CX-PS300UL
POWER SUPPLY / CHARGER

INSTALLATION INSTRUCTIONS



SECURITY UL LISTED UL 1034 UL 294

THIS PACKAGE INCLUDES

1 - Power Supply Cabinet
1 - Instruction Manual
2 - 2K2 Resistors
2 - Keys

1. GENERAL DESCRIPTION

The Camden CX-PS300UL Series Power Supply/Charger is designed to deliver a robust 3-amp nominal continuous supply current at 12/24V DC outputs. Housed in a sturdy sheet steel enclosure, this unit can comfortably accommodate one or two 12 Ah lead acid rechargeable batteries. The CX-PS300UL has undergone rigorous evaluations to meet the ULC-S533, UL294, and ULC-60839-11-1 standards, underlining our commitment to delivering safe and reliable power solutions. Please note that this power supply is not designed for the operation of fire notification appliances, including horns, strobes, and bells.

2. SPECIFICATIONS

Input	120/240V AC, 50-60 Hz @ 1.4Amps
Output	3 Amp continuous @ 12/24VDC
Operating Temperature	0 ˚C to 49 ˚C
Maximum battery charging current	1.5Amps (not part of the max output current rating)
Dimensions	13-3/8" W x 17-5/8" H x 4-1/2" D (340mm x 449mm x 115mm)

3. KEY FEATURES

- **Automatic Switch Over:** The unit automatically switches to stand-by battery mode upon AC failure or low voltage detection, ensuring continuous operation.
- **Battery Presence Detection:** The unit is capable of detecting the presence of a battery within a rapid 10-second interval.
- **Temperature-Compensated Battery Charger:** Incorporated in the design is a temperature-compensated battery charger for enhanced efficiency. **Note:** This feature complies with EN54-4 standards, however, it has not been evaluated by UL.
- **Battery Charger Monitor:** The unit is equipped with a monitoring system for efficient battery charging.
- **Regular Battery Load Testing:** A battery load test is conducted every 48 hours to ensure consistent performance.
- **Battery Test Result Indication:** The results of the battery test are indicated for user convenience.
- **Battery Reversal Protection:** This feature is designed to protect against accidental battery reversal.
- **Low Battery Indication:** Alerts are provided when the battery voltage drops to 11.40/22.80 Volts.
- **Low Battery Disconnect:** The system automatically disconnects when the battery voltage falls to 10/20.2 Volts.
- **Comprehensive Battery Status Reporting:** The unit reports on low battery status, battery disconnection, absence of a battery, and potential battery charger issues. For detailed information, refer to the FAULT TABLE.
- **AC Input Indication:** A green LED indicates the presence of AC input. The LED remains lit as long as AC is present.
- **AC Fault Relay:** The system is equipped with a CMOS Relay contact for AC failure detection.
- **Visual Indicators:** LEDs on the enclosure door (in green, yellow, and blue) provide visual status updates.
- **DC Output Indication:** A blue LED, located both on the board and the enclosure, indicates DC output.
- **Protection Features:** The power supply is equipped with overload and short circuit protection on DC output.
- **Battery Charging Leads:** The necessary battery charging leads are included with the power supply for immediate setup and use.

NOTE

This power supply should be installed in compliance with the National Electric Code (NFPA 70) CSAC22.1, Canadian Electric Code, Part 1 and all applicable Local Codes. Installation to be performed by qualified technical personnel.

