

*Installation Guide
for*



*AL400ULM
Multi-Output Access Control
Power Supply Charger*



AL400ULM - Multi-Output Access Control Power Supply/Charger

Rev. 072500

Overview:

The AL400ULM multi-output access control power supply/charger is specifically designed for use with access control systems and accessories. The AL400ULM converts a 115 VAC / 60Hz input into five individually regulated 12VDC or 24VDC power limited outputs (see specifications). Each output will route power to a variety of access control hardware devices including Mag Locks, Electric Strikes, Magnetic Door Holders, etc. These outputs will operate in both fail-safe and fail-secure modes. Controlled trigger input is achieved through normally open (N.O.) or normally closed (N.C.) supervised input or the polarity reversal from an FACP (Fire Alarm Control Panel). A form "C" dry output relay enables HVAC Shutdown, Elevator Recall or may be used to trigger auxiliary devices.

Specifications:

- UL listed fire, burglar and access control power supply (UL1481, UL603, UL294)
- CSFM - California State Fire Marshal Approved.
- CSA Approved (Canada).
- MEA - NYC Department of Buildings Approved.
- NFPA 72 compliant.
- Class 2 rated.
- Input 115VAC / 60Hz, 1.45 amps.
- Field selectable 12VDC or 24VDC output.
- 4 amps continuous supply current at 12VDC.
- 3 amps continuous supply current at 24VDC.
- Five (5) individual power limited outputs.
- Current limit is 2.5 amps @ 12VDC or 24VDC per output.
- Filtered and electronically regulated outputs.
- 51 mV p/p output ripple.
- Maximum charge current .7 amp.
- Built-in charger for sealed lead acid or gel type batteries.
- Automatic switch over to stand-by battery when AC fails.
- Zero voltage drop when switching over to battery backup.
- Thermal and short circuit protection with auto reset.
- Short circuit and overload protection.
- DC output LED indicator.
- LEDs indicate condition of power outputs.
- Power & input trigger LED's.
- AC fail supervision (form "C" contact).
- Low battery supervision (form "C" contact).
- Fire Alarm Panel or Access Control System trigger inputs.
(N.O. or N.C. supervised trigger input and polarity reversal trigger input (4mA draw from FACP).
- Power fail supervision relay (form "C" contact rated 1amp @ 28VDC).
- Output relay energizes when unit is triggered (form "C" contact rated 1amp @ 28VDC).
- Power supply is complete with enclosure, cam lock, transformer and battery leads.
- Enclosure accommodates up to two (2) 12AH batteries.

Enclosure dimensions: 15.5"H x 12"W x 4.5"D



Voltage Output Settings:

Output	Switch Position
12VDC	SW1 CLOSED
24VDC	SW1 OPEN

Stand-by Specifications:

Output	4 hr. of Stand-by & 5 Minutes of Alarm	24 hr. of Stand-by & 5 Minutes of Alarm	60 hr. of Stand-by & 5 Minutes of Alarm
12VDC / 40 AH Battery	Stand-by = 4.0 amps Alarm = 4.0 amps	Stand-by = 1.0 amps Alarm = 4.0 amps	Stand-by = 300mA Alarm = 4.0 amps
24VDC / 12 AH Battery	_____	Stand-by = 200mA Alarm = 3.0 amps	_____
24VDC / 40 AH Battery	Stand-by = 3.0 amps Alarm = 3.0 amps	Stand-by = 1.0 amps Alarm = 3.0 amps	Stand-by = 300mA Alarm = 3.0 amps

Installation Instructions:

The AL400ULM should be installed in accordance with article 760 The National Electrical Code or NFPA 72 and all applicable Local Codes.

1. Mount the AL400ULM in desired location. It is recommended to first review the following tables for screw terminals, switch selection and LED status indications. This will greatly facilitate installation hook-up.

Carefully review:

Voltage Output Settings

(pg. 2)

Terminal Identification Table

(pg. 5)

Stand-by Specifications

(pg. 3)

Typical Application Diagrams

(pgs. 6-7)

LED Diagnostics

(pgs. 4-5)

2. Set AL400ULM to the desired DC output voltage by setting SW1 to the appropriate positions (refer to voltage output settings).

