

Roger Access Control System

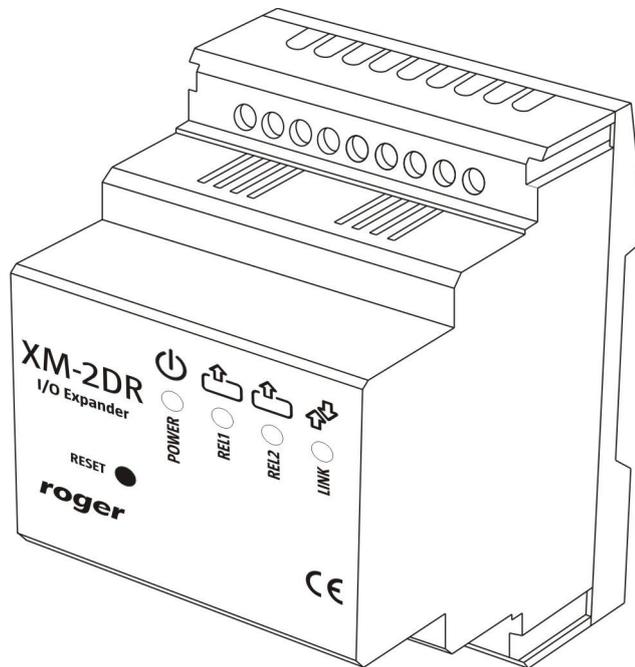
XM-2DR / XM-2DR-BRD I/O Extension Module

Operating Manual

Firmware version: 1.0.0

Hardware version: 1.0

Document version: Rev. E



1. DESCRIPTION AND SPECIFICATION

XM-2DR can be used as I/O extension module and it offers two NO/NC input lines as well as two relay outputs with isolated NO/NC contacts. The module is addressable and it can communicate only with devices, which can use RACS Clock&Data standard, namely RACS 4 controllers.

Optionally, XM-2DR can also operate as standalone device and then its relay outputs can be activated by means of high/low voltage at corresponding input lines. In standalone mode, the XM-2DR does not communicate by means of RACS Clock&Data.

Two versions are available i.e. XM-2DR is equipped with plastic enclosure and is dedicated to installation on DIN 35mm rail, while XM-2DR-BRD is electronic module without any enclosure but it is accompanied with adapter for installation on DIN 35mm rail.

Table 1. Specification	
Parameter	Description
Supply voltage	Nominal 12 VDC, min/max range 10-15VDC
Current consumption	25mA (both relays deactivated) 110mA (both relays activated)
Relay outputs	REL1: 30VDC/1.5A REL2: 30VDC/5A
Input lines	NO/NC inputs, electrically biased to +12V via 5.6 k Ω resistor, triggering level \sim 3V
Distance	Between controller and XM-2DR module: max 150m
Environmental class (according to EN 50131-1)	Class IV, -25C..+60C, relative humidity: 10 to 95% (no condensation), indoor conditions
Dimensions (H x W x D)	XM-2DR: 62 x 85 x 73mm; 3.5 units XM-2DR-BRD: 80 x 54mm
Weight	XM-2DR: 110g XM-2DR-BRD: 50g
Certificates	CE

