



# Intelligent Power Module FIK-RPS1000

Instruction Manual

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# Fire Alarm & Emergency Communication System Limitations

*While a life safety system may lower insurance rates, it is not a substitute for life and property insurance!*

**An automatic fire alarm system**—typically made up of smoke detectors, heat detectors, manual pull stations, audible warning devices, and a fire alarm control panel (FACP) with remote notification capability—can provide early warning of a developing fire. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire.

**An emergency communication system**—typically made up of an automatic fire alarm system (as described above) and a life safety communication system that may include an autonomous control unit (ACU), local operating console (LOC), voice communication, and other various interoperable communication methods—can broadcast a mass notification message. Such a system, however, does not assure protection against property damage or loss of life resulting from a fire or life safety event.

The Manufacturer recommends that smoke and/or heat detectors be located throughout a protected premises following the recommendations of the current edition of the National Fire Protection Association Standard 72 (NFPA 72), manufacturer's recommendations, State and local codes, and the recommendations contained in the Guide for Proper Use of System Smoke Detectors, which is made available at no charge to all installing dealers. This document can be found at <http://www.systemsensor.com/appguides/>. A study by the Federal Emergency Management Agency (an agency of the United States government) indicated that smoke detectors may not go off in as many as 35% of all fires. While fire alarm systems are designed to provide early warning against fire, they do not guarantee warning or protection against fire. A fire alarm system may not provide timely or adequate warning, or simply may not function, for a variety of reasons:

**Smoke detectors** may not sense fire where smoke cannot reach the detectors such as in chimneys, in or behind walls, on roofs, or on the other side of closed doors. Smoke detectors also may not sense a fire on another level or floor of a building. A second-floor detector, for example, may not sense a first-floor or basement fire.

**Particles of combustion or "smoke"** from a developing fire may not reach the sensing chambers of smoke detectors because:

- Barriers such as closed or partially closed doors, walls, chimneys, even wet or humid areas may inhibit particle or smoke flow.
- Smoke particles may become "cold," stratify, and not reach the ceiling or upper walls where detectors are located.
- Smoke particles may be blown away from detectors by air outlets, such as air conditioning vents.
- Smoke particles may be drawn into air returns before reaching the detector.

The amount of "smoke" present may be insufficient to alarm smoke detectors. Smoke detectors are designed to alarm at various levels of smoke density. If such density levels are not created by a developing fire at the location of detectors, the detectors will not go into alarm.

Smoke detectors, even when working properly, have sensing limitations. Detectors that have photoelectronic sensing chambers tend to detect smoldering fires better than flaming fires, which have little visible smoke. Detectors that have ionizing-type sensing chambers tend to detect fast-flaming fires better than smoldering fires. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is necessarily best and a given type of detector may not provide adequate warning of a fire.

Smoke detectors cannot be expected to provide adequate warning of fires caused by arson, children playing with matches (especially in bedrooms), smoking in bed, and violent explosions (caused by escaping gas, improper storage of flammable materials, etc.).

**Heat detectors** do not sense particles of combustion and alarm only when heat on their sensors increases at a predetermined rate or reaches a predetermined level. Rate-of-rise heat detectors may be subject to reduced sensitivity over time. For this reason, the rate-of-rise feature of each detector should be tested at least once per year by a qualified fire protection specialist. Heat detectors are designed to protect property, not life.

**IMPORTANT! Smoke detectors** must be installed in the same room as the control panel and in rooms used by the system for the connection of alarm transmission wiring, communications, signaling, and/or power. If detectors are not so located, a developing fire may damage the alarm system, compromising its ability to report a fire.

**Audible warning devices such as bells, horns, strobes, speakers and displays** may not alert people if these devices are located on the other side of closed or partly open doors or are located on another floor of a building. Any warning device may fail to alert people with a disability or those who have recently consumed drugs, alcohol, or medication. Please note that:

- An emergency communication system may take priority over a fire alarm system in the event of a life safety emergency.
- Voice messaging systems must be designed to meet intelligibility requirements as defined by NFPA, local codes, and Authorities Having Jurisdiction (AHJ).
- Language and instructional requirements must be clearly disseminated on any local displays.
- Strobes can, under certain circumstances, cause seizures in people with conditions such as epilepsy.
- Studies have shown that certain people, even when they hear a fire alarm signal, do not respond to or comprehend the meaning of the signal. Audible devices, such as horns and bells, can have different tonal patterns and frequencies. It is the property owner's responsibility to conduct fire drills and other training exercises to make people aware of fire alarm signals and instruct them on the proper reaction to alarm signals.
- In rare instances, the sounding of a warning device can cause temporary or permanent hearing loss.

**A life safety system** will not operate without any electrical power. If AC power fails, the system will operate from standby batteries only for a specified time and only if the batteries have been properly maintained and replaced regularly.

**Equipment used in the system** may not be technically compatible with the control panel. It is essential to use only equipment listed for service with your control panel.

## Alarm Signaling Communications:

- **IP connections** rely on available bandwidth, which could be limited if the network is shared by multiple users or if ISP policies impose restrictions on the amount of data transmitted. Service packages must be carefully chosen to ensure that alarm signals will always have available bandwidth. Outages by the ISP for maintenance and upgrades may also inhibit alarm signals. For added protection, a backup cellular connection is recommended.
- **Cellular connections** rely on a strong signal. Signal strength can be adversely affected by the network coverage of the cellular carrier, objects and structural barriers at the installation location. Utilize a cellular carrier that has reliable network coverage where the alarm system is installed. For added protection, utilize an external antenna to boost the signal.
- **Telephone lines** needed to transmit alarm signals from a premise to a central monitoring station may be out of service or temporarily disabled. For added protection against telephone line failure, backup alarm signaling connections are recommended.

**The most common cause** of life safety system malfunction is inadequate maintenance. To keep the entire life safety system in excellent working order, ongoing maintenance is required per the manufacturer's recommendations, and UL and NFPA standards. At a minimum, the requirements of NFPA 72 shall be followed. Environments with large amounts of dust, dirt, or high air velocity require more frequent maintenance. A maintenance agreement should be arranged through the local manufacturer's representative. Maintenance should be scheduled as required by National and/or local fire codes and should be performed by authorized professional life safety system installers only. Adequate written records of all inspections should be kept.

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# Installation Precautions

*Adherence to the following will aid in problem-free installation with long-term reliability:*

**WARNING - Several different sources of power can be connected to the fire alarm control panel.** Disconnect all sources of power before servicing. Control unit and associated equipment may be damaged by removing and/or inserting cards, modules, or interconnecting cables while the unit is energized. Do not attempt to install, service, or operate this unit until manuals are read and understood.

**CAUTION - System Re-acceptance Test after Software Changes:**

To ensure proper system operation, this product must be tested in accordance with NFPA 72 after any programming operation or change in site-specific software. Re-acceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring. All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

**This system** meets NFPA requirements for operation at 0-49° C/32-120° F and at a relative humidity 93% ± 2% RH (non-condensing) at 32°C ± 2°C (90°F ± 3°F). However, the useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this system and its peripherals be installed in an environment with a normal room temperature of 15-27° C/60-80° F.

**Verify that wire sizes are adequate** for all initiating and indicating device loops. Most devices cannot tolerate more than a 10% I.R. drop from the specified device voltage.

**Like all solid state electronic devices**, this system may operate erratically or can be damaged when subjected to lightning induced transients. Although no system is completely immune from lightning transients and interference, proper grounding will reduce susceptibility. Overhead or outside aerial wiring is not recommended, due to an increased susceptibility to nearby lightning strikes. Consult with the Technical Services Department if any problems are anticipated or encountered.

**Disconnect AC power and batteries** prior to removing or inserting circuit boards. Failure to do so can damage circuits.

**Remove all electronic assemblies** prior to any drilling, filing, reaming, or punching of the enclosure. When possible, make all cable entries from the sides or rear. Before making modifications, verify that they will not interfere with battery, transformer, or printed circuit board location.

**Do not tighten screw terminals** more than 9 in-lbs. Over-tightening may damage threads, resulting in reduced terminal contact pressure and difficulty with screw terminal removal.

**This system contains static-sensitive components.** Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. Use static suppressive packaging to protect electronic assemblies removed from the unit.

**Units with a touchscreen display** should be cleaned with a dry, clean, lint free/microfiber cloth. If additional cleaning is required, apply a small amount of Isopropyl alcohol to the cloth and wipe clean. Do not use detergents, solvents, or water for cleaning. Do not spray liquid directly onto the display.

**Follow the instructions** in the installation, operating, and programming manuals. These instructions must be followed to avoid damage to the control panel and associated equipment. FACP operation and reliability depend upon proper installation.

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## FCC Warning

**WARNING:** This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual may cause interference to radio communications. It has been tested and found to comply with the limits for class A computing devices pursuant to Subpart B of Part 15 of FCC Rules, which is designed to provide reasonable protection against such interference when devices are operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user will be required to correct the interference at his or her own expense.

## Canadian Requirements

This digital apparatus does not exceed the Class A limits for radiation noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

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## Software Downloads

In order to supply the latest features and functionality in fire alarm and life safety technology to our customers, we make frequent upgrades to the embedded software in our products. To ensure that you are installing and programming the latest features, we strongly recommend that you download the most current version of software for each product prior to commissioning any system. Contact Technical Support with any questions about software and the appropriate version for a specific application.

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This symbol (shown left) on the product(s) and / or accompanying documents means that used electrical and electronic products should not be mixed with general household waste. For proper treatment, recovery and recycling, contact your local authorities or dealer and ask for the correct method of disposal.

Electrical and electronic equipment contains materials, parts and substances, which can be dangerous to the environment and harmful to human health if the waste of electrical and electronic equipment (WEEE) is not disposed of correctly.

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# Section 1: Overview

## 1.1 FIK-RPS1000 Description

The FIK-RPS1000 Intelligent Power Module provides additional power and circuits to the FCP-2100, FCP-2100ECS, FCP-300, FCP-300ECS, and FCP-75 FACPs. The FIK-RPS1000 can power all FACP-compatible modules, including SLC devices (via a Model FIK-6815 SLC Expander), remote annunciators, notification appliances, auxiliary power modules, and all other compatible modules.



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**NOTE:** The FCP-75 does not use 6815 SLC expanders.

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The FIK-RPS1000 has six Flexputs and two programmable relays. Outputs are rated 3.0 A (6.0 A total for each ). Relays are Form C rated at 2.5 A @ 24 VDC. Outputs and relays are fully programmable.

The FIK-RPS1000 is optically isolated, providing ground loop isolation and transient protection. It functions as an SBUS repeater which conditions the RS-485 signal and allows the module to drive up to 6,000 feet of additional SBUS wiring.

The FIK-RPS1000 is housed in a metal cabinet that is 16.33" x 26.37" x 4.35" (41.48cm x 66.98cm x 11.05cm). This cabinet is large enough to house two 17 AH batteries. The FIK-RPS1000 cabinet provides mounting studs for two Model FIK-6815 SLC Expander mod-ules.

The FIK-RPS1000 communicates to the main FACP via the SBUS. Each FIK-RPS1000 provides an additional 6,000 feet of SBUS wiring length to the main panel. As the drawings on the next pages illustrate, this allows you to distribute modules, SLC devices, and outputs throughout an extremely large facility.

As well as expanding the wiring length capabilities of the FACP, the FIK-RPS1000 also expands the power capabilities by an additional 6.0 A of current.

### 1.1.1 Maximum Number of SBUS Modules

The chart below shows the maximum number of compatible modules that can be used in an Intelligent installation. Modules can be distributed among the main panel SBUS and each additional FIK-RPS1000 SBUS in virtually any combination.

Module or Device	Maximum Number
FIK-RPS1000 Intelligent Power Module	8 per FCP-75 installation
	16 per FCP-300/ECS installation
	63 per FCP-2100/ECS installation
FIK-RA100 or FIK-RA1000 Remote Annunciator	8 per FCP-75 installation
	16 per FCP-300/ECS installation
	31 per FCP-2100/ECS installation
FIK-RA2000 Remote Annunciator	63 per FCP-2100/ECS installation
FIK-6815 SLC Expander	63 per FCP-300/ECS or FCP-2100/ECS installation
FIK-5824 Serial/Parallel Modules	4 per FCP-300/ECS or FCP-2100/ECS installation
Outputs	6 per FIK-RPS1000
Conventional Relays	2 per FIK-RPS1000

