



Auxiliary Power Supply
APS-6RF
Instruction Manual

Fire Alarm System Limitations

An automatic fire alarm system—typically made up of smoke detectors, heat detectors, manual pull stations, audible warning devices, and a fire alarm control 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.

The Manufacturer recommends that smoke and/or heat detectors be located throughout a protected premise 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. 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, or chimneys 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.
- Smoke detectors 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.).

While a fire alarm system may lower insurance rates, it is not a substitute for fire insurance!

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, crippling its ability to report a fire.

Audible warning devices such as bells 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:

- 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 or comprehend the meaning of the signal. It is the property owner's responsibility to conduct fire drills and other training exercise 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 fire alarm 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. It is essential to use only equipment listed for service with your control panel.

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 radio transmission systems are recommended.

The most common cause of fire alarm malfunction is inadequate maintenance. To keep the entire fire alarm 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 Chapter 7 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 monthly or as required by National and/or local fire codes and should be performed by authorized professional fire alarm installers only. Adequate written records of all inspections should be kept.

Installation Precautions

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 this manual is read and understood.

CAUTION - *System Reacceptance Test after Software Changes.* To ensure proper system operation, this product must be tested in accordance with NFPA 72 Chapter 7 after any programming operation or change in site-specific software. Reacceptance 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 of 85% RH (non-condensing) at 30° C/86° 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 all peripherals be installed in an environment with a nominal 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.

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

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 interferences, 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, and 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.

Though designed to last many years, system components can fail at any time. 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.

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 by authorized personnel.

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 device pursuant to Subpart B of Part 15 of FCC Rules, which is designed to provide reasonable protection against such interference when 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 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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1. Overview

Introduction

This document contains information for installing, servicing, and configuring the APS-6RF Auxiliary Power Supply. The table below contains a list of document sources for supplemental information:

Control Panels	Refer to...	Part Number
Sensiscan 2000	Sensiscan 2000 Manual	15017
Sensiscan 200	Sensiscan 200 Manual	15032
All	Firelite Device Compatibility Document	15384

Table 1 Supplemental Documentation

Description

The APS-6RF Auxiliary Power Supply is a 150W cabinet-mounted power supply, designed to power devices that require filtered, regulated, non-resettable power, such as Notification Appliance Circuit Modules. The APS-6RF provides three 24 VDC (filtered) output circuits.

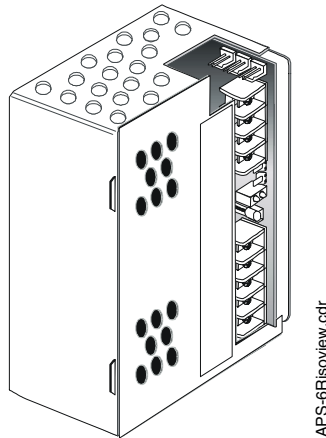


Figure 1 APS-6RF Auxilliary Power Supply

The figures below identify the features of the APS-6RF power supply:

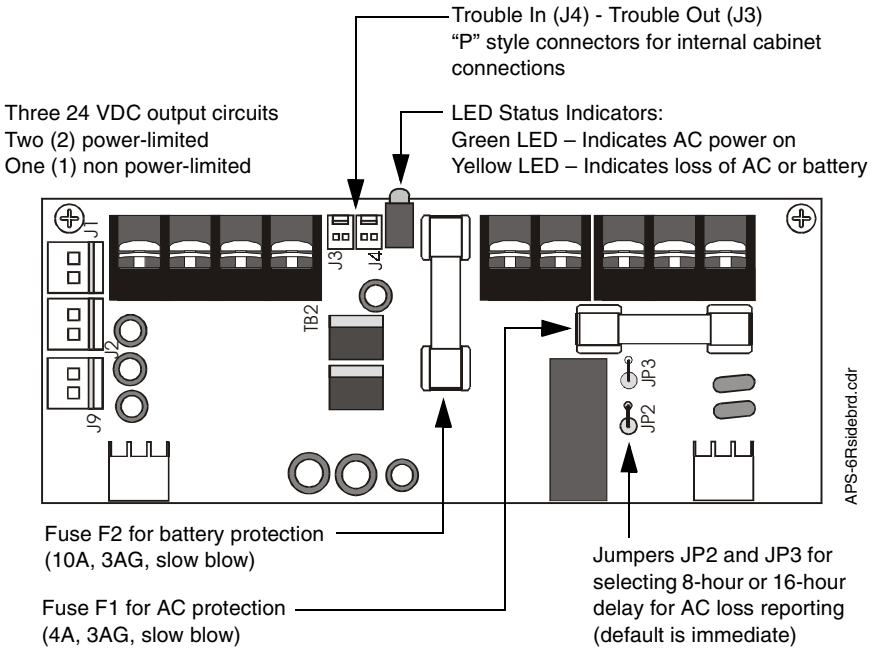


Figure 2 APS-6RF Control Board

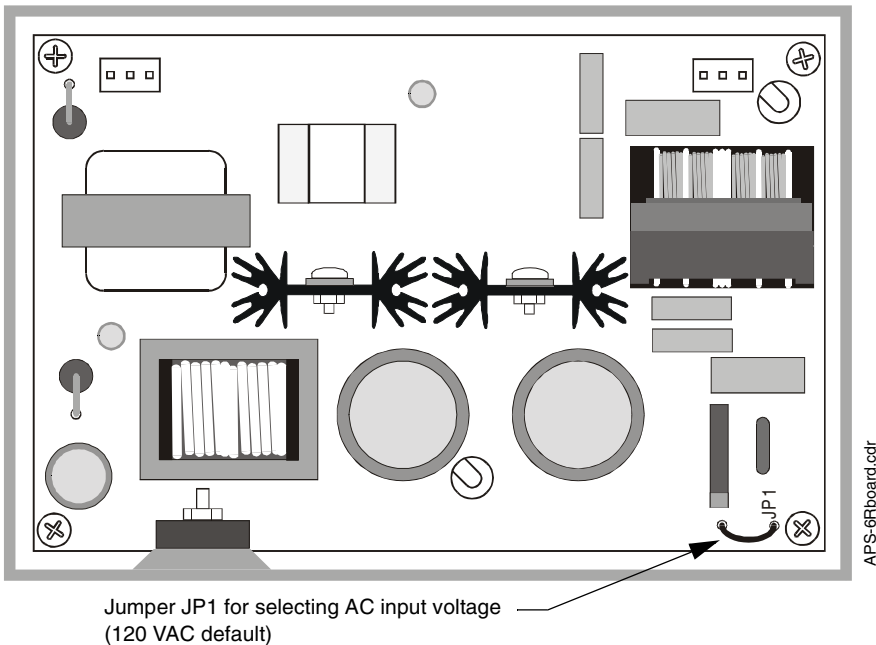


Figure 3 APS-6RF Main Board

Specifications

The APS-6RF is compatible with the Sensiscan 2000, and Sensiscan 200 control panels. Specifications for the APS-6RF are:

Electrical Specifications	
AC Primary Input Power Wire Size: #14 AWG with 600 VAC insulation	120 VAC, 60 Hz, 2.5 A 240 VAC, 50 Hz, 1.2 A
24 VDC Secondary Input Power (lead-acid batteries only)	Current draw with AC power loss 25 mA DC standby current 16 mA DC standby current (with AC fail delay operating) 6 amps maximum alarm current
Use these values in battery calculations for Fire Alarm Control Panel Note: Batteries are charged by the system power supply.	
24 VDC output power Circuit 1 Circuit 2 Circuit 3	Total 6 A (4 A continuous) 3 A @24 VDC power-limited (+10, -15%) 3 A @24 VDC power-limited (+10, -15%) 6 A @24 VDC non power-limited (+10, -15%)
Fuses F1 (AC supervision) F2 (battery supervision)	250 VAC, 4A, 3 AG, slow blow 32 VAC, 10 A, 3 AG, slow blow
Trouble supervision bus J3 output J4 input Note: J3 and J4 can be interchanged.	Form A contact (open collector) Form A contact (open collector)
Loss of AC Indication	Immediate indication (default) 8 or 16 hour delay
Mechanical Specifications	
Size of APS-6RF in enclosure	6.09 in. x 4.23 in. x 2.92 in.
Cabinets for mounting	CAB-A3F or CAB-B3F , using CHS-4F chassis, for Sensiscan 2000 control panel. Sensiscan 200 can mount one APS-6RF. Note: An optional module (such as an IC-4F) without an expansion card can mount above an APS-6RF in a CHS-4F and a Sensiscan 200.