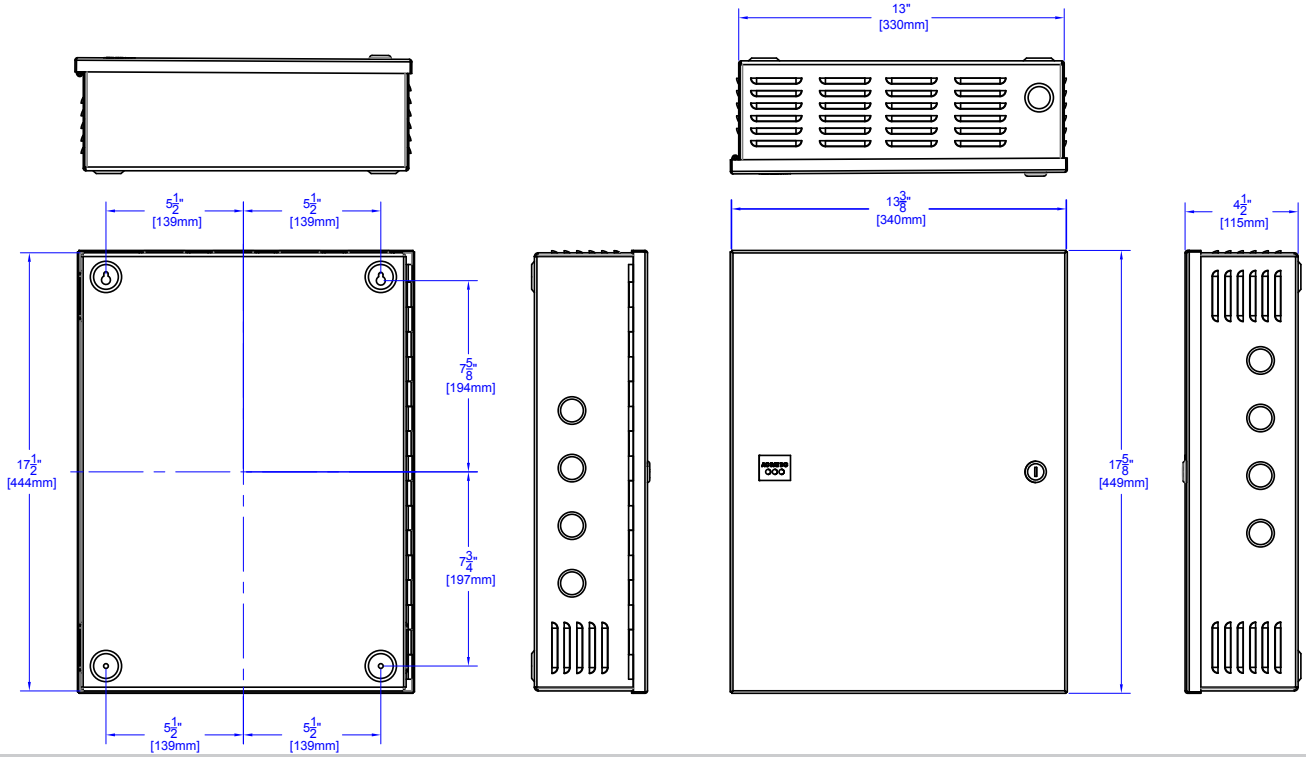
UL294 PERFORMANCE LEVEL

Destructive Attack	Level I
Line Security	Level I
Endurance Level	Level IV
Standby Power	Level III (when used with 12Ah battery)

CAN/ULC-60839-11-1 PERFORMANCE GRADES

Grade	3 (when used with 12Ah battery)
Grade Achievement	Connect AC & battery trouble relay outputs to a grade 3 control unit, to achieve Grade 3.

4. DIMENSIONS



5. LED INDICATIONS

LED Color	Function	Indicator Status	Additional Information
Green	AC Power	On when AC power is present	AC fail Relay opens within 60s after AC failure
Blue	DC Power	On when power supply's DC output is active	
Yellow	Battery and Fault	Flashing when the battery is charging	Also used to indicate various fault conditions (See Fault Condition and Indication table)
Red	Test Indicator	On during Battery test or Battery charger failure	Works with Yellow LED to indicate other fault conditions (See Fault Conditions and Indication table)

