

**FR-320K****Addendum for FR-320K Installation**

LT-6098 FR-320NetK Installation

Attention: This specific application requires a setup not listed in either the LT-951 FR-320 Series or the LT-894 FleX-Net™ Installation and Operation Manuals. This document takes precedence over both LT-951 and LT-894 wherever there is a conflict.

Introduction

This addendum describes how to implement a FR-320 Releasing panel into a FleX-Net™ system panel. The FR-320K adds releasing capability to the FleX-Net™ system without the need for a separate external cabinet.

About the FR-320NetK Intelligent Network Fire Alarm and Release Control System

The FR-320K panel adds releasing capability to Mircom's FleX-Net™ MNS. Based upon Mircom's already UL listed FR-320 Releasing panel and FleX-Net™ systems, this system permits pre-release, abort, manual release, and reset control.

The FR-320K's chassis permits easy mounting to the Mircom's BBX-FXMNS cabinet. The FR-320K includes all necessary items to connect the FR-320 releasing panel to the Mircom's FleX-Net™ system.

The FleX-Net™ and FR-320K panels have independent power arrangements. Each panel has its own AC supply and battery setup. The connection between the FR-320K and the FleX-Net™ panels is by isolated relays.

The FR-320K uses the FR-320 pre-programmed mode #2 to enable activation features via the FleX-Net™ initiating device circuits. In this configuration, the Mass Notification System (MNS) capability is not present at this panel node.

Note: The releasing devices used must be wired locally to this panel.

Overall Features:

- Provides additional releasing capability to FleX-Net™ MNS system
- Built-in Addressable loop which supports Classic Loop Interface Protocol (CLIPS) and Advanced Protocol (AP) addressable devices
- Tamper resistant enclosures with password protected features for enhanced access control
- Local and remote placement of controls and indicators
- Visible notification and strobes support
- Large LCD displays
- Fire Alarm Control Panel Interface (FACI)
- Building Management System Interface (BMSI)
- Fire Alarm Control:
 - Base system is equipped with one Intelligent Signaling Line Circuit (SLC). Expandable up to 21 SLCs

- Each SLC is capable of supporting 99 Analog Sensors and 99 Addressable Modules which can be wired in Style 6 or 7 Class A) or Style 4 (Class B)
- Four Style Z/Y (Class A/B) Notification Appliance Circuits rated at 1.7 Amps each
- Built-in Ethernet port
- Remote diagnostics via a built-in web server
- Network Features:
 - Up to 63 nodes
 - Fully integrated digital network audio and control over a single pair of copper wire or fibre optic cable
 - Supports over 5,000 points per node
 - Supports over 250,000 points on a single network
 - Peer-to-peer network communications
- Releasing Features:
 - Each initiating circuit is pre-configured as: Alarm, Supervisory (Latching or non-latching), Water-Flow, Manual Release Switch, Abort Switch, or Manual Release/Abort combination, depending upon the selected pre-programmed configuration. There are two LEDs per circuit, one for Trouble (amber), and one dual color (amber/red) LED for Supervisory (amber) and Alarm (red)
 - Basic unit has 4 power limited class B (style Y) output circuits. Output circuits 1 & 2 are indicating circuits while output circuits 3 & 4 are releasing circuits (circuit 4 can work as an indicating circuit in some situations.) Each indicating circuit process type is pre-configured and can be silenceable
 - The signal rates depend on the selected pre-programmed configuration.
 - A pushbutton associated with each initiating, indicating, and releasing circuit can individually bypass the circuit
 - Configurable Signal Silence Inhibit and Auto Signal Silence Timers
 - Subsequent Alarm, Supervisory, and Trouble operation
 - Relay Contacts for Common Alarm, Common Supervisory, Common Trouble, and Auxiliary Alarm Relay (disconnectable)
 - RS-485 Interface for RA-1000 Series Remote Multiplex Annunciators and Smart relay Module
 - Optional Modules for additional Relay Circuits, City Tie and Polarity Reversal Signaling.
 - Extensive transient protection
 - Easy configuration of the panel using LCD service tool (CFG-300)
 - Releasing circuit protection from false alarm by disconnecting the battery if the voltage falls below 19V

FR-320NetK includes:

BBX-FXMNS	FleX-Net™ Backbox
FR-320K	FR-320 Main Board and Agent Releasing Kit for FleX-Net™
FX-2000MNS	FleX-Net™ Main Board and Chassis
RM-1008A	Relay Adder Module
RM-306	Relay Adder Module
DM-1008A	Detection Adder Module
SGM-1004A	Four Indicating Circuit Module
DSPL-420	Main Display for FX-2000MNS
RAX-1048TZDS	Zone Display for FX-2000MNS
MGD-32	Master Graphic Annunciator
RAM-1016TZDS	Main Remote LED Annunciator
CH-1181	TR-063 Transformer support for FXMNS box
CH-1183	FR-320 Main PCB Support Plate for FXMNS backbox
CH-1184	RAM-1016TZDS Adaptor Plate
TR-061	FR-320 Transformer
TR-063	FX-2000MNS Transformer

Physical Installation

Tools needed:

- Hexnut driver
- Phillips screwdriver

Chassis Mounting

Using the CH-1183 support plate, anchor the FR-320K to the FXMNS back box in the area above the FX-2000MNS board. Otherwise, physical installation is as listed in each component's manual.