Table 2 APS-6RF Specifications

NOTES

2. Installation



WARNING: Use extreme caution when working with the APS-6RF. High voltage and AC line-connected circuits are present. Turn off and remove all power sources. To reduce the risk of electric shock make sure to properly ground the unit.

Introduction

This section contains instructions for common wiring, configuring and servicing the APS-6RF. For mounting and specific wiring instructions refer to the appendix concerning your system.

Installation topics covered in detail:

Topic	Refer to...
Field Wiring	"Field Wiring an APS-6RF" on page 12
Wiring Multiple APS-6RFs	"Connecting Multiple APS-6RF Power Supplies" on page 13
Connecting to an IC-4F/ICE-4F	"Connecting the APS-6RF to an IC-4F/ICE-4F Module" on page 14
Configuring	"Configuring the APS-6RF" on page 15
Servicing	"Servicing the APS-6RF" on page 16

Wiring the APS-6RF

This section contains instructions for wiring the Auxiliary Power Supply as follows:

- Typical field wiring from an APS-6RF to a control panel.
- Wiring multiple APS-6RF power supplies.
- Connecting an APS-6RF to an IC module

Field Wiring an APS-6RF

You can use J1 and J2 in place of TB2 when the APS-6RF is powering internal modules (such as an IC-4F, ICE-4F, TC-2F, TC-4F) with compatible connectors.

Primary and Secondary Power Connections - See appendix for your specific system information.



Caution: When finished wiring AC connections, install the press-fit terminal block cover over TB1 AC connections.

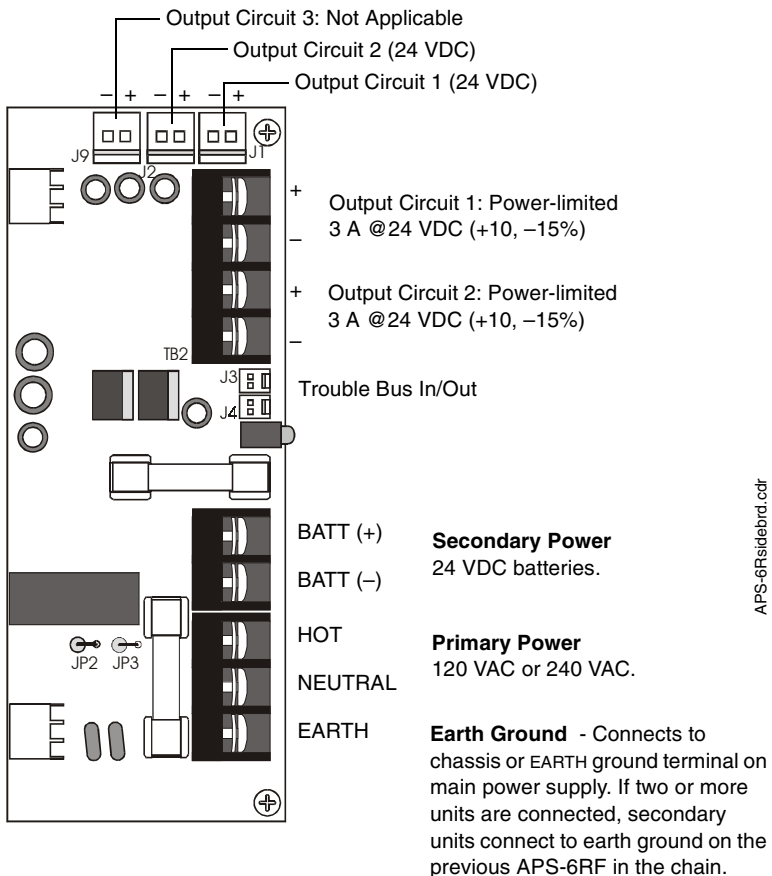


Figure 4 Typical Wiring for an APS-6RF

APS-6Rsidebrd.cdr

Connecting Multiple APS-6RF Power Supplies

Typical trouble bus connections for multiple APS-6RF power supplies using trouble connectors J3 and J4.

