

Roger Access Control System 5

Application note no. 020

Document version: Rev. A

Kone Destination (KONE) integration

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

Introduction

RACS 5 system enables software integration with Kone Destination system from KONE company. The communication between both systems is provided in LAN and it requires installation and configuration of MCI16-EVK communication interface. The integration is based on GCACI v1.8 protocol from KONE and it is assumed that destination operating panels (DOP) e.g. KSP 858 are installed with internally mounted MCT access terminals of RACS 5 system. The integration requires VISO EX management software.

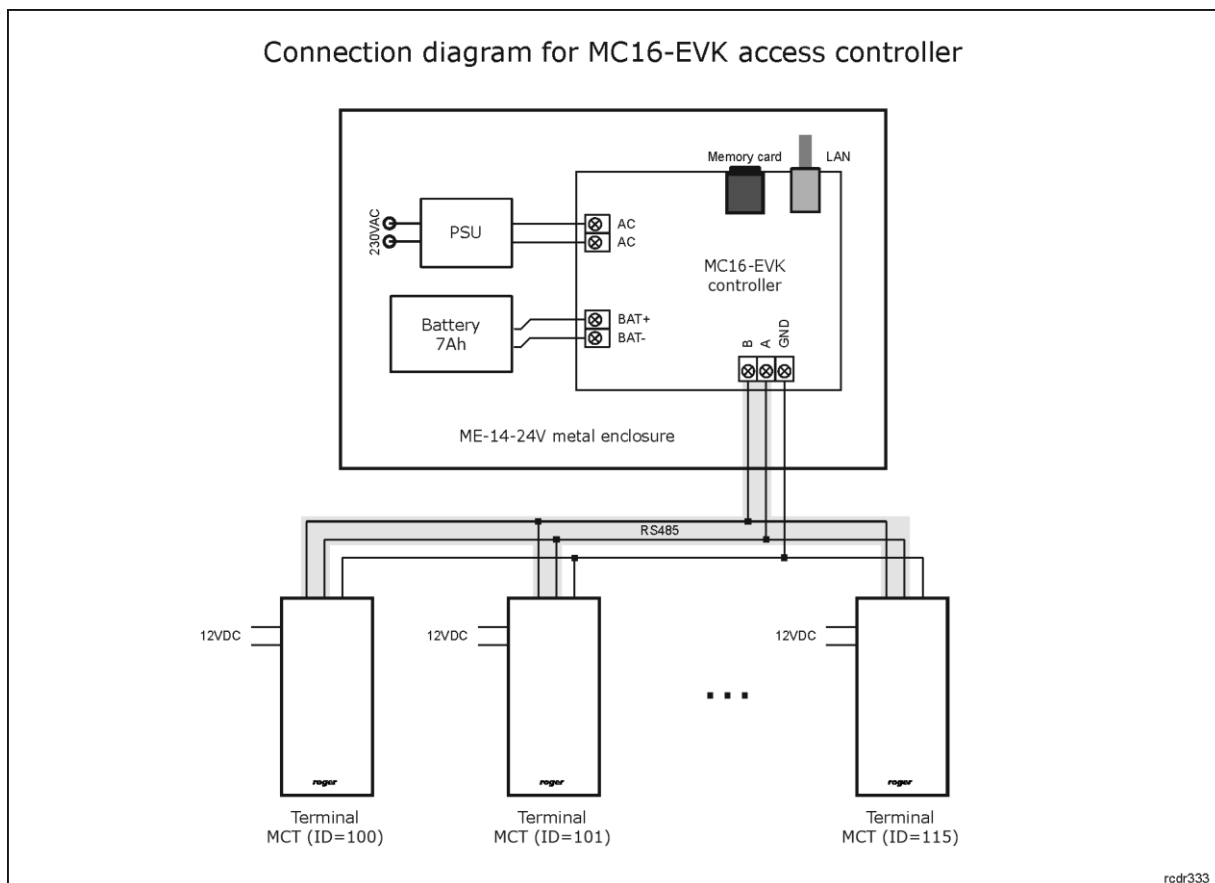
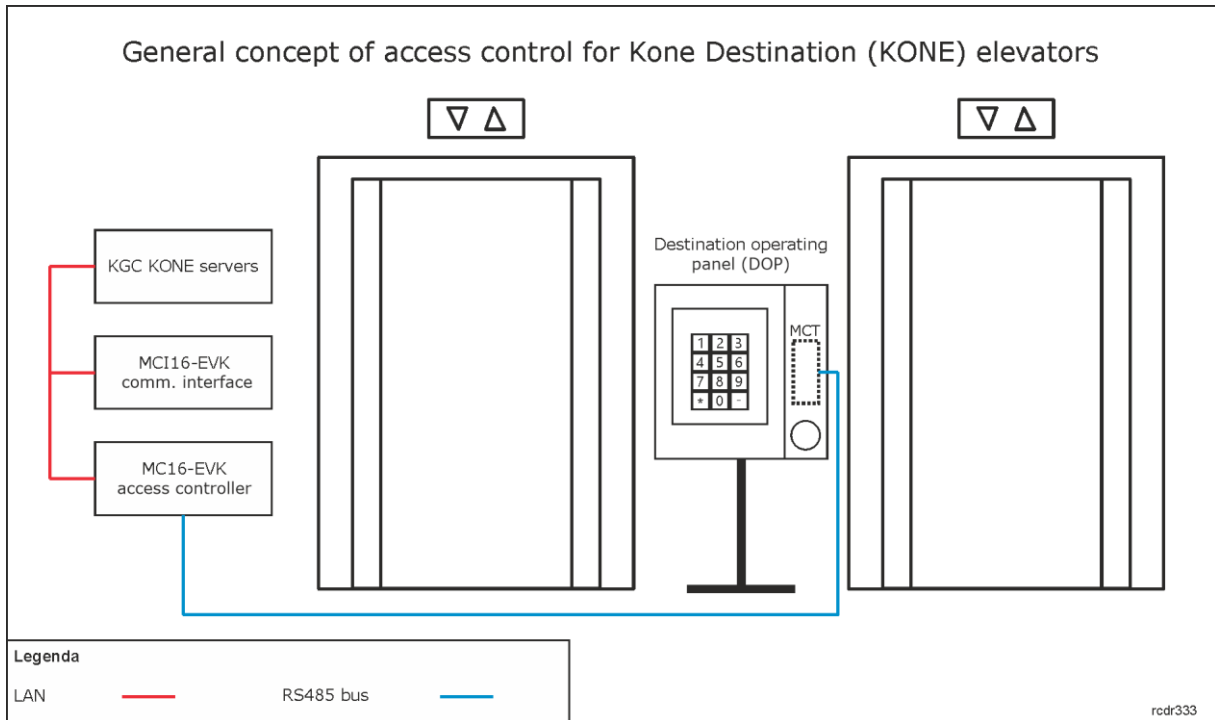
The integration enables centralized management of users and their access rights both on the level of RACS 5 doors and Kone Destination (OTIS) elevators. Particularly in case of elevators the integration enables to:

- Define Authorisations for selection floors and their sides (front, rear) by users on destination operating panels (DOP).
- Define Authorisations for use of destination operating panels (DOP) by users.
- Define elevator call type for users (e.g. VIP, disability, etc.)
- Define allowed floors i.e. floors which can be selected by any user without identification.
- Register events related to users movement. Alerts, notifications and other automatic reactions of RACS 5 system can be defined for such events.
- Monitor communication status with KGC KONE servers, MC16-EVK controllers and MCT terminals.

Authorisation can be limited to configurable period (e.g. 1 month) or it can be limited by weekly schedule (e.g. Mo-Fri 8am-4pm). In case of Schedules there can be configured Calendars to define exceptions on particular dates (e.g. holidays).

Mifare Ultralight and Mifare Classic proximity cards can be used for user identification in case of MCT80M terminals installed inside destination operating panels (DOP). MCT80M terminal operates with encrypted MIFARE® proximity cards which protects the system from use of non-native cards and cloning of the original ones.

Note: RACS 5 system enables also universal access control in elevators offered by various manufactures. This solution is based on MCX8-BRD expanders and it is explained in AN030 application note.



Notes:

- Multiple MC16-EVK controllers can be installed in LAN and they all should be communicating with single MCI16-EVK interface.
- MCT terminals are installed inside destination operating panels (DOP) of Kone Destination system where access control is required.

- The total number of MCT terminals on RS485 bus of particular MC16-EVK access controller cannot exceed 16 available addresses in ID=100-115 range. It is recommended to apply MCT80M readers without plastic enclosure.
- Maximal distance for RS485 bus equals to 1200m and all devices on the bus should have common GND.

Configuration of Kone Destination elevators

The installation and configuration of elevators is done by their supplier. Prior to configuration of the integration it is necessary to acquire following data from elevator supplier:

- IP addresses and ports of KGC servers.
- Identifiers of destination operating panels (DOP ID).
- Identifiers of floors (Floor ID).

Optionally and in a cooperation with end user and elevator supplier, additional rules for elevator operation can be configured as for example allowed floors which do not require user identification and access rights. This is how the ground floor with main exit from the building is usually defined in the system. Such rules are configured by means of masks i.e. DOP Global Default Mask and DOP Default Mask parameters in MCX16.ini configuration file of MCI16-EVK interface.

Preliminary low level configuration

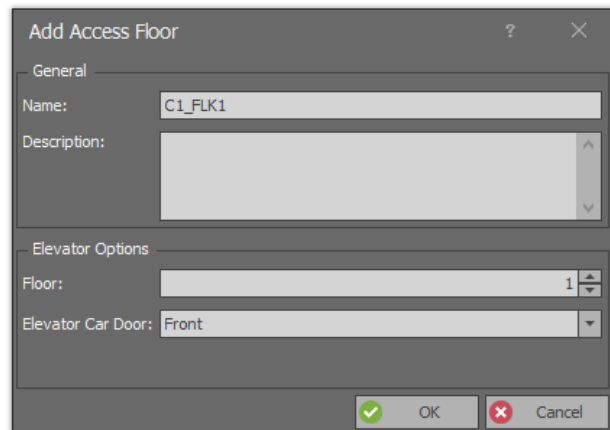
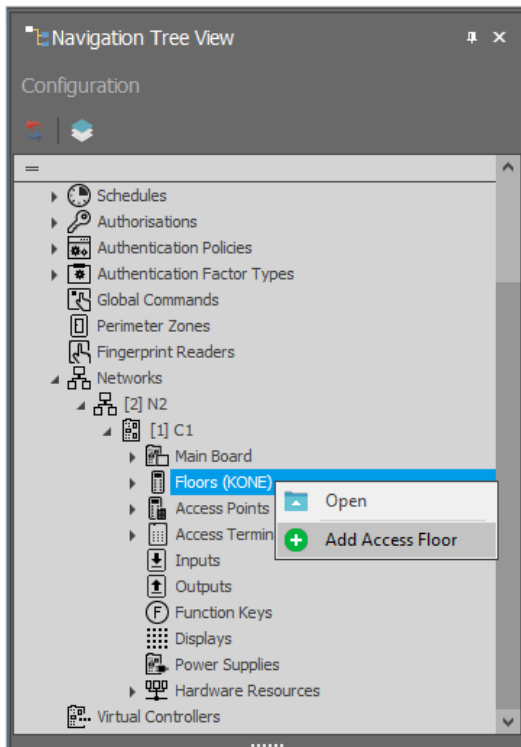
The purpose of low level configuration is to define basic operational parameters such as IP addresses, RS485 buses addresses, etc.

- Make low level configuration of MC16-EVK 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 MCT terminals defining their individual addresses on RS485 bus according to their installation manuals.
- Connect devices with each other.

