

# MS-9050UD

## Fire Alarm Control Panel with DACT



Addressable

### General

The Fire•Lite MS-9050UD is a Fire Alarm Control Panel (FACP) and Digital Alarm Communicator/Transmitter (DACT) combined into one circuit board. This compact, cost effective, intelligent addressable control panel supports up to 50 addressable devices of any type of detectors and modules. With an extensive list of powerful features, the MS-9050UD programs just like Fire•Lite's larger products, yet fits into applications previously served only by conventional panels.

The MS-9050UD's integral DACT transmits system status (alarms, troubles, AC loss, etc.) to a Central Station via the public switched telephone network.

The power supply and all electronics are contained on a single circuit board supported on a new quick install chassis and housed in a metal cabinet. Available accessories include remote annunciators and reverse polarity/city box transmitter. (4XTMF)

### Features

- Listed to UL Standard 864, 9th edition.
- Auto-program (learn mode) reduces installation time. Reports two devices set to the same address.
- On-board DACT.
- 20 software zones.
- Two independently programmable Style Z (Class A) or Style Y (Class B) NAC circuits.
- Selectable strobe synchronization for System Sensor, Wheelock, and Gentex devices.
- Remote Acknowledge, Silence, Reset and Drill via addressable monitor modules.
- Two programmable relays and one fixed trouble relay.
- Integral 80-character LCD display with backlighting.
- Real-time clock/calendar with automatic daylight savings control.
- History file with 500 event capacity.
- Detector sensitivity test capability (NFPA 72 compliant).
- Maintenance alert warns when smoke detector dust accumulation is excessive.
- One person audible or silent walk test with walk-test log and printout.
- Point trouble identification.
- Waterflow (nonsilenceable) selection per monitor point.
- System alarm verification selection per detector point.
- PAS (Positive Alarm Sequence) and Pre-signal per point (NFPA 72 compliant).
- Up to eight ANN-BUS annunciators.

#### SLC COMMUNICATION LOOP:

- Single addressable SLC loop which meets NFPA Style 4, 6 and 7 requirements.
- 50 addressable device capacity (any combination of addressable detectors and modules).
- Compatible with Fire•Lite's addressable devices (refer to SLC Wiring Manual).



#### NOTIFICATION APPLIANCE CIRCUITS (NACS):

- Two independently programmable output circuits. Circuits can be configured for the following outputs:
  - **Style Y (Class B)**
  - **Style Z (Class A)**
  - **Door Holder Service**
  - **Aux Power Source**
- Silence Inhibit and Autosilence timer options.
- Continuous, March Time, Temporal or California code for main circuit board NACs with two-stage capability.
- Selectable strobe synchronization per NAC.
- 2.5 A total power for NACs.

**NOTE:** Maximum or total 24VDC system power shared between all NAC circuits and the ANN-BUS is 2.7 A.

#### PROGRAMMING AND SOFTWARE:

- Autoprogram (learn mode) reduces installation time.
- Custom English labels (per point) may be manually entered or selected from an internal library file.
- Two programmable Form-C relay outputs.
- 20 software zones.
- Continuous fire protection during online programming at the front panel.
- Program Check automatically catches common errors not linked to any zone or input point.

## User interface

### LED INDICATORS

- AC Power (green)
- Fire Alarm (red)
- Supervisory (yellow)
- Trouble (yellow)
- Alarm Silenced signals (yellow)

### KEYPAD

- 16 key alpha-numeric pad.
- Acknowledge/Step
- Alarm Silenced
- Drill (Manual Evacuate)
- Reset (lamp test)

## Ordering Options

**MS-9050UD:** Combination DACT/Fire Alarm Control Panel with one SLC loop. Includes main circuit board with display, chassis with transformer, backbox with door, plastic bag containing screws, cables, key, etc., manual.

**DP-51050:** Optional dress panel for the MS-9050UD.

**TR-CE:** Trim Ring for semi-flush mounting.

**BB-26:** Battery backbox, holds up to two 25 AH batteries and CHG-75.

**BB-55F:** Battery box, houses two 55 AH batteries

**CHG-75:** Battery charger for lead-acid batteries with a rating of 25 to 75 AH.

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

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

**PRN-6F:** UL listed compatible event printer. Uses tractor-fed paper.

### OPTIONAL MODULES

**4XTMF Reverse Polarity Transmitter Module:** Provides a supervised output for local energy municipal box transmitter, alarm and trouble. Includes a disable switch and disable trouble LED.

