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The System 5000 Operating Manual



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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 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 also 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.

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 device pursuant to Subpart B of Part 15 of FCC Rules, which is designed to provide reasonable protection against such interference when 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 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.

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Section One:
The System 5000 Automatic Fire Alarm System

1.1 Central Processor Unit Module (CPU-5000)

The CPU Module is the heart of the System 5000 system. Its computer communicates with all the other modules and directs their actions. It contains: 1) Two supervised indicating circuits that usually control evacuation signaling devices, such as bells, chimes, horns, and lights. 2) An alarm relay that can be connected to control external devices including elevators, doors, and air handling equipment. 3) A Remote Signaling - Municipal Tie output that can be connected to a municipal fire department, central station, or a remote monitoring station. 4) Various controls and indicators that are discussed in Section 2.2.

1.2 Initiating Zone Module (IZM-8)

Each Initiating Zone Module (IZM) will monitor up to eight initiating zones (groups) of initiating devices (smoke detectors, pull stations, heat detectors, etc.) for alarm signals. It also checks the integrity of the building wiring between the module and the initiating devices. The IZM module conveys the status of the initiating zones and their wiring to the CPU module and at the direction of the CPU will light the appropriate Light Emitting Diodes (LED's) indicators to display alarm and trouble (broken wire, inactive circuit, etc.) conditions.

The IZM-8 module has an alarm indicator (red LED), trouble indicator (yellow LED), and a control switch for each zone. The function of these LEDs and switches is discussed in Section 2.3.

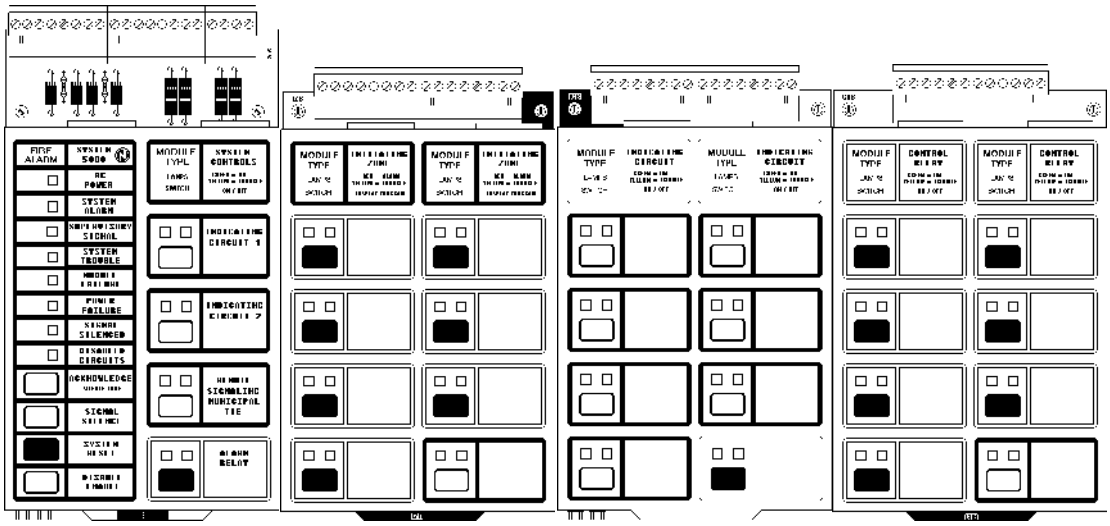
1.3 Indicating Circuit Module (ICM-8)

Each Indicating Circuit Module (ICM) will control and monitor up to eight indicating circuits (groups) of evacuation signaling devices, such as bells, chimes, horns, and lights. The ICM module conveys the status of the indicating circuits and their wiring to the CPU module and at the direction of the CPU will light the appropriate LED indicators to display activation and trouble (broken wire, inactive circuit, etc.) conditions.

The indicating circuits activate automatically during an alarm condition according to a program (instructions) stored in CPU nonvolatile memory. These circuits can be activated manually. The ICM module has an activation indicator (green LED), trouble indicator (yellow LED), and a control switch for each circuit. The function of these LEDs and switches is discussed in Section 2.4.

Figure 1: Typical System 5000 Control Panel

The System 5000 is available in four cabinet sizes, A to D, having one to four module rows respectively. One possible module configuration for a “B” size cabinet is shown below. The basic system requires a CPU Module, (top left position) and one Initiating Zone Module. Additional modules are optional.

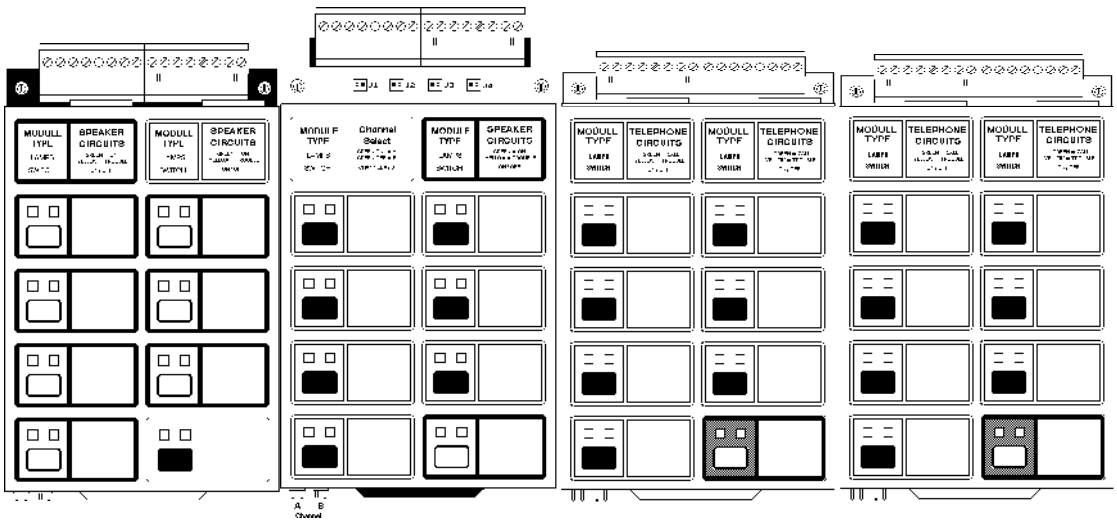


CPU-5000 Central Processing Unit

IZM-8 Initiating Zone Module

ICM-4 Indicating Circuit Module (optional)

CRE-4 Control Relay Module (optional)



VCM-4 Voice Control Module configured for Speaker Circuits (optional)

DCM-4 Dual Channel Module (optional)

VCM-4 Voice Control Modules configured for Telephone Circuits (optional)

Optional Modules include:
IZM-8 Initiating Zone Module, ICM-4 Indicating Circuit Module, CRE-4 Control Relay Module, VCM-4 Voice Control Module (telephone or speaker circuit configuration), DCM-4 Dual Channel Module, TCM-2 and TCM-4 Time Control Modules.

1.4 Control Relay Module (CRM-4)
Each Control Relay Module (CRM) controls up to eight relays, which can be connected to control external devices including elevators, doors, and air handling equipment. These relays will be activated automatically during an alarm condition according to a program (instructions) stored in the CPU module memory. They can be controlled manually via control switches on each circuit.

