

REX O-1-C and REX O-3-C – STANDALONE OR ACCESS CONTROLLER

The Rex is a controller with built-in proximity card reader and capacitive keypad. It is designed for residential and business buildings, offices, shops, etc. In various operation modes, the controller allows access for up to 1000 users (2 master cards + 1000 user cards). The controller can have 125kHz or 13.56MHz reading frequency.

As a standalone controller, the entire set-up procedure is carried out with master card. User cards can either be registered or deleted.

As an access controller, the entire set-up procedure is carried out with the software.

The controller signals normal operation with flashing red and green LED. It can also be used as a Wiegand 26-bit reader, if needed.

TECHNICAL DATA

REX O	
REX O-1-C reading frequency	125kHz
REX O-1-C reading distance	Up to 13cm
REX O-1-C current consumption	100mA
REX O-3-C reading frequency	13.56MHz
REX O-3-C reading distance	Up to 7cm
REX O-3-C current consumption	130mA
Dimensions (mm)	73x90x22 (WxHxD)
Protection	IP64
Communication	RS485 or Ethernet
Operating voltage	From 9V to 14V DC
Operating temperature	From -20°C to 70°C
Connection	Cable connector
Memory	1000 cards or codes 10000 events
Inputs	Door status Push button
Outputs	Transistor output for el. strike 0.5A
Clock	Real time clock, battery backup (max. ten hours)
Tamper	Accelerometer

CONNECTOR DESCRIPTION

Contact	Description	Specification
1 - UIN	9-14V DC	Power supply
2 - GND	GND	Ground
3 - CA	CA - RS485	Communication line
4 - CB	CB - RS485	Communication line
5 - O0	El. strike output	Max. 0,5A When active = GND
6 - O1	Alarm output	Activation with accelerometer When active = GND
7 - I0	Door status switch input	Active when connected to GND
8 - I1	Push button input	Active when connected to GND

ETHERNET

Contact	Description	Specification	RJ45 connector
9 - TXP	Ethernet	TXP	1 - white/orange
10 - TXN	Ethernet	TXN	2 - orange
11 - RXP	Ethernet	RXP	3 - white/green
12 - RXN	Ethernet	RXN	6 - green

Power supply

The controller needs external power supply to operate. The Spider W40 power supply is sufficient to power two controllers and two 12V electric strikes or two 12V magnetic locks (0.5A). If you will use it as a standalone controller and low consumption electric strike (0.25A) you can use power supply Spider W5.

Voltage drops and cable signal interferences

When you connect the controller, use cable with a diameter of at least 0.22mm². If the cable length exceeds 25m, use one twisted pair of UTP cables for the positive (+) pole and one for the negative (-) pole. The cable length between power supply and the controller should not exceed 50m. Take into consideration that a 0.22mm² cable has a resistance of approximately 9 ohm per 100m. The power supply at the end of cable should be a minimum of 9V. If you are using el. strike, it is highly recommended that the voltage drop is calculated. At greater distances, a thicker cable of 0.5mm² or more should be used wherever possible.

If the load is, for example, 0.5A (with el. strike) then, on the 0.22mm² cable voltage drop will be 4.5V at 100m. For the device with 60mA consumption, the voltage drop is 0.5V.

Reading distance depends on where the controller is installed. The presence of metal or interferences can significantly reduce the reading distance. **DO NOT** install the controller directly on metal surfaces and/or cover it with a metal cover.

It is **not recommended** to install controllers closer than **30cm** from each other in any direction. Otherwise, it may result in inaccurate readings or, indeed, in the controller **not reading at all**.

For the Rex O-3-C to comply with EMC directives (CE), you have to put ferrite core on the cable as close to the controller as possible, making two turns!

Inputs, outputs and environment

Inputs:

Inputs are realized with opto-isolators. The input is active, when pulled to ground with an open collector transistor or mechanical switch, which is connecting the input pin of the controller to the Ground.

Outputs:

Output has a pre-installed protection diode for an inductive load. It is also protected from current overload. The best way is to use a 0.25A el. strike or a 0.5A el. magnet, which has to be connected to the same positive pole (+) as the controller. Connect the negative pole (-) to the door strike output (wire 3). When the output is active it is pulled to ground. This can be changed with function 5 - negate output (for el. magnet).

