

Application Note - Interfacing Dynalite

INTRODUCTION

This Application Note shows how Comfort can be interfaced to Dynalite products via Comfort's UCM/Universal.

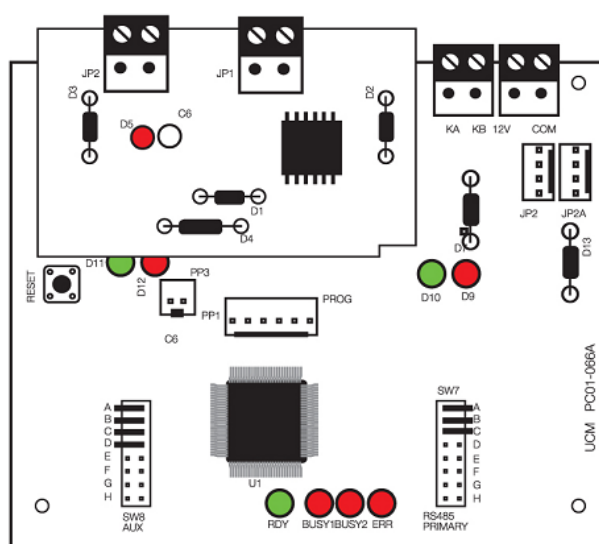
Equipment

- 1 Comfort CP9000 Firmware Version 6.023 and above
- 2 UCM/Universal (firmware 6.025 or higher) + AUX485. The AUX485 provides an isolated RS485 interface to the DyNet Bus

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



UCM/Universal + AUX485 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 (Ethernet or USB) to write and read from Comfort. Communications Failure alarm is not reported when the UCM with ID=1 is removed from the system. 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

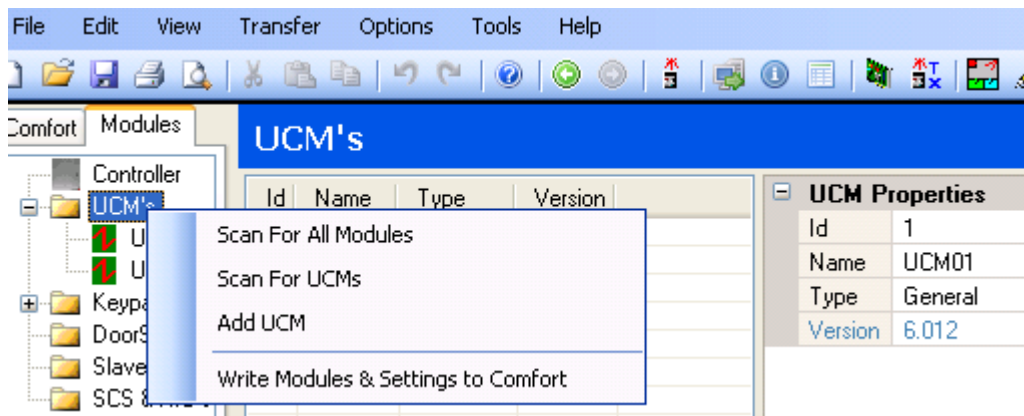
- 2 The UCM is connected to Comfort via the supplied 4-way white cable from 4-pins header JP2/2A to Comfort's header J7 ("RS485"). It is not necessary to switch off the power to Comfort before plugging in this connection.

