710 and 710F Bus Splitter/Repeater Modules

Description

The 710 and 710F Bus Splitter/Repeater Modules allow you to expand the typical LX-Bus™ or Keypad bus installation both in the number of devices and the length of wire used. The 710 and 710F Bus Splitter/Repeater Modules are suitable for UL burglary and fire applications. The 710F is required when using a Model 725 2-Wire Zone Expander.

710

As a splitter, the 710 provides superior mechanical wire connecting capability for up to three additional 12 VDC LX-Bus or Keypad bus circuits. This makes the 710 module an excellent junction box when terminating multiple Lx/Bus/Keypad bus runs at one location. As a repeater, the 710 module can be installed at the end of an LX-Bus or Keypad bus circuit to allow the addition of a circuit to increase the total wire length.

710F

In addition to providing all of the 710 functions listed above, the 710F also allows you to use the 725 Zone Expander to expand the number of 24 VDC zones. The 710F Bus Splitter/Repeater supports a 24 VDC power supply connection to the 725 to power smoke detectors and isolate the 24 Volt source from the panel. Therefore the 710F must be used when using the 725 Zone Expander. See Figure 4.

Installation Specifications

Several factors determine the performance characteristics of the DMP LX-Bus and Keypad bus: the *length* of wire used, the *number* of devices connected, and the *voltage* at each device. When planning an LX-Bus and Keypad bus installation, keep in mind the following four specifications:

1. DMP recommends using 18 or 22-gauge **unshielded** wire for all keypad and LX-Bus circuits. **Do not** use twisted pair or shielded wire for LX-Bus and keypad bus data circuits. All 22-gauge wire must be connected to a power-limited circuit and jacket wrapped.
2. On keypad bus circuits, to maintain auxiliary power integrity when using 22-gauge wire do not exceed 500 feet. When using 18-gauge wire do not exceed 1,000 feet. To increase the wire length or to add devices, install an additional power supply that is UL listed for Fire Protective Signaling, power limited, and regulated (12 VDC nominal) with battery backup.
   Note: Each panel allows a specific number of supervised keypads. Add additional keypads in the unsupervised mode. Refer to the panel installation guide for the specific number of supervised keypads allowed.
3. Maximum distance for any one bus circuit (length of wire) is 2,500 feet regardless of the wire gauge. This distance can be in the form of one long wire run or multiple branches with all wiring totaling no more than 2,500 feet. As wire distance from the panel increases, DC voltage on the wire decreases. Maximum number of LX-Bus devices per 2,500 feet circuit is 40. On XR500 Series panels only, when using the on-board J22 LX-Bus, the maximum number of LX-Bus devices per 2,500 feet LX-Bus circuit is 25. Refer to the XR500 Series Installation Guide (LT-0681), J22 LX-Bus Expansion Connector section.
4. Maximum voltage drop between the panel (or auxiliary power supply) and any device is 2.0 VDC. If the voltage at any device is less than the required level, add an auxiliary power supply to the circuit. When voltage is too low, the devices cannot operate properly.

For additional information refer to the LX-Bus/Keypad Bus Wiring Application Note (LT-2031).

Maximum Circuit Distance for Data

The maximum cumulative distance for wiring on one LX-Bus/Keypad bus circuit is 2,500 feet, regardless of the wire gauge. This distance can be in the form of one long wire run or multiple branches with all wiring totaling no mroe than 2,500 feet. See Figure 1.

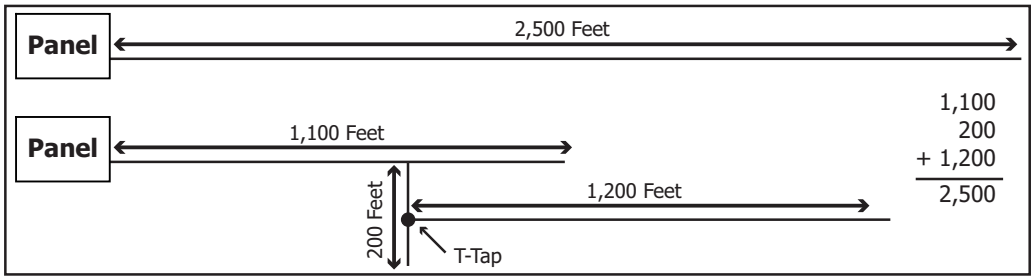

Figure 1: One Circuit Maximum Distance

Maximum Number of Devices per Circuit

You can install up to 40 devices on each 2,500 feet of wire. The device number can increase to 50 if the wir run remains less than 2,500 feet.