Floors and Access Points

In order to define Floors and Access Points in RACS 5:

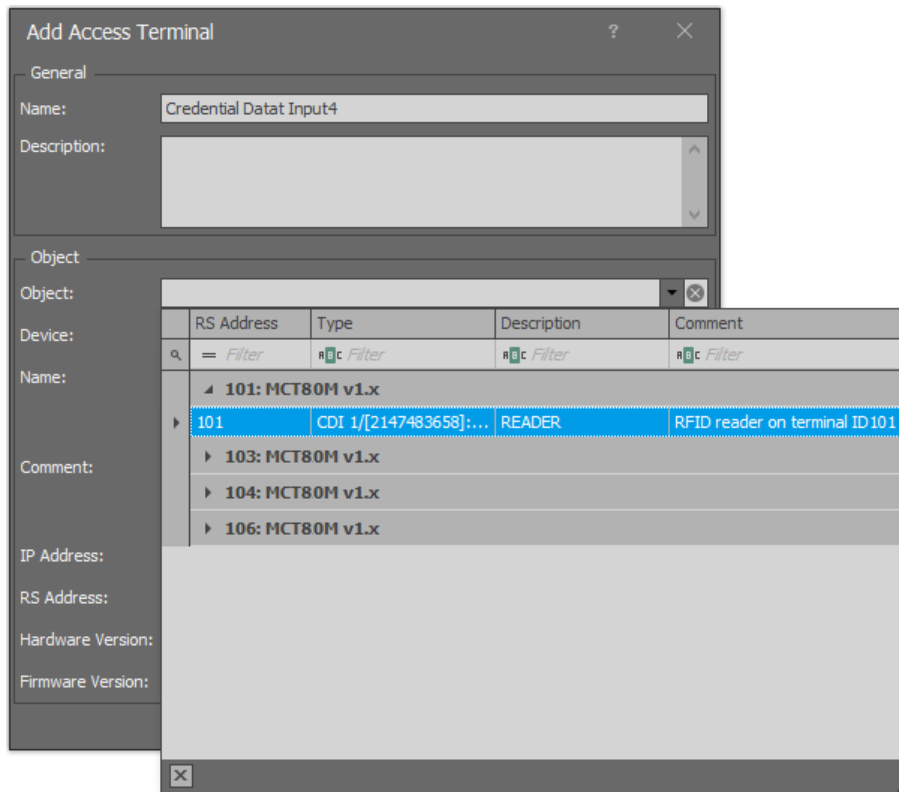
- Install VISO software, configure database and RACS 5 services, detect access controller with its peripheral devices using Add Access Controller wizard according to AN006 Application note. In case of elevator system it is recommended to apply centralized database according to AN017 application note.
- In the navigation tree of VISO software within particular MC16-EVK controller right click *Floors (KONE)* command and then select *Add Access Floor*.



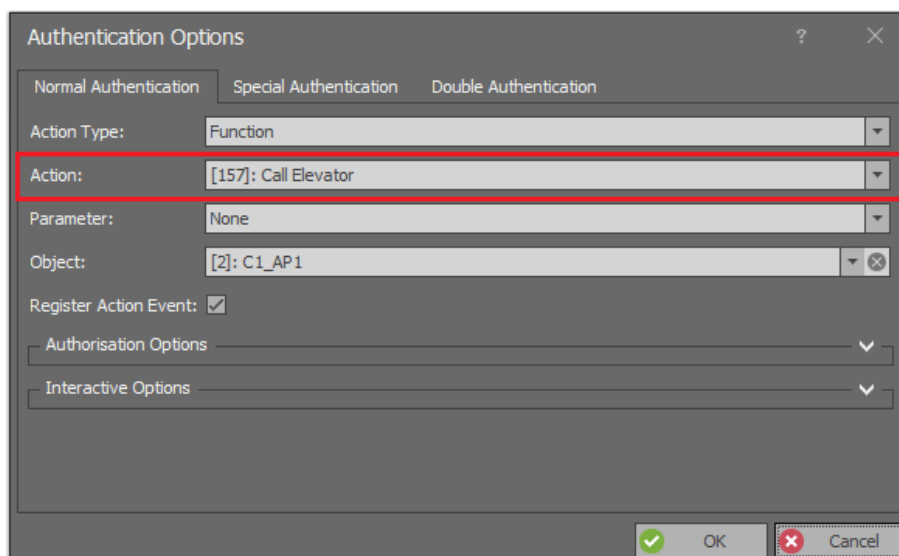
- In the opened window name the floor, assign KONE elevator floor number (Floor ID) and select side (front, rear). If the elevator can open in both directions on a certain floor then define two individual floors in VISO software.
- Similarly define remaining floors in the system.

