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September 7, 2001

DF-52103 A1-200

# MS-9600

## Intelligent Addressable Fire Alarm Control Panel

Section: Addressable

### GENERAL

The **Fire-Lite MS-9600** is a compact, cost-effective, intelligent addressable fire alarm control panel with a capacity of 636 addressable **Fire-Lite** devices on two loops (2<sup>nd</sup> loop optional). A single Signaling Line Circuit (SLC) loop supports up to 159 smoke detectors and 159 control or monitor modules. The panel uses surface-mount technology and is designed for ease of installation and programming. It features the latest in advanced fire protection technology, including maintenance alert and automatic detector test.

### FEATURES

#### SLC Loop

- SLC can be configured for NFPA Style 4, 6, or 7 operation.
- Optional module for adding a second SLC loop (Part # SLC-2).
- SLC supports up to 318 addressable devices (159 detectors and 159 monitor, control, or relay modules), including the new addressable heat detector, duct detector and dual monitor module.
- SLC loop maximum length 10,000 ft. (3,048 m) @ 12 AWG (3.25 mm<sup>2</sup>). Needs twisted, shielded wire. (3,000 ft. untwisted, unshielded wire.)

#### Notification Appliance Circuits (NAC's)

- Two onboard NAC's with additional NAC capability using output control modules (CMF-300).
- Silence Inhibit and Auto Silence timer options.
- Continuous, March Time, Temporal or California code for main circuit board NAC's with two-stage capability.
- Selectable strobe synchronization per NAC.
- 6.0 amps total NAC power/7.2 amps total system power.

#### Programming and Software

- Auto-program (learn mode) reduces installation time.
- Fully programmable from local keypad, local PS-2 keyboard or PC via PK-9600UD Windows® utility.
- Two-level user programmable passwords.
- Custom English labels per point may be manually entered or selected from an internal library file.
- Two programmable Form-C relay outputs.
- 99 software zones.

#### User Interface

- Remote Acknowledge, Silence, Reset and Drill via addressable monitor modules, ACS-series annunciators or LCD-80F Remote annunciator.
- EIA-232 printer/PC interface (variable baud rate) on main circuit board.



S624



CS68



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**MEA**

72-01-E



**MS-9600**

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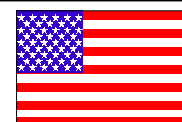
- Integral 80-character LCD display with backlighting.
- Real-time clock/calendar with automatic daylight savings time control.
- History file with 1,000-event capacity.
- EIA-485 supporting up to 32 ACS-series annunciators.
- EIA-485 supporting up to 32 LCD-80F annunciators.

#### Advanced Fire Technology

- Sensitivity testing with printable results.
- Automatic drift compensation.
- Maintenance alert warns when smoke detector dust accumulation is excessive.
- Automatic device type-code verification.
- One person audible or silent walk test with walk test log and printout.
- Point trouble identification.

