NXT 2D/4D Hardware Installation Guide

1.0 Introduction

The following information explains how to install the NXT-2D or NXT-4D controllers and peripherals that connect to those controllers. Other wiring diagrams and additional NXT installation information can be found in the NXT-4x4, NXT Reader and NXT-RM3/WI+ installation guides.

2.0 Important Note:

Keri Public Statement on the Amazon Key

Keri Systems, Inc. has updated its policy regarding the integration of Amazon devices with Keri Systems controllers.

We are pleased to inform you that Amazon has now provided official installation documentation for Keri products within their installation app. As a result, Keri Systems will allow Amazon devices to be installed alongside Keri controllers when following the guidelines and best practices provided by Amazon.

This change reflects our commitment to supporting secure and flexible access solutions that enhance customer convenience, including use cases such as Amazon delivery access.

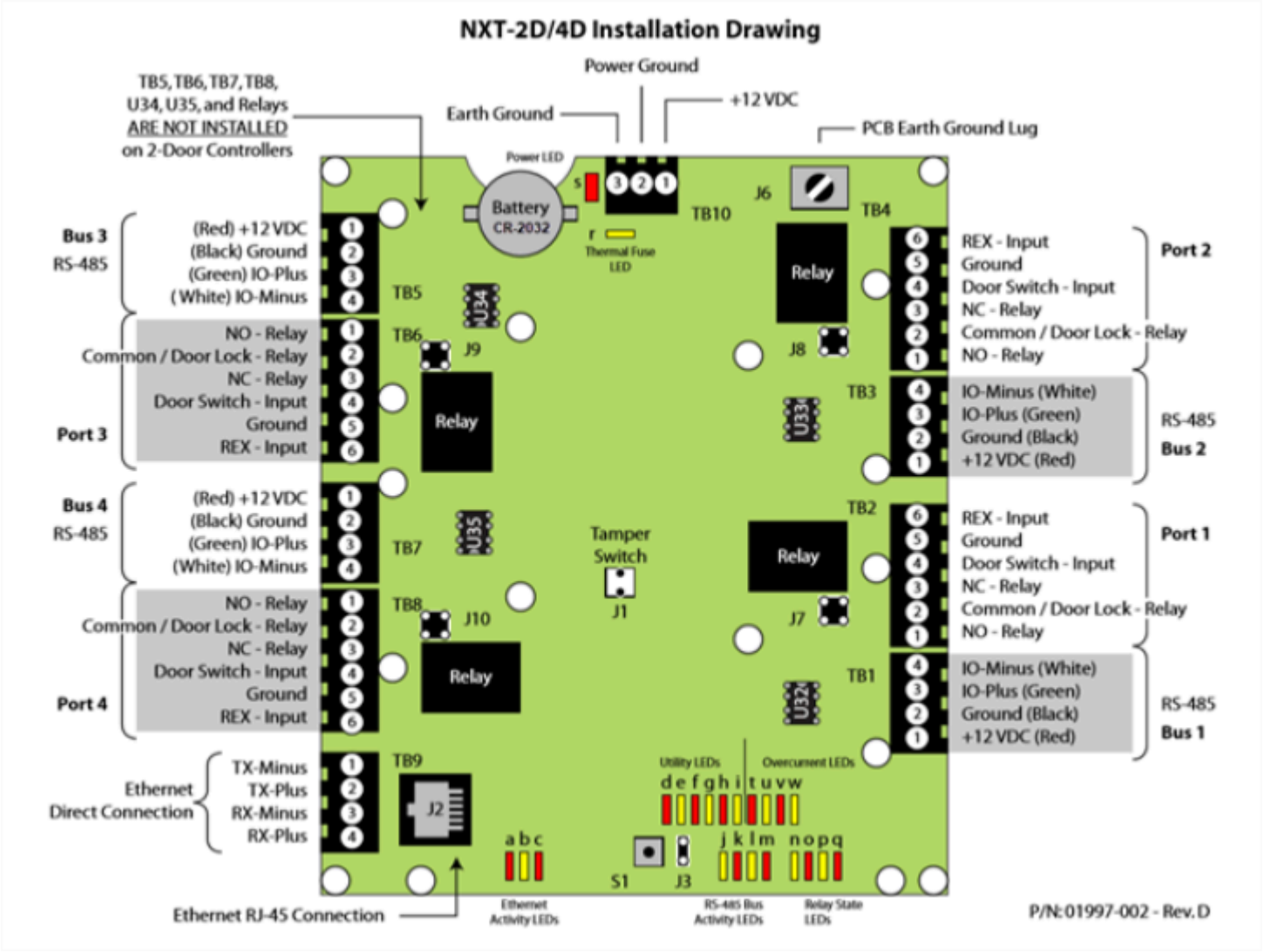
Please note the following:

- Installers must follow Amazon’s official documentation and procedures for installing Amazon devices with Keri hardware.
- Keri recommends that all installations be performed by trained professionals familiar with both Keri and Amazon device requirements.
- Any damage caused by improper installation or failure to follow approved documentation may still void the controller warranty.
- Responsibility for any security concerns or access control changes introduced by the integration rests with the Building Owner or Manager.

Keri Systems remains dedicated to providing robust access control solutions.
We will continue to monitor and evaluate integrations to ensure the safety
and satisfaction of our customers.

3.0 Wiring and Layout Diagrams

3.1 NXT-4D Installation Drawing



Notes:

- This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area may cause harmful interference in which case the owner will be required to correct the interference at the owner's expense.

    - PCBs revision M and later only have 2 x Ethernet activity LEDs (A and B).

    - This controller uses a CR-2032 3 volt backup battery that retains all controller configuration and cardholder records if the controller is down-powered. The voltage level of the battery should be checked annually.

3.2 LED Definitions Table

Ethernet Comm	Purpose	LED	Relay State	Purpose	LED
	10/100	a (D21)		Relay 1 active	n (D3)
	Link	b (D22)		Relay 2 active	o (D8)
	Activity	c (D33)		Relay 3 active	p (D13)
Utility	**Purpose**	**LED**		Relay 4 active	q (D18)
	Standard FW Config Reset	d (D48)	**Power**	**Purpose**	**LED**
	Host Channel Active	e (D49)		indicator	r (D26)
	Firmware Upgrade	f (D50)			
	Event Channel Active	g (D51)	**Thermal Fuse [b]**	**Purpose**	**LED**
	unused	h (D52)		indicator	s (D23)
	Mercury FW Config Reset	i (D53)			
RS-485 Bus	**Purpose**	**LED**	**RS-485 Bus [c]**	**Purpose**	**LED**
	Bus 1 Tx	j (D1)		Bus 1 Over Current	t (D54)
	Bus 2 Tx	k (D6)		Bus 2 Over Current	u (D55)
	Bus 3 Tx	l (D11)		Bus 3 Over Current	v (D56)
	Bus 4 Tx	m (D16)		Bus 4 Over Current	w (D57)