The CRM module has an activation indicator (green LED), trouble indicator (yellow LED), and a control switch for each relay. The function of these LEDs and switches is discussed in Section 2.5.

1.5 Audio Message Generator (AMG-1)
The Audio Message Generator (AMG-1) is the heart of a System 5000 Voice Alarm System. This unit provides digitally-recorded messages, a variety of tones, and paging capability.

Digitally-recorded messages and/or tones are activated automatically during an alarm condition according to a program (instructions) stored in the CPU's nonvolatile memory. Live voice paging can preempt these recorded messages and tones.

1.6 Audio Amplifier (AA-30)
The messages and tones from the Audio Message Generator are amplified by the AA-30 before they are switched to speaker circuits.

1.7 Voice Control Module (VCM-4) and Voice Control Expander (VCE-4)
Each Voice Control Module (VCM-4/VCE-4) will control and monitor up to eight speaker or telephone circuits (groups). These modules convey the status of each speaker or telephone circuit and its wiring to the CPU module. These modules will light appropriate LED indicators to display activation and trouble (broken wire, inactive circuit, etc.) conditions, as directed by the CPU. The speaker or telephone circuits activate automatically during an alarm condition according to a program (instructions) stored in the CPU's nonvolatile memory. These circuits can be activated manually.

The VCM-4 and VCE-4 modules have an activation indicator (green LED), trouble indicator (yellow LED), and a control switch for each circuit. The function of these LEDs and switches is discussed in Section 2.6.

1.8 Dual Channel Module (DCM-4)
The Dual Channel Module (DCM-4) provides the System 5000 with the capability to deliver different messages, to different areas, at the same time. An evacuation message can be delivered to the fire area, while a warning is delivered to the non-fire areas.

The channel selection is made automatically during an alarm condition according to a program (instructions) stored in CPU nonvolatile memory. Channel selection can be made manually. The Dual Channel Module (DCM-4) module has a channel indicator (green LED), and a control switch for each of its four circuits. The function of these LEDs and switches is discussed in Section 2.7.

1.9 Fire Fighters Telephone (FFT-7)
The Fire Fighters Telephone (FFT-7) provides the System 5000 with fire fighter's telephone capabilities.

1.10 Basic Operation
Activation of a compatible detector or any normally open fire alarm initiating device will 1) activate alarm INDICATING, CONTROL, and SIGNALING outputs, as programmed, 2) light the red SYSTEM ALARM LED and the associated INITIATING ZONE ALARM LED(s), and 3) sound a steady audible tone. The alarm INDICATING, CONTROL, and SIGNALING outputs will remain activated until the alarm is reset or silenced. See Section 2.

Alarms are indicated by flashing LEDs and a continuous audible tone until silenced or acknowledged. Silencing or acknowledging an alarm turns the audible tone off and switches LED operation from flashing to steady. Subsequent alarms will resound the audible tone and flash their indicating LEDs. Alarm signals latch until the control is reset.

Section Two: Operating Instructions

General System operating instructions are given in Section 2.1. The specific functions of control switches and LED Indictors are stated in section 2.2 to 2.12, arranged according to module location.

2.1 General System Operating Instructions

NORMAL STANDBY OPERATION: 1) The green AC POWER indicator must be lit, 2) all alarm (red LEDs) and trouble indicators (yellow LEDs) should be off.

ALARM CONDITION: 1) Red SYSTEM ALARM LED and the associated INITIATING ZONE ALARM LED(s) will light, 2) A steady audible tone will sound until the alarm is acknowledged or silenced, 3) Alarm INDICATING, CONTROL, and SIGNALING outputs will be activated as programmed. Alarm LEDs flash until the alarm is silenced or acknowledged.

ACKNOWLEDGE (SILENCE TONE): Depressing the ACKNOWLEDGE switch will turn the audible tone off and switch operation of associated LED(s) from flashing to steady. New alarms and/or troubles will resound the audible tone and flash their associated LEDs).

ALARM SILENCING PROCEDURE: Alarm indicating devices may be silenced by depressing the SIGNAL SILENCE switch on the CPU control panel (top left module). Notes: 1) Subsequent alarms can reactivate alarm outputs. 2) Alarm silencing may be totally or partially disabled or delayed in some systems. 3) SIGNAL SILENCE should not be depressed until it is determined that a building evacuation is not required. If the Reminder feature is enabled, the piezo will pulse every 15 seconds for an acknowledged alarm(s).

ALARM RESET: After locating and correcting the alarm condition, reset the control panel by depressing the SYSTEM RESET switch on the CPU control panel (top left module).

DISABLE/ENABLE: Depressing a control switch on a module, while holding the DISABLE/ENABLE switch depressed, will alternately enable and disable the associated circuit. This feature should be used only when it is necessary to temporarily bypass a malfunction or to remove a circuit while servicing the system. To disable circuits, hold the DISABLE/ENABLE switch depressed and depress control switches associated with circuits to be disabled. Disabled circuits are indicated by yellow trouble LEDs. WARNING: Disabling a circuit will reduce or eliminate fire protection.

MANUAL ACTIVATION: Indicating, speaker and telephone circuits, and Control Relay Circuits, may be activated and deactivated manually by pressing their ON/OFF switches. Subsequent alarms can reactivate deactivated outputs. Circuits activated automatically or manually are indicated by an illuminated red LED. Note: Manual Activation may be disabled for some outputs.

TROUBLE CONDITION: Activation of a trouble signal under normal operation indicates a condition that requires immediate correction. Carefully note which indicators (LEDs) are illuminated and contact your local service representative. The audible tone may be silenced by depressing the ACKNOWLEDGE switch, subsequent trouble(s) will reactivate the audible tone. Trouble LEDs will continue to display the trouble condition(s) until the trouble(s) is corrected. If the Reminder feature is enabled, the piezo will pulse every 2 minutes for an acknowledged trouble(s).

2.2 CPU-5000 Module, Controls and Indicators (See Figure 2.1)

AC POWER: Green LED, illuminated to indicate the presence of normal AC power. Extinguished when the AC line voltage is below normal.

SYSTEM ALARM: Red LED, normally off, illuminated to indicate an alarm condition. Alarms are indicated by flashing LEDs and a continuous audible tone until silenced or acknowledged. Silencing or acknowledging an alarm turns the audible tone off and switches LED operation from flashing to steady. Subsequent alarms will resound the audible tone and flash their indicating LEDs. Alarm signals latch until the control is reset.

TROUBLE INDICATORS: The following indicators (yellow LEDs) are normally off an are illuminated to indicate trouble conditions and/or disabled outputs. Troubles are indicated by flashing LEDs and a pulsed audible tone until the trouble is acknowledged or corrected. Acknowledging a trouble turns the audible tone off and switches LED operation from flashing to steady. Subsequent trouble will resound the audible tone and flash their indicating LEDs. All trouble signals are normally self-resetting and will clear as soon as the trouble condition is corrected.

SYSTEM TROUBLE: Indicates the presence of a trouble condition.

