



FN-1024X-220
Power Supply/Charger
Installation Guide

Overview:

The FN-1024X-220 is a power supply that converts a 220VAC / 60Hz input to a 24VDC regulating output (see specifications below).

Specifications:

Input:

- Nominal 220VAC 50/60Hz, 2.5 amp.

Output:

- 24VDC output.
- 8 amp supply current in non-alarm condition with 10 amp supply current during alarm for Fire Alarm Applications.
- 10 amp supply current for Access Control Applications.
- 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-1024X-R-220 (Red Enclosure)

FN-1024X-C-220 (Charcoal Grey Enclosure)

Enclosure Dimensions:

15.5” x 12” x 4.5” (393.7mm x 304.8mm x 114.3mm)

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 unit in the desired location. Mark and predrill holes in the wall to line up with the top two keyholes in the enclosure. Install two upper fasteners and screws in the wall with the screw heads protruding. Place the enclosure's upper keyholes over the two upper screws; level and secure. Mark the position of the lower two holes. Remove the enclosure. Drill the lower holes and install two fasteners. Place the enclosure's upper keyholes over the two upper screws. Install the two lower screws and make sure to tighten all screws (*Enclosure Dimensions, pg. 6*).
2. Connect AC power (220VAC 50/60 Hz) to the terminals marked [L, 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).
3. Measure output voltage before connecting devices. This helps avoiding potential damage. When servicing the unit, AC mains should be removed.

Keep power-limited wiring separate from non power-limited wiring (220VAC 50/60Hz Input, Battery Wires). Minimum 0.25” spacing must be provided.

CAUTION: Do not touch exposed metal parts. Shut branch circuit power before installing or servicing equipment. There are no user serviceable parts inside. Refer installation and servicing to qualified service personnel.

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 the 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.

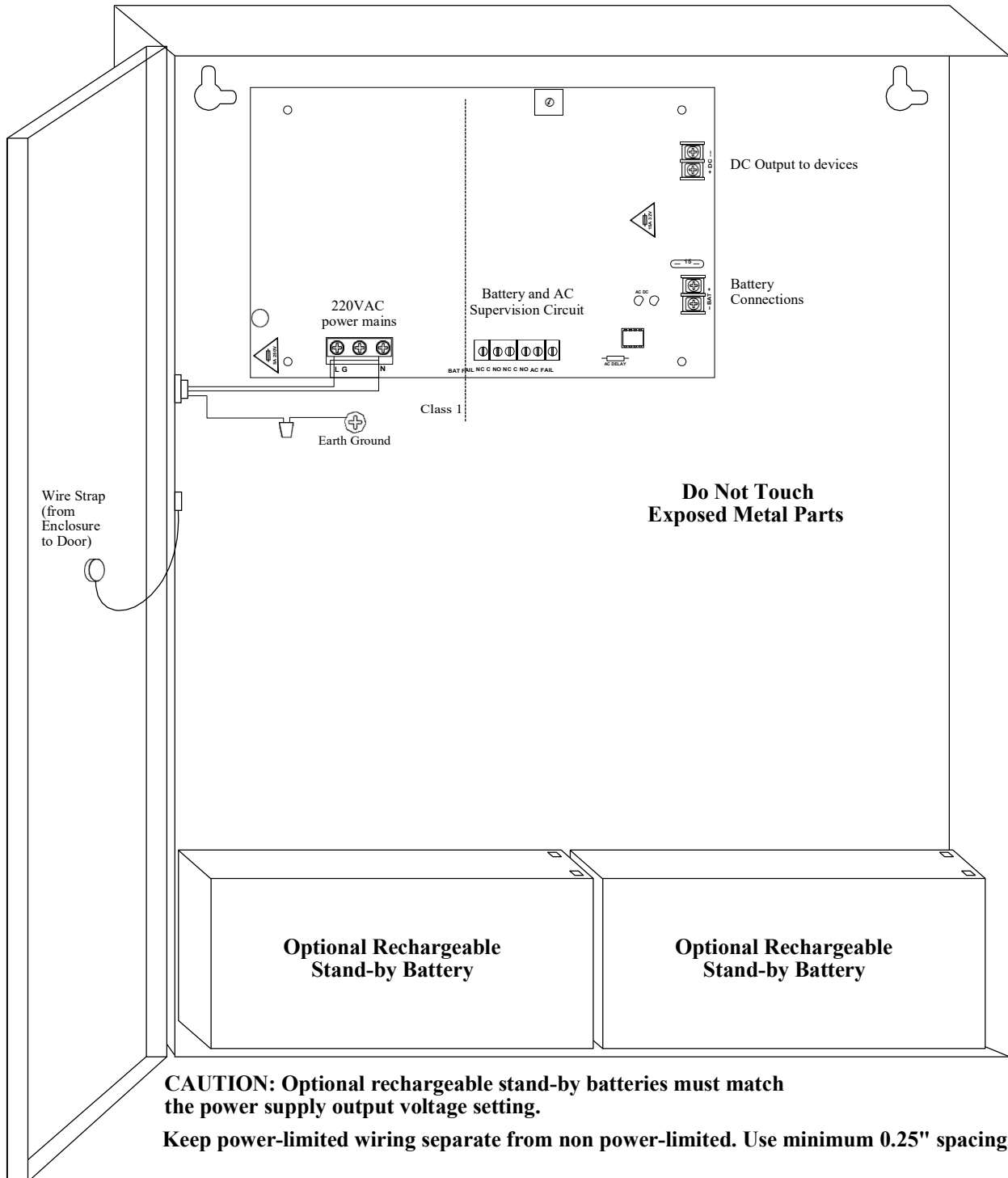
7. Please ensure that the cover is secured with the provided Key Lock.

