

Relay Expansion Module

U-PROX RM

Installation and Operation Manual

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About This Document

This operating manual describes the procedure for installing, connecting, and operating the U-PROX RM relay expansion module for the elevator controller of the U-PROX IC E access control system. Before mounting the module, carefully read this manual.

The module's characteristics and parameters are described in the **Specifications** section. The **Terms** section explains the terminology used in this document.

The external appearance of the relay module, as well as a description of its contacts and operating modes, is provided in the **Description and Operation** section. The installation and configuration procedure is described in the **Operating Procedure with the Device** section.

Attention! Before installing and connecting the device, study this manual carefully. Installation and connection of the module are permitted only by persons or organizations authorized by the manufacturer.

Training and Technical Support

Training courses covering installation and use of access control equipment are conducted by Limited Liability Company Integrated Technical Vision. For more information, contact the company at the phone number and e-mail below.

Phone: +38 (091) 481-01-69

E-mail: support@u-prox.systems

Telegram: https://t.me/u_prox_support_bot

This support is aimed at trained specialists. End users of Limited Liability Company Integrated Technical Vision products should contact their dealers or installers before contacting the manufacturer directly.

Technical information is available on the website: www.u-prox.systems

Certification

Limited Liability Company Integrated Technical Vision certifies that U-PROX RM complies with the Electromagnetic Compatibility Directive 2014/30/EU and the RoHS Directive 2011/65/EU. The original Declaration of Conformity is available on the website under the Certificates section.

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Device Description

The U-PROX RM relay expansion modules are the executing devices in an elevator access control system based on the U-PROX IC E controller, which is designed to control access to

building floors. For identification purposes, U-PROX WRS485 modules with connected Wiegand readers or U-PROX SE series readers are used.

The U-PROX IC E controller processes information received from the readers and from the inputs of the U-PROX RM module, and it activates the permitted relays on the module to control the signaling lines on the elevator floor panel.

Purpose of the Device

The U-PROX RM module is intended to expand the number of relays and outputs available for access control system controllers, particularly for the elevator controller U-PROX IC E.

Specifications

Power Supply: External 12V source

Current Consumption: Not more than 400 mA from the 12V source

DC Ripple: Not more than 500 mV

RS-485 Port: For connection to U-PROX IC E

Inputs: 8 inputs for connecting cables with current monitoring (termination resistor – 2.2 kΩ)

Relays: 8 relays (NO, NC, COM contacts) rated at 5 A @ 30 V

Alarm Input: EMGR

Case Open Sensor Input: TMP

Terms

Identifiers: In access control systems, each user has an identifier with a unique code. Identifiers may be in the form of a plastic card, key fob, etc.

Reader: A device used to read identifier codes, connected to the ACS controller.

PIN Code: If readers have an integrated keypad, the PIN code entered on the keypad may serve as an identifier or as a supplement to a card or key fob. After a card is presented, the reader waits for the PIN code input.

Door: The access point where access is directly controlled (e.g., door, turnstile, access portal equipped with necessary control devices).

Access Point: See Door.

Passage Time Interval: When a door contact is broken, the access point enters “Alarm” mode; however, an alarm is not triggered if the contact is broken during the predetermined passage time interval. The interval starts when access is granted and ends when the door

contact is broken and then restored.

Attempt to Guess an Identifier: The controller features a function that triggers alarm mode if an unregistered identifier is presented repeatedly. A correct presentation resets the counter. This function can be enabled and the number of allowed attempts specified during programming.

Schedules: When configuring user access rights, time and date intervals during which access is permitted are specified. Depending on the module version, up to 250 time intervals and 250 weekly schedules can be stored. Additionally, up to 250 annual holiday dates may be configured.

Time Zones: A time zone is a component of a schedule that organizes time intervals and associates them with access rights. They are used for verifying access permissions and user authorization, as well as for other functions based on schedules.

Loading: After programming the controller parameters, the configuration must be loaded (transferred from the computer to the controller).

Description and Operation

Module Device

The external appearance of the U-PROX RM relay module is shown in Figure 1.

Figure 1. External Appearance of U-PROX RM

The layout of the module’s printed circuit board (including jumpers, buttons, and connectors) is shown in Figure 2.

