



**ASSA ABLOY**

# **PS-SE Power Supply**

## **Owner's Manual**

### **and**

## **Installation Instructions**



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# Theory of Operation

The Adams Rite Power Supply (PS-SE) provides power and control for up to two exit devices. Each exit device is controlled by a timer that is initiated by a switch closure. The timer is user configured and holds the exit device(s) in the unlatched position for 2–60 seconds. At the end of the selected time, the exit device(s) will re-latch. If the switch controlling the exit device is held closed longer than the selected time, the exit device remains unlatched until the controlling switch is released.

An optional mode is available allowing both retraction timers to activate in response to closure of either switch.

The PS-SE is listed as an Exit Device, Access Control System unit to UL305 and UL1012 requirements for power supplies and CAN / CSA - C22.2.

Exit devices under the system control remain latched during a complete power failure but always allow free mechanical egress.

## Configuring the PS-SE

### CAUTION

Damage to the PS-SE or to exit devices may occur if connections are not made in accordance with the following procedure, or if connections are bypassed or omitted.

### Ensure the Primary Voltage

**NOTE:** The PS-SE is rated for 120 VAC only. Switch 2 (SW2) is factory preset for 120 VAC operation.

1. ENSURE the PS-SE is set to 120 VAC.

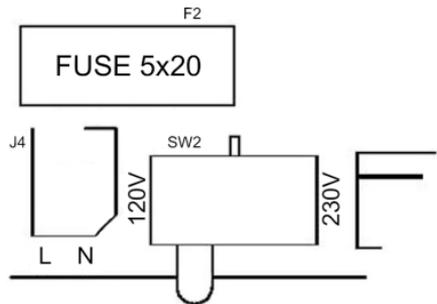


Figure 1. Primary Voltage

## Set the Operation Mode

**NOTE 1:** The PS-SE has two operation modes, Single Input (Sequential Operation) and Dual Input (Independent Operation), as follows:

### Single Input (Sequential Operation)

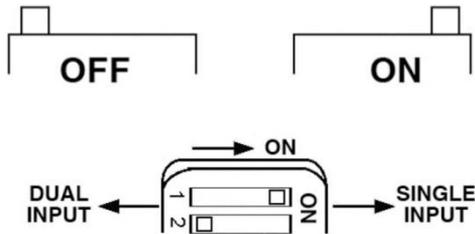
Application: Control one opening  
Operation: Either input retracts Exit Device #1, immediately followed by Exit Device #2.

### Dual Input (Independent Operation)

Application: Controls two separate openings  
Operation: Input IN1 retracts Exit Device #1, Input IN2 retracts Exit Device #2.

**NOTE 2:** The PS-SE is factory preset for Single Input (Sequential Operation).

1. SET the desired operation mode using SW1 dip switch 1 on the PS-SE.



**Figure 2. Operation Mode**

## Set the Hold Open Time

**NOTE:** The PS-SE has two hold open timers.

1. PERFORM the following to set the hold open times.
  - a. SET the hold open time for Exit Device #1 using SW1 dip switches 3, 4, and 5 (see Table 1, "Solenoid Hold Time Settings for Exit Device #1," for settings and hold times, and Figure 3, "SW1 Dip Switch Settings," for hold time settings example).

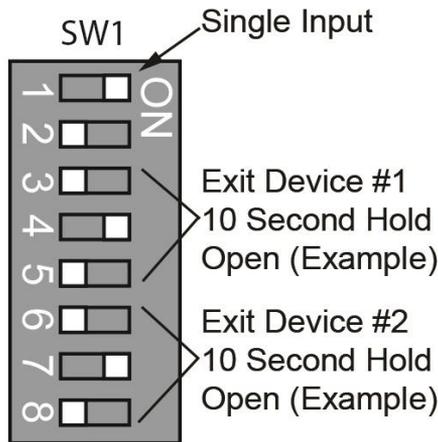
**Table 1. Solenoid Hold Time Settings for Exit Device #1**

Dip Switch	2 sec	5 sec	10 sec	15 sec	20 sec	30 sec	45 sec	60 sec
3	OFF	ON	OFF	ON	OFF	ON	OFF	ON
4	OFF	OFF	ON	ON	OFF	OFF	ON	ON
5	OFF	OFF	OFF	OFF	ON	ON	ON	ON

- b. SET the hold open time for Exit Device #2 using SW1 dip switches 6, 7, and 8 (see Table 2, “Solenoid Hold Time Settings for Exit Device #2,” for settings and hold times, and Figure 3 for hold time settings example).

