NOTIFIER®
A Division Of Pittway Corporation

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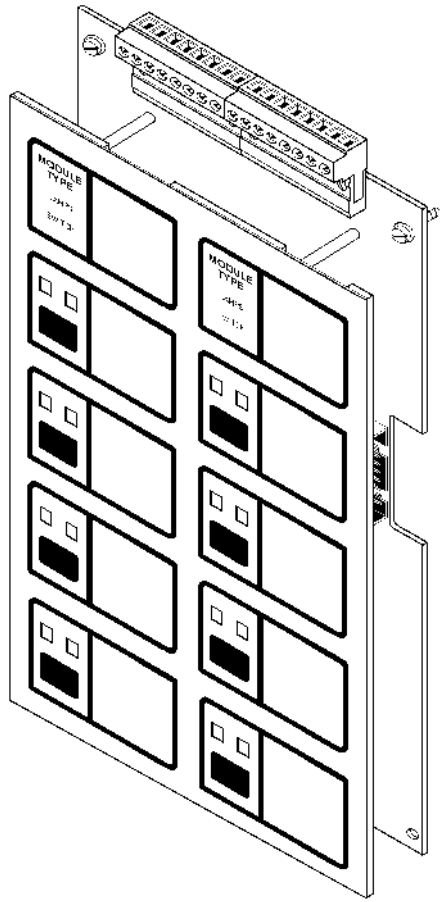


The TCM-2

Time Control Module

For the System 5000 Fire Alarm Control Panel

Document 15805
3/30/95 Rev: E
P/N 15805:E ECN 95-210

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 this 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^{O} C and at a relative humidity of 85% RH (non-condensing) @ 30^{O}C. 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 60-80^{O} 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.

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.

Table of Contents

Section One: General Information

The TCM 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 TCM-2 provides:

* Two Evacuation audible circuits
* Pre-Signal Alert audible circuit
* Alert Hold circuit
* Programmable timer with display
* Manual Evacuate Control
* The addition of an ICE-4 provides up to six general evacuation audible circuits.

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 10 seconds.
The time delay has counted down to zero (General Evacuation LED flashes).	☞	The Alert audible and the two General Evacuation Notification 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. The addition of an ICE-4 provides up to seven general evacuation audible circuits.

Dual-Coded Operation

Initiating zone has activated both Alert Enable 1 and Alert Enable 2.	☞	All three audible circuits will pulse 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
* The addition of an ICE-4 provides up to six releasing circuits. *Carefully check the current draw required to support these circuits.* The installation of a CRE-4 provides up to four Form-C relay contacts the activate upon release.

Standard Releasing Operation

First initiating circuit activates either Enable 1 or Enable 2.	☞	No action taken by the TCM-2 (Notification circuit on the CPU may be programmed to sound on first alarm).
Second initiating circuit activates both Enable 1 and Enable 2.	☞	The Warning Bell circuit will sound steadily and the timer will begin to count down.
If the "ABORT" circuit is activated (non-latching).....	☞	...the Warning Bell circuit continues to sound steadily. 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.* Add an ICE-4 for six releasing circuits. *Carefully check the current draw required to support these circuits.* Add a CRE-4 for four Form-C relay contacts the activate upon release.

Triple-Coded Releasing Operation

First initiating circuit activates either Enable 1 or Enable 2.	☞	The Warning Bell circuit will pulse the audible at 20 PPM
Second initiating circuit activates 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).....	☞	...the Warning Bell circuit will pulse at 20 PPM. The timer will stop 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 sounds steadily 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. *The addition of an ICE-4 provides up to six releasing circuits. *Carefully check the current draw required to support these circuits.* The installation of a CRE-4 provides up to four Form-C relay contacts the activate upon release.

IRI Releasing Operation

First initiating circuit activates Enable 1.	☞	The Warning Bell circuit will pulse the audible at 20 PPM.
Initiating circuits 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 both 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 TCM-2 may be installed in a control panel, but all TCM-2 modules must be programmed for the same type of operation (Standard Release, Tripled-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 TCM-2. Before installation, you should be familiar with the installation manual for the respective fire alarm control panel.

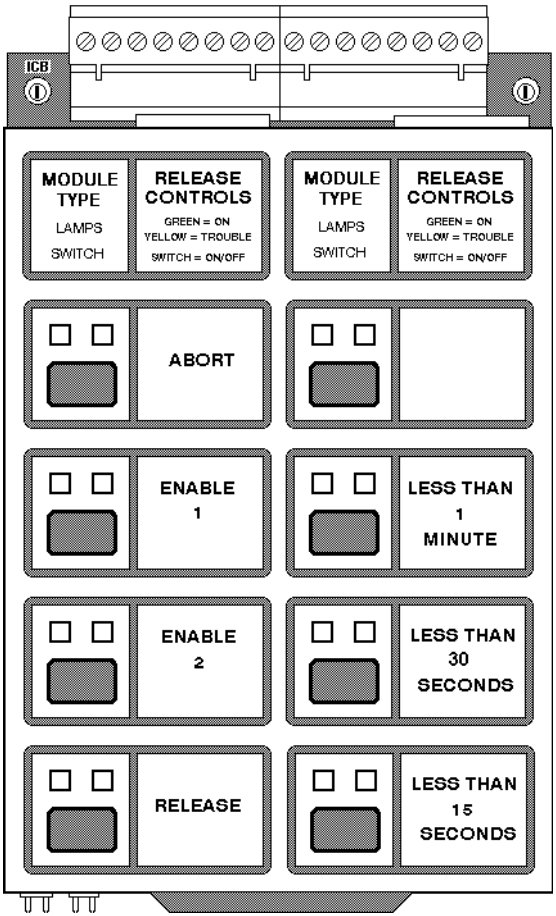
TCM-2 Power Requirements

Standby Current: 0.007 amps Alarm Current: 0.072 amps

Refer to the System 5000 Installation Manual for calculation of primary and secondary power requirements for the TCM-2.

Additional Publications: For a list of Releasing Devices compatible with the TCM-2, refer to the Notifier Device Compatibility Document, 15378.

Section Two: Inventory



TCM-2

The TCM-2 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.

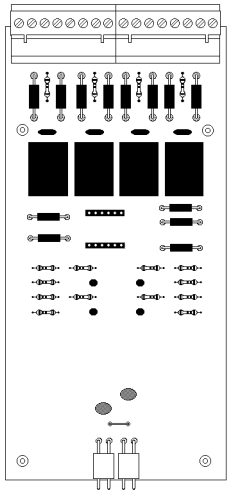
4.7K 1/2-watt ELR

4.7K 1/2-watt Dummy Load Resistor

AVPS-24 Bell Power Harness (71091)

CPU Bell Power Harness (71093)

Optional Equipment



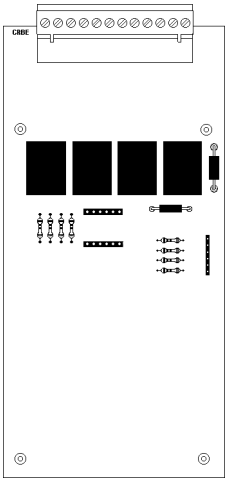
ICE-4 Notification Circuit Expander

The ICE-4 provides 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 TCM-2. An Auxiliary Bell Power Harness (below) is provided with each expander.

