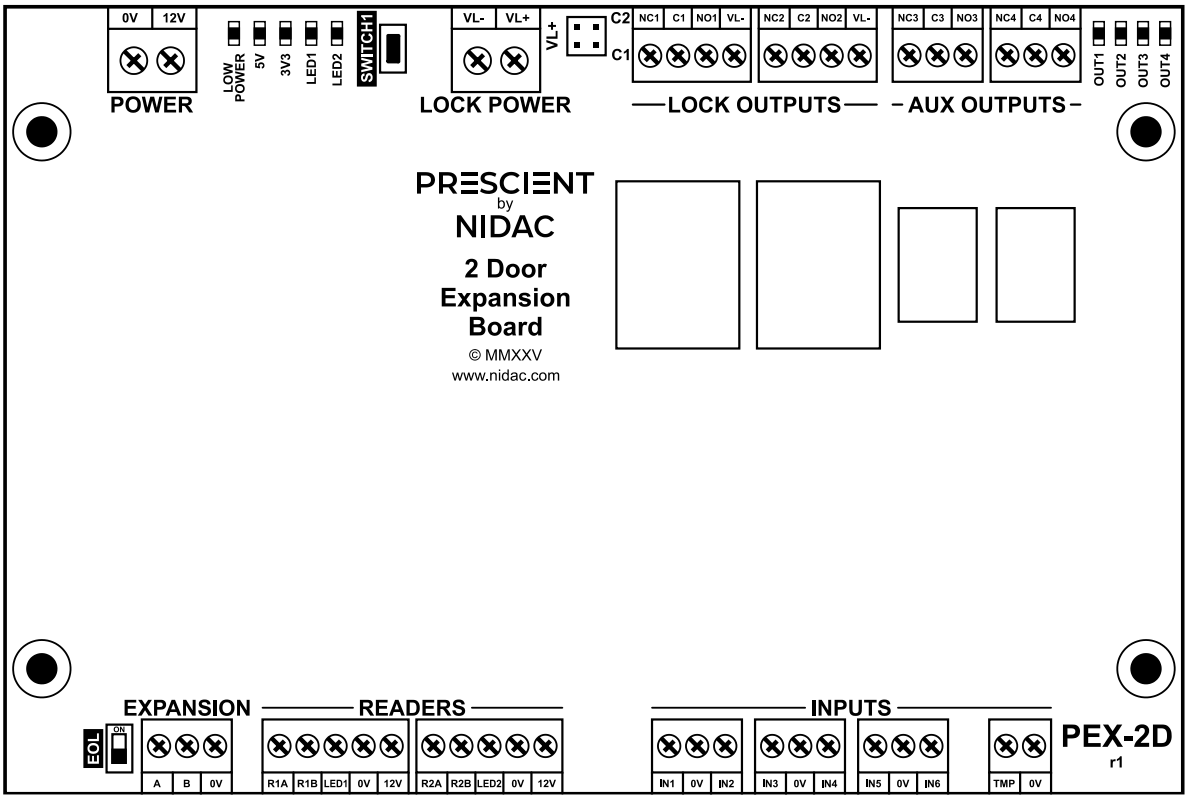
PRESCIENT® by NIDAC

PEX-2D r1 HARDWARE GUIDE

Version 1.0



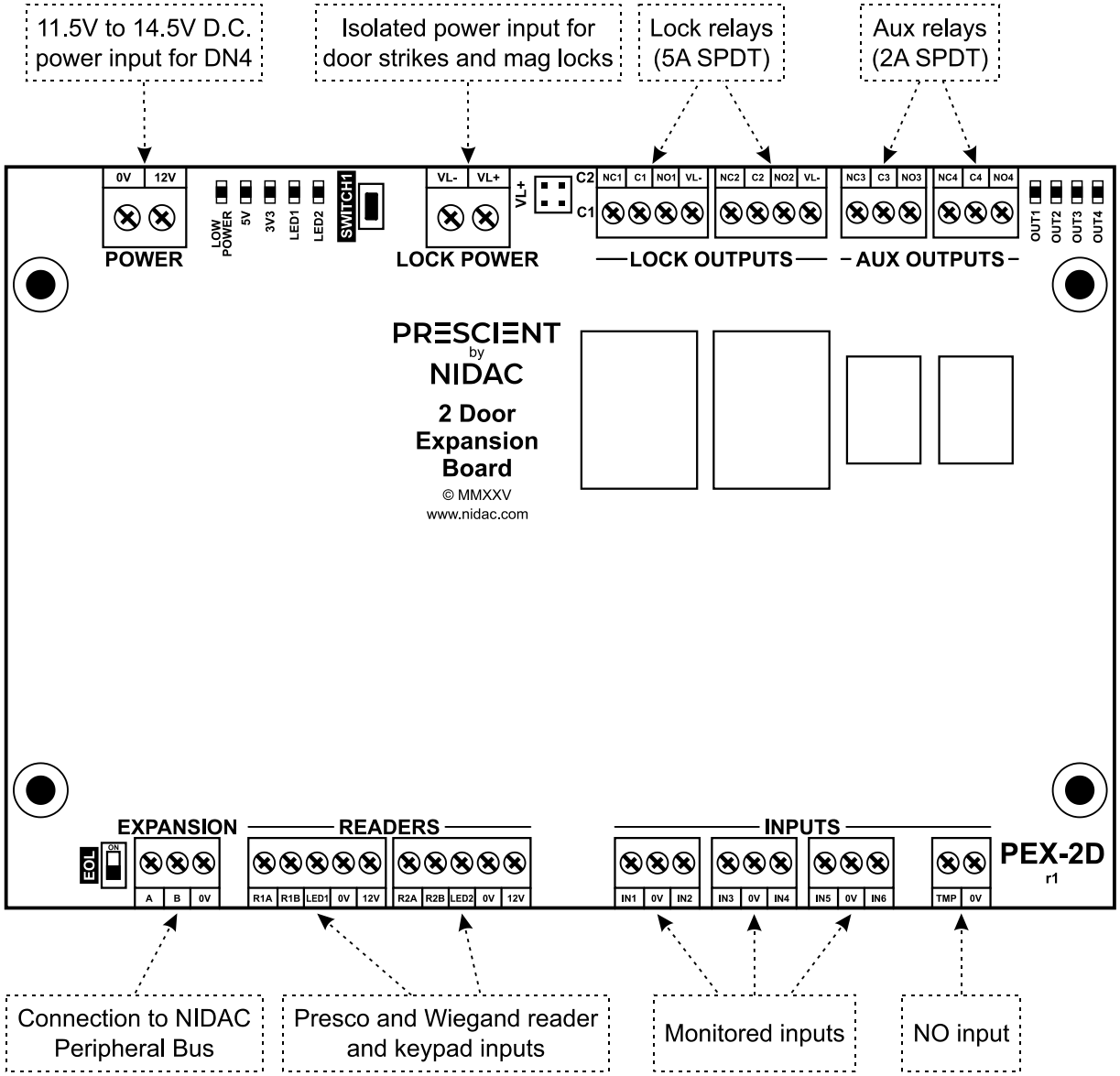
Features

- 2 door expansion board for use with DN4
- RS485 NIDAC expansion bus
- 2 x Reader inputs for Wiegand and NIDAC Prove peripherals
- 6 x supervised inputs and 1 unsupervised tamper input
- 2 x 5A SPDT relays for door control
- 2 x 2A SPDT relays for auxiliary purposes, such as alerts
- Separate isolated power input for door locking devices

Specifications

- Power: 11.5 to 14.5V D.C. @ 150mA
- Dimensions: 160 x 107 x 35mm (W x D x H)
- Relays 1 & 2: 28V D.C. max, 5A
- Relays 3 & 4: 50V D.C. max, 2A
- Inputs: Can support monitored EOL resistor values of 1K to 10K

Connections



POWER

12V	+11.5 to 14.5V D.C. power input for PEX-2D
0V	Negative or GND connection from power supply

READERS 1-2

RxA	Wiegand D0 data input
RxB	Wiegand D1 or Presco DTA data input
LEDx	Reader LED control output, negative drive for Wiegand and positive for Prove peripherals
0V	Connection to 0V power input
12V	Fused connection to 12V power input

INPUTS 1-6

INx	Selectable as NO, NC or EOL resistor supervised
0V	Connection to 0V power input

ALARMS

TMP	Normally Open input used to register an enclosure tamper condition
0V	Connection to 0V power input

LOCK POWER

VL+	Positive connection from power supply for door locking devices
VL-	Negative or GND connection from power supply for door locking devices

OUTPUTS 1-2

VL-	Connection to VL- power input, to be used as negative connection on door locking device
NOx	Normally Open relay contact
Cx	Common relay contact
NCx	Normally Closed relay contact

OUTPUTS 3-4

NOx	Normally Open relay contact
Cx	Common relay contact
NCx	Normally Closed relay contact

EXPANSION

Use this to connect to the PEX-2D to the NIDAC Expansion Bus.

