Overview

The *FireShield* fire alarm family consists of 3, 5 and 10 zone conventional fire alarm control panels, an integrated DACT/Dialer, serial annunciator modules, and serial remote relay modules. All of these components are microprocessor-controlled. The *FireShield* family is ideal for both new and retrofit installations alike.

FireShield incorporates features designed to simplify installation, operation and maintenance. These include front panel programming, one person walk testing, and selectable IDC and NAC types.

FireShield panels are powerful enough to meet the demands of today's installations while leaving plenty of room to grow in the future.

FS502 and FS1004 panels support Class A operation by combining pairs of on-board IDCs or NACs to provide the necessary circuits. For example, the FS1004 comes factory set to support 10 Class B IDCs and four NACs. But it can be field-configured to provide five Class A IDCs, no Class B IDCs, and two Class A NACs – or any other combination of circuits that fall within the circuit-pairing parameters.

	FS1004	FS502	FS302
Class B IDCs	Up to 10	Up to 5	3
Class A IDCs	Up to 5	Up to 2	Not supported
Class B NACs	Up to 4	Up to 2	2
Class A NACs	Up to 2	1	Not supported
NAC Power	2.5 exp to 5 amps	2.5 amps	1.5 amps
Auxiliary power	0.5 amps	0.5 amps	0.5amps

Note: Class A operation will reduce the number of available Class B IDCs and/or NACs, depending on the panel configuration. See Specifications on page 5 for details.

Standard Features

- Available in 3, 5, and 10 IDC models
- IDC or NAC pairs convertible to single Class A circuits (10 and 5 IDC panels only)
- Supports 2M, "EC" and 6200 Series detectors
- Combination Waterflow and Supervisory IDCs
- NACs programmable by zone and individually selectable for Genesis, continuous, or temporal outputs
- Front panel programmable
- PC programmable with optional DACT installed
- Genesis option allows precision synchronization and audible silence over two wires without additional modules
- On-board relays for Alarm, Supervisory and Trouble
- Optional serial bus relay modules are programmable for common or zone activation
- Optional serial bus remote annunciator
- One person device testing (audible or silent)
- Expandable power supply (10 IDC panel only)
- Optional City Tie and Reverse Polarity Modules
- Optional trim ring for semi-flush mounting
- Optional fully integrated DACT/Dialer
- All versions available with factory installed DACT.

FireShield
Conventional Fire Alarm Control Panels

FS302

FS1004

FS502

Options

Off-premise communication

A fully integrated *FireShield* DACT/dialer is available for reporting events to a monitoring facility. The DACT also supports uploading or downloading of system configuration, status and event history. The DACT is programmable for either single or dual line operation. It also supports split and dual reporting for two digital alarm receivers.

The DACT brings additional features to the panel including a 32-character alphanumeric LCD display, local or remote PC programming and an event history log.

Modules are also available for City Tie (CTM4.7) and Reverse Polarity (RPM) connections.

Remote Annunciators and Relays

The serial bus standard on all *FireShield* models is another installation time-saver. This circuit allows the connection of Remote System Indicators (FSRSI), Remote Zone Indicators (FSRZI-A) and Remote Relay Modules (FSRRM) over a four-wire (data and power) circuit. Annunciator and relay modules can be installed up to 1,000 feet from the panel on 18-gauge wire.

Application

FireShield provides smoke and fire detection, occupant notification and off-premises signaling for small- to medium-sized buildings.

Each IDC can be configured for either Class B or Class A operation and one of eight operating modes:

· Alarm – without smoke detector verification;
· Alarm (when using resistor bases) – with smoke detector verification, and instant activation of contact devices ;
· Waterflow Alarm – no retard;
· Waterflow Alarm – with 15 second retard;
· Combination Waterflow (no retard) and Supervisory;
· Combination Waterflow (retard) and Supervisory;
· Supervisory (Latching);
· Monitor – for monitoring devices other than alarm or supervisory such as fire doors or fire dampers.

NACs may also be configured for either Class B or Class A operation. Additionally, NACs can be individually configured for one of three outputs. These are Genesis, Continuous or Temporal. The Genesis selection allows independent horn control over two wires and provides precision synchronization for Genesis devices, all without the need for a Genesis Signal Master accessory.

