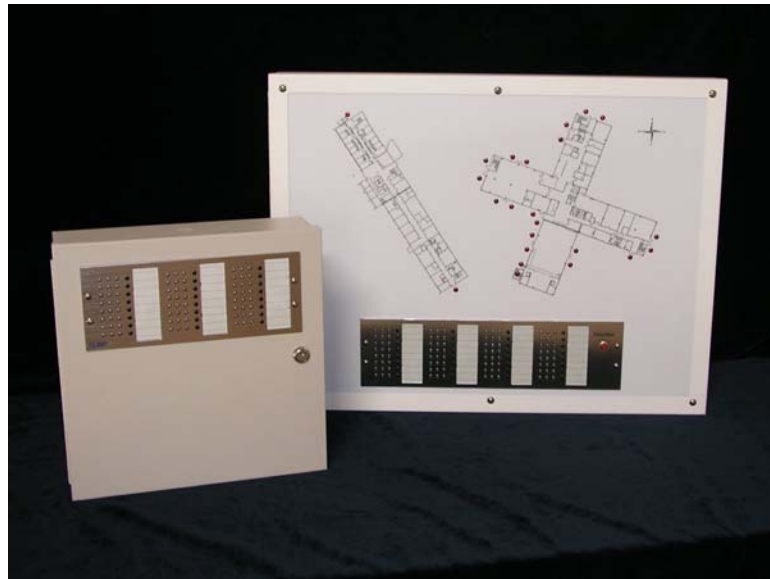




Installation Manual Multi-Zone Annunciator

Series 500



The Series 500 Multi-Zone Annunciator is ready to use from the factory. It comes pre-configured with basic factory (default) settings and will work with NC or NO devices with 1K Ohm EOL Resistors.

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Table of Contents

Features	2
General Specifications	3
System Overview	4
1. General	4
2. Typical Operation	4
3. Detailed Operation.....	5
3.1. Input Loop Types	5
3.1.1. N.C./N.O.– 1000 Ohm EOL	5
3.1.2. N.C. – 1000 ohm EOL	5
3.1.3. N.O. – 1000 Ohm EOL	5
3.1.4. Fire – 1000 Ohm EOL.....	5
3.1.5. High Security – 2000 Ohm EOL	6
3.2. Zone Input Configurations.....	6
3.2.1. 24 Hour	6
3.2.2. Entry Delay	6
3.2.3. Exit Delay.....	6
3.2.4. Prop Delay	7
3.3. Digital Input Configuration.....	7
3.3.1. Acknowledge.....	7
3.3.2. Reset.....	7
3.3.3. Shunt Disable w/ Memory.....	7
3.3.4. Shunt Disable.....	7
3.3.5. Master Shunt - Arm/Disarm	8
3.3.6. Lamp Test.....	8
3.4. LED Operation	8
3.4.1. Yellow LED – Shunt (Arm/Disarm)	8
3.4.2. Green LED – Loop Status.....	8
3.4.3. Red LED - Alarm.....	9
3.5. Common Output Types	9
3.5.1. Non-Latch	9
3.5.2. Latched	9
3.5.3. Pulsed	9
3.5.4. Timed.....	9
3.5.5. Audible	10
3.5.6. System Arm	10
3.6. Individual Output Types	10
3.6.1. Non-Latch	10

3.6.2.	Latched	10
3.6.3.	Pulsed	10
3.6.4.	Timed	10
3.6.5.	Sounder	10
3.7.	Input to Output Mapping.....	11
3.8.	Module Settings	11
4.	Default Settings	11
4.1.	Table 4-1	12
5.	Planning the System.....	13
6.	Bench Testing.....	13
7.	Programming	15
7.1.	Install Configuration Software	15
7.2.	Connect Annunciator to PC.....	16
7.3.	Start Configuration Software.....	16
7.4.	Begin Programming	17
7.5.	Configuration Passwords	18
8.	Installation.....	18
8.1.	Hardware Installation	18
8.2.	Zone Wiring – J1 Connector	20
8.2.1.	N.C./N.O.– 1000 Ohm EOL	20
8.2.2.	N.C. – 1000 ohm EOL	20
8.2.3.	N.O. or Fire – 1000 Ohm EOL.....	21
8.2.4.	High Security – 2000 Ohm EOL	21
8.3.	Digital Inputs – J2 Connector.....	21
8.4.	Individual and Common Outputs – J3 & J4 Connectors	22
8.5.	Power Input – J8 Connector.....	22
8.6.	Wire Lead Color Code and Description	23
8.7.	Annunciator Termination Module Descriptions	24
9.	Appendixes	25
9.1.	A – Options	25
9.2.	B – Programming Chart	29
9.3.	C – Diagrams	32
9.4.	D - Warranty	33
9.5.	E - FCC Compliance Statement.....	35
9.6.	F - Software Licensing Agreement.....	36

Introduction

Flair Multi-Zone Annunciators are the most compact and sophisticated of their kind. They are available in a variety of mounting styles: Rack, Desk Top, Recessed Wall and Surface Wall mount. Eight Zone, State of the Art, Micro-Controller Based, Modular Circuit Boards are the Heart of the System.

Flair Multi-Zone Annunciators can be used as “Stand Alone” Annunciator-Controls or in combination with any Control Panel.

This Manual describes the basic installation and operation of the Flair Multi-Zone Annunciator. There are several configurations with up to 40 Options to customize your Annunciator.



It is important that you refer to the Options pages to understand the specific operation of your Multi-Zone Annunciator.

Features

- 8 Zone Modular Design
- State of the Art Microcontroller Based
- Highly Visible Display
- Single touch Zone Control
- Pre-Configured for Basic Operation
- Field Programmable via Serial Port
- EOL Supervised Inputs compatible with C.C., O.C. and Multi-State High Security Loops
- Individual Open Collector Output per Zone
- 1 Audible Sounder and 1 Common SPDT Relay Output
- Individual Zone Status LEDs

System Overview

General Specifications

- Mounting Configuration
 - Surface Wall Mount
 - Recessed
 - Desk Top
 - Rack
- Power Requirements
 - Series 500 includes 12Vdc Power Supply w/ Battery Charger and 18Vac 40VA Transformer
- Zone Inputs - From 8 to 64 Zones in 8 Zone Increments
 - End-of-Line (EOL) Resistor Supervised
 - CC, OC – 1k ohm End-of-Line Resistor
 - High Security – Multi-State End-of-Line Contact Required
- Auxiliary Control Input Programmable Features.
 - Acknowledge
 - Reset
 - Shunt Disable w/ Memory
 - Shunt Disable
 - Master Shunt - Arm/Disarm
 - Lamp Test
- Individual Zone Output Programmable Features
 - Non-Latch
 - Latched
 - Pulsed
 - Timed
 - Sounder
- Common Zone Output Programmable Features
 - Non-Latch
 - Latched
 - Pulsed
 - Timed
 - Audible
 - System Arm

1. General

The Series 500 Multi-Zone Annunciator is ready to use from the factory. It comes Pre-Configured with a basic Factory (Default) setting for Burglar Zones. The System can be Re-Configured via the Serial Port. This requires an RS232 Adapter, Personal Computer and the Configuration Software.

The 8 Zone Modules are comprised of two components, the ILM (Input Light Module) and the TM (Termination Module). The ILM contains the Micro-Controller, LEDs and Zone Push Buttons. The TM contains the Voltage Regulators, Interface and Signal Conditioning Circuitry and the Input/Output Terminations.

2. Typical Operation

Based upon standard factory programming and options

Input Loop – The Inputs are configured to monitor NC/NO EOL (End of Line) Resistor Loop. The Secure State is with a Loop resistance of 1k Ohms. If the resistance is <500 ohms or >2k ohms the Annunciator will detect an Alarm Condition.

Auxiliary Control Inputs - The four control inputs are not typically used with the 531 Series Annunciator, however, they are configured as follows:

1. Acknowledge
2. Reset
3. Lamp Test
4. Shunt Disable w/ Memory

Green LED – The Green LED will display the condition of the Input.

1. LED ON – Indicates a Secure Input Loop.
2. LED OFF – Indicates an Alarm Condition.

Red LED – The Red LED will display the Alarm Condition of a Zone.

1. LED Flashing – Indicates an Alarm.
2. LED Steady – Indicates an Acknowledged Alarm.
3. LED OFF – Indicates NO Alarm Condition.

