

Roger Access Control System

MCX402-2-KIT Installer manual

Product version: 1.0

Firmware version: n/a

Document version: Rev. B



This document contains minimum information that is necessary for initial setup, connection and installation of the kit. More information on MCX402DR expander, PS1A-LCK module and ME-14-40VA metal enclosure is given in the manuals of these devices which are available at www.roger.pl.

INTRODUCTION

MCX402DR-2-KIT is an access expander kit for two read-in doors in RACS 5 system with Wiegand or PRT (RACS CLK/DTA) readers depending on uploaded firmware. The kit includes metal enclosure with transformer, tamper contact, power supply module and I/O expander. Readers and one door lock are supplied from expander power outputs while the other door lock is supplied from module power output. The whole kit is supplied from included 230V/18V/60VA transformer. The expander is connected to access controller with RS485 bus.

Prior to connection of expander to controller it is necessary to assign unoccupied RS485 address to the expander. Other configuration parameters depend on specific requirement of the installation.

CONFIGURATION WITH ROGERVDM

In order to start the configuration, connect the expander to RUD-1 interface (fig. 1) and start RogerVDM software.

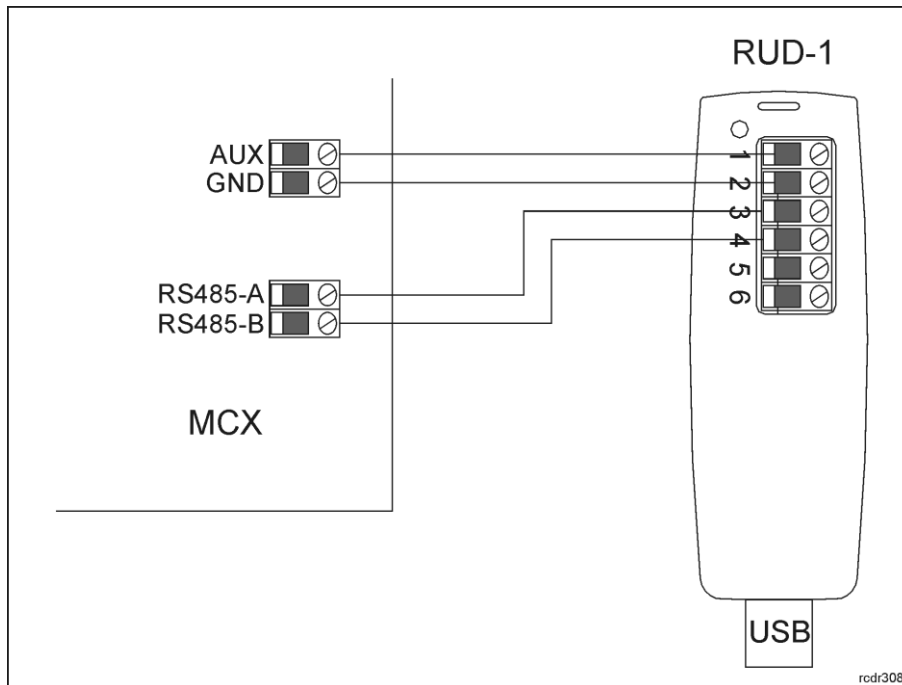


Fig. 1 Connection of expander to RUD-1 interface.

Programming procedure with RogerVDM software:

1. Connect the expander to RUD-1 interface according to fig. 1 and connect RUD-1 to computer's USB port.
2. In RogerVDM select *MCX v1.x* device, firmware version and *RS485* communication channel as well as serial port with RUD-1 interface.
3. Click *Connect* button and the program shall establish connection with the expander and display its configuration parameters.
4. Specify unoccupied RS485 address in range of 100-115 and according to your requirements enable readers and configure input types (e.g. NC type for IN6 as in fig. 4), etc.
5. Click *Send to Device* in order to upload your settings to expander.
6. Optionally save settings to file (*Send to file...* button).
7. Disconnect the expander from RUD-1 interface.

ADDRESSING WITH JUMPERS

The RS485 address of expander configured with RogerVDM is a software address. Alternatively hardware RS485 address can be configured with jumpers and such address has higher priority than software address.

Note: Each time the hardware RS485 address is modified the device must be restarted.

