DRAFT

Multi-Smart™ Readers

125 kHz, 13.56 MHz, Bluetooth® and NFC

1. Introduction

The innovative Multi-Smart™ Readers from Rosslare support multiple technologies: BLE (Bluetooth Low Energy), 13.56 MHz RFID. Multi-technology Multi-Smart™ Readers are especially suited for sites that need more than one RFID credential or use more than one CSN Select credential. The readers supports ASK and FSK for 125 kHz and 13.56 MHz smartcards to read the RFID transponder UID and output the ID to the control panel. This feature supports all RFID types in one reader without updating legacy credentials in the system.

Multi-Smart™ Readers read NFC-ID™ and BLE-ID™ credentials, and issue BLE-ID credentials (iOS and Android) to smartphone users. The BLE-Admin™ app can configure which technologies are used by each reader.

The readers support SIA Open Supervised Device Protocol (OSDP V2) including SCP mode (Secured Channel Protocol), allowing readers to connect to any controller that supports OSDP.

The readers also have a capacitive touch button on the surface which can be assigned functions such as Door Bell, Exit, Help, Lights or other required outputs.

With simple installation, the readers allow you to easily manage add-ons installations and technology migrations. They come in a modern small model that fit any architecture design, and are suitable for outdoor use. In addition, they are CE and FCC certified.

1.1. Installation Kit

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

Description	Quantity
Self-adhesive mounting label template	1
Flat screw M3.5 x 25 mm	2
Plastic anchor M6 x 30 mm	2
Torx tamper proof screwdriver	1
Torx screw M3 x 5 mm	1

2. Technical Specifications

Electrical Characteristics	
Power Supply Type	Regulated
Operating Voltage Range	8 to 16 VDC
Current @ 12 V	Standby: 110 mA, max: 185 mA @ 12 VDC
Bluetooth BLE Read Range	From 1 m to 12 m (3.2 to 39.3 ft) (line of sight)
RFID and NFC Read Range*	ISO14443A – MIFARE® Classic® EV1: Sector Read Contactless 13.56 MHz: Up to 7 cm (2.75 in.) Contactless 125 kHz: up to 8 cm (3.15 in.)

Electrical Characteristics	
LED/Buzzer Controls	Dry Contact, N.O.
Tamper Output	Open collector, active low, max. sink current 20 mA @12 VDC, 10 mA@5 VDC. Current limit: 500 Ω series resistance
Maximum Cable Distance to Controller	Wiegand: 150 m (500 ft) with 18-AWG cable OSDP (RS-485): 1,200 m (4,000 ft) with 2x2 18 AWG twisted shielded cable
Environmental Characteristics	
Operating Temp. Range	-35°C to 66°C (-31°F to 150°F)
Operating Humidity Range	0 to 95% (non-condensing)
Operating Environment	Weather-resistant, UV-resistant, meets IP65, epoxy-potted, suitable for indoor and outdoor use
Vandal Resistance	IK?
Physical Characteristics	
Dimensions (H x W x D)	88 x 48 x 24 mm (3.5 x 1.9 x 0.9 in.)
Weight	190 g (6.7 oz)

*Read range listed is statistical mean rounded to nearest centimeter, measured in open air using Rosslare MIFARE Classic EV1 (ISO card). Form factor, technology and environmental conditions, including metallic mounting surface, can degrade read range performance; plastic spacers are recommended to improve performance on metallic mounting surfaces.

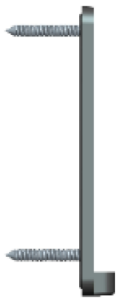
3. Installation

3.1. Mounting the Multi-Smart™ Readers

When selecting an area for mounting, ensure the location is flat.

To Mount Multi-Smart™ Readers:

1. Drill 2 holes in the wall, using the mounting template provided in the installation.



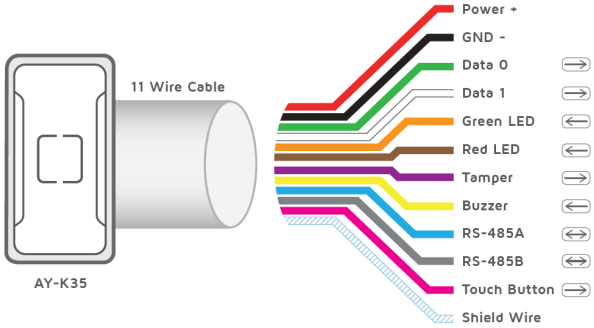
2. Insert 2 anchors provided into the drilled holes.
3. Mount the bracket on the wall using the 2 screws provided.

