

Comfort Serial Command Interface

The Universal Communications Module (UCM)

The Universal Communications Module resides on the Comfort internal RS485 bus. It has a device ID 1X hexadecimal, where X = 1 to 8. Hence there may be 8 UCMs on the RS485 bus. The UCM05 also has an RS232 interface which may be connected to a PC Serial Port or an RS232 device. The UCM/Ethernet connects to an Ethernet Network using TCP/IP. The UCM/USB has a USB port to be connected to a PC USB port. The UCM acts as an interpreter or gateway between the RS232 communications and the internal RS485 communication with Comfort.

Each UCM connects Comfort via serial interface to a external device or domain, which may include touchscreens, thermostats, PCs etc.

This document describes the serial communication protocol which communicates with Comfort.

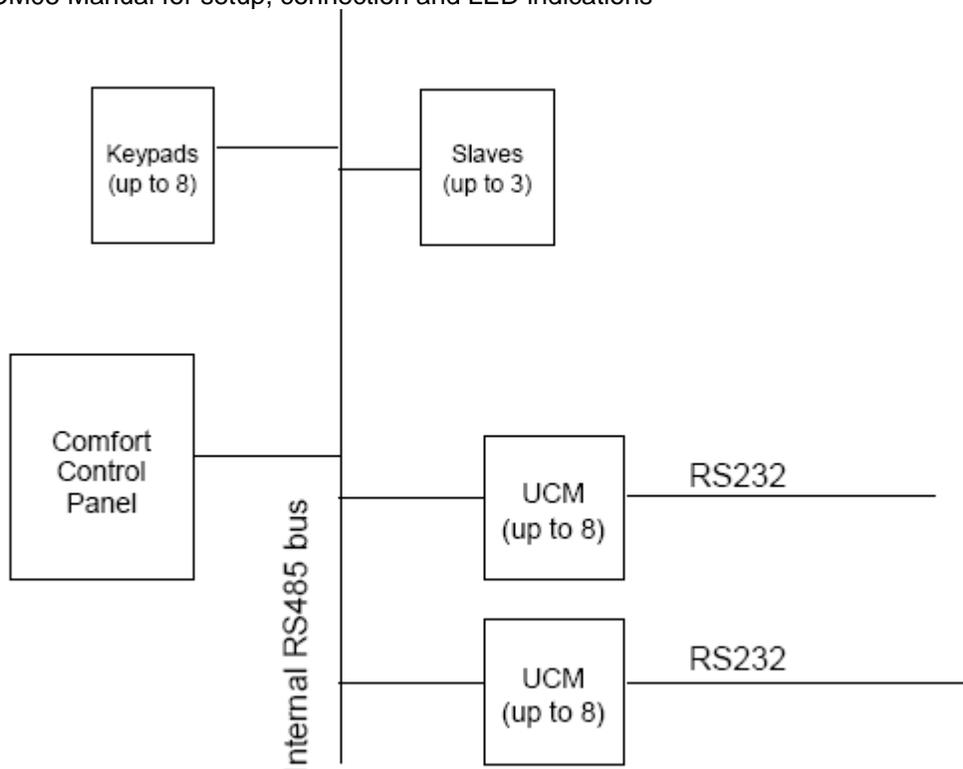
The UCM firmware can also be customized to communicate with other equipment like touch screens, thermostats and other controllers which have a serial interface with their own protocol which has to be adhered to.

The protocol described in this document also applies to the UCM/Ethernet interface or UCM/USB.

This does NOT apply to special UCMs for thirs party devices eg UCM/KNX, UCM/Cbus, UCM/HDL, UCM/GSM, UCM/ACCESS etc

Many software applications and device interfaces including Wizcomfort, Coraccess touchscreens, Superna, Pronto etc have been developed using the UCM and its protocol

Refer to UCM05 Manual for setup, connection and LED indications



Message Format

9600 bits per second, no parity, 1 stop bit, no flow control

Each message is preceded by a STX character which is defined as 03 hexadecimal and terminated by 0D hex (Carriage Return character)

The command consists of 2 characters followed by a variable number od characters

Eg to switch on Output 21, the following command is used

```
<STX>O!1501<CR>
```

The UCM will reply

```
<STX>OP1501<CR>
```

Getting Started

Any RS232 monitor program can be used to test the communications with the UCM, including Hyperterminal, which is included in Windows

Run Hyperterminal, set the Properties to

Connect Using: Direct to COM port (whichever port the UCM is connected to)

Configure:

Bits per second	9600
Data Bits	8
Parity	None
Stop Bits	1
Flow Control	None

Go to the Settings Tab

Set Emulation to "Auto detect"

Press ASCII SETUP

Check the boxes for

ASCII SENDING

Send Line Ends with Line Feeds

Echo Typed characters locally

Line Delay and Character delay = 0

ASCII RECEIVING

APPEND Line Feeds to incoming Line ends

Wrap Lines that exceed terminal width

In the Menu Bar, select View, Font

Select the Terminal Font, regular, font size 9 and press OK

Save the session with a file name e.g. ucm.ht

The STX character for the UCM is <CONTROL> C. (This is hexadecimal 03, which is not the standard character for STX). This appears as a Heart symbol ©

Type <CONTROL>C UP000004, all in capitals which appears as ©UP000004

Which means Upload 4 bytes from the COPY EEPROM starting from 0000 address.

If the COPY EEPROM is installed you will see a reply something like

©DP000004BBAA120184

DP means download from the COPY EEPROM, the next byte is 04, which is the no of bytes to follow.

The next 4 bytes are data from the EEPROM address and followed by a checksum byte

Note that in Windows 98, Hyperterminal does not echo the characters that you type, even though you specify echo typed characters

Guidance

The following functions are the important ones to be implemented by third party application software

Logging in

Before the UCM can accept and commands or send status, it needs a valid login. This is done using the LI login command LIxxxxxx where xxxxxx is a 4 to 6 digit numerical code. If the code is valid, UCM reports LUnn where nn is a user number 1 to 16 or 18 for Engineer. If invalid LU00 is seen.

Once the UCM is logged in commands are accepted and events are reported by it.

Keypad Emulation with Audio

The AUD01 Audio module can be plugged in to a UCM05, UCM/USB or UCM/Ethernet. This has a Speaker and Microphone connector which allows the UCM to emulate a keypad. The KD command sends keypad keys to Comfort just like a keypad. A keypad page which maps to the 16 keypad keys will allow the keypad to be emulated. This can be used to arm and disarm the system or enter the Voice menu or go to any keypad shortcut, or intercom with other keypads. The speaker will output the keypad voice and announcements, and the microphone can be used for recording messages or intercom

Monitoring of Inputs

Input activity can be monitored by the IP reports. Comfort reports the change in state of inputs as they occur - it is not necessary to query the input states although this can also be done. A visual interface can show the state of doors, windows, PIRs etc and the changes in real time. Inputs can be assigned to non-alarm devices like air-conditioner and lighting and electrical points using current sensors, or switches. The I? Command can be used to query the current input state and Z? Command to get the state of all inputs. In a visual display system, each element should be assignable to an input number. Not all inputs need to be monitored, so the displayed inputs should be selectable

Monitoring of Alarms

When an alarm occurs, the AM and AL reports will be seen. The AM message reports the System Alarm number, and the alarm parameter which may be an input or user number or RS485 ID depending on the system alarm (see before allowing the command

Arming the Security System

The commands M!sscccc or m!sscccc can be used to arm the security system where ss is the new security mode and ccccc is the 4 to 6 digit user code. M! Is for auto- arming whereas m! Is used for local arming. For local arming to Away Mode, the user is required to Exit (keypad announces "Please Exit") while for remote or auto-arm, no exit is required for Away Mode arming. Another difference is that for auto- arming ("M!"), any open zones are automatically bypassed ie force arming, if Force Arming is allowed in Comfigurator > Modules and Options

Another way of arming the system is to use the Keypad keys for Arming to Away, Night or Day Modes

Arming/Armed Status

When the system is being armed to any mode, the message EX02ss means that the exit delay has been started (ss is the time given to leave the home or get out of the protected area). The ER message shows if the system is ready to arm or if there are any zones open which must be closed before the system can be armed

UCM ERNN

NN = 00 means system can be armed, no open zones

NN > 00 shows the zones which are active and must be closed in order to arm the system

When the system is armed at the end of the exit delay, the MD report is received telling which mode the system is armed to and the user number who disarmed or armed

The command M? returns the armed state M?00 for Off, M?01 for away, M?02 for Night, M?03 for Day, M?04 for Vacation

Zone Bypass

The user may want to bypass zones for convenience or because it is faulty. This is done by the DA4Bzz command (Do Action 75). When a zone is bypassed, the system reports BPzz. The B?zz Query returns the bypass state of the zone. It is useful to keep track of the zones which are bypassed in a security system

Entry Alert

When the system is armed and the Entry Door is opened, an ENTRY ALERT is started, indicated by the EX01ss message. The entry delay in seconds (ss) is given in the message 0 to 255 seconds.

The Alarm state will be Alert during the entry alert. If the delay expires without a user code being entered on the keypad or elsewhere in the system, an Intruder Alarm is generated. If a valid user code is entered, the system disarms to Security Off

Reporting of Events

Comfort reports events as they occur through the UCM interface whether it is RS232, Ethernet or USB. This includes changes in the state of inputs, outputs, counters, alarm states, security modes, IR codes, and X10 signals received etc

Input changes are reported by the IP message which gives the Input number and the new state. The I? Query returns the current input status

Output changes are reported by the OP message. This gives the output number and its new state. The O? Query returns the state of the output

Counter changes are reported by the CT report which gives the counter number and its value (1 byte). EIB and CBUS status changes are related to Counters or Sensors. The EIB or CBUS Group addresses correspond to Counter numbers, and the absolute or dimming level corresponds to the 8 bitvalue in the counter with 0 being off and 255 being ON. Hence monitoring the counters gives the state of the monitored lights

Event Log

The E? Query causes the Event Log to be reported. The Event Log can be interpreted and displayed on screen and can be saved to file and recalled. An option can be to automatically upload the event log and save it at regular intervals, say every day or every week

Date and Time Synchronisation

The DT command allows the Comfort date and time to be set. When Comfort, date and time are changed, the DT command is also sent by Comfort. This can be used to synchronise Comfort time with your external system time

Time Programs

Time Programs can be changed by the user using the TP command. This command allows the Time program to be enabled or disabled, to change the Activation Time, to set days of week and to select Response. The more important functions for the user are to enable and disable, set days of week and change Time of day. Changing the Response may not be needed

Reminders

Similar to Time Programs, the Reminders can be changed using the RM command. The user can enable or disable a reminder, change Time, change Days of week. The reminder message is recorded on the keypad

Do Action and Do Response Command

The DA command sends action codes to Comfort. Action codes are commands used in Responses to perform customised behaviour. DA allows actions to be executed by Comfort without being part of a Response. This can be used when there is no direct UCM command to perform a required function. Do Response R! Can be used to activate programmed Responses in Comfort This is useful when the Response number is known as a complex series of actions can be executed in this way. However the Response number may be changed by Configurator so it is best if the cclx file should be read before doing this to obtain the Response number

Linkage to Configurator

Comfort is programmed using the Configurator 3 software. The configuration for a system is saved in a .cclx file which is in XML format. Application software can read a specified cclx file to make use of the programmed configuration to automatically configure Time Programs, Reminders, Responses, Zones, etc. The cclx file format is described in the Configurator software.

