



# AL176ULB Access Control Power Supply/Charger

Rev. 081701

## Overview:

The AL176ULB is a power limited power supply/charger that converts a 28VAC input, into 12VDC or 24VDC output, (see specifications). This is intended for use in applications requiring UL Recognition for Access Control (UL294).

## Specifications:

### Agency Listings:

- UL Recognized component for US and Canada.

### Input:

- Input 28VAC / 56VA from UL Recognized transformer.

### Output:

- Field selectable 12VDC or 24VDC power limited output.
- 1.75 amp continuous supply current at 12VDC or 24VDC.
- Class 2 Rated power limited output.
- Filtered and electronically regulated output.

### Battery Backup:

- Maximum charge current: 400mA.
- Automatic switch over to stand-by battery when AC fails (zero voltage drop).

### Supervision:

- AC fail supervision (form "C" 1 amp @ 28VDC).
- Low battery supervision (form "C" 1 amp @ 28VDC).

### Additional Features:

- AC input and DC output LED indicators.
- Short circuit and thermal overload protection.
- Includes power supply and battery leads.

### Board Dimensions (approximate):

3.1"W x 5.3"L x 1.4"H

## Power Supply Output Specifications:

Output VDC	Jumper	Max. Stand-by Load DC	Max. Alarm Load DC	Battery (optional)
12VDC	Jumper Removed	1.75 amp	1.75 amp	12VDC
24VDC	Jumper On	1.75 amp	1.75 amp	24VDC

## Stand-by Specifications:

Output	4 hr. of Stand-by & 5 Minutes of Alarm
12VDC / 7 AH Battery	Stand-by = 1.25 amp
24VDC / 7 AH Battery	Alarm = 1.25 amp

## Installation Instructions:

The AL176ULB should be installed in accordance with article 760 of The National Electrical Code or NFPA 72 as well as all applicable Local Codes.

**See Terminal Identification Chart on page 2 for a description of each terminal function.**

1. Mount the AL176ULB in desired location/enclosure.
2. Connect 28VAC / 56VA (Altronix model # T2856) transformer to terminals marked [ XFMR INPUT ].  
Use 18 AWG or larger for all power connections ( Battery, AC input). Use 22 AWG to 18 AWG for power limited circuits ( DC output, AC FAIL and LOW BAT supervisory relays).

**Keep power limited wiring separate from non-power limited wiring (115VAC / 60Hz Input, Battery Wires).  
Minimum .25" spacing must be provided.**

3. Set the AL176ULB to the desired DC output voltage by either removing/leaving jumper.  
(see Power Supply Output Specifications).



4. Connect battery to terminals [+ BAT -] as marked on the unit (battery leads included). Use two (2) 12VDC batteries connected in series for 24VDC operation.  
**Note:** 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.
5. Measure output voltage before connecting devices. This helps avoid potential damage.
6. Connect devices to be powered to terminals marked [ + DC -- ] (*Fig. 1*).
7. Connect appropriate signaling notification devices to AC Fail and Low Bat supervisory relay outputs.  
**Note:** To meet UL requirements, AC Supervisory outputs must be connected to the zone of Alarm Control Panel or to a visual AC trouble indicator.

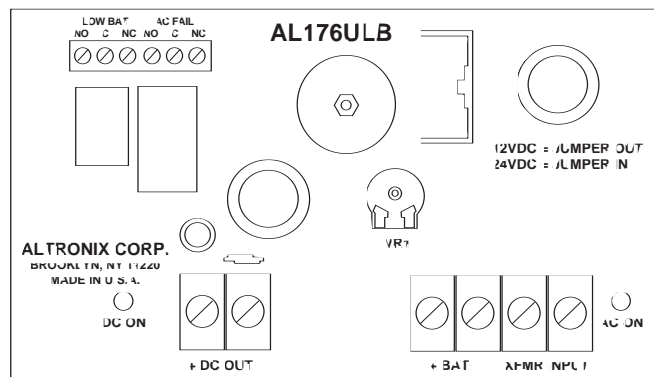


Fig. 1

### 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 (*see Power Supply Output Specifications Chart*).

**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 discharge is 400mA.

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

### LED Diagnostics:

Red (DC)	Green (AC)	Power Supply Status
ON	ON	Normal function.
ON	OFF	Battery backup is powering output.
OFF	ON	No DC output
OFF	OFF	Loss of AC. Discharged or missing stand-by battery. No DC output.

### Terminal Identification:

Terminal Legend	Function/Description
XFMR INPUT	Low voltage AC input (28VAC / 56VA).
+ DC OUT –	Continuous positive (+) DC power output voltage. Common negative (-) output (ground).
+ BAT –	Stand-by battery connections.
AC FAIL N.O., C, N.C.	Used to notify loss of AC e.g connect audible device or alarm panel. Relay is normally energized when AC power is present. Contact rating 1 amp @ 28VDC.
LOW BAT N.O., C, N.C.	Used to notify low battery condition e.g connect audible device or alarm panel. Relay is normally energized. Contact rating 1 amp @ 28VDC.

Altronix is not responsible for any typographical errors.