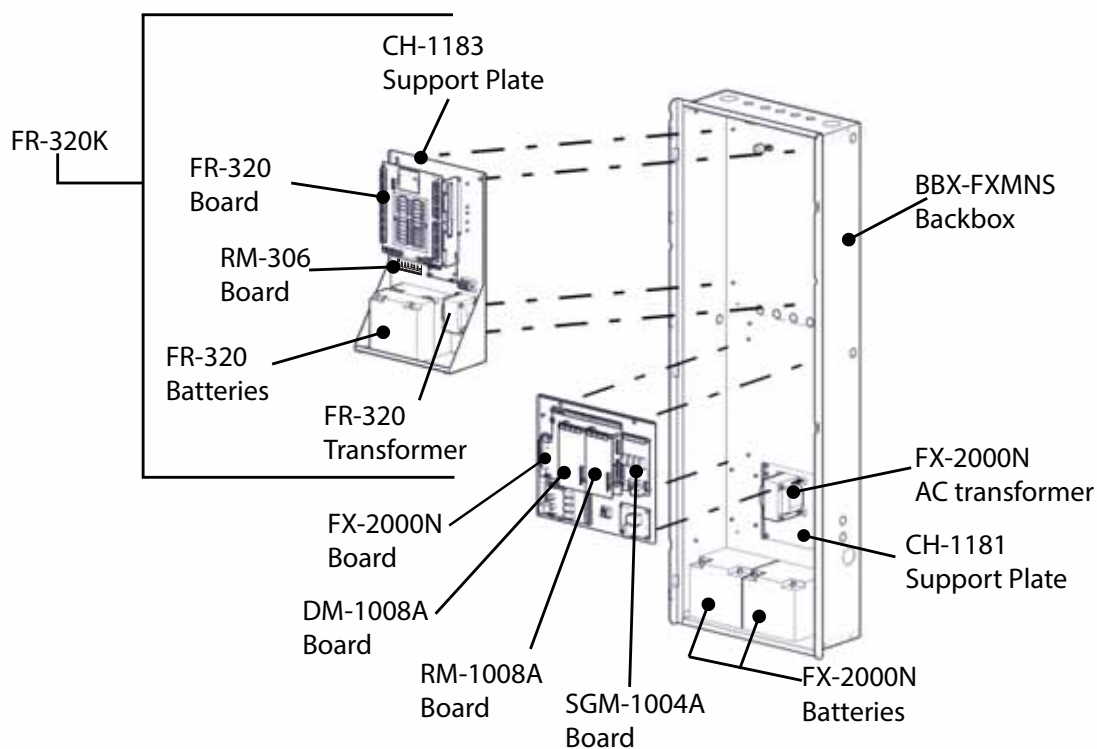


Figure 1 Chassis Mounting

Board Mounting

Mount all other boards in as illustrated. Otherwise, physical installation is as listed in each component's Installation and Operation manuals:

- LT-894 FleX-Net™
- LT-951 FR-320
- LT-847 MGD-32

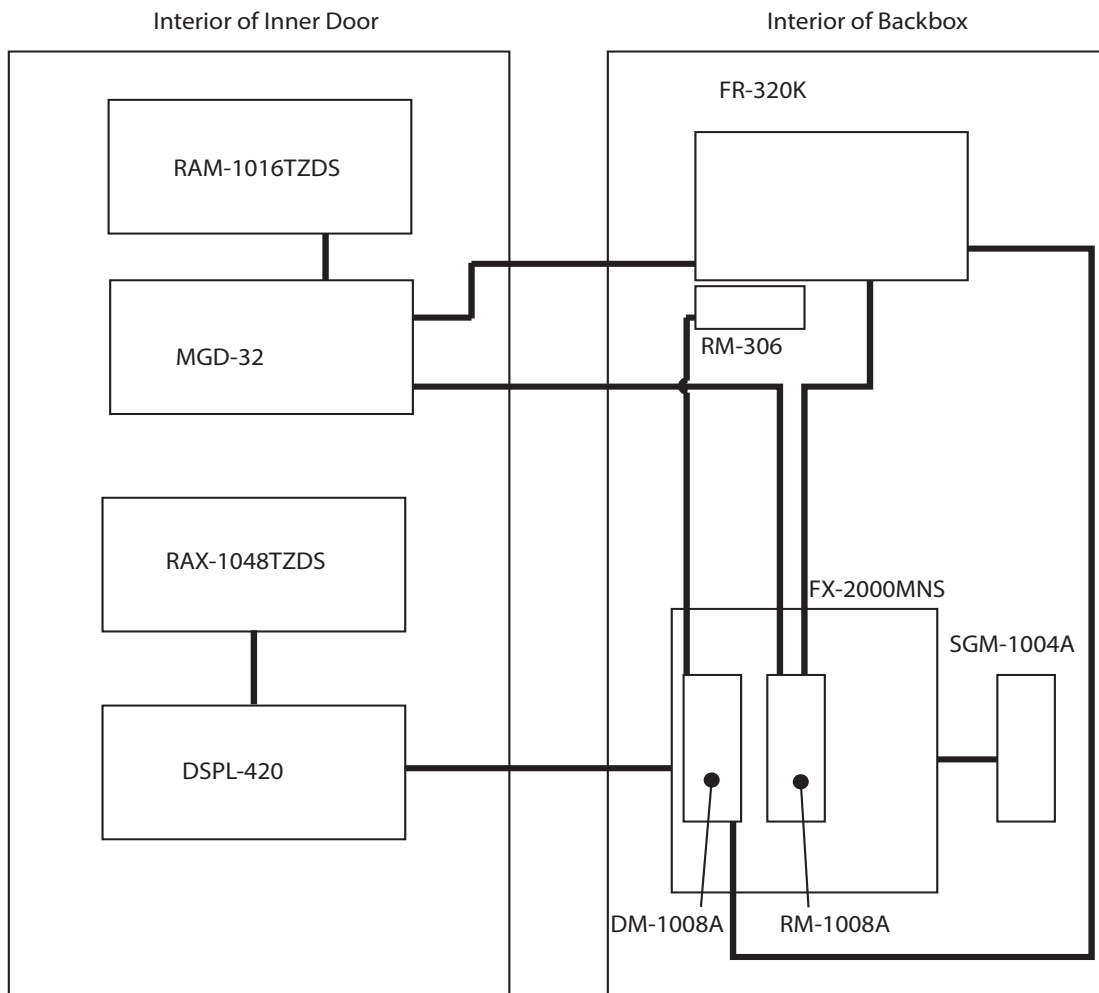


Figure 2 Board Mounting Positions in the BBX-FXMNS Backbox

Electrical Power Consumption

The FR-320K has its own AC transformer and battery hookups, independent from the other FleX-Net™ components.

Table 1 FR-320K Specifications

FR-320K Fire Control Panel Chassis	
General	Digital Signal Processor (DSP) based design. Fully configurable using front panel LCD display with Password Access.
Indicating (NAC) Circuits	2 supervised style Y (Class B) indicating circuits, configured as strobes or audibles. Terminals are labeled SIG 1 and SIG 2 . Power limited / Regulated 24VDC FWR / 1.7A @ 49C per circuit
Initiating Circuits	6 supervised style B (Class B) initiating circuits, configurable. Terminals are labeled DET . Compatibility ID A . Power limited / 19VDC reg. / 3mA for detectors /110MVpp AC ripple / 45mA max (alarm short)
Releasing Circuit	Terminals are labeled SIG 3 and SIG 4 21.1 VDC@ 1 A max per circuit, 1.7A max combined Current Consumption Standby: 183mA Alarm: 318mA
Supervised Auxiliary Power (non resettable)	Power limited / 21.1VDC regulated / 300mA max
RS-485 Connection	For Remote Annunciators. Terminals are labeled RS485. Line impedance is 120 ohms.
Electrical ratings	<p>AC line voltage 120 VAC 60Hz 1.2A / 240 VAC 50 Hz 0.6 A, 10A slow blow fuse on secondary of transformer</p> <p>Power Supply Rating 6.5A AC maximum @ secondary of transformer</p> <p>Max power allowed</p> <ul style="list-style-type: none"> • 4A • 1.7A (aux power unfiltered if used) • 0.5A (aux power filtered if used) • 0.3A (resettable auxiliary power if used) • 1.7A (for releasing circuits) <p>If no auxiliaries are used the max power is 4A for the indicating and the releasing circuits</p>
Auxiliary relays (resistive loads)	<p>Must be connected to a listed power limited source of supply. Terminals are labelled ALARM, TROUBLE, SUPV and AUX.</p> <p>Common Alarm Form C, 1 A max, 28 VDC</p> <p>Common Supv Form C, 1 A max, 28 VDC</p> <p>Common Trouble Form C, 1 A max, 28 VDC</p> <p>Aux Relay Form C, 1 A max, 28 VDC</p>

Table 1 FR-320K Specifications (Continued)

FR-320K Fire Control Panel Chassis		
Unfiltered supply (full wave rectified)	Power limited / Unregulated / Special Application 1.7A Max, 21.3 VDC to 42.00 VDC Minimum Load 5mA	
Battery	Type	24VDC Gel Cell/Sealed lead acid – 10AH to 26AH
	Charging capability	10AH~26AH
	Current Consumption	standby: 200 mA alarm: 350 mA
	Protection	10A on board (F1) slow blow micro fuse
Compliance	Type of Service	A, M, WF, SS
	Type of Signaling	Non-Coded
	Applicable Standards	NFPA 12, 12A, 12B, 12, 15, 16,70,72,2001, UL-864 Rev. 9

See the LT-951 FR-320 Installation Manual for more information.

