

RA-1000 Series

Remote Multiplex Annunciator Panels

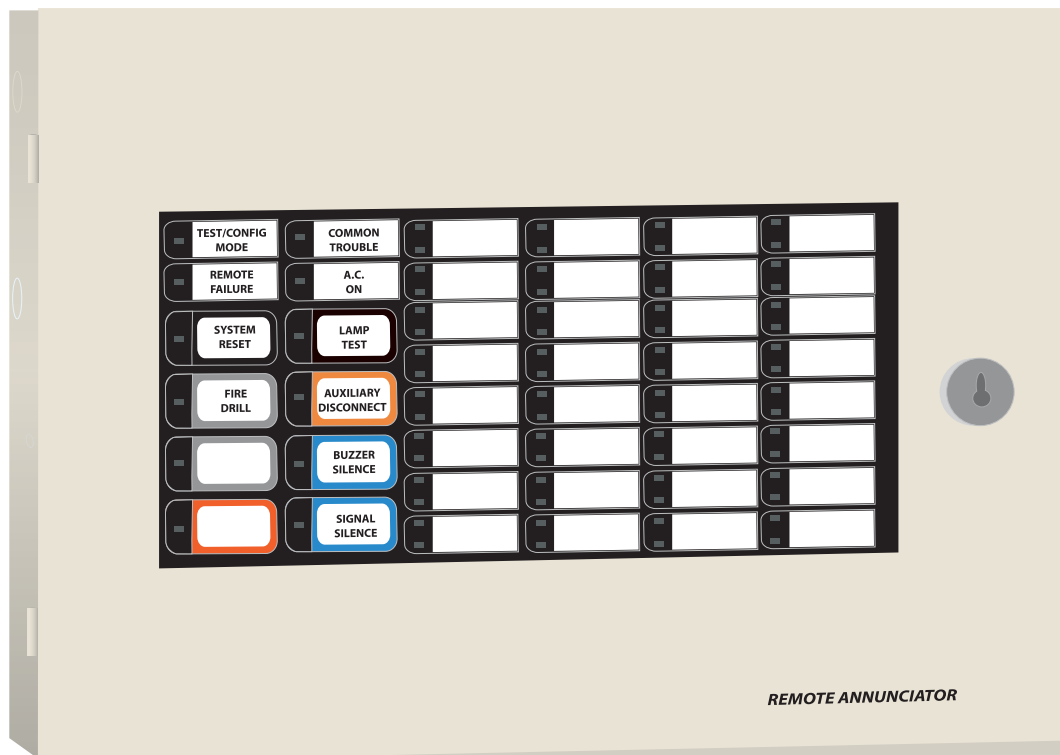


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1.0 Introduction

MGC's modular design RA-1000 Series Remote Multiplex Annunciator panels provide a large capacity of annunciation with MGC's Analog and Network Fire Alarm Control Panels. Tables below describe the different main annunciator and adder chassis models. Each circuit indicator is a bi-colour LED that is automatically configured to match the fire alarm control panel configuration.

Table 1 Annunciator Chassis Descriptions

Annunciator Model Number	Description
RAM-1016TZDS	16-circuit main annunciator chassis with 16 added zoned trouble LEDs
RAM-1032TZDS	32-circuit main annunciator chassis with 32 added zoned trouble LEDs that may be expanded with up to four RAX-1048TZDS adder annunciator chassis to a maximum of 208 circuit display points
RAX-1048TZDS	48-circuit adder annunciator chassis with 48 added zoned trouble LEDs
RAM-1032TZDS-CC	<p>32-circuit main annunciator chassis for outdoor use. It fits in the weather protected boxes BB-1001WP(R)A and BB-1002WP(R)A. Together, the weather-protected box and the annunciators inside it are rated for outdoor environment, wet location according to UL 864 and ULC-S527:</p> <p>122 °F (+50 °C) to -40 °F (-40 °C)</p> <p>The wiring and operation of RAM-1032TZDS-CC is identical to that of RAM-1032TZDS</p>
RAX-1048TZDS-CC	<p>48-circuit adder annunciator chassis for outdoor use. It fits in the weather protected box BB-1002WP(R)A. Together, the weather-protected box and the annunciators inside it are rated for outdoor environment, wet location according to UL 864 and ULC-S527:</p> <p>122 °F (+50 °C) to -40 °F (-40 °C)</p> <p>The wiring and operation of RAX-1048TZDS-CC is identical to that of RAX-1048TZDS</p>