Program Transfer Function

The UCM contains 2 EEPROMs, Master and Copy which are used for transferring programs between Comfort, UCM, and the PC

Pressing the ULOAD button causes the program in the Comfort U4 to be transferred to the UCM COPY EEPROM

Pressing the DLOAD button on the UCM causes the data in the UCM Master EEPROM to be transferred to Comfort.

Pressing the COPY button causes the data in the Master to be transferred to the COPY EEPROM.

Pressing the VERIFY button compares the data in the Master with that in the COPY, and gives a good or bad indication.

Pressing the TEST button checks every location in the COPY EEPROM by writing and reading it, but leaves the data unchanged at the end of the test.

The master EEPROM is never written into. Only the COPY EEPROM is programmed. The Master and Copy EEPROMs can be removed from their sockets for easy transfer to other systems.

The size of the Master and Copy EEPROMs are taken in account when doing Copy, Test, Upload and download functions.

These are the built-in functions of the UCM. (also refer to the UCM05 Manual)

LEDS

D1 - OK (Green) - indicate operation was successful

D2 - BUSY1 (Red) - Task in process

D3 - BUSY2 (Red) - Verify in process

D4 - ERROR (Red) - Error result from operation

D10 - RS485 RX (Green)

D9 - RS485 RX (Red)

D11 - RS232 RX (Green)

D12 - RS232 TX (Red)

Command List

The Commands supported are:

From PC to UCM (commands)

a? - Get Current Alarm Type
A? - Get Analog Input Value
B? - Get zone bypass status
C! - Set Counter
C? - Read Counter
CI - Learn IR Mode
DA - Do actions
DC - Send Command to DSP
DL - Download to Comfort
DP - Download to UCM EEPROM
DR - Reset DSP command
DT - Set Date and Time
E? - Event Log Request
F! - Set Flag
F? - Request Flag
I? - Input Status Request
IR - IR activation Command/Report
IL - IR Code download
! - Virtual Input Command
KD - Keypad digit
LI - Log In
M! - Security Mode Change command - Autoarm
m! - Security Mode Change - Local Arm
M? - Security Mode status Request
MO - Monitor Mode
O! - Output Activation
O? - Output status request
P! - Pulse Output
PS - Engineer Code Enable/disable
q! - Internal Memory Write (Test Mode)
q? - Internal Memory Read (Test Mode)
RD - Read Data from Device
RM - Set Reminder Message
RS - Reset Command
R! - Do Response
S? - get alarm state
s! - Set Sensor Register
s? - get sensor register
SI - Siren Command
SP - Speaker broadcast control
SR - Status Reports ON/OFF
ST - State Request
TC - Test Comms Command
TE - Test EEPROM
TM - Terminal Mode
tM - Test Mode
TP - Set Time Program
TV - Test Vocabulary
u? - Get ID Type/version/revision
U? - Get UCM type/version/revision
UB - Upgrade Firmware
UD - Download Firmware to UCM
UL - Upload from Comfort
UP - Upload from UCM COPY EEPROM

V? - get version and FS
v? - Get Vocabulary version
VP - Download new Vocabulary
VL - Download Vocabulary Line
VS - Download Sentence Table
WD – Write Data to ID
X! - X10 Command
Y? - request all output status
Z? - request all zones

From UCM to PC (reports or replies)

a? - Current Alarm Type Reply
AL - Alarm Type Report
AM - System (Non-detector) Alarm Report
AR - System (Non-detector) Alarm Restored Report
B? - reply to Bypass zone query
BP - beep on Speaker
BY - Bypass Zone Report
C? - Counter value Reply to C? Request
CI - Learned IR code data
CT - Counter Changed Report
DB - Doorbell pressed
D* - Status reply from DSP to DC command
DT - Date and time
DI - Dial up
E? - Event Log report
ER - Arm Ready/Not Ready
EX - Entry/Exit Delay Started
F? - Reply to Flag Request
FL - Flag Change Report
IP - Input Activation report
IR - IR Activation Report
IX - IR Code received
KL - Keypad LEDS status
LR - Login Report
LU - User Logged in
NA - Command Not Available (Invalid command or parameter)
OK - Command Acknowledged
OP - Output activation report
OV - Virtual output command
OQ - Virtual Output status request
MD - Mode Change report
PT - Pulse activation report
RA - Return value from DA (Do Action)
RP - Phone Ring
SM - Speaker/Microphone command from Comfort
sr – Sensor Register report
T+ - Trouble Alarm
T- - Trouble Alarm Restore
XF - X10 House/Function code received
XR - X10 Received Report (replaced by XF and XU)
XT - X10 Transmitted report
XU - X10 house/Unit code received
WE – acknowledge reply from WD command
Y? - request all output status
Z? - Report all zones
?? - Checksum error or error in message format

Commonly Used Commands

Log in using LIXXXXXX where XXXXXX 4 to 6 digits is the user code. This returns LUNN where NN is the user number 01 to 10 (in hexadecimal)

To change outputs on or off, use the command
O!nn where nn is output 01 to 40H for Main and Slave outputs and 81H to C0H for RIO/SCS. Ensure that Comfort has set the correct number of Slaves and RIO/SCS as required

Outputs can be queried using the command eg

O?09 Query output 9

Reply:

O?0901 Output 9 is ON

Inputs can be queried, eg

I?01 Query Input 1

Reply

IP0100 Input 1 is ON

To locally arm Comfort, use the command m!ssxxx where ss is the security mode (00 for off, 1 for away, 2 for night, 3 for day, 4 for vacation) xxx is the 4 to 6 digit use code.

M! Is similar to m! Except that this uses auto-arm instead of local arm. Auto arm does not require exit for away or vacation mode while local arm requires the user to exit and close the entry door.

EX02 is reported when the exit delay is started

From UCM 5.78 and Comfort 4.203 ER00 is reported when the system is ready to arm ie no zones open, or ERZZ is Zone ZZ is open. The ER command reports about once a second until the system is armed or aborted

When zones are opened or closed the IPZZ01 and IPZZ00 reports will be seen/ When the system is armed the reports

MDssuu where ss is security mode (00 for off, 1 for away, 2 for night, 3 for day, 4 for vacation)

The report

AM09uu (System Non detector alarm System armed where uu is user number), and

AL1300....(Alarm Type 19, alarm state 0 for idle)

Is seen. AM reports non detector alarms and AL is the actual alarm type activated

To disarm the system, use commang

M!00cccccc or m!00cccccc

If a zone activation causes and alarm, the zone is reported

IPzz01

Then the alarm

AI0103.... (Alarm type 1, state 3)

Command Details

a? - Current Alarm Type Request/Reply (UCM5.15)

PC a?

UCM a?nn

nn is the current Alarm Type 01 to 1FH

See AL for list of Default Alarm Types. Alarm Types can be re-assigned by programming, whereas System Alarms are fixed. Alarm type 0 (No Alarm) may be reported when the system is disarmed and there is no alarm.

A? - Get analog Input Value

PC A?nn

UCM A?nnvv

nn is the input number 1 to 40H (only input nos 1-8, 17-24, 33-40, 49-56 are analog inputs, not inputs on the LEM)

vv is the value of the analog input 0-255 (8 bits)

A! - Virtual Analog Input Activation

(PC): IVnnvv

UCM: A?nnvv

This command sets virtual input analog values. This differs from the !I Command in that !I Sets states only, while IV sets analog values. Virtual inputs are not valid for zones on the control panel (ie zones 1 to 16). They exist only on slave addresses which are not physically connected, ie there should be no physical slave corresponding to the virtual input. e.g. for Virtual input 33, slave #1 (id 21H) should not exist.

If the new analog value causes a change in state (depending on the zone type), Comfort may report a zone state change IPnss

vv is the analog input value 00H to FFH. For security inputs, analog values 00 to 3FH = Short Circuit, 40H to 7FH = closed, 80H to BFH = open, C0H to FFH = Open circuit

AL - Alarm Type Report

UCM: ALnnssSSddTTpp

nn is the new Alarm type 01-1F

ss is the alarm state (00 = idle, 01 = Trouble, 02 = Alert, 03 = Alarm) of the priority alarm

From Comfort 4.215 onwards, the following parameters are reported

SS is the alarm state of the new alarm

Note Prior to firmware version 4.215, the alarm state reported is the alarm state of the prevailing priority alarm (ss) and not necessarily that of the new alarm (SS)

dd is the sentence number of the alarm type (for LCD display)

TT is the type of alarm parameter to be reported. 0 = none, 1 = zone, 2 = user, 3 = id

pp is the alarm parameter for id, user no or zone depending on the alarm parameter type

From UCM to PC

The Alarm Types are only reported if they are actually assigned to System alarms..

From UCM5.03. Prior to 5.03 alarm state was not reported

Note: System Alarms are fixed alarm events which can be activated in Comfort. System Alarms can be assigned to Alarm Types which determine the behaviour and characteristics of the alarm, eg dial-out, alarm state, response etc.

The list of default alarm types are shown below. Please note that the Alarm Types may be reassigned by programming

Default Alarm Types

00 = No Alarm

01 = Intruder Alarm

02 = Duress

03 = Phone Line Trouble

04 = Arm Fail

05 = Zone Trouble

06 = Zone Alert

07 = Low Battery

08 = Power Fail

09 = Panic

10 = Entry Alert

11 = Tamper

12 = Fire

13 = Gas

14 = Family Care (spare)

15 = Perimeter Alert

16 = Bypass Zone

17 - System Disarmed

18 = CMS Test

19 = System Armed

20 = Alarm Abort

21 = Entry Warning

22 = Siren Trouble

23 = Unused

24 = RS485 Comms Fail

25 = Doorbell (Away)

26 = HomesafFse (Spare)

27 = Dial Test

28 = Spare

29 = New Message

30 = Engineer Sign in

31 = Sign-in Tamper

AM - System Alarm Report

UCM: AMnpp

nn is the System Alarm, pp is the alarm parameter, which could be zone, user or id depending on the nature of the System alarm. In the list of System alarms, below, the 2nd parameter listed shows vv which will be reported. Note that the AM parameters are fixed assignments for the alarms shown while the AL alarm types are the alarm types which are activated by either AM alarms or by direct

zone activation.. The AL alarm types are programmable by the user for different behaviour eg siren type, alarm state, dialouts, strobe etc

Note that if an intruder, fire or other zone activated alarm is caused by a zone activation, the AM alarm will NOT be reported, as AM is for NON-DETECTOR alarms only (ie not activated by zones).

