

Power is knowledge.

LifeSafety Power[®]



Power System Installation Guide

FPV4

4 amp @ 12VDC or
3 amp @ 24VDC

FPV102

10 amp @ 12VDC

FPV6

6 amp @ 12VDC or 24VDC

FPV104

10 amp @ 24VDC

For 230VAC input add "/E" to model number - example *FPV6-C8E1/E*

For larger enclosure change E1 suffix to E2 in model number - example *FPV6-C8E2*



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P03-057

Symbol Definitions

The following symbols are used throughout this manual:

-  This symbol is intended to alert the installer of shock hazards within the enclosure. Service should only be performed by qualified service personnel.
-  This symbol is intended to alert the installer of important information intended to help the installer avoid personal injury or property damage.

Warnings



-  Installation and service should be performed only by qualified service personnel and should conform to all local codes.
-  To reduce the risk of electric shock or fire, do not expose this equipment to rain or moisture.
-  This equipment shall be installed in a manner which prevents unintentional operation by employees, cleaning personnel, or others working in the premises, by falling objects, customers, building vibration, or similar causes.
-  This equipment is not intended for use within the patient care areas of a Health Care Facility.
-  Replace fuses only with the same type and rating as indicated in the specifications section of this manual.
-  To prevent impaired operation, ensure that all wiring is routed and secured to prevent accidental open or short circuit conditions.
-  The system and any batteries (if used) should be tested at least once per year to ensure proper operation.

Enclosure Mounting

Mounting an Enclosure

Use the following procedure when mounting a wall-mount enclosure.

1. (Optional) Remove the enclosure's cover.
2. Locate the top keyhole mounting holes in the back of the enclosure.
3. Mark and pre-drill the locations for the keyholes in the mounting surface.
4. Partially install two fasteners appropriate for the surface on which the enclosure is being installed. Leave the heads of the fasteners approximately 1/4" out from the surface. Minimum fastener size should be #10 or larger.
5. Hang the enclosure on the two fasteners and mark the locations of the remaining mounting holes.
6. Remove the enclosure and pre-drill the locations for the remaining mounting holes.
7. Re-hang the enclosure on the top mounting fasteners, start the remaining fasteners and tighten all fasteners.
8. Reinstall the enclosure's cover, if removed in step 1.

-  Batteries (if used) should be maintained at an ambient temperature of between 32 and 120 degrees Fahrenheit (0-49 Celsius) or premature loss of battery power could occur.
-  Test and verify output voltage before connecting the load.

The equipment discussed within this manual has been tested to the following standards:



- UL294, UL603, UL1076
- ULC S318, ULC S319
- CSA C22.2 #107.1, CSA C22.2 #205

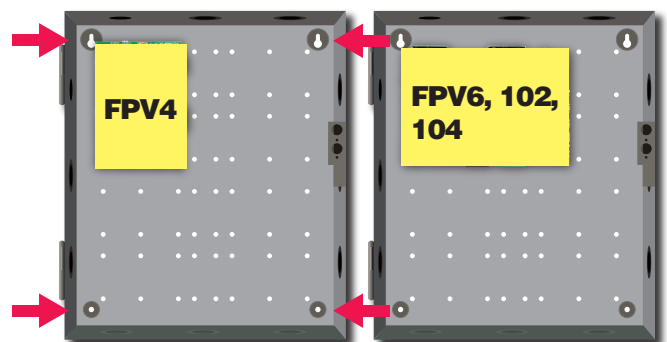
FCC Information

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules and ICES-003. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Conventions Used Within this Manual

