

Universal Communications Module

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SECTION 1 TYPES OF UCM

The Universal Communications Modules allows Comfort to connect via RS232 interface, USB or Local Area network to a computer or external equipment. The types of UCM include;

- 1 UCM/232 with RS232 Interface - formerly called UCM05
- 2 UCM/ETH02 with plug-in Ethernet Interface ETH02 (ETH02 replacing ETH01) The legacy UCM/ETH01 is described in the UCM/ETH01 Manual which can be downloaded from http://www.cytech.biz/ucmeth01_manual.html
- 3 UCM/USB with plug-in USB interface USB01

The term UCM is used when describing functions common to all the above UCM modules which have identical functions.

UCM submodules

- 1 UCM06 is the baseboard to which RS232/F, R232/M USB01, ETH01 daughterboards can be added to make up UCM/232, UCM/USB and UCM/ETH02 respectively. The UCM06 allows the flexibility of using different interfaces by plugging in the appropriate daughterboard.
- 2 USB01 daughterboard. Plugs onto UCM06 to make UCM/USB.
- 3 ETH02 daughterboard. Plugs onto UCM06 to make UCM/ETH02.
- 4 RS232/M and RS232/F daughterboard with Male and Female RS232 connectors respectively. Plugs onto UCM06 to make UCM/232M and UCM/232F.

This manual describes the Flash-based UCMs with firmware 5.100 and above which are able to upgrade firmware for Comfort, SEMs and UCMs using Configurator 3 software.

The AUD01 Audio Plug-in module can be connected to any of the UCMs above.

The UCM/USB, /ETH02 and /232 have the following common functions:

- 1 It allows programs on the onboard Nonvolatile Memory (NVM) ICs ("Master") to be transferred to Comfort. This is a useful tool when programming, testing or troubleshooting Comfort installations.
- 2 Comfort's programming software Configurator requires the UCM to read and write the configuration file to Comfort.
- 3 It allows a PC or other controller to communicate with Comfort using an RS232 interface, allowing third party products or software (e.g. Wizcomfort) to work with Comfort. The RS232 command protocol can be downloaded from www.cytech.biz for the purpose of development of third party interfaces or software.
- 4 It also allows Infrared signals to be learned and saved as .ifr files which can be assigned to Comfort IR codes via Configurator.
- 5 Allows other Flash-based Comfort and UCM firmware to be upgraded using Configurator Firmware Upgrade.
- 6 Comfort Voice/Vocabulary (new version of language) can be written to Comfort using Configurator.

There are also application-specific UCMs which interface to specific third party systems for example, UCM/CBUS for Clipsal's CBUS, UCM/KNX for the KNX Bus also known as EIB or Instabus, UCM/Ulti for Ulti lighting switches, UCM/Smartfit for Honeywell Smartfit Temperature control system, UCM/GSM for GSM Interface, CWM for the Comfort Webserver. These UCMs cannot be used for programming Comfort. They are described in their individual manuals. All user

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and installation manuals are available from the Cytech website
<http://www.cytech.biz>

UCM/232F

The UCM/232F (replacing UCM05) provides RS232 serial interface to Comfort. UCM/232F is not usually used for Comfigurator anymore.

The UCM/232M has a male RS232 connector is used which is suitable for connection to a third party RS232 interface which normally has a female RS232 connector. The UCM/232 has the same function as UCM/ETH02 and UCM/USB.

UCM/ETH02

The UCM/ETH02 has a RJ45 jack for connection to an Ethernet Local Area Network (LAN) using the TCP/IP protocol. The UCM/ETH02 is a new model which replaces the UCM/Ethernet product. UCM Firmware 5.228 and above is required for UCM/ETH02.

UCM/USB

The UCM/USB has a USB interface for connection to the USB port of a PC. The UCM/USB is supported by Comfigurator 3.0.0 onwards.

AUD01

The AUD01 can be plugged to UCM/232, UCM/ETH02 and UCM/USB to provide audio (Speaker and Microphone) connections to connect an external powered speaker and microphone, or to connect to the Line In or Line Out audio connections on a personal computer. This allows software like Wizcomfort to act as a virtual keypad.

SECTION 2 UCM SETTINGS

Getting Started

This section is common to UCM/232, UCM/ETH02 and UCM/USB

Set UCM ID on SW7

SW7 (RS485 ID) should normally be set to 1 according to the table below (Shunts A,B,C, D inserted) if this UCM is used for programming Comfort using Configurator, because when this UCM ID is disconnected, Comfort does not report “Communications Failure”, while with UCM IDs 2 to 8, communications failure will be reported.

Comfort is able to support up to 8 UCMs. SW7 is a set of 4 headers which determines the UCM ID, according to the table below.

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

Table 2.1 - RS485 ID Settings (SW7)

Do not insert shunts E to H in SW7 if present as these will short the push buttons SW2 to SW5

Other UCMs or types of UCM may be connected for interfacing to C-Bus, KNX, Velbus or others. These other UCMs should be set to higher-numbered IDs, up to 8. UCM IDs should be sequential, i.e. there should not be any missing ID numbers, i.e. 1,2,3,4 and not 1, 3, 4, 5

If the ID is changed while power is on, RESET the UCM by pressing the RESET switch SW1 on the UCM.

Make sure that no other UCM is set as ID=1 in the system, otherwise there will be a conflict which will prevent proper communication.

Number of UCMs

The Number of UCMs in Configurator >> Comfort tab >> Modules and Settings >> Number of UCMs is set to 1 by default. If there are more than 1 UCM in the system, enter the number of UCMs. This can also be done in Locations Menu on the keypad (Engineer Menu 7,4,1).

Always RESET the system after changing the number of UCMs.

Note: You can also SCAN for UCMs in the Modules Tab in Configurator after setting the UCM IDs correctly.

Connections

Connect the UCM to Comfort using the supplied white cable with 4-way connector on both ends. It plugs into JP2 or JP2A on the UCM and “RS485” 4-pin header (J6) connector on Comfort II. This supplied cable can be used for

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short runs (about 30 centimeter). If the UCM is located further from the Comfort panel, up to 100 meters, use a cable with 3 twisted pairs. 12V/GND, KA/KB are to be paired with one pair as spare. Shielding is not necessary. The UCM may also be connected from the SEM modules. Ensure that polarity is correct as this is a common cause of problems with communications.

It is not necessary to switch off power to Comfort before plugging in the UCM connections. The UCM is often connected in order to transfer a configuration file using Comfigurator.

⚠ The firmware programming cable is used only when upgrading firmware on Comfort or other modules. It should not be connected to Comfort in normal operations as it will disable Comfort.

What to Watch Out For

Once the UCM is connected with the ID setting set correctly, the LEDs D10 (green) and D9 (red) will flash continuously, and the D1 RDY green LED should stay on. The RDY LED indicates that the UCM firmware is running. D10 indicates RS485 data is being received from Comfort, and D9 indicates the UCM is replying with RS485 data to Comfort. The BUSY1, BUSY2, and ERROR LEDs should be off. If the LED states are not as described, see the Troubleshooting section for an explanation of the behavior of the status LED indicators.

LEDs	Behavior when idle	Remarks
RDY (G)		Steady ON
BUSY1 (R)		OFF
BUSY2 (R)		OFF
D10 (G)		Blinking Fast
D9 (R)		Blinking
D11 (G)		Off
D12 (R)		Off

Table 2.2 - LEDs states on UCM board in idle mode

If the RDY LED is not on, press the RESET button on the UCM. This may happen when connecting the UCM 4-way cable to Comfort without turning off power. RESET on the UCM usually starts the UCM to operate correctly.

Buttons on UCM Board

- SW1 - RESET
- SW2 - UPLOAD (NOT USED)
- SW3 - DOWNLOAD
- SW4 - TEST (NOT USED)
- SW5 - COPY (NOT USED)
- SW6 - COMPARE (NOT USED)

LED Indicators

LED	Label	Function
D1 (G)	RDY	UCM Ready
D2 (R)	BUSY1	Busy/In Operation
D3 (R)	BUSY2	Test/Compare
D4 (R)	ERR	Error/ Compare Failure
D9 (R)		RS485 Transmit to Comfort
D10 (G)		RS485 Receive from Comfort
D11 (G)		RS232 Receive from USB/ETH/RS232
D12 (R)		RS232 Transmit to USB/ETH/RS232

Table 2.2 - LEDs indicators on UCM board

Table 2.3 is not present

ICs

- U1 - Microcontroller IC with Firmware marked "UCM 5.xxx".
- U2 - IC socket with EEPROM Master
- U5 - RS485 transceiver for Comfort Bus.
- U8, U9 are Infrared LED receivers for learning IR signals.

Other Settings (SW8)

SW8	On - Short	Off - Open
A to E	Not Used	Not Used
F	UCM/ETH01	UCM/ETH02
G	Don't send STX/ETX in Action 197 DO NOT INSERT	Send STX/ETX for Action 197
H	Hardware Handshake	No Handshake

Table 2-4 - SW8 Settings

SW8-F shunt should be inserted for UCM/ETH01 and left out for UCM/ETH02 or if the UCM is not an Ethernet Module. SEE NOTE below

SW8-G shunt when inserted will suppress the STX header 03 character and Carriage Return 13 character after the data sent in Action 197 (Send RS232). DO NOT USE THIS FEATURE AS IT SHALL BE REMOVED. **DO NOT INSERT SW8-G**

SW8 - H shunt when inserted will enable hardware handshake for RS232 communications. If the shunt is off (default), handshake is disabled. This can normally be left off (no hardware handshake). Hardware handshake is disabled in UCM 5.228 firmware. SEE NOTE below

Note that for UCM firmware 5.228 and above, SW8-H for hardware Flow control is ignored, i.e. no flow control, and SW8-H need not be inserted.

NVM (Nonvolatile Memory) Selection

- J4 - selects U2 or U3 NVM (Nonvolatile memory) as “Master” for Copying and reading/writing operations.
- 🔧 When changing the J4 shunt position to select the Master NVM, always disconnect and reconnect power to the UCM in order for the UCM to recognise the new position**

Physical

- PCB size: 108 x 88 mm
- Mounting Holes: 103 x 83 mm (M3 holes 5 mm from corners)

Connectors (Common to all UCMs)

- JP2, JP2A - 4 way headers (12V/COM/KA/KB).
- JP3 - 12V/COM.
- JP4 - KA/KB.
- PP1 and PP3 - for Firmware Upgrading of other modules, **DO NOT CONNECT THE FIRMWARE PROGRAMMING CABLE IN NORMAL OPERATION**

UCM/232

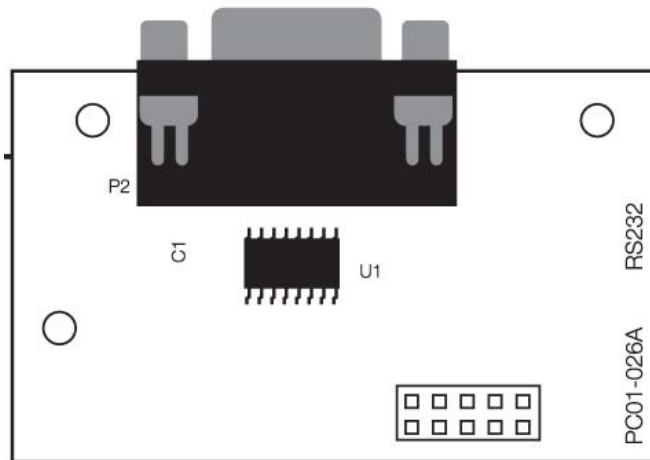


Figure 2.1 RS232/F daughterboard

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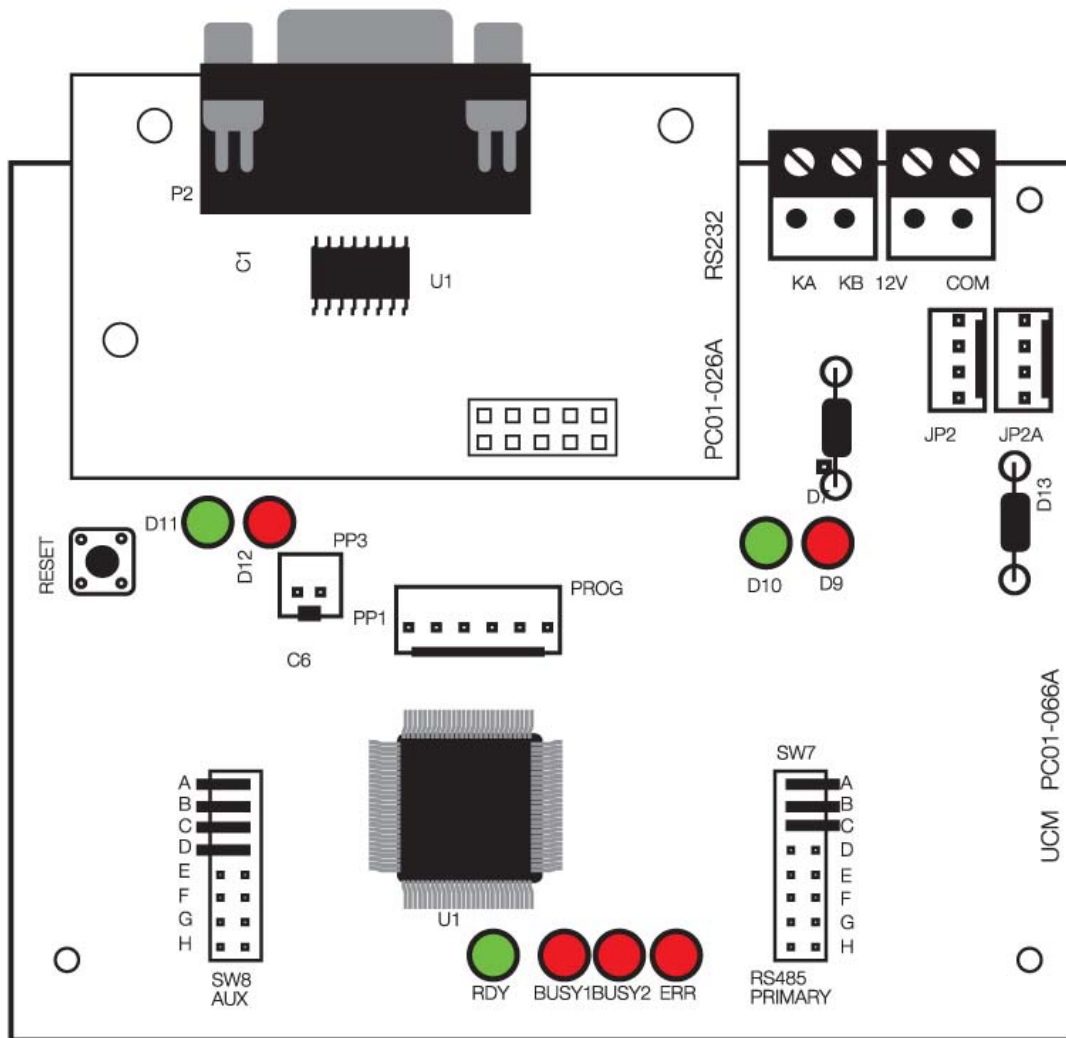


Figure 2.2 - UCM/232

The UCM/232 is equivalent to a UCM06 baseboard with a RS232/F daughterboard plugged in. A RS232/M daughterboard with Male RS232 connector for connection directly to RS232 ports of 3rd party products is also available.

RS232 Connector

- P1 - 9 way D RS232 Female connector .