2.0 Mechanical Installation

2.1 Indoor Annunciators

There are five sizes of enclosures available. See Table 2 below:

Table 2 Enclosure Dimensions and Capacity

Enclosure Model Number	Height H(in.)	Width (in.)	Mounting A (in.)	Mounting B (in.)	Annunciator Capacity
BB-1001D(R)(S) (MMX-BB-1001D(R))	9.0"	12.75"	9.95"	7.5"	1
BB-1002D(R)(S) (MMX-BB-1002D(R))	18.0"	12.75"	9.95"	16.5"	2
BB-1003D(R)(S) (MMX-BB-1003D(R))	26.5"	12.75"	9.95"	24.9"	3
BB-1008D(R)(S) (MMX-BB-1008D(R))	33.0"	22.5"	20.9"	35.2"	8
BB-1012D(R)(S) (MMX-BB-1012D(R))	45.0"	22.5"	20.9"	52.0"	12

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Note: No suffix R is for white door.
Suffix R is for red door.
Suffix S is for stainless steel door.
Backbox is always black.

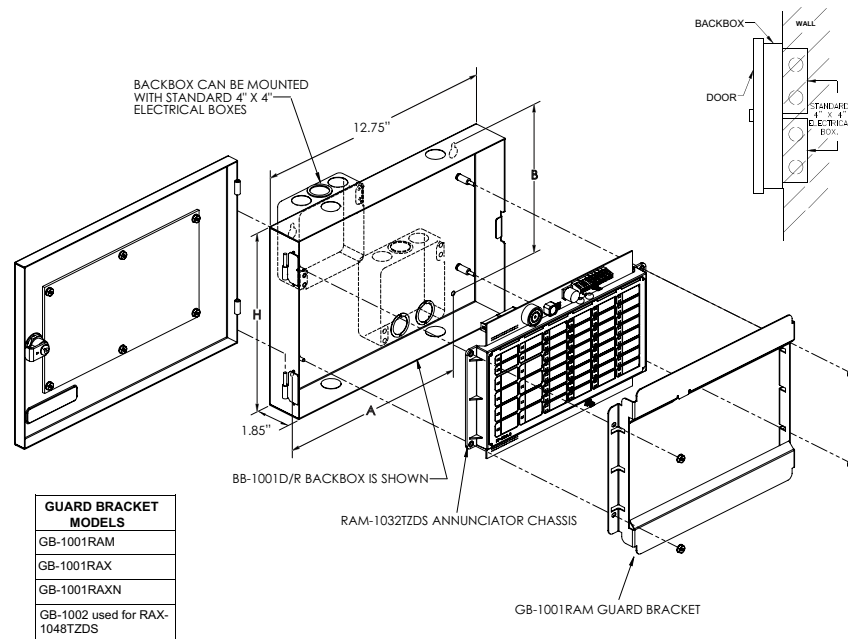


Figure 1 Mechanical Assembly Diagram

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Notes: The RAM-1032TZDS and the RAM-1016TZDS are supplied with the NP-680 laser printable label sheet. Column 1A or 1B (English or French) is selected for either a 2-stage or 1-stage system and the blank labels are used to print zone information. The RAX-1048TZDS is supplied with the NP-681 blank laser printable label sheet.

The RA-1000 series of annunciators RAM-1016TZDS, RAM-1032TZDS, and RAX-1048TZDS display Initiating Circuit Status and individual circuit trouble indication. Indicating and Relay Circuits are not remotely displayed. For more details, see the Fire Alarm Control Panel manual.

2.2 Outdoor Annunciators

For the outdoor annunciators, there are two enclosure sizes available. See Table 3 below:

Table 3 Enclosure Dimensions and Capacity

Enclosure Model Number	Height H(in.)	Width (in.)	Mounting A (in.)	Mounting B (in.)	Annunciator Capacity
BB-1001WPA and BB-1001WPRA	11.140"	12.920"	11"	9.5"	1 (RAM-1032TZDS-CC)
BB-1002WPA and BB-1002WPRA	17.94"	12.920"	11"	16.30"	2 (RAM-1032TZDS-CC and RAX-1048TZDS-CC)



Note: No suffix R is for white door.
Suffix R is for red door.
Backbox is always black.

