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Introduction

To meet today's demanding installation requirements, an alarm installer needs a control panel that provides a wide variety of fire notification and local burglary alarm circuit configurations. The DMP XR500 Series, XR2500F, XR100 Series, and XR200 Command Processor™ Panels meet and exceed those needs with a unique blend of industry-leading UL listed hardware and software operations. This application note provides technical information needed to apply one of many flexible solutions to your installation, whether the application is a stand-alone fire system, a burglary system, or a cost-effective combination system.

What are the Possibilities?

Typical fire and burglary alarm control panels offer single or multiple notification outputs directly powered by the panel. This type of design requires all notification circuits be wired from the most remote points of the system directly to the panel. Increasing the wire gauge and limiting the number of notification appliances are typical strategies required to maintain voltage levels at the end of a circuit.

The UL listed XR500 Series, XR2500F, XR100 Series, and XR200 Panels provide a single output, or zoned outputs that allow power supplies to be distributed throughout the facility. Supervised power supplies can be located anywhere along the panel LX-Bus™ placing the notification circuit power near the notification appliances where it is needed.

Circuit Power Options

The system can be configured to provide a traditional 12 VDC burglary output, a 24 VDC fire output, or a combination of both outputs. A 12 VDC, 1.5 Amp output is standard on the XR500 Series, XR2500F, XR100 Series, and XR200 panels and can be used for burglary or fire appliances. Easily add 12 or 24 VDC power supplies to the system by employing any of the available notification modules. Expand a panel to support independently supervised, fully programmable circuits for customized applications:

- XR500 Series or XR2500F panels support up to 574 circuits
- XR100 Series panels support up to 142 circuits
- XR200 panel supports up to 242 circuits

This application note illustrates several different system configurations.

