Roger Access Control System

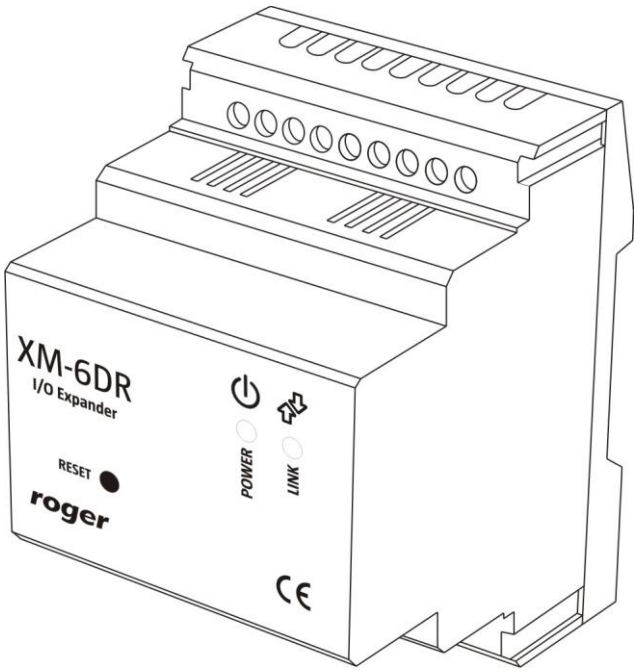
XM-6DR Output expander

Operating Manual

Firmware version: 1.0.0

Hardware version: 1.1

Document version: Rev. H



1. DESCRIPTION AND SPECIFICATION

The XM-6DR is output expander with 6 relay outputs with single NO contact each. The module is addressable and it is dedicated to HRC series controllers only.

Table 1. Specification	
Parameter	Description
Nominal supply voltage	12VDC (10-15VDC)
Current consumption	20mA plus 40mA per each activated relay
Relay contact	230VAC/2A (cos ϕ=1)
Distance	Between controller and XM-6DR module: max 150m
Environment	Indoor conditions, +5C..+40C, relative humidity: 10 to 75% (no condensation)
Dimensions (H x W x D)	62 x 85 x 73 mm
Weight	125 g
Compliance	CE, RoHS

2. INSTALLATION

2.1 Terminals and connection diagram

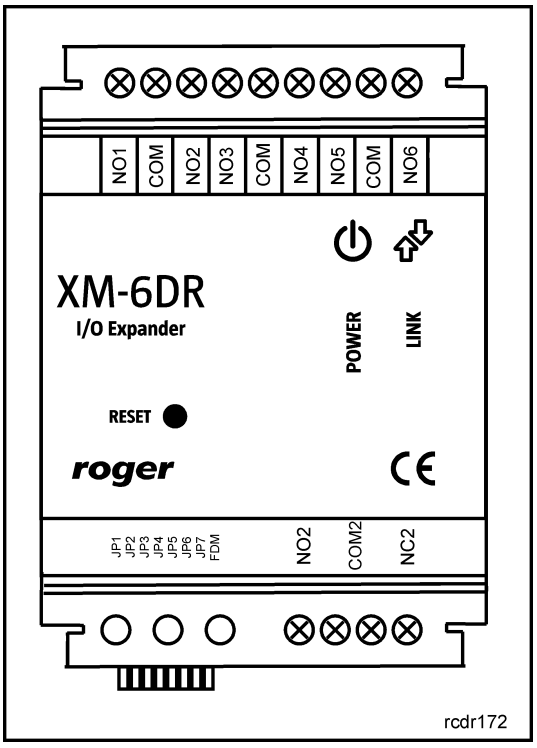


Fig. 1 XM-6DR I/O expander

Table 2. XM-6DR terminals	
Terminal	Function
+12V	Positive power supply
GND	Negative power supply (GND)
CLK	RACS CLK/DTA comm. bus (CLK terminal)
DTA	RACS CLK/DTA comm. bus (DTA terminal)
NO1	Relay output for REL 1 (NO)
COM12	Common terminal for REL 1 and REL 2
NO2	Relay output for REL 2 (NO)
NO3	Relay output for REL 3 (NO)
COM34	Common terminal for REL 3 and REL 4
NO4	Relay output for REL 4 (NO)
NO5	Relay output for REL 5 (NO)
COM56	Common terminal for REL 5 and REL 6
NO6	Relay output for REL 6 (NO)

In the fig. 2 there is shown connection diagram for XM-6DR and HRC402DR hotel controller. The communication is performed by means of RACS CLK/DTA interface.

