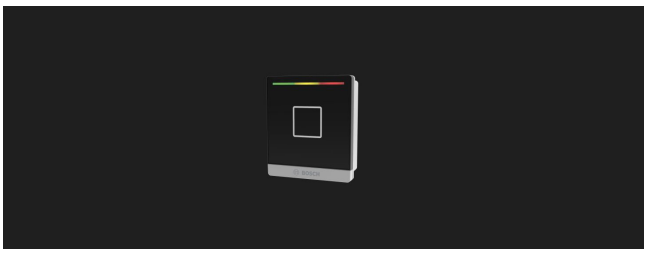

BOSCH LECTUS Select ARD-SELECT-BOM Reader Security System Instruction Manual

Contents

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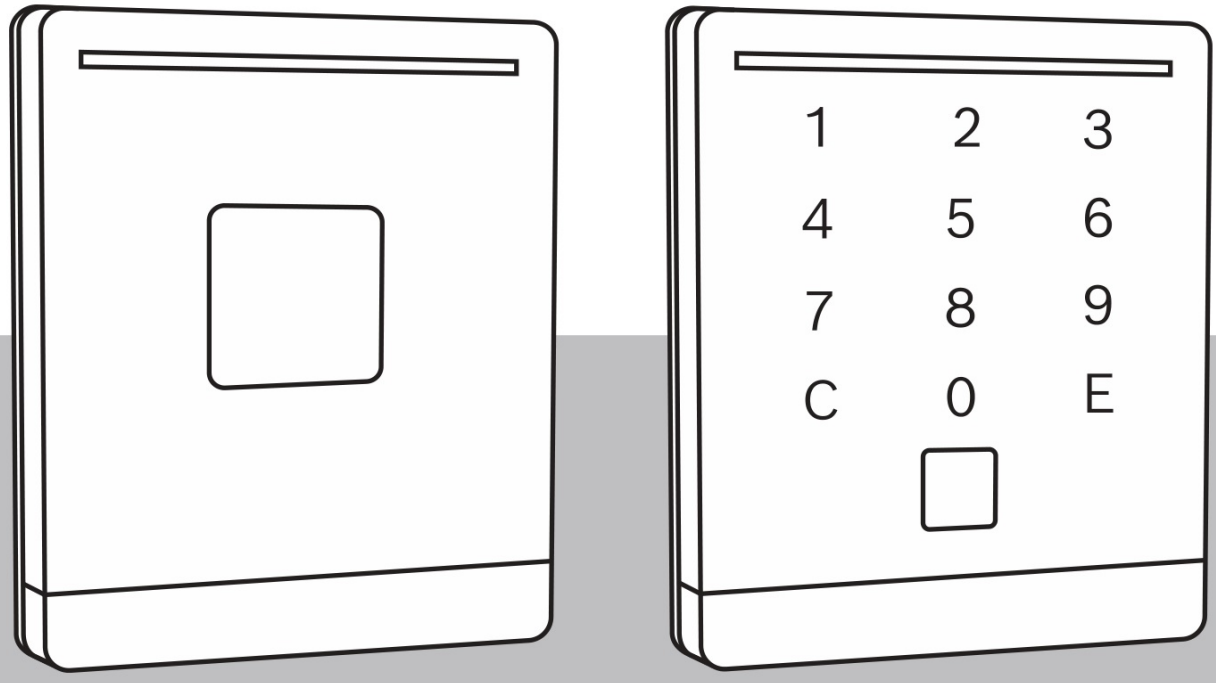


Installation manual

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.

Notice!
Risk of damage to the equipment
Always switch off the power supply of 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.

Notice!
Risk of damage
Protect the device from electrostatic discharge. Before touching the connector or the electronics, make sure you are not electrostatically charged.

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.).

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

Notice!
- The devices are equipped according to EN 62368, with protection class III.
- 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.

1.1 FCC Class B

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.

General

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 LECTUS select.

