

UCM/Universal Manual

Section 1	Introduction	3
	Specifications	4
	What is Included	4
	Interfaces for UCM/Universal	4
	System Requirements	5
	Principle of Operation	5
Section 2	Connections and Settings	7
	Connections	7
	Jumper Settings	7
	Buttons	7
	LED Indicators	8
	ICs	8
Section 3	The Universal UCM Configurator	9
	Adding the UCM/Universal	9
	Configuring the UCM/Universal	10
	UCM Properties	11
	UCM/Universal Properties	11
Section 4	Device to Comfort	17
	Message Types with no Variables	18
	Response Type	18
	Arm to Away, Night, Day, Vacation Message Type	18
	Panic Message Type	19
	Bypass and Unbypass Zone	19
	Virtual Zone On and Off Message Type	19
	Message Types with Variables	20
	Keypad Key	20
	Counter and Sensor	21
	Examples	21
	Monitor Mode	23
Section 5	ALARM to Device	24
	Comfort Alarm Events	24
Section 6	COMMANDS to Device	26
	Comfort to Device Tab	26
	Response Wizard for Universal UCM	27
Section 7	Write/Read/Load/Save	28
	Write to EEPROM	28

UCM/Universal Manual

Read from EEPROM	28
Reset	28
Get Status	29
Save Template	29
Load Template	29
Firmware History	30
Document Revision History	30

SECTION 1 INTRODUCTION

The UCM/Universal supports two way communications with many 3rd party systems which do not have a dedicated UCM Interface. The communication interface may be by RS232, RS485 or Ethernet using plug in submodules. The UCM/Universal can be configured to match the external device baud rate and other communication parameters. The UCM/Universal allows commands to be sent from Comfort and messages to be received from the external device according to the external protocol. The UCM/Universal can be configured to match received messages from the external device and map to counters or sensors, or to cause Responses to be triggered in Comfort.

The following benefits are available when the external device is integrated to Comfort;

- Telecontrol and status monitoring through any telephone inside or outside the premises to control the 3rd party device.
- Allows control from Comfort keypads, remote control or any user interface, or automatic scheduling using Time Programs.
- Allows the 3rd party user interface e.g. button to trigger a Response in Comfort to control any device linked to Comfort and be mapped to Comfort counters or sensors for monitoring.
- Allows alarm conditions to be linked to the 3rd party device for integration of alarm and lighting.

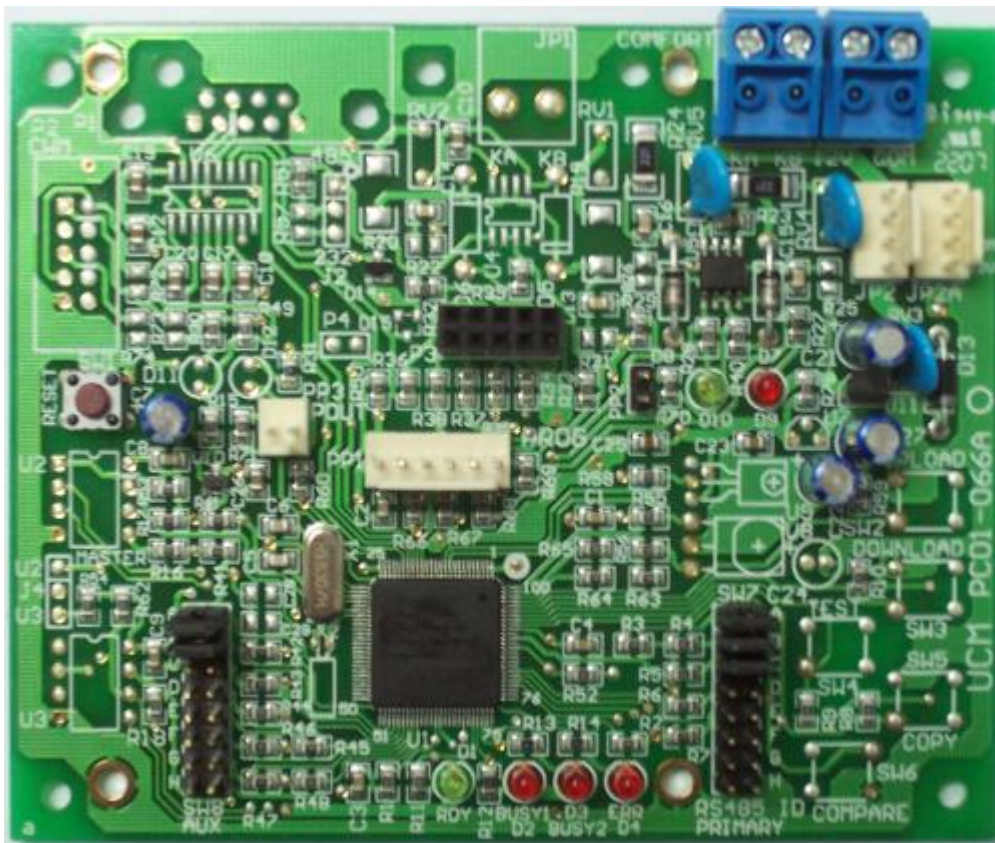


Figure 1.1 - UCM/Universal

 Please note that the UCM/Universal may not handle all communication protocols on third party devices. If in doubt, please contact Cytech at support@cytech.biz

- ☎** Note that the UCM/Universal is not for programming Comfort. The UCM/ETH and UCM/USB instead are for programming Comfort.

Specifications

- Size 108 x 88 mm baseboard with 10 way connector for plug-in submodules.
- Power Supply 12V 50 mA (supplied from Comfort)
- Data bits: 7, 8
- Serial Baud Rates: 2400, 4800, 9600, 19200, 38400, 76800
- Parity: None, Even, Odd
- Data Type: Hexadecimal, ASCII-Hex, ASCII Decimal
- Header Bytes - select 0 to 2 header bytes
- Terminator - Select Terminator byte or no terminator

What is Included

- White RS485 4-way cable 330 mm.
- Suitable Submodules are ETH02, RS232M, AUX485 must be purchased separately and are not included.

Interfaces for UCM/Universal

The UCM/Universal can interface with RS232, RS485 or Ethernet using the appropriate submodules mentioned below. Hence it does not come with any fixed interface.

- ☎** The UCM/Universal interfaces (Ethernet, RS232) to the external device, NOT to the computer for programming with Comfigurator. Use a normal UCM/232F, UCM/Ethernet, or UCM/USB for programming the UCM/Universal.

The following submodules can be used with UCM/Universal;

- RS232M: This is the RS232 Interface with a Male connector. It is supplied without a RS232 Cable. Use a straight through RS232 Cable (male to female) to connect to the 3rd party device with a Female RS232 connector.

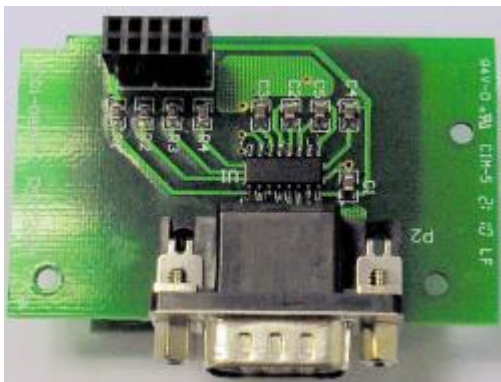


Figure 1.2 - RS232M Submodule

- RS232F with a female RS232 Connector is also available to connect directly to a device with a male RS232 connector (like a computer serial port)
- ETH02: This is the interface to the Ethernet Local Area Network with a RJ45 Socket. A LAN cable is not supplied. Use the DS Manager software which is bundled with Comfigurator 3.5.0 onwards (download from <http://www.cytech.biz/comfigurator.html>) to configure the IP address.



Figure 1.3 - ETH02 Submodule

- **AUX485:** This is an isolated RS485 Interface. The terminal blocks V+/V- are for connection to the 12V power supply of the external device. The KA/KB terminals are for the external RS485 data - this is NOT the same as Comfort's internal RS485 KA/KB. The AUX485 V+/V- and RS485 are electrically isolated from Comfort.