Maximum Voltage Drop

The maximum allowable voltage drop between the Command Processor™ panel and any device connected to the LX-Bus or Keypad bus is 2.0 VDC. A voltage drop example is when the voltage across the red and black wires at the panel reads 13.8 VDC, the voltage measured at each device must b e equal to or g rater than 11.8 VDC.

If the voltage at any device, including a 710 or 710F module, is less than the required level, add an auxiliary power supply to the circuit. Increasing the wire gauge used on the circuit can reduce the voltage drop. The maximum voltage drop rule applies to LX-Bus circuits and Keypad data bus circuits powered either by the panel or by an auxiliary power supply.

Note: To troubleshoot voltage drop, read the voltage at the last device on the LX-Bus or Keypad bus.

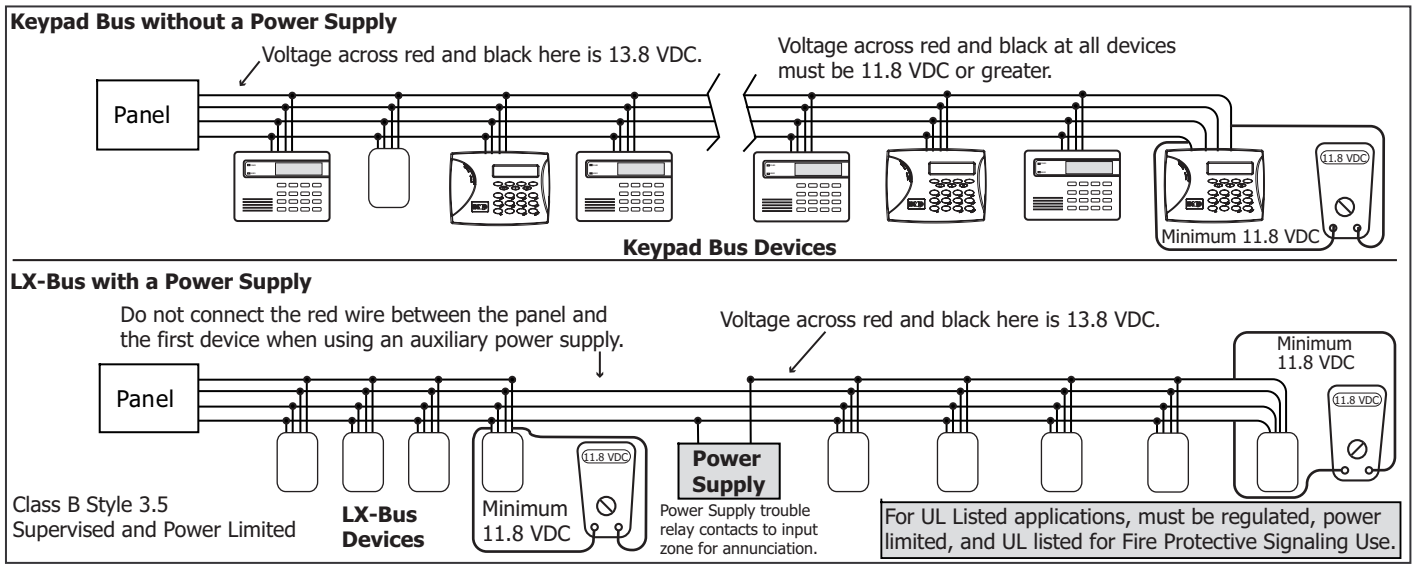

Figure 2: LX-Bus™/Keypad Bus Voltage

Installing the 710 or 710F Bus Spllitter Module

This section details the various wire configurations in which you can install multiple LX-Bus/Keypad bus circuits. Figure 3, below, illustrates the 710 or 710F Bus Splitter/Repeater basic wiring.

