MS-9600

Rev. 2/DACT-UD: Intelligent Addressable FACP with Optional 2nd Loop

FIRE·LITE by Honeywell

Reviewed for Code Compliance
Inspections Division
Approved with Conditions

Date: 10/20/14

General

The Fire•Lite MS-9600 is a compact, cost-effective, intelligent addressable fire alarm control panel with a capacity of 318 addressable Fire•Lite devices on one Signaling Line Circuit (**SLC**) or a total of 636 addressable points with an optional second loop (**SLC-2**). An optional modem (**DACT-UD**) is available for remote site upload/download and/or remote monitoring.

Each Signaling Line Circuit (SLC) loop supports up to 159 addressable detectors including photoelectric, photoelectric with heat, ionization, photoelectric duct, fixed heat, fixed heat with rate-of-rise, and fixed high-heat detectors. It also supports up to 159 addressable modules including monitor (two-wire detector, normally open devices), dual-monitor functions (two monitor circuits from one module, two addresses used), control (for Notification Appliance Circuits), and relay (two Form-C) modules. The panel uses surface-mount technology and is designed for ease of installation, programming, and maintenance. It features the latest in advanced fire protection technology, including maintenance alert and automatic detector test functions.

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SPECIAL FEATURES:

- Optional modem.
- Selectable strobe synchronization per NAC.
- Remote site upload/download.
- Four Class B or two Class A NAC circuits.

FEATURES

SLC Loop:

- SLC can be configured for NFPA Style 4, 6, or 7 operation.
- SLC supports up to 318 addressable devices per loop (159 detectors and 159 monitor, control, or relay modules), including the new addressable dual-monitor module, heat detectors, and duct detector.
- SLC loop maximum length 10,000 ft. (3,048 m) @ 12 AWG (3.31 mm²). Requires twisted, shielded wire (3,000 ft./914.4 m untwisted, unshielded wire).

Notification Appliance Circuits (NACs):

- Four onboard NACs with additional NAC capability using output control modules (CMF-300 or CMF-300-6).
- Silence Inhibit and Auto Silence timer options.
- Continuous, March Time, Temporal or California code for main circuit board NACs with two-stage capability.
- Selectable strobe synchronization per NAC.

Advanced Fire Technology:

- Sensitivity testing with printable results, onsite or offsite.
- Automatic drift compensation.

Programming and Software:

- Autoprogram (learn mode) reduces installation time.
- Fully programmable from local keypad, local PS-2 keyboard or PC via PK-Plus Windows® utility.
- Remote site upload/download capability (with DACT-UD).
- 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:

- Optional modem (DACT-UD).
- 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.
- Integral 80-character LCD display with backlighting.
- Real-time clock/calendar with automatic daylight savings adjustments.
- 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.
- 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.
- 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).

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 (0.821 mm²) and no larger than 12 AWG (3.31 mm²). 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 (m)	Typical Wire Size
Twisted-pair, shielded	10,000 feet (3,048 m)	12 AWG (3.31 mm²): Belden 9583, Genesis 4410, Signal 98230, WPW D999.
Twisted-pair, shielded	8,000 feet (2,438 m)	14 AWG (2.08 mm²): Belden 9581, Genesis 4408, Signal 98430, WPW D995.
Twisted-pair, shielded	4,875 feet (1,486 m)	16 AWG (1.31 mm²): Belden 9575, Genesis 4406 and 4606, Signal 98630, WPW D991.
Twisted-pair, shielded	3,225 feet (983 m)	18 AWG (0.821 mm²): Belden 9574, Genesis 4402 and 4602, Signal 98300, WPW D975.
Untwisted, unshielded	3,000 feet (915 m)	12 – 18 AWG (3.31 – 0.821 mm²).

- 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	TROUBLE (yellow)
6	MAINTENANCE/PRESIGNAL (yellow)
7	DISABLED (yellow)
8	BATTERY (yellow)
9	GROUND (yellow)

MEMBRANE SWITCH CONTROLS

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

Field-Programming Features

OFFLINE PROGRAMMING: Create the entire program in your office using a Windows®-based software package *(order programming kit **PK-CD**, containing PK-Plus, separately).* Upload/download system programming locally to the MS-9600 in less than one minute.

