# NXT 3M/5M/5M-KPD Reader

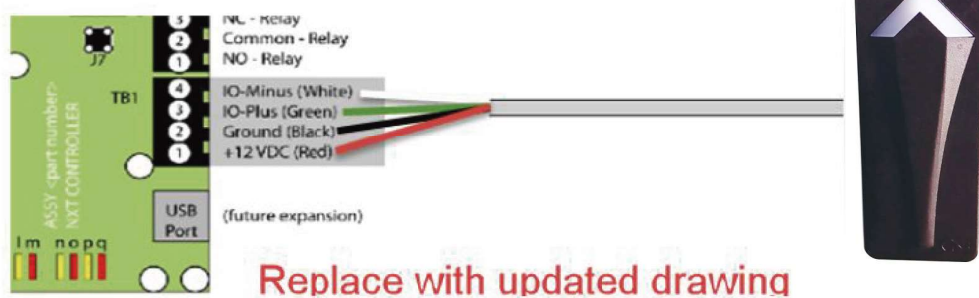## Installation and Setup Guide



NXT M Series Readers are 13.56Mhz MIFARE readers used exclusively with Keri's revolutionary access control system based on the NXT and the MSC Series of IP-based Controllers. Communication to the readers is via the controller's RS-485 buses, allowing the readers to be fully supervised - reader events will be generated in the event of reader failure or disconnection
- (these reader 'offline' events can be setup as 'alerts' in the software).

Another NXT reader benefit is the fact you can add an NXT M Series Exit reader (supported with the NXT-MSC controllers). The Exit reader is added to the same bus as the standard NXT reader but provides you with true In/Out reader capability without burning an additional reader port. Even though the readers are wired into the same bus they show as independent readers within Doors.NET allowing you to control 4 x read IN and 4 x read OUT doors with a 4-door controller.

The RS-485 communication method also allows for a maximum cable run distance of 1,000 feet (approx. 300m) from the controller. The readers are compatible with MIFARE 1K (32-bit & 56-bit UID), MIFARE 4K (56-bit UID), and Desfire 4K (56-bit UID) credentials.
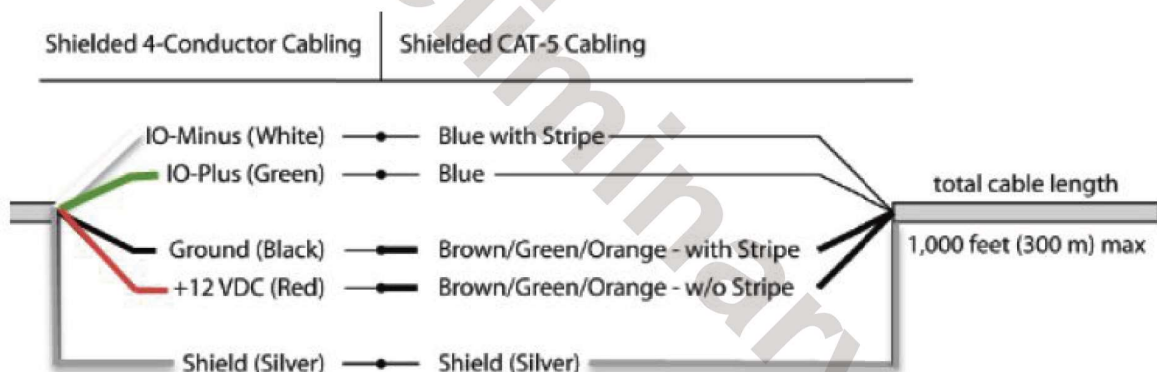
This guide explains how to connect the readers to the controller, how to perform a firmware upgrade, and how to add and use an NXT Exit reader.

# NXT Reader Wiring to the Controller



NOTE: The recommended cable type is shielded, stranded, 4-conductor, (Belden 9534, or equivalent) or shielded CAT-5.
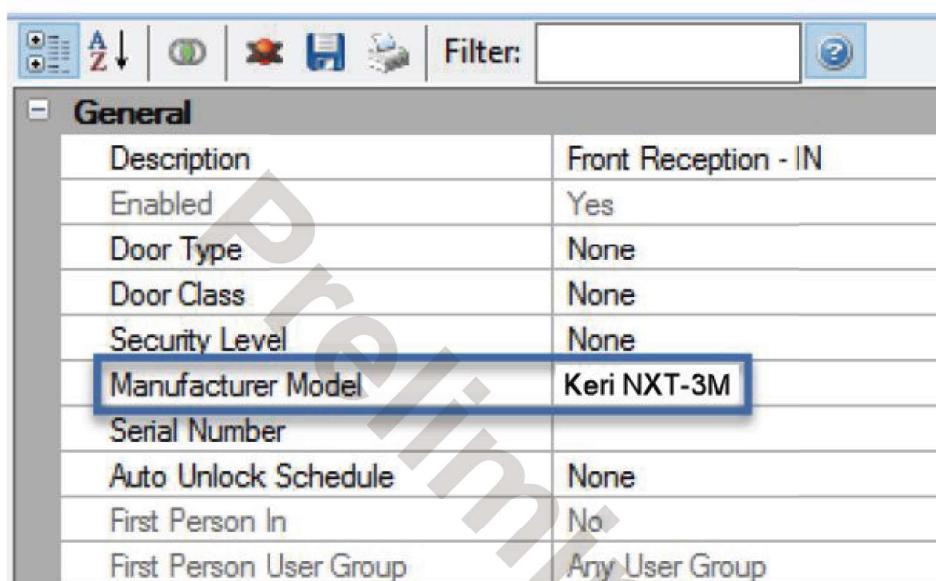
# Wiring when using CAT-5 Cable