2. INSTALLATION

2.1 Terminals and connection diagram

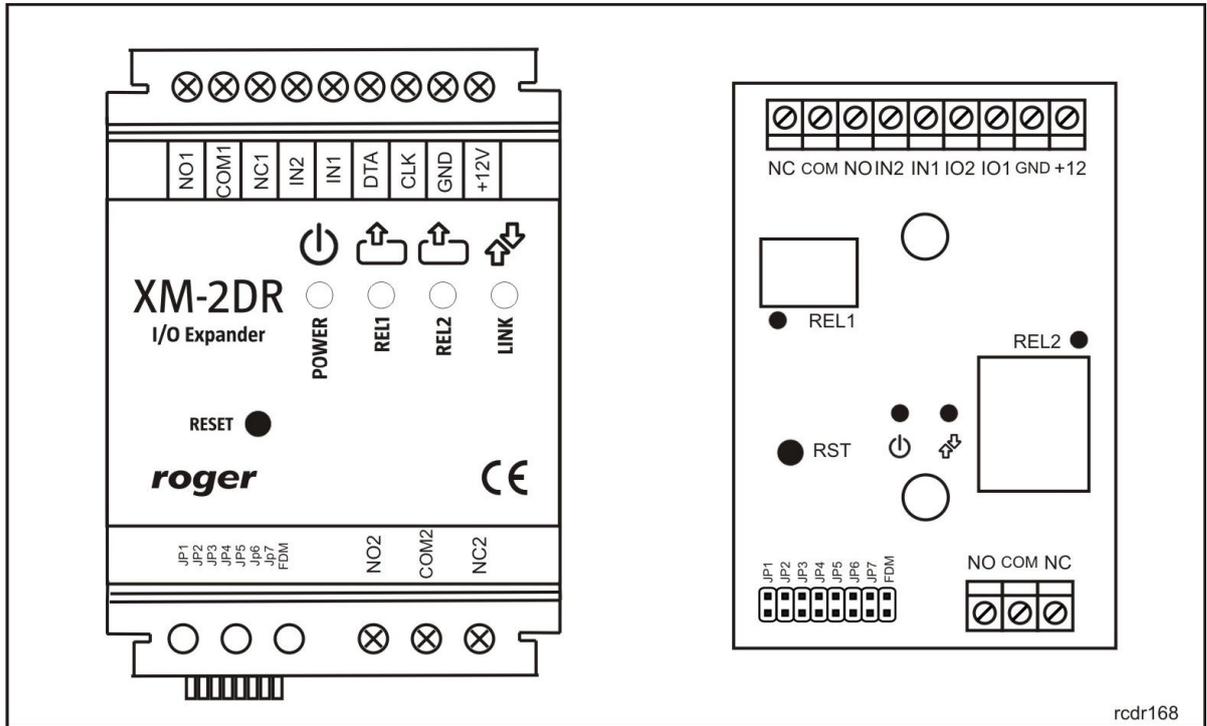


Fig. 1 Both versions of XM-2DR module

Table 2. XM-2DR terminals		
Terminal	Description	
+12V	Positive power supply contact, 12V DC	
GND	Ground	
IO1/CLK	RACS Clock & Data interface, line CLOCK	
IO2/DTA	RACS Clock & Data interface, line DATA	
IN1	IN1 input line	
IN2	IN2 input line	
REL1	NO	REL1 relay output, contact normally opened
	COM	REL1 relay output, common terminal
	NC	REL1 relay output, contact normally closed
REL2	NO	REL2 relay output, contact normally opened
	COM	REL2 relay output, common terminal
	NC	REL2 relay output, contact normally closed

In the fig. 2 there is shown connection diagram for XM-2DR and PR402DR access controller. The communication is performed by means of RACS Clock&Data bus.