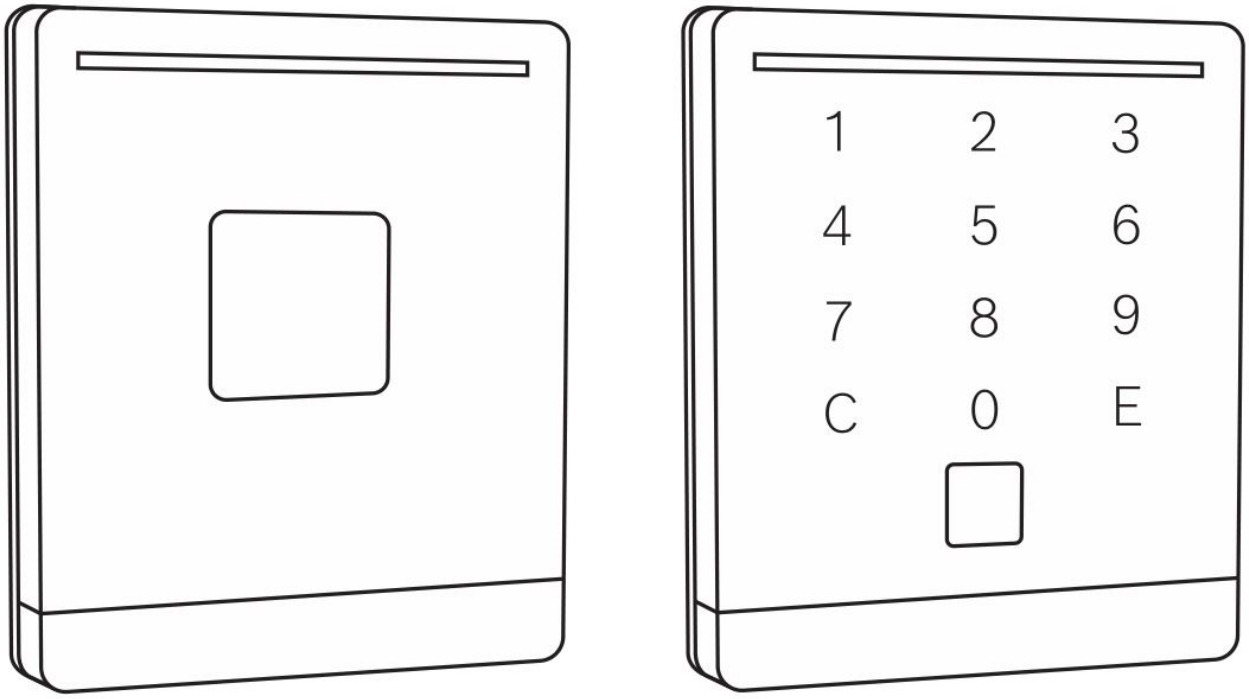


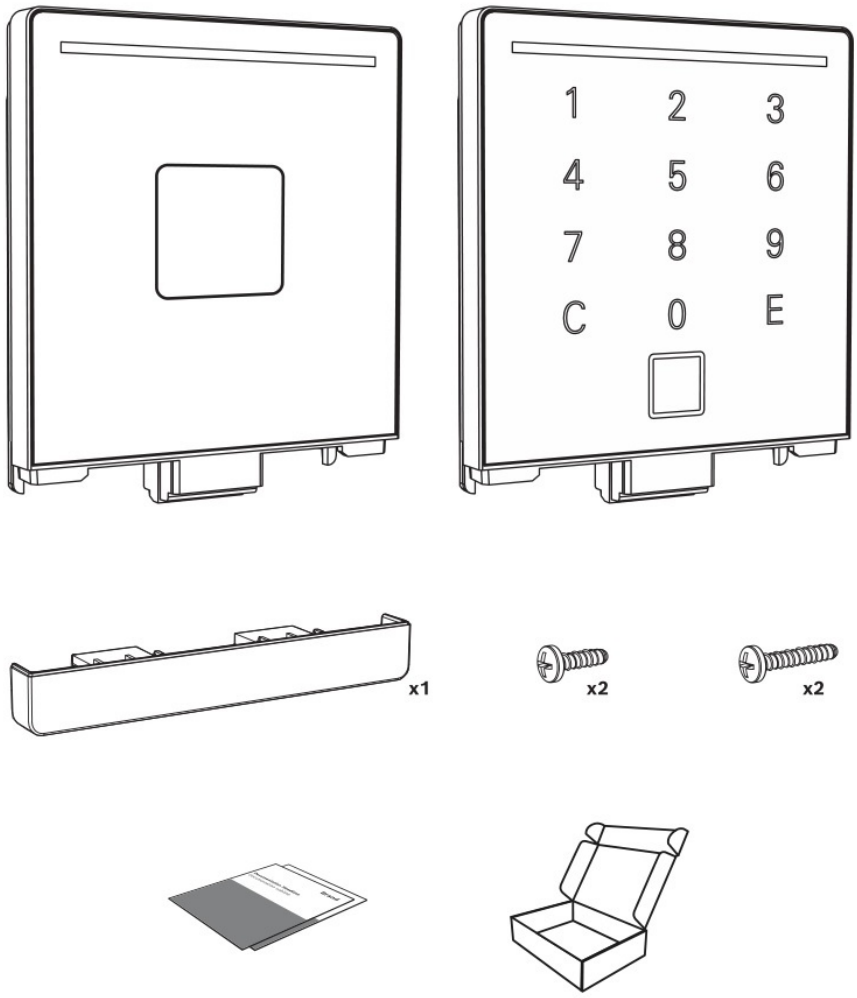
Figure 2.1: LECTUS select readers

2.2 Disposal

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.

2.3 Components



Quantity	Component
1	Reader module
1	Locking bar
4	Screws
1	Quick installation guide
2	Safety and security information
1	OSS information

2.4 Functional requirements

The readers have tamper monitoring and tear-off detection (i.e. a sabotage message is generated if the reader is completely torn from the wall). They are suitable for both indoor and outdoor use.
Connection type: 8-pin screw / plug-in terminal
The LECTUS select reader reads data from contactless RFID credentials and sends the data to a higher-level control center. This is where the evaluation takes place as to whether a credential is authorized or not. The result is sent back to the reader, which then provides a visual and an acoustic signal. Communication between the reader and the control center takes place via an encrypted RS485 bus.
The reader has a compact design and is available in two variants, with and without a keyboard (each as a flush-mount version). The flush-mounted variant fits into any device box in flush mounted or hollow-wall design

according to DIN, with a device screw distance of 60 mm.

2.4.1 OSDP

The following readers support OSDP V2 protocol:

Commercial Type Number (CTN)	Description
ARD-SELECT-BOM	Reader, OSDP, BLE, black
ARD-SELECT-WOM	Reader, OSDP, BLE, white
ARD-SELECT-BOKM	Reader, OSDP, keypad, BLE, black
ARD-SELECT-WOKM	Reader, OSDP, keypad, BLE, white

OSDP protocol is common within the Bosch Access Control Systems product portfolio.