Field Wiring

Adding the FR-320K to the FleX-Net™ system is straight forward as both boards are located in the same backbox. This reduces the need for extra conduit and running long cables.

1. For general wiring options (i.e. ribbon cables), refer to these installation and operation manuals:

- LT-894 FleX-Net™
- LT-951 FR-320
- LT-847 MGD-32
- LT-617 RAM-1016TZDS

2. Use the following diagrams to wire up the FR-320K:

2.2 Wiring for FX-2000MNS

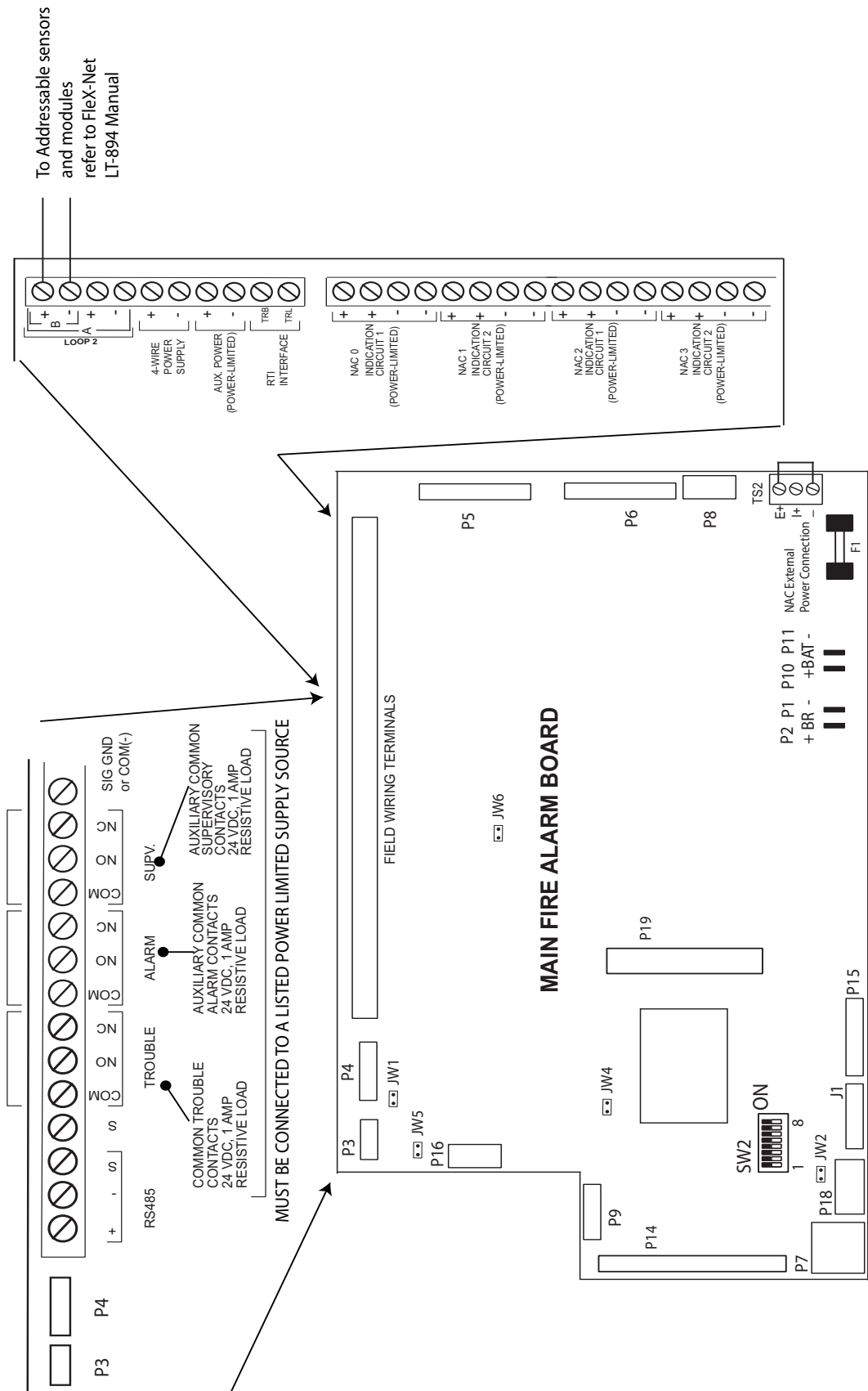


Figure 4 FX-2000MNS Panel

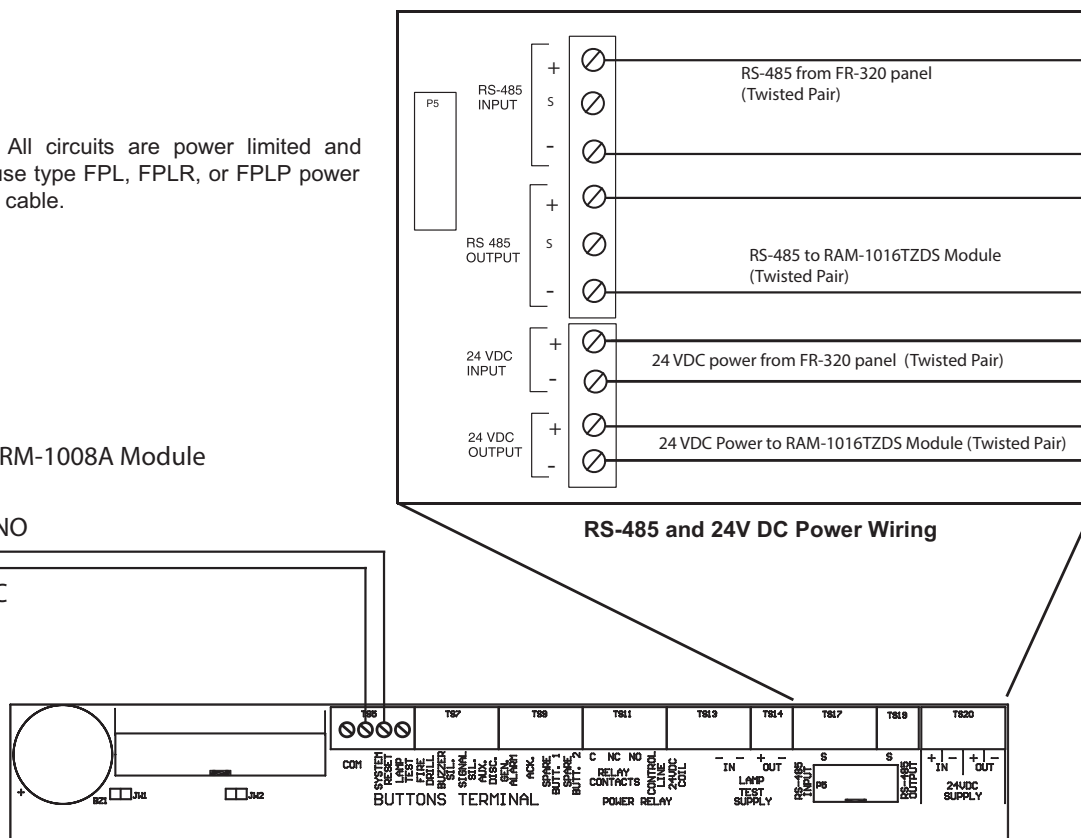
2.3 Wiring for MGD-32

Note: All circuits are power limited and must use type FPL, FPLR, or FPLP power limited cable.