Environment:

If the plastic housing is in a different color than black, then there is a chance that the color will change (to some extent) in a few months or years if exposed to direct sunlight. The controller has IP65 protection, but you must assure good cable joints, protected against moisture, otherwise corrosion may damage the controller. Damage in such cases is not covered by the warranty.

Reading range:

The controller has a program algorithm that, at power start, sets parameters based on the installation environment, so as to ensure an optimal reading range. **DO NOT** install the controller directly on metal surfaces and/or cover it with a metal cover; it may stop working/reading. If you plan to test the controller and move it onto different surfaces, then you have to reset it (power off/on) on each surface.

Installation:

Install the holder on the wall with two supplied screws. Use diagonal holes - it enables a small correction of the position of the controller (up, down, left, right). Connect wires to the controller and place it on the holder and press - after you hear the click, it is fixed. If you want to remove the controller from the holder, put the screwdriver into the side hole in push a little to move the pin holding the controller.



AS A STANDALONE CONTROLLER

The entire set-up procedure is carried out with the master card. You can register two master cards.

The master cards cannot be replaced or duplicated. After registration the master cards should always be kept in a secure place. You cannot change any setting without them and neither can we. Keep that in mind when storing the master cards.

Programming with the master card

First connection to the power supply and registration of the master cards:

Turn the power supply on (2 beeps indicate power on). One by one approach two cards you will use as a master cards (3 beeps indicate a successful registration). The first two cards registered become **master cards**. All the other cards will be registered as **users (user cards)**. You can register only one master card if you approach the same card twice.

Usage of master card:

If you hold the master card in front of the controller, every 2 seconds a double beep is heard. The number of double beeps indicates the programming function.

PROGRAMMING FUNCTIONS WITH MASTER CARD

Function	Description
1	Register or delete user cards
2	Pulse time/ Duration of active output or toggle mode
3	Door status switch input/ Time till pre-alarm
4	Duration of pre-alarm
5	Negate / Switch output state
6	Delete a lost card
7	Delete a lost card
9	Switch to Wiegand 26-bit, table reader or access controller
13	Delete all
15	Sound (off/on), alarm output (off/on), door status switch input NC or NO, set time in minutes or seconds
16	Reset

Description of programming functions

Function 1) User cards

Register or delete user cards. With a registered card, output (O0, wire 3) for an el. strike is triggered for the time set in the function 2. In the controller, registered cards are arranged in order of their registration. Every registered card is saved to its own position.

Register user card with master card:

Approach the master card and remove it after 1 double beep. Within a period of three seconds approach a user card. You can register more cards at once, if you approach them one by one. The user card is now registered and with it, you can open output on the controller. If the card has already been registered, it is now deleted and its position is now empty. Next registered card will take the first available position on the list or position of the deleted card. When you have register/deleted all of the cards, wait until the controller confirms it with double beep. To delete a lost user card, you must maintain a list of registered cards, arranged in order of registrations (positions).

Function 2) Pulse time/ Duration of active output or toggle mode

Set the duration of active output/ the time in which you can open the door or set output to toggle mode. The time can be set in seconds or minutes. Switching time from seconds to minutes and back, can be adjusted by using the function 15. Toggle mode means, if a user card is registered, output will remain opened (if it was closed) or closed (if it was open) till next registration.

Set the duration of active output with master card:

Approach the master card and remove it after 2 double beeps. The controller will start to beep every second. Each beep indicates 1 second or 1 minute of active output. Duration of active output can be max. 120 seconds or 60 minutes. When you hear the required number of beeps, approach a user card for confirmation.

Set toggle mode with master card:

Approach the master card and remove it after 2 double beeps. Approach a user card before the first beep. Toggle mode is selected.

Function 3) Door status switch input

Set the time till pre-alarm / time in which the door can stay open, without triggering the pre-alarm and consequently the alarm. This function is used when the door status switch on el. strike is connected to Input0/I0/wire 5 on the controller. The input is normally opened (NO) by default. It can be changed to normally closed (NC) by using the function 15. The time can be set in seconds or minutes. Switching time from seconds to minutes and back, can be adjusted by using the function 15.

Set the time till pre-alarm with master card:

Approach the master card and remove it after 3 double beeps. The controller will start to beep every second. Each beep indicates 1 second or 1 minute till pre-alarm. Duration of the time till pre-alarm can be max. 120 seconds or 60 minutes. When you hear the required number of beeps, approach a user card for confirmation.