Note: It is recommended to define all floors existing in the building for each MC16-EVK separately.

- In the navigation tree of VISO software within particular MC16-EVK controller double click *Access Points* command.
- In the opened window select *Add* and in the next window name the point which will represent MCT terminal installed inside destination operating panel (DOP). Close the window with *OK* button.
- In the bottom select *Access Terminals* tab and then *Add*.
- In the opened window select physical reader which will function within the Access Point. Close the window with *OK* button.



- In the bottom select *Access Floors* tab and then *Assign*. In the opened window select all previously created Floors (KONE).
- In the bottom select *Authentication Options* tab and then *Edit*. In the opened window, in Normal Authentication tab i.e. for single card reading assign the function *[157]: Call elevator*. Close the window with *OK* button.



- Similarly define remaining Access Points for MC16-EVK access controller in the system.

Authorisations

In order to define Advanced Authorisation for elevator(s):

- In the navigation tree of VISO software expand *Authorisations* command and double click *Advanced Authorisation* command.

- In the opened window select *Add*, then in the next window name the Authorisation and select the functions [157]. If the Authorisation is supposed to allow access to all floors on both sides (front, rear) and from all destination operating panels (DOP) then select the option *Includes authorisations for all rules*. Close the window with *OK* button.

- In the bottom select *Positive Rules* tab and then *Add*.
- In the opened window select *Object* as *Type*, *Specified* as *Range* and exemplary *C1_FLK1* floor as *Value*. This rule will allow to select floor 1 from destination operating panels (DOP) within particular C1 controller. Optionally the rule can be limited in time by assigning a General Purpose Maintained schedule. Such schedules are created by selecting *Schedules* command in the navigation tree of VISO software. There can be up to 64 rules included in the Authorisation. Therefore in the system there can be defined individual Authorisations for each floor and there can also be defined collective Authorisation for multiple floors using multiple rules within single Authorisation. Close the window with *OK* button.

Note: In further steps all Authorisations can be grouped by expanding *Authorisations* command in the navigation tree and then selecting *Authorisation Groups*. When user is enrolled in the system then both Authorisations and Authorisations Groups e.g. for common doors and floors can be assigned.

Add Rule ? X

General

Enabled:

Type: Object

When

Time Range: Specified

Schedule: Schedule Mo-Fri 8am-4pm

Where

Range: Specified

Type: Floor (KONE)

Value: [10]: C1_FLK1

OK Cancel

Details

Main Negative Rules Positive Rules Access Credentials Access Persons Assets

+ Add Edit Select All Delete Refresh Report

	Type	Value	Time Range	Enabled
9	Object	C1_FLK2	Schedule Mo-Fri 8am-4pm	<input checked="" type="checkbox"/>
8	Object	C1_FLK1	Schedule Mo-Fri 8am-4pm	<input checked="" type="checkbox"/>
10	Object	C1_FLK3	Schedule Mo-Fri 8am-4pm	<input checked="" type="checkbox"/>
	Function Parameter	All	Always	<input checked="" type="checkbox"/>
	Access Point	All	Always	<input checked="" type="checkbox"/>

- When Authorisation is created and the option *Includes authorisations for all Access Points* is deselected then Access Point type rule can be created and then the Authorisation can be limited to specific destination operating panels (DOP). Similarly as in case of Object type rule the Access Point type rule can be limited in time and there can be defined multiple rules of this type within the Authorisation.

Add Rule ? X

General

Enabled:

Type: Access Point

When

Time Range: Always

Schedule: []

Where

Range: Specified

Type: Access Point

Value: [2]: C1_AP1

OK Cancel

Details

Main Negative Rules Positive Rules Access Credentials Access Persons Assets

+ Add Edit Select All Delete Refresh Report

ID	Type	Value	Time Range	Enabled
8	Object	C1_FLK1	Schedule Mo-Fri 8am-4pm	<input checked="" type="checkbox"/>
9	Object	C1_FLK2	Schedule Mo-Fri 8am-4pm	<input checked="" type="checkbox"/>
10	Object	C1_FLK3	Schedule Mo-Fri 8am-4pm	<input checked="" type="checkbox"/>
11	Access Point	C1_AP1	Always	<input checked="" type="checkbox"/>
	Function Parameter	All	Always	<input checked="" type="checkbox"/>

User management

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.