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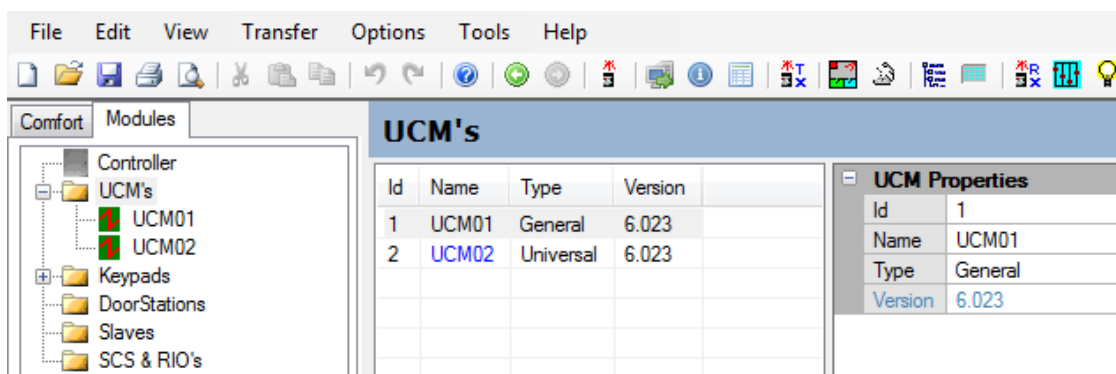
- 3 The Green RDY LED on the UCM (D1) should light up and remain on.
- 4 The LEDs D9 (red) and D10 (green) should blink rapidly showing that RS485 communications has been established between Comfort and the UCM. D9 (green) flashing shows that it is receiving communications from Comfort (poll). D10 (red) comes on when the UCM responds to a poll from Comfort.
- 5 Connect the AUX485 KA/KB (JP1) to any Dynalite module's D+/D- respectively; connect the AUX485 V+/V- (JP2) to any Dynalite module's +12V/GND respectively. **AUX485 provides isolation between Dynalite Dynet RS485 bus and Comfort**
- 6 When sending commands to Dynalite, D12 (red) should blink. This shows that a message has been sent.

CONFIGURATOR Programming

Use Configurator 3.5.6 or above.