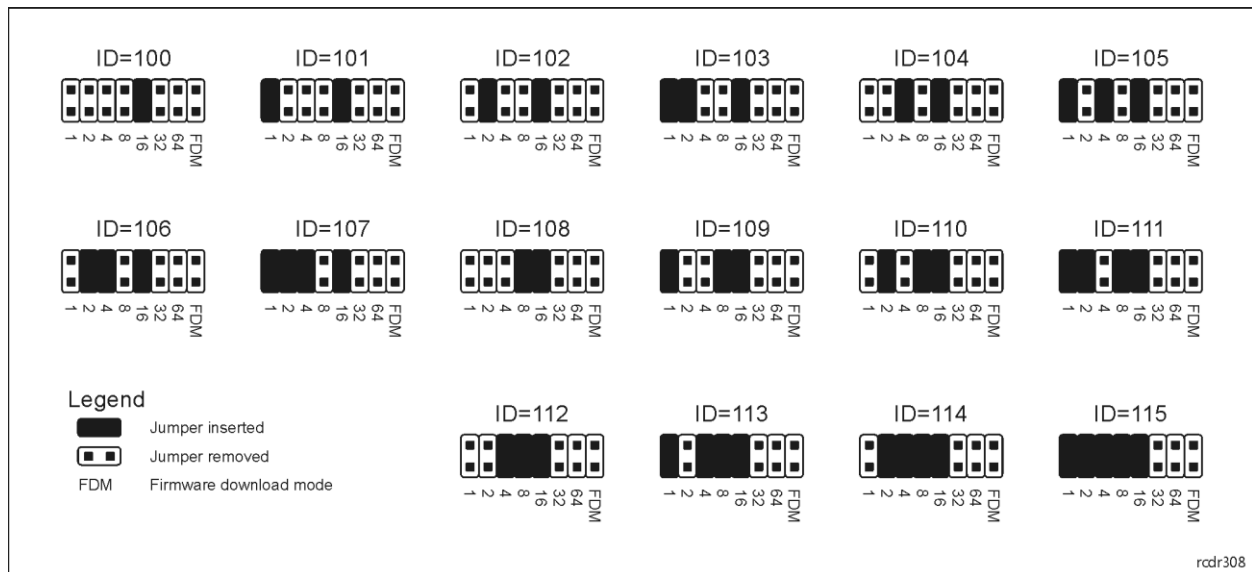


Fig. 2 Expander addressing with jumpers.

MEMORY RESET PROCEDURE

Memory reset procedure restores factory default settings including ID=100 software address.

Memory reset procedure:

1. Remove all connections from A, B, CLK and DTA terminals.
2. Put jumper on "64" contact and restart device with RST button on device board or by switching supply off and on.
3. Remove jumper from "64" contacts when LED STAT (red), LED OPN and LED SYS are ON.
4. LED OPEN and LED SYSTEM will turn OFF and device shall restart automatically with factory default settings.

FIRMWARE UPDATE

Factory new expander is equipped with a firmware dedicated to Wiegand readers. If the expander is to be operated with PRT readers then another firmware must be uploaded. Such firmware is available at www.roger.pl. Firmware update requires RogerISP program.

Firmware update procedure:



1. Connect the expander to RUD-1 interface according to fig. 1 and connect RUD-1 to computer's USB port.
2. Put jumper on FDM contacts.
3. Restart device with RST button on device board or by switching supply off and on.
4. Start RogerISP software.
5. Select serial port emulated by RUD-1 interface and the option *USB-RS485 Converter*.
6. Select firmware file (*.hex).
7. Click *Program* and follow instructions on screen.
8. Once the firmware is uploaded remove the FDM jumper and restart the device.
9. Start Memory reset procedure.

POWER SUPPLY

MCX402-2-KIT is supplied from 230VAC/18VAC/60VA transformer and is adapted to installation of 12V/7Ah battery for emergency supply but it is not factory equipped with the battery.

- The kit must be installed indoors ensuring nominal environmental conditions as stated in its specification.
- All installation and maintenance works must be done with 230VAC power supply disconnected.
- Power supply must be ensured with three wire cable including green-yellow PE.

- The transformer in the enclosure is dedicated to continuous operation and is not equipped with on/off switch. Therefore it is necessary to ensure overload protection in power supply circuit e.g. by applying and indicating dedicated fuse in fuse box.