SWITCH1

To reboot the PEX-2D press and hold for between 5 and 10 seconds then release.

To perform a device address reset press and hold for between 10 and 15 seconds then release.

Holding the button pressed for more than 15 seconds will cancel the reboot/reset.

EOL

Switch to on only for the first and last devices in the daisy chain loop (refer to Expansion Bus Wiring section).

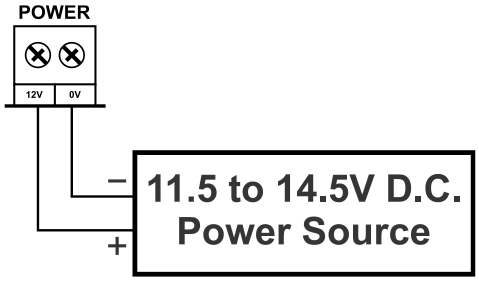
Indicators

5V	Indicates onboard 5V power is present for the reader inputs
3V3	Indicates onboard 3V3 power is present for the ARM processor
LOW POWER	Indicates the voltage into the PEX-2D is too low to ensure reliable relay switching

LED1	LED2	
off	off	Abnormal behaviour, if 3V3 LED is lit try cycle power
ON	off	The PEX-2D is in discovery mode, waiting for an address to be allocated by the DN4 attached to the expansion port
off	ON	The PEX-2D is in normal operating mode
ON	ON	Abnormal behaviour, if 3V3 LED is lit try cycle power
Blinking	off	The PEX-2D will reboot when SWITCH1 is released
off	Blinking	The PEX-2D will perform a device address reset when SWITCH1 is released

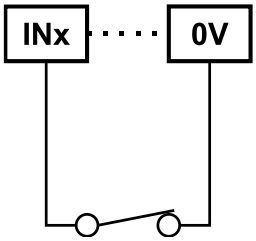
Power Wiring

NIDAC recommends using a battery backed 13.8V D.C. power supply.

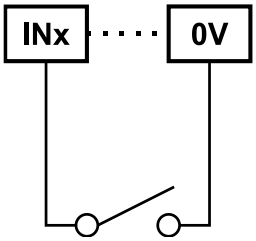


Input Wiring

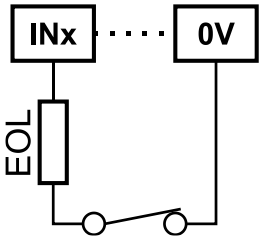
All inputs can be used for either exit buttons or door monitoring, each is selectable as NO, NC or EOL resistor supervised to match the device and wiring being used. The default value for the EOLs is 4.7K however standard values from 1K to 10K can be used provided that when using 2 EOLs the value for EOL1 is equal to or greater than EOL2.