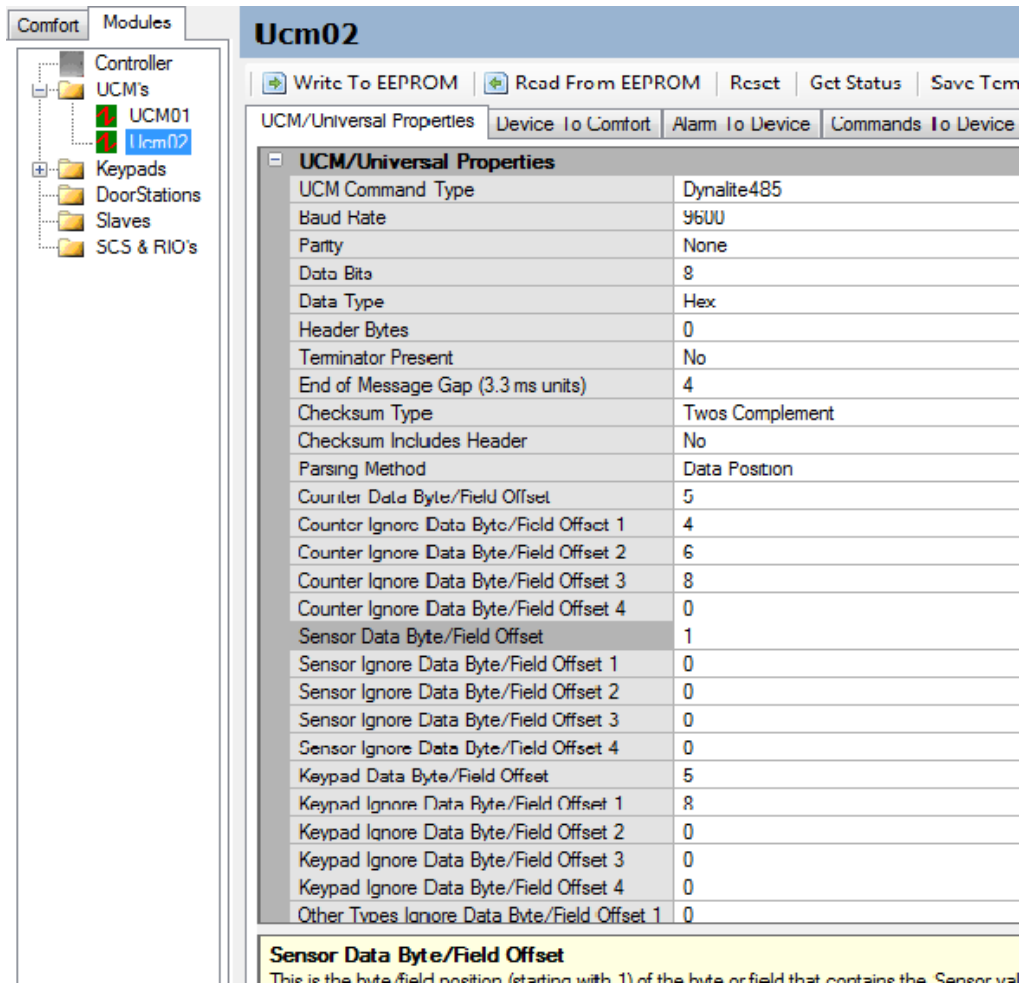


In Modules Tab, right click and select Scan for UCMs or Scan for All Modules. The result of the scan should be 2 UCMs, UCM #1 which is the programming UCM and UCM #2 which is the Universal UCM (assuming Universal UCM is ID #2).



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

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In UCM/Universal Properties, select the following:

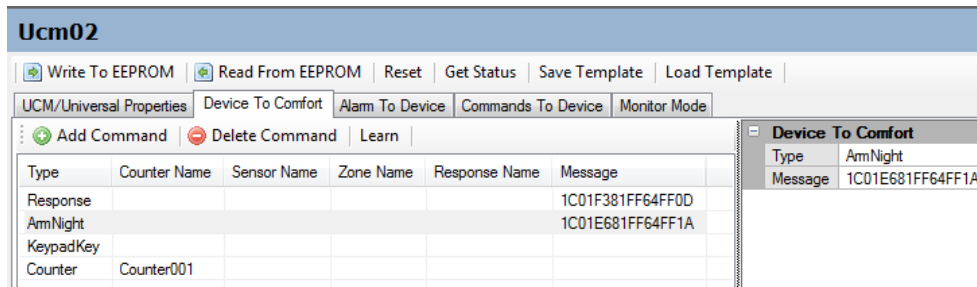
- UCM Command Type as: Dynalite485
- End of Message Gap (3.3. ms unit): 4
- Checksum Type: Twos Complement
- Counter Data Byte/Field Offset: 5
- Counter Ignore Data Byte/Field Offset 1: 4
- Counter Ignore Data Byte/Field Offset 2: 6
- Counter Ignore Data Byte/Field Offset 3: 8
- Keypad Data Byte/Field Offset: 5
- Keypad Ignore Data Byte/Field Offset 1: 8

Leave other parameters to the default, as they are not important.

Device to Comfort

The Device to Comfort table allows received Dynalite messages to send commands to Comfort, like activating responses (e.g. Turning on air-conditioner), or security commands like arm, bypass, and panic.

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The Channel Level of the DyNet Linear Channel/Area Control messages can be mapped to Comfort's Counter so that different level can be programmed to trigger different things in Comfort.

The DyNet Key Press / Key Release messages can also be mapped to KeypadKey to simulate a Comfort keypad. The button number in the Dynalite Key Press / Key Release command is associated to the keypad key according to the table below:

Keypad Key	Button Number	Keypad Key	Button Number
0 - 9	0 - 9	Function 0	32
F	10	Function 1	33
*	11	Function 2	34
		Function 3	35
Away (soft)	13	Function 4	36
Night (soft)	14	Function 5	37
Day (Soft)	15	Function 6	38
Panic	16	Function 7	39
Fire	17	Function 8	40
Away (hard)	18	Function 9	41
Night (hard)	19	Function 10 (F)	42
Day (hard)	20	Function 11 (*)	43
Vacation (hard)	21	Function 12 (#)	44
Enter (#)	26	Function 13 (Away)	45
End	27	Function 14 (Night)	46
		Function 15 (Day)	47

Away, Night, Day (soft) - These the keys corresponding to the 3 top left keys on the Comfort keypad. They are "soft" because these keys can be programmed by Configurator to other functions and not necessarily for arming to Away, Night and Day.

Away, Night, Day, Vacation (hard) - these keys always arm the system to the respective modes and do not depend on how the function keys are programmed.

Panic, Fire - These are "hard" keys which activate a Panic and Fire alarm respectively on Comfort.

