JOHNSON CONTROLS

FC-2000 Operator's Manual

Order No. 406-050

Introduction

Description

The FC-2000 is an expandable multi-zone microprocessor based intelligent fire alarm control panel designed for use in commercial, industrial, and institutional applications. It functions in accordance with the following National Fire Protection Association (NFPA) Standards for Protective Signaling Systems: 71 - Central Station, 71 - Local. 72 - Auxiliary, 72 - Remote Station, 72 - Proprietary. The FC-2000 was tested as a Fire Protective Signaling System Control Unit under Underwriter Laboratories, Inc., Standard for Safety number UL 864, Sixth Edition. Factory Mutual (FM) approved.

A typical FC-2000 control panel is illustrated in Figure 1; your system may have more or fewer modules depending on your requirements. All systems have a Central Processor Unit (CPU) Module, located in the top left position, and at least one initiating module. There may be up to 14 additional modules (initiating, indicating, and/or control) installed in various combinations and positions. The function of the various FC-2000 modules are discussed below.

Central Processor Unit Module (CPU-2000)

The CPU module is the heart of the FC-2000 system. Its computer communicates with all the other modules and directs their actions. It contains:

- two supervised indicating circuits that usually control evacuation signaling devices, such as bells, chimes, horns, and lights
- an alarm relay that can be connected to control external devices including elevators, doors, and air handling equipment
- a remote signaling--municipal tie output that can be connected to a municipal fire department, central station, or a remote monitoring station
- various controls and indicators that are discussed in the *Operational Checks* section of this document

Initiating Zone Module (IZM-8)

Each Initiating Zone Module (IZM-8) 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-8 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 (LEDs) 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 *IZM-8 Initiating Zone Module, Controls, and Indicators* section of this document.

Indicating Circuit Module (ICM-8)

Each Indicating Circuit Module (ICM-4) will control and monitor up to eight indicating circuits (groups) of evacuation signaling devices, such as bells, chimes, horns, and lights. The ICM-4 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 non-volatile memory. These circuits can be activated manually. The ICM-4 module has an activation indicator (green LED), trouble indicator (yellow LED), and a control switch for each circuit.

Cabinet Sizes

The FC-2000 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 in Figure 1. The basic system requires a CPU module, (top left position) and one Initiating Zone Module (IZM-8). Additional modules are optional.

Figure 1: Typical FC-2000 Control Panel

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.

Control Relay Module (CRM-4)

Each Control Relay Module (CRM-4) 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-4 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 *CRM-4 Control Relay Module, Controls, and Indicators* section of this document.

Audio Message Generator (AMG-1)

The Audio Message Generator (AMG-1) is the heart of a FC-2000 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 non-volatile memory. Live voice paging can pre-empt these recorded messages and tones.

Audio Amplifier (AA-30 or AA-120)

The messages and tones from the AMG-1 are amplified by the AA-30 or AA-120 before they are switched to speaker circuits.

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 non-volatile 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 their respective sections.

Dual Channel Module (DCM-4)

The Dual Channel Module (DCM-4) provides the FC-2000 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 non-volatile 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. See the discussion of these LEDs and switches later in this document.

Fire Fighter's Telephone (FFT-7)

The Fire Fighter's Telephone (FFT-7) provides the FC-2000 with Fire Fighter's Telephone capabilities.

Basic Operation

Activation of a compatible detector or any normally open fire alarm initiating device will:

- activate alarm INDICATING, CONTROL, and SIGNALING outputs, as programmed
- light the red SYSTEM ALARM LED and the associated INITIATING ZONE ALARM LED(s)
- sound a steady audible tone

The alarm INDICATING, CONTROL, and SIGNALING outputs will remain activated until the alarm is reset or silenced. See the *Periodic Testing and Maintenance* section of this document.

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.

Operating the FC-2000

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: Subsequent alarms can reactivate alarm outputs.

Alarm silencing may be totally or partially disabled or delayed in some systems.

SIGNAL SILENCE should not be depressed until it is determined that a building evacuation is not required. If the Reminder feature has been 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 has been enabled, the piezo will pulse every two minutes for an acknowledged trouble(s).