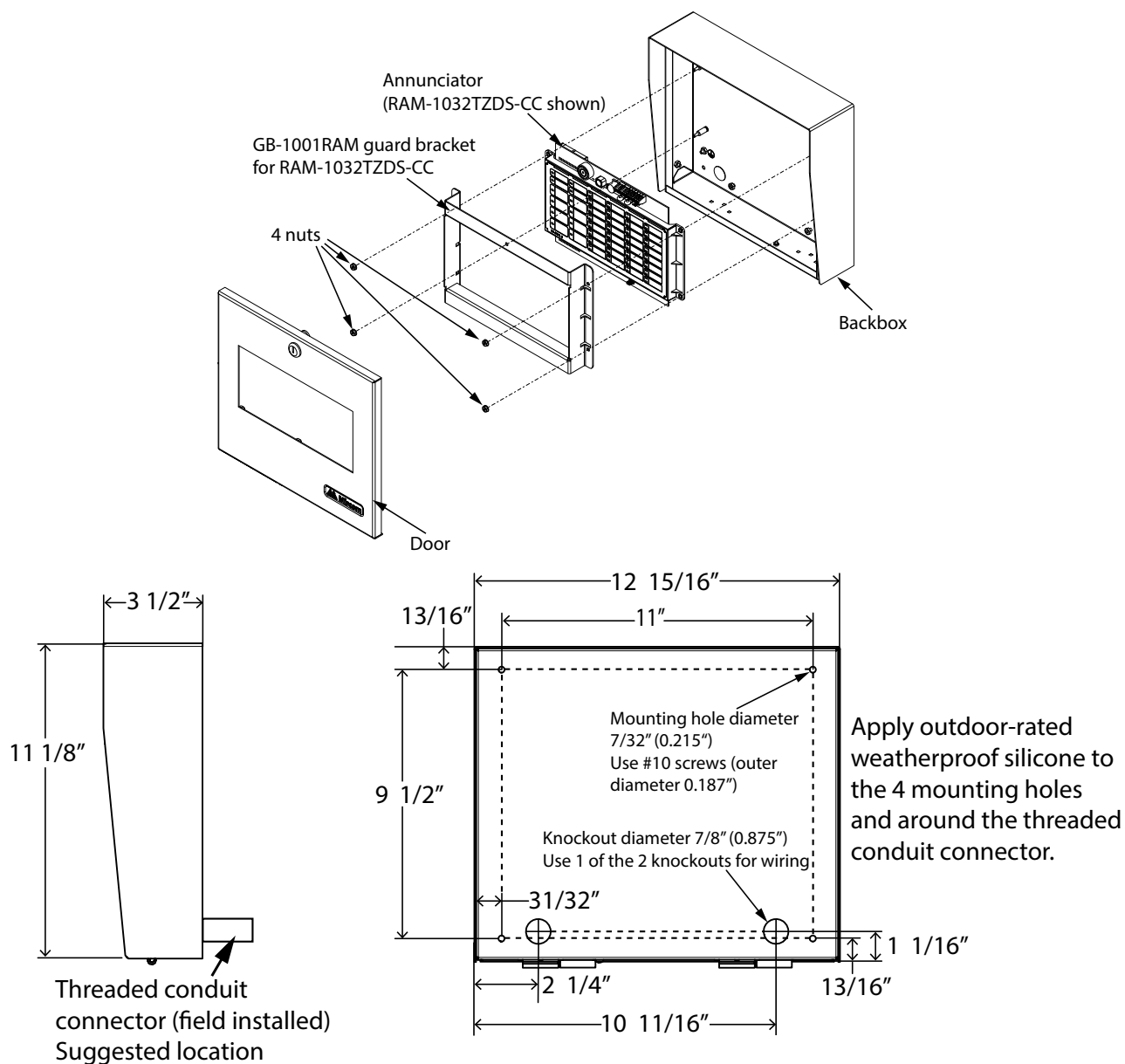


Figure 2 Mechanical Assembly Diagram for BB-1001WP(R)A

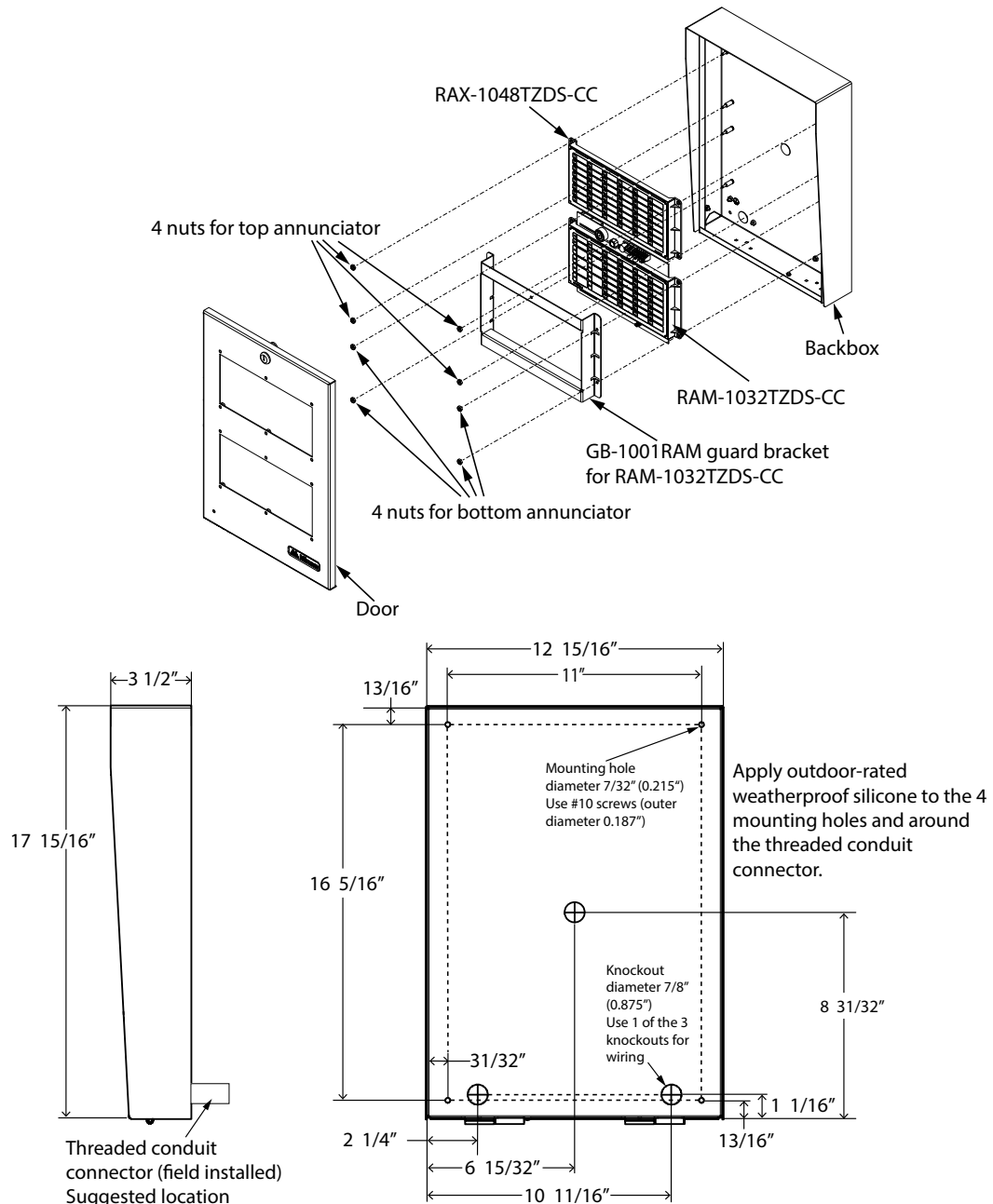


Figure 3 Mechanical Assembly Diagram for BB-1002WP(R)A

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Notes: The RAM-1032TZDS-CC is supplied with the NP-680 laser printable label sheet. Column 1A or 1B (English or French) is selected for either a 2-stage or 1-stage system and the blank labels are used to print zone information. The RAX-1048TZDS-CC is supplied with the NP-681 blank laser printable label sheet.