UCM/ETH02

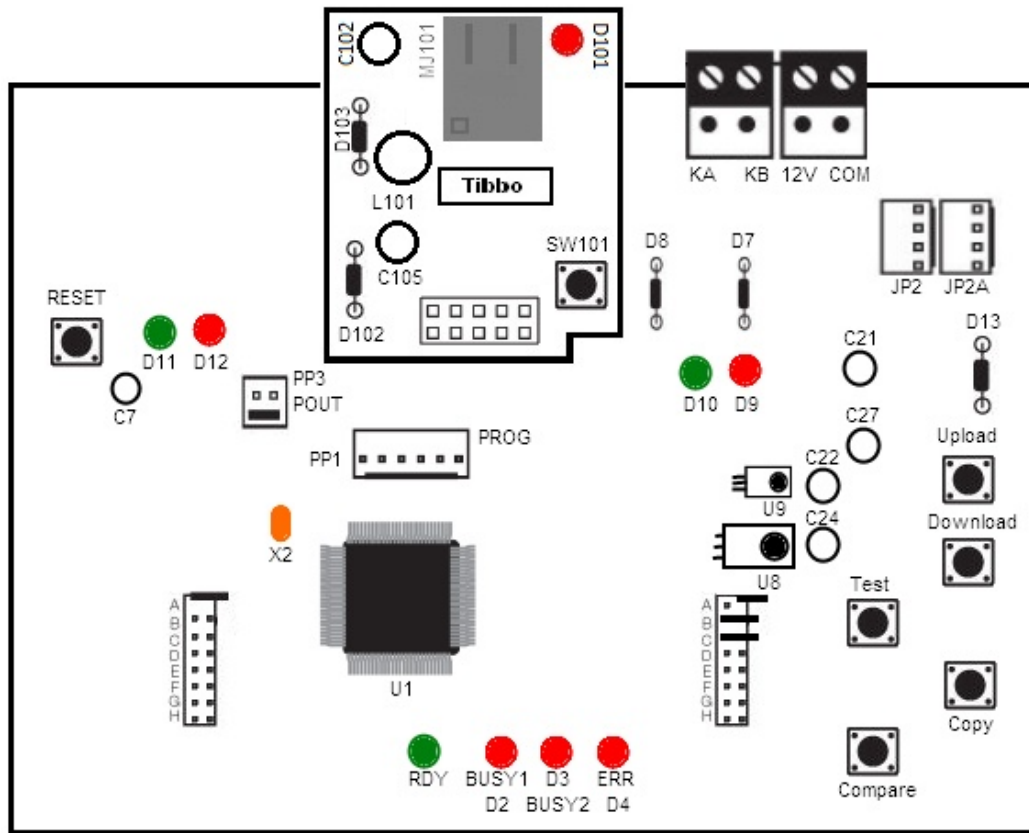


Figure 2.3 UCM/ETH02

The UCM/ETH02 module allows the Comfort system to be connected to a Local Area Network. This module converts the serial data of the UCM to the industry-standard TCP/IP protocol over the Ethernet. This allows the Configurator software to read and write Comfort configuration and allows Wizcomfort which is a stand-alone user software to access Comfort, over the LAN instead of using a serial port on the PC. It also allows the Comfort iPhone App to connect to Comfort, see http://www.cytech.biz/iphone_app_1.html The UCM/ETH02 can be located in or next to the Comfort panel, and far from the PCs on the network (up to 100 meters away).

The serial protocol of the UCM can be used by third party developers to develop customized applications for Comfort over the network or Internet.

Figure 2.4 Removed

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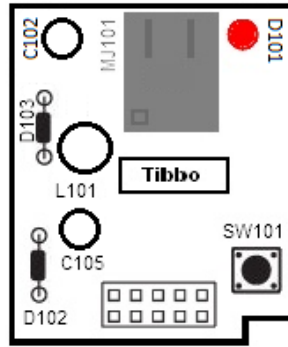


Figure 2.5 ETH02 Daughterboard

The UCM/ETH02 is equivalent to a UCM06 Baseboard with ETH02 daughter board plugged in.

ETH02 Specifications

- Ethernet Interface: 10/100BaseT
- Network Protocols: TCP, UDP, HTTP
- Serial Interface baud rate: 9600 bits per second
- Current Consumption: 80 mA (typical) from Comfort 12V auxiliary output.

Ethernet Connector

MJ101 - RJ45 connector for Ethernet Local Area Network.

Jumper Settings

- SW8-F (Ethernet) inserted for ETH01 and open for ETH02.
- SW8-G (Action 197 STX/ETX) should be left open for use with Configurator and Wizcomfort.

SW101 (ETH02)

Pushbutton switch for reinitializing ETH02 to programming mode in case firmware is corrupted.

- Power off UCM/ETH02.
- Press and hold SW101 switch.
- Power on UCM/ETH02.
- Release the SW101 switch after at least 7 seconds upon powered on.
- The Green LED on RJ45 connector will turn steady on and D101 red LED will be flashing when the Ethernet cable is plugged in.
- Run Device Explorer software and refer to Device Explorer Software section on firmware upgrade instruction.

Ethernet LED Indicators (ETH02)

- D101 - Link Status LED (Red) - This turns on when 'active' Ethernet cable is plugged into the Ethernet port and blinks whenever an Ethernet packet is received.
- RJ45 connector's LEDs (Green and Amber) - dual-function Ethernet status LEDs. The Green LED corresponds to the ETH01's D103 (green) LED and

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the Amber LED corresponds to the ETH01's D104 (red) LED; see Table 2.5 for the meaning.

Connect UCM/ETH02

Connect the Ethernet port MJ101 to the Local Area Network (LAN) by means of a hub or switch using a parallel CAT 5 cable.

Plug in the 4-way cable from JP2 or JP2A on the UCM to "RS485" (J6) on Comfort II, and press the RESET button on the UCM. It is assumed that Comfort is already running. The RDY LED on the UCM should turn on steady and the LEDs D10 and D9 should be flashing continuously.

On the ETH01 module, D103 (G) and D104 (R) should flash 3 times initially. After that, D103 (G) will blink twice every few seconds and D102 (G) should be on.

For the ETH02 module, the D101 (Red) should turn on and the two LEDs (Green and Amber) on RJ45 connector should flash 3 times initially. After that, the Green LED will blink twice every few seconds and D101 (R) will be flashing. When there is no Ethernet cable plugged in, D101(R) will stay off and the blinking of Green LED on RJ45 connector will be dimmer.

DS Manager (Part of Configurator 3.5.x)

To set up the IP address and the other network and serial port settings for UCM/ETH, use DS Manager Software which is included in Configurator 3.5.x

In Configurator 3.5.x go to Configuration > System Information, and in Connection Properties, select UCM Interface as Network (Local). The DS Manager Link is seen on the bottom right.

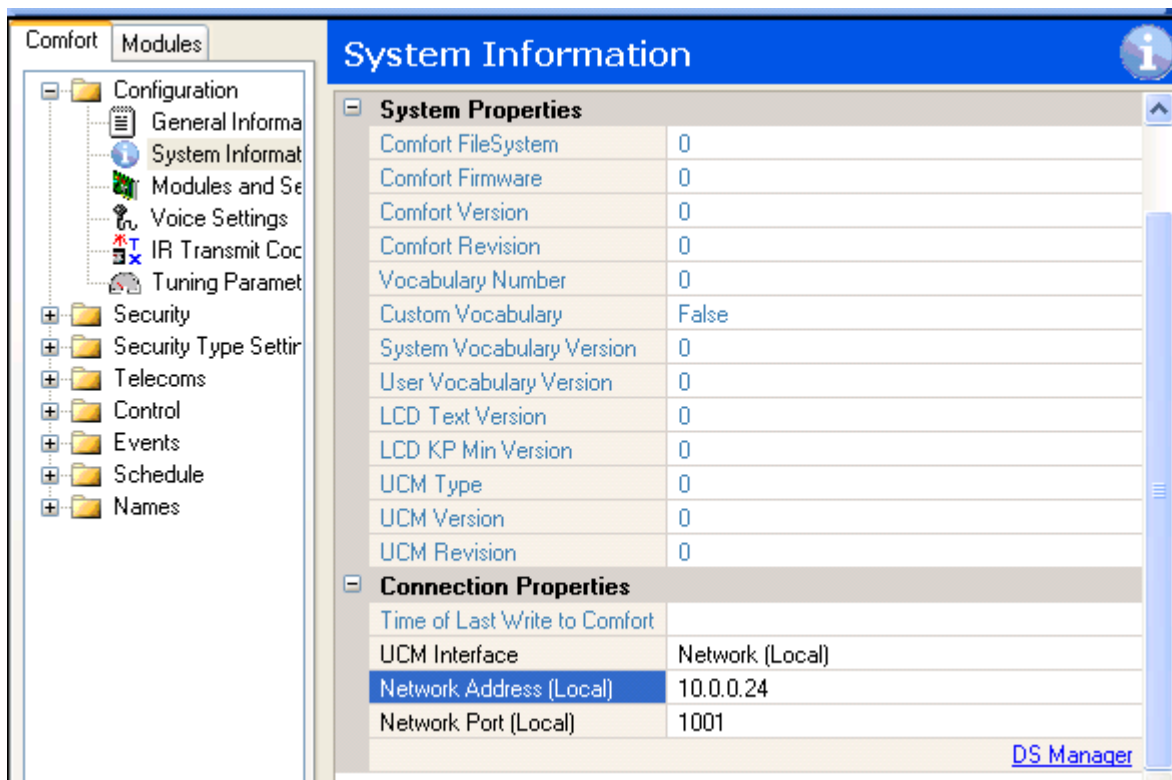


Figure 2.6 - DS Manager in Configurator 3.5

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Click DS Manager. The DS Manager opening screen is shown below;

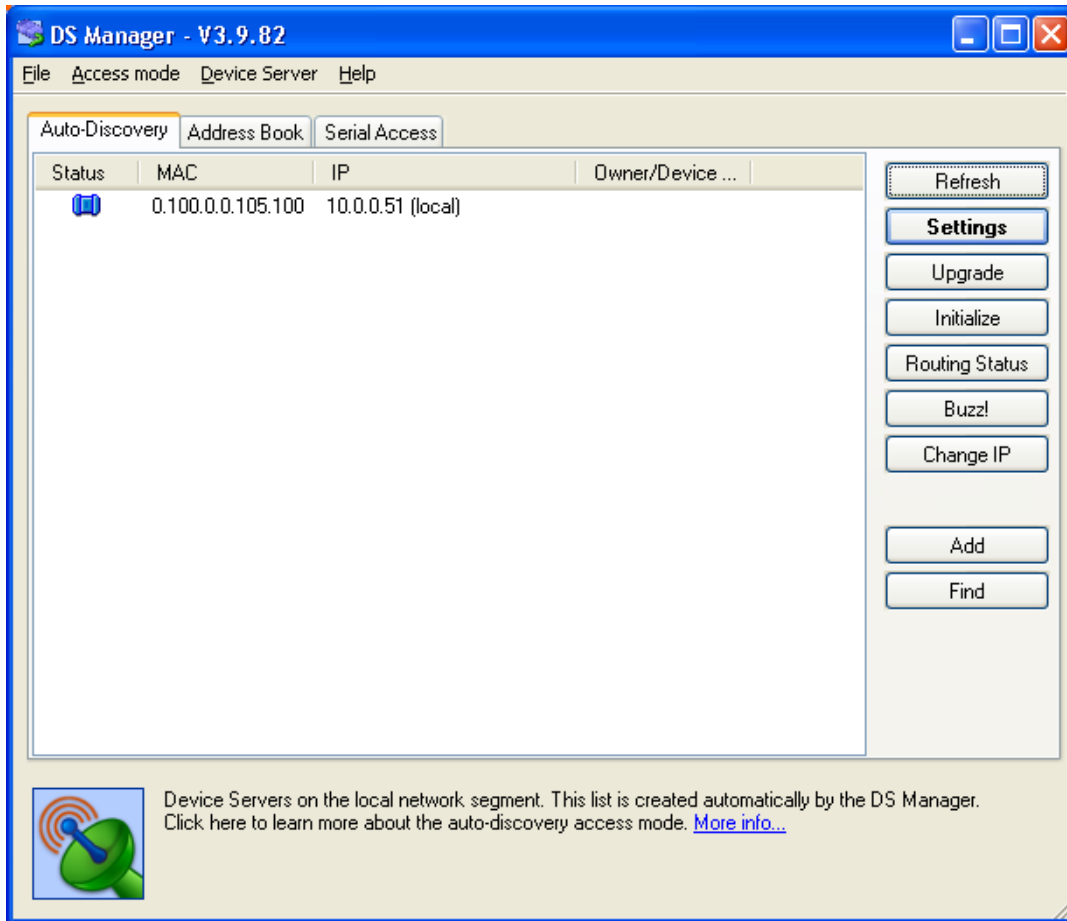


Figure 2.7 - DS Manager Screen

The IP address of the UCM/Ethernet is found by the auto-discovery process. The default IP address as shipped will range from 10.0.0.51 to 10.0.0.60. The IP address must be changed to one which resides on the same Subnet as the computers which will be accessing the UCM/Ethernet through the network. For example, if one of the computers on the network has an address like 10.0.0.1 and the Subnet mask 255.255.255.0, the IP address of the UCM/Ethernet can be set to any address in the range 10.0.0.2 to 10.0.0.254, making sure that it does not conflict with any assigned IP address on the network. Click on the "ChangeIP" button. Enter the new IP address of the UCM/Ethernet. This is not necessary if the DHCP feature is enabled in the Network Settings page.

On the DS Manager screen, the new IP address should be shown.

The **UPGRADE** button is used to upgrade the firmware over the network, on the ETH01 only **not ETH02**. The Ethernet firmware is for the Ethernet functions and is not the same as the UCM Firmware. To upgrade, press the Upgrade button and select the name of the firmware file. The current firmware for ETH01 is CYTEM334.BIN. Upgrading takes only a few seconds. **Upgrading ETH02 firmware is done by another software, the DS Explorer described in a later section.**

The INITIALIZE button initializes all settings back to factory default, except for the IP address. Do this is any error is shown for the UCM/Ethernet IP address after refresh.

The BUZZ button causes the RED and GREEN Status LEDs to blink for a few seconds so that the UCM/ETH02 module which is being accessed can be

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identified. This is useful if you have several UCM/ETH02 modules connected (Comfort can be connected to 8 UCMs of various types)

The ROUTING STATUS button shows the status of Routing buffers, Network Connection and Serial Port, as shown in the screenshot below.



The screenshot shows a window titled "DS Status" with a blue title bar and standard Windows window controls. The window contains three sections: "Routing Buffers", "Network Connection", and "Serial Port". Each section has a table of status information. At the bottom right, there are "Refresh" and "Close" buttons.

