MR-2200

Intelligent Fire Alarm Control Panels

MR-2200 Intelligent Fire Alarm Control Panel
(shown with optional LED modules)

Description

Secutron's MR-2200 Intelligent input fire alarm control panels provide flexible and cost effective operation to satisfy system requirements for both economy and capability. Their modular design assures that as system needs and applicable codes evolve, fire alarm control panel functions can be updated as required.

Optional networking modules allows the MR-2200 to be connected to a Secutron network to provide additional input circuits, visual zones, programmable notification appliance (bell) circuits, and relays. Up to 254 control and annunciator units can be networked together. The network is a DCLR (Data Communications Link, Redundant) configuration loop.

The MR-2200 models provide two SLCs for support of 198 devices on each allowing a total capacity of up to 396 intelligent devices; up to 198 detectors and up to 198 control/monitor modules total.

Option modules are available and can be conveniently field installed. Modules are available for: additional NAC output circuits & function relays, local LED annunciation, additional NAC power, and Central Station (DACT) or Remote Station (DACT or CITY Module) connection.

Programming the MR-2200 consists of two convenient and easy operations. Input circuit programming and special features (such as cross zoning functions, day/night mode, selective control operations, etc.) is performed from an externally generated database produced on a Windows® based PC. System parameters and control panel display and operation functions are conveniently programmed from the on board LCD and keypad.

Features

- Listed to UL 864, 9th edition
- MR-2200 provides Dual Intelligent Input Signaling Line Circuits for up to 396 Intelligent Devices
- SLCs are selectable for either Class A (Style 6) or Class B (Style 4) operation
- Two Notification Appliance Circuits (NACs), Class A (Style Z) or Class B (Style Y); expandable to eight NACs with optional MRNC2 modules
- Four programmable functions relays, Form C; expandable to sixteen relays with MRRL4 modules
- Programmable cross-zoning functions, day/night mode, and selective control operations
- Two aux. power outputs, 500 mA @ 24 VDC each
- 6.0 A Power supply with integral battery charger provides 2.5 A for NACs and Auxiliary Outputs; Expandable to provide up to 7 A NAC Current
- Four additional communications ports for Dialer, PC Interface, Voice Evacuation System, and Remote Annunciators
- Optional Style 7 (DCLR) MR network peer-to-peer communications
- LCD/LED system status display with optional MRLD8 LED zone display modules (required for ULC listed applications)
- Surface/flush mount cabinet with dead front construction allows up to 12 Ah batteries internally mounted
- Battery charger is capable of charging up to 35 Ah mounted in an external battery cabinet
- Cabinet doors are removable for easy installation
- Terminal blocks are removable for easy wiring
- Operating program and database can both be uploaded/downloaded using a Windows® based PC with Secutron Programming Software
- Non-volatile event history log stores 1000+ events

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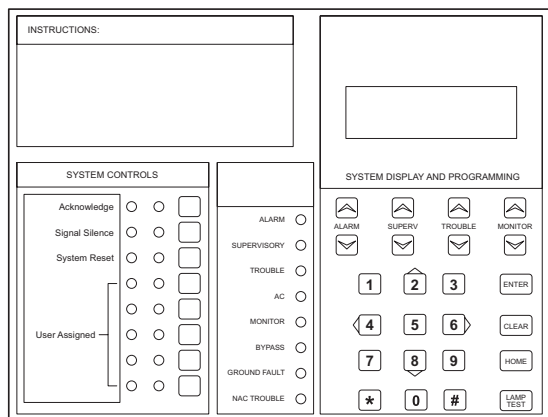352-03-E

Main Control Unit

System controls consist of eight system switches, an LCD readout, and display entry switches. The display entry keypad is used for technical functions, system/detector maintenance, history recall, device and circuit disarming, and for manual operation of intelligent output modules, relay modules, and notification appliance (bell) circuits.

Operator Keys

There are eight operator keys. In the figure below, the keys are located on the lower left and are labeled "System Controls." The LEDs associated with these keys are used to display function status. The top three keys are pre assigned and are: Acknowledge, Signal Silence, and System Reset.

The bottom five keys are user-assignable, selected for the following functions: Lamp Test, Relay Disconnect, Test Mode, Signal Disconnect, Common Disconnect, General Alarm, Selectable Switch Function On, Switch Function Off, or Manual Restart.

The panel local sounder will beep once when a valid key is pressed and beep three times if an invalid or unavailable key is pressed. Key presses are recorded in the history log.

MR-2200 Main Control Panel

Display Information

The Main Control Panel LCD readout is backlighted and displays 4 lines with 20 characters per line. With AC power present, the LCD backlighting turns off automatically within 5 minutes if no activity occurs. During AC power failure, the backlighting will turn off within 30 seconds without activity.

