

# The TC-2F

## *Time Control Module*

*For the Sensiscan 2000 Fire Alarm Control Panels*

## 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 this manual is read and understood.

**CAUTION** - *System Reacceptance Test after Software Changes:* To ensure proper system operation, this product must be tested in accordance with NFPA 72-1993 Chapter 7 after any programming operation or change in site-specific software. Reacceptance 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 be tested and proper system operation verified.

**This system** meets NFPA requirements for operation at 0-49° C/32-120° F and at a relative humidity of 85% RH (non-condensing) at 30° C/86° 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 nominal room temperature of 15-27° C/60-80° 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 interferences, 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, and 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.

**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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## Fire Alarm System Limitations

*While installing a fire alarm system may make lower insurance rates possible, it is not a substitute for fire 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 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.

**Any fire alarm system** may fail for a variety of reasons:

**Smoke detectors** may not sense fire where smoke cannot reach the detectors such as in chimneys, in walls, or 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. Furthermore, all types of smoke detectors - both ionization and photoelectric types, have sensing limitations. No type of smoke detector can sense every kind of fire caused by carelessness and safety hazards like smoking in bed, violent explosions, escaping gas, improper storage of flammable materials, overloaded electrical circuits, children playing with matches, or arson.

**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, crippling its ability to report a fire.

**Audible warning devices** such as bells 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.

**A fire alarm system** will not operate without any electrical power. If AC power fails, the system will operate from standby batteries only for a specified time.

**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.

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

**Telephone lines** needed to transmit alarm signals from a premise to a central monitoring station may be out of service or temporarily disabled.

**The most common cause** of fire alarm malfunctions, however, is inadequate maintenance. All devices and system wiring should be tested and maintained by professional fire alarm installers following written procedures supplied with each device. System inspection and testing should be scheduled monthly or as required by National and/or local fire codes. Adequate written records of all inspections should be kept.

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## Section One: General Information




The TC-2F Module may be field-programmed to operate in one of five different modes:

### Pre-Signal Evacuation

For Pre-Signal application, where allowed by Authority Having Jurisdiction (AHJ), the TC-2F provides:

- \* Two Evacuation audible circuits
- \* Pre-Signal Alert audible circuit
- \* Alert Hold circuit
- \* Programmable timer with display




#### Pre-Signal Operation

Initiating zone has activated both Alert Enable 1 and Alert Enable 2.		The Alert audible circuit will pulse the audible circuits at 20 PPM and the timer will begin to count down.
If the "HOLD ON ALERT" circuit is activated....		...the Alert audible circuit will continue to pulse at 20 PPM. The timer will hold at ten seconds.
The time delay has counted down to zero (General Evacuation LED flashes).		The Alert audible and the two General Evacuation Notification Appliance Circuits will turn on steady.

### Dual-Coded Evacuation

Similar to Pre-Signal Evacuation with the exception that all three audible circuits activate simultaneously with an alert tone at the start of the time delay, followed by a different evacuation code after time out.

#### Dual-Coded Operation





Initiating zone has activated both Alert Enable 1 and Alert Enable 2.		All three audible circuits will pulse the at 20 PPM and the timer will begin to count down.
If the "HOLD ON ALERT" circuit is activated....		...all three audible circuits will continue to pulse at 20 PPM. The timer will hold at 10 seconds.
The time delay has counted down to zero (General Evacuation LED flashes).		All three audible circuits will pulse a TEMPORAL 3-3-3 code.

## Standard Release

For Halon and other agent-releasing applications.

- Two supervised releasing circuits
- Warning Bell circuit
- Supervised Abort circuit
- Cross-zone capability
- LED display of time remaining, Abort and Release





### ***Standard Releasing Operation***

Initiating circuit activates either Enable 1 or Enable 2.	 No action taken by the TC-2F (Notification Appliance Circuit on the CPU may be programmed to sound on first alarm).
Initiating circuits activate both Enable 1 and Enable 2.	 The Warning Bell circuit will sound steady and the timer will begin to count down.
If the "ABORT" circuit is activated (non-latching).....	 ...the Warning Bell circuit continues to sound steady. The timer stops and holds at 5 seconds until release.
If the "ABORT" circuit is not active, or has been disengaged, the time delay will count down to zero (the Release LED flashes).	 The Warning Bell circuit continues to sound steady and both releasing circuits are activated

## Triple-Coded Release

All functions of Standard Release, with a coded warning audible circuit to indicate first zone in alarm, second zone in alarm and release.





### ***Triple-Coded Releasing Operation***

First initiating circuit activates either Enable 1 or Enable 2.	 No action taken by the TC-2F (Note: Notification Appliance Circuit on the CPU may be programmed to sound first alarm).
Initiating circuits activate both Enable 1 and Enable 2.	 The Warning Bell circuit will sound steady and the timer will begin to count down.
If the "ABORT" circuit is activated (non-latching).....	 ...the Warning Bell circuit continues to sound steady. The timer stops and holds at 5 seconds until release.
If the "ABORT" circuit is not active, or has been disengaged, the time delay will count down to zero (the Release LED will flash).	 The Warning Bell circuit continues to sound steady and releasing circuits are activated.

## IRI Release

All functions of Triple-Coded Release, except abort commands are accepted only if they occur before initiation of the second zone into alarm.

### *IRI Releasing Operation*

First initiating circuit activates Enable 1.		The Warning Bell circuit will pulse the audible at 20 PPM.
Second initiating circuit activate both Enable 1 and Enable 2		The Warning Bell circuit will pulse at 110 PPM and the timer will begin to count down.
If the "ABORT" circuit is activated (non-latching)...		...then the Warning Bell circuit will pulse at 20 PPM. The timer will stop and hold at 5 seconds until release.
If the "ABORT" circuit is not active, or has been disengaged, the time delay will count down to zero (Release LED will flash).		The Warning Bell circuit will sound steady and releasing circuits are activated.

### **Application Notes:**

1) Selection of operating mode is done using the *System Coded Circuit* and *March Time/Temporal* programming selections. Care must be taken to ensure that program selections do not conflict with other controlled outputs within the fire alarm control system.

2) More than one TC-2F may be installed in a control panel, but all TC-2F modules must be programmed for the same type of operation (Standard Release, Triple-Coded Release, IRI Release, etc).

3) Care must be taken to ensure that adequate power is provided for output circuits, particularly release circuits which require *regulated* power.