Routing Buffers	
Ethernet -> Serial (data/capacity)	0/510
Serial -> Ethernet (committed/data/capacity)	0/0/510

Network Connection	
Connection state	Connection is closed
Local port	1001
Remote IP	10.0.0.5
Remote port	1254

Serial Port	
Port state	Closed
Comm mode	Full-duplex
Baud rate	9600 bps
Flow control	None
Parity	None
Data bits	8
CTS	High
DSR	Low
RTS	Low
DTR	High

Figure 2.8 DS Manager Routing Status

DS Manager Settings for ETH02

Using the DS Manager software, select the IP address using the cursor and click on the Settings button. The General Tab screen is shown below;

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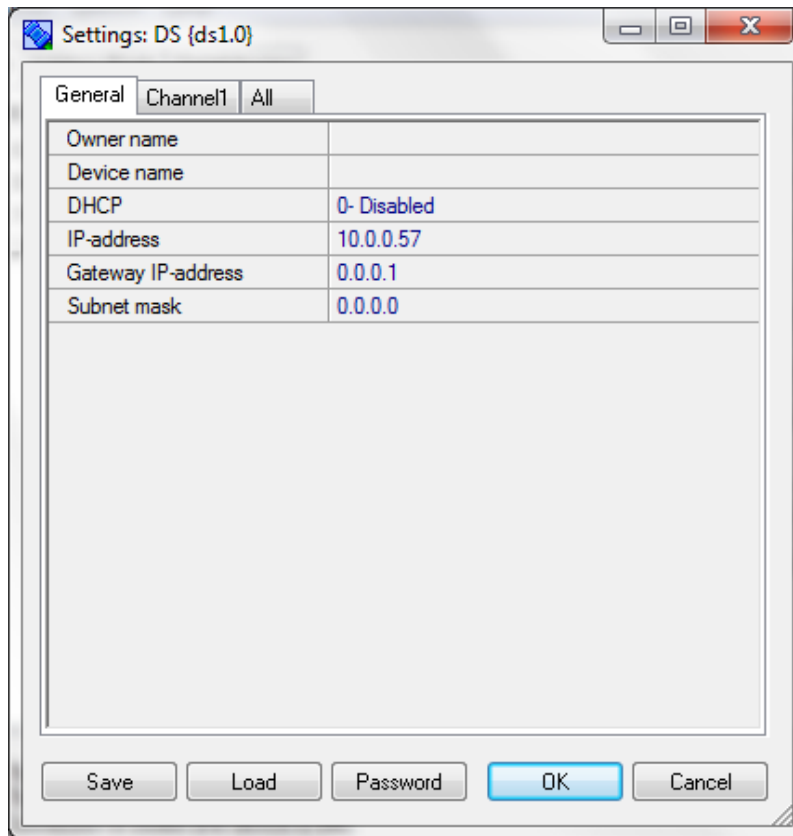


Figure 2.9 Device Server General Settings

- Owner Name and Device Name are for description only.
- DHCP if enabled, it allows the device to be automatically assigned an IP address if there is a DHCP server in the network. It is recommended that a fixed IP address be assigned to the device so that Configurator or the iPhone Application and other software can find it.
- IP-address is the current IP address of the device.

Next click the Channel1 tab

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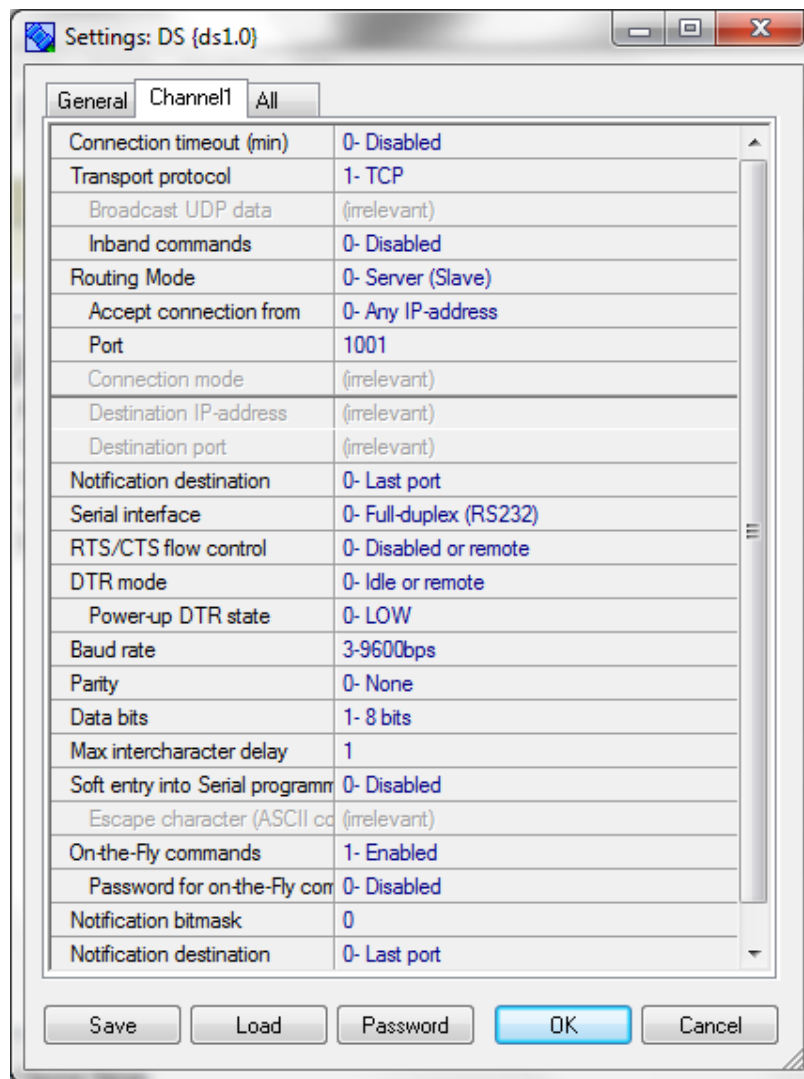


Figure 2.10 Device Server Channel1 Settings

- Connection timeout (min): This is the time in minutes (0 to 255) for which the TCP connection will remain open if there is no data in either direction. A value of 0 means the connection will never time-out.
- ☎ It is recommended that 2 minute connection time-out is used when there may be more than 1 application trying to use the connection at the same time, eg for iPhone application. The UCM/Eth02 only allows one connection at a time.**
- Transport protocol: Choose TCP.
 - Inband commands: should be disabled.
 - Routing Mode: should be 0- Server (Slave).
 - Accept connection from: 0 - Any IP address, or 1 to specify an IP address to accept connection from.
 - Port: is the network port through which the data is sent and received from the UCM. By default, the port is set to 1001.
 - Notification destination: select 0 - Last port.
 - Serial interface: 0 - Full-duplex (RS232).
 - RTS/CTS flow control: 0 disables Flow control. RTS/CTS flow control should be disabled. The UCM/ETH02 SW8-H shunt should also be removed to disable flow control (default).
 - DTR mode: 0 - Idle or remote.
 - Power-up DTR state: 0 - Low.

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- Baud rate: 3 - 9600bps.
- Parity: 0 - None.
- Data bits: 1 - 8 bits.
- Soft entry into Serial programming mode: 0 - Disabled.
- On-the-Fly commands: 1 - Enabled.
- Password for on-the-Fly commands: 0 - Disabled.
- Notification bitmask: 0
- Notification destination: select 0 - Last port.

The TAB called ALL displays the same settings as the General and Channel1 Settings screens combined. The use of this screen is thus not needed, but it may be used for future expansion of settings.

The button SAVE at the bottom saves the profile under a file name that you specify with the extension .ds. The button LOAD allows you to load a previously saved profile.

The PASSWORD button is not used. Ignore it

Device Explorer Software (for ETH02)

To upgrade the Ethernet module ETH02 firmware (DOES NOT apply to UCM/ETH01), install the Device Explorer Software. This is available from Cytech website at http://www.cytech.biz/device_explorer.html Unzip the file tdevexplore-2-50-11.zip (the current version at the time of writing) and install the software.

After Installation, run Device Explorer.

The Device Explorer opening screen is shown below;

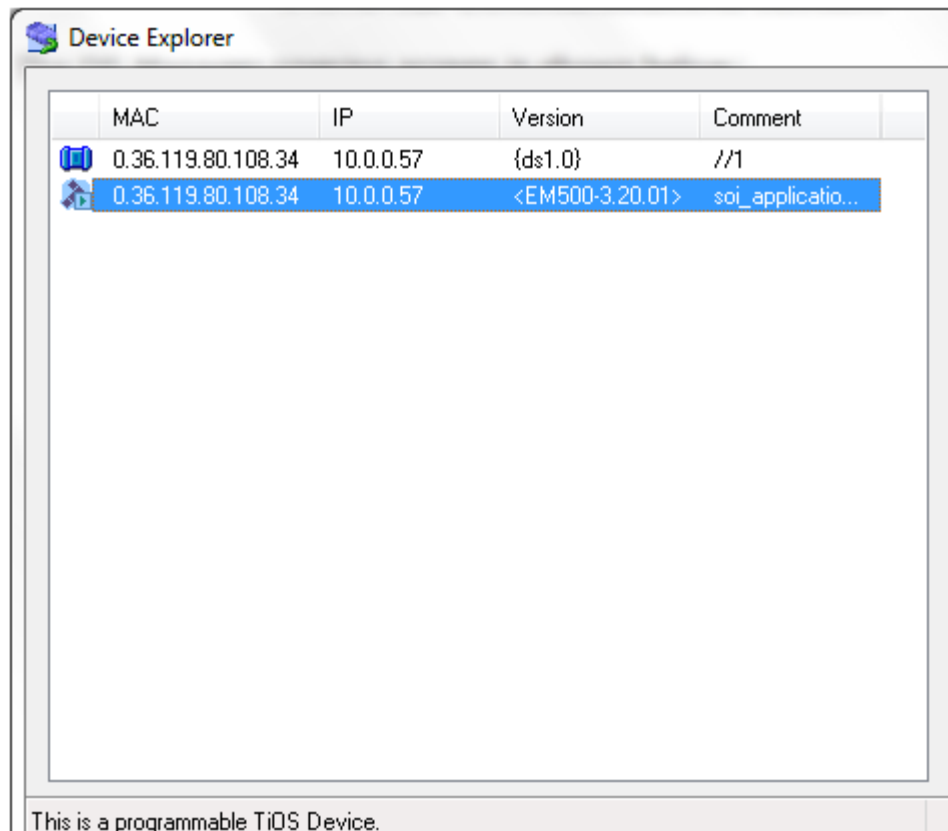


Figure 2.15 - Device Explorer Screen

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The IP address of the UCM/ETH02 is found by the auto-discovery process. The IP address can also be changed using the DS Manager software.

There will be two display lines shown for the same unit. One is shown with a blue icon (“programmable TiOS Device” on the status bar) and another is hammer icon (a “fixed firmware Device Server” on the status bar). Both show the same MAC address and IP address.

The BUZZ button causes the RED and GREEN Status LEDs to blink for a few seconds so that the UCM/ETH02 module which is being accessed can be identified. This is useful if you have several UCM/ETH02 modules connected

The CHANGE MAC button is used to change the physical Ethernet Address of the module. This should not be changed.

Upgrading Firmware on ETH02 Submodule

The ETH02 firmware is NOT the same as the UCM firmware of the baseboard. The ETH02 firmware runs on the Ethernet module and not the UCM. **ETH01 Firmware cannot be upgraded**

The UPLOAD button is used to upgrade the ETH02 firmware on the submodule over the network. Select the “programmable TiOS Device” shown with a hammer icon NOT the blue icon



and not the blue icon. Firmware upgrades are available from the Cytech Technology website at http://www.cytech.biz/eth02_firmware.html. To upgrade, press the Upload button, select “Load Firmware Through the Network”, **NOT** “Load Application”. Select the firmware file. The current ETH02 firmware is cytech_nowifi_3.11.bin at the time of writing.

The message “The Firmware you have chosen may not be compatible with the selected device. Do you still want to proceed?” Enter Yes.

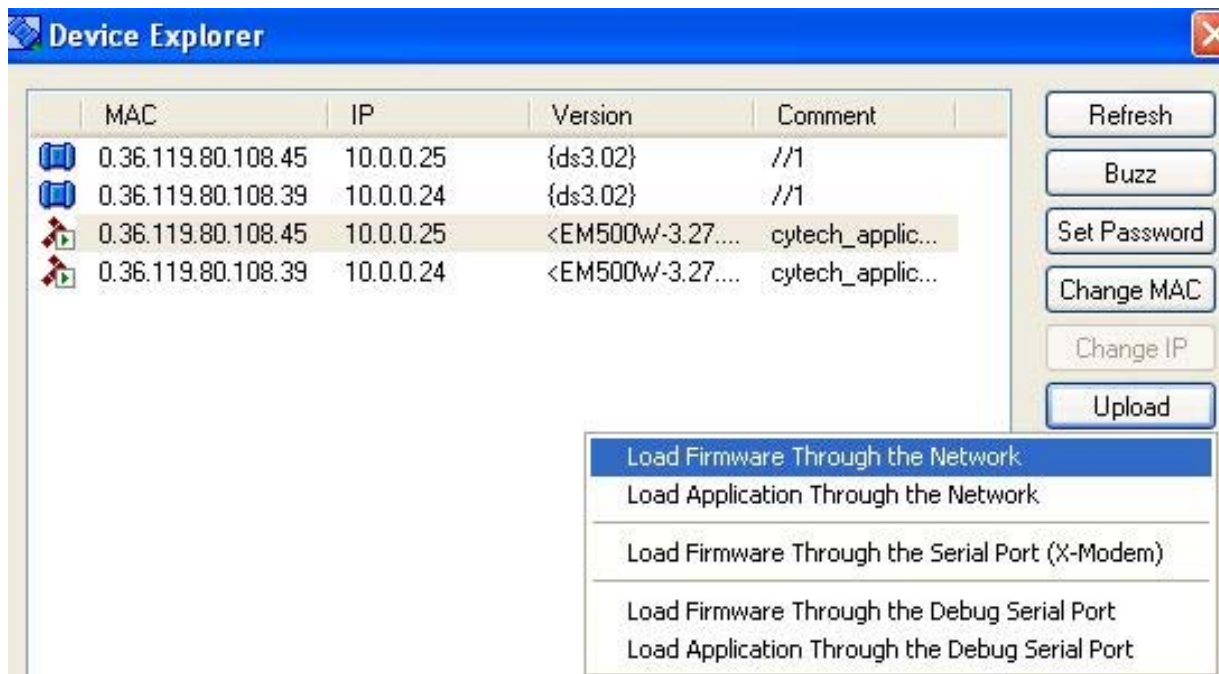


Figure 2.16 Upload Firmware for ETH02

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Firmware Upgrading takes only a few seconds. The Network Upload progress window is seen as shown below;

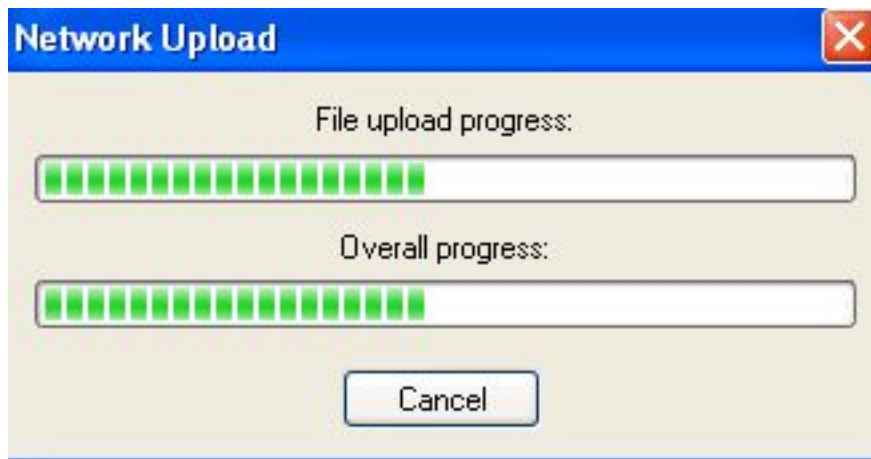


Figure 2.17 - Network Upload Progress

- ☎ If the Network Upload window does not show any progress after a few seconds, this is usually due to a firewall. Disable the firewalls on your PC eg Zone Alarm before upgrading the firmware.
- ☎ After upgrading the ETH02 firmware go back to DS Manager. If there is an error message on DS Manager, press the Initialise button to initialise the module. This defaults all settings except the IP Address. Enter the parameters as shown above if necessary.