During normal conditions the display is the main menu which includes the date and a 24 hour clock. During alarm conditions, the first or last (selectable) events of highest priority will be displayed instead of the main menu. A status summary screen lists the number of active alarm, supervisory, or trouble events indicating "SYSTEM OFF NORMAL."

Intelligent Input Circuits

Up to 99 intelligent detectors and up to 99 intelligent control/ monitoring modules may be connected per SLC for a total of 198 intelligent devices. MR-2200 models provide dual SLCs.

Intelligent monitoring modules can be programmed for alarm or supervisory functions. Control modules are available for dry contact or supervised output functions.

NAC Outputs

Standard are two NACs rated 2 A maximum. NAC output voltage is a nominal 24 VDC, full wave rectified. NAC expansion can be up to eight NACs by using MRNC2 NAC expander modules.

Auxiliary Outputs

Two auxiliary power outputs are provided, each rated for 500 mA at a nominal 24 VDC, filtered and regulated.

Function Relays

The panel comes with four programmable Form C function relays rated 2 A @ 30 VDC resistive. Total function relays can be expanded to 16 by using MRRL4 relay expander modules. Relays can be programmed as Common Alarm, Common Trouble, Common Supervisory, or general purpose functions.

Power Supply and Expansion Transformer

the MR-2200 fire alarm control panel is shipped with a 120 VAC / 240 VAC transformer. Total NAC power can be increased by adding a second transformer, MR-XPS.

The standard power supply provides 2.5 A @ 24 VDC (full wave rectified, unfiltered) for the total of NAC and Auxiliary power output. With the addition of an optional transformer, the total NAC and Auxiliary power output is increased to 8 A with up to 7 A available for NACs.

Enclosure Details

The enclosure includes the mounting box, outer door, dead front door, and hardware plate. It can be flush or surface mounted without requiring a separate trim ring.

Both the outer door and dead front doors are removable. The hardware plate holds the main printed circuit board and transformer(s). This enclosure holds two transformers, up to three NAC or Relay expander modules, and one communicator module.

The backbox is included with the fire alarm control panel and includes an outer lip around the perimeter to provide a built in trim for semi-flush mounting applications. The door conceals the outer lip and provides a neat and clean appearance for surface mounted box applications.

Optional Features

NAC Expander Board Model MRNC2

NAC Expander Boards provide two additional NAC outputs. Up to three modules can be added within the basic enclosure and can be any combination of NAC or Relay expanders. NAC Expander Board NACs are rated for 2 A @ 24 VDC each, the same as the standard NACs.

Relay Expander MRRL4

Relay Expander module MRRL4 provides four additional function relay outputs. Each relay provides a Form C contact rated 2 A @ 30 VDC resistive with dry contacts requiring connection to a power limited source.

Eight Zone LED Module MRLD8

For local LED panel mounted zone annunciation, the MRLD8 module provides eight zones of LED annunciation, readily visible on the front of the control panel cabinet. Up to three LED modules can be mounted on the front of the cabinet. Each module has label pockets to locally identify zone locations.
NOTE: *An MRLD8 LED module is required for ULC listed applications.*

DACT Module - MRDL

The optional Digital Alarm Communicator Transmitter (DACT) module is added to the system to provide Remote Station monitoring of system alarms, troubles, and supervisory conditions. Communications are available for : Contact ID, SIA, or 10/20 bps formats.
Use of the DACT module requires that two telephone lines be provided for connection to the DACT. Service must be arranged with a Central Station monitoring facility for Remote Station Service.

(MRDL is not ULC listed).

City Connection Module MRCTYB

Optional module MRCTYB can be configured for remote Station (reverse polarity) or Municipal Master (local energy) service. The MRCTYB can transmit alarm, trouble, and supervisory conditions when configured for reverse polarity operation. Alarm conditions are only reported when configured for Municipal Master operation.
Note: *The MR-2200 accepts either the MRDL or the MRCTYB module.*

Peer-to-Peer Networking

MR-2200 control panels can be networked to other control units for up to a total of 254 network members, each using Style 7 (DCLR) loop communications. One control unit is designated as the master control unit for the network and diagnostics can be done at any control unit.

Programming of each individual control unit is done at that unit. Each control unit operates independently in a standalone mode if network communications are lost.

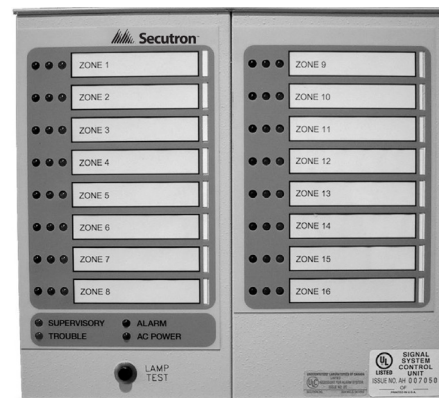## Compatible Products

LCD Annunciator Model MR-2644

For remote information annunciation, model MR-2644 is an LCD status annunciator with display, general system status LEDs, and general function keys.
(MR-2644 is not ULC Listed.)