	<p style="text-align: center;">Caution</p> <p style="text-align: center;">The installation can be done only by qualified person with all necessary certificates concerning connection and maintenance of 230VAC and low voltage networks.</p>
	<p style="text-align: center;">Caution</p> <p style="text-align: center;">It is forbidden to use the kit without properly executed and operational earthing system.</p>

INSTALLATION

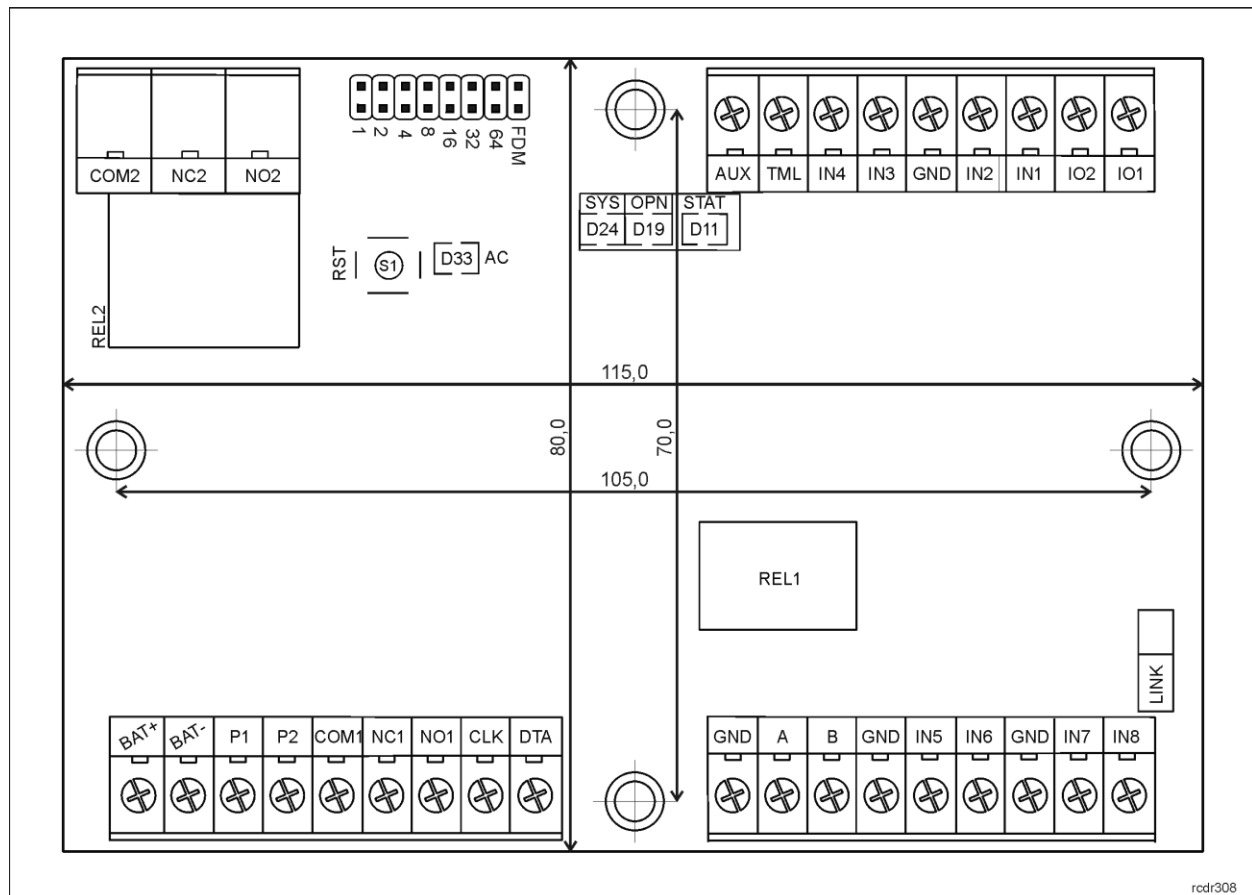


Fig. 3 MCX402DR-BRD board.