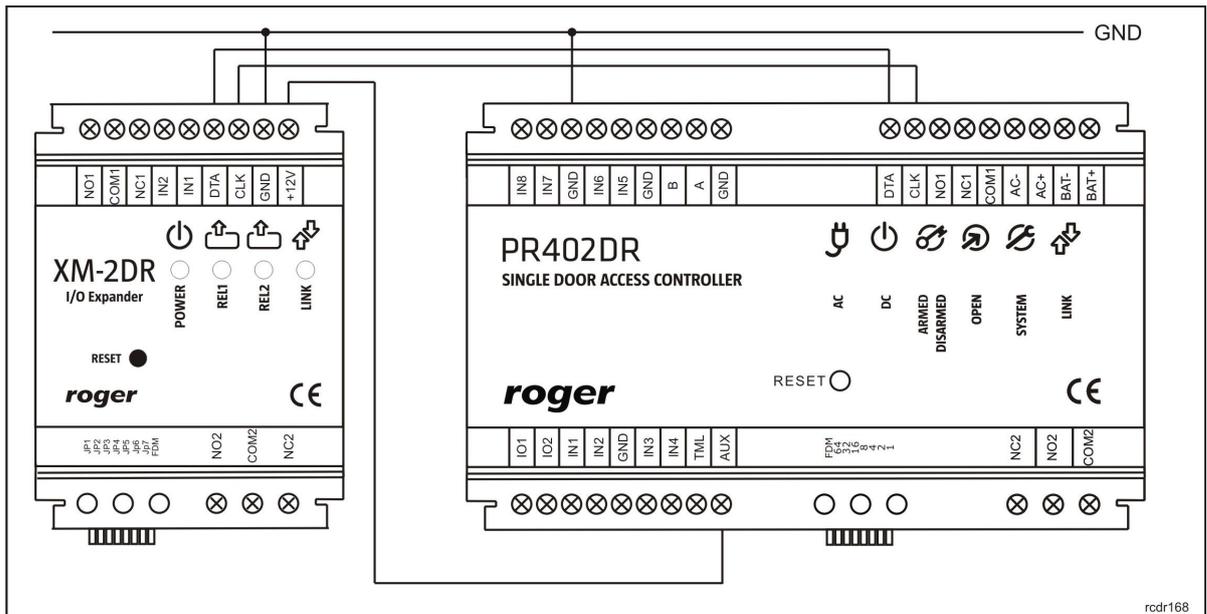


Fig. 2 Connection of XM-2DR expander with PR402DR controller

2.2. LED indicators

XM-2DR is equipped with four LED indicators. Two of them are used for signalling the state of relay outputs and they are switched on when respective relay is activated. LED Link is used for signalling the communication between XM-2DR and controller while LED Power can signal four different states according to table 3.

State	Description
Steady light	Normal operation
Infrequently flashing light (2 Hz)	No communication
Frequently flashing light (10Hz)	Two low supply voltage
Two short flashes per 2 seconds	Microcontroller memory failure. It is required to update the firmware or repair the module

2.3 Power supply

The XM-2DR requires nominal power supply of 12VDC. If the voltage is below ~10V then the module stops its operation, deactivates both relays and signals the error by means of LED Power indicator (blinks 10 times per second).

Note: For proper communication by means of RACS Clock& Data bus it is required to connect all GND terminals of devices. Such requirement is satisfied if both devices are supplied from the same point (as in fig. 2). If devices are supplied from different power supply units then GND terminals of communication devices must be connected by means of separate wire in order to equalize potentials. Any wire section can be applied.

2.4 Module mounting

Both versions of XM-2DR module are not adapted to outdoor operation and it is installer responsibility to apply proper method and location for module installation. Both versions are adapted to mounting on DIN 35mm rail, but XM-2DR-BRD module can also be installed on flat surface by means of included nylon studs. In case of such installation it is necessary to apply pad, which could isolate the module from base. Dimensions of isolation pads should be greater than

module contour (by at least 5mm at each side – see fig. 3). The installation of XM-2DR module must be executed in accordance with valid safety rules.