The RAM-1032TZDS-CC and RAX-1048TZDS-CC display Initiating Circuit Status and individual circuit trouble indication. Indicating and Relay Circuits are not remotely displayed. For more details, see the Fire Alarm Control Panel manual.

3.0 Wiring Instructions

3.1 RS-485 WIRING

The RS-485 wiring to the RAM-1016TZDS and RAM-1032TZDS(-CC) Module is recommended to be twisted shielded pair as shown in Figure 4. The wire gauge may be:

- 22 AWG up to 2000 ft.
- 20 AWG up to 4000 ft.

3.2 24V DC POWER WIRING

The RS-485 wiring from the fire alarm control panel to the annunciator(s) must be point-to-point from the fire alarm panel to the first annunciator, then to the next annunciator, and so on. No star wiring or T-tapping is allowed. Each RAM-1016TZDS and RAM-1032TZDS(-CC) Main Annunciator Module has a 120 ohm end-of-line resistor on its RS-485 output terminals. This is removed on all except the last wired module.

The 24 VDC field wiring needs to be of an appropriate gauge for the number of annunciators and the total wiring run length. Use the Current Drain for Battery Calculations on page 13 to calculate the maximum current for all annunciators summed together.



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

Attention: Accidentally connecting any of the 24 VDC wires to the RS-485 wiring will result in damage to the annunciator and/or to the fire alarm control panel to which it is connected.

Figure 4 Wiring Diagram

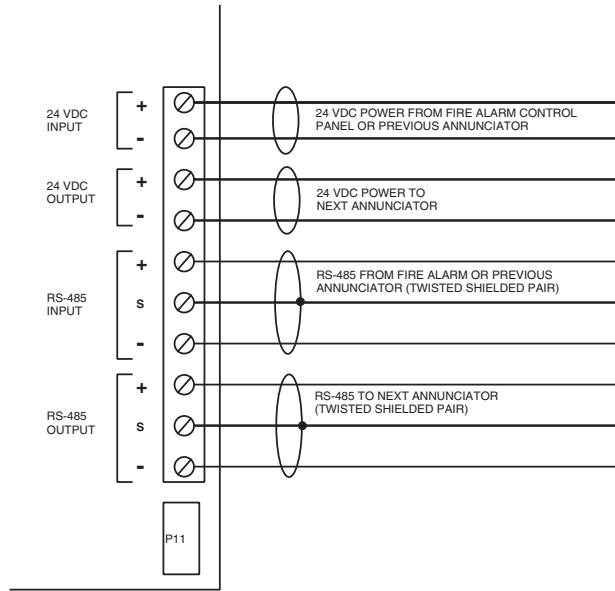


Table 4 Wiring Table for Power to Annunciator

Total Maximum Current for all Annunciators	Maximum Wiring Run to Last Annunciator								Max Loop Resistance
	18AWG		16AWG		14AWG		12AWG		
Amperes	ft	m	ft	m	ft	m	ft	m	Ohms
0.06	2350	716	3750	1143	6000	1829	8500	2591	30
0.12	1180	360	1850	567	3000	915	4250	1296	15
0.30	470	143	750	229	1200	366	1900	579	6
0.60	235	71	375	114	600	183	850	259	3
0.90	156	47	250	76	400	122	570	174	2
1.20	118	36	185	56	300	91	425	129	1.5
1.50	94	29	150	46	240	73	343	105	1.2
1.70	78	24	125	38	200	61	285	87	1.0

4.0 DIP Switch Settings

Each annunciator assembly (main and adder chassis) needs to be assigned a unique, sequential “Address” via the main annunciator DIP Switch SW1. DIP Switch SW2 is used for disabling of some Front Panel (located on the main annunciator chassis) push buttons (when individual switches are “ON” then the corresponding push button is disabled).