Function 4) Pre-alarm and alarm

Set the pre-alarm time. This is the time in which the controller, with short beeps, alerts you that the door was left open. If you don't close the door in the pre-alarm time, the alarm will be triggered and signaled with long beeps by the controller. The time can be set in seconds or minutes. Switching time from seconds to minutes and back, can be adjusted by using the function 15.

Set the pre-alarm time with master card:

Approach the master card and remove it after 4 double beeps. The controller will start to beep every second. Each beep indicates 1 second or 1 minute of the pre-alarm time. Duration of the pre-alarm time can be max. 120 seconds or 60 minutes. When you hear the required number of beeps, approach a user card for confirmation.

Function 5) Negate / Switch output state

This function is used, when you connect an electric strike or electric magnet which needs power supply to remain in locked state.

Switch output state with master card:

Approach the master card and remove it after 5 double beeps. Within a period of three seconds approach a user card. The output state will be switched from the current one.

Function 6) Delete a lost card

Delete the next card on the list. Use this function if you lost a card and you wish to delete it from the controller. In order to use this function you must maintain a list of registered cards, arranged by order of registrations so that you can find the card, which was registered before the lost one.

Delete a lost card with master card:

Approach the master card and remove it after 6 double beeps. Within a period of three seconds approach the user card, which was registered **before** the lost one. This will delete the lost user card. Next registered card will take the position of a deleted card.



Function 7) Delete a lost card

Delete the previous card on the list. Use this function if you lost a card and you wish to delete it from the controller. In order to use this function you must maintain a list of registered cards, arranged by order of registrations so that you can find the card, which was registered after the lost one.

Delete a lost card with master card:

Approach the master card and remove it after 7 double beeps. Within a period of three seconds approach the user card, which was registered **after** the lost one. This will delete the lost user card. Next registered card will take the position of a deleted card.

Function 9) Switch to Wiegand 26-bit, table reader, access controller or back to standalone controller

Switch the controller to a Wiegand 26-bit reader, a table reader or an access controller. Table reader sends a card number through RS485. To change the controller back to a standalone controller from an access controller, you need to make a "brainwash" with the JantarV7, Codeks or Codeks Device Manager software.

Switch with master card:

Approach the master card and remove it after 9 double beeps. The controller will start to beep every second. Each beep presents a different function, which is selected with a user card.

Standalone controller – Approach a user card before 1 beep.

Wiegand 26-bit reader – Approach a user card after 1 beep.

Access controller – Approach a user card after 4 beeps.

Table reader – Approach a user card after 8 beeps.

Function 13) Delete all

Reset/ delete all data to default.

Delete all with master card:

Approach the master card and remove it after 13 double beeps. The controller will start to beep every second. Approach a user card after three beeps.

Delete all with the Codeks Device Manager program:

Set the Rex to the default settings by using the Codeks Device Manager program. Connect the Rex via RS485 communication line to the Spider (communication converter, USB or NET). Connect the Spider to the computer. In Codeks Device Manager, find the device and perform the "Brain Wash" function which sets the device to its default settings.

Default settings

A three-second pulse, five-second open time, four-second pre-alarm time, door status switch input and push button input have NO contact; output is set for fail secure el. strike. The controller is in standalone mode.

Function 15) Sound, alarm output, door status switch input (NC or NO), set the time in minutes or seconds (function 2, 3, 4)

Turn on/off the sound (beep) which is heard, when a card is registered, as a pre-alarm and alarm.

Turn on/off the accelerometer, which triggers the alarm output (output1, O1, wire 4) when the controller is moved.

Set the Input0/I0/wire 5 to normally closed (NC) or normally opened (NO, default).

Set the time in functions 2, 3, 4 in minutes or seconds.

Set with master card:

Approach the master card and remove it after 15 double beeps. The controller will start to beep every second. Each beep presents a different function, which is selected with a user card.