Figure 1.4 - AUX485 submodule

The Submodules are supplied with mounting standoffs, screws and terminal blocks where required. The submodule should be plugged in via the 10 way male header to the P1 female header on the UCM/Universal. Make sure the pins fit fully into the 10 way P1 header and are not misaligned. Standoffs are provided to fix the submodule onto the UCM/Universal.

System Requirements

- Comfort II with firmware 7.xxx
- UCM/USB, UCM/Ethernet or UCM/232 for programming with Configurator firmware version 7.xxx and above
- Configurator 3.7.8 and above <http://www.cyttech.biz/configurator.html>
- UCM/Universal 6.023 and above
- Submodule ETH02, RS232M, RS232F, or AUX485 (sold separately).

Principle of Operation

The UCM/Universal can be configured to match the communication settings of most 3rd party or external devices, i.e. baud rate, parity, number of bits, using an RS232 or Ethernet interface.

It solves the problem of allowing external devices that do not have a dedicated UCM like CBUS, KNX, Velbus to be able to send commands and status to Comfort. Incoming messages which are to be handled by the UCM/Universal are entered manually or by the Learn Mode where a button can be pressed on the external device to send the desired message. The message templates obtained in this way are saved in memory to be compared to incoming messages. When the incoming

UCM/Universal Manual

message matches one of the templates, it can be programmed to trigger a Response, or other action, or load a value into a counter or sensor or send a keypad key value to Comfort. A method of selecting the fields to be matched for various data types has been developed so that the appropriate value can be mapped to the desired register.

However it is easy to make any incoming message trigger a Response. The message can be saved in its entirety as a template to trigger a selected Response. Using the Learn mode, and pressing a button on the device, it is not even necessary to know the message or the protocol at all.

Comfort alarm events can also be sent to the external device by defining a message to be sent for each event. The Response Wizard is also able to send any messages to the external device through the UCM/Universal using the "SEND RS232" action. SEND RS232 can work for the normal UCM/232, UCM/Ethernet or UCM/USB as well as UCM/Universal.

SECTION 2 CONNECTIONS AND SETTINGS

Connections

- JP3 - 12V/COM terminal block. Connect to 12V/COM on Comfort using CAT5 cable. if JP2/2A not used. Do not connect if JP2/2A is used to connect to Comfort. JP3 and JP4 are used instead of JP2/JP2A if the distance between Comfort and the UCM is longer than the white 4-way cable.
- JP4 - KA/KB terminal block. Connect to KA/KB using CAT5 cable if JP2/2A not used. Do not connect if JP2/2A is used to connect to Comfort JP3 and JP4 are used instead of JP2/JP2A if the distance between Comfort and the UCM is longer than the white 4 way cable.
- JP2 and JP2A - 4 way headers (12V/COM/KA/KB). Either connector can be connected to Comfort' RS485 connector (J6) via the supplied cable when JP3 and JP4 are not used. This plug-in cable connection is used when the distance between the controller and Universal interface is less than 30 cm. For longer distances, use the JP3 and JP4 terminal blocks.
- P3 (2 x 5 Female header). This is to plug in the submodule ETH02, RS232M, RS232F or AUX485.

Jumper Settings

- SW7 (RS485 ID Primary) – set according to ID of the UCM/Universal (see “UCM ID Switch Settings”).

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

The UCM/Universal is supplied with the ID set to 2 as default.

By convention, ID=1 is reserved for the UCM used for programming. Any communications failure on UCM 1 will not cause a Communications Failure Trouble alarm. The UCM/universal should be set to ID 2 or above so that any RS485 communications failure can be reported by Comfort. The IDs must be consecutive without any missing IDs, i.e. if there are 5 UCMs, they must be set as ID 1 to 5, not 1,3,4,5,6 as that will cause ID 2 to report a Communications Failure. Also the IDs must be unique otherwise there will be a conflict and the UCMs affected will not be able to communicate, causing the Communications Failure alarm.

Press RESET button on the UCM/Universal after changing the ID settings.

Buttons

- SW1 - RESET. This button re-initialises the UCM module. It does not change any parameters in Comfort or the UCM/Universal.

LED Indicators

- D1 "RDY" (Green) – should be on at all times
- D2 "BUSY1" (Red) – indicates when processing incoming data string
- D3 "BUSY2" (Red) – indicates when sending outgoing data string
- D4 "ERR" (Red) – error indicator flashes when no EEPROM in U2
- D9 (Red) – RS485 Transmit to Comfort
- D10 (Green) – RS485 Receive from Comfort
- D11 (Green) - indicates incoming data string from Velbus
- D12 (red) - indicates outgoing data string from Comfort

ICs

- U1 - Microcontroller IC. Label indicates the firmware version number "Uni 6.XXX"
- U5 - RS485 Interface to Comfort
- U2 - EEPROM 256K for Configuration settings

SECTION 3 THE UNIVERSAL UCM CONFIGURATOR

The UCM/Universal is configured using the Configurator software (minimum version 3.5.0) which can be downloaded from <http://www.cytech.biz/configurator.html>

Adding the UCM/Universal

In Configurator, go to the Modules Tab as shown below.

If Comfort is not connected i.e. the system is being programmed off-line, select Add UCM. A dropdown list of UCM types is shown as in the screenshot below. Select Universal.

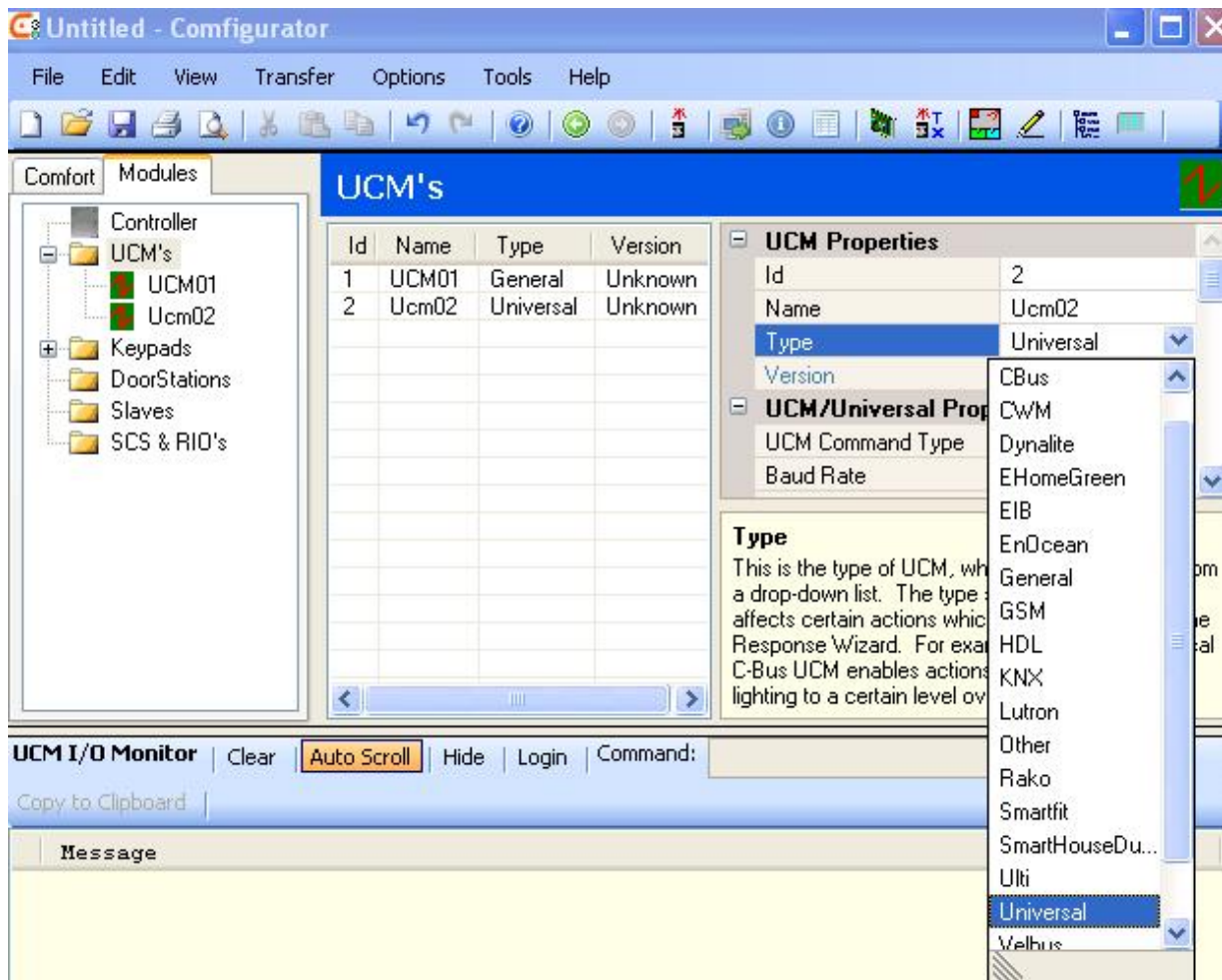


Figure 3.1 - Add UCM

If the Comfort system is connected to the computer, right click and select "Scan for UCMs"