MODULE FAILURE: Indicates the failure of a module in the control unit.

POWER FAILURE: Indicates 1) a power supply is not functioning correctly, 2) AC line voltage is below normal, 3) improper battery voltage, or 4) that a ground fault exists. Additional information is displayed on internal LEDs located on power supply assemblies. See section 2.6 and 2.7.

SIGNAL SILENCED: Indicates that an output circuit is silenced. Indication will remain until the System 5000 reset switch is depressed.

DISABLED CIRCUIT: Indicates that a portion of the system is manually shut down.

AUDIBLE TONE: Pulse tone for trouble, disabled output, and supervisory. Continuous tone for alarm.

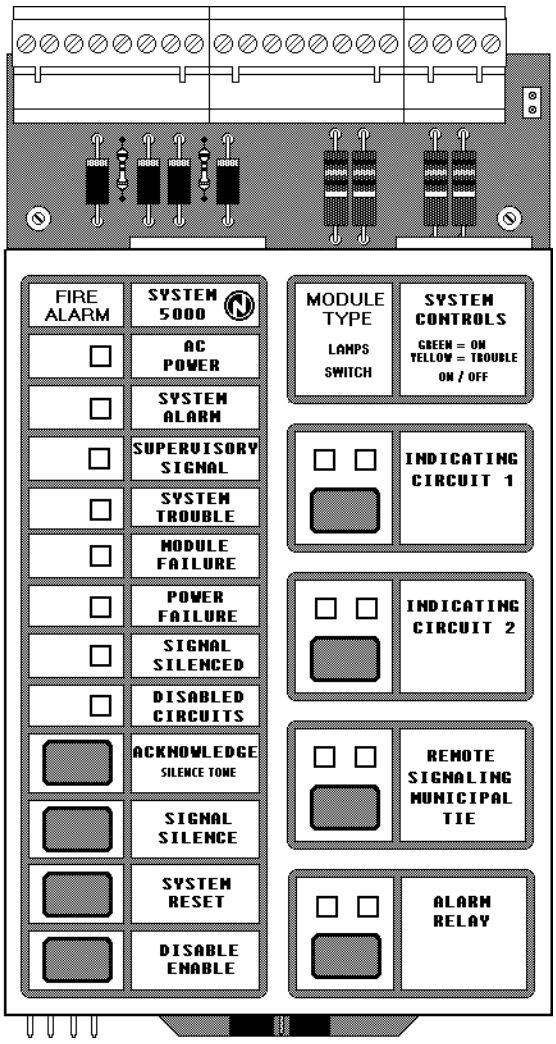


Figure 2.1
The CPU-5000 Central Processor Module

ACKNOWLEDGE (SILENCE TONE): Depressing ACKNOWLEDGE turns the audible tone off and switches LED operation from flashing to steady. A subsequent trouble or alarm will resound the audible tone and flash indicating LEDs. While this switch is held in its depressed position the trouble LEDs will not indicate off-normal conditions. Acknowledge also automatically acknowledges all annunciators in the system.

SIGNAL SILENCE: Returns all silenceable outputs, which were automatically activated by the alarm condition, to their non-alarm state. A subsequent alarm can reactivate alarm outputs.

SYSTEM RESET: The System Reset Switch will reset the system provided that the alarm condition is clear. Holding this switch depressed will sequentially light (lamp test) all LEDs.

DISABLE/ENABLE: This switch is used in conjunction with the module switches to enable and disable control, initiating, and signaling circuits. While this switch is held in its depressed position the module trouble LEDs will indicate disabled circuits only.

GREEN LEDs (Output Circuits): Normally off, illuminated to indicate an activated output. Automatic activation is indicated by a flashing LED until acknowledged and manual activation is indicated by a steady LED.

YELLOW LEDs (Output Circuits): Normally off, illuminated to indicate trouble conditions or disabled outputs. New troubles are indicated by a flashing LED and a pulsed audible tone until the troubles are silenced or corrected. Silencing a trouble turns the audible tone off and switches LED operation from flashing to steady. A subsequent trouble, from a different circuit will resound the audible tone and flash its LED. Trouble signals are normally self-resetting and will clear as soon as the trouble conditions are corrected.

ON/OFF SWITCHES (Output Circuits): Used to activate and deactivate outputs. *Notes: 1) This function may be disabled for selected outputs. 2) Subsequent alarms will reactivate deactivated outputs. Depressing the off/on switch while holding the Disable/Enable switch depressed will alternately enable and disable the output.*

2.3 IZM-8 Initiating Zone Module, Controls and Indicators (See Figure 2.2)

RED LEDs: Normally off, illuminated to indicate alarm conditions. New alarms are indicated by a flashing LED and a steady audible tone until the alarm is acknowledged or silenced. Silencing an alarm turns the audible tone off and switches LED operation from flashing to steady.

YELLOW LEDs: Normally off, illuminated to indicate an initiating zone trouble or disabled zone. New troubles are indicated by a flashing LED and a pulsed audible tone until the troubles are silenced or corrected. Silencing a trouble turns the audible tone off and switches LED operation from flashing to steady. A subsequent trouble, from a different initiating zone will resound the audible tone and flash its LED. Trouble signals are normally self resetting and will clear as soon as the trouble conditions are corrected. When the acknowledge switch is held in its depressed position, the trouble LEDs will not indicate disabled zones; only open initiating zones are indicated. When the Disable/ Enable switch is held in its depressed position the yellow LEDs indicate disabled initiating zones only.

DISPLAY PROGRAM SWITCHES: Lights the red zone alarm LED and the green LEDs on all outputs controlled by the initiating zone. Depressing the display program switch while holding the Disable/ Enable switch depressed will alternately enable and disable its initiating zone.

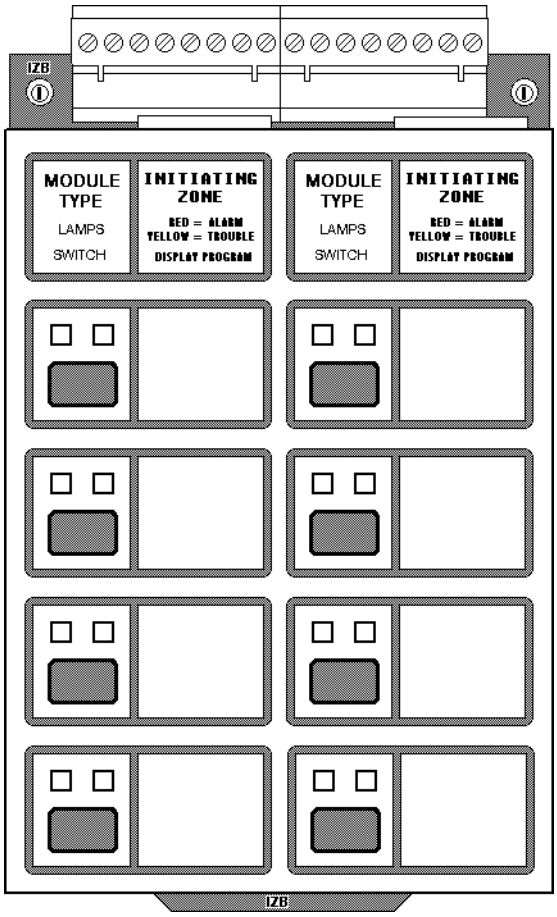


Figure 2.2
The IZM-8 Initiating Zone Module

2.4 ICM-4 Indicating Circuit Module, Controls and Indicators (See Figure 2.3)

GREEN LEDs: Normally off, illuminated to indicate an activated indicating output.