Yellow LED – Displays the Individual Shunt (Arm/Disarm) status of a Zone. It does not indicate the System Wide Arm/Disarm Status.

1. LED OFF – Indicates the Zone is Armed.
2. LED ON – Indicates the Zone is Shunted (Disarmed).

Zone Push Button – The Zone Push Button provides for individual Zone Control of Acknowledge, Reset and Shunt (Arm/Disarm).

Momentarily pressing the Zone Pushbutton will:

1. Acknowledge a Zone in Alarm
2. Reset an Alarmed and Secured Zone
3. If pressed for >3 seconds, change (toggle) the Shunt (Arm/Disarm) State of the Zone

Audible Sounder – The Audible Sounder will indicate an Alarm Condition or Exit/Entry Delays in progress.

1. Activate Steady ON with any Alarm
2. Pulse during Exit/Entry Delay
3. Silence when the Zone is acknowledged.
4. Reactivate on any new Alarm

Individual Zone Outputs – There are 8 individual Open Collector Zone Outputs on each Termination Module, one for each Zone, programmed to latch on an Alarm Condition. Each Output is rated at 24VDC 100mA maximum.

Common Zone Outputs – There are 2 common Open Collector Outputs, one wired to and programmed as an Audible Sounder and one wired to a SPDT Relay and programmed as a Non-Latch.

3. Detailed Operation

3.1. Input Loop Types

3.1.1. N.C./N.O.– 1000 Ohm EOL

Secure - 500-2k Ohms
Alarm - <500 Ohms or > 2k Ohms
**NOTE: No Trouble Output

3.1.2. N.C. – 1000 ohm EOL

Secure - 500-2k Ohms
Alarm - > 2k Ohms
Trouble <500 Ohms

3.1.3. N.O. – 1000 Ohm EOL

Secure - 500-2k Ohms
Alarm - <500 Ohms
Trouble >2k ohms

3.1.4. Fire – 1000 Ohm EOL

Secure - 500-2k Ohms
Alarm - <500 Ohms
Trouble > 2k Ohms
***Note 3.2.1 - 24 Hour Zones

3.1.5. High Security – 2000 Ohm EOL

Secure – 1.5-2.5K Ohms
Door open alarm – 4.5-6K Ohms
Magnetic tamper alarm – 500-1.5K Ohms
Loop trouble/tamper – 0-500 Ohms, 2.5-4.5K Ohms or >6K Ohms

NOTE: Inputs will monitor for Tamper or Trouble conditions at all times. This feature is not affected by any time delays or Arm/Disarm function.

3.2. Zone Input Configurations

3.2.1. 24 Hour

1. Zones configured as 24hr or Fire will have any Disarm or Delay features disabled.

3.2.2. Entry Delay

1. Provides a programmable Delay Period to enter an area before an Alarm is activated, typically a front door.
2. The Zone will Alarm on Trouble or Tamper during the Delay Period.
3. While a Zone is Armed and the door is opened to enter, the Audible Sounder will pulse, indicating the start of the Entry Delay.
4. The System will wait for a preprogrammed Delay Period (0-120sec.) to allow the System or Zone to be Disarmed.
5. If the System or Zone is not Disarmed within that Delay Period that Zone will Alarm.
6. The Entry Delay is a One Shot Timer. Any secondary Entry attempts will immediately activate the Audible Sounder or any Outputs that may have timed out.

Example: A burglar enters the front door and is unable to reset the system. The alarm siren will activate for a time period of approximately 5 minutes. The intruder will then leave the premises and attempt to enter again after the Output has timed out. When the door is opened again, there will be no Entry Delay. There will be an immediate Alarm condition.

3.2.3. Exit Delay

1. Provides a programmable Delay Period to Exit an area, before a Zone is Armed, typically a front door.
2. The System will still monitor for Trouble or Tamper during the Delay Periods.
3. When the System or Zone is initially Armed there will be a preprogrammed Exit Delay (0-120sec.) allowing time to exit though the Zone, before the Zone is Armed.
4. During the Exit Delay Period, the Audible sounder will pulse.
5. After the Exit Delay Period the Zone will be fully Armed.

3.2.4. Prop Delay

1. Provides a programmable Delay Period to pass thru a Zone and cause no Alarm Output.
2. When the Zone is Disarmed there will be a preprogrammed Delay Period (0-120sec.) in which the Zone (Door) may be opened without causing an Alarm.
3. If the Zone (Door) remains open longer than the Delay Period the Zone will respond with an Alarm Condition.
4. The Annunciator will still monitor for Trouble or Tamper during the Delay Period.

3.3. Digital Input Configuration

3.3.1. Acknowledge

When this Input is activated, grounded low:

1. Any Flashing Red LED will change from Flashing to Steady On.
2. Any Flashing Green LED in which the Zone has been restored from a Trouble condition to a secure condition will change from Flashing to Steady On.
3. The Audible sounder will reset regardless of the status of the Input.

3.3.2. Reset

When this Input is activated, grounded low:

1. After a Zone has been acknowledged and the input restored to a secure condition it may be reset.
2. Activating this Input after the Zone has been acknowledged and the Input secure will cause the Red Alarm LED to change from Steady On to OFF.
3. Activating this input after the Zone has been acknowledged but with the Zone Input still in an Alarm Condition will have no effect.

3.3.3. Shunt Disable w/ Memory

When this Input is activated, grounded low:

1. The Arm/Disarm feature of the Zone Pushbuttons will be disabled.
2. There will be no effect on the state of the Yellow LEDs.
3. There will be no effect on the Armed/Disarmed status of any Zone.
4. All Zones will be locked in their current Arm/Disarm state.

3.3.4. Shunt Disable

When this input is deactivated, internally pulled high:

1. The Arm/Disarm feature of the Zone Pushbuttons will be enabled.
2. There will be no effect on the state of the Yellow LEDs.
3. There will be no effect on the Armed/Disarmed Status of any Zone.

When this input is activated, grounded low:

1. All Zones will become Armed.
2. All Yellow LEDs will turn OFF.
3. The Arm/Disarm feature of the Zone Pushbuttons will be disabled.

3.3.5. Master Shunt - Arm/Disarm

When this Input is deactivated, internally pulled high:

1. All Standard Alarm and High Security Zones will be Disarmed.
2. All Entry Delays will be Reset and Canceled.
3. 24 Hr or Fire Zones will not be affected and will remain Armed.
4. The Annunciator will continue to monitor for Trouble or Tamper.
5. There will be no effect on the Yellow LEDs.
6. The Arm/Disarm feature of the Zone Pushbuttons will be enabled.

When this Input is activated, grounded low:

1. The Annunciator will be Armed.
2. Any Zone not Disarmed by a Zone Pushbutton will be Armed.
3. Any Exit delays will begin.
4. All Zones will be locked in their current Arm/Disarm State.
5. The Arm/Disarm feature of the Zone Pushbuttons will be disabled.
6. The Yellow LED will display the current Arm/Disarm Status of the Zones.

3.3.6. Lamp Test

When this Input is activated, grounded low:

1. The Annunciator will begin a One-Shot Test Sequence.
2. The LEDs will cycle, All Yellow, All Green then All Red.
3. After the One-Shot Test Sequence all LEDs will return to their Original Status.
4. Holding the Lamp Test Input active will have no effect after the One-Shot Test Sequence.

3.4. LED Operation

3.4.1. Yellow LED – Shunt (Arm/Disarm)

1. Light steady while Zone is Disarmed by function of the Zone Pushbutton.
2. Turn off when Zone is Armed by function of the Zone Pushbutton.
3. Disarming by Master Shunt (Arm/Disarm) will not cause the Yellow LED to change states.

3.4.2. Green LED – Loop Status

1. Light steady while the input is in a secure condition.

2. Turn off while the input is in an Alarm condition.
3. Return to a steady on after an Alarm condition is restored to a secure condition.
4. Flash while the input is in a Trouble condition @ 2cps 30%duty cycle and will continue to flash until zone is restored to a secure condition and Acknowledged.

3.4.3. Red LED - Alarm

1. Activate during an Alarm or Trouble condition.
2. Initially flash when any Alarm or Trouble occurs.
3. Change to a steady ON state when the Zone is acknowledged.
4. Change from a Steady ON state to a FLASHING State, on any new Alarm or Trouble condition.
5. Turn OFF only after the Zone Input has been restored, the Zone Acknowledged and then Reset.