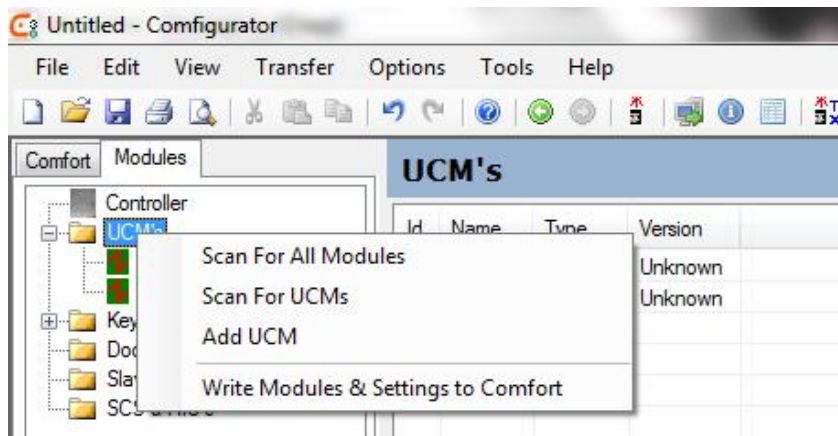


Figure 3-2 Scan for UCMs

This will auto-detect the UCM/Universal according to the ID provided all the UCMs Ids are set correctly with no conflicts.

In both cases the UCM/Universal will be added to the list of UCMs. Select the 2nd UCM in the list on the left pane. This shows the UCM/Universal Configurator screen on the right pane as shown below;

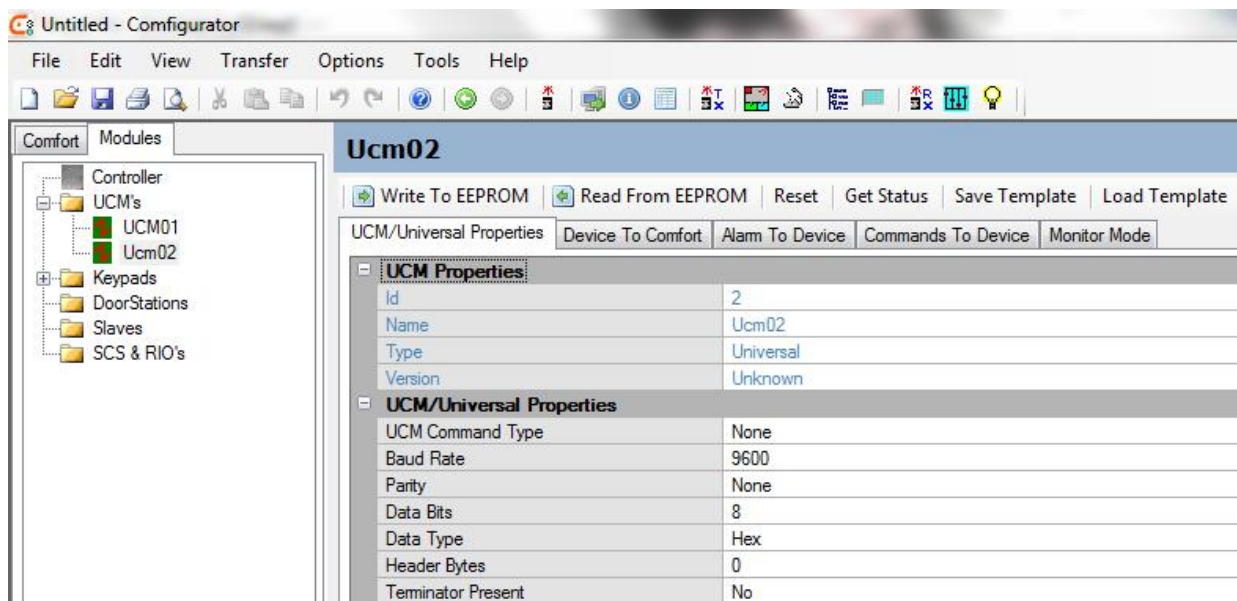


Figure 3.3 - UCM/Universal Configurator

Configuring the UCM/Universal

There are 5 tabs across the top of the right pane;

- UCM/Universal Properties
- Device To Comfort
- Alarm To Device
- Commands To Device
- Monitor Mode

The Properties screen is shown in Figure 3.3 above.

UCM Properties

- ID - This is the ID 1 to 8 of the UCM in Comfort
- Name - this is a descriptive label for this UCM.
- Type - this should be Universal.
- Version - After Scanning for UCMs, the UCM firmware version will be shown.

UCM/Universal Properties

- UCM Command Type select None, Rako, Dynalite485, Lutron
- Baud Rate 2400, 4800, 9600, 19200, 38400, 76800
- Parity None, Odd, Even
- Data bits: 7 bits, 8 bits
- Data Type Hex, ASCII Hex, ASCII
- Header Type 0,1,2 characters
- Header Byte 1
- Header Byte 2
- Terminator Present Y/N
- Terminator Byte (hex)
- End of Message gap 3.3 ms to 850 ms
- Checksum None, Twos Complement, Simple Sum, CRC16, CRC-CCITT, Ones Complement
- Checksum Incl Header Yes/No
- Parsing Method Data Position/ASCII Numeric Field Position
- Separator Character ASCII Character or FF for none (ASCII only)
- Counter Data Byte/Field Offset
- Counter Ignore Data Byte/Field # 1
- Counter Ignore Data Byte/Field # 2
- Counter Ignore Data Byte/Field # 3
- Counter Ignore Data Byte/Field # 4
- Sensor Data Byte/Field Offset
- Sensor Ignore Data Byte/Field # 1
- Sensor Ignore Data Byte/Field # 2
- Sensor Ignore Data Byte/Field # 3
- Sensor Ignore Data Byte/Field # 4
- Keypad Data Byte/Field Offset
- Keypad Ignore Data Byte/Field # 1
- Keypad Ignore Data Byte/Field # 2
- Keypad Ignore Data Byte/Field # 3
- Keypad Ignore Data Byte/Field # 4
- Other Types Ignore Data Byte/Field # 1
- Other Types Ignore Data Byte/Field # 2
- Other Types Ignore Data Byte/Field # 3
- Other Types Ignore Data Byte/Field # 4

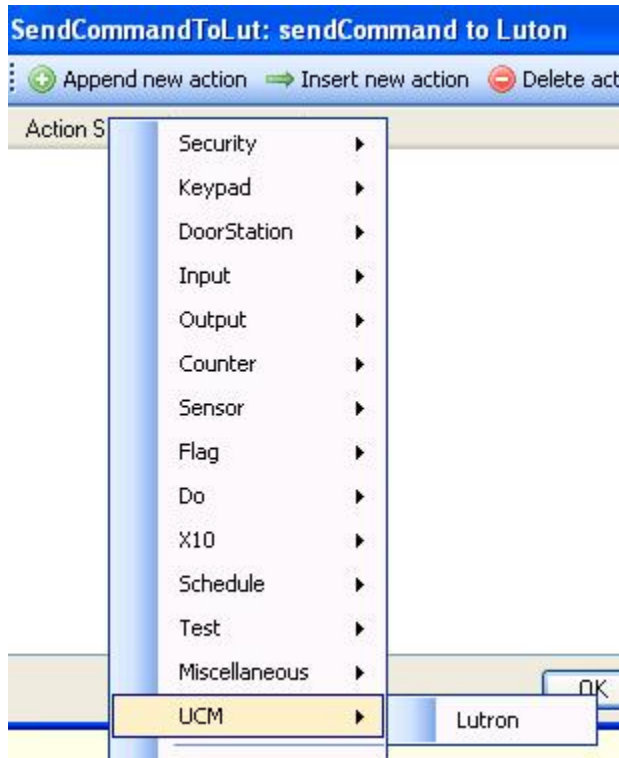
UCM Command Type

The dropdown list includes None, Lutron, Dynalite485, Rako. These are the UCMs which are currently supported in the Response Wizard to send commands. If the 3rd party device is not listed, then select None.