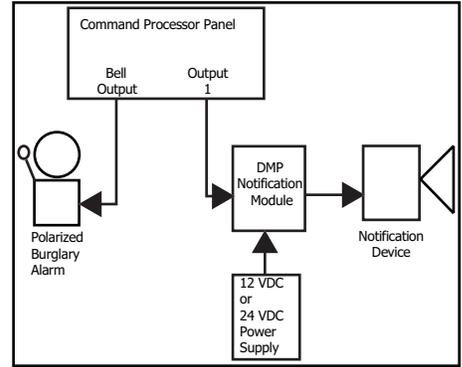
NOTIFICATION CIRCUIT OPTIONS FOR COMBINATION SYSTEMS



APPLICATION NOTE

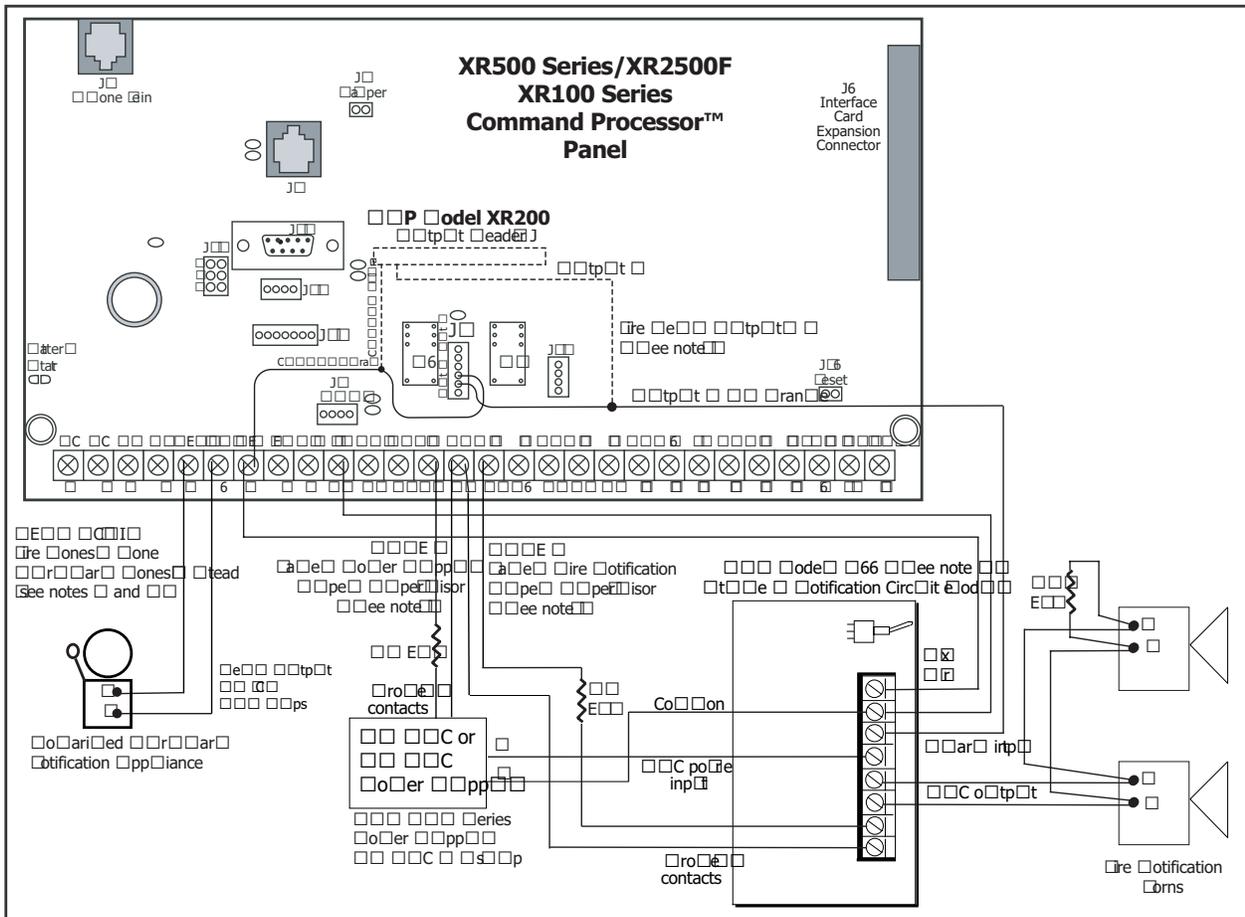
Conventional Large Fire/Small Burglary

This application provides a 12 VDC, 1.5 Amp burglary output, and a 12 VDC, 5 Amp fire output. This would be useful in a facility where the major objective is fire notification, but a local burglary alarm is also desired. The XR500 Series, XR2500F, XR100 Series, and XR200 Panel 12 VDC, 1.5 Amp output is used to power all burglary alarm appliances and the auxiliary outputs are used to activate the DMP 866 Fire Notification Module. The 866 module switches the power supply to power the fire notification appliances. Because DMP supports 12 or 24 VDC configurations the fire notification appliances can be 12 or 24 VDC to meet local requirements.



Installation Notes:

1. The Model 865 Style Y/Z Notification Circuit Module may be substituted for the Model 866 to provide Class A notification.
2. **Bell Action** programming must activate for burglary zones.
3. Zones 1 and 2 must be programmed as supervisory type zones with appropriate names.
4. **Fire Bell Output** programming must activate output 1.
5. For UL burglary systems where the bell is tested daily at closing, circuit supervision is not required.
6. See the XR500 Series Installation Guide (LT-0681), XR2500F Installation Guide (LT-0759), XR100 Series Installation Guide (LT-0899) or XR200 Installation Guide (LT-0197) for complete installation instructions.
7. See the XR500 Series/XR2500F Programming Guide (LT-0679), XR100 Series Programming Guide (LT-0896), or XR200 Programming Guide (LT-0196) for complete programming instructions.