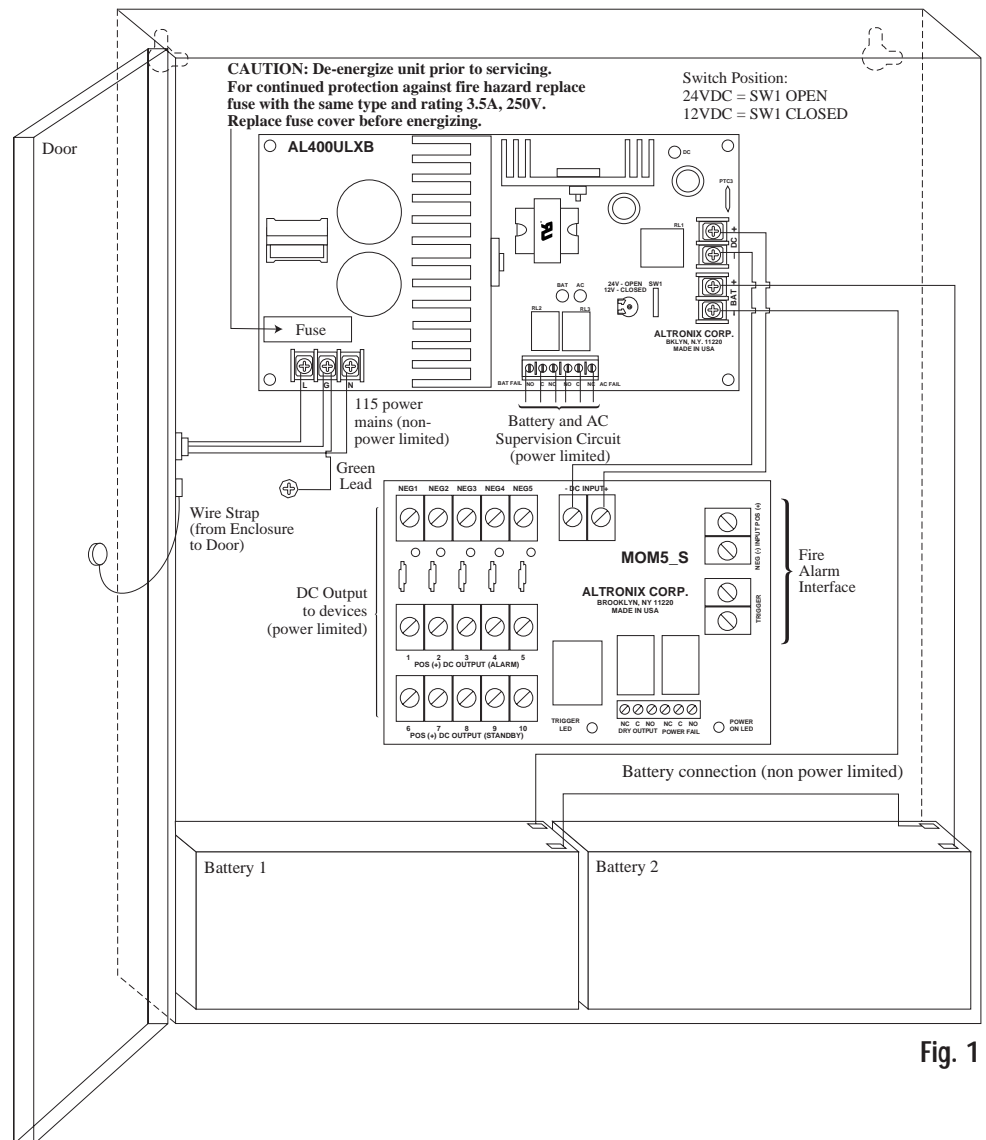


Fig. 1

Note: It is good operating practice to measure and verify output voltage before connecting devices to ensure proper operation of equipment.

3. Connect AC power (115VAC 50/60Hz) to terminals marked [L, G, N] (Fig. 1, pg. 3). Use 18 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).

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

4. Connect fail-secure type locking hardware (e.g. door strikes and electronic dead bolts) positive leads to terminals marked [1 thru 5 POS (+) DC OUTPUT (ALARM)] (Fig. 1, pg. 3) and the negative leads to terminals marked [NEG 1 thru NEG 5] (Fig. 1, pg. 3).
5. Connect fail-safe type locking hardware (e.g. mag locks, door strikes and door holders) positive leads to terminals marked [6 thru 10 POS (+) DC OUTPUT (STAND-BY)] (Fig. A, pg. 3) and negative leads to terminals marked [NEG 1 thru NEG 5] (Fig. 1, pg. 3).
6. To trigger the AL400ULM from a FACP connect signaling circuit of FACP to inputs marked [NEG (-)] and [POS (+)] input (Fig. 1, pg. 3). Polarity is shown in alarm condition.
For latching fire alarm interface (Fig. 5, 6, 7, pg. 7).