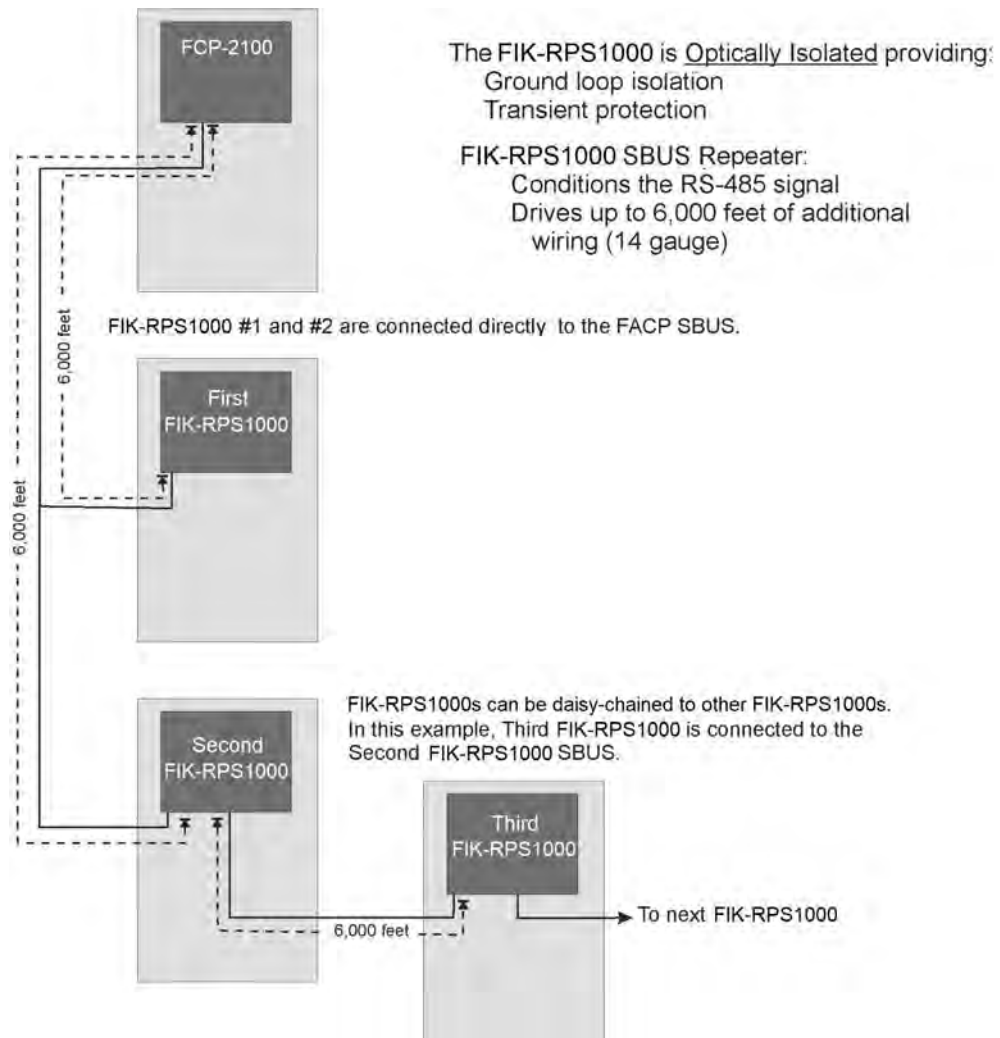


Figure 1.1 Example FIK-RPS1000 Installation Overview

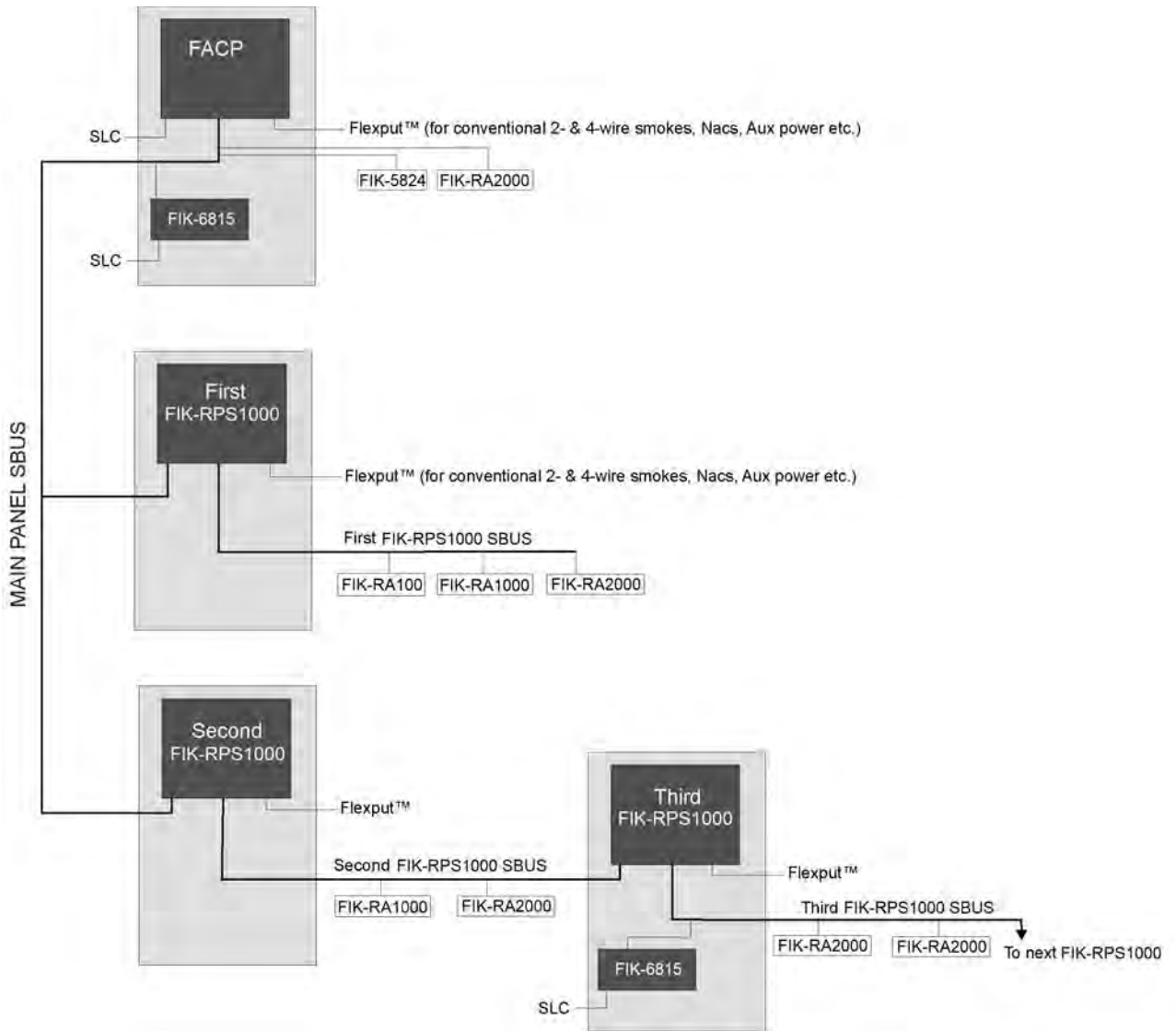


Figure 1.2 Example FIK-RPS1000 Installation Overview (Details Added)

## 1.2 Agency Requirements

The FIK-RPS1000 has the same requirements as the main control panel. These requirements are listed in:

ECS Series Model Number	FACP Installation Manual
FCP-2100/ECS	LS10143-002FK-E
FCP-300/ECS	LS10145-002FK-E
FCP-75	LS10147-003FK-E



## Section 2: Before You Begin Installing

### 2.1 Inventory

The Model FIK-RPS1000 ships with the following hardware:

- A cabinet with all hardware assembled
- Two keys for the front door
- Ten 4.7K ohm end-of-line resistors



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**NOTE:** For UL installations, 4.7kΩ end-of-line resistor (ordered separately) must be used.

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- A battery cable for batteries wired in series

### 2.2 Environmental Specifications

It is important to protect the FIK-RPS1000 control panel from water. To prevent water damage, the following conditions should be followed when installing the units:

- Do not mount directly on exterior walls, especially masonry walls (condensation)
- Do not mount directly on exterior walls below grade (condensation)
- Protect from plumbing leaks
- Protect from splash caused by sprinkler system inspection ports
- Do not mount in areas with humidity-generating equipment (such as dryers, production machinery)

When selecting a location to mount the FIK-RPS1000, the unit should be mounted where it will NOT be exposed to temperatures outside the range of 0°C-49°C (32°F-120°F) or humidity outside the range of 10%-93% at 30°C (86°F) non-condensing.

### 2.3 Software Downloads

In order to supply the latest features and functionality in fire alarm and life safety technology to our customers, we make frequent upgrades to the embedded software in our products. To ensure that you are installing and programming the latest features, we strongly recommend that you download the most current version of software for each product prior to commissioning any system. Contact Technical Support with any questions about software and the appropriate version for a specific application. Software updates can be found at [www.fike.com](http://www.fike.com).

## 2.4 FIK-RPS1000 Board and Terminal Strip Description

Figure 2.1 on page 10 shows the FIK-RPS1000 circuit board including location of terminals, the DIP switch for setting module ID, and the LED.

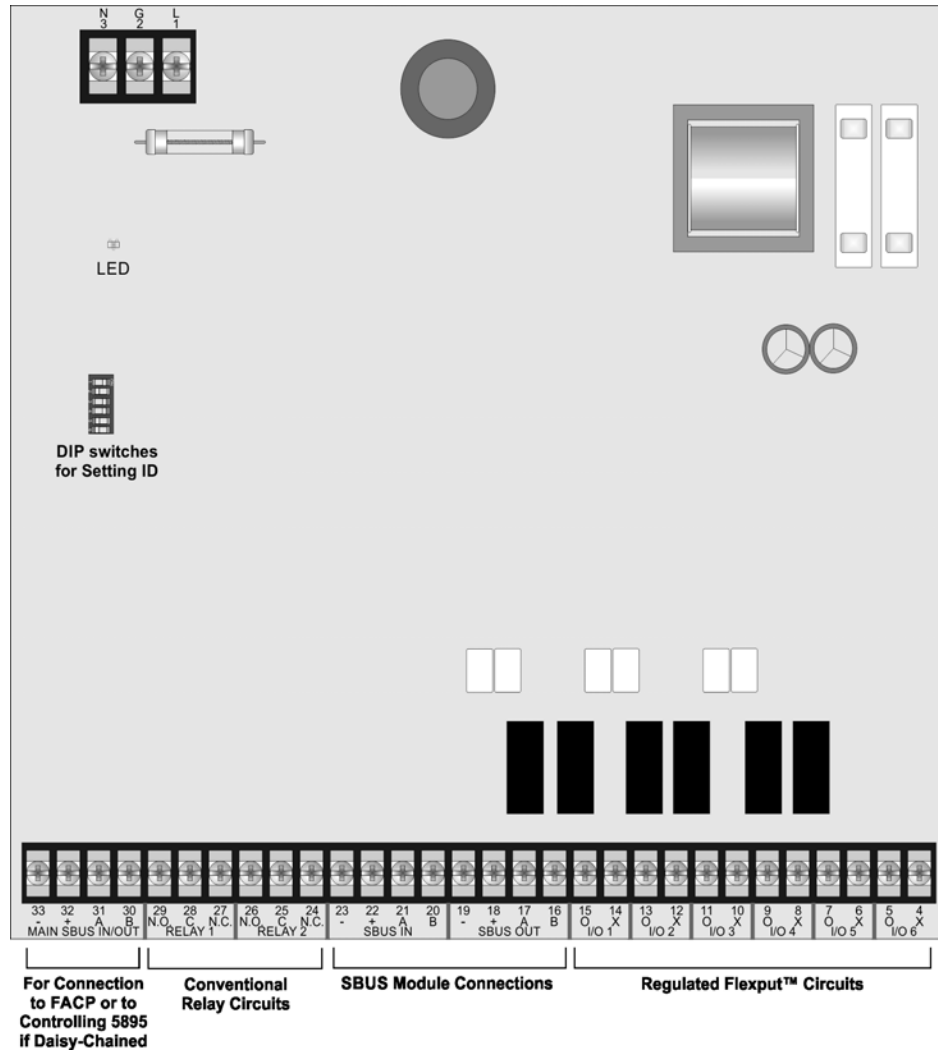


Figure 2.1 The FIK-RPS1000 Board Layout

Table 2.1 Terminal Strip Description and Electrical Ratings

Terminal # and Label		Description	Rating	
			Voltage	Current
1	L	AC input (hot)	120/240 VAC, 50/60 Hz	2.7 A 1.4 A
2	G	Earth ground	N/A	N/A
3	N	AC input (neutral)	120/240 VAC, 50/60 Hz	2.7 A 1.4 A
4	X	I/O 6*	Flexput™ Circuit	3.0 A Notification Circuits
5	O			100 mA Initiation Circuits
6	X	I/O 5*	Flexput™ Circuit	3.0 A Notification Circuits
7	O			100 mA Initiation Circuits
8	X	I/O 4*	Flexput™ Circuit	3.0 A Notification Circuits
9	O			100 mA Initiation Circuits

Table 2.1 Terminal Strip Description and Electrical Ratings

Terminal # and Label			Description	Rating	
				Voltage	Current
10	X	I/O 3*	Flexput™ Circuit	24 VDC	3.0 A Notification Circuits
11	O				100 mA Initiation Circuits
12	X	I/O 2*	Flexput™ Circuit	24 VDC	3.0 A Notification Circuits
13	O				100 mA Initiation Circuits
14	X	I/O 1*	Flexput™ Circuit	24 VDC	3.0 A Notification Circuits
15	O				100 mA Initiation Circuits
16	B	SBUS OUT	SBUS communication	5 VDC	100 mA
17	A		SBUS power	24 VDC	1.0 A
18	+				
19	-				
20	B	SBUS IN	Used for Class A installations		
21	A				
22	+				
23	-				
24	N.C.	RELAY 2	General Purpose Relay 2	24 VDC	2.5 A
25	C				
26	N.O.				
27	N.C.	RELAY 1	General Purpose Relay 1	24 VDC	2.5 A
28	C				
29	N.O.				
30	B	SBUS IN/ OUT	FIK-RPS1000 communication with main panel or to controlling FIK-RPS1000 if daisy-chained	5 VDC	100 mA
31	A				
32	+	MAIN	FIK-RPS1000 SBUS power	24 VDC	10 mA
33	-				

\* Regulated/special application when used for releasing.

## 2.5 Earth Fault Resistance

Table 2.2 lists the earth fault resistance detection for each applicable terminal on the FACP.

Table 2.2 Earth Fault Resistance Values by Terminal

Function	Terminal Number	Terminal Label		Low Biased		High Biased	
		(Values in kohms)		High Trip	High Restore	Low Trip	Low Restore
Flexput™ Notification Circuits	4	X	I/O 6	-	-	0	0
	5	O		0	0	-	-
	6	X	I/O 5	-	-	0	0
	7	O		0	0	-	-
	8	X	I/O 4	-	-	0	0
	9	O		0	0	-	-
	10	X	I/O 3	-	-	0	0
	11	O		0	0	-	-
	12	X	I/O 2	-	-	0	0
	13	O		0	0	-	-
	14	X	I/O 1	-	-	0	0
	15	O		0	0	-	-
SBUS Communication	16	B	SBUS OUT	-	-	0	0
	17	A		-	-	0	0
SBUS Power	18	+		0	0	-	-
	19	-		-	-	0	0

**Table 2.2 Earth Fault Resistance Values by Terminal**

Function	Terminal Number	Terminal Label		Low Biased		High Biased	
		(Values in kohms)		High Trip	High Restore	Low Trip	Low Restore
Used for Class A Installations	20	B	SBUS IN	-	-	0	0
	21	A		-	-	0	0
	22	+		0	0	-	-
	23	-		-	-	0	0

## 2.6 Calculating Current Draw and Standby Battery

This section is for helping you determine the current draw and standby battery needs for your installation.

### 2.6.1 Worksheet Requirements

The following steps must be taken when determining FIK-RPS1000 current draw and standby battery requirements.

#### ■ Filling in the Current Draw Worksheet, Table 2.4

- For the FIK-RPS1000, the worst case current draw is listed for the panel, addressable devices, and SLC expanders. Fill in the number of addressable devices and expanders that will be used in the system and compute the current draw requirements for alarm and standby.
- Add up the current draw for all auxiliary devices and record in the table at Line B.
- Add up all notification appliance loads and record in the table at Line C.
- For notification appliances and auxiliary devices not mentioned in the manual, refer to the device manual for the current ratings.
- Make sure that the total alarm current you calculated, including current for the panel itself, does not exceed 6.0 A. This is the maximum alarm current allowable.
- Complete the remaining instructions in the table for determining battery size requirements.