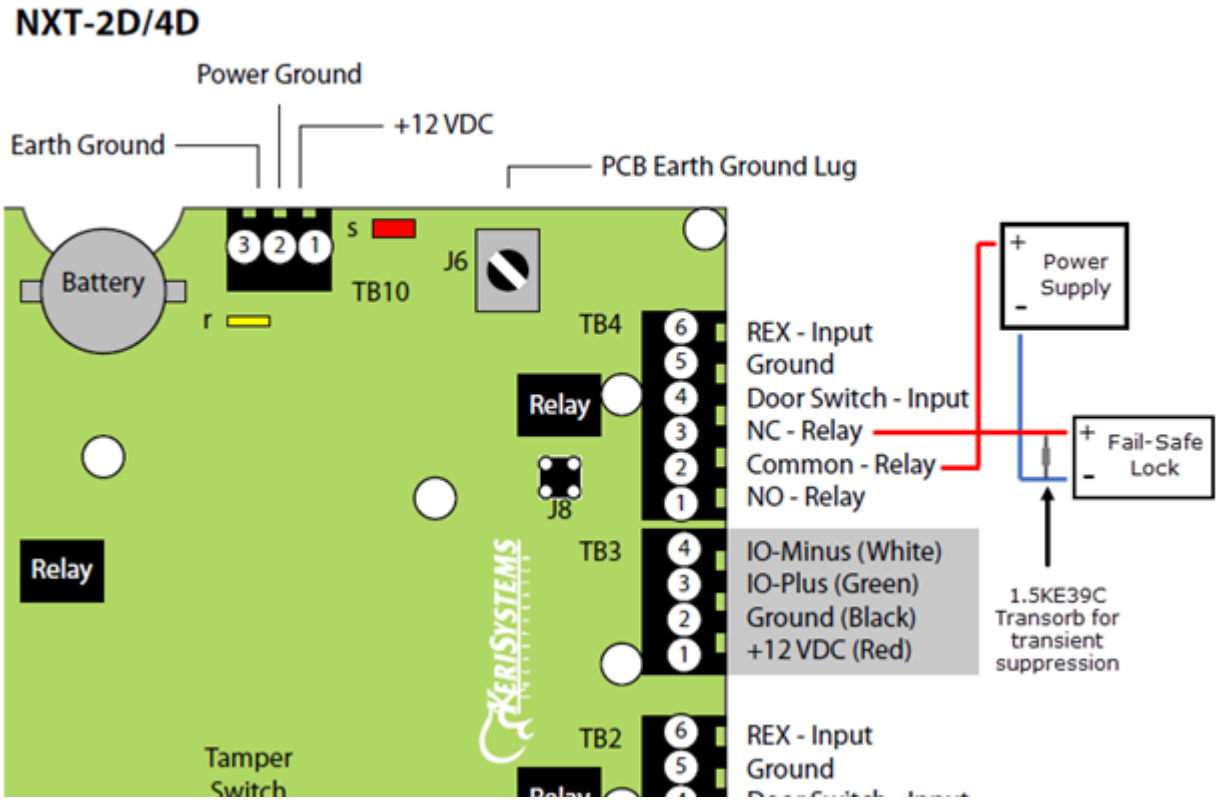
a. PCBs at revision M or greater have only 2 Ethernet communication LEDs (D21 and D22). PCB revisions earlier than M also have the D33 (Activity) LED.

b. If LED s is green, the power wires are reversed; if LED s is red, the unit is drawing too much current.