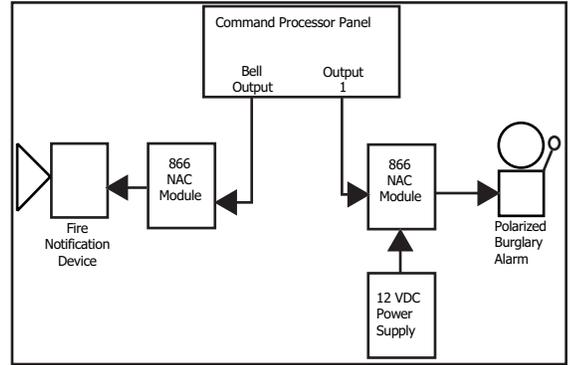


12 VDC @ 1.5 Amp Bell Output from the Panel

12 VDC @ 5 Amps Fire Output from a DMP 505 Series 12 VDC Power Supply

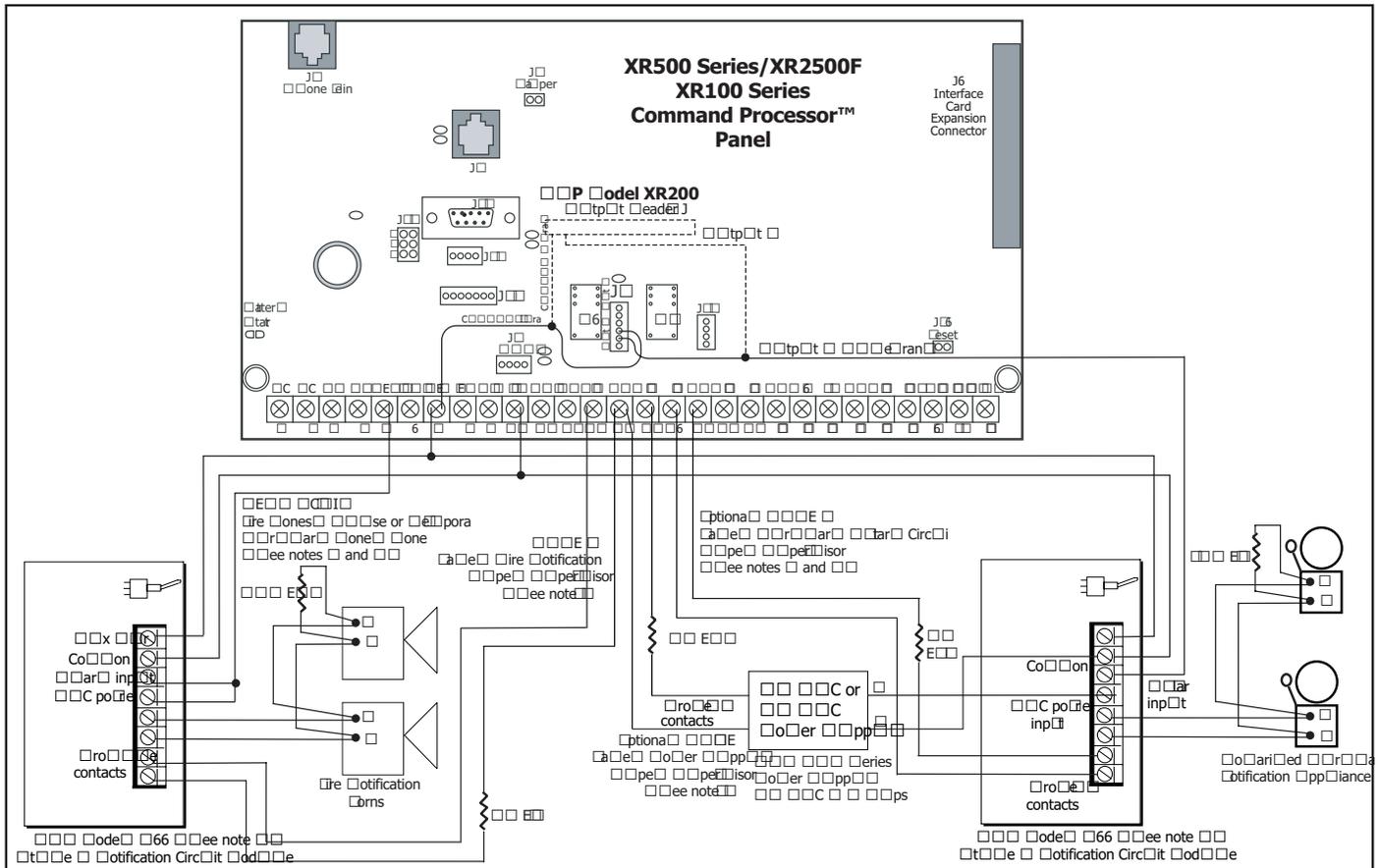
Conventional Large Burglary/Small Fire

This application is appropriate for a large burglary system which requires only a small amount of fire notification, such as central station water flow. The complete system is a 12 VDC design with the fire notification appliances powered by the XR500 Series, XR2500F, XR100 Series, or XR200 Command Processor™ Panel. The addition of the DMP 866 Fire Notification Module provides the panel with the circuit supervision required for fire notification. A separate, auxiliary power supply can also be added to sound burglary alarm appliances. This power supply is switched by a second 866 module that is controlled by the panel Burglary Bell Output programming option.



Installation Notes:

1. The Model 865 Style Y/Z Notification Circuit Module may be substituted for the Model 866 to provide Class A notification.
2. **Bell Action** programming for fire zones may be steady, pulse, or temporal to meet local requirements.
3. Zones 1, 2, and 3 must be programmed as a supervisory type with appropriate names.
4. **Burglary Bell Output** programming must activate output one. The Model 866 is needed to switch more than 1 Amp.
5. For UL burglary systems where the bell is tested daily at closing, circuit supervision is not required.
6. See the XR500 Series Installation Guide (LT-0681), XR2500F Installation Guide (LT-0759), XR100 Series Installation Guide (LT-0899) or XR200 Installation Guide (LT-0197) for complete installation instructions.
7. See the XR500 Series/XR2500F Programming Guide (LT-0679), XR100 Series Programming Guide (LT-0896), or XR200 Programming Guide (LT-0196) for complete programming instructions.