Beep	Specification
No beep	Sound is OFF Tamper is OFF Door status switch input-normally opened (NO) Time is set in seconds
1. beep	Sound is ON Tamper is OFF Door status switch input-normally opened (NO) Time is set in seconds
2. beep	Sound is OFF Tamper is ON Door status switch input-normally opened (NO) Time is set in seconds
3. beep	Sound is ON Tamper is ON Door status switch input-normally opened (NO) Time is set in seconds
4. beep	Sound is OFF Tamper is OFF Door status switch input-normally closed (NC) Time is set in seconds
5. beep	Sound is ON Tamper is OFF Door status switch input-normally closed (NC) Time is set in seconds
6. beep	Sound is OFF Tamper is ON Door status switch input-normally closed (NC) Time is set in seconds
7. beep	Sound is ON Tamper is ON Door status switch input-normally closed (NC) Time is set in seconds
8. beep	Sound is OFF Tamper is OFF Door status switch input- normally opened (NO) Time is set in minutes
9. beep	Sound is ON Tamper is OFF Door status switch input- normally opened (NO) Time is set in minutes
10. beep	Sound is OFF Tamper is ON Door status switch input- normally opened (NO) Time is set in minutes
11. beep	Sound is ON Tamper is ON Door status switch input- normally opened (NO) Time is set in minutes
12. beep	Sound is OFF Tamper is OFF Door status switch input- normally closed (NC) Time is set in minutes
13. beep	Sound is ON Tamper is OFF Door status switch input- normally closed (NC) Time is set in minutes
14. beep	Sound is OFF Tamper is ON Door status switch input- normally closed (NC) Time is set in minutes
15. beep	Sound is ON Tamper is ON Door status switch input- normally closed (NC) Time is set in minutes

Function 16) Reset

"HARD" reset. Use it instead off manual reset (power off/on).

Reset with master card:

Approach the master card and remove it after 16 double beeps. The controller will start to beep every second. Approach a user card after three beeps.



AS AN ACCESS CONTROLLER

As an access controller, it is intended for controlling entries, exits and passes of users in the system and controlling sliding doors, ramp, el. strike, turning alarm on/off... It needs to be set with CODEKS software (min. v9.0.1.62).

The controller switches to access controller when tables are sent by the software. The default address of the controller is the same as the last digit of the IP address. E.g. if the IP address of the controller is 192.168.110.105, then the controller's address is 105.

If you have more controllers on the communication line, don't duplicate addresses.

Communication

Ethernet:

Connect the controller to the computer through your LAN via connector (positions 9, 10, 11, 12). Use at least UTP CAT 5e cable. Adjust network settings of the controller using the Codeks Device Manager software so that it will function properly in your network. Please consult Codeks Device Manager's manual.

RS485:

Connect the controller to the computer, with one of the power supplies, with communication converter, from the Spider family: Spider W5-USB, Spider W5-NET, Spider W40+NET, Spider W5-B, Spider W40B.

The RS485 communication bus is used between the controllers and Jantar software. Up to 128 controllers can be lined up into one communication line. The maximum length of the communication line is 1000 cable meters. It is recommended that you use an FTP or S-FTP cable. Only a serial connection of controllers in a single communication line is allowed. **Star (parallel) connection is not allowed.**

All shields of S-FTP cables must be wired together and at **one point** connected to the earth. Individual connections to the earth are not allowed. Do not connect the shield of the cable to the ground of the controller.

In the event of problems in communication, a termination resistor needs to be added. We recommend using 120 Ohm resistors on each side of the cable. Converters are, on the RS485 side, protected with slow-blow fuses and transient voltage suppressors.

Changing back to standalone controller from access controller:

In the Codeks Device Manager software do the "Brainwash" of the controller. Address of the controller's switches to 255.

ORDERING CODES

REX [box]-[card]-[software]

Box: **K**

Card: **1** – reading frequency 125kHz (cards)

3 – reading frequency 13.56MHz (cards)

Model: **C** – C line

Code	Description
REX K-1-C	Standalone or access controller in K box, Frequency 125kHz, capacitive keypad, for CODEKS software (min. v9.0.1.62)
REX K-3-C	Standalone or access controller in K box, Frequency 13.56MHz, capacitive keypad, for CODEKS software (min. v9.0.1.62)

OTHER

Warranty only applies when the controller Rex is used with power supply or/and communication converter from the Spider family.

Please read through our warranty and disclaimer statements.

Connection scheme and additional support for the use of this product can be found on:

<http://www.jantar.si/forum/en>

CONTACT:

Jantar d.o.o.
Kranjska cesta 24
4202 Naklo
SLOVENIA

web: www.jantar.si
 mail: sales@jantar.si

