SECURITRON

ASSA ABLOY

EcoPower™ Power Supply

Owner's Manual

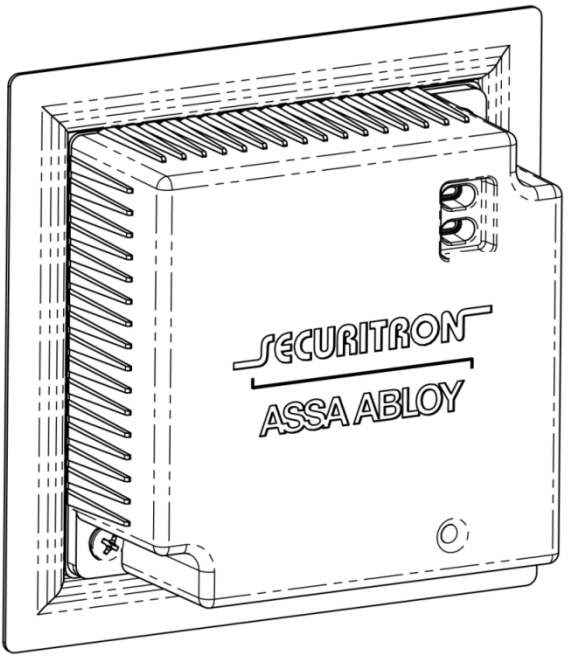


Table of Contents

Warranty 2
Models 3
Structure 3
Block Diagram 4
Specifications 4
Environmental 4
Mechanical 5
Electrical 5
Regulatory Certifications 6
Regulatory Compliance 7
UL294 Access Control Performance Levels for Model EPS-05 Power Supply 7
Status Signaling 8
Access Control and FAI Operations 8
Installing the EcoPower Power Supply 11
Install the EcoPower Power Supply using the included enclosure box (flush with the wall stud and wall surface) 11
Install the EcoPower Power Supply using the included enclosure box and surface mounted 15
Install the EcoPower Power Supply flush with the stud in an existing 2-gang junction box 17

Warranty

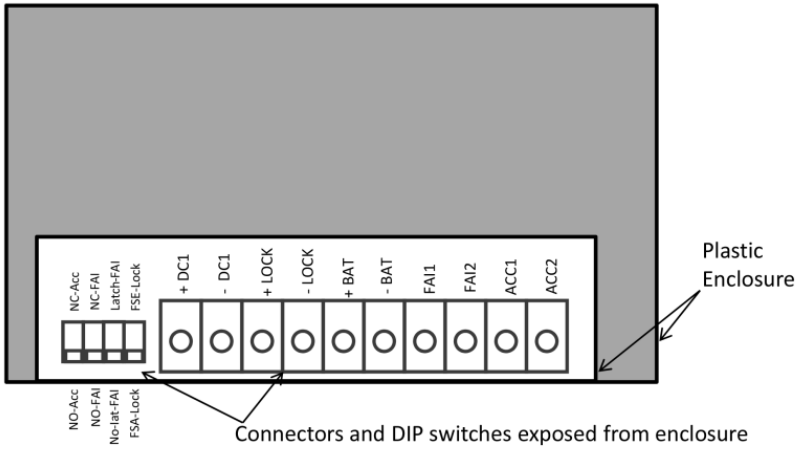
The EcoPower™ Power Supply is covered by the MagnaCare® lifetime replacement no fault warranty. No registration is required. Product will be replaced forever, for any reason, including but not limited to installation error, vandalism, or act of God. Replacement product is shipped at Securitron's expense next day air if needed.