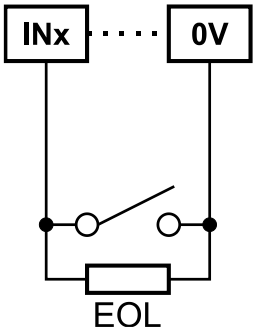
Unsupervised NC



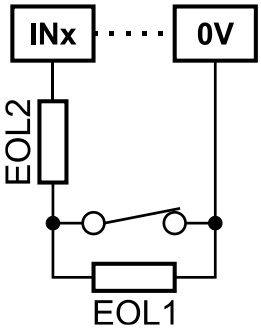
Unsupervised NO



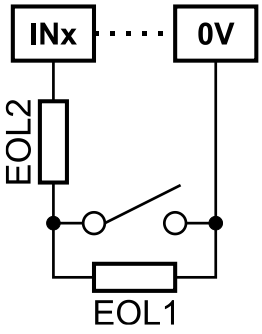
NC with 1 EOL resistor



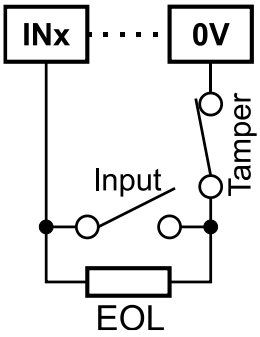
NO with 1 EOL resistor



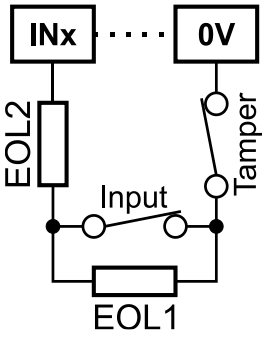
NC with 2 EOL resistors



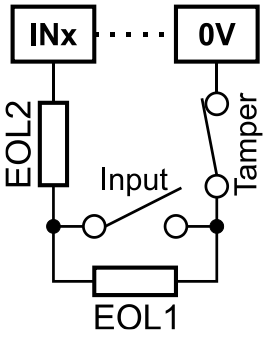
NO with 2 EOL resistors



NO with 1 EOL resistor
and NC tamper



NC with 2 EOL resistors
and NC tamper

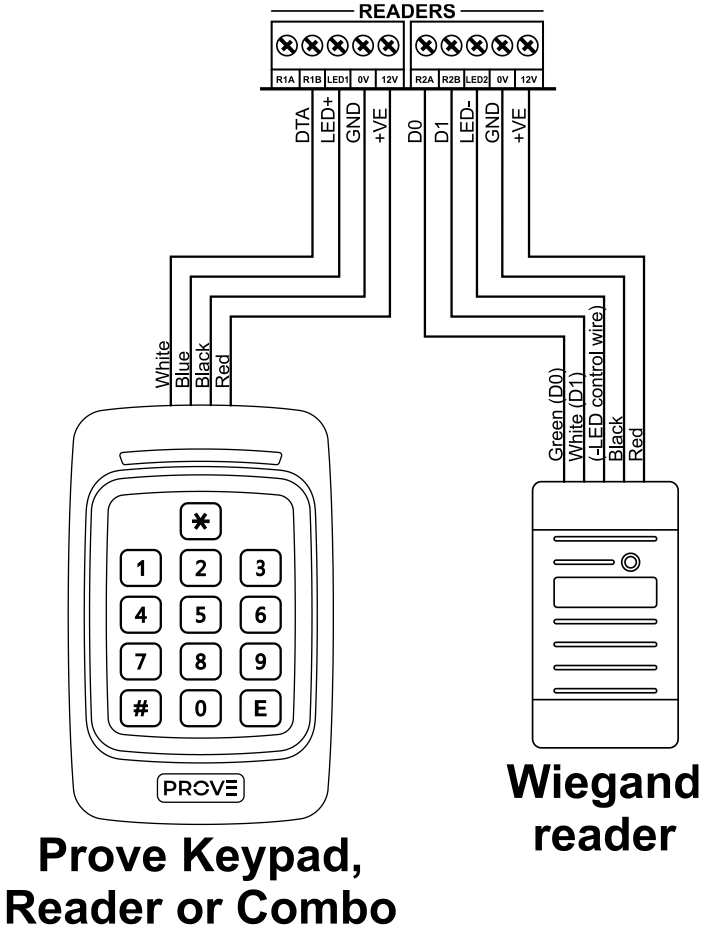


NO with 2 EOL resistors
and NC tamper

NOTE: ensure EOL1 ≥ EOL2

Reader Wiring

All reader inputs can accept either Wiegand or Prove peripherals.