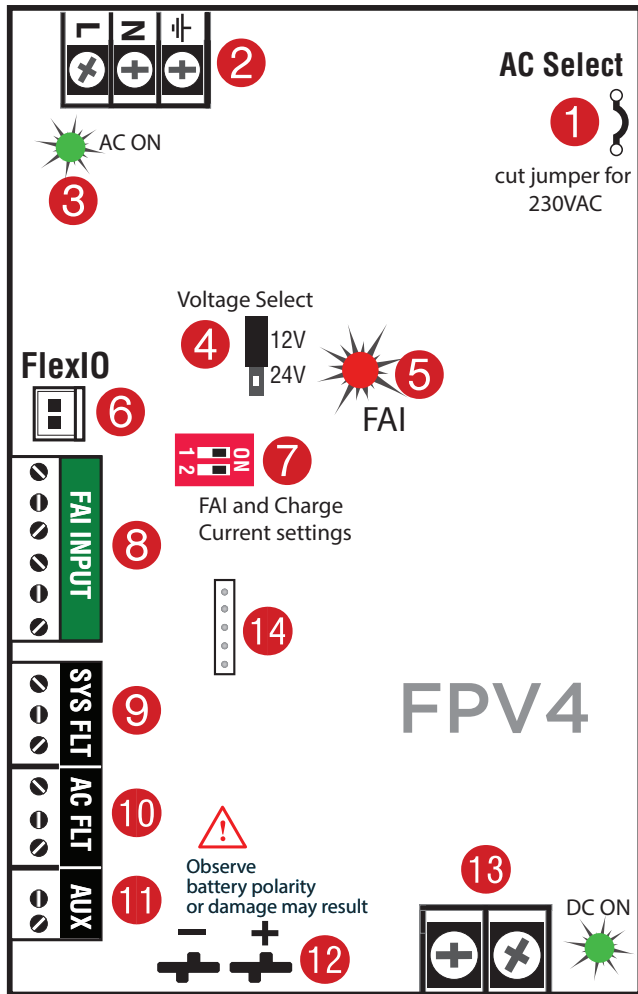
Positional information (e.g. top, bottom, up, down, left, right, etc.) is referenced with the board or enclosure in the orientation shown in the illustrations in this manual.

-  It is the installer's responsibility to determine the appropriate fastening system for use with the surface the enclosure is being mounted to.
-  For UL1076 applications, after installation is complete, the installer must install the two supplied 1" long screws to the edge of the enclosure's cover for additional security.



FPV4 Power Supply Overview

This guide gives the basic information needed to install a system containing a single Vantage Power Supply for most applications.



ALWAYS DISCONNECT POWER BEFORE CHANGING
OUTPUT VOLTAGE TO PREVENT PS DAMAGE

1 AC Voltage Select Jumper

Leave INTACT for 120V input. CUT for 230V input.

⚠ Failure to cut this jumper when using the FPV with a 230VAC input will result in damage to the system and void the warranty.

2 AC Input primary AC connection.

3 AC LED (GREEN) indicates a valid AC input voltage is present. Missing AC is indicated by this LED extinguishing.

⚠ Always confirm the absence of AC power with a meter before servicing to prevent electric shock.

4 Voltage Selection Jumper selects the output voltage between 12V and 24V DC.

⚠ **Remove AC input power before changing the voltage select switch to avoid damaging the power supply or connected equipment.**

5 FAI LED (RED) indicates activation of the Fire Alarm Input.

6 Flex IO Connector Supplies FAI status to any accessory boards. Receives fault signal from accessory boards.

7 FAI and Charge Current Configuration Switches

Switch 1 - FAI Selection (for FAI wiring see page 6)

Off = Constant Output | On = Output switches on FAI

Switch 2 - Charge Current

Off = High Charge Current | On = Low Charge Current

8 FAI Input The input from the FACP. Can be wired to accept a NO, NC, Open Collector, or Voltage input.

See page 6 for FAI wiring information.

9 System Fault Contact - Contact labeling is adjacent to the terminals and shown in the unpowered (FAULT) condition.

10 AC Fault Contact Contact labeling is adjacent to the terminals and shown in the unpowered (FAULT) condition. AC fault is indicated on a missing AC Input voltage.