When configured for Genesis notification appliances, *FireShield's* Alarm Silence function will silence connected Genesis audible appliances but Genesis strobes will remain active until the panel is reset. When Genesis Mode is selected, both the horns and strobes on Genesis and Enhanced Integrity notification appliances will be synchronized across all NACs.

FS1004

The FS1004 provides ten zones of control plus optional LCD display.

FS502

The FS502 provides five zones of control plus optional LCD display.

Panel Operation

Operators' Interface

Control of the panel's operation is both simple and intuitive. While the LEDs and optional LCD are visible with the panel door closed, the door and bezel block access to the controls. With the door open the following controls are available:

· *Reset* – used to reset the panel;
· *Signal Silence and Drill* – used to silence notification appliances or activate the drill function;
· *Panel Silence* – silences the buzzer on the panel and the remote trouble unit;
· *Remote Disconnect* – disables the DACT, or, if no DACT installed, disables the panel's alarm relay;
· *Walk Test* – activates the panel's silent and audible walk test mode.

The following system LEDs display the panel's status:

· *Alarm* – panel is in the alarm state;
· *Trouble* – panel is in the trouble state;
· *Supervisory* – panel is in the supervisory state;
· *Power* – indicates the status of the AC power source;
· *Disable* – indicates when any IDC, NAC, relay or the DACT are disabled;
· *Annunciator Trouble* – indicates trouble on the remote annunciator bus;
  · *Battery Trouble* – indicates battery or charging problems;
  · *Ground Fault* – indicates a short between any panel circuit and ground;
  · *Walk Test* – indicates that one or more IDCs are in the walk test mode;
  · *Alarms Silenced* – indicates that the panel is in the alarm state with one or more NACs silenced.

  Each IDC has a disable switch and three LEDs:

· Alarm – *red* – indicates that the IDC is in the alarm state;
· Trouble – *yellow* – indicates that the IDC is in the trouble state or is disabled (when flashing);
· Supervisory/Monitor – *yellow* – indicates that the IDC is in the supervisory state or the monitor state (when flashing).

Each NAC also has a disable switch and a trouble/disable LED.

Status indication with the DACT/Dialer installed

The dialer's LCD display provides two lines × 16 characters of text. For programming, the top line displays the programming step and the lower line displays the selected option.
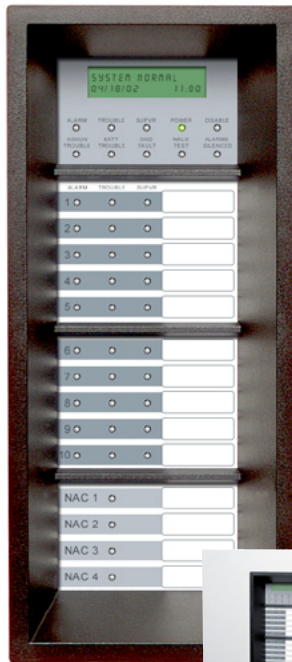
DACT/Dialer

The DACT/Dialer installs behind the front panel display.
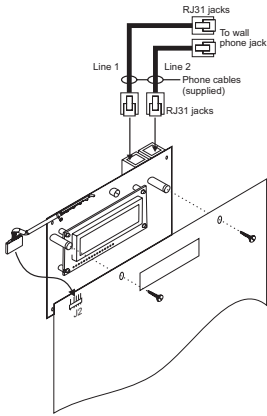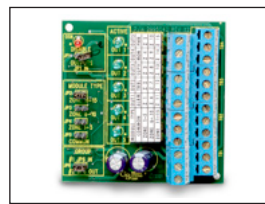

Note: All panel versions are available with factory installed DACT. See order table for ordering information.

