April 22, 2004 DN-6739 • G-250

RFX Wireless Interface System with Wireless Receiver, Detector, and Module

Section: Peripheral Devices

GENERAL

The RFX Radio Frequency Wireless Interface System allows communication between a NOTIFIER intelligent addressable Fire Alarm Control Panel (FACP) and up to 80 **SDRF-751** wireless detectors and 20 **5817CB** wireless modules. The RFX wireless interface system monitors the status of each **SDRF-751** wireless detector and **5817CB** wireless module and forwards this information to the control panel through the panel's Signaling Line Circuit (SLC). At the control panel, **SDRF-751** wireless detectors and **5817CB** wireless modules are annunciated on a point-by-point (addressable) basis.

NOTE: *Part numbers are in* ***bold*** *to distinguish them from references to the RFX wireless interface system. Refer to the parts list under Product Line Information (page 2) and System Diagrams (page 3).*

California State Fire Marshal
7300-0028:215

LISTED
S635

6739pho1.jpg

◀ ***RFX-R*** *Receiver*

RFX *Board in* ***RFX-BX*** *Enclosure* ▼

6739pho2.jpg

▲*If* ***RFX-RI*** *Remote Interface is ordered, it mounts in the enclosure of the* ***RFX-R*** *Receiver.*

FEATURES

- Wireless point annunciation (addressable) at the control panel. ***NOTES: 1)*** *The* ***RFX*** *board uses SLC addresses (up to 101) equal to the number of detectors and modules used, plus a monitor point address for itself.* ***2)*** *The RFX wireless interface system uses the* ***RFX*** *board monitor point address (see Note 1) to indicate a supervisory condition to the control panel during a device tamper condition (example: an* ***SDRF-751*** *wireless detector removed from its base).*
- Allows protection in situations where the use of wire is uneconomical or unfeasible.
- Increases flexibility of existing installations.
- When mounting **RFX-R** receivers remotely (with **RFX-RI** Remote Interface for each), **RFX-R** receivers can be mounted up to 7,000 ft. (2,135 m) from the control panel.
- Ideal for retrofit applications.
- 16-digit LCD display to indicate device status.
- CPU failure indicator.
- Operates with AM2020, AFP1010, AFP-100, AFP-200, AFP-300, AFP-400, AFC-600, NFS-640, and NFS-3030 FACPs.
- Requires 45 mA from the SLC, or 100 to 400 mA (dependent on the number of **RFX-R** receivers) from a 24-volt power supply UL-Listed for fire protective signaling.
- Operates with **SDRF-751** wireless detectors within a 60-foot (18.3 m) radius with obstructions, or within 400 foot (122 m) line of sight. Reception is contingent upon what materials are between the **SDRF-751** wireless detectors and the **RFX** board (for example, walls, floors, or office furniture). Up to 80 **SDRF-751** wireless detectors and 20 **5817CB** wireless modules can be mapped to a control panel through one **RFX** board.
- Wireless detectors include two 3-volt, CR123A lithium batteries; wireless modules include one battery. Life expectancy is 7 years. ***NOTE:*** *Life expectancy may vary depending on alarm activity and environmental conditions.*
- 100% field-programmable with built-in menu system.

⚠WARNING!▼

This product operates at 345 MHz and is NOT SUITABLE for use in or near radio equipment operating at 345 MHz.

SYSTEM COMPONENTS

RFX Wireless Radio Frequency Interface Assembly

The RFX wireless interface assembly consists of an **RFX** *board*, an *enclosure* in which it is mounted, and an **RFX-R** *receiver*. The **RFX** board contains all the necessary connections for the RFX wireless interface system to operate. In addition, it contains a liquid crystal display (LCD) that provides diagnostic information, and a CPU failure indicator. The **RFX-R** receiver accepts communication from the wireless devices and transfers that information to the **RFX** board. The **RFX** board can be installed in the **RFX-BX** enclosure or other positions; the **RFX-R** receiver is factory-installed inside its enclosure. If an **RFX-R** receiver is installed remotely from the **RFX** board, one **RFX-RI** *remote interface* is required for each remote **RFX-R** receiver.

SDRF-751 Wireless Smoke Detector

The model **SDRF-751** *wireless detector* is battery-powered and designed to operate with the RFX wireless interface system. Each detector is assigned a unique serial number at the factory. This number is labeled on the underside of the detector and is used as the detector's address by the RFX wireless interface system.