Figure 2. PCB Layout of the Module

Function of the Module’s Contacts and Jumpers

Contact	Name	Function
Z1...Z8	Inputs	Zones 1–8 for cable connection and common ground
NC1	Relay 1	Normally closed contact
NO1	Relay 1	Normally open contact
C1	Relay 1	Common contact
A+	RS-485	RS-485 bus positive (A+)
B-	RS-485	RS-485 bus negative (B-)

GND	RS-485	RS-485 ground
E+	+12V	Power contact (+12V)
EMR	EMRG	Alarm input
TMP	Tamper	Case open sensor contact

LED Indication of the Module

The module’s relay indicator LEDs (R1...R8) reflect the activation or deactivation of the corresponding relays. An LED lights up when its associated relay is energized.

Module Operation

"Normal" Mode: The module is connected to the U-PROX IC E controller via the RS-485 bus. The U-PROX RM relays are connected to the elevator floor selection button circuits. In the de-energized state, the module allows the buttons to function normally. Feedback cables may be connected to inputs Z1–Z8 from the elevator automation to detect when a floor button is pressed. When such feedback is present, a message “Floor Access Granted” is generated after a button is pressed.

Remote Floor Access Provision

Remote control cables can be connected to inputs Z1–Z8 to provide remote access control (for example, from a security post). When a floor button is pressed at the security post, a message “Floor Opened by Button” is generated.

Emergency Unlocking of the Elevator Control Panel

The U-PROX RM relay module enters “Alarm – Emergency Unlock” mode if the connection with the U-PROX IC E controller is lost or if the EMRG input is triggered. Each module is equipped with an EMRG input; in normal operation, the cable connected to this input is short-circuited to ground. If the EMRG cable is broken or communication with the controller is lost, the elevator control module is de-energized and full access to the floor selection panel is restored, allowing a user to select any floor without presenting an identifier.

Figure 5. Connection Diagram

Operating Procedure with the Module

The relay module is provided as a printed circuit board.

Figure 3. Overall Dimensions

Connection Procedure:

- Run the RS-485 cable, the floor button control cables, and the remote control cables.
- Route the mounting cables.
- Set the module's address using the DIP switches.
- Mount and secure the module.
- Connect the module to the elevator controller via the ACS software (follow the ACS instructions) and load the full configuration.

After these steps, the module is ready for operation.

Installation Recommendations

The module should be installed in a location that is accessible for maintenance.

Figure 4. Mounting Hole Marking

To install the module on a wall (see Figure 4):

1. Open the housing cover, remove the board, align it to the desired mounting location, and mark the drill holes.
2. Run the cables through the holes in the housing wall.
3. Secure the module's housing to the wall.
4. Connect all necessary cables.

Connecting Expansion Modules via the RS-485 Bus

The RS-485 interface is used to connect expansion modules to the U-PROX IC E controller. The RS-485 bus can extend up to 1200 meters without additional equipment. When connecting devices on the RS-485 bus, enable termination on the first and last devices by setting the termination jumpers (see Figure 5).

When connecting expansion modules:

- U-PROX RM modules cannot be connected at the ends of the RS-485 bus because they lack termination jumpers.
- The IDs of the U-PROX RM modules must not be identical. Set a unique ID for each module using the DIP switches (from 0 to 7).

Figure 5. Connection of the Controller and Expansion Modules to the Data Bus

Service and Maintenance

Warranty and Post-Warranty Service

Warranty and post-warranty service for the U-PROX RM relay module is provided only by persons or organizations authorized by the manufacturer.

Warranty Obligations

The manufacturer guarantees that the U-PROX RM relay module conforms to the parameters described in this manual, provided that the storage and operating conditions specified herein are met.

Storage Warranty: 6 months from the date of manufacture.

Operational Warranty: 12 months from the date the device is put into operation.

Device supply, personnel training, installation, commissioning, and warranty service for the U-PROX RM module are provided by the manufacturer or by authorized organizations.

If a defect due to the manufacturer is detected, the authorized organization will remedy it within 10 days of notification.

If commissioning is performed by an organization not authorized by the manufacturer, the consumer forfeits warranty service.

Warranty repairs will not be performed if the device fails due to improper connection, failure to comply with this manual, mechanical damage, or force majeure.

The manufacturer reserves the right to make design changes that do not affect the main technical characteristics or reliability of the device.