2.5 RFID technology

The LECTUS select readers support by default the following technologies:

– LEGIC advant
– MIFARE DESFire EV1
– MIFARE DESFire EV2
– Mobile Access

For LEGIC prime and MIFARE Classic, a special configuration is needed and is not offered as standard.
The RFID technology that can be used is dependent on the reader configuration and the reader firmware.

2.6 Transponder data

The support of the transponder media listed below depends on the respective variant or reading technology (hardware platform) and the respective reader firmware.
The following non-exhaustive list includes transponder media that is supported by the reader.

RF standard	Supported LEGIC transponders	Other supported transponders **)
LEGIC RF standard	MIM22, MIM256, MIM1024, CTC4096-MP410	
ISO 14443 A (also NFC Forum Type 2/4A Tag *)	ATC512-MP, ATC2048-MP, ATC4096-MP, CTC4096-MP410, AFS4096-JP	according to ISO 14443 part 3/4: e.g. Infineon SLE, SmartMX Integrated support of MIFARE Ultralight, MIFARE Classic, MIFARE Plus and MIFARE DESFire NFC peer-to-peer target
ISO 14443 B ***) (also NFC Forum Type 4B Tag *)		according to ISO 14443 part 4: e.g. B. InfineonSLE
ISO 15693 (also ISO 18000-3 mode 1)	ATC128-MV, ATC256-MV, ATC1024-MV	Selected types, e.g. B. EM 4035, Infineon SRF55VxxP, Tag-It HFI
INSIDE Secure (UID only)		according to INSIDE Secure
*) Passive mode, initiator **) Access with transparent mode (assigned commands for MIFARE transponders) ***) If transponders according to ISO 14443 B (2001) are used, only one transponder is allowed in the RF field. This restriction does not apply to transponders according to ISO 14443 B (2008). ****) The SONY FeliCa protocol is supported in accordance with ISO 18092 (6 byte introduction). Older FeliCa cards with a shorter introduction are not supported.		

Notice!
Recommendation when using smart card chips for LEGIC “card in card” solutions:
A suitability and functional test of the corresponding medium should be carried out before use or if it is planned to be used.

2.7 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.

Type of transponder media	Reading distances (cm)			
	LEGIC prime / advent Basis 4200M		MIFARE Classic/DESFire	
	EC-format	Key-fob	EC-Format	Key-fob
LEGIC MIM 256	3,5	2	-	-
LEGIC MIM 1024	4	*)	-	-
LEGIC ATC2048-MP110 (ISO 14443A)	4,5	2,5	-	-
LEGIC ATC4096-MP310 (ISO 14443A)	3	1,5	-	-
LEGIC ATC4096-MP311 (ISO 14443A)	2	1	-	-
LEGIC AFS4096-JP10/JP11 (ISO 14443A)	2	*)	-	-
LEGIC ATC1024-MV110 (ISO 15693)	6,5	3,5	-	-
Classic 1k	-	-	3,5	3
Classic 4k	-	-	4	*)
DESFire EV1, 2k / 4k / 8k	-	-	1	1
Legic CTC4096-MP410 (prime access)	6,5	4	-	-
Legic CTC4096-MP410 (ISO14443 access)	2,5	2	-	-

*) Key-fob not available during the test, “AFS4096” not available as key-fob
Note: Not all designs and transponder media were available at the time the distance was measured.

Notice!
The reading distances listed above are distance ranges measured on the basis of a selection of transponder media. These measured reading distances are to be regarded as typical guide values.
If other transponder media are used (chip type, design, size, production process), the distance ranges may differ and it is recommended to carry out a suitability and functional test of the respective medium before using or planning to use the reader.

Influencing (reducing) 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.

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.).

2.8 Bluetooth® Low Energy

The readers are equipped with a Bluetooth® Low Energy module.

For more information on:

- how to install Mobile Access, refer to the Datasheet and Quick user guide of the Mobile Access
- how to adjust the read range, refer to the User manual of the Credential Management.

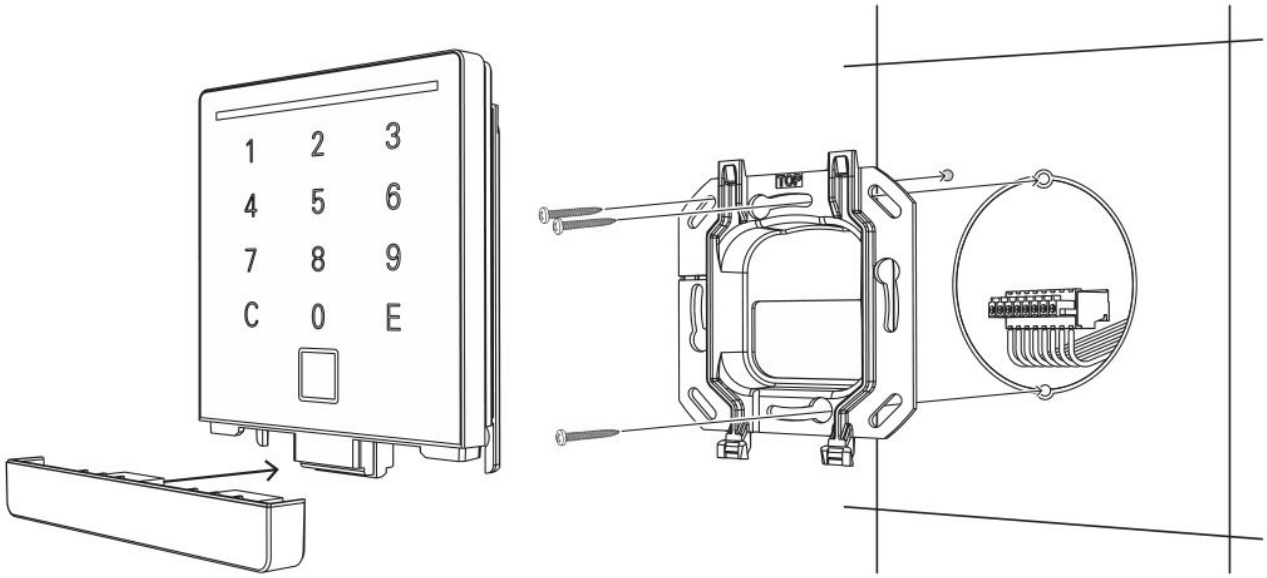
These documents are available in the online catalog.