4.1 The DIP switches (located on the main) are set as:

DIP SWITCH SW1				DIP SWITCH SW2			
SW1-1	=	Address A0		SW2-1	=	Disable System Reset button	
SW1-2	=	Address A1		SW2-2	=	Disable Fire Drill button	
SW1-3	=	Address A2		SW2-3	=	Disable Acknowledge button	
SW1-4	=	Address A3		SW2-4	=	Disable General Alarm button	
SW1-5	=	Must be set to “OFF” for all panels except the FX-2000 (see Table 6).		SW2-5	=	Not Used	
SW1-6	=	Not Used		SW2-6	=	Disable Auxiliary Disconnect button	
SW1-7	=	Not Used		SW2-7	=	Not Used	
SW1-8	=	Checksum Select		SW2-8	=	Disable Signal Silence button	

Checksum Select:

ON when used with fire alarm panels Flex-Net™, MMX™, FX-2000 version 2.X.X and higher, FX-350, MR-2350, FX-3500, FX-3500RCU, FX-3318, MR-3500, MR-3500RCU (16 bit checksum), MR-3318.

OFF when used with fire alarm panels FA-1000, FA-300, and MR-2300 (8 bit checksum).

4.2 For FA-1000, FA-300, MR-2300 Panels

Set the main annunciator “Address” (see the manual for the fire alarm control panel being used for the maximum number of annunciator addresses allowed), as shown in the following table:

Table 5 Annunciator Addresses

DIP Switch Positions	Annunciator Address							
	1	2	3	4	5	6	7	8
SW1-1 (A0)	ON	OFF	ON	OFF	ON	OFF	ON	OFF
SW1-2 (A1)	OFF	ON	ON	OFF	OFF	ON	ON	OFF
SW1-3 (A2)	OFF	OFF	OFF	ON	ON	ON	ON	OFF
SW1-4 (A3)	OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON



Note: Annunciators on a common RS-485 connection must be numbered sequentially; i.e.: 1,2,3,4, and not randomly such as 5,3,8,14! Note that NOT ALL annunciator “Addresses” are valid for all Fire Alarm Control Panels. Refer to the Fire Alarm Control Panel Manual for further information.

4.3 For FX-2000 Panels

Set the annunciator “Address” (see the manual for the fire alarm control panel being used), as follows in the following table:

Table 6 Annunciator Address Settings

Address	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5	Address	SW1-1	SW1-2	SW1-3	SW1-4	SW1-5
33	ON	OFF	OFF	OFF	OFF	48	OFF	OFF	OFF	OFF	ON
34	OFF	ON	OFF	OFF	OFF	49	ON	OFF	OFF	OFF	ON
35	ON	ON	OFF	OFF	OFF	50	OFF	ON	OFF	OFF	ON
36	OFF	OFF	ON	OFF	OFF	51	ON	ON	OFF	OFF	ON
37	ON	OFF	ON	OFF	OFF	52	OFF	OFF	ON	OFF	ON
38	OFF	ON	ON	OFF	OFF	53	ON	OFF	ON	OFF	ON
39	ON	ON	ON	OFF	OFF	54	OFF	ON	ON	OFF	ON
40	OFF	OFF	OFF	ON	OFF	55	ON	ON	ON	OFF	ON
41	ON	OFF	OFF	ON	OFF	56	OFF	OFF	OFF	ON	ON
42	OFF	ON	OFF	ON	OFF	57	ON	OFF	OFF	ON	ON
43	ON	ON	OFF	ON	OFF	58	OFF	ON	OFF	ON	ON
44	OFF	OFF	ON	ON	OFF	59	ON	ON	OFF	ON	ON
45	ON	OFF	ON	ON	OFF	60	OFF	OFF	ON	ON	ON
46	OFF	ON	ON	ON	OFF	61	ON	OFF	ON	ON	ON
47	ON	ON	ON	ON	OFF	62	OFF	ON	ON	ON	ON

4.4 For Flex-Net™ and MMX™ Panels

Set the annunciator “Address” (see the manual for the fire alarm control panel being used), as follows in the following table:

Table 7 Annunciator “Address” Settings

Address	SW1-1	SW1-2	SW1-3	Address	SW1-1	SW1-2	SW1-3
33	ON	OFF	OFF	37	ON	OFF	ON
34	OFF	ON	OFF	38	OFF	ON	ON
35	ON	ON	OFF	39	ON	ON	ON
36	OFF	OFF	ON				