Function 0 to Function 15 - These activate the programmed function keys 0 to 15 on the Comfort keypad using 1 key only so facilitate the use on a Dynalite button or touchscreen.

Enter (#) - This key is like the # key which terminates the entry of the user code to disarm the system. Entering the code and <ENTER> key will disarm the system without entering voice menu. The Enter key should be used on Dynalite (instead of the # key No 12) because there is no speaker on the Dynalite bus which can let the user hear the voice menu.

F and End - The F key corresponds to the bottom right key on the Comfort keypad which together with a number key activates a programmed function.

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The F key will also end any voice menu which is playing on the keypad being used or on other keypads. The <END> key will end the voice menu on the keypad but it does not activate a function key with the next number.

The 'Learn' mode is a convenient way to receive Dynalite messages as you can press a button on the Dynalite device and capture the message, and then assign it to one of the function type.

Alternatively, the 'Add Command' can be used to manually enter the Dynalite messages.

Alarm to Device

Ucm02

Write To EEPROM | Read From EEPROM | Reset | Get Status | Save Template | Load Template

UCM/Universal Properties | Device To Comfort | **Alarm To Device** | Commands To Device | Monitor Mode

Event Type	Message Text
ZoneNotReady	
ZoneReady	
ArmedStateOn	
ArmedStateOff	
AlarmStateOn	
AlarmStateOff	
PanicStateOn	
PanicStateOff	
LineCutStateOn	
LineCutStateOff	
AcFailureStateOn	
AcFailureStateOff	
ArmFailureStateOn	
ArmFailureStateOff	
LowBatteryStateOn	
LowBatteryStateOff	
SecurityOff	
ArmedAway	
ArmedNight	
ArmedDay	
ArmedVacation	

Alarm To Device
Event Type: ZoneNotReady
Message Text:

This tab is used to link Comfort alarm events to Dynalite devices. For each event, a fixed text string can be sent when the event occurs, and another text string can be sent when the event is restored (off).

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Commands to Device

The screenshot shows the 'Ucm02' interface with the 'Commands To Device' tab selected. The interface includes a header bar with 'Ucm02' and a row of buttons: 'Write To EEPROM', 'Read From EEPROM', 'Reset', 'Get Status', 'Save Template', and 'Load Template'. Below this is a row of tabs: 'UCM/Universal Properties', 'Device To Comfort', 'Alarm To Device', 'Commands To Device' (selected), and 'Monitor Mode'. Under the 'Commands To Device' tab, there are buttons for 'Add Command' and 'Delete Command'. A table with columns 'No', 'Name', and 'Command Text' is visible, but it is empty. To the right of the table is a large text area for command input.

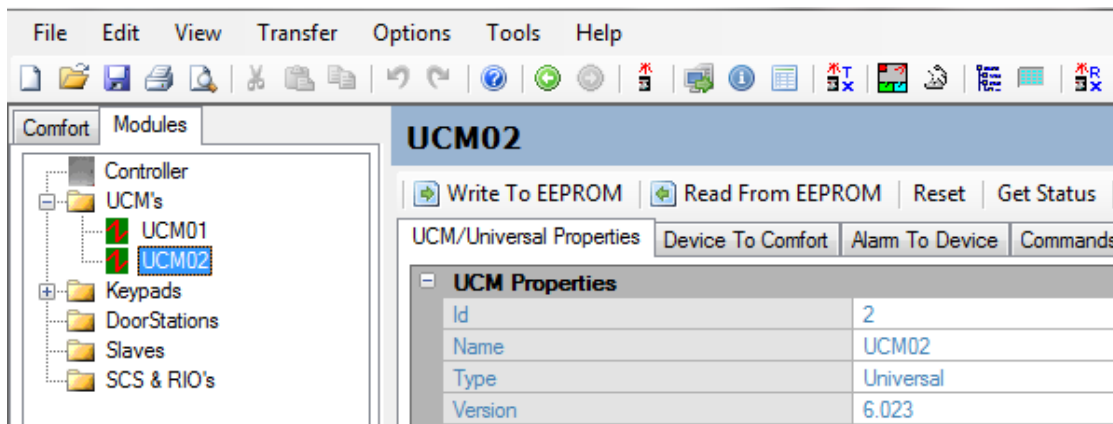
List all the commands to be sent out to Dynalite devices. This is not normally used for Dynalite application. These commands (if any) will appear under the UCM >> Universal actions; in addition to UCM >> Dynalite actions.