Installation

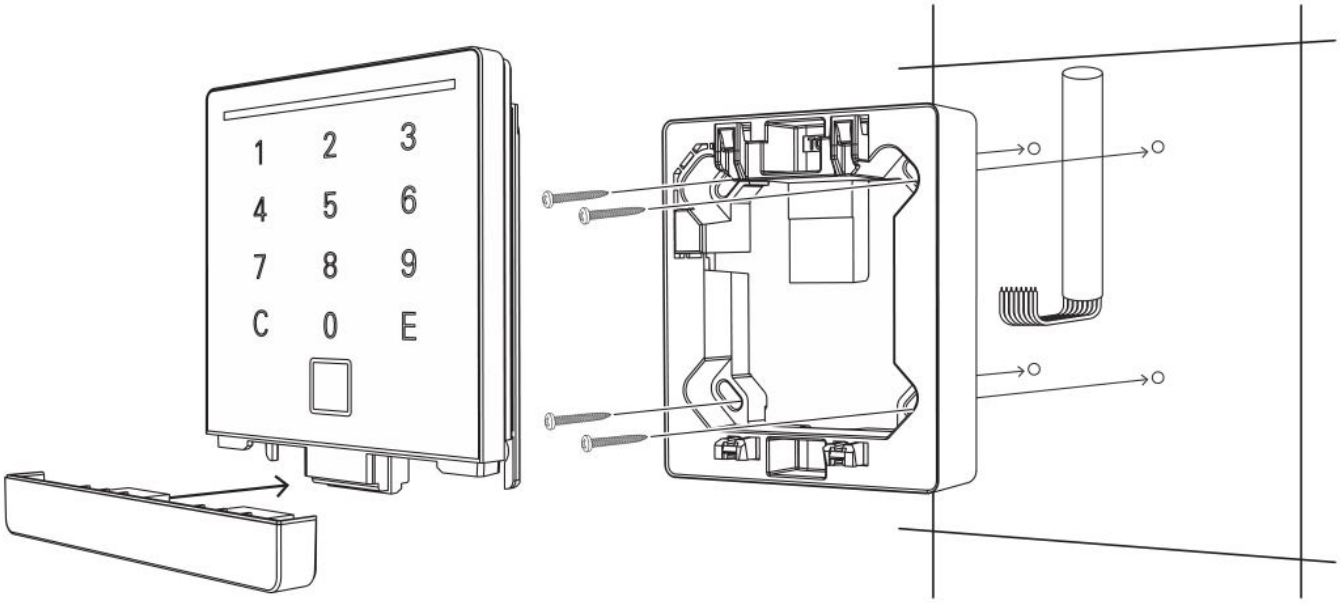
3.1 General

When choosing the installation location, please note:
The readers can interfere with each other or be negatively influenced by other systems and sources of interference. The readers can still disturb each other at a distance of approx. two to three times the reading distance. High-energy sources of interference in the range of the modulation and carrier frequencies can also interfere with the transmission.

