

Roger Access Control System 5

Application note no. 029

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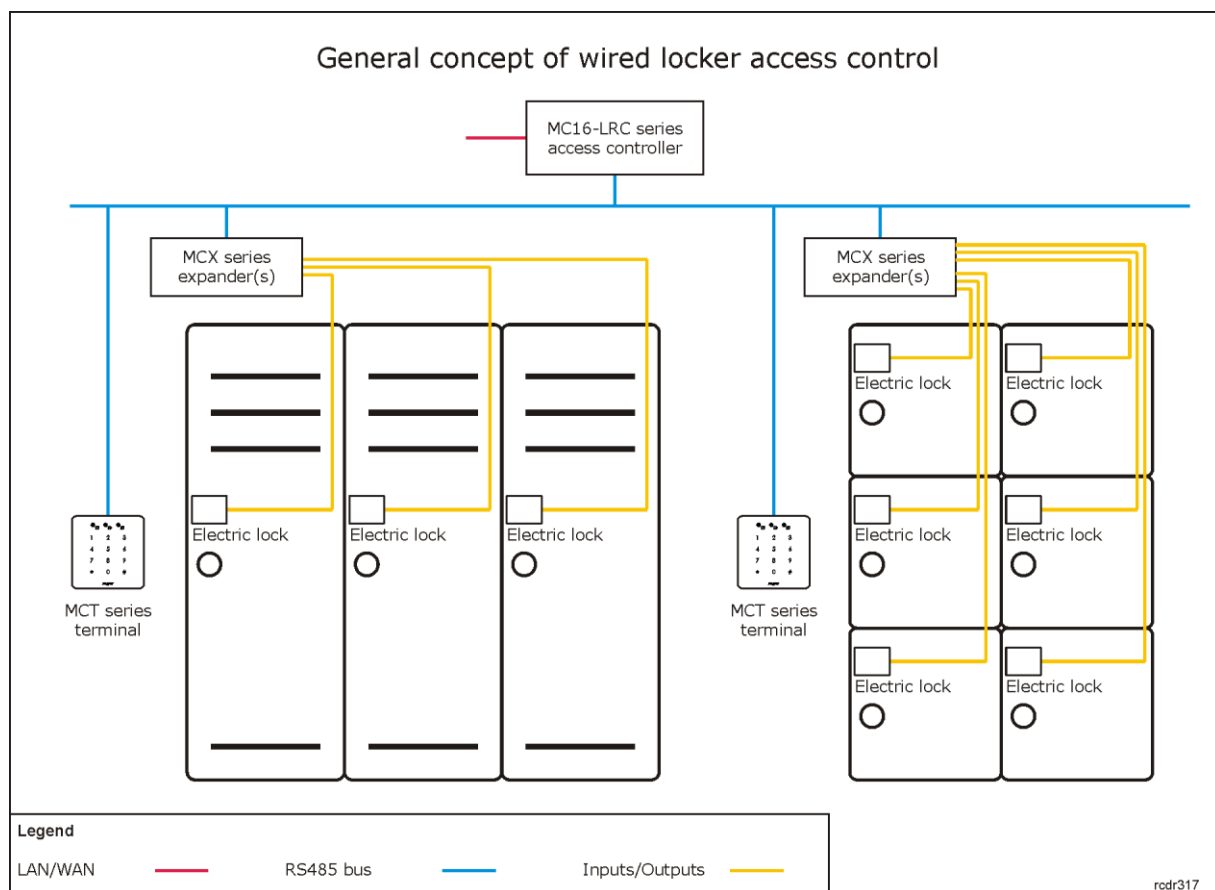
Locker access control

