

Roger Access Control System 5 v 2

Application note no. 030

Document version: Rev. A

Universal access control in elevators

Note: This document refers to RACS 5 v2.0.8 or higher

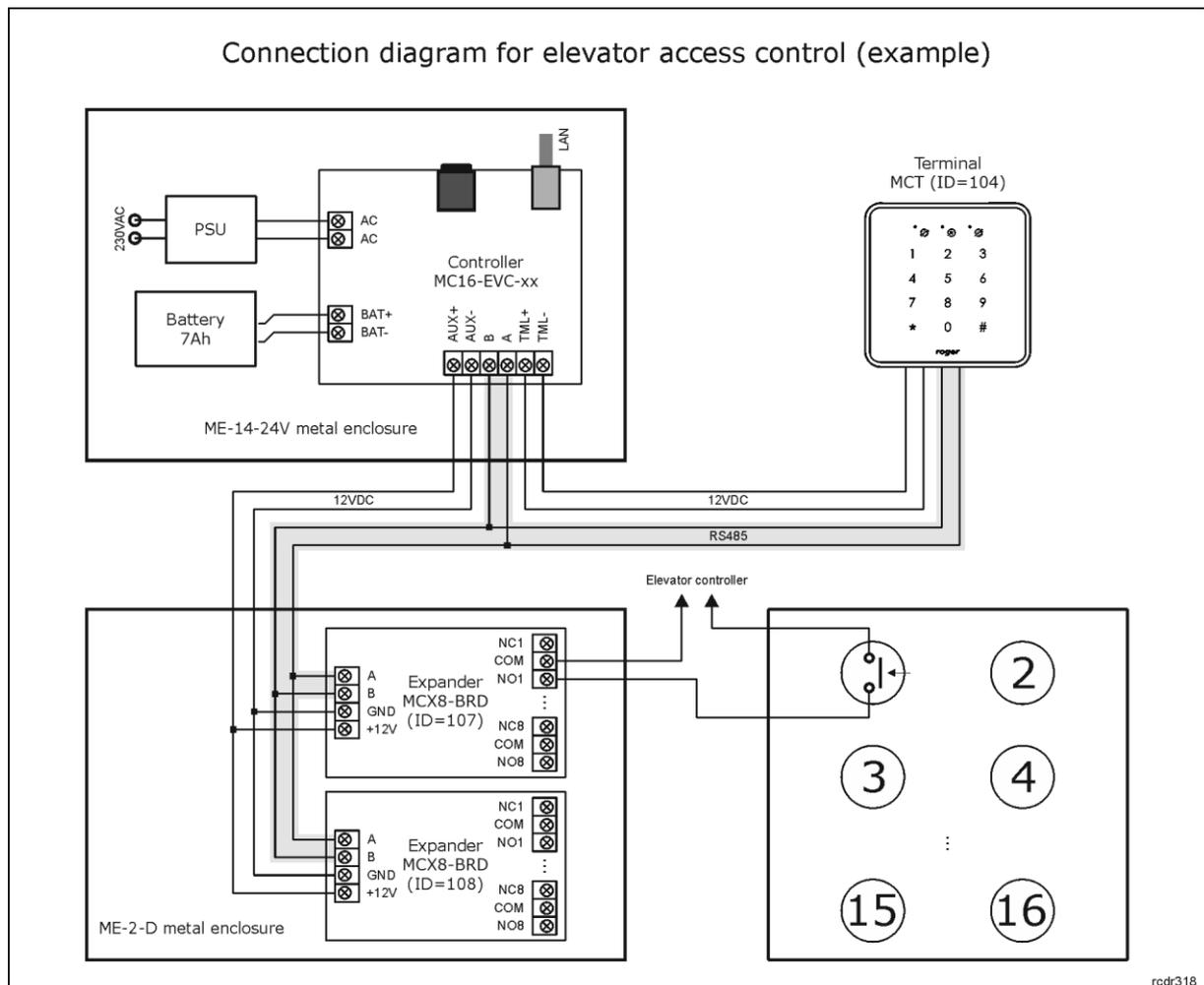
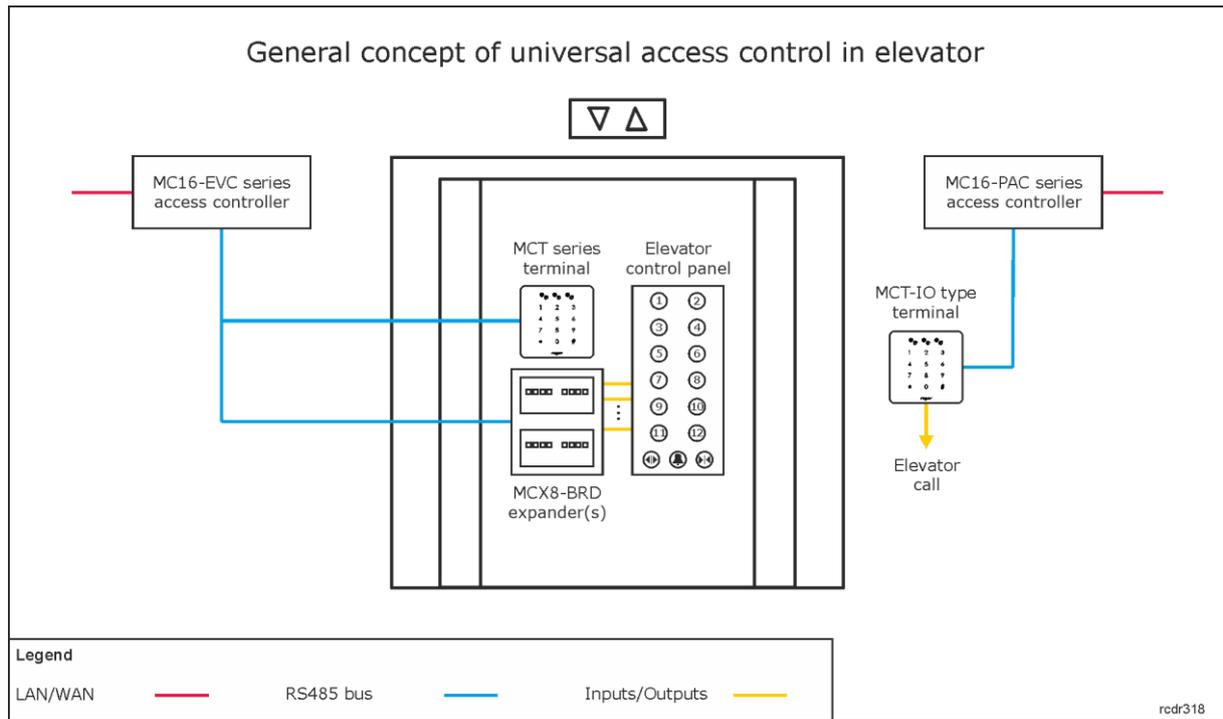
Introduction