CPU-2000 Central Processor Module

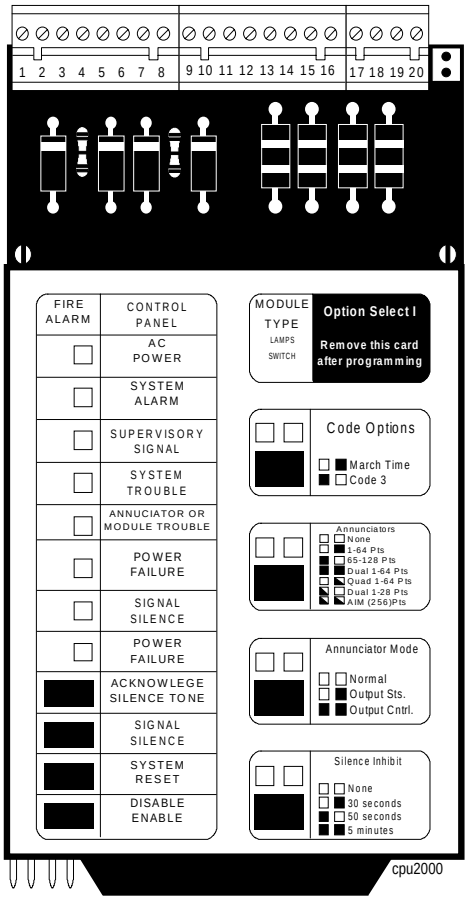


Figure 2: CPU-2000 Central Processor Module

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 trouble indicators (yellow LEDs) are normally off and 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 one of the following:

- a power supply is not functioning correctly
- AC line voltage is below normal
- improper battery voltage
- ground fault exists

Additional information is displayed on internal LEDs located on power supply assemblies.

Signal Silenced Indicates that an output circuit is silenced. Indication will remain until the FC-2000 reset switch is depressed.

Disabled Circuit Indicates that a portion of the system has been manually shutdown.

Audible Tone Pulse tone for trouble, disabled output, and supervisory. Continuous tone for alarm.

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: This function may be disabled for selected outputs.

Subsequent alarms will reactivate deactivated outputs. Depressing the ON/OFF switch while holding the DISABLE/ENABLE switch depressed will alternately enable and disable the output.

IZM-8 Initiating Zone Module, Controls, and Indicators

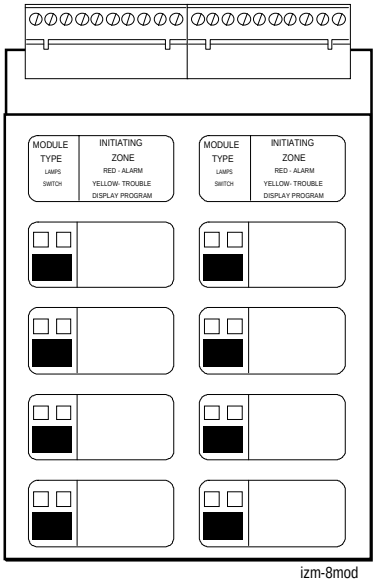


Figure 3: IZM-8 Initiating Zone Module

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.

ICM-4 Indicating Circuit Module, Controls, and Indicators

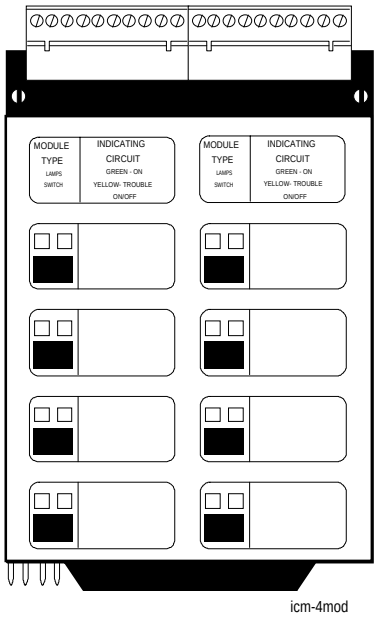


Figure 4: ICM-4 Indicating Circuit Module

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: This function may be disabled on selected indicating circuits.

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.