Note: The addition of an ICE-4 will allow a total of six releasing circuits from a single TCM-2/ICE-4 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-4 Control Relay Expander

The CRE-4 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 TCM-2.



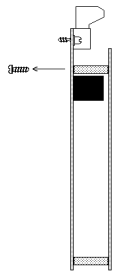
Section Three: Installation

Installation

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

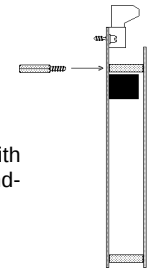
Figure 3-1: Mounting an Optional ICE-4 or CRE-4 Expander

Step 1
Remove ONE module support screw and set it aside for later use.



TCM-2

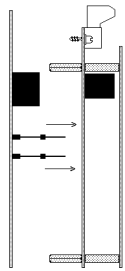
Step 2
Replace screw with one module stand-off.



TCM-2

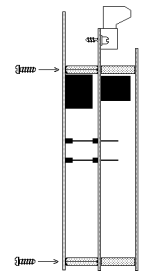
Step 3
Repeat Steps 1 and 2 for the three remaining screws on the TCM-2.

Step 4
Insert pins on the Expander Board into connector on the TCM-2 and press the two together, ensuring that the pins are properly aligned.



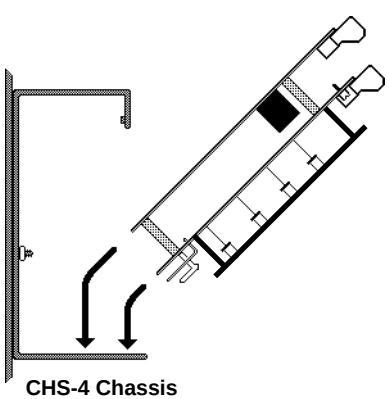
Expander TCM-2

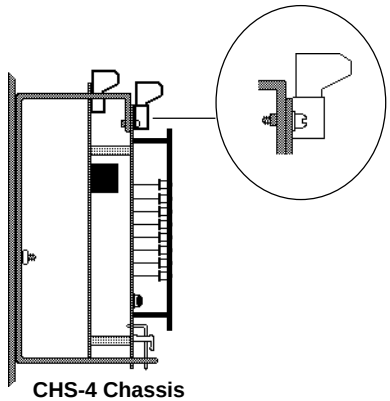
Step 5
Install the four screws removed earlier through the back of the Expander Board and into the standoffs.



Expander/TCM-2

Figure 3-2: Installing the TCM-2/Expander in the CHS-4





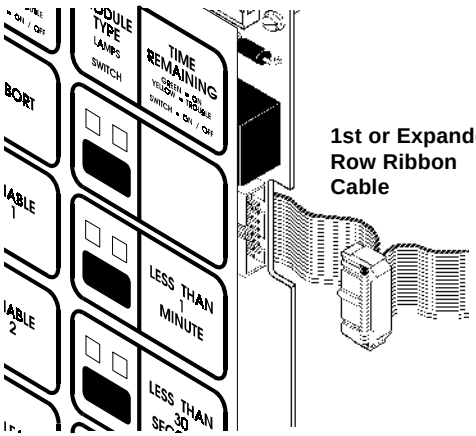
Step 1:
Angle the TCM-2 assembly into the CHS-4 Chassis so that the upper board edge slips into the slot on the bottom rail of the chassis.

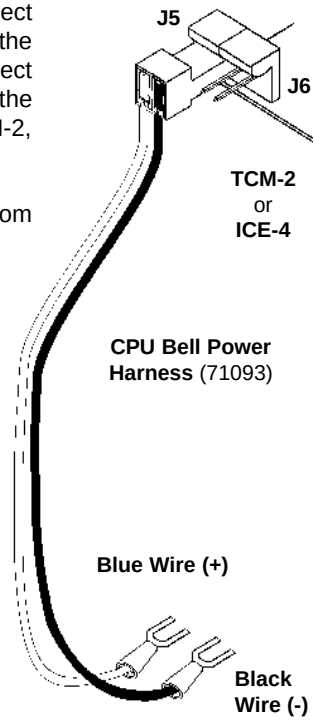
Step 2:
Push the upper end of the TCM-2 assembly into the chassis and secure with the two captive modules screws.

Figure 3-3: TCM-2 Harness Connections

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

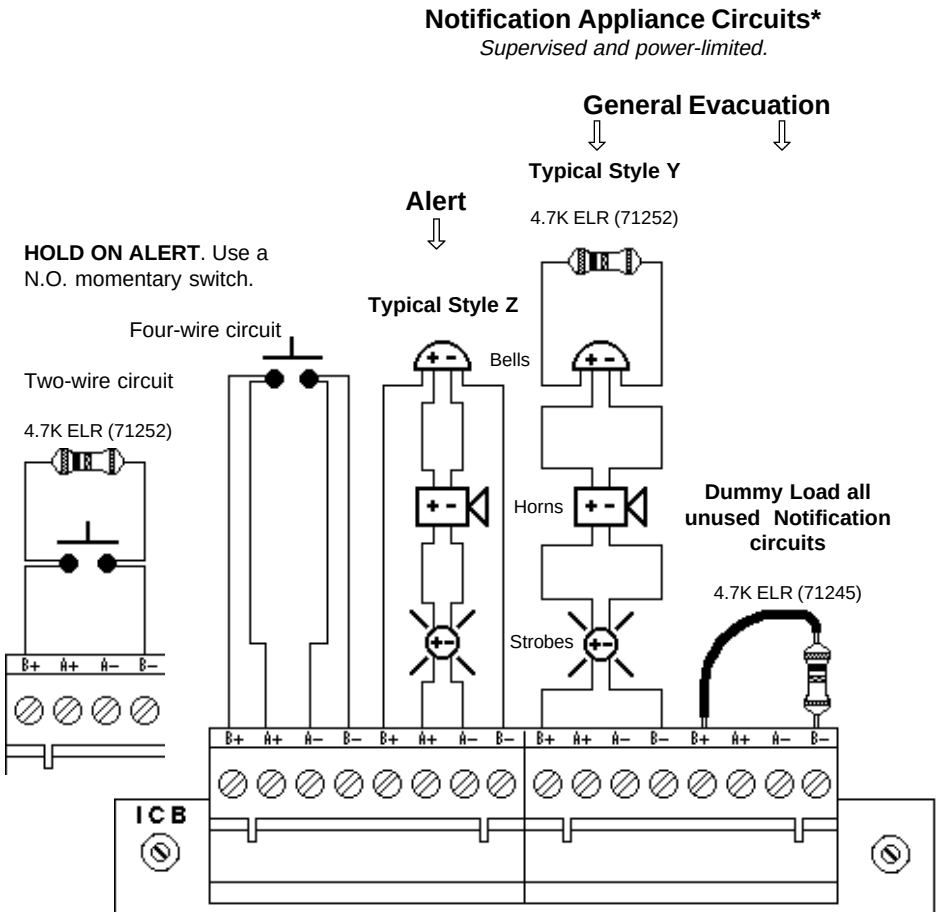
2) Connect the 1st Row or Expander Row Ribbon Cable from the CPU module to the TCM-2 as illustrated.