# Setting the Manufacturer Model

Once the reader has been connected to the controller then the controller will start to communicate to it automatically. You should notice a reader online event in live events when the reader comes online. You should however, ensure the correct reader model is selected in the reader properties.

# NXT Reader Setup

1. Go to Setup >> Hardware Setup >> All this will take you to the hardware tree.
2. Double-click the controller which will be listed beneath the communications gateway.
3. Locate and select the NXT reader by expanding the controller bus.
4. Once selected, the reader properties will be displayed on the right.
5. Verify the correct NXT reader model is selected for the Manufacturer Model.



# Firmware Upgrade Procedure

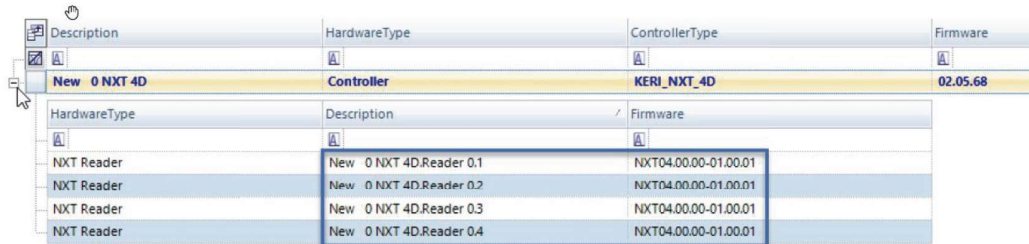**Verify the readers are upgradable**
Note: All NXT M series readers can be flash upgraded.

**Upgrading when using Standard NXT hardware**
1. Navigate to the hardware tree.
2. Highlight a standard NXT controller.
3. Click the Firmware Upgrade icon.

4. The firmware upgrade window will appear and the NXT controller will be highlighted.
5. Click the expander (plus sign) located to the left of the controller, and you will see listed the NXT readers which are connected to the controller.

| Description | HardwareType | ControllerType | Firmware |
|---|---|---|---|
| A | A | A | A |
| New  0 NXT 4D | Controller | KERI_NXT_4D | 02.05.68 |

| HardwareType | Description | Firmware |
|---|---|---|
| A | A | A |
| NXT Reader | New  0 NXT 4D.Reader 0.1 | NXT04.00.00-01.00.01 |
| NXT Reader | New  0 NXT 4D.Reader 0.2 | NXT04.00.00-01.00.01 |
| NXT Reader | New  0 NXT 4D.Reader 0.3 | NXT04.00.00-01.00.01 |
| NXT Reader | New  0 NXT 4D.Reader 0.4 | NXT04.00.00-01.00.01 |

6. Highlight the first NXT reader in the list.
7. From the Select Firmware File list, select the new firmware.
8. Once selected, click the APPLY button.
9. You will see a message notifying you that during the upgrade the reader may go offline for a few minutes.
10. If you are happy to proceed click the YES button.
11. The new firmware will be sent to each of the NXT readers connected to the controller (one-after-the-other).
12. While a reader is being upgraded the reader's LED will be quickly flashing. Each reader should take no longer than 30 seconds to update.
13. A green progress bar will inform you of when the upgrading is complete.
    **Note:** DO NOT attempt to update the NXT readers on more than one NXT controller at a time.
14. Once complete, the new firmware version will be displaying for all the NXT readers connected to the controller.
15. You can now close down the firmware upgrade window as the readers are now ready for use.