Note: This document refers to RACS 5 v1.6.6 or higher

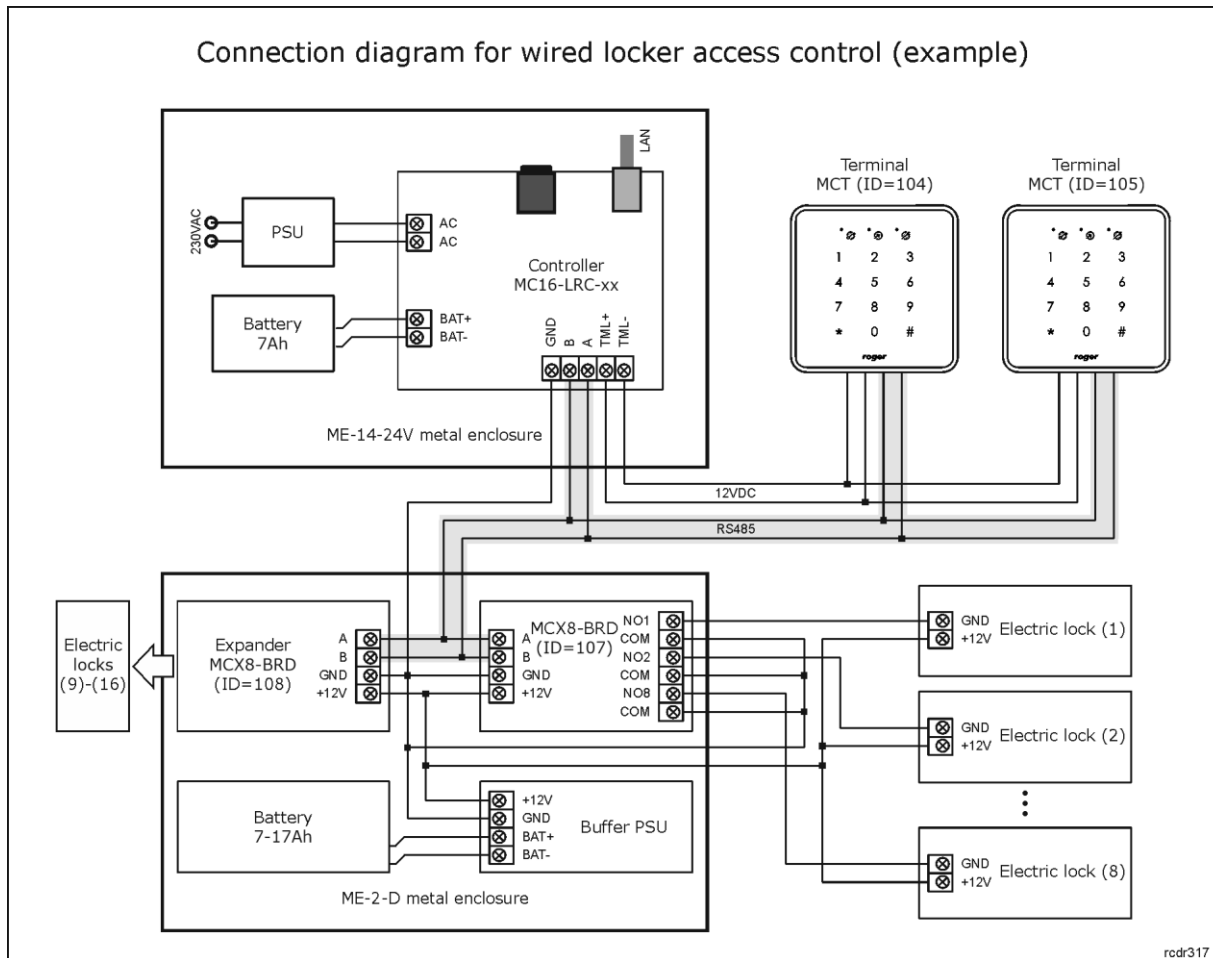
Introduction

RACS 5 system enables access control to lockers, cabinets, boxes, etc. Single MC16-LRC series access controller depending on its version can operate with 16 to 64 lockers.

Wired locker access control



In case of wired locker access control MCT terminals are used for user identification while outputs of MCX expanders are used to control universal electric locks. The access to lockers can be provided with a single reader or lockers can be divided into groups, each with a dedicated reader.