Section Four: Evacuation Applications

Pre-Signal and Dual-Coded Evacuation Circuits



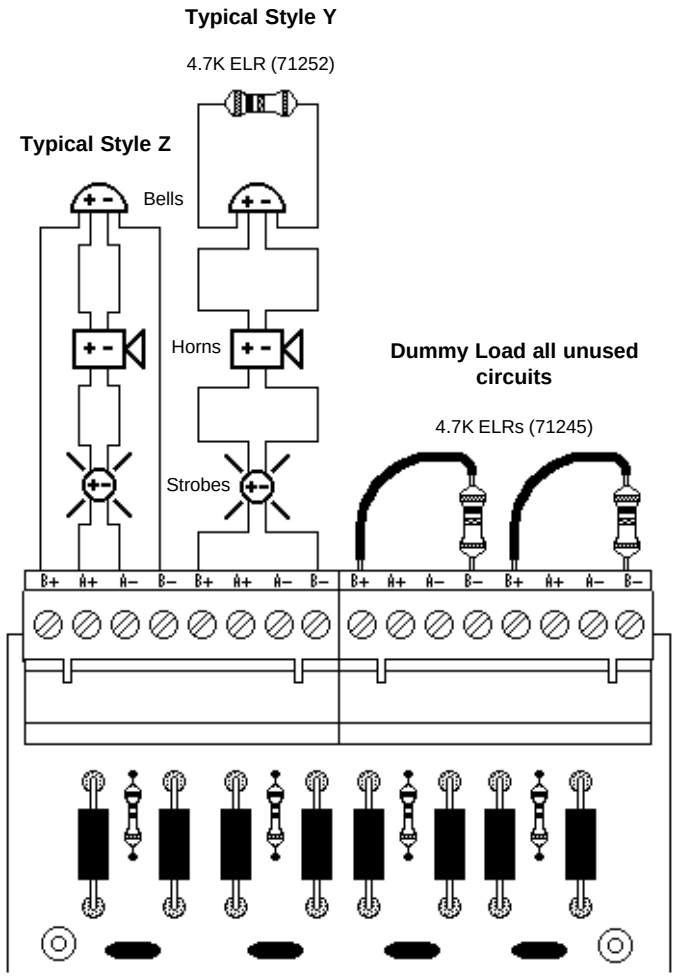
* See the Device Compatibility Document for UL-listed compatible Notification appliances. Maximum current per circuit is 3.0 amps, subject to the limitations of the bell power supply. Notification Appliance Circuits can be wired Style Y or Style Z

Optional ICE-4 Notification Appliance Circuits

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

General Evacuation Notification Appliance Circuits*

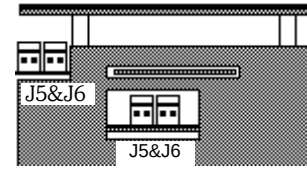
Supervised and power-limited.



ICE-4 Indicating Circuit Expander

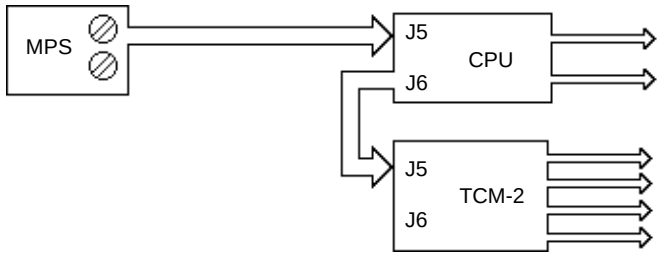
* See the Device Compatibility Document for UL-listed compatible Notification Appliances. Maximum current per circuit is 3.0 amps, subject to the limitations of the bell power supply. Notification Appliance Circuits can be wired Style Y or Style Z

Powering the TCM-2 for Pre-Signal or Dual-Code Evacuation



When used for Pre-Signal or Dual-Code Evacuation, the TCM-2/ICE-4 does not require regulated 24 VDC power. In addition to the regulated power available from the MPS-24A, this power can be supplied by Notification Appliance power from the MPS-24B or Special Purpose power from the AVPS-24. 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-24. If this is not the case, reduce the maximum current that can be supplied to the TCM-2/ICE-4 appropriately.

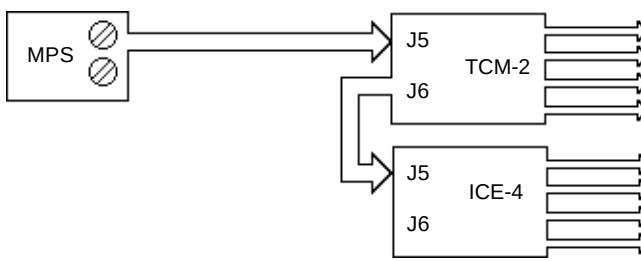
MPS-24A: 3.0 amps max. Connect to TB3 Terminals 1(+) and 2(-). **MPS-24B:** 2.0 amps max. Connect to TB2 Terminals 3 (+) and 4 (-). **CAUTION:** The +24 VDC provided on TB2 Terminal 3 is power-limited only when used with the minus return on TB2 Terminal 4. *Do not use the minus return on TB2 Terminal 2 with the +24 VDC power on TB2 Terminal 3.*



The two Notification Appliance circuits on the CPU and the three Notification Appliance circuits on the

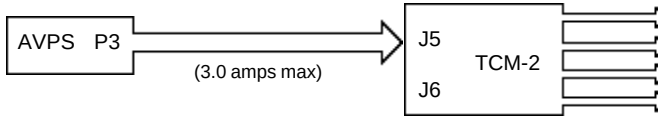
(Hold On Alert switch)

TCM-2 share the total current supplied from the MPS.