Wiring the 710 Bus/Splitter Repeater

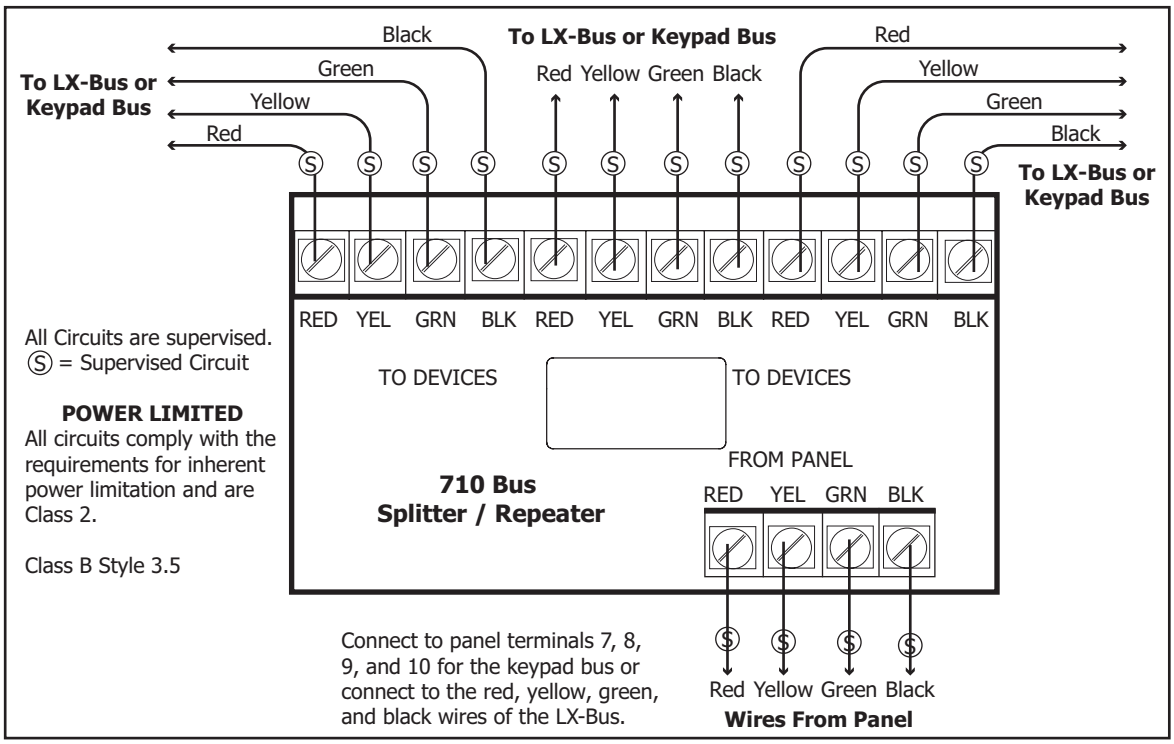

Figure 3: 710/710F Wiring Diagram

Wiring the 710F Bus Splitter/Repeater

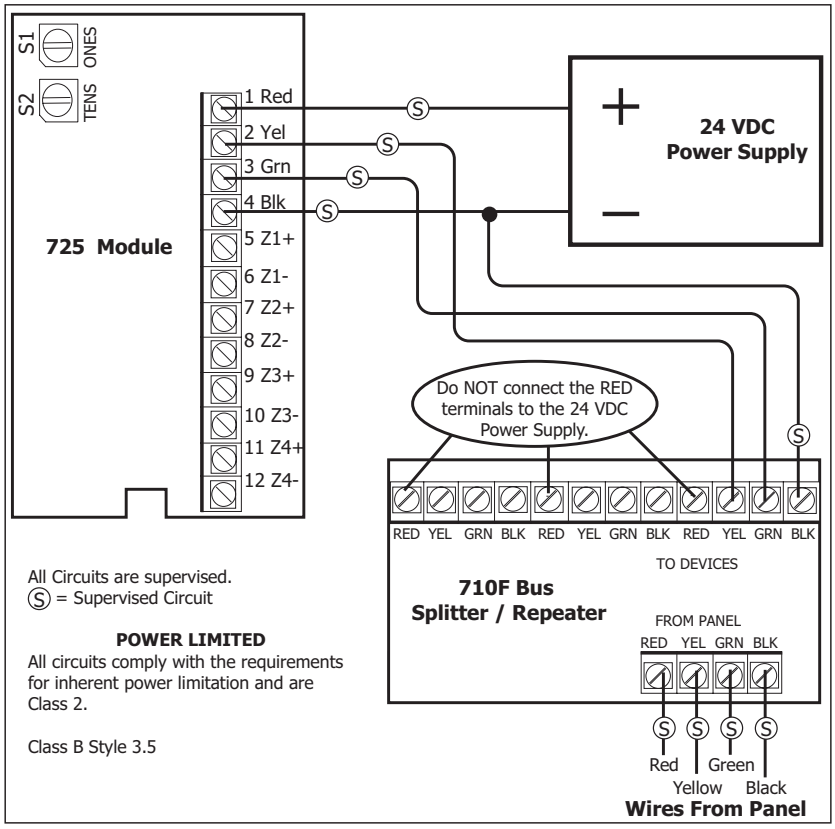

Figure 4: 710F and 725 Wiring Diagram

Multiple Circuits

In this example the first 710 or 710F module is in close proximity to the panel. At this point, the 710 or 710F is used to branch the LX/Bus/Keypad bus into three separate circuits. Each of these circuits can be run a distance of 2,500 feet. At the end of the 2,500 feet, install another 710 or 710F module to add another 2,500 feet of LX-Bus/Keypad bus capability. See Figure 5.