11 Auxiliary Voltage is a fixed Class 2 DC output.

12 Battery Terminal Connection for the optional battery backup. Battery set voltage must match the DC output voltage setting.

13 Main DC Output of the power supply. The output can either be constant or switched based on the configuration setting of switch.

- The DC ON LED will be green with voltage present.

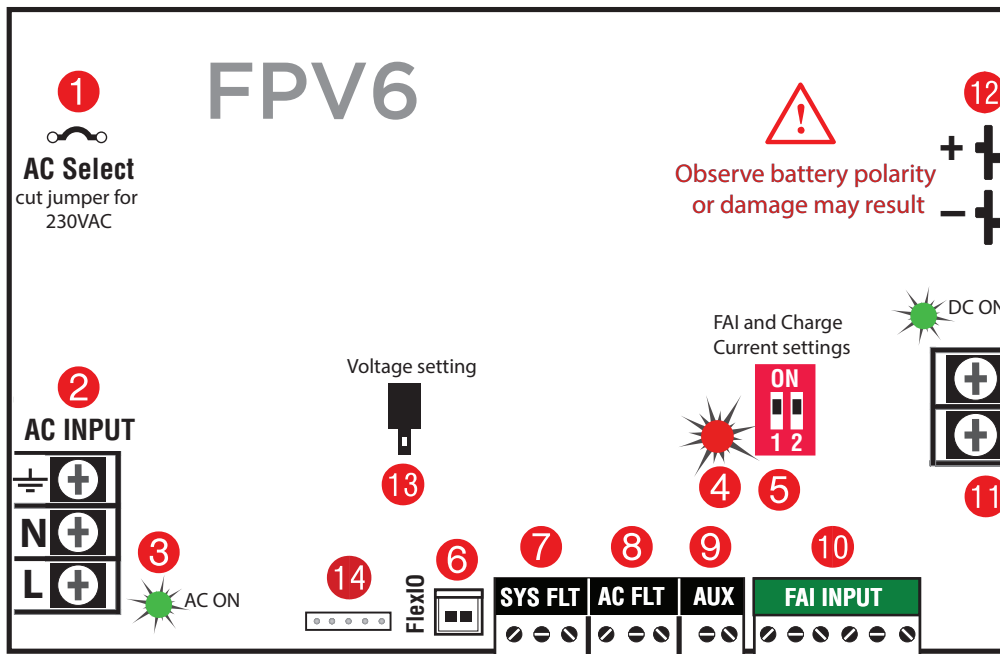
14 DataLink Connection - This connector allows optional programming and monitoring of the FPV power supply via an optional NetLink network module. See the instructions for the Netlink module for more information.

⚠ See pages 4, 5 for

FPV6, FPV102 and FPV104 overview.

FPV6 Power Supply Overview - ⚠ Read before Power Up

This guide gives the basic information needed to install a system containing a single FPV Power supply for most applications.



For UL compliance, the AC fault contact must be monitored by a listed control panel

1 AC Input Voltage Selection

Leave INTACT for 120V input. CUT for 230V input.

⚠ Failure to cut this jumper when using the FPV with a 230VAC input will result in damage to the system and void the warranty.

2 AC Input

The primary AC connection. Cut JP1 for 230VAC input.

3 AC ON LED (green)

Indicates a valid AC input voltage is present. Missing AC is indicated by this LED extinguishing.

⚠ Always confirm the absence of AC power with a meter before servicing to prevent electric shock.

4 FAI LED (red)

Indicates activation of the Fire Alarm Input.

5 Charge Current / Main output FAI Configuration Switches

Switch 1 - FAI Selection (for FAI wiring see page 6)

Off = Constant Output | On = Output switches on FAI

Switch 2 - Charge Current

Off = High Charge Current | On = Low Charge Current

6 FLEX IO Connector

Supplies FAI status to any accessory boards. Receives fault signal from accessory boards.