MR-2644 Remote LCD Annunciator

LED Annunciator Model MR-2614

Model MR-2614 is a status annunciator with LED zone display, general system status lights, and general function keys. It provides up to 72 LED zones with three status LEDs per zone.
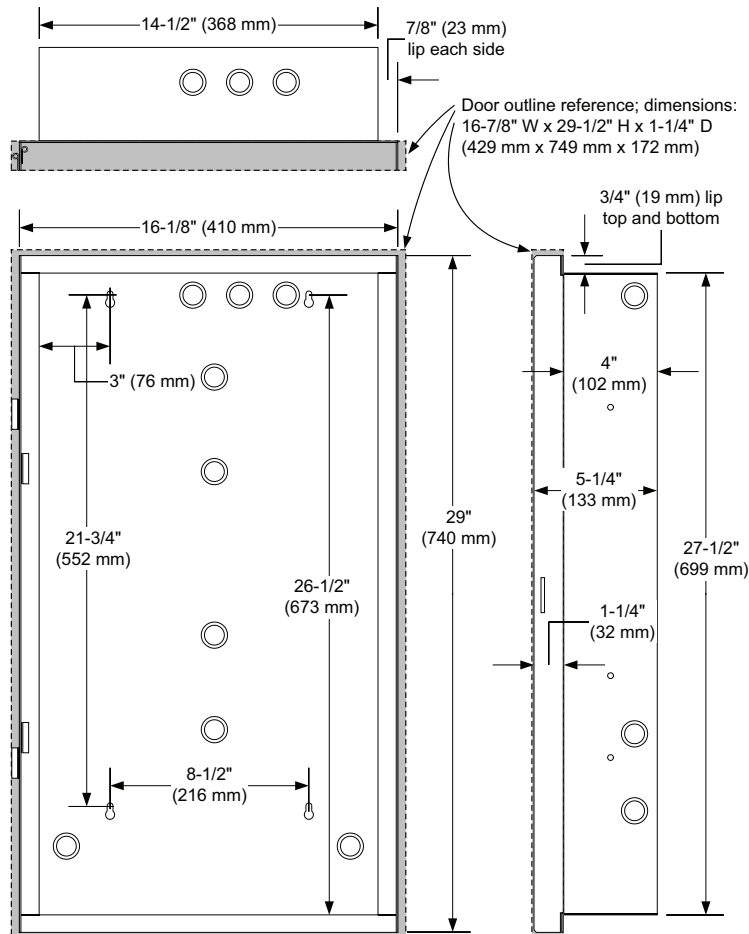

MR-2614 Remote LED Annunciator

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AND NOT INTENDED TO DESCRIBE THE PRODUCTS TECHNICALLY.

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Specifications

Input Power

120 VAC, 60 Hz	2 A maximum	Ratings are per transformer; one additional transformer may be added to increase capacity
240 VAC, 50 Hz	1 A maximum	

Mechanical

Overall Dimensions with Door	16-7/8" W x 29-1/2" H x 5-1/4" D (429 mm x 749 mm x 133 mm) [see page 5 for mounting box detail]

Environmental

Temperature Range	32° to 120°F (0° to 49° C)
Humidity Range	Up to 93% RH, non-condensing @ 90° F (32° C) maximum

Signaling Line Circuit Ratings

Voltage	24 VDC nominal, 27.5 VDC maximum
Max. number of devices	MR-2200, Dual SLCs: 396 total, 198 detectors, 198 control/monitor modules
Compatible devices	Refer to list on page 5
Maximum line length	3045 m (10,000 ft) (12 AWG, 3.31 mm2)
Operation modes	Available as Style 6 (Class A) or Style 4 (Class B); T-tapping is allowed with Style 4 (Class B) connections only

Notification Appliance Circuit Output Circuits, Standard and Expansion NACs

NAC Output Ratings	2 A maximum per NAC; 24 V full wave rectified DC output; power limited
NAC Current, Standard with One Transformer	Total of NACs + Auxiliary Power = 2.5 A maximum (if Aux. Power Total = 500 mA; NAC power = 2 A maximum)
NAC Current with Optional Transformer	Total NAC current = 7 A maximum Total of NACs + Auxiliary Power = 8 A maximum (optional transformer MR12VAC or MR24VAC)