Use Cable 71033 or 75098 (same cables; different lengths) for all wiring.

See appendix on your system for specific “Trouble Input” connection.

Note: J3 and J4 can be interchanged.

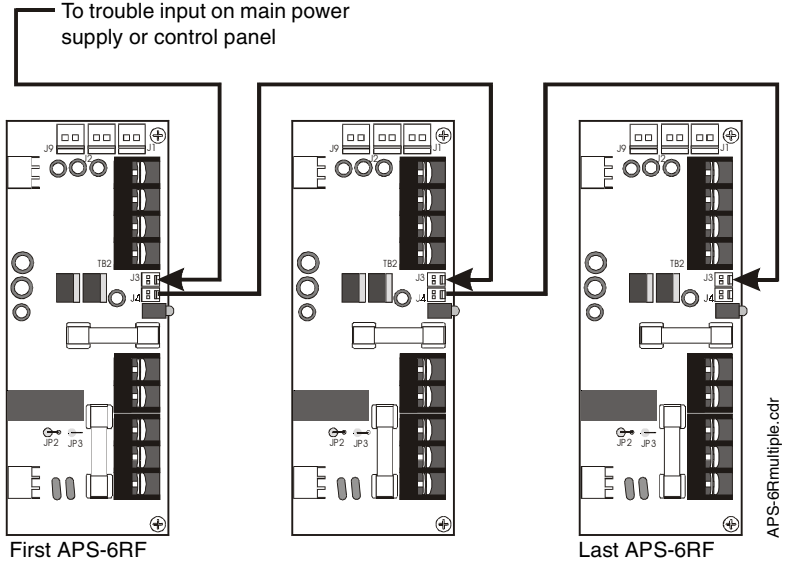


Figure 5 Trouble Bus Connections for Multiple APS-6RF Configurations

Connecting the APS-6RF to an IC-4F/ICE-4F Module

All four (4) NACs on the IC-4F are powered from the APS-6RF output circuit 2 (J2) and the four (4) NACs on the ICE-4F are powered from circuit 1 (J1). The NACs share the total 3A available from each circuit.

Typical connections for wiring:

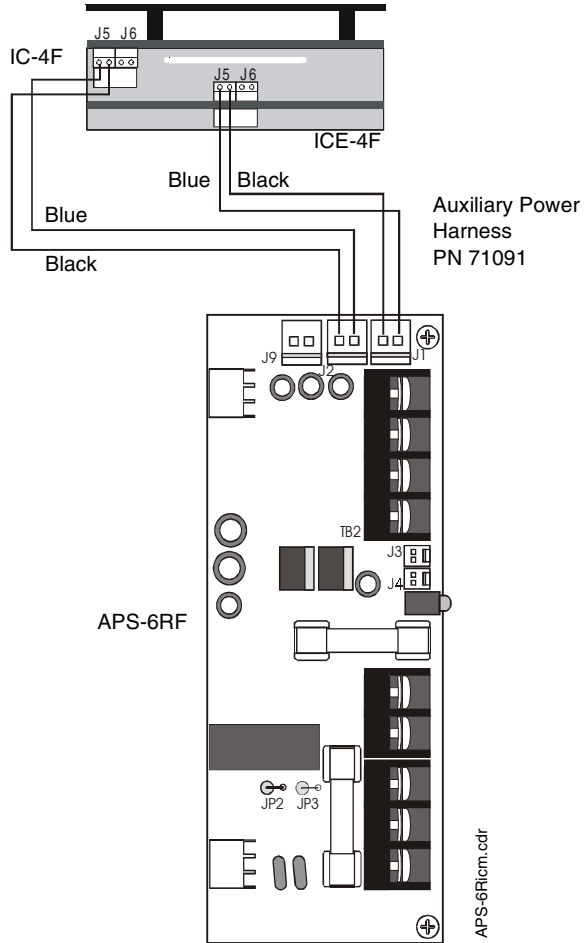


Figure 6 Typical APS-6RF Wiring to an IC-4F/ICE-4F Module

Configuring the APS-6RF

The APS-6RF may be configured for the following:

- 8-hour delay for reporting loss of AC: cut jumper JP2.
- 16-hour delay for reporting loss of AC: cut jumper JP2 and JP3.
- 240 VAC operation: cut jumper JP1.