UCM/Universal Manual

If Lutron, Dynalite or Rako is selected, then in Response Wizard, Send UCM Action will recognise the UCM as a Lutron, Dynalite or Rako UCM. These UCMs have commands defined in the Send RS232 Action.

More Predefined command sets will be added in the future.



Baud Rate

Select from the list of baud rates 2400, 4800, 9600, 19200, 38400, 76800 for RS232 and RS485 interface. If the Interface is ETH03, then select 9600 baud as the ETH03 communicates with the UCM baseboard as 9600 baud.

Parity - None, Odd or Even

Data Bits - 7 or 8

Data Type - Hex, ASCII Hex, ASCII Decimal.

This defines the type of data to be interchanged with the external device. "Hex" means raw hexadecimal data in which the data format is hexadecimal bytes. "ASCII Hex" means the hexadecimal data is in ASCII format. "ASCII Decimal" means the data is also in ASCII format but restricted to Decimal digits only with a maximum value of 255, i.e. it can have 1 to 3 digits. For example, take the data byte 3A in hexadecimal format. If this data is transmitted in Hexadecimal, the raw data "3A" is transmitted. If the same data is transmitted in ASCII Hex, then the data is converted to 2 ASCII characters, 33 H, 41 H (in hexadecimal) or 51, 65 in decimal. If the same data is transmitted in ASCII Decimal then 3A hex is converted to its decimal equivalent 58 and transmitted as 2 bytes 35H, 38H or 53, 56 in decimal. The selection of these 3 formats depends on the external device data format.

Header Type - 0, 1 or 2 characters.

If the message contains a header or start of data e.g. STX then enter 1 or 2 characters for the header.

Header Bytes.

If the Header type is 1 or 2, then enter the header bytes in hexadecimal format. E.g. if STX or 02H is the header, then a message "CT1234" would be sent as 02H, 43H, 54H, 31H, 32H, 33H, 34H

Terminator Present - Yes/No

If the message contains a terminator or end of data e.g. CR or ETX then enter Yes. There can only be 1 terminator.

Terminator Byte

This is a character which terminates the data. If terminator is CR or 0DH, then "CT1234" means the full data is 02H, 43H, 54H, 31H, 32H, 33H, 34H, 0DH assuming 02H is the Header

End of Message Gap

This is the time after the last byte that ends the message if there is no terminator byte defined. The next byte received would be the start of a new message if there is no header.

0 means the message is not terminated by a gap - In this case there must be a terminator to end the message.

Checksum - None/ Twos Complement/ Sum/ CRC16

- Checksum is None if there is no checksum
- Twos Complement can be calculated as the twos complement (negative value) of the sum of all bytes so that the sum of all bytes including the checksum is 0. This is usually applicable to Hexadecimal Data Types. There is an option for the checksum to include or exclude the Header byte/bytes. If present, the Terminator byte/bytes follow the checksum. If the data is in Hexadecimal, the checksum is also in hexadecimal i.e. 1 byte. If the data is in ASCII Hex, the checksum is also in ASCII hex, i.e. 2 bytes
- Checksum Type Simple Sum is the sum of data not including the checksum.
- Checksum Type CRC16 is a common checksum based on the Cyclic Redundancy Check (CRC) algorithm.
- CRC-CCITT is another type of CRC algorithm used mainly for Europe standard e.g. Modbus-RTU.
- Ones Complement is the value obtained by inverting all the bits in the binary representation of the number.

Other types of checksum may be defined in future

Checksum Include Header?

Determines if the checksum includes the header. The checksum is before the terminator so it always does not include the terminator.

Parsing Method - Data Position/ ASCII Numeric Field Position

This determines how the data variables to be passed to Comfort are to be found within the incoming message. This allows the UCM/Universal to be able to identify parameters within incoming data to be assigned to Counters, sensors, or keypad keys.

- "Data Position" means the variable is to be found at a fixed position in the data. This normally applies to Hexadecimal data types e.g. data position = 7 means that the data variable is to be found in the 7th byte position (starting with 1) in the message. It can also apply to ASCII Hex data where the positions in the data stream are fixed.

UCM/Universal Manual

- “ASCII Numeric Fields” means the numeric fields are identified in the incoming data, and NOT by position. This applies only to ASCII Decimal Data only because for ASCII Hex, A to F cannot be determined to be numeric or text information.

E.g. “OUTPUT 1, Value = 20, delay = 3, 50, 0”

The UCM/Universal will automatically identify the numeric fields as 1, 20, 3, 50, 0 i.e. 5 numeric fields in the example. The 1st data field is 1, 2nd is 20 etc.

Hence the required fields can be identified within the data according to the sequence 1st, 2nd, 3rd etc.. The non-numeric data as well as the numeric fields that are not ignored in the message is matched to incoming data. Numeric fields that are ignored are not matched to incoming data, i.e. the data in the ignored fields do not have to match as these could be for data which is not used by Comfort e.g. dimming rate etc..

This applies to ASCII data.

Separator Character between Fields (For ASCII data only)

Optional characters like comma, space, semicolon which separates numeric fields where needed to preserve the field position where some fields may have no numeric values.

This is applicable for ASCII Decimal data only as numeric fields in ASCII Hex may not be unambiguously determined e.g. A to F may be numeric or text.

For example, in the examples below, the separator character can be comma

Output 1, value=30, delay = 0,100 which is mapped to a Counter and the 2nd field is selected as Counter value

The numeric fields are

- Field 1 = 1
- Field 2 = 30
- Field 3 = 0
- Field 4 = 100

Field 2 value 30 is sent to the counter number

However, if the following message is received;

Output All, Value = 30, delay = 0, 100

In this case Output All has no numeric field but the “value” field should still be mapped to counter value

- Field 1 = (none)
- Field 2 = 30
- Field 3 = 0
- Field 4 = 100

Hence the 2nd field remains the same even though the 1st field is empty i.e. has no numeric value

Note that a separator character is not needed if in the example the Output All message is not required to be mapped to Counter, e.g. it be mapped to Response by exact matching.

Separators help to identify fields which sometimes have no numeric values as in the “ALL” example so that the field numbers of the other fields remain the

same. However there may be several numeric fields between the separators which are also considered as separate fields, e.g.

Output ALL, value=30, A1B2C3, delay = 100

The 6 fields are

NONE, 30, 1, 2, 3, 100 so 1,2,3 are identified as fields even though there is no separator between them

Counter Data Byte/Field Offset

This is the byte or field position (starting with 1) of the byte or field that contains the Counter value in the Counter Type message.

E.g. for Parsing Method = Data Position, if byte 5 contains the counter value, then set this parameter to 5. Note that for ASCII data, the data byte requires 2 characters, so the Data byte position is the 1st of the 2 characters.

For Parsing Method = Field Position, the Counter value is to be found in the Field number specified here, i.e. Field Position = 5, the counter value is to be found in the 5th numeric field.