From RM-1008A Module

Rly 1 NO

Rly 5 C



2.4 Wiring for RAM-1016TZDS

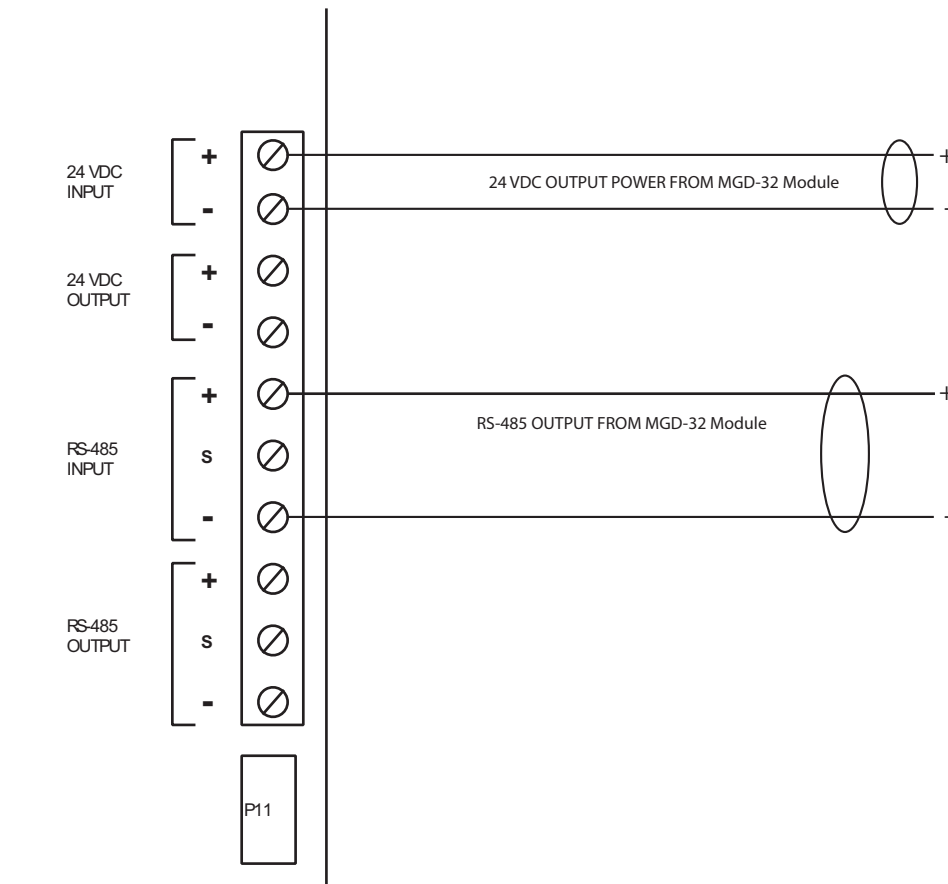


Figure 6 RAM-1016TZDS Main Remote LED Annunciator

2.5 Wiring for RM-1008A

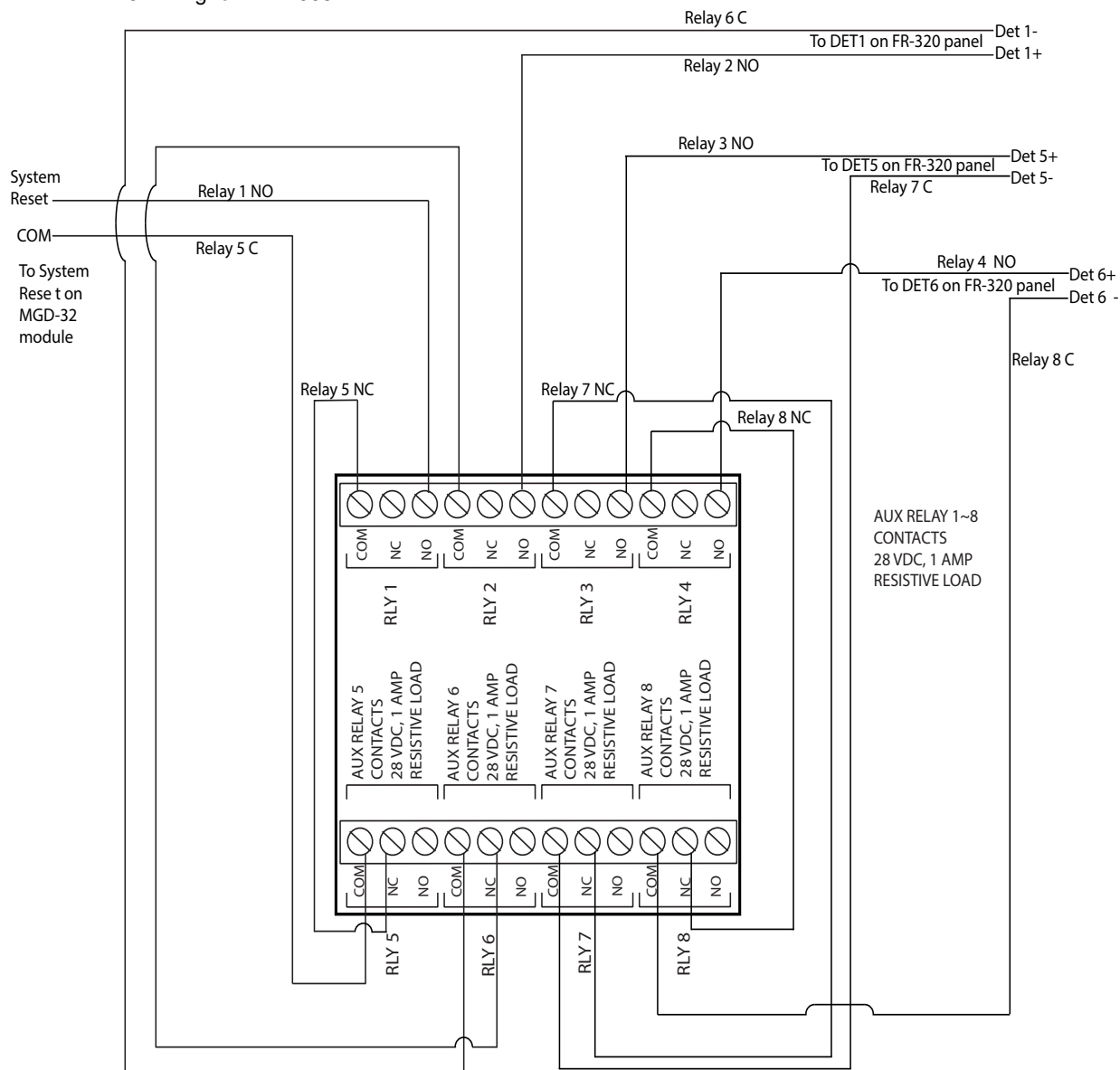


Figure 7 RM-1008A 8 Relay Adder Module

2.6 Wiring for RM-306

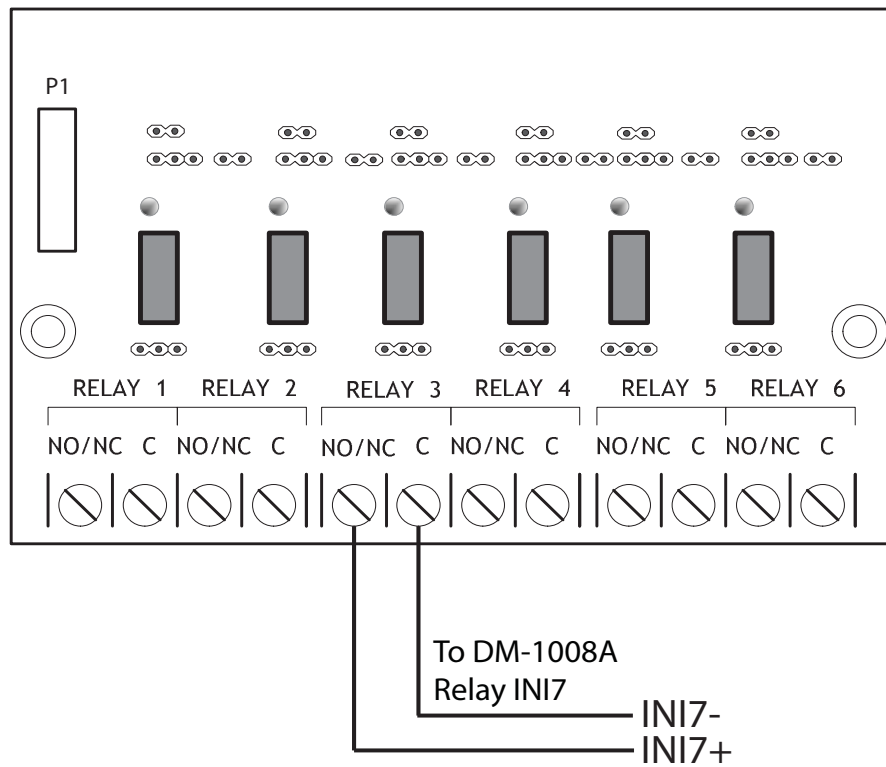


Figure 8 RM-306 Six Relay Adder Module

2.7 Wiring for DM-1008A

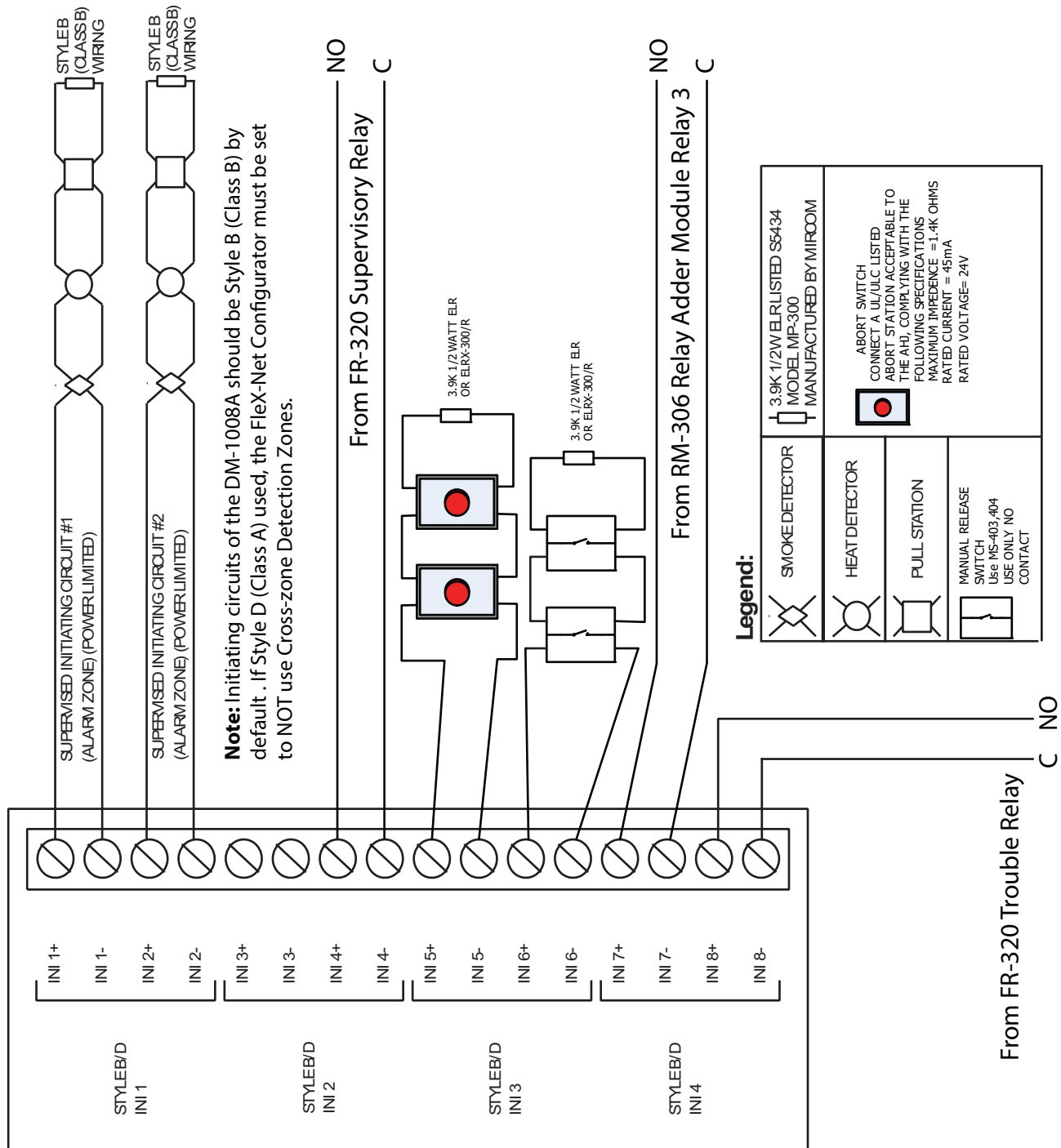


Figure 9 DM-1008A Module

Pre- Programmed Mode

Pre-programmed Mode 2 is the FR-320K default program setting which includes new features.

Note: Cross Zone smokes detectors must not use verified alarm.

For more information, see LT-951 FR-320 Installation Manual.

Table 2 Mode 2 Agent Release, Single Hazard, Combined Release

			Detection Zones						Phantom Zones		Release Timers	
			Z1	Z2	Z3	Z4	Z5	Z6	Zp1	Zp2	RT1 Exp	RT2 Exp
			Alm	Alm	WF	Sup	AB	MR	Z1+Z2	Z3+Z4		
Out1	Signal	Steady	X	X				X				
Out2	Signal	Escalating						X				
Out3	Rel.	Releasing						X			X	
Out4	Rel.	Releasing						X			X	
RLS TMR 1 Started			X	X								
RLS Tmr 1 Stopped							X					
RLS Tmr 1 Canceled							X	X				
RLS Tmr 1 Restarted							X	X				
RLS Tmr 2 Started												
RLS Tmr 2 Interrupted												
RLS Tmr 2 Canceled												