CRM-4 Control Relay Module, Controls, and Indicators

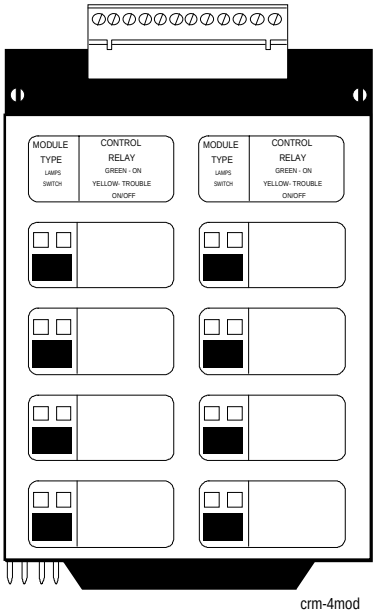


Figure 5: CRM-4 Control Relay Module

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: This function may be disabled for selected relays.

Subsequent alarms will reactivate deactivated outputs. Depressing the ON/OFF switch while holding the DISABLE/ENABLE switch depressed will alternately enable and disable the associated relay.

VCE-4 Voice Control Module, Controls, and Indicators

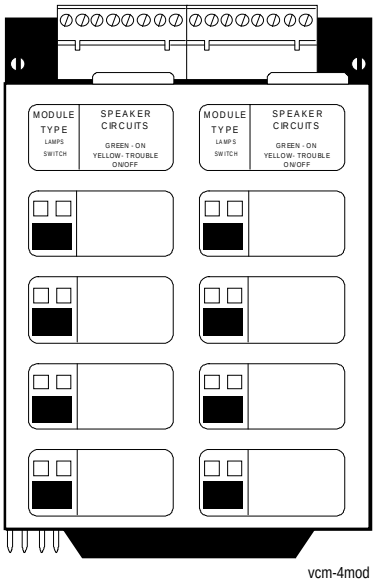


Figure 6: VCE-4 Voice Control Module

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: This function may be disabled on selected speaker circuits.

Subsequent alarms will reactivate deactivated circuits. Depressing the ON/OFF switch while holding the DISABLE/ENABLE switch depressed will alternately enable and disable the associated circuit.

DCM-4 Dual Channel Module, Controls, and Indicators

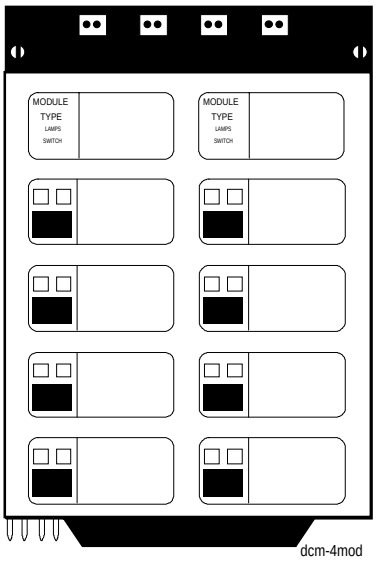


Figure 7: DCM-4 Dual Channel Module

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: This function may be disabled on selected speaker circuits.

Subsequent alarms will reactivate deactivated circuits. Depressing the ON/OFF switch while holding the DISABLE/ENABLE switch depressed will alternately enable and disable the associated circuit.

AMG-1 Audio Message Generator, Control, and Indicators

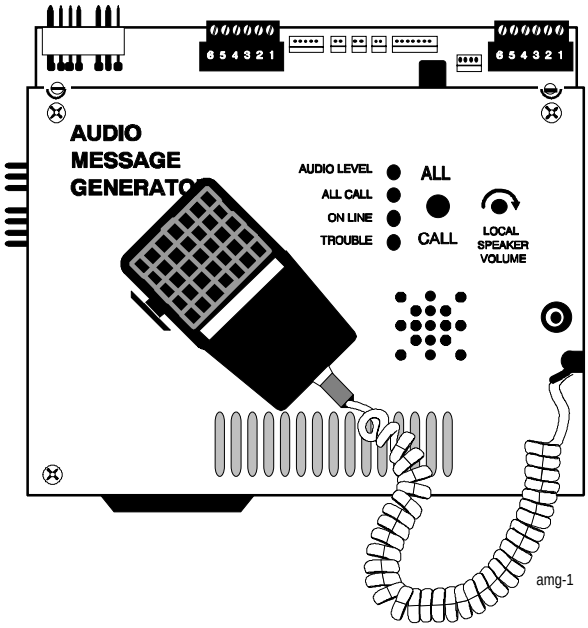


Figure 8: AMG-1 Audio Message Generator

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 to show that the FC-2000 is communicating with the Audio Message Generator.