Features of ETH02 Firmware cytech_nowifi_3.11.bin

Presets DS Manager settings like baud rate, enable Inband commands, Connection Time-out 2 minutes. These settings are the default settings after the Initialise Button is pressed in DS Manager

Configurator Network Connection

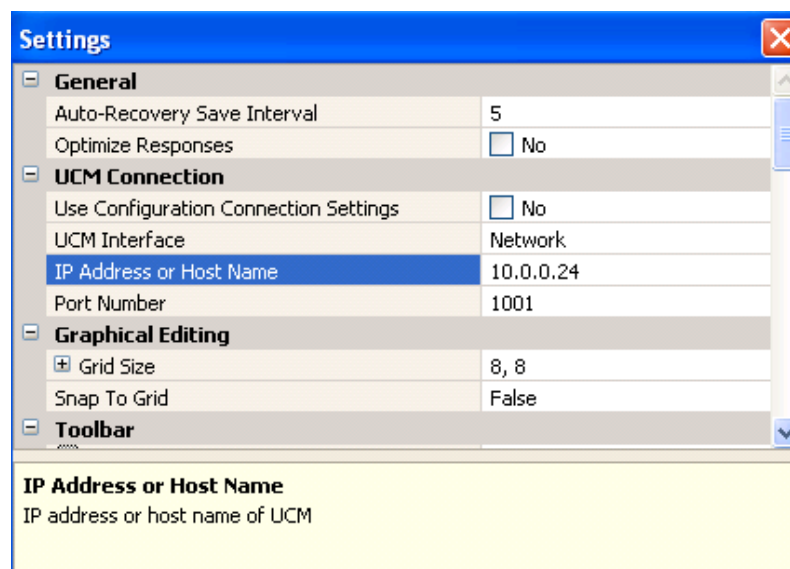


Figure 2.18 Configurator Network Connection

To use Configurator to connect to Comfort over the network, select Menu Options > Settings.

Universal Communications Module

In UCM Interface, select Network. In IP Address or Host Name, enter the IP Address and the Port number which was set for the UCM/ETH02 and click OK.

Writing and reading configuration file (especially reading) over the network will be slower than for direct serial/USB connection because of the additional communications overhead incurred on the Ethernet.

UCM/USB

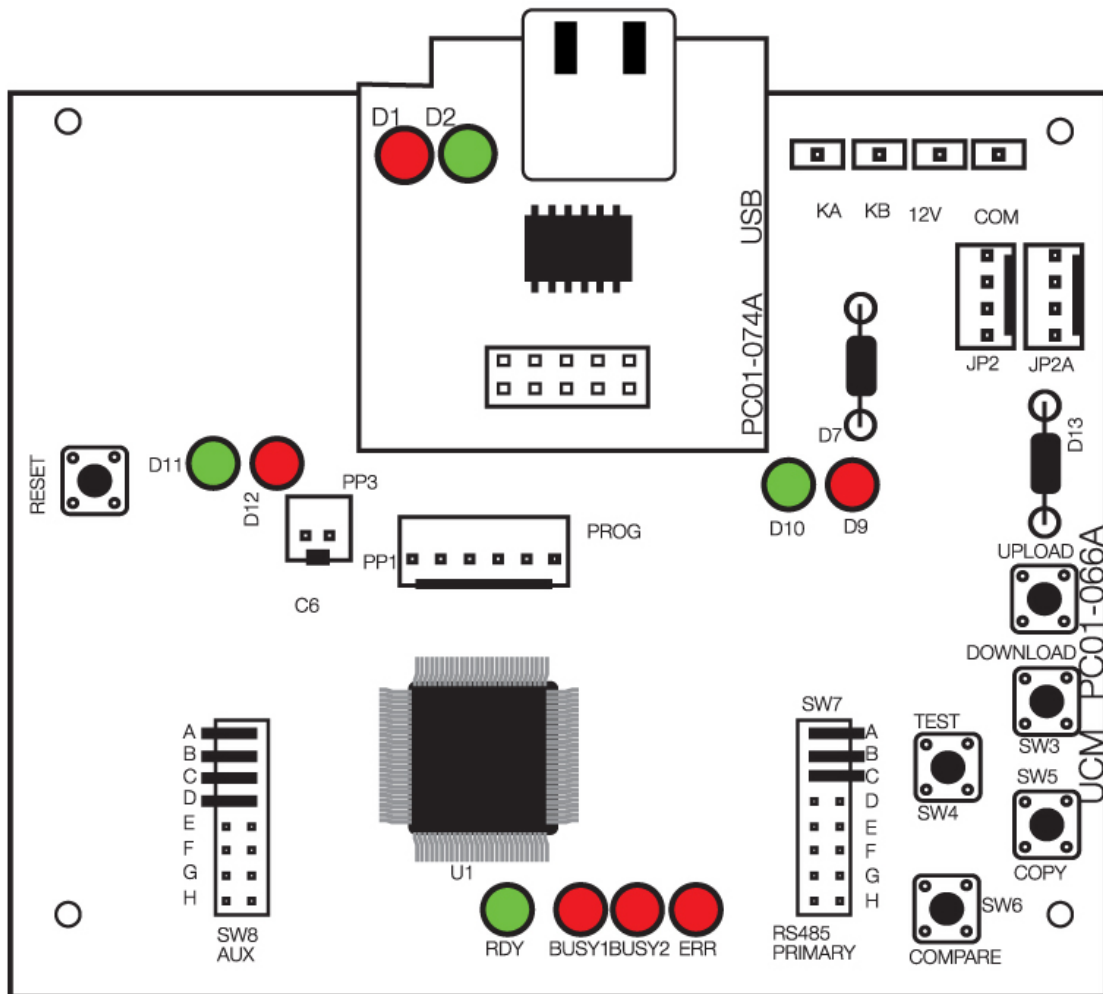


Figure 2.19 UCM/USB

The UCM/USB module provides a USB interface to Comfort. It has the same functionality as the UCM/232 which has a serial (RS232) interface. The UCM/USB uses the same firmware as a UCM/232.

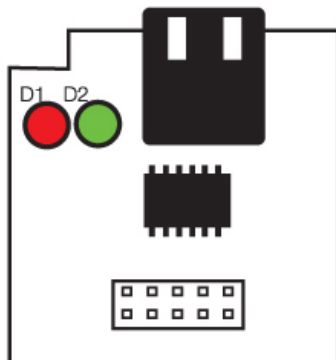


Figure 2.20 USB01

Universal Communications Module

The UCM/USB is equivalent to a UCM06 Baseboard with a USB01 daughter board plugged in.

Parts Supplied

- UCM/USB Firmware 5.228 and above
- USB Cable A to A
- RS485 4-way cable
- 6-way programming cable

LED Indicators on Daughter Board

- D1 (Red) – Receive from PC.
- D2 (Green) – Transmit to PC.

USB Connector

P2 - USB connector for USB interface.

System Requirements

- UCM 5.178 and above.
- Configurator version 3.0.0 and above.
- Windows XP/Vista/7

Installing the USB Driver

The USB drivers can be found in the folder "C:\Program Files\Cytech\Configurator\USB Drivers" depending on your Configurator installation folder. The current version of the driver if available can be downloaded from <http://www.ftdichip.com/Drivers/D2XX.htm> This driver should be of version 2.06.00 or above.

- 🔧 If a device of the same type has already been installed on your machine and the drivers that are about to be installed are different from those installed already, this may prevent the UCM/USB from communicating the original drivers need to be uninstalled before installing the new driver. Delete the driver by going to My Computer > Control Panel > System > Hardware Tab > Device Manager. Look for USB Serial Bus Controller > USB to serial converter. Right Click and select Delete Driver.**

Connect the device to a spare USB port on your PC. If there is an available Internet connection, Windows will silently connect to the Windows Update website and install any suitable driver it finds for the device. If the automatic installation takes place there is no need to continue with the procedure outlined below.

For Windows XP

- If there is no available Internet connection or Windows XP SP 2 is configured to ask before connecting to Windows Update, the "Found New Hardware" screen appears. displayed. Select "No, not this time" from the options available and then click "Next" to proceed with the installation. Select "Install from a list or specific location (Advanced)" and then click "Next".
- Select "Search for the best driver in these locations" and browse to the folder Program Files\Cytech\Configurator\USB Drivers. Click next to proceed.

Universal Communications Module

- If the message dialogue that “the software has not passed Windows Logo Testing” appears, click on “Continue Anyway” to continue with the installation.
- The Wizard will install the necessary driver files and show when the installation has been completed. Click Finish to complete the installation.

For Windows 7

- If no suitable driver is automatically found then the following procedure should be followed.
- Press the Windows start button to bring up the start menu and select “Control Panel”.
- From the Control Panel window select Hardware and Sound. At the next screen select Device Manager
- In the Device Manager window there will be a device under Other Devices with a yellow warning symbol to indicate a problem i.e. no driver installed. The text next to this device will depend on the device attached. In this example the device was a TTL232R device. Right click on the other device (TTL232R in this example) to bring up a menu as shown below. From the displayed menu select “Update Driver Software...”
- This then displays the option for an automatic search or a manual search. Select the second option to browse manually. In the address box put the exact location where the drivers have been saved to.
- After entering the address select “NEXT” to start the installation. When the installation has finished a completion screen is displayed.

Configurator Setup

The UCM/USB is supported by Configurator 3.0.0 and above. Switch on Comfort with the UCM/USB and connect the USB cable to the computer. The new hardware should be detected and installed automatically by the computer. In Configurator, go to Configuration > System Information. Go to Connection Properties > UCM Interface. There are 3 options in the dropdown list; Serial, Network, USB. Select USB. The Serial number of the USB shall be detected and displayed in the dropdown list.

Universal Communications Module

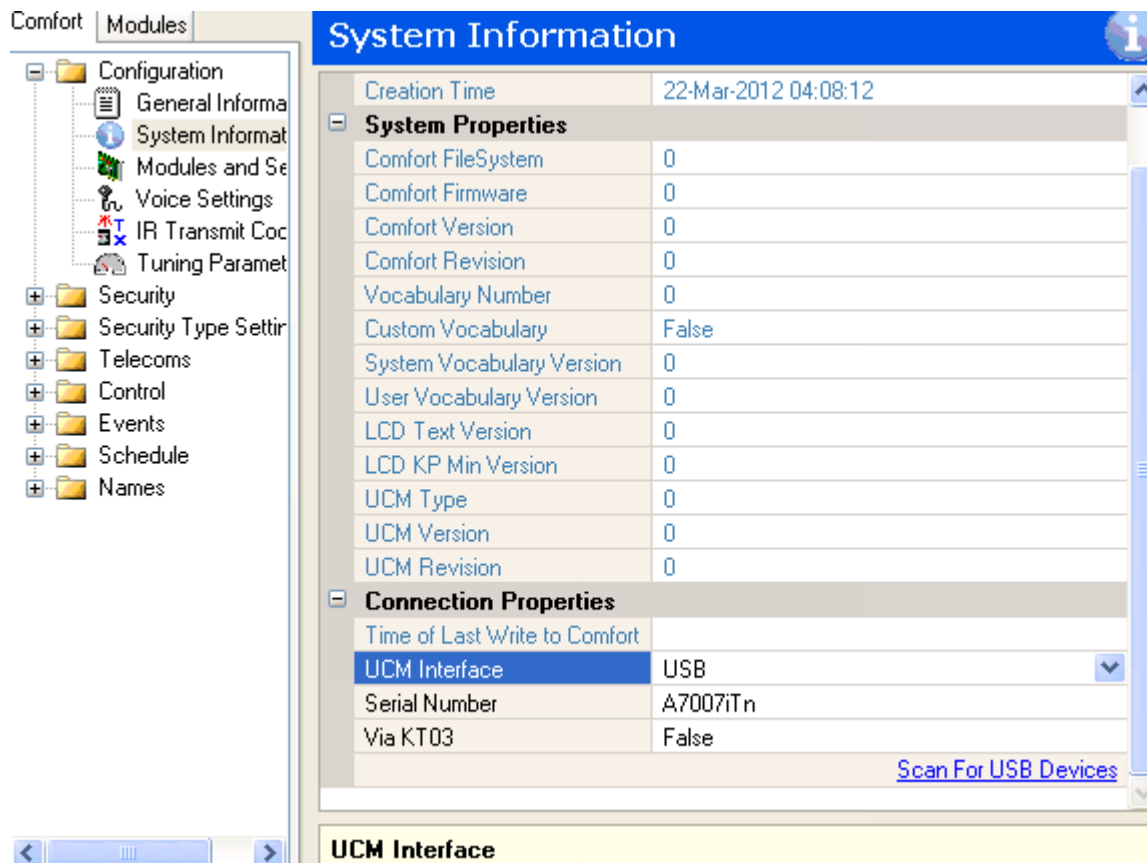


Figure 2.21 Connection Setting for USB

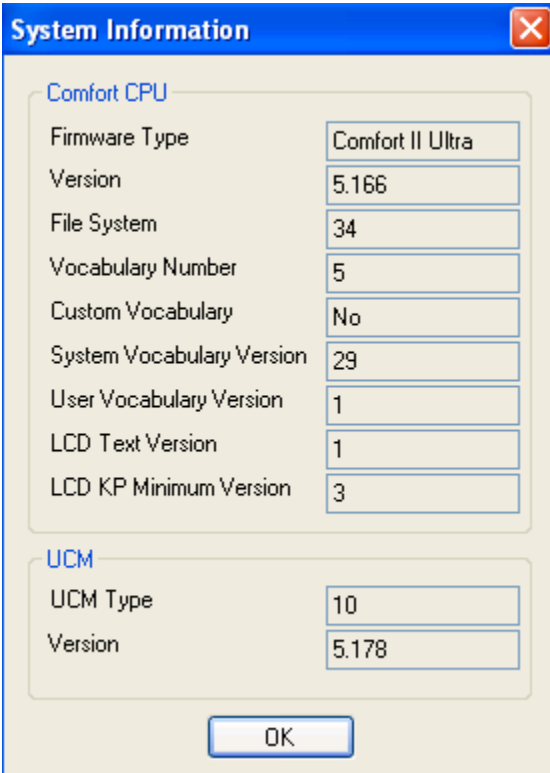
If the USB Serial Number is not seen, click on “Scan for USB Devices” and try again

- ☎ **If the USB Serial number is blank after Scanning for USB Devices, then there is a problem with the driver. Remove the old USB driver as described above in “Installing the USB Driver” ,then reconnect the USB cable to install the driver again.**

If more than 1 UCM/USB are used, the serial number helps to identify the one selected. When the USB serial number has been selected, click OK to close the window. If the Serial number shows a blank field in the drop down window, wait a while and try again. Otherwise try the Driver installation again according to the instructions above.

Go to Transfer > System Information. Enter the user code for Comfort in the login window (default 1234) and press OK. The System information window should be displayed as shown, which means the USB connection is operating correctly.

Universal Communications Module



The image shows a 'System Information' dialog box with a blue title bar and a close button. It contains two sections: 'Comfort CPU' and 'UCM'. Each section has a list of system parameters and their values displayed in text boxes. An 'OK' button is at the bottom.

Comfort CPU	
Firmware Type	Comfort II Ultra
Version	5.166
File System	34
Vocabulary Number	5
Custom Vocabulary	No
System Vocabulary Version	29
User Vocabulary Version	1
LCD Text Version	1
LCD KP Minimum Version	3

UCM	
UCM Type	10
Version	5.178

OK

Figure 2.22 - System Information

SECTION 3 OPERATION

The UCM and NVM (Nonvolatile Memory)

Comfort Model	File System	NVM capacity (KBits)
Entry I (obsolete)	17	32K (24C32)
Pro I (obsolete)	18	64K (24C64)
Ultra I (obsolete)	24	256K (24C256)
OPTimum II	31	64K (24C64)
ULTra II	34	256K (24C256)

Table 3.1 - NVM Types

The above table shows the types of NVMs used for the various Comfort Models. In Comfort, the NVM in U4 contains the programmed configuration, which is written from the PC using Comfigurator, or programmed via the keypad or telephone using the Engineer Menu.

