

ARD-AYK12 Card reader, EM, mini mullion

ARD-AYK12

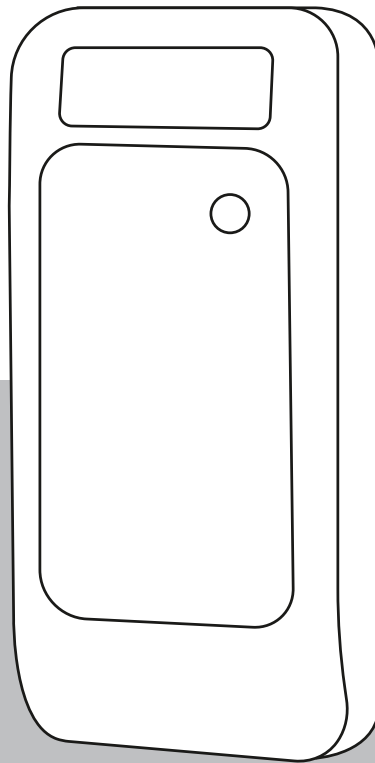


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1 Safety

- **Read, observe and keep the instructions** - the entire safety and operating instructions must be read and correctly followed before the readers are operated.
- **Take all warnings into account** - follow all warnings on the devices and in the operating instructions.
- **Power sources** - the readers should only be operated with the recommended power sources. If you are unsure whether you can use a specific power supply, contact your dealer.



Warning!**Risk of damage to the equipment!**

Always switch off the power supply to the device before making changes to the installation. Do not connect or disconnect any plugs, data cables or screws while the power supply is switched on.



Warning!**Health and Safety!**

Installation must be carried out in accordance with local fire, health and safety regulations. A secured door must be installed as part of an escape route and must have:

- a fail-safe lock. the door must be released in the event of power loss. Ideally, a solenoid lock should be used.
- an emergency switch with a glass cover for manual breaking the circuit, so that the fail-safe lock can be de-energized immediately in an emergency.



Warning!**Risk of damage!**

Protect the device against electrostatic discharge by observing the ESD instructions before unpacking or touching the plug and the electronics.



Notice!

- During the installation, make sure that the facility requirements placed by the corresponding device safety standard are not influenced in an impermissible manner, compromising product safety.

- Electromagnetic compatibility: The devices are designed for use in residential, business, commercial and industrial areas.



Notice!

Installation and assembly of electrical components must be carried out by a qualified electrician.



Notice!

The circuit board is at risk from electrostatic discharge. Appropriate precautionary measures (grounding, etc.) must be observed.

**Danger!**

- The device must be operated in a fully assembled state only.
- Before connecting the device to the power supply, make sure that the connected operating voltage does not exceed the permitted values according to the technical specifications.
- Additional safety measures should be enforced whenever there is a risk that failure of malfunction of the device might pose a risk to humans, animals or damage to the equipment, this must be prevented with additional safety measures (limit switches, protective equipment, etc.).

2 Short Information

2.1 Introduction

This installation manual is aimed at authorized service providers.

The installation manual contains instructions on the installation and configuration of the Bosch Security Systems proximity reader ARD-AYK12.

2.2 FCC compliance

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.

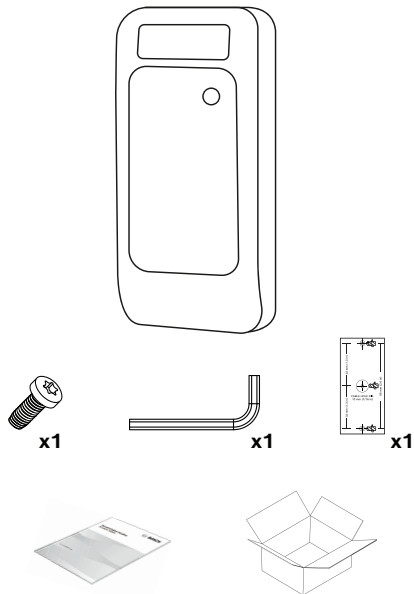
Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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.

2.3 Parts included

Make sure that all parts are included and not damaged. If the packaging or any parts are damaged, contact your shipper. If any parts are missing, contact your Sales or Customer Service Representative.



Quantity	Component
1	Reader
1	Quick installation guide
1	Drilling template
1	Additional Torx security screw
1	Torx angle wrench

2.4 Functional requirements

The ARD-AYK12 reader reads data from EM credentials and provides visual and acoustic signals.

The reader and the control center communicate through a Wiegand interface.