Reader Firmware Update Procedure - NXT Mercury Powered
1. From the home tab, click on the controller status icon.
2. The controller status grid should display at the bottom of the screen.
3. Check that the NXT-MSC controller is using firmware version 1.201, or greater
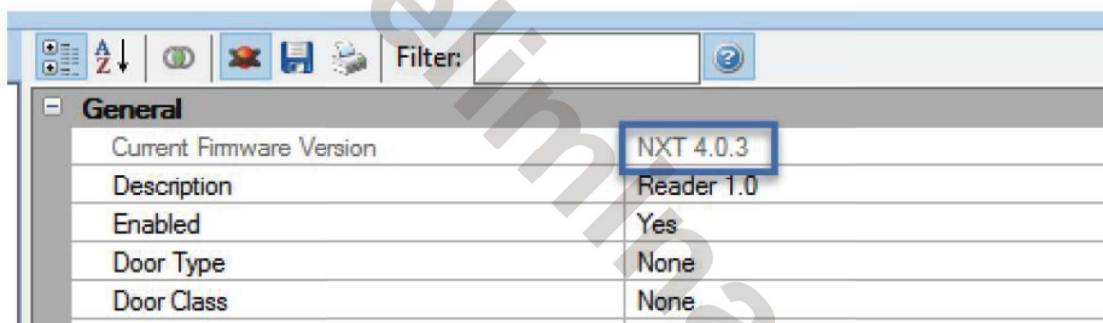   **Note:** To upgrade NXT reader firmware using NXT Mercury Powered controllers you MUST at least have controller firmware v_1.201
4. Click on Setup >> Hardware Setup >> All.
5. Ensure you have Advanced View enabled for the hardware properties.
6. Expand an NXT-MSC controller via a double-click.
7. Expand the controller bus (which has an NXT reader connected to it).
8. Highlight the NXT reader.
9. At the top of the reader properties you will see the reader's current firmware version.
10. With the NXT reader still highlighted, click the Hardware Browser tab.
11. Click the Firmware Upgrade icon.

12. Select the v_04.00.03 firmware file, then click Open.
13. The following message will appear.
14. Click Yes and the reader firmware will be updated. During the firmware upgrade the reader's LED will flash: green, red, amber, green, amber, red, amber, etc. If you cannot see the reader's LED then take a look at the live events grid. You will see a message has been generated: "Firmware Upgrade has started" - wait for the 'Firmware Upgrade Has Completed' message - Once it is completed the reader's LED will be a steady amber.

**Note:** Please be patient during the upgrade process as it will take almost 2 minutes for the reader upgrade to complete.

**WARNING:** Do not attempt to update a second NXT reader until the first upgrade is completed. The NXT-MSC hardware does not support multiple concurrent firmware upgrades to connected devices. You must upgrade the NXT readers one-at-a-time.

If the reader is still highlighted in the hardware tree the new firmware version should now be displaying.
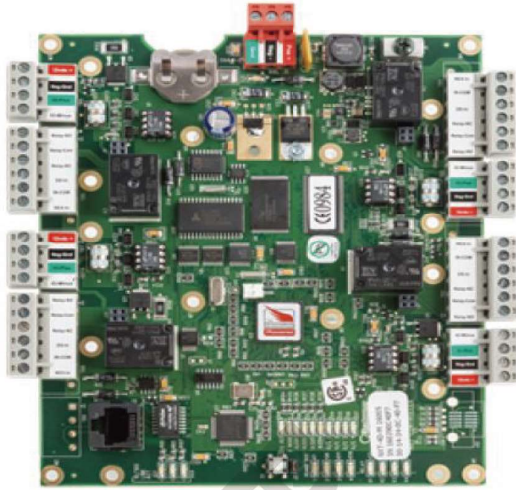


# NXT Exit Readers

Typically, a 2-door controller would control access to two individual doors, a proximity reader is used to enter a room/or an area and a request-to-exit button would be used for egress.

With an NXT Exit reader you can control two individual doors but with a reader for both entry and egress. Each reader, although they activate the same lock relay, they are treated independently in the Doors.NET software (such as for access groups and events that appear in Live Events).

The NXT Exit reader is connected to the same bus as the standard NXT reader so minimizing installation time as well.

**Note:** The NXT Exit Reader is only supported when used with the NXT Mercury-Powered controllers.



**The Process for Adding an NXT Exit reader is as follows:**

1. Open the LicenseManager.exe program in the folder where your instance of Doors. NET is installed (typically in the C:\Keri\DoorsNET folder).
2. Click the License tab and scroll through the list of license values until you locate "Enable NXT Exit Reader". This item should be set to "True."
3. If this item is NOT set to True, you must contact Keri Systems' Inside Sales department to have your license updated.
4. Click on the icon from the Setup tab, then click the 'All' tab.
5. Highlight the bus where both the NXT-R (standard) reader and the NXT-RE (Exit) reader are wired.
6. The icon will be displayed on the ribbon bar. Click this icon and you will see the following message.
7. Click Yes to the above message and an NXT Exit reader will be added to the bus in the hardware tree.
8. Highlight the new reader in the hardware tree and in the properties, give it a description.
9. The reader will be automatically configured as the exit reader for that bus.
10. A valid card read at each of the readers will activate the same strike relay but the reader locations in Live Events will be different.
11. The entrance and exit readers can be assigned to completely different access groups.
12. Transaction reports can also be run on the readers independently. Click Reports >> Transactions, then from the Report Type drop down list, select All Messages (Reader). You will see that both the readers appear in the Hardware Selection list.
13. You can also run a report that includes both the readers, should you wish to.

FCC Warning

a 15.19 Labeling requirements.

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.

b 15.21 Changes or modification warning.

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

c 15.105 Information to the user.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/TV technician for help.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.