The screenshot shows a dialog box titled 'TurnOnLvgAreaCh1: Turn On Living Area Ch 1'. It has three buttons: 'Append new action' (selected), 'Insert new action', and 'Delete action'. Below the buttons is a table with columns 'Action Source' and 'Description'. The first row in the table is 'Dynalite LinearCA100ms Ucm02 1 0 1 0 255'. A dropdown menu is open, showing a list of action sources: Security, Keypad, DoorStation, Input, Output, Counter, Sensor, Flag, Do, X10, Schedule, Test, Miscellaneous, UCM (highlighted), and If. To the right of the dropdown menu is an 'OK' button. Below the 'If' option, there are two sub-options: 'Dynalite' and 'Universal' (highlighted).

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Write to EEPROM

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



Read From EEPROM

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

Reset

This button resets the EEPROM to factory default.

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

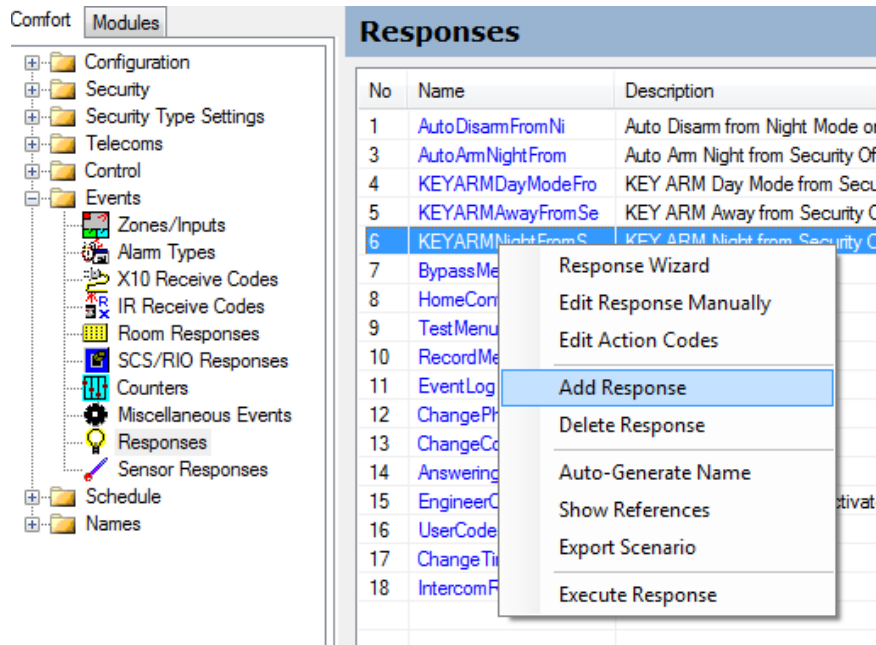
The Universal UCM configuration that you have programmed can be saved as a template. Press the Save Template button to save as a .uutx file. The Load Template button loads the saved template into a new configuration file.

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Sending Commands to DyNet

The Response Wizard is used to send Commands to Dynalite Devices.

In Events > Responses, right click and select ADD RESPONSE. A Response is a small program in Comfort consisting of Actions which are commands in Comfort's programming language.