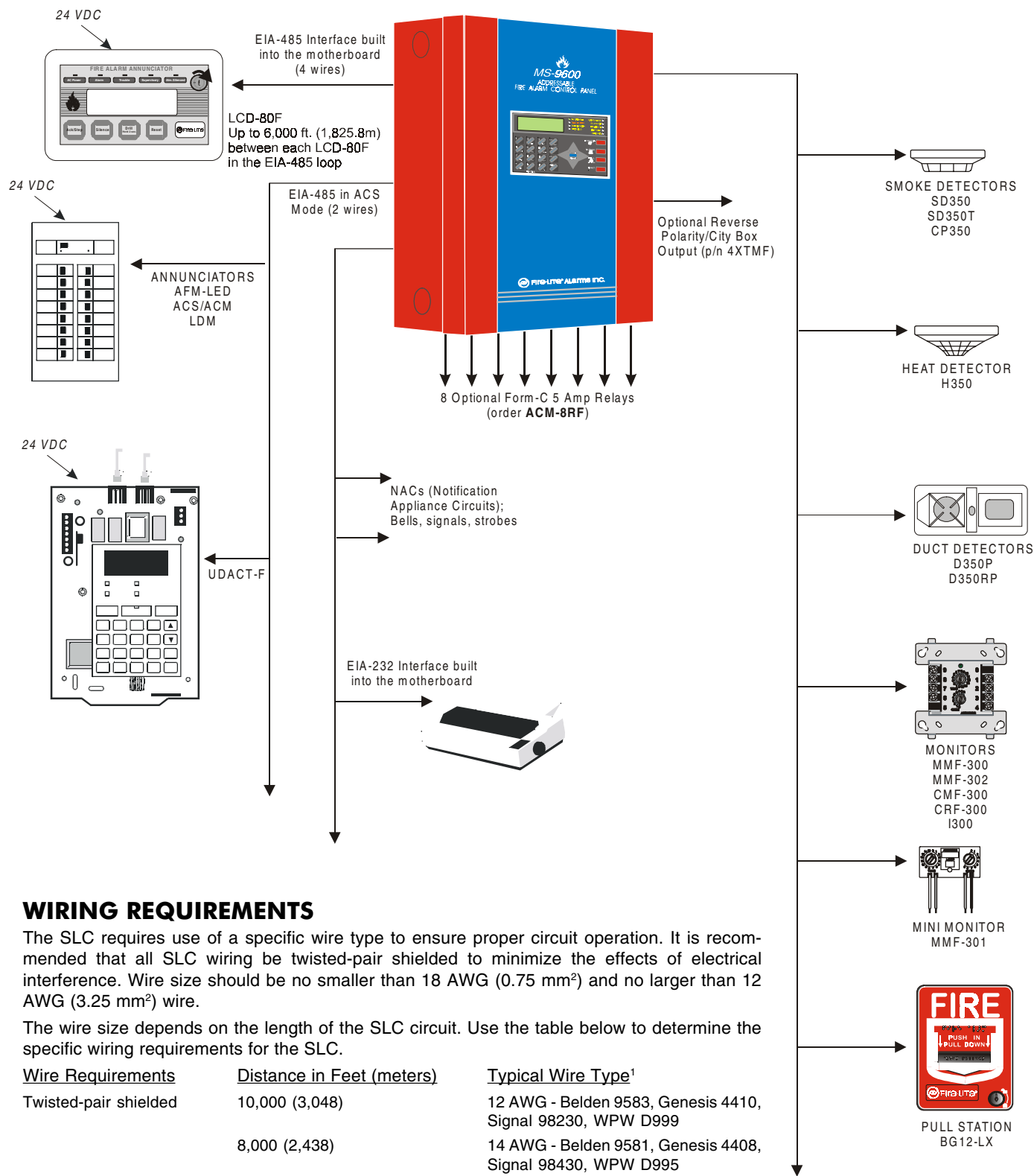
This document is not intended to be used for installation purposes. We try to keep our product information up-to-date and accurate. We cannot cover all specific applications or anticipate all requirements. All specifications are subject to change without notice. For more information, contact Fire-Lite Alarms, One Fire-Lite Place, Northford, Connecticut 06472. Phone: (800) 627-3473, Toll Free FAX: (877) 699-4105, FAX Back:(888) 388-3299

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SYSTEM PERIPHERALS AND WIRING



WIRING REQUIREMENTS

The SLC requires use of a specific wire type to ensure proper circuit operation. It is recommended that all SLC wiring be twisted-pair shielded to minimize the effects of electrical interference. Wire size should be no smaller than 18 AWG (0.75 mm²) and no larger than 12 AWG (3.25 mm²) wire.

The wire size depends on the length of the SLC circuit. Use the table below to determine the specific wiring requirements for the SLC.

Wire Requirements	Distance in Feet (meters)	Typical Wire Type <sup>1</sup>
Twisted-pair shielded	10,000 (3,048)	12 AWG - Belden 9583, Genesis 4410, Signal 98230, WPW D999
	8,000 (2,438)	14 AWG - Belden 9581, Genesis 4408, Signal 98430, WPW D995
	4,875 (1,486)	16 AWG - Belden 9575, Genesis 4406, & 4606, Signal 98630, WPW D991
	3,225 (983)	18 AWG - Belden 9574, Genesis 4402, & 4602, Signal 98300, WPW D975
Untwisted, unshielded	3,000 (915)	12 - 18 AWG

1. AWG wire size conversion to metric size: 12 AWG = 3.25mm²; 14 AWG = 2.00mm²; 16 AWG = 1.30mm²; 18 AWG = 0.75mm²

- Local Piezo sounder.
- Waterflow (nonsilenceable) selection per monitor point.
- System alarm verification selection per detector point.
- PAS (Positive Alarm Sequence) and presignal delay per point (NFPA 72 compliant).
- Optional 4XTMF module (conventional reverse polarity/city box transmitter).