4.5 For FX-3500, FX-3500RCU, FX-3318, FX-350, FR-320, MR-3500, MR-3500RCU, MR-3318, MR-2350, MR-2320 Panels

Set the annunciator "Address" (see the manual for the fire alarm control panel being used - FR-320, MR-2320 allow 6 annunciator addresses maximum), as follows in the following table:

Table 8 Annunciator Addresses

DIP Switch Positions	Annunciator Address						
	1	2	3	4	5	6	7
SW1-1 (A0)	ON	OFF	ON	OFF	ON	OFF	ON
SW1-2 (A1)	OFF	ON	ON	OFF	OFF	ON	ON
SW1-3 (A2)	OFF	OFF	OFF	ON	ON	ON	ON
SW1-4 (A3)	OFF	OFF	OFF	OFF	OFF	OFF	OFF

4.6 The RAX-1048TZDS(-CC) Adder Annunciator Chassis

P1: Connects to the Main Annunciator Chassis, or to the previous Adder Annunciator Chassis.

P2: Connects to the Next Adder Annunciator Chassis.

4.7 The RAM-1032TZDS(-CC) Main Annunciator Chassis

P2: Connects to the first Adder Annunciator Chassis.

P11: Not used.

Jumpers: Factory set. *Do not change.*

Terminals: See Wiring Instructions on page 6 for details.

SW1, SW2: Set DIP Switches as described on page 9.

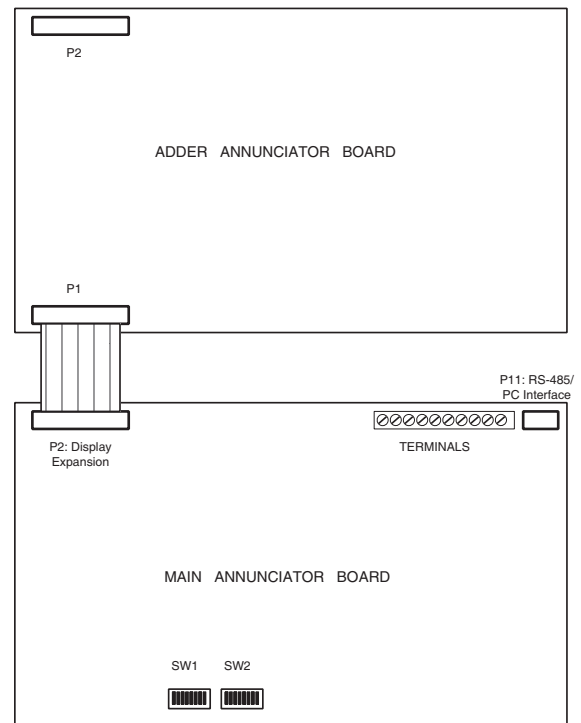


Figure 5 Annunciator Connections

4.8 The RAM-1016TZDS Main Annunciator Chassis

P2: Not used. No expansion allowed.

P11: Not used.

Jumpers: Factory set. *Do not change.*

Terminals: See Wiring Instructions on page 6 for details.

SW1, SW2: Set DIP Switches as described on page 9.

JW6: RS-485 termination jumper. Remove on all except for last RAM-1016TZDS.

5.0 Specifications and Features

5.1 Enclosures

The finish of all enclosures is painted semi-gloss off white, the backbox is black. Add the suffix “R” for red painted door. For enclosure dimensions see section 2.0.