YELLOW LEDs: Normally off, illuminated to indicate an indicating circuit trouble or a disabled circuit. New troubles are indicated by a flashing LED and a pulsed audible tone until the troubles are silenced or corrected. Silencing a trouble turns the audible tone off and switches LED operation from flashing to steady. A subsequent trouble, from a different circuit will resound the audible tone and flash the associated trouble LED. Trouble signals are normally self-resetting and will clear as soon as the trouble conditions are corrected. When the Disable/Enable switch is held in its depressed position the yellow LEDs indicate disabled conditions only.

ON/OFF SWITCHES: Used to activate and deactivate indicating circuits. *Notes: 1) This function may be disabled on selected indicating circuits. 2) Subsequent alarms will reactivate deactivated circuits. Depressing the off/on switch while holding the Disable/Enable switch depressed will alternately enable and disable the associated Indicating Circuit.*

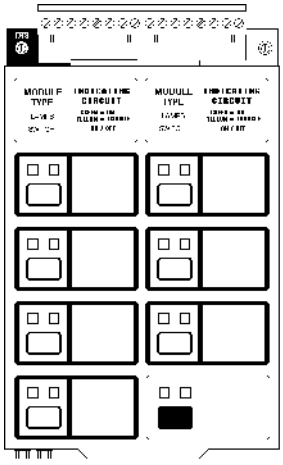


Figure 2.3
The ICM-4 Indicating Circuit Module

2.5 CRM-4 Control Relay Module, Controls and Indicators (See Figure 2.4)

GREEN LEDs: Normally off, illuminated to indicate that the control relay is activated.

YELLOW LEDs: Normally off, illuminated to indicate that the associated control relay output is disabled.

ON/OFF SWITCHES: Can be used to activate and deactivate control relays. *Notes: 1) This function may be disabled for selected relays. 2) Subsequent alarms will reactivate deactivated outputs. Depressing the off/on switch while holding the Disable/Enable switch depressed will alternately enable and disable the associated relay.*

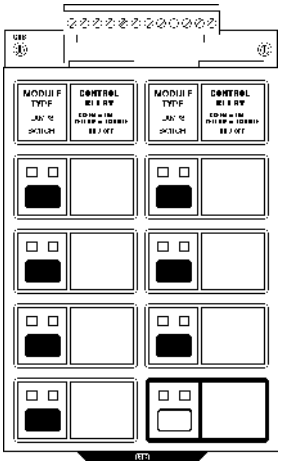


Figure 2.4
The CRM-4 Control Relay Module

2.6 VCE-4 Voice Control Module, Controls and Indicators (See Figure 2.5)

GREEN LEDs: Normally off, illuminated to indicate an activated speaker circuit.

YELLOW LEDs: Normally off, illuminated to show a speaker or telephone circuit trouble or a disabled circuit. New troubles are indicated by a flashing LED and a pulsed audible tone until the troubles are silenced or corrected. Silencing a trouble turns the audible tone off and switches LED operation from flashing to steady. A subsequent trouble, from a different circuit will resound the audible tone and flash the associated trouble LED. Trouble signals are normally self resetting and will clear as soon as the trouble conditions are corrected. When the Disable/Enable switch is held in its depressed position the yellow LEDs indicate disabled conditions only.

ON/OFF SWITCHES: Used to activate and deactivate speaker circuits. *Notes: 1) This function may be disabled on selected speaker circuits. 2) Subsequent alarms will reactivate deactivated circuits. Depressing the off/on switch while holding the Disable/Enable switch depressed will alternately enable and disable the associated circuit.*

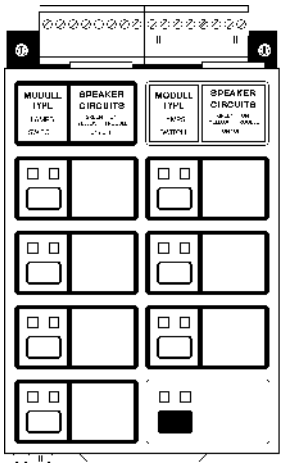


Figure 2.5
The VCE-4 Voice Control Module

2.7 DCM-4 Dual Channel Module, Controls and Indicators (See Figure 2.6)

GREEN LEDs (left side): Normally off, illuminated to indicate that channel A (evacuate channel) is selected.

YELLOW LEDs (left side): Normally off

ON/OFF SWITCHES (left side): Used to select channel.

GREEN LEDs (right side): Normally off, illuminated to show an activated speaker circuit.

YELLOW LEDs (right side): Normally off, illuminated to show a speaker circuit trouble or a disabled speaker circuit. New troubles are indicated by a flashing LED and a pulsed audible tone until the troubles are silenced or corrected. Silencing a trouble turns the audible tone off and switches LED operation from flashing to steady. A subsequent trouble, from a different circuit will resound the audible tone and flash the associated trouble LED. Trouble signals are normally self resetting and will clear as soon as the trouble conditions are corrected. When the Disable/Enable switch is held in its depressed position the yellow LEDs will indicate disabled conditions only.

ON/OFF SWITCHES (right side): Used to activate and deactivate speaker circuits. *Notes: 1) This function may be disabled on selected speaker circuits. 2) Subsequent alarms will reactivate deactivated circuits. Depressing the off/on switch while holding the Disable/Enable switch depressed will alternately enable and disable the associated circuit.*

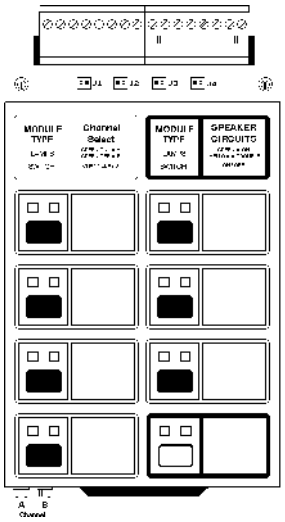


Figure 2.6
The DCM-4 Dual Channel Module

2.8 AMG-1 Audio Message Generator, Control and Indicators (See Figure 2.7)

LED STATUS INDICATORS

AUDIO LEVEL: This green LED is illuminated when the audio level is correct. Normally illuminated in the normal standby and alarm mode. When paging, talk loud enough to cause the LED to illuminate. If the AUDIO LEVEL LED is allowed to remain off for 30 seconds a system trouble will be activated.

ALL CALL: This green LED is illuminated when the ALL CALL SWITCH is depressed.

ON LINE: This green LED indicator normally flashes On and OFF to show that the System 5000 is communicating with the Audio Message Generator.