## CONTROLS AND INDICATORS

### LED INDICATORS

1. AC POWER (green).
2. FIRE ALARM (red).
3. SUPERVISORY (yellow).
4. ALARM Silenced (yellow).
5. SYSTEM TROUBLE (yellow).
6. MAINTENANCE/PRESIGNAL (yellow)
7. DISABLED (yellow)
8. BATTERY FAULT (yellow)
9. GROUND FAULT (yellow)

### MEMBRANE SWITCH CONTROLS

1. ACKNOWLEDGE/STEP
2. ALARM SILENCE
3. DRILL
4. SYSTEM RESET (lamp test)
- 5 — 16. 12-key pad with full alphabet
- 17 — 20. 4 cursor keys
21. ENTER

## COMPATIBLE ADDRESSABLE DEVICES

All feature a polling LED and rotary switches for addressing.

<b>CP350</b>	Addressable low-profile ionization smoke detector.
<b>SD350</b>	Addressable low-profile photoelectric smoke detector.
<b>SD350(T)</b>	Addressable low-profile photoelectric smoke detector with thermal sensor.
<b>H350(R)</b>	Fast response low-profile heat detector (R=with Rate of Rise option).
<b>D350P(RP)</b>	Photoelectric duct smoke detector (R=with relay option).
<b>MMF-300</b>	Addressable Monitor Module for one zone of normally-open dry-contact initiating devices. Mounts in standard 4" (10.16 cm) box. Includes plastic cover plate and end-of-line resistor. Module may be configured for either a Style B (Class B) or Style D (Class A) IDC.
<b>MDF-300</b>	Dual Monitor Module. Same as MMF-300 except it provides two Style B (Class B) only IDC's.
<b>MMF-301</b>	Miniature version of MMF-300. Excludes LED and Style D option. Connects with wire pigtails. May mount in device backbox.
<b>MMF-302</b>	Similar to MMF-300, but may monitor up to 20 conventional two-wire detectors. Requires resettable 24 VDC power. <i>Consult factory for compatible smoke detectors.</i>
<b>CMF-300</b>	Addressable Control Module for one Style Y/Z (Class B/A) zone of supervised polarized Notification Appliances. Mounts directly to a 4" (10.16 cm) electrical box. Notification Appliance Circuit option requires external 24 VDC to power notification appliances.
<b>CRF-300</b>	Addressable relay module containing two isolated

sets of Form-C contacts, which operate as a DPDT switch. Mounts directly to a 4" (10.16 cm) box, surface mount using the SMB500.

<b>BG-12LX</b>	Addressable manual pull station with interface module mounted inside.
<b>I300</b>	This module isolates the SLC loop from short circuit conditions ( <i>required for Style 7 operation</i> ).
<b>SMB500</b>	Used to mount all modules except the MMF-301 and M301.

**Compatible with legacy Fire•Lite 300 Series devices. Please consult factory for further information on all the 300 series devices: CP300, SD300, SD300(T), M300, M301, M302, C304, and BG-10LX.**

**NOTES:** 1) "A" suffix should be included only when ordering ULC listed units (e.g. SD350A, MMF-300A). 2) For more detailed information on **Compatible Addressable Devices** for use with the MS-9600, please see the following data sheets (document numbers): **SD350/SD350T** (DF-52149), **CP350** (DF-52158), **MMF-300 Series/MDF-300 Addressable Monitor Modules** (DF-52121) and **BG-12LX** (DF-52013).

## COMPATIBLE ANNUNCIATORS

**EIA-485 Interface:** Built-in to the motherboard.

**AFM-LED Zone Series:** LED-type fire annunciators capable of providing up to 99 software zones of annunciation. Available in increments of 16 or 32 with expandable (AFM-X Series) and non-expandable (AFM Series) configurations to meet a variety of applications.