MCX402DR terminals			
Term.	Description	Term.	Description
BAT+	Battery positive pole	GND	Ground
BAT-	Battery negative pole	IN7	IN7 input line
P1	Power supply input	IN8	IN8 input line
P2	Power supply input	IO1	IO1 output line
COM1	REL1 relay common terminal	IO2	IO2 output line
NC1	REL1 relay output (NC)	IN1	IN1 input line
NO1	REL1 relay output (NO)	IN2	IN2 input line
CLK	RACS CLK/DTA interface, line CLK	GND	Ground
DTA	RACS CLK/DTA interface, line DTA	IN3	IN3 input line

GND	Ground	IN4	IN4 input line
A	RS485 communication bus, line A	TML	Power supply output 12VDC/0.2A
B	RS485 communication bus, line B	AUX	Power supply output 12VDC/1.0A
GND	Ground	NO2	REL2 relay output (NO)
IN5	IN5 input line	NC2	REL2 relay output (NC)
IN6	IN6 input line	COM2	REL2 relay common terminal

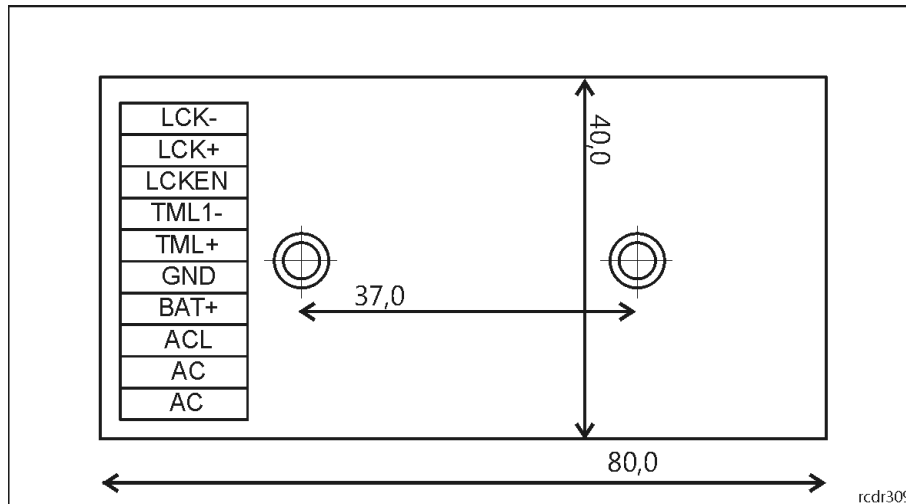


Fig. 4 PS1A-LCK board.

PS1A-LCK terminals	
Terminal	Description
LCK+	13.8VDC/1.0A output power positive pole
LCK-	13.8VDC/1.0A output power negative pole
LCKEN	LCK output control input
TML+	13.8VDC/0.2A output power positive pole
TML-	13.8VDC/0.2A output power negative pole
GND	PS1A-LCK ground internally shorted with LCK- and TML- terminals
BAT+	Battery positive pole
ACL	18VAC power failure signalling output
AC	18VAC power input
AC	18VAC power input

Table 2: Specification	
Kit supply	Transformer 230VAC/18VAC/60VA
Battery	Space for 13.8V/7Ah battery, charging current app. 300mA
Expander inputs	Eight (IN1-IN8) NO/NC inputs, electrically biased to +12V via 15kΩ resistor, triggering level app. 3.5V
Expander relay outputs	Two (REL1,REL2) relay outputs with single NO/NC contact, 30V/1.5A (REL1) and 230VAC/5A (REL2) rated
Expander transistor outputs	Two (IO1,IO2) open collector outputs, 15VDC/1A rated
Expander power supply outputs	Two power supply outputs: 12VDC/0.2A (TML) and 12VDC/1A (AUX) rated
Module power supply outputs	Two power supply outputs: 12VDC/0.2A (TML) and 12VDC/1A (LCK) rated
Module power shortage signalling output	Signalling output ACL 15VDC/40mA
Module output control input	Input LCKEN, triggering <1V

Distances	Between controller and expander (RS485): max. 1200m Between expander and Wiegand reader: max. 100m Between expander and PRT reader (RACS CLK/DTA): max. 150m
IP Code	IP20
Environmental class	Class I, indoor general conditions, temperature: +5°C to +40°C, relative humidity: 10 to 95% (no condensation)
Metal enclosure	ME-14-40VA, DC01 0,7mm metal sheet, anti-corrosion protection, RAL9003 white colour
Enclosure tamper	NO/NC; 50mA/50VDC
Dimensions H x W x D	255 x 255 x 90 mm
Weight	2,8kg
Certificates	CE