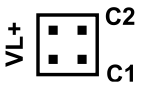


Reader Cabling Distances

Device	Cable type	Max length
Wiegand	7/020 shielded cable. 4 core for reader only. 6 core for reader + LED control. Ground the shield at DN4 end only.	100m
Prove PSK2 keypad	7/020 unshielded cable. 2 core (figure 8) for data only, no LED control. 4 core for PSK2 with LED control.	1000m
Prove PSE keypad without backlighting	2 core (figure 8) 7/020 unshielded cable.	1000m
Prove PSE keypad with backlighting	4 core 7/020 unshielded cable. **NOTE** decreased distance is due to extra current drawn by backlighting. 4 core 14/020 unshielded cable.	500m 1000m
Prove BDF-43C, BDF-62C, BDF-62R, PSC2, PSR2 or PRO24 proximity reader/combo	4 core 7/020 unshielded cable. 4 core 14/020 unshielded cable. **NOTE** decreased distance is due to extra current drawn by powering the reader.	350m 800m
Prove VR43 or VR62 keypad.	4 core 7/020 unshielded cable. 4 core 14/020 unshielded cable. **NOTE** decreased distance is due to extra current drawn by powering the keypad.	350m 800m

NOTE all distances are based on a supply voltage of 12.0V D.C. at the DN4.

VL+ to Relay Common Jumpers



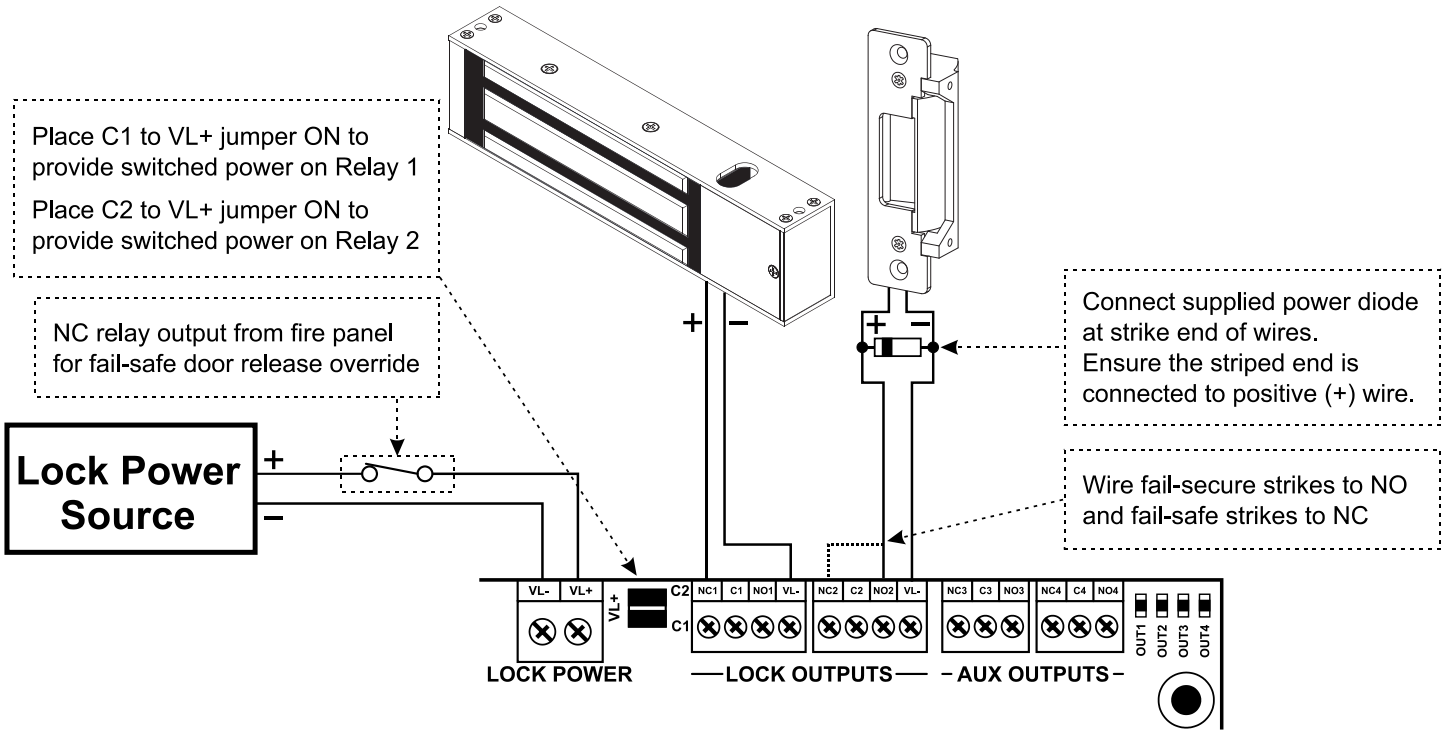
Place a jumper over the C1 or C2 and adjacent VL+ pin to connect the common contact of the associated relay to the VL+ power input.