Counter Ignore Data Byte/Field # 1 to 4

Ignore up to 4 data byte or field positions in matching for Counters. These are optional parameter value 1 to length of maximum length of message or field , 0 if not used.

For example,

Output 1, Delay = 50, 100, value=30, which is mapped to a Counter. The counter value is the 4th field. However the delay values of 50 and 100 should be ignored as they are not relevant. Hence the 2nd and 3rd fields must be ignored in the matching process so these values can be anything. Fields that are not ignored are matched to the incoming data, e.g. Field 1 above is the output number. If the field is not ignored, then only Output 1 is valid.

Sensor Data Byte/Field Offset

This is the byte or field position (starting with 1) of the byte or field that contains the Sensor value in the Sensor Type message. The same explanation as in Counter Data Byte/Field Position applies to Sensor Data.

Sensor Ignore Data Byte/Field # 1 to 4

The same explanation as in Counter Ignore Data Byte/Field Position applies to Sensor Data.

Keypad Data Byte/Field Offset

This is the byte/field position (starting with 1) of the byte that contains the keypad key value in the Keypad Key type message. The same explanation as in Counter Data Byte/Field Position applies to Keypad Data.

Keypad Ignore Data Byte /Field # 1 to 4

The same explanation as in Counter Ignore Data Byte/Field Position applies to Keypad Data.

Other Types Ignore Data Byte /Field # 1 to 4

Ignore up to 4 data byte/Field positions in matching for Responses, Virtual Inputs, Bypass Input, Panic, Arm to Mode, Response data types which have no

UCM/Universal Manual

data to pass to Comfort. The same explanation as in Counter Ignore Data Byte/Field Position applies to this.

SECTION 4 DEVICE TO COMFORT

The Device to Comfort table allows received messages to send commands to Comfort like activate Responses, or security commands like arm, bypass, panic, and sends values to Comfort to update Counters and sensors or virtual keypad keys.

For each incoming message to be handled by Comfort, select a Device to Comfort Type.

The available Message Types are Counter, Sensor, Keypad Key, Panic, ArmAway, ArmNight, ArmDay, ArmVacation, VirtualZoneOn, VirtualZoneOff, BypassZone, UnbypassZone, Response.

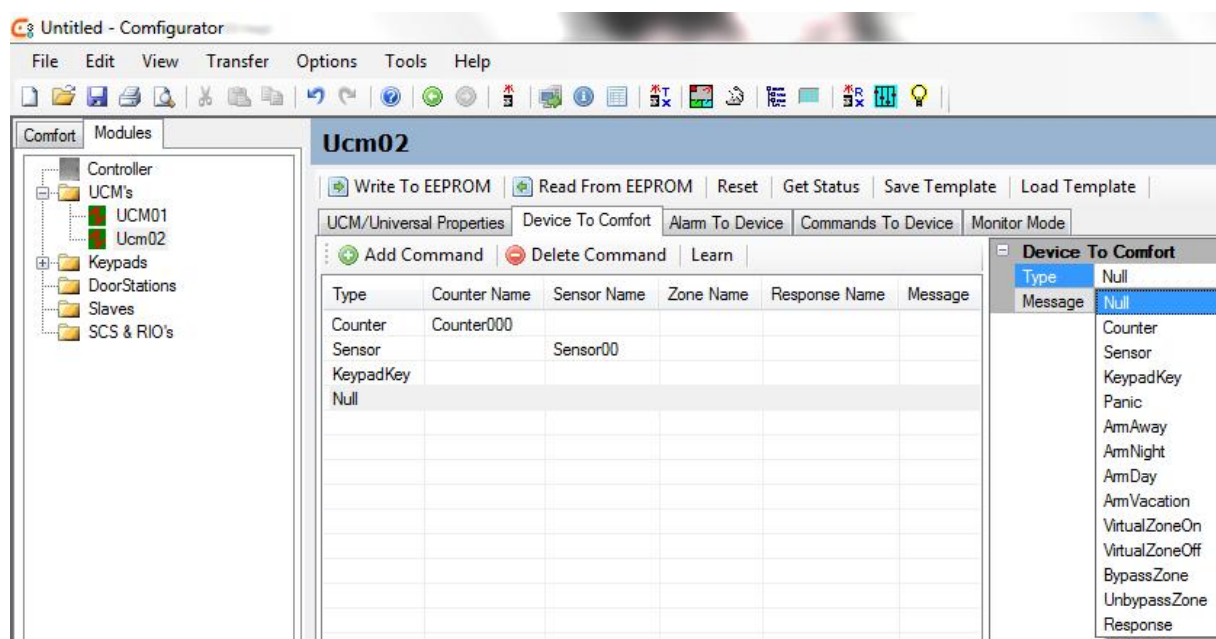


Figure 4.1 - Device to Comfort Configuration

Use learn mode to receive a message or Add Command to enter the message as it would be received. Send in ASCII or HEX depending on the selection in Properties.

The Learn Mode is a very useful tool as it allows you to press a button on the external device and capture the message, and assign it to one of the functions without knowing in advance what the message consists of.

The learned messages are assigned to one of the Types listed, and saved to the Device to Comfort Table to be written to EEPROM.

In operation a received message is matched against the entries in the Device to Comfort table in EEPROM. If there are no variables in the message type, an exact match has to be made on the whole message.

If there are variables in the message which are to be passed to Comfort e.g. Counters, Sensors, then the received message is matched with the entries except at the positions of the variables, and the variables are passed to Comfort

Message Types with no Variables

Those messages which do not require any variables to be passed like Arm to mode, Panic, Response, Virtual Input, Bypass Input are simple to handle. Enter the message in the Device to Comfort table in learn mode or by manual entry and assign to the appropriate type without variables. In operation when a message is received, it is matched against all messages in the Device to Comfort table and when found, the appropriate command is sent to Comfort e.g. to Arm to Mode or initiate panic.

- ☛ This method allows messages to trigger the actions in Comfort without knowing the external device protocol using Learn Mode, even if the message has a checksum, as the checksum field can be set to off, so the message checksum can be part of the message to be matched.

Response Type

Example: Trigger Response

The message string “CommandLight1On” can be assigned to a Response. The Data Type in UCM/Universal Properties can be either HEX, ASCII Hex or ASCII Decimal as we need only to match the exact data

Add a Command or go to Learn Mode. Select Message Type as Response. In the Message field, type the text “CommandLight1On” not including the quotation marks. If you do not know what the text is or you are lazy to type, go to Learn mode and press the button or activate the command in the external device which would send the desired message..

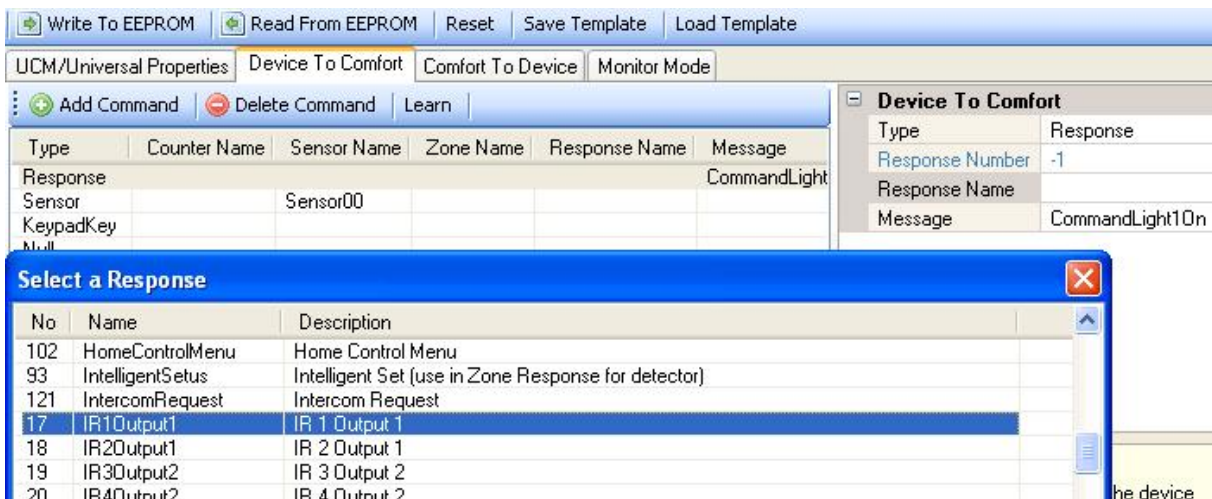


Figure 4.2 - Response Message Type

In the above screenshot, the message “CommandLight1On” is mapped to a Response. Clicking the Response Name opens a window to select the Response. In the screenshot, the Response IROutput1 is selected. This means that when the defined message is received, the Response will send an IR signal to Output 1.