Writing and Reading Configuration

In Comfigurator, select Options > Settings > UCM Connection and select the UCM Interface be it serial, network, or USB. For serial connection, select the correct COM port (1 to 32); or IP Address and Port in the case of UCM/ETH02; or USB serial number for UCM/USB to which the UCM is connected.

To transfer the programmed configuration to Comfort ("write"), in Comfigurator, select Transfer > Write (PC --> Comfort). To transfer the programmed configuration from Comfort to the PC ("read"), select Transfer > Read (Comfort --> PC).

During reading and writing, both D11 (Green) and D12 (Red) LEDs will be blinking rapidly indicating data being received and transmitted through the RS232 port or network or USB. D9 and D10 LEDs will also be blinking fast simultaneously. Keypads and other modules may not be able to communicate properly during this process.

Refer to the Comfigurator Reference Manual for details on using the software.

Master and Copy NVMs

IC sockets U2 are meant for the EEPROM for the DOWNLOAD (write) operations. The shunt in J4 should be inserted in the position which is closer to U2.

The EEPROM should be inserted in U2 with the UCM disconnected from Comfort (i.e. with power removed).

Download (WRITE) “Master” to Comfort EEPROM (U4)

- 1 With the UCM disconnected from Comfort (i.e. with power removed), insert the Master NVM into either of sockets U2 and U3. The NVM should have the same or greater capacity as the NVM in U2 or U3 of UCM.
- 2 Insert the shunt in J4 so that it is towards the “Master” NVM containing the program to be downloaded to Comfort. In this context “Download” means to transfer from UCM to Comfort.
- 3 Connect the 4-way cable between JP2 or JP2A on the UCM and “RS485” (J6) on Comfort. The RDY LED should turn on and D9 and D10 LEDs should start flashing.
- 4 Press the DOWNLOAD button. All the data in the Master NVM will be downloaded into Comfort’s NVM. The RDY LED goes off and the BUSY2 LED is flashing during the upload operation.
- 5 The download operation should take about 30 seconds for a 24LC32 (for FS17) and 60 seconds for a 24C64 (for FS31), and up to 4 minutes for 24C256 (for FS34).
- 6 When the download is completed, the RDY LED should come on and the BUSY2 LED should go off.
- 7 The UCM resets Comfort automatically after a DOWNLOAD.

SECTION 4 TROUBLESHOOTING

Common Problems

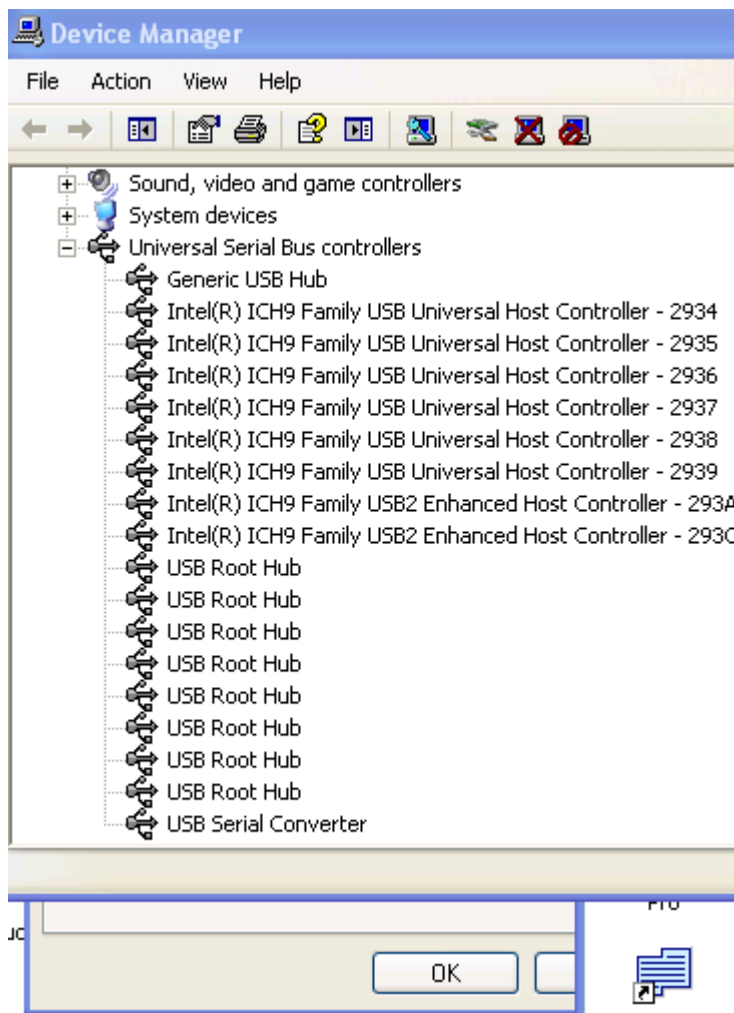
“Unable to Communicate with UCM”

UCM ID

The main cause of unable to communicate is incorrect setting of the UCM ID. Check that there is no other UCM, UCM/ETH02, UCM/CBUS, etc. installed with the same ID on SW7. This will cause a conflict of addresses with more than 1 UCM responding to the poll from Comfort. The UCM is normally set to ID=1. Check that the number of UCMs matches the UCM with the highest ID number installed in the system. The number of UCMs should not be 0, otherwise the UCM will not communicate.

UCM/USB

Failure to communicate is normally due to problems with the USB driver. See instructions on USB driver installation in the relevant section of UCM/USB. Sometimes an outdated USB driver can causes incompatibility problems. If an existing version of the USB Driver has been installed, this may prevent the UCM/USB from communicating. In this case upgrade the driver by going to My Computer > Control Panel > System> Hardware Tab > Device Manager.



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Look for USB Serial Bus Controller > USB to serial converter as shown above. Right click and select Update Driver. Browse to the folder "C:/Program Files/Cytech/Comfigurator/USBDrivers" and select the folder and then press OK. The new driver will be installed.

UCM/232

The most common problem with UCM/232 communications is with the serial port on the computer. Make sure that the UCM is connected to the correct COM port, and that same port is specified in the Serial Port setting for Comfigurator.

There may be compatibility problems with certain USB to Serial and PC-Card to serial converters. These need to be tested with the UCM.

UCM/ETH02

Check that the IP address and Port of the UCM/Ethernet corresponds to that shown in DS Manager. Run DS Manager on the LOCAL network and check that the UCM/Ethernet is detected. Check the IP address and port.

SW8 Settings

SW8-F must be open for normal UCM, UCM/232, UCM/Audio, UCM/USB and closed for UCM/ETH02.

SW8-G should normally be open.

SW8-H should be open for No Hardware Handshake.

LED Status Indications

The following describes what is regarded as normal LED indications which will be seen on the UCM module when it is connected to Comfort.

D9 (Red) and D10 (green) status indications for RS485	
Communications OK (Idle)	
D10 (green)	
D9 (Red)	
UCM is receiving data, but not responding.	
Cause	UCM SW7 ID shunts may be set wrongly or No of UCMs in Comfigurator may be wrong.
D10 (green)	
D9 (Red)	
No Communications	
Cause	KA/KB or 12V/COM not connected
D10 (green)	
D9 (Red)	

The D10 (green) LED indicates RS485 data received from Comfort, and D9 (Red) indicates data transmitted to Comfort.

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D12 (Red) and D11 (green) status indications for RS232	
Writing or Reading from PC (Comfigurator)	
D11 (green)	
D12 (Red)	
UCM receives command from RS232 and Responds (e.g... login)	
D11 (green)	
D12 (Red)	
UCM receives command from RS232 and does not Respond	
D11 (green)	
D12 (Red)	
UCM sends a report to RS232	
D11 (green)	
D12 (Red)	

The D11 (green) LED indicates RS232 data received from the PC and D12 (Red) indicates RS232 data transmitted to the PC

Using Hyperterminal for Testing

This section shows how to communicate with the UCM using a PC serial port. This is useful for those who are developing applications for the UCM, or for those who have difficulty getting Comfigurator to work with the UCM. Connect the UCM to Comfort and the PC serial port as described earlier. On Windows 95/98/2000/Me/XP, Run Hyperterminal on the PC. This can be found at Start -> Programs -> Accessories -> Communications -> Hyperterminal Folder. Double-click on the Hyperterminal.exe icon. A dialogue box for "New Connection" will appear as shown below. Enter "UCM on COM1 (or 2)" as the name and click on OK.



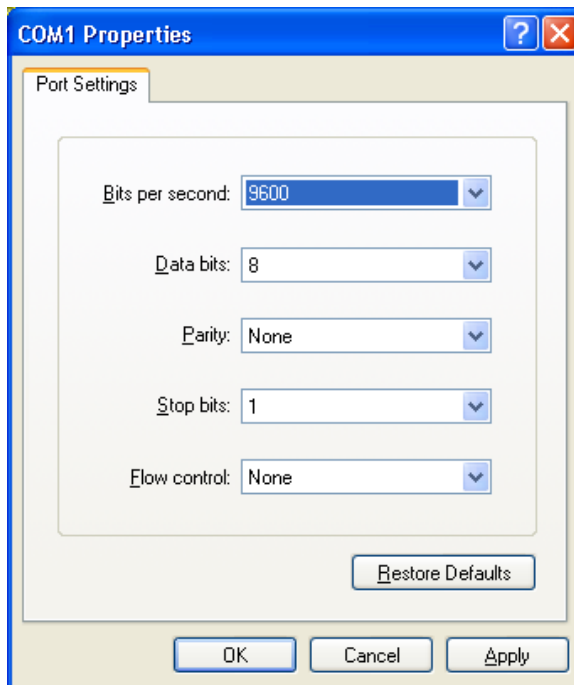
Universal Communications Module

The next screen is:



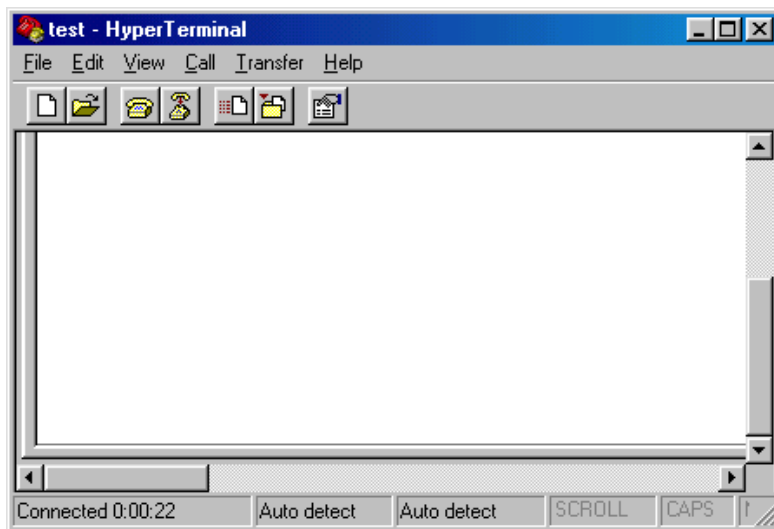
On the box "Connect using", select "Direct to COM n" (where n is your serial COM port to which you are connecting the UCM). Click on OK.

The next screen defines the properties of the COM port

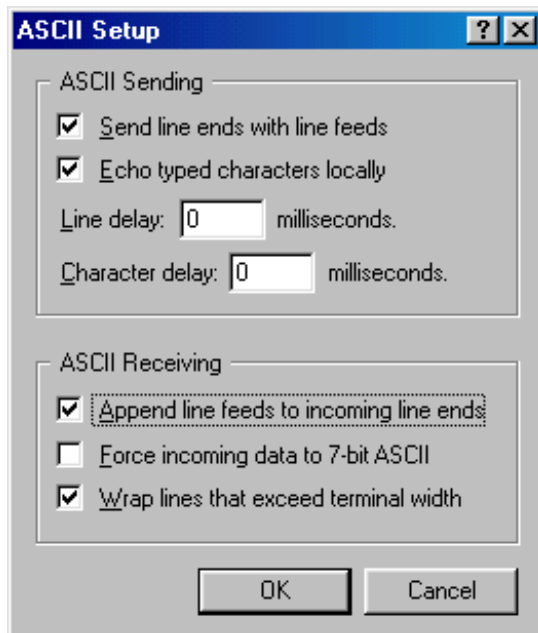


Set "Bits per second" to 9600, "Data Bits" to 8, "Parity" to None, "Stop Bits" to 1, "Flow Control" to None and click on OK. This starts the Communication screen:

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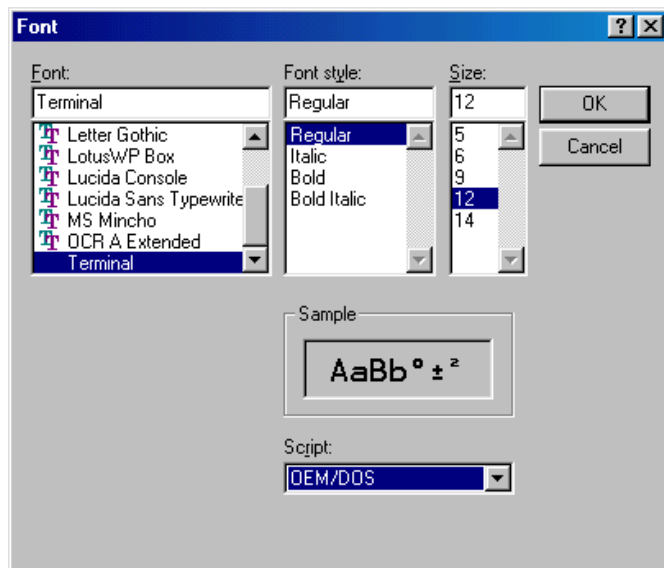


On the Menu bar, select File -> Properties, and click on the “Settings”, and click on “ASCII Setup...”, and check the boxes as shown below:



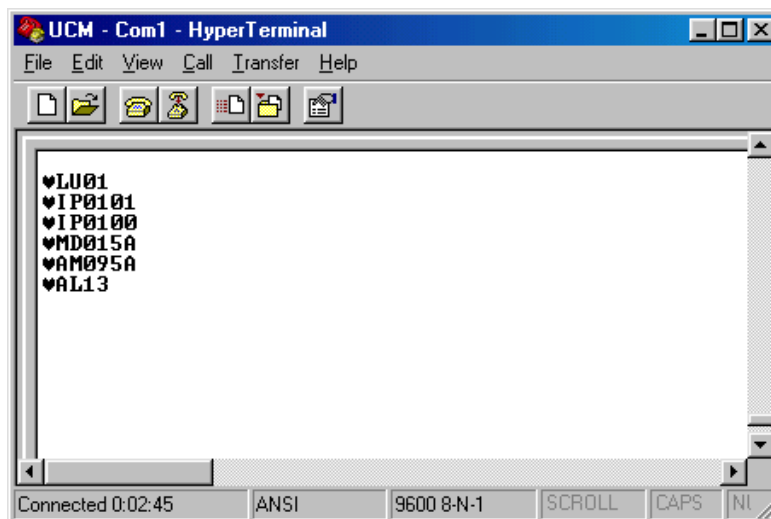
Click on OK, and OK again until you get back to the Hyperterminal window. On the Menu bar, select View -> Font, and select Font = Terminal, Font Style = Regular, Size = 12.