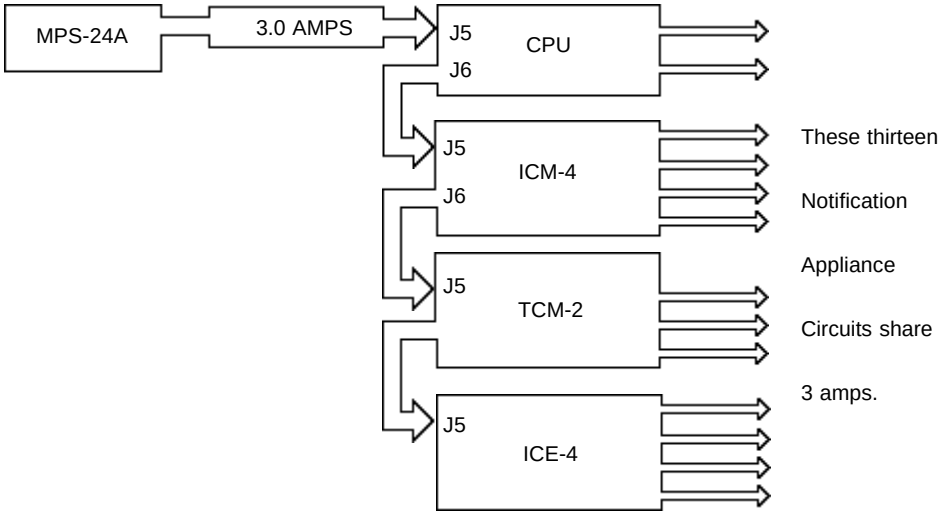
(Hold On Alert switch)

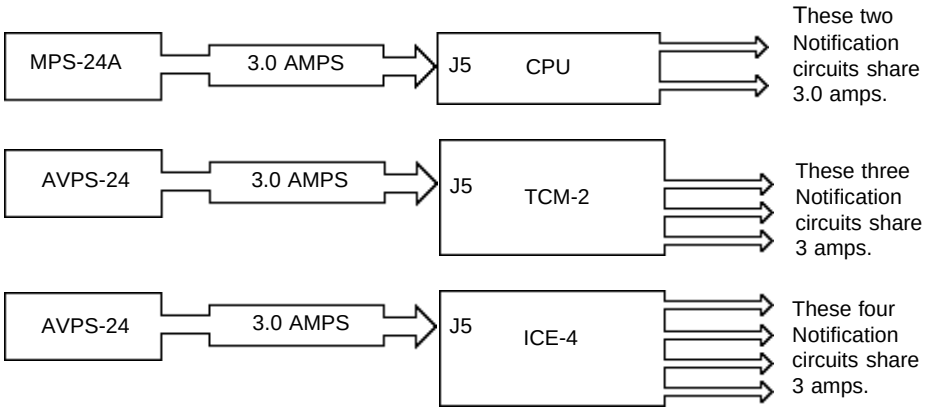
The three Notification circuits on the TCM-2 and the four Notification circuits on the ICE-4 share the total current supplied from the MPS.

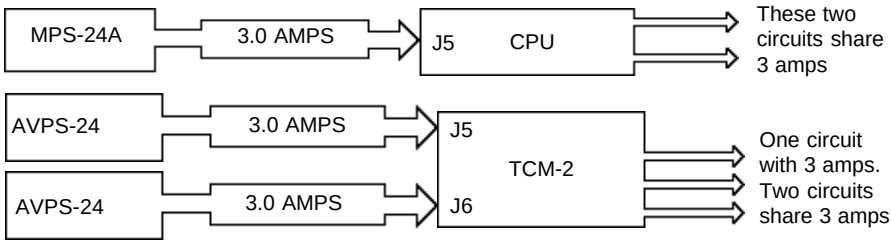


(Hold On Alert switch)

These three Notification Appliance circuits share a total of 3.0 amps.

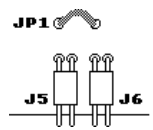






For this type of configuration...

Cut jumper JP1 when two AVPS-24 power supplies feed one module.



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

Section Five: Releasing Applications

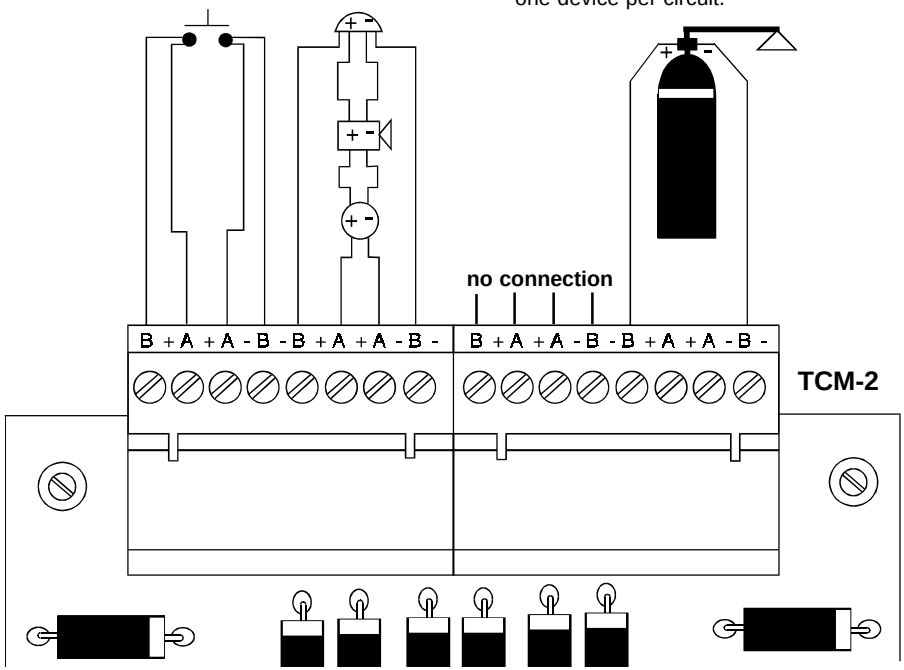
Releasing Service Field Connections

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.

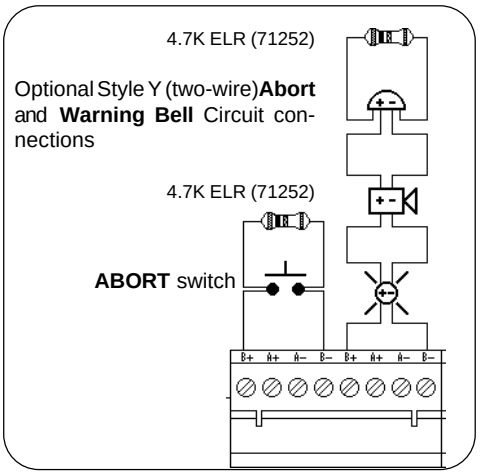
Typical ABORT circuit. Use a momentary normally open switch. Power-limited circuit

