Application Note - Comfort to Rako Interface

INTRODUCTION

This Application Note shows how Comfort can be interfaced to RAKO products via Comfort's UCM/Universal and RAV232 (1-way) or RAV232plus (bidirectional) Interface.

Equipment (Comfort)

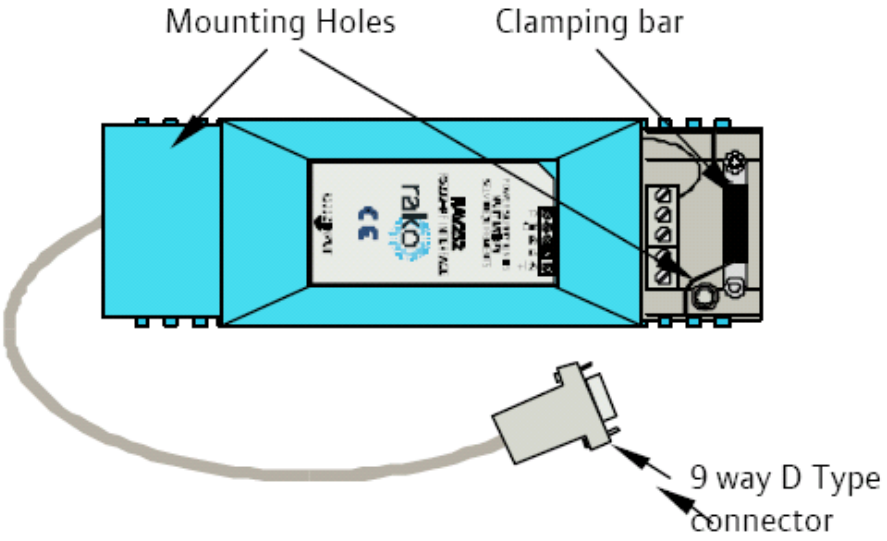
1 Comfort CP9000 Controller.

2 UCM/Universal (firmware 6.024) + RS232M (DE9 Male connector).

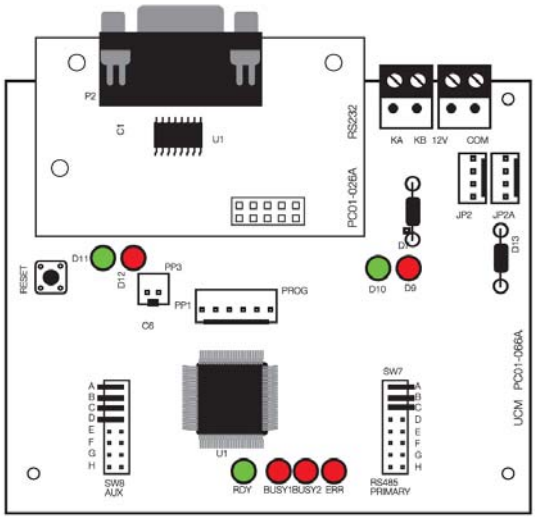
Reference Manual

Please refer to the Universal UCM Manual which can be downloaded from http://www.cytech.biz/universal_ucm_manual.html for detailed instructions on UCM/Universal.

Connections



Rako RAV232/RAV232plus Interface



UCM/Universal + RS232M submodule

1 Before connecting, set the ID on SW7 to the ID of the UCM according to the table below and according to the number of other UCMs in the Comfort Network. If there is only 1, set the ID to 2. By convention, ID 1 is reserved for the UCM to write/read to Comfort. Communications Failure is not reported for ID=1. Up to 8 UCMs of different types (e.g. C-Bus, KNX) can be connected to the Comfort network.

ID	SW7-A	SW7-B	SW7-C	SW7-D
1	Short	Short	Short	Short
2	Open	Short	Short	Short
3	Short	Open	Short	Short
4	Open	Open	Short	Short
5	Short	Short	Open	Short
6	Open	Short	Open	Short
7	Short	Open	Open	Short
8	Open	Open	Open	Short

2 The UCM is connected to Comfort via the supplied 4 way white cable from 4-pins header JP2/2A to Comfort's header J7 ("RS485"). It is not necessary to switch off the power to Comfort before plugging in this connection.

3 The Green RDY LED on the UCM (D1) should light up and remain on.

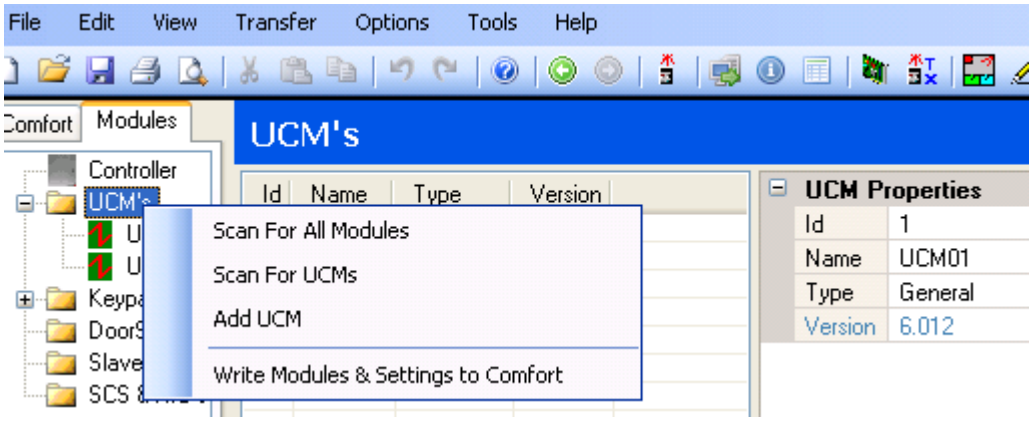
4 The LEDs D9 (red) and D10 (green) should blink rapidly showing that RS485 communications has been established between Comfort and the UCM. D9 (green) flashing shows that it is receiving communications from Comfort (poll). D10 (red) comes on when the UCM responds to a poll from Comfort.

5 Connect the Female DE9 cable/connector from RAV232 to the RS232 Male P1 connector using a direct Rs232 male to female cable. A gender change is not required if the RS232M submodule is used but a gender change is required if the RS232F submodule is used.