0 = Intruder, zone

1 = Zone Trouble, zone

2 = Low Battery, NA

3 = Power Fail, id

4 = Phone Trouble, NA

5 = Duress, user

6 = Arm Failure, user

7 = Not Used

8 = Security Off, user

9 = System Armed, user

10 = Tamper, id

11 = Not Used

12 = Entry Warning, zone

13 = Alarm Abort (disarmed in < 90 seconds), NA

14 = Siren Tamper, NA

15 = Bypass, zone

16 = Not Used

17 = Dial Test, user

18 = Not Used

19 = Entry Alert, zone

20 = Fire (Response-activated), NA

21 = Panic (Response-activated), NA

22 = Not Used

23 = New Message, user

24 = Doorbell pressed, id

25 = Communications Failure (RS485), id

26 = Signin Tamper, id

Zone-related alarms will report the zone number. User-related alarms will report the user number.

Note that the numbers reported shall be in hexadecimal notation,

Take note of a special case- When the user number 1 to 16 is reported for system disarm (AM08), the most significant bit of the byte is set. For example, if user 1 disarms, the report will be AM0881. The most significant bit of the user number can be safely ignored if this causes a problem.

RS485 ID alarms will report the id number. System alarms are always reported unlike Alarm Types.

Both System alarms and Alarm types are usually reported for an alarm activation. System alarms (or non detector alarms) are programmed to Alarm Types in CS-Xpress. For example, when phone line is cut, a System Alarm 4 is reported, this is programmed to Alarm Type 3 by default in Comfigurator, so the UCM will report

AM0401 (Phone Trouble System Alarm, parameter=1)

AL0301 (Alarm Type 3 activated, Alarm state 1)

Note: System Alarms are fixed alarm events which can be activated in Comfort. System Alarms can be assigned to Alarm Types which determine the behaviour and characteristics of the alarm, eg dial-out, alarm state, response etc.

AR - Alarm Restored

UCM: ARnnvv

nn is the System Alarm which is restored.

Vv is the parameter for the system alarm, e.g. zone. The parameter reported may not be meaningful if there is none.

From UCM to PC

Not all alarms have restore reports (e.g. Intruder, Fire). In general, alarms with state 3 do not report an alarm restore as the system needs to be disarmed to cancel the alarm. Only alarms with alarm state 1 are restored when the trouble condition is cleared.

Note that the numbers reported shall be in hexadecimal notation,

BP - Beep on speaker

UCM: BPnn

This causes the speaker to beep according to the parameter

nn is a parameter
00 = Beep Off
01 = Beep On
02 = Beep slow
03 = Beep fast
04 = Long Beep (error)

From UCM 5.10

BP04 is received if an invalid attempt was made to sign in from the keypad, or if a key digit was sent while some other keypad is active

B? - Zone Bypass Query (UCM 5.76, V4.229)

BY - Zone Bypass Report (UCM 5.76, V4.229)

PC: DA4Bzz - DO Action 75 command to bypass zone zz

Or

PC: DA4Czz - DO Action 76 command to unbypass zone zz

UCM: BYzznn - Reports bypass of zone zz

UCM: AM0F01

UCM: AL100100C50101

UCM: RANN - RA is return value from DA (not important in this case)

The return byte nn is 00 for not bypassed and >00 for bypassed

When Zone is bypassed by other means, the UCM reports

UCM: BYzzss

The Bypass status can be queried;

PC: B?zz

UCM B?zzss

Where ss is the zone bypass status 00 for Off (Unbypassed), 01 for ON (Bypassed)

Note: Zone Bypass can be accomplished by DA4BZZ where 4B = Bypass action 75, ZZ = zone no in hex. Zone OMIT is accomplished by DA6CZZ where 6C = Omit action 108, ZZ = zone no
10/6/09 corrected description of Bypass state 0 or 1, not zone flags

C! - Set Counter

PC: C! Counter# Value |Counter# Value|

UCM: OK

Value is 1 byte

Sets Counter number in Counter# to the Value (0 to 255). UCM replies with changed counter report

UCM: CT Counter# Value

Up to 8 counters can be set in one command

UCM replies with counter changed confirmation for each counter

C? - Get Counter

PC: C? Counter#

UCM: C? Counter# Value

Get the value in Counter#

CI - Learn IR Mode

PC: CI mode#

UCM: OK

UCM: CI <3*period>, mark, space, mark, space, mark,...,mark, CR

For period, each unit is 813.8 microseconds, For mark and space, each unit is 13.02 microseconds. If the duration is longer than 1 byte, it will be denoted by '00' followed by 2 bytes.

Mode 01 is for Capture. Other modes are not defined.

To abort the operation, just send CI without a modes.

After capturing the IR successfully, UCM will return the data in the following format.

STX, 'C', 'I', 3 x period, mark, space, mark,, mark, CR

For period, each unit is 813.8 nsecs while 13.02 usecs is for the mark and space. If the duration is longer than one byte, '00' will denote that the following data is 2 bytes information. The MSB will send first, followed by the LSB.

CT - Counter Changed Report

UCM: CT Counter# Value

The UCM reports CT when it receives a counter change message from another device (e.g CBUS UCM). The report is ALSO given when the counter is changed by Responses

From UCM 5.12

DA - Do Actions

PC: DA action1 action2 ... action##

Action1 to action## are 2 ASCII character action codes 00 to FF in hexadecimal format. These actions will be executed by Comfort just like an internal Response. A maximum of 24 bytes of action codes can be sent. If less than ## bytes are sent, there is no need for a terminator like actions entered by keypad. The UCM will return a value from the actions executed using the RA command, e.g.

UCM: RA NN

NN is a hexadecimal byte returned by the last action.

Note: The returned value may not necessarily be meaningful depending on the action performed.

e.g.:

PC DA5123 (5123 = action 81, 35- get counter 35 value)

UCM RA5F (return 5F value from the action, ie counter 35 value)

Refer to Programming with Action Codes for a complete list and description of Action Codes in Comfort.

Max number of actions was changed from 24 to 36 in Comfort 5.122 to support UCM/HDL. Increased to 48 for Comfort 5.173

DB - Doorbell

UCM DB, id

doorbell has been pressed

From 4.116 (2001) , id of door station 31H ,... Is reported

2/5/09 When ID = FF it means that doorbell has ended or was answered (Implemented UCM 5.183)

DC - Send Commands to DSP (UCM 5.78, CM 4.232) (Test Mode)

D* - Reply Status from DSP (Test Mode)

PC: DCXXXX

UCM: D*YYYY

XXXX is a 16 bit command for the DSP (high byte, low byte)

YYYY is a 16 bit status returned by the DSP (high byte, low byte)

the meaning of the DR word is

Bits 0-3 Reserved

Bit 4: CPT (Call Progress Tone Detected)

Bit 5: CAS Tone detected (Not used)

Bit 6: Voice Freq detected

Bit 7 END of Play OR Memory Full

Bit 8: Busy signal detected

Bit 9: Dial Tone detected

Bit 10: Silence ended Recording

Bit 11: DTMF(end of tone)

Bit 12 DTMF start Detected

BIT 13: Voice prompt ready

Bit 14 Voice answered call

This command works in Test Mode only. Complete status is returned in response to the DC command. However, only the DTMF Ended status is available as a report in test mode when the event occurs

DI - Dial up for Internet Connection

UCM DI nn

nn = 01 for dial up, 00 for Hang up

This command tells a PC acting as a gateway to the Internet to dial up to connect to an ISP using the

PCs programmed internet connection settings, or to hang up (disconnect).

If the PC is on Comfort's TEL OUT, Comfort is able to instruct the UCM to give the DI01 message when the line is free.

If the DI command is issued by the PC, it is echoed back to the Rs232 port

PC: DInn

UCM: DInn

If the UCM receives DI00 command from the PC, it will also logout the UCM and send LU00. And disabled status reporting (same as SR00)

DL - Download to Comfort

PC: DLaaaann (byte1) (byte2) (byte3) (bytenn),(checksum)

UCM: OK

aaaa is address in EEPROM in hexadecimal notation

nn is the number of bytes to be sent on this line, max 12 (32 bytes) , not including checksum

(byte1) to (bytenn) are data bytes, in hexadecimal notation, number according to numbytes

(checksum) is a checksum consisting of the twos complement of the message from address byte until the last byte, so that the sum of the bytes received including the checksum is 0

If UCM does not receive the correct checksum, it will reply with a ?? Message. If the checksum is correct, it will reply with OK

The number of bytes which can be transmitted in each message, not including checksum is determined by the BB parameter in te V? Command reply

From 4.114, DL disables Status Reporting on RS232 for the UCM equivalent to SR00 (See section on Event Reporting)

From 4.166 DL disables Event Reporting on CM to prevent events from filling up the RS485 transmit buffer. SR01 cannot restore event reporting on CM, this requires an LI

DP - Download to UCM Copy

PC: DPAAAAnn (byte1) (byte2) (byte3) (bytenn),(checksum)

UCM: OK

Download to UCM COPY EEPROM

Format similar to DL, but the number of characters in the line is limited to 200

The number of bytes which can be transmitted in each message, not including checksum is determined by the BB parameter in te V? Command reply

8 Oct 2006 - changed command format - was 4 byte address and 32 bytes transfer

8 Jan 2008 – address limited to 4 characters (2 bytes)

DR - Reset DSP command

PC: DRnn

nn = 00 for Reset DSP, 01 for Initialise DSP

UCM: D*XXXX

XXXX is the status of the reply from the DSP after reset (Garbage collection)

For initialise DSP the status reply is not meaningful

DT - Set Date and Date

PC: DYYYYMMDDHHMMSS

Eg

DT19990329102358

Sets the date to 1999 March 29, 10:23:58

UCM: OK

or

UCM: DT19990329102358 (UCM replies with current Date and time parameters)

YYYY is the year e.g. 1999

MM is the month 01-12

DD is the day 01-31

HH is the hour in 24 hour format 00-23

MM is the Minute 00-59

SS is the second 00-59

If the value of any of YYYY, MM, DD, HH, MM, SS is FF, that value will be ignored by Comfort, so this command can be used to change the time without the date by setting the date fields to FF. This applies only to Comfort version 4.175 and above.

Hence an application should be prepared to accept either OK or a DT string from the UCM depending on the Comfort firmware

In this command, the data sent should be in decimal

The data sent does not have to be complete, the most significant data may be sent, leaving out the less significant data, e.g. 19990803 sets the year, month, and day only

Comfort sets the correct day of week based on the new date. Comfort will not set invalid values of date and time, but may not give any indication that the value was not accepted, so the application program should check for validity of data.

A DT report is sent by the UCM when the date and time has been changed in Comfort (from UCM 5.43)

DT without any parameters will cause the UCM to send the current date and time in a DT report

E? - Event Log request

PC: E?00

UCM: EVnn (byte1) (byte2) (byte3) (byte4) (byte5) (byte6)

PC: E?

UCM: EVnn (byte1) (byte2) (byte3) (byte4) (byte5) (byte6)

PC: E?

...

PC: E?