NOTIFIER® 12 Clintonville Road, Northford, Connecticut 06472

ISO 9001 CERTIFIED ENGINEERING & MANUFACTURING QUALITY SYSTEMS

Made in the U.S.A.

5817CB Wireless Module

The model **5817CB** *wireless module* is battery-powered and designed to operate with the RFX wireless interface system. Each module is assigned a unique serial number at the factory. This number is labeled on the inside of the module and is used as the module's address by the RFX wireless interface system.

INSTALLATION

The **RFX-R** receiver should be mounted up to 60* feet (18.3 m) to each device. The **RFX-R** receiver comes fully assembled with the exception of the antennae, which must be attached.

The RFX wireless interface system can be powered from the Signaling Line Circuit (SLC) or the following: ACPS-2406, AMPS-24, APS-6R, FCPS-24, FCPS-24S6/-24S8, MPS-24A, MPS-400, MPS-6, NFS-640, NFS-3030, or the AFP-200 circuit board. A reduced number of addressable devices are permitted when using SLC loop power. Refer to the specific power supply or panel manual for more information on these power supplies.

Wireless device information must be programmed into the RFX wireless interface system with programming buttons on the **RFX** board.

***NOTE:** Actual distances vary with obstructions.*

DETERMINING SYSTEM CAPACITY — SLC Addresses Consumed

Each **RFX** board supports up to 80 **SDRF-751** wireless detectors, up to 20 **5817CB** wireless modules, and up to four **RFX-R** receivers *(see System Diagrams on page 3)*. Each **RFX** board needs one SLC module address for RFX Supervisory trouble and SLC detector and module addresses as needed.

Example #1: One **RFX** board required, 25 **SDRF-751** wireless detectors, and 10 **5817CB** wireless modules. This application consumes 11 module addresses and 25 detector addresses from the SLC loop of the panel (other addresses on the SLC loop may be used for other addressable devices or even a second **RFX** board).

Example #2: System requirement is 85 **SDRF-751** wireless detectors and 10 **5817CB** wireless modules, so two **RFX** boards are required: the first has 80 detectors; the second has 5 detectors and the 10 modules. Connecting them to the same SLC yields 85 detector addresses and 12 module addresses needed from a single SLC loop (other addresses on the SLC loop may be used for other addressable devices as long as the point capacity of the loop is not exceeded – 99 or 159).

OPERATION

Wireless devices report to the panel in the same manner as wired devices. To provide information in the control panel's display that a device is wireless (on panels other than the NFS-640 and NFS-3030), include an indicator in the custom label for that device. NFS-640 and NFS-3030 FACPs indicate when radio frequency devices are being used.

***NOTE:** Panel alarm verification WILL NOT function with the RFX wireless interface devices, as it is already performed by the **SDRF-751** wireless detector.*

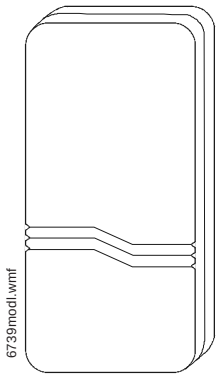
The **RFX** board forwards trouble and alarm messages to the panel. The **RFX** board LCD will display the device(s) in alarm or trouble, along with any messages associated with the trouble or alarm. The LCD also displays status and test messages. Multiple messages appear at one time on the LCD, scrolling continuously.

***NOTE: RFX** (board) CPU failure is indicated at the **RFX** board when LED1 flashes, and generates "Invalid Reply" trouble messages at the panel for all the associated RFX wireless devices.*