#### Maximum Battery Standby Load

Table 2.3 shows the maximum battery standby load for the FIK-RPS1000 based on 24 and 60 hours of standby. The standby load calculations of line G in the Current Draw Calculation Worksheet must be less than the number shown in Table 2.3 for the battery size used and standby hours required.

**Table 2.3 Maximum Battery Standby Load**

Rechargeable Battery Size	Max. Load for 24 hrs. Standby, 5 mins. Alarm	*Max. Load for 60 hrs. Standby, 5 mins. Alarm
7 AH	270 mA	105 mA
12 AH	475 mA	190 mA
17 AH	685 mA	270 mA
33 AH	1370 mA	540 mA

\* Required for NFPA 72 Auxiliary Protected Fire Alarm systems for Fire Alarm Service (City Box) and Remote Station Protected Fire Alarm systems (Polarity Reversal) and Digital Alarm Communicator/Transmitter (DACT).

*\*Use a separate worksheet for each FIK-RPS1000.*



**NOTE:** 33AH max battery size for Fm (Factory Mutual) installations

### 2.6.2 Current Draw Worksheet for SLC Devices

For each FIK-RPS1000\* in the installation, use this worksheet to determine current requirements during alarm/battery standby operation. See individual FACP manual for maximum number of devices.

**Table 2.4 Current Draw Worksheet for SLC Devices**

Device	# of Devices	Current per Device	Standby Current	Alarm Current
For each device use this formula: This column X This column = Current per number of devices.				
FIK-RPS1000 Intelligent Power Module (Current draw from battery)	1*	Standby	40 mA	
		Alarm:	160 mA	160 mA
Additional FIK-RPS1000 (Daisy-chained to this module)	(7 max.)	Standby	10 mA	mA
		Alarm:	10 mA	mA

**Table 2.4 Current Draw Worksheet for SLC Devices**

Device	# of Devices	Current per Device		Standby Current	Alarm Current	
<b>Addressable SLC Devices</b>						
FIK-2351		Standby: .20 mA <sup>1</sup>		mA	mA	
FIK-2351T				mA	mA	
FIK-2351R				mA	mA	
FIK-5351				mA	mA	
FIK-5351H				mA	mA	
FIK-5351R				mA	mA	
DNR <sup>6</sup> (non-relay)		None, included with FIK-2351R				
DNR <sup>7</sup> (with relay)	None, included with FIK-2351R & FIK-M500R					
FIK-FC351		SLC	Standby: .20 mA	mA		
			Alarm: mA		mA	
FIK-M500M		Standby/Alarm .375 mA		mA	mA	
FIK-M501M				mA	mA	
FIK-PULLSA/FIK-PULL-DA				mA	mA	
FIK-M500DM		Standby/Alarm: .75 mA		mA	mA	
FIK-IM-10		Standby/Alarm: 3.5 mA		mA	mA	
FIK-M500S		SLC	Standby	.375 mA	mA	
			Alarm:	.375 mA		mA
		Aux Pwr	Standby	1.7 mA	mA	
			Alarm:	7mA		mA
FIK-SC-6		SLC	Standby	2.25 mA	mA	
			Alarm:	2.25 mA		mA
		Aux Pwr	Standby	8 mA	mA	
			Alarm:	20 mA		mA
FIK-M500R		Standby/Alarm: .255 mA		mA	mA	
FIK-CR-6	Standby/Alarm: 1.45 mA		mA	mA		
FIK-M500MR-2	Standby: 1.3 mA		mA			
	Alarm: 24 mA			mA		
	Aux Pwr	Standby	12 mA	mA		
Alarm:		90 mA		mA		
FIK-M502M	SLC	Standby/Alarm .27 mA		mA	mA	
FIK-CZ-6	Aux Pwr	Standby	50 mA	mA		
		Alarm:	70 mA		mA	
	SLC	Standby/Alarm 2 mA		mA	mA	
<b>SLC Accessories</b>						
B200S Intelligent Sounder Base	Aux Pwr	Standby:	.5 mA	mA		
		Alarm: (high vol)	35 mA		mA	
	SLC	Standby .3 mA		mA		
B200S-LF Low Frequency Sounder Base	Aux Pwr	Standby	.55 mA	mA		
		Alarm (high vol)	140 mA		mA	
	SLC	Standby .30 mA		mA		
B224RB Relay Base	Standby/Alarm: .5 mA		mA	mA		
RT151/151 KEY	Alarm: 7.5 mA			mA		
RA100Z	Alarm: 10 mA			mA		
<b>SLC Isolator Devices</b>						
FIK-M500X (Isolator Module)		Standby/Alarm: 0.45 mA		mA	mA	
ISO-6 (6 Fault Isolator Module)		Standby: (per circuit) .45 mA		mA		
		Alarm: (per circuit) 17 mA			mA	
B224BI Isolator Base		Standby/Alarm: 0.5 mA		mA	mA	

Table 2.4 Current Draw Worksheet for SLC Devices

Device	# of Devices	Current per Device	Standby Current	Alarm Current
<b>Accessories Modules</b>				
FIK-6815 SLC Loop Expander		Standby:	78 mA	mA
		Alarm:	78 mA	mA
FIK-RA2000 Remote LCD Annunciator		Standby:	20 mA	mA
		Alarm:	25 mA	mA
FIK-RA1000 Remote LCD Annunciator		Standby:	20 mA	mA
		Alarm:	25 mA	mA
FIK-RA100 Remote LCD Annunciator		Standby:	25 mA	mA
		Alarm:	50 mA	mA
FIK-5824 Serial/Parallel Module		Standby/Alarm:	45 mA	mA
FIK-5496 NAC Expander		Standby/Alarm:	10 mA	mA
FIK-RPS1000 Power Supply		Standby/Alarm:	10 mA	mA
FIK-5865-4 LED Annunciator (with reset and silence switches)		Standby:	35 mA	mA
		Alarm:	145 mA	mA
FIK-5865-3 LED Annunciator Module		Standby:	35 mA	mA
		Alarm:	145 mA	mA
FIK-5880 LED I/O Module		Standby:	35 mA	mA
		Alarm:	200 mA	mA
FIK-5883 Relay Interface		Standby:	0 mA	mA
		Alarm: (22 mA/relay)	220 mA	mA
FIK-50W or FIK-125W Voice Amplifier with/without FIK-CE4		Standby	10 mA	mA
		Alarm	10 mA	mA
FIK-INT50W Internal Amplifier		Standby:	52 mA	mA
		Alarm @ 25V:	275 mA	mA
		Alarm @ 70V:	310 mA	mA
FIK-DUAL50W Dual Voice Amp		Standby/Alarm:	10 mA	mA
FIK-50WBU Back-Up Amplifier		Standby/Alarm:	10 mA	mA
FIK-NVCM Voice Control Module		Standby/Alarm:	59 mA	mA
FIK-SW24 Switch Expander		Standby:	10 mA	mA
		Alarm:	25 mA	mA
FIK-RPU Remote Paging Unit		Standby:	70 mA	mA
		Alarm:	100 mA	mA
FIK-LOC Local Operating Console (includes FIK-RA2000, FIK-RVM, & FIK-SW24)		Standby:	105 mA	mA
		Alarm:	175 mA	mA
<b>Network Cards</b>				
FIK-NIC Network Interface Card		Standby/Alarm:	21 mA	mA
FIK-FML Fiber Optic Multi Mode		Standby/Alarm:	53 mA	mA
FIK-FSL Fiber Optic Single Mode		Standby/Alarm:	79 mA	mA
<b>Wireless Modules</b>				
FIK-W-WGI Wireless Gateway		Max current using ext supply	40 mA	mA
		Max current SLC Power	24 mA	mA
<b>Total System Current</b>				
Auxiliary Devices <sup>2</sup>	Refer to devices manual for current rating			
		Alarm/Standby:	mA	mA
		Alarm/Standby:	mA	mA
		Alarm/Standby:	mA	mA
<b>Auxiliary Devices Current</b>				
Notification Devices	Refer to device manual for current rating			
		Alarm:	mA	mA

**Table 2.4 Current Draw Worksheet for SLC Devices**

Device	# of Devices	Current per Device	Standby Current	Alarm Current
		Alarm: mA		mA
		Alarm: mA		mA
Notification Appliances Current				mA
Total current ratings of all devices in system (line A + line B + C)			mA	mA
Total current ratings converted to amperes (line D x .001):			A	A
Number of standby hours			H	
Multiply lines E and F. <b>Total standby AH</b>			AH	
Alarm sounding period in hours. (For example, 5 minutes = .0833 hours)				H
Multiply lines E and H. <b>Total alarm AH</b>				AH
Add lines G and I. <sup>3</sup> <b>Total ampere hours required</b>			AH	

## 2.7 Wiring Specifications

### 2.7.1 Length Limitations

This section contains information on calculating SBUS wire distances and the types of wiring configurations (Class A and B).

### 2.7.2 Calculating Wiring distance for SBUS modules

The following instructions will guide you in determining the type of wire and the maximum wiring distance that can be used with SBUS accessory modules.

To calculate the wire gauge that must be used to connect SBUS modules to the panel, it is necessary to calculate the total worst case current draw for all modules on a single 4-conductor bus. The total worst case current draw is calculated by adding the individual worst case currents for each module. The individual worst case values are shown in the table below.



**NOTE:** Total worst case current draw on a single SBUS cannot exceed 1 amp. If a large number of accessory modules are required, and the worst case current draw will exceed the 1 amp limit, then the current draw must be distributed using FIK-RPS1000 Power Expanders. Each FIK-RPS1000 Power Expander provides an additional SBUS, with an additional 1 amp of SBUS current. Wiring distance calculations are done separately for each FIK-RPS1000, and separately for the panel itself.

Model Number	Worst Case Current Draw
FIK-RA2000, FIK-RA1000, FIK-RA100 Fire Annunciator	.120 amps
FIK-6815 SLC Loop Expander	.078 amps
FIK-5824 Serial/Parallel Printer Interface Module	.040 amps
FIK-5880 LED I/O Module	.250 amps
FIK-5865 LED Annunciator	.200 amps
FIK-RPS1000 Intelligent Power Supply	.010 amps
FIK-5496 NAC Expander	.010 amps
FIK-50W	.010 amps
FIK-125W	.010 amps
FIK-NVCM Network Voice Control Module	.059 amps
FIK-EMG NVCM keypad	.06 amps
FIK-LOC	.210 amps / .325 amps
FIK-DUAL50W	.010 amps
FIK-DUAL50W WITH FIK-50WBU	.010 amps
FIK-NIC Network Interface Card	.021 amps
SK-F485C Fiber Converter	.125 amps

After calculating the total worst case current draw, Table 2.5 specifies the maximum distance the modules can be located from the panel on a single wire run. The table insures 6.0 volts of line drop maximum. In general, the wire length is limited by resistance, but for heavier wire gauges, capacitance is the limiting factor.

These cases are marked in the chart with an asterisk (\*). Maximum length can never be more than 6,000 feet, regardless of gauge used. (The formula used to generate this chart is shown in the note below).

**Table 2.5 Wire Distances Per Wire Gauge**

Wiring Distance: SBUS Modules to Panel				
Total Worst Case Current Draw (amps)	22 Gauge	18 Gauge	16 Gauge	14 Gauge
0.100	1852 ft.	4688 ft.	* 6000 ft.	* 6000 ft.
0.200	926 ft.	2344 ft.	3731 ft.	5906 ft.
0.300	617 ft.	1563 ft.	2488 ft.	3937 ft.
0.400	463 ft.	1172 ft.	1866 ft.	2953 ft.
0.500	370 ft.	938 ft.	1493 ft.	2362 ft.
0.600	309 ft.	781 ft.	1244 ft.	1969 ft.
0.700	265 ft.	670 ft.	1066 ft.	1687 ft.
0.800	231 ft.	586 ft.	933 ft.	1476 ft.
0.900	206 ft.	521 ft.	829 ft.	1312 ft.
1.000 (Max)	185 ft.	469 ft.	746 ft.	1181 ft.



**NOTE:** The following formulas were used to generate the wire distance chart

$$\text{Maximum Resistance (Ohms)} = \frac{6.0 \text{ Volts}}{\text{Total Worst Case Current Draw (amps)}}$$

$$\text{Maximum Wire Length (Feet)} = \frac{\text{Maximum Resistance (Ohms)}}{\text{Rpu}} \quad * 500$$

(6000 feet maximum)

where: Rpu = Ohms per 1000 feet for various Wire Gauges (see table below)

**Table 2.6 Typical Wire Resistance Per 1000 ft.**

Wire Gauge	Ohms per 1000 feet (Rpu)
22	16.2
18	6.4
16	4.02
14	2.54

**■ Wiring Distance calculation example:**

Suppose a system is configured with the following SBUS modules:

- 2 - FIK-RA1000 Fire Annunciator
- 1 - FIK-RPS1000 Intelligent Power Expander
- 1 - FIK-5865 LED Fire Annunciator
- 1 - FIK-5824 Parallel/Serial Interface

The total worst case current is calculated as follows:

FIK-RA1000 Current Draw	= 2 x .100 amps	= .200 amps
FIK-RPS1000 Current Draw	= 1 x .010 amps	= .010 amps
FIK-5865 Current Draw	= 1 x .200 amps	= .200 amps
FIK-5824 Current Draw	= 1 x .040 amps	= .040 amps
Total Worst Case Current Draw		= .450 amps

