

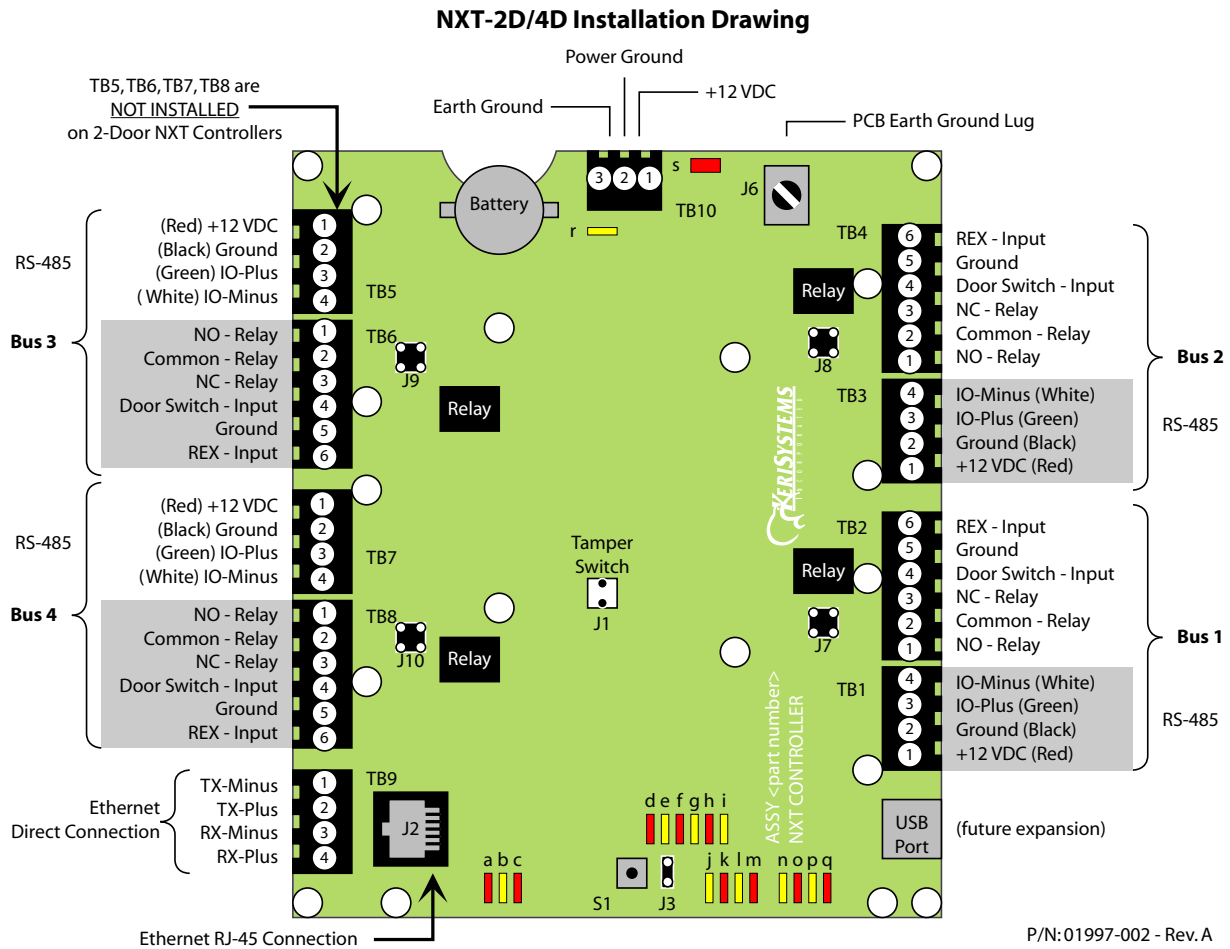
# NXT 2-D/4-D Controller

## Installation Guide

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- Section 2 – Specifications and Cable Requirements
- Section 3 – Resetting Controllers
- Section 4 – Reference Documentation List
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### 1.0 Wiring and Layout Diagrams

#### 1.1 NXT-2D/-4D Controller



See Table 1 on page 2 for LED definitions.

*NOTE: 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 is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.*

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**Table 1: NXT Controller LEDs**

Ethernet Comm	Purpose	LED	RS-485 Bus	Purpose	LED
	10/100	a		Bus 1 Tx	j
	Link	b		Bus 2 Tx	k
	Activity	c		Bus 3 Tx	l
				Bus 4 Tx	m
Utility	Purpose	LED	Relay State	Purpose	LED
	Config Reset	d		Relay 1 active	n
	D-mode	e		Relay 2 active	o
	Firmware Upgrade	f		Relay 3 active	p
	unused	g to i		Relay 4 active	q
Power	Purpose	LED	Thermal Fuse	Purpose	LED
	indicator	r		indicator	s