Note: WF or Water Flow is not available.

Zone Configuration

The FleX-Net™ monitors the Detection Zones via relay control. Connect either Detection Zone 1 or 2, but not both.

- Detection Zone -1: Alarm (Hazard Area 1)
- Detection Zone -2: Alarm (Hazard Area 1)
- Detection Zone -5: Abort Switch
- Detection Zone -6: Manual Release

The FR-320K activates the Notification and Releasing Appliance Circuits.

- NAC-1: Signal, will be on steady if there is any alarm zone or manual release switch active
- NAC-2: Signal, indicates the cadence of hazard area 1 state or supervisory circuit (optional)
- RAC-1: Releasing Circuit (Hazard Area 1)
- RAC-2: Releasing Circuit (Hazard Area 1)

Hazard Configuration

- Default Release Timer Value: 60 seconds

- Default Manual Release Delay: 0 seconds
- Default Abort Delay Type: Standard UL
- Default Soak Timer Value: 0 seconds

NAC Configuration

- Default Escalating NAC code of Hazard Area State:
 - Hazard Idle: Off
 - Hazard Alert: Temporal
 - Hazard Alarm: Temporal
 - Hazard Release: Steady
- Default NAC code of Supervisory Signal is 20 BPM

How the FR-320K Panel Works in this Mode

The following is an example of how the FleX-Net™ and FR-320K system can work, based on Preprogrammed Mode 2. Full setup options are available via the FleX-Net™ Configurator software.