### **About this Manual**

This document contains information specific to the TC-2F. Before installing, you should be familiar with the installation manual for the respective fire alarm control panel:

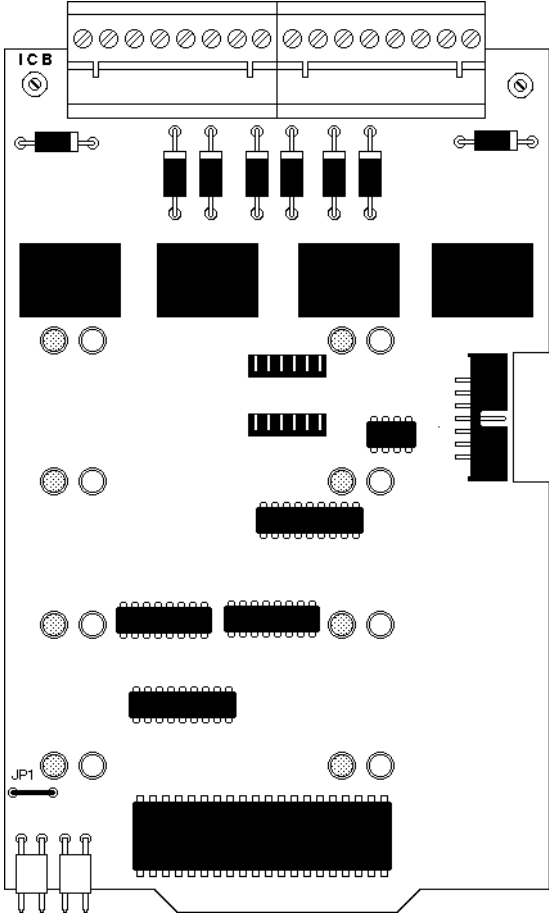
**The Sensiscan 2000** Installation, Operation, and Programming Manual, Document 15017.

### **TC-2F Power Requirements**

Standby Current: 0.007 amps      Alarm Current: 0.072 amps

*Refer to the respective fire alarm control panel manual for calculation of primary and secondary power requirements for the TC-2F.*

# Section Two: Inventory



**TC-2F**

The TC-2F Time Control Module features removable terminal blocks that ease installation and servicing. Provided with the module are two harnesses for connection to the source of power. Also included are four End-of-Line resistors and four 4.7K Dummy Load resistors.



**4.7K 1/2-watt  
ELR (71252)**



**4.7K 1/2-watt  
Dummy Load  
Resistor (71245)**

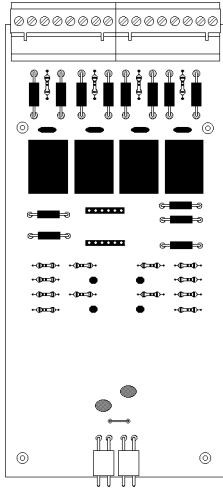


**AVPS-24F Bell Power Harness (71091)**



**CPU Bell Power Harness (71093)**

## Optional Equipment for the TC-2F Time Control Module



### ICE-4F Indicating Circuit Expander

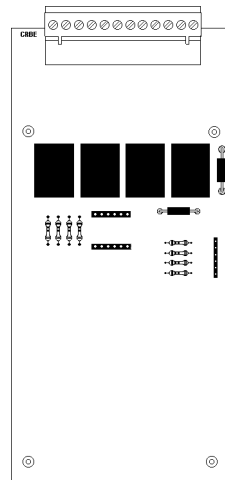
The ICE-4F provides the TC-2F with up to four additional releasing coil circuits or four Notification Appliance Circuits. Use only UL-listed releasing devices rated for 24 VDC. The expander plugs into the back of the TC-2F. An Auxiliary Bell Power Harness (below) is provided with each expander.



**Note:** The addition of an ICE-4F will allow a total of six releasing circuits from a single TC-2F/ICE-4F combination. Carefully check the current draw required if this number of releasing circuits is to be employed and ensure that an adequate supply is provided.

### CRE-4F Control Relay Expander

The CRE-4F provides four Form-C relays that will operate on release. Contacts are rated for 5 amps @ 125 VAC (resistive) or 28 VDC (resistive). The expander plugs into the back of the TC-2F.



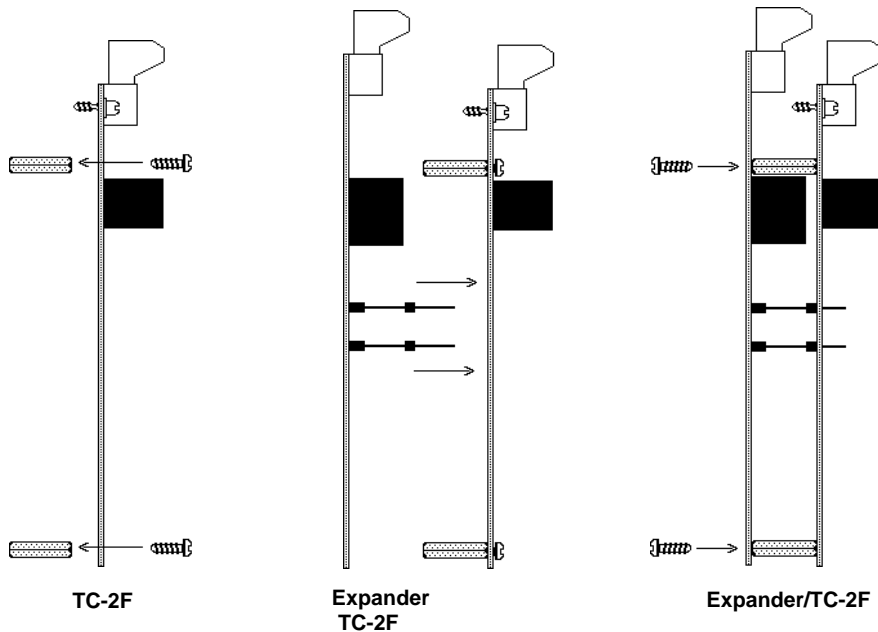


## Section Three: Installation

### Installation Outline

- ❑ If an optional ICE-4F or CRE-4F is to be used, mount the expander board to the TC-2F as illustrated in Figure 3-1.
- ❑ Mount the TC-2F assembly into the CHS-4F Chassis as illustrated in Figure 3-2.
- ❑ Connect the 1st Row or Expander Row Ribbon Cable from the system's CPU module to the TC-2F as illustrated in Figure 3-3.
- ❑ For connection of Notification Appliance power or releasing solenoid power to the TC-2F (using power harnesses), refer to Figure 3-3.
- ❑ Field wire the TC-2F circuits and program the CPU as outlined in Section Four (Evacuation Applications) or Section Five (Releasing Applications).