TROUBLE

This yellow LED is normally off, illuminated to indicate the presence of trouble in the audio subsystem (AMG-1, AA-30/120, FFT-7). An audio system trouble is also indicated at CPU-2000 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-2000 LED operation from flashing to steady. Trouble signals are normally self-resetting and will clear as soon as the trouble conditions are corrected.

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's non-volatile 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

This adjustment is used to adjust 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.

AA-30 Audio Amplifier

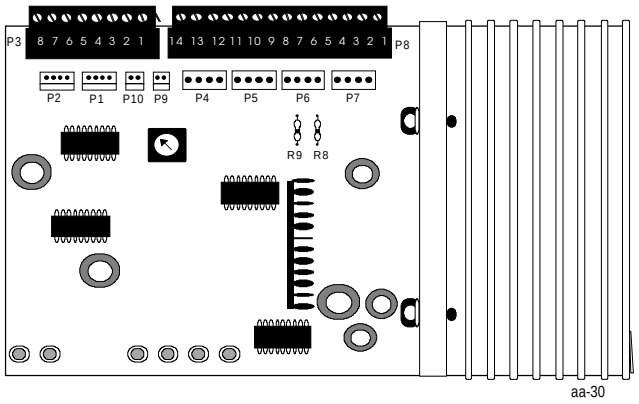
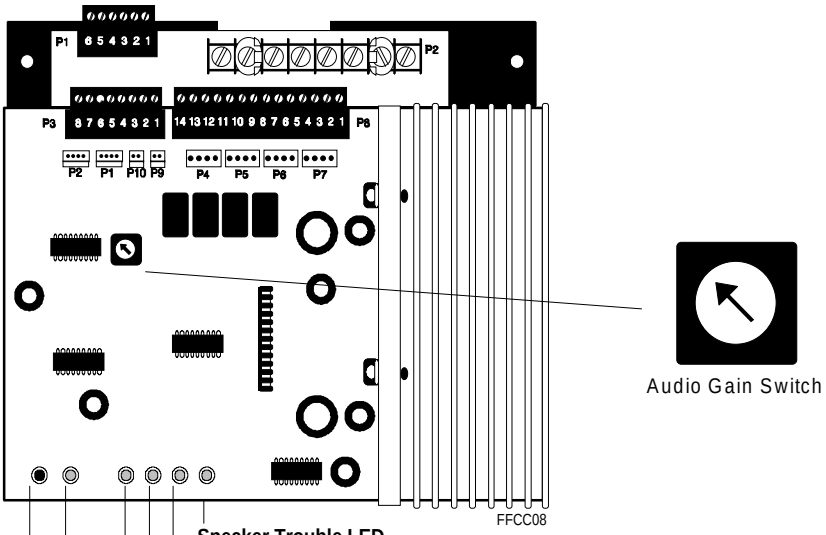


Figure 9: AA-30 Audio Amplifier

Notes: The status indicators on the audio amplifier are intended as a service aid. They are located under the blank dress panel.

A SPEAKER TROUBLE, AMPLIFIER TROUBLE, BATTERY TROUBLE, or BROWNOUT TROUBLE in an audio amplifier is also indicated at the CPU-2000 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-2000 LED operation from flashing to steady. Trouble signals are normally self-resetting and will clear as soon as the trouble conditions are corrected.

The illumination of the INCORRECT LEVEL LED is not considered a system trouble.



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 suffficient 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 has been adjusted too low. When both this LED and the Normal Level LED are on, the audio level has been 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.

Figure 10: AA-30 Audio Amplifier Status LEDs

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.