For more information, visit www.securitron.com

Models

EPS-05	EcoPower Power Supply in Enclosure
EPS-05B	EcoPower Power Supply PCB only

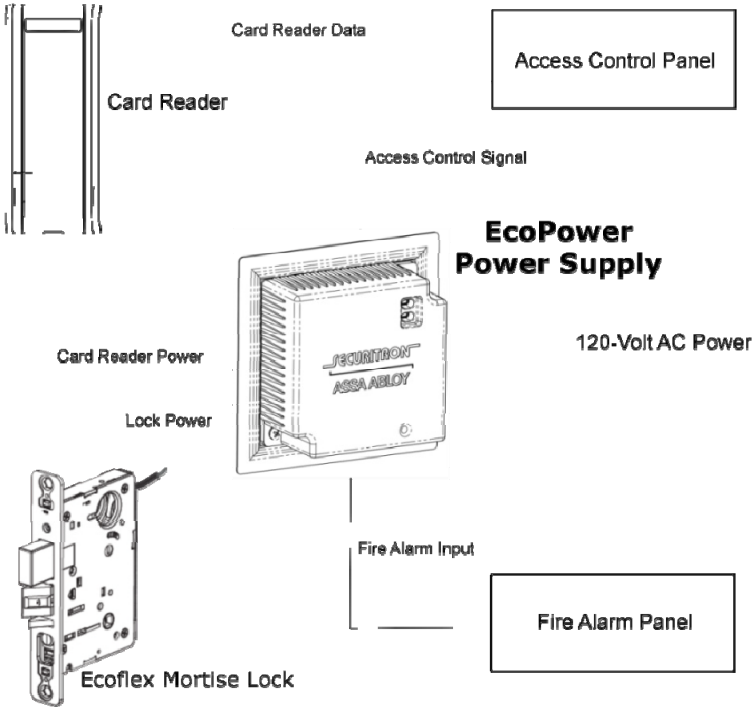
Structure



NOTE: See Electrical Specifications for details.

DC1:	Card Reader output, 12 VDC nominal
LOCK:	Lock output, 12 VDC nominal
Lock Type Supported:	Fail Safe and Fail Secure (selectable via dip switch)
BAT:	Battery charging output
FAI 1 & 2:	Fire Alarm Interface (dry contact, NO or NC)
FAI Response:	Unlatched or Latched (selectable via dip switch)
ACC 1 & 2	Access Control input (dry contact, NO or NC)
Total Output Current:	0.5A peak 0.1A continuous

Block Diagram



Specifications

Environmental

Parameter	Value
Operating Ambient Temperature	0 to +49° Celsius (C)
Design Product Life	10 years, +49°C ambient, continuous full load
Storage Temperature	-25 to +85°C
Operating Humidity	5 to 90%, non-condensing

Mechanical

Parameter	Value
Enclosure	Polycarbonate, UL294 Level 1
Enclosure dimensions	4 1/8” X 4 1/8” X 3 13/16”
AC input wiring	3-wire with strain relief
DC1, LOCK, BAT, FAI, ACC wiring	10-position terminal strip

Electrical

Parameter	Value
Input Voltage Range	100–240 VAC, ±10%
Input Frequency	50–60 Hz
Input Surge Resistance	6000 Vpk
Access Control Input VDC, 0.02A minimum	Dry Contact, NO or NC; 32
Fire Alarm Interface Input VDC, 0.02A minimum	Dry Contact, NO or NC; 32
Hi-Pot Test	2500 VAC or 3535 VDC
Leakage Current	< 0.5 mA
Output Voltage at No Load	Set to 14.0 VDC, ± 0.2%
Number of Outputs	Two (2) Outputs: DC1 (Reader): 12 VDC nominal (9.4–14.6 VDC for compatibility) LOCK: 12 VDC nominal (9.4–14.6 VDC for compatibility) If the battery is discharged below 9.4V, the lock output is de-energized
Total Peak Output Current	0.5A (Total current from both outputs for at least 1 second)
Total Continuous Output Current	0.1A (Total continuous current from both outputs)
Charging Current (BAT)	12 VDC nominal, 0.1A maximum continuous, 0.34A peak (< 2 seconds)
Standby Power	< 20 mW at 230V, < 10mW at115V
Load Regulation	< 2.5% at 100 mA
Line Regulation	< 0.2%

Output Voltage Ripple and Noise	< 0.14 Vpp (20 MHz bandwidth limit measurement)
Output Surge Resistance	2400 Vpk
Output Over Voltage Protection	Under any single point condition, output voltage shall not exceed 120% of nominal voltage
Battery Type and Capacity	Sealed Lead Acid (SLA), 12V, 0.8 Ah
Battery Standby Time	20.5 hours dependent on lock type (FSA or FSE) and usage. Battery standby time is designed for EcoFlex lock with optional H1 controller only (not for 100 mA load). H1 controller draws an average of 5 mA. The two total current draw is about 20 mA.