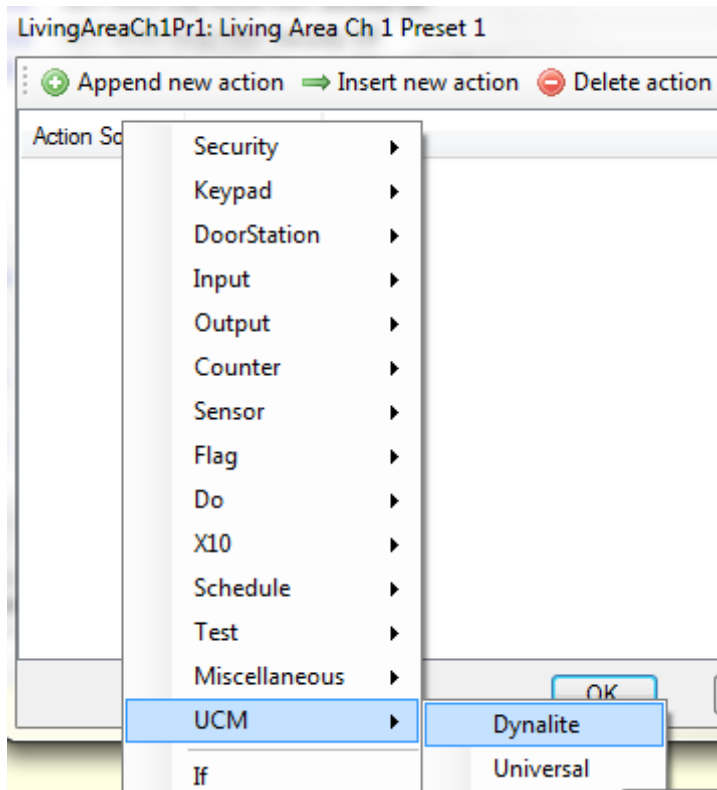
Enter a Description for the Response and press Enter. The Response name is automatically generated as shown

The screenshot shows the 'Add New Response' dialog box. It has a title bar with a close button. Inside, there's a section titled 'Response Properties' with a table containing three rows: 'Number' with value '19', 'Description' with value 'Living Area Ch 1 Preset 1', and 'Name' with value 'LivingAreaCh1Pr1'. Below this table is a text area. At the bottom, there's a yellow box with the text: 'Name This is a name which may be assigned to the Response to provide a meaningful description. You can see where a Responder is referenced by right-clicking on the Name and selecting Show References. This will display a list of references identified by type and name.' At the very bottom are 'OK' and 'Cancel' buttons.

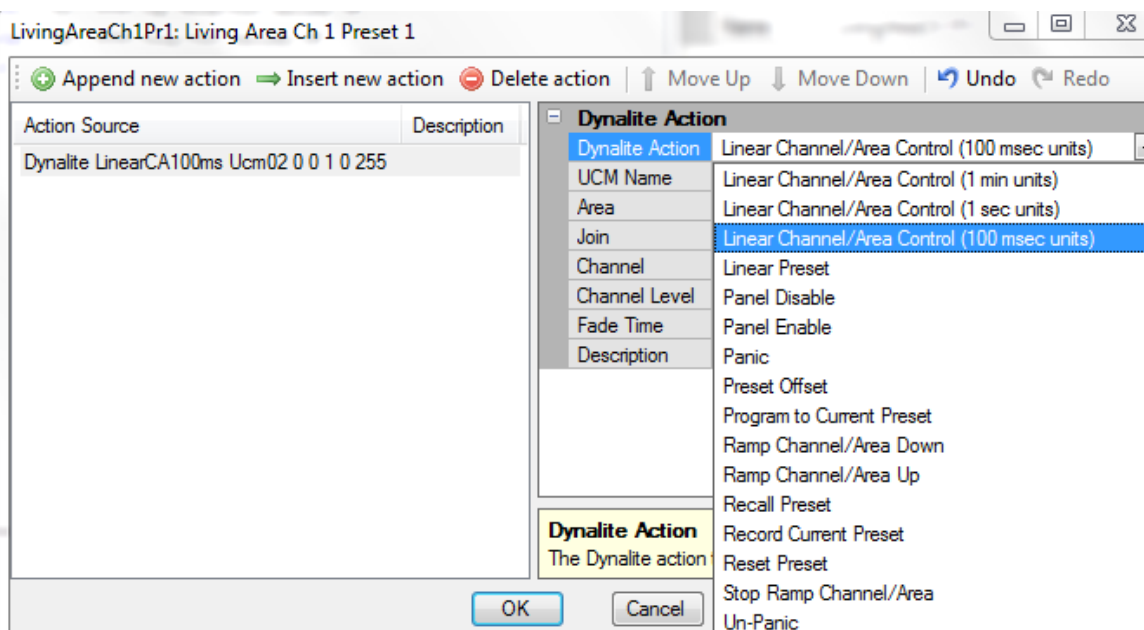
Response Properties	
Number	19
Description	Living Area Ch 1 Preset 1
Name	LivingAreaCh1Pr1

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

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The list of Dynalite commands is shown in the drop-down list



Select a command and the associated parameter and press OK.