The figure below illustrates the location of the jumpers:

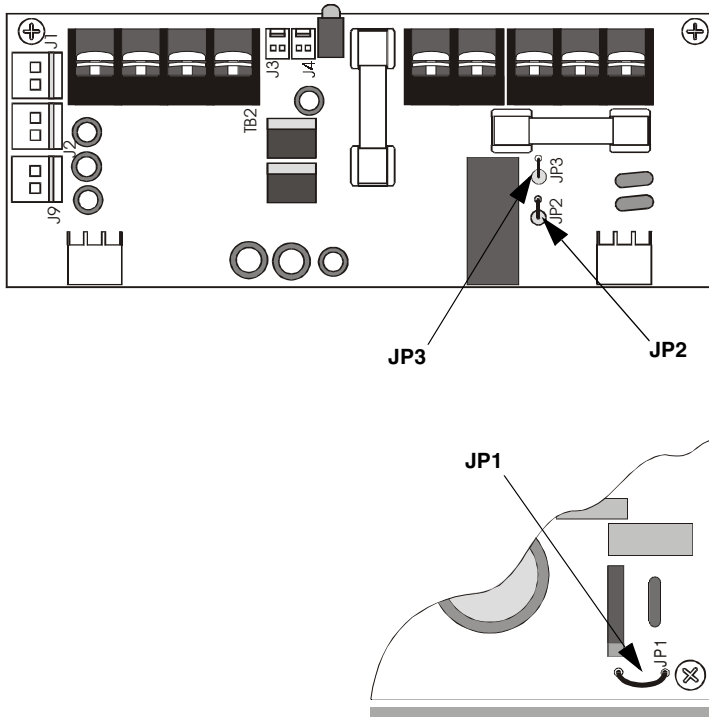


Figure 7 Configuring the APS-6RF

Servicing the APS-6RF

The only serviceable components on the APS-6RF are fuses F1 and F2. If a fuse fails, replace it with a fuse of the same type and rating:

- **F1** AC protection - 4A, 3 AG
- **F2** Battery protection - 10A, 3 AG

To replace either fuse remove the vertical PC board as follows:

1. Turn off and remove all power sources.
2. Remove plastic cover.
3. Remove the two retaining screws securing vertical board.
4. Unplug the vertical PC board from the connectors.
5. Replace fuses as required.
6. Reinstall board in reverse order, install plastic cover and connect all power.

The figure below illustrates the location of the fuses.

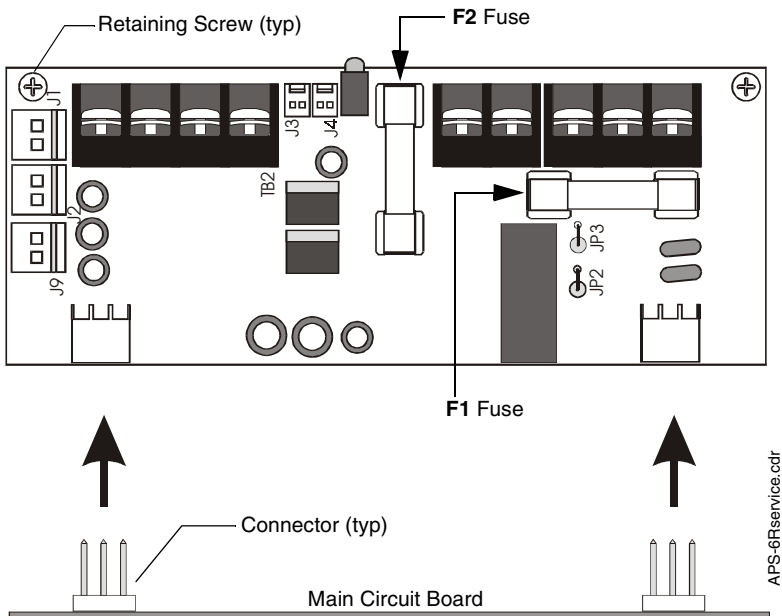


Figure 8 Servicing the APS-6RF

APS-6RFservice.cdr

Appendix A: Sensiscan 200

Mounting in a CAB-200 Backbox

The Auxiliary Power Supply is mounted as shown in the figure below.

