

6LE007246A



REN233X, REU233X
Fingerprint reader module with control device built-in/RMD

Safety instructions

Electrical equipment may only be installed and assembled by qualified electricians.

Failure to comply with these instructions may result in damage to the device, fire or other hazards.

When installing and routing cables, always comply with the applicable regulations and standards for SELV electrical circuits.

These instructions are an integral component of the product and must be retained by the end user.

Design and layout of the device

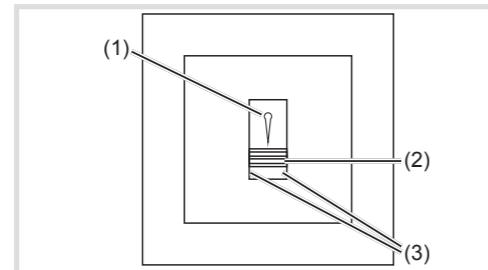


Figure 1: Design and layout of the device
(1) Scanning point status LED, multicoloured
(2) Fingerprint sensor
(3) Function LEDs

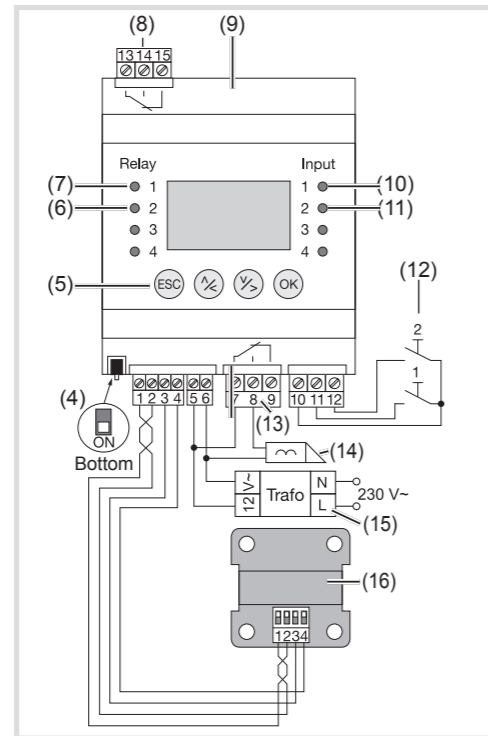


Figure 2: Connection diagram
(4) Switch on cable termination! (Factory setting)
(5) Operation buttons

	Transfer a value, jump to the next menu level.
	Navigation in the menu down/right, setting values
	Navigation in the menu up/left, setting values
	Abandon a menu entry, cancel entries.

- (6) Status LED green relay 2 lights up when relay is closed
- (7) Status LED green relay 1 lights up when relay is closed
- (8) Connecting terminals relay 2
- (9) Control device
- (10) Status LED input 1 red lights up upon signal to input

- (11) Status LED input 2 red lights up upon signal to input
- (12) Optional Exit button of the inputs
- (13) Connecting terminals relay 1
- (14) Door release
- (15) E.g. safety transformer 12 V~
- (16) Fingerprint reader

The fingerprint reader module is comprised of one fingerprint reader (Figure 1) and the rail-mounted control unit (Figure 2). The device records the minutiae (finger lines) of the third phalanx and evaluates them. An assigned function is executed via the integrated switching contact (relay 1/2) if the fingerprint matches a saved reference fingerprint.

The device can be configured via the control unit, using the menu. Up to 99 fingers/users can be saved. The switching duration of the relay can be set.

Connection/mounting

The wiring between the fingerprint reader (16) and control unit (9) is routed via terminals 1–4.

- For the data connection (terminals 1 + 2), a wrapped wire pair (twisted pair) must be used
- The length of the power supply cable (terminals 3 + 4) is max. 50 m with a wire diameter of 0.8 mm. For larger distances or smaller wire diameters, the power supply wires 3+4 can be doubled.

- Only one fingerprint reader can be operated for each control unit.
- Data connection terminals 1+2 cannot be doubled.
- To protect against manipulation, the control unit must be installed in a secure indoor area.

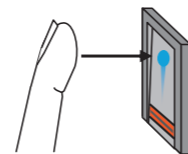
Power supply

For power supply, connect 8–24 V AC/DC to terminals 5+6 of the control unit.

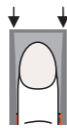
- We recommend our 12 V AC safety transformer for power supply ST320.

Finger guide

- Place the middle of the third phalanx on the scanning point of the finger guide.