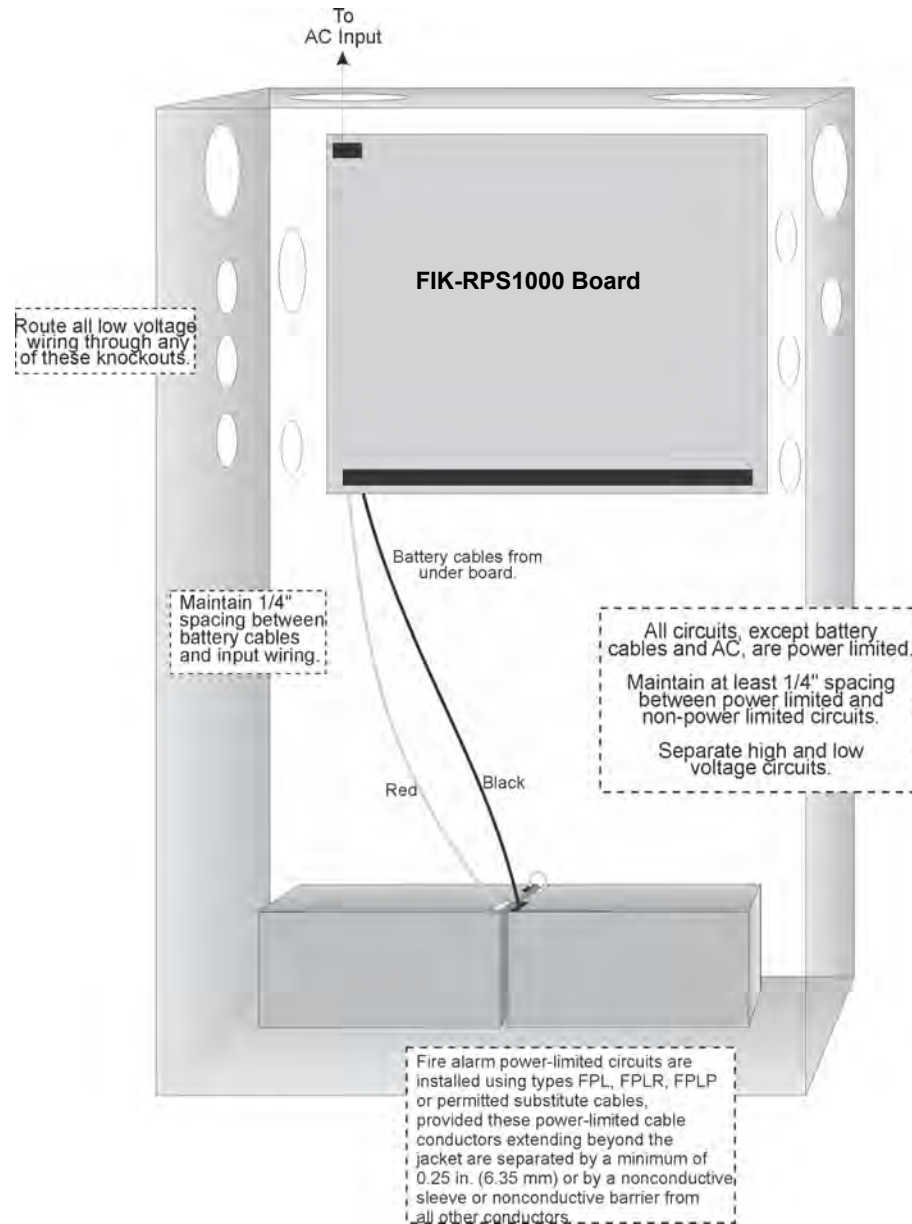
Using this value, and referring to the Wiring Distance table, it can be found that the available options are:

- 370 feet maximum using 22 Gauge wire
- 938 feet maximum using 18 Gauge wire
- 1493 feet maximum using 16 Gauge wire
- 2362 feet maximum using 14 Gauge wire



### 2.7.3 Wire Routing

You must follow power-limited wiring techniques, which includes maintaining one-quarter inch spacing between power-limited and non-power-limited circuits and separating high and low voltage circuits.



**Figure 2.2 Wire Routing Example**

## Section 3: Hardware Installation

FIK-RPS1000 installation involves the following steps:

1. Mount cabinet to wall (Section 3.1).
2. AC power (Section 3.3) and backup battery connection (Section 3.4).
3. Physical connection from the FACP to the controlling FIK-RPS1000 (see Section 3.5).
4. Setting an ID for the FIK-RPS1000 (Section 3.5.1).
5. Physical connection of SBUS modules that will be powered by this FIK-RPS1000 (Section 3.6).
6. Physical connection of any outputs (conventional relays, notification appliances, auxiliary power modules, and so on) that will be powered by this FIK-RPS1000. See Section 3.7.1 for notification appliance wiring information. Refer to the FACP Installation Manual for software configuration information and other information about installing outputs.

### 3.1 Cabinet Mounting

1. Mark and pre-drill hole in the wall for the center top keyhole mounting bolt using the dimensions illustrated below.
2. Install center top fastener in the wall with the screw head protruding.
3. Place backbox over the top screw, level and secure.
4. Mark and drill the left and right lower mounting holes.
5. Install remaining fasteners and tighten.

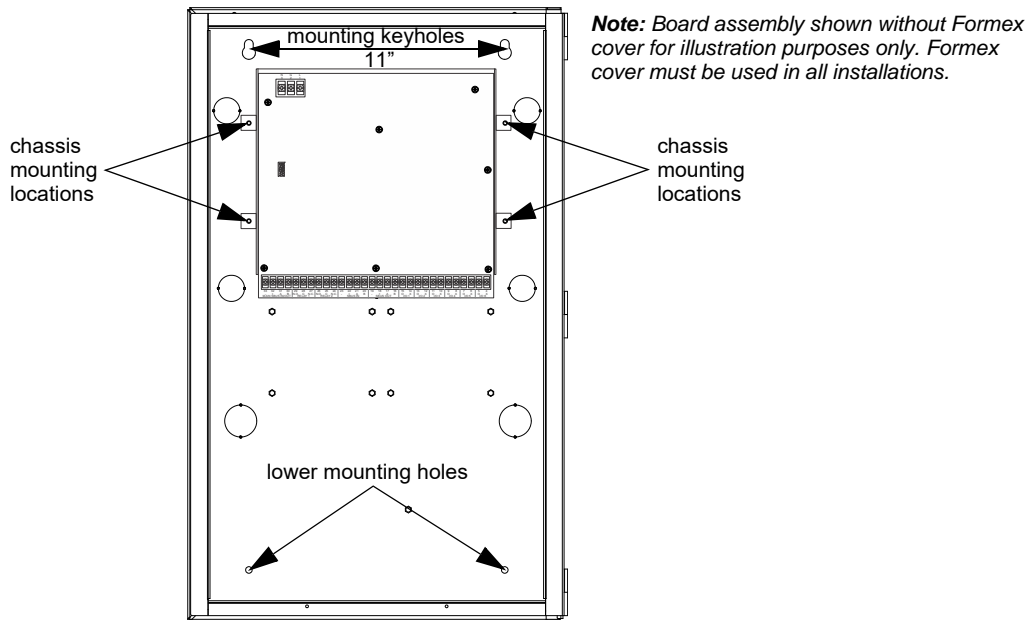


Figure 3.1 FIK-RPS1000 Cabinet Mounting

### 3.2 FIK-RPS1000BD Replacement Board Installation



#### CAUTION: REMOVE POWER

MAKE CERTAIN ALL POWER (AC AND DC) IS REMOVED BEFORE ANY REPLACEMENT WORK IS PERFORMED.

1. Disconnect all wiring from the board.
2. Remove the four nuts which secure the chassis to the cabinet. Refer to Figure 3.1 for mounting locations.
3. Replace the board assembly and secure with nuts removed in step 2.
4. Reconnect wiring.

### 3.3 AC Power

At installation, connect the AC terminals to 120 VAC source as shown in Figure 3.2. It may be necessary for a professional electrician to make this connection.

The AC terminals are rated as 120 VAC, 50 or 60 Hz, 2.7 A (for the FIK-RPS1000) or 240 VAC, 50 or 60 Hz, 1.4A (FIK-RPS1000HV).

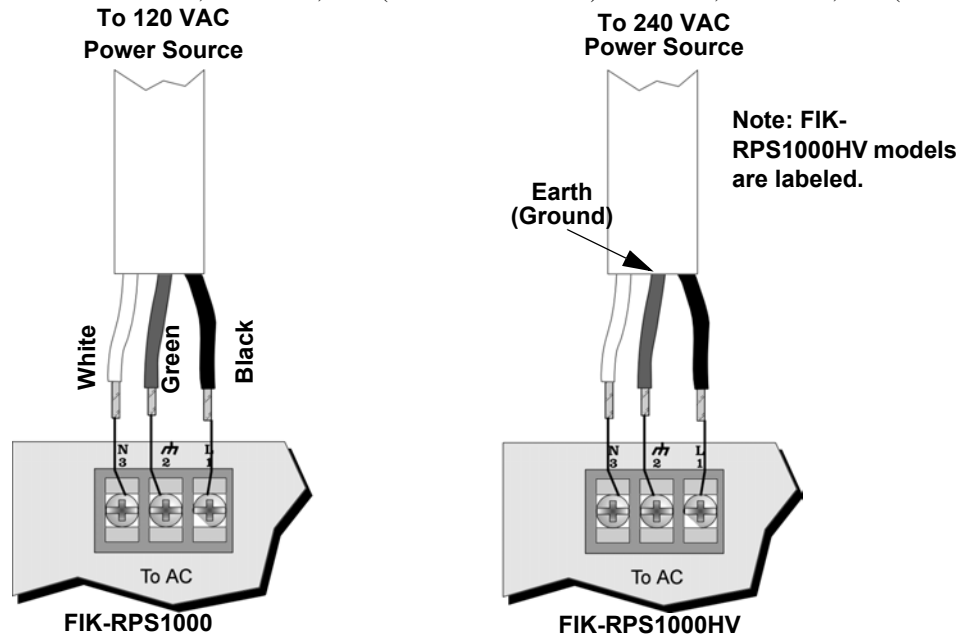


Figure 3.2 AC Power Connection

### 3.4 Battery Connection

The FIK-RPS1000 battery charge capacity is 7.0 to 33.0 AH. Use 12V batteries of the same AH rating. Determine the correct AH rating as per your current load calculation (see Table 2.4).



**NOTE:** When your backup batteries requirements use backup batteries that are too large to fit into the FIK-RPS1000 cabinet. The AB-33 cabinet holds batteries up to the 33 AH size. (Refer to FACP Installation manual for AB-33 installation instructions).

Wire batteries in series to produce a 24-volt equivalent. Do not parallel batteries to increase the AH rating.

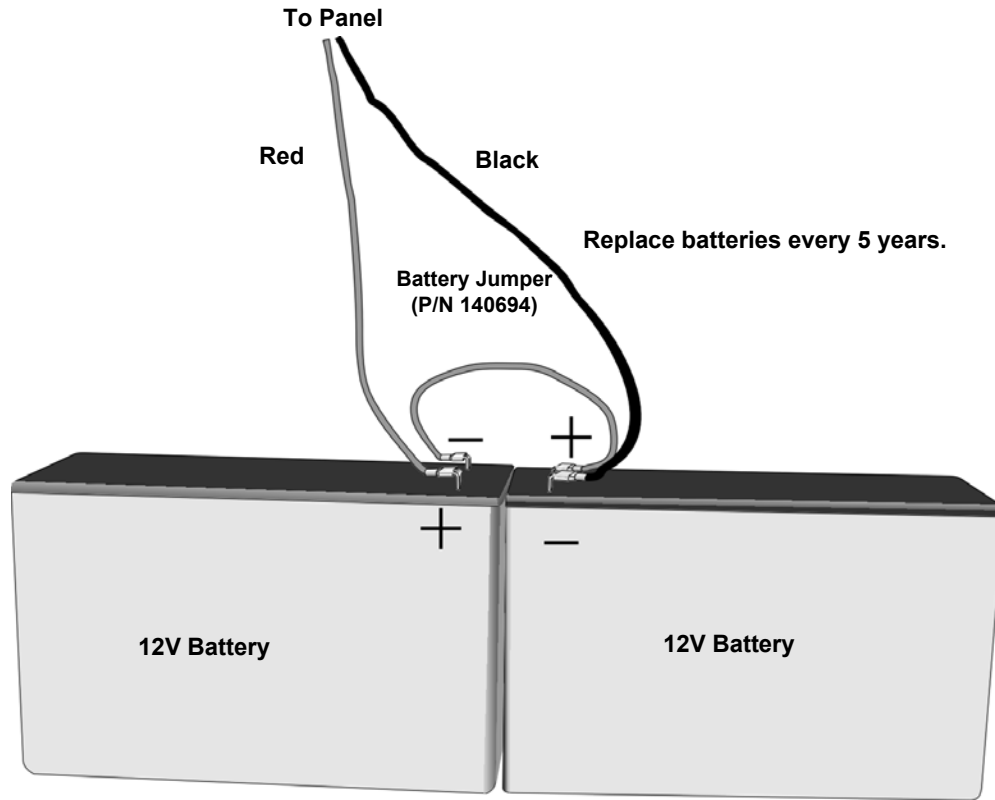
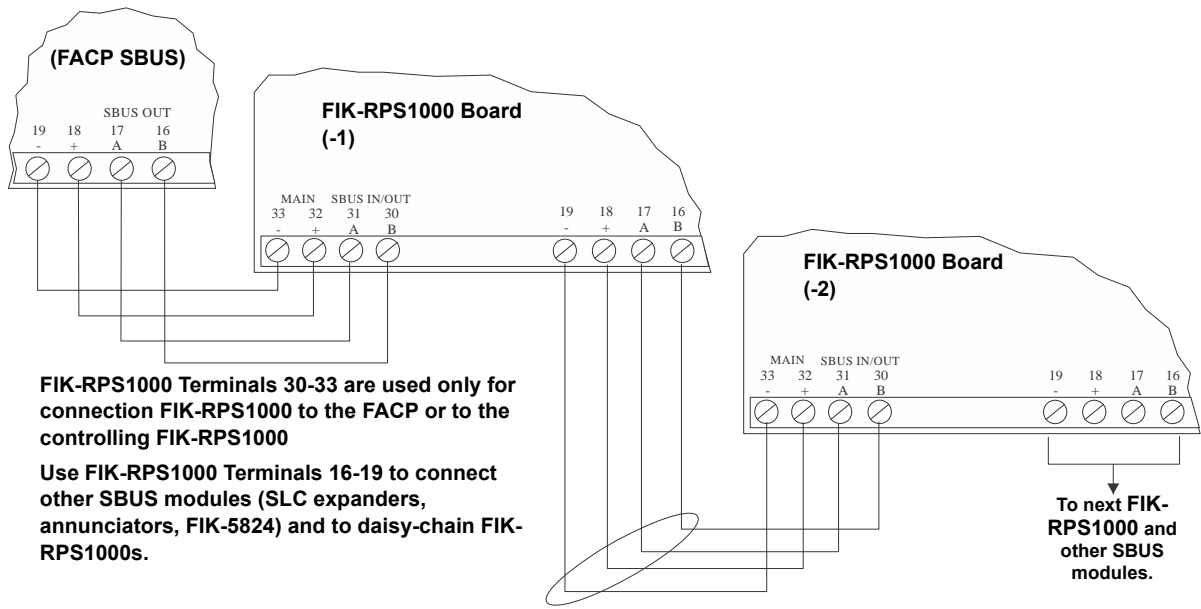


Figure 3.3 Battery Connection

### 3.5 Connecting the FIK-RPS1000 to the FACP

1. Connect the FIK-RPS1000 to the appropriate SBUS. The FIK-RPS1000 can be connected directly to the FACP or can be daisy-chained to another FIK-RPS1000. Figure 3.4 and Figure 3.5 show both connections.
2. Use on-board DIP switch to assign an ID#. (See Section 3.5.1) Figure 2.1 shows the location of the DIP switches on the FIK-RPS1000 board.
3. Configure the FIK-RPS1000 module by adding it to the system (through JumpStart or manually). You can also assign a name to the module. These procedures are described in the FACP Installation Manuals. See table below.