Function Relay Output Circuits, Standard and Expansion Relays

All Relays	2 A @ 30 VDC resistive; Form C contacts; requires power limited source

Power Output Circuits

Auxiliary Power Outputs (two outputs)	Each output is rated 500 mA @ 24 VDC, filtered, regulated, and power limited; maximum ripple voltage = 600 mVpp

Battery Information

Battery Charger	current limited float charger for sealed lead acid batteries
Float Charge	27.5 VDC
Charging Current	2.7 A maximum, no auxiliary loads; 1.7 A nominal with 0.5 A on each Auxiliary output
Maximum Battery Capacity	12 Ah maximum size internal to cabinet; 35 Ah maximum size allowed, requires model MR2978 External Battery Cabinet

Communications Ports

ANN (annunciator port)	Fixed baud rate @ 4800 bps; for use with MR-2614 or MR-2644 Annunciators (refer to individual product Installation Instructions for capacities and wiring distances)
RS-232-2 (MV-2700 or GRID)	Fixed baud rate @ 9600 bps; 20 ft (6m) maximum distance; for use with MV-2700 Voice Evacuation System or GRID Graphical PC Display
CON4 (Dialer/City Module Port)	Fixed baud rate @ 4800 bps; for use with MRDL Digital Communicator Module or MRCTYB City Module
J1 (Service port or serial printer port)	Fixed baud rate @ 9600 bps; 6 m (20 ft) maximum distance; for use with Service/Programming PC (using Windows 95 or 98); or for serial input printer

Network Ports

COM1, COM2 (Secutron MR peer to peer network, redundant DCLR)	Standard Protocol: 10km (33,000 feet; 6.2 miles) maximum distance between nodes, minimum 28 AWG wires (0.081 mm2); Total panel capacity varies with programmable baud rate: up to 254 panels with 9600, 4800, and 2400; up to 200 panels at 1200 RS-232 Protocol: up to 20 m (66 ft), typically for connection to external modem		
Network Wiring Parameters (maximum line resistance = 680 ohms)	**Baud Rate** 9600 4800 2400 1200	**Maximum Capacitance** 100 nF 220 nF 470 nF 680 nF	**Maximum Network Nodes** 254 254 254 200

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Compatible Intelligent Devices

Compatible Intelligent Devices Reference Information

Model	Description
MRI-1251B	Intelligent Ionization type smoke detector
MRI-2251B	Intelligent Photoelectric type smoke detector
MRI-2251TB	Intelligent Photoelectric type smoke detector with thermal element
MRI-2251TMB	Acclimate Intelligent Photo-Thermal Detector
DNR	Intelligent photoelectric duct smoke detector (No head included)
MRI-5251B	Intelligent Thermal detector, Fixed Temp. 135°F
MRI-5251RB	Intelligent Thermal detector, Fixed Temp. and Rate of Rise, 135°F
MRI-5251H	Intelligent Thermal detector, Fixed Temp. 190°F
MRI- M500DM	Intelligent Dual input monitor module
MRI-M500M	Intelligent Monitor module, Class A/B initiating
MRI-M501M	Intelligent Mini-monitor module, Class B initiating
MRI-M502M	Intelligent Monitor module for 2-wire smoke detectors Class A/B initiating
MRI-M500S	Intelligent Supervised control module
MRI-M500R	Intelligent Dual Form C relay module
MRI-M500X	Fault isolator module

MR-2200 Back Box Dimension Reference

Ordering Information

MR-2200 Fire Alarm Control Panels				1005
Model	**Description**	**Standby Current**	**Alarm Current**	
MR-2200R	Dual SLC Fire Alarm Control Panel, 120 VAC input, Red	110 mA	175 mA	
MR-2200B	Dual SLC Fire Alarm Control Panel, 120 VAC input, Beige			
Optional Panel Modules				
MRNC2*	Dual NAC Expansion Module (output ratings are the same as standard NACs)	10 mA	65 mA	
MRRL4*	Four Relay Module	5 mA	17 mA/relay	
MRLD8	Eight (8) LED Module; Quantity 3 maximum, 2 maximum if for Canada (Alarm current is for 3 devices in alarm, add 5 mA each if more) ULC listed applications require a minimum of one MRDL8 LED module	5 mA	15 mA (see current note)	
MR-XPS	Expansion Transformer, 120/240 VAC	NA	NA	
MRDL**	DACT Module	33 mA	60 mA	
MRCTYB**	City Connection Module	20 mA	20 mA	

Optional Network Modules	Port 1 Operation	Port 2 Operation
MR22NTWR	Standard	Standard
MR22NTWR1	RS-232	Standard
MR22NTWR2	Standard	RS-232
MR22NTWR12	RS-232	RS-232

* Select any combination for up to 3 modules total.

** Quantity one maximum from these modules.