UCM: EVFF (no more events)

nn is the event number 0 to 0FFH in memory. The event number is NOT a chronological number from first to last. It is the number of the event log slot in memory. When the event log is full and new events are added, the oldest event is overwritten by the new one. The position of the oldest event thus rotates through the event log memory

When the number of events exceeds 255, the number will roll over to 00, ie only the least significant byte is sent. This is to maintain compatibility with older software and hardware where only 255 max events are available. Comfort Ultra II has 600 events while OPT has 255 events

Hence the software application should not give any meaning to the event number in the message

The Event Log is a first-in first-out buffer. As new events are added, the oldest event gets lost.

The event log is sent 1 event at a time. The application starts by sending E?00 to request for the first event (only the first event is valid to start the event log). When UCM EV message is received, the application should send an E? Message which shall fetch the next event in the event log. If there are no more events, the UCM will reply with FF in the event number field

Byte1 is the month MM 01 to 12 in decimal

Byte 2 is the day DD 01 to 31 (decimal)

Byte 3 is the hours HH in 24 hr format 00 to 23 (decimal)

Byte 4 is the minutes MM 00 to 59 (decimal)

Byte 5 is the event code according to the following list

Byte 6 is the event parameter according to the following list

Event Code (byte 5)		Event parameter (byte 6)
#	Description	
0	Zone Activation	Zone No (1-64)
1	Mode Change	Off = 0, Away=2, Night=2, Day=3, Vacation=4
2	Dial Out Index	Phone Index 1 to 8
3	Sign In	User 1-16, 18 = Engineer
4	Alarm	Alarm Type 1 to 31 (See Alarm Type definitions)
5	Alarm Restore	
6	Force Arm	User Number 1-16
7	CMS Kissoff	Phone Index 1 - 8
8	Zone Restore	Zone No (1-64)
9	Reset	N./A
10	Zone Trouble	Zone No 1-64 (see zone table)
11	Bypass Zone	
12	Unbypass Zone	
13	Remote Sign-in	User 1 to 16, 18 = Engineer
14	Date Time Change	N/A
15	RS485 Comms Fail	01 = Main panel 33-35 = SEM 1-3 49-56 = Doorstation 1-8 65-72 = Keypad 1-8

	Event Code (byte 5)	Event parameter (byte 6)
16	Tamper	
17	RS485 Comms Restore	
18	RS485 Tamper Restore	
19	Engineer Reset	NA
20	Low Bat	01 = Main Unit 33-35 = SEM1-3 33-40 = Doorstation 1-8 65-72 = Keypad 1-8
21	Low Bat Restore	
22	Line Cut	NA
23	Line Cut Restore	NA
24	AC Fail	NA
25	AC Fail Restore	NA
26	Voice RESET	NA

There will be conflicts if the voice event log is being accessed at the same time as the E? command

ER - Arm Ready / Not Ready (UCM5.78, Comfort 4.232)

UCM ERNN[PP]

NN = 00 means system can be armed, no open zones

NN > 00 shows the zones which are active and must be closed in order to arm the system

PP = Partition 0 to 3 (20/4/09) If PP is not present in the message Partition 0 is assumed

The ER message is sent by the UCM when the system is being armed to any mode. The message is sent approximately every second. Corresponding to the announcements "please exit" or the zone announcements until the system has been armed.

The EX01 message for Entry/Exit delay started will precede this message.

EX - Entry/Exit Delay Started

UCM: EXNNss[PP]

NN = 01 for entry delay, 02 for exit delay

ss = delay in seconds. This parameter is not supported in current comfort firmware, but may be supported in future versions.

PP = Partition 0 to 3 (20/4/09) If PP is not present in the message Partition 0 is assumed

The UCM sends this report when an entry or exit delay is started

Available UCM 5.59

F? - Flag Status Request/Reply

PC F?NN

UCM F?NNSS

FF is Flag number 01 to 40H

SS is state 0,1

Defined 2 April 2009

F! - Flag Set Command

PC F!NNSS

UCM FLNNSS

FF is Flag number 01 to 40H

SS is state 0,1, 2 = check, 3 = toggle

Defined 2 April 2009

FL - Flag Status Report

UCM FLNNSS

FF is Flag number 01 to 40H

SS is state 0,1

UCM reports a change in Flag status

Defined 2 April 2009

I? - Input Status Report/Request

PC: I?nn

UCM: I?nss

nn is the input number 01 to 40H

ss is the status 00 = Off, 01 = ON, 02 = S/C, 03 = O/C

!! - Virtual Input activation command

PC !!nss

UCM !Pnss

nn is the input number 11H to 40H

ss is the state 0 = Off, 1 = ON, 2 = S/C, 3 = O/C

Virtual inputs are inputs from external devices which are reported to the CM. This causes the Comfort input to act as if it had been triggered by an actual input. Virtual inputs must be from 17 (11H) to 64 (40H), ie there should not be virtual inputs on the Main Control panel. The corresponding input on comfort must be programmed as usual for Zone Type etc.. There should be no slave with the corresponding physical input. Analog values can also be assigned to Virtual inputs, using the IV command

Note: If the input number is not programmed, ie it is Zone Type 0, there will be no IP report from Comfort

IL - IR Code download (UCM5.76, O4.229)

The IL command downloads an IR code to CM in response to a IRNRR command which tells CM to transmit an IR code to Output NN.

PC: IRNNFF where NN = output, FF means download code

UCM ILFF<irptr=0> ;UCM requests IR code from offset = 0

PC: ILFF<irptr=0><data1><data2>....<data12> ;PC sends IR code from offset=0

UCM ILFF<irptr> ;UCM requests data from irptr = offset into IR code

PC: ILFF<irptr><data1><data2>....<data12> ;PC sends IR code according to requested offset

..

UCM ILFF<irptr> ;UCM requests data from irptr = offset into IR code

PC: ILFFFF ;PC sends FF followed by FF to end the code

The PC must send data from the requested IRPTR offset at each message from the UCM

There is a timeout of 5 seconds for each line to be received, if expired, the command is aborted, and the IR queue is freed

When download of code completed, CM sends IR code to specified output and UCM reports

UCM IRNNFF

If code was unsuccessful or error occurs in the download the UCM reports

UCM IRNN00

Eg. The following commands show a typical transaction. The IR data are just for illustration and are not valid IR codes

PC IR12FF ;send IR code to Output 18 on Comfort

UCM ILFF00 ;UCM requests IR code starting from offset 00

PC ILFF00112233445566778899AABBCC send example data 12 bytes from offset 00

UCM ILFF0C ;UCM requests IR code starting from offset 12

PC ILFF0C112233445566778899AABBCC send example data 12 bytes from offset 12

UCM ILFF18 ;UCM requests IR code starting from offset 24

PC ILFF18112233445566778899AABBCC send example data 12 bytes from offset 24

UCM ILFF24 ;UCM requests IR code starting from offset 36

PC ILFF181122334455 send example data 5 bytes from offset 36, end of IR

UCM ILFF29 ;UCM requests IR code starting from offset 41

PC: ILFFFF ;PC sends FF followed by FF to terminate the code

UCM IR12FF ;IR Code has been sent to Output 18

UCM IR1200 ;means that the IR code was unsuccessful

Requires UCM 5.75 (Beta), Outside/Action 4.228 (beta)

IP - Input activation report

UCM: IPnnss

nn is the input number 01 to 40H

ss is the state 0 = Off, 1 = ON, 2 = S/C, 3 = O/C

UCM sends the message when an input is activated or restored

IR - IR Activation Command/Report

PC: IRNNRR

UCM: OK

UCM: IRNNRR

NN is the output no 01 to 40H

RR is the IR number 01 to the maximum allowed 250 or FA

If NN is FF, this is a command to request the IR code using the IL command. When the IR command is downloaded completely, it is sent to the specified output. (NOT IMPLEMENTED)

If the UCM reports IR number 00, it means that the IR code is undefined or has an error.

le

UCM: IRNN00

UCM sends the IR report when an IR code is activated by master or slave. If the IR is not activated, there is no report

If the IR Code is FF, it means that the CM will ask for an IR code to be downloaded from the UCM, eg

PC: IRNNFF

UCM: OK

UCM: ILFFNNaabbcc..

Where NN is the pointer to the IR code, aa,bb,cc are the bytes of the IR Code

See IL format

IX - IR Code Received

UCM: IXnn

IX reports an IR code received by Comfort through a keypad or IR receiver. NN is the code number 00 to 7F

K? - Keypad LEDS Status Query

PC: K?

UCM: KLAABBCCDD

This message queries the state of the Keypad leds. The KL message gives the reply
Implemented 25/3/2005

KD - Keypad Key Entry

PC: KDKK

UCM OK

This enters a digit just like a keypad. The command allows the UCM to be a keypad to sign in and access the voice menus or short cut function keys. The speaker and microphone will act like the ones on a keypad. The UCM Line In and Out can be connected to a PC Line Out and In respectively. For example F8 can send audio from the UCM Line In to all other keypads in Intercom Mode. The UCM can be used to sign in to Comfort, but note that there is a time limit of 7 seconds to enter the code and # key.

kk key values: 00 to 09,

0D = "AWAY" soft key, 0E = "NIGHT" soft key, 0F = "DAY" soft key.

From UCM5.08, requires Outside 4.130 and above

F key = 0A

key = 0C

* key = 0B

Away hard key = 12 /* Local AWAY Mode HARD key */

Night hard key = 13 /* Night Mode HARD key */

Day hard key = 14 /* Day Mode HARD key */

Vac hard key = 15 /* Local Vac Mode HARD key */

Enterkey = 1A /* like # key but will not go into menu, disarm only */

Endkey = 1B /* END key to exit keypad menu */

Example

PC: KD01
UCM OK
PC: KD02
UCM OK
PC KD03
UCM OK
PC KD04
UCM OK
PC KD0C
UCM OK

Signs in with 1234#.

KE - KT03 Erase Memory

PC: KEdd This erases the KT03 at ID=dd

KT: KEdd01 (success) or KEdd00 if Flash fails to erase

dd is the ID of the KT03. Although the KT03 is connected directly to the PC, this is for verification purposes and for possible future use of KT03 is not directly connected. Erasing the KT03 fills the memory to FF

Defined 13/12/08

KL - Keypad LEDES status Report

UCM: KLAABBCCDD

This message controls the state of the keypad LEDES and is sent when there is any change in state or as a reply to the K? query

AA is the RED Armed/Alarm LED

BB is the GREEN Home/Trouble LED

CC is the AC Power/Batt LED

DD is the Message LED

The possible values of AA, BB, CC, DD are

00 = Off

01 = ON

02 = Blinking

The message may not have all its elements, eg only the first few LEDES status may be given in which case the remaining LEDES are unchanged

Eg KL010002

Means Armed LED is ON, Home LED is OFF, AC LED is blinking and MSG led is unchanged

Implemented 25/3/2005

KM/Km - KT03 Write memory Repeated bytes

See KW command

Defined 13/12/08

KR/Kr Read Memory

PC KRddAAAAAnn

KT KRddAAAAAnn(byte1) (byte2).....(bytenn)(checksum)

NN is number of bytes, max 240.

aabbccdd is reply of data read from device

CC is checksum of numeric bytes after KR. sum of bytes including checksum should be 0

This command is used to read data from the memory of KT03 and is used for KT03 only, not the UCM

If KT03 has multiple repeated bytes the reply may be

KT KrddAAAAAnnbb(checksum)

If this reply is received, the number of bytes may not equal the number requested. The software must work out the next address to request

Defined 13/12/08

KS - KT03 Query Memory size

PC: KSdd This queries the memory in KT03

KT KSddnnnnn

dd is the ID of the KT03. Although the KT03 is connected directly to the PC, this is for verification purposes and for possible future use of KT03 is not directly connected

nnnnn is the size of the KT03 flash memory in bytes

Added 13/12/08

KW/Kw - KT03 Write memory

PC: KWddAAAAAnn (byte1) (byte2) (byte3) (bytenn),(checksum)

KT: Kwdd01 (success) or Kwdd00 (if command is rejected)

PC: KWddAAAAAnn (byte1) (byte2) (byte3) (bytenn),(checksum)

KT: Kwdd01 (success) or Kwdd00 (if command is rejected)

..

