AY-x12C Series

Rosslare PROX Readers
Installation and User Manual

ROSSLARE
SECURITY PRODUCTS

1. Introduction

The AY-x12C is a series of RFID proximity card readers to be installed for use with access control systems.

The AY-x12C series reads the proximity card and transmits its data to the access control system, using Wiegand 26-Bit and Clock & Data outputs.

Figure 1: AY-x12C Series

AY-M12C AY-H12C AY-L12C AY-K12C AY-Q12C

2. Technical Specifications

2.1 Electrical Characteristics

Specification	AY-M12C	AY-H12C	AY-L12C	AY-K12C	AY-Q12C
Power Supply Type	Linear (recommended)				
Operating Voltage Range	5–16 VDC				
Absolute Maximum (non-operating)	18 VDC				
Current @ 12V	Standby: 60 mA Maximum: 120 mA				
Maximum Read Range*	10 cm (4 in.)			8 cm (3.2 in.)	4 cm (1.6 in.)
All Control Inputs	Dry Contact, N.O.				
Tamper Output	Open collector, active low, max. sink current 16 mA				
Maximum Cable Distance to Controller	18 AWG – 150 m (500 ft) 20 AWG – 90 m (300 ft)				
RF Modulation	ASK, 125 kHz				
Line Security	Level I				
Standby Power	Level I				
Endurance	Level IV				
Destructive Attack	Level I				

* Measured using a Rosslare proximity card or equivalent. Range also depends on installation environment, reader voltage, and proximity to metal.

2.2 Environmental Characteristics

Specification	AY-M12C	AY-H12C	AY-L12C	AY-K12C	AY-Q12C
Operating Temp. Range	-31°C to 63°C (-25°F to 145°F)				
Operating Humidity Range	0 to 95% (non-condensing)				

2.3 Physical Characteristics

Model	Dimensions (H x W x D)	Weight
AY-M12C	89 x 89 x 15 mm (3.5 x 3.5 x 0.6 in.)	109 g (3.9 oz.)
AY-H12C	110 x 75 x 15 mm (4.3 x 3.0 x 0.6 in.)	100 g (3.5 oz)
AY-L12C	145 x 43 x 20 mm (5.7 x 1.7 x 0.8 in.)	116 g (4.1 oz)
AY-K12C	80 x 40 x 12.8 mm (3.2 x 1.6 x 0.5 in.)	70.5 g (2.5 oz)
AY-Q12C	120 x 76 x 20 mm (4.7 x 3.0 x 0.8 in.)	480 g (17.0 oz)

3. Installation

> **Note**
> Card readers are to be used with control panels whose power supply is UL Listed Class 2 or equivalent.

3.1 Installation Kit

The installation kit consists of the following items to be used during the installation procedure:

- One self-adhesive mounting label template
- Two pan head mounting screws and screw anchors
- One Torx key tool
- One Torx security screw

3.2 Mounting

Before mounting, you should determine the best location for the reader.

To mount the reader:

1. Peel off the back of the self-adhesive mounting label template and place it at the required mounting location.
2. Using the template as a guide, drill two holes (hole size and position is indicated on the mounting template) for mounting the reader onto the surface.
3. Insert a screw anchor into each hole.

4. Drill a 10-mm (7/16") hole for the cable. If mounting on metal, place a grommet or electrical tape around the edge of the hole.
5. Remove the screw from the bottom of the unit.
6. Remove the reader's snap-off front cover.
7. Insert the unit's cable wire into the cable hole and wire the unit as described in Section 3.3. A linear type power supply is recommended.
8. Align the two holes of the reader with those drilled in the wall and firmly attach the reader to the wall with two screws (Figure 2)

Figure 2: Inserting Mounting Screws (similar for all models)
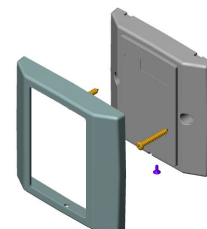
9. Relocate the front cover onto the reader.
10. Secure the front cover by using the supplied security Torx screw. A Torx security screw tool is provided to tighten the security Torx screw.

3.3   Wiring

The AY-x12C is supplied with a 10-conductor 56-cm (22-in.) pigtail with exposed wires coated with solder.

To connect the reader to the controller:

1. Select the appropriate connections according to Table 1.
2. Prepare the controller cable by cutting its jacket back 3 cm (1¼") and strip the insulation from the wires about 1.2 cm (½").
3. Splice the reader's pigtail wires to the corresponding controller wires and cover each joint with insulating tape.
4. If the tamper output is being utilized, connect the purple wire to the correct input on the controller.
5. Trim and cover all unused conductors.

Note	• 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 power supply end of the cable. This configuration is best for shielding the reader cable from external interference.

Table 1: Wiring

Wire Color	Function
Red	VIN 5–16 VDC
Black	Shield/Ground
Green	Data 0 / Data
White	Data 1 / Clock
Orange	Green LED CTL
Brown	Red LED CTL
Blue	Hold CTL
Purple	Tamper Output
Yellow	Buzzer CTL
Gray	Mode

4. Operation Instructions

4.1   Testing

Once the reader is wired to a power supply and to the controller, you should test the reader.

To test the reader:

1. Power up the reader.

    Upon power up, the reader flashes and beeps once during Self-Test. The LED then turns red indicating the readers has entered Standby mode.

2. Apply a PROX card to the reader.

    The reader flashes and beeps once indicating the card has been read successfully.

4.2   Data Output Mode Line

The Data Output Mode Line is used to select whether the reader outputs in Wiegand 26-Bit, RS-232, or Clock & Data format.

When the Mode Line is open, the reader outputs Wiegand 26-Bit. When the Mode Line is pulled to high, the reader outputs RS-232. When the Mode Line is pulled to ground, the reader outputs Clock & Data.

4.3   LED Control

The reader has a bi-color (green/red) LED and two LED control lines, one for green LED control (orange wire) and the other for the red LED control (brown wire).

When both LED control lines are open, the reader self manages the LED behavior. In Standby mode, the LED remains red. When a card is presented, the LED flashes green and then returns to red.

When a LED control line is pulled to ground, the LED changes to the related LED color and the self-management is disabled. If both LED control lines are pulled to ground, the LED is amber colored.

4.4   Buzzer Control

When the Buzzer control line (yellow wire) is open, the reader self manages the buzzer behavior and beeps when a card is read successfully. When the Buzzer control line is pulled to ground, the buzzer sounds.

4.5   Hold Control

When the Hold control line (blue wire) is open, the reader functions normally. When the Hold line is pulled to ground, the hold function is activated. When active and a card is read, no card data is sent on the Wiegand lines; however, the reader continues to buffer the last card ID read and sends that ID data when the Hold line is released.

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

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.

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