3.5. Common Output Types

3.5.1. Non-Latch

1. Output will activate upon Alarm.
2. Output will automatically reset when the Zone Input is restored to a Secure Condition.
3. Output will reactivate anytime the input has been restored and goes into an Alarm Condition again.
4. It is not necessary to reset or acknowledge the Zone for the Output to reset.

3.5.2. Latched

1. Output will activate upon Alarm.
2. Output will remain on until the Zone is reset.

3.5.3. Pulsed

1. Output will activate upon Alarm.
2. Output will automatically reset after 3 Seconds.
3. Resetting the Zone will also reset the Output.
4. Output will reactivate and reset the Time Period anytime the Input has been restored and goes into an Alarm Condition again.

3.5.4. Timed

1. Output will activate upon Alarm.
2. Output will automatically reset after the preprogrammed Time Period.
3. Resetting the Zone will also reset the Output.
4. Output will reactivate and reset the Time Period anytime the Input has been restored and goes into an Alarm Condition again.

3.5.5. Audible

1. Output will Pulse during Exit/Entry Delays.
2. Output will activate upon Alarm.
3. Output will reset when the Zone is acknowledged.
4. Output will reactivate anytime the Input has been restored and goes into an Alarm Condition again.

3.5.6. System Arm

1. Output will follow the status of the Master Shunt (Arm/Disarm) Input.
2. Output will activate when the System is Armed.
3. Output will deactivate when the system is Disarmed.

3.6. Individual Output Types

3.6.1. Non-Latch

1. Output will activate upon Alarm.
2. Output will automatically reset when the Zone Input is restored to a Secure Condition.
3. Output will reactivate anytime the Input has been restored and goes into an Alarm Condition again.
4. It is not necessary to reset or acknowledge the Zone for the output to reset.

3.6.2. Latched

1. Output will activate upon Alarm.
2. Output will remain ON until the Zone is reset.

3.6.3. Pulsed

1. Output will activate upon Alarm.
2. Output will automatically reset after 3 Seconds.
3. Resetting the Zone will also reset the Output.
4. Output will reactivate and reset the Time Period anytime the Input has been restored and goes into an Alarm Condition again.

3.6.4. Timed

1. Output will activate upon Alarm.
2. Output will automatically reset after the preprogrammed Time Period.
3. Resetting the Zone will also reset the Output.
4. Output will reactivate and reset the Time Period anytime the Input has been restored and goes into an Alarm Condition again.

3.6.5. Sounder

1. Output will activate upon Alarm.
2. Output will reset when the Zone is acknowledged.
3. Output will reactivate anytime the Input has been restored and goes into an Alarm Condition again.

3.7. Input to Output Mapping

The Annunciator Module has 8 inputs and 8 individual outputs. They are Factory configured to operate on a 1 to 1 basis. Input 1 to Output 1, Input 2 to Output 2, etc... Outputs may be configured to operate with any individual Input or combination of Inputs.

When configuring the Annunciator Module, use the table in the lower right corner of the Configuration Software to bridge inputs to outputs. Black squares in the table indicate a bridge. Click on any square to change its state.

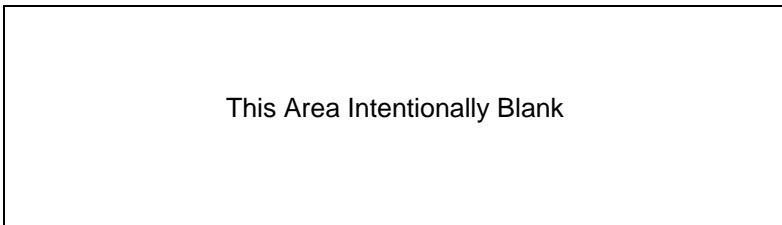
Example: In the row identified as Input 4, if Outputs 4, 5 and 6 are checked off, then any time that Input 4 is activated, Outputs 4, 5 and 6 will be activated. The Outputs will operate in accordance with their individually programmed Output Type.

3.8. Module Settings

The Module Settings configure the Annunciator Module's Serial Port (J7) and I2C Ports (J5&J6) for Systems that require the interconnection of multiple Modules in a cabinet or connection of a Local Annunciator to a Remote Annunciator. These settings are set at the factory and SHOULD NOT BE CHANGED. Contact the Factory if you have accidentally made changes to these settings.

4. Default Settings

Table 4-1 provides a list of the major features of the Annunciator system as it comes Configured from the factory. If the default settings described below do not meet your installation requirements, they can be easily changed with the Configurator software.



4.1. Table 4-1

Zone Input / Output Configuration

Zone #	Loop Input	24 Hour	Entry Delay	Exit Delay	Prop Delay	Output Type	Output Time
1-8	N.C./N.O.	OFF	OFF	OFF	OFF	Latched	N/A

Digital Input Configuration

Digital Input #	Input Type
1	Acknowledge
2	Reset
3	Lamp Test
4	Shunt Disable w/ Memory

Common Output Configuration

Output #	Output Type	Output Time
1	Audible	N/A
2	Non-Latching	N/A

Output Mapping Configuration

Output	1	2	3	4	5	6	7	8
Input 1	X							
Input 2		X						
Input 3			X					
Input 4				X				
Input 5					X			
Input 6						X		
Input 7							X	
Input 8								X

Module Configuration

System Zones	Module Link Address	Serial Port Mode	Serial Port Address
8	None	None	None

5. Planning the System

The speed and efficiency of installing a Flair Annunciator will be greatly enhanced by planning the installation. Programming can be minimized by analyzing the job requirements and comparing these with the factory default program. The PROGRAMMING GUIDE, (Appendix B), has been developed to aid in the system design. To use this guide, decide what characteristics you want for each Zone and insert the values in the appropriate boxes in the PROGRAMMING CHART.

Use the checklist below to ensure that all of the details have been considered.

1. Draw a diagram of the installation showing the location of the Annunciator Panel, Input Devices (Switches, PIRs, etc.), Output Devices (Sirens or Strobes) and any other Auxiliary Devices.
2. Determine and indicate the Type of Devices to be monitored-Closed Circuit, Open Circuit or High Security Multi-State Circuit. Identify to which Zone each device will be connected.
3. Review the Option List and determine if the Factory Default Settings are satisfactory for your installation, if not, use a COPY of the Programming Guide (Appendix B) and note the configuration and options that you need for each zone.

6. Bench Testing

The following paragraphs provide a method for becoming familiar with the 531 Annunciator prior to understanding all of its capabilities and detailed operational characteristics. This test series assumes one has nothing more than a 531 Annunciator, 12VDC power source (may not be included), screwdriver, wire strippers, diagonal cutters and some wire. These steps will take you through limited hook-up and operation.

Unpack the 531 and inspect the carton for the following contents

1. 531 Annunciator
2. J1 – Zone Input Harness
3. J8 – 12Vdc Input Harness
4. 8 – 1000 Ohm Resistors

Make the following connections before applying power. Refer to figure 5-1 for a detailed hookup diagram of the 531.

1. Using the free end of the Zone Input Harness and the 8 - 1000 Ohm Resistors, connect a 1000 Ohm End-Of-Line Resistor to each of the Colored Input Wires. Connect the free end of the 8 Resistors to the Common Black Wire. This will complete the 8 Input Loops.
2. Connect the Zone Input Harness to J1 – 9 pin header, on the Termination Module.

3. Using the free end, connect the 12Vdc Input Harness to a 12Vdc power source.
4. Connect the 12Vdc Input Harness to J8 – 2 pin header, on the Termination Module.