AAAAAA is the address of the Flash memory to write

dd is the ID of the KT03 for verification purposes

nn is the number of bytes from 1 to 240

(checksum) is a checksum consisting of the twos complement of the message from dd byte until the last byte, so that the sum of the bytes received including the checksum is 0

This command is used for KT03 only, not the UCM

If KT03 does not receive the correct checksum, it will reply with a ?? Message. If the checksum is correct, it will reply with OK.

If there are repeated bytes to be written, the command can be used

PC KMddAAAAAnnbb (checksum)

KT Kmdd01, or ?? (checksum failed) Or Kmdd00 (rejected)

(checksum) is a checksum consisting of the twos complement of the message from dd byte until the last byte, so that the sum of the bytes received including the checksum is 0

When the write operation has completed, the PC sends the rs reset command

PC rsdd This resets the ID at dd Requires UCM 5.175

KT OK

Defined 13/12/08

LI - Log In

LU - User Logged In

PC: Lcccccc

UCM: LUuu

cccccc is a 4 to 6 digit user code. This is not converted to hexadecimal notation, eg if the user code is 1234, LI1234 is the command to login with 1234.

The UCM will not respond to any commands on the RS232 port until a "Log in" (LI) command with a valid user code (16 user codes allowed) is received (with the exception of the LI command).

When the LI command is received, the UCM replies with LU followed by the user number 1 to 16 (10 in hex) or 18 (12 in hex) for Engineer Code, or 0 if invalid code. Once the LI command with a valid code is received, the UCM will allow commands.

To end the session, a Log Out command should be sent, ie LI command with no code ("LI" by itself) or LI with the wrong code is sent. A valid code contains 4 to 6 digits in decimal. Eg LI1234 sends a login code of 1234. LI123456 sends a login code of 123456. If there is no login, the UCM replies NA to all commands except LI itself.

LUuu is seen only at the UCM which sent the login command LI and NOT on other UCMs as it means the UCM is enabled to send commands. See LR report for login on any keypad or UCM or phone

If the eeprom File system on Comfort is incorrect, then any Login is accepted so that a new File system can be downloaded to Comfort

From 4.114, A login on the UCM enables Status reporting on RS232 for the UCM and also Comfort status reporting on RS485 (See section on Event Reporting)

LR - Login Report

UCM: LVuudd

uu is the user number 00 to 16 or 18 for engineer

dd is the ID of the keypad or UCM that has been used to sign-in (including UCM/KNX, UCM/CBUS, UCM/ACCESS or Fingerprint reader), KT01, KT03

dd = 41 to 48H for keypads, 11H to 18H for UCMs, 01 for local phone, 02 for remote phone

This is a report from the UCM that a User has signed in on any keypad or UCM. This message is reported whenever a user signs in on a keypad for any reason eg to access the menu, disarm system, hear messages etc. This command is different from LU which reports only for login on the same UCM. The MD command reports arm and disarm by a user.

Defined 21 June 2009. Not implemented yet

M! - Security Mode Change

PC: M!sscccccc Command to change Security Mode

UCM: OK

UCM: MDSSUU[PP] mode change report

ss is the security mode

00 = Security Off

01 = Away Mode

02 = Night Mode

03 = Day Mode

04 = Vacation Mode

cccccc is the user code in decimal which could be 4 to 6 digits. Comfort checks for a valid and authorized user code before executing the command

This command autoarms the security system, ie open zones are automatically bypassed if Force arm option is on.

Eg

M!011234

Means set Away Mode, with user code 1234. This code is in decimal

UCM sends the MD message when the mode is changed

M! Is for auto- arming whereas m! Is used for local arming. For local arming to Away Mode, the user is required to Exit (keypad announces "Please Exit") while for remote or auto-arm, no exit is required for Away Mode arming. Another difference is that for auto- arming ("M!"), any open zones are automatically bypassed ie force arming, if Force Arming is allowed in Comfigurator > Modules and Options

m! - Security Mode Change - Keyarm local

PC: m!sscccccc Command to change Security Mode by keyarm, ie local arm

UCM: OK

UCM: MDSSUU[PP] mode change report

ss is the security mode

00 = Security Off

01 = Away Mode

02 = Night Mode

03 = Day Mode

04 = Vacation Mode

cccccc is the user code in decimal. Comfort checks for a valid and authorized user code before implementing the command

Eg

M!011234

Means set Away Mode, with user code 1234. This code is in decimal

UCM sends the MD message when the mode is changed

This is the same as M! except that this command arms the system locally, ie not auto-arming. If arming to away mode, the keypad says "please exit" or announces the zone names. If arming to Night or Day, open zones will be announced until the zones are closed.

M! Is for auto- arming whereas m! Is used for local arming. For local arming to Away Mode, the user is required to Exit (keypad announces "Please Exit") while for remote or auto-arm, no exit is required for Away Mode arming. Another difference is that for auto- arming ("M!"), any open zones are automatically bypassed ie force arming, if Force Arming is allowed in Comfigurator > Modules and Options

M? - Security Mode Request

PC: M?[PP]

UCM M?SSUU[PP]

ss is the security mode

00 = Security Off

01 = Away Mode

02 = Night Mode

03 = Day Mode

04 = Vacation Mode

UU = User number who caused the change

1-10H = user
5AH (90) = keypad
5BH (91) = Response

PP = Partition if implemented 19/4/09
Implemented M? Reply in UCM5.12, instead of MD.

MD - Security Mode Report

UCM MDSSUU[PP]

SS is the security mode

00 = Security Off

01 = Away Mode

02 = Night Mode

03 = Day Mode

04 = Vacation Mode

UU = User number who caused the change

1-10H = user

5AH (90) = keypad

5BH (91) = Response

PP = Partition 0 to 3 (20/4/09) If PP is not present in the message Partition 0 is assumed

eg

MD0203

means Mode change to Night mode by User 3

MD015A

means Mode change to Away mode by Keypad

MD045B01

means Mode change to Vacation mode by Response (probably Time Program)

MO - Monitor Mode

PC: MOnn

nn is 0 for off, 1 for ON

In Monitor Mode, all characters on RS485 port are echoed to the Rs232 port

Note: MO01 does NOT work for UCM/Ethernet as the monitoring traffic is too high to be handled bhy the serial to Ethernet convertor

NA - Command Not Available

UCM: NA

Means that the command from PC is not recognised or not implemented or one of the parameters is invalid

OK - Message Acknowledged

UCM: OK

Command has been received correctly and is a valid command. It does not mean that Comfort has carried out the command. "OK" is send by the UCM in response to a command (e.g. O!nnss) as opposed to a request (O?nnss)

O! - Output Activation Command

PC: O!nnss

UCM: OK

nn is the output number 01- 40H for Comfort outputs, 81H to F8H for IRX Outputs

ss is the output status 00=off, 01=on, 02=change state , 03 = Pulse Output for 1 second, 04 - Flash Output at 1 sec On/Off rate

UCM sends the OP report when Comfort's outputs turn on or off

UCM: OPnnss

OP - Output activation Report

UCM: OPnnss

Sent by UCM when outputs change

O? - Output status request

PC - O?nn

UCM O?nnss

nn is the output number 01- 40H, 81H to F8H for IRX Outputs

ss is the output status 00=off, 01=on

OV - Virtual output command

UCM OVnnss

nn is the virtual output number 01 to FFH

ss is the state, which can range from 00 to FFH. The interpretation of the virtual output values is application-dependent.

Virtual outputs are different from Comfort's physical outputs. This command is used to activate external devices for binary on/off or set analog values in external devices like thermostats etc..

Comfort does not remember the current state or value of virtual outputs. Comfort broadcasts the virtual output command to all UCMs (id 1 to 8) which are connected, so each RS232 interface device should keep track of which virtual outputs which they are connected to.

OQ - Virtual Output status

UCM OQnn

PC OQnnss

nn is the virtual output number 01 to FFH

ss is the state, which can range from 00 to FFH, user-defined

Virtual outputs are different from Comfort's physical outputs. This command is used by Comfort to interrogate the state of external devices for binary on/off or set analog values in external devices like thermostats etc.

Note: Comfort does not send this command at present.

P! - Pulsed Output Command

PT - Pulsed Output report

PC: P!nnpp

UCM: OK

pp is the pulse width 0 to 0FFH in 50 ms units

nn is the output number 01-40H

If the output is in the Comfort main panel, not slave, the UCM sends the PT Report in the same format when the command is carried out

UCM: PTnnpp

If the output is on a slave, the UCM does not send the PT command, it sends Output reports when the output is turned on and off

THIS REPORT is NOT USED.

PR - Partition Set

PC: PRNN

UCM: OK

NN is the partition for the user used when arming (0-3) This is needed when the user is authorised for arming and disarming more than 1 partition using m! And M! Commands. If the partition is not defined before the arming commands, then partition 0 is selected, or if the user is authorised only for 1 partition, then that partition is selected If the user is not authorised to arm or disarm in the partition then the request is rejected in the same way as a wrong sign in code is entered

Defined 19/4/2009

PS - Engineer Code Enable/Disable Report

UCM: PS01 : Engineer Code has been enabled

UCM: PS00 : Engineer Code has been disabled

q! - Write Internal Memory

PC: q!ALALAMAMAHADDD

UCM q?ALALAMAMAHADDD

Write data DD to Internal Memory AAAAAA. The address is least significant byte followed by most significant bytes This command is only applicable in Test mode. THIS IS FOR CYTECH TESTING PURPOSES ONLY. CAN CAUSE SYSTEM TO CRASH- 23 Dec /05

q? - Read Internal Memory

PC: q?ALALAMAMAHAH

UCM q?ALALAMAMAHAHDD

Read Internal Memory AAAAAA. The address is least significant byte followed by more significant bytes This command is only applicable in Test mode. 23 Dec 2005

R! - Do Response

PC: R!nn or R!LLHH

UCM: OK

nn is the response number 1 to FF

For 2 byte Responses LLHH is the Response number, least significant byte first followed by most significant byte. 1 byte can be sent if the response is less than 256. Any comfort system PRO or ULTRA from 4.216 will accept 2 byte responses. Any Comfort version can accept 1-byte responses This command is useful when the Response number is known as a complex series of actions can be executed in this way. However the Response number may be changed by Comfigurator so it is best if the cclx file should be read before doing this to obtain the Response number

RA - Return value from DA command (Do Actions)

See DA command

RD – Read Data from ID

PC: RDXXAAAANN

UCM RDXXAAAANNaabccdd...CC

XX is ID of target device

AAAA is address 16 bits

NN is number of bytes, max 32. If more than 32 bytes is requested, only 32 is returned

aabccdd is reply of data read from device

CC is checksum of numeric bytes after RD. sum of bytes including checksum should be 0

This command is used to read data from the memory of a device, usually used to get data from the eeprom of an application specific UCM.