Typical Style Z Warning Bell circuit Power-limited circuit

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



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



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

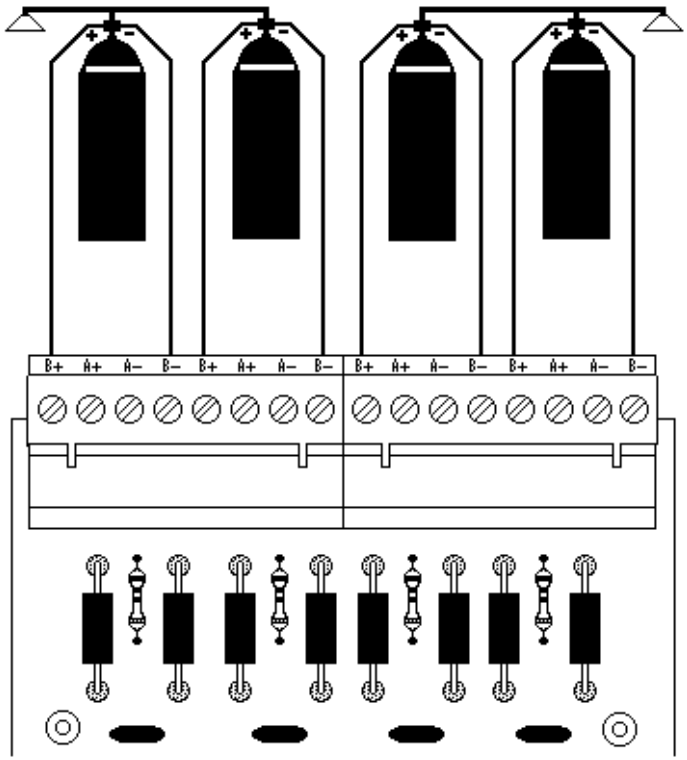
** Releasing devices wired Style "Y" only.

All circuits are supervised.

Optional ICE-4 Releasing Circuit Connections

The ICE-4 will allow up to six supervised releasing coil circuits to be controlled by a TCM-2. 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



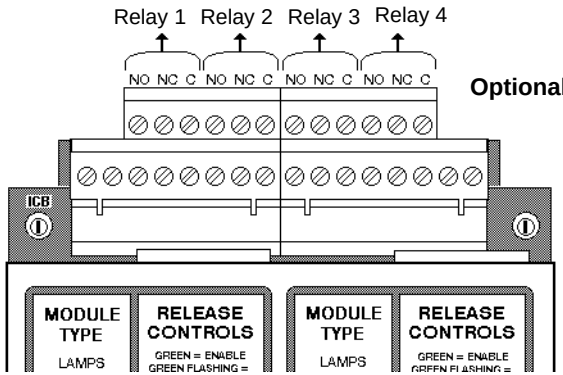
ICE-4 Indicating Circuit Expander

Optional CRE-4 Relay Expander

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

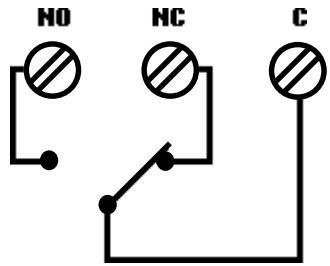
Field Wiring the CRE-4

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.



Optional CRE-4

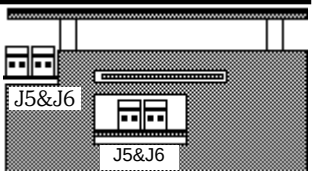
TCM-2



Typical Relay in Standby Position

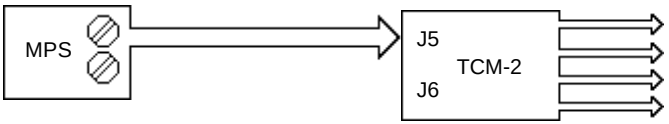
The contacts are rated for 5 amps @ 120VAC or 28VDC (resistive).

Powering the TCM-2 for Releasing Service

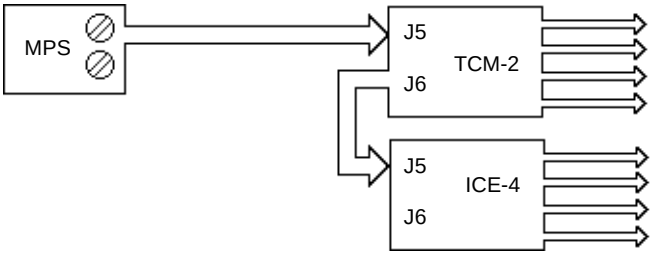


The TCM-2 must be supplied with regulated 24 VDC power for compatibility with listed 24V release solenoids. **Note:** The illustration below assumes that no other power is drawn from the regulated output of the MPS. If this is not the case, reduce the maximum current that can be supplied to the TCM-2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

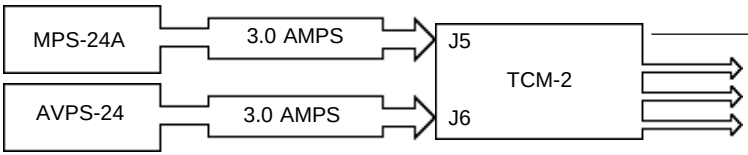
MPS-24A: 3 amps max. Connect to TB2 Terminals 1 (+) and 2 (-)**. MPS-24B:** 2.0 amps max. Connect to TB2 Terminals 3 (+) and 4 (-). **CAUTION:** The +24 VDC provided on TB2 Terminal 3 is power-limited only when used with the minus return on TB2 Terminal 4. *Do not use the minus return on TB2 Terminal 2 with the +24 VDC power on TB2 Terminal 3.*



This Warning Bell circuit and these two Releasing circuits share the total MPS current.

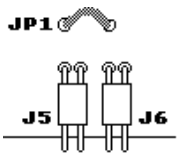


This Warning Bell circuit and these six Releasing circuits share the total regulated current supplied by the MPS.



This Warning Bell circuit gets the 3.0 amps from the AVPS-24A. The two Releasing circuits share 3.0 amps from the MPS-24A.

For this type of configuration...
Cut jumper JP1 when two power supplies feed one module.



Section Six: Programming the TCM-2

This section contains programming information specific to the TCM-2. For general information on programming the fire alarm control panel, refer to the System 5000 Programming Manual. **Releasing Service Note:** Program all eight of the TCM-2's circuits as *non-silenceable*.

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 2 3 1-1 3 3 2 (the reconfiguration password). All green LEDs on the TCM-2 should light if the module has been installed correctly. Press ESCAPE to confirm system configuration.