Note: A 2.2K EOL must be installed across terminals marked [TRIGGER] or MOM5 will remain in an alarm condition.

7. To trigger the AL400ULM using a supervised dry contact connect the 2.2K resistor in series for a N.C. trigger input and in parallel for N.O. trigger input (Fig. 2, pg. 6).
8. Connect auxiliary devices triggered by the AL400ULM to the terminals marked [DRY OUTPUT N.O. & C] for normally open output or terminals marked [DRY OUTPUT N.C. & C] for normally closed output (Fig. 1, pg. 3).

Note: This relay will energize when the AL400ULM is triggered.

9. For Access Control applications batteries are optional. When batteries are not used a loss of AC will result in the loss of output voltage. Batteries must be lead acid or gel type if used. Connect one (1) 12VDC battery to terminals marked [+ BAT -] (Fig. 1, pg. 3) for 12VDC operation. Use two (2) 12VDC batteries connected in series for 24VDC operation. (Battery leads included).
10. Connect supervisory trouble reporting devices to outputs marked [AC FAIL, LOW BAT] (Fig. 1, pg. 3) and [Power Fail] (Fig. 1, pg. 3) supervisory relay outputs marked [N.C., C, N.O.]. Use 22 AWG to 18 AWG for AC Fail & Low Battery reporting. AC Failure will report in 5 minutes.

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.

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 table).

Battery Test: Under normal load conditions check that the battery is fully charged, check specified voltage at the battery terminals and at the board terminals marked [+ BAT -] to insure that there is no break in the battery connection wires.

Note: Maximum charge current under discharge is .7 amps.

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

LED Diagnostics:

AL400ULXB - Power Supply

LED	ON	OFF
AC (Green)	Normal operation.	No AC input.
BAT (Red)	Battery connected.	Battery disconnected.
DC (Red)	Normal operation.	No DC output.

MOM5 - Output Module

LED	ON	OFF
Power (Green)	Normal operation.	Power failure.
Trigger (Green)	Input is triggered (alarm condition).	No input trigger (non-alarm condition).
Outputs (Red)	Output tripped due to a short circuit or overload condition.	Normal operation.

Terminal Identification:

AL400ULXB - Power Supply

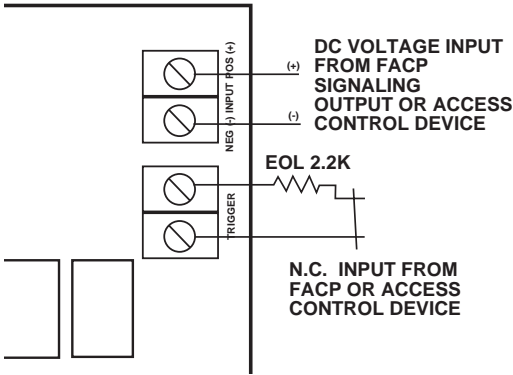
Terminal Legend	Function/Description
L, G, N	115VAC 50/60Hz input.
+ DC -	12VDC @ 4 amps total continuous output (supplies power to MOM5). 24VDC @ 3 amps total continuous output (supplies power to MOM5).
AC FAIL N.C., C, N.O.	Used to report loss of AC (e.g. connect to audible device or alarm panel). Relay normally energized when AC power is present. Contact rating 1 amp @ 30VDC.
BAT FAIL N.O., N.C., C	Used to report low battery condition, no battery presence, (e.g. connect to alarm panel). Relay normally energized when battery power is present. Contact rating 1 amp @ 30VDC.
+ BAT -	Stand-by battery connections. Maximum charge rate is .7 amps.

