 126 | 127 | 128 |

**Table B.1   Receiver/Panel Relationship**

# Appendix C: Cadence Patterns

Table C.1 shows the cadence patterns available for use with the control panel.

| # | Name | Pattern Description (Patterns repeat until condition is cleared.) |
|---|------|------------------------------------------------------------------|
| 00 | Constant | Continuous sound (This is the only pattern that can be used for relay circuits. The system will override any other choice.) |
| 01 | March Time | 0.5 second on, 0.5 second off |
| 02 | ANSI 3.41 | 0.5 sec on, 0.5 sec off, 0.5 sec on, 0.5 sec off, 0.5 sec on, 1.5 sec off |
| 03 | Single Stroke | 0.1 sec on, 1 sec off, 0.1 sec on, 1 sec off, 0.1 sec on, 3 sec off |
| 04 | California | 5 sec on, 10 sec off |
| 05 | Zone-coded, Zone 1 | 0.5 sec on, 0.5 sec off |
| 06 | Zone-coded, Zone 2 | This pattern is multiplied by the zone number in alarm, followed by 3 seconds off. |
| 07 | Zone-coded, Zone 3 | |
| 08 | Zone-coded, Zone 4 | For example, Pattern 6, Zone 2 coded: (pattern x two): |
| 09 | Zone-coded, Zone 5 | 0.5 sec on, 0.5 sec off, 0.5 sec on, 0.5 sec off, 3 sec off |
| 10 | Zone-coded, Zone 6 | |
| 11 | Zone-coded, Zone 7 | |
| 12 | Zone-coded, Zone 8 | |
| 13 | Zone-coded, Custom 1 | |
| 14 | Zone-coded, Custom 2 | |
| 15 | Zone-coded, Custom 3 | |
| 16 | Zone-coded, Custom 4 | |
| 17 | Sync Type- Faraday (N/A) | These outputs provide synchronization for Gentex, System Sensor, Wheelock, or AMESECO synchronized appliances. |
| 18 | Sync Type- Gentex | |
| 19 | Sync Type- System Sensor | |
| 20 | Sync Type- Wheelock | |
| 21 | Sync Type- AMSECO | |
| 22 | Power Isolated | Disconnected. No voltage at terminals. |
| 23 | Temporal 4 | 0.1 sec on, 0.1 sec off, 0.1 sec on, 0.1 sec off, 0.1 sec on, 0.1 sec off, 0.1 sec on, 5 sec off, |

**Table C.1  Cadence Patterns**

# Appendix D: Panel Security

Panel Installation / Maintenance Security Checklist

System Description: _____

System Location: _____

Installer: _____ Date: _____

## Complete the following Cybersecurity Tasks for Each Panel Installation

- Install the panel in a secure location considering both software and hardware vulnerabilities.
- Change the default password to a unique password.
- Securely configure networks and firewalls.
- Assess security risks.
- Develop a Disaster and Recovery Plan.
- Develop a Backup and Recovery Strategy.
- Install, configure and keep anti virus software updated on all computers which access the panel.
- Keep operating system updated on all computers which access the panel.
- Deliver all required system information upon delivery to the system owner.
- Train end-users on security maintenance tasks upon system delivery.
- For decommissioning, dispose of data securely.
- Ensure the Ethernet cable is removed from the FACP when not being utilized for configuration or for reporting purposes.

## Security and Data Protection

Communication Security - Level 1

Stored Data Security - Level 0

Physical Security - Level 1

Access Control Security - Level 1

# Model TR-2100 Basic Operating Instructions

**TRIGA**

These Instructions must be framed and displayed next to the TR-2100 panel in accordance with NFPA 72 fire code for Local Protected Fire Alarm Systems. Test the system in accordance to NFPA 72.

Cut along dotted line.