4. Mount the reader on the bracket and fasten at bottom with Torx screw and Torx screwdriver provided.

3.2. Wiring the Multi-Smart™ Readers

To Wire Multi-Smart™ Readers:

Units are supplied with a 11 conductor 56 cm (22 in.) pigtail with exposed wires coated with solder.



- 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 power supply end of the cable.

To Connect The Reader To The Controller:

1. Select the appropriate connections according to the table below.
2. Prepare the controller cable by cutting its jacket back about 3 cm (1¼ in.) and strip the insulation from the wires about 1.3 cm (½ in.).
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 insulate the ends of all unused conductors individually. Do not short any unused wires together.

Wire Color	Function
Red	Power
Black	Ground
Green	Data 0 / Data
White	Data 1 / Clock
Orange	Green LED Control
Brown	Red LED Control
Purple	Tamper Output
Yellow	Buzzer Control
Blue	RS-485 - A / OSDP
Gray	RS-485 - B / OSDP
Black (shrink)	Shield

4. Configuration

The BLE-ID application allows a mobile device to be used as a credential. Download the application from Google Play or App Store using the following QR code.

1. Download the Rosslare BLE-Admin application from Google Play or App Store.

2. Open the application, select the required reader from the list displayed.

3. Enter the password.

- Use the default password (12345678) when you log in to the BLE-Admin application for the first time.
- It is highly recommended that you change the password (see step 4).

4. On the main screen, configure the following:

Option	Remarks
Door Name	Assign name to selected door reader
Password	Change password
Firmware	Allows firmware update over BLE from a list of available versions.

> A small number of minutes is necessary to update the firmware. During this time, the mobile data link must be stable. If the update procedure fails, the reader will continue to operate with the initial firmware.

5. Tap **Set Configuration** and configure the following:

Parameter	Options	Remarks
Protocol	Wiegand 26 bit, OSDP, OSDP-SC, Clock and Data	Wiegand: 26/26R, 32/32R, 34/34R, 40/40R, 56,56R, 64/64R bit 26 bit (default) OSDP-SC: Install mode (read/write) OSDP addresses: 0-31 13 (default)
Sector	Off, Key A. xxxxxx	Off (default) Key A: Must type 12 character key in Hex format Location: • Sector [0-39] • Block [0-14] • Byte [0-15]
Credentials reading standards	125 KHz EM (ASK) 125 KHz (FSK) ISO 14443A ISO 14443B ISO 15693 NFC BLE Credential	You can select multiple credentials. All standards are selected by default. When a sector is activated, the ISO 14443A, ISO 1443B, and ISO 18092 credential reading standards are automatically set to OFF. If necessary, select a standard again.

Parameter	Options	Remarks
General purpose button	Activation	On/Off If set to Off, the following are hidden: • Set key as bell • Keypad press duration
	Set key as bell	• 6-Bit Wiegand Rosslare format (default) • 6-Bit Wiegand with Nibble + Parity Bits • 8-Bit Wiegand Nibble Complemented • Single Key, 4-Bit Wiegand
	Keypad press duration (seconds)	0.25, 0.5, 0.75, 1, 1.25, 1.5, 2 0.25 (default)
Light bar	Activation	On/Off. On (default)
	Brightness level	High, Medium, Low Medium (default)

	Idle state color
	• Off
	• Red
	• Flashes red
	• Green
	• Flashes green
	• Orange
	• Flashes orange
	• Flashes red and green
	• Customized
		Red (default)
		The following are customized options:
		• Color 1
		  • Red (default)
		  • Time - 200 msec (default)
		• Color 2
		  • Off (default)
		  • Time - 200 msec (default)
		• Cycles
		  • 1 (default)