3.1.1 Mechanical structure of the flush-mount version



3.1.2 Mechanical structure of the surface-mount version

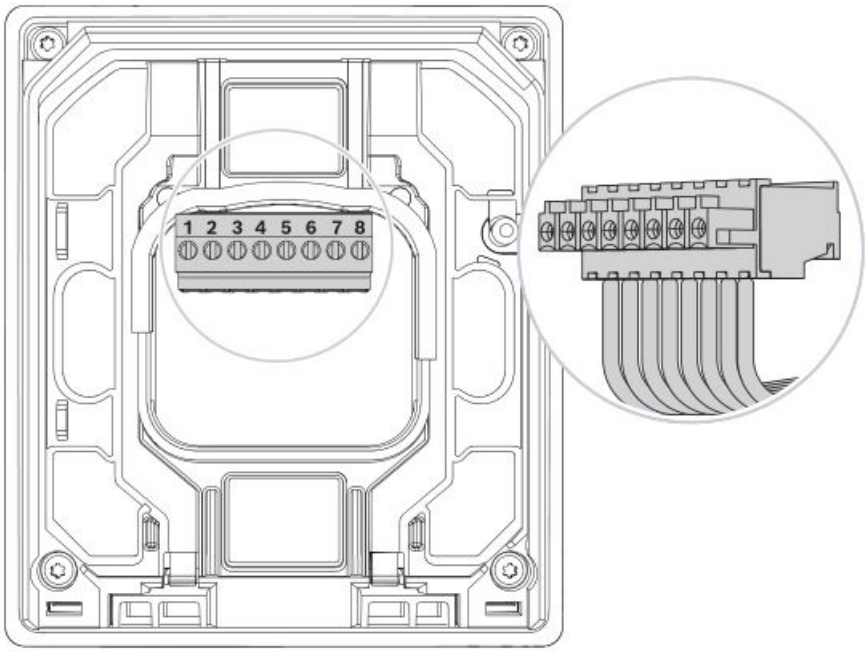


3.2 Installing data and supply lines

When supplying the reader (especially over longer distances), ensure that the cable cross section is adequate. Since the power consumption of the individual systems is partially pulsed, short-term voltage drops cannot be detected with a conventional multimeter (digital or analog). However, these voltage drops can cause a “POWER-ON-RESET” on the reader component, which can lead to communication problems.
When dimensioning the power supply and the cable cross-sections of the cabling, the maximum current consumption must be taken into account. It is essential to ensure that the input voltage remains constant and corresponds to the technical specifications of the reader.

3.3 Assembly preparation

1. Lay the connection cables according to the local conditions and prepare them for connection.
2. Remove the 8-pin screw / plug-in terminal from the reader module and connect the wires according to this graphic:



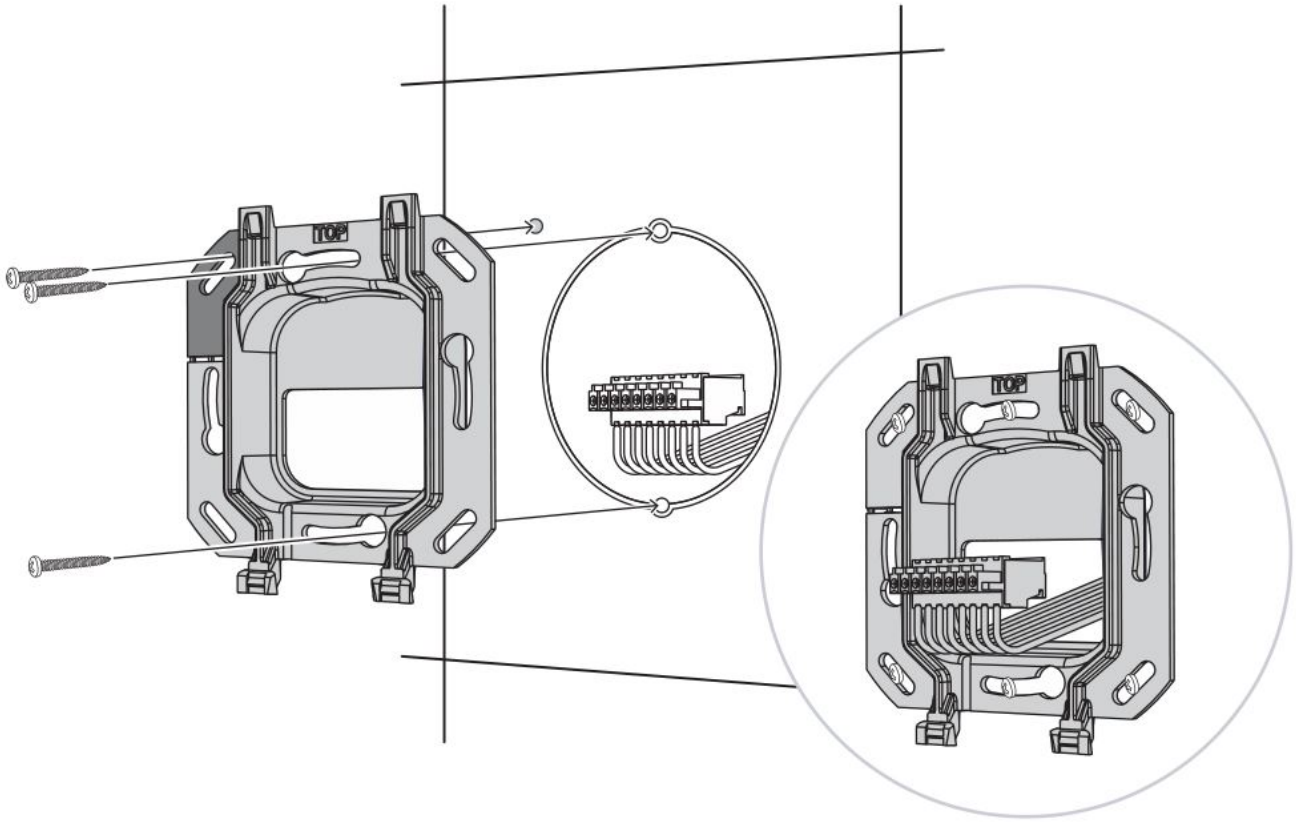
Notice!
The wiring must be carried out in a de-energized state. In other words, the operating voltage may only be switched on after the reader has been fully installed!