**Table 2. Solenoid Hold Time Settings for Exit Device #2**

Dip Switch	2 sec	5 sec	10 sec	15 sec	20 sec	30 sec	45 sec	60 sec
6	OFF	ON	OFF	ON	OFF	ON	OFF	ON
7	OFF	OFF	ON	ON	OFF	OFF	ON	ON
8	OFF	OFF	OFF	OFF	ON	ON	ON	ON



**Figure 3. SW1 Dip Switch Settings**

## Connect the Fire Alarm Control

**NOTE 1:** Use of the PS-SE power supply with fire doors requires the system be under the control of an automatic fire alarm control system.

**NOTE 2:** The PS-SE is factory preset to be used without a fire alarm interface.

1. ENSURE the installed jumper is in place between Positions 9 and 10 (Fire) of the J3 terminal block to use the PS-SE without a fire alarm interface.
2. PERFORM the following to use the PS-SE with a fire alarm interface.
  - a. REMOVE the jumper wire installed between Positions 9 and 10 (Fire) of the J3 terminal block.

**NOTE 1:** Closed relay contacts indicate No Alarm Condition

**NOTE 2:** When a fire alarm occurs, the controlled exit devices will immediately latch secure. Exit devices remain latched during a fire alarm, but always allow free mechanical egress.

**NOTE 3:** The maximum current through the fire alarm contacts is 120 mA at 24 VDC.

- b. CONNECT the fire alarm normally closed relay contacts to Positions 9 and 10 (Fire) of the J3 terminal block.

## Wire the Input Control Switches

1. WIRE the normally open activation switch (dry contacts) for Exit Device #1 to the IN1 terminals (J3-3 and J3-4) on the J3 terminal block.

**NOTE:** The exit device is rated for continuous duty.

2. WIRE the normally open activation switch (dry contacts) for Exit Device #2 to the IN2 terminals (J3-1 and J3-2) on the J3 terminal block.

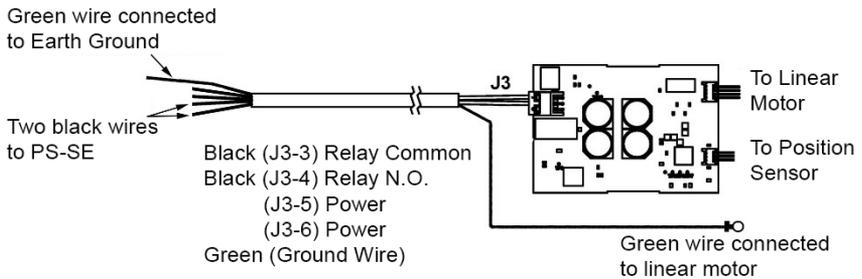
## Wire the PS-SE to the Exit Devices

**NOTE:** The maximum length listed with each wire gauge must never be exceeded.

1. WIRE the PS-SE to the exit devices using the information in Table 3, "Wire Gauge and Lengths."

**Table 3. Wire Gauge and Lengths**

Maximum Cable Length	Wire Gauge
0–300 feet	18 AWG
300–600 feet	16 AWG
600–900 feet	14 AWG



