



# AL175ULD Access Control Power Supply/Charger

Rev. 032301

### Overview:

The AL175ULD is a power supply that will convert 115 VAC/60Hz input into two individually PTC protected 12VDC or 24VDC outputs (see specifications) and provide time delays to conform with both Delayed Egress and Access-controlled Egress provisions of the U.S. model building codes. It is intended for use in applications requiring UL listing for Access Controls (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), UL Listed Power Supply for Fire Protective Signaling Systems (UL1481), CUL Listed - CSA Standard C22.2 No.205-M1983, Signal Equipment.
- Switch selectable 12VDC or 24VDC power limited output.
- Input 115VAC/60Hz, 0.6 amp.
- 1.75 amp continuous supply current @ 12VDC or 24VDC.
- Filtered and electronically regulated output.
- Outputs are overload protected by PTC's.
- Delay timing is reset (before, during, or after a delay) by dry contact closure (RES & G).
- An output is provided for unlocking devices (electric strikes).
- An auxiliary output is provided which is not affected by the Fire Alarm Relay Terminals (1.25 amp @ 12VDC/24VDC for UL Installations).
- An AC Fail relay (Form "C" 1 A @ 28VDC) indicates AC is powering unit.
- A green LED also indicates the AC is powering unit.
- A red LED indicates the DC outputs are powered.
- An output relay (Form "C" 1 A @ 28VDC) indicates the DC Lock+ terminal is powered and not the Strike+ terminal, or vice versa.
- Field selectable: delayed Egress Access-controlled egress or no delays (a standard power supply).
- Delay for delayed egress applications is 15 or 30 sec field selectable.
- Delayed egress has field selectable none or 1 second nuisance delay.
- Delayed egress has alarm relay to switch on alarm power.
- Delay for access-controlled applications is 30 or 45 sec field selectable.
- Delays are triggered by a dry contact closure (TR & G).
- Delay timing is reset (before, during, or after a delay) by removal a dry contact closure (RES & G).



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

### Power Supply Output Specifications:

Output VDC	Switch Position	Max Load DC
12VDC	SWI Open	1.75 amps
24VDC	SWI Closed	1.75 amps

### Stand-by Specifications:

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

**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 standby batteries are used, they must be lead-acid or gel type.

### Installations Instructions:

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

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. Drill the lower holes and install the three 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. 4*). Secure enclosure to earth ground.

2. Connect 115VAC to the black and white flying leads of the transformer. Secure wire lead to earth ground.

3. Open SW5 for 12VDC output-Close SWI for 24VDC output.

4. Measure output voltage before connecting

devices to ensure proper operation of equipment. This helps avoid potential damage.

5. Jumper TRGI and TRG2 unless continuity is provided through a fire alarm circuit.

6. Connect appropriate signaling notification devices to AC Fail supervisory outputs marked [NC, C, and NO] C is closed to NC when AC power is connected. C is closed to NO when AC power is off.

7. When a delay is to be used install a NO Momentary Reset switch across terminals marked [RESET - GND].

8. When a delay is to be used install a NO Momentary triggering Switch across terminals marked [TRIG INPUT - GND].

9. For monitoring the output relay governing terminals marked [Lock+ and Strike+] use the [C, NC and NO] terminals next to [TRGI and TRG2]. C will be closed to NC when Lock+ is powered.

10. When a Delayed Egress is used, an alarm is required by all Codes. The alarm relay is used to switch on the alarm. C will close to NC when the alarm should sound: immediately at triggering with no nuisance delay, or after one continuous second of trigger with nuisance delay. If moderate power is required for the alarm it can be obtained by jumping [AUX+ to C] on the Alarm relay; and NC on the Alarm relay and [Aux -] to the alarm.