CONNECTION DIAGRAMS

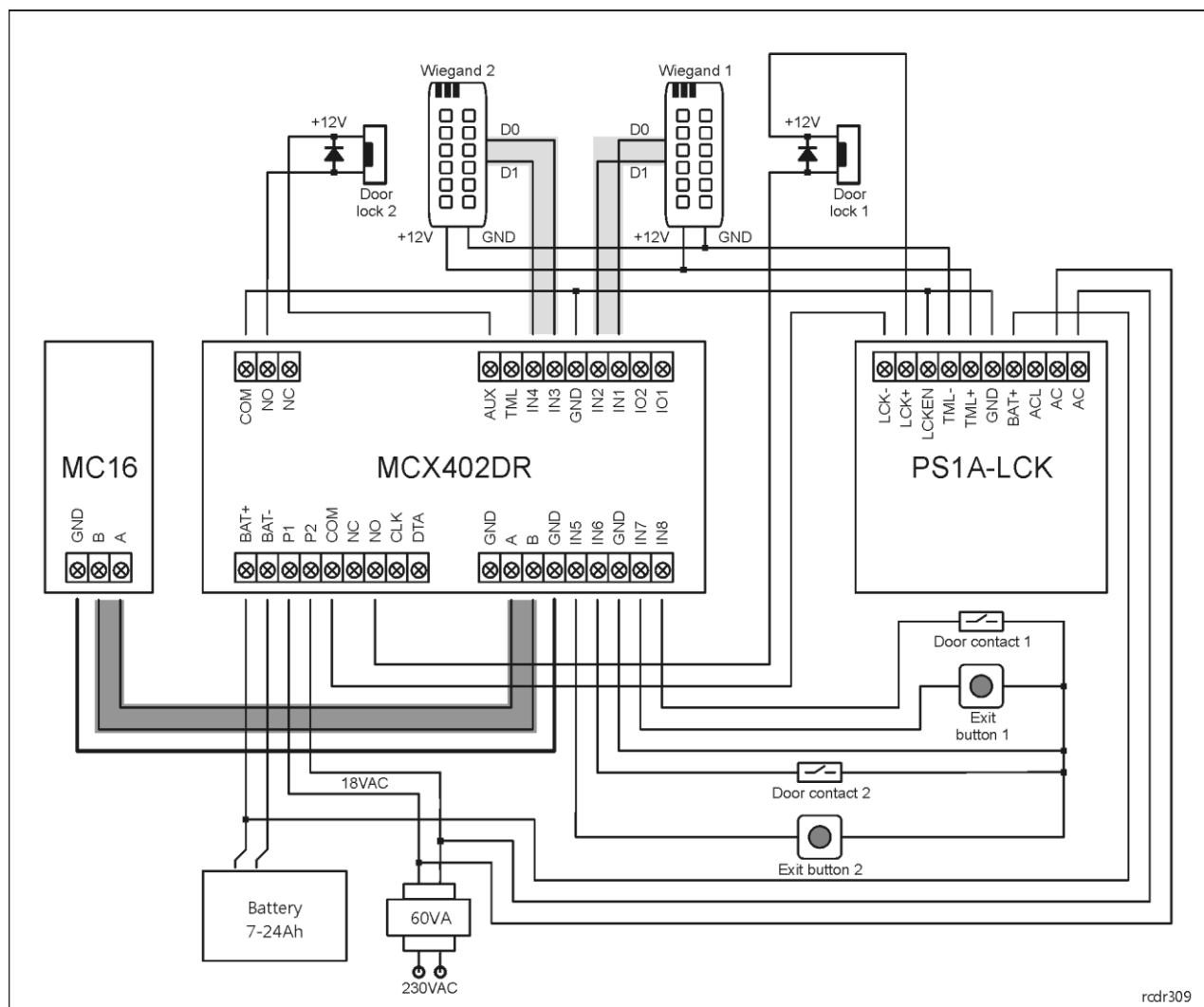


Fig. 5 Typical connection diagram for MCX402-2-KIT with Wiegand readers

Notes to fig. 5 and fig.6:

1. Any unoccupied IN1-IN8 inputs of the expander can be used for connection of door contact and exit button.
2. LED indicators of Wiegand readers can be controlled with IO1 and IO2 transistor outputs.
3. Auxiliary device such as alarm signalling device can be supplied from AUX output and controlled with any unoccupied relay or transistor output.
4. In case of maglock or fail-safe door strike, NC terminal is used instead of NO terminal.
5. In both drawings, door locks are controlled by REL1 and REL2 relays of MCX402DR expander.