It can be addressed to the UCM connected to the PC to read from its own Master EEPROM

Added 22/9/08

RM - Reminder Message (UCM 5.65, O4.209)

PC: RMRREE[DD][HH] [MM] [BB]

UCM: OK

Sets the Reminder message parameters

RR is the Reminder number

ee=0 for on/off value, 0 = off, 1 = on, FF for ignore enable setting

DD for Day of week combination Bit 0 = Monday, Bit 1 = Tuesday,... Bit 6 = Sunday, Bit 7 = Holiday

HH for Hours in BCD notation 00 to 59 eg 22 is 10 PM

MM for Minutes in BCD notation 00 to 59 eg 45 is 45 minutes

BB for Mailbox 0 to 7

Each RM message can set one or more parameters of the reminder message

Query

PC: RMRR

UCM: RMRREE[DD] [HH][MM] [BB]

The UCM will return the current parameters of the Reminder

16/4/09 Implemented in UCM5.182 Not implemented in Comfort yet

RP - Phone Ring

UCM: RP

Indicates phone ring event

RS - Reset Comfort

PC: RSDD

2/4/09 DD is the ID to reset. Resets ID. If DD=00 or missing, this resets Comfort

Before 2/4/009 RS resets Comfort regardless of DDw

S? - Get Alarm State

PC: S?
UCM: S?nn
nn 00 = Idle, 1 = Trouble, 2 = Alert, 3 = Alarm
This returns the current alarm state. From UCM5.03

s! - Set Sensor Register

PC s!nnvv
UCM srnnvv
Nn = sensor register number
Vv = value to set to sensor register
This sets the sensor register to the specified value
The UCM reports sr when the sensor is changed
Defined 20 Jan 2009 implemented 16 April 2009 UCM 5.182

s? - Get Sensor Register

PC: s?nn
UCM: s?nnvv
nn = sensor register number
vv = value of requested sensor register
2 Jan 2007 (5.147)

sr - Sensor Register Report

UCM: srnnvv
nn = sensor register number
vv = value of sensor register
The UCM reports the sensor Register change as it occurs
2 Jan 2007 (5.147)

SI – Siren Command (Test Mode)

UCM: SI nn
nn: 00 = Siren Off
01 = Intruder Alarm on KP, DP, BELL, Hilevel
02 = Intruder Alarm on KP, DP, not hilevel, Not Bell
Command to control siren for test purposes
Valid for Test Mode only. Note: When File system error in EEPROM, siren will not time out
20 Feb 2007

SM - Speaker/Microphone command (from Comfort)

UCM: SMmmSSid
This tells the PC to switch on or off its speaker and mic
mm is the microphone command
SS is the speaker command
The mic and speaker commands are as follows:
0 = off, 1 = on, others = ignore
Id is the id of the recipient indicating if it is a broadcast or not (00 for broadcast)
Implemented UCM 5.6X

SP - Speaker Broadcast Control

PC: SPnn
UCM OK
nn: 00 for off, 01 for on
This command controls whether the UCM will respond to a broadcast command to turn on its speaker. SP01 will allow the UCM to respond to a broadcast speaker on command from the CM and SP00 will cause the UCM to ignore broadcast speaker on commands. However, the UCM always responds to an individual speaker on command even if SP00 is sent. Speaker off broadcast commands are always accepted. The CM broadcasts speaker on and off commands to the keypads during announcements. This command allows the UCM to ignore or accept these speaker on announcements
This command is for the UCM to mimic a keypad using the KD command. The UCM with speaker and microphone can be used as a keypad or a keypad intercom by sending KD commands. From UCM5.09

SR - Status Reports ON/OFF

PC: SRnn

UCM OK

Nn: 00 for off, 01 for on

SR determines whether the UCM will automatically report events from Comfort without being asked, e.g. Zones, Alarms. If SR is turned off, the UCM will not report these events. From UCM4.104 A login command LU will enable status reporting

ST - State Request

PC: ST

UCM: Srpsskkrddoo

This command returns the states of the tasks (state machines) in Comfort

pp: Phone task

ss Security Task

kk Keypad Task

rr RS485 Task

dd DSP Task

oo Output Task

This information is for debugging purposes only, to be used by Cytech. This may be useful when there is a stuck task which is waiting for input or event, without causing the watchdog to activate. Applicable from UCM 5.69 and Comfort O4.215

TC – Test Comms Command

PC Tcxxxx..

This test command transmits the string to Comfort after appending the STX and ID of the UCM It allows the UCM to send any RS485 command to Comfort for testing purposes. This is for internal testing purposes only (14/6/07)

TE - Test EEPROM (Test Mode only)

PC TE

UCM TEnn

Nn size in kilobytes/4. Eg 02 = 24C64 , 08 = 24C256

TM - Terminal Mode

PC TMnn

RS232 characters are sent to RS485

RS485 characters are sent to RS232.

UCM is a 2 way converter between Rs232 and 485

TM01 turns on Terminal Mode

TM00 turns off Terminal Mode

UCM 5.75

tM - Test Mode (Special UCM only)

PC: tMnn

UCM: OK

This command switches Test Mode ON or OFF and activates Test Mode commands

00 Test Mode OFF

01 Test Mode OFF

DO NOT go into TEST mode without proper instructions as it may cause damage to the hardware if the wrong commands are used

TP - Time Program (UCM 5.65, O4.209)

PC: TPttee[DD] [HH][MM] [RRRR]

UCM: OK

Sets the Time Program parameters

tt is the TimeProgram Number

ee=0 for on/off value, 0 = off, 1 = on, FF for ignore enable setting

DD for Day of week combination Bit 0 = Monday, Bit 1 = Tuesday,... Bit 6 = Sunday, Bit 7 = Holiday

HH for Hours in BCD notation 00 to 59 eg 22 is 10 PM

MM for Minutes in BCD notation 00 to 59 eg 45 is 45 minutes
RR for Response number - can be 1 byte or 2 byte response. If 2 byte responses, least significant byte followed by most significant byte. If response < 256, the most significant byte (0) can be omitted.
Ultra version 4.216 will accept TP with 2 byte responses
Each TP message can set one or more parameters of the Time Program

Query

PC: TPTT

UCM: TPTTEE[DD] [HH][MM] [RR]

The UCM will return the current parameters of the TP

Implemented 16/4/09 Comfort 5.168, UCM 5.182

TV - Test Vocabulary (Special UCM) - NOT IMPLEMENTED

PC: TV

UCM: Tvnn

Nn 00 for Fail, 01 for pass

Requires test mode 25/12/05

u? - Get RS485 ID Device Type/version

PC: u?xx

UCM: u?xxttvrr

xx ID of device to be queried.

tt: Device SubType depending on Product . (see list below)

vv: Version number

rr: Revision number

If UCM returns NA, it means the UCM firmware does not recognise the command. If the UCM does not reply, it means that UCM does recognise the command but the CM firmware does not recognise the command.

If the information returned is u?xx000000 it means that the device queried does not support the u? command.

Minimum supporting firmware ULT 5.154, UCM 5.171 SEM 5.156

Eg u?120A05AB means UCM ID 2 is Type 10, version 5.171

Subtypes list

ID = 11H to 18H: UCM

Subtypes

5 = CWM, 6 = CBUS, 9 = EIB, 10 = UCM05, 13 = GSM, 14 = Zwave, 17 = ucm/Access, 30 = HDL, 31 = Enocean

ID = 21H to 23H: Slaves

Subtype = 190 (0 if not implemented)

ID = 31H to 33H Door stations

Subtype = 0 (not used)

ID = 41H to 48H Keypads

Subtypes

0 = not implemented, 4 = KP03, 4 = KP04, 5 = KT03

ID = 51H to 5FH RIO/SCS

Subtypes

0 = Not implemented, 1 = RIO, 2 = SCS

Implemented Nov 2008

U? - Get UCM Type/version

PC: U?

UCM: U?ttvrrii

tt: UCM Type number. This number is assigned to UCMs for different functions

vv: Version number

rr: Revision number

ii: ID of UCM (optional)

Eg U?010473 means UCM Type 1, version 4.115

The version and revision is for the UCM and not the Comfort panel. V? Returns the Comfort version/revision. The Type field is used for different UCM firmware eg for communicating with specific equipment like thermostats etc which may be released in future.

11 Jan 2008 – added UCM ID eg 11H for UCM ID 1 – required by HDL application?

UB – Upgrade Firmware

UD – Download Firmware

PC UB01PPTT

PP is Product Number, TT is product Type.

The general form of the UCM reply is

UBNN[bb]

[bb] is no of bytes, applicable only for UB01bb

UCM: UBNN[bb]

UCM: UB01bb means the UCM accepts the UB01 command “bb” is the max no of bytes which can be downloaded in 1 line of UD

eg UB01F0 means Accepted, F0 is the number of bytes

UBF0 means rejected

NN = F0 means Product Number or Type does not match, ie UBF0 means mismatch in product or type

NN = F1 means DUT is not connected

NN = F2 means DUT operation error

NN = F3 means Flash checksum error

The firmware can be upgraded only if the product number and type matches. UCM returns UBF0 is it rejects the firmware upgrade because of wrong product, UBF1 if the DUT is not connected, UBF2 is there is an error with the program operation

If the UCM is connected to a DUT through the programming cable, it will program the DUT if the

Product and Type matches the UB01 information

PC UB02 (tells the UCM to erase the Flash)

UCM UB02 (confirms the flash is erased)

PC UD000000NNBBBBBBBBBBBBBBBB...CC

UCM OK

PC UD000100BBBBB.....CC

UCM OK

PC UB03

UCM UB03 (success) or UBF3 (failure)

NA may be received if the UCM is an older version. Any incorrect reply will terminate the download and give an error message

The next command UB02 erases the Comfort flash ie sets all bytes to FF and gets Comfort ready for transfer of application program.

The UCM returns UB02 when Comfort has erased the flash and is ready to accept the transfer.