11. See diagrams on following pages for wiring suggestions.

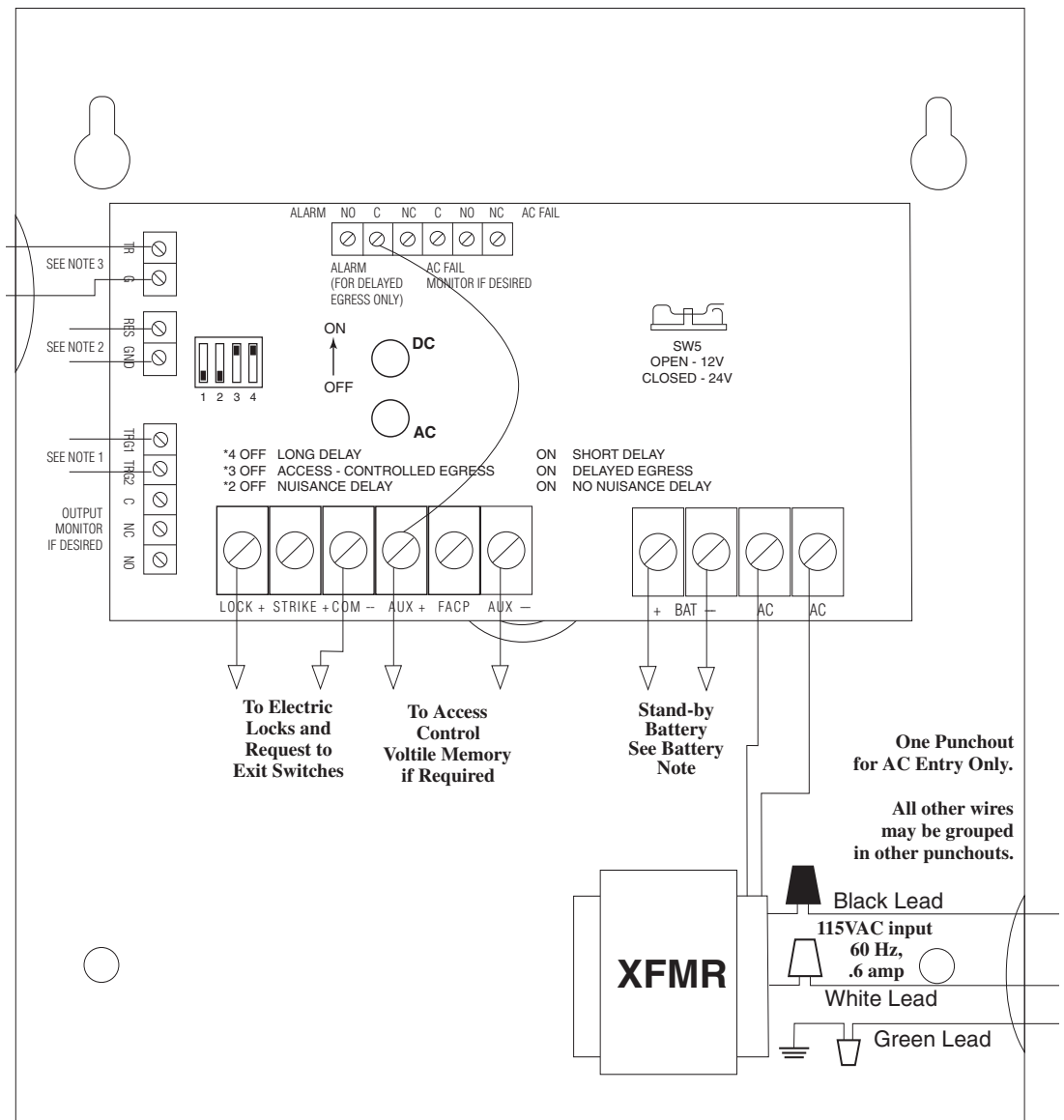


Fig. 1

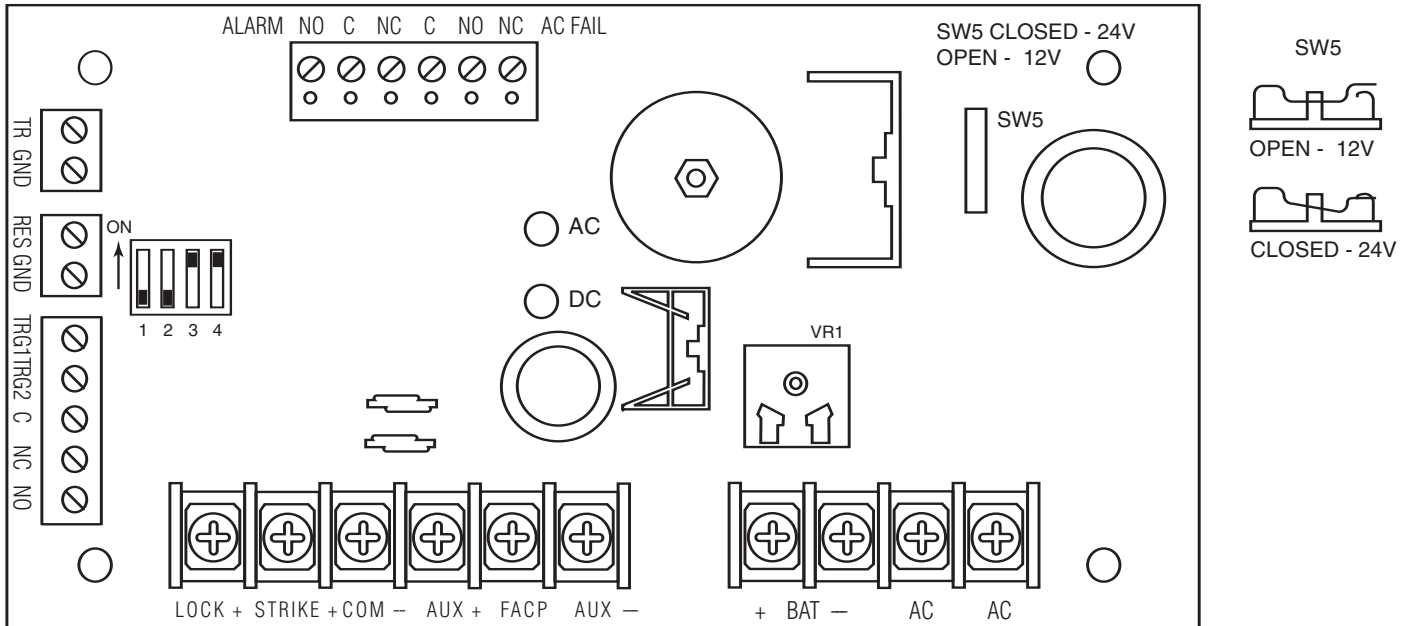
**LED Diagnostics:**

Red (DC)	Green (AC)	Power Supply Status
ON	ON	Normal output, powered by AC
OFF	ON	No DC Output, but AC is on Backup Battery
ON	OFF	Backup Battery power only
OFF	OFF	No AC nor Battery Backup

Battery Back-up. Use sealed lead-acid 12 volt secondary lead-acid only. Connect two in series for 24 volts. When using standby batteries house them in a separate enclosure.

**Terminal Identification:**

Terminal Legend	Function/Description
TRG1 & TRG2	These input terminals are designed to connect to the closed C and NO terminals of an access control or fire alarm relay. These must be jumped otherwise. These terminals control LOCK+, and STRIKE+, as well as AL175ULD output relay contacts NC, NO, C.
LOCK+	This terminal provides DC output voltage when TRG1 and TRG2 are shorted together and are typically used to power electromagnetic locks. Two locks may be connected in parallel on LOCK + and COM – ( <i>fig. 2, pg. 4</i> ).
STRIKE+	This terminal provides DC output voltage when TRG1 and TRG2 are unshorted and are typically used to power Electric Strikes.
NC, NO, C (adjoining) TRG1 & TRG2	Isolated dry Form “C” contacts. Shortening TRG1 and TRG2 together causes these contacts to switch. They are typically used for controlling multiple power supplies with fire alarm tie-in ( <i>fig. 4 and 5 pg. 4</i> ).
AUX+	Continuous positive (+) DC power output voltage. It is not affected by TRG1, TRG2 operation.
COM – , AUX – BAT – GND (adjoining RST) GND (adjoining TR)	Are all common (–) output (ground)
FACP	Spare wiring terminal used for fire alarm tie-in application ( <i>fig. 3, pg. 4</i> )
BAT+, BAT-	Battery back-up connections. Apply proper voltage SLA batteries. Batteries are trickle charged with 13.6 or 26.6 volts.
RES & GND	Are normally open. To reset either time delay at any time-closed momentarily.
TRG & GND	Trigger either Delayed Egress or Access-controlled Egress by closing momentarily TR to G. If nuisance delay is on in Delayed Egress Mode, trigger must be closed continuously for one full second.