Immediately after the 12Vdc Input Harness is connected to the Termination Module the 531 Annunciator will begin a diagnostic sequence, all LEDs will light in a test sequence. After the diagnostics are complete the 531 will be in an operational mode. The LEDs should be illuminated as follows:

Yellow – OFF
Green – ON
Red – OFF

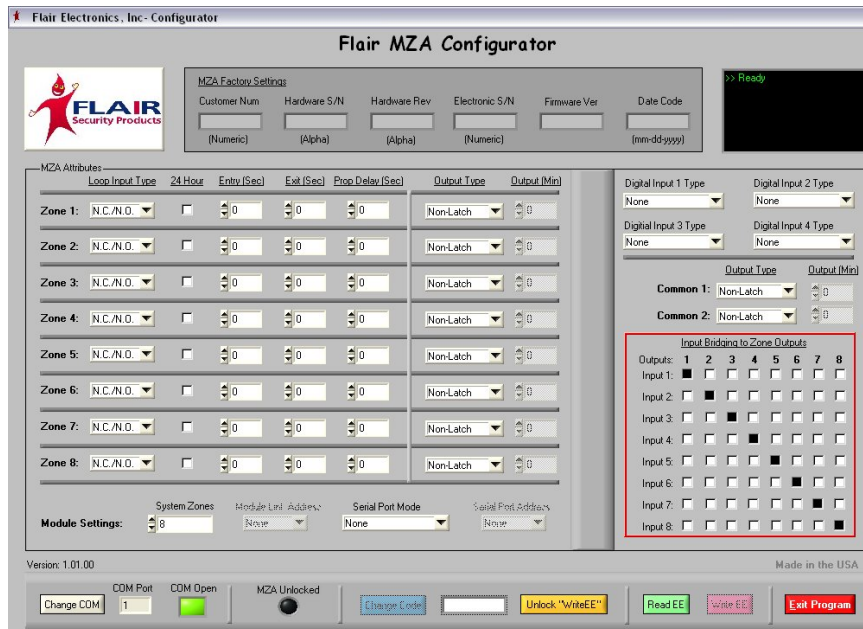
If any Green LED is OFF and the Corresponding Red LED is ON or Flashing, a zone is violated. Check the connection of J1 – Input harness and the EOL resistors.

Test each Zone – Follow the sequence below completely for each zone, one at a time.

1. Short across a Zone Input EOL Resistor. As the EOL Resistor is shorted, the Green LED will turn off, the corresponding Red LED will begin flashing and the Audible Sounder will turn on.
2. Depress the corresponding Zone Push Button. The Audible Sounder will silence and the Red LED will turn Steady ON.
3. Remove the short from the EOL Resistor. The Green LED will turn ON.
4. Depress the corresponding Zone Push Button. The Red LED will turn OFF.
5. Remove the EOL Resistor. As the EOL Resistor is removed, the Green LED will turn OFF, the corresponding Red LED will begin Flashing and the Audible Sounder will turn ON.
6. Depress the corresponding Zone Push Button. The Audible Sounder will silence and the Red LED will turn Steady ON.
7. Install the EOL Resistor. The Green LED will turn ON.
8. Depress the corresponding Zone Push Button. The Red LED will turn OFF.

7. Programming

The 531 Series Annunciator may be Programmed / Configured using the Configuration Software. This requires a PC (Desktop or Laptop) with a RS232 Serial Port and a Flair RS232 Adapter (NOTE: A USB to RS232 Adapter may be used if the computer does not have an RS232 Port). The Annunciator Modules are configured one at a time. If your Annunciator has more than one 8 Zone Module, each Module will need to be Configured separately.



7.1. Install Configuration Software

Insert the CD in your computer's CD-ROM drive. If you have auto-start set for your CD drive, the Installation Wizard will begin and prompt you thru the installation process. If you are reinstalling or updating your version of the Configuration Software, the Installation Wizard will first prompt you to Un-Install the previous version. After the Un-Install has completed, you then need to re-insert the CD to begin the auto-start sequence. You can also execute the file "setup.exe", by double clicking on it, to begin the Installation Wizard

You may also download the latest version of the Configuration Software from our website at – <http://www.flairannunciators.com/downloads.htm>

1. Save the ZIP file to your desktop.

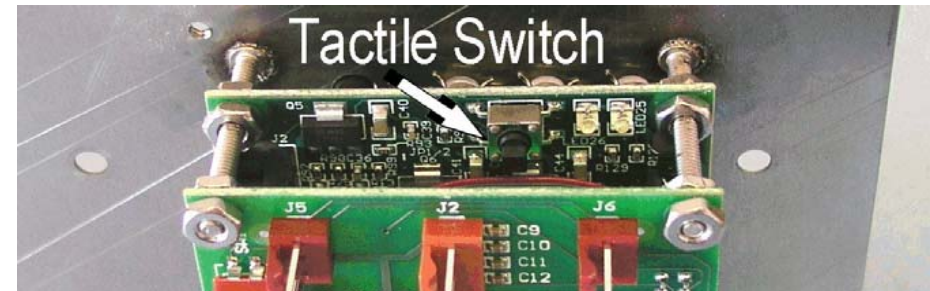
2. Open the folder and extract all files to a folder on your desktop.
3. Open the folder with the extracted files.
4. Select all files and copy to a blank CD.
5. Insert the newly copied CD into the computer auto-start the Installation Wizard for the Configurator Software.

7.2. Connect Annunciator to PC

1. With the Annunciator powered down, connect the appropriate Annunciator Module Serial Port (J7), located on the TM Board, to the RS232 Serial Port on the PC using the Flair - RS232 Adapter.

NOTE: If you do not have a DB9 RS232 Serial Port, you may purchase a USB Serial Adapter.

1. Install the Serial Adapter Software and Drivers as instructed by manufacturer.
 2. Connect the Serial Adapter to the USB Port on the Computer.
 3. Identify the COM Port the Serial Adapter is configured to.
 4. When completing Sec. 7.3.5 change the Configurator COM Port to the COM Port used by the USB to Serial Adapter.
2. Locate the Tactile switch on the back of the ILM Board and depress this Switch while powering up the Annunciator. Continue depressing the Tactile Switch while the Annunciator Module completes the start-up test sequence.



3. The Green and Red LEDs adjacent to the Tactile Switch should both be ON Steady and all LEDs on the front of the ILM should be OFF. If not, remove power and repeat step 2.

7.3. Start Configuration Software

1. Start the Configuration Software, located in the Windows START Menu: START – All Programs – Flair Configurator – Flair Configurator.

2. The Configurator will initialize and attempt to open and secure COM 1.
3. The box in the lower left corner of the Configurator menu, below the text "COM Open" will illuminate GREEN if the Configurator has successfully secured COM 1.
4. If the Configurator attempts to connect to an invalid COM Port, the Configurator will prompt you to change the COM Port settings of the Configurator.
5. If you have connected the Annunciator to another valid COM Port other than COM 1 you must change the COM Port settings of the Configurator.
 1. In the Configurator, locate the button labeled "Change COM" in the lower left corner and click on it.
 2. A small window will appear asking if you wish to continue, answer YES.
 3. Enter the value of the COM Port you wish to use and select OK.
 4. Save Changes.
 5. The Configurator will then save changes and exit. When the Configurator is started again, the new COM Port settings will be used.

7.4. Begin Programming

1. Verify the Annunciator Module is powered up and the two LEDs on the back of the ILM are ON Steady, the Annunciator Module Serial Port is connected to the appropriate COM Port on the PC using the RS232 Adapter and the Configuration Software is running with the COM Open indicator GREEN.
2. Configuring is accomplished by:
 1. Reading the configuration data of the Annunciator Module.
 2. Making changes to the configuration.
 3. Writing the changes back to the Annunciator Module.
3. The Configuration Software will Read any Annunciator Module, but in order to write data to the Annunciator Module the "Write EE" must be unlocked by entering the correct password in the window left of the "Unlock EE" button. See section 7.5.
4. The Factory Default is no password. Leave the window blank and click the "Unlock EE" button.
5. The Configurator will then begin an automatic Read of the Annunciator Module updating the configuration data displayed on the Configurator, enable the "Write EE" button and illuminate the "MZA Unlocked" indicator RED.

6. Using the copy of the PROGRAMMING GUIDE, (Appendix B), that you completed during the "Planning of the System", Section 5, make changes to the configuration on the Flair Configurator Software.
7. After all changes have been made, click on the "Write EE" button. This will initialize the data transfer to the Annunciator Module.
8. Power down the Annunciator and disconnect from the RS232 Serial Adapter.
9. Your programming is complete. Upon powering up the Annunciator will be operational with the new configuration.

7.5. Configuration Passwords

The Configurator has a Password scheme to prevent the unauthorized configuration of an Annunciator Module.

To unlock the "Write EE" button:

1. Enter the correct Password into the box, left of the "Unlock Write EE" button.
2. Click on the "Unlock Write EE" button.
3. If the Password is valid, the Configurator will automatically begin a Read of the Annunciator Module.
4. If the Password is not valid, the Configurator will display the error message - "Password Not Accepted by MZA"
5. The Factory default Password is none. If you are configuring for the first time, leave the password window BLANK, no Password, and click on the "Unlock Write EE" button.