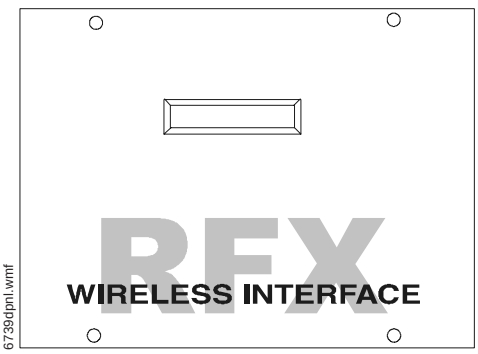
PRODUCT LINE INFORMATION

RFX	Wireless interface PC board. Includes documentation and associated hardware. Supports up to four **RFX-R** receivers/**RFX-RI** remote interfaces, and up to 80 **SDRF-751** wireless detectors and up to 20 **5817CB** wireless modules. ***RFX-BX** enclosure or **RFX-DP** dress panel required.*
RFX-BX	Backbox for **RFX** board when mounted externally from control panel. *Either an **RFX-BX** enclosure or **RFX-DP** dress panel is required per **RFX** board.*
RFX-DP	Dress panel for mounting an **RFX** board in two annunciator positions in dress plates such as the **ADP-4**.
RFX-R	RFX receiver. Communicates with up to 80 **SDRF-751** wireless detectors.
RFX-RI	RFX remote interface. Order in addition to **RFX-R** receivers *(one per **RFX-R** receiver)* when the **RFX-R** receiver is located remotely from the **RFX** board.
SDRF-751	Wireless photoelectric smoke detector with heat sensor. Includes mounting ring.
5817CB	Wireless module with mounting hardware.

***Note:** photos/illustrations are not shown in scale to each other.*



5817CB
Wireless Module



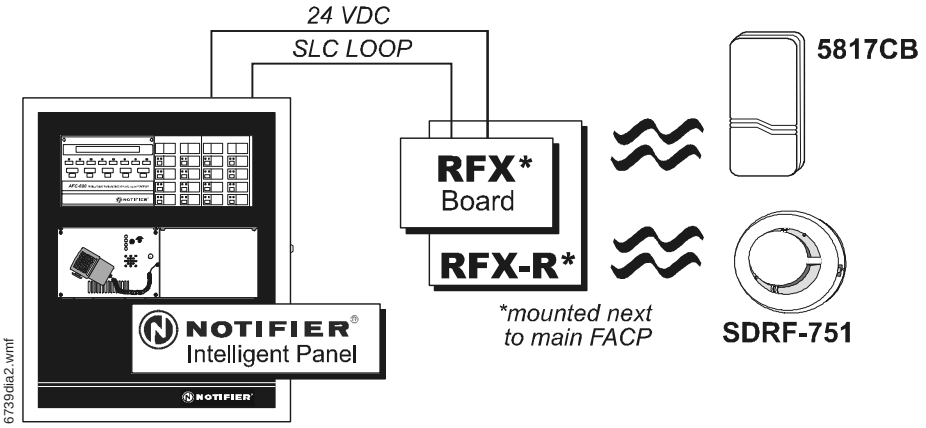
***RFX-DP** Dress Panel*

6739pho3.jpg

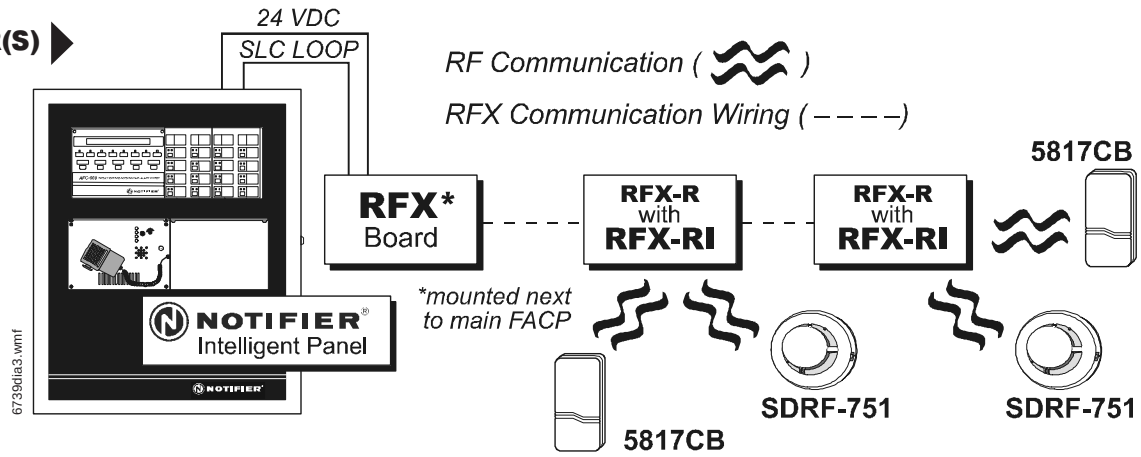
***SDRF-751** Wireless Photoelectric/ Thermal Smoke Detector*