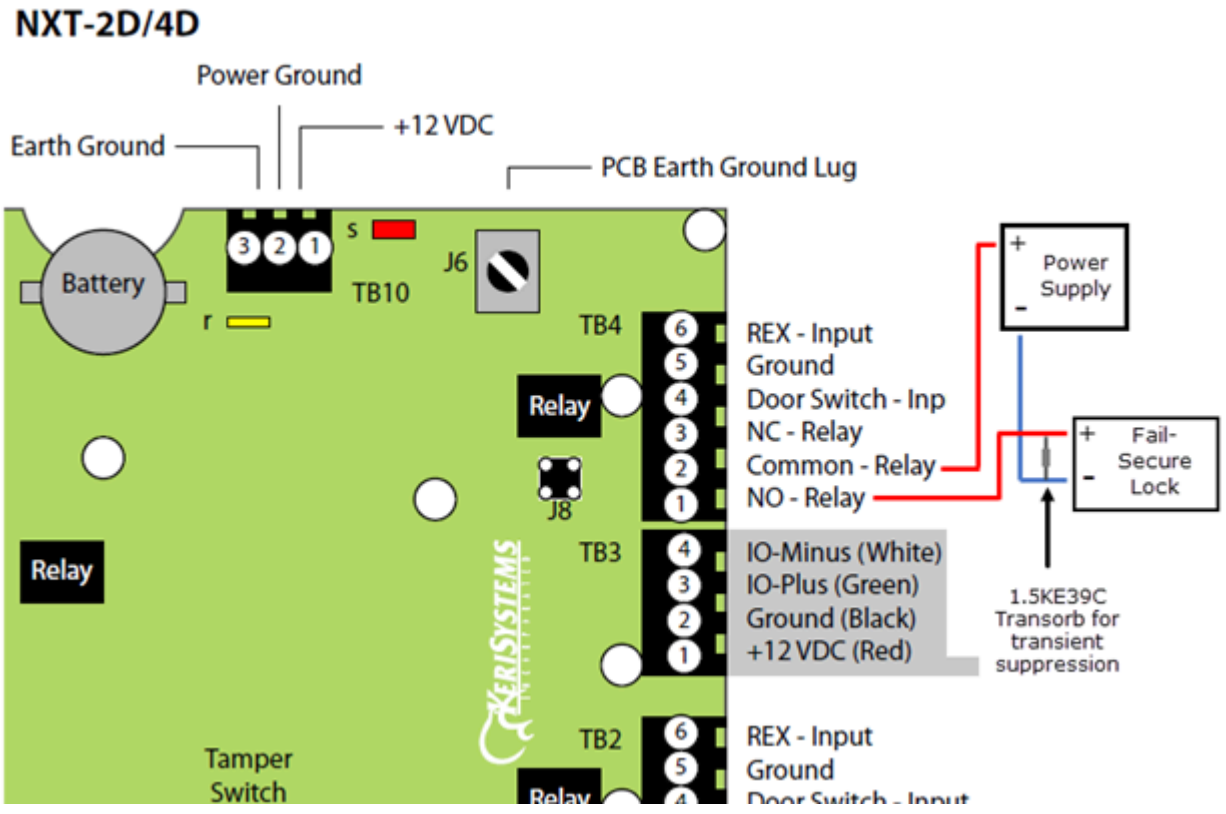
c. PCBs at revision F or greater have the RS-485 Bus Over Current LEDs t, u, v, and w. PCB revisions earlier than revision F do NOT have these LEDs.

d. If LED t, u, v, or w is red, that individual bus is drawing too much current and the bus is shut down to protect the controller. When this condition is corrected, the LED will turn off and the bus will be activated.

