

716 Output Expansion Module

Description

The 716 Output Expansion Module provides four independently programmable Form C (SPDT) relays and four zone-following annunciator outputs for use on the LX-Bus™ of DMP XR100/XR500, XR150/XR350/XR550 and DMP XR150INT/XR550INT Series Panels. Connect the 716 Module to the LX-Bus of an Interface Card or directly to the on-board LX-Bus. The 716 Module cannot be connected to the Keypad bus. Use the 716 Module for a variety of remote annunciation and control applications. In addition to the panel on-board Form C relays, you can connect multiple 716 Modules to the panel for unique auxiliary relays and annunciator outputs (one for each zone). XR500, XR550, and XR550INT Series panels have 500 LX-Bus zones available. XR350 Series panels have 300 LX-Bus zones available. XR100, XR150, and XR150INT Series panels have 100 LX-Bus zones available.

Addressing the 716

Set the 716 Module to an address that is used by the panel to turn outputs on and off. For easy addressing, the 716 contains two on-board rotary switches you can set with a small screwdriver.

Any DMP 711, 714, 714-8, 714-16, 714-8INT, 714-16INT, 715, or other LX-Bus™ devices can be set to the same address as a 716 that is operating in unsupervised mode. Sharing an LX-Bus address in this manner does not cause a conflict between the 716 and the devices listed above. See the **Non-Supervised Operation** section for more information.

Setting the Rotary Switches

The 716 provides two rotary switches labeled **ONES** and **TENS** that are used to set the device address for the module. When using the annunciator outputs, set the 716 address to match the zones that you want the outputs to follow. If you are only using the Form C relays, set the address to match the output numbers you want to operate.

To set the address, use a small slotted screwdriver and turn the center arrows to the address you want.

Programming Tip

To use both the Form C relays and the annunciator outputs, set the rotary switches to match the address of the zones you want the annunciator outputs to follow (see Exceptions to Output Expansion Module Addressing). Then, individually assign the Form C relays (for example 102 to 105) to any of the panel Output Options, Area Information, or Zone Alarm Action programming.

Rotary Switch Settings

Tables 1 shows examples of the 716 Module set for different device addresses. Individual modules can be set to any address.

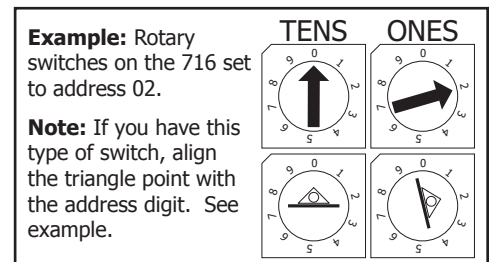


Figure 1: Address Switch Settings

716 Output Expander Module														
LX-Bus 1 (LX-500) Outputs	Tens	Ones	LX-Bus 2 (LX-600) Outputs	Tens	Ones	LX-Bus 3 (LX-700) Outputs	Tens	Ones	LX-Bus 4 (LX-800) Outputs	Tens	Ones	LX-Bus 5 (LX-900) Outputs	Tens	Ones
500 to 503	0	0	600 to 603	0	0	700 to 703	0	0	800 to 803	0	0	900 to 903	0	0
504 to 507	0	4	604 to 607	0	4	704 to 707	0	4	804 to 807	0	4	904 to 907	0	4
508 to 511	0	8	608 to 611	0	8	708 to 711	0	8	808 to 811	0	8	908 to 911	0	8
512 to 515	1	2	612 to 615	1	2	712 to 715	1	2	812 to 815	1	2	912 to 915	1	2
516 to 519	1	6	616 to 619	1	6	716 to 719	1	6	816 to 819	1	6	916 to 919	1	6
520 to 523	2	0	620 to 623	2	0	720 to 723	2	0	820 to 823	2	0	920 to 923	2	0
524 to 527	2	4	624 to 627	2	4	724 to 727	2	4	824 to 827	2	4	924 to 927	2	4
528 to 531	2	8	628 to 631	2	8	728 to 731	2	8	828 to 831	2	8	928 to 931	2	8
532 to 535	3	2	632 to 635	3	2	732 to 735	3	2	832 to 835	3	2	932 to 935	3	2
536 to 539	3	6	636 to 639	3	6	736 to 739	3	6	836 to 839	3	6	936 to 939	3	6
540 to 543	4	0	640 to 643	4	0	740 to 743	4	0	840 to 843	4	0	940 to 943	4	0
544 to 547	4	4	644 to 647	4	4	744 to 747	4	4	844 to 847	4	4	944 to 947	4	4
548 to 551	4	8	648 to 651	4	8	748 to 751	4	8	848 to 851	4	8	948 to 951	4	8
552 to 555	5	2	652 to 655	5	2	752 to 755	5	2	852 to 855	5	2	952 to 955	5	2
556 to 559	5	6	656 to 659	5	6	756 to 759	5	6	856 to 859	5	6	956 to 959	5	6
560 to 563	6	0	660 to 663	6	0	760 to 763	6	0	860 to 863	6	0	960 to 963	6	0
564 to 567	6	4	664 to 667	6	4	764 to 767	6	4	864 to 867	6	4	964 to 967	6	4
568 to 571	6	8	668 to 671	6	8	768 to 771	6	8	868 to 871	6	8	968 to 971	6	8
572 to 575	7	2	672 to 675	7	2	772 to 775	7	2	872 to 875	7	2	972 to 975	7	2
576 to 579	7	6	676 to 679	7	6	776 to 779	7	6	876 to 879	7	6	976 to 979	7	6
580 to 583	8	0	680 to 683	8	0	780 to 783	8	0	880 to 883	8	0	980 to 983	8	0
584 to 587	8	4	684 to 687	8	4	784 to 787	8	4	884 to 887	8	4	984 to 987	8	4
588 to 591	8	8	688 to 691	8	8	788 to 791	8	8	888 to 891	8	8	988 to 991	8	8
592 to 595	9	2	692 to 695	9	2	792 to 795	9	2	892 to 895	9	2	992 to 995	9	2
596 to 599	9	6	696 to 699	9	6	796 to 799	9	6	896 to 899	9	6	996 to 999	9	6