Notes:

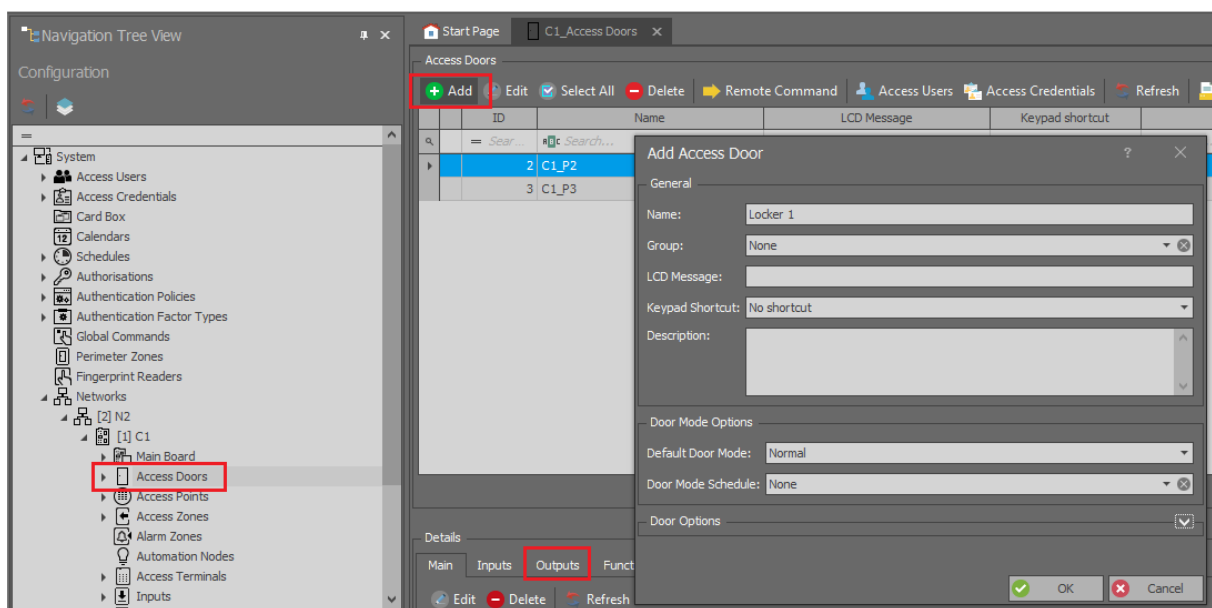
- Electric locks are released by relays or transistor outputs of MCX expanders. In the example above, two MCX8-BRD expanders enable control of 16 electric locks, which can be opened in any configuration from both MCT terminals or one of MCT terminal.
- The system can be further extended by connection of more expanders to MC16-LRC controller and installation of more MC16-LRC controllers with their expanders.
- The maximal number of locks controlled by single access controller is possible for MC16-LRC-64 device which can control up to 64 locks. It would require 8 x MCX8-BRD expanders or equivalent to provide 64 required 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.
- Optional door contacts can be connected to inputs of expanders to monitor locker opening statuses.
- Select buffer power supply unit depending on total power required by electric locks. Power supply can also be provided with PS4D PSU and PSD4D module where all LCK and TML outputs of the module are connected in parallel to offer full PSU power. In such scenario PSD4D offers battery charging.
- In case of multiple MCX8-BRD expanders, the ME-5-S metal enclosure with factory installed buffer PSU can be used.