TROUBLE: This yellow LED is normally off, illuminated to indicate the presence of a trouble in the audio subsystem (AMG, AA-30, FFT-7). An audio system trouble is also indicated at CPU-5000 by flashing LEDs (Power/Aux and System Trouble) and a pulsed audible tone until the troubles are silenced or corrected. Silencing a trouble turns the audible tone off and switches CPU-5000 LED operation from flashing to steady. Trouble signals are normally self-resetting and will clear as soon as the trouble conditions are corrected.

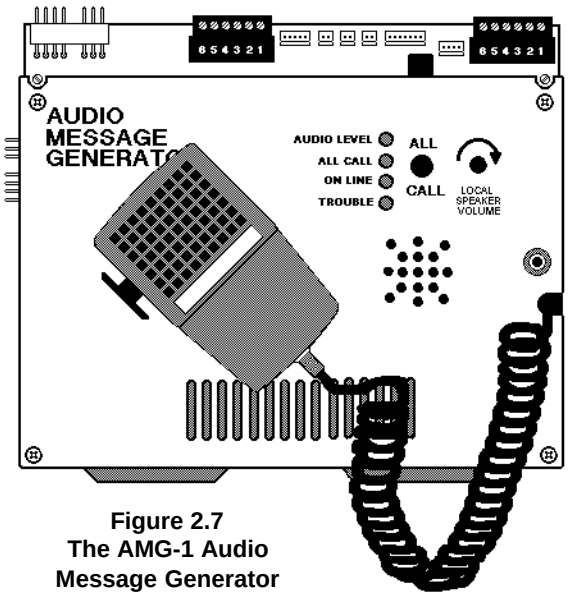


Figure 2.7
The AMG-1 Audio Message Generator

CONTROLS

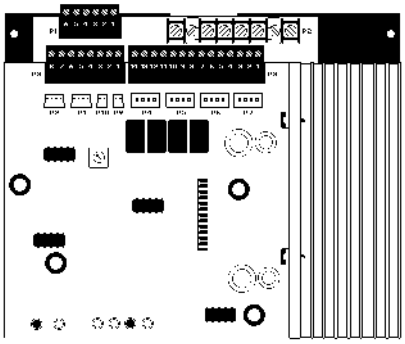
ALL CALL SWITCH: If connected and programmed, this switch can be used to activate all speaker circuits or a specific group of speakers, according to instructions programmed into the CPU nonvolatile memory. These speaker circuits will deactivate when the All Call Switch is released, providing an alarm is not present. If an alarm is present, the speaker circuit will remain activated until manually turned off or until the system is reset.

LOCAL SPEAKER VOLUME: Use to adjust the the volume of the local speaker on the AMG-1. It will not affect the volume of the speakers local throughout the building.

MICROPHONE: Used for paging. To page, select the speaker circuit(s) that you wish to page through by using the control switches on these circuits (VCM modules) or by using the All Call Switch (see instructions above). Depress switch on side of microphone and speak into the microphone. Talk loud enough to cause the green Audio Level LED to illuminate.

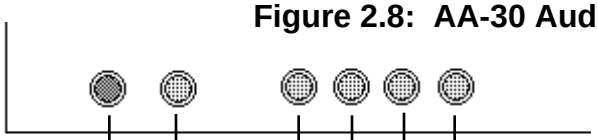
2.9 AA-30 Audio Amplifier, Control and Indicators (See Figure 2.8)

1) The Status Indicators on the Audio Amplifier are intended as a service aid. They are located under the blank dress panel.
2) A SPEAKER TROUBLE, AMPLIFIER TROUBLE, BATTERY TROUBLE, or BROWNOUT TROUBLE in an Audio Amplifier is also indicated at the CPU-5000 by flashing LEDs (Power/ Aux and System Trouble) and a pulsed audible tone until the trouble is silenced or corrected. Silencing a trouble turns the audible tone off and switches CPU-5000 LED operation from flashing to steady. Trouble signals are normally self-resetting and will clear as soon as the trouble conditions are corrected.
3) The illumination of the INCORRECT LEVEL LED is not considered a system trouble.



The AA-30 Audio Amplifier

Figure 2.8: AA-30 Audio Amplifier Status LEDs



Speaker Trouble LED
An open circuit condition in the 4-wire speaker loop.

Amplifier Trouble LED
Loss of the audio input signal, or trouble in the audio in or audio out circuitry.

Battery Trouble LED
The secondary (DC) power source has fallen below a sufficient voltage level.

Brownout LED
The primary (AC) power source has fallen below a sufficient level.
Note: During a complete loss of AC, no LEDs will light on the AA-30.

Incorrect Level LED During normal (non-alarm) conditions, this LED indicates that the AA-30 is out of adjustment. When this LED is on and the **Normal Level LED** is off, the audio level is adjusted too low. When both this LED and the **Normal Level LED** are on, the audio level is adjusted too high.

Normal Level LED
During normal (non-alarm) conditions, when this green LED is on and the **Incorrect Level LED** is off, the AA-30 is adjusted properly and operating correctly.

Note: *During complete loss of primary (AC) power, when the AA-30 is operating on secondary (battery) power, no LEDs will light on the AA-30. This is done to conserve secondary power.*

2.10 FFT-7 Fire Fighters Telephone, Control and Indicators (See Figure 2.9)

LED STATUS INDICTORS

PAGE MODE: This green LED is illuminated when the PAGE MODE SWITCH is depressed.

ON LINE: This green LED indicator is normally on, to show that the System 5000 is powering the Fire Fighters Telephone system.

PHONE TROUBLE: This yellow LED is normally off, illuminated to show the presence of a trouble in the Fire Fighters Master Telephone (FFT-7) Circuit.

LINE TROUBLE: This yellow LED is normally off, illuminated to show the presence of a trouble in the Fire Fighters Telephone wiring (wiring between the FFT-7 and associated VCM modes).

NOTE: A PHONE TROUBLE or LINE TROUBLE in the Fire Fighters Telephone system is also indicated at the CPU-5000 by flashing LEDs (Power/Aux and System Trouble) and a pulsed audible tone until the trouble is silenced or corrected. Silencing a trouble turns the audible tone off and switches CPU-5000 LED operation from flashing to steady. Trouble signals are normally self-resetting and will clear as soon as the trouble conditions are corrected.

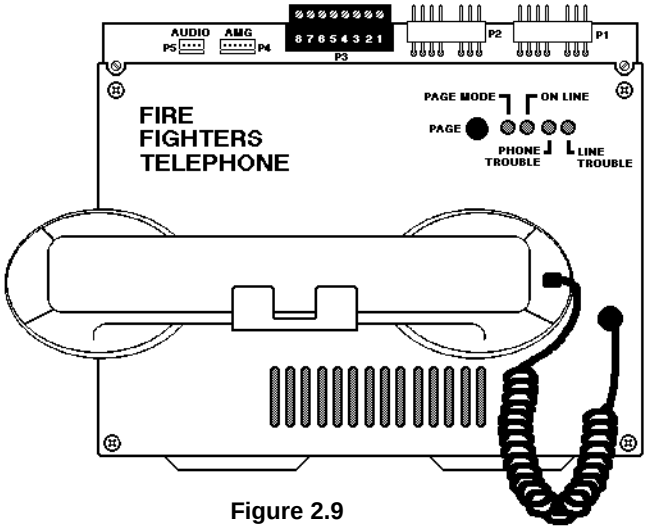


Figure 2.9
The FFT-7 Fire Fighter's Telephone

CONTROLS

PAGE SWITCH: This switch can be used to allow a Fire Fighters Telephone to be use for paging. To allow a Fire Fighter to page from a remote Fire Fighters Telephone: 1) depress the Page Switch, 2) select the speaker circuit(s) that will carry the page by using the control switches on these circuits (VCM modules) or by using the All Call Switch (see instructions above) and 3) instruct the Fire Fighter to speak into the Fire Fighters Telephone. The Fire Fighter should talk loud enough to cause the green Audio Level LED, on the AMG-1, to illuminate.