**Figure 3-1: Mounting an Optional ICE-4F or CRE-4F Expander**

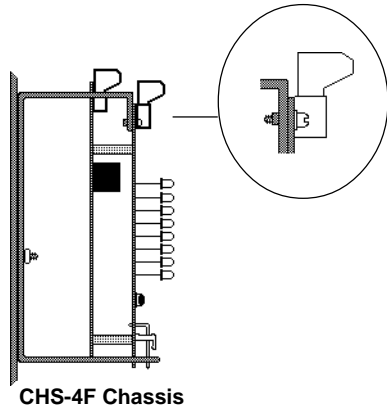
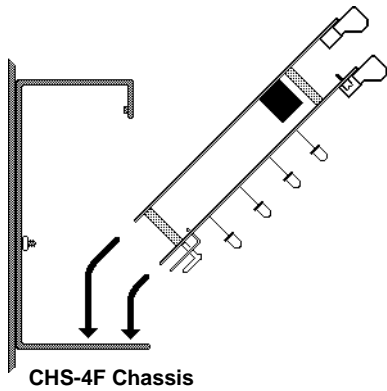


**Step 1:**  
Attach four standoffs to the TC-2F using the four screws provided.

**Step 2:**  
Insert the pins on the ICE-4F or CRE-4F expander board into the connector on the TC-2F and press the two boards together, ensuring that the pins are properly aligned.

**Step 3:**  
Secure the TC-2F/ Expander assembly with four screws into the standoffs.

**Figure 3-2: Installation**



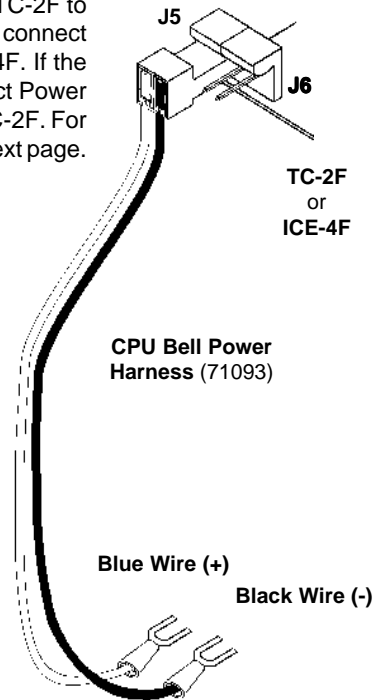
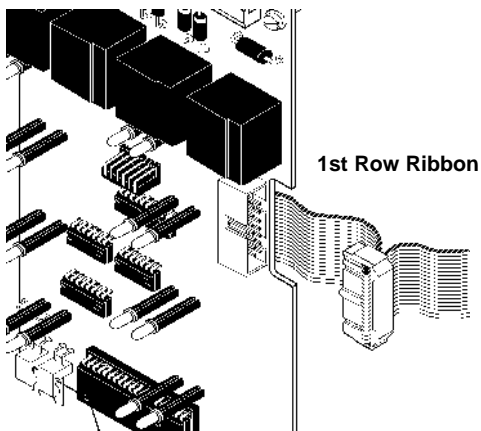
**Step 1:**  
Angle the TC-2F assembly into the CHS-4F Chassis so that the upper board edge slips into the slot on the bottom rail of the chassis.

**Step 2:**  
Push the upper end of the TC-2F assembly into the chassis and secure with the two captive module screws. Straighten LEDs so that they extend from the TC-2F at a 90-degree angle.

**Figure 3-3: Harness Connections**

1) If power for the TC-2F (or the ICE-4F) is to come from an MPS, connect Power Harness 71093 from J5 on the TC-2F to the power supply. If the AVPS-24F is to be used, connect Power Harness 71091 from J5 to P3 on the AVPS-24F. If the TC-2F is to share power with another module, connect Power Harness 71091 from J6 on that module to J5 on the TC-2F. For various supply configurations for the TC-2F, see the next page.

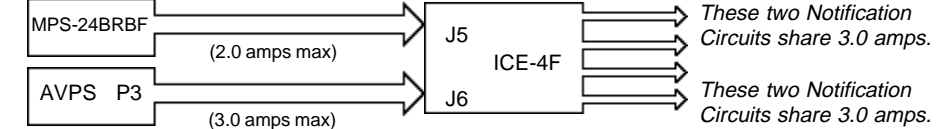
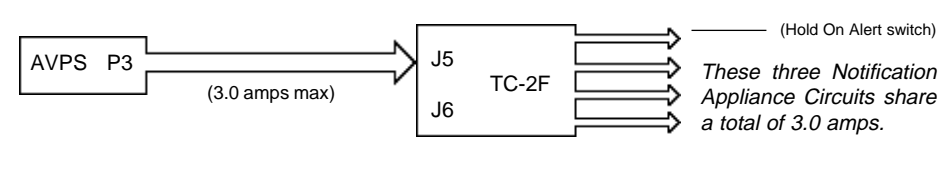
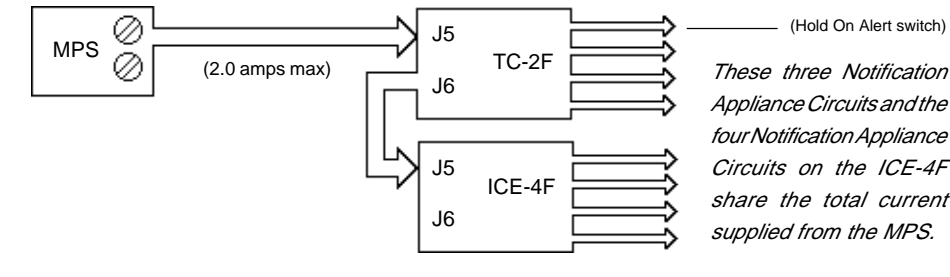
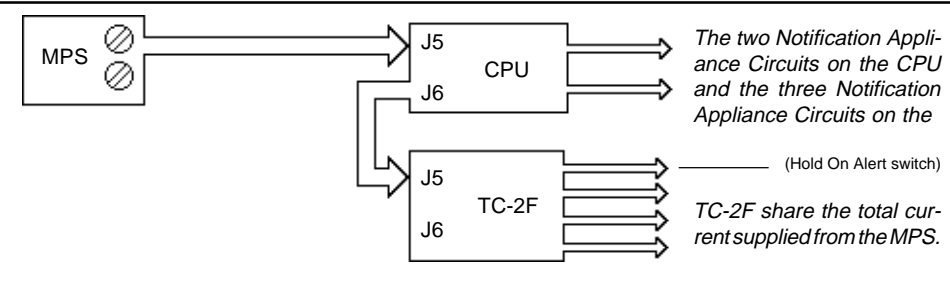
2) Connect the 1st Row Ribbon from the CPU module to the TC-2F as illustrated.