Table 1: XR100/XR500, XR150/XR350/XR550, and XR150INT/XR550INT Series Rotary Switch Settings

Form C Relays

Once addressed, assign any of the four Form C relays on the 716 to any one of the panel Output Options such as Ready, Phone Trouble, or Communication Fail. These options are programmed with the output number that matches the 716 Module rotary-switch address setting. For example, program the panel Phone Trouble Output to operate Output # 520 so that a trouble on the panel phone line would toggle relay # 1 on a 716 Module set to address 520. Output # 521 would toggle relay # 2 on the same 716.

The four Form C relays are rated for 1 Amp at 30 VDC resistive.

Wiring the 716 Module

The 716 has four wires available to connect to the LX-Bus. Only three wires are required: Auxiliary power (Red), Receive Data (Green), and a panel Common (Black). The Transmit Data wire (Yellow) can be used on the 716 Module for supervised operation, or left disconnected for the 716 to operate in unsupervised mode. See Supervised Operation section.

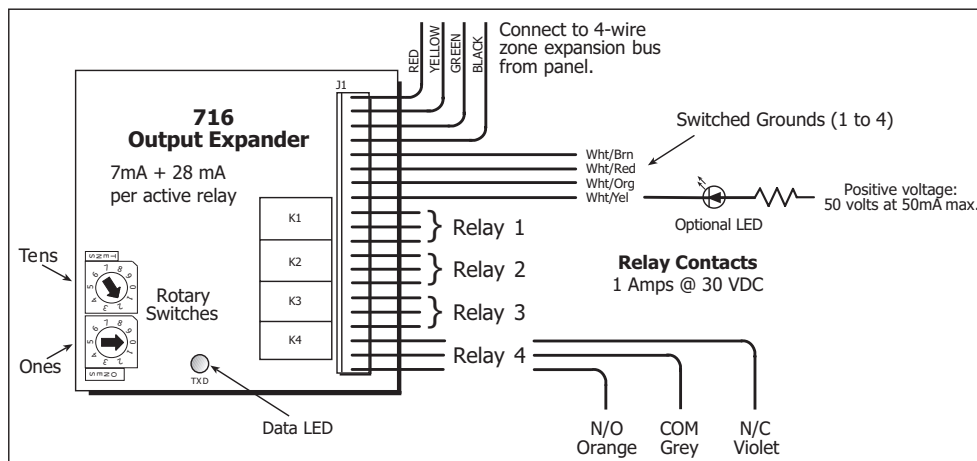


Figure 2: 716 Output Expander Harness Descriptions

Supervised Operation

You can install the 716 as a supervised device by connecting all four LX-Bus wires to the 716 Module and programming an appropriate zone as a **Supervisory** type. The Model 716 may use ANY address for supervision, provided that a Supervisory (SV) type zone is programmed for that address. Example: Zone 504 on an XR500 panel would be programmed as a SV type zone to supervise a 716 set to address '04' on the first LX-Bus. Only the first zone number for the programmed device is supervised. See Tables 1 and 2.

When installing Zone Expansion Modules on the same LX-Bus as a supervised 716 Module, address the Zone Expanders to the next zone number. For example, on an XR500 panel, the zone would be 520 for supervision and 521 for a zone expander on the same bus.