To change the Password:

1. Unlock the "Write EE" button as described above.
2. Click the "Change Code" button.
3. The Configurator will prompt you for a new 4-8 digit number.
4. Enter the new number and confirm.
5. Click the "Write EE" button.
6. Power down the Annunciator Module.
7. Power up the Annunciator Module as described in Sec. 7.4 Begin Programming, verify the new Password and continue the configuration of the Annunciator Module.

8. Installation

8.1. Hardware Installation

1. Remove Annunciator box knockouts as necessary for wiring.
2. Mount box in a secure and dry location.

3. Attach an earth ground wire to box. Use a minimum 14 gauge wire and connect this wire to a ground stake. Do not use a conduit, gas pipe, or water pipe for a ground reference. CAUTION: DO NOT Earth ground the negative side of the power supply, as this will greatly reduce lightning/transient protection. NOTE: DO NOT connect the transformer or connect the battery until all of the pre wiring is completed.
4. Install all Input Devices (Switches, PIRs, etc.).
5. Install all Output Devices (Sirens or Strobes) and any other Auxiliary Devices.
6. Pre-Wire the connector leads of the Annunciator:
 1. J1 – Zone Inputs, See Sec 8.2.
 2. J2 – Digital Inputs, Optional, See Sec 8.3.
 3. J3, J4 – Individual and Common Outputs, Optional, See Sec 8.4.
 4. J8 –Power Input - 12 VDC, See Sec 8.5.
7. Connect the Wire Lead Connectors to the Annunciator Panel
Check Wiring before proceeding to connect to Annunciator
If Annunciator has multiple Modules, make connections in order below to all Modules, i.e. connect J1 for all modules before making any other connections.
 1. Verify the Power Supply is OFF, Battery and Transformer disconnected.
 2. J1
 3. J2
 4. J3, J4
 5. J8
 6. Test and verify all connections.

8. Applying Power (AC and Battery)

WARNING: Do not connect the battery or transformer until all other wiring is complete.

WARNING: Battery Connection – Red & Black Battery Leads

Observe the correct polarity of the battery, connecting the Battery Leads of the Power Supply; Red Battery Lead to the Positive (+) terminal of the Battery and the Black Battery Lead to the Negative (-) terminal of the Battery. *If the Battery is connected backwards there is a risk of Explosion, Fire and Damage to the Annunciator, Power Supply, Transformer and Battery.*

WARNING: The Annunciator Termination Module is internally fused. Shorting the Common + (White) wires (J3, J4) to Ground or the Open Collector Outputs will BLOW the FUSE and require Factory servicing.

Applying power to the Annunciator

Once all field wiring has been completed and checked for opens, shorts and grounds.

Power can be applied to the panel as follows:

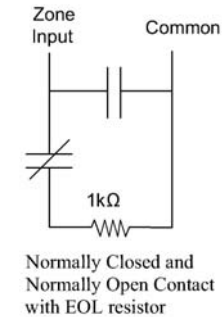
1. Connect the Battery Leads
2. Connect the AC Transformer

8.2. Zone Wiring – J1 Connector

Zones are wired according to the diagrams below. The Annunciator Module must be configured for the type of Zone supervision you require.

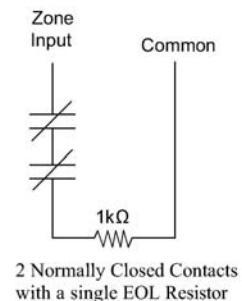
8.2.1. N.C./N.O.– 1000 Ohm EOL

For use with N.C. and or N.O. contacts. N.C/N.O. EOL Zones must have a 1000 Ohm resistor across them. If the Zone is shorted or open, it will Alarm, there is no trouble condition. Resistors should always be placed at the end of the wire run.



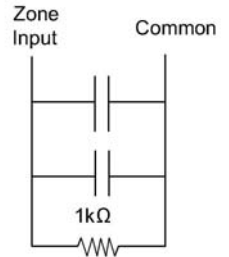
8.2.2. N.C. – 1000 ohm EOL

For use with N.C. contacts. N.C. EOL Zones must have a 1000 Ohm resistor across them. An Open Zone will generate an Alarm condition; a Shorted Zone will generate a Trouble condition. Resistors should always be placed at the end of the wire run.



8.2.3. N.O. or Fire – 1000 Ohm EOL

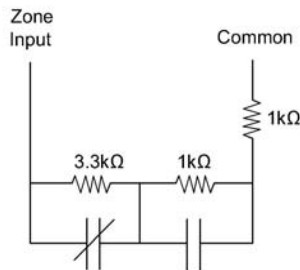
For use with N.O. Contacts. N.O. EOL Zones must have a 1000 Ohm resistor across them. A Shorted Zone will generate an Alarm condition; an Open Zone will generate a Trouble condition. Resistors should always be placed at the end of the wire run.



2 Normally Open Contacts with a single EOL Resistor

8.2.4. High Security – 2000 Ohm EOL

For use with High Security Multi-State Contacts. High Security EOL Zones must have a Secure Loop resistance of 2000 Ohms, and a Normal Alarm Loop resistance of 5300 Ohms. Flair Electronics manufactures 2-Wire Balanced Magnetic Contacts in this configuration.



High Security Ballanced Magnetic Contact with EOL Resistor Network to sense Door position, Magnetic Tamper, Electrical Tamper and Trouble

8.3. Digital Inputs – J2 Connector

Each Annunciator Module has 4 digital inputs, with an internal pull up resistor, to connect to auxilliary switches for control functions. Each Input will be activated by shorting to ground, a common ground wire (Black) is provided on the Digital Input connector J2. Digital Inputs of multiple Modules may be connected together, daisy chained, to a single switch to provide a single control for all Modules. Digital Inputs may also be activated by an Open Collector Output from a separate Digital Source (Alarm Control Panel, PLC, PC, etc...) making sure to connect a common ground wire from the Annunciator to the Digital Source.

8.4. Individual and Common Outputs – J3 & J4 Connectors

Each Annunciator Module has 8 Individual and 2 Common, Open Collector Outputs. Each output is rated 24VDC Maximum voltage, 100 milliamps Maximum current, resistive load.

WARNING: Do not connect output directly to a capacitive load (Strobe Light, Siren, etc...)

WARNING: When connecting the outputs to an Inductive Load (Relay) install a surge protection diode across the coil of the relay.

The 2 Common Outputs of the Annunciator Modules are typically connected together, daisy chained, to an auxiliary circuit board, which contains an Audible Sounder (Common Output 1) and a SPDT 2amp Relay (Common Output 2).

The 8 Individual Outputs act as a switch to ground and may be connected to a small audible device, LED lamp, low current relay w/ surge diode, input of a digital device (PLC, Digital Dialer, Alarm Panel, or PC) etc... You will need to provide a (+VDC) source to the devices, either using the +12Vdc terminal from the Annunciator power supply or a separate 12Vdc power source, and connect a common ground from the Separate Source to the common ground of the Annunciator Power Source.

8.5. Power Input – J8 Connector

If Annunciator is provided with a DC Power Supply, connect the Red (+13.8Vdc) and Black (Ground) wires of connector J8 to the (+) and (-) terminals of the Power Supply.

If the Annunciator was not provided with a DC Power Supply, you will need to provide a Regulated 10-15VDC Power Supply, 12Vdc recommended.

Calculate the required current capacity.

Each 8 Zone Module requires 200 milliamps in addition to any power required by devices connected to the Individual or Common Outputs.

EXAMPLE:

2 - 8 Zone Modules	=	200 mA each	=	400 mA
2 Common Outputs	=	50 mA each	=	100 mA
16 Individual Outputs	=	100 mA each	=	1600 mA
		Total	=	2100 mA
			=	<u>2.1 Amps</u>

For battery charging purposes, the Power Supply may need to be adjusted to 13.8Vdc, as recommended by the battery manufacturer.