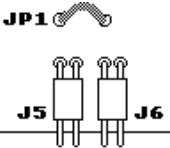
## Powering for Pre-Signal or Dual-Code Evacuation

When used for Pre-Signal or Dual-Code Evacuation, the TC-2F/ICE-4F does not require that the 24 VDC power be regulated, but it must be power-limited. This power can be supplied by Notification Appliance power from the MPS-24BRBF, or special application power from the AVPS-24F. Refer to the Device Compatibility Document, for a list of compatible, UL listed Notification Appliances. **Note:** The illustrations below assume that no other Notification Appliance power is drawn from MPS or AVPS-24F. If this is not the case, reduce the maximum current that can be supplied to the TC-2F/ICE-4F appropriately.

**MPS-24BRBF:** 2.0 amps max. Connect to TB2 Terminals 3 (+) and 4 (-). **CAUTION:** The +24 VDC provided on TB2 Terminal 3 is power-limited only when used with the minus return on TB2 Terminal 4. *Do not use the minus return on TB2 Terminal 2 with the +24 VDC power on TB2 Terminal 3.*

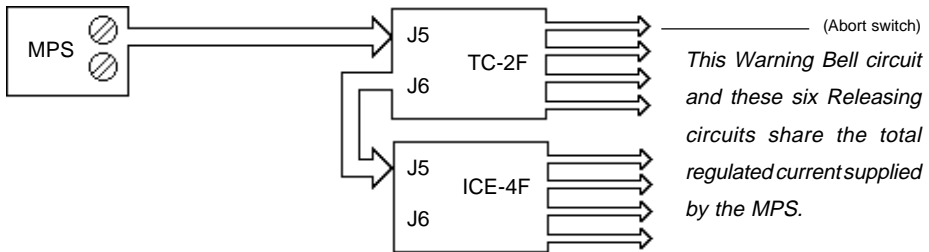


**IMPORTANT:**  
Cut jumper JP1 when supplying the TC-2F or ICE-4F with two different power sources.



## Powering the TC-2F for Releasing Service

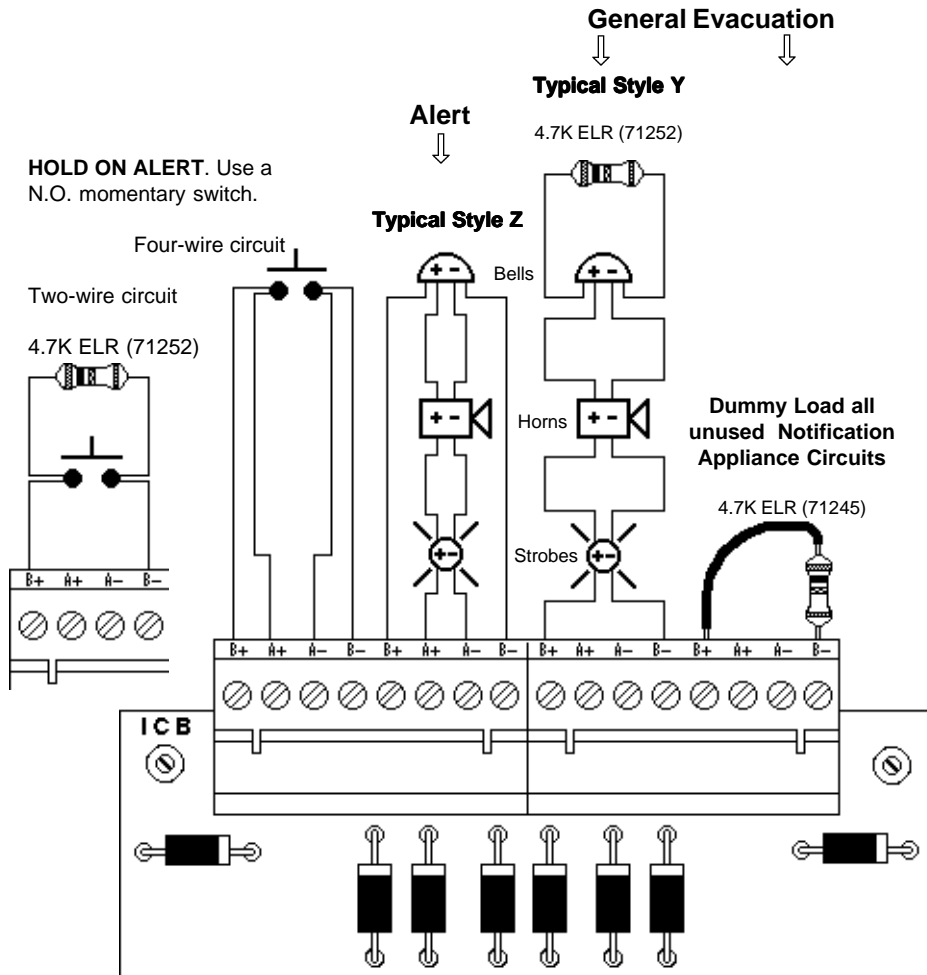
The TC-2F must be supplied with regulated 24 VDC power for compatibility with listed 24V release solenoids. **Note:** The illustration below assumes that no other power is drawn from the regulated output of the MPS. If this is not the case, reduce the maximum current that can be supplied to the TC-2F appropriately.