3.3 Wiring a Fail-Safe Lock

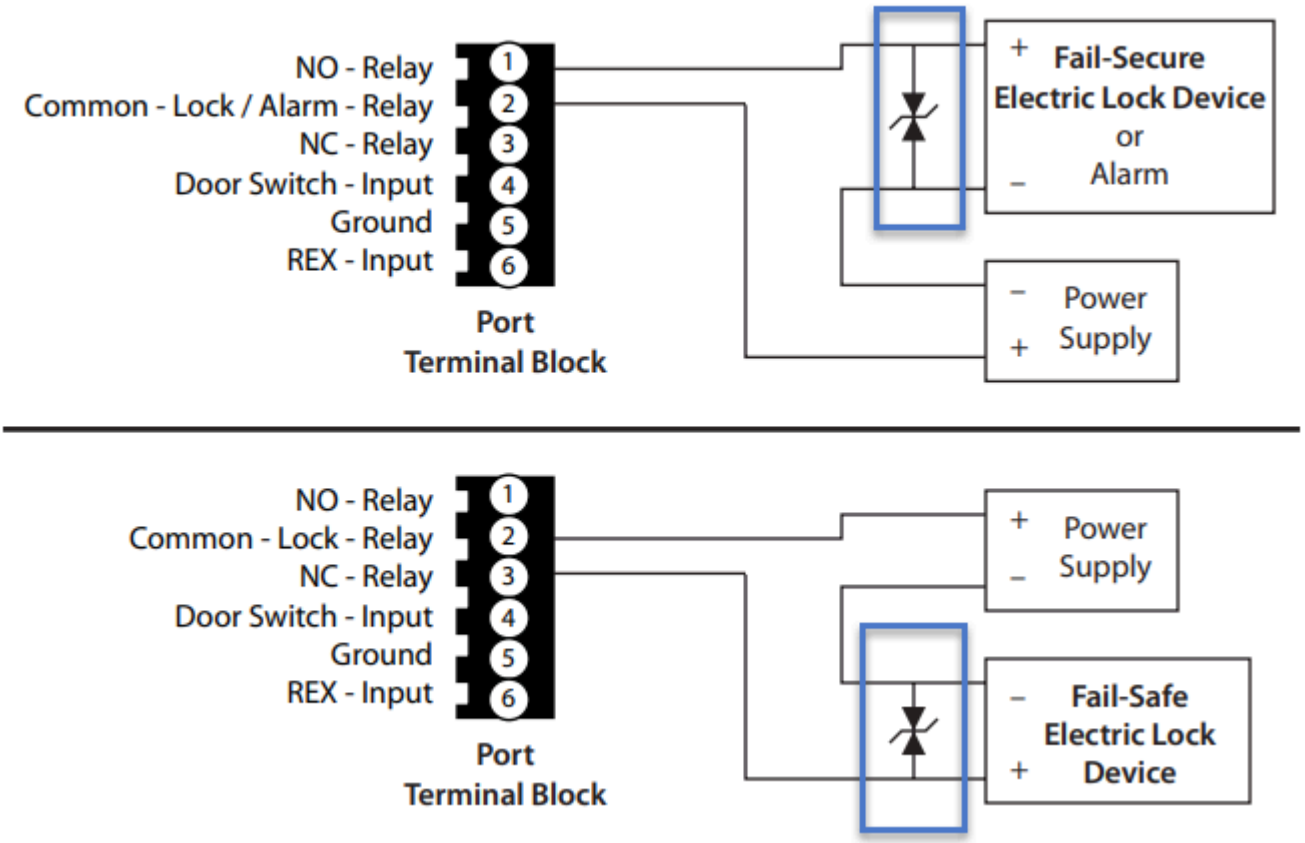


3.4 Wiring a Fail-Secure Lock



3.5 Lock Port Protection

Transorbs are provided with the controller ship kit. They are used to protect the controller from voltage spikes induced on the port wiring by absorbing the excess voltage and slowly releasing it back into the circuit. Keri strongly recommends wiring in the transorbs provided with the controller
ship kit. Refer to the Transorb Wiring Diagram below.



Note: The transorbs that Keri provides are non-polar; they can be installed in either orientation.

3.6 Using Isolation Relays

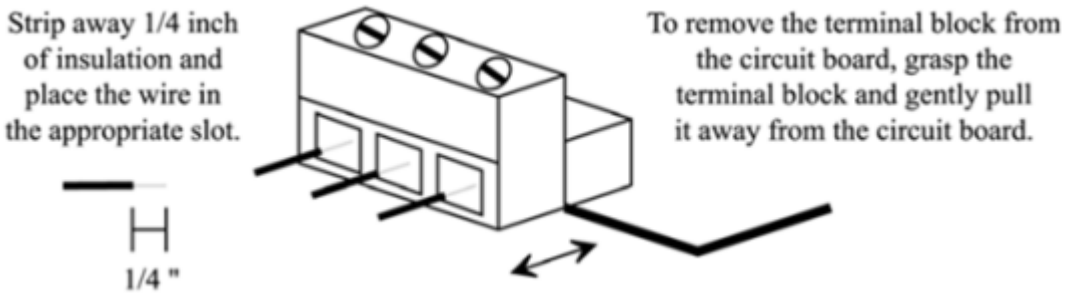
For locking devices that may induce heavy voltage spikes – Mag Locks and devices with heavy-duty solenoids such as turnstiles, vehicle gates, and overhead doors – Keri recommends using isolation relays.