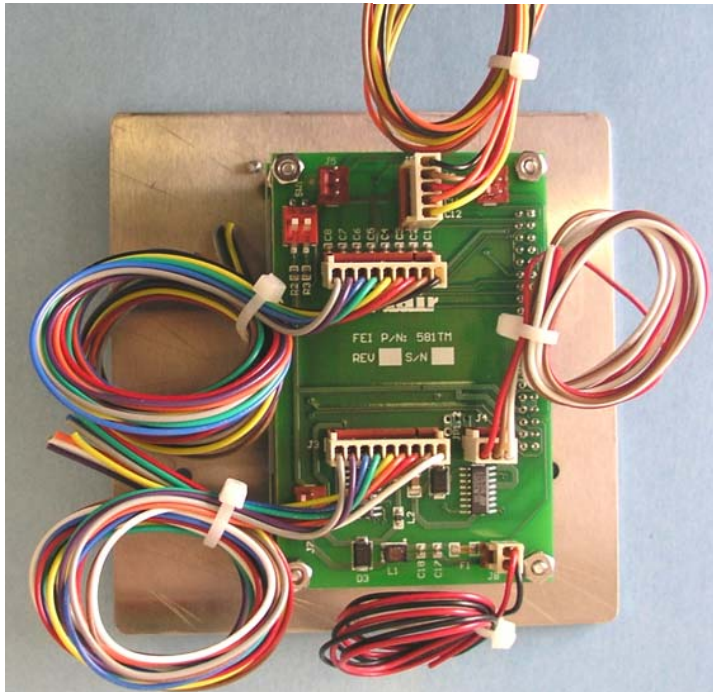
8.6. Wire Lead Color Code and Description

J1 – Zone Inputs	J2 – Digital Inputs	J3 – Individual Outputs
<u>Color</u> <u>Description</u>	<u>Pin</u> <u>Description</u>	<u>Color</u> <u>Description</u>
Black Common -	Black Common -	Brown Output 1
Brown Zone 1	Brown Input 1	Red Output 2
Red Zone 2	Red Input 2	Orange Output 3
Orange Zone 3	Orange Input 3	Yellow Output 4
Yellow Zone 4	Yellow Input 4	Green Output 5
Green Zone 5		Blue Output 6
Blue Zone 6		Purple Output 7
Purple Zone 7		Gray Output 8
Gray Zone 8		

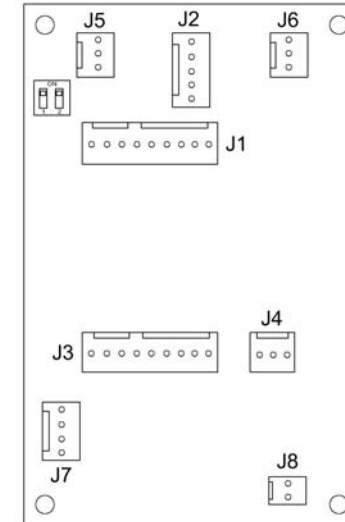
J4 – Common Outputs	J5, J6 – I2C Port	J7 – Serial Port
<u>Color</u> <u>Description</u>	<u>Color</u> <u>Description</u>	<u>Color</u> <u>Description</u>
White Common +	Yellow SCL Net	Red VCC +
Brown Output 1	Orange SDA Net	Yellow Ser RX In
Red Output 2	Black Ground	Green Ser TX Out
		Black Ground

J8 – Power
<u>Color</u> <u>Description</u>
Red + 10-15 VDC
Black Ground

Termination Module (TM)
with Connectors



8.7. Annunciator Termination Module Descriptions



J1 – Zone Inputs	J2 – Digital Inputs	J3 – Individual Outputs
<u>Pin</u> <u>Description</u>	<u>Pin</u> <u>Description</u>	<u>Pin</u> <u>Description</u>
1 Common -	1 Common -	1 Output 1
2 Zone 1	2 Input 1	2 Output 2
3 Zone 2	3 Input 2	3 Output 3
4 Zone 3	4 Input 3	4 Output 4
5 Zone 4	5 Input 4	5 Output 5
6 Zone 5		6 Output 6
7 Zone 6		7 Output 7
8 Zone 7		8 Output 8
9 Zone 8		

J4 – Common Outputs	J5, J6 – I2C Port	J7 – Serial Port
<u>Pin</u> <u>Description</u>	<u>Pin</u> <u>Description</u>	<u>Pin</u> <u>Description</u>
1 Common +	1 SCL Net	1 VCC
2 Output 1	2 SDA Net	2 Ser RX In
3 Output 2	3 Ground	3 Ser TX Out
		4 Ground

J8 – Power
<u>Pin</u> <u>Description</u>
1 + 10-15 VDC
2 Ground

9. Appendixes

9.1. A – Options

The Complete Model Part Number of your Annunciator details the options that were installed by the factory. The format is as follows: Mounting Configuration-Number of Zones-Option-Option-etc.

I.e. - Model 561-8-4s-13

Model 561	= Double Gang Surface Mount Recessed
-8	= 8 Zones
-4s	= Opt 4s – Low Level Audible w/ Silence
-13	= Opt 13 – Individual Latching Open Collector Outputs

NOTE: The following is a complete list of the Options available on Flair Annunciators. Not all Options or combinations of Options are available for any specific Model of Flair Annunciator. Contact the factory for details regarding the availability of options.

- Opt 1 – Delete Green LEDs** – Removes the Green Loop Status LED, sometimes used in a panic system when individual loop status is not needed. **NOT RECOMMENDED** by Factory, makes installation and troubleshooting difficult.
- Opt 2 – Delete Shunt Switches** – (200 Series Annunciator Only) Removes the Individual Shunt Toggle Switches, sometimes used in a panic system or whenever the Zones are to be ARMED at all times. **NOT REQUIRED with the 500 Series Annunciators, Zones may be configured as 24 Hour Zones, disabling the Shunting Ability.**
- Opt 3 – English Zone Identification** – Custom engraving of Zone labels or features, as specified by Customer.
- Opt 4 – Low Level Audible** – Provides a Low Level Audible Sounder upon any Alarm Condition. Audible will continue to sound until the Zone is restored and reset.
- Opt 4s – Low Level Audible w/ Silence** – Provides a Low Level Audible sounder upon any Alarm Condition. Audible will silence when the Alarm is Acknowledged. Any subsequent alarm will cause the audible to reactivate. **(Standard Option on all 500 Series Annunciators)**
- Opt 5 – Key Switch Shunt Disable – (Programmable on 500 Series)** Provides a Key Switch that will disable the Disarm function of the Individual Zone Push Buttons (500 Series Annunciators) or Toggle Switches (200 Series Annunciators)

- Opt 6 – Key Switch Reset** – (200 Series Annunciators Only) Provides a Momentary Key Switch to replace the common Zone Reset Push Button.
- Opt 7 – Key Switch Shunt Disable w/ Memory – (Programmable on 500 Series)** Provides a Key Switch that will lock Arm/Disarm function of the Individual Zone Push Buttons (500 Series Annunciators) or Toggle Switches (200 Series Annunciators). Once activated, any Zone Armed will remain Armed and any Zone Disarmed will remain Disarmed.
- Opt 8 – Keypad for any Key Switch Option** – Provides a Multi Function Programmable Keypad to activate any Key Switch Option or Auxiliary function.
- Opt 9 – Individual Yellow Shunt LED per Zone** – Provides Individual Zone indication on the status of the Arm/Disarm function of the Individual Zone Push Buttons (500 Series Annunciators) or Toggle Switches (200 Series Annunciators). **(Standard Option on all 500 Series Annunciators)**
- Opt 10 – 110VAC Transformer Built-in** – Provides a Built-in Transformer for any Annunciator that comes standard with a Plug-in-the-wall Transformer.
- Opt 11 – Individual Latching Relay Outputs** – Provides a SPDT Relay Output for each Zone, rated 120VAC 5 Amp. Relay will activate when the Input is faulted and will deactivate only after the Input is restored and reset.
- Opt 12 – Individual Non-Latching Relay Outputs** – Provides a SPDT Relay Output for each Zone, rated 120VAC 5 Amp. Relay will activate when the Input is faulted and automatically deactivate when the Input is restored.
- Opt 13 – Individual Latching Voltage Output** – (500 Series Annunciator) Provides an Open Collector output for each Zone that will switch to ground, rated 24VDC 100mA resistive load. (200 Series Annunciator) Provides a voltage output for each Zone, rated 12VDC 100mA resistive load. Output will activate when the Input is faulted and will deactivate only after the Input is restored and reset.
- Opt 14 – Individual Non-Latching Voltage Output** - (500 Series Annunciator) Provides an Open Collector output for each Zone that will switch to ground, rated 24VDC 100mA resistive load. (200 Series Annunciator) Provides a voltage output for each Zone, rated 12VDC 100mA resistive load. Output will activate when the Input is faulted and automatically deactivate when the Input is restored.
- Opt 15 – Private Labeling with Logo** – Provides custom engraving or printing of your company name and logo on the Annunciator
- Opt 16 – Private Labeling** – Provides custom engraving of your company name in block letters on the Annunciator
- Opt 17 – Common Latching Voltage Output** - (500 Series Annunciator) Provides an Open Collector output common to all Zones that will switch to ground, rated 24VDC 100mA resistive load. (200 Series Annunciator) Provides a voltage output common to all Zones, rated 12VDC 100mA resistive load. Output will activate when any Zone

Input is faulted and will deactivate only after the Input is restored and reset.