The reader has the following main features:

- a compact design
- surface-mounting
- tamper monitoring
- six-wire connection cable as the connection type
- suitable for indoor and outdoor use.

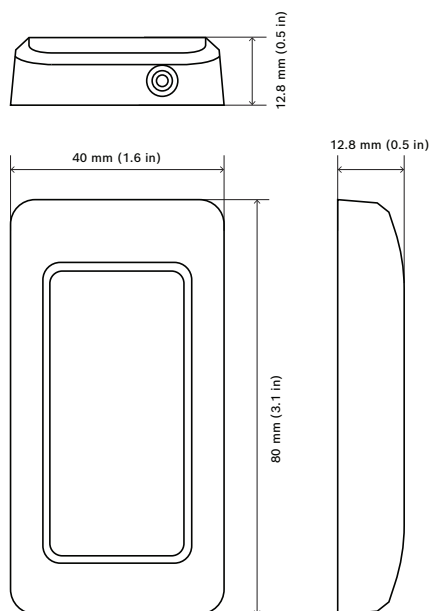


Figure 2.1: Dimensions of the ARD-AYK12 reader

2.5 RFID technology

The ARD-AYK12 reader supports the following RFID technology:

- ▶ EM 125 kHz

2.6 Reading distances

The normal reading distance depends on the respective reading system, the installation environment and the type of data carrier. Direct mounting on metal might reduce the optimal reading distance.

Maximum read range: 8 cm (3.15 inches).



Notice!

These measured reading distances are typical guide values.

If other transponder media are used, the distance ranges can differ. Examples of other transponder media are: chip type, design, size and production process.

Before you use or plan to use the reader, it is recommended to make a suitability and functional test of the respective medium.

Influencing the reading distance

The reading distance can be influenced due to different reasons. On the one hand this is influenced by the medium (i.e. the data carrier) and on the other hand by the ambient conditions of the antenna and the data carrier.

Reducing the reading distance

The following is a list of points that can reduce the reading distance:

- "Shade" or shield the data carrier with metal, such as EC card in your wallet, key fob on your key ring, etc.
- No optimal coupling, i.e., the antenna surface of the data carrier is perpendicular (90 °) to the antenna surface of the reader
- Data carrier itself
 - key fob (small active antenna surface)
 - "bad" response from the data carrier (ID card / key fob)
 - combination ID card (e.g. LEGIC® / inductive, MIFARE / inductive etc.)
- Metal in the "active" effective area of the HF field. The transmission energy is attenuated. This point is particularly relevant when installing the reader components in metal front panels (including metal columns, etc.).

3 Installation

3.1 Before mounting the reader

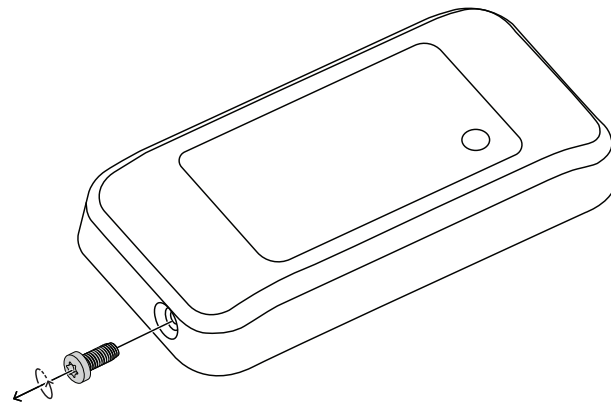
When you choose the installation location, consider the following:

- The readers can still interfere with each other at a distance of approximately two or three times the reading distance.
- High-energy sources in the range of modulation and carrier frequencies can interfere with the transmissions.

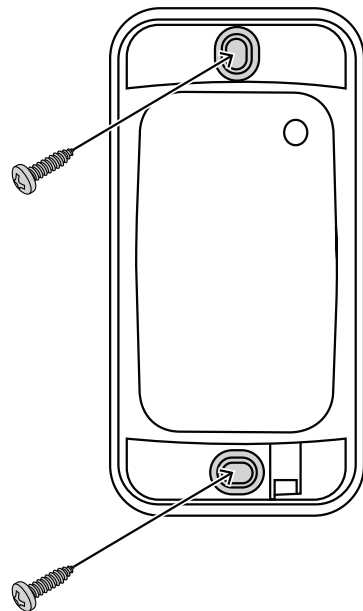
3.2 Mounting instructions

To mount the reader:

1. Unscrew the top cover. The screw is located at the bottom of the reader.



2. Remove the top cover to reveal the screw holes for mounting.



3. Determine an appropriate mounting position for the reader.
4. Peel off the back of the self-stick drilling template and place at the desired mounting position. If you do not have the self-stick drilling template, refer to the *Drilling Template, page 17* for the dimensions.
5. Use the appropriate screws (not supplied) and drill the holes for mounting the reader to the surface by using the drilling template as a guide. The hole size is indicated there.
6. Drill a 7/16" (10 mm) hole for the cable. If you are mounting the reader on metal, place a grommet or electrical tape around the edge of the hole.
7. Route the interface cable from the reader to the controller.