AA-120 Audio Amplifier

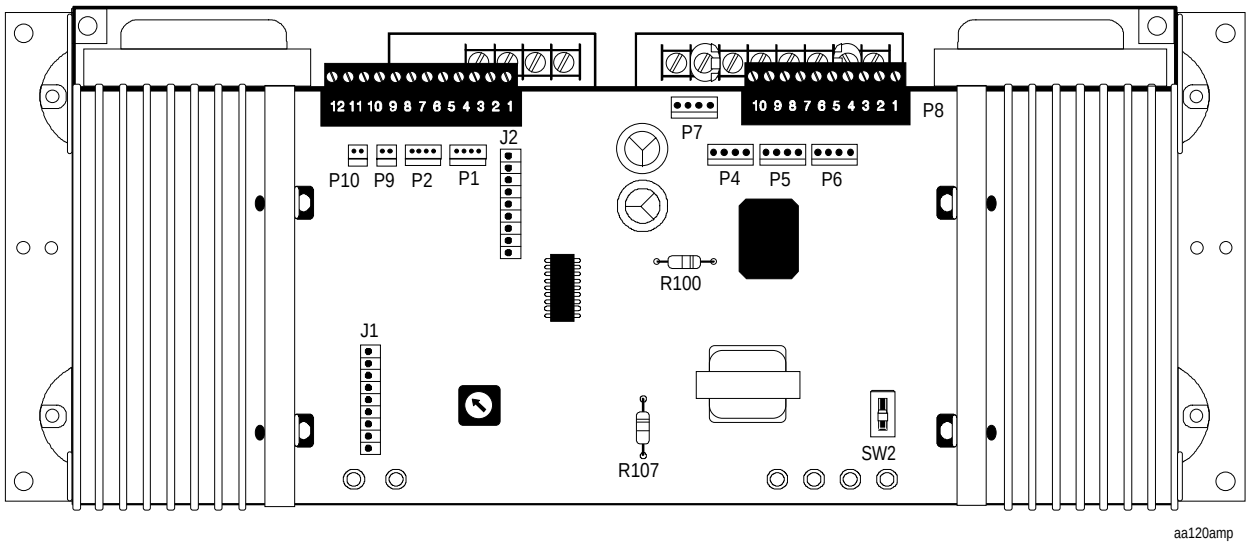


Figure 11: AA-120 Audio Amplifier

Trouble contacts on the AA-120 close to report problems with audio input wiring, brown out, loss of batteries, speaker failure, amplifier failure, or optionally, the loss of supervision on the amplified output circuit wiring. Individual LEDs indicate each source of trouble as a troubleshooting aid. Refer to Figure 12 for LED locations and descriptions.