MOM5 - Output Module

Terminal Legend	Function/Description
- DC INPUT +	12 or 24VDC from power supply.
TRIGGER	Dry normally open (N.O.) or normally closed (N.C.) supervised (2.2K EOL resistor) input trigger. A short or open circuit will transfer power from terminals marked [POS. (+) DC OUTPUT (STAND-BY)] to terminals marked [POS (+) DC OUTPUT (ALARM)].
- INPUT +	Wet (5-30VDC) input trigger. Applying voltage to these terminals in the polarity shown will transfer power from terminals marked [POS. (+) DC OUTPUT (STAND-BY)] to terminals marked [POS (+) DC OUTPUT (ALARM)] (e.g. fire alarm control panel indications circuit)..
NEG 1 THRU NEG 5	Supplies constant negative (-) voltage.
POS (+) DC OUTPUT (ALARM) 1-5	Supplies positive (+) voltage when dry trigger input or fire alarm wet trigger input is applied.
POS (+) DC OUTPUT (STAND-BY) 6-10	Supplies positive (+) voltage in normal condition. Power is removed when dry trigger input or fire alarm wet trigger input is applied.
N.C., C., N.O. DRY OUTPUT	When the MOM5 is triggered the C and N.O. terminals will close and the C and N.C. terminals will open. This output is used to trigger auxiliary devices. (e.g. HVAC Shutdown, Elevator Recall etc.) Contact rating 1 amp @ 30VDC.
N.C., C, N.O. POWER FAIL	Form "C" contacts used for reporting no voltage is present at [- DC input +] terminals. Under normal conditions, terminals N.O. and C are open, N.C. and C are closed. A loss of power causes N.O. and C to close and N.C. and C to open. Contact rating 1 amp @ 30VDC.

Typical Application Diagrams:

Fig. 2 AL400ULM module shown with wet and/or dry normally closed trigger inputs (**Non-Latching**):



AL400ULM module shown with wet and/or dry normally open trigger inputs (**Non-Latching**):

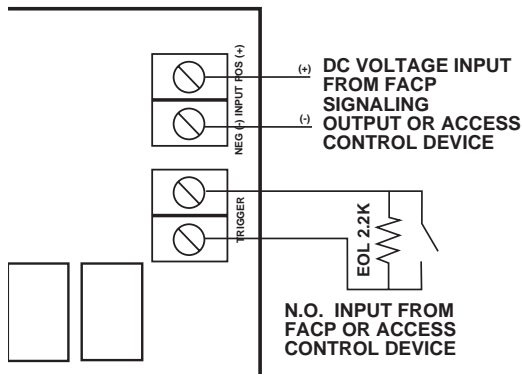


Fig. 3 - Two (2) or more AL400ULM modules shown with wet and/or dry normally closed trigger inputs (**Non-Latching**):