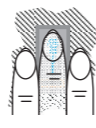
- Do not twist/tilt your finger; apply it straight and in the centre of the edges of the finger guide.



- Apply it as "flat" as possible. There should only be a small slot between the sensor and the finger.



- When applying your finger, the remaining fingers should be stretched out. This makes operation easier and smoother.



- Move your finger smoothly over the sensor over a period of 1 ... 1.5 seconds in a downwards direction.



- If you lift your finger too quickly, the scanning point status LED will light up "red":



- Index, middle and ring fingers work best. The thumb and little finger provide finger images that are more difficult to evaluate.
- For fingers that are often damp, save these in a damp condition.
- Children's fingers only work from approx. 5 years.

Device settings

- The control unit (9) is optimised in terms of consumption. The LCD display switches off after approx. 2 minutes without actuation. Actuating the screen turns the display on again.

The Language language can be set once during commissioning (exception Reset).

Set Language

- Select the Language using **A** or **V**, confirm with **OK** and follow the instructions.

```

ZSEREG 2.02.96.18
Deutsch
English
Français
Italiano
Slovensčina
Češky
Time until reset: 45 s
Coupling
Press [OK]
Time until reset: 25 s
Coupling
Press [ESC]
Time until reset: 10 s
Swipe finger
or
Press [ESC] 1)
Coupling
OK
    
```

- 1) For the initial commissioning only the ESC button can be pressed, since no fingers have been saved yet.

- When exchanging the control unit (e.g. after a defect), all the fingers saved on the fingerprint reader are retained if a recognised finger is moved over the sensor. Press the **ESC** button to delete all fingers saved.

Enter device status/Security code

Two-digit Security code (Factory setting 99)

```

System ok 99
SE: 80181707190211
2.2.96.18
FS: 80187209190597
6.15.9.19
Security code: --
    
```

- (17) Number of free memory slots
- (18) Serial number/software version control unit
- (19) Serial number/software version fingerprint reader

- To enter the Security code, press the **OK** button.
- Select the two digits using **A** or **V** respectively and confirm this by pressing **OK**.

```

System ok 99
System ok 99
SE: 80181707190211
2.2.96.18
FS: 80187209190597
6.15.9.19
Security code: 9
Security code: 99
    
```

- If the Security code is entered incorrectly 3 times, the system is disabled for 30 minutes!

The main menu is displayed

```

Save user
Delete User
Fair mode
Settings
Reset
    
```

- If no buttons are pressed within 3 minutes, the control unit automatically returns to normal operation.

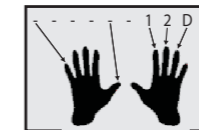
Save user (max. 99 fingers)

- For each user, we recommend saving a finger on both the left and right hand, ideally the index or middle finger.

- Select **Save user** from the main menu and confirm with **OK**

```

Save user
Delete User
Fair mode
Settings
Reset
    
```



Fingers that the user has already saved, as well as their relay assignments, are displayed.

- 1 = Relay 1 (in the example right index finger)
- 2 = Relay 2 (in the example right middle finger)
- D = Double relay/both relays (in the example right ring finger)

- Select entry/user name and confirm with **OK**.

```

Save user
MUST -----1--
O2N -----12D-
WILD -----12D-
OSN -----12D-
    
```

- If you need to change the user name, select the user name using **A** and confirm with **OK**.

```

MUST
Enabled
le little finger
le ring finger
le middle finger
le index finger
le thumb
    
```

- To change the user name, select the letter individually using **A** or **V** and confirm with **OK**. All four characters must be confirmed.

```

KOCH
Enabled
le little finger
le ring finger
le middle finger
le index finger
le thumb
    
```

or/subsequently

- If you need to change the user status, select **A** to go to user status. Using **OK**, set the user status to **Enabled** or **Disabled**.

or/subsequently

- First select the finger and then the relay and the confirm each with **OK**.

```

KOCH
Enabled
le thumb
ri middle finger
Relay 1
Relay 2
Double relay
    
```

The fingerprint reader is ready to save the finger.

- Move finger over the sensor

```

Swipe finger
Press [ESC]
    
```



Finger was not detected, the status LED flashes red briefly and then lights up orange again.

- Move your finger over the sensor again.

or

Finger was detected. The status LED blinks orange, then lights up green briefly and then orange again during first and second finger detection. After third finger detection, the status LED lights up blue after the short green illumination and the finger is saved.

The relay assignment is displayed. Additional fingers can now be recorded.

```

Save user
KOCH -----1--
O2N -----12D-
WILD -----12D-
OSN -----12D-
    
```

- Press the **ESC** button to return to the main menu.