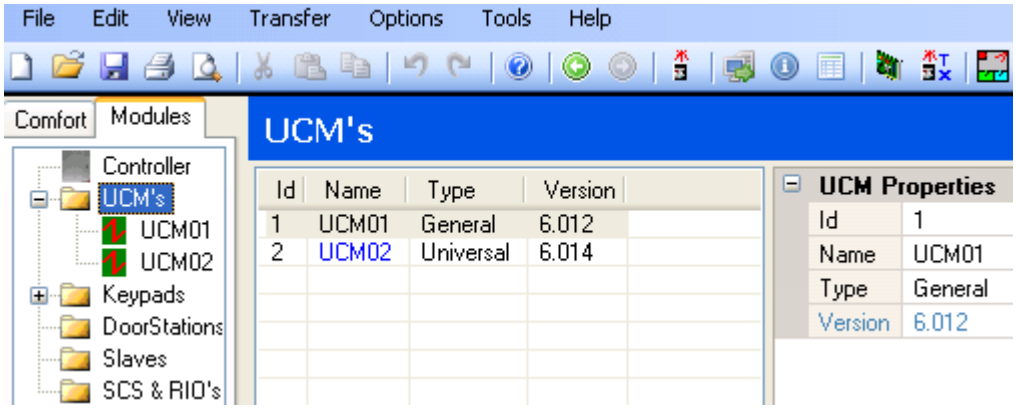
6 When sending commands to Rako, D12 (red) should blink. This shows that a message has been sent.

COMFIGURATOR Programming

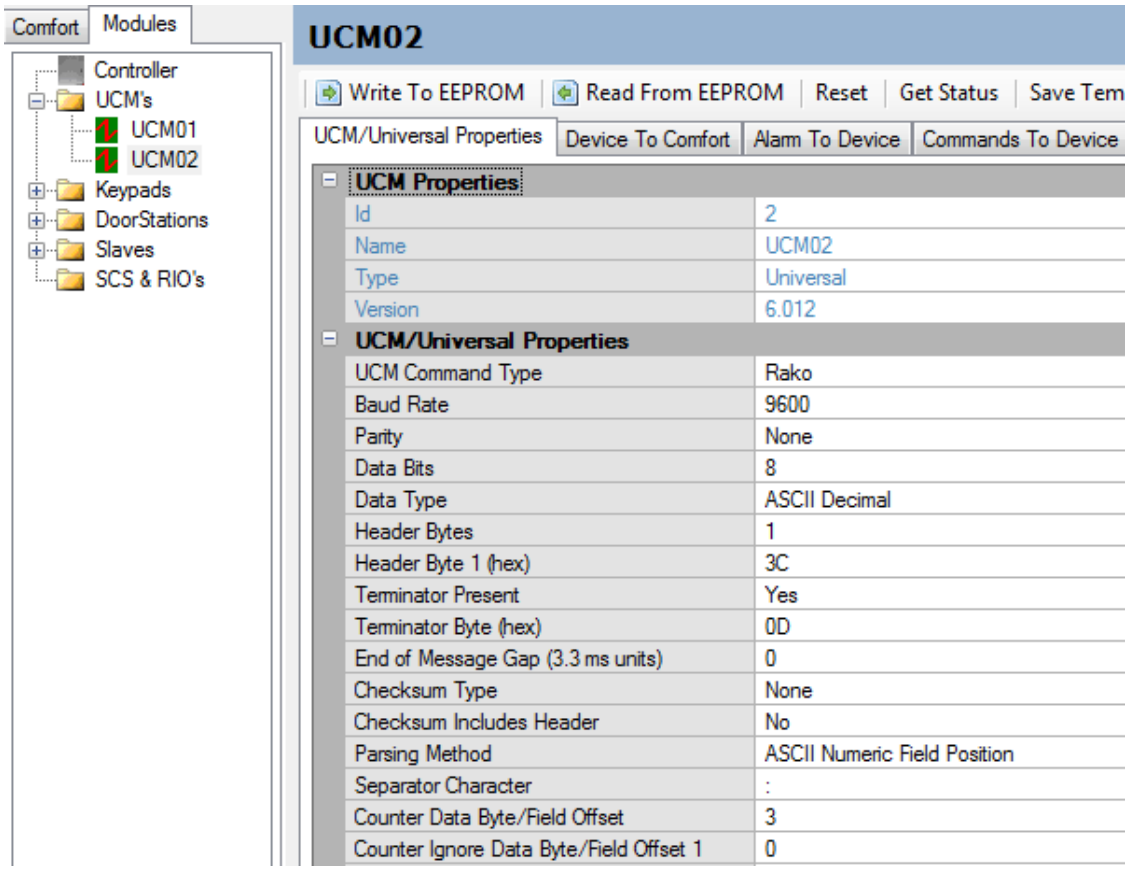
Use Comfigurator 3.4.4 or above.



In Modules Tab, right click and select Scan for UCMs or Scan for All Modules. The result of the scan should be 2 UCMs, ICM #1 which is the programming UCM and UCM #2 which is the Universal UCM.



Select UCM02 on the left pane to show the Universal UCM properties.