Connection terminal ST1 (8 pin screw / plug terminal, voltage supply / interfaces)	
PIN number	**Description**
1	RS485 data “A”
2	RS485 data “B”
3	Do not connect
4	Do not connect
5	Do not connect
6	Do not connect
7	DC- (0V)
8	DC+ (from 8V to 30V)
Wire diameter	
Stranded wire	AWG 28 - 16
Solid wire	AWG 28 - 16
Cable stripping length 6 to 7 mm	

3.4 Assembling the reader

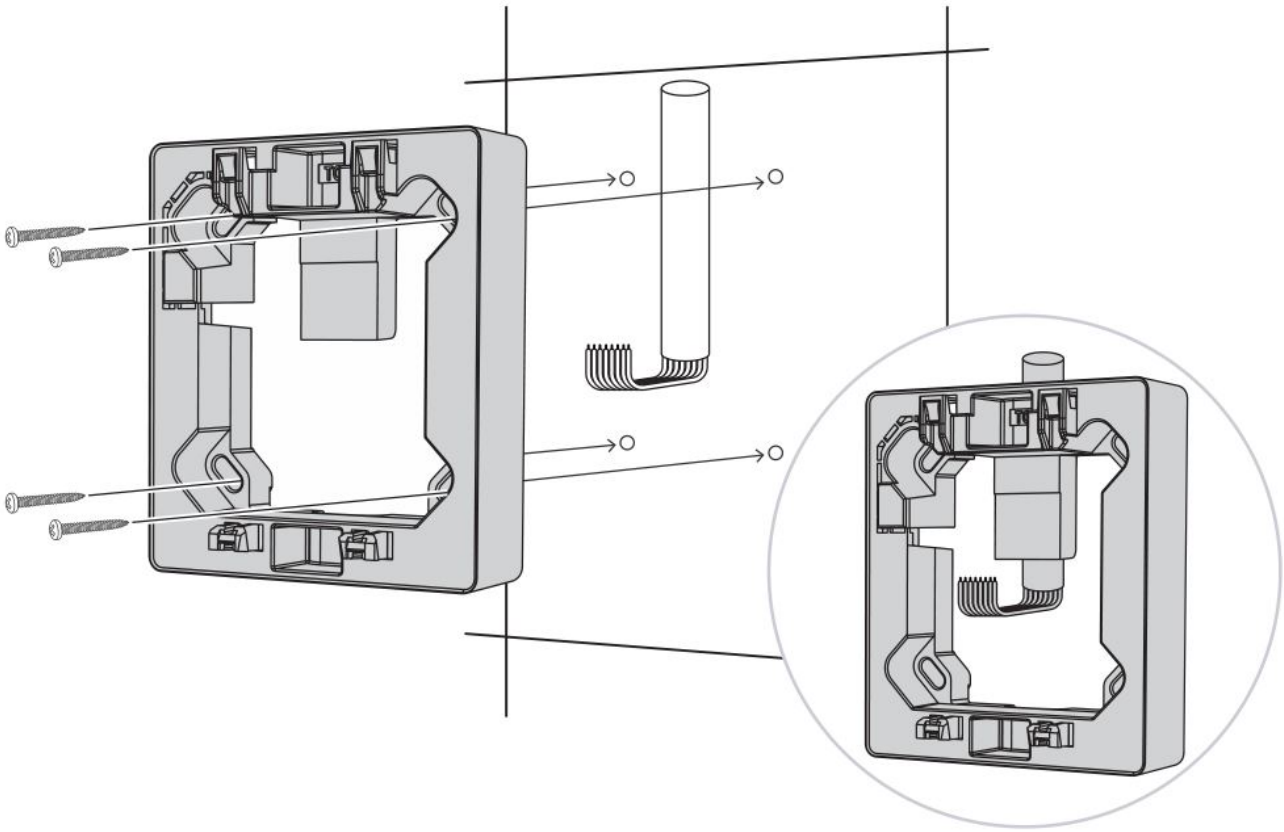
Flush-mount version

1. Use the provided screws to screw the wall bracket onto a DIN device socket with a device screw distance of 60 mm.
2. Support the reader’s tear detection by fixing the perforated tear-off tab with an additional locking screw.



Surface-mount version

1. Screw the wall-mount frame to the wall using the screws. The connection cable can be inserted from above, below or directly from the wall.
2. Tear detection is supported by fixing the upper left screw.



3.5 Assembling the reader module

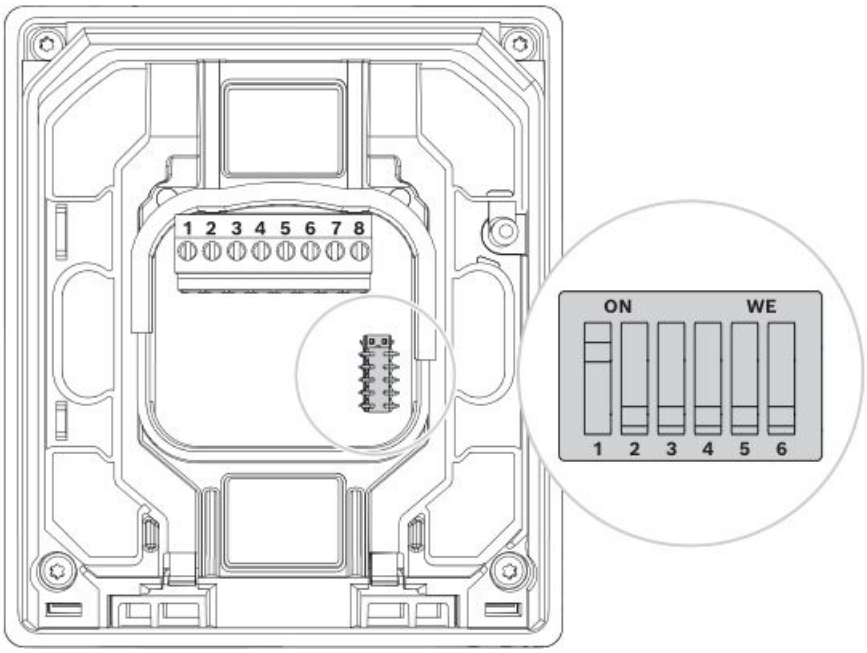
3.5.1 Configuring the reader (DIP switches)

Depending on the firmware function, the DIP switches of the reader module must be set accordingly.
The reader has 6 DIP switches. Each switch is numbered from 1 to 6.

