

# PE Series

## Annunciator Panel

### Universal BBU Annunciator

### Installation/Operation Manual

## Model: AP-8000



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M-AP8000  
As of 012520

## Safety Information

FOR COMMERCIAL USE ONLY



### CAUTION

Up to 60 Volts DC may be present on the terminals.  
DO NOT SHORT ACROSS THE POWER SUPPLY TERMINALS

- Keep fingers and all metal objects from power terminals and wires.
- Use insulated hand tools.
- Recommended: When this device is connected to an alarm panel, place the alarm system in "Test Mode" prior to servicing.

**CAUTION:** Disconnect power before attempting to service or repair this product.

This device must be installed in accordance with all applicable electrical and building codes.

**NOTICE:** No user-serviceable parts inside. Refer all repairs to qualified service personnel.

## General Information

Materials provided:

- 1 ea. AP-8000 Annunciator Panel
- 1 ea. Installation/Operation Manual
- 4 ea. #10 x 3/4" Mounting Screws
- 1 ea. In-line Fuse Holder
- 1 ea. 2 Amp Slow Blow Input Power Fuse
- 1 ea. 1/2" NPT Cord Grip
- 1 ea. 3/4" NPT Cord Grip

The unit features:

1. Metal enclosure, NEMA-4 rated, Red
2. Microprocessor-Controlled
3. NFPA-Compliant LED Front Panel Indicators
4. Power Supply Operable from 7 to 60 Volts DC
5. QTY-(8) Building Fire Alarm Interface Relays, 2-Amps
6. Piezo Audio Alert with silence button (24 Hrs. max if alarm still present)
7. RS-485 Serial Communication for adding multiple annunciator panels to a single in-building 2-way Emergency Radio Communication Enhancement System
8. Selectable Alarm Input: NO or NC

The Universal Annunciator provides one "Form-C" relay outputs each for connection of up to (8) eight alarm conditions to the building's main fire alarm panel or other device. Typical UL Standard 2524 installations require at least the following alarm conditions to be annunciated:

1. Loss of AC power
2. Low battery, indicating the battery has discharged by 70%
3. Charger failure
4. BDA Failure
5. Antenna Failure
6. Active RF Device Failure\*
7. Active Component Failure\*
8. Donor Antenna Failure\*

\* Contact factory for labels

## Installation & Wiring

### A) Wall-Mount Installation:

1. One 1/2" NPT and one 3/4" NPT, IP-68 rated liquid tight cord grips are provided. Choose a location to drill the appropriate size hole (1/2" NPT = 7/8" and 3/4" = 1-1/8"). Cord grip hole locations are the two sides, bottom and rear in the opening provided at the bottom of the board. **CAUTION:** Remove drill shavings before powering AP-8000 or severe damage can occur.

2. The AP-8000 is designed to be wall mounted. Select a suitable location in accordance with any approved building plans or as specified by the Authority Having Jurisdiction.

3. Affix the cabinet to the wall using the supplied hardware.

If required, alternative mounting arrangements may be used but avoid drilling new holes in the front cover door..

**B) Wiring**

The following wiring is required to place the annunciator into service:

**1) Connection to a power supply:** See wiring diagram on page 7. Provide DC power from the DC output of the battery back-up (BBU) unit to the "Input Power" terminals located at the lower-left corner of the AP-8000 circuit board. This terminal accepts 12-22 AWG wire size. We recommend installing the provided 2 amp fuse and inline fuse holder on the positive DC input to the AP-8000, wired as close to the power source as practical. Connect the (+) to the top screw terminal, and (-) to the bottom screw terminal. The annunciator is protected against reverse polarity but will not function if the power input connections are reversed, resulting in blowing 2 amp fuse.

The main power supply is fused at 2 amps. Replace only with the same size fuse: Littelfuse 0.33002.MXP (or equivalent).