Total Load Current	0.8 Ah Battery Backup Time
20 mA	20.5 hours
50 mA	6.5 hours
100 mA	2 hours

NOTE: 50% - battery discharge time from fully charged condition.

Regulatory Certifications

- **UL294**, "Access Control System Unit," 6th Edition
- **UL603**, "Power supply for use with Burglar Alarm System," 5th Edition
- **CAN/ULC-S533**, "Egress Door Securing and Releasing Devices," 3rd Edition
- **GreenCircle Certified** (99% Energy Savings)

Regulatory Compliance

- **EN60950-1:2006+A11:2009+A1:2010+A12:2011**, "Information Technology Equipment–Safety"
- **FCC Part 15, Subpart B**, "(unintentional radiator), Class A for industrial and commercial use"
- **EN55022:2010**, "Class A for industrial and commercial use"
- **EN55024:2010**
- **EN61000-3-2:2006+A1:2009+A2:2009**
- **EN61000-3-3:2008**
- **CE LVD and EMC directives currently in effect**
- **EU RoHS Directive**
- **EU REACH Regulation**

UL294 Access Control Performance Levels for Model EPS-05 Power Supply

NOTE: Without an attack-resistant enclosure, the EPS-05 cannot power Mercantile, Bank Safe and Vault audible alarm devices or Digital Alarm Communicator Transmitters (DACTs).

Access Control Line Security	Destructive Attack	Endurance	Standby Power	Example Conditions and Notes
I	I	IV	IV	Standby Power Level IV when used with Ecoflex Lock and H1 Controller

Status Signaling

Green LED Signaling	AC Power Mode: Solid on AC Standby Mode: 2s on / 2s off AC Lost Mode: 1s on / 2s off Output Voltage Abnormal: OFF Battery Disconnected: Rapid flash (4 times per second, then off for 1 second) **NOTE:** Black text indicates condition; green text indicates corresponding LED lighting pattern.
Red LED Signaling	Power Supply Alarm Mode: ON Power Supply Normal Mode: OFF Output Voltage Abnormal: Blink at 1 Hz Battery Discharged Below 9.6V: Blink at0.5 Hz **NOTE:** If alarm has occurred and FAI set to latch mode, power supply stays in alarm mode until the reset button on the front panel is pressed.
Buzzer	Beep at 1/3 Hz for 30 seconds every 15 minutes **NOTE:** Reset battery by pressing the reset button on front panel for 5 seconds to silence alarm for 24 hours.

Access Control and FAI Operations

The following table describes how the lock power output (DC2) responds to the access control input under various DIP switch settings. This table is only valid when the EcoPower has not received a fire alarm activation signal at the FAI input.

Access Control Input	**DIP Switch Settings**		**Output**	
Access Dry Contact State	**Access DIP Switch Setting**	**Lock Type DIP Switch Setting**	**LOCK Output Voltage**	**FAI LED (RED)**
Open	NO	Fail-Safe (FSA)	On	Off
Open	NO	Fail-Secure (FSE)	Off	Off

Access Control Input	DIP Switch Settings		Output	
Access Dry Contact State	**Access DIP Switch Setting**	**Lock Type DIP Switch Setting**	**LOCK Output Voltage**	**FAI LED (RED)**
Open	NC	FSA	Off	Off
Open	NC	FSE	On	Off
Closed	NO	FSA	Off	Off
Closed	NO	FSE	On	Off
Closed	NC	FSA	On	Off
Closed	NC	FSE	Off	Off

NOTE: Because the lock circuit fails secure, listed panic hardware shall be used to allow emergency exit from the protected area.

The following table describes lock power output behavior when there is an active fire alarm signal at the FAI input. This ensures the **door is unlocked** when there is an active fire alarm signal. It should be noted that the FAI signal will always override the access control signal.

FAI Signal	DIP Switch Settings		Output	
FAI Dry Contact State	FAI DIP SW Setting	Lock Type DIP SW Setting	LOCK Output Voltage	FAI LED (RED)
Open	NC	FSA	Off	On
Open	NC	FSE	On	On
Closed	NO	FSA	Off	On
Closed	NO	FSE	On	On

NOTE 1: Unit should only be connected to a fire alarm panel when used in a FSA configuration.