The optional DACT/Dialer is a multifunction module that provides communications, modem capability, and LCD display functions. Its primary function is as a Digital Alarm Communicator Transmitter (DACT). As a DACT, it transmits event messages to a Digital Alarm Communicator Receiver (DACR) at a monitoring facility. The monitoring facility then notifies the fire department and other responsible parties of the event. Programmable options include single or dual line operation, and split or dual reporting to two DACRs.
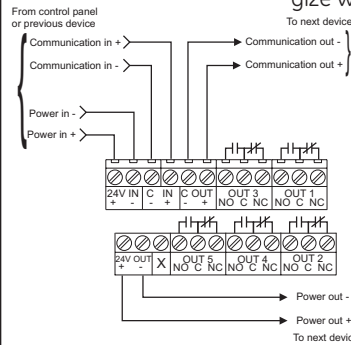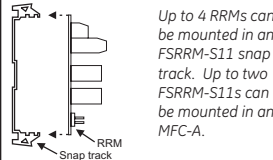
The DACT module can also be used as a modem to connect the panel to both local and remote computers for uploading and downloading of configuration data (programming), panel status and event history. For security, the modem can be configured to accept programming on incoming calls or it can be required to call a preprogrammed number before accepting downloads and sending uploads.

The DACT module can be configured to work as all of the above, or as only an LCD display or LCD display and modem.

Remote Relay Module

The Remote Relay Module mounts on a plastic track inside an MFC-A cabinet.

Up to 4 RRMs can be mounted in an FSRRM-S11 snap track. Up to two FSRRM-S11s can be mounted in an MFC-A.

The Remote Relay Module (FSRRM) is one component of the system that sets *FireShield* apart from other panels in its class. This module has five Form C relays rated at 1 amp each. It can be configured to function in either a zone relay mode or a common system mode.

When configured in the zone relay mode, relays energize when the associated IDC is active. The module can be configured for activation by IDCs 1 through 5 or IDCs 6 through 10. One relay is automatically associated with each IDC.

When configured in the common system mode, relays energize or de-energize when the panel changes state. One relay is available for each of the following functions: Alarm, Supervisory, Trouble, Power Loss, Monitor.

The FSRRM mounts on a plastic snap track and can be installed in an MFC-A or other listed fire alarm enclosure. The panel will support two RRMs of each configuration for a total of six on the 10-zone panel.
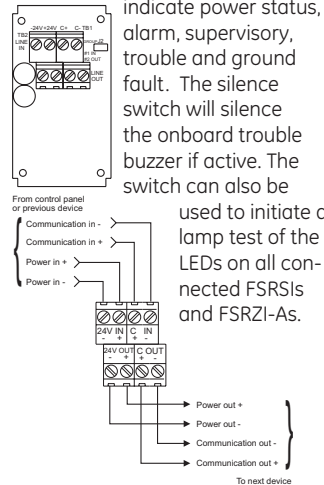
Remote Annunciators

The FSRSI can be installed alone or with one or more FSRZI-As. The FSRSI and FSRZI-A require trim plates (ordered separately). These are available in one, two or three gang models. Each panel will support two FSRSIs.

FireShield family has several remote annunciation options. The serial remote annunciator bus can be run up to 1000 feet (305 m) on untwisted non-shielded 18-gauge cable. Several annunciator models round out the family to provide a range of features and functions. As many as three annunciator modules may be mounted in a standard electrical box, sharing an attractive trim plate that blends with any decor.
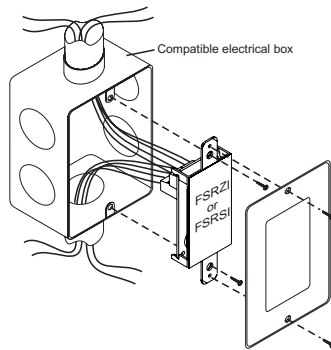
Remote System Indicator (FSRSI)