**2) Connection to alarm initiating circuits:** The annunciator is designed to accept up to (8) alarm initiating circuits. These can be all set for contact open (factory default) initiates alarm (ground removed - wire to NC contacts on monitored device) or contact closure initiates alarm (ground connected - wire to NO contacts on monitored device). To change this setting see Figure 1, 'Function DIP Switch' located to the left of the microprocessor. DIP switch position #2:

OFF = Contact CLOSURE initiates alarm (wire to NO terminals of monitored device), remove zero ohm jumpers on #6, #7, #8, and #9

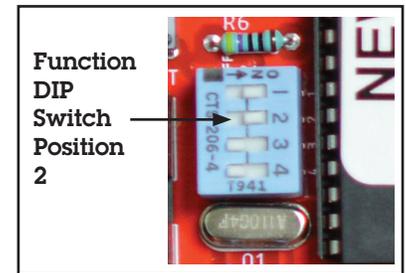
ON = Contact OPEN initiates alarm (wire to NC terminals of monitored device)

The input connector is colored green with orange push buttons, and is located just above the power supply input. The positions are numbered 1 through 10, from left-to-right, as shown in Figure 3 below.

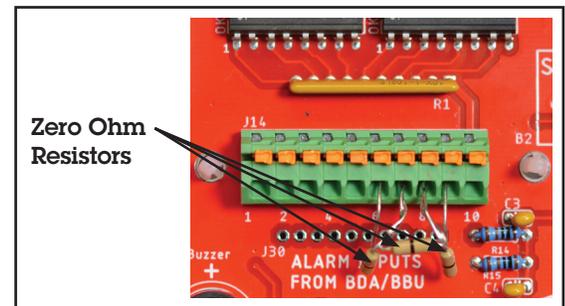
**Note: If not using Alarm input positions #6, #7 and #8, these are pre-jumpered with zero ohm resistors to the #9 ground terminal so they do not alarm if using the factory default contact open activates the alarm (DIP switch #2 in ON position). If changing factory default to contact closure activates alarm input place #2 Function DIP Switch to the OFF position and remove the three zero ohm jumpers from terminals #6, #7, #8 and #9 ground terminals.**

This terminal block accepts wire sizes 16 through 24 AWG.

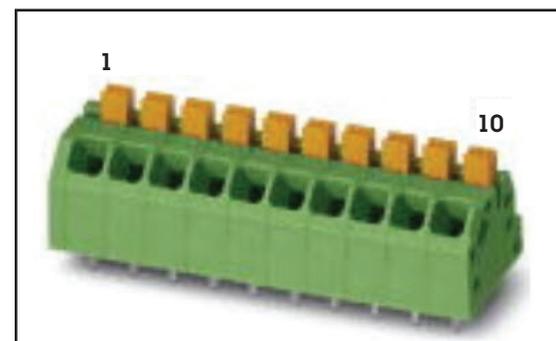
**Figure 1: Function DIP Switch**



**Figure 2: Zero Ohm Resistors**



**Figure 3: Phoenix Contact P/N: 1862123**



POSITION #	FUNCTION
1	Alarm Input #1/AC Power Fail
2	Alarm Input #2/Low Battery
3	Alarm Input #3/Charger Fail
4	Alarm Input #4/BDA Fail
5	Alarm Input #5/Antenna Fail
6	Alarm Input #6 – Piezo-Alert Output
7	Alarm Input #7
8	Alarm Input #8
9	Com/Ground
10	Regulated +5 Volts DC

} Not used - Expansion

**CAUTION:** Do not simultaneously apply power to both the main Input Power Connector and the above terminals. Doing so may damage the annunciator or any external equipment connected to it.

**3) Connection to the building's main fire alarm panel:** (This step #3 is optional.) The AP-8000 provides (8) Form-C relay outputs that may be connected to the building's fire alarm panel. Confirm with your local building inspector/authority having jurisdiction ("AHJ") whether such connections are permissible in your area.

Each Form-C alarm output relay has a separate wiring terminal. These terminals are located along the right-hand side of the circuit board with "Alarm 1" at the top, and "Alarm 8" at the bottom.

The alarm relay terminals accept wire sizes 18-22 AWG.