Keri has an Isolation Relay Kit (p/n IRP-1). The transorb should be installed as close to the lock as possible.

Please refer to the IRP-1 Isolation Relay Installation Guide (p/n 01833-001) for further detailed information.

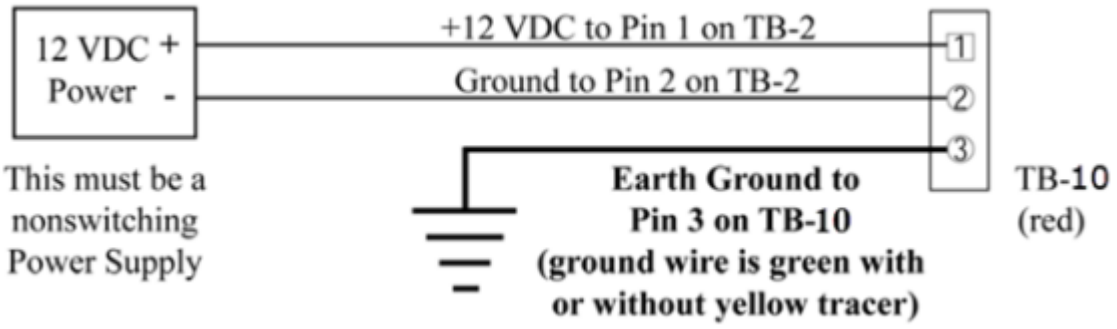
4.0 Wiring Instructions

4.1 Terminal Blocks



Note: Screws on terminal blocks must be tightened securely.

4.2 Connecting the Earth-Ground and the 12VDC Power



5.0 NXT Controller Earth-Grounding

5.1 At the Controller's Metal Enclosure

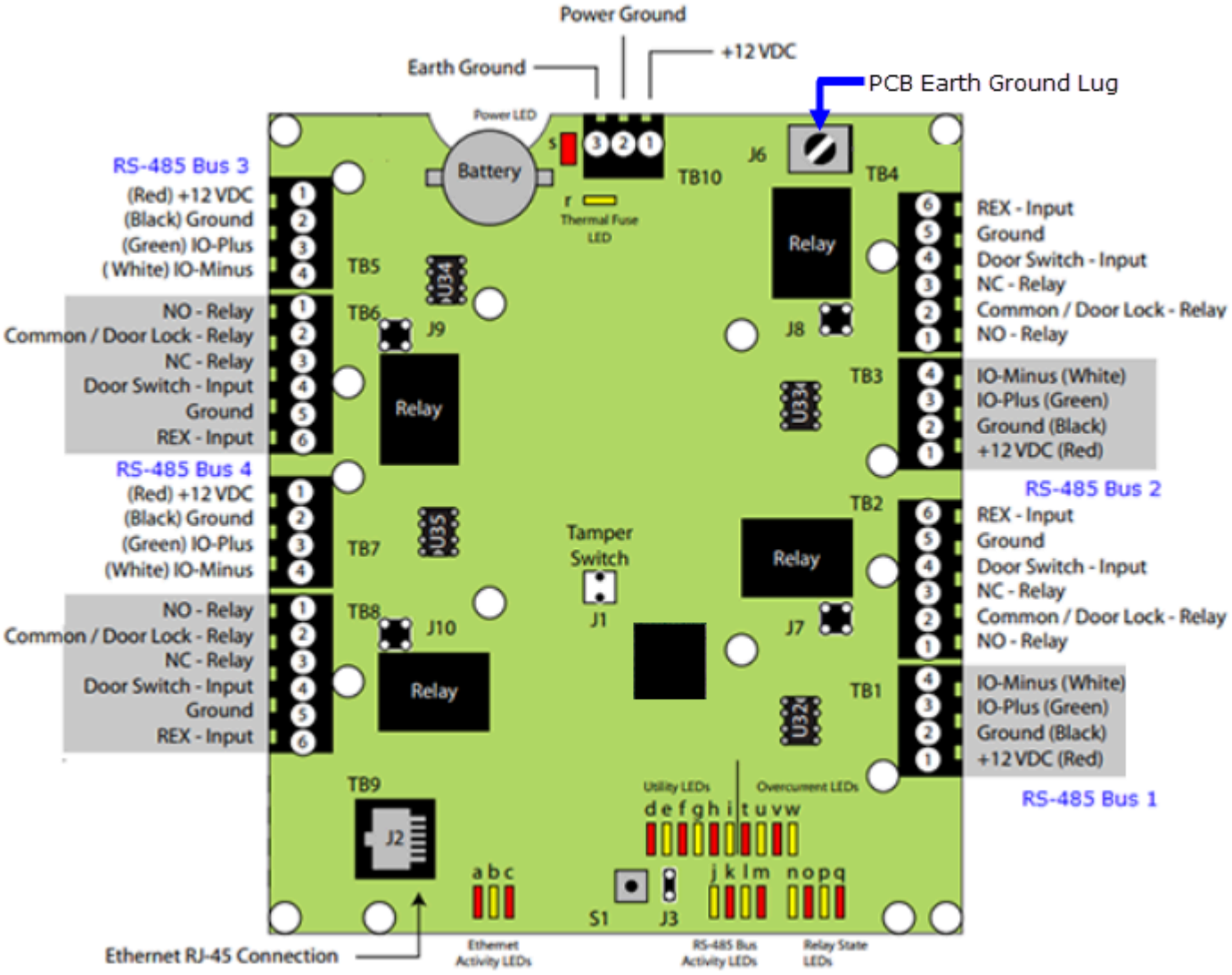
To ensure optimum earth-grounding of the controller and its connected peripherals, you should make a quality earth-ground connection to the metal enclosure lug (which displays an adjacent earth-ground symbol).