This allows for easier wiring of powered door locking devices.

WARNING do not use a jumper to connect C1 to C2 as this can lead to undesired interaction between doors.

Door Lock Wiring

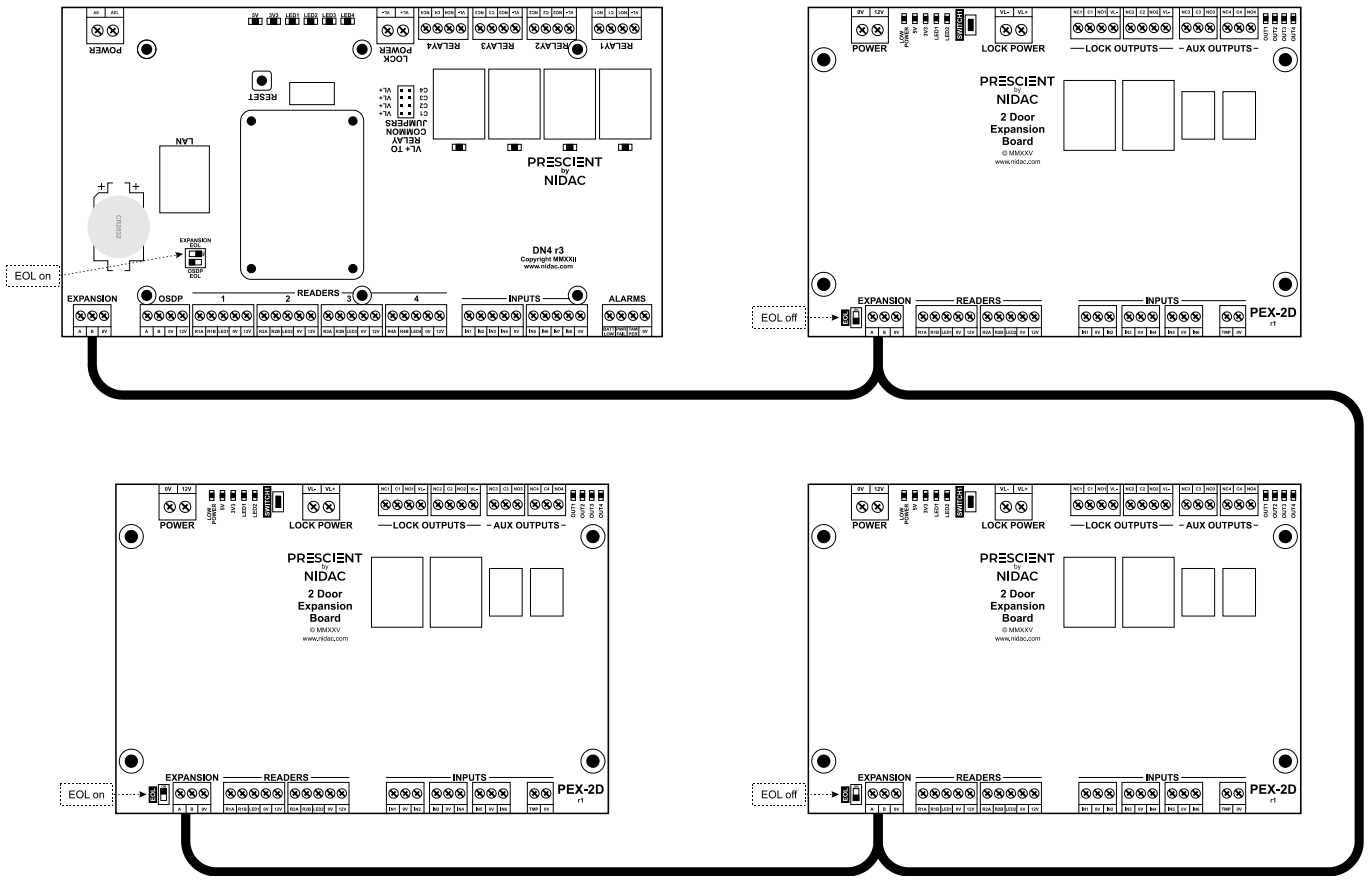
NIDAC recommends using a separate power supply or separate fused power output for the lock power.