2.11 MPS-24 Main Power Supply, Status Indicators (See Figure 2.10)

TROUBLE INDICATORS

The following trouble indicators are normally off, yellow LEDs, illuminated to indicate trouble conditions. All trouble signals are normally self-resetting and will clear as soon as the trouble condition is corrected.

AC POWER FAIL (LED #1): Indicates 1) loss of AC line voltage, 2) low AC line voltage, or 3) open circuit breaker.

BATTERY FAIL (LED #2): Indicates improper battery voltage.

POSITIVE GROUND FAULT (LED #3): Indicates that a ground fault exists, on the positive side of a circuit.

NEGATIVE GROUND FAULT (LED #4): Indicates that a ground fault exists, on the negative or common side of a circuit.

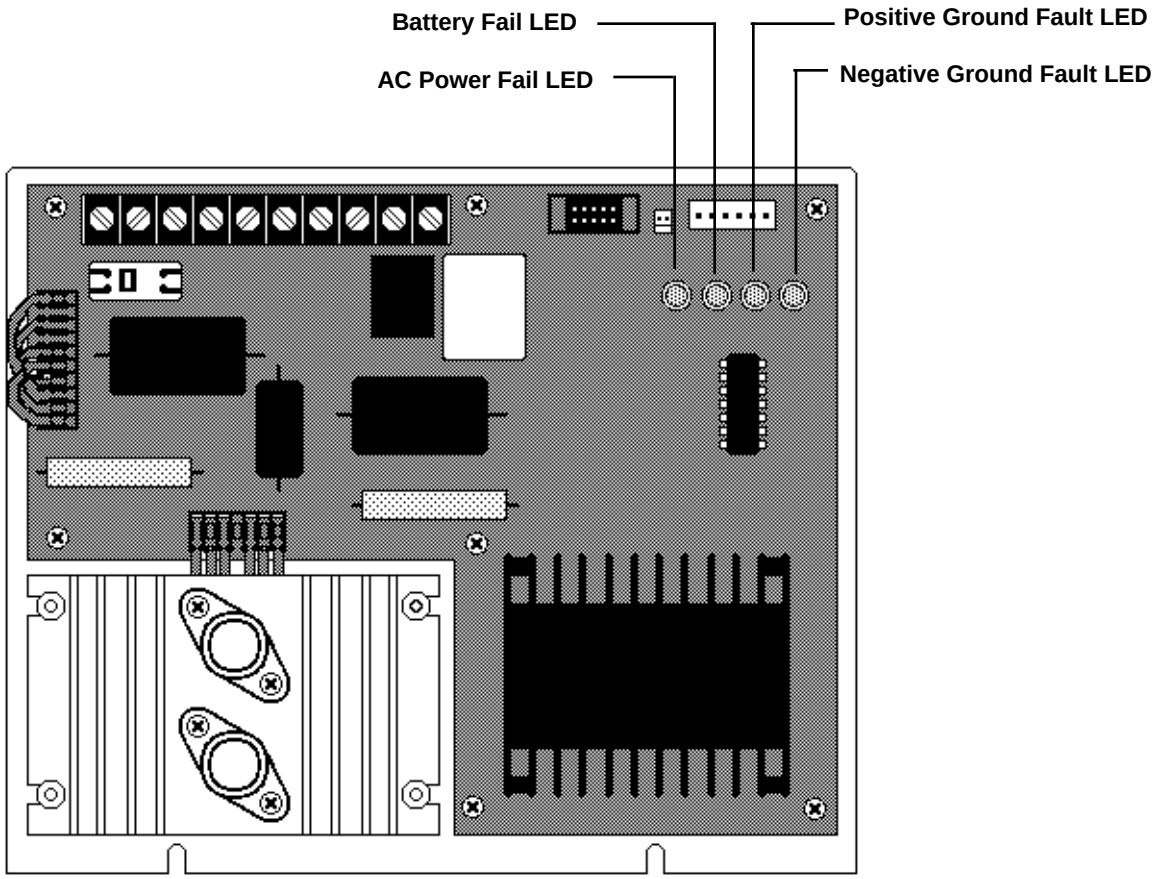


Figure 2.10: MPS-24 Main Power Supply Status Indicators

2.12 Optional MPS-24A Main Power Supply, Status Indicators (See Figure 2.11)

TROUBLE INDICATORS

The following trouble indicators are normally off, yellow LEDs, illuminated to indicate trouble conditions. All trouble signals are normally self resetting and will clear as soon as the trouble condition is corrected.

AC POWER FAIL (LED #2): Indicates 1) loss of AC line voltage, 2) low AC line voltage, or 3) open circuit breaker.

BATTERY FAIL (LED #3): Indicates improper battery voltage.

POSITIVE GROUND FAULT (LED #4): Indicates that a ground fault exists, on the positive side of a circuit.

NEGATIVE GROUND FAULT (LED #5): Indicates that a ground fault exists, on the negative or common side of a circuit.

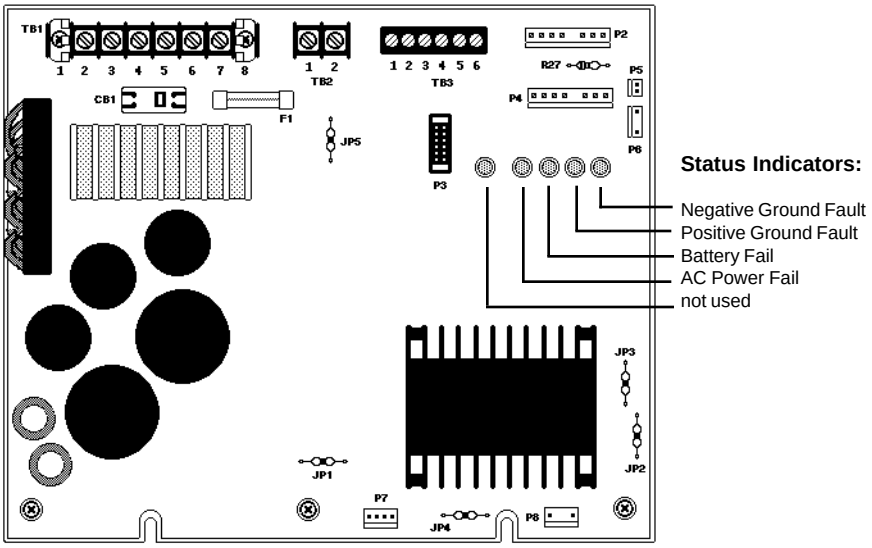


Figure 2.11: MPS-24A Main Power Supply Status Indicators

2.13 AVPS-24 Audio Visual Power Supply, Status Indicator

TROUBLE LED: Normally off, yellow LED, illuminated to show the following trouble conditions: 1) a power supply malfunction; 2) loss of AC line voltage; 3) low AC line voltage; 4) open circuit breaker; or 5) open battery lead(s).