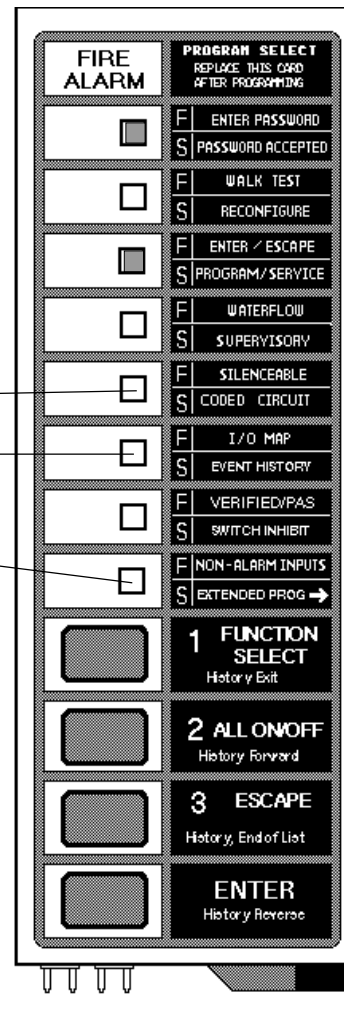
Programming

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

CODED CIRCUIT

I/O MAP
(and Delay Timer)

CODE TYPE
(under Extended Programming)

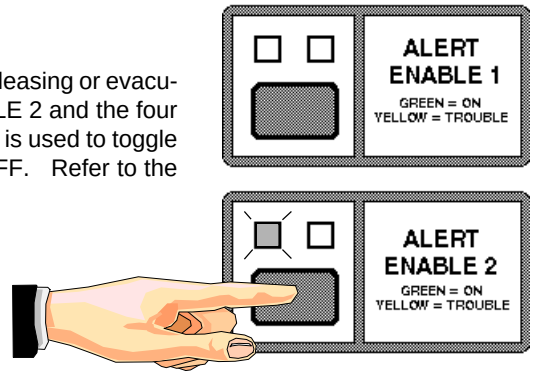


To begin programming, push the FUNCTION SELECT switch repeatedly until the CODED CIRCUIT LED illuminates steadily.

Continue on to the next section to program the type of service under CODED CIRCUIT.

CODED CIRCUIT Programming

On the TCM-2, set the desired type of releasing or evacuation service via the ENABLE 1, ENABLE 2 and the four Time Selection points. The point switch is used to toggle the green LED for that point ON and OFF. Refer to the table below for service selection.



Type of Service	*Set service type by illuminating LEDs on TCM-2 per below*		
	Enable 1	**Enable 2**	**Time Selection Points**
Standard Releasing	Green LED OFF	Green LED OFF	All Green LEDs OFF
Triple Coded Releasing	Green LED ON	Green LED ON	All Green LEDs OFF
IRI Releasing	Green LED ON	Green LED OFF	All Green LEDs OFF
Presignal Evacuation	Green LED ON	Green LED ON	All Green LEDs OFF
Dual Coded Evacuation	All Green LEDs ON	Green LED ON	All Green LEDs ON

Service Selection Chart

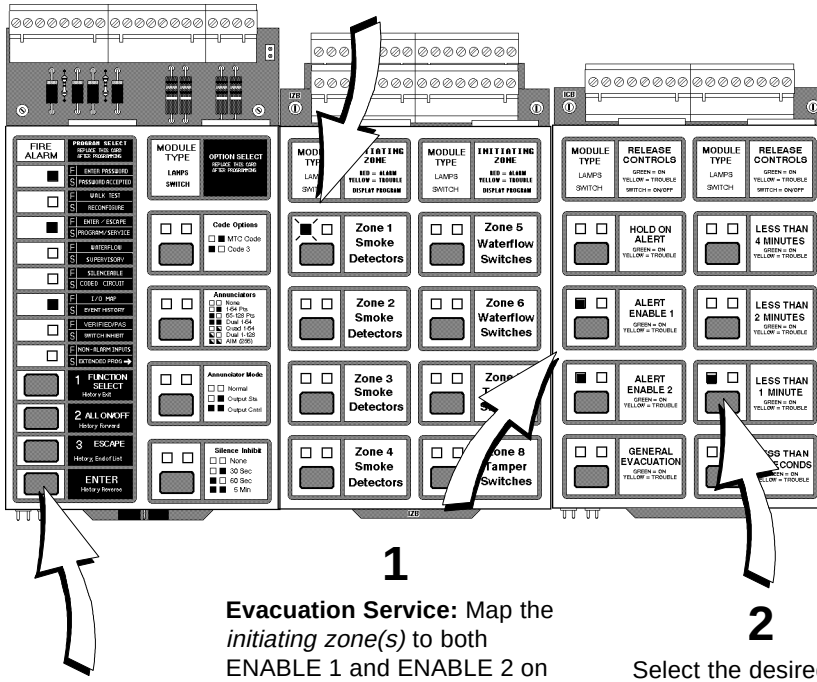
When the desired type of service has been selected, press the ENTER switch.

Continue on to the next section to map initiating circuits to the TCM-2 under I/O MAP.

I/O MAP

All initiating zone(s) in the System 5000 must be mapped to activate the TCM-2 in the event of an alarm. This is accomplished by mapping initiating zone(s) to both Enables of the TCM-2 and to the desired time setting.

When you first enter the I/O Map, the programming pointer will be on the first zone.



1

Evacuation Service: Map the *initiating zone(s)* to both ENABLE 1 and ENABLE 2 on the TCM-2 module.

Releasing Service: For cross zone operation, map the first zone to ENABLE 1. Map the second zone to ENABLE 2. For single zone release, map the initiating zone to both Enables 1 and 2.

2

Select the desired time delay. **All initiating zone(s) must have the same time delay selected.** Refer to *Programming the Delay Timer* sections on the next two pages for more details.

3

Press the ENTER switch to save mapping for this initiating circuit.

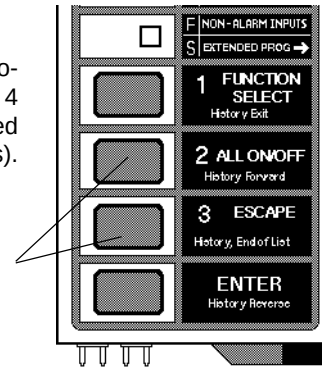
4 Repeat Steps 1-3 for all remaining initiating zones in the system.

5 After all initiating zones have been programmed, press FUNCTION SELECT followed by ENTER to save and exit I/O Mapping. This puts you at VERIFIED/PAS.

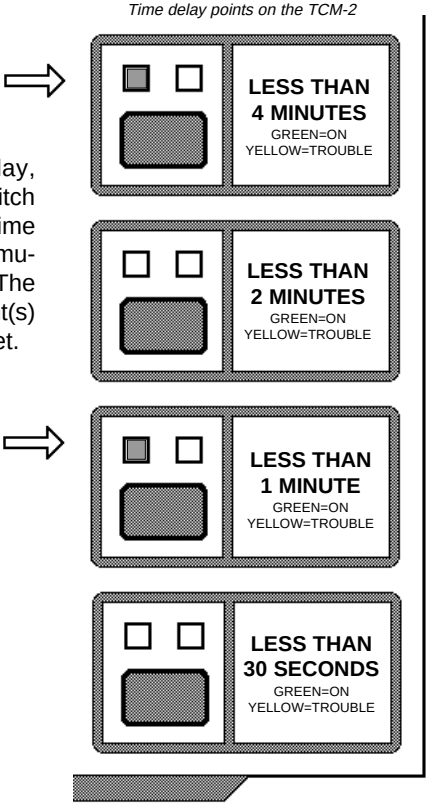
Continue on to the next section to set the operating mode for the TCM-2 under CODE TYPE.