Arm to Away, Night, Day, Vacation Message Type

Any message can be assigned to one of these arm functions. The method of selecting the incoming message is the same as the above example. The security system will be armed to the selected Mode, just like when the keypad

arm keys are pressed. Arm to Away and Vacation Mode will need Exit from the Entry door.

Panic Message Type

Any message can be assigned to trigger panic alarm. The method of selecting the incoming message is the same as the above example. When the matched message is received, a Panic Alarm is activated in Comfort.

Bypass and Unbypass Zone

The message Types Bypass Input and Unbypass Input do not have variables to pass to comfort.

Any message can be assigned to Bypass or Unbypass any zone. The method of selecting the incoming message is the same as the above example.

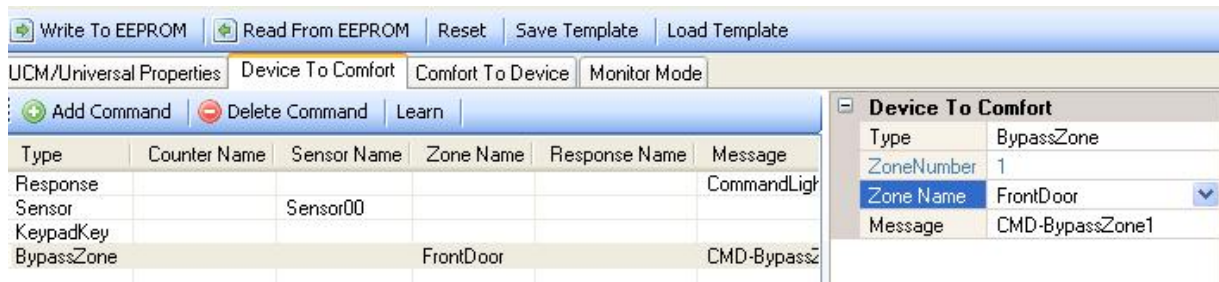


Figure 4.3 - Bypass Zone Message Type

In the above screenshot, the message "CMD-BypassZone1" is mapped to a Zone Name, in this case Front Door, or Zone 1. Any zone can be bypassed or Unbypassed in this way.

Virtual Zone On and Off Message Type

Virtual Zones are zones that are not physically connected to Comfort Inputs, but are on an external system - when these virtual zones open and close, a message is passed to Comfort which acts just like a physical zone is opened or closed; i.e. the Zone On and Off Responses are activated, Zone Types are applicable and Alarms can be activated based on the zone programming.

The Virtual Zone ON and OFF conditions are separate messages.

Any message can be assigned to Virtual Zone On and OFF for any zone. The method of selecting the incoming message is the same as the above example. Select the zone name just like in the above example. This allows a message to cause a Virtual zone to be detected as ON or OFF

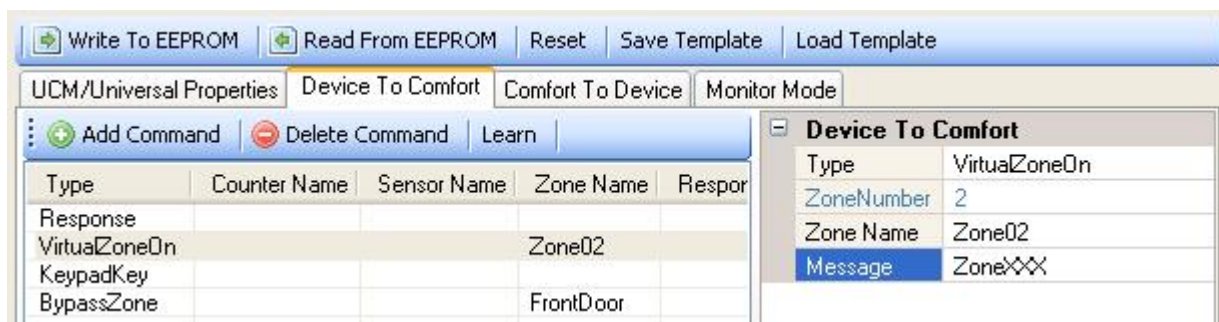


Figure 4.4 - Virtual Zone Message type

In the above screenshot a message “ZoneXXX” has been mapped to Zone 2 Virtual Zone On. Zone 2 will become a Virtual Zone, i.e. the physical zone is disabled, as can be seen in the Security > Zones/Inputs screen. When a virtual zone is deleted, both On and Off for the virtual zone are deleted and the Comfort Zone Virtual Input property is removed

Message Types with Variables

If a value is needed to be passed to Comfort i.e. for counters, sensors or keypad, then a Data Variable must be identified in the message so that the value in data variable is passed to Comfort counter or sensor or keypad. In this case the data value can change in received messages and still be matched to the Device to Comfort table entry. For parsing by Data Byte position, the byte position of the Counter value, Sensor value and keypad key value is specified in the UCM Properties page. For Parsing by ASCII Numeric field (for ASCII data), the data variable is determined by the order of the numeric fields found in the message. An optional separator can be specified to delimit the numeric fields.

Keypad Key

This function allows external devices to simulate a Comfort Keypad (for example by touchscreen) by sending key values to Comfort according to the following table;

Value	Key	Value	Key	Value	Key
0 - 9	0 - 9	16	Unused	35	Hear User Name
0A	F	17	Unused	36	Record Alarm Message
0B	*	18	Unused	37	Erase alarm Message
0C	#	19	Unused	38	Hear Alarm Message
0D	Away (soft)	1A	Enter	39	Add User
0E	Night (soft)	1B	End	3A	Erase User
0F	Day (soft)	1C - 1F	Unused	3B	Erase All Users
10	Panic (hard)	20 - 2F	F 0 to F15	40 to 4F	Reminder Message 1 to 16
11	Fire (hard)	30	Record Greeting	50 to 5F	Unused
12	Away (hard)	31	Erase Greeting	60	Play New Message
13	Night (hard)	32	Hear Greeting	61	Play Saved Message
14	Day (hard)	33	Record User Name	62	Erase Saved Messages
15	Vac (hard)	34	Erase User Name	63	Unused

For Keypad Key, the key value is contained in the 1 byte location specified in UCM Properties or the numeric field number in the case of ASCII Numeric fields. This allows the external device to simulate a Comfort keypad on a touchscreen or button pad.

For example, if the message to be mapped to keypad keys is in the format

“Dev 1, button 1” for key 1

“Dev 1, button 2” for Key 2 etc.

The Parsing Type can be set to Field Position and the field position is 2 to select the keypad key value to be passed to Comfort.

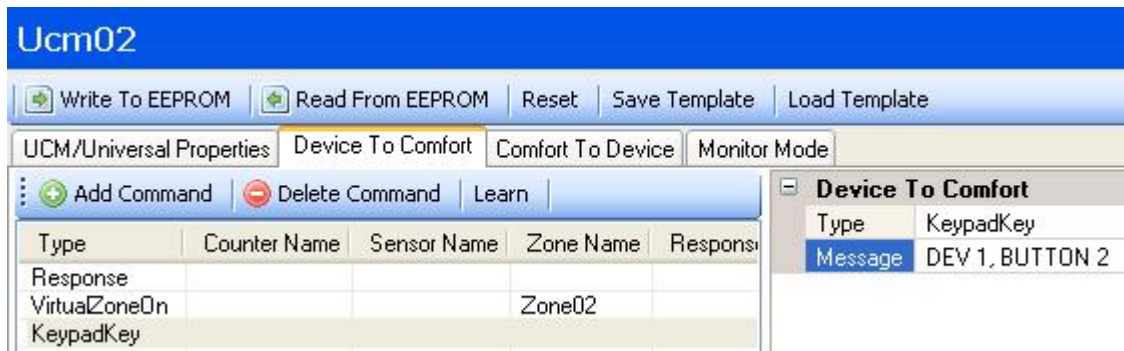


Figure 4.5 - Keypad Key Message Type

In the above screenshot, there are 2 numeric fields in the message DEV 1, BUTTON 2. The numeric field 1 may be the device ID and button 1 is the keypad key value. The second field is the one which contains the key value.

