



FN-1024ULX
Power Supply/Charger
Installation Guide



Overview:

The FN-1024ULX is a power supply that converts a 115VAC / 60Hz input, to a 24VDC regulating output (see specifications below).

Specifications:

Agency Listings:

- UL File # S4707:
 - UL Listed for Access Control System Units (UL 294).
 - UL Listed Standard for Safety for Fire Protective Signaling Systems (UL 1481).
- CSFM- California State Fire Marshal Approved.
- FM Approved.

Input:

- Input 115VAC / 60Hz, 4.4 amp.

Output:

- 24VDC output.
- 8 amp supply current with 10 amp during alarm.
- Filtered and electronically regulated outputs.
- Short circuit and thermal overload protection.

Battery Backup:

- Built-in charger for sealed lead acid or gel type batteries.
- Automatic switch over to stand-by battery when AC fails.

- Maximum charge current 3.6 amp.
- Zero voltage drop when switched over to battery backup.

Supervision:

- AC fail supervision (form "C" contacts).
- Low battery supervision (form "C" contacts).
- Battery presence supervision (form "C" contacts).

Additional Features:

- AC input and DC output LED indicators.
- Power supply, enclosure, cam lock and battery leads

Enclosures:

FN-1024ULX-G (Grey Enclosure)
FN-1024ULX-R (Red Enclosure)
FN-1024ULX-C (Charcoal Grey Enclosure)
FN-1024ULX-B (Black Enclosure)
Dimensions: 15.5"H x 12"W x 4.5"D

Installation Instructions:

The unit should be installed in accordance with article 760 of The National Electrical Code as well as NFPA 72 and all applicable Local Codes.

1. Mount the unit in desired location.
2. Secure enclosure to earth ground. Connect AC power (115VAC / 60 Hz to terminals marked [L, G, N] (*Fig. 1, pg. 3*). Use 14 AWG or larger for all power connections (Battery, DC output, AC input). Use 22 AWG to 18 AWG for power limited circuits (AC Fail/Low Battery reporting). Keep power limited wiring separate from non-power limited wiring (115VAC / 60Hz Input, Battery Wires). Minimum .25" spacing must be provided.
3. Measure output voltage before connecting device. This helps avoid potential damage.
When servicing the unit, AC mains should be removed.
4. Connect devices to be powered to terminals marked [+ DC -], carefully observing correct polarity (*Fig. 1, pg. 3*)
5. For Access Control applications, batteries are optional. When batteries are not used a loss of AC will result in the loss of output voltage. When the use of stand-by batteries is desired, they must be lead acid or gel type.
6. Connect appropriate signaling notification devices to terminals marked [AC FAIL & BAT FAIL] (*Fig. 1, pg. 3*) supervisory relay outputs.
Note: When used in fire alarm, burglar alarm or access control applications, "AC Fail" relay must be used to provide a visual indication of AC power on.
7. Please insure that the cover is secured with the provided Key Lock.

LED Diagnostics:

AL1024ULXB - Power Supply Board

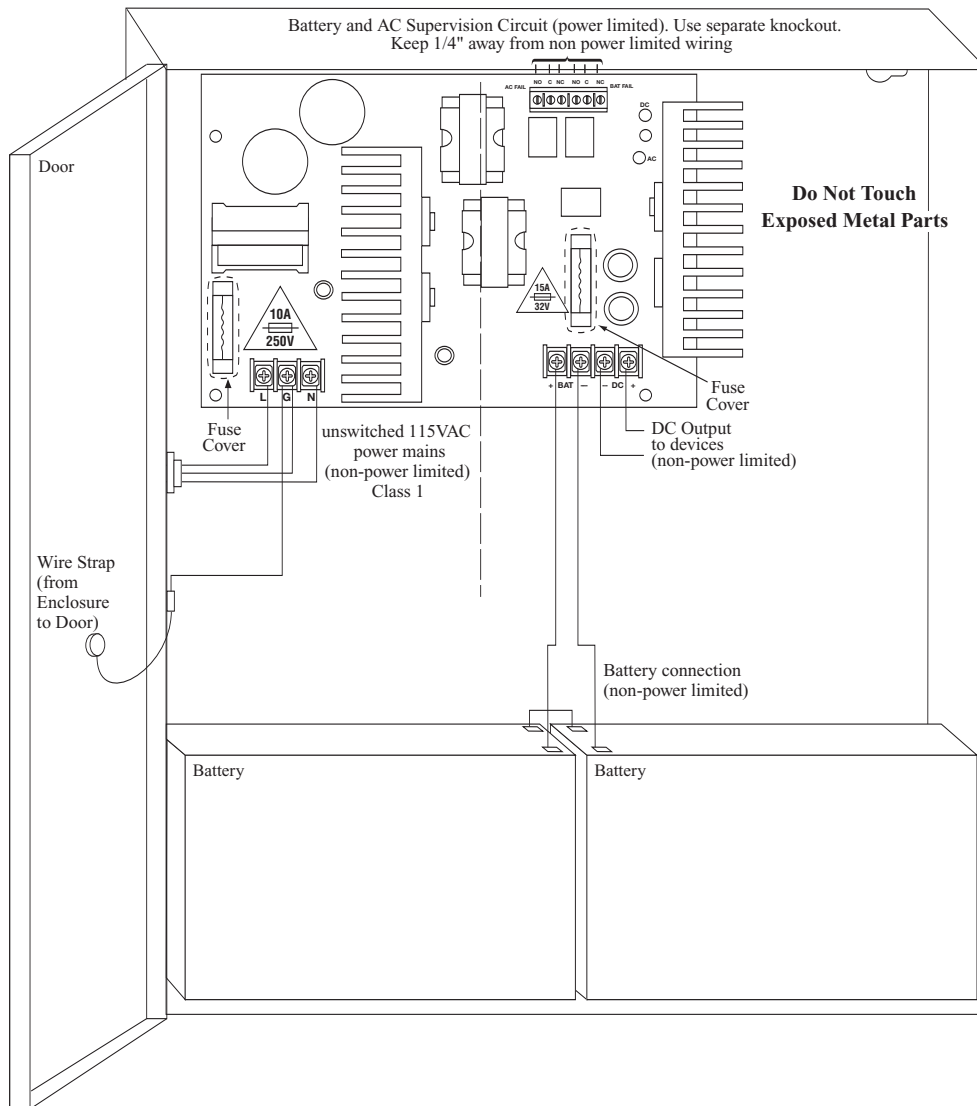
| Red (DC) | Green (AC) | Power Supply Status |
|----------|------------|--|
| ON | ON | Normal operating condition |
| ON | OFF | Loss of AC, Stand-by battery supplying power |
| OFF | ON | No DC output |
| OFF | OFF | Loss of AC. Discharged or no stand-by battery. No DC output. |