12 VDC @ 1.5 Amp Bell Output from the Panel for NAC

12 VDC @ 5 Amps Burglary Output from a DMP 505 Series 12 VDC Power Supply

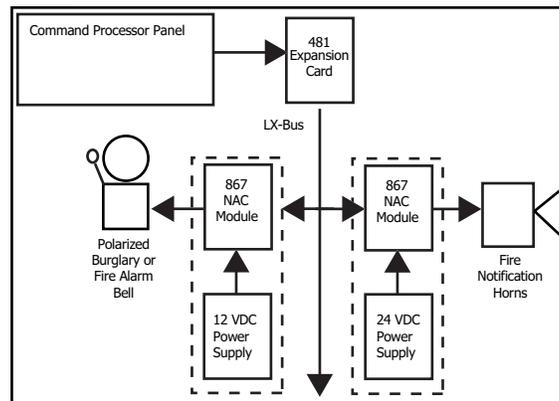
APPLICATION NOTE

Distributed Power Notification Circuit

When a large number of fire notification and burglary alarm appliances are required, the DMP LX-Bus™ provides extremely flexible and expandable system design capabilities. Either 12 or 24 VDC power supplies can be installed at any point on the panel LX-Bus to provide burglary or fire, 12 or 24 VDC, zoned or simultaneous operation.

Each of the five XR500 Series/XR2500F panel LX-Bus expansion ports can supervise 100 devices including power supplies for a total of 500. Up to 100 devices including power supplies can be supervised on the XR100 Series LX-Bus for a total of 100. Each of the two XR200 LX-Bus expansion ports can supervise up to 100 devices including power supplies for a total of 200.

The 505-12LX Power Supply includes a power supply and two 867 Notification Circuit Modules, and can be addressed for independent supervision to indicate auxiliary power supply or notification circuit troubles. All power supplies can operate from a common output, from separate burglary or fire outputs, or individual assignment by a panel zone.



Installation Notes:

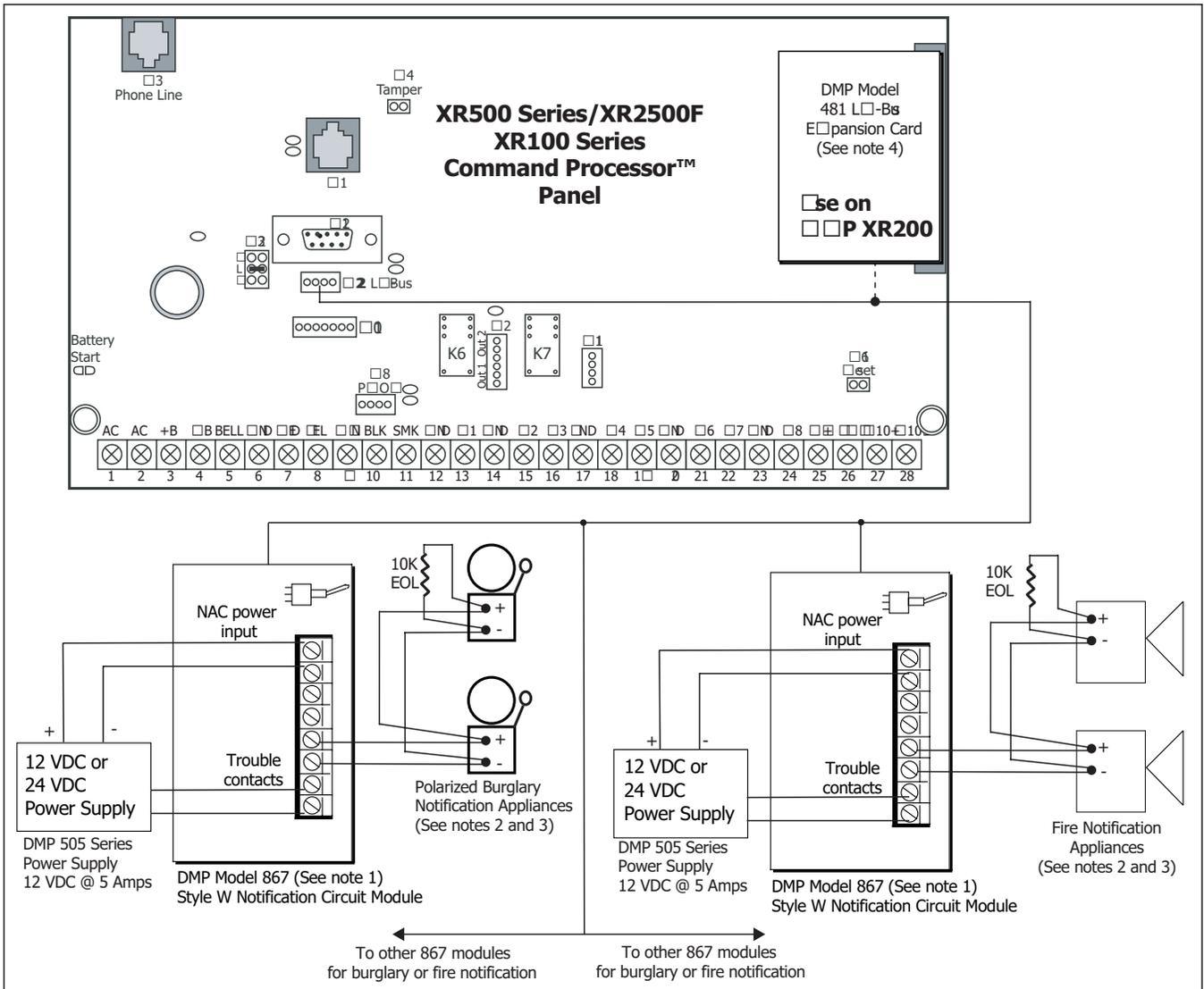
1. The Model 867 LX-Bus Notification Module provides a secondary set of address switches so that supervisory trouble on the notification circuit or 12 or 24 VDC power supply can be indicated by the panel via the LX-Bus.
2. By selecting different bell addresses on the burglary 867 module and fire 867 module, the panel's **Burglary Bell Output** and **Fire Bell Output** programming controls the modules independently. See the 867 Installation Guide (LT-0178).
3. Multiple 867 modules may be set to the same bell address so that all sound at the same time, or independent addresses so that notification may be zoned for burglary or fire. See the 867 Installation Guide (LT-0178).
4. To add a second LX-Bus to an XR500 Series/XR2500F panel, install a 481 Zone Expansion Card, 462N Network Interface Card, or 462P Printer Interface Card into the J6 Interface Card Expansion Connector.