**Figure 4. Exit Device Wiring**

## Install the PS-SE

1. INSTALL the PS-SE close to the exit device (door) operated.

**NOTE 1:** Mounting holes are 1/4" in diameter.

**NOTE 2:** Enclosure dimensions are 10" wide by 10" long by 4" high.

2. FASTEN the PS-SE securely to the wall using the mounting holes located on the back of the enclosure.

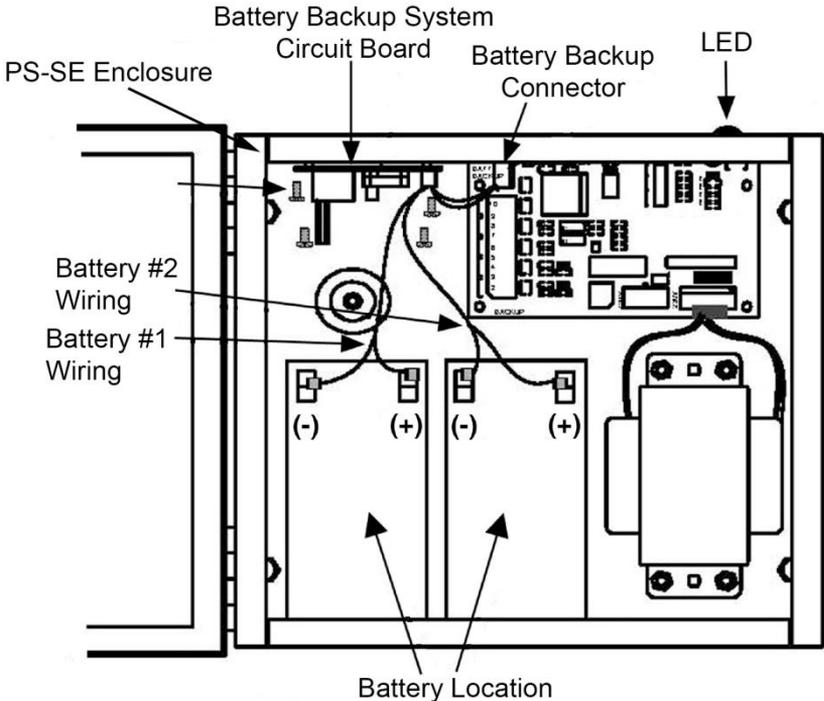
## Install the Battery Backup System (BBK-SE)

1. ORDER the BBK-SE Battery Backup System Kit and two 12V, 7 AH batteries (e.g., EverOn EVA12-7.5F batteries or equivalent) in order to install the BBK-SE in the PS-SE enclosure.

2. REMOVE the orange jumper block installed into the BATT BACKUP connector of the PS-SE circuit board by pulling the orange jumper free from the circuit board.

**NOTE:** Mounting points are available in the PS-SE enclosure for the Battery Backup System circuit board.

3. INSTALL the Battery Backup System circuit board in the enclosure (see Figure 4, "Location of Battery Backup System").



**Figure 4. Location of the Battery Backup System**

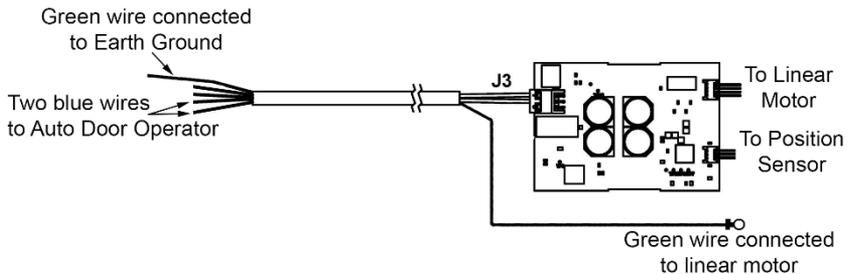
**NOTE:** The Adams Rite Battery Backup System circuit board has a short wiring harness to connect to the PS-SE circuit board.

4. CONNECT the orange connector of the wiring harness into the BATT BACKUP connector of the PS-SE circuit board.
5. WIRE the battery terminals of one battery to the (+) and (-) terminals on the BATT1 connector of the PS-SE circuit board.
6. WIRE the battery terminals of second battery to the (+) and (-) terminals on the BATT.21 connector of the PS-SE circuit board.

## Wire the Automatic Door Interface (Optional)

**NOTE:** This step is required to use the PS-SE with an automatic door opener. Automatic door opening systems need an indication of the latch state. The latch controller, which is located in the panic device, has relay contacts that let the automatic door opener know the latch state (i.e., the relay contacts are closed when the latch is fully retracted and open when the latch is extended).