Counter and Sensor

For Counter and Sensor types, the incoming message has the counter or sensor value that is to be sent to Comfort. The Counter or Sensor number must be selected for each entry of this type. . This is done by the software when the message is assigned to Counter or Sensor. A drop down list of Counter or Sensor numbers allows the user to select the register.

For example if we were trying to map KNX group addresses to Counters using this tool as an example, the incoming telegram would have Main Group, Mid Group and Subgroup and a value for the group address. Say 10/1/3 should be mapped to Counter 5. The Main, Mid and Subgroups are embedded in the telegram but we need not know how that is done. The telegram for 10/1/3 is sent to the UCM and the message for 10/1/3 would be saved in the Comfort Device to Comfort Table so that in actual operation when the same message is received the firmware can match it with the saved message.

The position of the data variable is known so that the data in that position is not compared with that of the saved message. Instead the data at that location is sent to Comfort as the counter value of the Counter number which is mapped to that message.

Examples

Example 1;

Match Counter to this message

House = 1, Room = 2, Channel = 8, Value =20, Ramp Time = 20,0,1,0

Parameters to be used

Data Type = ASCII Decimal

Parsing Method = ASCII Numeric Fields

Separator = , or None

Counter data field no = 4

Counter Ignore Data Field 1 = 5

Counter Ignore Data Field 2 = 6

Counter Ignore Data Field 3 = 7

Counter Ignore Data Field 4 = 8

Hence the Ramp time and the 3 following unknown fields are ignored in the matching process

The message is learned. The Counter data type is selected and matched to Counter e.g. 10

In operation, received messages of this type are matched to the template in Device to Comfort for "House=1, Room=2, Channel = 8, Value="

When found, the number after "value=" is loaded to Counter 10.

Example 2 - Dynalite Linear Preset Message

- Byte 0 = 0x1c
- Byte 1 = Area
- Byte 2 = Preset (0 origin)
- Byte 3 = 0x65
- Byte 4 = Fade low
- Byte 5 = Fade High
- Byte 6 = Join
- Byte 7 = checksum (negative 2s complement of all preceding bytes)

This preset message is to be mapped to a Response

Parameters to be used

- Data Type = hexadecimal
- Parsing Method = Data Byte Position (this is the only option for Hexadecimal data)
- Separator = Not applicable for Hexadecimal
- Response Ignore Data position 1 = 5 (Fade Low)
- Response Ignore Data position 2 = 6 (Fade High)
- Response Ignore Data position 3 = 7 (Join)

The Fade low, Fade High and Join fields are ignored

Example 3 - Dynalite Linear Area/Channel Control

- Byte 0 = 0x1c
- Byte 1 = Area
- Byte 2 = Channel No (0 origin)
- Byte 3 = Opcode
- Byte 4 = Channel Level (01=100%, FF = 0%)
- Byte 5 = Fade
- Byte 6 = Join
- Byte 7 = checksum (negative 2s complement of all preceding bytes)

This message is to be mapped to a Counter

Parameters to be used

- Counter data byte position = 5
- Counter Ignore data position 1 = 6 (Fade)
- Counter Ignore data position 2 = 7 (Join)

The Fade and Join data are ignored so any data is acceptable in these Positions

- Examples of integration with specific devices will be documented in Application Notes which will be released when available. Check the Universal UCM Forum at <http://www.comfortforums.com/forum94/>

Monitor Mode

In Monitor Mode, all incoming data is displayed in the Monitor window.

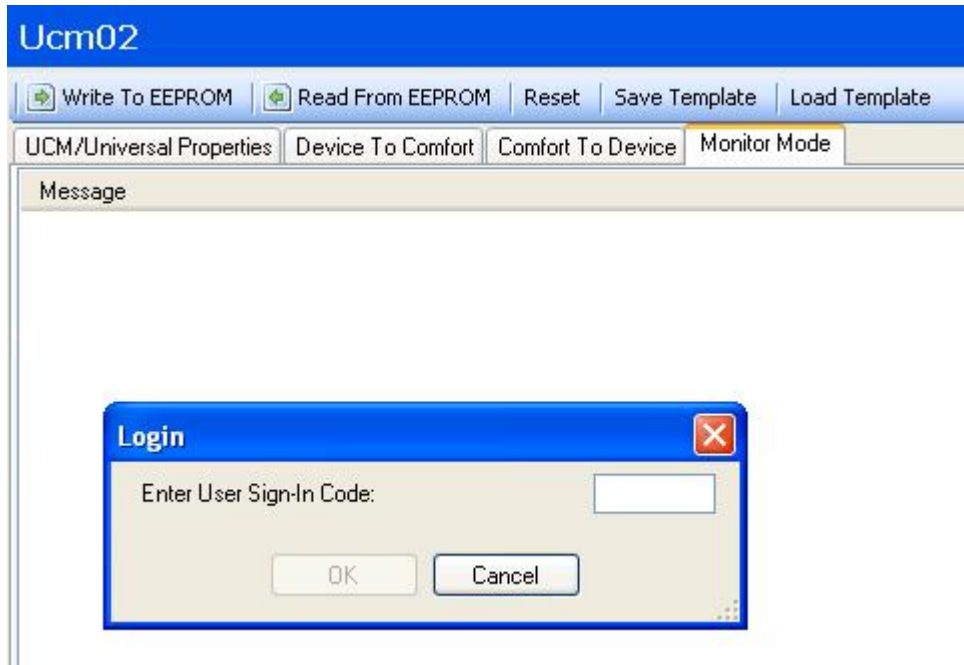


Figure 4.6 - Monitor Mode

SECTION 5 ALARM TO DEVICE

This table maps defined Comfort Security events to output strings to be sent to the external device. This Table is used only when the 3rd party device is able to act on or show security events, or it can be used to trigger conditions based on Security Mode e.g. control temperature or lighting and HVAC.

Comfort can be programmed to send any message to the external device using the Action code "Send RS232" This is described in a later section

Comfort Alarm Events

The defined Comfort Alarm Events are;

Event Type	Event Name	Event Type	Event Name	Event Type	Event Name
0	Zone Not Ready (Arming)	14	Low Battery State On	28	Entry Alert On
1	Zone Ready (Arming)	15	Low Battery State Off	29	Entry Alert Off
2	Armed State On	16	Security Off	30	Fire On
3	Armed State Off	17	Armed to Away Mode	31	Fire Off
4	Alarm State On	18	Armed to Night Mode	32	Intruder Alarm On
5	Alarm State Off	19	Armed to Day Mode	33	Intruder Alarm Off
6	Panic State On	20	Armed to Vacation Mode	34	KP Speaker On
7	Panic State Off	21	Reserved	35	KP Speaker Off
8	Line Cut State On	22	Doorbell On	36	KP Mic On
9	Line Cut State Off	23	Doorbell ended	37	KP Mic Off
10	AC Failure State On	24	RS485 Comms fail On	38	Bell/Siren On
11	AC Failure State Off	25	RS485 Comms fail Off	39	Bell/Siren Off
12	Arm Failure State On	26	Zone Trouble On	40	Strobe On
13	Arm Failure State Off	27	Zone Trouble Off	41	Strobe Off

For each Alarm Event, a fixed text string is defined which is sent to the device when the event occurs, and another text string is sent when the event is restored (Off). There are no variables transferred.