In UCM/Universal Properties, follow the settings on the screen for **RAV232Plus**

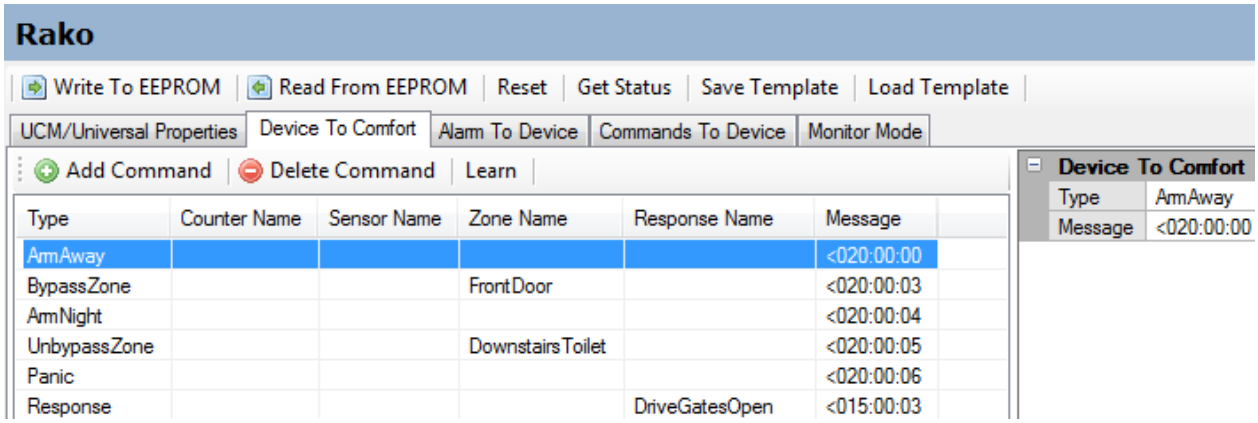
For **RAV232 (1-way),** the default baud rate is 1200 instead of 9600 so the baud Rate parameter shown below must be modified.

- UCM Command Type = Rako
- Baud Rate = 9600
- Parity = None
- Data Bits = 8
- Data Type = ASCII Decimal
- Header Bytes = 1
- Header Byte 1 (hex) = 3C
- Terminator Present = Yes
- Terminator Byte (hex) = 0D
- End of Message (3.3 ms units) = 0
- Checksum Type = None
- Checksum includes Header = No
- Parsing Method = ASCII Numeric Field Position
- Separator Character = :

The other parameters are not used for the RAV232plus 2-way interface

Device to Comfort

The Device to Comfort table allows received Rako messages to send commands to Comfort like activating responses (e.g. Open gate), or security commands like arm, bypass, and panic. This applies only to RAV232Plus and not RAV232 (1-way) interface.



The 'Learn' mode is a convenient way to receive Rako messages as you can press a button on the Rako device and capture the message, and then assign it to one of the function type without knowing anything about the Rako command protocol.

Alternatively, the 'Add Command' can be used to manually enter the Rako messages for those who are familiar with the Rako Command Protocol.

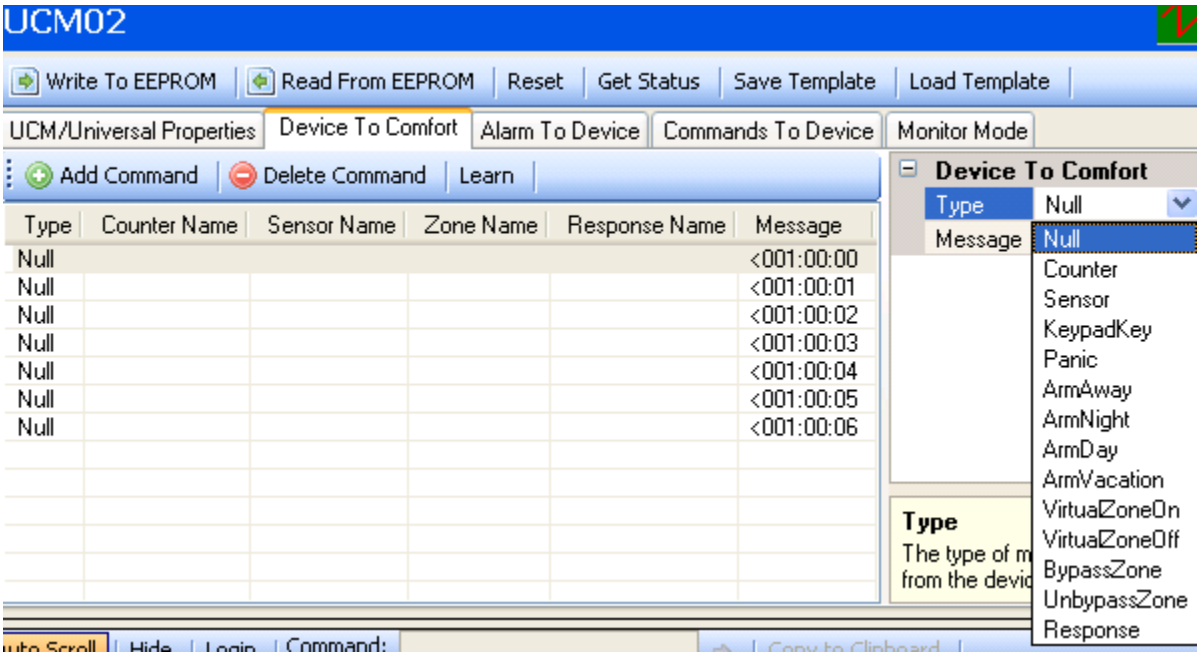
The format of received commands from Rako is

<RRR:CC:IN

Where RRR is Room number 0 to 255, CC is Channel 0 to 15 (0 means all channels) and IN is Instruction number 0 to 15. Refer to the Technical Notes at end of this document for the Rako Received Instruction list.

The sample file rako.cclx includes some typical Rako commands in the Device to Comfort Table.

For each Received Rako command in the Device to Comfort Table, map to a Comfort Element as shown below



Map to one of the following Elements which do not require any parameters from the Rako message.

Panic, ArmAway, ArmNight, Armday, ArmVacation, VirtualZoneOn, VirtualZoneOff, BypassZone, UnbypassZone or Response.