RACS 5 system enables control in elevators of various manufacturers. Single MC16-EVC series elevator access controller depending on its version can control from 8 to 64 floors. The controller uses output lines (relays) located on peripheral expanders to enable particular buttons at elevator control panel. The selection of buttons results from Authorizations (access rights) of user who is identified at terminal (reader) installed inside elevator cabin. Additional terminals on particular floors can be installed to control elevator calling. Standard MC16-PAC series access controllers and MCTxx-IO type readers with built-in input/outputs can be used for this purpose.

Note: Some elevator manufacturers offer input modules. In such scenario outputs of MCX8-BRD expanders are not connected to buttons of control panel in elevator cabin but to elevator controller equipped with such input module. Then MCX8-BRD expanders can be installed inside elevator control room.

Note: RACS 5 system offers also dedicated integration with KONE, SCHINDLER and OTIS elevators which are explained in individual application notes.

This note explains how to configure access control at elevator control panel. Access control at floors is the same as typical door access control and it is explained in other notes e.g. AN006 which is available at www.roger.pl.



Notes:

- Power supply arrangement in fig. 2 is exemplary. Primary and backup supply can also be provided directly by elevator power supply circuit. All devices in the diagram can be supplied with 12VDC.
- Each button circuit is closed by one of relays at MCX8-BRD expander. In the example above, two MCX8-BRD expanders enable control of 16 buttons (floors) from single MCT terminal.
- The system can be further extended in regard of number of floor buttons by connection of more expanders to MC16-EVC controller and in regard of number of elevators by installation of more MC16-EVC controllers with their expanders and terminals.
- The maximal number of floor buttons controlled by single access controller is possible for MC16-EVC-64 device which can control up to 64 floor buttons. It would require 8 x MCX8-BRD expanders or equivalent to provide 64 outputs.
- The total number of MCT/MCX devices on RS485 bus of particular access controller cannot exceed 16 available addresses in ID=100-115 range.
- Maximal distance for RS485 bus equals to 1200m and all devices on the bus should have common GND.

Configuration of elevator access control

Low level configuration and logical structure

Configuration of elevator access control is similar to door access control. The difference is in the association of multiple doors (floor buttons) to single terminal instead of the association of single door to one or two terminals. In order to configure the system from the example above:

- Make low level configuration of access controller with RogerVDM program according to AN006 application note defining communication key, IP address and other parameters if needed.
- Make low level configuration of MCX8-BRD expanders and MCT terminals defining their individual addresses on RS485 bus according to their installation manuals.
- Install VISO software, configure database and RogerSVC servers, detect access controller with its peripheral devices using Add Access Controller wizard according to AN006 Application note.
- In the navigation tree of VISO software within particular MC16 access controller double click *Access Doors* command.
- In the opened window select *Add* button and name the door which represents one of the floor buttons. When *Door Options* is expanded in the same window then some additional parameters are available such as *Lock Pulse* which corresponds to activation time of output connected to floor button i.e. time for user to press floor button after identification at terminal. Close the window with *OK* button.
- In the bottom select *Outputs* tab and then *Add* button.
- In the opened window select the button  to indicate the location of output.
- In the next window, in the *Name* field of *Object* area select particular output for activation of floor button e.g. REL1 relay at MCX8-BRD (ID=107) as in the diagram and then close the window with *OK* button.

Add Output

General

Name: C1_107_REL1

Description:

Advanced Options

Activity Schedule: Always

Reset Schedule: None

Multifunction:

Function Limit: 1

Object

Name: MCX8DR v1.0_192.168.10.37_107_REL1

Device: MCX8DR v1.0

Label: REL1

Comment:

- In the opened window select the function [31]: Door lock.

Assign Output

General

Output: C1_107_REL1

Function: [031]: Door Lock

Triggering Options

Priority: 1

Triggering Method: Set output ON for unlimited time

Pulse Time: 5 Unit: s

Modulation Options

Modulation Type: None (steady)

Modulation Frequency: 8 Hz

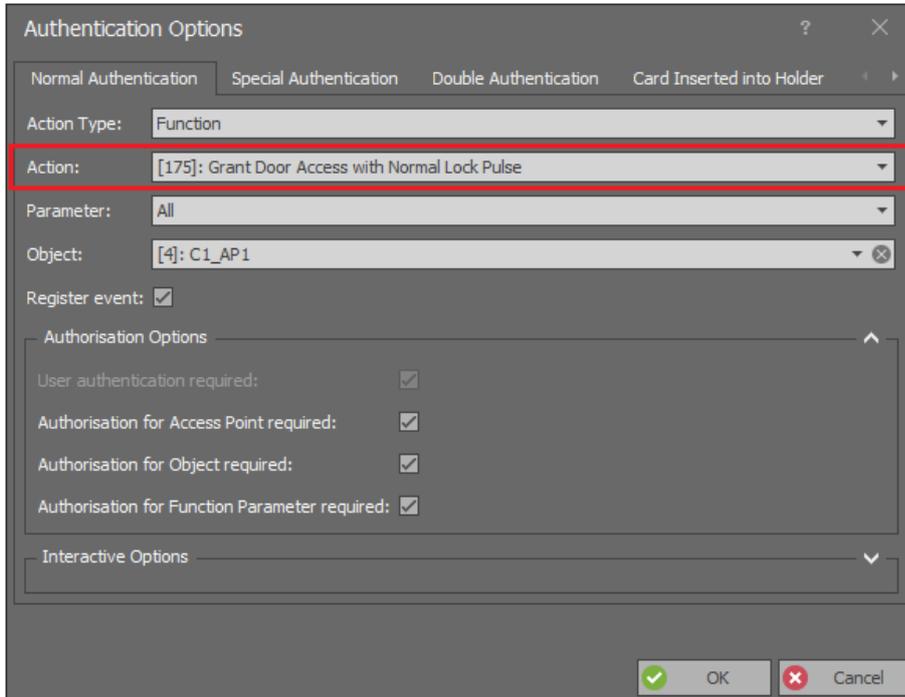
Modulation Pattern: 11111111...