The FSRSI is ideal for common system annunciation. It includes five LEDs and a local silence/lamp test switch. The LEDs indicate power status, alarm, supervisory, trouble and ground fault. The silence switch will silence the onboard trouble buzzer if active. The switch can also be used to initiate a lamp test of the LEDs on all connected FSRSIs and FSRZI-As.
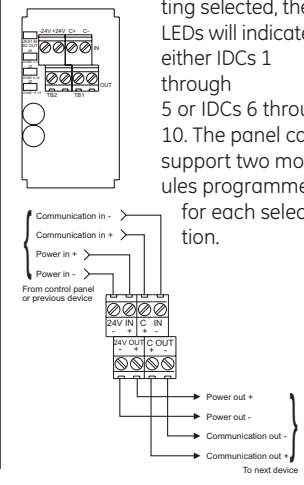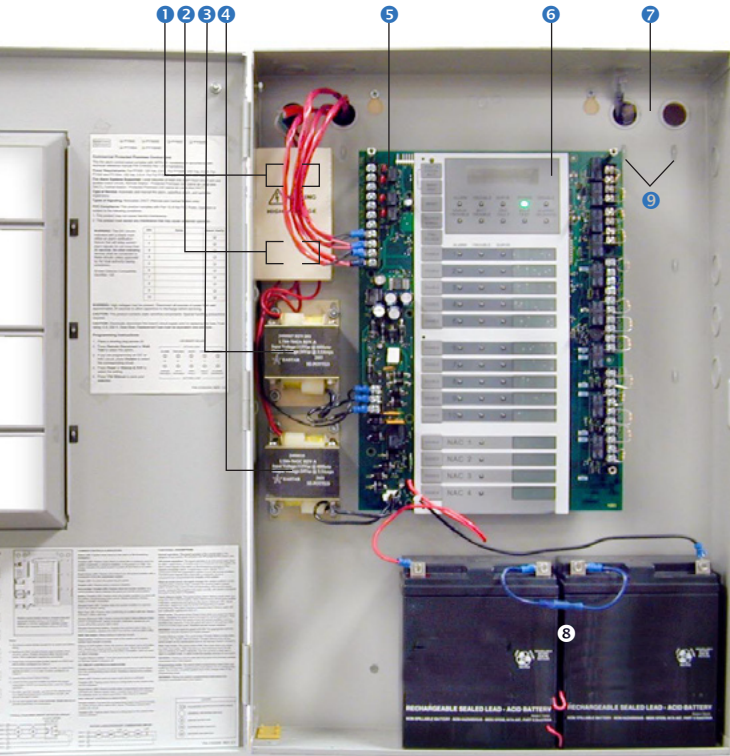
Remote Zone Indicator (FSRZI-A)

The FSRZI-A is used to indicate zones in the alarm state. It contains five red LEDs. Depending on the jumper setting selected, the LEDs will indicate either IDCs 1 through 5 or IDCs 6 through 10. The panel can support two modules programmed for each selection.

Panel Layout

❶ **Main AC wiring block and fuse holder:** Provides connections for 120 or 230 volt AC (primary power) from dedicated service. Includes primary power fuse (5 Amp).

❷ **Dual Transformer AC wiring block:** Ten-zone panel only. Provides connections between primary side of both main and expander transformer and 120 or 230 volt AC (fused primary power).

❸ **Transformer:** Changes 120 or 230 volt AC supply voltage to 24 volt AC.

❹ **Power expander transformer (XTR):** Optional. Available for the ten-zone panel only. Provides additional primary power to increase the available NAC current for the ten-zone panel.

❺ **Main circuit board:** Provides connections for all circuits. Also includes the operator interface.

❻ **Operator Interface:** Includes operator controls, LED indicators and circuit identification labels.

❼ **Cabinet enclosure:** Houses the panel electronics and standby batteries. In some cases the batteries may be housed in an external battery cabinet (BC2).

❽ **Standby batteries:** Provide Secondary/Standby power to the panel electronics in the absence of primary power.

❾ **Tie wrap mounts:** Used to secure wires and to help maintain proper separation between power-limited and nonpower-limited conductors.