With the DIP switches it possible to:
– Set the address of the reader
– Set the BUS termination

To change the reader configuration:

1. Power-off the reader.
2. Set the DIP switches correctly.
3. Power-on the reader.

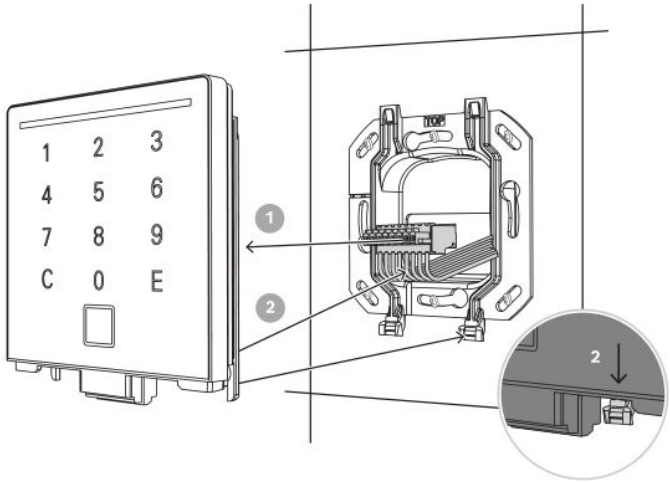


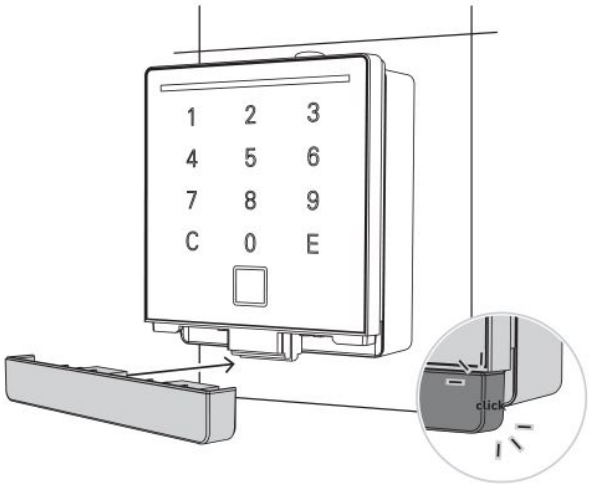
OSDP protocol

Address	1	2	3	4	5	6	7	8
S1	ON	-	ON	-	ON	-	ON	-
S2	-	ON	ON	-	-	ON	ON	-
S3	-	-	-	ON	ON	ON	ON	-
S4	-	-	-	-	-	-	-	ON
S5	Reserved (default - OFF)							
S6	Bus terminator resistor (default - OFF)							

3.6 Connecting and mounting the reader module

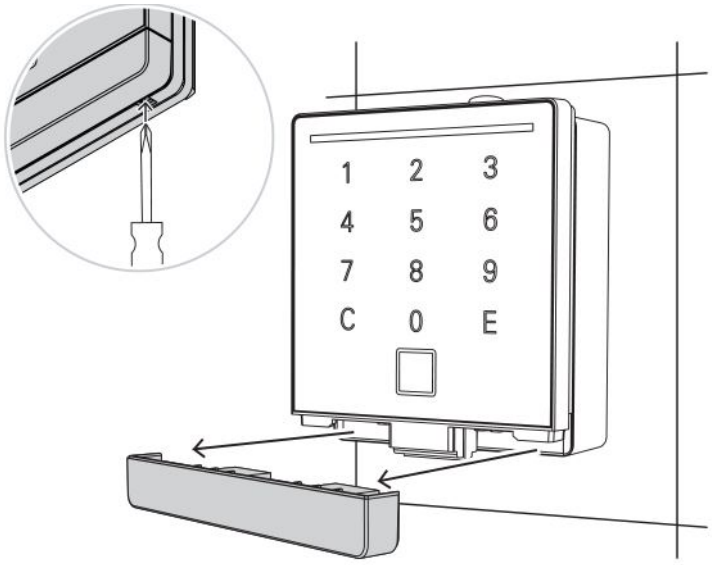
1. Insert the wired connection terminal on the reader module.
2. Place the reader module flat on the wall bracket. Push the connection cable with the reader module back into the flush-mounted box.
3. Push the attached reader module down until the reader module clicks into place on the wall bracket.
4. After it has successfully clicked into place, slide the locking bar into the reader module until it also clicks into place.
   – **NOTE**: A clear click can be heard each time it clicks into place.