In regard of elevators the wizard enables to:

- Define validity period e.g. 1 month for user's Access Credential.
- Define elevator call type e.g. VIP = 2 (all call types and their numbers are explained in Kone Destination system manuals).
- Assign Authorisation Groups and Authorisations.
- Define Authentication Factors (cards, PINs).

The screenshot shows a web-based configuration interface for adding an access user. The main title is 'Add Access User Person Online'. Below it, there's a section for 'Access Credential details' with a sub-instruction: 'Enter Access Credential data and click [Next] to continue.' On the left, there's a 'Steps' sidebar with several steps, including 'Access Credential details' which is currently selected. The main area is divided into 'General' and 'Additional Options' sections. In the 'General' section, 'Valid from' and 'Valid to' are both set to 'None' with a time of '12:00 AM'. In the 'Additional Options' section, 'Elevator Call Type' is set to '0'. Other fields include 'Name' (Access Credential_3_Madrid Derrick), 'Group' (None), 'Status' (Active), and 'Thread Level' (1).

Low level configuration of MCI16-EVK interface

Contrary to other RACS 5 devices, the low level configuration of MCI16-EVK interface is done by means of text file on device's memory card. Press the card which is located under CR2032 battery on MCI16-EVK board, remove it and connect to computer by means of standard memory card reader. The configuration is defined in MCX16.ini file.

Example of MCX16.INI configuration file

```
% Network parameters of primary KGC (KONE) server in the format: IP address, ELI
interface port, RCGIF interface port
PKG=192.168.11.13,2005,2004
%
% Network parameters of backup KGC (KONE) server in the format: IP address, ELI
interface port, RCGIF interface port
BKG=192.168.11.14,2003,2002
%
% MCI16-EVK IP Address
IPP=192.168.11.169
%
% MCI16-EVK Gateway
IPG=192.168.11.1
%
% MCI16-EVK Subnet Mask
IPM=255.255.255.0
%
% Port for communication with MC16-EVK controllers
CUP=3544
%
% Port for communication with KGC (KONE) servers
KTP=4095
%
% DNS servers for MCI16-EVK interface
IPD=192.168.11.1
ISD=192.168.11.1
%
% Delay between successive uses of the same card at DOP in [s]. If card is used
again by user within the specified time then it is rejected.
CIN=10
%
% DOP Global Default Masks for all DOPs where the first value defines when the mask
is applied i.e. 1: no connection between RACS 5 and DK, 2: active connection
between RACS 5 and DK, 3: both states. The mask is created by defining successive
bits (SR.SF.DR.DF) for successive floors. DDM masks are optional in the
configuration of interface.
```

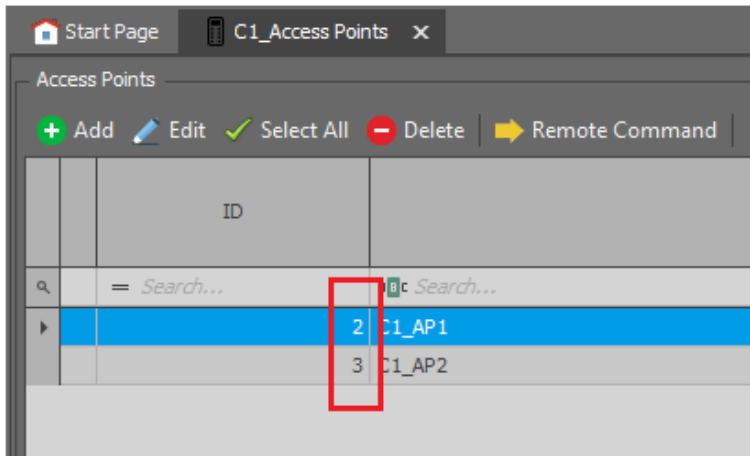
```

DDM=1,0000000000
DDM=2,FFFFFFFF
%
% DOP Default Masks for particular DOPs in the format: connection status (1: no
connection, 2: active connection, 3: both states), DOP Floor ID, DOP ID, mask. The
mask is created by defining successive bits (SR.SF.DR.DF) for successive floors.
SMD masks are optional in the configuration of interface.
SDM=1,1,1,0000000000
SDM=1,2,1,0000000000
%
%Parameter for enabling RCGIF interface (KONE) where 0: OFF, 1: ON
RCG=0
%
% Parameter for defining heartbeat connection between RACS 5 (ROGER) and DK (KONE)
in [ms]
KAP=6000
%
% DOP Definitions which are used to link RACS 5 Access Point with DK destination
operating panel (DOP) and floor in the format: MC16-EVK IP address, Access Point ID
(see below), DOP Floor ID, DOP ID, time limit, front(F) or rear(R)
DOP=192.168.11.161,2,1,1,0,F
DOP=192.168.11.161,3,2,1,0,F
%
END
    
```