Power Connections
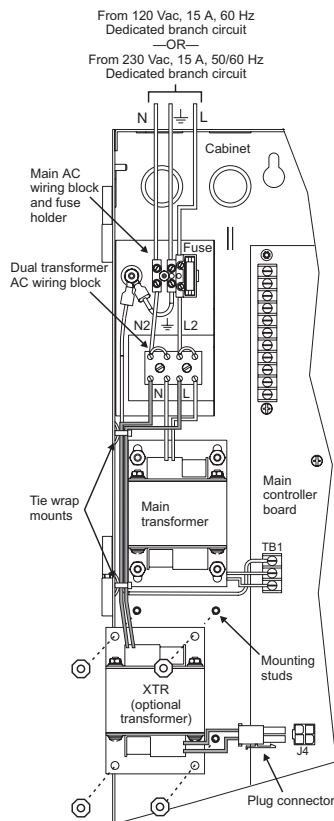
Dimensions

Model	D1*	D2	D3	D4	D5*
Three- & five- zone	16.5 in (41.9 cm)	3.75 in (9.5 cm)	9.13 in (23.2 cm)	10.5 in (26.67 cm)	14.23 in (36.14 cm)
Ten-zone	23.65 in (60 cm)	3.75 in (9.5 cm)	7.75 in (19.7 cm)	21.27 in (54.0 cm)	16.25 in (41.27 cm)

Add 1½ inches (3.81 cm) to D1 and D5 dimensions for trim kit.
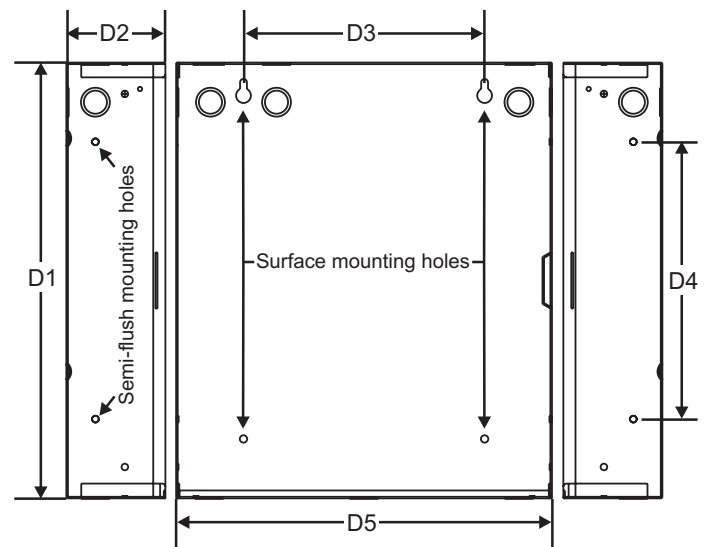
Specifications

Control Panels		FS1004						FS502			FS302
Initiating Device Circuits – IDCs (Available combinations shown at right)	Class B	10	8	6	4	2	0	5	3	1	Three Class B IDCs
	Class A	0	1	2	3	4	5	0	1	2	
Notification Appliance Circuits – NACs (Available combinations shown at right)	Class B	4		2		0		2		0	Two Class B NACs
	Class A	0		1		2		0		1	
Power Supply		3.0 A expandable to 6.0 A						3.0 amps total			2.0 amps total
NAC Voltage Rating		24 Vfwr									
Maximum NAC current		1.5 amps each,2.5 amps total for NAC 1 + 2 or 3 + 4 5.0 A w/ optional transformer						1.5 amps each 2.5 amps total			1.5 amps each 1.5 amps total
AC Input 120 Vac 60 Hz... 230 Vac 50/60Hz...		1.6 A w/ optional transformer 0.8 A w/ optional transformer						0.8 amps 0.4 amps			0.8 amps 0.4 amps
Base Panel Current Draw Standby... Alarm...		145 mA 250 mA						120 mA 170 mA			110 mA 145 mA
Panel Battery Charge Capacity (sealed lead acid only)		Up to two 18 Ah batteries						Up to 18 Ah, 7Ah max in cabinet *			
Auxiliary Current		0.5 amps max. May be programmed as resetable.									
Auxiliary Output		19 to 25.7 Vdc									
IDC Alarm Current		1.5 mA (Consult detector compatibility list p/n 3100468 for maximum detectors per circuit)									
IDC Circuit		Maximum loop resistance: 13 Ohms; Maximum loop capacitance: 0.03 µF									
IDC Operating Voltage		16.3 to 25.7 Vdc									
UL Detector ID		100									
Alarm Contact (normally open)		30 Vdc @ 1 A (resistive load)									
Trouble Contact (Form C)		30 Vdc @ 1 A (resistive load)									
Supervisory Contact (normally open)		30 Vdc @ 1 A (resistive load)									
Operating Environment		Temperature: 32 - 120° F (0 - 49° C); Humidity: 5 - 93% RH, non-condensing									
Terminals (wire gauge)		18 - 12 AWG (0.75 mm² - 2.5 mm²)									
Asynchronous Serial Communications		Maximum resistance: 13 Ohms; Maximum capacitance: 0.03 µF									