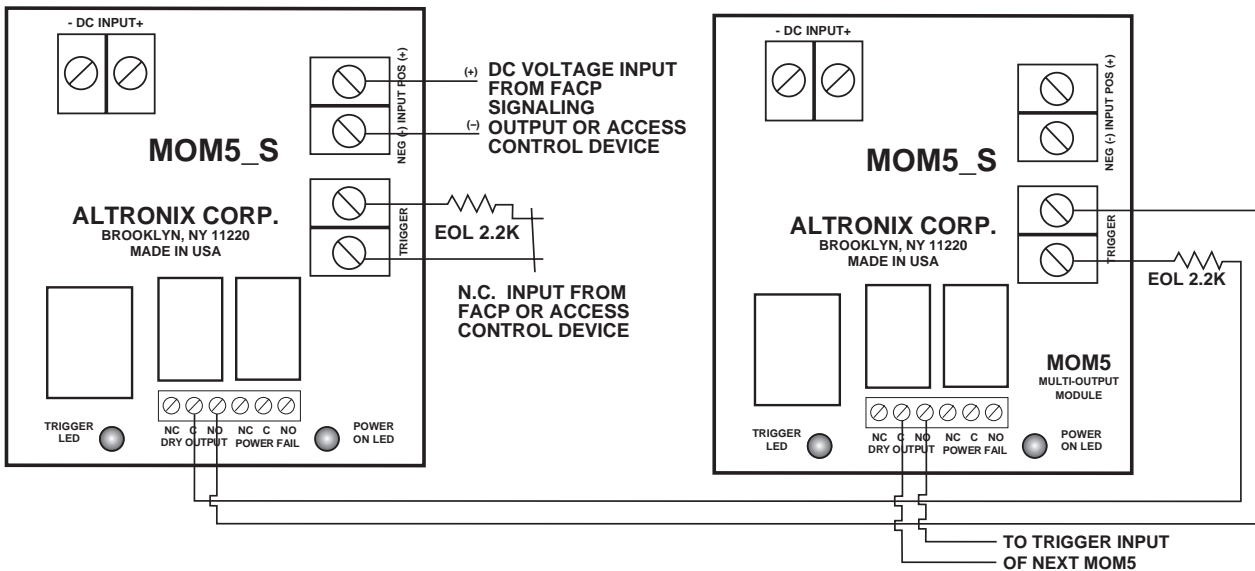
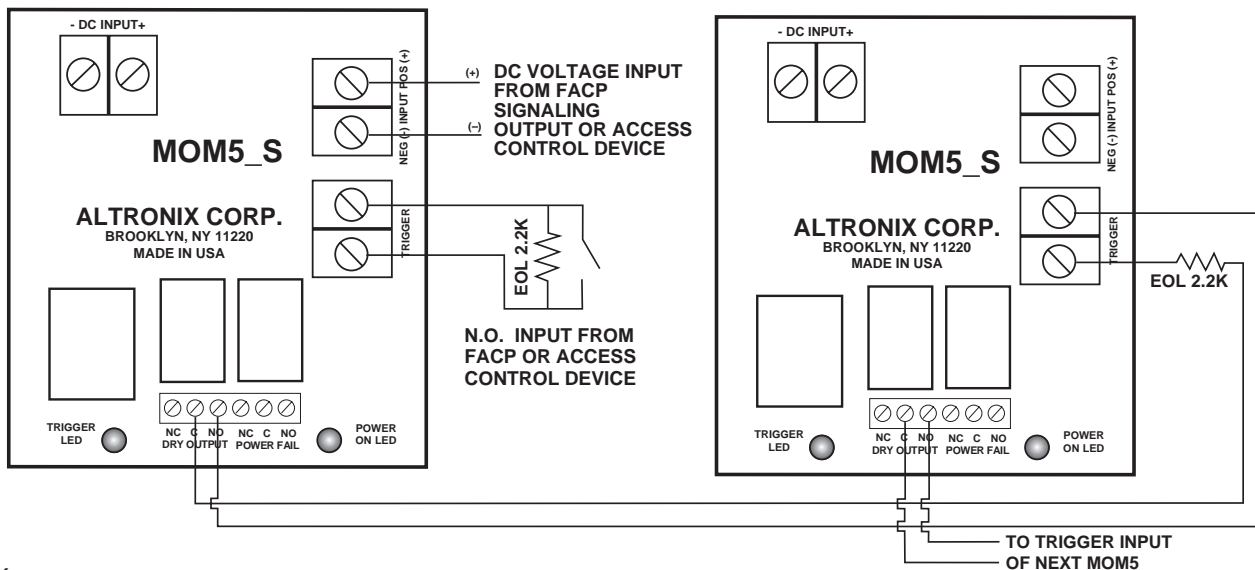
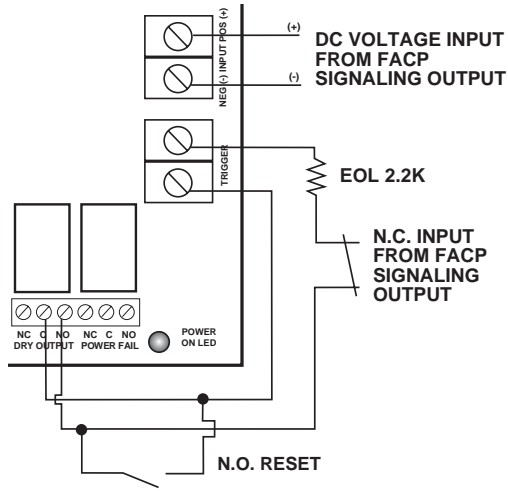


Fig. 4 - Two (2) or more AL400ULM modules shown with wet and/or dry normally open trigger inputs (**Non-Latching**):



Typical Application Diagrams:

Fig. 5 AL400ULM module shown with with wet and/or dry normally closed fire alarm trigger inputs (Latching with Manual Reset):



AL400ULM module shown with with wet and/or dry normally open fire alarm trigger inputs (Latching with Manual Reset):