**NOTES ON:**

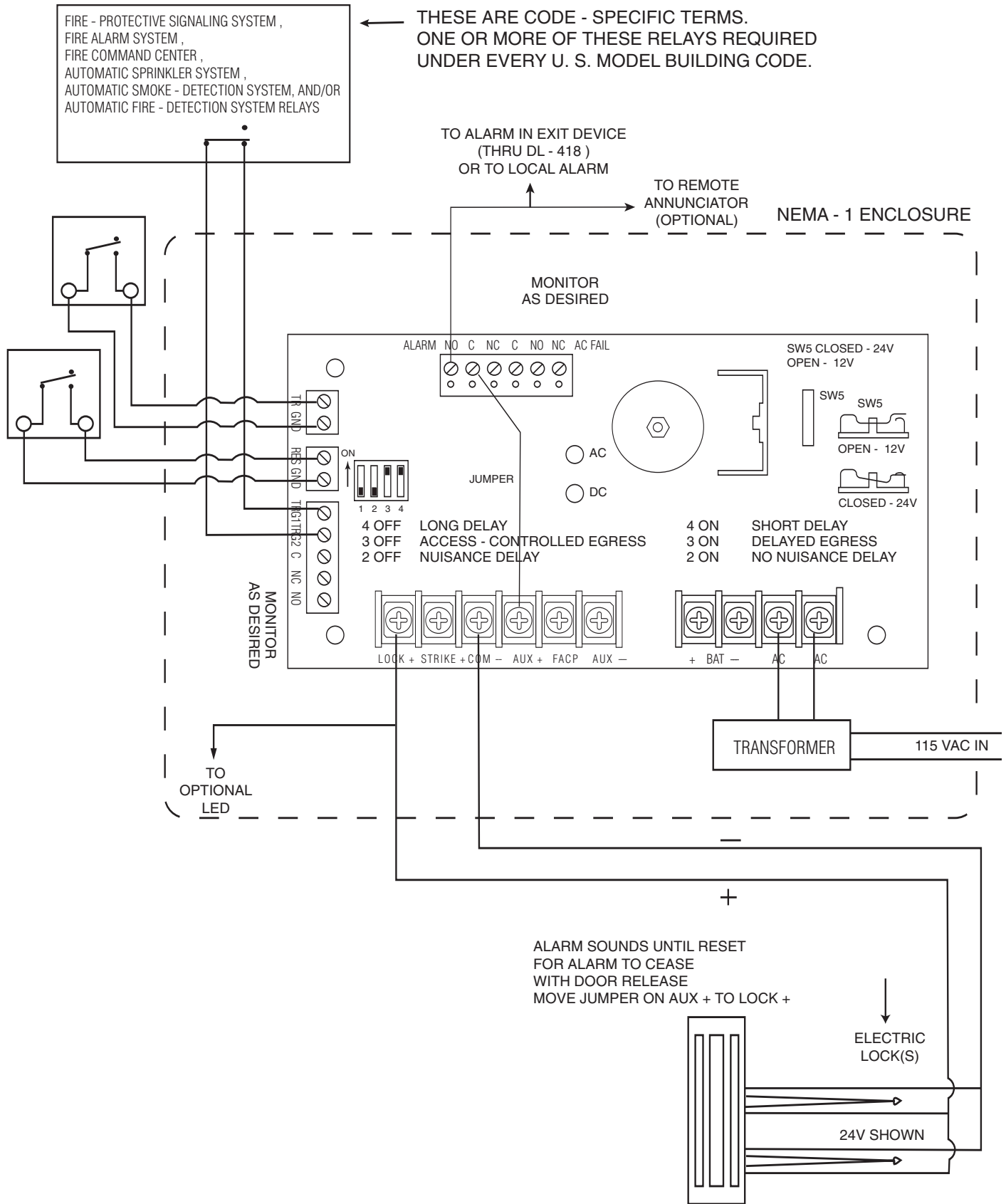
**SWITCH SELECTION TABLE:**

- |   |                                |      |                   |
|---|--------------------------------|------|-------------------|
| 1 | NOT CONNECTED                  |      |                   |
| 2 | OFF NUISANCE DELAY             | 2 ON | NO NUISANCE DELAY |