Note: The total distance of all circuits cannot exceed 15,000 feet.

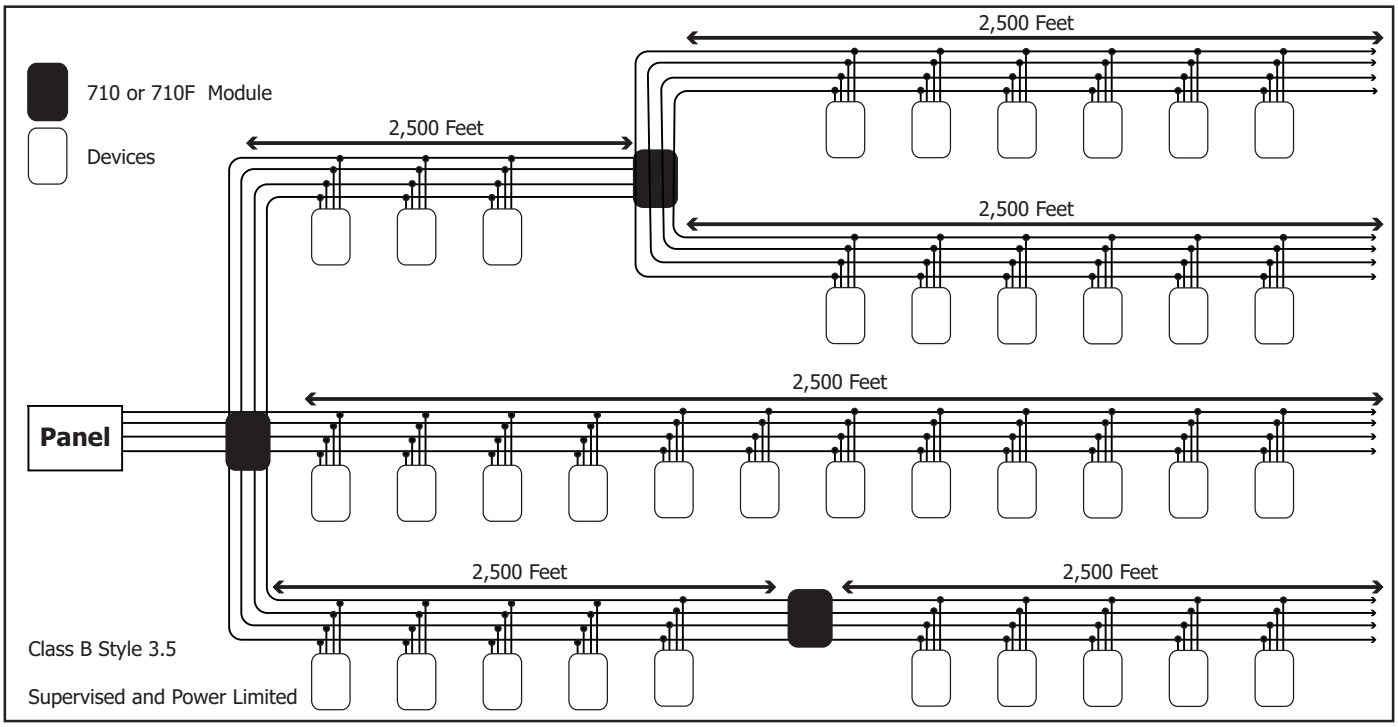

Figure 5: Multiple Circuits

Locating Optional Power Supplies

If auxiliary power supplies are needed to meet the 2.0 VDC maximum voltange drop rule, add them on the end of each 710 or 710F module circuit.