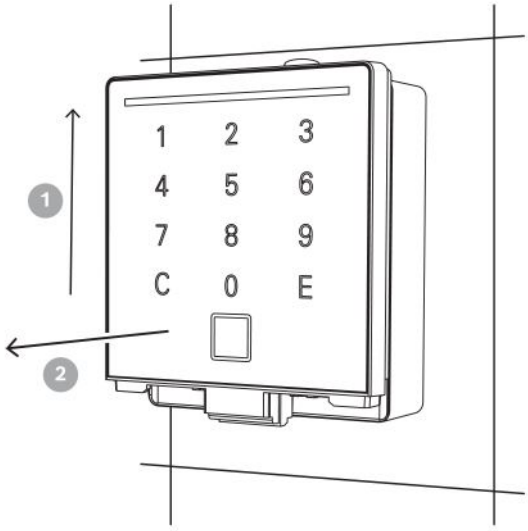




3.7 Unmounting the reader module

1. Unlock the locking bar. To do this, use the screwdriver with the blade max. 4 mm wide into the unlocking openings and press until the lock releases.
2. Pull out the unlocked locking bar and remove it from the reader module.
3. Push the reader module upwards to release it and lift it off forwards.





Notice!
Any changes that are done to the DIP-switches while the power is on are not considered.

3.8 Resetting OSDP-key

Upon delivery from the factory, each reader has the ‘OSDP installation mode’ set to active.
When operating a reader with an AMC using OSDP secure channel, a dedicated generated encryption key secures operation and prevents the use of the reader in a different site.
Should it be necessary to change the connection to another access modular controller, then the OSDP-key must be reset.

It is necessary to reset the OSDP-key:

– if readers and/or access modular controllers need to be changed.
– if the reader must be disposed.
1. Disconnect the reader from the socket.
2. Set all DIP-switches to OFF.
3. Connect the reader to the cable for power-up.
– The reader emits a “beep” sound.
– A green LED starts flashing.
4. Disconnect the reader again.
– The reader is now back in ‘OSDP installation mode’.
– The reader can now be used as a new reader.

Notice!
After the reset, the Mobile Access configuration of the Bluetooth® Low Energy module is also deleted. The configuration may have to be repeated in the Setup Access app.

Care instructions

1. Do not operate the reader with sharp objects (rings, fingernails, keys … etc.)
2. For cleaning, do not use any corrosive or plastic-corrosive liquids such as gasoline, turpentine, nitrous solution, etc. Harsh detergents can damage or discolor the surface.
3. Do not use cleaning agents with mechanical effects such as scouring milk, scouring sponge, etc.
4. Only clean the reader with a soft, damp cloth and only use clear water.

Technical specifications

Connectivity

Reader interfaces	RS485

Electrical

Operating voltage (VDC)	8 - 30 VDC
Power consumption VAC (VA) (typical - maximum)	3.50 VA

Environmental

Operating temperature (°F)	-13 - 140 °F
Operating temperature (°C)	-25 - 60 °C
Usage	Indoor; Outdoor
IP rating	IP54

Mechanical

Dimension (H x W x D) (cm)	88 x 101 x 35 cm

Dimension (H x W x D) (in)	3.5 x 4 x 1.4 in
Material	Plastic
Mounting type	Surface-mounted; Flush-mounted
Weight (g)	147.6 g
Weight (lb)	0.33 lb

	ARD-SELECT-BOM, ARD-SELECT-BOKM
Color	Black

	ARD-SELECT-WOM, ARD-SELECT-WOKM
Color	White

Network

Wireless technology standard	Bluetooth® Low Energy

Operation

Audible indication	Yes
Credential type	Cards/keyfobs/tokens; PIN; Mobile credential
Optical indication	LED
Reading format	MIFARE Classic*; MIFARE DESFire EV1; MIFARE DESFire EV2; ISO14443A CSN 32 bit*; LEGIC prime*; LEGIC advant; ISO1593 CSN*

Read range (cm)	– LEGIC prime: card 65 mm maximum, key fob 40 mm maximum – LEGIC advant: card 25 mm maximum, key fob 20 mm maximum – MIFARE Classic: card 40 mm maximum, key fob 30 mm maximum – MIFARE DESFire EV1: card 10 mm maximum, key fob 10 mm maximum
Software compatibility	Building Integration System; Access Management System
Wireless transmission frequency	13.56 MHz

	ARD-SELECT-BOKM, ARD-SELECT-WOKM
Keypad	Yes

	ARD-SELECT-BOM, ARD-SELECT-WOM
Keypad	No

System integration

Protocols / standards	OSDP

* It is not set by default. Requires specific configuration with OSDP protocol. Ask for more information in advance.

More information

Visit the Bosch online product catalog for the latest technical documentation for this product.

Manufacturing dates
For product manufacturing dates, go to **www.boschsecurity.com/datecodes/** and refer to the serial number on the product label.

Support

Access our **support services** at **www.boschsecurity.com/xc/en/support/**.
Bosch Security and Safety Systems offers support in these areas:

– **Apps & Tools**
– **Building Information Modeling**
– **Commissioning**
– **Warranty**
– **Troubleshooting**
– **Repair & Exchange**
– **Product Security**

Bosch Building Technologies Academy

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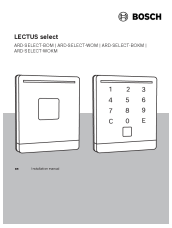	BOSCH LECTUS Select ARD-SELECT-BOM Reader Security System [pdf] Instruction Manual ARD SELECT BOM, ARD SELECT WOM, ARD SELECT BOKM, ARD SELECT WOKM, LECTUS Select ARD SELECT BOM, LECTUS Select ARD SELECT BOM Reader Security System, Reader Security System, Security System

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