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Click on OK. You can now send characters to the UCM according to the Comfort Protocol. Start with <Control-C>LI1234<Enter> which is the login code assuming 1234 is a valid user code. On Windows XP, you can see the text which you type, but on Windows 98, you are not able to see your text entry for some reason. <Control-C>, the Start character appears as a heart symbol. You should get the reply LU01, which is Login User 1

This shows that the communications with the UCM is working. Type <Control-C>SR01<Enter> to enable status reporting from the UCM. Now arm the Comfort system by pressing the AWAY button and close the door. When Comfort arms the Hyperterminal window will show;



The meaning of the messages is as follows: IP0101 means Input 1 On (Open)

IP0100 means Input 1 Off (Closed)

MD015A means Security Mode 1 (Away Mode) by user 90 (5A in hexadecimal notation). User 90 means one-touch armed by keypad without any user code.

AM095A means System non-detector Alarm 9 (System armed) by user 90.

AL13 means Alarm Type 19 (System armed). 13 is hexadecimal notation for 19 decimal.

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When you have finished, save the session (File -> Save as -> UCM.ht) so that you can recall the Hyperterminal settings without having to go through the whole procedure again.

SECTION 5 INFRARED LEARNING

Infrared Learning

The Comfort Infrared learning software is a Windows application which uses the UCM/232, UCM/ETH02 and UCM/USB with IR receiver to learn new infrared signals and save the codes in the .ifr file format which is used by Configurator.

Installation

The program is included with the Configurator software which is downloaded from the Cytech Technology web site, link <http://www.cytech.biz/configurator.html> Check the website for the latest version of Configurator which may have later versions of the infrared learner software.

To start the program, run it from Configurator in Tools > Infrared Utility.

Definitions

Ifir file

A .ifr file contains the encoded infrared data for the commands for a specific appliance. For example, a TV file may have On/OFF, Channel 1, Channel 2, Mute, etc.. Each command in the ifr file can be assigned as an IR Transmit code and downloaded to Comfort via Configurator to be sent to any output using action 129.

The commands in an ifr file can be learned with the infrared learner software.

The .ifr files are contained in the ifr sub directory in the Configurator directory.

Specification

Infrared Carrier Frequency: 35 kHz to 50 kHz

Learning distance: 5 to 10 cm.

Angle for reception: +/- 25 degrees

Encoding: ifr format

Limitations and Disclaimer

Some infrared signals cannot be captured or encoded by the software algorithm or used by Comfort because of limitations in the encoding system. The IR learner captures and encodes the IR signals, while Comfort decodes the encoded signals to transmit from any programmed output. The process of encoding and decoding will introduce errors between the reconstructed signal and the original signal. This works well in the majority of remote control signals tested, but not for all possible remote controls.

Cytech Technology makes no claim about the efficacy of this device or software to capture, encode or transmit any specific Infrared signal.

Operation

Run the infrared learning program by double-clicking on infrared.exe or from Configurator > Tools > Infrared Utility.

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The opening screen is shown below:

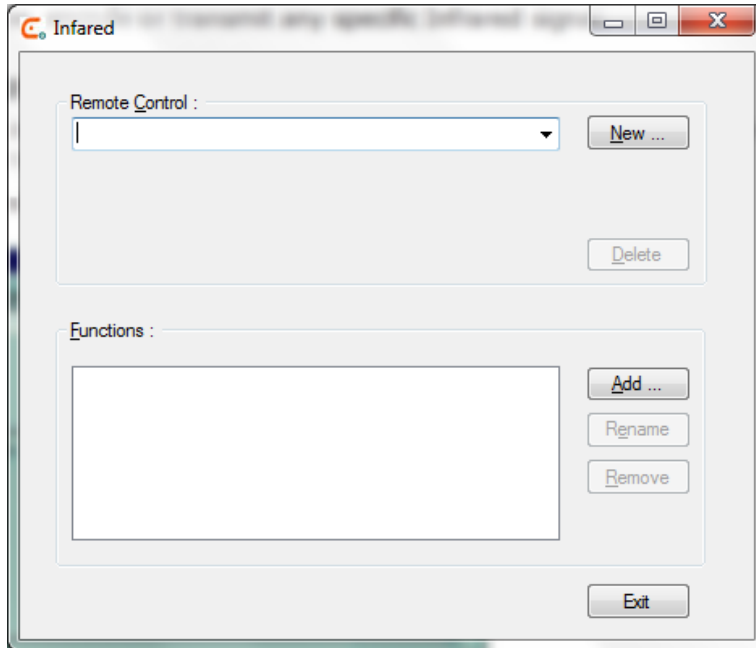


Figure 5.1 - IR Learning Tool

To start learning IR signals for a new device which is not in the IR code library (in the ifr sub directory), press New... You will be asked for the Brand, Device and Model number as in the screen below;



Figure 5.2 - New Remote Control Dialog

Press OK to confirm. This defines the filename for the ifr file which is to be generated. You can now start to learn new functions using the remote control.

To add new IR codes for devices currently in the ifr directory click on the arrow to the side of the window and select from the dropdown list of appliances shown.

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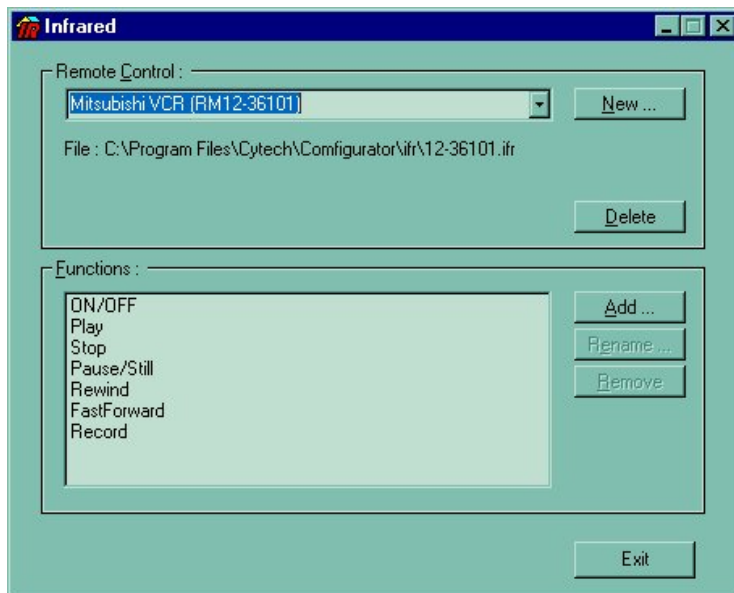


Figure 5.3 - IR Commands

The above screen example for Mitsubishi VCR shows the learned commands for this device in the bottom screen.

Rename

You can rename the function by selecting it with the cursor and pressing the Rename button.

Remove

You can delete the function by selecting it and pressing the Remove button.

Add

To learn a new infrared code, click on the Add... button

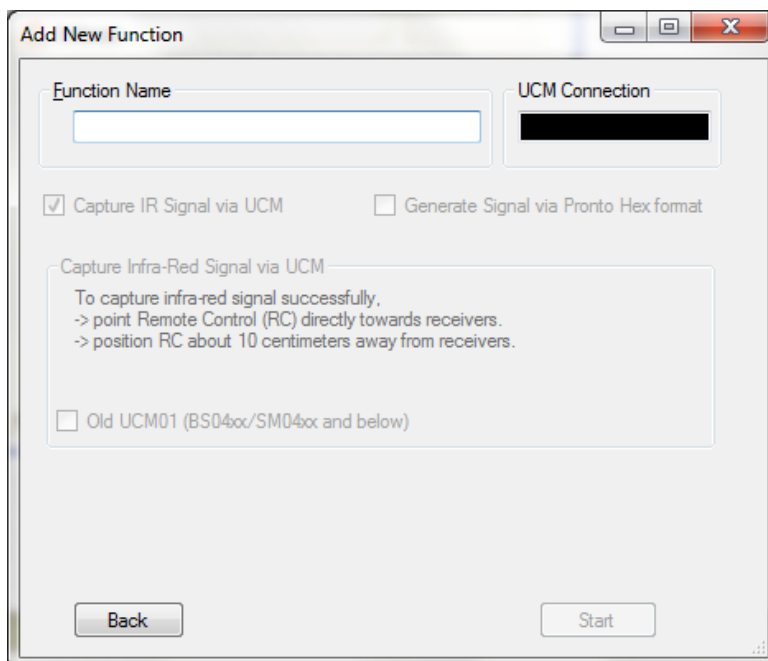


Figure 5.4 - IR Add New Command

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Enter the Function Name for the command, e.g. Play, Stop, On, Off etc.. The UCM Connection field will be taken from Configurator's UCM Connection setting i.e. it will show Serial (with its COM port number), USB (with USB serial number) or Network (with the IP address) depending on what kind of UCM is connected.

Click on "Start" to start the capture.

Always use new batteries on the remote control, as this gives the best chance of successfully capturing the signal.

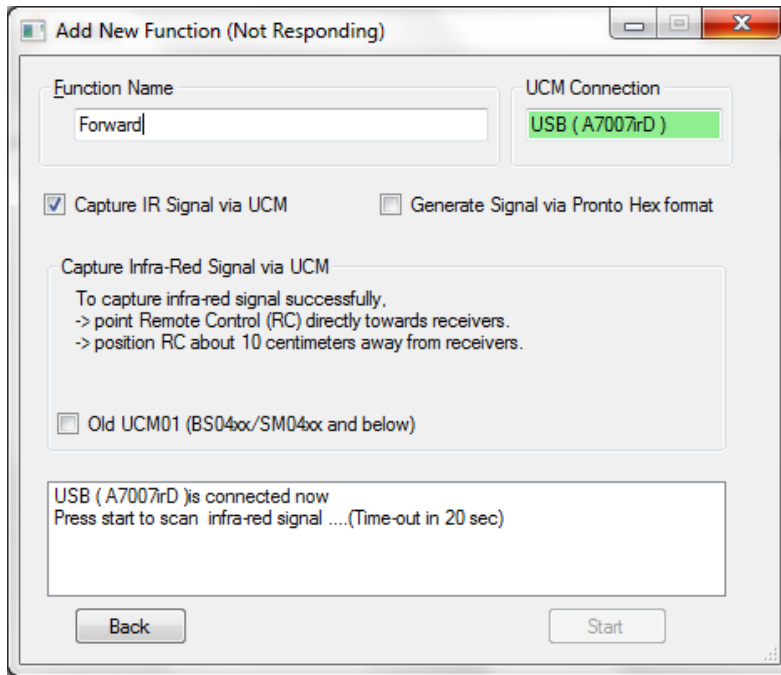


Figure 5.5 - IR Capture

When the screen above appears, point the remote control directly at the IR receiver LEDs U8 and U9 about **5 to 10 cm away**. **Do not place the remote control too close to the UCM board because the exact location of infrared transmitting LED of the remote control behind the lens may not be known.** Press and release the button on the remote control which is to be learned. Do not keep pressing the button unless it is required, e.g. for dimming lights.

The BUSY1 Red LED should turn on when the UCM is ready to learn and infrared signal. If the BUSY1 LED is not on, Click Back and try again.

If a valid infrared signal is not received within 20 seconds, the screen will time-out.

If the capture is complete, the BUSY2 Red LED will blink, followed by the D12 Red LED (to indicate that the information was sent to Configurator) and the following screen will appear.

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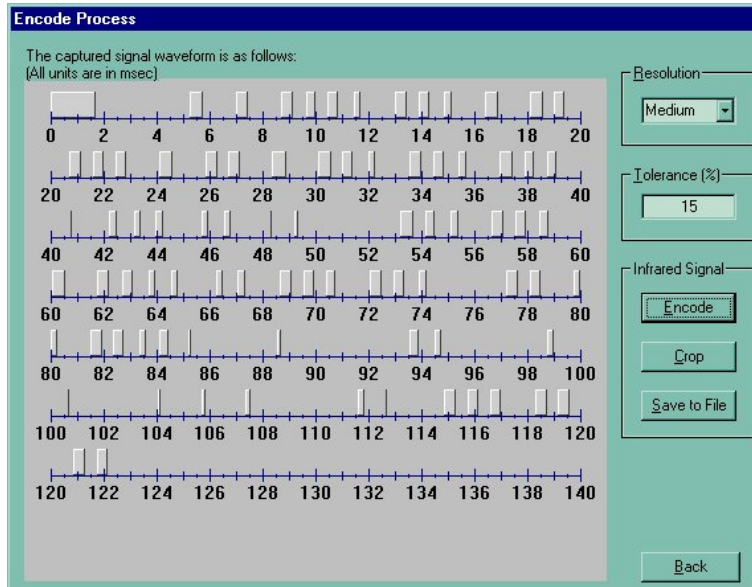


Figure 5.6 - IR Captured Waveform

This shows the waveform of the captured IR code. The numbers on the horizontal scale show the time in milliseconds.

Resolution

The Resolution window on the top right allows you to specify different scales to observe the infrared signal. The selection does not change the signal in any way, just the magnification of the signal on the screen.

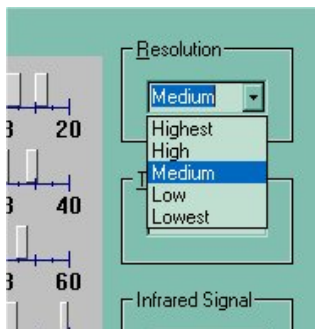


Figure 5.7 - Waveform Resolution

Tolerance

The Tolerance window allows you to specify the tolerance which the encoding algorithm uses. The IR signal is encoded in the Comfort ifr format, so that the space required in Comfort's memory is minimized. In encoding the signal using the IR learner and decoding the encoded code in Comfort, there will be differences between the original IR signal and the reconstructed signal transmitted from Comfort. These differences are in the length of the pulses and the gaps in the captured waveforms as well as the carrier frequency. Specifying a larger tolerance may allow the algorithm to encode the signal more efficiently, resulting in fewer bytes required for the signal. Comfort imposes a limit on the size of the encoded IR signal due to memory limitations. For Comfort II ULTRA firmware the limit is 4096 bytes while for OPTIMUM firmware, the limit is 540 bytes. Specifying a larger tolerance may result in a code which

Universal Communications Module

is less than the limit allowed. However, applying too large a tolerance could result in incorrect encoding of the signal.

Encode

Press the ENCODE button to initiate the encoding process. The screen below shows a typical result;

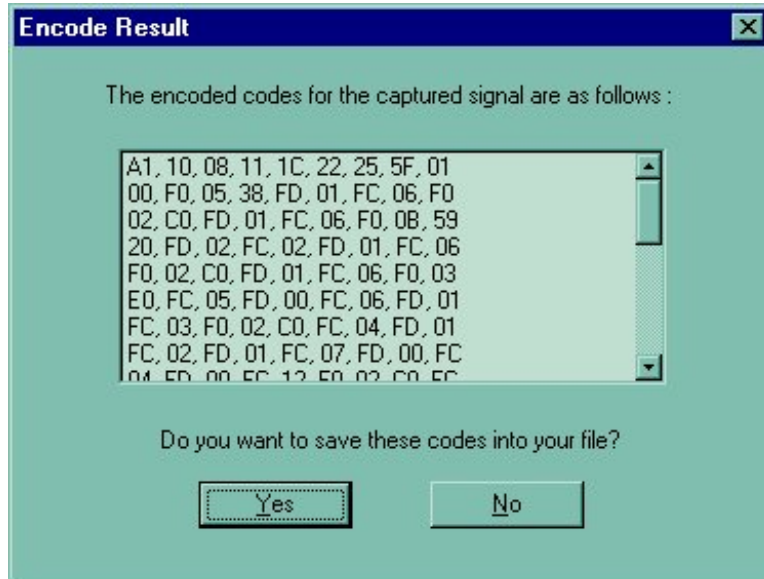


Figure 5.8 - IR Encoding Screen

The number of encoded bytes is shown at the end of the data in the above window. To save the code into the .ifr file, click on the YES button. The encoded data is saved as an ifr file. The filename is automatically generated from the equipment type, manufacturer, and model number which were entered earlier.