6. RELAY / OUTPUTS

Output	Output Type	Description
AC FAIL	NORMALLY CLOSED OPEN = FAULT	TRIPS WITHIN 60 SEC. AFTER AC FAILS CMOS RELAY RATING: 30V DC, 60 mA, 16 Ω
BATTERY FAIL	NORMALLY CLOSED OPEN = FAULT	BATTERY PROBLEM. CMOS RELAY RATING: 30V DC, 60mA ,16 Ω

7. FAULT CONDITION & INDICATIONS

FAULT	LED-G	LED-Y	LED-R	BATT RELAY	AC RELAY	LED-B
Battery Reversed or Not Connected		On		Open		
Battery Low		On		Open		
Battery Disconnected		On		Open		
Battery Test Failed		On	The LED will flash rapidly five times, followed by a single flash every second. This pattern will repeat continuously until the battery is replaced.	Open		
Battery Test is Successful		Off	3 Flashes 1 sec On/Off			
Charger Failed			The LED will exhibit a pattern of ten rapid flashes, followed by a pause of two seconds. This cycle will continue to repeat until the system is functioning properly.	Open		
AC Failed	Off				Open within 60 sec	
DC Failed / Overload						Off

8. BATTERY OPERATING VALUES

Parameter	Output	Description
Battery Disconnect Voltage	10/20.2V	The battery will be disconnected if the AC is off and the battery voltage falls below this threshold. Reconnection will occur only once AC power is restored.
Minimum Battery Voltage to Pass Battery Test	11.50V 23.0V	A successful battery test will result in the Red LED flashing on and off every second during the 2-minute test. If the LED emits 5 rapid flashes followed by a 1-second pause, this indicates a battery failure, and the battery should be replaced.
Low Battery Voltage Warning	11.40V 22.80V	Should the output voltage fall below this threshold, a 'Low Voltage Warning' will be triggered. For more details, refer to the Fault Conditions and Indication table.

9. INSTALLATION INSTRUCTIONS

This power supply should be installed following the guidelines of the National Electrical Code, NFPA70, the NFPA72 National Fire Alarm Code, CSA C22.1 Safety Standard for Electrical Installations, Canadian Electrical Code Part I, CAN/ULC-S524, as well as all relevant local codes. Installation must be carried out by appropriately qualified personnel. Unless approved by the local jurisdiction authority, the power supply should not be installed in the fail secure mode, and it should not disrupt the function of any listed panic hardware.

IMPORTANT: Connect the Mains AC input to either 120/240V AC, following the instructions depicted in the installation diagram. The entry knockouts are located on the left of the enclosure. Ensure to maintain a distance between low voltage wiring and the AC wiring to avoid interference.

1. Install the power supply at your chosen location by utilizing the four mounting holes. Please note that this device is intended for indoor use only, within controlled environments. Avoid installing the power supply on exterior doors.
2. With the main power switched off, attach the LEDs to the AC input terminal block, being mindful of the wiring phase and polarity: Ground/Earth = Green(or Yellow), Neutral = Blue (or White), Live = Black (or Brown). This device must be linked to the 120-240 Volt Mains via an easily accessible external disconnect device, complete with a maximum 15 Amp branch protection. Select the desired DC output voltage of either 12V or 24V using the SW1 jumper. When SW1 is in the ON position, the output is 12V DC; when SW1 is OFF, it's 24V DC.
3. Refrain from connecting the battery at this stage.
4. Once the AC power supply is switched on, the Green LED should light up, indicating the presence of AC, and the AC Fault Relay will be activated as "ON" (or closed). When the AC power is switched off, the AC Fault Relay will open within a factory-set time of 60 seconds, triggering the CMOS "AC Fail" output. Connect this output to the appropriate monitoring devices.
5. Check the DC output voltage, which should read either a maximum of 13.20V DC or 26.40V DC. A blue DC LED will illuminate to confirm that the DC output is functioning correctly.
6. The Yellow LED, in conjunction with the BAT FAULT CMOS relay opening, will only light up to signal that the Battery is either not connected or connected with reversed polarity.
7. When ready, connect the Battery or Batteries, ensuring correct polarity. Note: Do not connect the battery unless the AC power is already present.
8. If the battery is connected correctly, the Yellow LED will switch off (refer to the Fault Conditions and Indications Table for further information). Within a minute, the Battery Fault Relay will reset, and the Yellow LED will flash once every two seconds.
9. If the battery is connected with reversed polarity, the Yellow LED will stay lit (see the Fault Table). The CMOS relay will open to indicate a Battery Fault, and this output should be connected to suitable monitoring devices.
10. Attach the devices to be powered to the output terminals marked "Vo- Vo+".
11. Refer to Figures 1 & 2 below for the installation of PD4ECB, PD8ECB, MOM8ECB, and ACM4ECB, which require two EOLR Resistors (2K2) that are provided.
12. If a Tamper Switch is required, use part # TSW1-02 or TWS2-02 (refer to Figure 3).
13. Use 2K2 EOLR (End Of Line Resistor) Part #EORL-PWX2K2.
14. Link the fault relays to FACP or ACP for trouble indication.
15. Finally, secure the enclosure using the provided screw or the Key Lock, if available.