To add multiple LX-Buses to an XR500 Series/XR2500F panel, use a Model 461 Interface Adaptor Card and additional Interface Cards, such as a 481 Zone Expansion Card, 462N Network Interface Card, or 462P Printer Interface Card.

To add a second LX-Bus to an XR200 use a Model 460 Interface Adaptor Card and a second Interface Card, such as a 481 Zone Expansion Card, 462N Network Interface Card, or 462P Printer Interface Card.

Note: The XR100 Series panel only supports one on-board LX-Bus.

5. See the XR500 Series Installation Guide (LT-0681), XR2500F Installation Guide (LT-0759), XR100 Series Installation Guide (LT-0899) or XR200 Installation Guide (LT-0197) for complete installation instructions.
6. See the XR500 Series/XR2500F Programming Guide (LT-0679), XR100 Series Programming Guide (LT-0896), or XR200 Programming Guide (LT-0196) for complete programming instructions.



Multiple distributed 12 VDC @ 5 Amps Fire and Burglary Outputs from a DMP 505 Series 12 VDC Power Supply

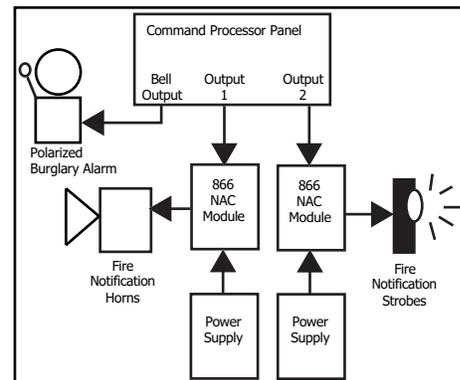
APPLICATION NOTE

Separate Horn and Strobe Circuits

Some applications require that during a system reset, fire horns be silenced first, followed later by strobes. This type of operation allows the strobes to remain active after the initial fire notification horn silencing. The strobes deactivate only after the cause of the alarm is investigated and the system is reset.