Clicking on the NO button will return to the previous screen where a different tolerance can be specified.

Crop

The Crop button on the waveform display screen allows you to delete the last part of the signal in order to achieve a code size within the limit. Some IR codes have single or repeated pulses at the end of the signal which may not be needed to achieve the function. The presence of these pulses defeats the algorithm which looks for repetitions of patterns in the signal. If a pattern is repeated in the signal, but followed by some pulses which are part of the pattern, then the entire signal cannot be coded as a repetition. To crop a signal, click on the point in the signal after which the signal is to be cropped. The remaining part of the signal before the cursor will be acted upon by the encoding algorithm.

Save To File

This button saves the waveform in .raw format. This file can then be sent to Cytech Technology (email: support@cytech.biz with full details) for analysis in case of problems with encoding. **This does not save the encoded file in the .ifr format.**

Infrared Learning Errors

“Infrared Signal is too long”

If this message appears **before** the remote control button is pressed during learning, it means that random IR signals are being received. This could be due to certain types of fluorescent lights. Try again with the lights off or in another room.

If the error message is seen after the infrared signal is sent, it means that the signal being learned is too long for the system to encode, probably because it has an unusual format.

This may also be caused by pressing and holding the remote control button. Try again after clicking the “Start” button, by pressing and releasing the button. Note that a small percentage of infrared signals are really too long to be learned by the UCM. The UCM is not able to encode all types of remote controls.

“Erroneous signal or Out of Frequency Range Detected”

This message may be received if the remote control is not pointed directly at the receivers or is too far away. The remote control should be pointed directly at the infrared receivers U8 and U9 at a distance of 5 to 10 cm away.

Some remote controls operate outside the frequency range of 35 to 50 kHz in which the receiver can not detect. Such infrared signals cannot be learned by the UCM.

“Error Encountered during Encoding - Exceeded Bytes”

This message is received when the infrared signal is not one of the known formats which requires too many bytes to encode. Such infrared signals cannot be learned by the UCM.

Problems with Learned IR Codes

Sometimes, the infrared signals can be captured and encoded successfully, but when transmitted through an Infrared transmitter LED connected to an output, it does not activate the device. The possible causes and solutions are:

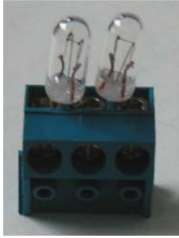
Encoding Errors

The UCM may encode the signal incorrectly if the remote control is not pointed correctly at the receivers. The remote control should be pointed directly at the infrared receivers U8 and U9 at a distance of 5 to 10 cm away. The remote control should not be too close to the receivers because the actual location of the transmitter LED behind the infrared lens is not known. The transmitter may not be at the center of the lens so it may be pointing at the wrong angle. Positioning the remote control 5 to 10 cm away will reduce the effect of the uncertainty of the location of the transmitter.

Programming Errors

The infrared code is sent to any output using Action 129 (or using the Response Wizard in Comfigurator). Check that the correct infrared code number is sent to the designated output. A useful diagnostic tool is to plug in a Test Lamp terminal Block into the output header.

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This consists of two 12V DC lamps which light up when the output is turned on. When an infrared signal is sent to the output, the lamp will briefly blink. It should not be permanently turned on. This shows that the output is receiving an infrared signal, but it does not mean that the IR signal is the correct one. A useful tool in any installation where infrared transmission is needed is a long length of wire, about 30 meters with an IRM01 transmitter on one end and a terminal block on the other. This can be quickly connected to any output and the transmitter pointed at the appliance to operate it. This will show if the programming is correct.

Wiring Errors

The most common cause of infrared signals not working is wiring errors. The infrared IRM01 transmitter may not be connected to the designated output, or the polarity of the IRM01 may be reversed. Use the long length of wire with IRM01 at one end and a terminal block at the other to determine if the programming is correct or the wiring is correct.

SECTION 6 AUD01 AUDIO MODULE

Connections

- JP101 (VOICE/MIC): Connected to KP VOICE and MIC from Comfort Main Board.
- JP102 (OUT/GND/IN): OUT is to be connected to the PC LINE IN or to a Speaker with built-in amplifier. This is the same signal as in PJ102. IN is to be connected from the Line OUT jack of a PC.
- PJ101 Audio socket: This is for connection to a dynamic microphone of the type used in PCs. Use a 3.5 mm mono audio jack. This path has a higher amplification than the JP102 IN connector. LINE OUT from a PC can be connected to this jack, but VR102 must be tuned to reduce the gain.
- PJ102 Audio socket: This is to be connected to the PC LINE IN or to a Speaker with built-in amplifier. Use a 3.5 mm mono audio jack. This is the same signal as in JP102 OUT.
- J103: un-shunt if audio socket PJ101 is used (default); shunted if JP102's IN is used.

Adjustments

- VR101 (VOICE): This adjusts the volume of the Voice signal to the speaker or PC LINE IN
- VR102 (MIC): This adjusts the gain of the Microphone Input signal from PJ101 or the PC LINE IN signal from JP102
- J102: Inserting a shunt increases the gain of the speaker amplifier to make it louder.

Operation with Wizcomfort 2.0

Wizcomfort is being completely redesigned and will be released in 2011.

SECTION 7 FIRMWARE UPGRADING

Upgrading Firmware

The purpose of Upgrading firmware is to fix bugs in existing firmware or to add new features. Installed firmware need not be upgraded unless the operation is affected by prevailing bugs or the new features introduced by the new firmware are required. For new Installations, it is recommended that firmware be upgraded to the latest version before testing and commissioning of the system. The latest firmware with extensions .cbf can be downloaded from <http://www.cyttech.biz/firmware.html> The firmware history documentation can be found on the Comfort forums at <http://www.comfortforums.com/forum60/>

There are 3 ways of upgrading firmware;

- 1 By UCM Programming Cable connected from UCM to Module to be upgraded
- 2 By Direct connection to PC
- 3 For Module connected to Comfort Bus

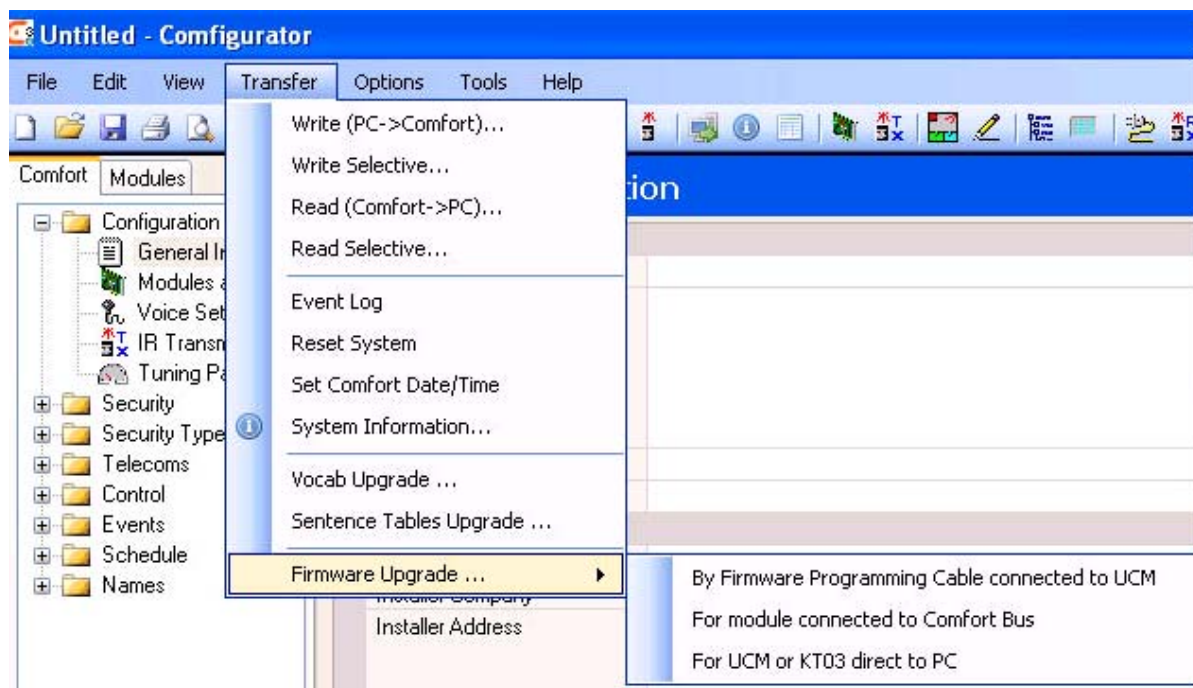


Figure 7.1 Firmware Upgrading Selection

Upgradeable by UCM Programming Cable

- 1 Comfort II versions 5.100 and above
- 2 SEM II versions 5.100 and above
- 3 UCM - versions 5.100 and above. **Note that you need a UCM to upgrade another UCM.**
- 4 Other UCM EIB, KNX, Z-wave, Velbus, CBUS, GSM, CWM 5.100 and above
- 5 MPU01 Firmware 5.100 and above

📢 UCM 5.178 is the minimum UCM firmware required to do the upgrade. Configurator Minimum version 3.1.0 and above is needed. Configurator 3.3.1 is recommended

Requires MPU01 Plug-in Upgrade

- 1 Comfort II firmware < 5.100

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- 2 SEM II firmware < 5.100

MPU plug in with firmware > 5.100 will allow future firmware upgrades by UCM, hence all Comfort II products can be upgraded.

Requires Upgrade U1 IC

- 1 Comfort I, SEM 1, UCM01. Upgrading by Configurator is NOT possible for these products.

Upgradeable by Direct Connection to PC

- 1 UCM/232, UCM/USB, UCM/Ethernet with firmware 6.xxx
- 2 KT03 with firmware 2.xxx

Upgradeable by Comfort Bus

- 1 UCM/KNX, UCM/Cbus, UCM/Zwave, UCM/GSM, UCM/Velbus, UCM/Universal, SEM, with firmware 6.xxx and other “external” UCMs that are not connected to a PC, but to external devices. All version of KP06 firmware are Upgradeable by Comfort Bus.
- 2 Comfort firmware 6.xxx
- 3 Slave firmware 6.xxx
- 4 KP06 - all firmware versions

Minimum firmware of the UCM connected to the PC which is doing the upgrade is UCM 6.008, and the minimum firmware of Comfort in the system to be upgraded is 6.005

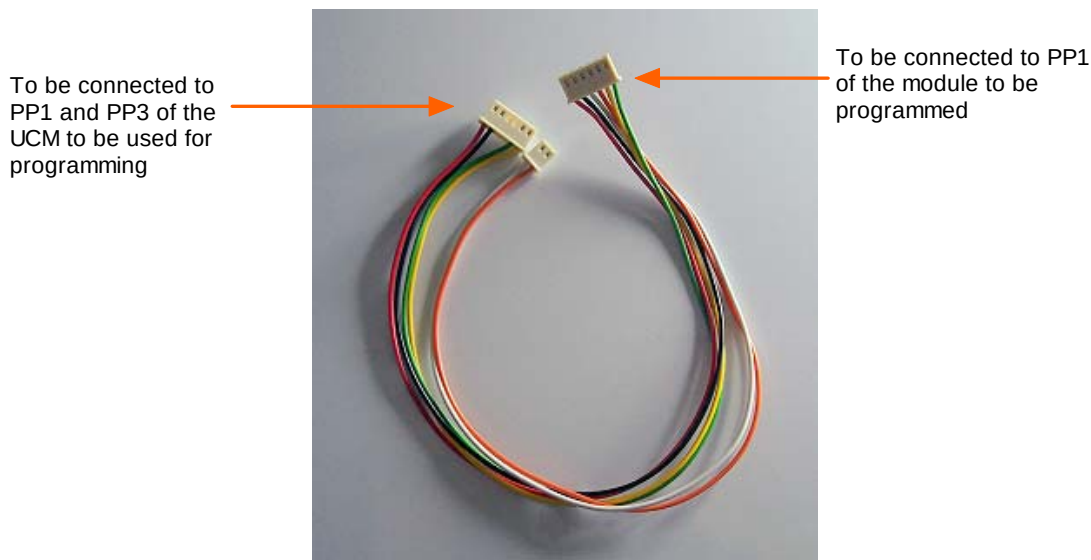


Figure 7.2 - UCM Programming Cable

Firmware Upgrading by UCM Programming Cable

The Flash-based UCM allows its firmware to be upgraded using Configurator 3.1.0 and above. The UCM with RS232, USB or Ethernet is the means by which firmware upgrading of other flash-based Comfort modules is accomplished. In order to upgrade the firmware of the UCM another UCM is needed. The UCM cannot upgrade its own firmware. The minimum UCM firmware version which supports firmware upgrade is UCM 5.178. **DO NOT attempt to upgrade firmware using a UCM with firmware less than 5.178.** If there are 2

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UCMs available, the one can be used to upgrade the other to the latest firmware.

The UCM Programming cable shown below is supplied with the UCM. The following shows what products can be upgraded using the UCM.

The UCM/ETH02 can also be used to upgrade firmware, as long as the programming cable can be connected to the device being upgraded.

Connections

- 1 **Warning - it is recommended that you do NOT attempt this unless you have read this procedure thoroughly as it could result in the system becoming in-operational.**
- 2 **Note that this programming cable should be connected to Comfort or other Flash-based modules ONLY during firmware upgrading. It should not be left connected to the target in normal operations as it will disable the module which is connected. It can be left connected to the UCM used for programming with the other end unconnected, without any ill effects.**
- 3 The end of the programming cable with two connectors is to be connected to the UCM/232 or UCM/USB to be used for programming, and the end with a single 6 way connector is connected to the module (Flash version whose firmware is to be upgraded).
- 4 **Shunt PP2 on the module to be upgraded only, not on the UCM or other modules**, and connect the programming cable (with 6 cables end) to PP1.
- 5 Connect the other ends of the cable to the UCM/232 or UCM/USB that is used for programming to PP1 (4 way) and PP3 (2 way).
- 6 For the module to be programmed, ignore the RS485 ID settings, **and disconnect the module from the Comfort RS485 Bus, unless the module to be programmed is the Comfort main board.**
- 7 Disconnect the Siren from Comfort as it may sound during the Firmware upgrade. The keypads and door stations can be disconnected, as they will beep during the process but this is not required.
- 8 Power up Comfort.
- 9 While the UCM/232 or UCM/USB is connected to the module to be programmed, and the firmware upgrade is proceeding, the Comfort RS485 Bus will not be able to communicate with Comfort and other modules, so there will be Communications Failure with resulting beeps on keypads. Turn down the volume on keypads if necessary.

Procedure

- 1 Run the Configurator software 3.3.3 or above. Ensure that the right connection setting is set. Go to the Transfer Menu and select "Firmware Upgrade...".
- 2 Next, Configurator will prompt for the file to be downloaded. Navigate to the correct firmware file and select it and click "Open". Note that only the same firmware type can be upgraded to any module. For example you can only upgrade a Comfort Ultra with Comfort Ultra firmware, UCM/232 with UCM/232 firmware, UCM/CBUS with UCM/CBus firmware and so on. The UCM will reject any attempt to upgrade a module with different type of firmware with a message "Firmware Type does not match"
- 3 After doing so, Configurator will give a warning prompt, informing users that the firmware version will be upgraded. If the firmware file selected

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belongs to a different type of module, the upgrade will be rejected, Click on "OK" to proceed with the firmware upgrade.

