



# AL175UL Access Control Power Supply/Charger

Rev. 081601

## Overview:

AL175UL is a power limited power supply/chargers that will convert 115VAC / 60Hz input, into two individually PTC protected 12VDC or 24VDC output, (see specifications). They are intended for use in applications requiring UL Listing for Access Control (UL294) and applications requiring an interface with Fire Alarm Control Panels. It must be installed in accordance with National and Local Electrical Codes and Regulations.

## Specifications:

- UL Listed for Access Control Systems (UL294).  
CUL Listed - CSA Standard C22.2 No.205-M1983, Signal Equipment.
- CSFM - California State Fire Marshal Approved.
- MEA - NYC Dept. of Buildings Approved.
- NFPA 101 (Life Safety)
- Input 115VAC / 60 Hz, .6 amp.
- 12VDC or 24VDC selectable output.
- Class 2 rated power limited outputs.
- 1.75 amp continuous supply current @ 12VDC or 24VDC.
- Aux relay output (form "C" contacts).
- Filtered and electronically regulated output.
- Maximum charge current: 400mA.
- Automatic switch over to stand-by battery when AC fails.
- AC fail supervision (form "C" contacts).
- AC input and DC output LED indicators.
- Short circuit and thermal overload protection.
- Unit includes: power supply, transformer and enclosure.

Enclosure Dimensions: 8.5"H x 7.5"W x 3.5"D



## Power Supply Output Specifications:

Output VDC	Switch Position	Max. Stand-by Load DC	Max. Alarm Load DC	Battery (optional)
12VDC	SW1 Open	1.75 amp	1.75 amp	12VDC
24VDC	SW1 Closed	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 AL175UL 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 3 for a description of each terminal function.**

1. Mount the AL175UL in desired location.
2. Connect AC power to the black and white flying leads of the transformer. Secure green wire lead to earth ground. Use 18 AWG or larger for all power connections (Battery, AC input, DC outputs). Use 22 AWG to 18 AWG for power limited circuits (trigger inputs, dry outputs).  
Keep power limited wiring separate from non-power limited wiring (115VAC / 60Hz Input, Battery Wires). Minimum .25" spacing must be provided.
3. Set the AL175UL to the desired DC output voltage by setting switch SW1 to the appropriate position (power supply output specification table).
4. Measure output voltage before connecting devices. This helps avoid potential damage.

5. Connect battery to terminals marked [+ BAT -] (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 are desired, they must be lead acid or gel type.
6. Connect appropriate signaling notification devices to AC Fail supervisory relay outputs marked [N.C., N.O., C].  
**Note:** To meet UL requirements, AC Supervisory outputs must be connected to the zone of Alarm Control Panel or to visual AC trouble indicator.
7. For Access Control Device & Fire Alarm Interface connections refer to desired Application Diagrams (pg. 4) and Terminal Identification Chart (pg. 3).