- Opt17A – Common Non-Latching Voltage Output** –(500 Series Annunciator) Provides an Open Collector Common Output that will switch to ground, rated 24VDC 100mA resistive load. (200 Series Annunciator) Provides a Common Voltage Output, rated 12VDC 100mA resistive load. Output will activate when the Input is faulted and automatically deactivate when the Input is restored.
- Opt 17B – Common Audible Voltage Output** – (500 Series Annunciator) Provides an Open Collector output common to all zones that will switch to ground, rated 24VDC 100mA resistive load. (200 Series Annunciator) Provides a voltage output, common to all Zones, rated 12VDC 100mA resistive load. Output will activate when any Zone Input is faulted and deactivate when the alarmed Zone is Acknowledged.
- Opt 17C – Common Latching Relay Output** - Provides a SPDT Relay Output common to all Zones, rated 120VAC 5 Amp. Relay will activate when the Input is faulted and automatically deactivate when the Input is restored.
- Opt 18 – Alarm Output when Zone is Shunted** - (500 Series Annunciator) Provides an Open Collector output common to all zones that will switch to ground, rated 24VDC 100mA resistive load. (200 Series Annunciator) Provides a voltage output, common to all Zones, rated 12VDC 100mA resistive load. Output will activate when any Zone is Shunted and deactivate when the Zone is Un-shunted.
- Opt 20 – Low Battery LED Indicator** – Provides an LED indication on the Annunciator if the battery voltage drops below 10.9Vdc
- Opt 24 – Three-Way Switching between Primary and Remotes** – Provides for Shunting/Un-shunting from either the Primary or Remote Annunciator. (500 Series Annunciator) Opt 9 is standard, and control of the Shunt function is thru the RS-485 communication line between Primary and Remote Annunciator. (200 Series Annunciator) Requires Opt 9 – Individual Shunt LEDs. And an additional 3 wires per Zone, between the Primary and Remote Annunciator for control of the Shunt function.
- Opt 24A – Remote Shunt** – (200 Series Annunciators Only) Eliminates Shunt Switches on the Annunciator and provides wires to connect to Remote Shunt Switches.
- Opt 26B – Master Shunt (Arm/Disarm) – (Programmable on 500 Series)** Provides a Master Keyswitch to Arm/Disarm the Annunciator. (500 Series Annunciator) With the Keyswitch OFF, the Annunciator will be Disarmed. The Annunciator will not respond to Alarm conditions on the Zone Inputs, but will continue to monitor for Trouble or Tamper conditions. Individual Zones may be Acknowledged, Reset or Bypassed by the Individual Zone Pushbuttons. With the Keyswitch ON, the Annunciator will be Armed. The Annunciator will respond to Alarm, Trouble and Tamper conditions. The Acknowledge, Reset and Bypass features of the Individual Zone Pushbuttons will be Disabled. (200 Series Annunciator) With the Keyswitch OFF, the Annunciator will be Armed, there is no effect on

the Bypass Toggle Switches, Silence Switch or Reset Switch. With the Keyswitch ON, the Annunciator will be Disarmed, The Annunciator will not respond to any Alarm Condition.

- Opt 27 – Telephone Plugs** – Provides 25 pair Female Telephone plugs, with up to 6' of wire, for connection of, any or all, Zone Inputs or Outputs.
- Opt 28 – Telephone Plug Extension** – Provides 25 pair 2 ended, Male/Female extension cable, 25 feet long.
- Opt 29 – Flashing LEDs** – Provides for Flashing Red Alarm LEDs, available on 200 Series Annunciators ONLY. (500 Series Annunciator) Not Available, comes standard with Flashing to Steady state Alarm LEDs.
- Opt 29A – Pulsating Sound** – Provides for a Pulsing Sounder on Alarm, requires Option 4 or 4S.
- Opt 31 – Terminal Strips** – Provides Screw Terminals for connection of, any or all, Zone Inputs or Outputs.
- Opt 31A – Terminal Strips w/ Surge Suppression** – Provides Screw Terminals with Surge Suppression for connection of, any or all, Zone Inputs or Outputs.
- Opt 32 – Entry/Exit Delay – (Programmable on 500 Series)** Provides adjustable Entry/Exit Delays for any or all Zone Inputs. Entry/Exit Delays will be activated when the Zone or Zones are Armed by either a Master Arm/Disarm Switch or the Individual Zone Pushbuttons. Once Armed, if any Exit Delay has been programmed, the Exit Delay will begin, during which time the Zone will not respond to any Alarm condition on the Input. After the Exit Delay has timed out, the Zone will respond to all Alarm conditions, if any Entry Delay has been programmed, the Zone will delay any Alarm Output until the Entry Delay has expired, allowing time to Disarm the Annunciator before the Zone Alarms.
- Opt 32X – Individual Delay on Output (Entry Delay) – (Programmable on 500 Series)** Provides an Entry Delay for any or all Zones. If any Entry Delay has been programmed, the Zone will delay any Alarm Output until the Entry Delay has expired, allowing time to Disarm the Annunciator before the Zone Alarms.
- Opt 32Y – Door Prop Delay – (Programmable on 500 Series)** Provides an adjustable Delay Period, when a Zone is Disarmed, to allow for momentary Alarm conditions on a Zone Input. If the Zone Input is in an Alarm condition for a period longer than the Delay period the Zone will go into Alarm. If the Zone is Armed, the Door Prop Delay is disabled, and the Zone will respond to an Alarm condition instantly.
- Opt 32Z – Common Timed Output – (Programmable on 500 Series)** Provides a timed relay output that will automatically reset after the adjusted time period, from 1-15 minutes.
- Opt 33 – Lamp Test – (Programmable on 500 Series)** Provides a Push Button to light all LEDs or Lamps, at once or in a programmed sequence.

- Opt 33A – Circuit Test** – (200 Series Annunciators Only) Provides a Push Button to cause all Zones to Alarm.
- Opt 34 – Individual Reset** – (200 Series Annunciator Only) Provides an Individual Reset button for each Zone. **(Standard on 500 Series Annunciators)**
- Opt 34A – Individual Remote Reset** – (200 Series Annunciators Only) Provides inputs for Individual Remote Reset Buttons for each Zone.
- Opt 36 – Individual Voltage Output for Remote Annunciator** – (200 Series Annunciator Only) Provides a Voltage Output for each LED to Light a Remote Annunciator, one wire for each LED on the Remote. (500 Series Annunciator) Control of Remote Annunciator is provided by RS-485 Communication line between Primary and Remote Annunciators.
- Opt 41 – Back lighted LEDs** – Graphic Displays Only
- Opt 42 – 24VDC Common Positive** – Remote Graphic Display Only.
- Opt 43 – 12VDC Common Positive** – Remote Graphic Display Only.
- Opt 44 – Auxiliary Momentary Toggle Switch** – Provides a SPDT toggle switch to operate or control remote or auxiliary devices, i.e. Door Strike for Access Control.
- Opt 45 - Auxiliary Maintained Toggle Switch** – Provides a SPDT toggle switch to operate or control remote or auxiliary devices, i.e. Door Strike for Access Control.
- Opt 46 – Auxiliary LED** – Provides a LED to display status of Opt 44, Opt 45
- Opt 47 – Dual Color LED** – Graphic Displays Only
- Opt 48 – Keyswitch to Lock Out Auxiliary Switches**
- Opt 49 – 24VDC Auxiliary Power Supply**
- Opt 50 – Egress Time Delay**
- Opt 99 – Custom Requirements -**

Programming Chart

MZA Attributes

Zone #	Loop Input Type	24 Hour	Entry (Sec)	Exit (Sec)	Prop Delay (Sec)	Output Type	Output (Min)
1							
2							
3							
4							
5							
6							
7							
8							

9.2. B – Programming Chart

The 500 Series Annunciators may be programmed “Configured” for various Zone Input/Output characteristics. Make a copy of the Programming Chart on the next page. Decide what characteristics you want for each Zone and insert the values in the appropriate boxes in the Programming Chart.