- 4 There will be a progress bar showing the percentage completion. If there is an error during the upgrade, repeat the process.
- 5 After the firmware upgrade has completed, disconnect the UCM programming cable. Disconnect the UCM from the system. Remove the shunt PP2 on the newly programmed module and reset the unit.

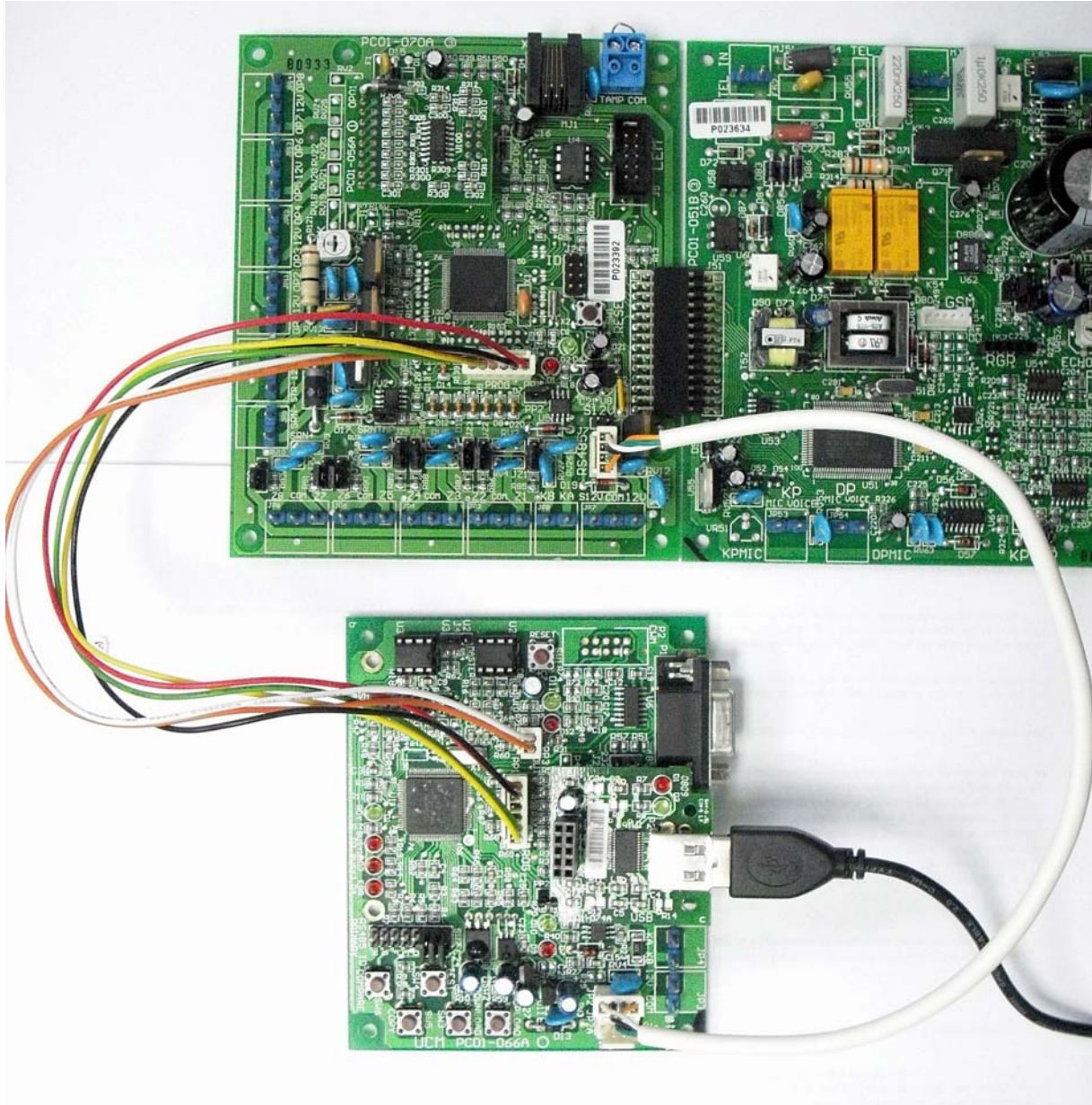


Figure 7.3 - Firmware Upgrade of Comfort

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Note that PP2 on Comfort is shunted. It should be removed after Firmware upgrade.

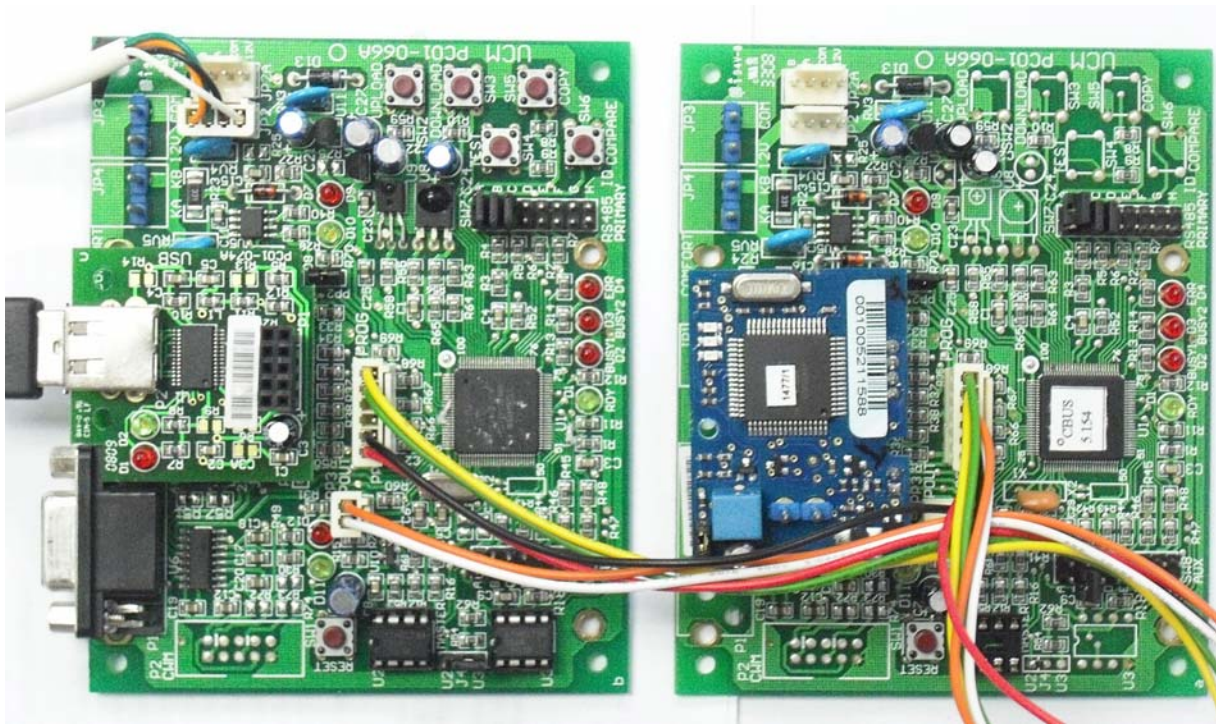


Figure 7.4 - Firmware Upgrade of UCMs

Note that PP2 on the UCM being programmed is shunted. It should be removed after Firmware upgrade.

Firmware Upgrade by Direct Connection to PC

UCM 6.xxx or KT03 2.xxx firmware is required for this procedure.

- 1 Connect the UCM or KT03 to the computer in the usual way and select the Connection Method under Options > Settings > UCM Connection. Note that the UCM or KT03 which is specified in UCM Connection will be upgraded.
- 2 The PP2 shunt need not be inserted. Remove the shunt from PP2.
- 3 Go To Transfer > Firmware Upgrade
- 4 Select the last option "UCM or KT03 connected to PC" This means that you are upgrading the UCM which is connected to the PC now, i.e. selected in Options > Settings > UCM Connection.
- 5 select the cbf firmware file to upgrade the UCM with. For testing purposes you can select the same UCM cbf file which is installed in the UCM.
- 6 Press F0 on the keypad. This is an added security feature, because firmware can be upgraded from the Internet with the UCM/Ethernet with port forwarding.
- 7 Configurator will confirm the firmware version of the selected file and start the upgrade process.
- 8 **DO NOT reset the UCM or Comfort or interrupt the communications in any way during this process which takes less than 1 minute. Do NOT unplug power from the UCM or reset the UCM, as this will prevent the UCM firmware upgrade from continuing.**
- 9 **If the upgrade fails for any reason like Configurator crashing, or any error message, DO NOT reset the UCM or unplug power from the UCM. Repeat the upgrade firmware procedure immediately.**

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- 10 The progress bar for the process will be seen. There will be a second progress bar lasting only a few seconds
- 11 After the upgrade completes, and the progress bar disappears, the firmware will be upgraded. You can login to the UCM immediately
- 12 In case the UCM does not reset automatically after the upgrade completes successfully, (i.e. it does not respond to commands) just reset it manually.
- 13 However do not reset the UCM if there is an Error message which terminated the upgrade, see above point 9.

☎ If the firmware upgrade fails and cannot be recovered even after the above, you will need another UCM to upgrade firmware using the old programming cable method

Upgrading Firmware by Connection to Comfort Bus

Note the minimum firmware version requirements for this upgrade listed above

- 1 It is NOT necessary to shunt PP2 for this procedure.
- 2 In Comfigurator, go to Options > Connections > UCM Connection and select USB, Serial or Ethernet then the port to connect to the UCM doing the upgrade.
- 3 Go to Transfer > Firmware Upgrade and select "For Module Connected to Comfort Bus"
- 4 Enter your user code in the pop-up window when asked
- 5 Comfigurator will scan the modules and discover which modules can be upgraded by Bus (firmware 6.000 and above). a window will open as shown below



- 6 Select the module to upgrade and press OK
- 7 You will have to press F0 on any keypad before you can upgrade the firmware. If not Comfigurator will prompt you to press F0
- 8 A window will open for file selection. Browse to the folder with the cbf firmware file. The latest firmware upgrade files can be downloaded from <http://www.cytech.biz/firmware.html>
- 9 When the file is selected the firmware upgrade will start. A progress bar will appear showing the progress of the upgrade. There will be 2 stages of firmware upgrading. Do not interrupt the firmware upgrading at any point.
- 10 The time taken to upgrade firmware depends on the size of the file. Comfort firmware upgrade will take 10 to 15 minutes, and UCMs and slaves will take just a few minutes. Do not attempt to operate Comfort during this time.
- 11 If the firmware upgrading is interrupted for any reason by an error message or program or PC crash, just repeat the procedure.
- 12 DO NOT RESET or remove power from Comfort or the module being upgraded, otherwise the firmware will be corrupted and will need to be

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upgraded using the UCM programming cable. Always repeat the firmware upgrade immediately if there is a problem.

- 13 When the firmware upgrade has been completed without errors, the module is ready for use.

SECTION 8 VOCABULARY UPGRADING

Comfort's voice menu or vocabulary can be upgraded using the UCM/232, USB or Ethernet. This can be used to change to a new wordlist or vocabulary to support new sentences and features in Comfort, to change to another language, or to restore the voice if it is corrupted for any reason.

The process takes more than 20 minutes. The VPG02 Voice programmer Module is available for upgrading the voice in Comfort for those who need to change the voice regularly. The VPG02 requires only 5 minutes to upgrade the voice.

- 📞 You should NOT attempt this unless you have read this procedure thoroughly as it could result in the system becoming in-operational.**
- 📞 Upgrading the vocabulary will ERASE all recorded messages - Incoming, Greeting, Names, Reminder, and the common alarm message. These must be re-recorded after the vocabulary upgrade.**

Requirements

- The UCM/232 with RS232, USB or Ethernet is required, with Firmware 5.156 or above
- The UCM Programming Cable should NOT be connected. This is only for Firmware programming.

Operation

1. Connect the UCM to the computer in the normal way (by RS232, USB or Ethernet depending on the type of UCM).
2. Go to Transfer > Vocab Upgrade..
3. Select the vocabulary file. This has an extension of .bin, for example Myma34.bin is the file for the English voice "Myma" version 34. The English vocabulary file may be downloaded from <http://www.cytech.biz/vocabulary.html>
4. Press OK when the file has been selected. The Transfer process is marked by a progress bar. The whole process takes more than 20 minutes. Make sure that the computer does not go into standby state due to no keyboard activity, otherwise that may interrupt the transfer.
5. If the Vocab upgrade is interrupted or failed for any reason. Do not panic. Start the whole process again and wait patiently. **DO NOT ATTEMPT a firmware upgrade if the vocabulary upgrade fails as this has nothing to do with the vocabulary.**

Version History

See <http://www.comfortforums.com/forum81/> for the UCM firmware history.

Manual Revision History

3.6.6 (21 August 2012)

- 1 Removed UCM/ETH01 references. UCM/ETH01 has its own manual.

3.6.5 (3 July 2012)

- 1 Update operation for Configurator 3.5.0
- 2 SW8-G NOT to be shunted for STX/ETX as the feature will be removed
- 3 UPLOAD, TEST, COPY buttons are not used. U3 socket is removed.

3.6.2 (20 November 2011)

- 1 Updated UCM/ETH02, DS Explorer firmware upgrade

3.6.1 (24 August 2011)

- 1 Added instructions for Firmware upgrade - 3 types
- 2 Instructions to delete the old USB Driver for UCM/USB
- 3 IR Learning - Note about Busy1 LED should be on.
- 4 Firmware History link to Forum

3.5.6 (27 April 2011)

- 1 Added description of the new Ethernet module (ETH02)
- 2 Introduce the use of Device Explorer software for ETH02
- 3 Remove the VSP software description

3.5.5 (14 November 2010)

- 1 Amended USB Driver Installation
- 2 Added UCM/232M, RS232/F and RS232/M

3.5.3 (17 March 2010)

- 1 Removed reference to UCM05. Replaced photos with illustrations

3.5.2 (6 November 2009)

- 1 Added USB Driver Installation instructions.

3.5.1 (17 October 2009)

- 1 Corrected the VSP software setting i.e. Connection mode should be 'Immediately', not 'On data'.
- 2 Added Vocabulary Upgrade Section
- 3 Added Min UCM05 firmware 5.178 requirement for Firmware Upgrade
- 4 Added warning that Vocab Upgrade will erase all messages
- 5 Added pictures of Upgrading Comfort and UCM

3.4.7 (4 August 2009)

Added description for VSP software used with UCM/ETH and general Update

3.4.5 (1 May 2009)

Added new UCM/USB. Rearranged chapters and content

3.4.3 (21 February 2009)

Added more comments about UCM firmware suitable for Firmware upgrading.
Firmware UCM 5.178

3.4.2 (27 December 2008)

Updated Firmware history. Added note on Copy, Download/ Upload. Test buttons about Busy1 and Busy2 leds and to switch off power after changing J4 shunt

3.4.1 (22 October 2008)

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Added warning about not connecting Firmware Programming cable in normal operation. Added instruction on Getting Started on Ethernet to shunt SW8-F and remove SW8-G and H Improved Firmware Upgrade instructions

3.3.9 (25 July 2008)

Updated UCM/ETH02 of firmware and software revisions and DS Manager settings. Added warning that ETH01 plug-in cannot be used for old UCM01

3.3.6 (5 March 2008)

Flow control in Configurator and Hyperterminal should be set to NONE

3.3.4 (10 January 2008)

Changed connection to Comfort from J15 to J7 (Comfort II)

3.3.3 (23 September 2007)

Added instructions for UCM 5.156 and warning about resetting UCM

3.3.0 (12 July 2007)

Applies to Flash-based UCM. Added Chapter 8 on Firmware download

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.

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web site: <http://www.cytech.biz>
E-mail: support@cytech.biz
User Group/Tech Support: <http://www.comfortforums.com>