NOTE 2: If the DIP switch for FAI latching is set to the “Latched” Position, the LOCK output and the red LED will remain in fire alarm state even when an active FAI input is removed. The user will need to depress the reset button on the bottom right of the front panel for 1 second (see Figure 1, “Reset Button and LED Locations”) to reset the fire alarm state (red LED off and lock per access control input). The factory default DIP switch settings are as follows:

DIP Switch Name	Default Position	Notes
Access control input	Normally Open (NO)	Normally Closed (NC)
FAI input	NO	NC
FAI Latch	FAI Latching Disabled	FAI Latching Enabled
Lock Type	Fail-Safe (FSA)	Fail-Secure (FSE)

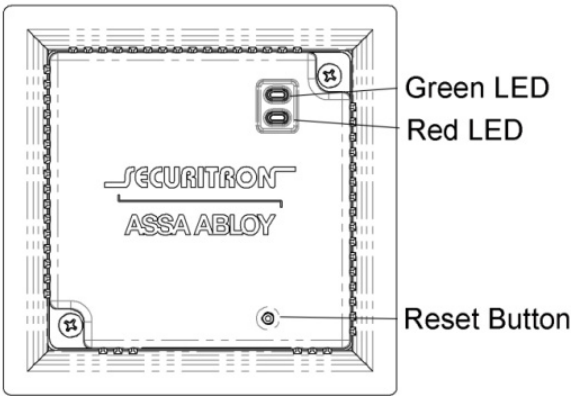


Figure 1: Reset Button and LED Locations

Installing the EcoPower Power Supply

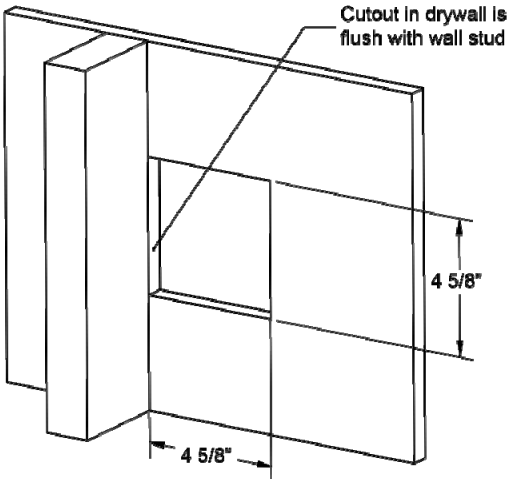
NOTE 1: Installation should be performed by a qualified service person, who conforms to all local codes and complies with The National Electrical Code (or equivalent).

NOTE 2: The EcoPower Power Supply can be installed in either a standard, existing 2-gang junction box (flush with the wall stud), or the included enclosure box (flush with the wall stud and drywall surface), or an enclosure surface mounted on the wall.

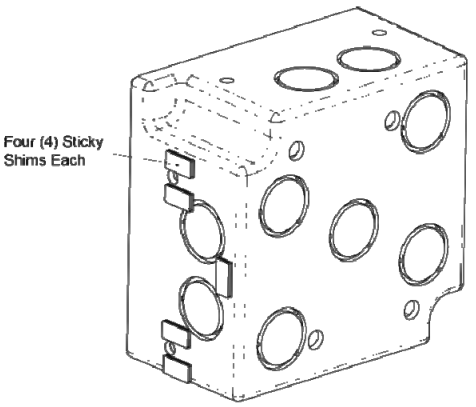
Install the EcoPower Power Supply using the included enclosure box (flush with the wall stud and wall surface)

NOTE: Due to the location of the conduit knockouts on the included plastic enclosure, the EcoPower Power Supply will finish with a flush mount look.