Configuration of wired locker access control

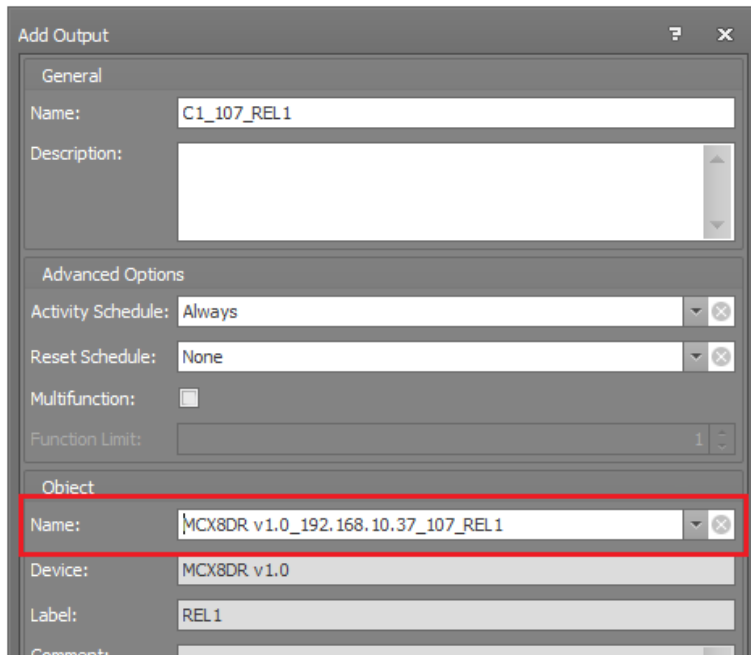
Low level configuration and logical structure

Configuration of wired locker access control is similar to door access control. The difference is in the association of multiple doors (lockers) 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:

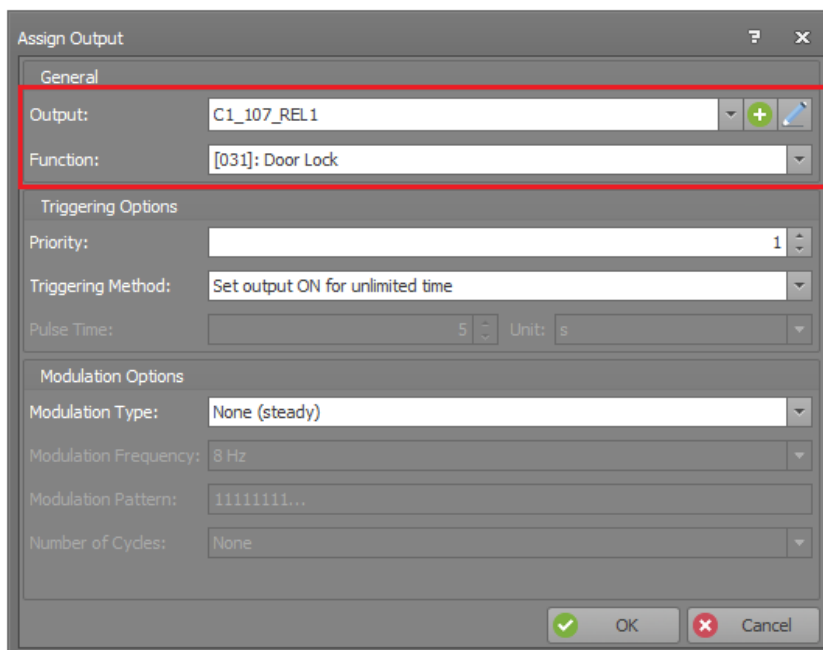
- Make low level configuration of access controller with RogerVDM program according to AN006 Application note defining communication key, IP address and other parameters if needed.
- Make low level configuration of MCX8-BRD expanders and MCT terminals defining their individual addresses on RS485 bus according to their installation manuals. Configure expander input types (NO or NC) if needed. Connect devices with each other.
- Install VISO software, configure database and RACS 5 services, 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 lockers. 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 with electric lock i.e. locker opening as well as *Re-lock* and *Lock Pulse Delay* parameters. 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 to control electric lock e.g. REL1 relay at MCX8-BRD (ID=107) as in the diagram and then close the window with *OK* button.