- Activation of either Z-1 or Z-2 turns NAC-1 on steady
- Activation of either Z-1 or Z-2 changes the Hazard Area 1 state from Idle into Alarm directly. NAC-1 turns on steady. NAC-2 turns on Temporal. Release Timer-1 is started
- Expiration of Release Timer-1 activates both RAC-1 and RAC-2. NAC-1 and NAC-2 turn on steady
- Activation of Z-6 starts Manual-release Timer 1 (MDT-1) and overrides the abort function in any situation. NAC-1 turns on steady. NAC-2 turns on Temporal. Upon the expiration of MDT-1, RAC-1 and RAC-2 turn on.
- During Hazard Alarm state, if Z-5 is pressed, Release Timer-1 is stopped, reset, and then restarted. If Z-5 is held for up to 50 seconds then the release device will actuate in 60 seconds after first pressing the abort switch. However, if Z-5 is held for longer than 50 seconds then the release device will actuate in 10 seconds.

Compatible Solenoids

The following table lists the solenoids with the FR-320K.

Manufacturer and Series	Part Number	Extended Description
Parker	73212BN4TNLVNOC322C2	Valve Solenoid
Siemens	500-697913BG	Valve Solenoid
ASCO	8210G207	Valve Solenoid
	T8210A107	Valve Solenoid
BSCO	510006	Actuator
TSP	17842	Actuator
Kidde-Fenwal	486500-01	Actuator
TLX Technologies	PA0036	Actuator