**Notice!**

In a UL certified system, use the card reader with a listed access control unit. The power supply of the access control unit must be UL Listed Class 2 or equivalent.

3.3 Assembling the reader

3.3.1 Wiring instructions

The ARD-AYK12 is supplied with a 45 cm (18 in) pigtail, having a six-conductor cable.

To connect the reader to the controller:

1. Prepare the reader cable by cutting the cable jacket back 3.4 cm (1 1/4 in) and by stripping the wires 1.3 cm (1/2 in).
2. Connect the reader cable to the corresponding interface port of the controller.

Color	Wiegand output
Red	DC + input
Black	Ground
White	Data 1
Green	Data 0
Brown	LED control
Purple	Tamper

Table 3.1: Wiegand outputs and wire colors

3. Use the tamper output by connecting the purple wire to the corresponding interface connector of the controller.
4. Trim and cover all conductors that are not used.

Notes

- The individual wires that come out of the reader are color coded according to the recommended Wiegand standard.
- When you use a separate power supply for the reader, this supply and the controller's power supply must have a common ground.
- Attach the cable shield of the reader to an earth ground. You can also connect it to a ground or signal ground at the controller or power supply. One of these options will protect the reader cable from external interference.

3.3.2 Testing instructions

After you wire the reader to a power supply and the controller, you must do a test.

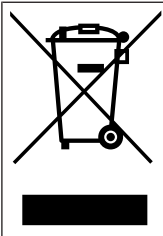
To test the reader:

1. Power up the reader.
If the LED and beeper activate three times, the reader is working properly.
2. Present the appropriate type of proximity card to the reader.
If the LED momentarily flashes green and a short beep is emitted, the card was successfully read by the proximity card reader.

Note: The green LED can be controlled by the controller through the interface. The duration of the control depends on the program of the controller.

4 Decommissioning

Old electrical and electronic equipment



This product and/or battery must be disposed of separately from household waste. Dispose such equipment according to local laws and regulations, to allow their reuse and/or recycling. This will help in conserving resources, and in protecting human health and the environment.

5 Technical specifications

Mechanical

Dimensions (H x W x D) (in)	3.15 in x 1.57 in x 0.50 in
Dimensions (H x W x D) (mm)	80 mm x 40 mm x 13 mm
Color	Black
Material	Polycarbonate
Mounting type	Flush-mounted
Weight (g)	70.50 g
Weight (lb)	0.16 lb
LED color	Red; Green

Environmental

Usage	Indoor; Outdoor
Operating temperature (°C)	-31 °C – 63 °C
Operating temperature (°F)	-25 °F – 145 °F
Operating relative humidity, non-condensing (%)	0% – 95%
IP rating	IP65

Electrical

Operating voltage (VDC)	5 VDC – 16 VDC
Output current (mA)	35 mA – 50 mA
Input current (mA)	60 mA – 120 mA

Connectivity

Wiring connection	Pigtail
Reader interfaces	Wiegand (26-bit)

Operation

Audible indication	Yes
Optical indication	LED
LED indication	Multi-color
Keypad	No
Protection	Tamper (optical)
Reading format	EM 4102

6 More information

Refer to the latest technical documentation for this product available for download in the Bosch online catalog.



Support

Access our **support services** at www.boschsecurity.com/xc/en/support/.

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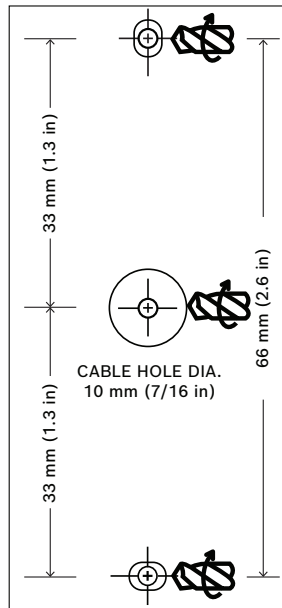


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7 Appendices

7.1 Drilling Template



Bosch Security Systems B.V.

Torenallee 49

5617 BA Eindhoven

Netherlands

www.boschsecurity.com

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