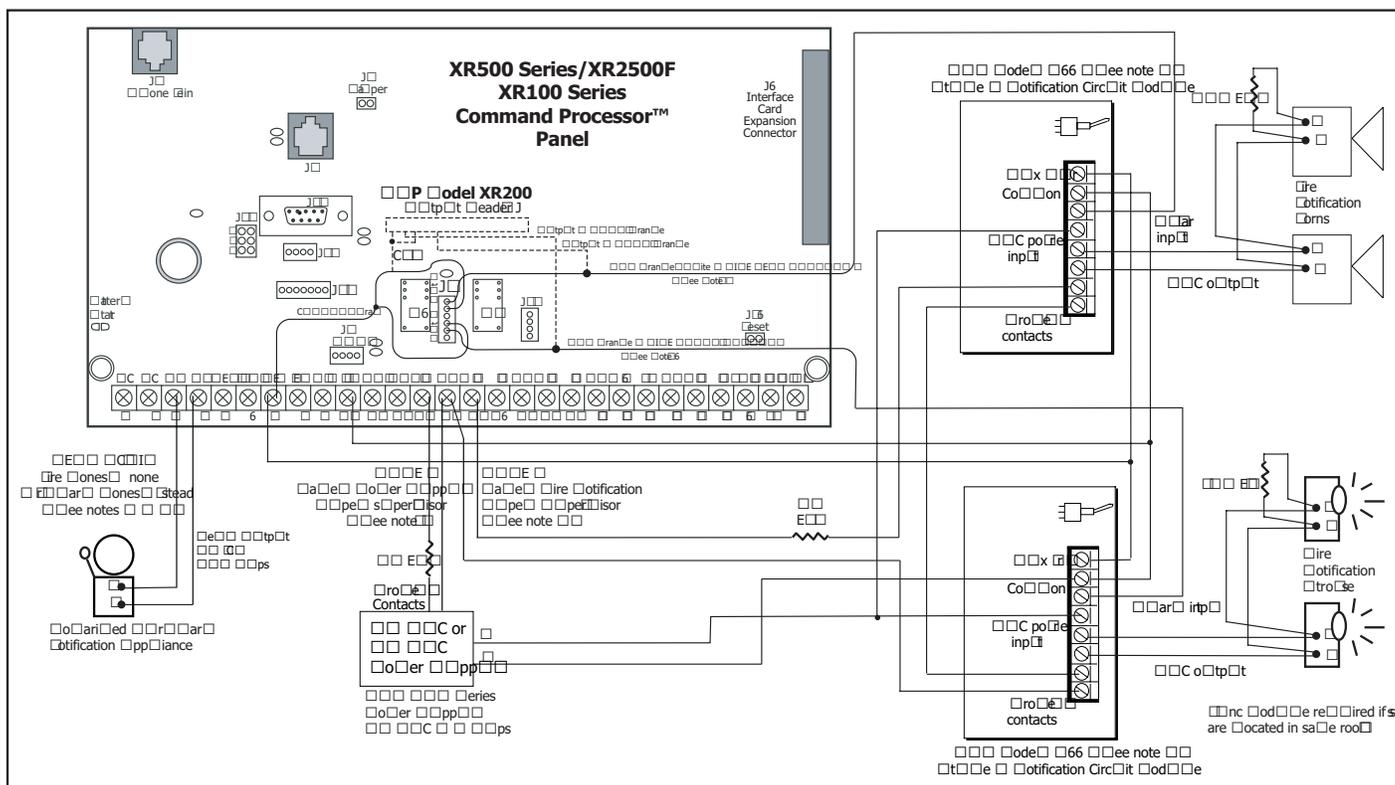
The XR500 Series, XR2500F, XR100 Series, and XR200 panels provide this operation by the addition of an 866 Notification Module which supplies power to the strobe circuit. This second module is activated by the panel Fire Alarm Output, which does not deactivate until a Sensor Reset Command is performed at any Fire Command™ or other DMP keypad.

This diagram illustrates how to accomplish separate horn/strobe deactivation. In addition, an optional combination local burglary alarm is included.



Installation Notes:

1. The Model 865 Style Y/Z Notification Circuit Module can be substituted for the Model 866 to provide Class A notification.
2. Bell Action programming must activate steady for burglary zones.
3. Zones 1 and 2 must be programmed as supervisory type zones with appropriate names.
4. Fire Bell Output programming must activate output one. If no burglary alarm is needed, the panel Bell Output can activate the fire horn.
5. For UL burglary systems where the bell is tested daily at closing, supervision of the circuit is not required.
6. Fire Alarm Output programming must activate output two.
7. See the XR500 Series Installation Guide (LT-0681), XR2500F Installation Guide (LT-0759), XR100 Series Installation Guide (LT-0899) or XR200 Installation Guide (LT-0197) for complete installation instructions.
8. See the XR500 Series/XR2500F Programming Guide (LT-0679), XR100 Series Programming Guide (LT-0896), or XR200 Programming Guide (LT-0196) for complete programming instructions.