### COMPATIBLE ANNUNCIATORS

**ANN-80:** Remote LCD annunciator mimics the FACP display

**ANN-I/O:** Input/Output Module for driving graphic annunciators or relays

**ANN-S/PG:** Serial/Parallel Printer Interface module for connecting printer to FACP

### 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). *CLIP MODE ONLY*

**BEAM355:** Intelligent beam smoke detector.

**BEAM355S:** Intelligent beam smoke detector with integral sensitivity test.

**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 pigtailed. 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 factory 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 loop from short circuit conditions (required for Style 6 or 7 operation).

**SMB500:** Used to mount all modules except the MMF-301 and M301.

**MMF-300-10:** Ten-input monitor 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 cabinet.

**MMF-302-6:** Six-zone interface 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 cabinet.

**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 cabinet.

**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 cabinet.

**NOTE:** 1) For more information on Compatible Addressable Devices for use with the MS-9050UD, 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).

2) Legacy 300 Series detection devices such as the AD355, CP300/CP350, SD300(T)/SD350(T) and older modules such as the M300, M301, M302, C304, and BG-10LX are **not compatible** with LiteSpeed polling. If the SLC contains one of these devices, polling must be set for standard CLIP protocol. Please consult factory for further information on previous 300 Series devices.

## ADDRESSABLE DEVICE ACCESSORIES

**End-of-Line Resistor Assembly (R-47K and R-3.9K):** 47k ohm supervises the MMF-300, MDF-300, MMF-301, and CMF-300 module circuits. 3.9k ohm End-of-Line Resistor assembly supervises the MMF-302 module circuit. These resistors are included with each module.

**Power Supervision Relay:** Supervises the power to 4-wire smoke detectors and notification appliances.

**N-ELR Mounting Plate:** Single End-of-Line resistor plate required for use in Canada.

## Wiring Requirements

While shielded wire is not required, it is recommended that all SLC wiring be twisted-pair to minimize the effects of electrical interference. Wire size should be no smaller than 18 AWG (0.78 mm<sup>2</sup>) and no larger than 12 AWG (3.1 mm<sup>2</sup>). The wire size depends on the length of the SLC circuit. Use the following table to determine the specific wiring requirements for the SLC. (Refer to the panel manual for complete details.)