10. ACM4ECB

DESCRIPTION:

The ACM4ECB is a distribution controller designed for use with card Access Control and Egress Doors. It offers 12/24V DC across four outputs, each rated at 2.0A (maximum of 3A total), each equipped with electronic over-current protection set at 2.5A. The four outputs can switch security devices such as Magnetic Locks and Door Strikes on or off. The device can be connected to FACP or ACP through NO or NC configurable contact input using 2K2 EOLR (Part #EORL-PWX2K2), and features an input for Reverse Polarity triggering. The ACM4ECB also incorporates two Dry Contact “Form C” relay outputs, one indicating output status and the other signaling DC failure on any of the four outputs due to overcurrent or short-circuit situations.

INSTALLATION:

1. Output Connections

ACM4ECB offers four selectable outputs suitable for both FAIL safe and FAIL secure configurations.

a) For FAIL safe operation, connect the positive (+) lead of the device to the Normally Closed (NC) terminal and the negative lead to the “Neg” COM terminal, connectors CN1 to CN4. DC power will be present under normal circumstances and will switch OFF when a fire alarm from FACP, ACP, or Reverse Polarity input is activated. Devices such as Magnetic Locks should be connected to this output as depicted in Fig. 2.

b) For FAIL secure operation, connect the positive (+) lead to the Normally Open (NO) terminal. Under normal conditions, DC power will not be present but will switch ON when a fire alarm or Reverse Polarity input from FACP or ACP is activated. Devices such as Door Strikes should be connected to this output.

2. Fire Alarm and Access Control Interface

Use the Normally Open (NO), Normally Closed (NC), or Reverse Polarity (Rev. Volt.) inputs to trigger ACM4ECB operation. Connect the positive (+) and negative (-) leads from the FACP or ACP to the REV. VOLT terminals, observing polarity (which is referenced during alarm conditions), or connect the NO or NC from FACP or ACP output to the “Fire Trigger” terminals. Install the PWX2K2 2k2 (EOLR) resistor at the FACP or ACP as shown in Fig. 1. Note: EOLR is not required on Rev. Pol.

3. Engineering RESET/REX Input

With the Jumper JL removed (JL OFF), the ACM4ECB will latch upon receiving input from the FACP or ACP, and will reset when the FIRE/ACP TRIGGER is reset.

If **JL is ON**, the unit will follow the FIRE/ACP TRIGGER. Install PWX2K2 2.2K (EOLR) resistor at the Key Switch or Push Button to execute this operation.