This good-quality earth-ground at the enclosure lug will provide an earth-ground for the entire enclosure - and will therefore ground anything that is connected to the metal enclosure - (the four metal screws at each corner of the PCB) - plus, through circuitry on the PCB, this includes anything connected to the lug marked J6 or pin 3 of the TB10 power connector.

In addition, the enclosure itself must be earth grounded to a good quality ground point external to the enclosure for a complete path to ground.

5.2 At the Controller's Earth-Ground Lug

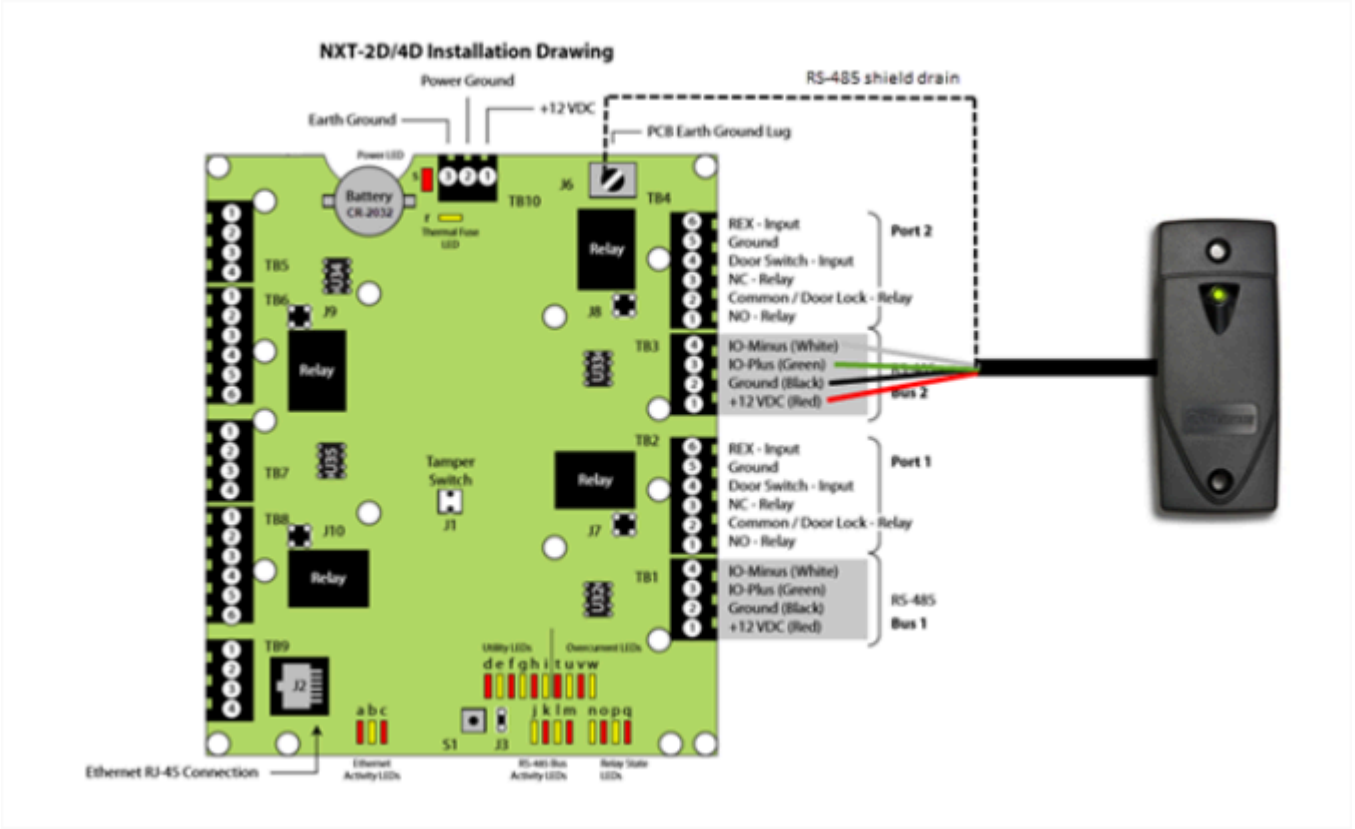
NXT controllers have Ground Lug J6 at the top of the PCB near the TB10 power connector. Make your NXT earth ground connection directly to this lug.



6.0 Grounding RS-485 Devices and Readers

The shield/drain wire of any reader/peripheral cables MUST be terminated to one of the following points: any corner screw attaching the controller to the enclosure, Pin 3 of TB10, the green ground lug (J6) on the controller, or the ground lug of the enclosure. Failure to properly earth ground the reader drain wire may result in unreliable communication or operation of the attached peripheral.

The following diagram illustrates correctly grounding an NXT reader at the controller.



7.0 Controller Maintenance

7.1 The 3-volt Lithium Backup Battery

The controller's backup battery retains all controller configuration, including cardholders and this information is completely cleared if the controller loses power - (when the battery is flat or low voltage).

The controller's battery backup voltage should be checked every 18 months-to-2 years... but this really depends on how often the site loses power.

Once the controller is powered back up, an update must then be performed on the controller - to re-send the controller configuration and cardholders.

Notes:

When changing the controller's backup battery you should do the following:

1. Check that the controller is online - so you will be able to update it.
2. Ensure that the controller is down-powered when you remove the 3 volt lithium battery.
   - *failure to do so may permanently damage the controller.*
3. Perform an update on the controller after changing the controllers backup battery.
   - *the controller will need to be configured again when the battery has been replaced.*

7.2 The Power-Supply Backup Battery

Many installations also use backup batteries connected to the power supplies - this will keep the controller powered-up for a certain amount of hours if there is a power-outage at the site. Again, these backup batteries should be checked every 18 months-2 years.

After a while, battery backups on the power-supply may develop a fault - often causing them to draw more current from the power-supply. With certain power-supplies this may result in less power being available for the controller and its connected peripherals - If you disconnect the PSU backup battery, and the voltage is low, then it is likely that the battery needs replacing.