**Terminal Identification:
AL1024ULXB - Power Supply Board**

| Terminal Legend | Function/Description |
|---------------------------|--|
| L, G, N | Connect 115VAC to these terminals: L to Hot, N to Neutral, G to ground. |
| - DC + | 24VDC @ 8 amp continuous, 10 amp in alarm non-power limited output, 10 amp continuous when batteries are not used. |
| AC FAIL N.O., C, N.C. | Used to notify loss of AC power, e.g. connect to annunciator/alarm panel. Relay normally energized when AC power is present. Contact rating 1 amp @ 28VDC. AC or brownout fail is reported within 1 minute of event. To delay reporting of up to 6 hrs., cut "AC delay" jumper and reset power to unit. |
| BAT FAIL N.O., C, N.C. | Used to indicate low battery condition, e.g. connect to alarm panel. Relay normally energized when DC power is present. Contact rating 1 amp @ 28VDC. A removed battery is reported within 1 minute. Battery reconnection is reported within 1 minute. Low battery threshold: @ approximately 21VDC. |
| + BAT - | Stand-by battery connections. Maximum charge rate 3.6 amp. |

Fig. 1

CAUTION: De-energize unit prior to servicing. For continued protection against fire hazard replace fuses with the same type and rating, power supply board input fuse 10A, 250V, output fuse 15A, 32V. Replace protective cover on the fuses of the power supply board, before energizing the unit. Do not expose to rain or moisture.



Stand-by Specifications (total current shown):

| | | | | |
|----------------------|--|--------------------------------------|---------------------------------------|---------------------------------------|
| Output | 15 Min. of Stand-by & 5 Mins. of Alarm | 4 hr. of Stand-by & 5 Mins. of Alarm | 24 hr. of Stand-by & 5 Mins. of Alarm | 60 hr. of Stand-by & 5 Mins. of Alarm |
| 24VDC / 12AH Battery | Stand-by = 8 amp Alarm = 10 amp | Stand-by = 1.5 amp Alarm = 10 amp | Stand-by = 200mA Alarm = 10 amp | Stand-by = 100mA Alarm = 10 amp |

| | | | | |
|----------------------|---|--------------------------------------|--|--|
| Output | 15 Min. of Stand-by & 15 Mins. of Alarm | 4 hr. of Stand-by & 5 Mins. of Alarm | 24 hr. of Stand-by & 15 Mins. of Alarm | 60 hr. of Stand-by & 15 Mins. of Alarm |
| 24VDC / 65AH Battery | | Stand-by = 8.0 amp Alarm = 10 amp | Stand-by = 1.5 amp Alarm = 10 amp | Stand-by = 500mA Alarm = 10 amp |

See battery size calculation worksheet for other batteries (Page 5).

Wiring:

USE 14 AWG or larger for all power connections.

Note: Take care to keep power limited circuits separate from non-power limited wiring (115VAC, Battery).

Maintenance:

Unit should be tested at least once a year for the proper operation as follows:

Output Voltage Test: Under normal load conditions, the DC output voltage should be checked for proper voltage level.

Battery Test: Under normal load conditions check that the battery is fully charged, check specified voltage both at battery terminal and at the board terminals marked [- BAT +] to insure there is no break in the battery connection wires.

Note: Maximum charging current under discharges is 3.6 amp.

Note: Expected battery life is 5 years, however it is recommended changing batteries in 4 years or less if needed.