# Section Four: Evacuation Applications

## Pre-Signal and Dual-Coded Evacuation Circuits

### Notification Appliance Circuits\* *Supervised and power-limited.*

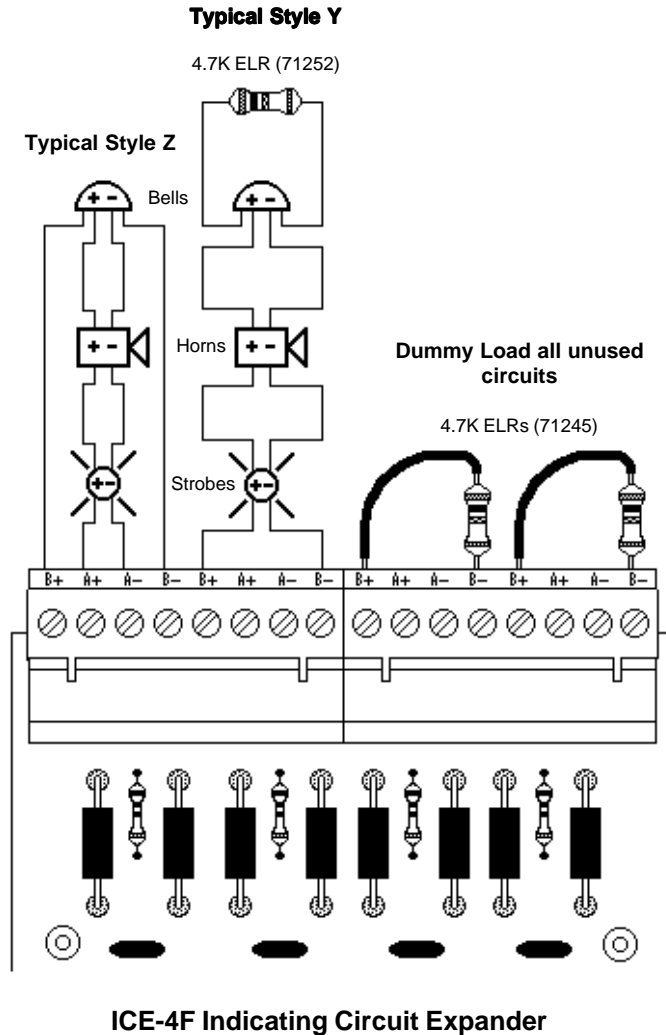


\* See the Device Compatibility Document, 15384, for compatible Notification Appliances. Maximum current per circuit is 3.0 amps, subject to the limitations of the bell power supply. Notification Appliance Circuits can be wired Style Y or Style Z.

## Optional ICE-4F Notification Appliance Circuits

For Pre-Signal and Dual-Coded applications, the Notification Appliance Circuits located on the ICE-4F will activate under general evacuation when the time delay has counted down to zero.

### General Evacuation Notification Appliance Circuits\* *Supervised and power-limited.*



\* See the Device Compatibility Document, 15384, for compatible Notification Appliances. Maximum current per circuit is 3.0 amps, subject to the limitations of the bell power supply. Notification Appliance Circuits can be wired Style Y or Style Z.

## Programming the TC-2F for Evacuation Service

This section contains programming information specific to the TC-2F for Pre-Signal and Dual Coded application. For general information on programming the fire alarm control panel, refer to the respective programming manual. **Note:** The programming key must be inserted into the CPU before continuing.

### Reconfigure

The system must be reconfigured any time a new module is installed. Enter 1 2 3 - 1 2 3 1. (the reconfiguration password). All green LEDs on the TC-2F should light if the module has been installed correctly. Press ESCAPE to confirm system configuration.

### Programming

The TC-2F can be programmed at the same time as the rest of the control panel or separately. Specifically, the programming steps that involve the TC-2F are as follows:

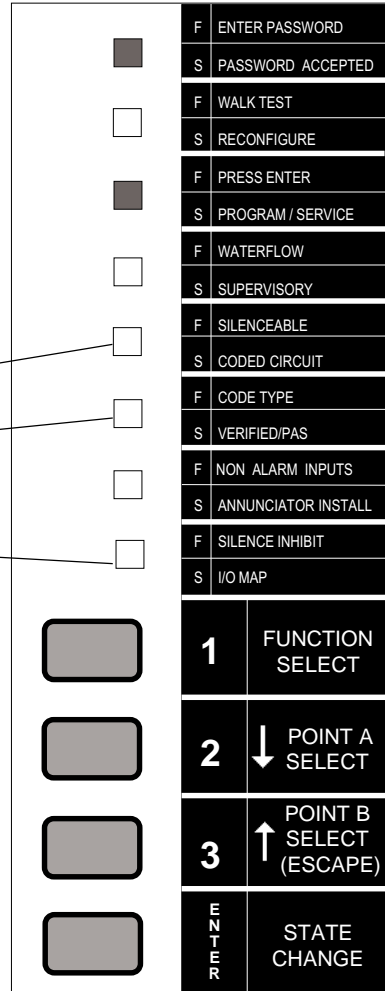
**CODED CIRCUIT**

**CODE TYPE**

**I/O MAP  
(and Delay Timer)**

Push the FUNCTION SELECT switch repeatedly until the CODED CIRCUIT LED illuminates steadily.

Continue on with CPU programming for the TC-2F as outlined in the *Programming Pre-Signal Evacuation* or *Programming Dual-Coded Evacuation* sections



## Programming Pre-Signal Evacuation

### **CODED CIRCUIT**

Select both ENABLE A and ENABLE B for CODED CIRCUIT. *Do not select any of the four time selections for coded circuits.*

### **CODE TYPE**

Temporal code must be selected for CODE TYPE. When the CODE TYPE LED is flashing, set the green LED on Notification Appliance Circuit 1 for flashing.

### **I/O MAP**

Map all initiating circuits to both ENABLE 1 and ENABLE 2 on the TC-2F module. Each circuit must also be mapped into the same desired time delay.

## Programming Dual-Coded Evacuation

### **CODED CIRCUIT**

Select both ENABLE A and ENABLE B for coded circuits. Also program the four time selections for coded circuits.

### **CODE TYPE**

Temporal code must be selected for Code Type. When the Code Type LED is flashing, set the green LED on Notification Appliance Circuit 1 for flashing.

### **I/O MAP**

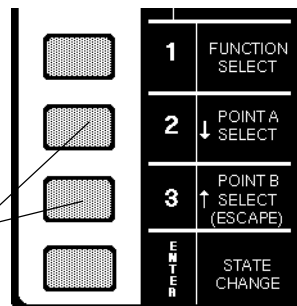
Map all initiating circuits to both ENABLE 1 and ENABLE 2 on the TC-2F module. Each circuit must also be mapped to the same desired time delay.



## Programming the Delay Timer for Evacuation Service

During I/O Mapping, a delay timer setting can be programmed. For evacuation service, the settings range from 4 minutes to 30 seconds, but are cumulative (can be added together for a maximum delay of 7 minutes and 30 seconds).

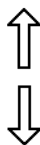
Use the **POINT SELECT** switches to move the programming pointer to one of the time delay points on the TC-2F.



Use the **STATE CHANGE** switch to turn the green LED for that point on (selected) or off (deselected).



Use the **POINT SELECT** switches to move to each point for selection or deselection.



When the desired time delay has been set, continue on with I/O Mapping.