LED Diagnostics:

| 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. |

Fig. 1

CAUTION: De-energize unit prior to servicing. For continued protection against risk of electric shock and fire hazard replace fuses with the same type and rating. Do not expose to rain or moisture.



Terminal Identification:

| Terminal Legend | Function/Description |
|------------------------|--|
| L, N | Connect 220VAC 50/60Hz to these terminals: L to hot, N to neutral. Do not use the [G] terminal. |
| + DC - | 8 amp supply current in non-alarm condition with 10 amp supply current during alarm for Fire Alarm Applications. 10 amp supply current for Access Control Applications. |
| AC Fail NC, C, NO | Indicates loss of AC power, e.g. connect to audible device or 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 for up to 6 hrs., cut "AC delay" jumper and reset power to unit. |
| Bat Fail NC, C, NO | Indicates 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 5 minutes. Battery reconnection is reported within 1 minute. Low battery threshold: 24VDC output threshold set @ approximately 21VDC. |
| - BAT + | Stand-by battery connections. Maximum charge current 3.6 amp. |

Stand-by Specifications (total current shown):

| Output | 15 min. of Stand-by & 5 min. of Alarm | 4 hr. of Stand-by & 5 min. of Alarm | 24 hr. of Stand-by & 5 min. of Alarm | 60 hr. of Stand-by & 5 min. 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 & 5 min. of Alarm | 4 hr. of Stand-by & 5 min. of Alarm | 24 hr. of Stand-by & 15 min. of Alarm | 60 hr. of Stand-by & 15 min. 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 |

For Access Control applications battery capacity for 10 amp supply current - 1 hr. for 24VDC/12AH battery, 6.5 hrs. for 24VDC/65AH battery.

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 (220VAC, 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 the battery terminal and at the board terminals marked [- BAT +] to ensure that 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.

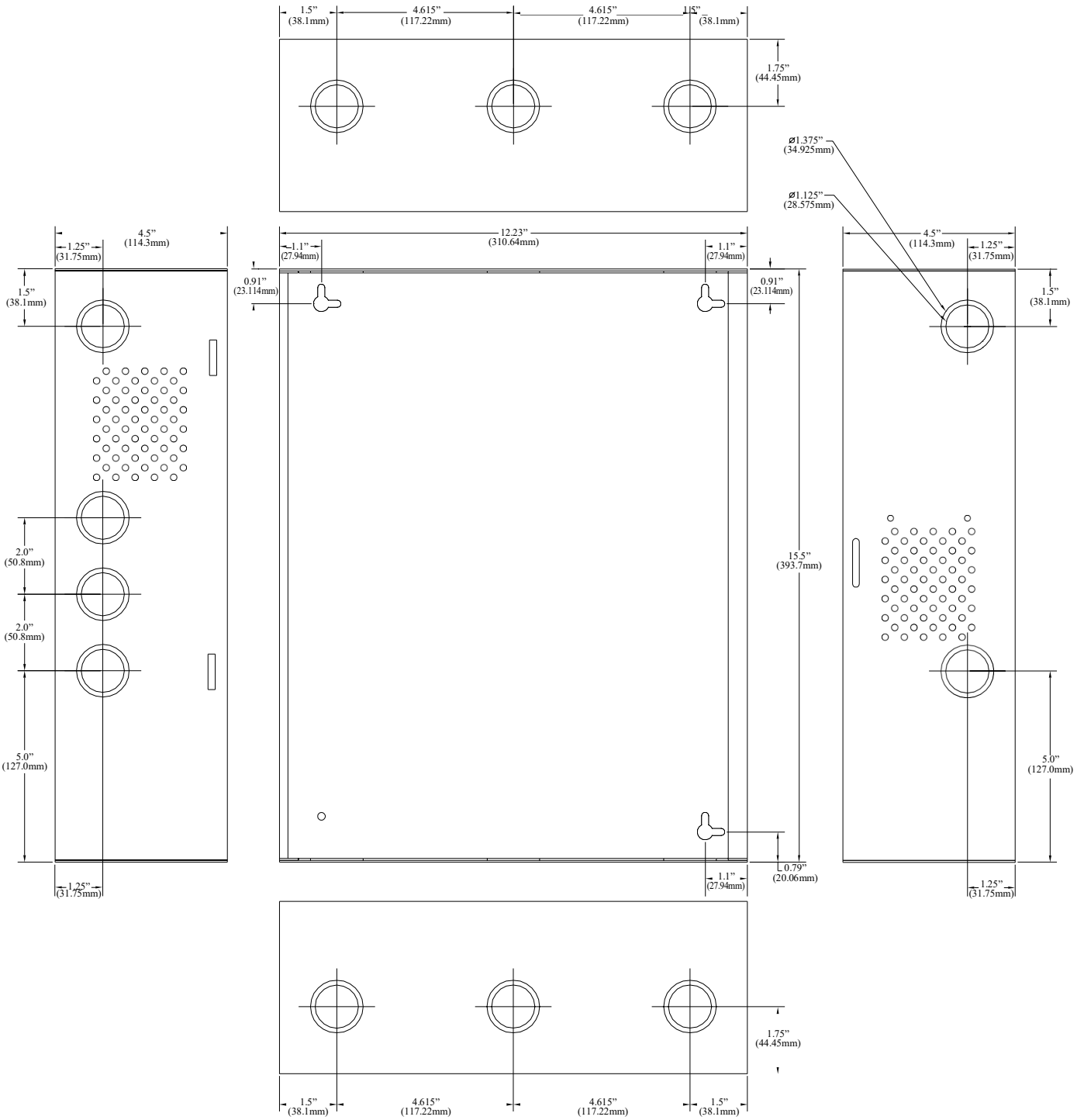
Battery Size Calculation Worksheet:

| | | | |
|----|--|-------|--------|
| A. | FN-1024X-220 internal current consumption (stand-by) | _____ | 0.05 A |
| B. | Load current consumption (stand-by) | _____ | A |
| C. | Stand-by time required (hours) | _____ | H |
| D. | Battery capacity required for standby (A+B)*C | _____ | AH |
| E. | FN-1024X-220 series internal power consumption (Alarm) | _____ | 0.05 A |
| F. | Load current consumption (Alarm) | _____ | A |
| G. | Alarm duration (Hours; 15 Min = 0.25 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: FN-1024X-220 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" x 12" x 4.5" (393.7mm x 304.8mm x 114.3mm)
 * The door is included



Notes:

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