7 System Fault Contact

Contact labeling is adjacent to the terminals and shown in the unpowered (FAULT) condition.

8 AC Fault Contact

Contact labeling is adjacent to the terminals and shown in the unpowered (FAULT) condition. AC fault is indicated on a missing AC Input voltage.

9 AUX Voltage

The auxiliary voltage is a fixed Class 2 Power Limited DC output.

10 FAI Input

The input from the FACP. Can be wired to accept a NO, NC, Open Collector, or Voltage input.

See page 6 for FAI wiring information.

11 Main Output

This is the main DC output of the power supply. The output can either be constant or switched based on the configuration setting of switch 1 (see number 6 on this page). The DC ON LED will light Green when 12V is present, or Blue when 24V is present.

12 Battery Terminal Connection

The connection for the optional backup battery. Battery set voltage must match the DC output voltage setting.

13 12/24V Selection Jumper

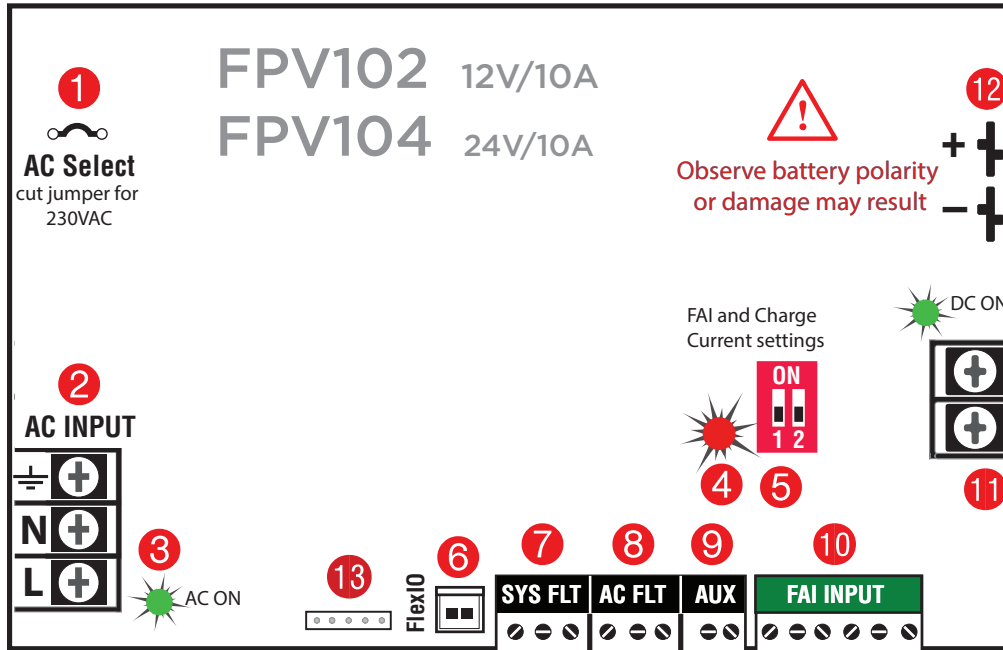
This selects the output voltage between 12V and 24V DC. The FPV Power supply must be completely powered down before changing this setting. Voltage markings are printed on the PC Board adjacent to the selector.

⚠ **Remove AC input power before changing the voltage select switch to avoid damaging the power supply or connected equipment.**

14 DataLink Connection - This connector allows optional programming and monitoring of the FPV power supply via an optional NetLink network module. See the instructions for the Netlink module for more information.

FPV102/104 Power Supply Overview - ⚠️ Read before Power Up

This guide gives the basic information needed to install a system containing a single FPV Power supply for most applications.



For UL compliance, the AC fault contact must be monitored by a listed control panel

1 AC Input Voltage Selection

Leave INTACT for 120V input. CUT for 230V input.

⚠️ Failure to cut this jumper when using the FPV with a 230VAC input will result in damage to the system and void the warranty.