**End Of Line Resistors:** If desired, an in-series "End of Line" supervision resistor may be installed on the screw terminals adjacent to the relays. Any EOL resistors placed here will be "in-series" with the Common terminal of the Form-C relay. If these EOL terminals are not used, they must be shorted across, so that the Common terminal of the relay is presented to the wiring block.

**4) Connection to piezo-beeper:** A single expansion slot is provided near the upper center of the circuit board. Standard annunciator models ship from the factory with a single weatherproof NEMA-4 piezo beeper connected to this expansion slot.

Additional accessories may be available, now or in the future, and each such accessory item shall be accompanied by an instruction sheet describing its use of the expansion slot pins, if any.

**5) Press-to-Test Button:** The annunciator is equipped with a "Press-to-Test" button. When pressed, all front panel LED's will illuminate. (The piezo beeper and alarm relay outputs do not activate.)

**6) Buzzer "Silence" Button":** Located near center of PCB. Press to silence. If alarm still active after 24 hours, buzzer will sound.

### Summary Alarm Option (Auto Dialer)

The AP-8000 can be set to activate relay #8 whenever any one or more of the alarm inputs (#1 - #7) are activated. This summary alarm can be used to activate an Auto Dialer for example.

To set relay #8 for summary alarm:

1. Disconnect power from AP-8000
2. Open the door on the front of the AP-8000
3. Identify DIP switch to the left of the main microprocessor (refer to **Figure 1** on page 2 for location of DIP switches)
4. Set DIP switch #3 in the ON position
5. Re-connect power to the AP-8000
6. Test, attach a continuity checker across the NO terminals of relay #8 and activate any alarm (example: turn BDA Battery back up power battery breaker in the OFF position momentarily). Confirm relay #8 activates

### Programming and RS-485 Features

**Function Switch:** 4-Position DIP switch (left of processor):

Switch-1 = Beeper OFF/ON (Off = No beeper, On = Beeper will sound on alarms)

Switch-2 = Relay contact selection (ON=Normally Closed/Contact Open activates alarm, OFF=Normally Open/Contact Closure activates alarm)

Switch-3 = Additional feature (On = Alarm Relay 8 becomes a combined alarm output, Off = Alarm Relay 8 behaves normally)

Switch-4 = Selects Master/Remote (Off = Master, On = Remote)

**Address Switch:** 4-Position DIP switch (right side of processor): This sets the annunciator address in binary. (0-15)

**\*Power Failure Alarm Contact:** See Figure 2 for location. Two position plug-able terminal block. Normally Closed when power to Annunciator is ok, opens upon loss of power.

#### RS-485:

- 4800 Baud, no parity, 8-data bit word, 1 stop bit, half-duplex.
- Maximum # annunciators: 16 (i.e., 1 Master and up to 15 remotes)
- The last annunciator panel, if connecting multiple annunciators should be terminated for best performance
- Maximum bus length: 4,000 feet when using 22-ga twisted shielded pair (CAT 5e cable)
- There can only be (1) Master assigned per system. Only the Master accepts alarm inputs from the BDA/BBU (on the orange and green push-connector).
- The remote(s) ignore connections on their orange and green push-connector.
- If a remote(s) loses its RS-485 connection for more than a few seconds, that remote will disengage all its output relays and begin to cycle the membrane keypad LED's from top to bottom until the RS-485 link is reconnected. Upon reconnection, the remote will operate normally.
- Yellow TX & RX LED's indicate the bus status.

Note: When not in use, the TX and RX LED's may or may not flash - this is normal.

**RS-485 Pinout:**

- Pin -1: RS485A
- Pin -2: RS485B
- Pin -3: Ground
- Pin -4: PoE+ (Not Used)
- Pin -5: PoE+ (Not Used)
- Pin -6: Ground
- Pin -7: PoE- (Not Used)
- Pin -8: PoE- (Not Used)

**RS-485 LED Indicators:**

- LED -10: Illuminates when the annunciator panel is transmitting over the RS-485 Serial Link.
- LED -11: Illuminates when the annunciator panel is receiving serial data from a remote annunciator.

