1. Introduction

The AY-B86x0 series are biometric fingerprint and RFID card reader with a compact design, which is suitable for installing on a door frame. The USB power supply and debug make operations simple. The reader IP65 certified for outdoor use.

Using AxTraxNG, you can register and delete users (see the AxTraxNG™ Software Installation and User Manual). Alternatively, you can use master cards to register and delete users while in an offline state.

The standard Wiegand output seamlessly connects to the third-party access controllers.

The reader comes in two models:
- AY-B8620 – 125 kHz EM RFID card reader
- AY-B8650 – 13.56 MHz MIFARE card reader

2. Installation

2.1 Mounting

1. Using the back panel as a guide, drill two holes for mounting the back plate onto the surface (Figure 2).

2. Insert a suitable wall plug into each screw hole.

3. Drill a 10-mm (7/16") hole for the cable.

4. Screw the back plate onto the wall.

5. Connect the reader to the controller (see Section 2.2). A linear type power supply is recommended.

6. Attach the reader to the back plate and secure the reader to the back plate with the provided security screw and tools.

2.2 Wiring

To connect the unit as a reader to an access control unit:

1. Select the appropriate connections according to Table 1.

<table>
<thead>
<tr>
<th>Function</th>
<th>Cable Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Red</td>
<td>12 VDC</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>GND</td>
</tr>
<tr>
<td>Tamper Alarm</td>
<td>Brown</td>
<td>Tamper</td>
</tr>
<tr>
<td></td>
<td>Orange</td>
<td>Tamper</td>
</tr>
<tr>
<td>Wiegand Output</td>
<td>Green</td>
<td>Wiegand DATA0 Output</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>Wiegand DATA1 Output</td>
</tr>
<tr>
<td></td>
<td>Blue</td>
<td>Wiegand switch</td>
</tr>
<tr>
<td></td>
<td>Black</td>
<td>GND</td>
</tr>
<tr>
<td>Pulse Signal</td>
<td>Light brown</td>
<td>RS-485B/GND</td>
</tr>
<tr>
<td></td>
<td>Light Blue</td>
<td>RS-485A/pulse signal (3.3 V)</td>
</tr>
</tbody>
</table>

2. Prepare the controller cable by cutting its jacket back about 3 cm (1¼") and strip the insulation from the wires about 1.3 cm (½").

3. Splice the reader’s pigtail wires to the corresponding controller wires and cover each joint with insulating tape.

4. Trim and insulate the ends of all unused conductors individually. Do not short any unused wires together.

- The individual wires from the reader are color coded according the Wiegand standard.
- When using a separate power supply for the reader, this supply and that of the controller must have a common ground.
- The reader’s cable shield wire should be preferably attached to an earth ground, or a signal ground connection at the panel, or the power supply end of the cable. This configuration is best for shielding the reader cable from external interference.
3. Operation

3.1 Registering a Management Card
Register a management card (Enroll and Delete) as shown in Figure 3.

3.2 Resetting a Management Card (Enroll and Delete)
To reset a management card, press and hold the function button located inside the back cover of the reader until you hear beeps (Figure 4).

3.3 Registering a User
There are three ways to register a user: fingerprint, card, card+fingerprint.

3.3.1 Registering a Fingerprint
Register a fingerprint as shown in Figure 5.

3.3.2 Registering Two Fingerprints
Register two fingerprints as shown in Figure 6.

3.3.3 Registering a Fingerprint and Card
Register a fingerprint and card as shown in Figure 7.

3.3.4 Registering Two Fingerprints and a Card
Register two fingerprints and a card as shown in Figure 8.

3.4 Deleting Users
3.4.1 Deleting a Fingerprint
Delete a fingerprint from the reader as shown in Figure 9.

3.4.2 Deleting a Card
Delete a fingerprint from the reader as shown in Figure 10.

3.4.3 Deleting all Users
Delete all users from the reader as shown in Figure 11.

Note: If the card and/or fingerprint have been already registered, the red LED flashes and there are 2 long beeps.

Note: If the fingerprint does not exist in the system, the red LED flashes and there is a long beep.

Note: If the card does not exist in the system, the red LED flashes and there is a long beep.

Note: If the card does not exist in the system, the red LED flashes and there is a long beep.

Note: If the card does not exist in the system, the red LED flashes and there is a long beep.
4. Instructions for Placing Finger

- Correct Method: Straighten your finger and then place it on the sensor, ensuring the finger is down flat and covers the entire sensor window.

- Incorrect Method:

5. Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fingerprint Sensor</td>
<td>500 DPI Optical Sensor</td>
</tr>
<tr>
<td>RFID Card Reader</td>
<td>AY-B8620 – 125 kHz</td>
</tr>
<tr>
<td></td>
<td>AY-B8650 – 13.56 MHz</td>
</tr>
<tr>
<td>User Capacity</td>
<td>7000</td>
</tr>
<tr>
<td>Fingerprint Capacity</td>
<td>7000</td>
</tr>
<tr>
<td>Card Capacity</td>
<td>7000</td>
</tr>
<tr>
<td>Log Capacity</td>
<td>100,000</td>
</tr>
<tr>
<td>Verification Speed</td>
<td>&lt; 1 Second (1:N)</td>
</tr>
<tr>
<td>Card Read Range</td>
<td>20 to 80 mm (0.8 to 3.1 in.)</td>
</tr>
<tr>
<td>Identification Mode</td>
<td>Fingerprint/Card</td>
</tr>
<tr>
<td>Network Port</td>
<td>TCP/IP</td>
</tr>
<tr>
<td>Wiegand Protocol</td>
<td>Wiegand 26-Bit</td>
</tr>
<tr>
<td>Voice and Interface</td>
<td>Multi-color LEDs and buzzer</td>
</tr>
<tr>
<td>Operating Voltage</td>
<td>12 VDC</td>
</tr>
<tr>
<td>Work Current</td>
<td>150 mA</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-20°C to 60°C</td>
</tr>
<tr>
<td>Humidity Range</td>
<td>10% to 95% (non-condensing)</td>
</tr>
<tr>
<td>Size (W x H x D)</td>
<td>50 x 124 x 34.5 mm (1.97 x 4.9 x 1.4 in.)</td>
</tr>
<tr>
<td>Certificate</td>
<td>FCC, CE, RoHS</td>
</tr>
</tbody>
</table>

6. Usage Notice

- Do not scratch the surface of the optical fingerprint sensor with any sharp object such as a small knife or a pen.
- Humidity, dust, and direct light can affect the terminal’s performance.
- Do not clean the surface of the optical fingerprint sensor with organic material such as alcohol or gasoline.
- To clean the surface, apply a piece of one-sided adhesive tape to the sensor and then remove.
Declaration of Conformity

FCC ID = GCD-B8620, GCD-B8650
- This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:
  - This device may not cause harmful interference.
  - This device must accept any interference received, including interference that may cause undesired operation.
- Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

Radio Equipment Directive (RED)

Rosslare hereby declares that the AY-B86x0 is in compliance with essential requirements and other relevant provisions of Directive 2014/53/EU.

RoHS Directive

Under our sole responsibility that the following labeled AY-B86x0 is tested to conform to the Restriction of Hazardous Substances (RoHS) directive – 2011/65/EU – in electrical and electronic equipment.

Limited Warranty

The full ROSSLARE Limited Warranty Statement is available in the Quick Links section on the ROSSLARE website at www.rosslaresecurity.com. Rosslare considers any use of this product as agreement to the Warranty Terms even if you do not review them.

Contact Information

United States and Canada
Rosslare Security Products, Inc.
Southlake, TX, USA
Toll Free: +1-866-632-1101
Local: +1-817-305-0006
Fax: +1-817-305-0069
support.na@rosslaresecurity.com

Europe
Rosslare Israel Ltd.
22 Ha’Melacha St., P.O.B. 11407
Rosh HaAyin, Israel
Tel: +972-3-938-6838
Fax: +972-3-938-6830
support.eu@rosslaresecurity.com

Latin America
Rosslare Latin America
Buenos Aires, Argentina
support.la@rosslaresecurity.com

China
Rosslare Electronics (Shenzhen) Ltd.
Shenzhen, China
Tel: +86-755-8610-6842
Fax: +86-755-8610-6101
support.cn@rosslaresecurity.com

Asia Pacific, Middle East, Africa
Rosslare Enterprises Ltd.
Kowloon Bay, Hong Kong
Tel: +852-2795-5630
Fax: +852-2795-1508
support.apac@rosslaresecurity.com

India
Rosslare Electronics India Pvt Ltd.
Tel/Fax: +91-20-40147830
Mobile: +91-9975768824
sales.in@rosslaresecurity.com