

# NXT Reader Interface Module

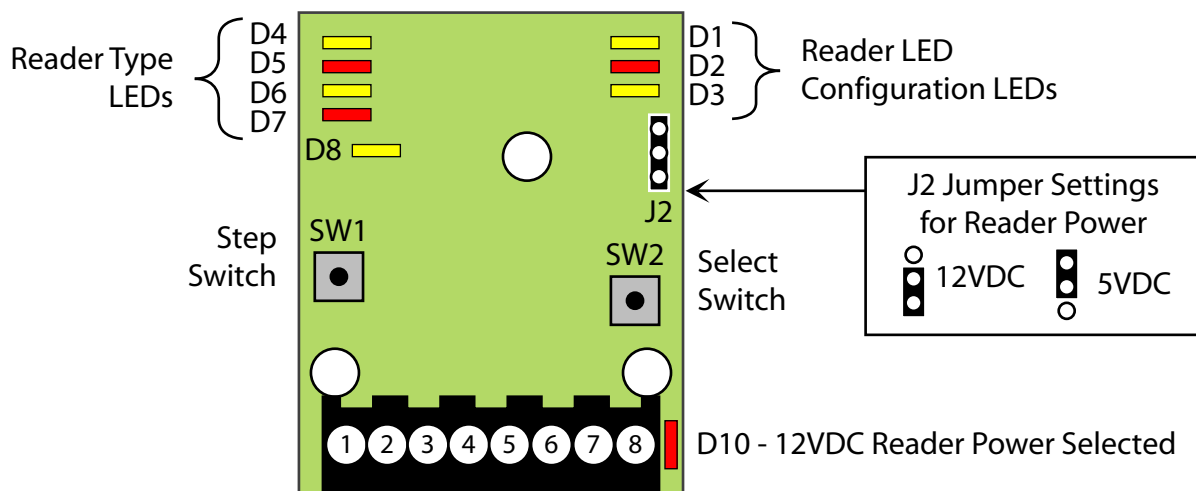
## Installation Guide

- Section 1 – Wiring and Layout Diagrams
- Section 2 – Specifications and Cable Requirements
- Section 3 – RIM Configuration
- Section 4 – Reference Documentation List
- Section 5 – Keri Contact Information

### 1.0 Wiring and Layout Diagrams

#### 1.1 Reader Interface Module (RIM)

#### NXT-RM Installation Drawing



| Pin# | Keri-MS   | Wiegand Single-line LED | Wiegand Dual-line LED |
|------|-----------|-------------------------|-----------------------|
| 1    | antenna   | n/a                     | n/a                   |
| 2    | beeper    | beeper                  | beeper                |
| 3    | red LED   | LED                     | red LED               |
| 4    | green LED | n/a                     | green LED             |
| 5    | +12vDC    | +12vDC                  | +12vDC                |
| 6    | GND       | GND                     | GND                   |
| 7    | n/a       | Data0                   | Data0                 |
| 8    | n/a       | Data1                   | Data1                 |

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Rev. G

*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.*

# NXT Reader Interface Module

## Installation Guide

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## 2.0 Specifications

### 2.1 Reader Interface Module

- PCB
  - 2.50 inches tall by 2 inches wide by 1.00 inches deep, not including wiring connectors
  - 6.35 cm by 5.08 cm by 2.54 cm

### 2.2 Power/Current Requirements

- 10 to 14 VDC @ 100 mA (maximum current draw at 12 VDC)

### 2.3 Operating Conditions

- 32°F to 150°F (0°C to 60°C) – 0% to 90% Relative Humidity, non-condensing

### 2.4 Cable Requirements

The total RIM cable length can be no longer than 500 feet.

*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 1: Cable Requirements**

| Connection            | Total Run Length      | # of Conductors | Shielded | Stranded | Twisted -Pair | AWG <sup>a</sup> | Belden Equivalent |
|-----------------------|-----------------------|-----------------|----------|----------|---------------|------------------|-------------------|
| RIM to Keri-MS Reader | 500 feet <sup>b</sup> | 6               | Y        | Y        | N             | 22               | 9536              |
| RIM to Wiegand Reader | 500 feet <sup>b</sup> | 7               | Y        | Y        | N             | 22               | 9537              |

- a. Heavier gauges than those listed are always acceptable.
- b. Run lengths greater than 500 feet are not supported.

## 3.0 RIM Configuration

The RIM allows either Keri MS or Wiegand readers/credentials to be recognized and read by NXT controllers. The default RIM configuration is for an MS-Series Reader using two line LED control (multi-color). Perform the following steps to configure the RIM for your application. Refer to the Drawing on page 1 for switch and LED locations, and the Table on page 3 for switch and LED definitions.

### 3.1 Enter Programming Mode

1. Hold down both SW1 and SW2 for about two seconds.
2. All seven LEDs on the RIM will flash three times.
3. Release both SW1 and SW2, and the unit is now in configuration mode.

### 3.2 Select Your Reader Type

The Keri MS (D4), Wiegand (D5), and Wiegand Keypad/Reader Combo (D7) types are currently supported.

1. Press SW1 to step through the supported reader types. Each press of SW1 will step to the next reader type.
2. When the desired reader type LED is illuminated, press SW2. The reader type is now set.
3. If you have selected Wiegand (D5) or Wiegand Combo (D7) reader mode, the unit is now ready to configure the RIM's LED line control mode. Skip to section 3.3 for configuration instructions.
4. If you have selected Keri MS (D4) reader mode, press SW2 and the RIM is now configured and the unit reboots to accept the new parameters.
5. All seven LEDs will flash three times as the unit reboots with the new configuration parameters. When the LEDs stop flashing, the unit is operational.

# NXT Reader Interface Module

## Installation Guide

*NOTE: Do **not** remove power from the RIM during the reboot process. Loss of power during rebooting will invalidate any configuration changes you have made.*

### 3.3 Select Your Wiegand Reader LED Line Configuration

Perform this step if you are using a Wiegand reader.

1. Press SW1 to step through the supported LED line configuration types. Each press of SW1 will step to the next LED line type.
2. When the desired LED line control mode LED is illuminated, press SW2. The LED line control mode is now set. The RIM is now configured and the unit reboots to accept the new parameters.
3. The RIM's LEDs will be off for about 10 seconds as the unit resets itself. All seven LEDs will flash as the unit is rebooting with the new configuration parameters. When the LEDs stop flashing, the unit is operational.

*NOTE: Do **not** remove power from the RIM during the reboot process. Loss of power during rebooting will invalidate any configuration changes you have made.*

### 3.4 Verifying RIM Configuration

The corresponding reader type and line control mode LEDs are illuminated during operation. Refer to the Drawing on page 1 for switch and LED locations, and the Table on page 2 for switch and LED definitions to confirm your configuration settings.

**Table 2: Reader Interface Module LED Guide**

| LED             | Reader Type  |
|-----------------|--|
| D4              | Keri MS Series<br><i>Keri factory default setting</i>  |
| D5              | Wiegand  |
| D6              | Not Used   |
| D7              | Wiegand Reader/Keypad Combo  |
|                 | LED Control  |
| D1              | single wire LED control – red, green, amber, off   |
| D2              | two wire LED control – red, green, amber, off<br><i>Keri factory default setting</i>   |
| D3 <sup>a</sup> | single wire LED control – red, green, off<br><i>standard setting for Wiegand Readers using a single wire to drive the LED (no amber)</i> |
|                 | Communication Active   |
| D8              | RS-485 Bus   |
|                 | J2 Reader Power Setting  |
| D10             | lit when set for 12 VDC reader power   |

a. Table is valid for RIM Firmware v03.01.06 and later. Please upgrade your firmware as necessary.

## 4.0 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>.

# NXT Reader Interface Module Installation Guide

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## 5.0 Contact Keri Systems

| Keri USA   | Keri UK, Ireland, Europe   |
|--|--|
| 2305 Bering Drive<br>San Jose, CA 95131  | Unit 17<br>Park Farm Industrial Estate<br>Ermine Street<br>Buntingford<br>Herts SG9 9AZ UK   |
| Telephone: (800) 260-5265<br>(408) 435-8400  | Telephone: +44 (0) 1763 273 243  |
| Fax: (408) 435-7163  | Fax: + 44 (0) 1763 274 106   |
| Web: <a href="http://www.kerisys.com">www.kerisys.com</a>  | Web: <a href="http://www.kerisystems.co.uk">www.kerisystems.co.uk</a>  |
| E-mail: <a href="mailto:sales@kerisys.com">sales@kerisys.com</a><br><a href="mailto:techsupport@kerisys.com">techsupport@kerisys.com</a> | E-mail: <a href="mailto:sales@kerisystems.co.uk">sales@kerisystems.co.uk</a><br><a href="mailto:tech-support@kerisystems.co.uk">tech-support@kerisystems.co.uk</a> |

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