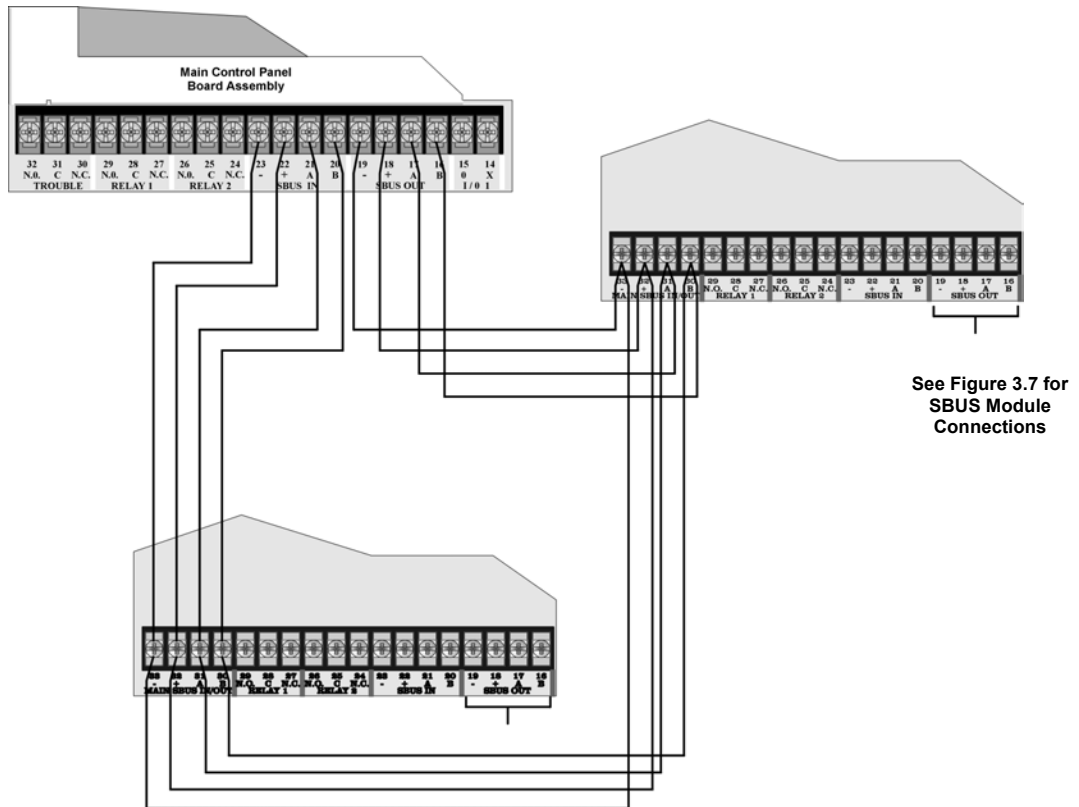
Model Number	FACP Installation Manual
FCP-2100/ECS	LS10143-002FK-E
FCP-300/ECS	LS10145-002FK-E
FCP-75	LS10147-003FK-E



**FIK-RPS1000 Terminals 30-33 are used only for connection FIK-RPS1000 to the FACP or to the controlling FIK-RPS1000**

**Use FIK-RPS1000 Terminals 16-19 to connect other SBUS modules (SLC expanders, annunciators, FIK-5824) and to daisy-chain FIK-RPS1000s.**

**Figure 3.4 Class B FIK-RPS1000 Connection to FACP**



See Figure 3.7 for SBUS Module Connections

**Figure 3.5 Class A FIK-RPS1000 Connection to FACP**

### 3.5.1 Setting the Device ID

The actual number of SBUS devices used is limited by current draw and SBUS bandwidth usage. When installing the FIK-RPS1000, you must use the DIP switches on the module to assign an ID# to the module. Address zero is an invalid address and is not allowed. Figure 3.6 shows all possible DIP switch positions and their correlation to numerical ID.

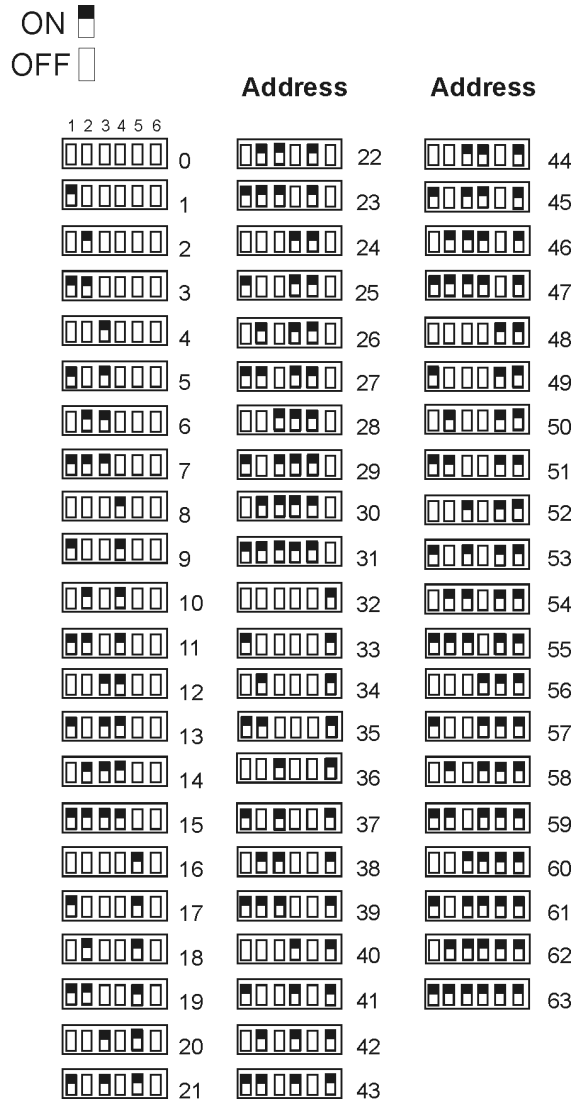


Figure 3.6 Possible Module Addresses

### 3.6 Connecting SBUS Modules to the FIK-RPS1000

1. Connect SBUS modules to the FIK-RPS1000 as shown in Figure 3.7 or Figure 3.8.
2. All SBUS modules must have an ID. Use the DIP switches on the module board to assign an ID number (1-31) to the module. This number identifies the module to the FIK-RPS1000 and must be unique.

- Software configuration steps vary for each SBUS module. For more information, refer to the FACP installation manual in the section that discusses the type of module you are installing.

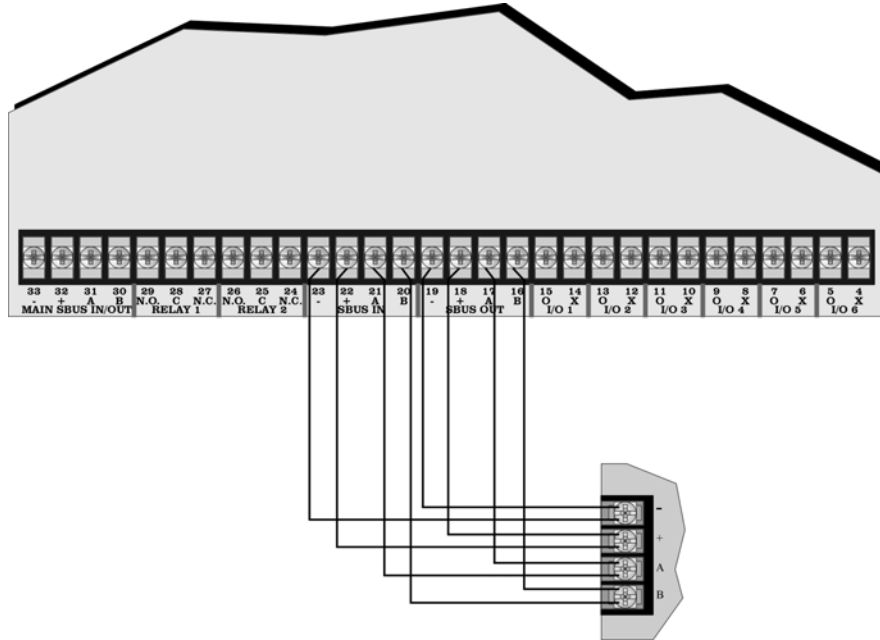


Figure 3.7 SBUS Class A Connection to FIK-RPS1000

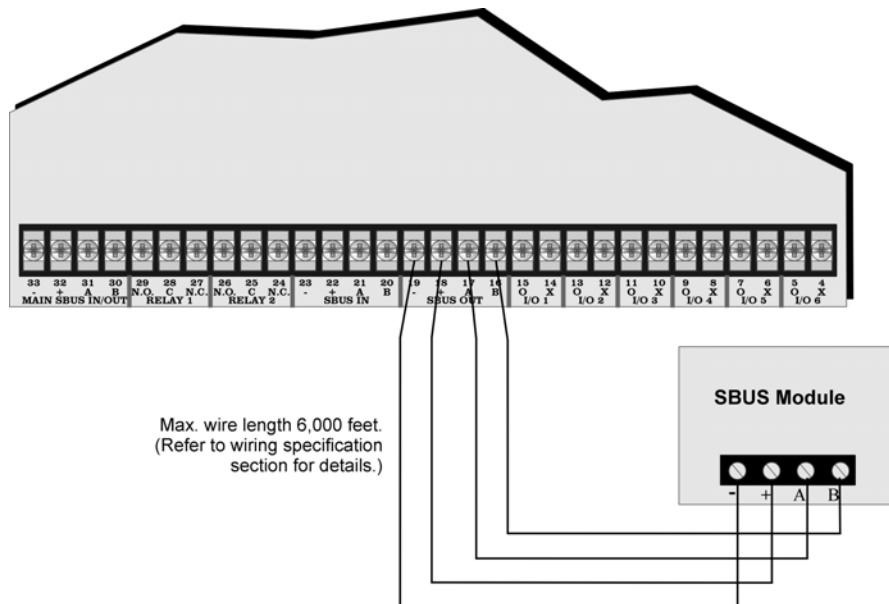


Figure 3.8 SBUS Class B Wiring to FIK-RPS1000

### 3.7 Flexputs™ I/O Circuits

The six Flexput™ circuits are an innovative and versatile feature of the FIK-RPS1000 panel. They can be used as: Class A or B notification circuits, Class A or B initiation circuits (either 2 or 4 wire detectors), or as auxiliary power (resettable, continuous, or door holder).

This section of the manual explains how to install conventional notification appliances and initiating devices to be used with the FIK-RPS1000.

#### 3.7.1 Conventional Notification Appliance

This sub-section of the manual explains how to install conventional notification appliances for Class A and Class B configurations.

### 3.7.2 Releasing Operations

Approved releasing solenoids are list in Table 3.1. Do not mix cross alarming zones with smoke verification zones. There must be at least two automatic detection devices in each protected space. Spacing must be reduced to 0.7 times the linear spacing in accordance with NFPA 72.

**Table 3.1 Approved Releasing Solenoids**

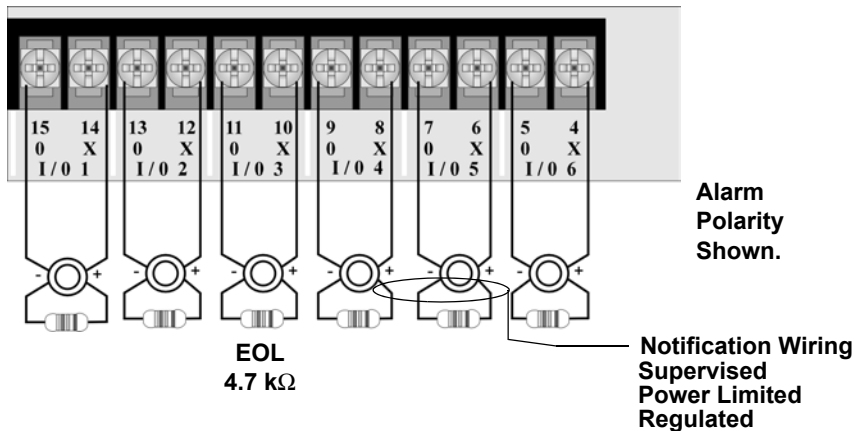
Manufacturer	Part Number	Rating	Current	Freq
Asco	T8210A107	24 VDC	3A max	0 Hz
	8210G207	24 VDC	3A max	0 Hz

#### Class B Notification Wiring

You must use an appliance from the list of compatible appliances in the Appendix A.

To install a Class B notification appliance circuit:

1. Wire Class B Notification appliances as shown in Figure 3.9.
2. Configure the circuit through programming.



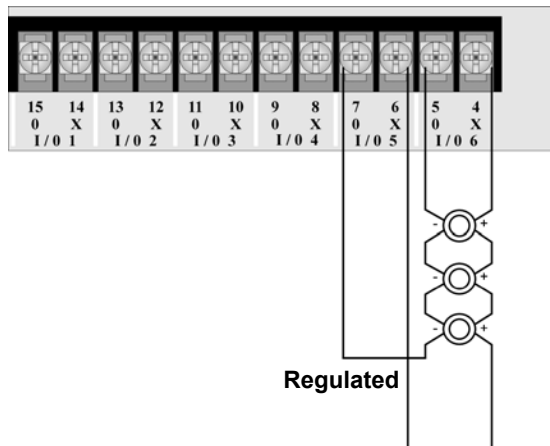
**Figure 3.9 Class B Notification Appliance Circuit Wiring**

#### Class A Notification Wiring

You must use an appliance from the list of compatible appliances in Appendix A at the back of this manual.

To install a Class A notification appliance circuit:

1. Wire the Class A notification appliances as shown in Figure 3.10.
2. Configure the circuit for Class A in programming (see the *FACP Installation manual*).



**Figure 3.10 Class A Notification Appliance Circuit Configuration**



**NOTE:** In programming any point that uses multiple I/O circuits are always referred to as the lowest I/O circuit number used. For example, Figure 3.10 uses both I/O circuit 5 and 6, so in programming it would be referred to as point 5



### 3.7.3 Conventional Initiation Circuits

This section of the manual explains how to install conventional initiating devices for Class A (Style D) or Class B (Style B) configurations.