| Operation | Task to Perform |
|---|---|
| Silence Alarms and Troubles | Press SILENCE and then enter a code if prompted. The Silence LED will light. |
| Reset Alarms | Press RESET and then enter a code if prompted. |
| View Alarms, Supervisories, and Troubles | For each type of condition press the Up or Down button associated for Alarms, Supervisories, or Troubles.<br><br>`FIRE:ALARM    SUPERVISORY  TROUBLE`<br>`  CO:ALARM    SUPERVISORY`<br>`SYSTEM:TROUBLE` |
| View Point Status | 1. Login to the panel.<br>2. Press 2 to select Point Functions.<br>3. Press 2 to select Point Status.<br>4. Select the desired module by using the Up or Down button. Then press ENTER.<br>5. Enter the point number. |
| Conduct a Fire Drill | Hold the DRILL button and then enter a code if prompted. OR<br><br>1. Login to the panel.<br>2. Then Press 1 to select System Tests.<br>3. Press 1 to select Fire Drill.<br>4. Press ENTER to start the fire drill. Press ENTER to end the fire drill. |
| Check Detector Sensitivity | 1. Login to the panel.<br>2. Press 2 for Point Status.<br>3. From the list that displays, select the SLC module where the desired point is located.<br>4. The fourth line of the display shows the sensitivity status.<br>"NORMAL" means the detector is in compliance with NFPA 72.<br>"CAL MAINT" means the detector is in compliance with NFPA 72 but maintenance should be performed soon.<br>"CAL TRBLE" means the detector is not in compliance with NFPA 72. |
| Set Time and Date | 1. Login to the panel.<br>2. Press 4 to select Set Time & Date.<br>3. Make changes in the fields on the screen as necessary.<br>4. When the time and date are correct, press ENTER. |
| Enable / Disable a Point | 1. Login to the panel.<br>2. Press 2 to select Point Functions.<br>3. Press 1 for Disable / Enable Pt<br>4. Press 7 for Disable / Enable Pt.<br>5. Use the Up or Down button to move through the list. Then press ENTER to select the module where the desired point is located.<br>6. Enter the point or circuit number that you want to disable/enable.<br>7. Press the right arrow key to toggle between NORMAL (enable) or DISABLE. |
| View Event History | 1. Login to the panel.<br>2. Press 3 to select Event History.<br>3. Press the Up or Down button to view events in the history buffer. |
| For Service Call: | |

Cut along dotted line.

# Model TR-2100ECS Basic Operating Instructions
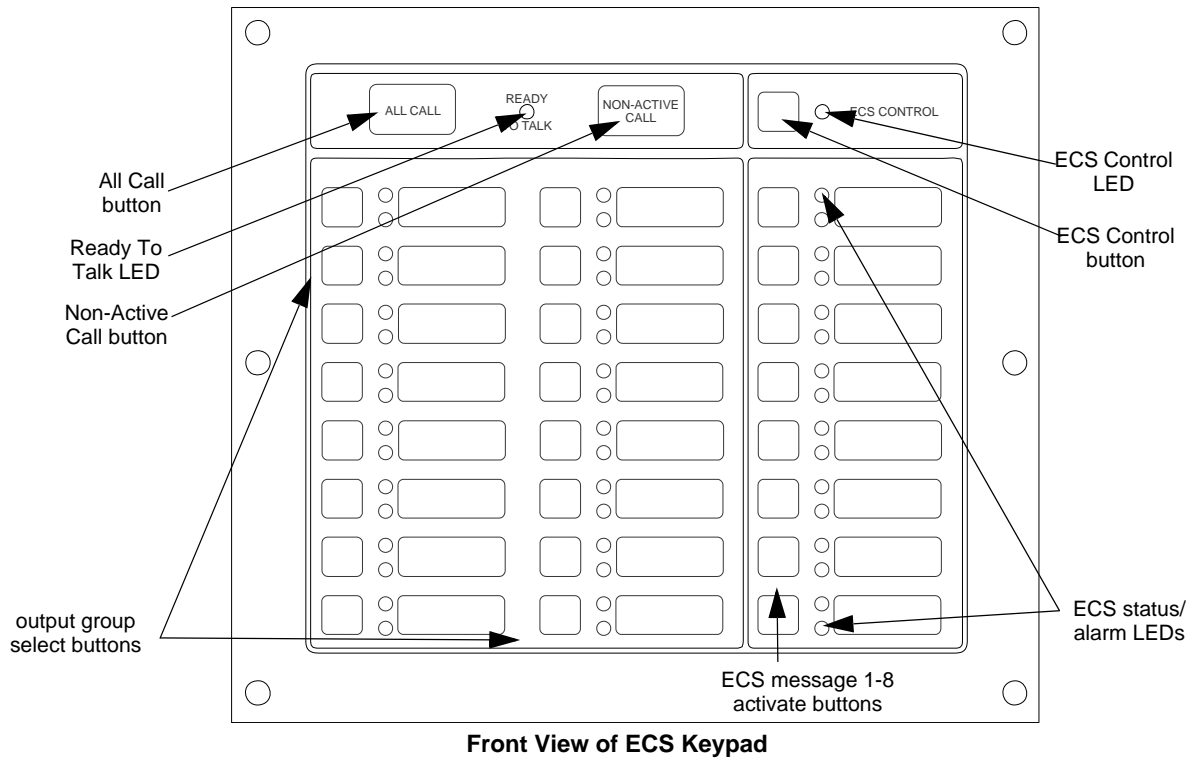
**TRIGA**

These Instructions must be framed and displayed next to the TR-2100ECS panel in accordance with NFPA 72 fire code for Local Protected Fire Alarm Systems. Test the system in accordance to NFPA 72.