Delete User

- You can only delete users, not individual fingers.

- Select **Delete User** from the main menu and confirm with **OK**

- Select user and confirm with **OK**.

```

Save user
Delete User
Fair mode
Settings
Reset
    
```

```

Delete User
KOCH -----1--
O2N -----12D-
WILD -----12D-
OSN -----12D-
    
```

- Press **Delete all** and then **Delete? [OK]** again, confirm with **OK**.

```

Delete User
Delete all
    
```

```

KOCH
Delete? [OK]
    
```

All fingers belonging to the user were deleted and the user name was reset.

```

Delete User
O2N -----12D-
WILD -----12D-
OSN -----12D-
    
```

Submenu Settings

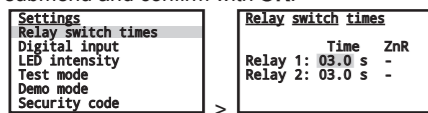
- Select **Settings** from the main menu and confirm with **OK**

```

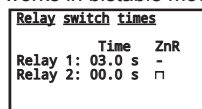
Save user
Delete User
Fair mode
Settings
Reset
    
```

Modify relay switching time

- Select **Relay switch times** from the Settings submenu and confirm with **OK**.



The **Relay switch times** can be set from 0.5–99 seconds. If 0 sec. are set, the relay works in bistable mode (on/off).



In bistable mode, the status after a reset Reset ((ZnR) can be determined:

- „–“ Relay switched off after reset Reset
- „–“ Relay same as it was previously after reset Reset

Digital input

The function selection of digital input 1 is made using **Settings > Digital input**:

Exit button, the respective relay switches according to the set relay switching time or as long as the respective digital input is activated. (e.g. with a Exit button, or permanently with a switch).

Feedback, the function LEDs (3) on the fingerprint reader display the status of digital input 1 for 30 seconds, when an authorised finger is moved over the sensor. When digital input 1 is active, the function LEDs light up red. When digital input 1 is inactive, the function LEDs light up green. If the status of digital input 1 changes within these 30 seconds, the change is signalled in the same way. This means you can see whether the alarm system is still armed, for example.

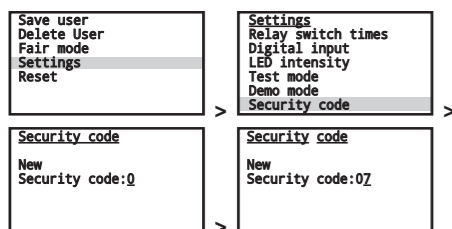
The relay is switched independently of the feedback with the set time setting.

Blocking R1, relay 1 can no longer be switched when input 1 is activated (e.g. entry block when alarm system is activated). The function LEDs on the fingerprint reader display the status of digital input 1 for 30 seconds, when an authorised finger is moved over the sensor. When input 1 is active, the function LEDs light up red. When digital input 1 is inactive, the function LEDs light up green. If the status of input 1 changes within these 30 seconds, the change is signalled in the same way. However, the relay does not switch automatically when changing from active to inactive input 1, but only when scanning the next finger.

Input 2 only works in function Exit button.

Modify Security code

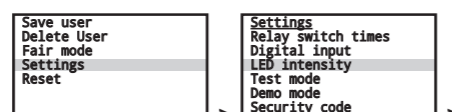
- Select **Security code** from the Settings submenu and confirm with **OK**.



- Select numbers individually and confirm with **OK**.

Setting the scanning point status LED intensity

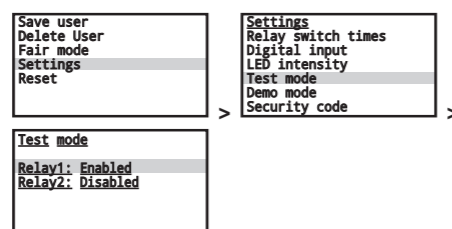
- Select fingerprint scanner status **LED intensity** from the Settings submenu and confirm with **OK**.



- Select **LED intensity** and confirm with **OK**.

Test mode Test relay

- Select **Test mode** from the Settings submenu and confirm with **OK**.

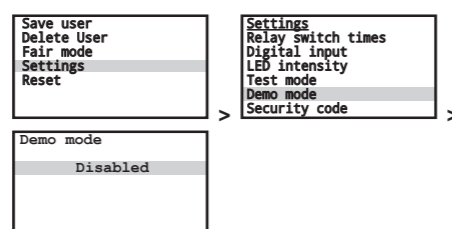


- Select relay and switch ON/OFF with **OK**.