### 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.

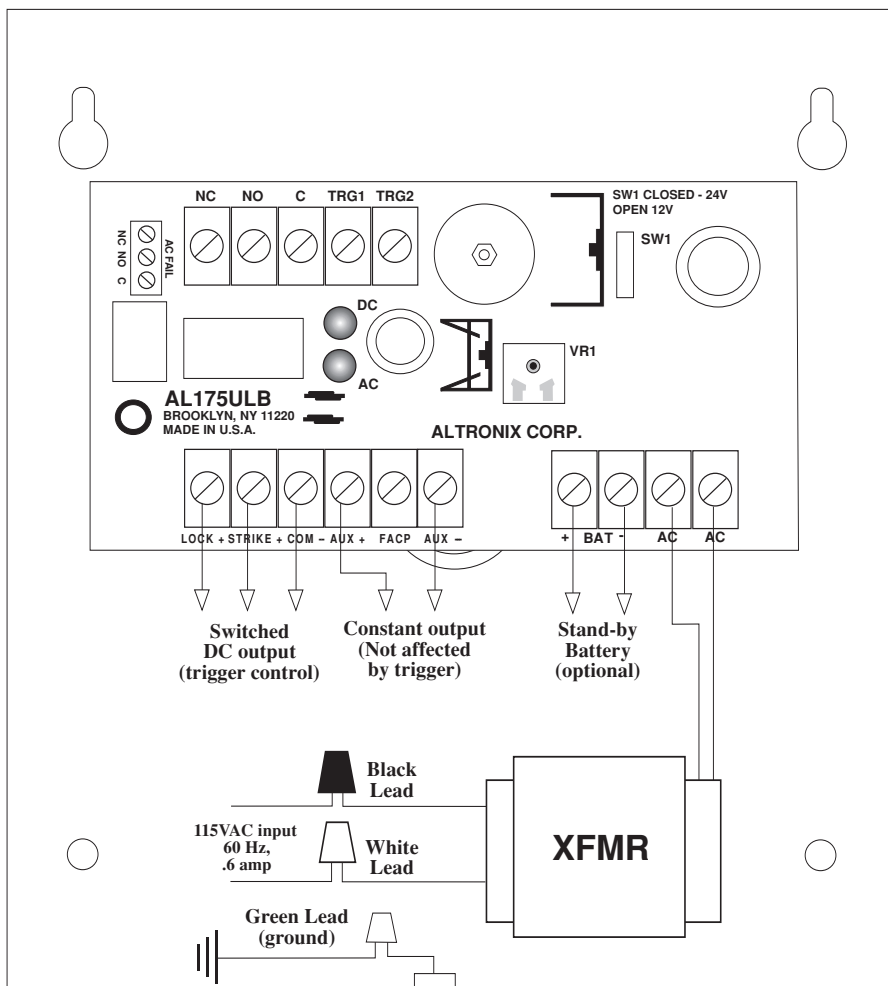
**Note:** Maximum charging current under discharges is 400mA.