| 3 | OFF ACCESS - CONTROLLED EGRESS | 3 ON | DELAYED EGRESS    |
| 4 | OFF LONG DELAY                 | 4 ON | SHORT DELAY       |

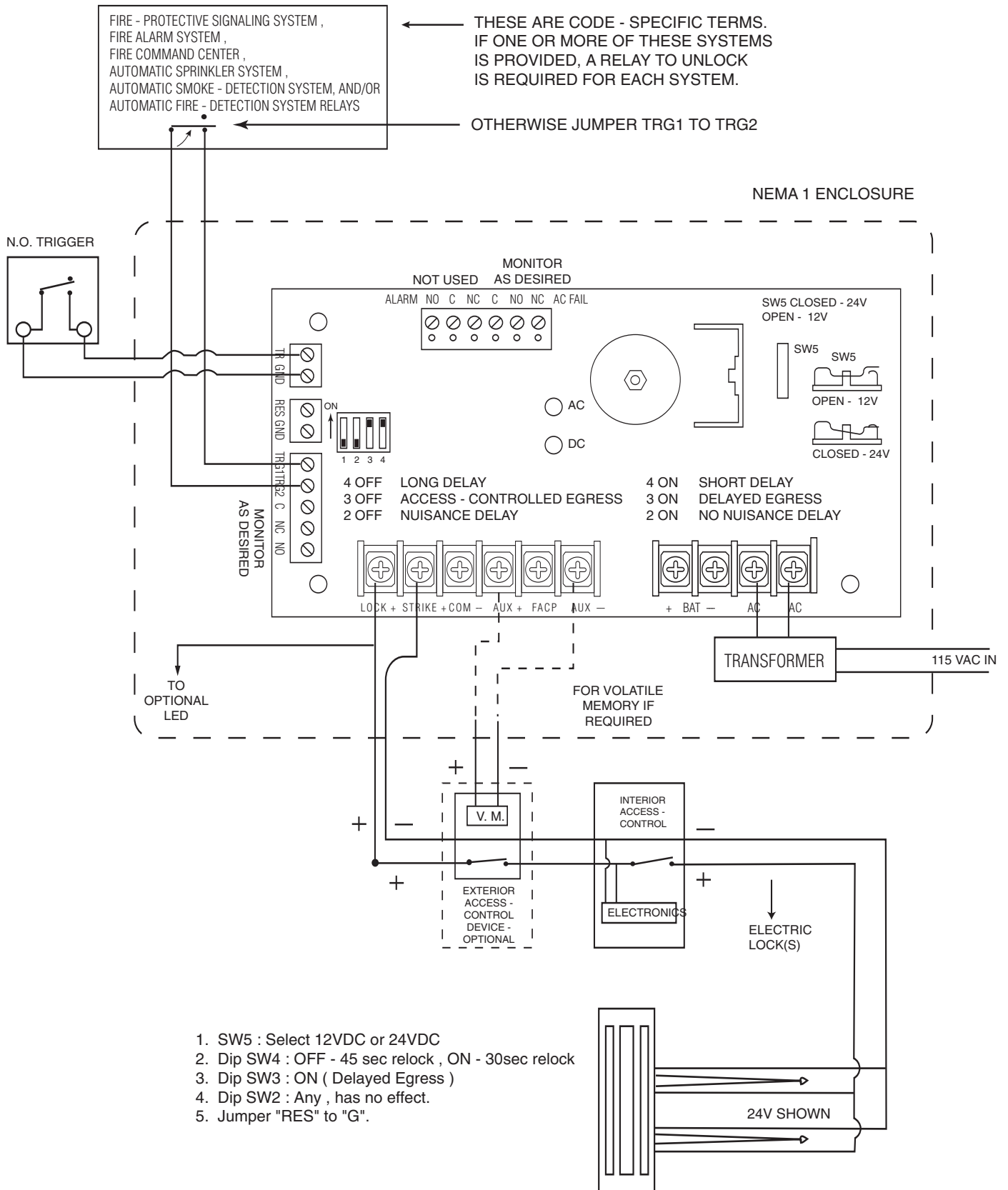
3 ON DELAYED EGRESS : IN THIS MODE #4 SWITCH SELECTS SHORT DELAY OF 15 SECS. OR LONG DELAY OF 30 SECS., AND #2 SWITCH SELECTS NONE OR A 1 SEC. NUISANCE DELAY.