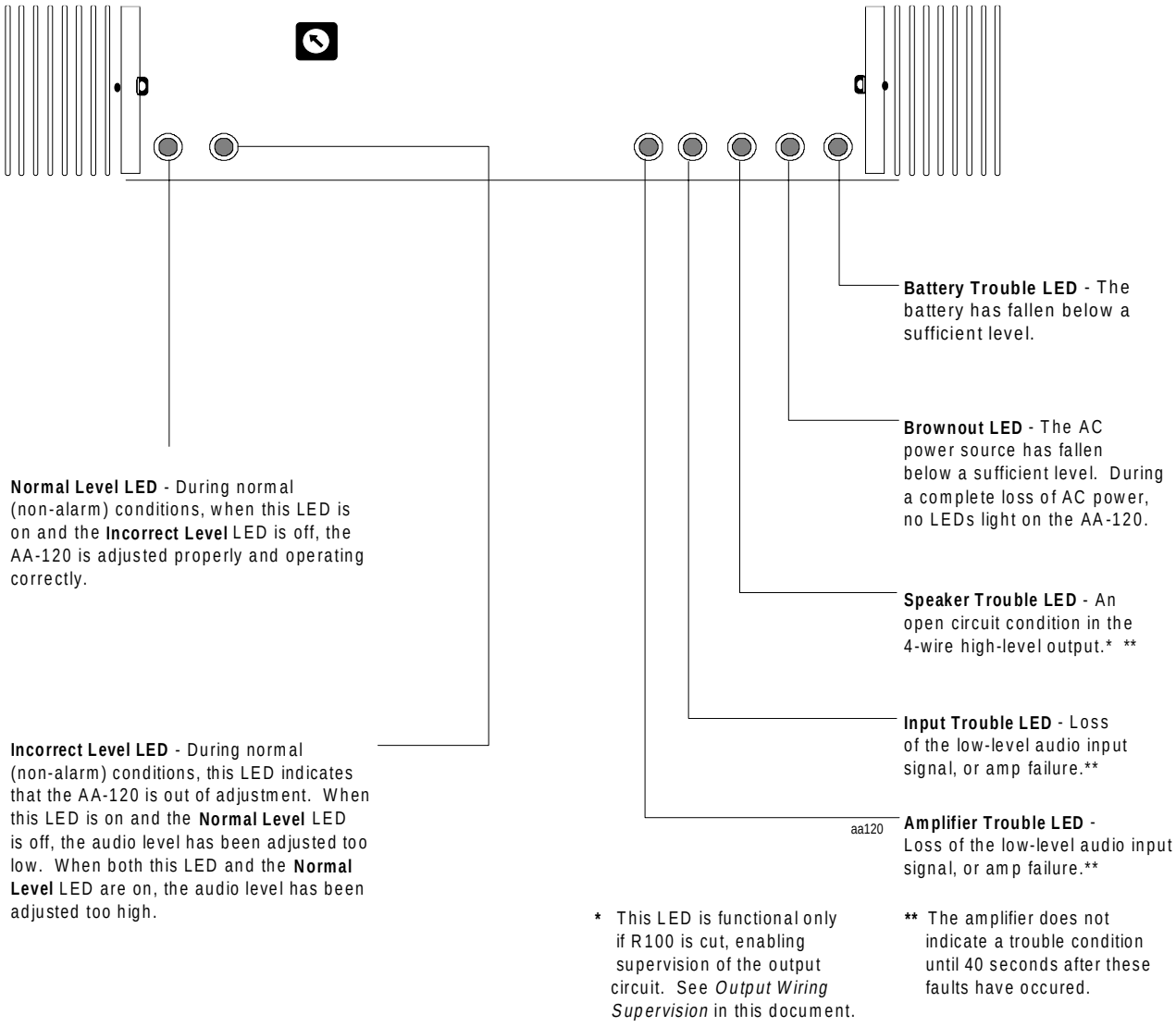


Figure 12: AA-120 Status LEDs

Note: During complete loss of primary (AC) power, when the AA-120 is operating on secondary (battery) power, no LEDs will light. This conserves secondary power.