2 AC Input

The primary AC connection. Cut JP1 for 230VAC input.

3 AC ON LED (green)

Indicates a valid AC input voltage is present. Missing AC is indicated by this LED extinguishing.

⚠️ Always confirm the absence of AC power with a meter before servicing to prevent electric shock.

4 FAI LED (red)

Indicates activation of the Fire Alarm Input.

5 Charge Current / Main output FAI Configuration Switches

Switch 1 - FAI Selection (for FAI wiring see page 6)

Off = Constant Output | On = Output switches on FAI

Switch 2 - Charge Current

Off = High Charge Current | On = Low Charge Current

6 FLEX IO Connector

Supplies FAI status to any accessory boards. Receives fault signal from accessory boards.

7 System Fault Contact

Contact labeling is adjacent to the terminals and shown in the unpowered (FAULT) condition.

8 AC Fault Contact

Contact labeling is adjacent to the terminals and shown in the unpowered (FAULT) condition. AC fault is indicated on a missing AC Input voltage.

9 AUX Voltage

The auxiliary voltage is a fixed Class 2 Power Limited DC output.

10 FAI Input

The input from the FACP. Can be wired to accept a NO, NC, Open Collector, or Voltage input.

See page 6 for FAI wiring information.

11 Main Output

This is the main DC output of the power supply. The output can either be constant or switched based on the configuration setting of switch 1 (see number 6 on this page). The DC ON LED will light Green on the FPV102, or Blue on the FPV104. If this LED lights the wrong color, contact tech support.

12 Battery Terminal Connection

The connection for the optional backup battery. Battery set voltage must match the DC output voltage setting.

Power Supply Fixed Voltage:

FPV102: 12V / 10 Amps

FPV104: 24V / 10 Amps

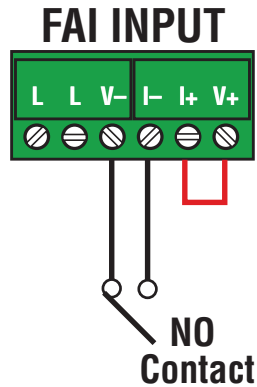
13 DataLink Connection - This connector allows optional programming and monitoring of the FPV power supply via an optional NetLink network module. See the instructions for the Netlink module for more information.

FAI Input Usage

This section provides more detailed information on the connection and usage of the FAI Input located on the main power supply board.

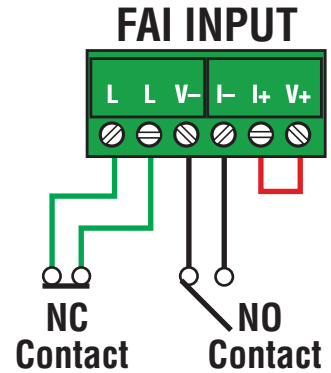
Activation with a Normally Open Relay Contact

FAI Activates when the NO contact CLOSES.
FAI Deactivates when the NO contact OPENS.



Latching the FAI Input

Latching of the FAI Input is achieved by placing a NC contact across the two 'L' terminals. The FAI may be activated by any of the methods listed. FAI Deactivates when the input is deactivated AND the NC Latching contact is momentarily OPENED.

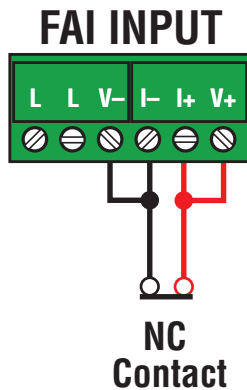


Example – NO Contact activation with latching

FAI Activates when the NO contact CLOSES. FAI Deactivates when the NO contact OPENS AND the NC contact momentarily OPENS.

Activation with a Normally Closed Relay Contact

FAI Activates when the NC contact OPENS.
FAI Deactivates when the NC contact CLOSES.