Table 9 Enclosure Model Descriptions

Model Numbers	Material	Description
BB-1001D(R)(S) (MMX-BB-1001D(R))	18 GA. CRS	Backbox for one annunciator chassis with keylock door
BB-1002D(R)(S) (MMX-BB-1002D(R))	18 GA. CRS	Backbox for two annunciator chassis with keylock door
BB-1003D(R)(S) (MMX-BB-1003D(R))	16 GA. CRS Door is 18 GA.	Backbox for three annunciator chassis with keylock door
BB-1008D(R)(S) (MMX-BB-1008D(R))	16 GA. CRS Door is 14 GA	Backbox for eight annunciator chassis with keylock door
BB-1012D(R)(S) (MMX-BB-1012D(R))	16 GA. CRS Door is 14 GA	Backbox for twelve annunciator chassis with keylock door
BB-1001WPA and BB-1001WPRA	Box is 18 GA. CRS and hood is 16 GA. CRS. Both hood and box are galvanized with powder coat paint Door is 18 GA satin coat steel with powder coat paint	Weather-protected backbox for one annunciator chassis with keylock door
BB-1002WPA and BB-1002WPRA	Box is 18 GA. CRS and hood is 16 GA. CRS. Both hood and box are galvanized with powder coat paint Door is 18 GA satin coat steel with powder coat paint	Weather-protected backbox for two annunciator chassis with keylock door

5.2 Annunciators

5.2.1 RAM-1016TZDS Main Annunciator Chassis

- 20 to 39 VDC (filtered or full-wave-rectified)
- Sealed membrane-like buttons and LED indicators.
- Local Buzzer, Indicators (AC-ON, Common Trouble, Remote Failure, Aux. Disconnect, Acknowledge, General Alarm, Signal Silence, Test/Config Mode), and Controls (System Reset, Lamp Test, Fire Drill, Aux. Disconnect, Buzzer Silence, Signal Silence, General Alarm, Acknowledge).
- Buzzer silence activation silences the main fire alarm panel buzzer and all attached annunciator buzzers.
- Annunciation of up to 16 points with trouble annunciation.
- Non-expandable.
- Standby: 50 mA Max., All LEDs “On”: 150 mA Max.

5.2.2 RAM-1032TZDS(-CC) Main Annunciator Chassis

- 20 to 39 VDC (filtered or full-wave-rectified)
- Sealed membrane-like buttons and LED indicators.
- Local Buzzer, Indicators (AC-On, Common Trouble, Remote Failure, Aux. Disconnect, Acknowledge, General Alarm, Signal Silence, Test/Config Mode), and Controls (System Reset, Lamp Test, Fire Drill, Aux. Disconnect, Buzzer Silence, Signal Silence, General Alarm, Acknowledge).
- Buzzer silence activation silences the main fire alarm panel buzzer and all attached annunciator buzzers.
- Annunciation of up to 32 points with trouble annunciation.
- Expandable by using up to four RAX modules.
- Standby: 50 mA Max., All LEDs "On": 300 mA Max.

5.2.3 RAX-1048TZDS(-CC) Adder Annunciator Chassis

- Interconnect via one ribbon cable to RAM-1032TZDS(-CC) or to previous RAX-1048TZDS(-CC).
- Annunciation of up to 48 additional points with trouble annunciation.
- Standby: 22 mA Max., All LEDs "On": 262mA Max.

5.3 Current Drain for Battery Calculations

The lamp test feature draws the maximum normal current because it illuminates all lamps one chassis at a time. Thus the currents are:

$$\text{Normal Standby Current} = 50 \text{ mA} + \left[\frac{\text{Number of Adder Chassis}}{\text{Number of Adder Chassis}} \times 15 \text{ mA} \right]$$

$$\text{Maximum Alarm Current} = \text{Max. Main Annunciator Alarm Current (mA)} + \left[\frac{\text{Number of Adder Chassis}}{\text{Number of Adder Chassis}} \times 15 \text{ mA} \right]$$

Use the **Normal Standby Current** for battery size calculations (see the fire alarm control panel manual for battery calculations) which includes the current drain for the Trouble Buzzer, Trouble LED, and one alarm LED. Use the **Maximum Current** to calculate the wire size (see Wiring Instructions on page 6).

5.4 Environmental Specifications

RAM-1016TZDS, RAM-1032TZDS, and RAX-1048TZDS are intended for indoor use only.

RAM-1032TZDS-CC fits in the weather protected boxes BB-1001WP(R)A and BB-1002WP(R)A, and RAX-1048TZDS-CC fits in the weather protected box BB-1002WP(R)A. Together, the weather-protected box and the annunciators inside it are rated for outdoor environment, wet location according to UL 864 and ULC-S527: 122 °F (+50 °C) to -40 °F (-40 °C).