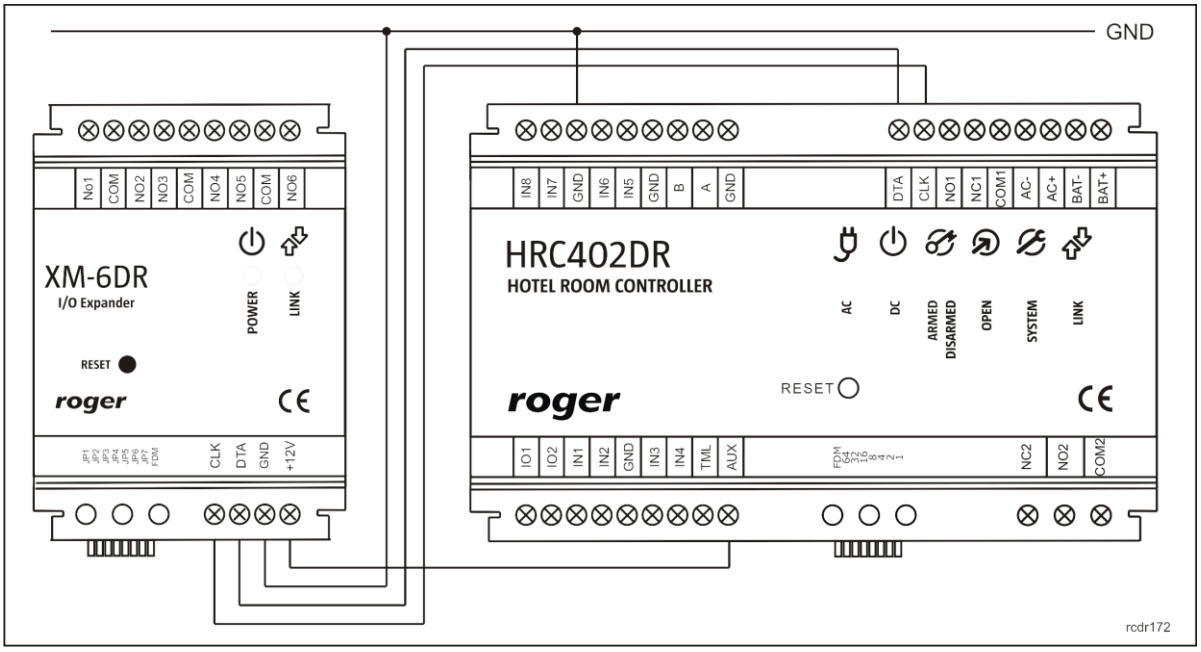


Fig. 2 Connection of XM-6DR expander with HRC402DR controller

2.2 LED indicators

XM-6DR is equipped with two LED indicators i.e. LED Link and LED Power. LED Link signals the communication between expander and master device (controller) while LED Power can signal 4 states according to table. 3.

Table 3. LED Power signalling	
State	Description
Steady light	Normal operation
Infrequently flashing light (2Hz)	No communication
Frequently flashing light (10Hz)	Too low supply voltage
Two short pulses every 2 seconds	Microcontroller memory failure. In such case it is necessary to upload firmware or repair the expander.

2.3 Power supply

The XM-6DR requires 12VDC nominal power supply. If the voltage is below ~10V then the module stops its operation, deactivates all relays and signals the error by means of LED Power indicator (blinks 10 times per second).

Note: For proper communication by means of RACS CLK/DTA bus it is required to connect all GND terminals of devices. Such requirement is satisfied if both devices are supplied from the same point. If devices are supplied from different power supply units then GND terminals of communicating devices must be connected by means of separate wire in order to equalize potentials. Any wire section can be applied.

2.4 Module mounting

Expander must be installed in a metal housings equipped with a power supply and connected to protective ground (PE). The place of installation should be distant from any source of heat and moisture. Also, it should be protected from access by third party persons. The connection of expander and the power source should be made using cables with a cross-section of at least 0.5 mm2 and max. 50 cm length. All cables connected to controller must be routed inside buildings. Any electrical connections must be made with the power off. All devices connected to same RS485 communication bus must have common ground (GND) potential. This condition can be assured either by connecting all minuses of power supply units with additional wire or grounding power supply minuses to earth potential. Once the installation and configuration process is accomplished door enclosure should be closed.