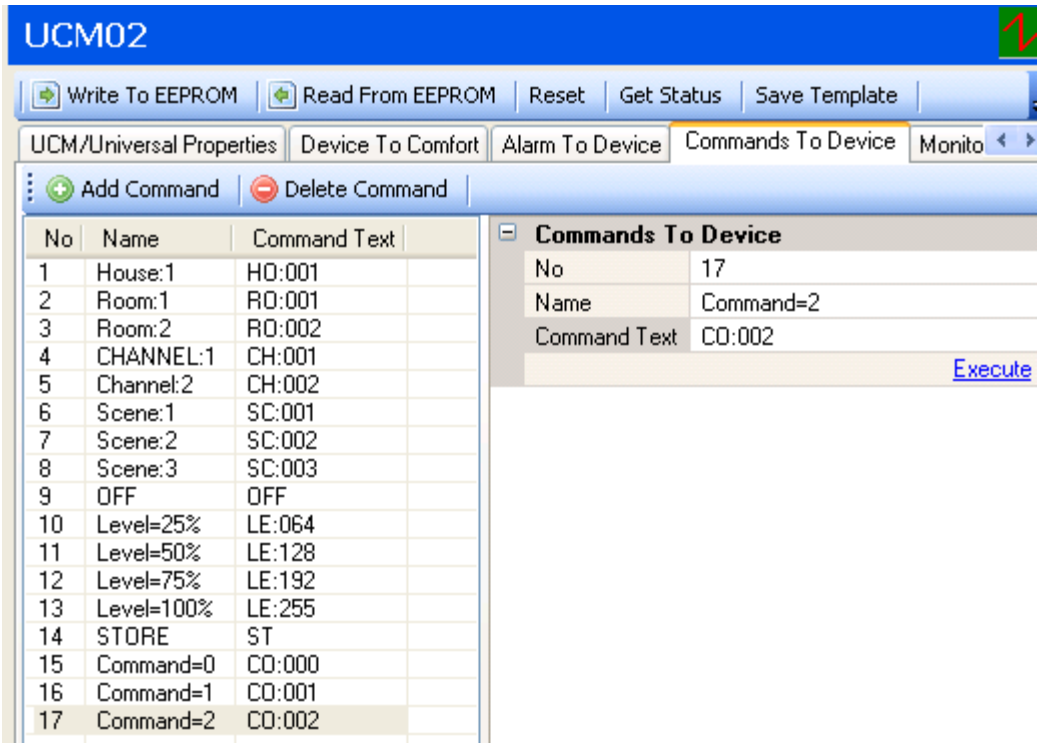
This means that the full rako message can be mapped to the Comfort Element.

For example, if mapped to Response, select a Response Name from the drop down list. This means that when the message in the table is received from Rako, the selected Response is activated.

Note: Do not use Counter, Sensor and Keypad key which requires fields in the message to be assigned to Counter, sensor or keypads as the message format is not suitable for this type of mapping.

Commands to Device

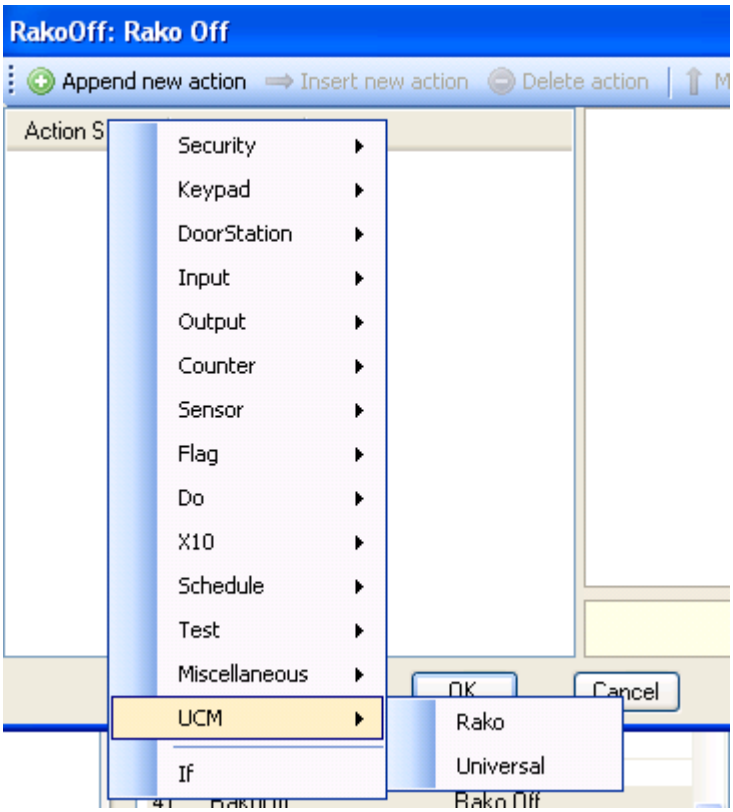
The Commands to Device Table should contain the commands which are required to be sent to Rako. The sample file rako.cclx has some typical commands which are shown in the screenshot below.



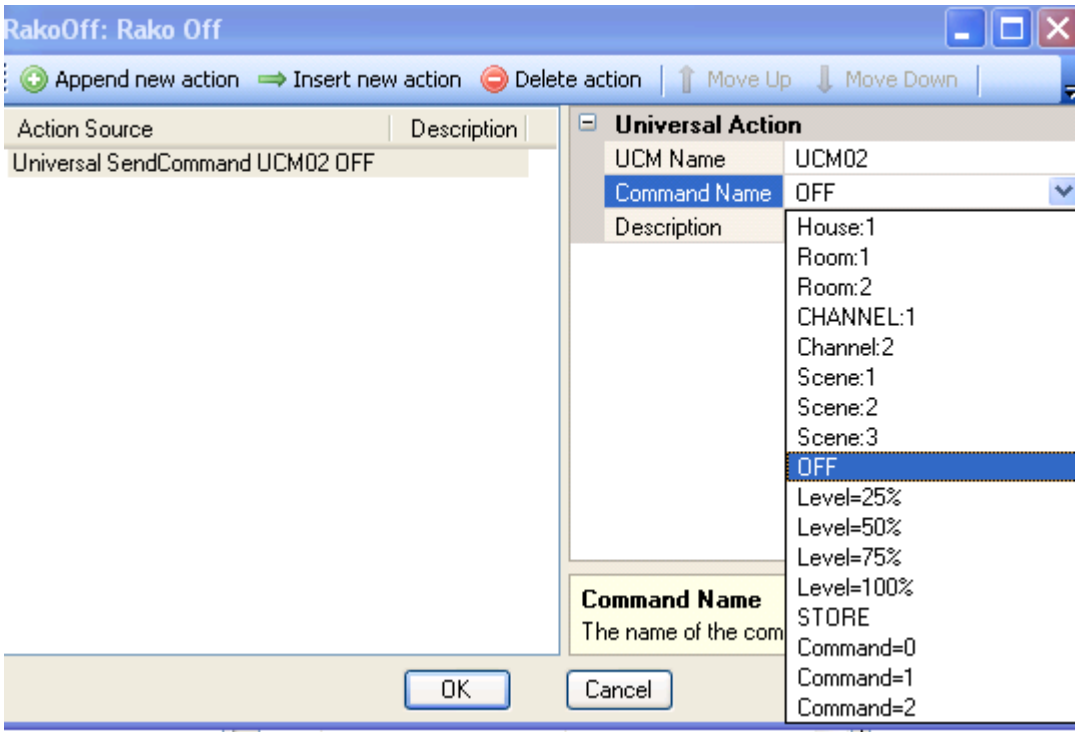
For each command, a descriptive Name and the Command text can be entered. The Execute button on the right pane allows the command text to be sent to RAV232. This is a very useful tool for testing the commands.