If larger batteries are required, use the BC-2 battery cabinet. See installation sheet 3100027 for details.

DACT – F-DACT (mounts in panel)	
Receivers	Supports two receivers with two phone numbers each
Communications Protocol	Contact ID (SIA DC-05), 4/2 (SIA DC-02 P3)
Programming	Front panel controls or PC with appropriate software
Telephone line connection	Two RJ31X (plug-to-plug) cords supplied with DACT
Telephone lines	Two or one loop start lines on the public switched telephone network. Pulse or DTMF.
Telephone wall connector	RJ31X/CA31X equiv. or RJ38X/CA38X equiv.
Communications Compliance	Communications Canada CS-03; FCC/CFR 47 Parts 15 & 68; NFPA 72; UL 864; ULC S527-M87
Operating Environment	Temperature: 32-120° F (0-49° C); Humidity: 93% RH, non-condensing
Current requirements	Standby: 40 mA; Alarm: 60 mA

Remote Annunciators	FSRSI Remote System Indicator	FSRZI-A Remote Zone Indicator
Maximum per System	All panels: 2	10 zone panel: 4 3 or 5 zone panel: 2
Current Requirements	Standby: 12 mA Alarm: 48 mA	Standby: 8 mA Alarm 35 mA
Voltage Range	Minimum: 21 Vdc; Maximum: 25 Vdc	
Maximum Circuit Capacitance	0.03 µF	
Maximum Circuit Resistance	13 Ohms	
Wire Size	18 - 12 AWG (0.75 mm² - 2.5 mm²)	
Mounting	ANSI/NEMA OS1-1996 1-3 gang electrical box	
Operating Environment	Temperature: 32 - 120° F (0 - 49° C); Humidity: 93% RH, non-condensing	

Remote Relay Module – FSRRM	Configured for Zone Mode	Configured for Common Mode
Maximum per system	10 zone panel: 4; 3 or 5 zone panel: 2	All panels: 2
Current Requirements	Standby: 8 mA; Alarm: 65 mA	Standby: 30 mA; Alarm: 41 mA
Voltage Range	Minimum: 18 Vdc; Maximum: 27 Vdc	
Maximum Circuit Capacitance	0.03 µF	
Maximum Circuit Resistance	13 Ohms	
Wire Size	18 - 12 AWG (0.75 mm² - 2.5 mm²)	
Mounting	Single FSRRM mounts in plastic track (included) or up to four FSRRMs in an FSRRM-S11 11" track ordered separately. FSRRMs should be installed in an MFC-A or other listed fire alarm enclosure.	
Operating Environment	Temperature: 32 - 120° F (0 - 49° C); Humidity: 93% RH, non-condensing	
Dimensions	2-3/4" W x 3-3/8" H x 1-1/2" D (65.9 mm W x 85.7 mm H x 38.1 mm D)	

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U.S.
T 888-378-2329
F 866-503-3996

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T 519 376 2430
F 519 376 7258