CIRCUIT CONNECTIONS		WIRE REQUIREMENTS		
Circuit Type	Circuit Function	Wire Type and Limitations	Recommended Max. Distance Feet (meters)	Wire Gauge and Compatible Brands
SLC loop (power-limited)	Connects to Addressable Devices	Twisted, shielded pair 40 ohms maximum per length of Style 6 and 7 loops. 40 ohms per branch maximum for Style 4 loops	10,000 (3,000 m) 8,000 (2,400 m) 4,875 (1,450 m) 3,225 (980 m)	12 AWG (3.25 mm <sup>2</sup> ): Genesis 4410, Signal 98230, Belden 9583, WPW999 14 AWG (2.00 mm <sup>2</sup> ): Genesis 4408 & 4608 Signal 98430, Belden 9581, WPW995 16 AWG (1.30 mm <sup>2</sup> ): Genesis 4406 & 4606 Signal 98630, Belden 9575, WPW991 <u>Direct Burial Cable</u> Isotec NP713110VNQ-S 18 AWG (0.75 mm <sup>2</sup> ): Genesis 4402 & 4602 Signal 98300, Belden 9574, WPW975 <u>Direct Burial Cable</u> Isotec NP714110VNQ-S
		Twisted, unshielded pair 40 ohms maximum per length of Style 6 and 7 loops. 40 ohms per branch maximum for Style 4 loops	10,000 (3,000 m) 8,000 (2,400 m) 4,875 (1,450 m) 3,225 (980 m)	12 AWG (3.25 mm <sup>2</sup> ): Belden 5020UL & 6020UL, Genesis WG-4315 & WG-4515 14 AWG (2.00 mm <sup>2</sup> ): Belden 5120UL & 6120UL, Genesis WG-4313 & WG-4513 16 AWG (1.30 mm <sup>2</sup> ): Belden 5220UL & 6220UL, Genesis WG-4311 & WG-4511 18 AWG (0.75 mm <sup>2</sup> ): Belden 5320UL & 6320UL, Genesis WG-4306 & WG-4506
		Untwisted, unshielded pair <sup>a</sup>	3,000 (900 m)	12-18 AWG (3.25 - 0.75 mm <sup>2</sup> ) using listed wire
ANN-BUS (EIA-485) (power-limited)	Connects to annunciator modules	Twisted, shielded pair with a characteristic impedance of 120 ohms	6,000 (1,800 m)	18 AWG (0.75 mm <sup>2</sup> )
EIA-232 (power-limited)	Connects to remote PC computer	Twisted, shielded pair	50 (15 m)	18 AWG (0.75 mm <sup>2</sup> ) minimum
MMF-300 and MMF-301 (power-limited)	Initiating Device Circuit	Maximum loop wire resistance is 40 ohms for the MMF-300 and 20 ohms for the MMF-301	2,500 (760 m)	12-18 AWG (3.25 - 0.75 mm <sup>2</sup> )
MMF-302 (power-limited)	Initiating Device Circuit	No more than a 2.4 volt drop allowed at end of circuit. Maximum loop wire resistance is 25 ohms	2,500 (760 m)	12-18 AWG (3.25 - 0.75 mm <sup>2</sup> )
CMF-300 (power-limited)	Notification Appliance Circuit	In alarm, no more than a 1.2 volt drop allowed at end of circuit	Distance limitation set by 1.2 volt maximum line drop	12-18 AWG (3.25 - 0.75 mm <sup>2</sup> )

a) When using untwisted, unshielded wire, full conduit is recommended for optimum EMI/RFI protection.

# SYSTEM SPECIFICATIONS

## System Capacity

- Intelligent Signalling Line Circuits..... 1
- Addressable device capacity ..... 50
- Programmable software zones ..... 20
- Annunciators ..... 8

## Electrical Specifications

**AC Power:** 120 VAC, 60 Hz, 0.3 A.

**Battery:** Two 12 V 18 AH lead-acid batteries. Battery Charger Capacity: 7-18 AH (MS-9050UD cabinet holds maximum of two 18 AH batteries.)

**Communication Loop:** Supervised and power-limited.

**Notification Appliance Circuits:** Terminal Block provides connections for two NACs, Style Y (Class B) or. Style Z (Class A). Special Application power. Power-limited, supervised circuitry. Maximum signaling current per circuit: 2.5 A. End-of-Line Resistor: 4.7 kohm, ½ watt (P/N 71252 UL listed) for Style Y (Class B) NAC. Refer to the Fire•Lite Device Compatibility Document for listed compatible devices.

**Two Programmable Relays and One Fixed Trouble Relay:** Contact rating: 2.0 A @ 30 VDC (resistive), 0.5 A @ 30 VAC (resistive). Form-C relays, nonpower-limited, nonsupervised.

## Cabinet Specifications

**Door:** 19.26" (48.92 cm.) high x 16.82" (42.73 cm.) wide x 0.72" (1.82 cm.) deep. **Backbox:** 19.00" (48.26 cm.) high x 16.65" (42.29 cm.) wide x 5.25" (13.34 cm.) deep. **Trim Ring (TR-CE):** 22.00" (55.88 cm.) high x 19.65" (49.91 cm.) wide.

## Shipping Specifications

**Weight:** 26.9 lbs. (12.20 kg.) **Dimensions:** 20.00" (50.80 cm.) high x 22.5" (57.15 cm.) wide x 8.5" (21.59 cm.) deep.

## 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

(noncondensing) 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-9050UD 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) (Where a DACT is not accepted, the alarm, trouble and supervisory relays may be connected to UL 864 listed transmitters. For reverse polarity signaling of alarm and trouble, 4XTMF is required.)
- **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-9050UD 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
- **FM approved**
- **CSFM:** 7165-0075:210
- **MEA:** 442-06-E

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