## 2.0 Specifications

### 2.1 NXT-2D/-4D Dimensions

- NXT Controller PCB
  - 6.50 inches high by 5.50 inches wide by 1.00 inches deep, not including wiring connectors
  - 16.51 cm by 13.97 cm by 2.54 cm
- NXT Enclosure
  - 13.00 inches high by 10.5 inches wide by 3.00 inches deep
  - 33.02 cm by 26.67 cm by 7.62 cm

### 2.2 Power Requirements

- 10 to 14 VDC @ 2.5 A (maximum current draw for a fully loaded NXT-2D/-4D controller)

### 2.3 Current Requirements at 12 VDC

- 650 mA max for an NXT-4D Controller
- 570 mA max for an NXT-2D Controller
- 210 mA max for each NXT-4x4
- 110 mA max for each NXT-1R, NXT-3R, or NXT-5R Reader
- 50 mA max for each NXT-RM Reader Interface Module

*NOTE: If you are driving an electronic locking device (magnetic lock, door strike, etc.) using the same power supply as the NXT controller, ensure the power supply provides enough current to drive every device connected, including an adequate safety margin.*

### 2.4 Relay Contact Rating

1 A @ 24 VDC

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### 2.5 Operating Conditions

- NXT-2D/-4D
  - 32°F to 150°F (0°C to 60°C) – 0% to 90% Relative Humidity, non-condensing

### 2.6 Cable Requirements

RS-485 bus runs can daisy-chain together an NXT-4x4 and NXT-Reader on one line. The total distance for this cable run should be no greater than 500 feet from the NXT controller for runs with 4x4s and no greater than 1,000 feet for runs with Readers only.

*NOTE: On long cable runs, cable resistance causes a drop in voltage at the end of the cable run. Ensure the appropriate power and current for your device is available **at the device** at the end of the cable run.*

**Table 2: Cable Requirements**

Connection	Total Run Length	# of Conductors	Shielded	Stranded	Twisted Pair	AWG <sup>a</sup>	Belden Equivalent
RS-485 bus from NXT-2D/-4D to NXT-4x4 (with or without 1R/-3R/-5R Readers)	up to 500 feet <sup>b</sup>	4	Y	Y	Y	18 Pwr 22 Data	1502P
RS-485 bus from NXT-2D/-4D to 1R/-3R/-5R Readers only	up to 1,000 feet	4	Y	Y	Y	22	8723
controller power	250 feet <sup>c</sup>	2	N	Y	Y	18	8461
earth ground	shortest path <sup>d</sup>	1	N	N	n/a	18	no specific requirement
inputs and outputs <sup>e</sup>	500 feet	2	N	Y	n/a	22	no specific requirement

- Heavier gauges than those listed are always acceptable.
- Run lengths greater than 500 feet are not recommended, and require a power supply to be installed local to the 4x4 unit.
- To meet CE and C-tick regulations, the length of the controller power line can be no longer than 3 Meters.
- Use the shortest possible path from earth ground point to PCB. Connect the earth ground only to the designated pin on the terminal block. This is important as all transient protection for the unit is made through this earth ground connection. For unit protection, the earth ground connection should always be made first.
- Values listed are minimums. Individual input and output devices may have more specific requirements.

### 2.7 Battery/Memory Retention

- 5-year lithium battery backup to support controller RAM and real-time clock

### 3.0 Firmware Upgrade Indicator LED

LED “F” is on whenever a firmware upgrade is in progress (refer to the controller drawing on page 1). This is a two-step process; the LED will turn on twice as firmware is being upgraded with a 15 second delay between upgrade operations. Do not remove controller power while this LED is on. Removing controller power during a firmware upgrade corrupts the upgrade process and may render the controller unusable.

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### 4.0 Resetting Controllers

Under certain circumstances NXT controllers may need to be reset.

*NOTE: Resetting an NXT controller will restore the controller to a factory default state. It removes all network configuration data assigned to the controller such as the IP Address, Subnet Mask and Gateway address.*

Perform the following to reset a controller:

1. Remove power from the NXT controller.
2. Install a Jumper on J3 pin header (refer to the drawing on page 1).
3. Press the S1 switch and hold it down while applying power. Keep the button pressed until the Reset LED (D48) is lit.
4. **DO NOT REMOVE POWER FROM THE NXT CONTROLLER WHILE THE RESET LED IS LIT.**
5. The Reset is complete when the Reset LED turns off. Now the controller can be power cycled.

Perform the following to restore configuration information to a reset controller:

1. After the reset is complete, in *DoorsNXT* execute the Find Controllers command in Setup System > Configure Controllers > Start Autoconfig.
2. When the Find Controllers command completes, the Find Status result for the reset NXT controller displays as "Reset Unit." Click on Apply Changes and then Assign IPs to restore the controller's network configuration.
3. Then perform a complete update to the Controller to restore the remaining controller configuration data.

### 5.0 Product Documentation

All Keri technical documentation can be found on the Keri CD in the Technical Documentation folder or online at <http://www.kerisys.com/pages/download/techdocs.asp>.

### 6.0 Contact Keri Systems

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