To mount the APS-6RF, follow these instructions:

Step	Action
1	Remove plastic cover from APS-6RF.
2	If 240 VAC is to be used, cut JP1 jumper at this time. See "Configuring the APS-6RF" on page 15.
3	Place the APS-6RF onto the mounting studs in the backbox.
4	Insert a standoff through each of the printed circuit board mounting holes, threading each standoff to the mounting studs.
5	Tighten the standoffs until the APS-6RF is securely fastened to the backbox.
6	Reinstall the plastic chassis cover.

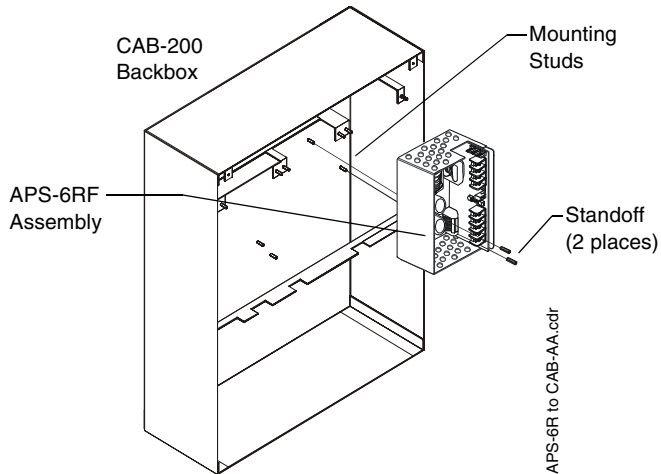


Figure 9 Mounting an APS-6RF to a CAB-200 Backbox

Connecting the APS-6RF to an MPS-24BF

Make the following connections as shown in the figure below.

- Connect primary power from **TB1** to MPS-24BF terminal block **TB1**, Pin **3**(NEUT) and Pin **4**(HOT)
- Connect secondary power from **TB3** to MPS-24BF terminal block **TB3**, Pin **1**(+) and Pin **2**(-)
- Connect trouble input from **J3** to MPS-24BF terminal block **P4**

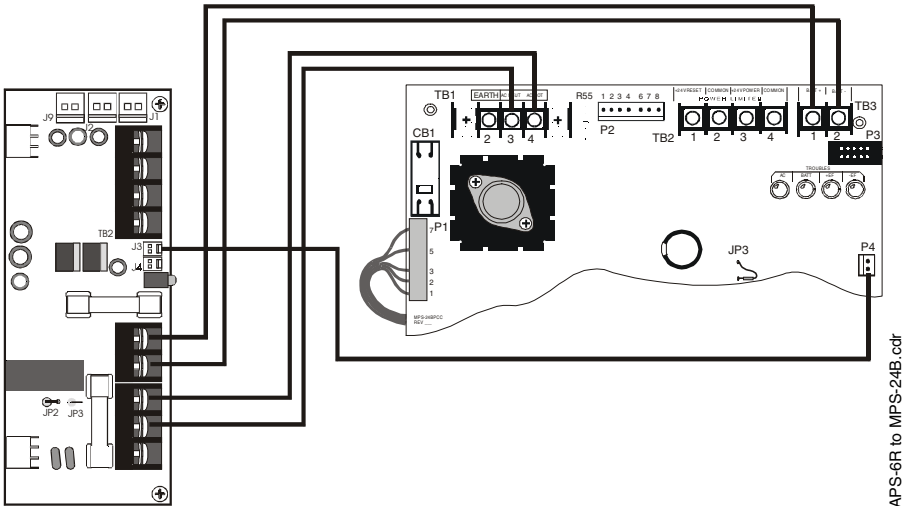


Figure 10 Wiring to MPS-24BF

Appendix B: Sensiscan 2000

Mounting in CAB-A3F or CAB-B3F Cabinet

This section contains instructions for the installation of the Auxiliary Power Supply onto a CHS-4F chassis used in a CAB-A3F or CAB-B3F cabinet.