Note: Lines which are started with % in MCX16.INI file are comments and they do not affect device configuration.

Note: The assistance of KONE elevator installers is necessary when such settings as PKG, BKG, DDM, SDM and DOP Floor ID as well as DOP ID within DOP setting are defined.

Note: Access Point IDs for DOP Definitions are taken from the list of Access Points in VISO software.



Diagnostics

MC16-EVK statuses are presented on LED indicators on its board. Additionally the statuses of LED1-LED6 indicators are replicated on OUT1-OUT6 outputs of the interface.

LED	Function	Description
LED1	Connection with main KGC server, ELI interface	Pulsing: Communication port is opened. ON: Active connection (heartbeat).
LED2	Connection with main KGC server, RCGIF interface	Pulsing: Communication port is opened. ON: Active connection (heartbeat).
LED3	Connection with backup KGC	Pulsing: Communication port is opened.

	server, ELI interface	ON: Active connection (heartbeat).
LED4	Connection with backup KGC server, RCGIF interface	Pulsing: Communication port is opened. ON: Active connection (heartbeat).
LED5	Memory card configuration error	When LED5+LED8 is on then there is license error.
LED6	Command sent to any KGC server	Short switching on after transmission.
LED7	Command received from any KGC server	Short switching on after transmission.
LED8	Main communication loop of the interface	Pulsing: Correct operation of the interface.

Additional low level configuration of MC16-EVK

Additional low level configuration of MC16-EVK controller is done by means of text file on device's memory card. Press the card which is located under CR2032 battery on MC16-EVK board, remove it and connect to computer by means of standard memory card reader. The configuration is defined in DEBUG.CFG file.

Example of DEBUG.CFG configuration file

```
CON=0
DEL=0
TWD=0
;IP address of MCI16-EVK interface i.e. IPP parameter from MCX16.INI file
ERI=192.168.11.169
;Port for communication with MCI16-EVK interface i.e. CUP parameter from MCX16.INI file
ERP=3544
;MC16 communication port
ELP=21064
```

Note: Lines which are started with ; in DEBUG.CFG file are comments and they do not affect device configuration.

Monitoring

In RACS 5 system events are generated for various actions and conditions. Events can be browsed after selection of *Event log* in the top menu of VISO software and then *Event log* or they can be monitored in real time after selection of *System Monitors* in the top menu of VISO software and then *Event Monitor*. In both cases events can be filtered.

Communication

The communication status with Kone Destination servers and panels is not signalled with dedicated events in RACS 5 system but according to previous description of MCI16-EVK low level configuration the status of communication with KGC servers is signalled with LED indicators and replicated on output lines. These outputs can be wired to MCI16-EVK inputs. Input activation can generate event and input status can be monitored in Automation Node Monitor after selection of *System Monitors* in the top menu of VISO software if input line is linked with Automation node.

Users

RACS 5 system registers events related to access granting and access denying when floor is selected.

Alerts and notifications

Automatic reaction of the system for event can be defined by selection of *Event log* in the top menu of VISO software and them *Event types* icon and *Actions* tab in the bottom. Typical actions are alert displaying for operator acknowledgement, mobile text (SMS) sending and email sending. In case of mobile texts and emails it is necessary to configure SMTP Account(s) and SMS Gateway(s) by selection of *Tools* in the top menu of VISO software. More information on alerts and notifications is given in AN041 application note.

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