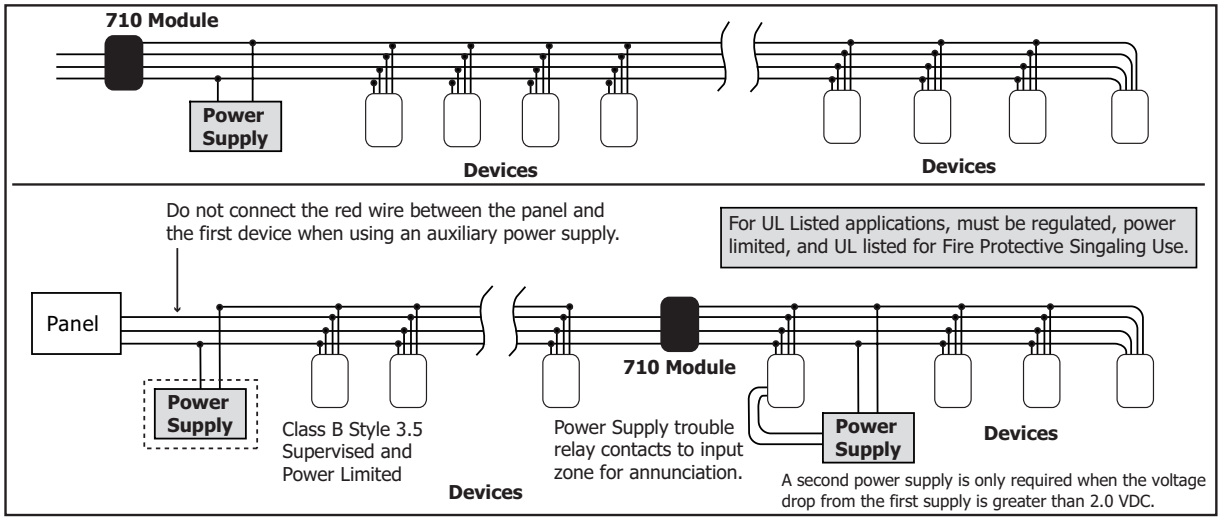

Figure 6: Additional Power Supplies

Additional Use of the 710 or 710F Module

The 710 and 710F modules are ideal devices to add to the LX-Bus/Keypad bus circuit close to any large grouping of devices. The 710 and 710F make wiring multiple devices easier by providing a means to connect three separate wire runs to the main LX-Bus or Keypad bus. In this application, wire nuts or other mechanical connectors are not required as all wiring terminates on the 710 and 710F screw terminals.

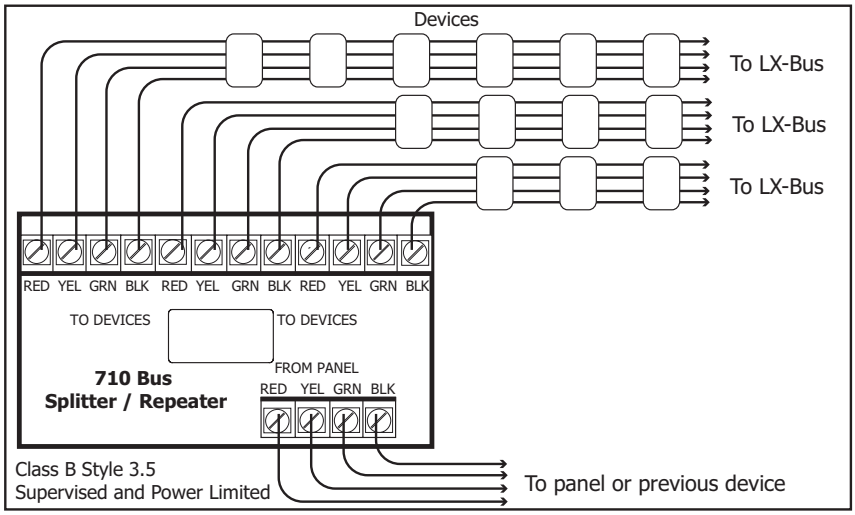

Figure 7: 710 as a Junction Box

Specifications

Current Draw	
Voltage Range	8 VDC to 14.5 VDC
710 Module	30mA
710F Module	40mA
Dimensions	4.5” x 2.75” x 1.75”
Wire Specificatiosn	Accepts 14 to 20 AWG wire

Listings and Approvals

Underwriters Laboratories (UL) Listed

UL 365	Police Station Connect Burglar Alarm Systems
UL 609	Local Burglar Alarm Units & Systems
UL 864	Control Units Fire Protective Signaling Systems
UL 985	Household Fire Warning System Units
UL 1023	Household Burglar Alarm System Units
UL 1076	Proprietary Burglar Alarm System Units & Systems
UL 1610	Central Station Burglar Alarm Units
UL 1635	Digital Alarm Communication System Units

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