12 VDC @ 1.5 Amp Burglary Output from the Panel

12 VDC @ 5 Amps Fire Output from a DMP 505 Series 12 VDC Power Supply

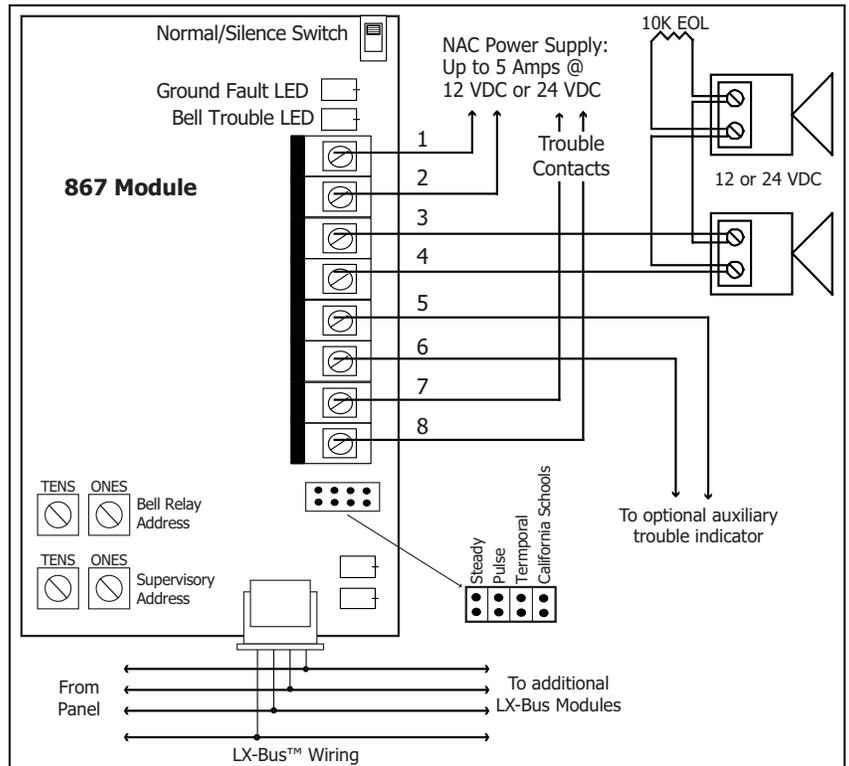
Model 867 Style W LX-Bus™ Notification Module

The Model 867 provides one supervised Style W notification circuit for system expansion and connects at any point on the panel LX-Bus. Two sets of rotary switches provide a unique addressing scheme which enables the module to respond to one address for supervision, yet operate the notification circuit on a second address. Having separate supervisory and notification addresses allows multiple modules to be activated in groups, while monitored by the XR500 Series, XR2500F, XR100 Series, or XR200 panel individual supervisory zone programming.

A ring style jumper allows any one of four notification cadences to be selected: Steady, Pulse, Temporal, or California School Code. The 867 is also capable of switching 12 or 24 VDC up to 5 Amps from an auxiliary power supply. Mount the 867 Module in the power supply enclosure for supervised operation.



867 Style W LX-Bus Notification Module

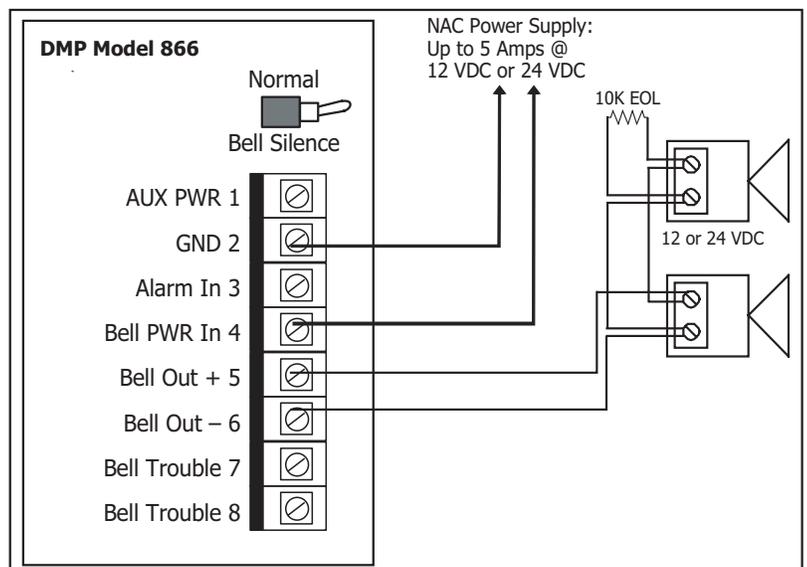


Model 866 Style W Notification Module

The 866 module is suitable for use with 2-wire circuits and can switch up to 5 Amps at 12 or 24 VDC. Trouble contacts are included to indicate notification circuit trouble. The 866 module can be used in parallel or zoned applications.



