

# AL1024NK8 Series

Dual Output Power Supply/Chargers

## Models Include:

Ordering Number:

**AL1024NK8**

8 Fused Outputs Kit

Fully assembled kit includes:

- BC400 Enclosure
- AL1024ULXB2 – Power Supply/Charger
- PDS8 – Dual Input/Output  
Fused Power Distribution Module
- VR6 – Voltage Regulator

Ordering Number:

**AL1024NK8D**

8 PTC Outputs Kit

Fully assembled kit includes:

- BC400 Enclosure
- AL1024ULXB2 – Power Supply/Charger
- PDS8CB – Dual Input/Output  
PTC Power Distribution Module
- VR6 – Voltage Regulator

## Installation Guide

All components of these kits are UL Listed sub-assemblies



Rev. AL1024NK8-112921

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Installing Company: \_\_\_\_\_ Service Rep. Name: \_\_\_\_\_

Address: \_\_\_\_\_ Phone #: \_\_\_\_\_

## Overview:

Altronix AL1024NK8 and AL1024NK8D convert a 115VAC 60Hz input into eight (8) fuse or PTC protected 12VDC or 24VDC outputs with a total of 10A max. Dual input design allows power to be steered from two (2) factory installed independent low voltage 12 or 24VDC Altronix power supplies to eight (8) independently controlled fuse (AL1024NK8) or PTC (AL1024NK8D) protected outputs.

## Agency Listings:

### AL1024ULX:

#### UL Listings for US Installations:

UL 294 - UL Listed for Access Control System Units.

UL 1481 - UL Listed for Power Supplies for Fire Protective Signaling Systems.

#### UL Listings for Canadian Installations:

CSA C22.2 No.205-M1983 - Signal Equipment

### PDS8, PDS8CB and VR6:

#### UL Listings for US Installations:

UL 294 6th Edition: Access Control System Units.

#### UL Listings for Canadian Installations:

ULC-S319: Electronic Access Control Systems.

## Stand-by Specifications (total current shown):

Output	15 min. of Stand-by and 5 min. of Alarm	4 hr. of Stand-by and 5 min. of Alarm	24 hr. of Stand-by and 5 min. of Alarm	60 hr. of Stand-by and 5 min. of Alarm
24VDC/12AH Battery	Stand-By = 8A Alarm = 10A	Stand-By = 1.5A Alarm = 10A	Stand-By = 200mA Alarm = 10A	Stand-By = 100mA Alarm = 10A
Output	15 min. of Stand-by and 5 min. of Alarm	4 hr. of Stand-by and 5 min. of Alarm	24 hr. of Stand-by and 15 min. of Alarm	60 hr. of Stand-by and 15 min. of Alarm
24VDC/65AH Battery	—	Stand-By = 8.0A Alarm = 10A	Stand-By = 1.5A Alarm = 10A	Stand-By = 500mA Alarm = 10A

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

See battery size calculation worksheet for other batteries (*Page 6*).

## Specifications:

### Inputs:

#### AL1024ULXB2:

- 115VAC, 60Hz, 4.2A.

#### PDS8/PDS8CB:

- 24VDC from AL1024ULXB2.
- 12VDC from VR6 voltage regulator.

### Outputs:

#### Power:

- 12VDC up to 6A, 24VDC up to 10A (240W total power).
- Overvoltage protection.

#### PDS8:

- Fuse protected outputs rated @ 2.5A per output, non power-limited. Total output 10A max. Do not exceed the individual power supply ratings.

#### PDS8CB:

- PTC protected outputs rated @ 2A per output, Class 2 power-limited. Total output 10A max. Do not exceed the individual power supply ratings.
- Eight (8) selectable independently controlled outputs.
- Individual outputs may be set to OFF position for servicing (output switch set to middle position).
- Any of the eight (8) fuse/PTC protected power outputs are selectable to follow power Input 1 or Input 2. Output voltage of each output is the same as the input voltage of the input selected.
- Surge suppression.

### Fuse/PTC Ratings:

#### AL1024ULXB2:

- Input fuse is rated 5A/250V.
- Battery fuse rated 15A/32V.

#### PDS8:

- Input fuse is rated 10A/32V.
- Output fuses are rated 3A/32V.

#### PDS8CB:

- Input PTC is rated 9A.
- Output PTCs are rated 2A.

### Supervision:

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

### 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 3.6A.
- Zero voltage drop when switched over to battery backup.

### Visual Indicators:

#### AL1024ULXB2:

- **Green AC LED:** Indicates 115VAC present.
- **Red DC LED:** Indicates DC output.

#### PDS8(CB):

- Individual voltage LEDs indicate 12VDC (Green) or 24VDC (Green and Red).

### Environmental:

- Operating temperature: 0°C to 49°C ambient.
- Humidity: 20 to 85%, non-condensing.

### Enclosure Dimensions (approximate H x W x D):

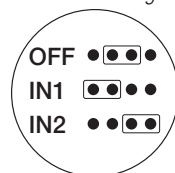
15.5" x 12" x 4.5"  
(393.7mm x 304.8mm x 114.3mm).

## Installation Instructions:

Wiring methods shall be in accordance with the National Electrical Code/NFPA 70/NFPA 72/ANSI, the Canadian Electrical Code and with all local codes and authorities having jurisdiction. Product is intended for indoor use only.

1. Mount unit in 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 the 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. 8*). Secure enclosure to earth ground.
2. Ensure all output jumpers [OUT1 - OUT8] are placed in the OFF (center) position marked [•]. (*Fig. 1, pg. 4*).
3. Connect unswitched AC power (115VAC 60Hz) to terminals marked [L, N] (*Fig. 2a, pg. 5*). Green "AC" LED on power supply board will turn on. This light can be seen through the LED lens on the door of the enclosure. Use 14 AWG or larger for all power connections. Secure green wire lead to earth ground.  
**Keep power-limited wiring separate from non power-limited wiring (115VAC 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. Set each output [OUT1] - [OUT8] to route power from Input 1 or 2 (*Fig. 1, pg. 3*).  
**Note:** Measure output voltage before connecting devices. This helps avoiding potential damage.
5. Turn power off before connecting devices.
6. **Output Connections:** Connect devices to terminal pairs 1 to 8, marked [P (Positive) - OUT1-OUT8, N (Negative)] on PDS8(CB), carefully observing polarity.
7. 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.
8. Connect appropriate signaling notification devices to the terminals marked [AC FAIL & BAT FAIL] (*Fig. 2b, pg. 5*) 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.
9. Please ensure that the cover is secured with the provided Key Lock.
10. **Installation of Tamper Switch:**  
Mount UL Listed tamper switch (Altronix model TS112 or equivalent) at the top of the enclosure. Slide the tamper switch bracket onto the edge of the enclosure approximately 2" from the right side (*Fig. 3a, pg. 7*). Connect tamper switch wiring to the Access Control Panel input or the appropriate UL Listed reporting device. To activate alarm signal open the door of the enclosure.

Fig. 1



## Wiring:

Use 18 AWG or larger for all low voltage 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:

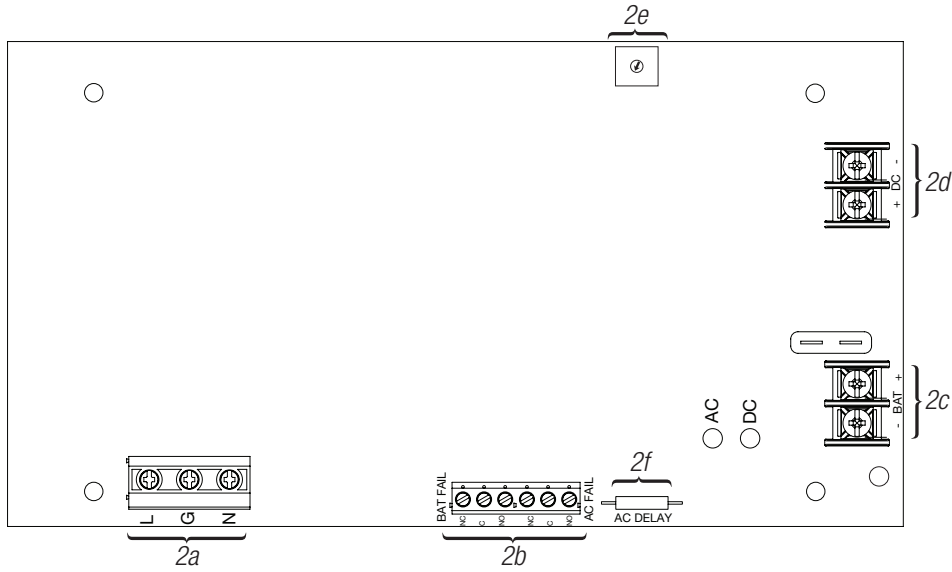
**Output Voltage Test:** Under normal load conditions the DC output voltage should be checked for proper voltage level.

**Battery Test:** Under normal load conditions check that the battery is fully charged, check specified voltage both at 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 3.6A.

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

Fig. 2 - AL1024ULXB2 Board Configuration



**Terminal Identification:**  
**AL1024ULXB2 - Power Supply Board**

Terminal Legend	Function/Description
L, N	Connect 115VAC to these terminals: L to hot, N to neutral ( <i>Fig. 2a, pg. 5</i> ).
+ DC –	Factory connected to PDS8(CB) ( <i>Fig. 2d, pg. 5</i> ).
AC Fail NC, C, NO	Used to notify loss of AC power, e.g. connect to audible device or alarm panel. Relay normally energized when AC power is present. Contact rating 1A @ 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 ( <i>Fig. 2f, pg. 5</i> ).
Bat Fail NC, C, NO	Used to indicate low battery condition, e.g. connect to alarm panel. Relay normally energized when DC power is present. Contact rating 1A @ 28VDC. A removed battery is reported within 1 minute. Battery reconnection is reported within 1 minute. Low battery threshold: approximately 21VDC ( <i>Fig. 2b, pg. 5</i> ).
– BAT +	Stand-by battery connections. Maximum charge current 3.6A ( <i>Fig. 2c, pg. 5</i> ).

**PDS8(CB):**

Terminal Legend	Function/Description
+ INP1 –	Factory connected to AL1024ULXB2. Do not use these terminals.
+ INP2 –	Factory connected to AL1024ULXB2. Do not use these terminals.
P [OUT1-OUT8]	Positive DC power outputs.
N [OUT1-OUT8]	Negative DC power outputs.

## LED Diagnostics:

### AL1024ULXB2 - Power Supply Board

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

### PDS8(CB):

LED	ON
Green	12VDC Output.
Green and Red	24VDC Output.

## Battery Size Calculation Worksheet:

A. AL1024NK8(D) 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 stand-by	$(A+B)*C$	_____	AH
E. AL1024NK8(D) 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

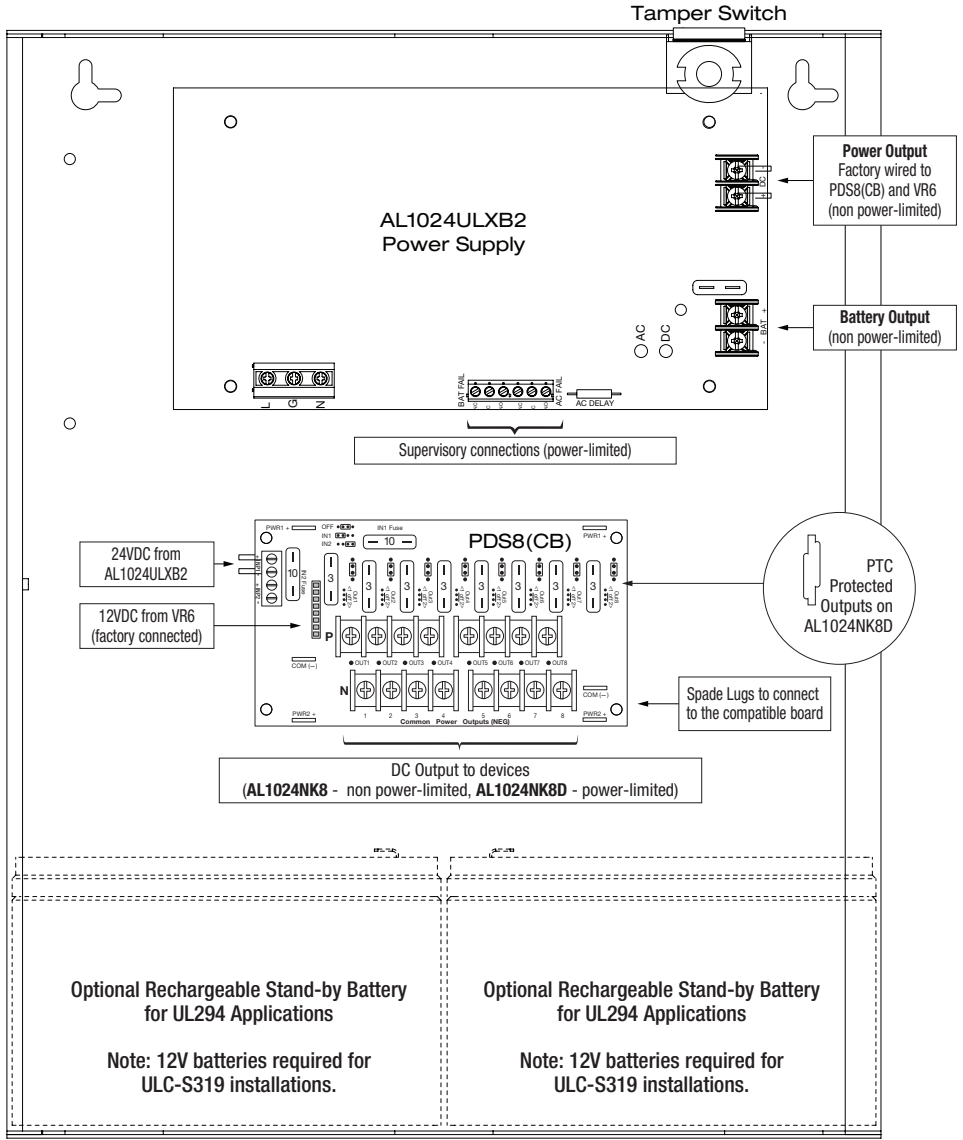
**Note:** AL1024NK8(D) power supply is designed to work with batteries up to 65AH.

Please note: line [I] must not exceeds 36AH.

You have to reduce either stand-by current consumption or stand-by time in order to comply with requirement.

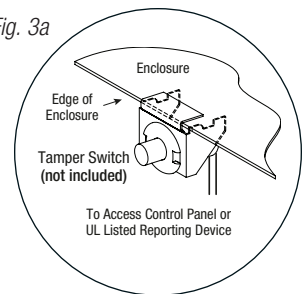
To determine actual battery size please round line [J] to the nearest larger standard battery size (e.g. 3.5 AH = 4.0 AH).

Fig. 3 - AL1024NK8(D)



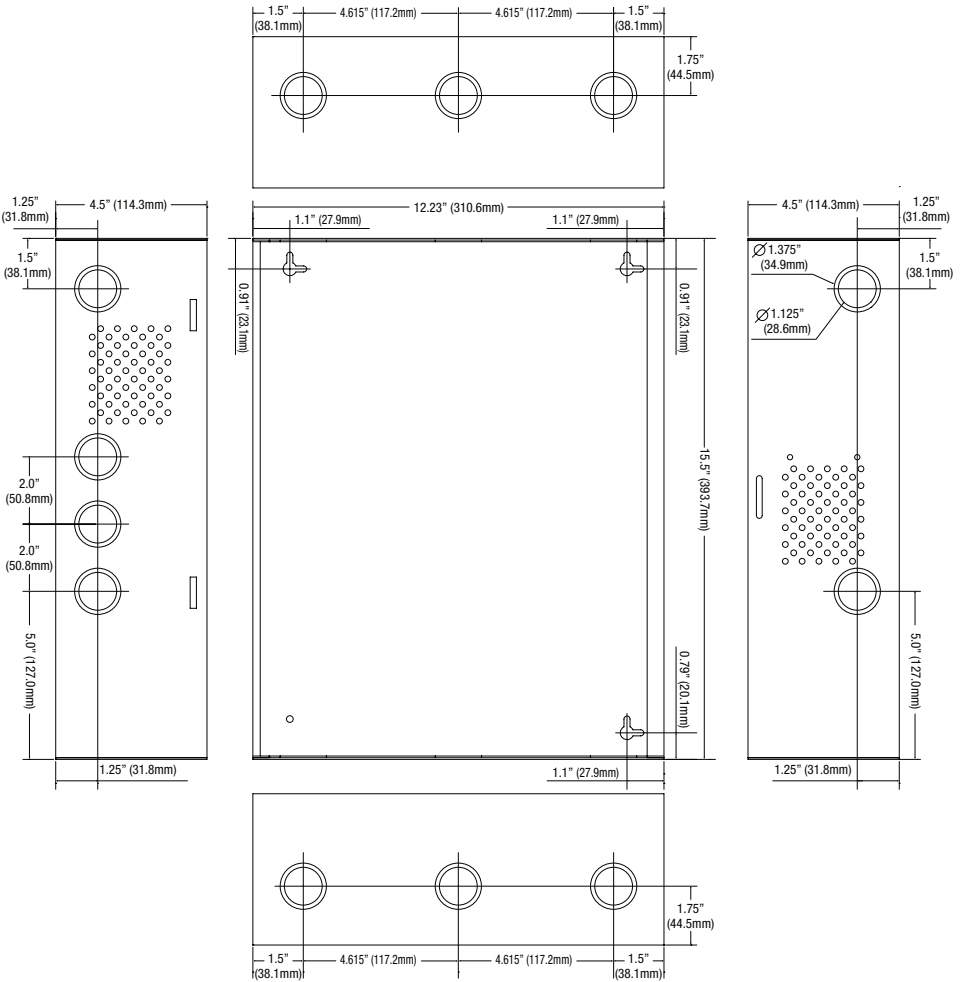
**CAUTION:** Use two (2) 12VDC stand-by batteries.  
Keep power-limited wiring separate from non power-limited.  
Use minimum 0.25" spacing.  
12AH Rechargeable batteries are the largest batteries that can fit in this enclosure.  
A UL listed external battery enclosure must be used if using 40AH or 65AH batteries.

Fig. 3a



# Enclosure Dimensions (BC400):

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



Altronix is not responsible for any typographical errors.

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 IIAL1024NK8(D) L01V



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