*The LED arrangement above illustrates a time delay setting of 5 minutes (4 MINUTES and 1 MINUTE).*

## ***Delay Timer Operation (Evacuation service)***

After the TC-2F has been activated by an alarm; the green LEDs will flash indicating how much time is remaining.

**Example:** A 5-minute, 30-second time delay will start by flashing the 4 minute, 1 minute and 30 second LEDs. After the timer has counted 30 seconds, only the 4 minute and 1 minute LEDs will flash. This will continue until the timer has reached 10 seconds. The 30 seconds LED will start to flash at twice the normal rate during the last 10 seconds. Then the GENERAL EVACUATION LED will flash.

If the HOLD ON ALERT switch has been activated, the timer will continue to count down until 10 seconds remain. The timer will stop and wait until the hold switch is deactivated, as which time the timer will count down to zero.



*Pre-Signal/Dual-Coded Evacuation application at a countdown of 1 minute and 30 seconds.*

Time settings for releasing modes are different than the values shown above.

# Section Five: Releasing Applications

## Releasing Service Field Connections

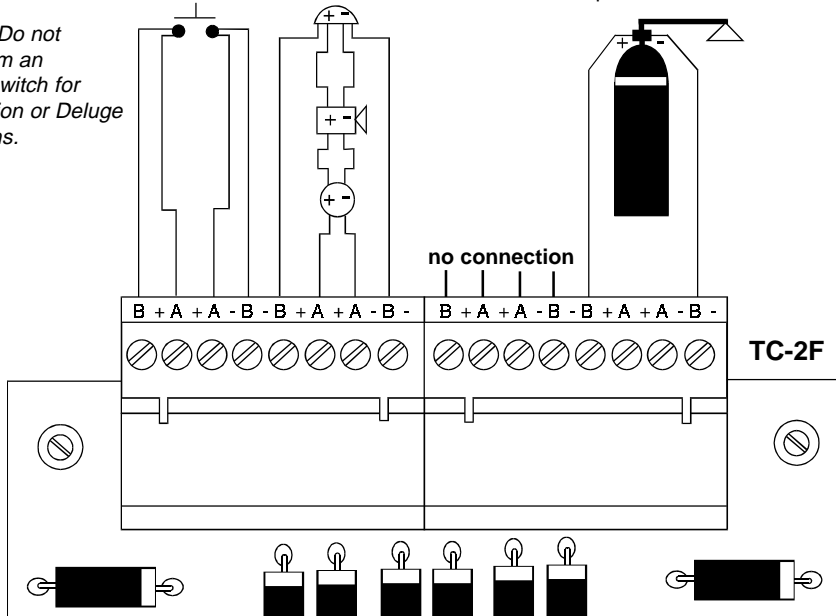
When power-limited and nonpower-limited circuits are used, skip a set of outputs between the power-limited and nonpower-limited circuits as shown in the figure below.

**Typical ABORT** circuit. Use a momentary normally open switch. Power-limited circuit.

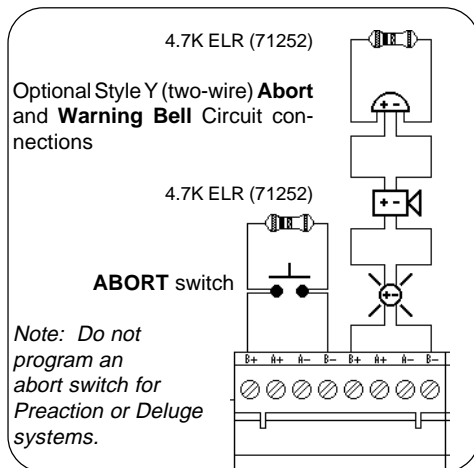
**Typical Style Z Warning Bell** circuit. Power-limited circuit

**Releasing Devices.** Use only UL listed releasing devices rated for 24 VDC. Nonpower-limited. Maximum of one device per circuit.\*\*

*Note: Do not program an abort switch for Preaction or Deluge systems.*



**Typical Wiring Diagram for Mixed Power-limited and Nonpower-limited**



*Note: Do not program an abort switch for Preaction or Deluge systems.*

\* See the Device Compatibility Document for compatible Notification Appliances. Maximum of 3 amps per circuit, subject to the limitations of the power supply.

\*\* Releasing devices wired Style "Y" only.

\* All circuits are supervised and power limited.

\* Factory Mutual requires 90 hours of standby power and Style D (Class A) wiring on all Initiating Device Circuits in Pre-Action or Deluge systems.

\* Wiring must be configured to maintain a minimum voltage of 20.4V on release circuits. Calculation of maximum allowable resistance:

$$R_{\text{MAX}} = \frac{20.6V - 20.4V}{I_s}$$

Where:

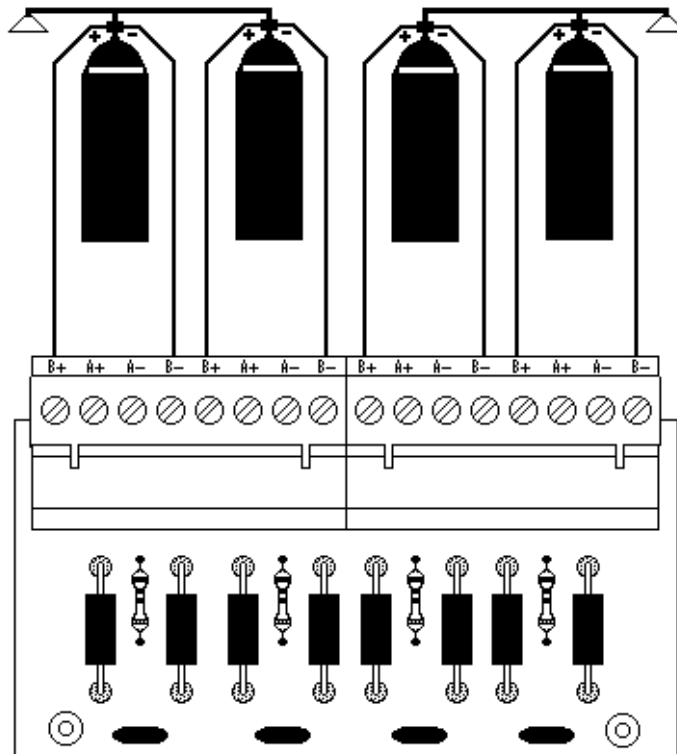
$R_{\text{MAX}}$  = maximum allowable resistance of wiring

$I_s$  = solenoid current

## Optional ICE-4F Releasing Circuit Connections

The ICE-4F will allow up to six supervised releasing coil circuits to be controlled by a TC-2F. Use only UL listed releasing devices rated for 24 VDC. Maximum of one device per circuit. Care must be taken to ensure that adequate power is provided for the releasing circuits, which require regulated power. Maximum current per circuit is 3 amps, subject to the limitations of the power supply.