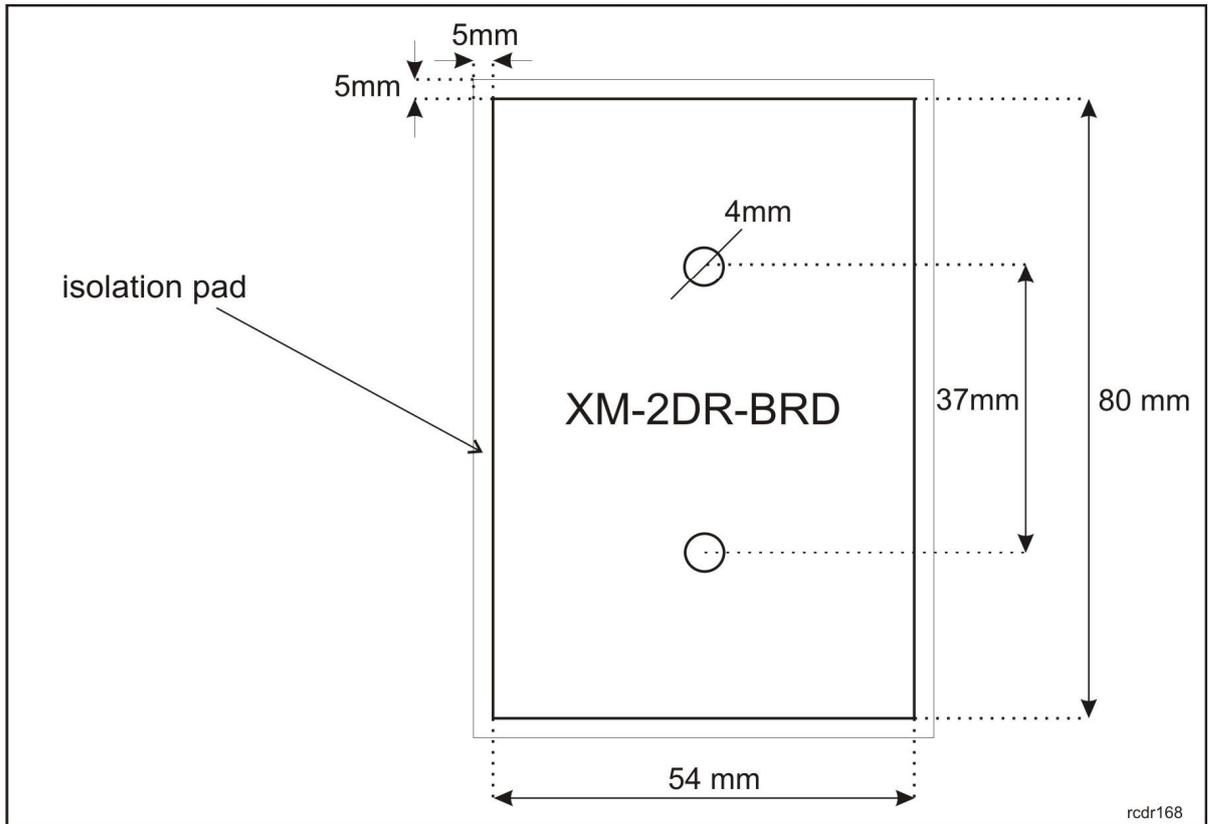


Fig. 3 The arrangement of XM-2DR-BRD mounting holes

3. CONFIGURATION

3.1 Module address

The configuration of XM-2DR expansion module is performed by means of jumpers in accordance with 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	Unused
JP6	Unused
JP7	Selection of operation mode: Standalone/Normal
FDM	Firmware upgrade

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-2DR 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).

JP7 pins can be used for selection of operation mode. If the jumper is on JP7 then XM-2DR operates in standalone mode and then its relay outputs can be activated by electric signal at corresponding inputs i.e. IN1 -> REL1 and IN2 -> REL2. If there is no jumper on JP7 pins then XM-2DR operates in normal mode and control of its outputs and inputs is performed by controller by means of RACS Clock & Data protocol.

Note: In case of network operating mode i.e. communication with PR series controller, it is necessary to set XM-2DR address ID=5.

3.2 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-2DR 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-2DR 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 from the list
- 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-2DR from RUD-1

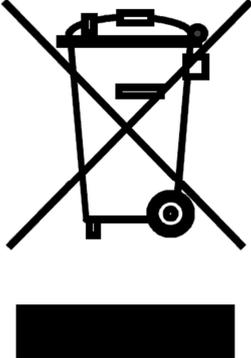
Table 5. Connection of XM-2DR and RUD-1	
XM-2DR terminal	RUD-1 terminal
+12V	1
GND	2
IO1/CLK	5
IO2/DTA	6

4. ORDERING INFORMATION

Product	Description
XM-2DR	Input/output addressable extension module with enclosure for installation on DIN 35mm rail
XM-2DR-BRD	Input/output addressable extension module as electronic module without enclosure

5. PRODUCT HISTORY

Product version	Released	Description
XM-2DR v1.0	06/2012	The first commercial version of the product

	<p>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.</p>
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