#### Class B Inputs

You can connect conventional Class B switches, such as waterflow switches and pull stations, directly to the I/O circuits of the FIK-RPS1000 panel.

To install a Class B switch:

1. Wire the Class B switch as shown in Figure 3.11.
2. Configure the circuit through programming (see *FACP Installation manual*).

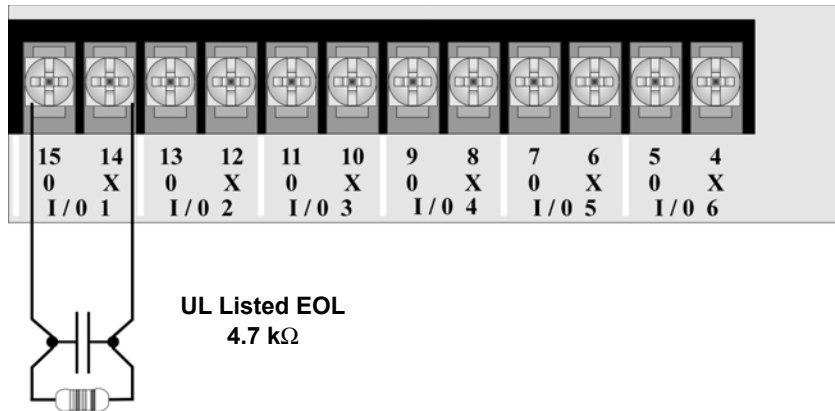


Figure 3.11 Class B Input Switches

#### Class A Inputs

You can connect conventional Class A switches, such as waterflow switches and pull stations, directly to the I/O circuits of the FIK-RPS1000 panel.

To install a Class A switch:

1. Wire the Class A switch as shown in Figure 3.12.
2. Configure the circuit through programming (see *FACP Installation manual*).

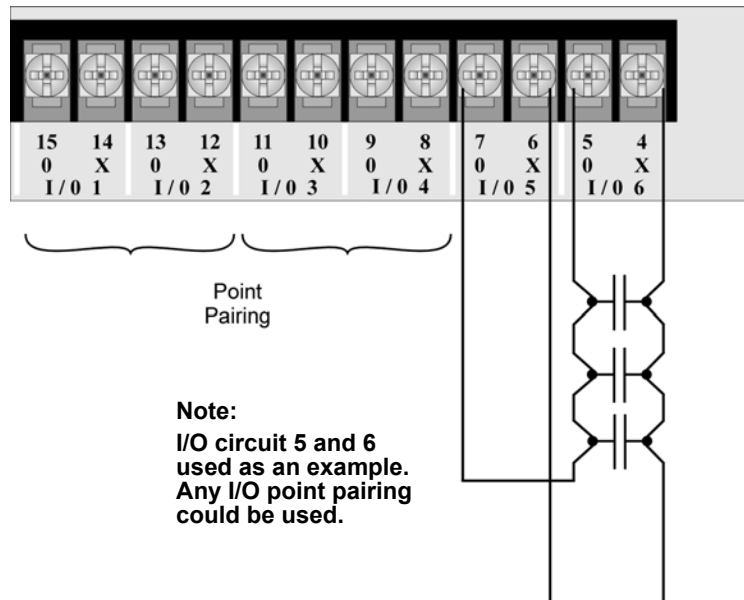


Figure 3.12 Class A initiating Switches



**NOTE:** In programming any point that uses multiple I/O circuits are always referred to as the lowest I/O circuit number used. For example, Figure 3.12 uses both I/O circuit 5 and 6, so in programming it would be referred to as point 5

### 3.7.4 Installing 2-Wire Smoke Detectors

Any compatible UL listed two-wire smoke detector can be used with the FIK-RPS1000 panel (see A.8.1, "Two Wire Detectors" for list of compatible smoke detectors). Figure 3.13 and Figure 3.14 illustrate how to connect a UL listed 2-wire detector to the control panel.

#### ■ Class B Installation

To install a Class B two-wire smoke detector, wire as shown in Figure 3.13.

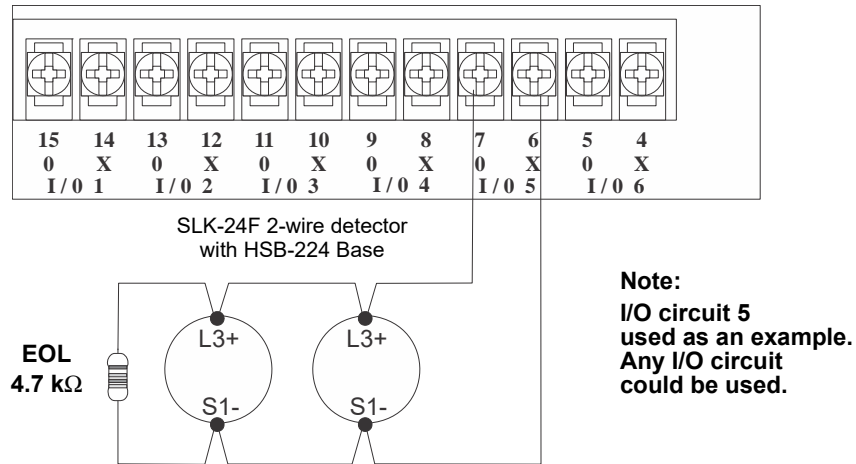


Figure 3.13 Two-Wire Class B Smoke Detector

#### ■ 2-Wire Class A Smoke Detector Installation

To install a Class A two-wire smoke detector, wire as shown in Figure 3.14.

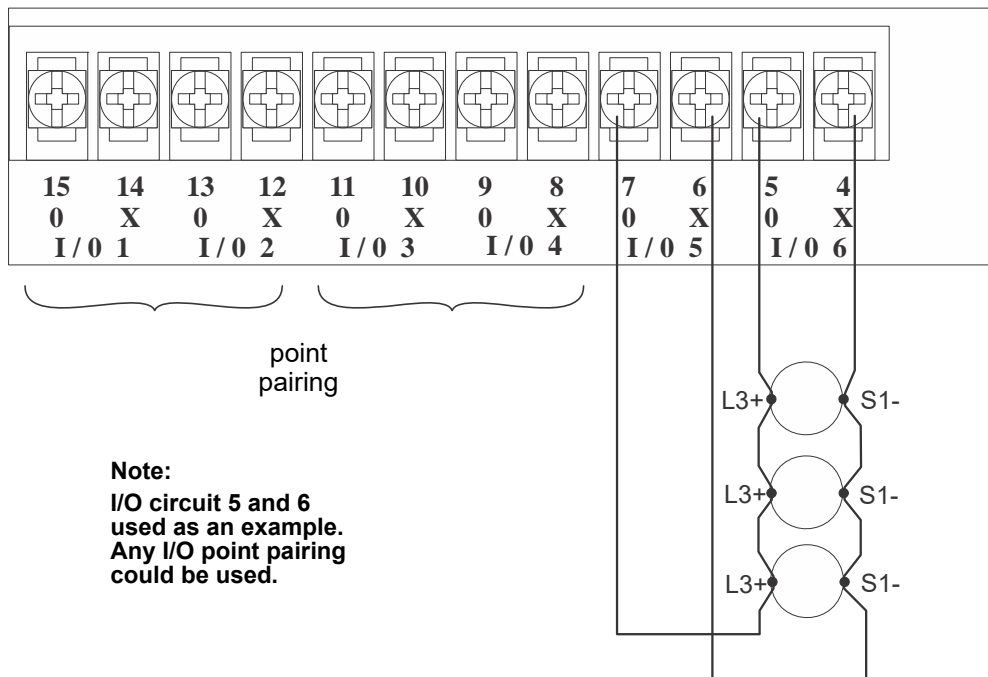


Figure 3.14 Two-Wire Class A Smoke Detector Connections



**NOTE:** In programming any point that uses multiple I/O circuits are always referred to as the lowest I/O circuit number used. For example, Figure 3.14 uses both I/O circuit 5 and 6, so in programming it would be referred to as point 5.

### 3.7.5 Installing 4-Wire Smoke Detectors

Any compatible UL listed four-wire smoke detector can be used with the FIK-RPS1000 panel (see Appendix A for list of compatible smoke detectors). Figure 3.13 and Figure 3.14 illustrate how to connect a UL listed four-wire detector to the control panel.

### ■ Installing a Class B 4-Wire Smoke Detector

Figure 3.15 illustrates how to install a 4-wire Class B smoke detector.

Conventions used for wiring 4-wire Class B loops:

1. Up to three Class B 4-wire smoke detector loops can be connected to the control panel at once.
2. Each Class B loop input is paired with a unique power source as shown in Figure 3.15.
3. Each loop gets smoke power from the even numbered I/O circuit and the contact input is connected to the odd numbered I/O circuit.

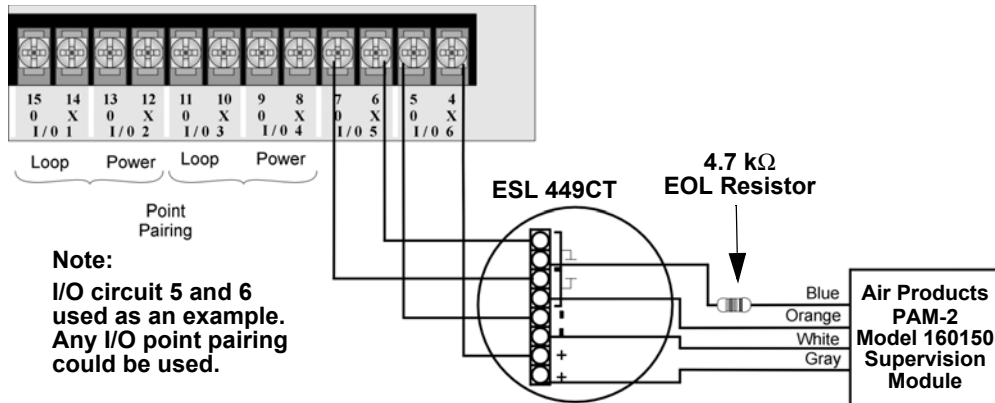


Figure 3.15 Class B 4-Wire Smoke Detector Connections



**NOTE:** In programming any point that uses multiple I/O circuits are always referred to as the lowest I/O circuit number used. For example, Figure 3.15 uses both I/O circuit 5 and 6, so in programming it would be referred to as point 5.

### ■ Installing 4-Wire Class A Smoke Detectors

Figure 3.16 illustrates how to install 4-wire Class A detectors.

Conventions used for wiring 4-wire Class A loops:

1. Up to two Class A 4-wire loops can be connected to the control panel at once.
2. Smoke power is supplied to each Class A loop as shown in Figure 3.16.

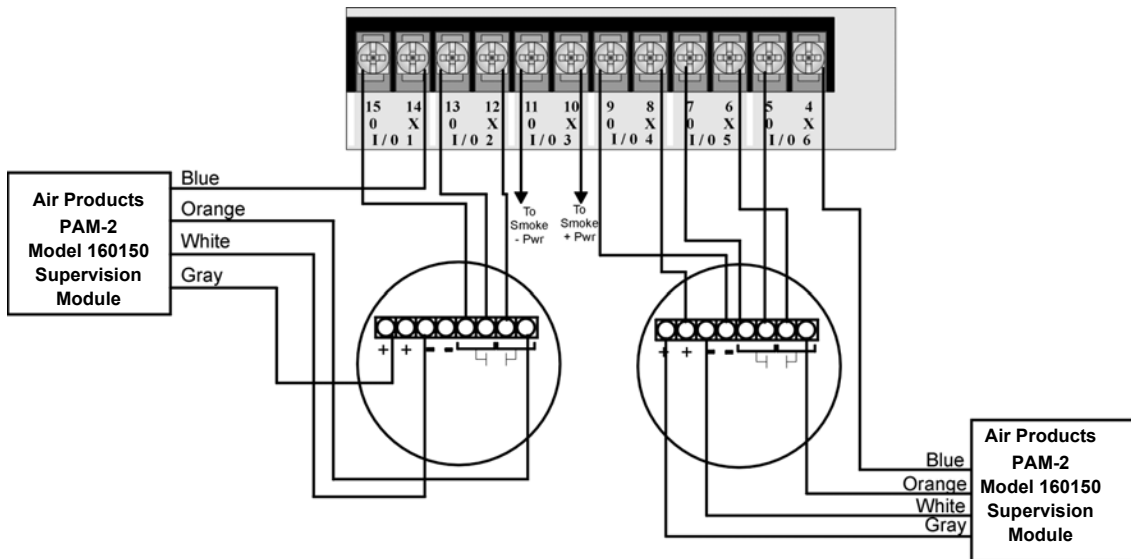


Figure 3.16 Class A 4-Wire Smoke Detector Connections



**NOTE:** In programming any point that uses multiple I/O circuits are always referred to as the lowest I/O circuit number used. For example, Figure 3.16 uses I/O circuits 1, 2, 3 together and 4, 5, 6 together. In programming (1, 2, 3) would be referred to as point 1, and (4, 5, 6) would be referred to as point 4.

## 3.7.6 Auxiliary Power Configuration

Flexput circuits 1-6 on the control panel can be used as auxiliary power circuits. The three types of auxiliary power available are:

- Door Holder (see Section for description)

- Constant (see Section for description)
- Resettable (see Section for description)
- Sounder Sync Power (see Section for description)

Auxiliary power circuits are power limited. Each circuit can source up to 3A (total current for all Flexput circuits must not exceed 5A).

To configure a Flexput circuit as auxiliary power:

1. Wire the Flexput circuit(s) that will be used for auxiliary power. See Figure 3.17 for location of Flexput circuits.
2. Configure the auxiliary power output through programming for Door Holder, Constant or Resettable power.

When used as auxiliary power; terminals labeled "0" are negative, terminals labeled "X" are positive.

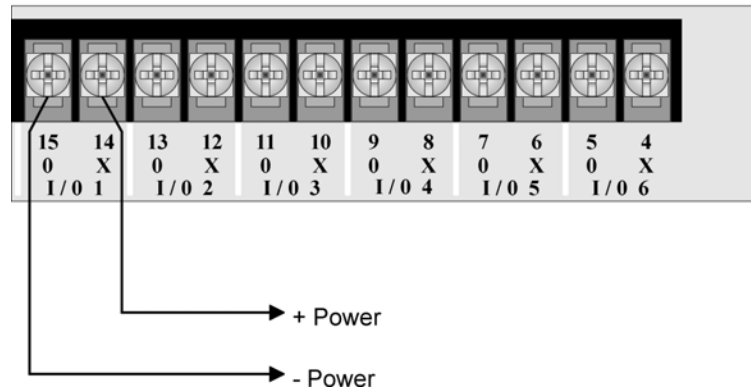


Figure 3.17 Flexput Circuits Used as Auxiliary Power

### Door Holder Power

Door holder is intended for fire door applications. When there are no alarms in the system and the panel has AC power, door holder circuits have 24-volt power present at their terminals. Any alarm will cause power to discontinue. Power will be re-applied when the system is reset. If AC power is off for more than 15 seconds the auxiliary door holder power will be discontinued to conserve the battery backup power. When AC power is restored, power is immediately restored to the door holder circuits.