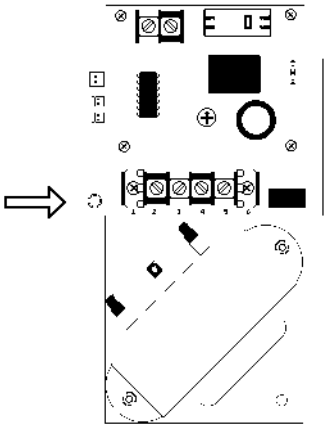


Figure 2.12
The AA-30 Audio Amplifier

Section Three: Periodic Testing and Maintenance

3.1 Periodic Testing and Servicing

Periodic testing and servicing, by qualified service personnel, is essential to insure proper and reliable operation. Testing and servicing should be in accordance with the schedules and procedures outlined in: 1) NFPA standard 72H, "Guide for Testing Procedures for Local, Auxiliary, Remote Station and Proprietary Protective Signaling Systems," 2) System 5000 Troubleshooting Manual, and 3) service manuals and instructions for the peripheral devices contained in your system. Report any trouble condition or malfunction to your service representative immediately.

3.2 Operational Checks

Between formal periodic testing and servicing intervals, the following operation checks should be performed monthly or more frequently when required by the Authority Having Jurisdiction.

1) Check that the green "AC POWER" LED is illuminated.

2) Check that all yellow LEDs are off.

3) Holding "SYSTEM RESET" depressed should sequentially light all System 5000 LEDs.

4) Before making the following check: a) notify fire department and/or central alarm receiving station if alarm conditions are transmitted; b) notify facility personnel of the testing, so that alarm sounding devices are ignored during test period; and c) when necessary, activation of alarm signaling devices can be prevented by depressing the ON/OFF SWITCH on the signaling circuit(s) to be disabled, while holding DISABLE/ENABLE switch depressed.

5) Activate an initiating zone via an alarm initiating device and check that active signaling device sound, and alarm indicators illuminate. Check the paging feature, if present. Reset the alarm initiating device and the System 5000.

6) Repeat Step 5 for each initiating zone.

7) If the system contains Fire Fighter Telephones, check operation of each telephone circuit.

8) Enable any signaling circuit(s) that were disabled in step 4(c). Disabled circuits are enabled by depressing the ON/OFF SWITCH on the disabled circuit(s), while holding DISABLE/ENABLE switch depressed.

9) Check that all yellow LEDs are off and that the green "AC POWER" LED is illuminated. Reset associated equipment.

10) Notify fire, central station and/or building personnel that the test is complete.

System 5000 Fire Alarm Control Panel Operator's Instructions

Normal Standby Operation: The green AC POWER LED must be on. All red alarm LEDs, green output status, and yellow trouble LEDs should be off.

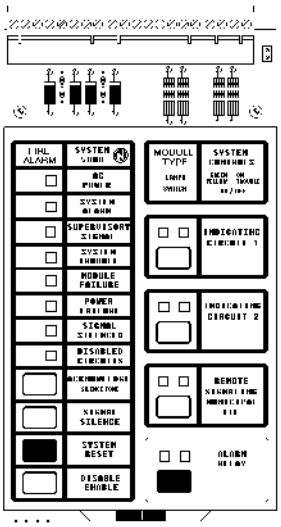
Alarm Condition: The Red System Alarm and associated initiating zone LEDs will light. A steady audible tone will sound until the alarm is acknowledged or silenced. Alarm, indicating, and control outputs will be activated as programmed. Alarm LEDs flash until the alarm is silenced or acknowledged.

Alarm Silencing: Alarm signaling device may be silenced by depressing the SIGNAL SILENCE switch on the CPU-5000 (top left module). The SIGNAL SILENCED LED will light. Subsequent alarms will reactivate alarm outputs. *SIGNAL SILENCE should not be depressed until it is determined that an evacuation of building personnel is not required.* Note: Alarm silencing may be totally or partially disabled or delayed in some systems.

Alarm Reset: After locating and correcting the alarm condition, reset the control panel by depressing the SYSTEM RESET switch on the CPU-5000.

Acknowledge (Silence Tone): Depressing the ACKNOWLEDGE switch will turn the audible tone off and switch operation of associated LEDs from flashing to steady. New alarms and/or troubles will resound the audible tone and flash associated LEDs.

Disable/Enable: Pressing a control switch on a module while pressing the DISABLE/ENABLE switch will alternately enable/disable the associated circuit. This feature should be used only when it is necessary to temporarily bypass a malfunction or to remove a circuit while servicing the system. The yellow trouble LED on a disabled circuit will illuminate as well as the DISABLED CIRCUITS LED on the CPU-5000. *WARNING: A disabled circuit will not provide fire protection.*



CPU-5000 Central Processing Unit

Manual Activation: Indicating, signaling and control relay circuits may be activated and deactivated manually by pressing their ON/OFF switches. Subsequent alarms will reactivate deactivated outputs. Activated circuits are indicated by an illuminated green LED. *Note: Manual Activation may be disabled for some outputs.*

Trouble Condition: Activation of a trouble signal under normal operation indicates a condition that requires immediate correction. Carefully note illuminated LEDs and contact your local service representative. The audible tone may be silenced by depressing the ACKNOWLEDGE switch. Subsequent troubles will reactivate the audible tone. Trouble LEDs will remain illuminated until the troubles are corrected.

Operator's Manual: Refer to the System 5000 Operators Manual, Document 15581, Rev. D, for complete operating information.

Periodic Testing and Servicing: Periodic testing and servicing by qualified service personnel is essential to insure proper and reliable operation. Testing and servicing should be in accordance with the schedules and procedures outlined in: 1) NFPA standard 72H, "Guide for Testing Procedures for Local, Auxiliary, Remote Station and Proprietary Protective Signaling Systems;" 2) System 5000 manuals; 3) service manuals and instructions for peripheral devices contained in your system. Report any trouble condition or malfunction to your service representative immediately.

Operational Checks: Between formal periodic testing and servicing intervals, the following operation checks should be performed monthly or as frequently as required by the Authority Having Jurisdiction.