SYSTEM DIAGRAMS

LOCAL RECEIVER EXAMPLE
*(**RFX** Board and **RFX-R** Receiver at Main Panel)*



REMOTE RECEIVER(S) EXAMPLE



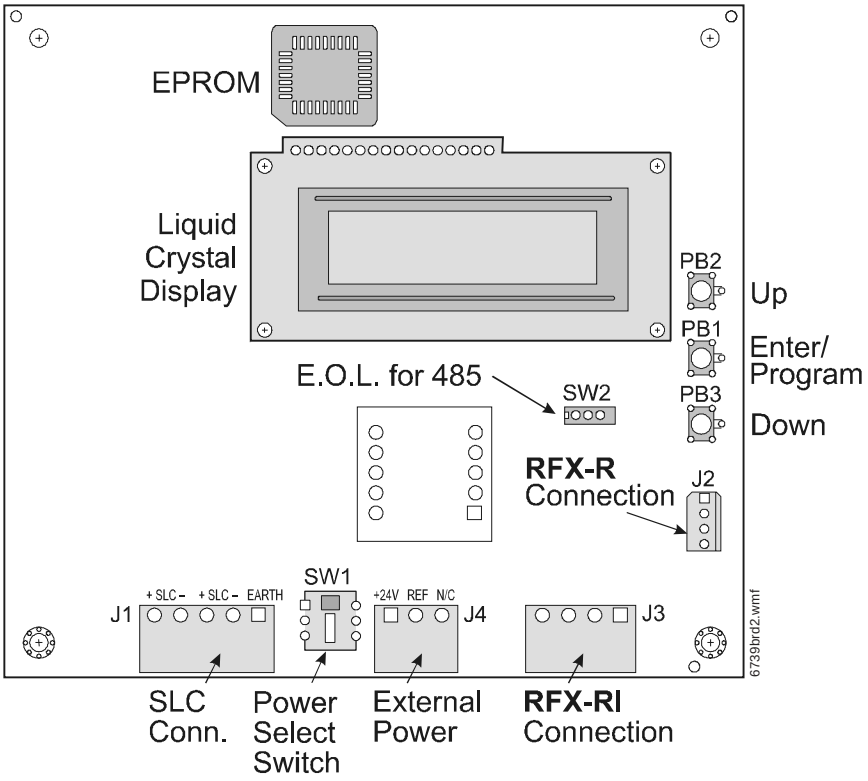
NOTES for SYSTEM DIAGRAMS above:

1) RFX communications consists of two twisted pairs: one pair for communications and one pair for power. The power for the **RFX-R** receiver/**RFX-RI** remote interface is generated by the **RFX** board. ***2)*** Maximum of 80 detectors and 20 modules per **RFX** board. ***3)*** Each **RFX** board supports up to four **RFX-R** receivers/**RFX-RI** remote interfaces. ***4)*** For RFX communication maximum distances, **RFX** receiver to **RFX-RI** remote interface, see table below. ***5)*** **RFX** board must be mounted next to main control panel except when connected to an NFS-640 or NFS-3030.

6739dist.tbl

	MAXIMUM DISTANCE with Selected Wire Gauge			
WIRE GAUGE	**one RFX-RI**	**two RFX-RIs**	**three RFX-RIs**	**four RFX-RIs**
12 AWG (3.25 mm²)	7,000 ft (2,135 m)	3,000 ft (915 m)	2,000 ft (610 m)	1,850 ft (564 m)
14 AWG (2.00 mm²)	4,200 ft (1,280 m)	2,100 ft (640 m)	1,400 ft (427 m)	1,000 ft (305 m)
16 AWG (1.30 mm²)	2,850 ft (869 m)	1,400 ft (427 m)	975 ft (297 m)	700 ft (213 m)
18 AWG (0.75 mm²)	1,775 ft (541 m)	900 ft (274 m)	575 ft (175 m)	400 ft (122 m)
20 AWG (0.51 mm²)	1,100 ft (335 m)	500 ft (152 m)	350 ft (107 m)	250 ft (76 m)
22 AWG (0.32 mm²)	700 ft (213 m)	300 ft (91 m)	200 ft (61 m)	125 ft (38 m)

RFX Board



RFX Board to RFX-RI Remote Interface CONNECTIONS: