

# AY-L23 G/H and SA-23 G/H

## Outdoor Long-Range RF Reader and Remote Control Installation and Operation Manual

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### 1. Introduction

The AY-L23G/H is an outdoor long-range RF reader that acts as a receiver. It is compatible with Rosslare's SA-23 wireless remote control transmitter. The AY-L23 G works with the SA-23 G (433.92 MHz) and the AY-L23 H works with the SA-23 H (868.35 MHz).

When the AY-L23 receives the a command signal from the SA-23 wireless transmitter, the AY-L23 outputs the ID to A\_DATA0,A\_DATA1 or B\_DATA0,B\_DATA1 to the attached controller and controls the function of the relay (open drain FET) A or B according to the SA-23 remote's command.

The command signal consists of 3 parts:

- ID (in Wiegand format)
- ID output to A or B Wiegand Output according to the command in SA-23
- Relay Function A or B according to command in the SA-23

Figure 1: AY-L23 G/H and SA-23 G/H



AY-L23 G/H



SA-23 G/H

### 2. Technical Specifications

#### 2.1 AY-L23 G/H

<b>Input Voltage</b>	7 to 24 VDC
<b>Standby Current</b>	26 mA (12 VDC)
<b>Maximum Operating Current</b>	65 mA (12 VDC)
<b>Relay (FET, Open Drain) Current</b>	200 mA (max voltage 40 V)
<b>Tamper Output</b>	Open collector, active Open, max. sink current is 16 mA
<b>Maximum Cable Distance to Controller</b>	500 ft. (152.4 m)
<b>Wiegand Output Format</b>	Wiegand xbit (Wiegand xbit<=Wiegand 40-Bit, decided by remote)
<b>Frequencies</b>	G: 433.92 MHz H: 868.35MHz
<b>Read Range</b>	164 ft (50 m)
<b>Operating Temp. Range</b>	-31°C to 63°C (-25°F to 145°F)
<b>Operating Humidity</b>	0 to 95% (non condensing)
<b>Dimensions (L x W x D)</b>	5.7 x 1.7 x 0.8 in. (145 x 43 x 20 mm)

#### 2.2 SA-23 G/H

<b>Input Voltage</b>	3 V Battery (CR 2450)
<b>Standby Current</b>	< 1 uA
<b>Max Operation Current</b>	10 mA
<b>ID Format</b>	Programmed to Wiegand 26-Bit
<b>Frequencies</b>	G: 433.92 MHz (ASK) H: 868.35 MHz (ASK)
<b>Operating Temp. Range</b>	-31°C to 63°C (-25°F to 145°F)
<b>Operating Humidity</b>	0 to 95% (non condensing)
<b>Dimensions (L x W x D)</b>	2.28 x 1.61 x 0.53 in. (58 x 41 x 13.4 mm)

### 3. Mounting Instructions

Determine an appropriate mounting position for the receiver. Do not mount the receiver near any source of wireless interference or on any metal surface.

#### *To mount the receiver:*

1. Peel off the back of the self-stick mounting label template included with the unit and place at the desired mounting position.
2. Using the template as a guide, drill two holes (hole size is indicated on mounting template) for mounting the receiver to the surface.
3. Drill a 7/16" (10-mm) hole for the cable.
4. Remove the front case from the receiver.
5. Attach the receiver to the controller. (See wiring instructions)
6. Screw the receiver's rear case onto its mounting location and return the front case onto the mounted rear case.

The receiver is to be used with control panels whose power supply is UL Listed Class 2 or equivalent.

## 4. Wiring Instructions

### To connect the receiver to the controller:

1. Prepare the receiver cable by cutting the cable jacket back 1¼ inches and strip the wires ½ inch.
2. Prepare the controller cable by cutting the cable jacket back 1¼ inches and strip the wires ½ inch.
3. Splice the receiver's pigtail wires to the corresponding controller wires and cover each connection (see Table 1).

Table 1: Wiring

Color	Functionality
Red	VIN (7–24 VDC)
Black	GND
Dark Green	A_Data0
White	A_Data1
Orange	A_LEDCTL (green LED)
Blue	A-OUTPUT (FET, Open Drain)
Light Green	B-DATA0
Gray	B-DATA1
Brown	B_LEDCTL (orange LED)
Yellow	B-OUTPUT (FET, Open Drain)
Purple	TAMPER



- The individual wires coming out of the receiver are color coded according to the recommended Wiegand standard.
- When using a separate power supply for the receiver, this supply and the controller's power supply must have a common ground.
- The cable shield wire on the receiver should be attached to an Earth ground (best) or signal ground connection at the panel or power supply end of the cable. This configuration is best for shielding the receiver cable from external interference.

## 5. Operation

The AY-L23 works with any SA-23 remote and can operate two Wiegand data outputs connected to the reader's inputs at the access control panel.

### 5.1 Reader Mode

When pressing **1** on the SA-23, the AY-L23 sends Wiegand data-A. The LED changes to green for a short time with a beep.

When pressing **2** on the SA-23, the AY-L23 sends Wiegand data-B. The LED changes to orange for a short time with a beep.



The AY-L23 LED is red in Operation mode.

### 5.2 Controller and Reader Mode

The AY-L23 can register up to 48 IDs for an SA-23 remote control and can operate two OC outputs A/B.

When pressing **1** on the SA-23, the AY-L23 sends Wiegand data-A and activates out-A for 5 seconds. The LED changes to green for a short time with a beep.

When pressing **2** on the SA-23, the AY-L23 sends Wiegand data-B and activates out-B for 5 seconds. The LED changes to orange for a short time with a beep.



The AY-L23 LED is red in Operation mode.



To activate the relay, the remote button's ID should be registered first.

### 5.3 Registering an ID

#### To register an ID:

1. Connect the orange and brown wires to GND.
2. Power on at Vin and GND.  
After buzzer sounds 3 times, the LED turns green.  
The AY-L23 is now in Register mode for 15 seconds.
3. Press **1** on the SA-23 remote.
  - If the registration is successful, you hear 2 short beeps.
  - If the ID was previously registered, you hear 2 long beeps.
  - If the limit of IDs (48) is reached, you hear have 3 long beeps.
4. Press **2** on the SA-23 remote.
  - If the registration is successful, you hear 2 short beeps.
  - If the ID was previously registered, you hear 2 long beeps.
  - If the limit of IDs (48) is reached, you hear have 3 long beeps.After the time register (10 to 15 seconds), you hear a long beep.

### 5.4 Deleting all IDs

#### To delete all IDs:

1. Connect the orange wire to GND.
2. Power on at Vin and GND.  
After buzzer sounds 3 times, the LED turns orange for 2 seconds and then turns green.  
The AY-L23 is now in Delete mode for 5 seconds.
3. When the LED turns green, disconnect the orange wire from GND.  
The LED changes from green to orange.
4. Re-connect the orange wire to GND within 5 seconds.
  - If all the IDs in reader are deleted successfully, the alarm sounds 2 times and then you hear 3 short beeps.
  - If the deletions fails (times out), the reader outputs a long beep.

## 6. Using the SA-23

The AY-L23 G/H is used along with the SA-23 2-button remote control. The SA-23 remote is programmed to:

- Button 1 – Wiegand output to A DATA0/1 with A FET(relay)ON 5S
- Button 2 – Wiegand output to B DATA0/1 with B FET(relay)ON 5S

### 6.1 Initial Setup

#### To set up the remote for use:

1. Install the battery.  
The red LED turns on for 1 second, turns off 1 second and then turns on for 1 second.

2. Check the distance range of the remote:
  - If the distance is set to long range (70 m), LED flashes on and off 0.5 seconds 3 times.
  - If the distance is set to short range (15 m), LED flashes on and off 0.1 seconds 6 times.



By default, the remote distance is set to 70 m.

## 6.2 Changing the Remote Distance Range

You can set the remote range to either 15 or 70 m.

### *To set the remote distance:*

1. Remove the battery from the remote.
2. Press any button to reset the remote.



Any time you remove the battery from the SA-23, you must reset the remote control by pressing any key to discharge the internal capacitors.

3. Install the battery.
4. Press **1** and **2** together before the LED flashes for a second time.  
The remote toggles to the other remote distance range.
  - If the distance is set to long range (70 m), LED flashes on and off 0.5 seconds 3 times.
  - If the distance is set to short range (15 m), LED flashes on and off 0.1 seconds 6 times.

## 6.3 Changing the ID of Button 2

You can set Button 2 to transmit the same ID as Button 1 or to transmit a unique ID. By default, Buttons 1 and 2 transmit the same ID number.

### *To change the ID of Button 2 to be unique:*

1. Remove the battery from the remote.
2. Press any button to reset the remote.
3. Press **2** and install the battery until the red LED flashes quickly 5 times for 0.1 seconds.  
**2** will now use transmit a unique ID (ID of Button **1** +1)
4. Close the cover.

### *To change the ID of Button 2 to use ID of Button 1:*

1. Remove the battery from the remote.
2. Press any button to reset the remote.
3. Press **1** and install the battery until the red LED flashes quickly 5 times for 0.1 seconds.  
Button **2** will now transmit the same ID as Button **1**.
4. Close the cover.

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## Declaration of Conformity

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.

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.

## Limited Warranty

ROSSLARE ENTERPRISES LIMITED (ROSSLARE) TWO-YEAR LIMITED WARRANTY is applicable worldwide. This warranty supersedes any other warranty. ROSSLARE'S TWO-YEAR LIMITED WARRANTY is subject to the following conditions:

### WARRANTY

Warranty of ROSSLARE'S products extends to the original purchaser (Customer) of the ROSSLARE product and is not transferable.

### PRODUCTS COVERED BY THIS WARRANTY AND DURATION

ROSSLARE AND/OR SUBSIDIARIES warrants the AY-L23 G/H Outdoor Long Range RF Reader and the SA-23 G/H Remote Control to be free from defects in materials and assembly in the course of normal use and service. The warranty period commences with the date of shipment to the original purchaser and extends for a period of 2 years (24 months).

### WARRANTY REMEDY COVERAGE

In the event of a breach of warranty, ROSSLARE will credit Customer with the price of the Product paid by Customer, provided that the warranty claim is delivered to ROSSLARE by the Customer during the warranty period in accordance with the terms of this warranty. Unless otherwise requested by a ROSSLARE representative, return of the failed product(s) is not immediately required.

If ROSSLARE has not contacted the Customer within a sixty (60) day holding period following the delivery of the warranty claim, Customer will not be required to return the failed product(s). All returned Product(s), as may be requested at ROSSLARE'S sole discretion, shall become the property of ROSSLARE.

To exercise the warranty, the user must contact ROSSLARE Enterprises Ltd. to obtain an RMA number after which, the product must be returned to the Manufacturer freight prepaid and insured.

In the event ROSSLARE chooses to perform a product evaluation within the sixty (60) day holding period and no defect is found, a minimum US\$ 50.00 or equivalent charge will be applied to each Product for labor required in the evaluation.

ROSSLARE will repair or replace, at its discretion, any product that under normal conditions of use and service proves to be defective in material or workmanship. No charge will be applied for labor or parts with respect to defects covered by this warranty, provided that the work is done by ROSSLARE or a ROSSLARE authorized service center.

### EXCLUSIONS AND LIMITATIONS

ROSSLARE shall not be responsible or liable for any damage or loss resulting from the operation or performance of any Product or any systems in which a Product is incorporated. This warranty shall not extend to any ancillary equipment not furnished by ROSSLARE, which is attached to or used in conjunction with a Product, nor to any Product that is used with any ancillary equipment, which is not furnished by ROSSLARE.

This warranty does not cover expenses incurred in the transportation, freight cost to the repair center, removal or reinstallation of the product, whether or not proven defective.

Specifically excluded from this warranty are any failures resulting from Customer's improper testing, operation, installation, or damage resulting from use of the Product in other than its normal and customary manner, or any maintenance, modification, alteration, or adjustment or any type of abuse, neglect, accident, misuse, improper operation, normal wear, defects or damage due to lightning or other electrical discharge. This warranty does not cover repair or replacement where normal use has exhausted the life of a part or instrument, or any modification or abuse of, or tampering with, the Product if Product disassembled or repaired in such a manner as to adversely affect performance or prevent adequate inspection and testing to verify any warranty claim.

ROSSLARE does not warrant the installation, maintenance, or service of the Product. Service life of the product is dependent upon the care it receives and the conditions under which it has to operate.

In no event shall ROSSLARE be liable for incidental or consequential damages.

### LIMITED WARRANTY TERMS

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THIS WARRANTY SHALL BECOME NULL AND VOID IN THE EVENT OF A VIOLATION OF THE PROVISIONS OF THIS LIMITED WARRANTY.

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