### Typical Style Y Releasing Circuits *Supervised*



\* **Deluge/Pre-Action Release:** When using this configuration for Deluge and/or Pre-Action Services, wiring must be configured to maintain a minimum voltage of 20.4VDC on release circuits. Calculation of maximum allowable resistance:

$$R_{\max} = \frac{20.6V - 20.4V}{I_s} \quad \text{where: } R_{\max} = \text{maximum allowable resistance of wiring}$$

$$I_s = \text{solenoid current}$$

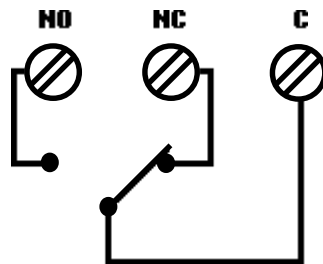
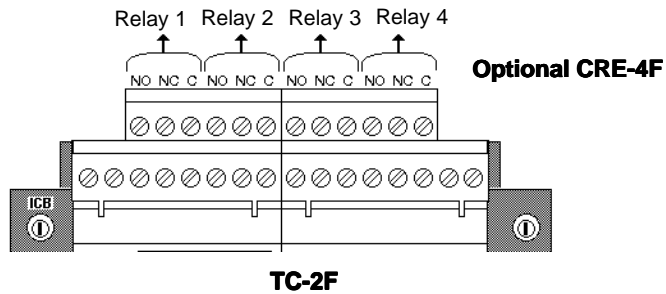
\* Factory Mutual requires 90 hours of standby power and Style D (Class A) wiring on all Initiating Device Circuits. \*Do not program an abort switch for this application. \* For NFPA 13 and 15 applications, the soak timer must be disabled. \*For NFPA 16 applications, the soak timer may be set to 10 or 15 minutes. \*For UL Listed and FM approved Solenoid Release Valves, see the Device Compatibility Document.

## Optional CRE-4F Relay Expander

The four output relays on the CRE-4F Control Relay Expander will operate on Release.

### ***Field Wiring the CRE-4F***

*If using a mix of power-limited and nonpower-limited circuits, maintain a minimum of 0.25" spacing between power-limited and nonpower-limited wiring and exit the enclosure from different knockouts.*



**Typical Relay in Standby Position**

*The contacts are rated for 5 amps @ 120VAC or 28VDC (resistive).*

## Programming the TC-2F for Releasing Service

This section contains programming information specific to the TC-2F for releasing applications. For general information on programming the fire alarm control panel, refer to the respective programming manual. **Note:** The programming key must be inserted into the CPU before continuing.

### Reconfigure

The system must be reconfigured any time a new module is installed. Enter 1 2 3 - 1 2 3 1. (the Reconfiguration password). All green LEDs on the TC-2F should light if the module has been installed correctly. Press ESCAPE to confirm system configuration.

### Programming

The TC-2F can be programmed at the same time as the rest of the control panel or separately. Specifically, the programming steps that involve the TC-2F are as follows:

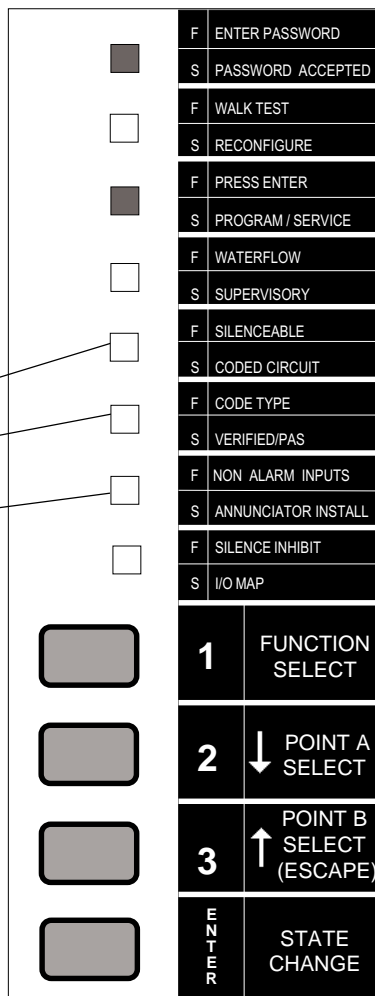
**SILENCEABLE/CODED CIRCUIT**

**CODE TYPE**

**I/O MAP**  
(and Delay Timer)

Push the FUNCTION SELECT switch repeatedly until the CODED CIRCUIT LED flashes.

Continue on with CPU programming for the TC-2F as outlined in the *Programming Standard Release*, *Programming Triple Coded Release*, or *Programming IRI Release* sections.



## Programming Standard Releasing Service

### **SILENCEABLE**

Select all eight of the TC-2F circuits as non-silenceable.

### **CODED CIRCUIT**

Do not select any TC-2F circuits as coded circuits.

### **I/O MAP**

For cross zone operation, map the first zone to ENABLE 1 and to the desired time delay. Map zone 2 to ENABLE 2 and to the same time delay. For single zone release, map initiating circuit to both Enables 1 and 2, and to the desired time delay.

## Programming Triple-Coded Releasing

### **SILENCEABLE**

Select all eight of the TC-2F circuits as non-silenceable.

### **CODED CIRCUITS**

Select ENABLE 1 and ENABLE 2 for coded circuits. Do not select any of the time selects for coded circuits.

### **CODE TYPE**

Select March Time Code for CODE TYPE.

### **I/O MAP**

For cross zone operation, map the first zone to ENABLE 1 and to the desired time delay. Map zone 2 to ENABLE 2 and to the same time delay. For single zone release, map initiating circuit to both Enables 1 and 2, and to the desired time delay.

## Programming IRI Releasing

### **SILENCEABLE**

Select all eight of the TC-2F circuits as non-silenceable.

### **CODED CIRCUIT**

Select ENABLE 1 for coded circuits. *Do not select ENABLE 2 or any of the time selects for coded circuits.*

### **CODE TYPE**

Select March Time Code for CODE TYPE.