Add more actions to the Response if required.

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

Dynalite LinearPreset Ucm02 1 0 0 255

Dynalite RampDownCA Ucm02 2 0 50 255

Dynalite LinearCA100ms Ucm02 3 0 1 0 255

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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.

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.

Responses

No	Name	Description
1	AutoDisarmFromNi	Auto Disarm from Night Mode only and not in Alarm
3	AutoArmNightFrom	Auto Arm Night from Security Off only
4	KEYARMDayModeFro	KEY ARM Day Mode from Security Off
5	KEYARMAwayFromSe	KEY ARM Away from Security Off
6	KEYARMNightFromS	KEY ARM Night from Security Off or Day Mode
7	BypassMenu	Bypass Menu
8	HomeControlMenu	Home Control Menu
9	TestMenu	Test Menu
10	RecordMemoMenu	Record Memo Menu
11	EventLog	Event Log
12	ChangePhoneMenu	Change Phone Menu
13	ChangeCodeMenu	Change Code Menu
14	AnsweringMachine	Answering Machine Menu
15	EngineerCodeEnab	Engineer Code Enable. Activate Alarm 30
16	UserCodesMenu	User Codes Menu
17	ChangeTimeProgr0	Change Time Program
18	IntercomRequest	Intercom Request
19	LivingAreaCh1Pr1	Living Area Ch 1 Preset 1

Response Properties

Fixed	☐ No
Number	19
Description	Living Area Ch 1 Preset 1
Name	LivingAreaCh1Pr1

[Execute Response](#)