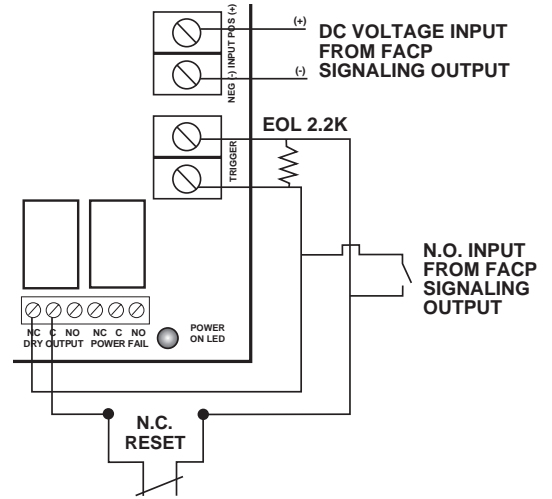


Fig. 6 - Two (2) AL400ULM modules shown with wet and/or dry normally closed fire alarm trigger inputs (Latching with Manual Reset):

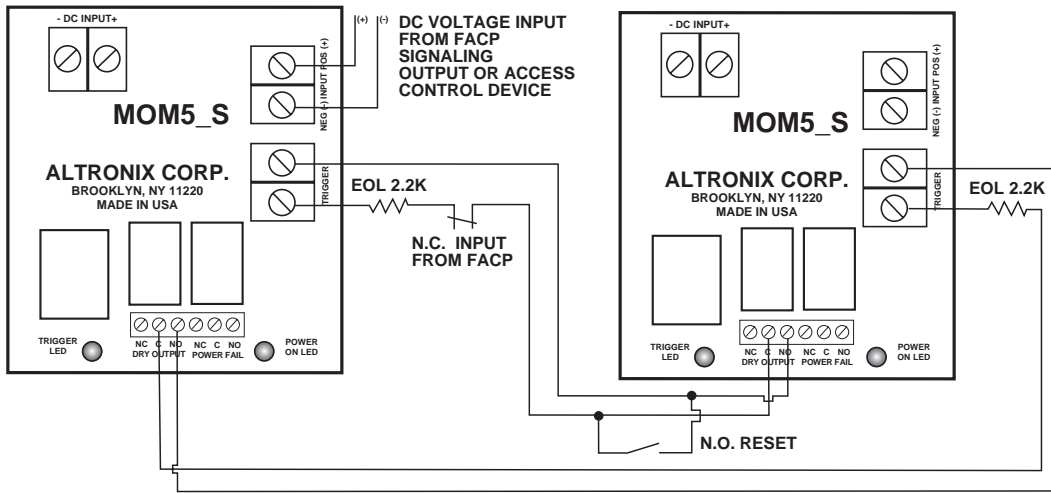
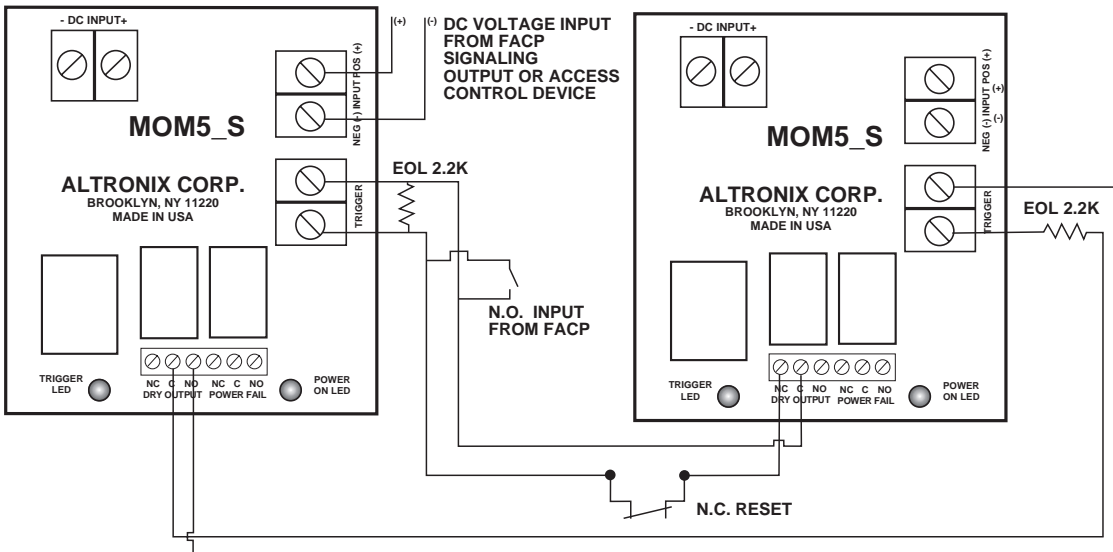