UBF0, UBF1, UBF2 is returned if there is error

The next command UDAAAAAANNBBBBBBBBBBBBBBBB.. transfers the data line by line. AAAAAA (6 bytes) is the starting address. NN is the number of bytes on the line which should be as large as possible but less than the parameter for max number of bytes on 1 line. NN should always be a multiple of 8 due to the requirements of the encryption algorithm. BBBB.. are the bytes transferred on this line, according to NN followed by a checksum CC of the data from AAAAAA onwards. Each line start address should be a multiple of 8 as the encryption operates on blocks of 8 bytes

If the checksum of the received line is incorrect, the UCM replies ?? and the UD line must be retransmitted up to 3 times.

Blocks of 8 data bytes which are all FFs should NOT be transferred to save downloading and programming time.

The addresses sent in consecutive lines need not be sequential

When the transfer is completed, the PC sends UB03.

UCM replies UB03 if the Flash was programmed successfully and UBF2 if it failed to program or UBF3 if the checksum on the DUT is wrong. A diagnostic message is to be displayed to the user

showing the error code and meaning

UL - Upload from Comfort on RS232

PC: ULaaaann

UCM: DLaaaann (byte1) (byte2) (byte3) ... (byteNN) (checksum)

aaaa is address in EEPROM in hexadecimal notation

nn bytes 1 to 20 in hexadecimal notation

(byte1) to (bytenn) are data bytes, in hexadecimal notation

(checksum) is a checksum consisting of the twos complement of the message from the address byte until the last byte before the checksum. The checksum is calculated from the actual hexadecimal data not the ASCII data. The sum of all data from the address to the checksum should have least significant byte = 00

If the PC does not receive the correct checksum, it should resend the last UL command, but the number of resends should be limited to 3, after which the process should terminate

From 4.114, UL disables Status Reporting on RS232 for the UCM equivalent to SR00 (See section on Event Reporting)

UP - Upload from UCM Copy

PC: UPaaaann

UCM: DPaaaann (byte1) (byte2) (byte3) ... (byteNN) (checksum)

aaaa is address in EEPROM in hexadecimal notation

nn bytes 1 to 20H (32) in hexadecimal notation

(byte1) to (bytenn) are data bytes, in hexadecimal notation

(checksum) is a checksum consisting of the twos complement of the message from address byte until the last byte.

Same as UL except that the data comes from the UCM Copy EEPROM

Format is the same as UL, but the number of bytes transferred, not including the checksum can be up to 32

From 4.166 UL disables Event Reporting on CM to prevent events from filling up the RS485 transmit buffer. SR01 cannot restore event reporting on CM, this requires an LI

V? - Get System Information

PC: V?

UCM: V?wwnnrrffBBDDPP

ww: Firmware Type (announce by word number "Week", "Outside"). The number is the word in the wordlist

nn: Version number in hexadecimal

rr: Revision number in hexadecimal

ff: File system of U4

BB No of bytes per upload/download line for DP, DL, VL commands. If BB is not present, the value is 12 bytes default

DD DSP Type 0 = T267, 1 = D36K. If DD is not present, DSPTType=0 (18 June 2005)

PP Product No = 00 for Flash CPU, FF for nonflash (Version 5.094)

Eg V?280472122001 means Word 40 "Outside", version 4.114, File system 18, 32 bytes per upload/download line, DSPTType=1

V?F905281B2001 is Word 249 "Greeting", 5.040, File System 27, 32 bytes per up/download line, Dsp Type 1

v? - Get Vocabulary Information for DspType=1

PC: v?

UCM: v?aabbccdd

aa: Primary Vocabulary Number 00 to FF.

bb: Custom Vocabulary Number (applicable if Primary Vocab is FE)

cc: System Vocabulary Number

dd: User Vocabulary Number

ee: LCD Text version

FF: KP min version

gg, etc additional info is optional, 2 additional bytes FFFF may be appended

Eg v?01000302

Means Primary Vocabulary 1, custom vocabulary 0, system vocab 3, user vocab 2

Only valid if DspType=1 from V? Query

V?05FF17010103FFFF

Means primary vocab 05, Custom Vocab 255 (None), System Vocab version 23, user vocab 01, LCD text version 01

v!05FF1A020103 means Primary vocab 5, custom vocab 255, system vocab 26, user vocab 02, LCD text version 1, min KP version 03

v! - Write Vocabulary Information for DspType=1

PC: v!aabbccddeeff

UCM: OK

aa: Primary Vocabulary Number 00 to FF.

bb: Custom Vocabulary Number (applicable if Primary Vocab is FE)

cc: System Vocabulary Number

dd: User Vocabulary Number

Ee: LCD Text Version

Ff LCD Min version

Eg v!01000302

Means Primary Vocabulary 1, custom vocabulary 0, system vocab 3, user vocab 2

Only valid if DspType=1 from v? Query

If the IVS info has already been written, it cannot be changed without initialising the IVS

VP/VL - Download Vocabulary

PC: VPNNNNNNNN This erases the flash and initiates programming

UCM: OK (if Flash fails to erase, VP00 is returned)

PC: VLaaaann (byte1) (byte2) (byte3) (bytenn),(checksum)

UCM: OK

PC: VLaaaann (byte1) (byte2) (byte3) (bytenn),(checksum)

..

PC VP (voice data completed transmission)

UCM OK

UCM VP01 (success)

Or

UCM VP00 (error)

VP00 status from UCM at any time indicates program failure

NNNNNNNN is the number of bytes in hexadecimal of the vocabulary size to be transferred, range from 00000001 to 1FFFFFFF is acceptable

aaaa is the address least significant address of the vocabulary of the start of the line 00 to FF which allows the UCM to keep track of the communications. The UCM will expect aaaa to follow in sequence from the last byte of the previous line, otherwise it will send a VP00 (failure) reply to the RS232 port.

nn is the number of bytes sent in the message line.

(byte1) to (bytenn) are data bytes, in hexadecimal notation, number according to number of bytes nn (checksum) is a checksum consisting of the twos complement of the message from address byte until the last byte, so that the sum of the bytes received including the checksum is 0

If UCM does not receive the correct checksum, it will reply with a ?? Message. If the checksum is correct, it will reply with OK.

The number of bytes which can be transferred on 1 line not including checksum is determined by the BB parameter in the V? Command reply.

When the PC has finished sending the vocabulary data, it sends VP to end the transmission.

If Comfort encounters a programming error, the UCM sends a message

UCM VP00 (failure)

If the new vocabulary was successfully programmed without error in Comfort, the UCM will reply VP01. If there was a programming or verification error, VP00 will be returned.

For DspType=1, 32 bytes will be transferred in 1 line instead of 12

PC: VP by itself while not in voice programming will test the vocab and return VP01 or VP00 16/7/05

VS - Download Sentence Tables (for D36K)

PC VSNNXX (byte1) (byte2) (byte3) (bytenn)

UCM OK

NN is the Sentence Sector Number from 00 to 0F (not all may be used) in hex
See the document configdspg for a full description of the command sequence

WD/ WE – Write Data to ID

PC: WDXXAAANNaabbccdd.....CC

UCM: WEXXnn

XX is ID to write data

AAAA is address of memory to write to

NN is number of bytes

aabbcc.. etc are NN bytes of data

CC is checksum of numeric bytes after WD. Sum of all bytes including checksum should be 0. If checksum is wrong, UCM will reply ??

nn: 01 means successful, 00, means failed

This command is mainly used by an application program on the PC to write data to the memory of a device, usually the EEPROM of an application-specific UCM depending on the UCM addressed. The target may be any ID not just a UCM so it can be used by other devices in the future for data transfer

The UCM will notify that the transmission was successful using WExx01 and failed using WExx00.

Where xx is the ID

The RD command is used to Read data from a device

If the ID is the UCM05 connected to the PC, this will write data into the Master EEPROM

Defined 22/9/09

X! - Transmit X10

PC: X!HUUFF[RR]

UCM: OK

UCM: XTHUUFF[RR]

H : House code A to P in ASCII

U: Unit Code = 01 to 10H (16)

F : Function Code: 05= On, 07= Off, 01=All OFF, 03=All Lights ON, 09=Dim, 11=Bright, 13 = All Lights off, 15 = Extended Code 1 (Data/Control), 21 = Extended Code 3 (Security), 25 = Extended Code 2 (Meter Read)

(RR: Repeat cycles 01-08 - Applicable to Dim and Bright commands - Not implemented DA6D Do action 109 can be used to set the repeat count)

The UCM reports the transmission of the X10 code via the XT message

If UU is 0, the Unit code is not transmitted, the Housecode/Function code X10 signal is transmitted.

If FF is 0, the Housecode is not transmitted - the Housecode/Unitcode X10 signal is transmitted.

Eg

X!P1005 X10 P16 On

X!B0507 X10 B5 Off

The Bright and Dim codes will brighten and dim according to the number of cycles in Action 109. Use DA to do action 109 if necessary.

Eg

DA6D12 Action 109, 18. No of dim/bright cycles = 18. (max 31 cycles)

X!C090B Brighten by cycles defined by action 109, ie 18.

The Extended Code 1 for Data and Control is used for the new Preset Dim. Action 140 sets the extended data and control values to be used for Extended code 1. Use the DA command to activate action 140 if necessary

Eg

DA8C2031 Do Action 140, 32, 49

This is Action 140, 32, 49 which means sets data to 32 and command to 49 (Dimming command).

This setting will cause the module to dim to level 32 (out of a maximum of 63).

X!A010F X10 A1 Extended Code 1

XF - X10 house/function code Received

The UCM will reply with the XF report when Comfort receives an X10 housecode/functioncode signal from the 2 way X10 interface

UCM: XFHff

H : House code A to P in ASCII

ff is 1 to 16 representing the function code (address),

Function Code ff: 05= On, 07= Off, 01=All On, 03=All Lights ON, 09=Dim, 11=Bright

Normally, an X10 command will have the housecode and unit code in one transmission, followed by the housecode and function code in the next transmission

Eg X10 code of "A1 ON" may be received in two messages as

UCM: XUA01

UCM: XFA05

The Bright and DIM commands which have no gaps in between repeated transmissions, may not be received correctly

XR - X10 Received Report (replaced by XU and XF from UCM4.97)

The UCM will reply with the X10 activation report when Comfort receives an X10 code from the 2 way X10 interface

UCM: XRHKK

H : House code A to P in ASCII

KK is either 1 to 16 if it is a Unit code (address), or a Function code according to the meaning below:

Function Code: 05= On, 07= Off, 01=All On, 03=All Lights ON, 09=Dim, 11=Bright

Normally, an X10 command will have the housecode and unit code in one transmission, followed by the housecode and function code in the next transmission

Eg X10 code of "A1 ON" may be received in two messages as

UCM: XRA01

UCM: XRA05

The Bright and DIM commands which have no gaps in between repeated transmissions, may not be received correctly

XR will not be sent from the UCM from UCM4.97 onwards. It is replaced by XF and XU

XT - X10 Transmitted report

UCM: XTHUUFFRR[00]

HH : House code A to P in ASCII

UU: Unit Code = 01 to 10H (16)

FF : Function Code: 05= On, 07= Off, 01=All On, 03=All Lights ON, 09=Dim, 11=Bright

00 : Indicates that the TW523 interface is not present in Comfort, command not sent to X10 26/11/05

If 00 is not appended, the X10 command was sent to the power line through the TW523

(RR: Repeat cycles 01-08 - Applicable to Dim and Bright commands, with no gap between the repeat transmissions. - NOT Implemented)

The UCM reports the transmission of X10 commands by Comfort

XU - X10 House/unit code Received

The UCM will reply with the XU report when Comfort receives an X10 housecode/unitcode signal from the 2 way X10 interface

UCM: XUHuu

H : House code A to P in ASCII

uu is 1 to 16 representing the Unit code (address),

Normally, an X10 command will have the housecode and unit code in one transmission, followed by the housecode and function code in the next transmission

Eg X10 code of "A1 ON" may be received in two messages as

UCM: XUA01

UCM: XFA05

The Bright and DIM commands which have no gaps in between repeated transmissions, may not be received correctly

Y? Request/Report all Outputs ((UCM 5.15, O4.48)

PC: Y?