Note: FAI with a NC contact cannot be tested by removing the terminal strip, as this will remove the jumper wires from V+ and V- as well. To test, remove one wire going to the NC Contact.

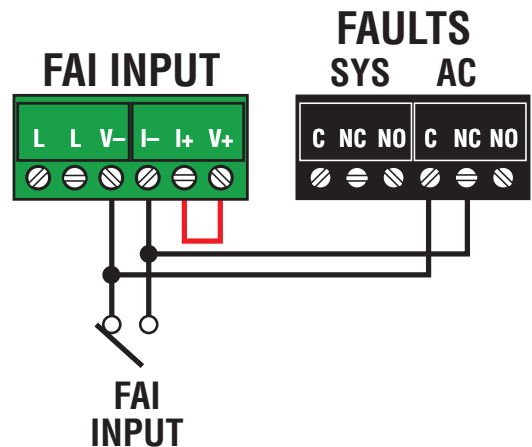
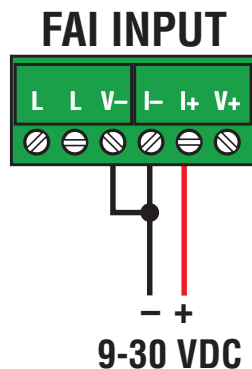
FAI Activation with a Normally Open Relay Contact and FPV AC Fault Lock Over Ride

FAI Activates either, when the Fire Alarm NO contact CLOSES, **or** when the AC Fault NC contact CLOSES

FAI Deactivates either, when the Fire Alarm NO contact OPENS, **or** when the FPV AC Fault NC contact OPENS

Activation with a Voltage Input

FAI Activates when voltage is APPLIED in the correct polarity. FAI Deactivates when voltage is REMOVED. Do not connect a polarity reversal circuit (NAC) to the FPV.



Tamper Switch Wiring

Vantage power supply systems with an enclosure may include a normally closed tamper switch for monitoring by the host panel. The tamper switch can either be brought into a dedicated input in the panel (see the panel's instructions), or the tamper switch may be series connected into the System Fault relay in the FPV supply (see Figure 1).

Any UL1076 installation must use the tamper switch to indicate the opening or removal of the front door of the enclosure.

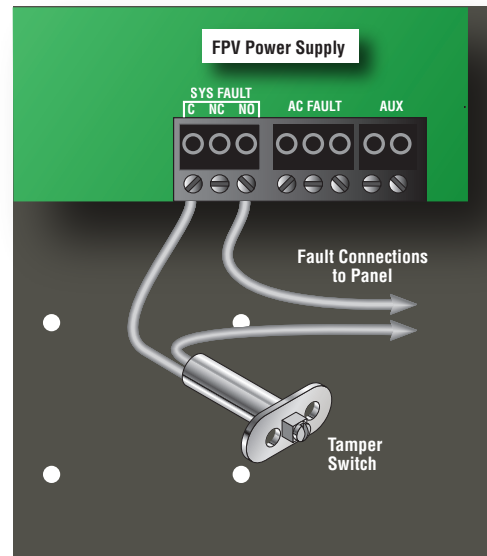


Figure 1 - Tamper switch fault relay wiring

Typical Installation and Wire Routing

Figure 2 shows a typical installation.

Actual configuration and wire routing will vary based on the components installed in your system.

The following guidelines should be followed for installation:

- Class 2 Power limited wiring must be separated from non-power limited wiring by a minimum of 1/4 inch and must use separate knockouts.
- Any wiring passing through knockouts in the bottom or top surfaces of the enclosure must be enclosed in rigid or flexible metal conduit.
- **Canadian Installations** - For permanently connected equipment, a readily accessible disconnect device shall be incorporated external to the equipment. Output circuits not connected to removable terminal strips shall also utilize a readily accessible disconnect device.