4. Relay Output

a) DC Fail: If one or more of the eight outputs fail due to overcurrent or short circuit, the DC Fail Relay will open. Connect this output to a monitoring device. (28V DC, 300mA)

b) Status Output: The dry contact Relay Form "C" will change state (de-energize) when the FACP or ACP input activates. Connect this output to a monitoring device. (28V DC, 300mA)

5. ACM4ECB LED Indication

The Red LEDs (L1 to L4) indicate DC presence (when ON) and that the Output relays are energized. When OFF, the LEDs indicate that the Relay is de-energized and the output is OFF. Yellow LEDs (LD1 to LD4) signal overload or short on the output, with the output current limit set at 2.5Amp (rated at max 2.0Amp). The Green LED (L9) is normally OFF, but switches ON when an alarm is received from FACP/ACP, staying ON as long as the FACP/ACP input status remains unchanged. If JL was removed, this LED stays ON until a manual RESET circuit reset.

6. Access Control Panel (ACP) Trigger input

The controller offers four inputs split between CN10 and CN11, each with two IN and two GND terminals. Activate these inputs by shorting the IN and GND terminals of the respective inputs.

7. FACP/ACP Input Programming

If you want the output relay activation to follow the FACP or ACP input, set the DIP switch corresponding to the desired relay to the "OFF" position. In the "ON" position, the corresponding output relay will not be affected by FACP, ACP, or Rev. Pol input.

8. Isolated Output Configuration

If any of the outputs require an isolated DRY CONTACT configuration, remove the respective Jumper (J1 through J4). This provides Form "C" (C NO NC) connections to connectors CN1 through CN4, isolating them from the internal power source. The Relay Rating is 28V DC, 2A.

11. CONNECTION

Jumper	Default	Fire Input Triggered/Reset	Reset	Reset after AC Mains Lost/Restored
JL OFF & U1 JP OFF		Drops Power	Manual	Auto
JL ON & U1 LP ON	YES	Drops Power	Auto	Manual
JL OFF & U1 JP ON		Drops Power	Manual	Manual
JL ON & U1 JP OFF		Drops Power	Auto	Auto

There are two jumpers (JL & U1 JP) that set the configuration for how the output power functions when the fire input is triggered then restored or when the AC MAINS is dropped and then restored.

Note: Jumper U1 JP when used will be placed over the middle and left pins. When not in use will just be covering the right-most pin as a place holder.

Jumper JL ON or OFF will control if the output will be restored automatically or manually when the fire input has been triggered (closed) then opened.

Jumper U1 JP will control if the output will be restored automatically or manually when the Mains power has been dropped and restored.

See the table above for what your application requires.

CX-PS300UL

REGULATED POWER SUPPLY CHARGER
UL/ ULC LISTED AS FOLLOWS:
UL294, CAN/ULC60839-11-1,CAN/ULC-S533
POWER SUPPLY FOR ACCESS CONTROL SYSTEM

FIRE PROTECTIVE

This Product must be installed in compliance with National Electrical CodeNFPA70, and all applicable codes. CSA C22.1, Safety Standard for Electrical Installations, Canadian Electrical Code.

CAMDEN DOOR CONTROLS

NOTE: PLEASE REFER TO CX-PS300UL INSTALLATION MANUAL, PART NO:40-82B302

DATE OF MFG

c UL us LISTED
I.T.E. POWER SUPPLY
E220695

REG# T1880471-02

REG#T1880471-01

Industry Canada
REG# T1880471-03

SECURITY EQUIPMENT
ACCESS CONTROL
POWER
SUPPLY CHARGER
SPECIAL LOCKING
ARRANGMENT

SECURITY SIGNALING
TESTED FOR:
ULC-S533, UL 294
ULC-60839-11-1
LISTED 21A6

DX-200W-PCB
DX300
TO MONITOR POINT
U1 JP Jumper: Controls auto/manual output restoration after Mains power loss
PWX2K2 EOL RESISTOR
BATTERY CONNECTION NON POWER LIMITED