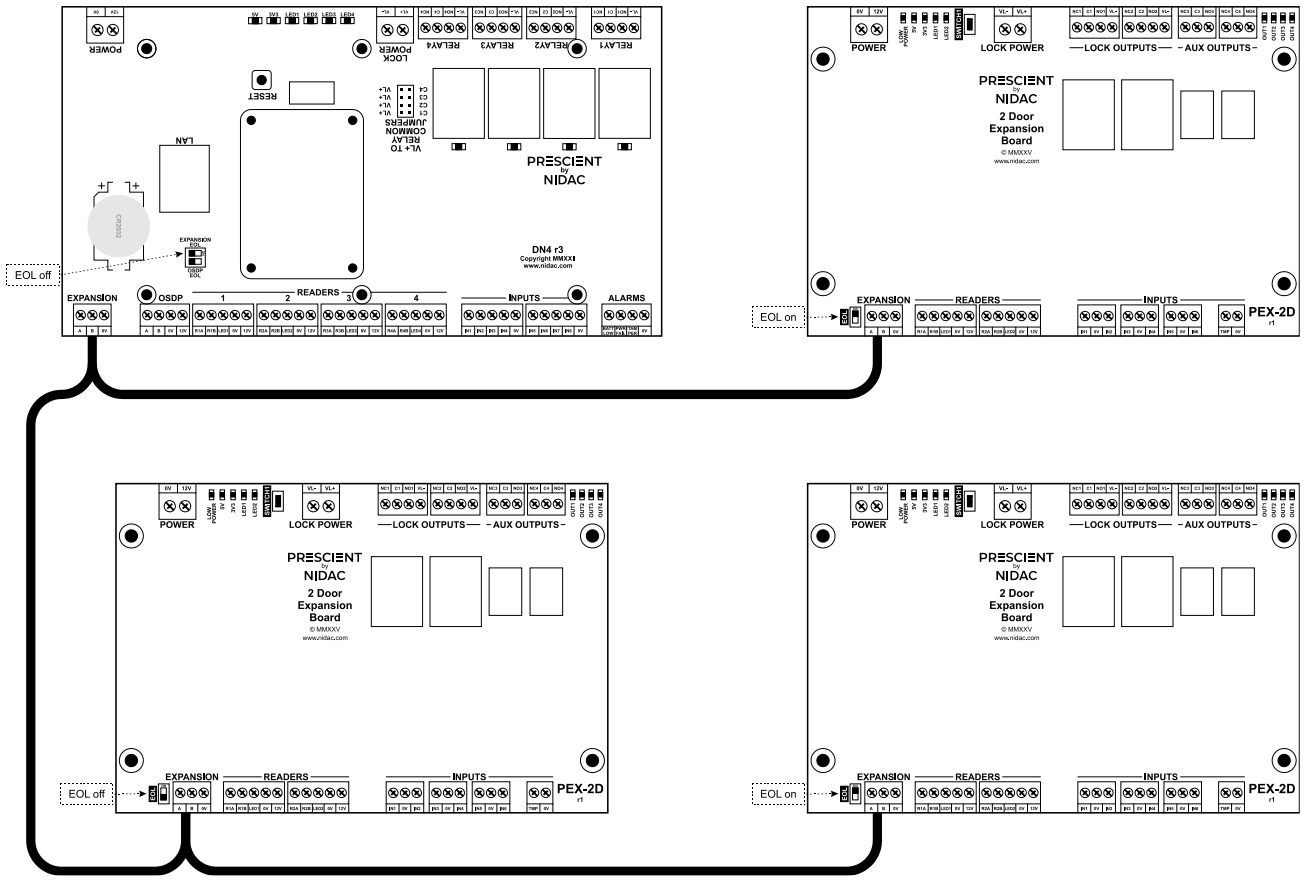
Expansion Bus Wiring

The PEX-2D requires a connection to a single DN4

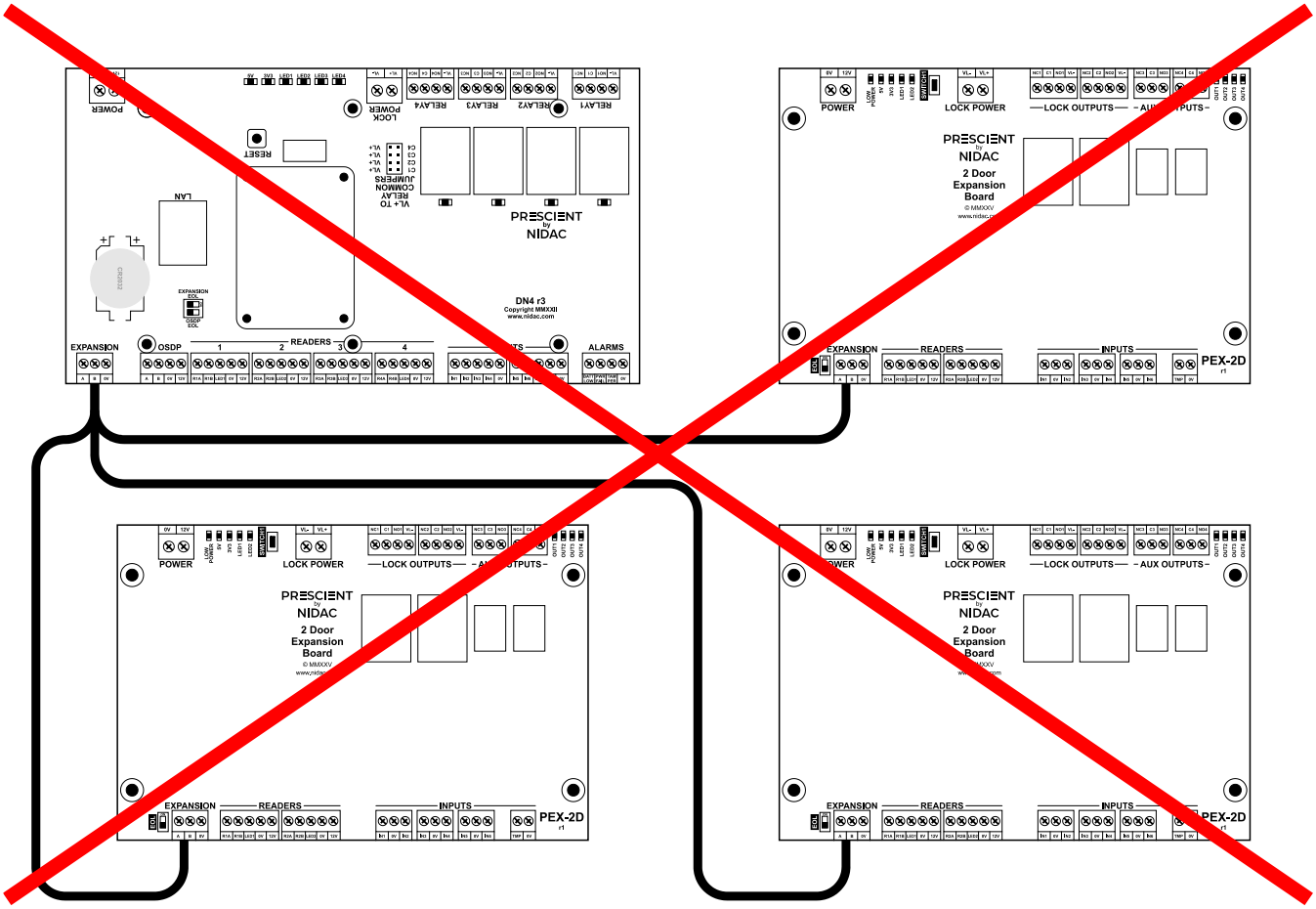
- Wiring is required to be done in daisy chain configuration
- The DN4 can be at the end or within the daisy chain
- It is highly recommended to use specific RS485 cable for wiring of the expansion bus
- The device on each end of the daisy chain requires EOL termination for the most reliable communication. When using RS485 cable, the EOL switches on the Prescient devices enable EOL termination. When using other cable an appropriate line matching resistor will need to be installed in the terminal block
- Star wiring configuration is not recommended



Expansion Bus wiring with the DN4 at one end of the daisy chain



Expansion Bus wiring with the DN4 within the within the daisy chain



Incorrect star wiring configuration

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