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



- Optionally if locker door contacts are installed and connected to inputs then in similar way assign adequate input to Access Door in *Inputs* tab selecting the function [130]: Door contact. The NO or NC input type is configured within low level configuration of device (RogerVDM).
- Configure 15 remaining Access Doors, each with its output to control remaining electric locks.
- 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 same way define other terminals if they are actually connected to the controller as in the example diagram.
- 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. Further steps will describe the scenario where single terminal is used to access 8 electric locks within single MCX8-BRD expander. However, in RACS 5 it is possible configure other arrangements between terminals and outputs including the scenario where all 16 electric locks are accessed from both terminals at the same time. The only condition is that all terminals and outputs must be within single MC16 access controller and its peripheral devices.
- In the bottom select *Access Doors* tab and following mentioned above scenario assign 8 Access Doors (lockers) 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 locker 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*.

Authentication Options

Normal Authentication | Special Authentication | Double Authentication | Card Inserted into Holder

Action Type: Function

Action: [175]: Grant Door Access with Normal Lock Pulse

Parameter: All

Object: [4]: C1_AP1

Register event: ☒

Authorisation Options

User authentication required: ☒

Authorisation for Access Point required: ☒

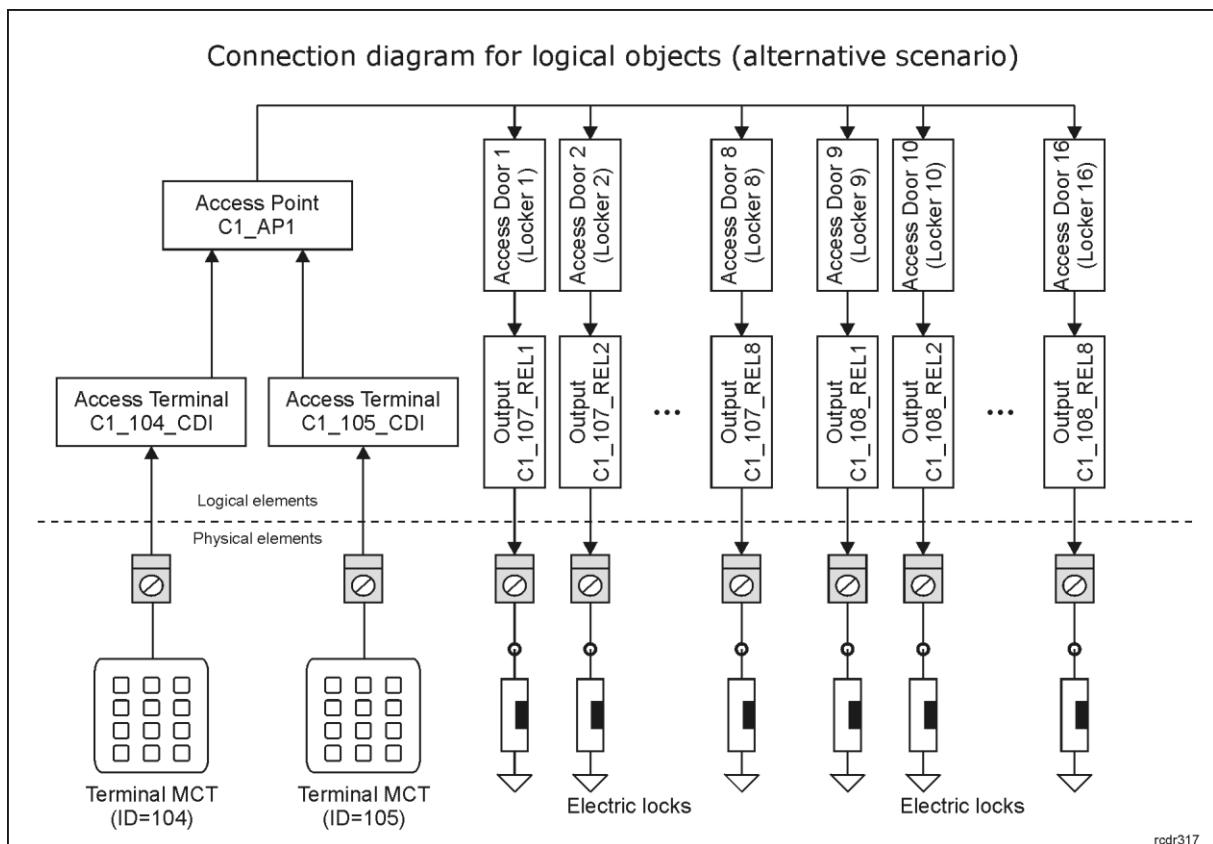
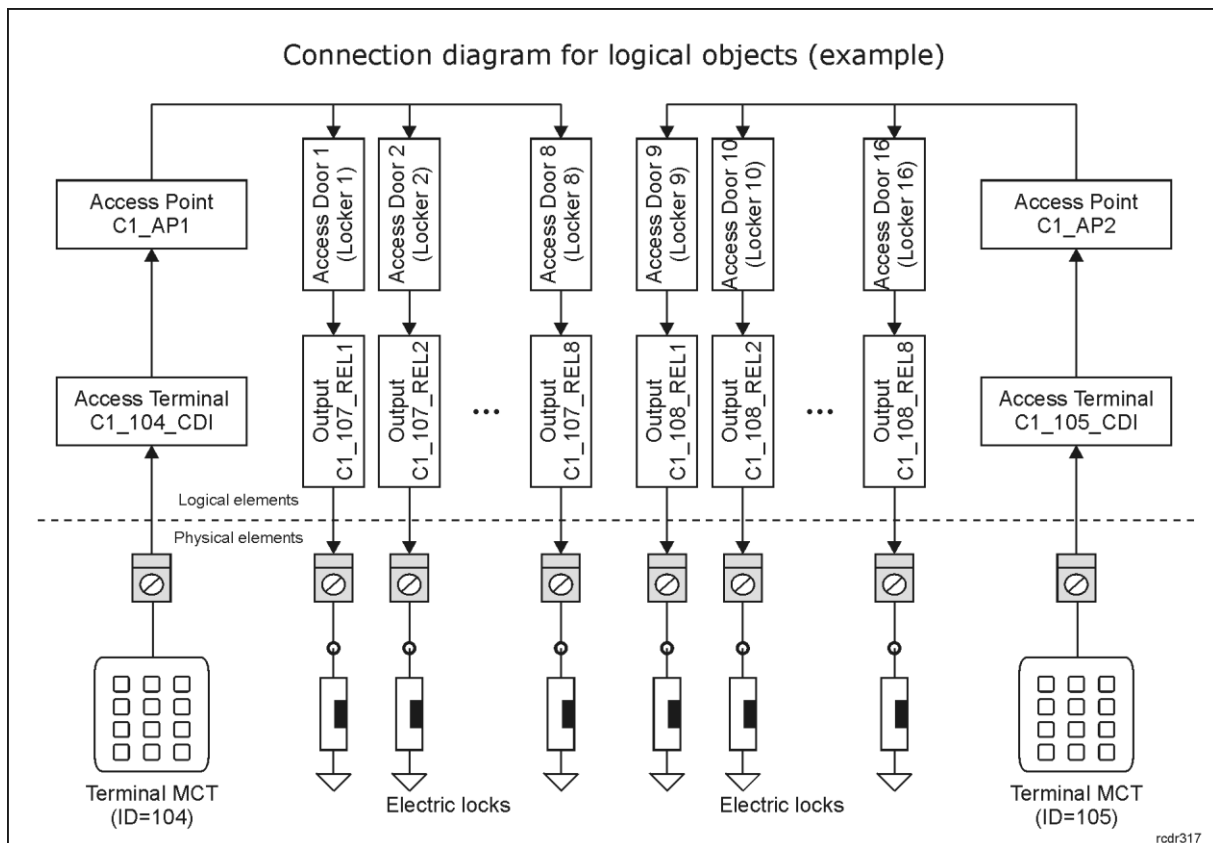
Authorisation for Object required: ☒

Authorisation for Function Parameter required: ☒

Interactive Options

OK Cancel

- Create another Access Point and similarly assign the other terminal and remaining eight Access Doors (lockers) as well as modify Authentication Options.
- Upload settings to controller.