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).



Time delay points on the TCM-2



To set the time delay, press the **ON/OFF** switch next to the desired time point (or points for cumulative time delays). The Green LED on that point(s) will illuminate when set.

Press the **ENTER** switch when the desired time has been set.

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

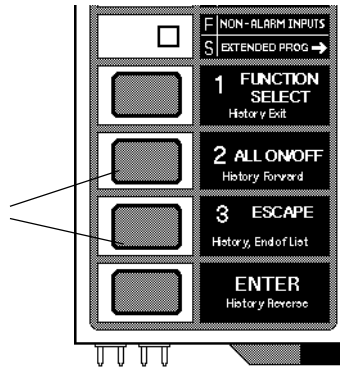
The LED arrangement above illustrates a time delay setting of 5 minutes (4 MINUTES + 1 MINUTE).

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.

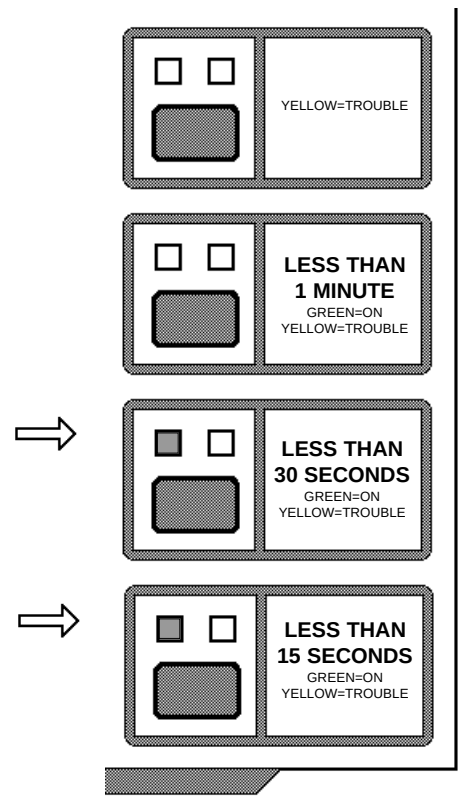
Note: The can be added together as long as the maximum delay is no more than 1 minute.



To set the time delay, press the **ON/OFF** switch next to the desired time point (or points for cumulative time delays). The Green LED on that point(s) will illuminate when set.

Press the **ENTER** switch when the desired time has been set.

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



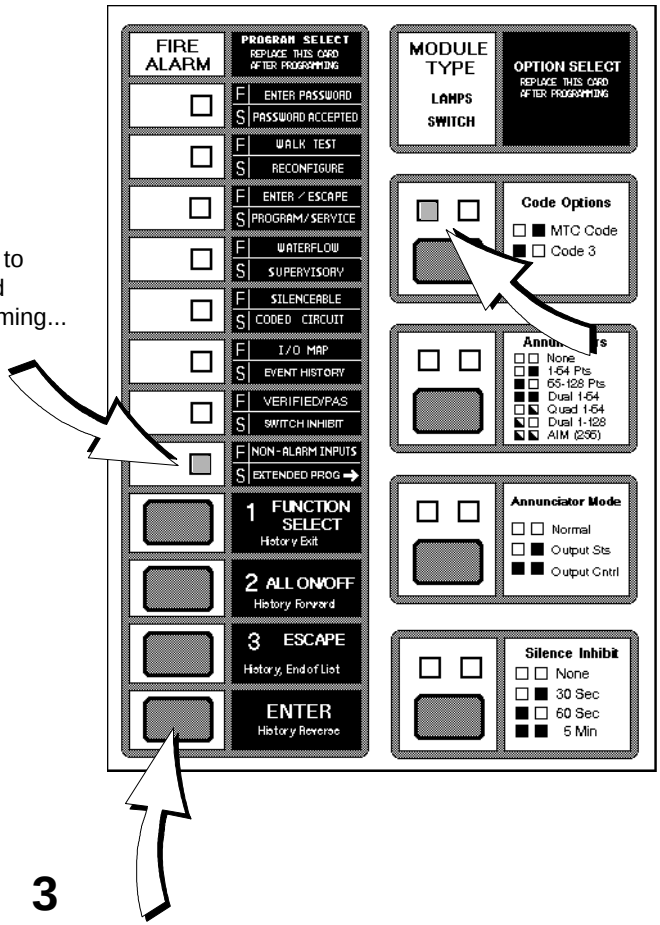
The LED arrangement above illustrates a time delay setting of 45 seconds (30 SECONDS+15 SECONDS).

CODE TYPE

For Pre-Signal or Dual-Coded Evacuation service, Temporal 3-3-3 (Code 3) must be selected under *Code Options.* For Releasing service, select March Time Code (MTC).

1

Advance to Extended Programming...



2

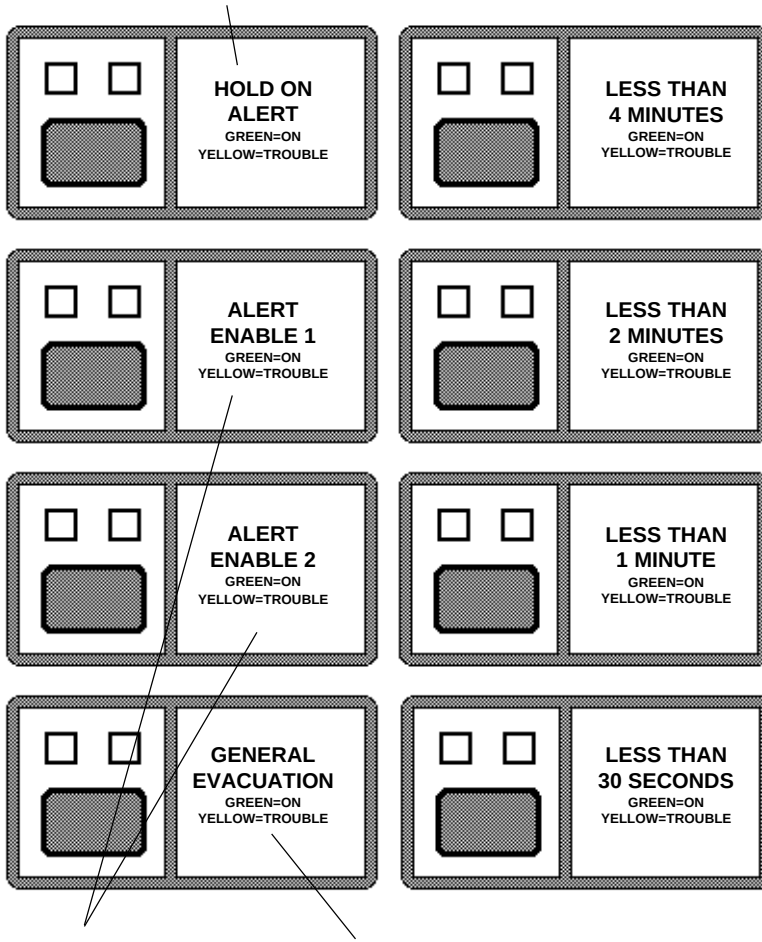
...and set Code Options to "CODE 3" for Pre-Signal or Dual-Coded Evacuation **OR** to "MTC Code" for Releasing service.