**SL1 Termination:**

- SL1 is the termination resistor for the RS-485 Serial Communication Bus.
- With the jumper placed over the left and center pins, the termination resistor is in-circuit. This is for "Master Only" configurations.
- With the jumper placed over the center and right pins, the termination resistor is out-of-circuit. This is used for Master and Remote configurations.

**SILENCE button:**

- Press and hold for 2 seconds to activate silence.
- Pressing SILENCE on any annunciator (whether Master or Remote) silences all annunciators for 24 hours.

After 24 hours, the beeper activates again (if there is no change in alarm status), in accordance with UL directives. If the alarm status changes while the 24-hour silence is in effect (i.e., a new alarm arrives, or an old alarm condition recovers), the 24-hour silence timer is reset and the beeper sounds. If the SILENCE button is pressed on any annunciator (whether Master or Remote) while silence is already in effect, the button press is ignored. (i.e., additional time is not added.)

**Connect Wiring:**

All AP-8000's using Ethernet UTP cabling with RJ-45 connectors. Each AP-8000 has two RJ-45 jacks. Ensure each remote has a unique address by placing the four position address DIP switch (right side of processor) in ON or OFF position for each remote.

**Specifications**

Subject to Change without Notice

**General:**

- Microprocessor controlled
- QTY-(8) Form-C, UL-Listed, Small Signal Relays
- "Heartbeat" indicator
- Front panel "Press-to-Test" button
- Easily adapted to fit nearly any situation
- RS-485 Serial Communication for Master/Remote Annunciator panel operation. Master and upto 15 remotes.

**Cabinet:**

- Shipping weight: 8 Lbs.
- Dimensions (assembled): 10" H x 8" W x 4" D
- Environmental Rating: NEMA-4/IP66
- Closure: ¼ Turn Twist-Lock
- Cord Set: None (Provided by installer)
- Form-C, UL-Listed Small Signal Relay
- 2-Amp DC Rating (Resistive)

**Electrical:**

- 7 - 60V DC
- Input Current Draw: <100mA max.
- Max Power: 4.5 Watts
- Relay switching current: 2-Amp DC (resistive)

## Regulatory Information

**California Prop-65 Warning Notice:** This product contains lead, a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. Wash hands after handling lead products.



**Recycling Notice:** Please help protect the environment. We encourage all purchasers to recycle their lead-acid batteries. For the recycling location nearest you, please visit <https://www.call2recycle.org/>

**FCC Part-15:** This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



## Troubleshooting

This Universal Annunciator is designed and engineered to provide years of service in unattended commercial installations. With the exception of a single internal 2 amp ceramic fuse, there are no user serviceable parts inside.

In the event the annunciator fails to function properly, there are a few basic system checks that can be performed in the field:

- 1) Check for the green, blinking "Heartbeat" LED light located at the upper left portion of the circuit board. This green LED blinks under microprocessor control. If the LED is blinking, it means the microprocessor is running and operating normally. If the Heartbeat LED is not illuminated, or is blinking erratically, there may be a problem with the power supplied to the device.
- 2) Measure the voltage across Pins 9 & 10 on the Alarm Input connector. This value should be +5 Volts DC regardless of how the annunciator is powered (i.e., via the Main Power, or these pins 9 & 10).
- 3) Verify that all wiring connections to all terminals are clean and tight, and that the wiring is fully under the terminal screws.

If the above system checks do not resolve the problem, please contact our Technical Support staff for further assistance.

## Limited Warranty

Newmar warrants that the AP-8000 PE Series Annunciator Panel to be free from defects in material and workmanship for two years from date of purchase. If a problem with your AP-8000 or if you have any questions about the installation and proper operation of the unit, please contact NEWMAR's Technical Services Department:

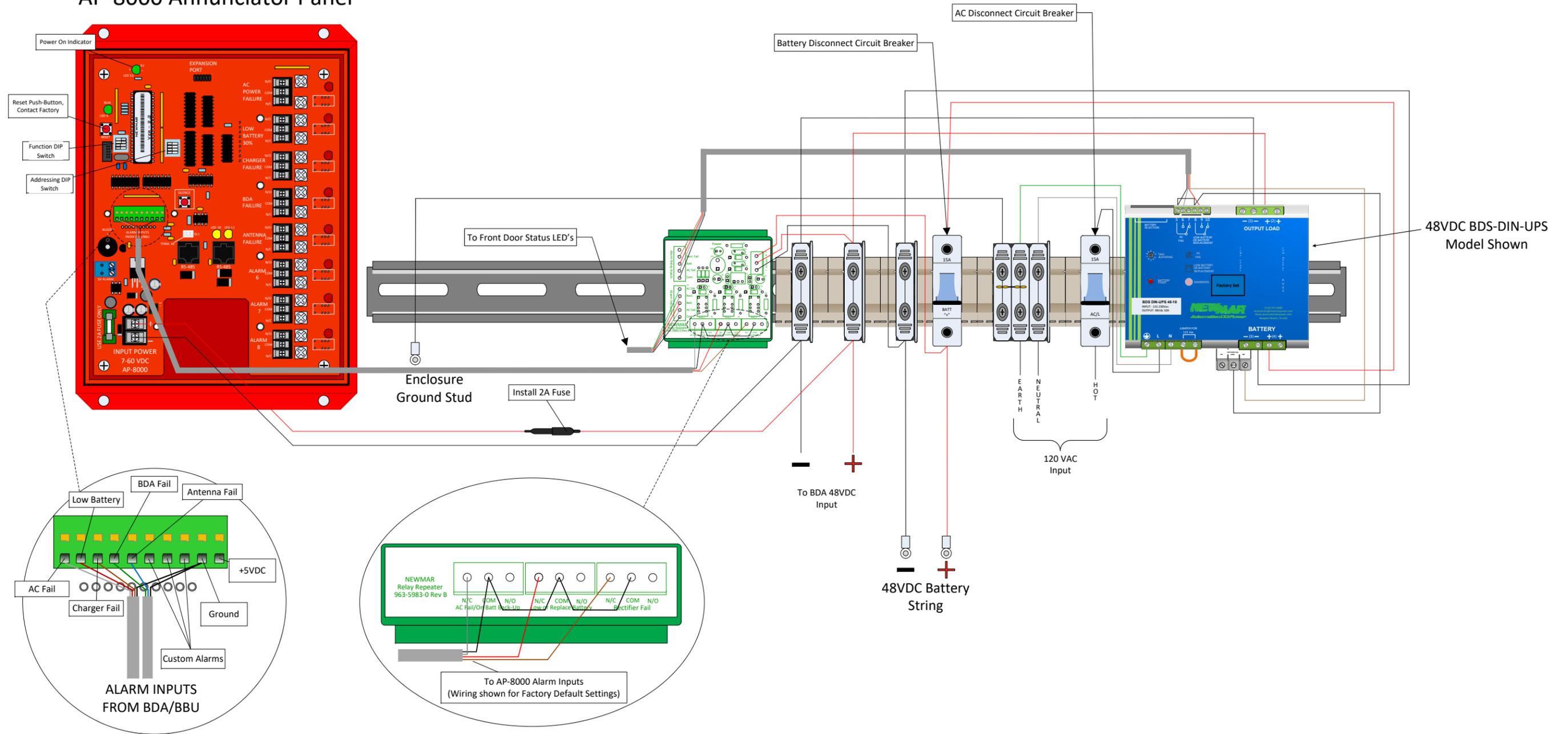
Phone: 714-751-0488 - From the hours of 7:30 a.m. to 5:00 p.m. weekdays, P.S.T.;

Fax: 714-957-1621

E-mail: [techservice@newmarpower.com](mailto:techservice@newmarpower.com)



AP-8000 Annunciator Panel



\*Notes:

- 1) BDS unit factory wired for 120 VAC Input
- 2) Install 2 amp fuse, included with AP-8000
- 3) If PE System is **NOT** UL listed, attach AP-8000 power wiring directly to BDS Output

**Wiring Diagram:** AP-8000 Annunciator Panel  
**Revision:** A  
**Drawn By:** R. Wirtz