### Constant Power

Use constant power for applications that require a constant auxiliary power source. Power is always present at Constant circuits.

### Resettable Power

Resettable power is typically used to power beam detectors, flame detectors, and conventional 4-wire smoke detectors. For circuits selected as Resettable, 24-volt power is always present at the terminals unless a system reset occurs. If a system reset occurs, power is removed from the terminals for 30 seconds, then re-applied.

### Sounder Sync Power

Sounder Sync Power continuously outputs the System Sensor synchronization pattern and is intended for use with B200S sounder bases.

## 3.8 Conventional Relay Installation

FIK-RPS1000 relay circuits are installed in exactly the same way as FACP main panel relay circuits. For ease of installation, the FIK-RPS1000 output terminals use the same numbering scheme as the FACP terminals. Refer to the FACP manual for information on installing conventional relays.

# Appendix A: Compatible Devices

## A.1 Notification Appliances

For proper operation, you must use polarized devices with a 4.7k ohm EOL resistor on each loop. All supervised notification appliances used with the control panel must be polarized.



**NOTE:** Not all devices can use the Sync feature, be sure to check table below to ensure the device you have chosen will work with this feature. This control is UL listed for panel wide Synchronization.

Table below lists notification appliances compatible with the fire alarm control panel. Appliances which can be synchronized indicate the type of SYNC available in the columns marked Audio and Visual.

Manufacturer	Model	Audio	Visual	Type
AMSECO	SH24W-153075	x	x	Horn/Strobe
	SAD24-153075		x	Strobe
	SAD24-75110		x	Strobe
	SL24W-75110		x	Strobe
	SL24C-3075110		x	Strobe
	SLB24-75		x	Strobe
	RSD24-153075		x	Strobe
	RSD24-75110		x	Strobe
	SH24W-75110	x	x	Horn/Strobe
	SH24W-3075110	x	x	Horn/Strobe
	SHB24-75	x	x	Horn/Strobe
	SCM24W-153075	x		Chimes/Strobe
	SCM24W-75110	x		Chimes/Strobe
	SCM24C-3075110	x		Chimes/Strobe
	SCM24C-177	x		Chimes/Strobe
	H24W	x		Horn
	H24R	x		Horn
	FCI	S2415-FC		x
S241575-FC			x	Strobe
S2430-FC			x	Strobe
130-3117C		x		Mini Horn
130-3147C		x		Mini Horn
BLV-6		x		Vibrating Bell
BLV-10		x		Vibrating Bell
BLVCH		x		Vibrating Chime
H12/24-FC		x		Horn
H12/24W-FC		x		Horn
H12/24K-FC		x		Horn
HC12/24-FC		x		Horn
HC12/24W-FC		x		Horn
HC12/24K-FC		x		Horn
P2415-FC		x	x	Horn/Strobe
P2415W-FC		x	x	Horn/Strobe
P2415K-FC		x	x	Horn/Strobe
P241575-FC		x	x	Horn/Strobe
P241575W-FC		x	x	Horn/Strobe
P241575F-FC		x	x	Horn/Strobe
P241575K-FC		x	x	Horn/Strobe
P2430-FC		x	x	Horn/Strobe
P2430W-FC	x	x	Horn/Strobe	
P2430K-FC	x	x	Horn/Strobe	

**Table A.2 Compatible Notification Appliances**

Manufacturer	Model	Audio	Visual	Type
FCI (cont.)	P2475-FC	x	x	Horn/Strobe
	P2475W-FC	x	x	Horn/Strobe
	P2475K-FC	x	x	Horn/Strobe
	P24110-FC	x	x	Horn/Strobe
	P24110W-FC	x	x	Horn/Strobe
	P24110K-FC	x	x	Horn/Strobe
	S2430W-FC		x	Strobe
	S2430K-FC		x	Strobe
	S2475-FC		x	Strobe
	S2475W-FC		x	Strobe
	S2475K-FC		x	Strobe
	S24110-FC		x	Strobe
	S24110W-FC		x	Strobe
	S24110K-FC		x	Strobe
	Federal Signal	450	x	
VALS		x	x	Horn/Strobe
Gentex	GEC-24-15	x	x	Horn/Strobe
	GEC-24-30	x	x	Horn/Strobe
	GEC-24-60	x	x	Horn/Strobe
	GEC-24-75	x	x	Horn/Strobe
	GEC-24-177	x	x	Horn/Strobe
	GEC-24-110	x	x	Horn/Strobe
	GEC-24-15/75	x	x	Horn/Strobe
	GX91	x		MiniHorn Steady Tone
	GX93	x		MiniHorn Temporal Tone
	HG124	x		Horn
	HS24-15	x	x	Horn/Strobe
	HS24-30	x	x	Horn/Strobe
	HS24-60	x	x	Horn/Strobe
	HS24-75	x	x	Horn/Strobe
	HS24-110	x	x	Horn/Strobe
	HS24-1575	x	x	Horn/Strobe
	GCC24	x	x	Multi Candella Horn/Strobe Ceiling Mount
	GCCR24		x	Multi Candella Horn/Strobe Ceiling Mount
	GCS24		x	Multi Candella Strobe Ceiling Mount
	GCSR24		x	Multi Candella Strobe Ceiling Mount
	GEGR-24	x	x	Multi Candella Horn/Strobe
	GES24-15		x	Strobe
	GES24-30		x	Strobe
	GES24-60		x	Strobe
	GES24-75		x	Strobe
	GES24-110		x	Strobe
	GES24-15/75		x	Strobe
	GES24-177		x	Strobe
	GES3-24		x	Multi Candella Strobe
	GESR-24		x	Multi Candella Strobe
	GEH-24	x		Horn
	ST24-30		x	Strobe
	ST24-60		x	Strobe
ST24-75		x	Strobe	

Table A.2 Compatible Notification Appliances

Manufacturer	Model	Audio	Visual	Type
Gentex (cont.)	ST24-110		x	Strobe
	ST24-1575		x	Strobe
	WGEC24-75W	x	x	Weatherproof Horn/Strobe
	WGES24-75W		x	Weatherproof Strobe
	WGMS-24-X	x	x	Horn/Strobe
System Sensor	CHR	x		Chime
	CHW	x		Chime
	CHSR	x	x	2-Wire Chime/Strobe
	CHSW	x	x	2-Wire Chime/Strobe
	HR	x	x	Horn
	HW		x	Horn
	HRK		x	Horn
	HWL		x	Horn WHT Wall 4x4
	HRL		x	Horn Red Wall 4x4
	HGRL		x	Horn Red Wall 2x4
	HGWL		x	Horn WHT Wall 2x4
	CHWL	x		Chime WHT Wall 4x4
	CHRL	x		Chime Red Wall 4x4
	CHSRL	x	x	Chime/Strobe Red Wall 4x4
	CHSWL	x	x	Chime/Strobe WHT Wall 4x4
	CHSCRL	x	x	Chime/Strobe Red Ceil 4x4
	CHSCWL	x	x	Chime/Strobe WHT Ceil 4x4
	P2R	x	x	2-Wire Horn/Strobe
	P2R-P	x	x	2-Wire Horn/Strobe
	PC2R	x	x	2-Wire Horn/Strobe
	PC2R-P	x	x	2-Wire Horn/Strobe
	P2RH	x	x	2-Wire Horn/Strobe High Candela
	P2RH-P	x	x	2-Wire Horn/Strobe High Candela
	PC2RH	x	x	2-Wire Horn/Strobe High Candela
	PC2RH-P	x	x	2-Wire Horn/Strobe High Candela
	P2W	x	x	2-Wire Horn/Strobe
	P2W-P	x	x	2-Wire Horn/Strobe
	PC2W	x	x	2-Wire Horn/Strobe
	PC2W-P	x	x	2-Wire Horn/Strobe
	P2WH	x	x	2-Wire Horn/Strobe High Candela
	P2WH-P	x	x	2-Wire Horn/Strobe High Candela
	PC2WH	x	x	2-Wire Horn/Strobe High Candela
	PC2WH-P	x	x	2-Wire Horn/Strobe High Candela
	P2RK	x	x	2-Wire Horn/Strobe
	PC2RK	x	x	2-Wire Horn/Strobe
	P2RHK	x	x	2-Wire Horn/Strobe High Candela
	PC2RHK	x	x	2-Wire Horn/Strobe High Candela
	P4R	x	x	4-Wire Horn/Strobe
	PC4R	x	x	4-Wire Horn/Strobe
	P4RH	x	x	4-Wire Horn/Strobe High Candela
P4W	x	x	4-Wire Horn/Strobe	
PC4W	x	x	4-Wire Horn/Strobe	
P4WH	x	x	4-Wire Horn/Strobe High Candela	
PC4WH	x	x	4-Wire Horn/Strobe High Candela	
P4RK	x	x	4-Wire Horn/Strobe	

**Table A.2 Compatible Notification Appliances**

Manufacturer	Model	Audio	Visual	Type	
System Sensor (cont.)	PC4RK	x	x	4-Wire Horn/Strobe	
	P4RHK	x	x	4-Wire Horn/Strobe High Candela	
	PC4RHK	x	x	4-Wire Horn/Strobe High Candela	
	PC4RH	x	x	4-Wire Horn/Strobe High Candela	
	P2RL, P2RL-P, P2RL-SP*	x	x	Horn/Strobe 2W Red Wall 4x4	
	P2WL, P2WL-P, P2WL-SP*	x	x	Horn/Strobe 2W WHT Wall 4x4	
	PC2RL	x	x	Horn/Strobe 2W Red Ceil 4x4	
	PC2WL	x	x	Horn/Strobe 2W WHT Ceil 4x4	
	P2GRL	x	x	Horn/Strobe 2W Red Wall 2x4	
	P2GWL	x	x	Horn/Strobe 2W WHT Wall 2x4	
	P4RL	x	x	Horn/Strobe 4W Red Wall 4X4	
	P4WL	x	x	Horn/Strobe 4W WHT Wall 4X4	
	PC4RL	x	x	Horn/Strobe 4W Red Ceil 4X4	
	PC4WL	x	x	Horn/Strobe 4W WHT Ceil 4X4	
	SR			x	Strobe
	SR-P			x	Strobe
	SCR			x	Strobe
	SCR-P			x	Strobe
	SRH			x	Strobe High Candela
	SRH-P			x	Strobe High Candela
	SCRH			x	Strobe High Candela
	SCRH-P			x	Strobe High Candela
	SW			x	Strobe
	SW-P			x	Strobe
	SCW			x	Strobe
	SCW-P			x	Strobe
	SWH			x	Strobe High Candela
	SWH-P			x	Strobe High Candela
	SCWH			x	Strobe High Candela
	SCWH-P			x	Strobe High Candela
	SRK			x	Strobe
	SCRK			x	Strobe
	SRHK			x	Strobe High Candela
	SCRHK			x	Strobe High Candela
	SRL, SRL-P, SRL-SP*			x	Strobe Red Wall 4x4
	SWL, SWL-P, SWL-ALERT SWL-CLR-ALERT*			x	Strobe White Wall 4x4
	SCRL			x	Strobe Red Ceil 4x4
	SCWL			x	Strobe White Ceil 4x4
	SCWL-CLR-ALERT			x	Strobe WHT Ceil CLR Lens 4x4
	SGRL			x	Strobe Red Wall 2x4
	SGWL			x	Strobe White Wall 2x4
	P2RH-LF	x		x	2-Wire Low Frequency Sounder Strobe
	P2WH-LF	x		x	2-Wire Low Frequency Sounder Strobe
	HR-LF	x			Low Frequency Sounder
	HW-LF	x			Low Frequency Sounder
SEP-SPSWL**				Universal Expander Plate, Amber Lens, White, ALERT	
SEP-SPSWL-P**				Universal Expander Plate, White, Plain	
SEP-BBSWL**				Universal Expander Plate Back Box Skirt, White	

Table A.2 Compatible Notification Appliances



Manufacturer	Model	Audio	Visual	Type
* P=Plain, ALERT=Pad Printing ALERT, SP=Fuego				
** Expander plates are for vertical wall mounting only. Indoor applications. Must be mounted in the correct orientation. "UP" is indicated on the part to designate the top of the plate				
Wheelock	AH-12	x		Horn
	AH-24	x		Horn
	AH-12WP	x		Horn Weatherproof
	AH-24WP	x		Horn Weatherproof
	AMT-241575W	x	x	Multi-Tone Horn Strobe
	AMT-24MCW		x	Mutli-Tone Horn Strobe
	AMT-241575W-NYC	x	x	Multi-Tone Horn Strobe
	AMT-12/24	x		Multi-tone Horn
	AMT-12/24 NYC	x		Multi-tone Horn
	AS-121575W		x	Horn/Strobe
	NH-12/24	x	x	Horn
	AS-241575W	x	x	Horn/Strobe
	AS-24MCC	x	x	Horn/Strobe
	AS-24MCCH	x	x	Horn/Strobe
	AS-24MCW	x	x	Horn/Strobe
	AS-24MCWH	x	x	Horn/Strobe
	ASWP-2475W	x	x	Horn/Strobe Weatherproof
	ASWP-2475C	x	x	Horn/Strobe Weatherproof
	ASWP-24MCWH	x	x	Horn/Strobe
	ASWP-24MCCH	x	x	Horn/Strobe
	CH-70	x		Chime
	CH-90	x		Chime
	CH70-241575W		x	Chime/Strobe
	CH70-24MCW		x	Chime/Strobe
	CH70-24MCWH		x	Chime/Strobe
	CH90-24MCC		x	Chime/Strobe
	CH90-24MCCH		x	Chime/Strobe
	HS-24	x		Horn
	HS4-241575W	x	x	Horn/Strobe
	HS4-24MCW	x	x	Horn/Strobe
	HS4-24MCWH	x	x	Horn/Strobe
	HS4-24MCC	x	x	Horn/Strobe
	MIZ-24S	x	x	Mini Horn Strobe
	MT-121575W		x	MultitoneHorn Strobe
	MT-241575W	x	x	Multitone Horn Strobe
	MT-24MCW		x	Multitone Horn Strobe
	MTWP-2475W		x	Multitone Horn Strobe
	MTWP-2475C		x	Multitone Horn Strobe
	MTG-121575W	x	x	Multitone Horn Strobe
	MTR-121575W	x	x	Multitone Horn Strobe
	MTWPA-2475W	x	x	Multitone Horn Strobe
	MTWPB-2475W	x	x	Multitone Horn Strobe
	MTWPG-2475W	x	x	Multitone Horn Strobe
MTWPR-2475W	x	x	Multitone Horn Strobe	
MTWPA-24MCCH	x	x	Multitone Horn Strobe	
ZNH	x		Horn	
NS-121575W	x	x	Horn/Strobe	