| Operation | Task to Perform |
|---|---|
| Silence Alarms and Troubles | Press SILENCE and then enter a code if prompted. The Silence LED will light. |
| Reset Alarms | 1. Press RESET and then enter a code if prompted.<br>2. Press 1 to reset the Fire System or 2 to reset the Emergency Communication System.<br>*To reset the ECS at an LOC, the user must gain ECS Control (See Figure 1).* |
| View all active alarm, trouble, and supervisory signals | The highest priority event will display first. Press the Down arrow to view location and type of alarm or trouble.<br><br>`FIRE:ALARM  SUPERVISORY  TROUBLE`<br>`CO:ALARM  SUPERVISORY`<br>`EMERGENCY:ALARM  SUPERVISORY`<br>`SYSTEM:TROUBLE` |
| View Point Status | 1. Login to the panel.<br>2. Press 2 to select Point Functions.<br>3. Press 2 to select Point Status.<br>4. Select the desired module by using the Up or Down button. Then press ENTER.<br>5. Enter the point number. |
| Conduct a Fire Drill | Hold the DRILL button and then enter a code if prompted. OR<br>1. Login to the panel.<br>2. Then Press 1 to select System Tests.<br>3. Press 1 to select Fire Drill.<br>4. Press ENTER to start the fire drill. Press ENTER to end the fire drill. |
| Set Time and Date | 1. Login to the panel.<br>2. Press 4 to select Set Time & Date.<br>3. Make changes in the fields on the screen as necessary.<br>4. When the time and date are correct, press ENTER. |
| Enable / Disable a Point | 1. Login to the panel.<br>2. Press 2 to select Point Functions.<br>3. Press 1 for Disable / Enable Pt<br>4. Press 7 for Disable / Enable Pt.<br>5. Use the Up or Down button to move through the list. Then press ENTER to select the module where the desired point is located.<br>6. Enter the point or circuit number that you want to disable/enable.<br>7. Press the right arrow key to toggle between NORMAL (enable) or DISABLE. |
| To Gain / Request ECS Control | Press the ECS Control Button and follow the on-screen Instructions.<br>*When the ECS Control LED is blinking, another LOC has ECS Control. The ECS Control LED is on steady when the LOC has ECS Control.* |
| For Service Call: | |

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# Keypad and LED Indicators



**Front View of ECS Keypad**

| LED | Color | State | Definition |
|---|---|---|---|
| Select Keys | Red | On | The corresponding area is active for the ECS message currently playing |
| | | Off | The corresponding area is not active. |
| | Green | On | The corresponding area is active for the microphone. |
| | | Off | The corresponding area is not active for the microphone. |
| | | Blink | One or more associated network page destination panels are unable to output the page. |
| ECS Control LED | Green | Blink | When this LED is blinking, someone has requested control of the ECS System. |
| | | On | LOC has ECS Control and the user is able to make changes to the ECS. |
| | | Off | LOC does not have ECS Control. |
| ECS Message LED | Red | On | The corresponding ECS event was activated by an ECS device. |
| | | Off | The corresponding ECS event was not activated from this LOC. |
| | Green | On | The corresponding ECS event is active and was generated from the LOC (or was activated from another LOC, but this LOC now has ECS Control). |

**LED Conditions**

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# ECS Control

| Operation | Task |
|---|---|
| Gain ECS Control at an LOC | Press the ECS Control Key and enter a code if prompted. If ECS Control is available, the ECS Control LED will illuminate. If another LOC has ECS Control, the display will be similar to the one shown below. Press 1 to request control. The LOC with ECS Control will then be able to allow or deny the request. |
| Gain ECS Control as an ECS Super User at an LOC (only one ECS Super User is allowed ECS Control in the system at a time). | From the system idle screen, enter an ECS Super User access code and then press the ECS Control Key. If ECS Control as Super User is available, the ECS Control LED will illuminate. If another LOC has Super User ECS Control, a request for Super User ECS Control will automatically be made to the LOC with control. The LOC with Super User ECS Control will then be able to allow or deny the request. (See the figure below for screen display example.) |
| Select all output groups for microphone override | Key the microphone, wait for the Ready-to-Talk LED to light, press the All Call Key, and then deliver your verbal message. |
| Select all non-activated output groups for microphone override | Key the microphone, wait for the Ready-to-Talk LED to light, press the Non-Active Call Key, and then deliver your verbal message. |

**ECS Control Request**

```
 GAIN ECS CONTROL OPTIONS MENU
1=Request ECS Control from LOC
2 Gain ECS Control as ECS Super User
3 Wait for Lockout Timer to Expire 30
```

**How to Operate the Microphone:**

1. Press the ECS Control Button.
2. Key the Microphone.
3. Press the All Call Button.

**How to Reset the ECS System**

1. Press The Reset Button.
2. Select 2 Reset emergency System.

**TR-RPU Operating Instruction**

**For Live Message**

1. Key the Microphone.
2. Press the All Call Key or select desired output area using Select Keys.
3. Deliver your verbal message.

**For Pre-recorded Message**
Select desired ECS Message Key 1-8.

- If ECS Control LED is on steady, the LOC has ECS Control.
- If ECS Control LED is Blinking, another LOC has ECS Control.

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