1. DETERMINE location to mount the EcoPower Power Supply.
2. CUT a 4 5/8” by 4 5/8” hole in drywall.

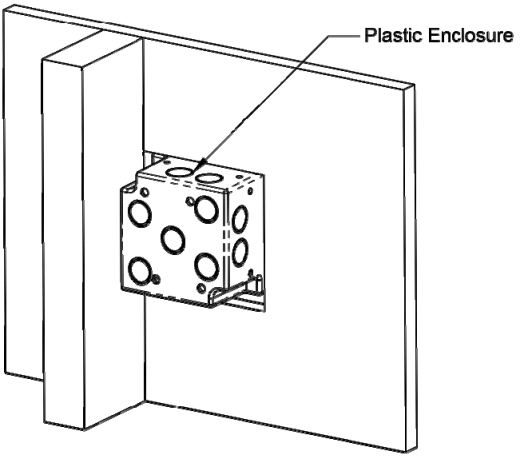


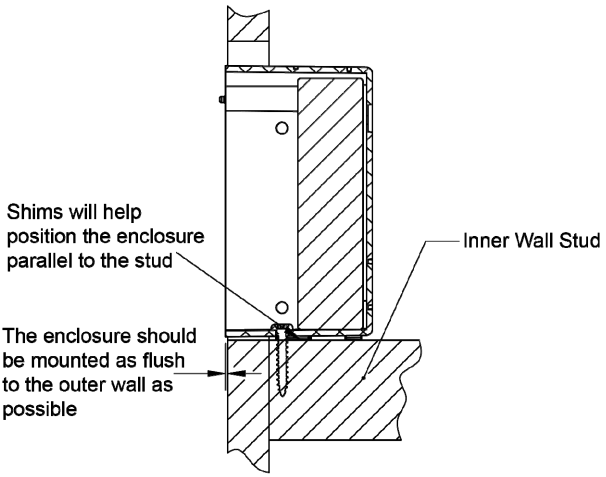
3. PLACE sticky shims on the side of the enclosure to be mounted to the stud.



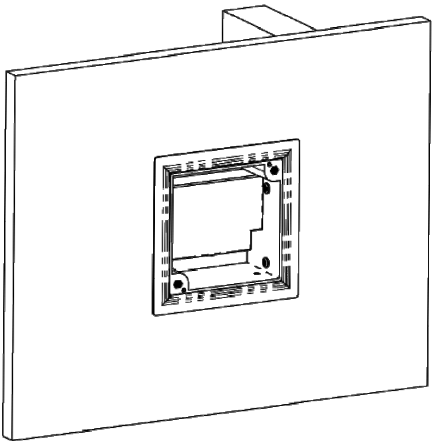
NOTE: Drilling two small pilot holes (approximately 1/16”) for the included mounting screws eases installation.

4. MOUNT enclosure to stud using the two included screws.





5. PEEL off the backing for the double-stick tape on the back of the dress ring, and PUSH the dress ring onto the enclosure.



NOTE 1: It is recommended that the conduit be installed on the top and bottom of the enclosure box for wiring and the battery be installed horizontally.

NOTE 2: These products are intended to be installed with conduit fittings in the field. Connections should be used that are compatible with the Type 1 rated enclosure.

6. ENSURE wire conduit is connected to the junction box with strain relief.

NOTE 1: The battery may be oriented in the junction box either vertically or horizontally as long as the connection wires from the battery and power supply module have a clear pathway to the attached wire conduits.

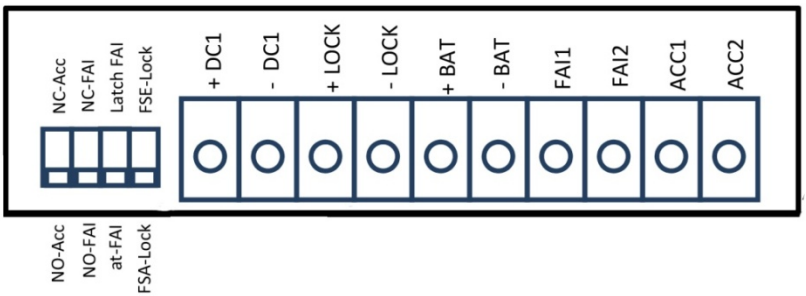
NOTE 2: If the included battery/battery-type is <u>not</u> used, fish paper must be used to provide insulation for the installed battery.

7. INSTALL the battery into the junction box.

8. (Optional) REMOVE the power supply module from the cover to ease in connection of wiring.