DC BAT AC
BLU YEL GRN
DOOR PANEL GROUND STUD
LED'S PANEL
AWG14
AWG 14
EARTH GROUND
CABINET GROUND STUD

G N L
AC INPUT
120-240 VAC
50-60Hz 1.4A

FOR WIRING SIZE USE 22 TO 14AWG
EACH OUTPUT RATED AT 2.0AMP, Maximum 3 Amp Total

ACM4ECB
CN1 OUTPUT 1
CN2 OUTPUT 2
CN3 OUTPUT 3
CN4 OUTPUT 4

MAGNETIC LOCK
FAIL SAFE CONFIG
ELECTRIC DOOR STRIKE
FAIL SECURE CONFIGURATION
(NEC AND CEC CLASS 2 CIRCUIT, 60950 LPS CIRCUIT)

ACP/FACP
INSTALL 2K2 EOLR AT FACP

For use in Indoor Dry controlled Environment

2K2 EOLR
NC NO C
FACP/ACP
N/C CONFIG.
N/O CONFIG.

Battery capacity for loss of primary power at least (see table below) hours for: UL294, CAN/ULC-60839-11-1: Grade 3"

OUTPUT VOLTAGE [V]	12AH BATTERY STANDBY OPERATION TIME [HOURS]	12AH BATTERY STANDBY OPERATION LOAD (A)	17.2AH BATTERY STANDBY OPERATION TIME [HOURS]	17.2AH BATTERY STANDBY OPERATION LOAD (A)
12V	2	3	2	3
24V	2	3	2	3

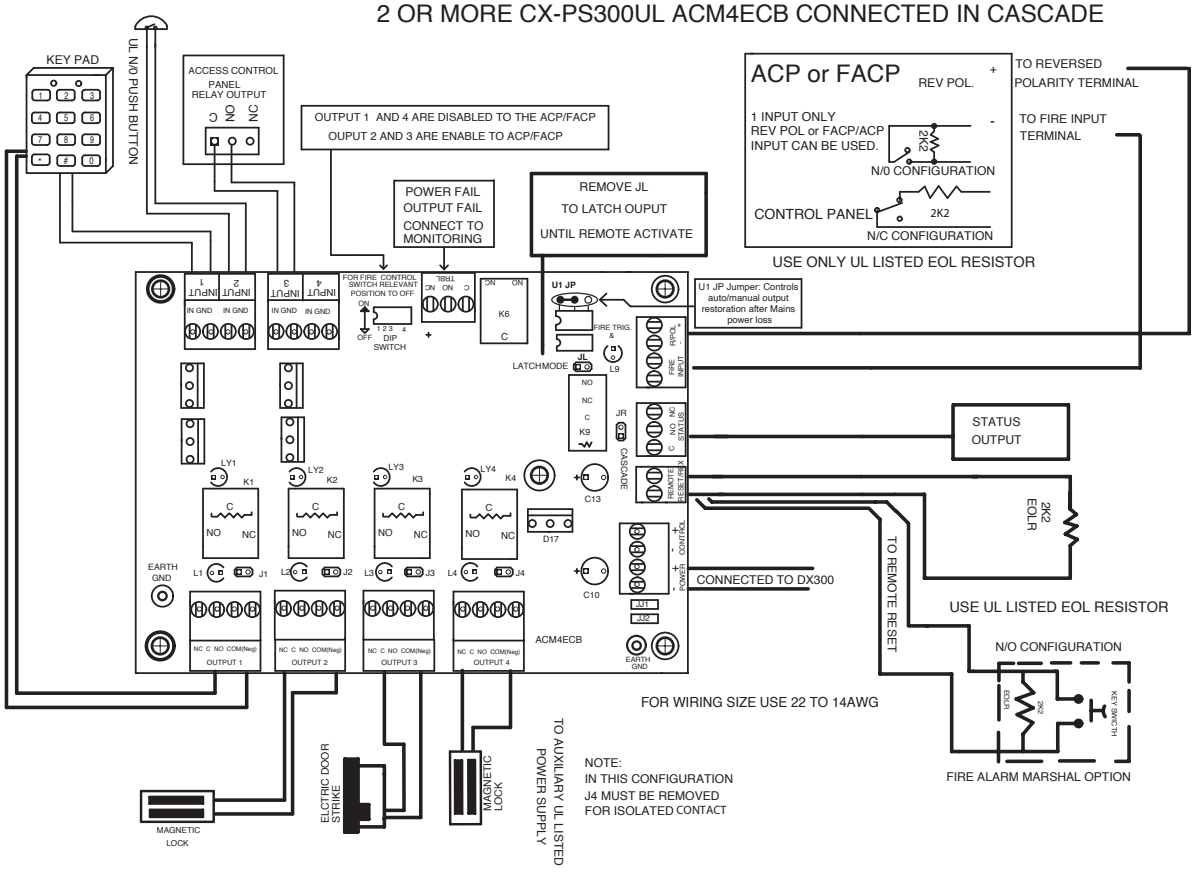
BATTERY 1
12 VOLT
12 / 17.2 AMP/HOUR BATTERY
battery jumper
BATTERY 2
12 VOLT
12 / 17.2 AMP/HOUR BATTERY