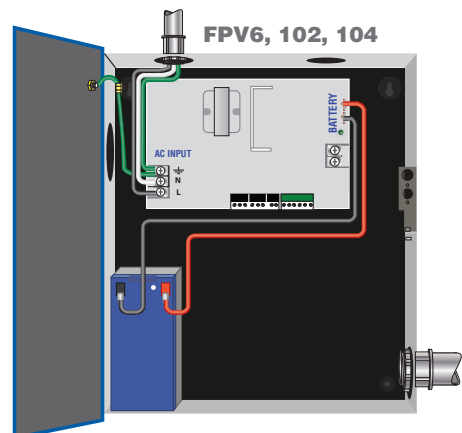
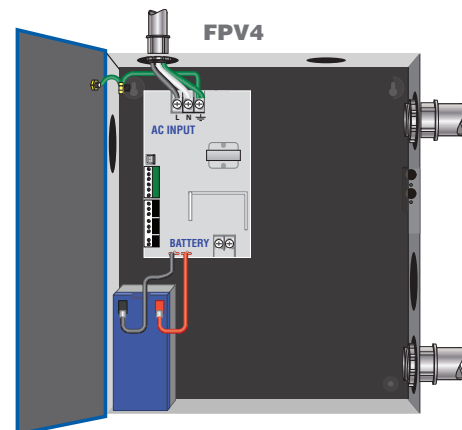


Figure 2 - Wiring

FPV4 / FPV6 Electrical / Mechanical Specifications

		FPV4	FPV6
AC Input	Voltage	120VAC or 230VA at 50-60Hz	120VAC or 230VAC at 50-60Hz
	Current	1.8A maximum	3.7A maximum
Standby	Current	80mA	150mA
DC Output at 12V Setting <i>(Auxiliary power-limited output rated at 1.5A. Total current must not exceed max current)</i>	Voltage	11.3 - 12.0V	11.2 - 12.0V
	Max Current	4A	6A
	Ripple & Noise	120mV	120mV
	Regulation	±2%	±2%
	Efficiency	82% (120VAC 60Hz In, Full Load, No Batt)	88% (120VAC 60Hz In, Full Load, No Batt)
Auxiliary Output (12V)	Current	1.5 A max	1.5 A max
DC Output at 24V Setting <i>(Auxiliary power-limited output rated at 1.5A. Total current must not exceed max current)</i>	Voltage	23.5 - 24.0	23.2 - 24.0
	Max Current	3A	6A
	Ripple & Noise	240mV	240mV
	Regulation	±2%	±2%
	Efficiency	83% (120VAC 60Hz Input, Full Load No Batt)	85% (120VAC 60Hz Input, Full Load No Batt)
Auxiliary Output (24V)	Current	1.5 A max	1.5 A max
Battery	Size & Type	4-40AH Lead Acid or Gel Cell	4-80AH Lead Acid or Gel Cell
	Charge Current	1A (±10%) maximum adjustable via DIP switch. 1.0A high setting, 0.5A low setting.	1.6A (±10%) maximum adjustable via DIP switch. 1.6A high setting, 0.8A low setting.
	Low battery disconnect to prevent deep discharge	70% of nominal battery voltage	70% of nominal battery voltage
Fuse Rating	Battery	ATM 15A	ATM 15A
BTU Output	BTU/Hr	34-41	44-62
Fault Setpoints	Low AC	95V (±6%)	95V (±6%)
	Output Voltage	±10% of nominal	±10% of Nominal
Fault Relay Contacts	AC FLT	1A at 24VDC	1A at 24VDC
	SYS FLT	1A at 24VDC	1A at 24VDC
Operating Temperature		0 – 49C°	0 – 49C°
Board Size / Weight		6.0L x 4.0W x 2.50"H 1.0 lbs	8.25L x 5.50W x 2.50"H 1.0 lbs
Enclosure Size / Weight		14H x 12W x 4.5"D 14 lbs	14H x 12W x 4.5"D 14 lbs