UCM: Y?<B1><B2><B3><B4><B5><B6><B7><B8>..

Where <Bn> is the bit values of each output

B1 = Outputs 1 to 8
B2 = Outputs 9 to 16
B3 = Outputs 17 to 24
B4 = Outputs 25 to 32
B5 = Outputs 33 to 40
B6 = Outputs 41 to 48
B7 = Outputs 49 to 56
B8 = Outputs 57 to 64

For each Byte Bn, the LSB is the lower numbered output, eg for B1, Bit 0 = Output 1, ..., bit 7 = Output 8. This command may report only the number of outputs which are implemented. The PC which receives the message must cater for a variable number of bytes received. When more than 64 outputs are implemented, this command will send the additional information

y? Request/Report all RIO Outputs (UCM 5.15, O4.48)

PC: y?

UCM: y?<B1><B2><B3><B4><B5><B6>....

Where <Bn> is the bit values of each RIO output

B1 = Outputs 1 to 8
B2 = Outputs 9 to 16
B3 = Outputs 17 to 24

...

For each Byte Bn, the LSB is the lower numbered output, eg for B1, Bit 0 = Output 1, ..., bit 7 = Output 8. This command may report only the number of outputs which are implemented. The PC which receives the message must cater for a variable number of bytes received. When more than 64 outputs are implemented, this command will send the additional information

Z? Request/report all zones ((UCM 5.15, O4.48)

PC: Z?

UCM: Z?A1A2A3A4A5A6A7A8A9A10A11A12A13A14A14A15A16

Where AN represents the state of 4 consecutive inputs

A1A2 = inputs 1 to 8
A3A4 = inputs 9 to 16

A15A16 = Inputs 57 to 64

For each pair of characters eg A1A2 represents 1 hexadecimal byte 00 to FF where the least significant bit is the lowest numbered input

e.g.

Z?F0 means Inputs 1 to 4 are off and inputs 5 to 8 are on

Z?0FF0 means Inputs 1 to 4 are ON, inputs 5 to 8 are Off, inputs 9 to 12 are off, inputs 13 to 16 are On

This command may report only the number of inputs which are implemented. The PC which receives the message must cater for a variable number of bytes received

Z? Is not able to report SCS/RIO inputs. Z? Is used for this purpose.

z? Request/report all SCS/RIO Inputs ((UCM 5.15, O4.48)

PC: z?

UCM: z?A1A2A3A4A5A6A7A8A9A10A11A12A13A14A14A15A16

Where AN represents the state of 4 consecutive SCS/RIO Inputs

A1A2 = Inputs 129 to 136
A3A4 = inputs 137 to 144

A15A16 = inputs 249 to 256

For each pair of characters eg A1A2 represents 1 hexadecimal byte 00 to FF where the least significant bit is the lowest numbered input. RIO/SCS Inputs start with 129

e.g.

Z?F0 means inputs 129 to 133 are off and inputs 134 to 137 are on

Z?0FF0 means inputs 129 to 133 are ON, inputs 134 to 137 are Off, inputs 137 to 140 are off, inputs 141 to 144 are On

This command may report only the number of SCS/RIO inputs which are implemented. The PC which receives the message must cater for a variable number of bytes received.

Event Reporting (Version 4.114)

SR00 and SR01 disables and enables reporting of events by the specific UCM on the RS232.

Comfort also can be set to report events on RS485 to UCMs. .

Correct login will also enable the UCM to report events on RS232 (equivalent to SR01 command). A logout on the UCM will leave the status reporting SR enabled on the UCM.

When a UCM receives a UL (upload) or DL (download) command, status reporting is disabled (equivalent to SR00) to prevent messages on RS232 from interfering with the upload or download.

SR will be disabled on the UCM until a LI login is received.

From 4.114, The UCM has its status reporting disabled at reset until LI (login) or SR01 is received.

Change History

10/12/99

Added A!, I!, OV, OQ commands for Virtual inputs and outputs

Added C?, C!, A?, RP, DB. XR command for X10 report of received X10 commands from Comfort.

10/1/00

Added DA (Do Actions), RA (return value) commands. Removed C!, C? Commands

21/2/00

Added AM (System Alarm). AR reports System Alarm Restore, not Alarm type Restore

6/5/00

Added LI, LU Log in command

8/5/00

Added IT command

22/5/00

Added SR Status Report command. AR alarm restored added alarm parameter

26/5/00

Changed E? Format. E? Will ask for the next event until FF terminates. Added events 22 to 26

13/6/00

Replaced XR by XF and XU

27/7/00

Added KD keypad digit

20/9/00

O!nns - added ss=02 for change output state

8/12/00

AM codes for 07, 08 interchanged to correct document error

AM08 disarm user code has most significant bit set if it is disarmed by user 1 to 16

20/12/00

C! Set counter command

C? Get counter

30/12/00

IX - IR code received

11/1/01

RM - Reminder Message added

DI - Dial Up command added

19/2/01

V? Get Version added

6/3/01

Added Event Reporting section (V4.114)
LI without any code will reply LU00. Before logout but no reply
Correct login enables reporting by CM of events. By default reporting will be disabled

18/3/01

Added U? Command

20/4/01

Added S? Alarm State command. Added alarm state to AL alarm type report

07/05/01

C! Command supports up to 8 counters in one line (UCM5.06)

11/07/01

Added description of keys for KD command

22/7/01

Added SP command

02/08/01

Added BP command

24/10/-01

Added F?, FI, FO, FX commands for Switch/IR module

19/11/01

M? Query gives M? Reply instead of MD which is reported when the mode changes
CT Counter Changed report added
Removed F?, FI, FX commands for IR Switch, replaced by Input and Output commands for #129 onwards

01/01/02

Z?, Y?, z?, y? Commands for Request/report zones and outputs as bit values

11/01/02

Documented "OK" reply for commands to UCM. No OK for queries to UCM, the reply will have the status requested
Added a? Query/reply for current alarm type
Removed IT command (never implemented)

8/04/02

UL command, if PC receives wrong checksum from UL for DL message, it should request for resent of last UL command

21/04/02

Added VP command for Vocabulary transfer

10/05/02

Added CI Learn IR Mode command

14/7/02

Added comment in DL and UL from 4.166 event reporting is disabled on CM

2/8/02

R!NNNN added 2 byte responses

13/9/02

DT Command if value of any field is FF, the field is ignored by Comfort
Added m! Command for keyarm (Not Implemented). Clarified that M! Command autoarms

24/9/02

Added IL command for IR download

7/1/03

Added List of Default Alarm Types to AL

17/2/03

a? Is current alarm type, not alarm state
Clarified meaning of Z? and z?

20/3/03

PS command added

8/4/03

Added a? 00 no alarm comments

15/5/03

Added MO Monitor Mode

26/6/03

Added MS mic/speaker control

18/7/03

Added EX Entry/exit delay started
Added SM speaker/microphone command

7/10/03

Changed format of RM command and added TP command

30/12/03

removed MS command, not used

21/1/04

corrected DA action example should be in hex, not decimal

27/3/04

Added to X! X10 Extended code commands and examples

7/4/04

Updated description of IL and IR formats to correct version

12/5/4

Updated AL alarm type message with additional parameters. Added ST command

13/5/4

R! and TP commands format for responses changed from LS byte followed by MS byte for better compatibility

9 July 2004

Added B? Bypass commands

24 September 2004

Updated description of IL, IR commands

14 October 2004

B?, BY zone reports 00 /01 instead of zone flag byte
Updated implemented commands status

14 November 2004

Added DC, D*, DR commands
Added ER Arm Ready/Not Ready command
Added introduction describing messages and basic/commonly used commands

25 March 2005

Added KL/K? Keypad LEDS command
VP/VL added format for D36K for 4 sectors
Added VS command for downloading sentence tables

2 April 2005

Added v?, v! Vocab information command

19 June 2005

V? Added BB = no of bytes per download/upload line, DD = DSPTYPE

24 July 2005

Added Recommendations for implementing a User Interface

26 Nov 2005

XT added 00 at end of string to indicate TW523 not present

23 Dec 2005

Added tM for test mode, q!, q? Write and read memory commands

26 March 2006

E? Event log addeed spec for 2 byte event number

6 May 2006

Corrected minor mistakes

8 October 2006

Changed DP format for larger files and transfer lines

16 October 2006

EV event log format changed again event NN is kept at single byte for compatibility

27 Dec 2006

UB and UD commands

3 Jan 2007

s? get sensor register
sr report Sensor Register

20 Feb 2007

SI Siren command

30 March 2007

Bold print on STX=03H. Added comment when not logged in UCM wil reply with NA

10 May 2007

Added hard key definations to KD

21 May 2007

Corrected error in TE command. Added TV.
V? added parameter PP
CT is also reported when Counter changed by Response (documentation update)

8 June 2007

Added details of D* command

14 June 2007

added TC Test Comms command

11 Jan 2008

DP Address limited to 4 characters 2 bytes. .
Added warning not to constantly query for status
U? Added UCM ID

12 June 2008

Removed section saying Event reporting is disabled at midnight
Comment for DT command may return OK and DT from Comfort depending on the version

22 Sept 2008

Defined WD Write Data, WE, RD Read Data, u? commands

22 Dec 2008

Added rs command to reset ID, KE, KS, KW/Kw, KR/Kr, KM/Km for KT write and read. Event Log command description improved. Minor changes

3 January 2008

Added u? Subtypes list

8 January 2008

Added Guidance section in front

20 January 2009

Defined s! not implemented

14 February 2009

Changed/clarify defination of BY and B? Zone bypass status

2 April 2009

RSDD resets ID = DD

Added F!, FL, F? F! commands

19 April 2009

Added PP partition 0-3 parameter to command to MD, EX. ER reports and to M? request

Added PR Partition command

2 May 2009

DB FF means doorstation ended

10 June 2009

Corrected description of BY and B? Report of bypass state should be 0 for off and 1 for on

21 June 2009

Added LR Login Report. General corrections Revised introductions