FFT-7 Fire Fighter's Telephone, Control, and Indicators

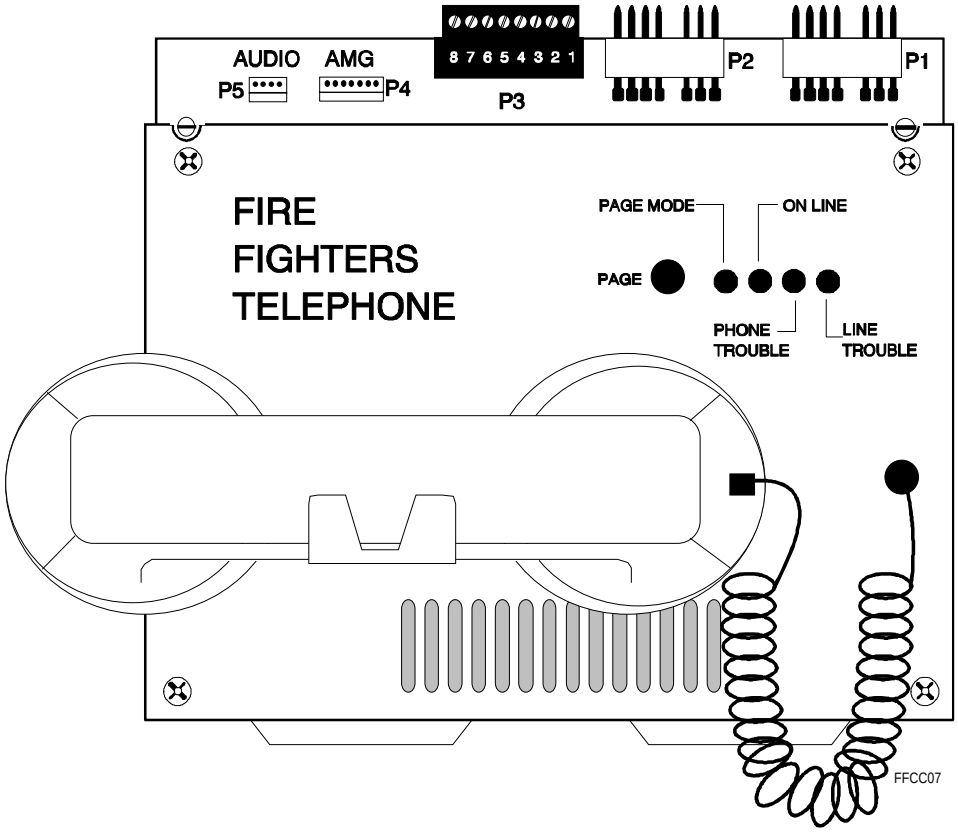


Figure 13: FFT-7 Fire Fighter's Telephone

LED Status Indicators

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 FC-2000 is powering the Fire Fighter's Telephone system.

PHONE TROUBLE

This yellow LED is normally off, illuminated to show the presence of a trouble in the Fire Fighter's Master Telephone (FFT-7) circuit.

LINE TROUBLE

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

Note: Phone trouble or line trouble in the Fire Fighter's Telephone system is also indicated at the CPU-2000 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-2000 LED operation from flashing to steady. Trouble signals are normally self-resetting and will clear as soon as the trouble conditions are corrected.

Controls

PAGE Switch

This switch can be used to allow a Fire Fighter's Telephone to be use for paging. To allow a fire fighter to page from a remote Fire Fighter's 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).

3. Instruct the fire fighter to speak into the Fire Fighter's Telephone. The fire fighter should talk loudly enough to cause the green AUDIO LEVEL LED on the AMG-1 to illuminate.

MPS-24A Main Power Supply, Status Indicator

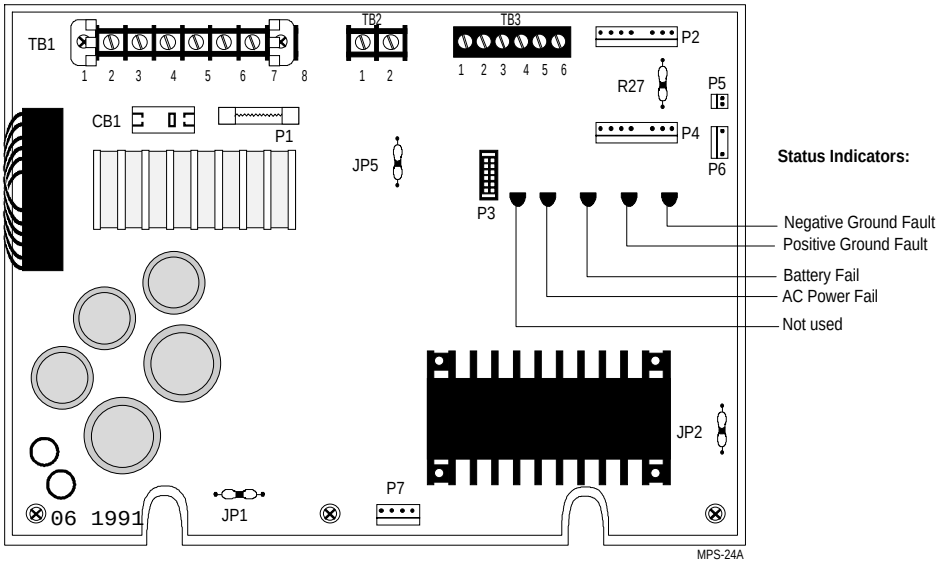


Figure 14: MPS-24A Main Power Supply Status Indicators

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 loss of AC line voltage, low AC line voltage, or 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.