3

Finally, push ENTER to save these settings. Pull the Programming key out of the CPU. Programing of the TCM-2 is complete.

Evacuation Controls

HOLD ON ALERT, when activated, will allow the timer to count down to five seconds, at which point it will be suspended. When the HOLD ON ALERT is released, the timer will count down the remaining 5 seconds, and the system will enter a General Evacuation condition.



To activate the time delay function, both **ENABLE 1** and **ENABLE 2** need to be activated either automatically via I/O Mapping in software or manually via their respective point control switches.

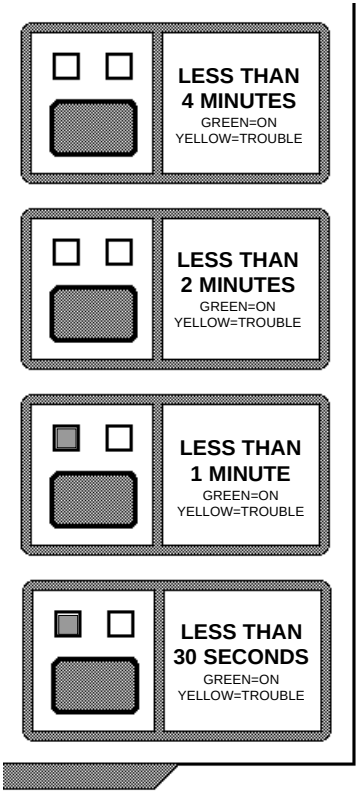
Activating **GENERAL EVACUATION** will cancel any remaining time delay or Hold On Alert action and will sound general evacuation. General Evacuation may be activated manually by its point switch or automatically by activation of an initiating circuit.

Delay Timer Operation *(Evacuation service)*

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

Example: A 5-minute and 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.

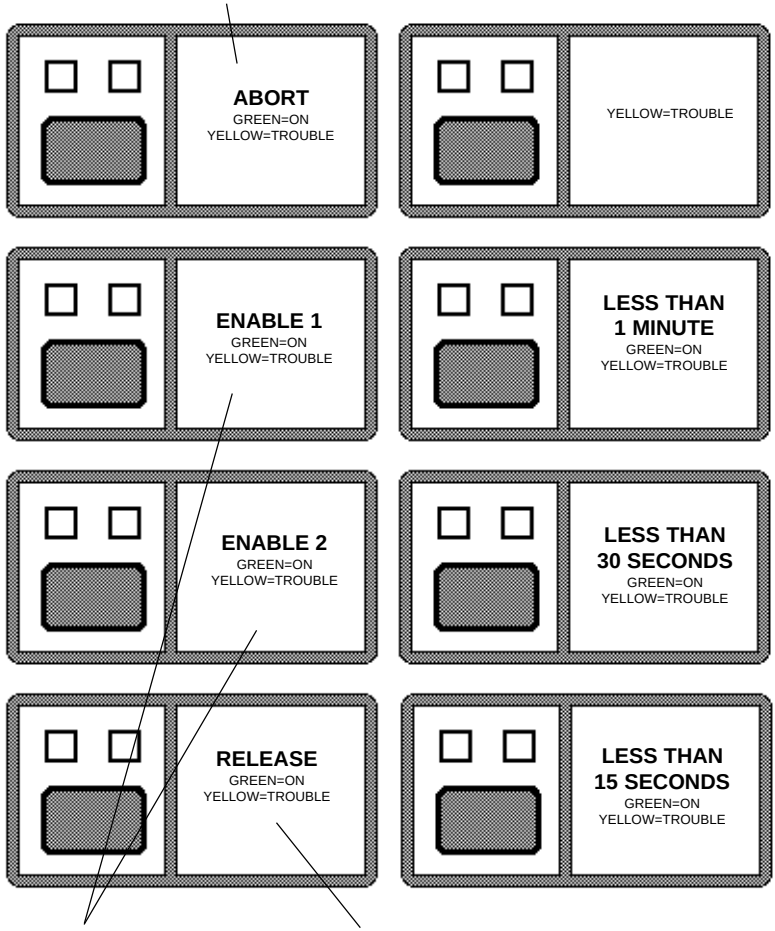


Pre-Signal/Dual-Coded Evacuation application at a countdown of 1 minute and 30 seconds.

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

Releasing Service Controls

When **ABORT** is activated the time delay will continue to function until the count down 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.

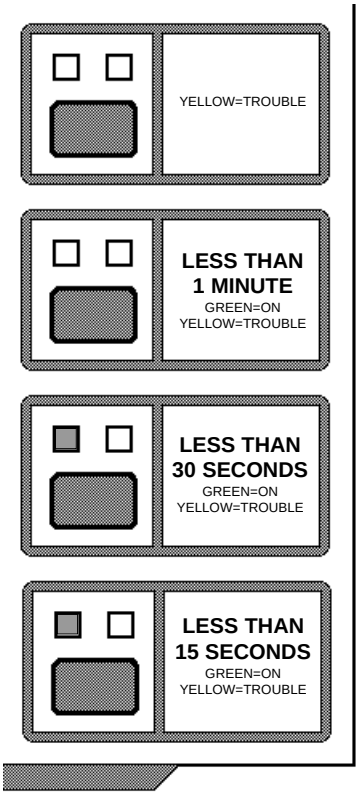
Delay Timer Operation *(Releasing service)*

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

After the TCM-2 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 LEDs. 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.



Releasing application at a countdown of 45 seconds.

Slide-In Labels for the TCM-2

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

Pre-Signal/Dual Coded Evacuation Labels *Releasing Service Labels*

Left-side	Right-side	Left-side	Right-side
PRESIGNAL CONTROLS GREEN = ON YELLOW=TROUBLE ON/OFF	**TIME REMAINING** GREEN=ON YELLOW=TROUBLE ON/OFF	**RELEASE CONTROLS** GREEN=ON YELLOW=TROUBLE ON/OFF	**TIME REMAINING** GREEN=ON YELLOW=TROUBLE ON/OFF
HOLD ON ALERT	**LESS THAN 4 MINUTES**	**ABORT**	
ALERT ENABLE 1	**LESS THAN 2 MINUTES**	**ENABLE 1**	**LESS THAN 1 MINUTE**
ALERT ENABLE 2	**LESS THAN 1 MINUTE**	**ENABLE 2**	**LESS THAN 30 SECONDS**
GENERAL EVACUATE	**LESS THAN 30 SECONDS**	**RELEASE**	**LESS THAN 15 SECONDS**

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

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