- The **Test mode** is also terminated by disconnecting the power supply.

Demo mode LED/relay presentation

- Select **Demo mode** from the Settings submenu and confirm with **OK**.



- Select **Demo mode LED on, Relay or Disabled** using **OK**.

LED on LEDs are switched for demonstration purposes

or
Relay and LEDs are switched ON/OFF for demonstration purposes.

or
Disabled The system is not active; the **Demo mode** can be exited using **ESC**.

- The **Demo mode** is also terminated by disconnecting the power supply.

KNX settings

10 KNX events can be configured in conjunction with the ekey home converter KNX RS-485.

- See operating instructions for ekey home converter KNX RS-485.

Use Fair mode

The **Fair mode** enables easy storage of users for a short time for demonstration purposes.

- Select **Fair mode** from the main menu and confirm with **OK**.



- Select operating mode **Disabled, 10 min or Once** using **OK**.

Disabled: The system is not active; the **Fair mode** can be exited using **ESC**. The status LED lights up blue,

or
10 min: Saved fingers remain in the system for 10 minutes and can be used. The status LED flashes blue.

or
Once: The finger remains in the system for 10 minutes and can be used once. The status LED flashes blue.

- The exhibition mode **10 min** or **Once** is activated by briefly tapping the fingerprint sensor (2).

The scanning point status LED lights up orange; the system is ready to save the user.

- Move your finger over the sensor.

Finger was not detected, the status LED lights up red briefly and then orange again.

or
Finger was detected, the status LED lights up green briefly and then flashes blue. If it is detected again, relay 1 on the control unit is briefly switched on.

- In the **Fair mode 10 min**, additional users/fingers can be saved by briefly tapping the sensor again.

- After a power failure, the system automatically returns to **Fair mode**.

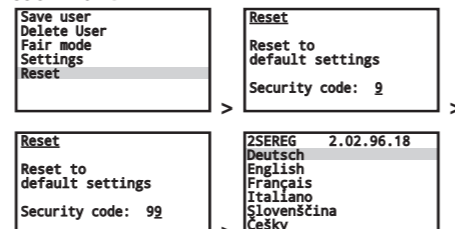
- In **Fair mode** only relay 1 switches.

Reset Reset to factory setting

- Caution** All recorded fingers will be deleted!

- Select **Reset** from the main menu and confirm with **OK**

- Enter the first digit in the Security code followed by the second digit, using **A** or **A**, and confirm each with **OK**.



The system is reset to the factory setting and is ready to select the language.

Displays/error messages

Scanning point status LED

	Status LED lights up red.	Finger was not detected. Move your finger over the sensor again.
	All LEDs light up for 1 minute.	System lock An unknown finger was moved across the sensor > 10 times. The device returns to normal operation after one minute
	Status LED lights up red immediately.	No fingers have been saved. Save at least on finger.
	Status LED flashes orange slowly	No bus connection to the control unit. Check connection cable or start up devices.
	Status LED flashes green.	The fingerprint sensor is dirty or faulty. Clean sensor.
	Lit BLUE	The system is operational – all components are communicating correctly.

Display notes

	SE: 80181707190211 2.2.96.18 FS: - No FS/XP found	No data connection to fingerprint reader. Check cable and power supply
	All storage spaces full	99 fingers are stored; the memory is full. Delete fingers.
	System ok SE: 80181707190211 2.2.96.18 FS: 80187209190597 6.15.9.19 Locked for 30 min	Security code was entered incorrectly 3 times. System is locked for 30 minutes. Enter the correct code. The system lock only functions with continuous power supply and data connection.
	Update required	Update required. The control unit requires a firmware update.
	Store error	70 seconds for saving the finger have been exceeded. Save finger again.

Technical data

Supply voltage	8-24 V AC/DC
Power consumption without heating	< 1 W
Power consumption with heating	< 4 W
Potential-free switching contacts	max. 42 V~/=, 2 A
Operating temperature control unit	-20 ... 70°C
Operating temperature fingerprint reader	-25 ... 70°C
Biometric specifications	FAR = 1:10.000.000 FRR 1:100
Dimensions of control unit	H 105 x B 70 x T 54 mm
Space required in distributor:	4 modules
Dimensions fingerprint reader	H 120 x B 120 x T 50 mm
Degree of protection of fingerprint readers	IP44