The Alarm To Device Screen is shown below;

The screenshot shows the 'Ucm02' interface with several tabs: 'Write To EEPROM', 'Read From EEPROM', 'Reset', 'Get Status', 'Save Template', and 'Load Template'. Below these are 'UCM/Universal Properties', 'Device To Comfort', 'Alarm To Device' (selected), 'Commands To Device', and 'Monitor Mode'. The 'Alarm To Device' tab displays a table with two columns: 'Event Type' and 'Message Text'. The 'Event Type' column lists 17 events, and the 'Message Text' column is currently empty. On the right side of the screen, there is a configuration panel for the 'Alarm To Device' section, showing 'Event Type' set to 'ZoneNotReady' and 'Message Text' as an empty input field.

Figure 5.1 - Alarm to Device Screen

UCM/Universal Manual

For each Alarm Event, enter the information to be sent to the external device in the Message Text field.

SECTION 6 COMMANDS TO DEVICE

Comfort to Device Tab

This new tab (from Configurator 3.5.0 onwards) allows user to compose and save commands to the external device without having to use the Send RS232 action in the Response Wizard. This allows the commands to be saved in the cclx file or saved as a Template (.uutx file) to be reused again. Send RS232 actions are not saved in the Universal Template file. The Name field is for the user to put a description to the command so it can be saved and read from EEPROM, and has no function.

Enter the information to be sent to a device in the Command Text field. The Execute button for each command in the table is for testing purpose. When the system is connected to computer it will cause the UCM/Universal to send out the text programmed in the Command Text file.

No	Name	Command Text
1	Command001	

Commands To Device

No	1
Name	Command001
Command Text	

[Execute](#)

Figure 6.1 - Commands To Device Screen

The next section shows how the Response Wizard is used to send the programmed commands to the external device.

Response Wizard for Universal UCM

In Response Wizard there will be a UCM Universal option to trigger commands defined in Commands To Device screen. When Universal is selected, the dialog box will be to select Commands number (1 to NNNN).

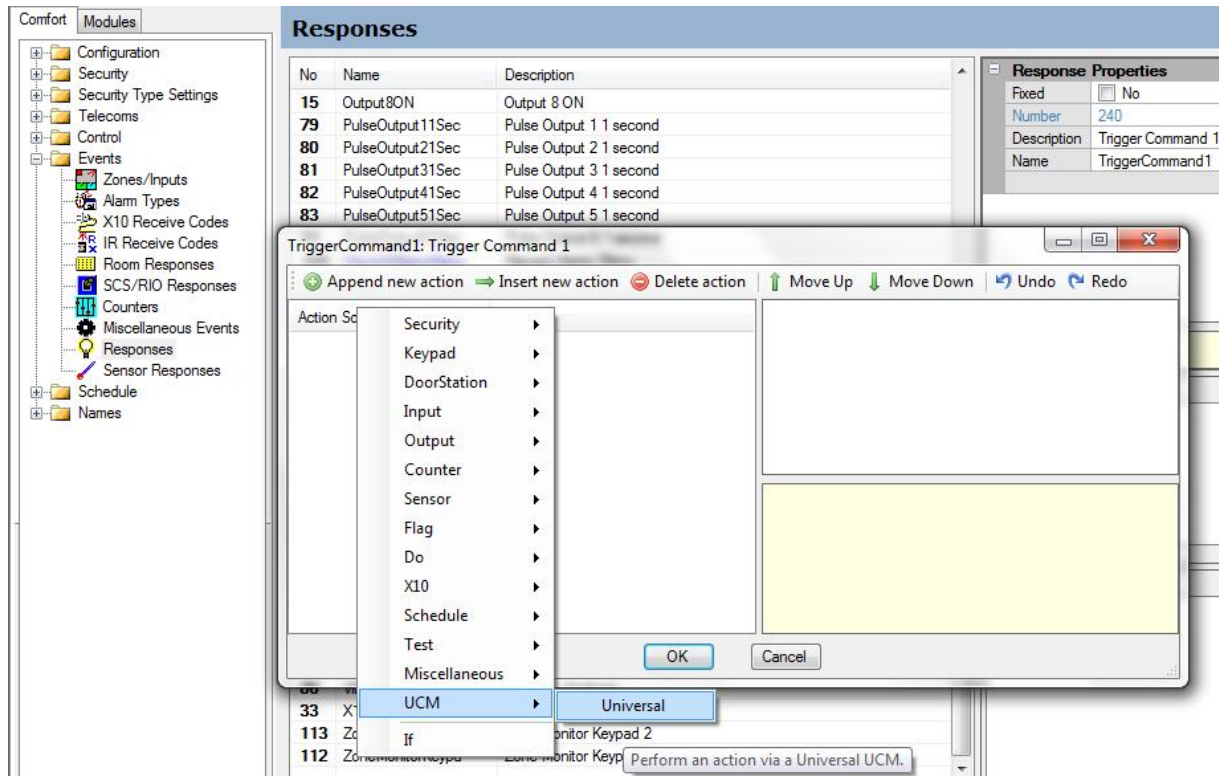


Figure 6.2 - Universal Response Wizard

SECTION 7 WRITE/READ/LOAD/SAVE

UCM Properties	
Id	2
Name	Ucm02
Type	Universal
Version	Unknown

UCM/Universal Properties	
UCM Command Type	None

The menu on top of the UCM/Universal Configurator screen shows

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

Write to EEPROM

After the Device To Comfort and Alarm To Device tables have been completed with the desired information, the entire configuration must be written to EEPROM in the UCM/Universal. The EEPROM (“Electrically Erasable Programmable ROM” or Nonvolatile Memory) contains the configuration information which has been programmed in the UCM/Universal Configurator.

When Write to EEPROM is selected the configuration is written to EEPROM and takes a few seconds to minutes depending on how much information is transferred.

Note that WRITE to EEPROM must be done independently of Transfer > Write to Comfort which writes Configurator configuration to Comfort.

Read from EEPROM

Read from EEPROM reads the saved information from the EEPROM of the UCM/Universal. The information populates the Properties, Device to Comfort and Alarm to Device Tables.

Reset

This resets the Device To Comfort and Alarm To Device Tables to default or blank initial condition.

Get Status

This is to query the current status of the UCM/Universal. The status query allows the status to be known without having to look at the LEDs on the UCM/Universal. The status possibilities are:

- Normal / No error.
- EEPROM missing / faulty.
- EEPROM insufficient capacity.
- EEPROM data invalid.
- Communication error between UCM baseboard and sub-module.

Save Template

This saves the UCM/Universal configuration in a .uutx file so it can be loaded as a UCM/Universal template later.

Note that File > Save in Configurator will also save the UCM/Universal configuration as cclx file or cctx template with the whole comfort configuration.

Load Template

This loads a previously saved UCM/Universal template (.uutx file) from disk. This can be used to insert a UCM/Universal configuration into a Configurator cclx file.

Firmware History

Universal 6.023

- Added Commands to Device Tab so commands can be entered and saved
- Response Wizard for UCM/Universal to send commands in Commands to Device
- Renamed “Comfort to Device” to Alarm to Device”
- Implemented Get Status button
- Configuration file for definition of checksums for future use. Checksums supported current are 2s complement, sum, CRC16, CRC-CCITT, 1s complement

Universal 6.014

- 17 Nov 2011 Allows Comfort to upgrade firmware via Comfort Bus

Universal 5.227

- 17 Feb. 2011 Beta Test

Document Revision History

Version 1.06 - 1 Nov 2015

Baud rate for ETH03 should be 9600, not 76800.

Version 1.03 - 16 June 2012

Added new features i.e. Commands To Device, Get Status enquiry.

Version 1.01 - 5 February 2012

Added Response Wizard

Version 1.00 - 28 June 2011

Initial Draft

Important Note

The printed manual may not always be the most current version. Please check and download the latest version from <http://www.cytech.biz/manuals.html>

This manual is in A4 format. To print this manual as an A5 Booklet, on HP PCL printers select Page Scaling = Fit to Printable Area. Select Properties> Finishing Tab, Document Options = Print on Both Sides, Booklet Layout = Left Side Binding. Other printers may have different settings to achieve the same result

Document Title	UCM Manual
Filename	Uniman.lwp
Version:	1.05
Date:	1 Nov 2015