1) Check that the green "AC POWER" LED is illuminated
2) Check that all yellow LEDs are off
3) Holding "SYSTEM RESET" depressed should sequentially light all system LEDs.
4) Before proceeding, a) notify fire department and/or central alarm receiving station if alarm conditions are transmitted; b) notify facility personnel of test so that alarm sounding devices are ignored during test period; c) when necessary, activation of alarm indicating appliances and speakers can be prevented by depressing the ON/OFF SWITCH on the Indicating Appliance Circuit(s) or Speaker Circuit(s) to be disabled, while depressing the DISABLE/ENABLE switch.
5) Activate an Initiating Device Circuit via an alarm initiating device and check that all active indicating appliances function. Reset the alarm initiating device, the System 5000, and any other associated equipment. In voice alarm applications, confirm that the proper tone(s) and/or messages sound during alarm conditions.
Select the paging function and confirm that the message can be heard in the affected fire zones.
6) Repeat Step 5 for each Initiating Device Circuit.
7) On systems equipped with a Fire Fighters Telephone circuits, initiate a call from a telephone circuit and confirm ring tone. Answer call and confirm communication with incoming caller. Terminate call and repeat for each telephone circuit in the system.
8) Remove AC power, activate an Initiating Device Circuit via an alarm initiating device and check that active indicating appliances sound, and alarm indicators illuminate. Measure the battery voltage while indicating appliances are activated. Replace any battery with a terminal voltage less than 21.6 volts. Replacement batteries may be obtained from Notifier. Minimal replacement battery capacity is indicated on the System 5000 marking label. Reapply AC Power. Note: This test requires fully charged batteries, if batteries are new or discharged due to a recent power outage, allow the System 5000 to charge batteries for 48 hours before testing.
9) Enable any Indicating appliance Circuit(s) that were disabled in Step 4C. Disabled circuits are enabled by first depressing the DISABLE/ENABLE switch on the CPU-5000, followed by depressing the ON/OFF switch on the disabled circuit.
10) Check that all yellow LEDs are off and that the green "AC POWER" LED is illuminated
11) Notify fire, central station and/or building personnel that test is complete.

NOTIFIER

In the event of trouble, contact the local Notifier Service Representative:

Name: _____

Company: _____

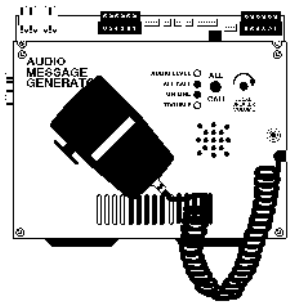
Address: _____

Telephone Number: _____

Frame and mount these Operator's Instructions adjacent to the System 5000 for ready reference.

System 5000 Voice Alarm Equipment

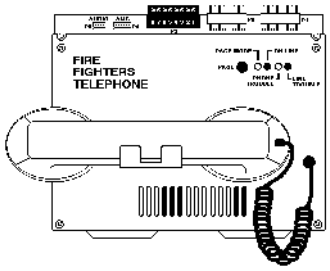
AMG-1 Audio Message Generator



Audio Level: This green LED is illuminated when the audio level is correct. When paging, talk loudly enough to cause this LED to illuminate. If the AUDIO LEVEL LED is allowed to remain off for 30 seconds a system trouble will result.
All Call: This green LED toggles on and off with each depression of the ALL CALL SWITCH.

On Line: This green LED indicator is normally flashing to show that the System 5000 is communicating with the Audio Message Generator.
Trouble: This yellow LED illuminates to indicate the presence of a trouble in local audio subsystem equipment (AMG, AA-30, FFT-7).
ALL CALL SWITCH: The All Call Switch, when pressed, can be used to activate all speaker circuits. These speaker circuits will deactivate when the All Call Switch is pressed again (toggle function), providing an alarm is not present. If an alarm is present, the speaker circuits may remain activated until manually turned off or until the system is reset.
SPEAKER VOLUME: The Local Speaker Volume control adjusts the volume of the speaker located on the AMG. It will not affect the volume of the speakers installed throughout the building. If necessary, turn the volume down to prevent feedback during paging.
MICROPHONE: The microphone is used for paging. To page, select the speaker circuit(s) that you wish to page through by using the control switches on the VCM-4 or DCM-4 or by using the All Call Switch on the AMG-1. Depress switch on side of microphone and speak into the microphone. Talk loudly enough to cause the green Audio Level LED to illuminate.
Speaker Circuit Select: To turn a speaker circuit ON, press the control switch on the VCM-4 or DCM-4 module. The control switches will toggle the associated speaker circuits on and off. A green LED will illuminate to indicate when a circuit is activated.
Tone/Message Select: Use to select the alternate tone/message. The green LED illuminates to indicate that the alternate tone/message is selected. Alternate tone/message will sound on selected speaker circuits.
Channel Select (Dual Channel Systems) : To select a audio channel, use the control switches on the left side of the DCM-4 module. When Channel A is selected, the associated green LED will illuminate. When the LED is off, Channel B is selected. The Channel Select switches toggle between selecting Channel A and Channel B.

FFT-7 Firefighter's Telephone



Page Mode: This green LED illuminates when the PAGE MODE SWITCH is depressed.
On Line: This green LED illuminates to show that the System 5000 is powering the Fire Fighters Telephone system.
Phone Trouble: This yellow LED illuminates to indicate a trouble in the Fire Fighters Master Telephone (FFT-7) Circuit.
Telephone Line Trouble: This yellow LED illuminates to indicate
Page Switch: The Page Switch allows a firefighter to page from a Fire Fighters Telephone. To page, select the speaker circuit(s) that will carry the page by using the control switches on VCM-4 module(s), or by using the All Call Switch on the AMG-1 next to the FFT-7. Depress the Page Switch and talk loudly enough to cause the green Audio Level LED on the AMG-1 to illuminate.
Incoming Calls: The green LED on the VCM-4 module associated with the telephone circuit will flash, and the System 5000 piezo will sound to indicate the incoming call. To answer the incoming call, pick up the master handset and press the control switch on the VCM-4 module next to the green flashing LED. Wait until the caller is connected (audible click in the receiver). To disconnect the call, momentarily press the telephone circuit control switch on the VCM-4 module again.
Remote Phone Paging: Answer the incoming call from the telephone circuit as described above. Press the PAGE button on the AMG-1, illuminating the yellow Page Mode LED. Select speaker circuits by pressing control switches on the associated VCM-4 or DCM-4 module or by depression of the ALL Call switch on the AMG-1 next to the FFT-7. Any fireman connected via the telephone circuit control switch can page through the selected speaker circuits.

This sheet should be framed and placed adjacent to the System 5000 Voice Alarm Equipment for ready reference. If the System 5000 does not contain any voice alarm equipment this sheet can be cut off from the main operator's instructions to be framed.

Limited Warranty

NOTIFIER® warrants its products to be free from defects in materials and workmanship for eighteen (18) months from the date of manufacture, under normal use and service. Products are date stamped at time of manufacture. The sole and exclusive obligation of **NOTIFIER®** is to repair or replace, at its option, free of charge for parts and labor, any part which is defective in materials or workmanship under normal use and service. For products not under **NOTIFIER®** manufacturing date-stamp control, the warranty is eighteen (18) months from date of original purchase by **NOTIFIER®**'s distributor unless the installation instructions or catalog sets forth a shorter period, in which case the shorter period shall apply. This warranty is void if the product is altered, repaired or serviced by anyone other than **NOTIFIER®** or its authorized distributors or if there is a failure to maintain the products and systems in which they operate in a proper and workable manner. In case of defect, secure a Return Material Authorization form from our customer service department. Return product, transportation prepaid, to **NOTIFIER®**, 12 Clintonville Road, Northford, Connecticut 06472-1653.

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