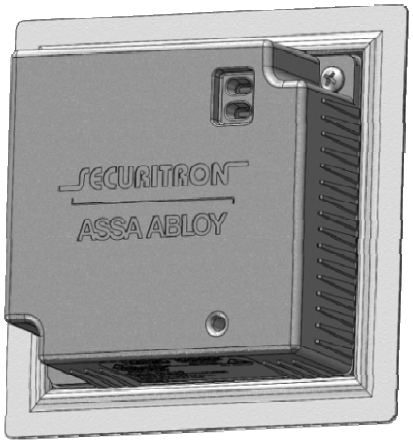
NOTE: Wiring must be Class 1.

9. CONNECT the access control device, access control panel, fire alarm interface, battery, and lock wiring to the power supply module terminals.



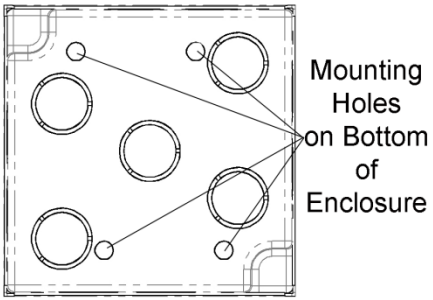
10. (Optional) INSTALL the power supply module back into the cover, ensuring the LEDs are facing out at the top right, and SECURE with the two installation screws.

11. CONFIGURE the dipswitch settings as needed for your application.
12. CONNECT AC mains power and Earth Ground, and Earth Ground connections so continuity is maintained.
13. MOUNT the cover to the enclosure using the two captive screws.

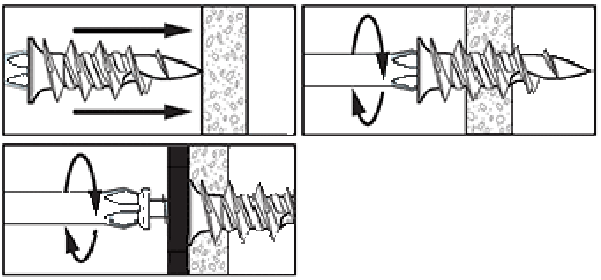


Install the EcoPower Power Supply using the included enclosure box and surface mounted

1. DETERMINE location to mount the EcoPower Power Supply.
2. MARK the positioning of the 4 enclosure mounting holes on the drywall surface.
3. CUT holes for conduit, if needed.



4. ATTACH appropriate drywall anchors (one example shown).



5. MOUNT enclosure box to drywall using the screws to attach it to the drywall anchors.

NOTE: It is recommended that the conduit be installed on the top and bottom of the enclosure box for wiring and the battery be installed horizontally.

6. ENSURE wire conduit is connected to the enclosure with strain relief.

NOTE 1: The battery may be oriented in the junction box either vertically or horizontally as long as the connection wires from the battery and power supply module have a clear pathway to the attached wire conduits.

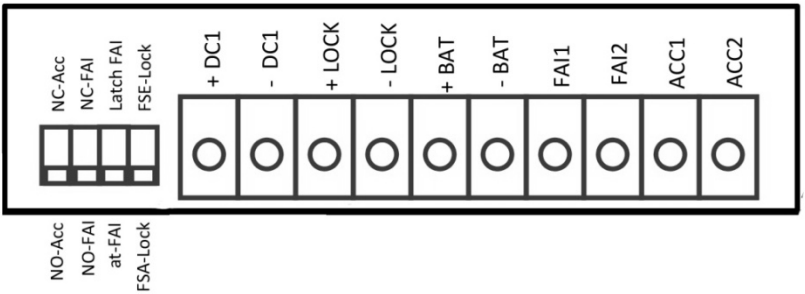
NOTE 2: If the included battery/battery-type is not used, fish paper must be used to provide insulation for the installed battery.

7. INSTALL the battery into the junction box.

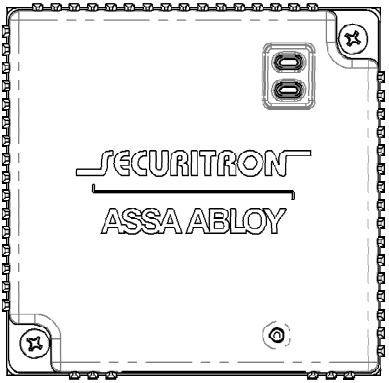
8. (Optional) REMOVE the power supply module from the cover to ease in connection of wiring.