Warnings
The installation can be done by qualified person only who poses all necessary certificates concerning connection/maintenance of 230VAC and low voltage networks.
The network circuit supplying the device must be equipped with an installation switch. Before servicing the device, disconnect it from the 230VAC network.
System earthing must be performed carefully, properly and effectively. It is forbidden to use device without properly performed and fully operated protective earthing.
Follow the instructions included in the equipment to be installed in enclosure. Failure to do so may result in equipment damage, electric shock, fire, injury, or other consequences.

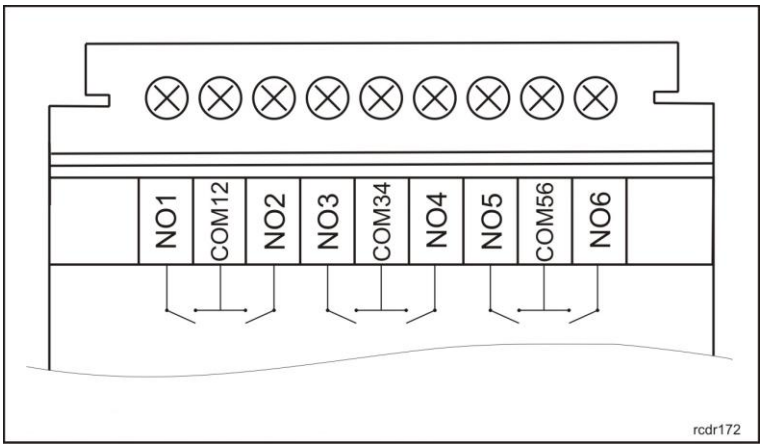


Fig. 3 XM-6DR relay terminals

3. CONFIGURATION

3.1 Expander configuration

The configuration of XM-6DR is performed by means of jumpers according to table 4.

Table 4. Configuration jumpers	
Jumper	Function
JP1	Address jumper „1”
JP2	Address jumper „2”
JP3	Address jumper „4”
JP4	Address jumper „8”
JP5	No function
JP6	No function
JP7	No function
FDM	Firmware download mode

Note: Every time a jumper is put or removed it is necessary to restart the module in order to make new settings effective. The restart can be done by means of RESET button or power supply switch off and on.

The address of XM-6DR can be programmed by means of jumpers based on their values e.g. jumpers on pins JP1 and JP3 signify the address ID=5 (1+4 = 5) while jumpers on all JP1…JP4 pins signify ID=15 (1+2+4+8 = 15).

3.3. Firmware update

Roger devices are always delivered with the latest version of firmware but it can be updated by customer. The latest version of firmware, which might offer new functionalities and/or eliminate errors is available at www.roger.pl. New firmware can be uploaded to XM-6DR by means of computer z with RogerISP software (ver. 5 or newer) and it requires communication interface device e.g. RUD-1 connected to USB port of the computer.

Firmware update procedure

- Place jumper on FDM pins
- Connect XM-6DR to RUD-1 in accordance with table 5
- Reset the device (use RESET button or switch power supply off/on)
- Start RogerISP software and select communication port
- In Firmware window select firmware *.hex file
- Click Program button
- After firmware upload, remove jumper from FDM pins and reset the device (use RESET button or switch power supply off/on)
- Disconnect XM-6DR from RUD-1

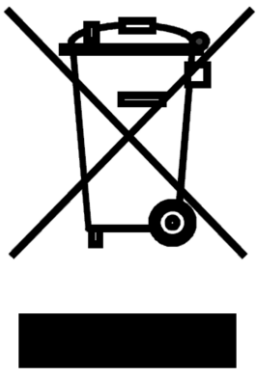
Table 5. Connection of XM-6DR and RUD-1	
XM-6DR terminal	RUD-1 terminal
+12V	1
GND	2
IO1	5
IO2	6

4. ORDERING INFORMATION

Product	Description
XM-6DR	Input/Output addressable expander module with enclosure for installation on DIN 35mm rail.

5. PRODUCT HISTORY

Version	Firmware	Date	Description
XM-6DR	1.0	08/2012	The first commercial version of the product



This symbol placed on a product or packaging indicates that the product should not be disposed of with other wastes as this may have a negative impact on the environment and health. The user is obliged to deliver equipment to the designated collection points of electric and electronic waste. For detailed information on recycling, contact your local authorities, waste disposal company or point of purchase. Separate collection and recycling of this type of waste contributes to the protection of the natural resources and is safe to health and the environment. Weight of the equipment is specified in the document.

Contact:
ROGER sp. z o. o. sp. k.
82-400 Sztum
Gościszewo 59
Tel.: +48 55 272 0132
Fax: +48 55 272 0133
Tech. support: +48 55 267 0126
E-mail: biuro@roger.pl
Web: www.roger.pl