1. CONNECT the automatic door opener as shown in Figure 5, "Automatic Door Interface Wiring."



**Figure 5. Automatic Door Interface Wiring**

## Wire the Primary Power Connection

**NOTE 1:** An earth ground must be made to the PS-SE enclosure and to the push bar.

**NOTE 2:** Terminal block J4 will accommodate up to 12 AWG wire for the 120 VAC power input.

1. CONNECT the main's neutral wire to J4 Pin 4.

**NOTE:** An earth ground connection is provided within the chassis.

2. CONNECT the ground connection to the green ground screw on the back of the PS-SE enclosure.

# Descriptions, Part Numbers, and Measurements

## Parts, Part Numbers, and Locations

The following are the parts, part numbers, and locations:

Parts	Part Number	Location
PS-SE Circuit Board	A29-0623-02	Power Supply
Battery Backup System Kit	BBK-SE	Power Supply
Exit Device SE Control Board	91-0035	Exit Device
<b>NOTE:</b> The following fuses can be ordered from Fuses Unlimited at 1-800-255-1919.		
Fuse F1 (2A, Slow Blow)	0213002.MXP	Power Supply
Fuse F2 (2A, Slow Blow)	0213002.MXP	Power Supply
Fuse F3 (unserviceable, Slow Blow)	0230004.HXP	Power Supply

## PS-SE Value Readings

OUT1 and OUT2 when IN1 and IN2 are open: 1.6 VDC

OUT1 and OUT2 when IN1 and IN2 are closed: 24 VDC (unregulated)

## LED Configuration

**NOTE:** If OUT1 and/or OUT2 are on and IN1 and IN2 are open, the board will need to be replaced.

Power to PS-SE board: Main Power LED (Red) and Output Power LED (Green) are on.

## Frequently Asked Questions

**The exit device won't unlock when I use my access control system.**

1. ENSURE PS-SE board that MAIN POWER and OUTPUT POWER LEDs are on.
2. ENSURE SW2 switch (located next to transformer connector J5). Is set on 120 VAC
3. DISABLE Access Control from 1-2 of IN2 and/or 3-4 of IN1 found on J3 and place a jumper wire in 3-4 of IN1.

4. If exit devices activate, problem could be the access controller; ENSURE Jumper on J3 9-10 for Fire Alarm is secure and tight; and, ENSURE connector for BATT BACKUP is in place and secure.
5. CHECK for shorts in the wiring and if fuses are blown in the PS-SE.
6. VERIFY that when power is turned on from the PS-SE, the LED's on the Exit PCBA are on.
7. **IF** the motor retracts the latch when power is applied,  
**AND** no motion is apparent,  
**THEN VERIFY** D2 is blinking.
8. **IF** LED is blinking 3 flashes,  
**AND** is followed by a 1-second pause,  
**THEN REPLACE** the hall effect.

### **I have blown fuses in my PS-SE**

1. **IF** this is a new install,  
**THEN CHECK** for shorts in the wiring, particularly around the exit device and hinge.
2. CHECK for rods binding.

### **The exit device intermittently locks and unlocks**

1. **WHEN** the exit device is activated,  
**AND** the motor retracts,  
**AND** the push bar releases,  
**THEN ENSURE** the line voltage to the PS-SE is 120 VAC  
(acceptable range of 105 VAC to 135 VAC).

### **The bar loses calibration**

1. Did you connect the green ground wire of the bar to Earth ground in the PS-SE? This connection must be made to protect from electrostatic discharge.

## **Troubleshooting**

### **No power to the exit device**

1. ENSURE that the power connector is connected properly, and that all wiring from the power supply is continuous (without opens), and that there are no shorts to ground.

### **Neither exit device retracts after the control switch is activated**

1. ENSURE exit device wires are properly terminated in the PS-SE.

2. ENSURE continuity through the power transfer devices, such as wired hinges and door cords/loops.

### **Main Power LED (Red) is not lit**

1. ENSURE line voltage is present.
2. CHECK Fuse F2 (in black fuse holder) and REPLACE if necessary.
3. ENSURE that the Primary Voltage Selection Switch (SW2) is properly set.