3 OFF ACCESS CONTROLLED EGRESS : IN THIS MODE #4 SWITCH SELECTS SHORT RELOCK DELAY OF 30 SEC. OR LONG RELOCK DELAY OF 45 SECS., #2 SWITCH IS DISABLED.

# Typical Delayed Egress System:



# Typical Access-Controlled Egress System:



**Application Diagrams when used as a typical power supply not using delay features:**

Fig. 4 - Typical single mag lock or door strike installation with fire alarm tie-in using trigger controlled output:

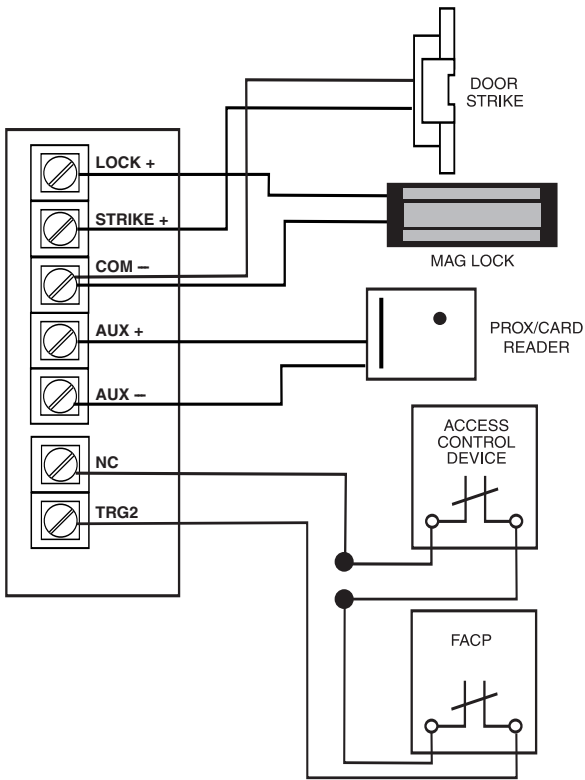


Fig. 5 - Typical dual mag lock installation with fire alarm tie-in using trigger controlled outputs:

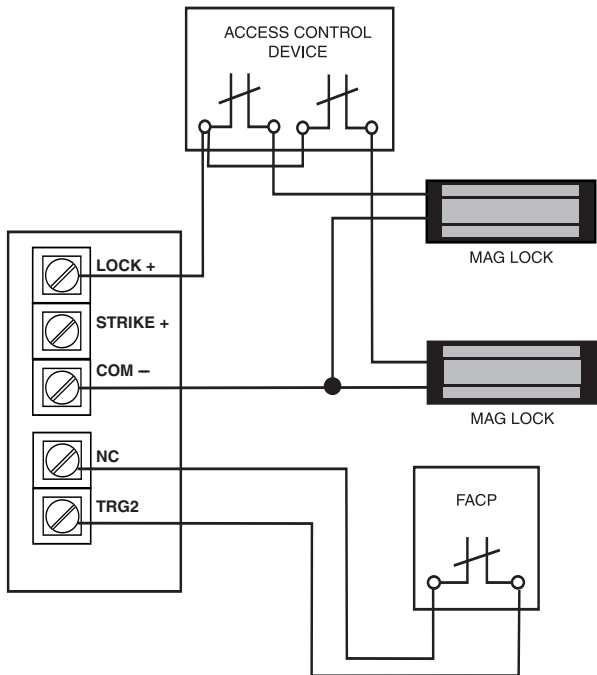


Fig. 6 - Typical mag lock with fire alarm tie-in using aux output installation:

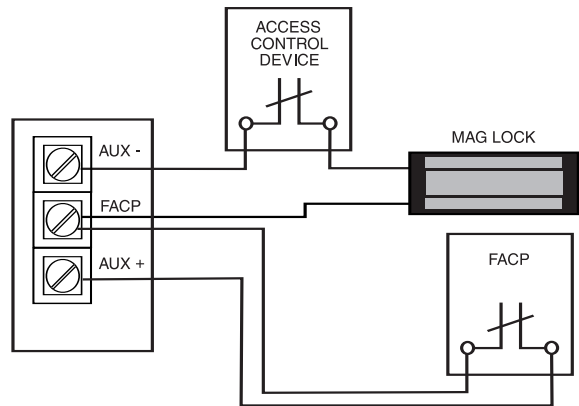


Fig. 7 - Latching fire alarm tie-in with manual reset:

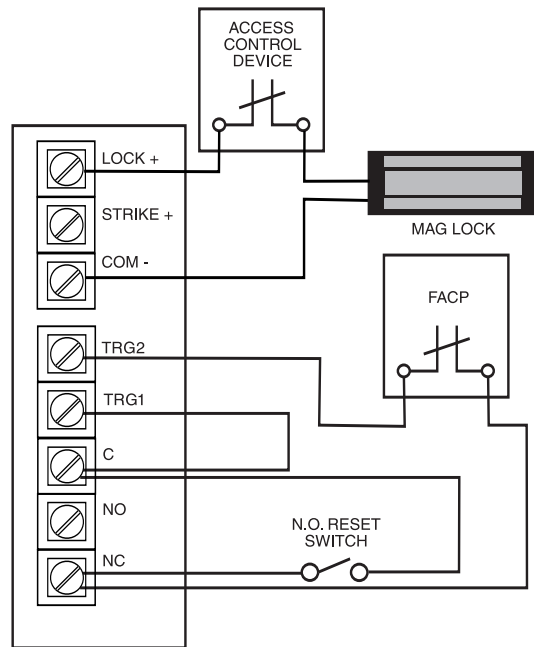
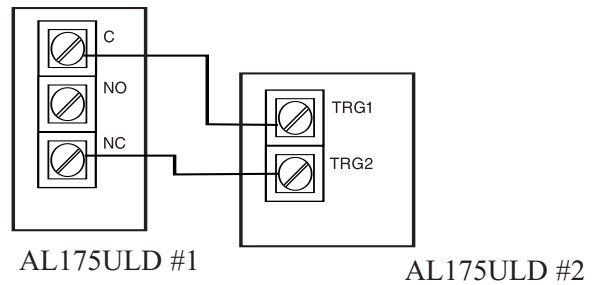
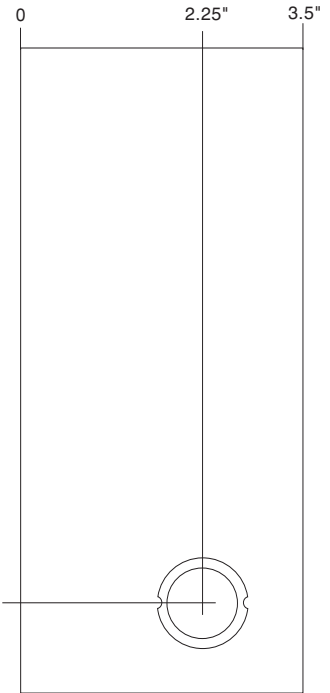
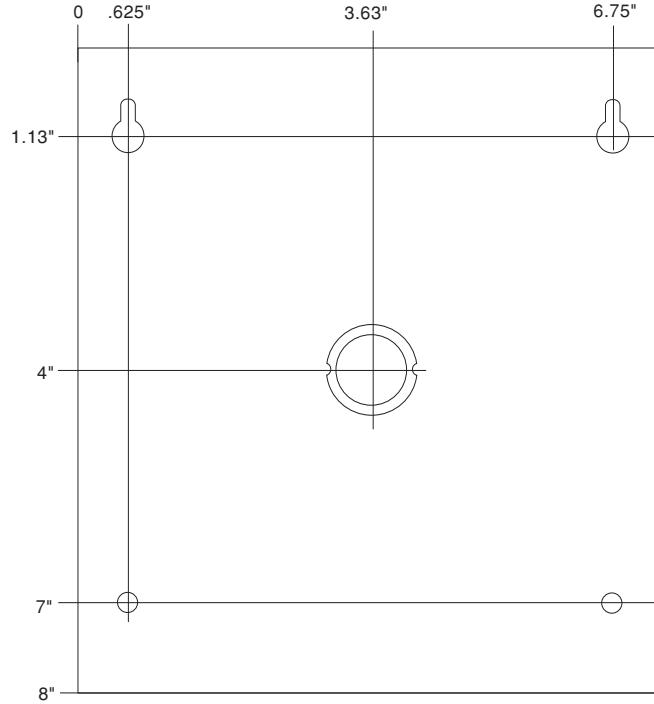
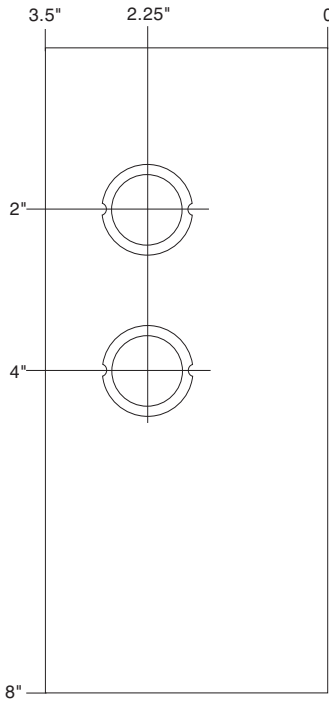
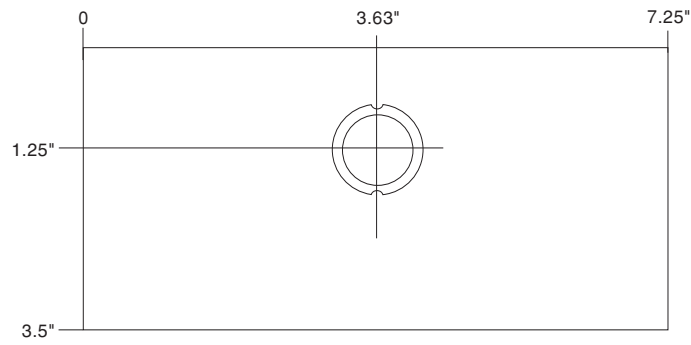


Fig. 8 - Multiple AL175ULD power supply connections:



**Enclosure Dimensions:**

8"H x 7.25"W x 3.5"D



Altronix is not responsible for any typographical errors.

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