866 Style W Notification Module

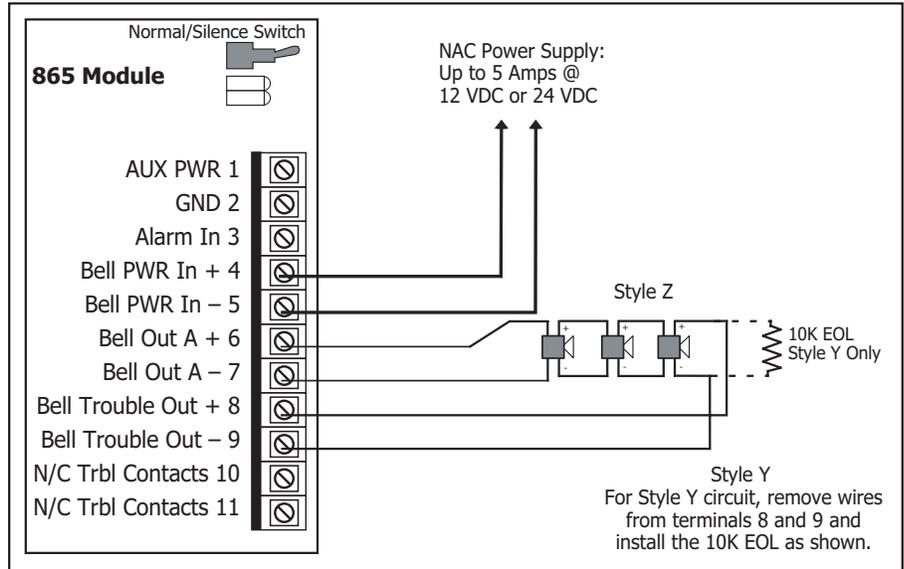


Model 865 Style Y or Z Notification Module

The 865 Module is suitable for use with 2-wire or 4-wire circuits and provides a trouble LED, ground fault LED, and a set of trouble contacts to indicate off normal conditions. The module can be used in parallel, activated by a single output, or activated independently by using zoned outputs from the panel. The 865 can switch up to 5 Amps at 12 or 24 VDC.



865 Style Y or Z Notification Module



Product Compliance Certifications

The products discussed in this Application Note are certified by the agencies listed in the table below. For complete compliance information see the specific listing cards from each agency and the following guides: XR500 Series Installation Guide (LT-0681), XR2500F Installation Guide (LT-0759), XR100 Series Installation Guide (LT-0899), XR200 Installation Guide (LT-0197), XR500 Series/XR2500F Programming Guide (LT-0679), XR100 Series Programming Guide (LT-0896), or XR200 Programming Guide (LT-0196). This information is also available at www.dmp.com.

Model	Description	UL	CSFM	MEA
Command Processor™ Panel Equipment				
XR500 Series	574-Zone Command Processor™ Panel	S3598	7165-1157:123	168-93-E VOL. VI
XR2500F	574-Zone Fire Command Processor™ Panel	S3598	7165-1157:124	168-93-E VOL. VI
XR100 Series	142-Zone Command Processor™ Panel	S3598	7165-1157:123	Future
XR200	242-Zone Command Processor™ Panel	S3598	7165-1157:105	168-93-E VOL. III
865	Style Y or Z Notification Circuit Module	S3598	7165-1157:105	168-93-E VOL. III
866	Style W Notification Circuit Module	S3598	7165-1157:105	168-93-E VOL. III
867	Style W LX-Bus™ Notification Circuit Module	S3598	7165-1157:105	168-93-E VOL. III
461	XR500 Series/XR2500F Interface Adaptor Card	S3598	7165-1157:123	168-93-E VOL. VI
460	XR200 Interface Adaptor Card	S3598	7165-1157:105	168-93-E VOL. III
462N	Network Interface Card	S3598	7165-1157:105	168-93-E VOL. III
462P	Printer Interface Card	S3598	7165-1157:105	168-93-E VOL. III
481	LX-Bus™ Expansion Card	S3598	7165-1157:105	168-93-E VOL. III
Power Supplies				
505-12	12 VDC Power Supply	S7400	7315-1157:114	168-93-E VOL. VI
505-12L	12 VDC Power Supply	S7400	7315-1157:114	168-93-E VOL. VI
505-12LX	12 VDC Power Supply w/2 built-in NACs	S7400	7315-1157:114	168-93-E VOL. VI
505-12A	12 VDC Power Supply	S7400	7315-1157:114	168-93-E VOL. VI



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