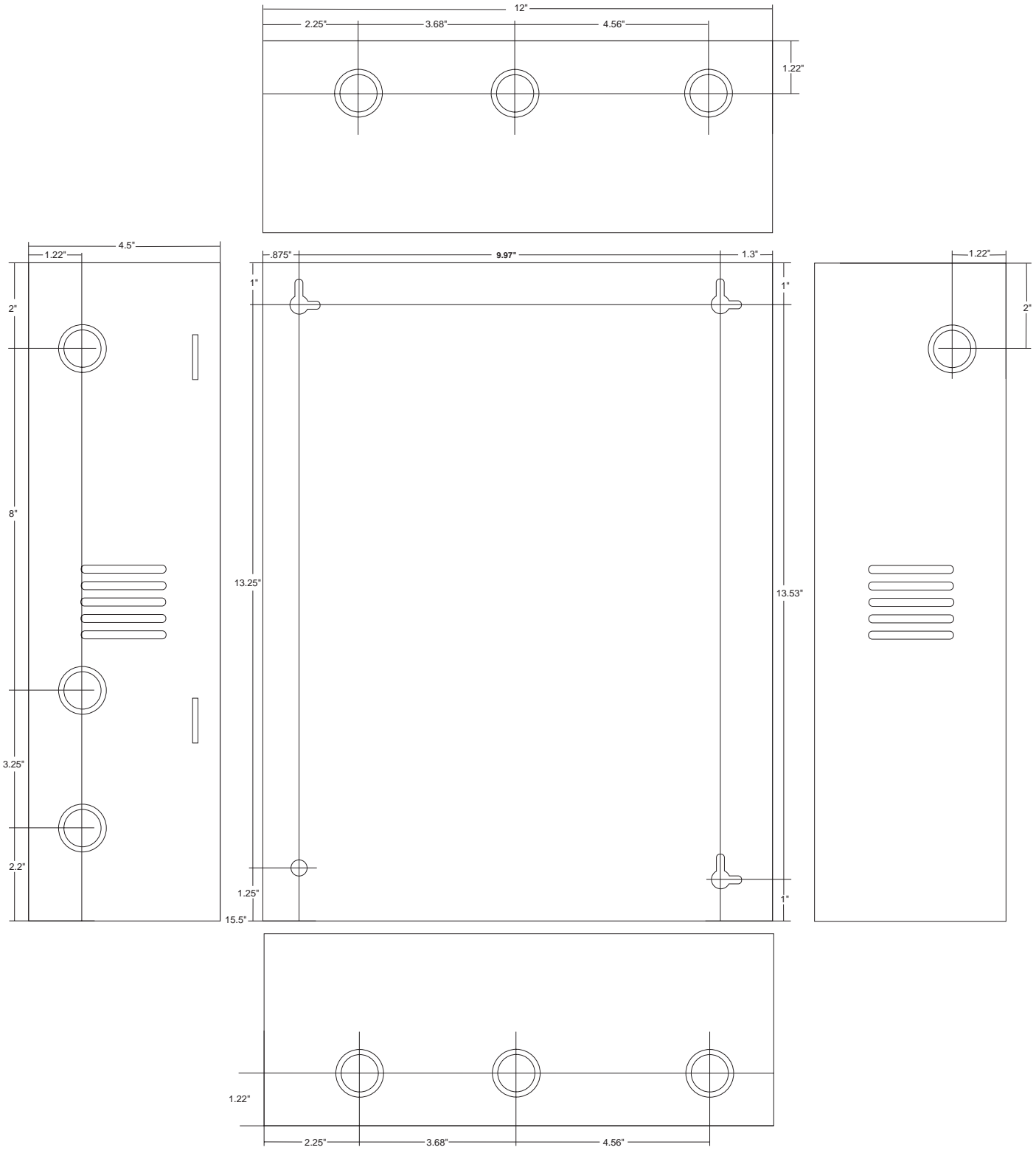


Fig. 7 - Two (2) AL400ULM modules shown with wet and/or dry normally open fire alarm trigger inputs (Latching with Manual Reset):



Enclosure Dimensions:
 15.5"H x 12"W x 4.5"D



MEMBER