NOTE: Wiring must be Class 1.

9. CONNECT the access control device, access control panel, fire alarm interface, battery, and lock wiring to the power supply module terminals.



10. (Optional) INSTALL power supply module back into the cover and SECURE with two installation screws.
11. CONNECT AC mains power and Earth Ground, and Earth Ground connections so continuity is maintained.
12. MOUNT the cover to the junction box using the two captive screws.

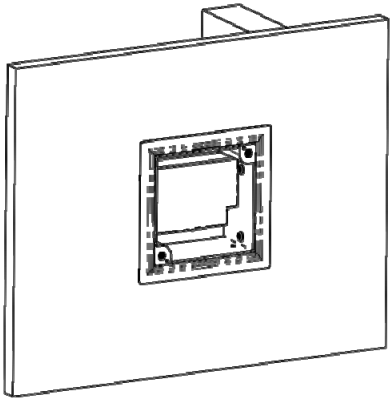


Install the EcoPower Power Supply flush with the stud in an existing 2-gang junction box

NOTE: Due to the location of the conduit knockouts on a standard junction box, the EcoPower Power Supply will finish with a slightly recessed look.

1. DETERMINE location to mount the EcoPower Power Supply.
2. WIDEN the junction box (drywall) cutout to 4 5/8” by 4 5/8”

3. PEEL off the backing for the double-stick tape on the back of the dress ring, and PUSH the dress ring onto the junction box.



NOTE: It is recommended that the conduit be installed on the top and bottom of the enclosure box for wiring and the battery be installed horizontally.

4. ENSURE wire conduit is connected to the junction box with strain relief.

NOTE 1: The battery may be oriented in the junction box either vertically or horizontally as long as the connection wires from the battery and power supply module have a clear pathway to the attached wire conduits.

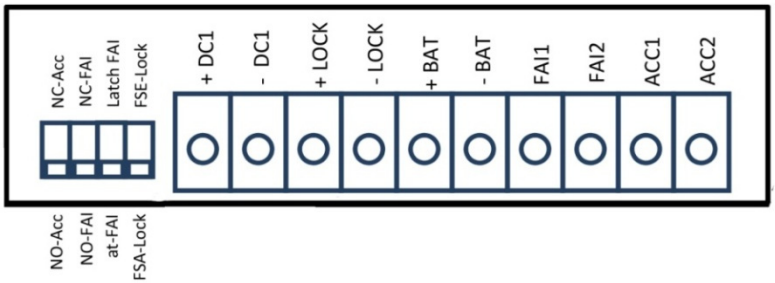
NOTE 2: If the included battery/battery-type is not used, fish paper must be used to provide insulation for the installed battery.

5. INSTALL the battery into the junction box.

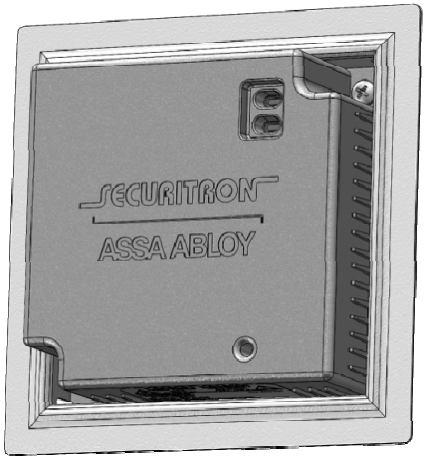
6. (Optional) REMOVE the power supply module from the cover to ease in connection of wiring.

NOTE: Wiring must be Class 1.

7. CONNECT the access control device, access control panel, fire alarm interface, battery, and lock wiring to the power supply module terminals.



8. (Optional) INSTALL the power supply module back into the cover, ensuring the LEDs are facing out at the top right, and SECURE with the two installation screws.
9. CONNECT AC mains power and Earth Ground, and Earth Ground connections so continuity is maintained
10. MOUNT the cover to the junction box using the two captive screws.



Securitron
Phoenix, AZ
Tel: 1.800.624.5625
Mon-Fri: 6:00am - 4:00pm PDT
Fax: 1.800.232.7329

www.securitron.com
techsupport@securitron.com

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500-33530, Rev B