To mount the APS-6RF, follow these instructions:

Step	Action
1	Remove plastic cover from APS-6RF.
2	If 240 VAC is to be used, cut JP1 jumper at this time. See "Configuring the APS-6RF" on page 15.
3	Place the APS-6RF onto the mounting studs of the chassis.
4	Insert a standoff through each of the printed circuit board mounting holes, threading each standoff to the mounting studs on the chassis.
5	Tighten the standoffs until the APS-6RF is securely fastened to the chassis.
6	Reinstall the plastic chassis cover.

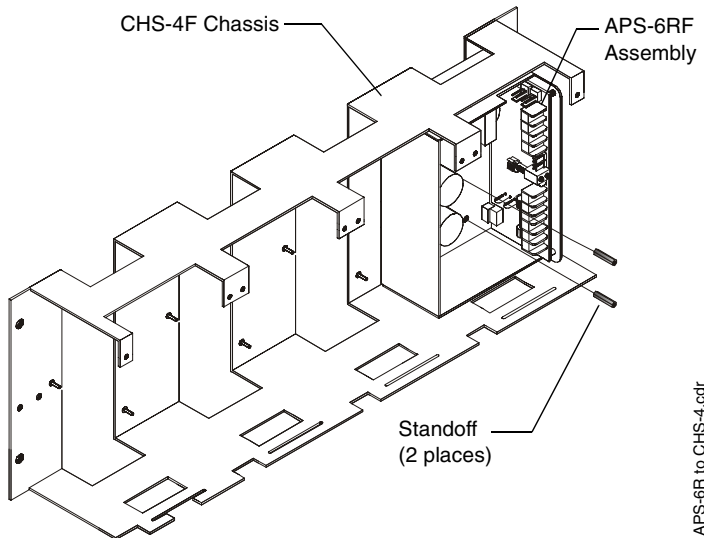
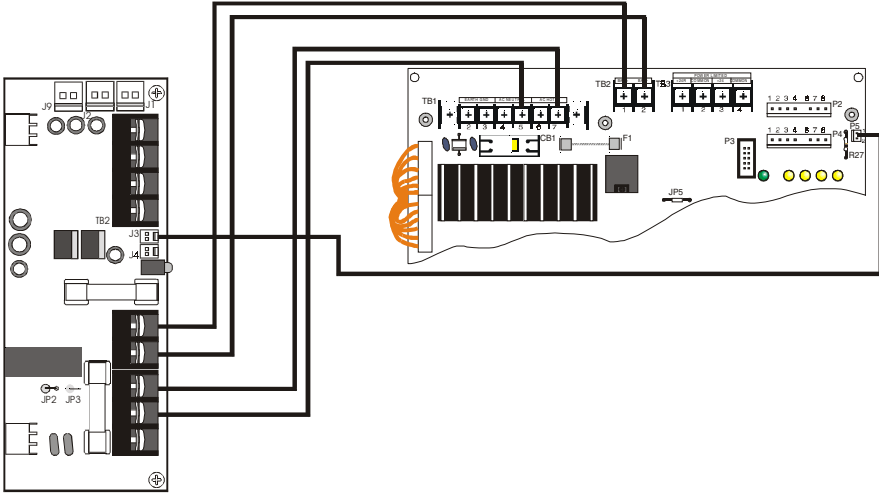


Figure 11 Mounting an APS-6RF to a CHS-4F Chassis

Connecting the APS-6RF to an MPS-24AF

Make the following connections as shown in the figure below.

- Connect primary power from **TB1** to MPS-24AF terminal block **TB1**, Pin **5**(NEUT) and Pin **7**(HOT)
- Connect secondary power from **TB3** to MPS-24AF terminal block **TB2**, Pin **1**(+) and Pin **2**(-)
- Connect trouble input from **J3** to MPS-24AF terminal block **P5**



APS-6RF to MPS-24AF.cdr

Figure 12 Wiring to MPS-24AF

Connecting the APS-6RF to an MPS-24BF

Make the following connections as shown in the figure below.