### **I/O MAP**

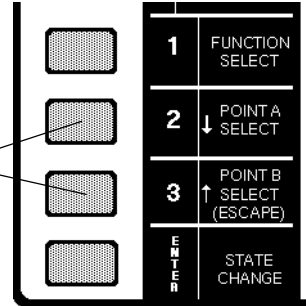
For cross zone operation, map first zone to ENABLE 1 and to the desired time delay. Map zone 2 to ENABLE 2 and to the same time delay as zone 1. For single zone release, map initiating circuit to both Enable 1 and 2, and to desired time delay.

## Programming the Delay Timer for Releasing Service

**Note:** Releasing service applications cannot employ a time delay greater than 1 minute! When the IRI Abort feature is used, time delay can only be set for 15 seconds.

During I/O Mapping, a delay timer setting can be programmed. For releasing service, the settings range from 1 minute to 15 seconds, but are cumulative (can be added together as long as the maximum delay is no more than 1 minute).

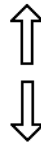
Use the **POINT SELECT** switches to move the programming pointer to one of the time delay points on the TC-2F.



Use the **STATE CHANGE** switch to turn the green LED for that point on (selected) or off (deselected).



Use the **POINT SELECT** switches to move to each point for selection or deselection.



When the desired time delay has been set, continue on with I/O Mapping.



The LED arrangement above illustrates a time delay setting of 45 seconds (30 SECONDS+15 SECONDS).



## Delay Timer Operation (Releasing service)

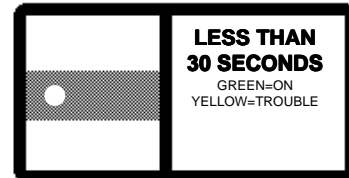
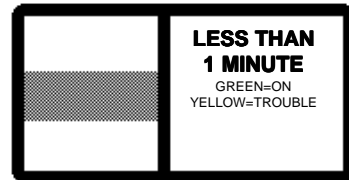
The programmable time delay has an operating range from 1 minute to 15 seconds.

After the TC-2F has been activated by an alarm; the green LEDs will flash, indicating how much time is remaining.

**Example:** A 45-second time delay will start by flashing the 30 second LED. After the timer has counted 30 seconds, only the 15 seconds LED will flash. This will continue until the timer has reached 10 seconds. The 15 seconds LED will start to flash at twice the normal rate during the last 10 seconds. Then the RELEASE LED will flash.

If the ABORT switch has been activated, the timer will continue to count down until 5 seconds remain. The timer will stop and wait until the ABORT switch is deactivated, as which time the timer will count down to zero.

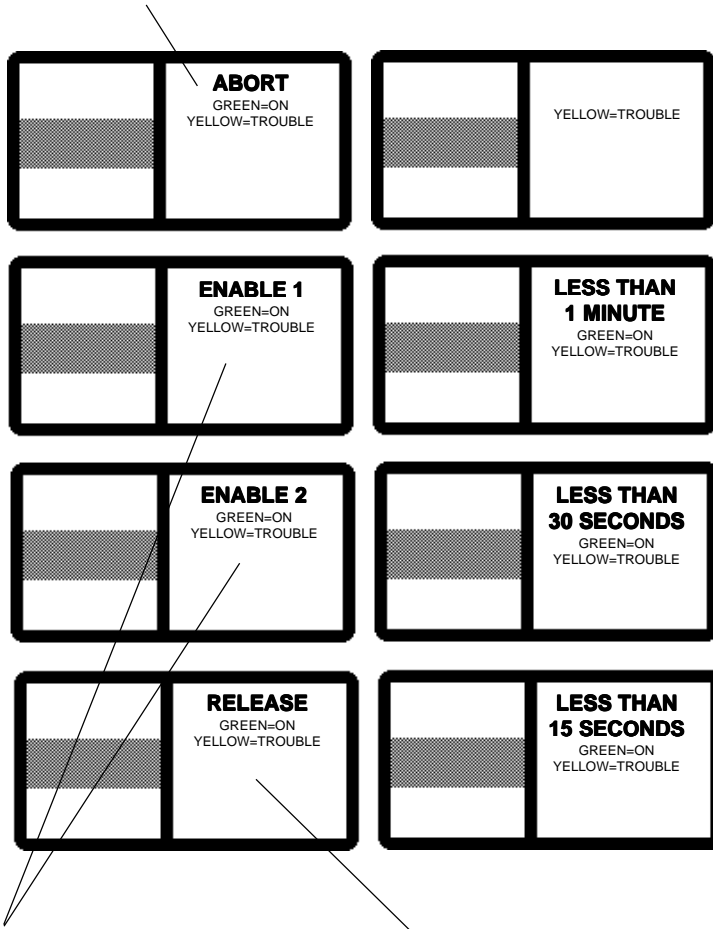
*Sensiscan 2000 Dress Panel*



*Releasing application at a countdown of 45 seconds.*

## Releasing Service Controls

When **ABORT** is activated the time delay will continue to function until the countdown reaches five seconds. When the abort is deactivated, the timer will count 5 seconds, then release.



**ENABLE 1** and **ENABLE 2** are the cross-zone inputs to activate the time delay (see field programming for complete details). A single zone release can be accomplished by mapping an initiating circuit to both Enable 1 and Enable 2.

Activating **RELEASE** will cancel any remaining time delay or abort action. The release circuits will activate after a five second delay. Manual release may be operated from any initiating circuit mapped into this point.



## **Limited Warranty**

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## Slide-In Labels for the TC-2F

Remove this page from the manual and careful cut along the dotted line for TC-2F labels. Custom information may be typed onto these labels in the window space provided. Insert labels into the slots on the panel door.

*Pre-Signal/Dual Coded Evacuation Labels*

*Releasing Service Labels*

Left-side	Right-side	Left-side	Right-side
<b>HOLD ON ALERT</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<b>LESS THAN 4 MINUTES</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<b>ABORT</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<small>YELLOW=TROUBLE</small>
<b>ALERT ENABLE 1</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<b>LESS THAN 2 MINUTES</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<b>ENABLE 1</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<b>LESS THAN 1 MINUTE</b> <small>GREEN=ON YELLOW=TROUBLE</small>
<b>ALERT ENABLE 2</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<b>LESS THAN 1 MINUTE</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<b>ENABLE 2</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<b>LESS THAN 30 SECONDS</b> <small>GREEN=ON YELLOW=TROUBLE</small>
<b>GENERAL EVACUATION</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<b>LESS THAN 30 SECONDS</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<b>RELEASE</b> <small>GREEN=ON YELLOW=TROUBLE</small>	<b>LESS THAN 15 SECONDS</b> <small>GREEN=ON YELLOW=TROUBLE</small>

Type appropriate information into label windows above before cutting these labels from the page.