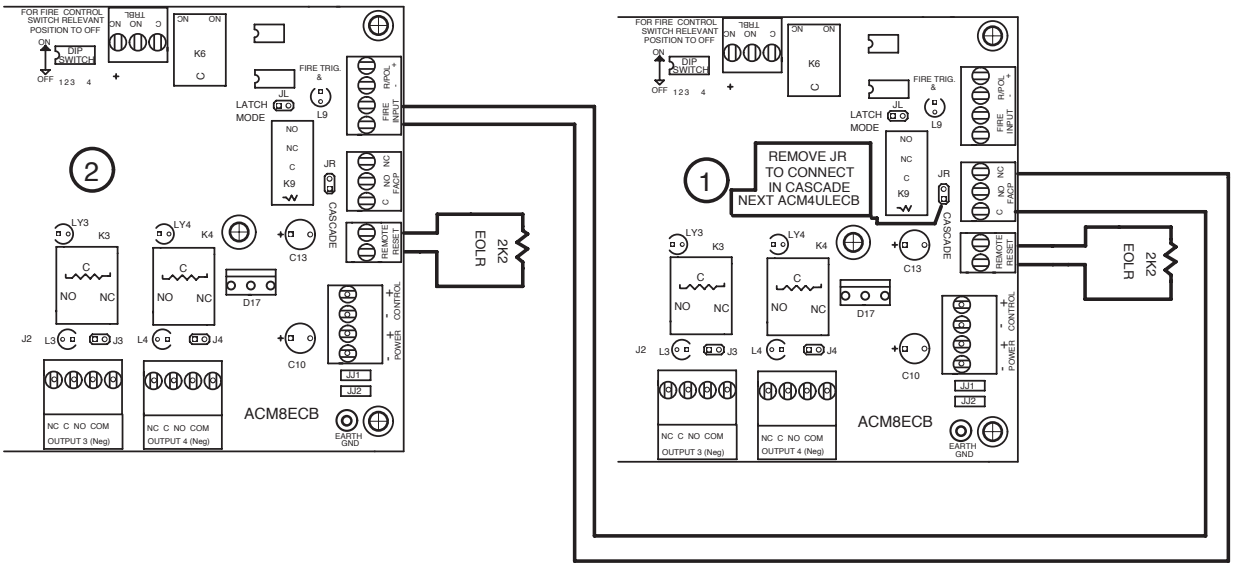
Maintain a minimum distance of 0.25 inches between power-limited and non-power-limited wiring to prevent electrical interference.