AUTOPROGRAMMING: 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.

ONLINE 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.

Specifications

AC Power – TB1: 120 VAC, 60 Hz, 3.0
14 AWG (2.08 mm²) with 600 V insulat

Battery (lead acid only) – TB2: *Ma*
Normal flat charge 27.6 VDC @ 1.
charger capacity: 25 AH. MS-9600 cal
two 18 AH batteries. For 25 – 120 AH
120F or CHG-75 Battery Charger and

***NOTE:** Jumper JP3, on the FACP mai*
cut to disable the FACP battery charger when using the CHG-120F.

Communication Loop – (standard) TB8: 24 VDC nominal, 27.6 VDC maximum. *Maximum length:* 10,000 ft. (3048 m) total twisted, shielded pair length. *Maximum loop current:* 400 mA (short circuit) or 100 mA (normal). *Maximum loop resistance:* 40 ohms. Supervised and power-limited.

The maximum available current shared between all NACs and auxiliary power outputs is 7.0 A at 24 VDC.

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:* 3.0 A. End-of-Line Resistor: 4.7K ohm, 1/2 watt (P/N 71252 UL listed) for NACs. Refer to *Fire•Lite Device Compatibility Document* for listed compatible devices.

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

Four-Wire Resettable Smoke Detector Power (24 VDC nominal) – TB3, Terminals 1(+) & 2(–): *Maximum ripple voltage:* 10 mVrms. Up to 3.0 A for powering four-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 0.5 A total DC current available from each output. Power-limited circuit. **TB3, Terminals 5 (+) & 6 (–):** non-resettable power #2.

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

EIA-485 (TERM) – TB7: Terminal mode annunciator connector, Terminal 1 (Out +), 2 (In +), 3 (Out –), 4 (In –).

EIA-232 – TB8: 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:** 18.50" (47.0 cm) high x 15.50" (39.37 cm) wide x 4.37" (11.1 cm) deep. **Trim Ring (FC-TR):** 21.62" (54.92 cm) high x 18.62" (47.3 cm) wide.

Product Line Information

MS-9600: 318-point addressable Fire Alarm Control Panel, one SLC loop. Includes 80-character LCD display, single printed circuit board, and cabinet.

DACT-UD: Optional modem for remote site upload/download and/or remote monitoring.

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

PK-CD: Contains PK-Plus programming software for Windows®-based PC computer (cable not included).

SLC-2: Optional expander module, enables second SLC loop.

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BRKT-9600: Bracket, mounts UDACT-F and ACM-8RF within MS-9600 cabinet.

DP-9600: Dress panel for MS-9600.

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

BB-55F: Battery box, required to house two 25 AH batteries and one CHG-120F battery charger. For batteries greater than 25 AH, consult factory for housing/mounting arrangements.

BB-26: Battery backbox, holds up to two 25 AH batteries.

CHG-120F: Remote battery charging system for lead-acid batteries with a rating of 25 to 120 AH. CHG-120F or CHG-75 required for charging greater than 25 AH batteries.

CHG-75: Battery charger for lead-acid batteries with a rating of 25 to 75 AH. CHG-120F or CHG-75 required for charging greater than 25 AH batteries.

BAT Series: Batteries, see data sheet DF-52397.

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

Compatible Addressable Devices

All feature a polling LED and rotary switches for addressing.

CP355: Addressable low-profile ionization smoke detector.

SD355: Addressable low-profile photoelectric smoke detector.

SD355T: Addressable low-profile photoelectric smoke detector with thermal sensor.

H355: Fast-response, low-profile heat detector.

H355R: Fast-response, low-profile heat detector with rate-of-rise option.

AD355: Low-profile, intelligent, “Adapt” multi-sensor detector (B350LP base included).

D350PL: Photoelectric low-flow duct smoke detector.

D350RPL: Photoelectric low-flow duct smoke detector with relay option.