The difference between two above logic diagrams is such that depending on user Authorisations, in the first scenario each terminal can be used to control its 8 lockers while in the second scenario each terminal can be used to control any of 16 lockers. In the second scenario more than one

Access Terminal (physical reader) is assigned to Access Point (logical reader). In this application note the first scenario is described.

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 locker access:

- 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, showing fields for 'Enabled' (checked), 'Name' (Authorisation for floor 1), 'Type' (Main), 'Activation Time' (Not limited), and 'Expiry Time' (Not limited). The 'Details' tab shows 'Refers to' (Function) and 'Action' ([175]: Grant Door Access with Normal Lock Pulse). The 'Advanced Options' tab shows 'Includes authorisations for all rules' (unchecked), 'Includes authorisation for all Access Points' (checked), and 'Includes authorisation for all Function Parameters' (unchecked). The OK and Cancel buttons are at the bottom right.

- 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 ID=104 to open lockers. 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.

Add Rule

General

Enabled: ☒

Type: Object

When

Time Range: Always

Schedule:

Where

Range: Specified

Type: Access Point

Value: [5]: C1_AP1

OK Cancel

- Add another rule, this time selecting *Function Parameter* as *Type*, *Specified* as *Range*, *Access Door* as *Type* and *Locker 1* as *Value*. This rule will allow to activate REL1 relay and consequently open Locker 1. 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.

Add Rule

General

Enabled: ☒

Type: Function Parameter

When

Time Range: Always

Schedule:

Where

Range: Specified

Type: Access Door

Value: [2]: Locker 1

OK Cancel

- Configure another seven Authorisations for C1_AP1 Access Point and Access Doors (lockers) 2-8.
- Similarly configure eight Authorisations for C1_AP2 Access Point and Access Doors (lockers) 9-16.

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 Authorisations(s) and Authentication Factors (cards, PINs, etc).

Additional functionalities for locker access control

Door modes

Lockers which are represented by Access Doors in RACS 5 system can be configured in regard of Door Modes. Following modes are available:

- Normal (door is opened for a certain time when access is granted)
- Unlocked (door is opened indefinitely when mode is on)
- Conditionally unlocked (door is opened indefinitely when access is granted)
- Locked (door is closed when mode is on and access cannot be granted regardless of user Authorisations until the mode is off)

Door Modes can be switched in multiple ways i.e. by card, input, function key, schedule or with remote command from VISO software which can be invoked among others from map or various monitors.

Locker monitoring

If lockers in access control system are monitored by door contacts connected to controller/expander/lock inputs then Door Open Too Long and Door Forced alarms can be raised. These alarms can be signalled with outputs if functions [32] and [33] are assigned on the level of Access Door. When alarm is raised then event is registered and can be displayed in the VISO software. Furthermore, special actions can be defined for events as for example email can be automatically sent by RACS 5 service. This can be configured by selection of *Event log* command in the top menu of VISO software and then *Event Types-> Notifications*. Alerts and notifications are explained in detail in AN041 application note.

Locker opening status and Lock Mode (Door Mode) can be monitored in VISO software when in the top menu the command *System Monitors* and then *Access Doors Monitor* is selected.

Preview	Name	Status	Lock Mode
[2]:	Locker 1	Forced Open	Normal
[3]:	Locker 2	Closed	Normal
[4]:	Locker 3	Closed	Unlocked
[5]:	Locker 4	Closed	Normal
[6]:	Locker 5	Closed	Normal
[7]:	Locker 6	Closed	Normal
[8]:	Locker 7	Closed	Normal
[9]:	Locker 8	Closed	Normal

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