Table A.2 Compatible Notification Appliances

Manufacturer	Model	Audio	Visual	Type	
Wheelock (cont.)	NS-241575W	x	x	Horn/Strobe	
	NS-24MCW	x	x	Horn/Strobe	
	NS-24MCC	x	x	Horn/Strobe	
	NS-24MCCH	x	x	Horn/Strobe	
	ZNS-MCW	x	x	Horn/Strobe	
	ZNS-MCWH	x	x	Horn/Strobe	
	ZNS-24MCC	x	x	Horn/Strobe	
	ZNS-24MCCH	x	x	Horn/Strobe	
	RSS-121575W			x	Strobe
	RSS-241575W			x	Strobe
	RSS-24MCC			x	Strobe
	RSS-24MCCR			x	Strobe
	RSS-24MCCH			x	Strobe
	RSS-24MCCHR			x	Strobe
	RSS-24MCW			x	Strobe
	RSS-24MCWH			x	Strobe
	RSSP-121575W			x	Strobe
	RSSP-241575W			x	Strobe
	RSSR-2415W			x	Strobe
	RSSR-2415C			x	Strobe
	RSSR-2475W			x	Strobe
	RSSR-2475C			x	Strobe
	RSSR-24110C			x	Strobe
	RSSA-24110W			x	Strobe
	RSSB-24110W			x	Strobe
	RSSG-24110W			x	Strobe
	RSSR-24110W			x	Strobe
	RSSA-24MCC			x	Multi-Cd Strobe
	RSSB-24MCC			x	Multi-Cd Strobe
	RSSG-24MCC			x	Multi-Cd Strobe
	RSSR-24MCC			x	Multi-Cd Strobe
	RSSWPA-2475W			x	Strobe Weatherproof
	RSSWPA-24MCCH			x	Strobe Weatherproof
	RSSWPG-24MCCH			x	Strobe Weatherproof
	RSSWPR-24MCCH			x	Strobe Weatherproof
	RSSWP-2475W			x	Strobe Weatherproof
	RSSWP-2475C			x	Strobe Weatherproof
	RSSWP-24MCWH			x	Strobe Weatherproof
	ZRS-MCWH			x	Strobe
	ZRS-24MCC			x	Strobe
	ZRS-24MCCH			x	Strobe
	MB-G6-24		x		Motor Bell
	MB-G10-24		x		Motor Bell
	MB-G6-12		x		Motor Bell
	MB-G10-12		x		Motor Bell
	MIZ-24-R		x		Mini-Horn
	MT-12/24-R		x	x	Multitone Horn
	MT4-12/2z		x	x	Multitone Horn
	ZRS-MCW			x	Strobe
	MTWPR-24MCCH		x	x	Multitone Horn Strobe

Table A.2 Compatible Notification Appliances

Manufacturer	Model	Audio	Visual	Type
Wheelock (cont.)	NH-12/24R	x		Horn
	HSR		x	Horn/Strobe
	HSW		x	Horn/Strobe
	STR		x	Strobe
	STW		x	Strobe
	HNR		x	Horn
	HNW		x	Horn

Table A.2 Compatible Notification Appliances

### A.1.1 Two Wire Detectors

Table A.3 lists two-wire smoke detectors that are compatible with the fire control panel. The table is organized by manufacturer. The columns show the number of detectors per loop that can be used.

	<b>RPS-1000</b>
<b>Identifier</b>	24H
<b>Operating voltage Range</b>	17.5-27.4 VDC



**NOTE:** The maximum number of smoke detectors per zone is determined by both the current draw and the impedance of the smoke detector. If too many smoke detectors are used on any zone, false alarms could occur.

**NOTE:** Do not mix different models of detectors on any zone; false alarms could occur.

**NOTE:** Control unit Smoke Reset Time must be programmed for a number greater than or equal to the maximum reset time of the smoke detector

Manufacturer	Model Name or Number <i>(Base model name or number in parenthesis.)</i>	Compatibility ID		# per Loop
		Head	Base	
Apollo	55000-350 (45681-200)	55000-350	45681-200	15 / loop
	55000-250 (45681-200)	55000-250	45681-200	24 / loop
	55000-225	55000-225	45681-255, 256	15 / loop for Ion Detectors
	55000-226	55000-226		
	55000-227	55000-227		15 / loop for Photo Electric Detectors
	55000-325	55000-325	45681-200, 220, 232, 251, 252	
	55000-326	55000-326		
	55000-327	55000-327		
55000-328	55000-328			
Hochiki	SLR-24	HD-3	HSC-220R(HB-72)	15 / loop
	SLR-24H			
	SLR-24V			
	SLR-835	HD-3	NS6-220 OR NS4-220 (HB-3)	14 / loop
	SLR-835H	HD-5		
System Sensor	1400	A	N/A	16 / loop
	1451 (B401B)	A	N/A	16 / loop
	2100	A	N/A	20 / loop
	2100T	A	N/A	20 / loop
	2151 (B401)	A	N/A	16 / loop
	2151T (B401)	A	N/A	16 / loop
	2400	A	N/A	16 / loop
	2400TH	A	N/A	16 / loop
	2451 (B401B)	A	N/A	16 / loop
	2451TH (B401B)	A	N/A	16 / loop
	2W-B	A	N/A	20 / loop
	2WT-B	A	N/A	20 / loop
	2WTA-B	A	N/A	1 / loop
	2WTR-B	A	N/A	1 / loop

Table A.3 : Compatible Two-Wire Smoke Detectors Style B

## A.2 Four-Wire Smoke Detectors/Devices (UL Listed)

Smoke Detector/Base	Detector Type	Max Standby Current (mA)	Alarm Current (mA)
Fenwal CPD-7021 (w/70-201000-005 Base)	Ionization	0.10	*
Fenwal PSD-7125	Photoelectric	0.10	*
Fenwal PSD-7126 (w/70-201000-005 Base)	Photoelectric	0.10	*
Fire-Lite BLP-12-4W	Base	*	*
Gentex 824	Photoelectric	0.50	*
Gentex 824T	Photoelectric	0.50	*
Gentex 824CP	Photoelectric	0.50	*
Gentex 824CPT	Photoelectric	0.50	*
Hochiki HSC-4R	Base	*	*
Hochiki SPB-24	Projected Beam	0.25	*
System Sensor B112LP	Base	0.12	36
System Sensor B114LP	Base	*	*
System Sensor B404B	Base	*	*
System Sensor DH100ACDC	Photoelectric	0.15	0.70
System Sensor DH100ACDCLP	Photoelectric	0.15	0.70
System Sensor DH100ACDCLWP	Photoelectric	0.15	0.70
System Sensor DH400ACDCI	Ionization Duct	25	95
System Sensor DH400ACDCP	Photoelectric Duct	25	95
System Sensor 1112/24/D	Ionization	0.05	50
System Sensor 1424	Ionization	0.10	41
System Sensor 1451 (w/B402B Base)	Ionization	0.10	39
System Sensor 2112/24ATR	Photoelectric	0.50	60/70
System Sensor 2112/24AITR	Photoelectric	0.50	60/70
System Sensor 2112/24/D	Photoelectric	0.05	50
System Sensor 2112/24R	Photoelectric	0.50	60/70
System Sensor 2112/24TR	Photoelectric	0.50	60/70
System Sensor 2112/24T/D	Photoelectric w/135° Thermal	0.05	50
System Sensor 2112/24TSRB	Photoelectric w/135° Thermal Supervisory Relay	15	45
System Sensor 2312/24TB	Photoelectric	0.12	50
System Sensor 2412 (12 volt)	Photoelectric	0.12	77
System Sensor 2412AT (12 volt)	Photoelectric	0.12	58
System Sensor 2412TH (12 volt)	Photoelectric	0.12	77
System Sensor 2424	Photoelectric	0.10	41
System Sensor 2424TH	Photoelectric	0.10	41
System Sensor 2451	Photoelectric	0.10	39
System Sensor 2451TH (with/B402B Base)	Photoelectric	0.10	39
System Sensor 2W-MOD	Loop Test/Maintenance Mod.	30	50
System Sensor 4W-B (12/24 Volt)	Photoelectric i <sup>3</sup>	.05	23
System Sensor 4WT-B (12/24 Volt)	Photoelectric i <sup>3</sup> w/Therm	.05	23
System Sensor 4WTA-B (12/24 Volt)	i <sup>3</sup> Photo w/ Therm Sounder	.05	35
System Sensor 4WTR-B (12/24 Volt)	i <sup>3</sup> Photo w/ Therm/Relay	.05	35
System Sensor 4WTAR-B (12/24 Volt)	i <sup>3</sup> Photo w/ Therm/Sounder/Relay	.05	50
System Sensor 4WITAR-B (12/24 Volt)	i <sup>3</sup> Photo w/ Isolated Therm/Sounder/Relay	.05	50
System Sensor 2W-MOD2	i <sup>3</sup> Loop Test/Maintenance Mod.	.05	*
System Sensor RRS-MOD	i <sup>3</sup> Reversing Relay/Sync Module	.05	*
System Sensor 6424	Projected Beam	10	28.4
System Sensor Beam 1224(S)	Projected Beam	17	38.5

\* Contact manufacturer for current draws

**Table A.4 Compatible Four-Wire Smoke Detectors**

### A.3 Door Holders (UL Listed)

Table A.5 lists door holders that are compatible with the fire control panel.

Manufacturer	Model	Type	Current (mA)
Edwards	DH150A	Floor Mount	96
Edwards	DH154A	Flush Mount	96
Edwards	DH158A	Surface Mount	96
Rixon Firemark	FM-980	Floor Mount, single	68
Rixon Firemark	FM-996	Surface Wiring	68
Rixon Firemark	FM-998	Concealed Wiring	68

**Table A.5 Compatible Door Holders**

### A.4 Relays (UL Listed)

Table A.6 lists relays compatible with the fire control panel.

Manufacturer	Model	Current (mA)
Air Products & Controls, LTD	MR-101/C	15
	MR-201/C	35
	PAM-1	15
	PAM-2	15
	PAM-SD	15
System Sensor	A77-716B	20
	PR-1	15
	PR-2	30
	PR-3	30
	EOLR-1	30
	R-10T	23
	R-14T	23
	R-20T	40
	R-24T	40
	R-10E	23
	R-14E	23
R-20E	40	
R-24E	40	

**Table A.6 Compatible Relays**

## A.5 Compatible 520Hz Signaling Speakers

Model Number	Description
SPR	Wall High-Fidelity Speaker, Red
SPW	Wall High-Fidelity Speaker, White
SPCR	Ceiling High-Fidelity Speaker, Red
SPCW	Ceiling High-Fidelity Speaker, White
SPSR	Wall High-Fidelity Speaker Strobe, Red
SPSRH	Wall High-Fidelity Speaker Strobe, High Candela, Red
SPSW	Wall High-Fidelity Speaker Strobe, White
SPSCR	Ceiling High-Fidelity Speaker Strobe, Red
SPSCW	Ceiling High-Fidelity Speaker Strobe, White
SPSCWH	Ceiling High-Fidelity Speaker Strobe, High Candela, White
SPSCRH	Ceiling High-Fidelity Speaker Strobe, High Candela, Red
SPSCW-CLR-ALERT	Ceiling High-Fidelity Speaker Strobe, Clear Lens, ALERT, White
SPSCW-P	Ceiling High-Fidelity Speaker Strobe, Plain, White
SPSCWH-P	Ceiling High-Fidelity Speaker Strobe, High Candela, Plain, White
SPSR-P	Wall High-Fidelity Speaker Strobe, Plain, Red
SPSRH-P	Wall High-Fidelity Speaker Strobe, High Candela, Plain, Red
SPSCWH-P	Ceiling High-Fidelity Speaker Strobe, High Candela, Plain, White
SPSW-ALERT	Wall High-Fidelity Speaker Strobe, Amber Lens, ALERT, White
SPSW-CLR-ALERT	Wall High-Fidelity Speaker Strobe, Clear Lens, ALERT, White
SPSW-P	Wall High-Fidelity Speaker Strobe, Plain, Red
SPSWH	Wall High-Fidelity Speaker Strobe, High Candela, White
SPSWH-P	Wall High-Fidelity Speaker Strobe, High Candela, Plain, Red
SPRL	Wall High-Fidelity Speaker, Red
SPWL	Wall High-Fidelity Speaker, White
SPCRL	Ceiling High-Fidelity Speaker, Red
SPCWL	Ceiling High-Fidelity Speaker, White
SPSCRL	Ceiling High-Fidelity Speaker Strobe, Red
SPSCWL	Ceiling High-Fidelity Speaker Strobe, White
SPSRL	Wall High-Fidelity Speaker Strobe, Red
SPSRL-SP	Wall High-Fidelity Speaker Strobe-FUEGO
SPSWL	Wall High-Fidelity Speaker Strobe, White
SPSCWL-P	Ceiling High-Fidelity Speaker Strobe, Standard, White, Plain
SPSRL-P	Ceiling High-Fidelity Speaker Strobe, Standard, Red, Plain
SPSWL-P	Wall High-Fidelity Speaker Strobe, Standard, White, Plain
SPSCWL-CLR-ALERT	Ceiling High-Fidelity Speaker Strobe, Clear Lens, Standard, White, ALERT
SPSWL-ALERT	Wall High-Fidelity Speaker Strobe, Amber Lens, ALERT, White
SPSWL-CLR-ALERT	Wall High-Fidelity Speaker Strobe, Clear Lens, Standard, ALERT, White
*F=FIRE, P=PLAIN, AL=ALERT, AG=AGENT, EV=EVAC, SP=FUEGO, PG=FOGO	

**Table A.7 520Hz Speakers**

## A.6 Compatible 520Hz Low Frequency Bases

Model Number	Description
B200S-LF-WH / IV	Low Frequency Intelligent Sounder Base
B200SR-LF-WH / IV	Low Frequency Intelligent Sounder Base
Color Guide: -IV = Ivory color, -WH = White	

**Table A.8 Low Frequency Bases**





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