MPS-24B Main Power Supply, Status Indicators

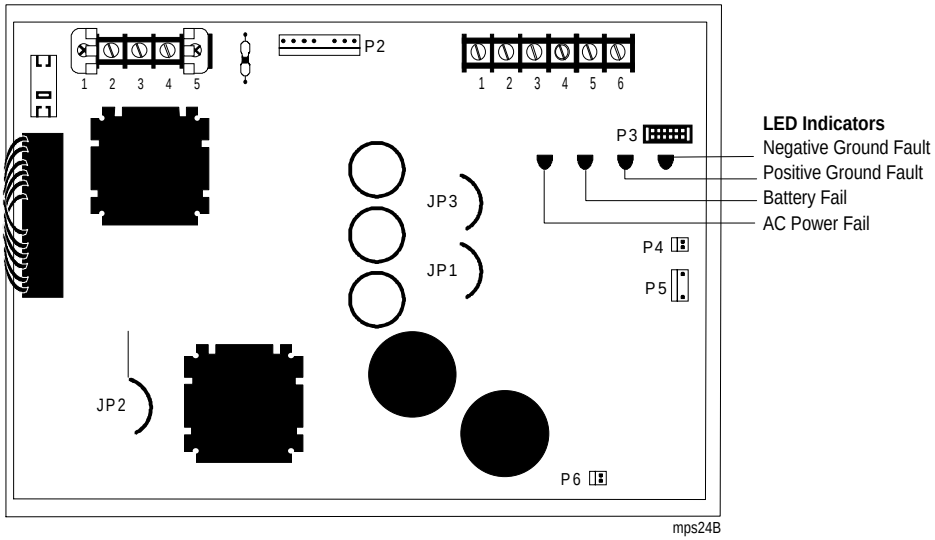


Figure 15: MPS-24B Main Power Supply Status Indicators

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 loss of AC line voltage, low AC line voltage or 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.

AVPS-24 Audio Visual Power Supply, Status Indicator

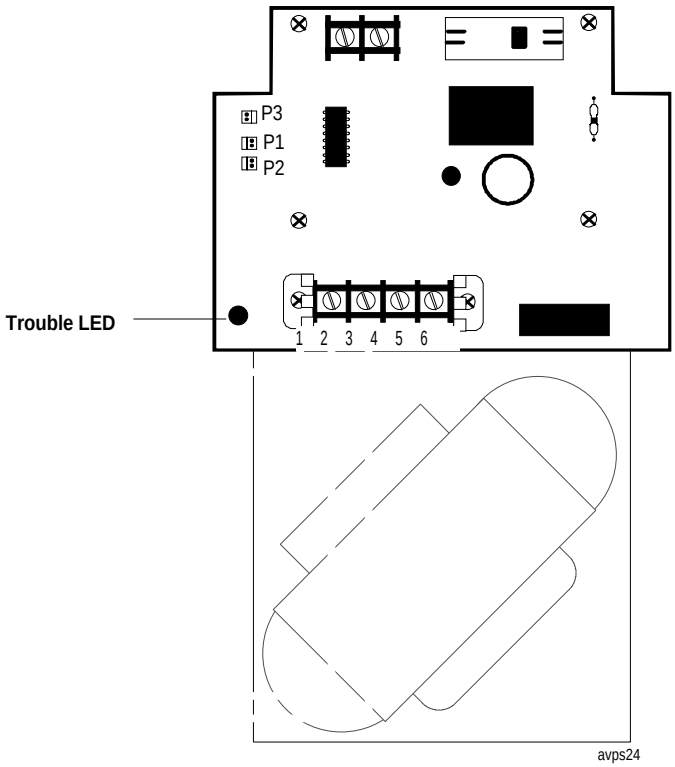


Figure 16: AVPS-24 Audio Visual Power Supply Status Indicator

Trouble LED

Normally off, yellow LED, illuminated to show the following trouble conditions:

- a power supply malfunction, loss of AC line voltage
- low AC line voltage
- open circuit breaker
- open battery lead(s)

Periodic Testing and Maintenance

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 NFPA standard 72 *Guide for Testing Procedures for Local, Auxiliary, Remote Station and Proprietary Protective Signaling Systems*; the *FC-2000 Technical Manual (FAN 406);* 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 (AHJ).

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 making the following check, notify fire department and/or central alarm receiving station if alarm conditions are transmitted; notify facility personnel of the testing so that alarm sounding devices are ignored during test period; when necessary, activation of alarm signaling devices can be prevented by depressing the ON/OFF switch on the signaling circuit(s) to be disable, while holding the 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 paging feature, if present. Reset alarm initiating device and the FC-2000.
6. Repeat Step 5 above for each initiating zone.
7. If the system contains Fire Fighter's Telephones, check operation of each telephone circuit.
8. Enable any signaling circuit(s) that were disabled in Step 4. 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.

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