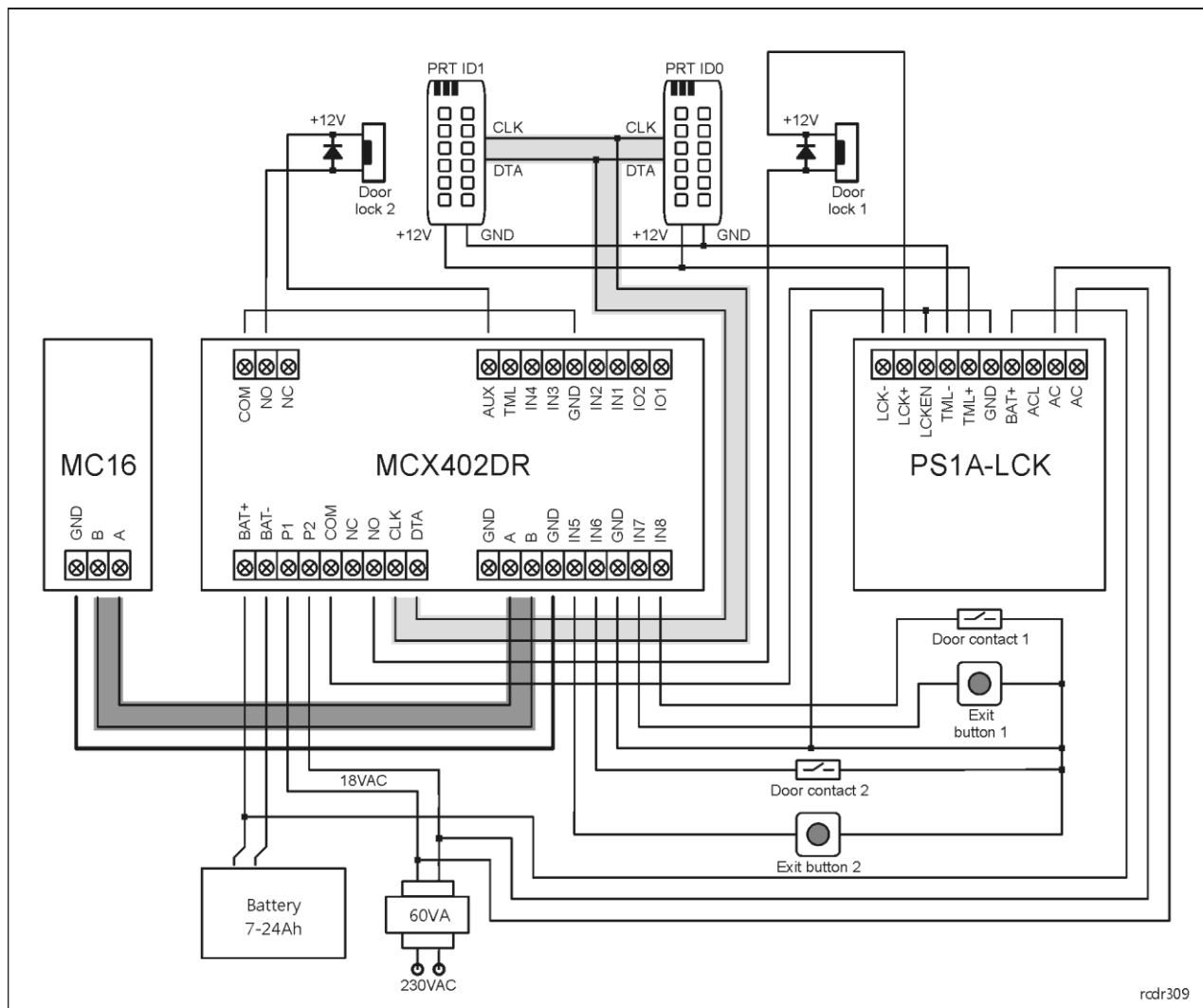


Fig. 6 Typical connection diagram for MCX402-2-KIT with PRT (RACS CLK/DTA) readers



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.

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