Module Settings

System Zones	Module Link Address	Serial Port Mode	Serial Port Address

9.3. C – Diagrams

Digital Input Type

Digital Input #	Input Type
1	
2	
3	
4	

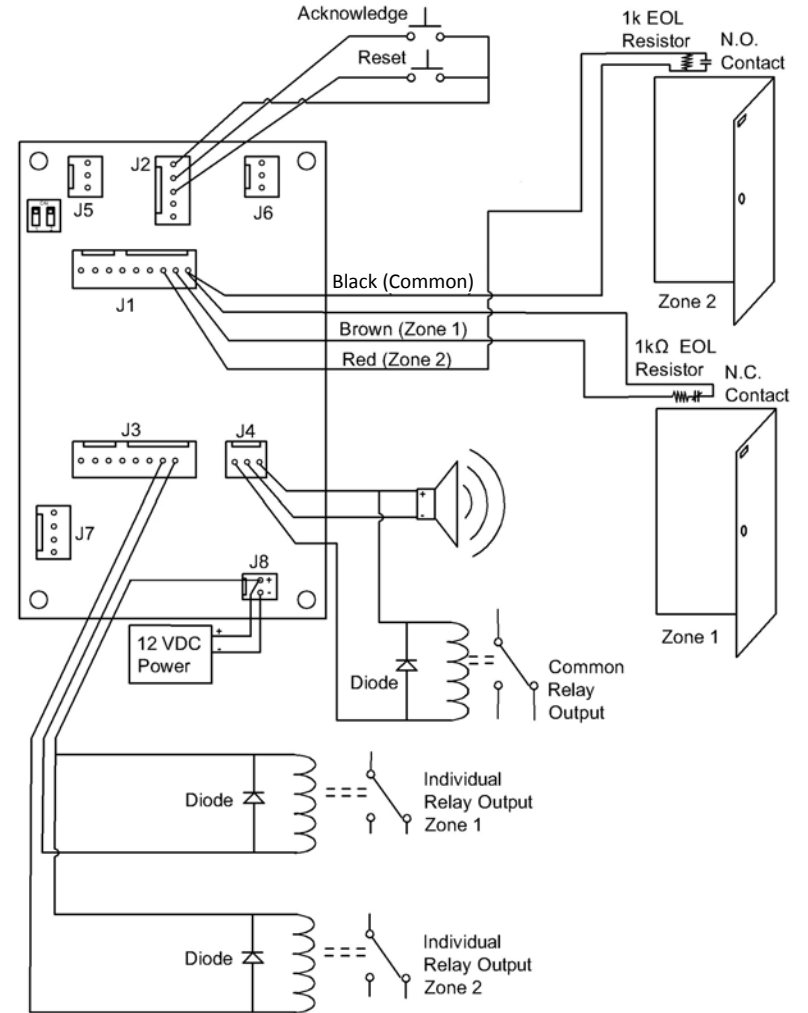
Common Output Type

Output #	Output Type	Output Time (Min)
1		
2		

Input Bridging to Zone Outputs

Output	1	2	3	4	5	6	7	8
Input 1								
Input 2								
Input 3								
Input 4								
Input 5								
Input 6								
Input 7								
Input 8								

TYPICAL 2 ZONE WIRING DIAGRAM



9.4. D - Warranty

Limited Warranty

Flair Electronics warrants the original purchaser that for a period of twelve months from the date of purchase, the product shall be free of defects in materials and workmanship under normal use. During the warranty period, Flair Electronics shall, at its option, repair or replace any defective product upon return of the product to its factory, at no charge for labor and materials. Any replacement and/or repaired parts are warranted for the remainder of the original warranty or ninety (90) days, whichever is longer. The original purchaser must promptly notify Flair Electronics in writing that there is a defect in materials or workmanship, such written notice to be received in all events prior to expiration of the warranty period. There is absolutely no warranty on software and all software products are sold as a user license under the terms of the software license agreement included with the product. The Customer assumes all responsibility for the proper selection, installation, operation and maintenance of any product purchased from Flair Electronics.

Warranty Procedure

To obtain service under this warranty, please return the item(s) in question to the point of purchase. All authorized distributors and dealers have a warranty program. Anyone returning goods to Flair Electronics must first obtain an authorization number. Flair Electronics will not accept any shipment whatsoever for which prior authorization has not been obtained.

Conditions to Void Warranty

This warranty applies only to defects in parts and workmanship relating to normal use. It does not cover:

- Damage incurred in shipping or handling;
- Damage caused by disaster such as fire, flood, wind earthquake or lightning;
- Damage due to causes beyond the control of Flair Electronics such as excessive voltage, mechanical shock or water damage;
- Damage caused by unauthorized attachment, alterations, modifications or foreign objects;
- Damage caused by peripherals (unless such peripherals were supplied by Flair Electronics);
- Defects caused by failure to provide a suitable installation environment for the products;
- Damage caused by use of the products for purposes other than those for which it was designed;
- Damage from improper maintenance;
- Damage arising out of any other abuse, mishandling or improper application of the products.

Items Not Covered by Warranty

In addition to the items which void the Warranty, the following items shall not be covered by Warranty: (i) freight cost to the repair center; (ii) products which are not identified with Flair Electronics product label and serial number; (iii) products disassembled or repaired in such a manner as to adversely affect the performance or prevent adequate inspection or

testing to verify any warranty claim. Products not covered by this warranty, or otherwise out of warranty due to age, misuse, or damage shall be evaluated, and a repair estimate shall be provided. No repair work will be performed until a valid purchase order is received from the Customer and a Return Merchandise Authorization Number (RMA) is issued by Flair Electronics customer Service.

Flair Electronics' liability for failure to repair the product under this warranty after a reasonable number of attempts will be limited to a replacement of the product, as the exclusive remedy for breach of warranty. Under no circumstances shall Flair Electronics be liable for any special, incidental, or consequential damages based upon breach of warranty, breach of contract, negligence, strict liability, or any legal theory. Such damages include, but are not limited to, loss of profits, loss of the product or any associated equipment, cost of capital, cost of substitute or replacement equipment, facilities or services, downtime, purchaser's time, the claims of third parties, including customers, and injury to property. The laws of some jurisdictions limit or do not allow the disclaimer of consequential damages. If the laws of such a jurisdiction apply to any claim by or against Flair Electronics, the limitations and disclaimers contained here shall be to the greatest extent permitted by law. Some states do not allow the exclusion or limitation of incidental or consequential damages, so that the above may not apply to you.

Disclaimer of Warranties

This warranty contains the entire warranty and shall be in lieu of any and all other warranties, whether expressed or implied (including all implied warranties of merchantability or fitness for a particular purpose) and of all other obligations or liabilities on the part of Flair Electronics. Flair Electronics neither assumes responsibility for nor authorizes any other person purporting to act on its behalf to modify or change this warranty, nor to assume for it any other warranty or liability concerning this product.

Warning: Flair Electronics recommends that the entire system be completely tested on a regular basis. However, despite frequent testing, and due to, but not limited to, criminal tempering or electrical disruption, it is possible for this product to fail to perform as expected.

Out of Warranty Repairs

Flair Electronics will at its option repair or replace out-of-warranty products which are returned to its factory according to the following conditions. Anyone returning goods to Flair Electronics must first obtain an authorization number. Flair Electronics will not accept any shipment whatsoever for which prior authorization has not been obtained.

Products which Flair Electronics determines to be repairable will be repaired and returned. A set fee which Flair Electronics has predetermined and which may be revised from time to time, will be charged for each unit repaired.

Products which Flair Electronics determines not to be repairable will be replaced by the nearest equivalent product available at that time. The current market price of the replacement product will be charged for each replacement unit.

9.5. E - FCC Compliance Statement

CAUTION: Changes or modifications not expressly approved by Flair Electronics could void your authority to use this equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio-frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by tuning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/television technician for help

The user may find the following booklet prepared by the FCC useful: "How to Identify and Resolve Radio/Television Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington D.C. 20402, Stock # 004-000-00345-4.

9.6. F - Software Licensing Agreement

FLAIR ELECTRONICS, INC. END USER LICENSE AGREEMENT
FLAIR CONFIGURATOR

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This product developed in the United States of America

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Annunciators and Graphic Displays
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