- Connect primary power from **TB1** to MPS-24BF terminal block **TB1**, Pin **3**(NEUT) and Pin **4**(HOT)
- Connect secondary power from **TB3** to MPS-24BF terminal block **TB3**, Pin **1**(+) and Pin **2**(-)
- Connect trouble input from **J3** to MPS-24BF terminal block **P4**

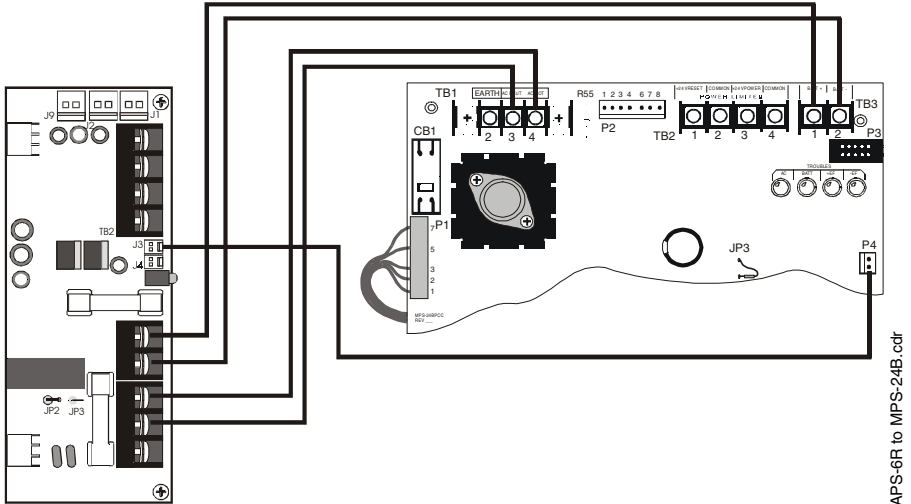


Figure 13 Wiring to MPS-24BF

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Limited Warranty

The manufacturer warrants its products to be free from defects in materials and workmanship for eighteen (18) months from the date of manufacture, under normal use and service. Products are date-stamped at time of manufacture. The sole and exclusive obligation of the manufacturer is to repair or replace, at its option, free of charge for parts and labor, any part which is defective in materials or workmanship under normal use and service. For products not under the manufacturer's date-stamp control, the warranty is eighteen (18) months from date of original purchase by the manufacturer's distributor unless the installation instructions or catalog sets forth a shorter period, in which case the shorter period shall apply. This warranty is void if the product is altered, repaired, or serviced by anyone other than the manufacturer or its authorized distributors, or if there is a failure to maintain the products and systems in which they operate in a proper and workable manner. In case of defect, secure a Return Material Authorization form from our customer service department. Return product, transportation prepaid, to the manufacturer.

This writing constitutes the only warranty made by this manufacturer with respect to its products. The manufacturer does not represent that its products will prevent any loss by fire or otherwise, or that its products will in all cases provide the protection for which they are installed or intended. Buyer acknowledges that the manufacturer is not an insurer and assumes no risk for loss or damages or the cost of any inconvenience, transportation, damage, misuse, abuse, accident, or similar incident.

THE MANUFACTURER GIVES NO WARRANTY, EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR OTHERWISE WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF. UNDER NO CIRCUMSTANCES SHALL THE MANUFACTURER BE LIABLE FOR ANY LOSS OF OR DAMAGE TO PROPERTY, DIRECT, INCIDENTAL, OR CONSEQUENTIAL, ARISING OUT OF THE USE OF, OR INABILITY TO USE THE MANUFACTURER'S PRODUCTS. FURTHERMORE, THE MANUFACTURER SHALL NOT BE LIABLE FOR ANY PERSONAL INJURY OR DEATH WHICH MAY ARISE IN THE COURSE OF, OR AS A RESULT OF, PERSONAL, COMMERCIAL, OR INDUSTRIAL USE OF ITS PRODUCTS.

This warranty replaces all previous warranties and is the only warranty made by the manufacturer. No increase or alteration, written or verbal, of the obligation of this warranty is authorized.



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