	Credential read color
	• Off
	• Flashes red
	• Flashes green
	• Flashes orange
	• Flashes red twice
	• Customized
		Flashes green (default)
		The following are customized options:
		• Color 1
		  • Green (default)
		  • Time - 200 msec (default)
		• Color 2
		  • Off (default)
		  • Time - 200 msec (default)
		• Cycles
		  • 1 (default)

Parameter	Options	Remarks
Buzzer	Level	Off, High, Medium, Low. High (default)

	Credential read sound
	• Off
	• One short beep
	• Two short beeps
	• One long beep
	• Customized
		The following are customized options:
		• On time
		  • Time - 200 msec (default)
		• Off time
		  • Time - 200 msec (default)
		• Cycles
		  • 1 (default)

7 Byte CSN - Ignore first Byte	On/Off	On (default)

5. NFC And BLE Operation

5.1. Rosslare NFC-ID (Android)

Rosslare's NFC-ID read function for Multi-Smart™ Readers can read both active and passive NFC credentials. NFC-ID can be generated from the Rosslare BLE-ID app for each NFC supported Android smartphone.

The reader scans for NFC-ID and transmits the ID number to the host controller via OSDP or Wiegand protocols.

5.2. Rosslare BLE-ID

The reader can read credentials from Rosslare BLE-ID app via Bluetooth.

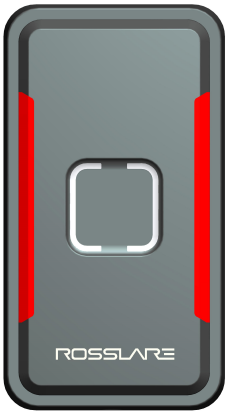
The reader scans for BLE-ID and transmits the ID number to the host controller via OSDP or Wiegand protocols.

BLE-ID credentials have a line-of-sight range of up to 12 m (39 ft) from the reader depending on the type and brand of smartphone or BLE device.

6. LED Operation

6.1. Normal Power Up

When power applied from OFF position, LED test will run for 1.5 sec. (cycle all LED colors of the RGB for 500 ms each color in the following order: Red, Green, Blue), followed by 3 beeps.



6.2. Restore to Factory Defaults

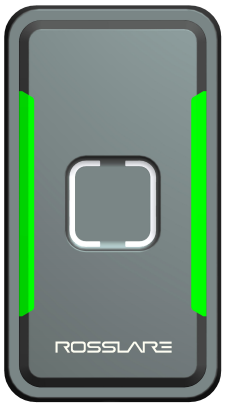
To restore the reader to default settings, before power-on, connect the orange wire (green LED control) and yellow wire (Buzzer Control) to GND for two or more seconds. The red LED will turn ON for 2 seconds, followed by a long two second beep. This indicates successful Multi-Smart™ Readers power up with default settings.

6.3. Standby Mode

In standby mode, two LED bars will be in steady RED condition.

EM 125 KHz And CSN 13.56 MHz Credential Read

When a 125 kHz credential or a 13.56 MHz credential is detected by the reader, both LED bars will flash GREEN for 250 ms, and the reader will sound short beep for 300 ms. This indicates a successful card read and transfer on the Wiegand port. Then, the reader will return to standby mode and the right light bar stays solid RED.



7. Radio Equipment Directive (RED)

Rosslare hereby declares that the Multi-Smart™ Readers are in compliance with essential requirements and other relevant provisions of Directive 2014/53/EU.

8. 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.

9. International Standards

Description	Latest Standard	Latest ER Directive
CE-EMC	EN 61000-6-3:2007+A1:2011+AC:2012 EN 50130-4:2011+A1:2014 EN 61000-3-2:2014 EN 61000-3-3:2013 AOC	EMCD 2014/30/EU
CE-LVD	EN62368-1: 2006+A11: 2009+A1: 2010+A12: 2011+A2: 2013	RED 2014/53/EU
CE-RED	N 300 330 V2.1.1 EN 301 489-1 V2.2.0 EN 301 489-3 V2.1.1 EN 301 489-17 V3.1.1/EN 300 328 V2.1.1 EN62479: 2010 NB	RED 2014/53/EU
FCC	FCC Part 15B FCC Part 15.225 and 15.247 FCC ID	

FCC Statement

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.

Any 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.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .This equipment should be installed and operated with minimum distance 20cm between the radiator& your body.

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