Sending Commands to Rako in "Commands to Device" Table

To send any of the commands in the Commands to Device Table, go to Responses, right click and Add Response as shown below, and select UCM > Universal (not Rako).



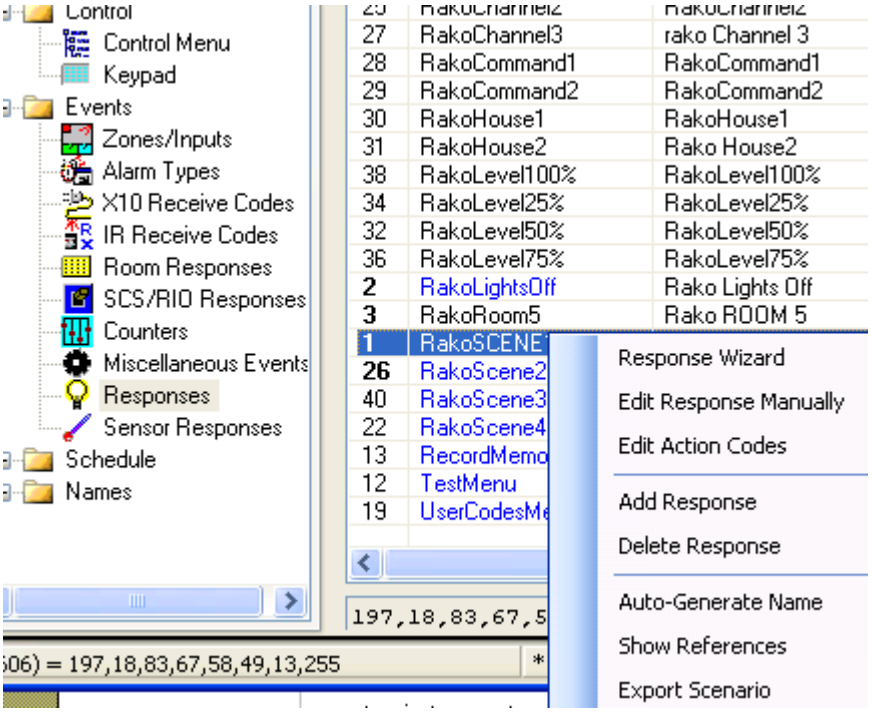
The list of commands in the Commands to Device Table is seen in the drop-down list. Select the command and press OK.



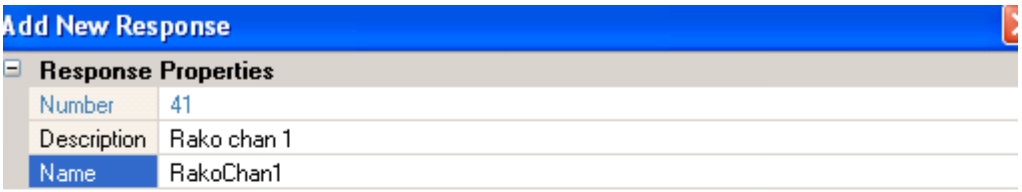
Sending Commands to Rako using “Rako” Actions

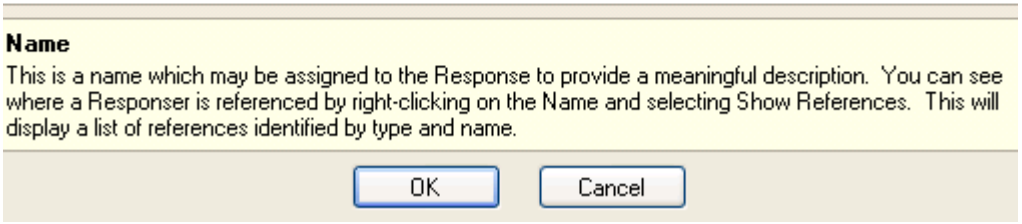
The other way of sending commands to Rako RAV232 is by using ths “Rako” actions instead of commands in the the Device to Comfort Table. This is the older way of sending RAKO commands which can be used in the UCM/232 as well as UCM/Universal.

In Events > Responses, right click and select ADD RESPONSE.