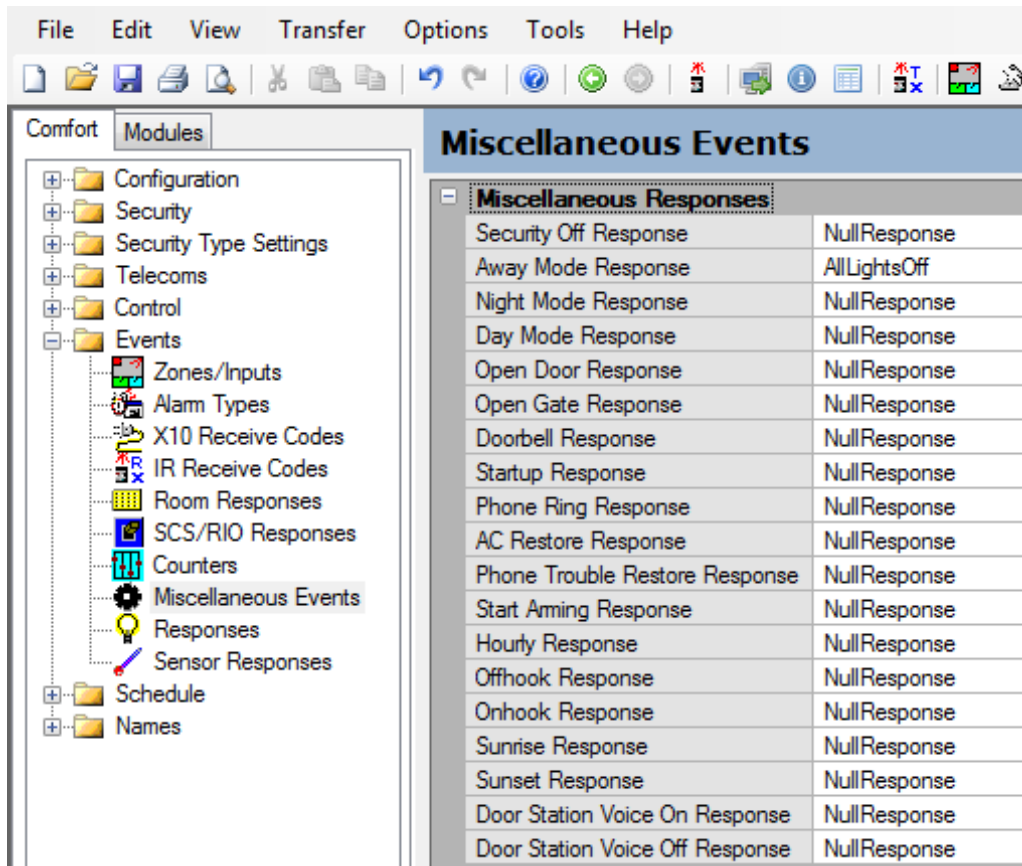
Response Source

Dynalite LinearPreset Ucm02 1 0 0 255

Comfort 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 AllLightsOff Response. This means that when the security system is armed to Away Mode, it will send a command to Dynalite to turn off the programmed lights.

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Sample Configuration File

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

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Technical Notes: Action 197 for Dynalite Commands

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

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

The Dynalite DyNet should be programmed beforehand. The list of logic addresses used should be known, i.e. The Area Number and Channel Number, for Comfort to integrate with Dynalite. Note that Comfort needs to be programmed separately.

Action 197 is used to send DyNet messages. The format of Action 197 is as follows:

Format

197, ID, SyncByte, Byte1, Byte2, OpCode, Byte4, Byte5, Byte6, Checksum, 255

The parameters between the ID and terminator (255) are fixed as 8 bytes, which will determine the operation to be carried out.

ID

This is the address of the UCM/Universal 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.

SyncByte

SyncByte	Description
28	Logical Addressing Scheme
92	Physical Addressing Scheme

OpCode

This determines the operation for which Dynalite is supposed to do, e.g. Ramping up, ramping down, etc. For the OpCode in greater details, please refer to the relevant Dynalite documentation.

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Some Commonly Used Commands

There are various commands that can be sent to DyNet to control Dynalite devices. The following are some commonly used commands:

Linear Channel/Area Control

197, ID, SyncByte (0x1c), Area, Channel Number, OpCode (depends on Resolution), Channel Level, Fade, Join, Checksum, 255

Linear Preset

197, ID, SyncByte (0x1c), Area, Preset, 0x65, Fade-low, Fade-high, Join, Checksum, 255

Panel Disable/Enable

197, ID, SyncByte (0x1c), Area, 0x00, OpCode (depends on Disable/Enable), 0x00, 0x00, Join, Checksum, 255

Panic/Un-Panic

197, ID, SyncByte (0x1c), Area, Fade-low, OpCode (depends on Panic/Un-Panic), Fade-high, 0x00, Join, Checksum, 255

Preset Offset

197, ID, SyncByte (0x1c), Area, Offset, OpCode (0x64), 0x00, 0x00, Join, Checksum, 255

Program to Current Preset

197, ID, SyncByte (0x1c), Area, 0x00, OpCode (0x08), 0x00, 0x00, Join, Checksum, 255

Ramp Channel/Area On/Off

197, ID, SyncByte (0x1c), Area, Channel Number, OpCode (depends on Target Level), 0x00, Ramping Rate, Join, Checksum, 255

Recall Preset

197, ID, SyncByte (0x1c), Area, 0x00, OpCode (0x67), 0x00, Fade, Join, Checksum, 255

Record Current Preset

197, ID, SyncByte (0x1c), Area, 0x00, OpCode (0x66), 0x00, 0x00, Join, Checksum, 255

Reset Preset

197, ID, SyncByte (0x1c), Area, Fade-low, OpCode (0x0f), Fade-high, 0x00, Join, Checksum, 255

Stop Ramping

197, ID, SyncByte (0x1c), Area, Channel Number, OpCode (0x76), 0x00, 0x00, Join, Checksum, 255

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Key Press / Key Release

197, ID, SyncByte (0x5c), Device Code of transmitting device, Box Number, OpCode (0x43), Button Number (0x01=button 1, 0x10=button 16), 0x00, Button state (0xff=Pressed, 0x00=Released), Checksum, 255

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