CAMDEN DOOR CONTROLS

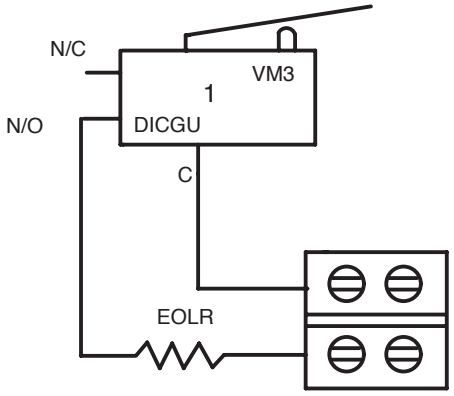
TYPICAL APPLICATION WIRING DIAGRAM

2 OR MORE CX-PS300UL ACM4ECB CONNECTED IN CASCADE



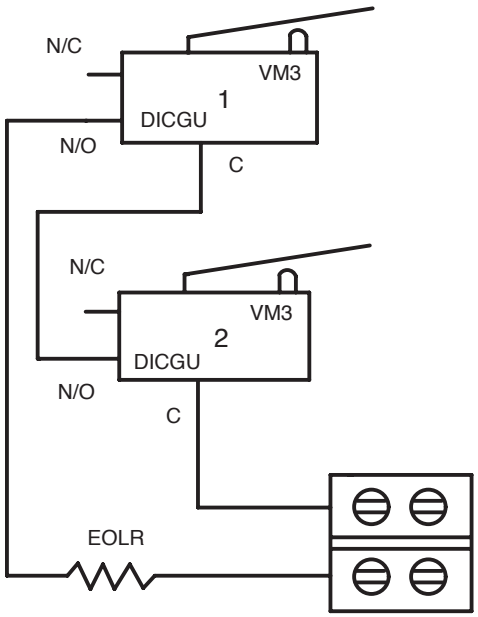


Maintain a minimum distance of 0.25 inches between power-limited and non-power-limited wiring to prevent electrical interference.



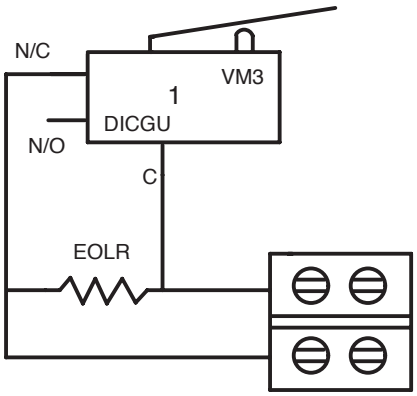
1 TAMPER N/C

CONNECT TO MONITORING POINT



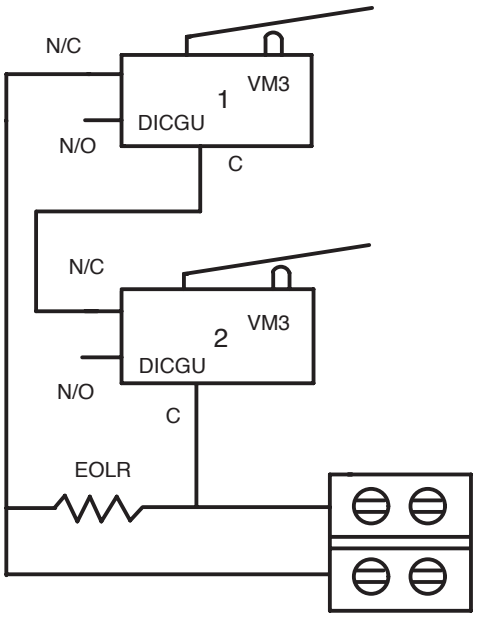
2 TAMPERS N/C

CONNECT TO MONITORING POINT



1 TAMPER N/O

CONNECT TO MONITORING POINT



2 TAMPERS N/O

CONNECT TO MONITORING POINT