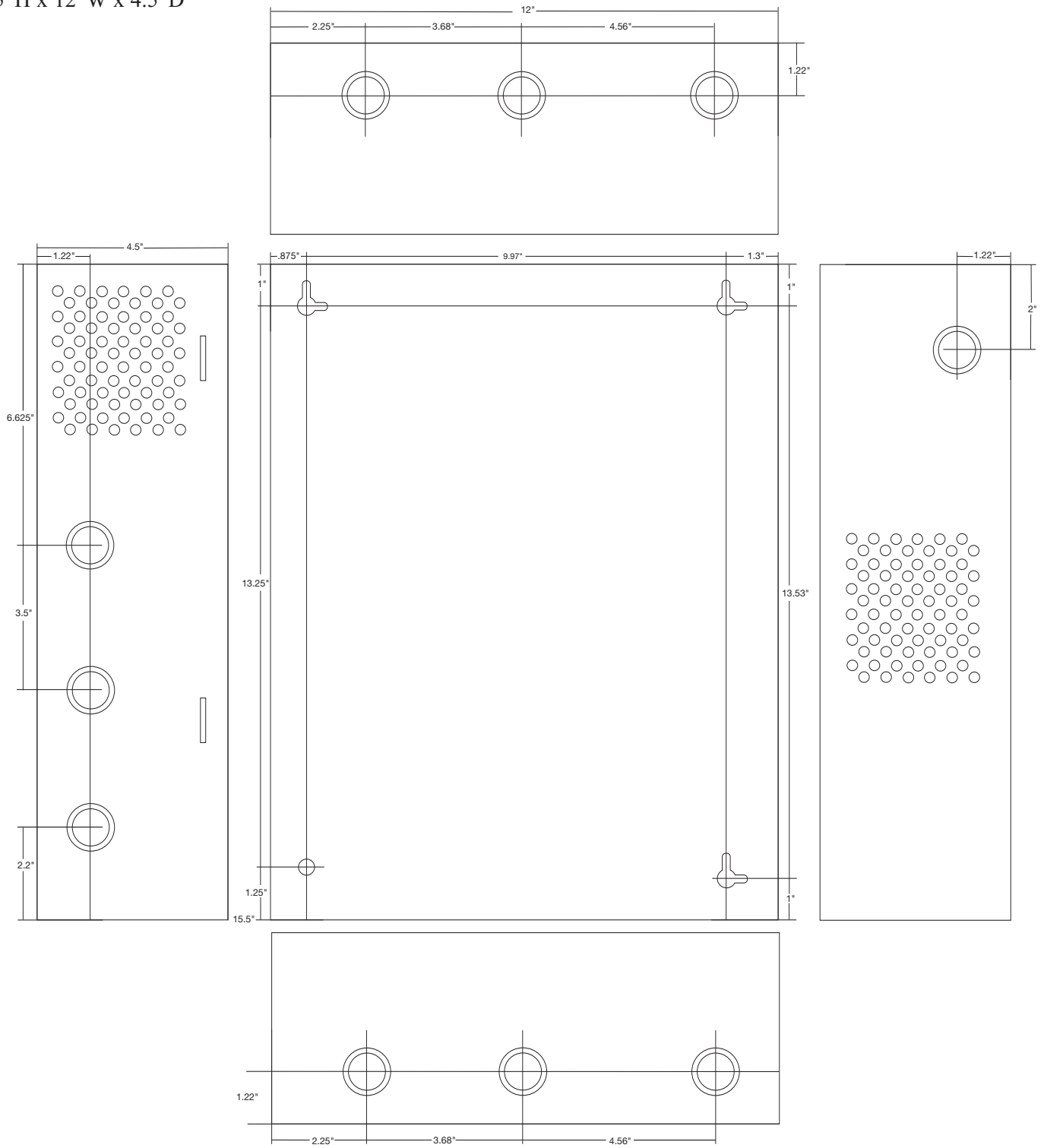
Battery size calculation worksheet.

| | | | |
|--|-------------------------|-------|-------|
| A. FN-1024ULX internal current consumption | (standby) | _____ | .05 A |
| B. Load current consumption | (standby) | _____ | A |
| C. Standby time required (hours) | | _____ | H |
| D. Battery capacity required for standby | $(A+B)*C$ | _____ | AH |
| E. FN-1024ULX internal power consumption | (Alarm) | _____ | .05 A |
| F. Load current consumption | (Alarm) | _____ | A |
| G. Alarm duration (Hours, 15 Min=.2 Hour) | (Alarm) | _____ | H |
| H. Battery capacity required for Alarm | $(E+F)*G$ | _____ | AH |
| I. Total calculated battery capacity | $D+H$ | _____ | AH |
| J. Battery capacity required | $I*1.8$ (safety factor) | _____ | AH |

Note: Power supply is designed to work with batteries up to 65AH. Please note, line [I] must not exceeds 36AH. You have to reduce either standby current consumption or standby time in order to comply with requirement.

To determine actual battery size please round line [J] to the nearest larger standard battery size (e.g. 3.5 AH = 4.0 AH).

Enclosure Dimensions:
 15.5"H x 12"W x 4.5"D



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