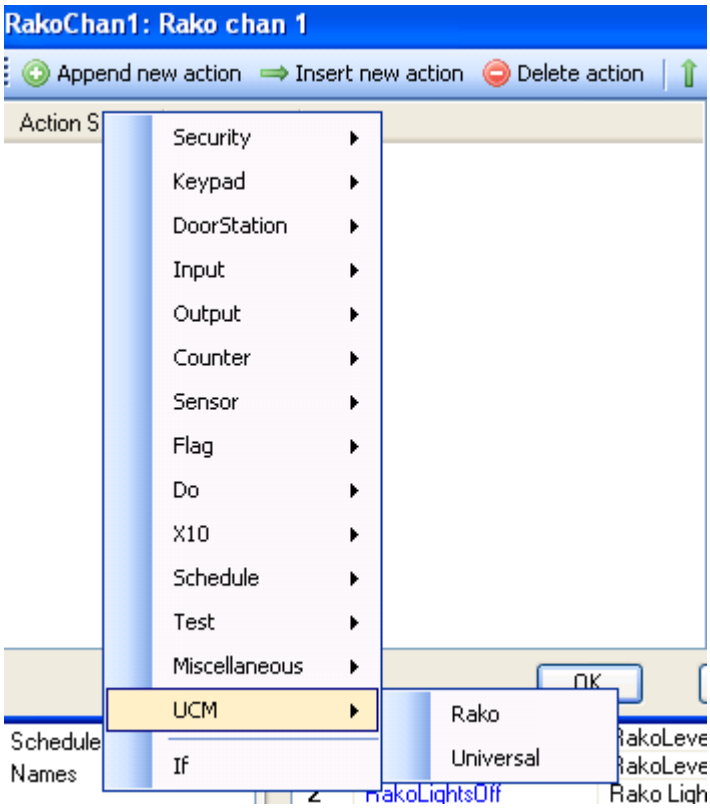


Enter a Description for the Response and press Enter. The Response name is automatically generated as shown

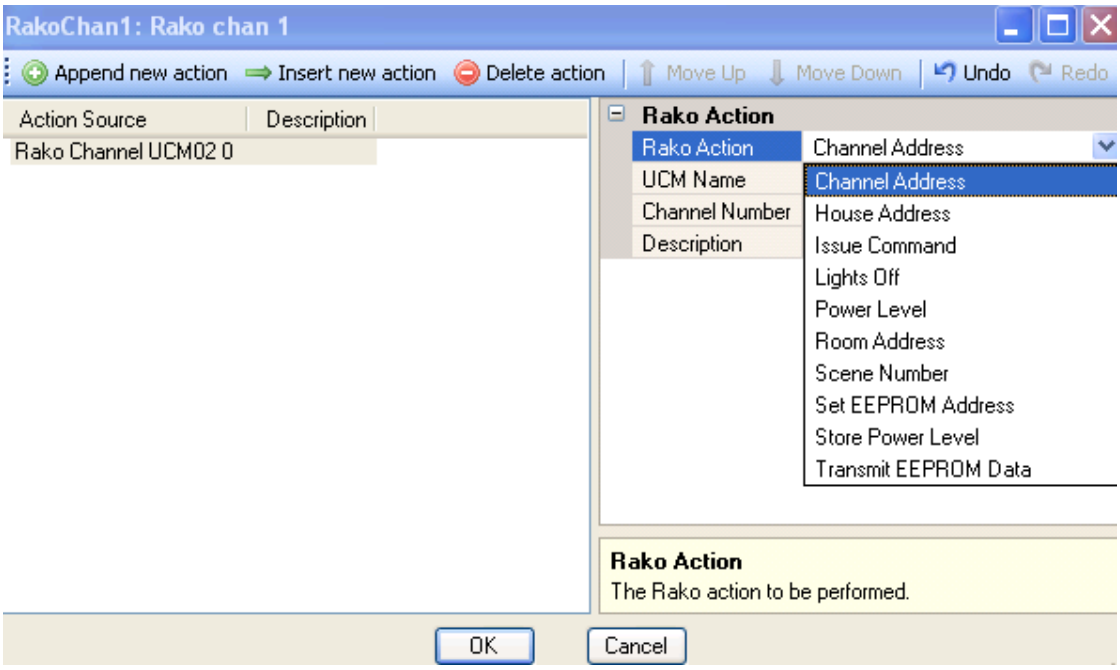




Press OK. The new action screen appears. Select UCM > Rako (instead of Universal).



The list of Rako commands is shown in the drop-down list.



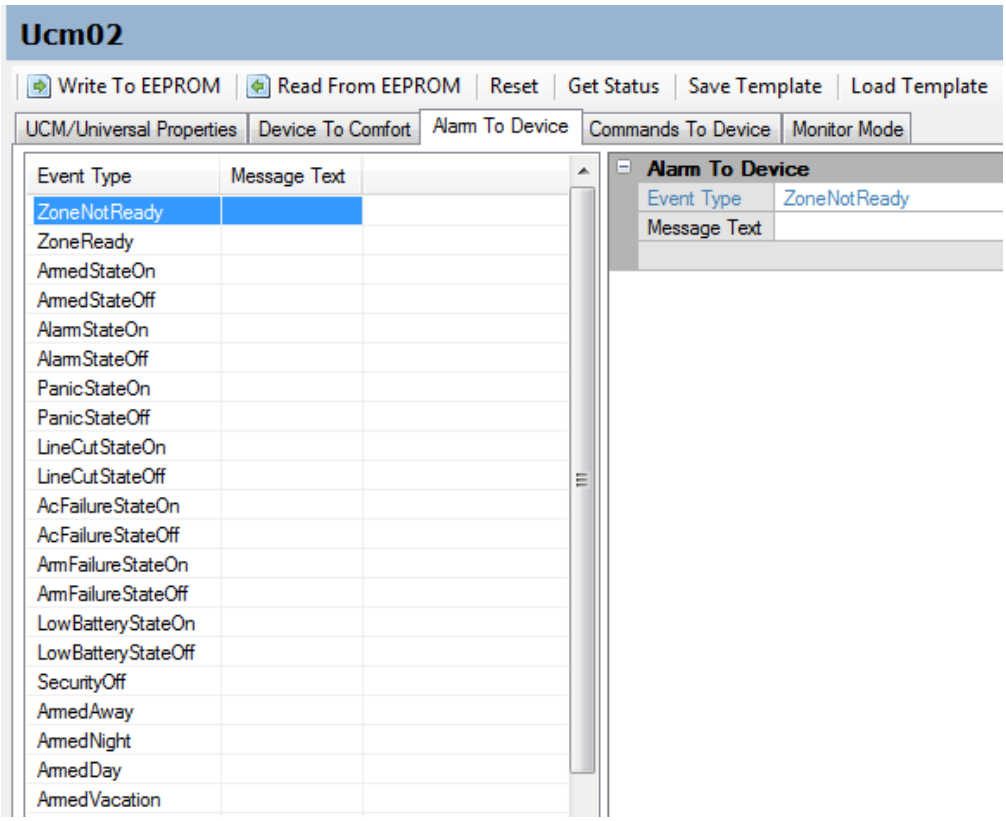
Select a command and the associated parameter and press OK These Rako commands wil automatically generate the correct messages to be sent to RAV232.