**ACS/ACM Annunciator Series:** Allow annunciation of Loop 1 and Loop 2 modules and detectors.

**LDM Graphic Series:** Lamp Driver Module series for use with custom graphic annunciators.

**LCD-80F (Liquid Crystal Display) point annunciator:** 80-character, backlit LCD-type fire annunciators capable of displaying English-language text. Up to 32 LCD-80F annunciators may be connected to the EIA-485 terminal mode serial interface on the MS-9600 motherboard.

**NOTE:** For more detailed information on **Compatible Annunciators** for use with the MS-9600, see the **LCD-80F annunciator section of the Fire•Lite Product Catalog.**

## FIELD-PROGRAMMING FEATURES

**Off-Line Programming:** Create entire program in your office using a Windows®-based software package (order programming kit PK-9600UD separately). Upload/Download system programming locally to the MS-9600 in less than one minute.

**Auto-Programming:** Command the MS-9600 to program itself (takes less than 30 seconds). In the Auto-Program mode, the MS-9600 scans for all possible devices at all addresses, stores the device types, and addresses found, and then loads default values for all options (General Alarm). It also checks for two or more devices set to the same address.

**On-Line Edit:** While still providing fire protection, the MS-9600 may be programmed from the front panel. Simple menu trees displayed on the LCD allow the trained user to perform all functions without referring back to the programming manual.

**English Label Library:** Quickly select labels from a standard library of more than 50 adjectives/nouns, such as

“FLR 3 HALLWAY,” or enter custom labels letter-by-letter. Use recall function to repeat previously used label.

**Program Check:** Automatically catch common errors, such as control modules not linked to any zone or input point.

## MAINTENANCE ALERT

The MS-9600 continuously monitors each smoke detector and is capable of reporting maintenance conditions. This reduces the risk of false alarms due to dust accumulation. Refer to the control panel installation manual for more information.

## AUTOMATIC TEST OPERATION

The MS-9600 performs an automatic test of each detector every two hours. Failure to meet the test limits causes an AUTO TEST FAIL trouble type. System Reset clears this trouble.

## NFPA STANDARDS

The MS-9600 complies with the following NFPA 72 Fire Alarm Systems requirements:

- **LOCAL** (Automatic, Manual, Waterflow and Sprinkler Supervisory).
- **AUXILIARY** (Automatic, Manual and Waterflow) (*requires 4XTM-F*).
- **REMOTE STATION** (Automatic, Manual and Waterflow) (*requires 4XTMF or UDACT-F*).
- **PROPRIETARY** (Automatic, Manual and Waterflow).
- **CENTRAL STATION** (Automatic, Manual and Waterflow, and Sprinkler Supervised) (*requires UDACT-F*).

## SPECIFICATIONS

**AC Power - TB1:** 120 VAC<sub>3</sub>, 60 Hz, 3.2 amps. Wire size: minimum 14 AWG (2.00 mm) with 600 V insulation.

**Battery (Lead Acid Only) - TB2:** Maximum Charging Circuit: Normal flat charge - 27.6 VDC @ 1.00 amp. Maximum Battery Charger Capacity: 25 amp hour (MS-9600 cabinet holds maximum of two 18 amp hour batteries. For 25 - 120 amp hour batteries, use the CHG-120F Battery Charger and BB-55F Battery Box.

**NOTE:** Jumper JP3, on the FACP main circuit board, must be cut to disable the FACP battery charger when using the CHG-120F.

**Communication Loop - (Standard) TB8 and (Optional SLC Expander Module) J3:** 24 VDC nominal, 27.6 VDC maximum. Maximum length is 10,000 ft. (3,000 m) total twisted, shielded pair length. Maximum loop current is 400mA (short circuit) or 100mA (normal). Maximum loop resistance is 40 ohms. Supervised and power-limited.