### **Output Power LED on PS-SE Board is not lit**

1. CHECK Fuse F1 and REPLACE if necessary.
2. **IF** Fuse F1 is blown because of a possible short of the wires that run to the exit device,  
**THEN CHECK** for shorts using a meter.
3. ENSURE there is a fire alarm connected between J3-9 and J3-10 or the factory-installed jumper is in place.

### **IN1 and IN2 lights do not light in response to input switches**

1. CHECK to see if an open connection in the field wiring exists between the PS-SE and control switch used for activating the latch solenoids.
2. CHECK if there is a defective control switch on J3-1 and J3-2 or J3-3 and J3-4.

### **OUT1 and OUT2 lights do light in response to input switches**

1. CHECK to see if there is an open connection in the field wiring between the PS-SE and the exit device by doing a continuity check to verify.
2. **IF** previous suggestions do not solve the problem,  
**AND** one exit device works and one does not,  
**THEN PERFORM** the following:
  - a. PROP the door open.
  - b. CONNECT a voltmeter across the black and white leads coming from the exit device.
  - c. ACTIVATE the non-operational exit device.
  - d. **IF** the voltmeter measures approximately 24 VDC at the time of activation,  
**AND** the latch did not budge,  
**THEN** the SE PCBA is not activating the motor,  
**AND REPLACE** the exit device.

## Exit devices retract even though the control switch had not been activated

1. VERIFY that a maintained control switch is being used and it is in the closed position.
2. **IF** it is suspected that the control switch is defective, **THEN DISCONNECT** to verify.

## Approved Replacement Fuses

### CAUTION

**Installing a fuse that exceeds the rating of the original fuse will blow Fuse F3, an internal fuse, and void the warranty. The PS-SE can no longer be used and must be sent back to the factory for replacement.**

The Adams Rite Power Supply has two user-serviceable fuses: F1 and F2. These fuses are described below:

- **F1**  
*2.0 A/250V 5X20MM*  
*1 2C 92.705 SLOW-BLOW*  
Fuse F1 is in line with the transformer output (24VDC).  
Littelfuse P/N: 213002.MXP, Adams Rite P/N: 29-0672
- **F2**  
*2.0 A/250V 5X20MM*  
*1 2C 92.705 SLOW-BLOW*  
Fuse F2 is in line with the transformer input (115 VAC)  
Littelfuse P/N: 213002.MXP, Adams Rite P/N: 29-0672

The Battery Backup System has a fuse in the charger that is the same as F1.

Fuse Replacement must be the same rating. Fuse F3 is not user-serviceable. If replacement is needed, it must be returned to the factory. This fuse will blow if fuse F1 is replaced with a fuse of higher value than recommended.

The average input current for the PS-SE is: 120 VAC, 0.70 Amp

# Connector Signal Descriptions

The following are the connector signal descriptions:

Connector	Pin	Description
J1 Battery Backup	1	Power In 24VDC returned from battery charging system
	2	Power Out 24VDC supplied to battery charging system
	3	Ground Includes Earth ground and Exit Device green wire
J3 Field Wiring	1&2	Input #2: Normally open activation switch
	3&4	Input #1: Normally open activation switch
	5	Exit Device #2
	6	Exit Device #2, + 24 VDC
	7	Exit Device #1
	8	Exit Device #1, + 24 VDC
	9	Fire Relay
	10	Fire Relay
J4 Main Power	L	The Main Power live/hot input.
	N	The Main Power neutral/return input (white conductor).
Green Earth Ground		Connected to PS-SE enclosure and to local earth ground; and connected to SE bar and local earth ground

## SE Exit Device Configuration

1. PERFORM the calibration process for the installed exit device.
  - a. ENSURE power is disconnected.
  - b. **IF** printed circuit board assembly (PCBA) is being replaced, **THEN** INSTALL new PCBA.
  - c. DEPRESS the push bar fully.
  - d. APPLY 24 VDC power to the exit device.
  - e. CONTINUE to hold the push bar until an audible activation sound is heard from the motor, and then RELEASE the push bar to its latched position.

**NOTE:** The push bar cover must be in place for at least 8 seconds for a complete calibration cycle to occur.

- f. **IF** the calibration process does not complete successfully, **THEN** REPEAT Steps [a] – [e].

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