Add more actions to the Response if required.

Several commands can be send to RAV232 in a single Response, for example

Room 1
Channel 1
Scene 1
OFF

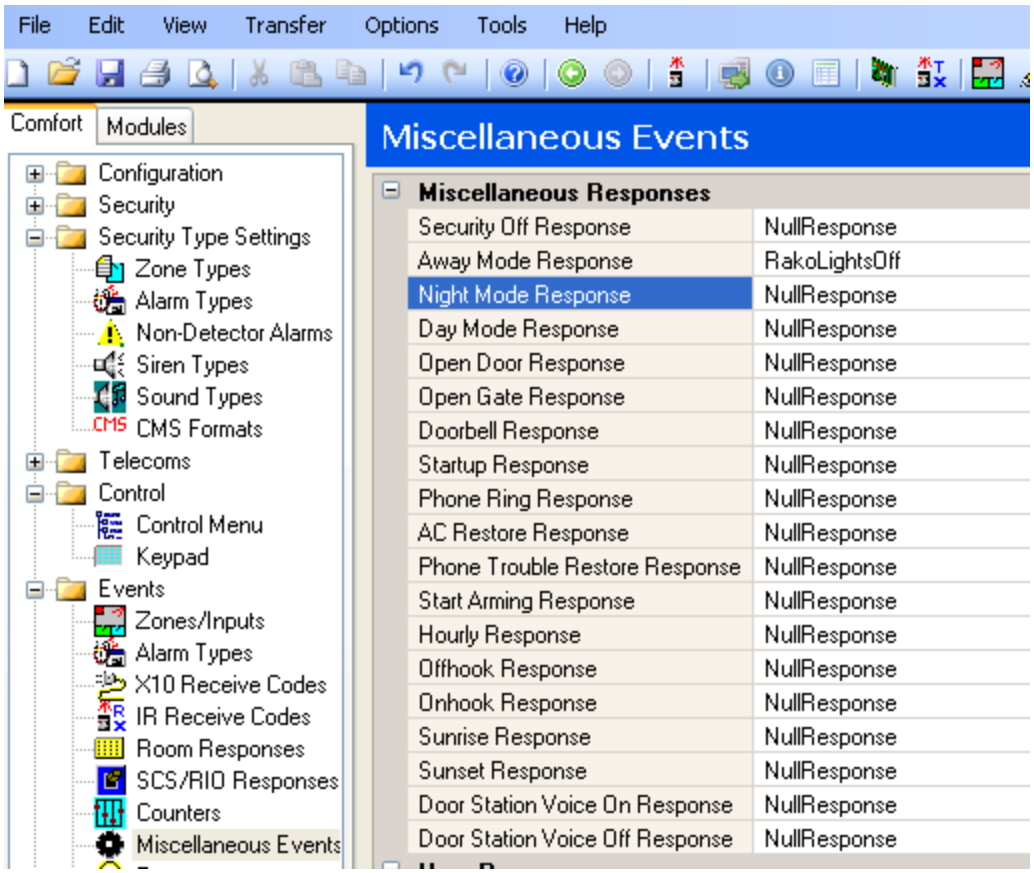
Alarm to Device



This tab is used to link Comfort alarm events to Rako devices. For each event, a Rako command can be sent when the event occurs. For example, when the system is armed to Away Mode, Night Mode, Dday mode, vacation mode, a command can be sent to Rako. If more than 1 command is required for each event, use Responses to add the Rako commands as shown in the Comfort Events section

Triggering Responses from Events

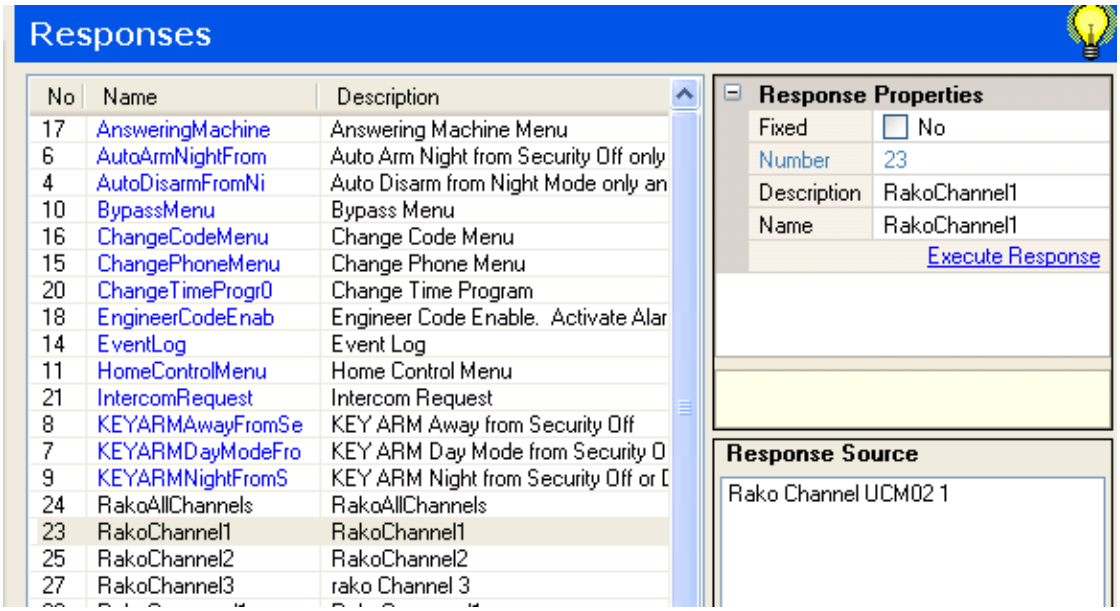
Responses can be triggered by Events in Comfort, eg Zone activated and Restored, Alarm Types, Time Programs, Home Control Menu, Doorbell, Phone ring, Sunrise/sunset times, System armed and disarmed and many more. For example the screen below Events > Miscellaneous Events, shows that Away Mode Response is assigned to RakoLightsOff Response. This means that when the security system is armed to Away Mode, it will send a command to Rako to turn off the programmmed



lights.