**Notification Appliance Circuits - TB4:** Power-limited circuitry. Maximum voltage drop in wiring: 2.0 VDC. Nominal operating voltage: 24 VDC. Current limit: fuseless, electronic, power-limited circuitry. Maximum signaling current per circuit: 3.00 amps. End-of-Line Resistor: 4.7 k OHM, 1/2 watt (P/N 71252 UL listed) for NAC's. Refer to Fire•Lite Device Compatibility Document for listed compatible devices.

**Programmable and Trouble Output Relays - TB5:** Contact rating: 2.0 amps @ 30 VDC (resistive), 0.5 amps @ 30 VAC (resistive). Form-C relays.

**4-Wire Resettable Smoke Detector Power (24 VDC nominal) - TB3, Terminals 1 (+) & 2 (-):** Maximum ripple voltage: 10 mVRMS. Up to 3.0 amps for powering 4-wire smoke detectors. Power-limited circuit. Refer to Fire•Lite Device Compatibility Document for listed compatible devices.

**Nonresettable Power #1 (24 VDC Nominal) - TB3, Terminals 3 (+) & 4 (-):** Maximum ripple voltage: 10 mVRMS. Up to 3.00 amps total DC current available from each output. Power-limited circuit.

**Nonresettable Power #2 (24 VDC Nominal) - TB3, Terminals 5 (+) & 6 (-):** Maximum ripple voltage: 10 mVRMS. Up to 3.00 amps total DC current available from each output. Power-limited circuit.

**NOTE:** 6 amps is the total amount of current that can be drawn from the following circuits: Resettable Power (TB3, 1-2), Nonresettable Power #1 and #2 (TB3, 3-4 & 5-6) and NAC #1 and #2 (TB4, 1-4 & 5-8).

**EIA-485 (ACS) - TB6:** ACS annunciator connector, Terminal 1 (+) and Terminal 2 (-).

**EIA-485 (TERM) - TB7:** Terminal mode annunciator connector, Terminal 5 (In +), 6 (In -), 7 (Out +), 8 (Out -).

**EIA-232 (ACS) - TB7:** PC/Printer connector, Terminal 1 (Transmit), 2 (Receive), 3 (DTR), 4 (Ground).

## CABINET SPECIFICATIONS

**Door:** 18.67" (47.43 cm) high x 15.78" (40.08 cm) wide x 1.08" (2.74 cm) deep. **Backbox:** 18.5" (47.0 cm) high x 15.5" (39.37 cm) wide x 4.37" (11.1 cm) deep. **Trim Ring (part # FC-TR):** 21.620" (54.92 cm) high x 18.620" (47.3 cm) wide.

## PRODUCT LINE INFORMATION

**MS-9600** A 636-point addressable Fire Alarm Control Panel. Includes 80-character LCD display, single printed circuit board, cabinet and dress panel.

**ACM-8RF** Optional plug-in relay module provides 8 Form-C 5.0 amp relays.

**DP-9600** Full-length internal dress panel included in panel.

**UDACT-F** Digital Alarm Communicator Transmitter.

**PK-9600UD** Programming software for Windows®-based PC computer (cable not included).

**FC-TR** Trim Ring for semi-flush mounting.

**BB-55F** Battery box, required to house two (2) PS-12250 batteries and one (1) CHG-120F battery charger. *For batteries greater than 25 AH, consult factory for housing/mounting arrangements.*

**CHG-120F** Remote battery charging system. *Required for charging greater than 25 AH batteries.*

**PS-1270** Battery, 12 volt, 7.0 AH, *(two required)*.

**PS-12120** Battery, 12 volt, 12.0 AH, *(two required)*.

**PS-12180** Battery, 12 volt, 18.0 AH, *(two required)*.

**PS-12250** Battery, 12 volt, 25 AH, *(two required; requires CHG-120F)*.

**PS-12550** Battery, 12 volt, 55 AH, *(two required; requires CHG-120F)*.

**FCPS-24F** Remote Power Supply expands NAC outputs by 4 circuits (supported by 6 amps) or can provide 4 amps continuous.

**PRT/PK-CABLE** Cable printer/personal computer interface cable.

**SLC-2** Optional second Signaling Line Circuit (SLC). Supports 159 detectors and 159 control, relay and monitor modules.

**BRKT-9600** Bracket used to install the UDACT-F or ACM-8R inside the MS-9600 cabinet.

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