If a supervised 716 Module loses communication with the panel, an open condition (Trouble) is indicated on its Supervisory zone.

Non-Supervised Operation

To operate the 716 in non-supervised mode, connect only the **Red**, **Black**, and **Green** wires from the LX-Bus to the 716 Module. Non-supervised operation allows you to install multiple 716 Modules and set them to the same address. Do not program a zone address for non-supervised operation.

Annunciator outputs (switch-to-ground)

Unlike the Form C relays, the four power limited annunciator outputs on the 716 Module follow the zone state having the same address. For example, output #1 (white/brown) on a 716 set to address 120 shorts to ground each time zone 120 is in alarm or trouble **while armed**. Use this feature to operate relays or LEDs to show changes in the state of the panel **armed** zones. See Table 3.

Armed Zone State	716 Annunciator Output Action
Normal	Off - No ground reference
Trouble, wireless low batt, missing	On - Steady short to ground
"A" or "L" in Report to Transmit	Pulse (1.6 seconds On, 1.6 seconds Off)
Zone Bypassed	Slow pulse (1.6 seconds On, 4.8 seconds Off)

Table 3: Annunciator Outputs

Exceptions to Output Expansion Module Addressing

The 716 Module can only be wired to an LX-Bus. XR100/XR500, XR150/XR350/XR550, and XR150INT/XR550INT Series panels have a built-in selectable LX-Bus circuit.

To determine the correct output for a particular keypad zone, match the zone number with the annunciator output number. Special addresses have been set up to allow the annunciator outputs to follow the panel and keypad zones when connected to the first LX-Bus. To configure the annunciator outputs to follow any of these zones, refer to Table 4 for LX-Bus addresses.

LX-Bus 1 (LX-500) Address	Zones	LX-Bus 1 (LX-500) Address	Zones	LX-Bus 1 (LX-500) Address	Zones	LX-Bus 1 (LX-500) Address	Zones
501	1 to 4	541	41 to 44	519	91-94	559	131-134
505	5 to 8	551	51 to 54	529	101-104	569	141-144
509	9 to 10	561	61 to 64	539	111-114	579	151-154
511	11 to 14	571	71 to 74	549	121-124	589	161-164
521	21 to 24	581	81 to 84				
531	31 to 34						

Table 4: XR100/XR500, XR150/XR350/XR550, and XR150INT/XR550INT Series LX-Bus Addresses and Corresponding Zones

Wiring Specifications for LX-Bus

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.
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 at the end of the circuit. When voltage is too low, the devices cannot operate properly.



For additional information refer to the panel Installation Guide, LX-Bus/Keypad Bus Wiring Application Note (LT-2031), and/or the 710 Installation Sheet (LT-0310).

Compliance Listing Specifications

UL

To comply with ANSI/UL 365 Police-Connected Burglary System or ANSI/UL 609 Local Burglary Alarm Systems, the module must be mounted in the supplied, UL listed enclosure with a tamper.

Unsupervised operation is not suitable for fire listed installations.

Any auxiliary power supply for a commercial fire installation must be regulated, power limited, and listed for Fire Protective Signaling.

ULC Commercial Burglary (XR100/XR500 and XR150/XR350/XR550 Series Panels)

Place the output module with at least one zone expander in a listed enclosure and connect a DMP Model 307 Clip-on Tamper Switch to the enclosure programmed as a 24-Hour zone.

Specifications

Operating Voltage	12 VDC Nominal
Current Draw	
Standby	13mA
Operating	13mA
	+ 12mA per active relay
Weight	4.8 oz. (136 gm)
Dimensions	2.5" W x 2.5" H
	6.35 W x 6.35 H cm

Compatibility

XR100/XR500, XR150/XR350/XR550
and XR150INT/XR550INT Series Control Panels

Certifications

California State Fire Marshall (CSFM)
New York City (FDNY COA #6167)
ANSI/UL 365 Police Connected Burglar
ANSI/UL 464 Audible Signal Appliances
ANSI/UL 609 Local Burglar
ANSI/UL 864 Fire Protective Signaling
ANSI/UL 985 Household Fire Warning
ANSI/UL 1023 Household Burglar
ANSI/UL 1076 Proprietary Burglar

ULC Subject-C1023	Household Burglar
ULC/ORD-C1076	Proprietary Burglar
ULC S304	Central Station Burglar
ULC S545	Household Fire

International Certifications

Security Grade:	3
Environmental Class:	II
Intertek (ETL)	
EN 50131-1	
EN 50131-3	
EN 50130-5	
EN 61000-6-4	
EN 50130-4	
EN 61000-3-2	
EN 61000-3-3	



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