Executing Responses

Responses can be “executed” by clicking “Execute Response” on the right pane of the selected Response as shown below. This causes the Actions in the Response to be executed, and is a good way to test the Response.



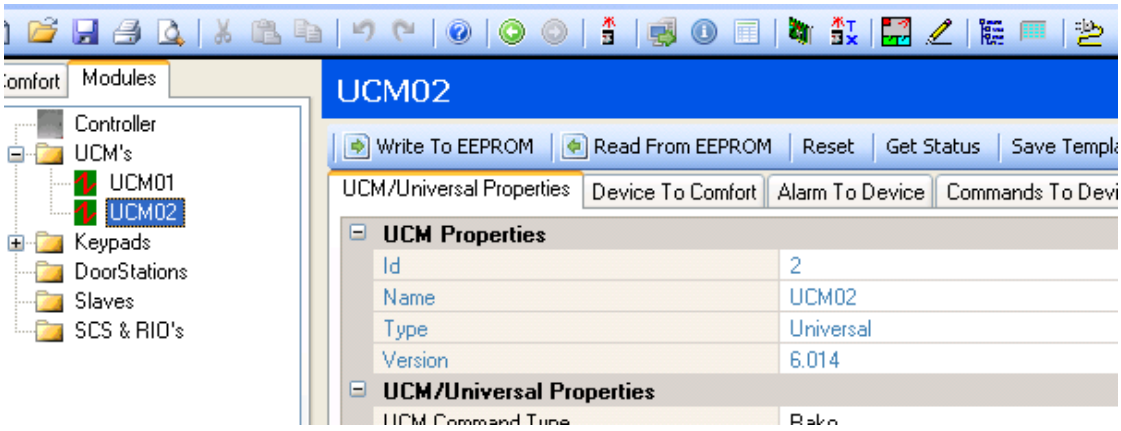
Sample Configuration File

A sample configuration file called RAKO.cclx is available from the Cytech website.

Write To EEPROM

When the Universal UCM configuration is completed, a WRITE to EEPROM is needed. Click the Write to EEPROM button shown below.

Note that the Rako commands will not work unless the UCM / Universal configuration has been written to EEPROM.



Read From EEPROM

Read from EEPROM reads the programmed information in the Universal UCM to Comfigurator.

Reset

This button resets the EEPROM to factory default, ie it erases the tables.

Get Status

This reads the status of the Universal UCM to be displayed on the Status bar. Refer to the Universal UCM Manual for details.

Save Template / Load Template

The Universal UCM configuration that you have programmed can be saved as a template. Press the Save Template button to save as a .uutx file. The Load Template button loads the saved template into a new configuration file.

Write to Comfort

When the program is completed, write to Comfort. Go to Transfer > Write to Comfort. Also do not forget to Write to EEPROM in Universal UCM if you have not done so already

Technical Notes: Action 197 for RAKO Commands

For an understanding of the Rako concepts, please refer to the appropriate Rako documentation. It is beyond the scope of this manual to provide details of Rako operations.

Comfort interacts with Rako by sending Rako commands to control the desired device on the network.

The Rako devices should be programmed beforehand. The list of logic addresses used should be known, e.g. the Channel Number, for Comfort to integrate with Rako. Note that Comfort needs to be programmed separately.

Action 197 is used to send Rako messages. The Rako RS232 message format is described in the Rako RS232 Command Summary from Rako Controls The format of Action 197 is as follows:

Format (Send to Rako)

197, ID, [Command]:<Value>, 255

The command is terminated with a carriage return.

ID

This is the address of the UCM01 on the Comfort RS485 bus, i.e. 17 = UCM 1, 18 = UCM 2,...,24 = UCM 8. The UCM must correspond to the ID setting on SW7.

Some Commonly Used Commands

Command	Description
HOUSE<house number>	Sets the HOUSE address to the house number assigned. HOUSE numbers may take values from 1 to 255.
ROOM<room number>	Sets the ROOM address to the room number assigned. Room numbers may take values from 0 to 255, with 0 addressing all rooms in the HOUSE.
CHANNEL<Channel Number>	Selects the Channel address, and must take values from 0 to 15. If Channel number is not set, defaults to 0.
SCENE<scene number>	Sets the scene for the current HOUSE/ROOM/CHANNEL. Scene numbers may be between 1 and 4.

Command	Description
OFF	Switches off the lights in the current HOUSE/ROOM/CHANNEL.
LEVEL<power level>	Dims the HOUSE/ROOM/CHANNEL to the power level, which can take 0 to 255 (100%).
STORE	Stores the current dim level to the current scene. Only applies to dimmers addressed by current HOUSE/ROOM/CHANNEL.
RESET	Resets the microcontroller
COMMAND<Command number>	Issues the command number to the lights in the current HOUSE/ROOM/CHANNEL, and must take values from 0 to 15.
ADDRESS<EEPROM address>	Sets the EEPROM address within the dimmers, must take values 0 and 255.
DATA<EEPROM data>	Transmits the EEPROM data to address set using the ADDRESS command.

Note that it may not be necessary to enter the full text of the command. A shortened non-ambiguous version can be used, e.g. HO:1 can be sent instead of HOUSE:1.

Format (Receive from Rako)

<RRR : CC : IN

RRR

This is the decimal Room number ranging from 0 to 255.

CC

This represents the Channel number 0 - 15 (0 means “all channels”).

IN

This indicates the Instruction Number.

The list of Instructions is shown below;

Instruction Number	Instruction
0	Off
1	Light+ (brighten)
2	Light- (dim)
3	Ps1 (Scene 1)
4	Ps2 (Scene 2)
5	Ps3 (Scene 3)
6	Ps4 (Scene 4)
10	low battery
11	eeprom write
12	level set
13	store
15	stop

Document Title: RakoAppNote.lwp

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