FPV102 / FPV104 Electrical / Mechanical Specifications

		FPV102	FPV104
AC Input	Voltage	120VAC or 230VAC at 50-60Hz	120VAC or 230VAC at 50-60Hz
	Current	3A	5.7A
Standby	Current	110mA	160mA
DC Output <i>(Auxiliary power-limited output rated at 1.5A. Total current must not exceed max current)</i>	Voltage	11.3 - 12.0V	23.4 - 25.0V
	Max Current	10A	10A
	Ripple & Noise	120mV	240mV
	Regulation	±2%	±2%
	Efficiency	89% (120VAC 60Hz In, Full Load, No Batt)	91% (120VAC 60Hz In, Full Load, No Batt)
Auxiliary Output	Current	1.5 A max	1.5 A max
Battery	Size & Type	4-80AH Lead Acid or Gel Cell	4-80AH Lead Acid or Gel Cell
	Charge Current	1.6A (±10%) maximum. Charger current is 1.6A max for high setting, 0.8A max for low setting.	1.6A (±10%) maximum. Charger current is 1.6A max for high setting, 0.8A max for low setting.
	Low battery disconnect to prevent deep discharge	70% of nominal battery voltage	70% of nominal battery voltage
Fuse Rating	Battery	ATM 15A	ATM 15A
BTU Output	BTU/Hr	55	92
Fault Setpoints	Low AC	95V (±6%)	95V (±6%)
	Output Voltage	±10% of Nominal	±10% of Nominal
Fault Relay Contacts	AC FLT	1A at 24VDC	1A at 24VDC
	SYS FLT	1A at 24VDC	1A at 24VDC
Operating Temperature		0 – 49C°	0 – 49C°
Board Size / Weight		8.25L x 5.50W x 2.50H 1.0 lbs	8.25L x 5.50W x 2.50"H 1.0 lbs
Enclosure Size / Weight		14H x 12W x 4.5"D 14 lbs	14H x 12W x 4.5"D 14 lbs

General Applications

1. The power supply must be installed within the protected area.
2. The LifeSafety Model EB-80 must be used to house the required battery(ies) when capacities of 40 to 80Ah are required. The EB-80 shall be mounted within 6ft of the power supply and the wiring enclosed in conduit.
3. Connections to the SYS FLT, AC FLT, and FAI inputs shall be completed within the same room, not exceeding a length of 3m.
4. Do not connect equipment to an AC power source that is controlled by a switch.
5. The power supplies shall be mounted in a Listed LifeSafety Power enclosure.
6. Trouble contacts shall be monitored by a listed alarm system.

The following sections cover specific requirements based on application:

UL1076, Proprietary Burglar Alarm Applications:

1. The LifeSafety tamper switch must be employed to monitor the power supply.
2. To achieve 4 hours of standby at full load current, 80Ah min. battery capacity is required for the FPV102 or FPV104. To achieve 4 hours of standby at full load current, 40Ah min. battery capacity is required for the FPV4 and FPV6.

S319, Access Control Applications:

1. The LifeSafety tamper switch must be employed to monitor the power supply.

For UL Compliance:

Any locking device shall be configured for fail safe operation upon occurrence of an alarm as shown in Activation with a Normally Closed Relay Contact in page 6, FAI Input Usage.

IMPORTANT

All information, including illustrations, is believed to be reliable. Users, however, should independently evaluate the suitability of each product for their particular application. LifeSafety Power makes no warranties as to the accuracy or completeness of the information, and disclaims any liability regarding its use. LifeSafety Power's only obligations are those in the LifeSafety Power Standard Terms and Conditions of Sale for this product, and in no case will LifeSafety Power or its distributors be liable for any incidental, indirect, or consequential damages arising from the sale, resale, use, or misuse of the product. Specifications are subject to change without notice. In addition, LifeSafety Power reserves the right to make changes—without notification to Buyer—to processing or materials that do not affect compliance with any applicable specification.