Number of Cycles: None

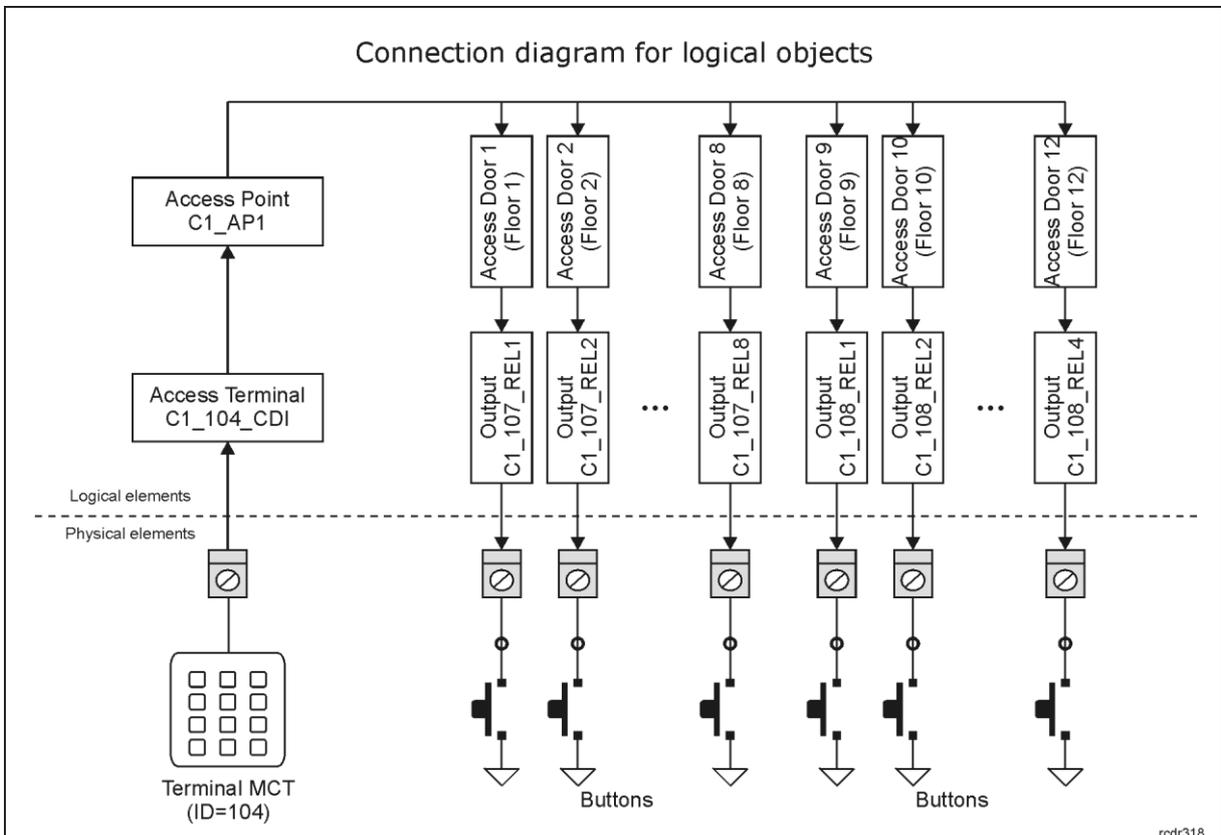
OK Cancel

- Configure 11 remaining Access Doors, each with its output to control remaining floor buttons.
- In the navigation tree of VISO software within particular MC16 access controller double click *Access Terminals* command.
- In the opened window select the button *Add*, select reader connected to access controller and close the window with *OK* button.
- In the navigation tree of VISO software within particular MC16 access controller double click *Access Points* command.
- In the opened window select the button *Add*, name the point e.g. C1_AP1 and close the window with *OK* button.
- In the bottom select *Access Terminals* tab, then *Assign* button and select previously created terminal.
- In the bottom select *Access Doors* tab and according to mentioned above scenario assign 12 Access Doors (floor buttons) with previously assigned outputs.