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F 61 3 9259 4799

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Ordering Information

Part Number	Description	Ship Wt. lb. (kg.)
Control Panels		
EST-FS1004*	Conventional Fire Alarm Control Panel – 10 Class B IDCs and 4 Class B NACs (Pairs of IDCs and NACs convertible to single Class A circuits), 120 Vac	30.5 (13.8)
EST-FS1004-2	Conventional Fire Alarm Control Panel – 10 Class B IDCs and 4 Class B NACs (Pairs of IDCs and NACs convertible to single Class A circuits), 230 Vac. Grey cabinet.	30.5 (13.8)
EST-FS502*	Conventional Fire Alarm Control Panel – 5 Class B IDCs and 2 Class B NACs (Pairs of IDCs and NACs convertible to single Class A circuits), 120 Vac	18.5 (8.4)
EST-FS502-2	Conventional Fire Alarm Control Panel – 5 Class B IDCs and 2 Class B NACs (Pairs of IDCs and NACs convertible to single Class A circuits), 230 Vac. Grey cabinet.	18.5 (8.4)
EST-FS302*	Conventional Fire Alarm Control Panel – 3 Class B IDCs and 2 Class B NACs, 120 Vac	18.0 (8.2)
EST-FS302*-2	Conventional Fire Alarm Control Panel – 3 Class B IDCs and 2 Class B NACs, 230 Vac	18.0 (8.2)
FSTRIM35*	Semi-flush trim ring for FS302 and FS502	1.7 (0.8)
FSTRIM10*	Semi-flush trim ring for FS1004	2.2 (1.0)

* USA - Insert "G" for Gray cabinet or "R" for Red cabinet. Insert "GD" or "RD" for gray or red cabinet with dialer installed. CANADA - Insert GC for English or "GF" for French language (grey cabinets, 120 volt models only).

Part Number	Description	Ship Wt. lb. (kg.)
Related Items		
XTRA3A120	Expander Transformer, 120 Vac - For FS1004* only	4.0 (1.8)
XTRA3A230	Expander Transformer, 230 Vac - For FS1004*-2 only	4.0 (1.8)
EOL3.6-1.1	Required UL listed End of Line Resistors – One 3.6K Ohm and one 1.1K Ohm. One required for each IDC configured as combination waterflow and supervisory.	0.1 (0.5)
EOL-P1	Required ULC End of Line Resistor Plate - includes one 1.1K, 3.6K and 4.7K Ohm resistor	1.0 (0.5)
Off Premises Communications		
F-DACT	Digital Communicator/Modem/LCD module (Mounts in control panel)	1.0 (0.5)
CTM4.7	City Tie Module (Requires 4" square or 2-gang North American electrical box)	1.0 (0.5)
RPM	Reverse Polarity Module (Requires MFC-A or other listed fire alarm enclosure)	3.0 (1.4)
Remote Annunciation		
FSRSI	Remote System Indicator – Includes LEDs for display of Power, Alarm, Supervisory, Trouble and Ground Fault, trouble sounder and silence/lamp test switch. Single gang trim plate included, multi-gang plates ordered separately. Mounts in a single or multi-gang North American electrical box.	0.3 (0.1)
FSRZI-A	Remote Zone Indicator – Includes LEDs for five IDCs. Single gange trim plate included, multi-gang plates ordered separately. Mounts in single or multi-gang North American electrical box.	0.3 (0.1)
FSAT2	Annunciator Trim Plate, 2 gang with FireShield Logo	0.1 (0.05)
FSAT3	Annunciator Trim Plate, 3 gang with FireShield Logo	0.1 (0.05)
Remote Relay Module		
FSRRM	Remote Relay Module – Five Form C relays. Configurable for IDCs 1-5, or 6-10, or common system indications. Requires MFC-A or other listed fire alarm enclosure.	0.4 (0.2)
FSRRM-S11	11" Mounting track. Holds up to 4 FSRRMs.	0.4 (0.2)
Accessories		
MFC-A	Multi-function Cabinent (fire alarm accessory enclosure)	7.0 (3.2)
BC-2	Grey Battery Cabinet (holds two 18 Ah batteries)	12.0 (5.4)
BC-2R	Red Battery Cabinet (holds two 18 Ah batteries)	12.0 (5.4)
Batteries		
12V4A	4.5 Ah Sealed Lead Acid Battery - 12 Vdc (2 required)	5 (2.27)
12V6A5	7.2 Ah Sealed Lead Acid Battery - 12 Vdc (2 required)	6 (2.72)
12V10A	11 Ah Sealed Lead Acid Battery - 12 Vdc (2 required)	10 (4.45)
12V17A	18 Ah Sealed Lead Acid Battery - 12 Vdc (2 required)	13 (5.90)

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