**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.

Fig. 1

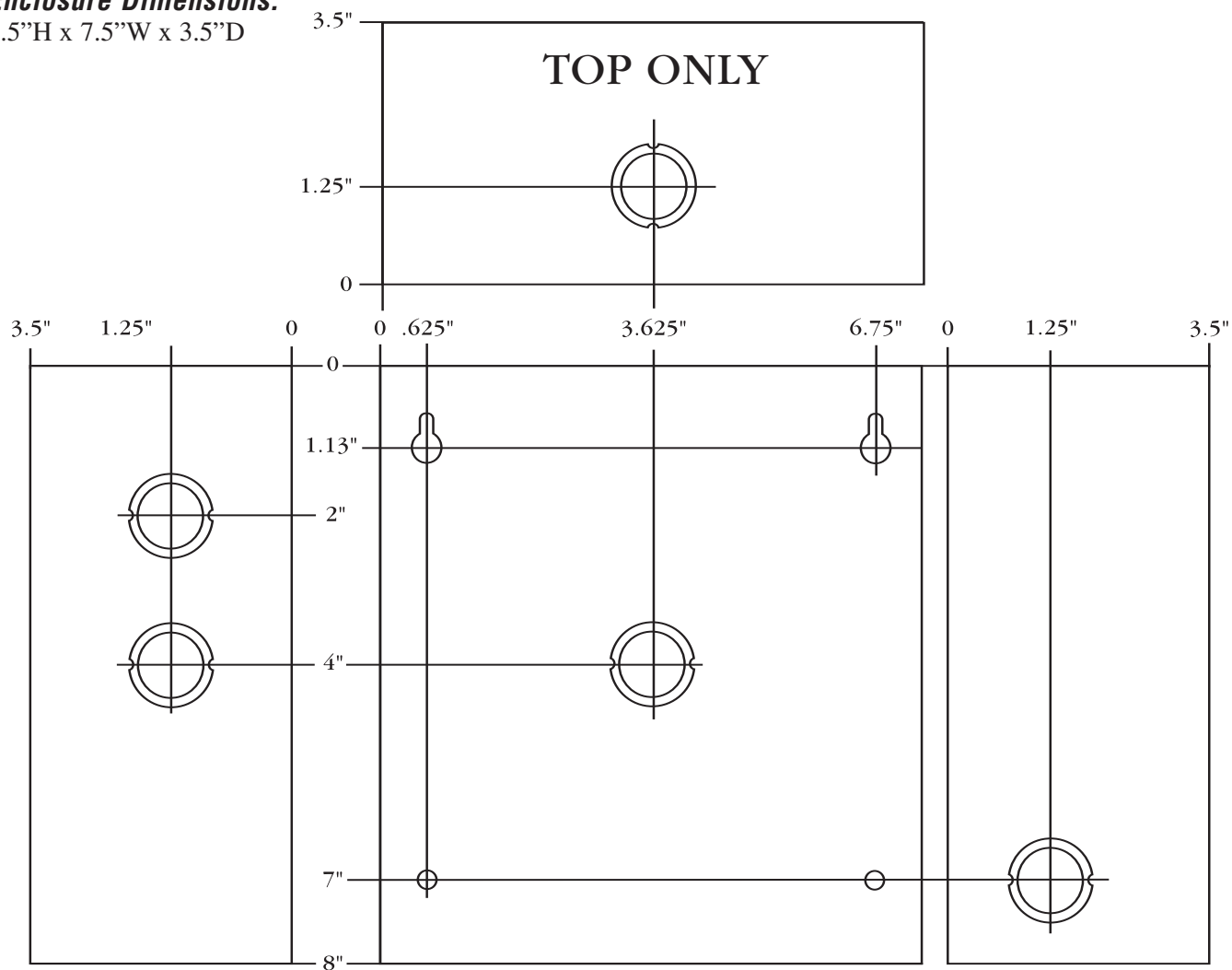


***Terminal Identification:***

Terminal Legend	Function/Description
TRG1 & TRG2	These input terminals are designed to connect to the normally closed outputs of an access control or fire alarm relay. These terminals control [LOCK+], and [STRIKE+], as well as AL175UL output relay contacts [N.C., N.O., C]
LOCK+	This terminal provides DC output voltage when [TRG1] and [TRG2] are shorted together and are typically used to power Mag Locks.
STRIKE+	This terminal provides DC output voltage when [TRG1] and [TRG2] are unshorted and are typically used to power Electric Strikes.
N.C., N.O., C	Isolated dry Form “C” contacts. Shorting [TRG1] and [TRG2] together causes these contacts to switch. They are typically used for controlling multiple AL175ULXs with fire alarm tie-in ( <i>Fig. 5 and Fig. 6, pg. 4</i> ).
AUX +	Continuous positive (+) DC power output voltage. It is not affected by TRG1, TRG2 operation.
COM -	Common negative (-) output (ground).
FACP	Spare wiring terminal used for fire alarm tie-in application ( <i>Fig. 4, pg. 4</i> ).
+ BAT -	Stand-by battery connections.
AC FAIL N.C., C, N.O.	Used to notify loss of AC e.g connect audible device or alarm panel. Relay normally energized when AC power is present. Contact rating 1 amp @ 28VDC.

**Enclosure Dimensions:**

8.5"H x 7.5"W x 3.5"D



## Typical Application Diagrams:

Fig. 2 - Typical single mag lock or door strike installation with fire alarm tie-in using trigger controlled output:

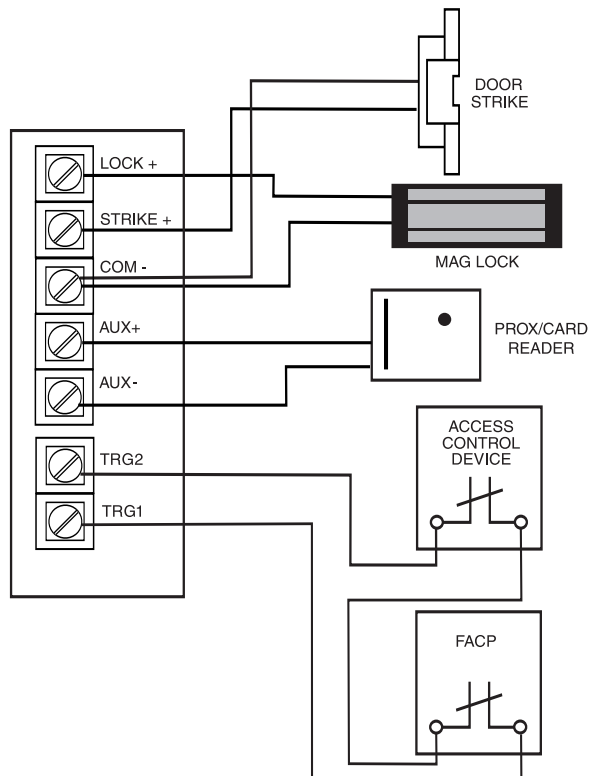


Fig. 4 - Typical mag lock with fire alarm tie-in using aux output installation:

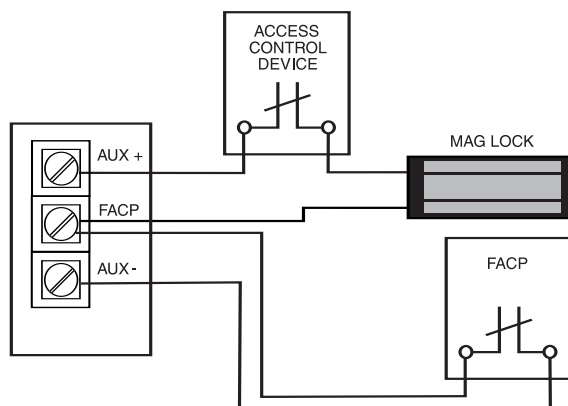


Fig. 5 - Latching fire alarm tie-in with manual reset:

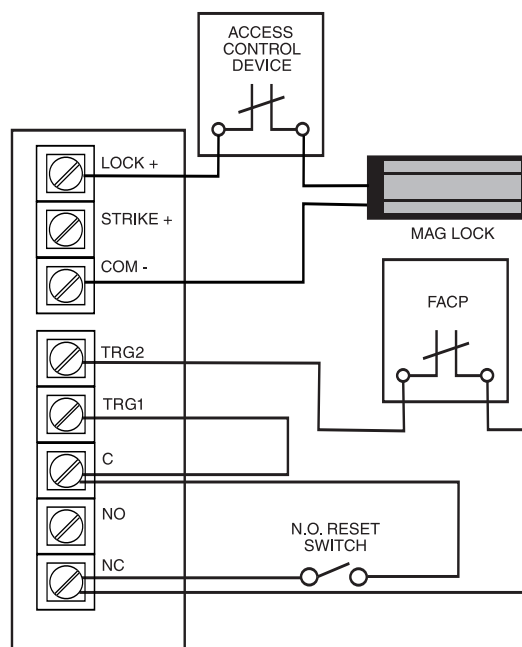


Fig. 6 - Multiple AL175UL(X) power supply connections:

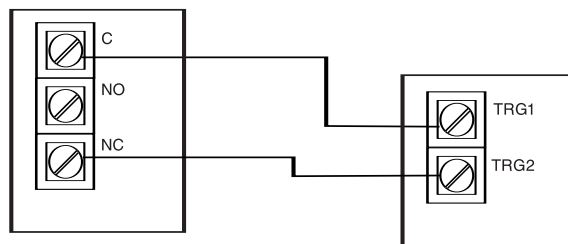
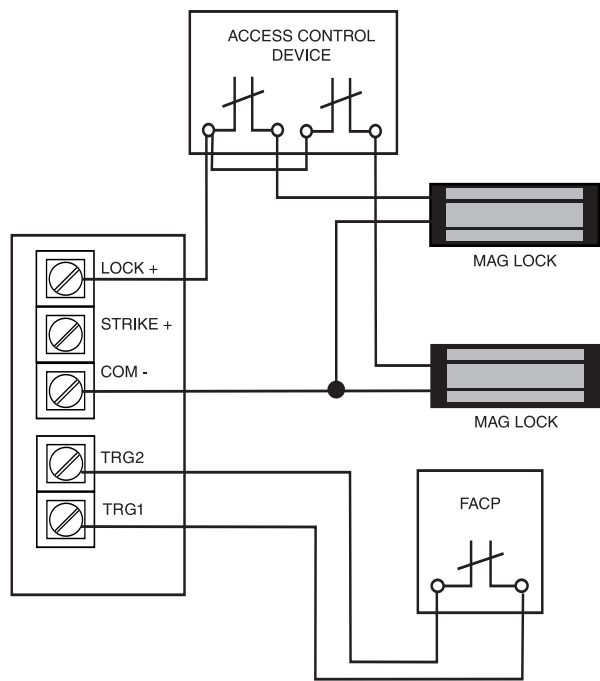


Fig. 3 - Typical dual mag lock installation with fire alarm tie-in using trigger controlled outputs:



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