MMF-300: Addressable Monitor Module for one zone of normally-open dry-contact initiating devices. Mounts in standard 4.0" (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.

MDF-300: Dual Monitor Module. Same as MMF-300 except it provides two Style B (Class B) only IDCs.

MMF-301: Miniature version of MMF-300. Excludes LED and Style D option. Connects with wire pigtails. May mount in device backbox.

MMF-302: Similar to MMF-300, but may monitor up to 20 conventional two-wire detectors. Requires resettable 24 VDC power. Consult Device Compatibility Document for compatible smoke detectors.

CMF-300: Addressable Control Module for one Style Y/Z (Class B/A) zone of supervised polarized Notification Appliances. Mounts directly to a 4.0" (10.16 cm) electrical box. Notification Appliance Circuit option requires external 24 VDC to power notification appliances.

CRF-300: Addressable relay module containing two isolated sets of Form-C contacts, which operate as a DPDT switch. Mounts directly to a 4.0" (10.16 cm) box, surface mount using the SMB500.

BG-12LX: Addressable manual pull station with interface module mounted inside.

I300: This module isolates the SLC loo
ditions (required for Style 7 operation).

SMB500: Used to mount all modules e
M301.

MMF-300-10: Ten-input monitor mod
modules in a BB-2F cabinet (optional)
ules on a CHS-6 chassis in a BB-6F.

MMF-302-6: Six-zone interface modu
modules in a BB-2F cabinet (optional)
ules on a CHS-6 chassis in a BB-6F.

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CMF-300-6: Six-circuit supervised control module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F.

CRF-300-6: Six Form-C relay control module. Mount one or two modules in a BB-2F cabinet (optional). Mount up to six modules on a CHS-6 chassis in a BB-6F.

NOTES: 1) Compatible with legacy Fire•Lite 300 Series devices. Please consult factory for further information on previous 300 Series devices: CP300/CP350, SD300(T)/SD350(T), D350(R)P, M300, M301, M302, C304, and BG-10LX. **2)** “A” suffix should be included only when ordering ULC listed units (e.g., SD355A, MMF-300A). **3)** For more information on **Compatible Addressable Devices** for use with the MS-9600, see the following data sheets (document numbers): **AD355** (DF-52386), **BG-12LX** (DF-52013), **CMF-300-6** (DF-52365), **CRF-300-6** (DF-52374), **CMF/CRF Series** (DF-52130), **CP355** (DF-52383), **D350PL/D350RPL** (DF-52398), **H355 Series** (DF-52385), **I300** (DF-52389), **MMF-300 Series/MDF-300** (DF-52121), **MMF-300-10** (DF-52347), **MMF-302-6** (DF-52356), **SD355/SD355T** (DF-52384).

Compatible Annunciators

EIA-485 interface: Built into the motherboard.

ACS/ACM Annunciator Series: Allows annunciation of loop modules and detectors. For more information, refer to data sheet DF-52378.

LDM Graphic Series: Lamp Driver Module series for use with custom graphic annunciators. For more information, refer to data sheet DF-51384.

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. For more information, refer to data sheet DF-52185.

Temperature and Humidity Ranges

This system meets NFPA requirements for operation at 0 – 49°C/32 – 120°F and at a relative humidity 93% ± 2% RH(non-condensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15 – 27°C/60 – 80°F.

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 4XTMF)*.
- **REMOTE STATION** (Automatic, Manual and Waterflow) *(requires 4XTMF)*.
- **PROPRIETARY** (Automatic, Manual and Waterflow).
- **CENTRAL STATION** (Automatic, Manual and Waterflow, and Sprinkler Supervised).

Agency Listings and Approvals

The listings and approvals below apply to the basic MS-9600 control panel. In some cases, certain modules may not be listed by certain approval agencies, or listing may be in process. Consult factory for latest listing status.

- **UL: S624**
- **ULC CS68 (except DACT-UD)**
- **FM approved**
- **CSFM 7165-0075:191**
- **MEA 72-01-E/341-03-E**

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