- It is also recommended to change the function of Normal Authentication (i.e. single card reading at terminal). In case of elevator access control, the default [151] function will unnecessarily generate series of events when access is granted. Therefore in the bottom select *Authentication Options* tab and *Edit* button, then *Normal Authentication* tab and assign the function [175] instead of [151] indicating just created Access Point as the *Function Object*.



- Upload settings to controller.



Configuration of Authorisations

After configuration of logical connections between readers and expanders it is necessary to configure Authorisations (access rights) to be used further when users are enrolled into the system. In order to define Advanced Authorisations for access in elevator:

- In the navigation tree of VISO software expand *Authorisations* command and then double click *Advanced Authorisations* command.
- In the opened window select *Add* button, name the Authorisation and assign the function [175] if it was changed previously for Normal Authentication at Access Point (if not, then select the default function [151]). In the bottom deselect the option *Includes authorisation for all Function Parameters* and close the window with *OK* button.

The screenshot shows the 'Add Advanced Authorisation' dialog box. The 'General' tab is active. The 'Enabled' checkbox is checked. The 'Name' field contains 'Authorisation for floor 1'. The 'Type' dropdown is set to 'Main'. The 'Activation Time' and 'Expiry Time' dropdowns are both set to '[Not limited]', with the time set to '12:00 AM'. The 'Description' field is empty. In the 'Details' section, the 'Refers to' dropdown is set to 'Function' and the 'Action' dropdown is set to '[175]: Grant Door Access with Normal Lock Pulse'. In the 'Advanced Options' section, the 'Includes authorisations for all rules' checkbox is unchecked, 'Includes authorisation for all Access Points' is checked, and 'Includes authorisation for all Function Parameters' is unchecked. The 'OK' and 'Cancel' buttons are at the bottom.

- In the bottom select *Positive Rules* tab and then *Add* button.
- In the opened window select *Object* as *Type*, *Specified* as *Range*, *Access Point* as *Type* and *C1_AP1* as *Value*. This rule will allow to use reader inside the elevator. Optionally the rule can be additionally limited in time by assigning a General Purpose Maintained schedule. Custom schedules are created in the navigation tree of VISO software by selecting *Schedules* command. Close the window with *OK* button.

The screenshot shows the 'Add Rule' dialog box with the following configuration:

- General:** Enabled: ; Type: Object
- When:** Time Range: Always; Schedule: (empty)
- Where:** Range: Specified; Type: Access Point; Value: [5]: C1_AP1

- Add another rule, this time selecting *Function Parameter* as *Type*, *Specified* as *Range*, *Access Door* as *Type* and *Floor 1* as *Value*. This rule will allow to activate REL1 relay and consequently select Floor 1 button. Optionally the rule can be additionally limited in time by assigning a General Purpose Maintained schedule. Custom schedules are created in the navigation tree of VISO software by selecting *Schedules* command. Close the window with *OK* button.

The screenshot shows the 'Add Rule' dialog box with the following configuration:

- General:** Enabled: ; Type: Function Parameter
- When:** Time Range: Always; Schedule: (empty)
- Where:** Range: Specified; Type: Access Door; Value: [2]: Floor 1

- Configure more Authorisations for remaining floors. There can be defined single Authorisation per floor and there can also be defined consolidated Authorisations for several floors as single Authorisation can include multiple rules.

Management of users

The management of users in the system can be done with wizards, which are accessed by selection of *Wizards* command in the top menu of VISO software. New user can be enrolled with *Add Person Online* wizard. The use of wizard is explained in AN006 Application note. The wizard enables assignment of Authorisation(s) and Authentication Factors (cards, PINs, etc).

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