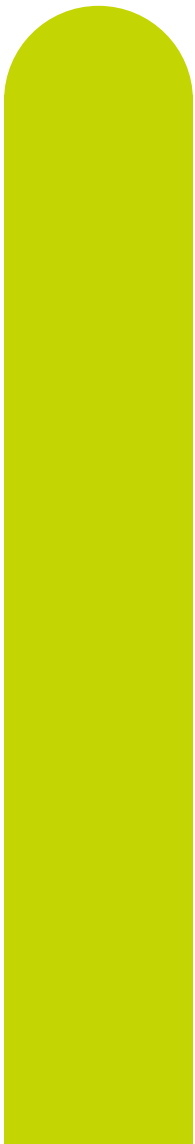
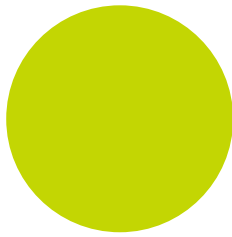


invenSYS  
Eurotherm



**USB CPI CLIP**

# User Manual

HA031522/1

May 2013

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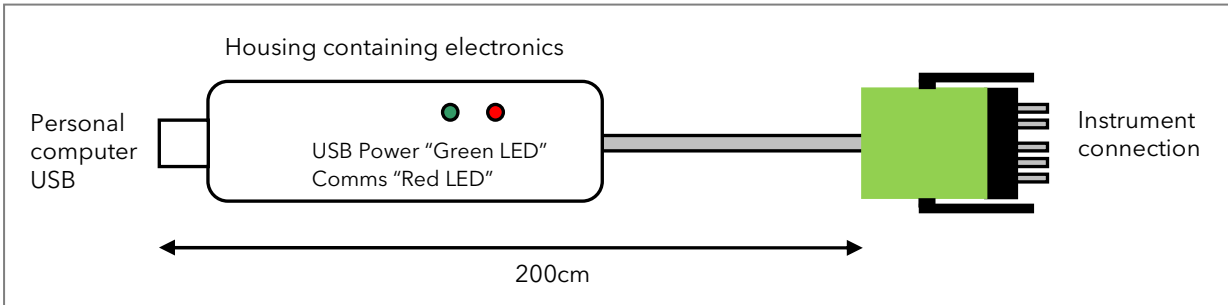
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**USB CPI Clip**  
**User Manual Part Number HA031522 Issue 1 May -2013**

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# 1. Description

The CPI clip allows configuration and back up of Eurotherm 3000, piccolo and nanodac series of panel mounted instruments and mini8 rack mounted controller. It supplies power to the instrument derived from the USB port of the host computer so that it can be used without the need for a power connection.



It designed to clip into the side of a controller or indicator as shown or into the back of a mini8 controller.

For panel mounted instruments, the cable can be used with the instrument powered or un-powered and with the instrument mounted or un-mounted in its sleeve. The benefit of using this arrangement is that an instrument can be un-plugged from the panel in which it is normally operated and re-configured on a bench without the necessity to provide either a spare sleeve or external power.

When used with the Mini8 multi loop control system it is necessary to power the Mini8 unit since the current requirements are greater than that provided by the USB port.

The clip is intended to be used with the Eurotherm configuration package, iTools, or using the firmware upgrade tool. These are described in sections 5 and 6 respectively.

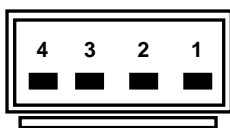


## 1.1 Hardware Features

### Usb Connection

The USB connection is made with a male Type A plug.

#### Pin Functions

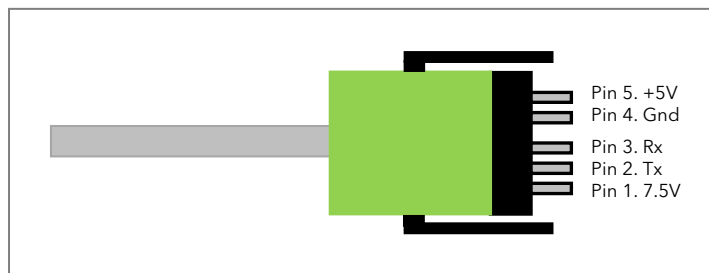


Pin Number	Name	Function
1	Vbus	Power
2	D-	Data -
3	D+	Data +
4	Gnd	Ground

### Instrument connection

The cable connects to the instrument by a 5 pin configuration clip with a custom plastic insert and a shell. The pin description is shown below,

1. Provides +7.5V power to the instrument.
2. Comms Tx. (UART driven output from product micro)
3. Comms RX (input to product micro UART receive)
4. Ground power connection.
5. Provides +5V power to the instrument.



## 1.2 Installation

With reference to the picture:

1. The connector can be inserted independently of the device being fitted into its sleeve or not.
2. If the controller/indicator is fitted in a panel, remove it and position it on the bench.
3. Connect the 5-pin connector to the socket on the side of the device. Push the connector in to the stop.
4. Connect the USB connector to the pc which is to be used to install the program.
5. After programming one device it is enough to remove the 5-pin connector and insert it directly into the side of a further device and download the configuration data.

## 1.3 Virtual Comm Port (VCP) Driver

The VCP driver emulates a standard PC serial port such that communications can be made with the USB device as a standard RS232 port. Before the CPI clip can be used, therefore, it is necessary to download the VCP driver. If the operating system on the PC is Windows7 the driver should be recognised when the clip is first connected. In this case it should not be necessary to take any further action.

If the driver is not installed automatically or if the operating system is XP, for example, it is necessary to install the driver manually, see following sections. The driver can be found on the iTools CD or it can be downloaded from [www.eurotherm.co.uk/usbcpi](http://www.eurotherm.co.uk/usbcpi).

During the installation the port is allocated a port number. To inspect the port number after installation go to Ports in the Device Manager, for example, Control Panel → System → Hardware → Device Manager → Ports.

It is possible to re-number the port - double click on 'USB Serial Port (COMX)' to open its properties. In Port Settings → Advanced, the port number can be changed using the drop down box. This may only be required in the unlikely event that a port number greater than 16 has been allocated since iTools defaults to 16 ports. Although it is possible to increase this to 32 in iTools the scan will become slow. It is, therefore, not recommended to make this change.



## 2. VCP Driver Installation under Windows XP

If a device of the same type has been installed on your machine before, and the drivers that are about to be installed are different from those installed already, the original drivers need to be uninstalled. Please refer to the Uninstalling VCP Drivers section of this document for further details of this procedure.

### 2.1 To install the VCP driver under Windows XP

Download the latest available VCP drivers from the iTools CD or from [www.eurotherm.co.uk/usbcpi](http://www.eurotherm.co.uk/usbcpi) and unzip them to a location on your PC.

- Connect the device to a spare USB port on your PC. Windows Found New Hardware Wizard will launch and the screen shown in Figure 2-1 is displayed. Select "No, not this time" from the options available and then click "Next" to proceed with the installation.



Figure 2-1

- Select "Install from a list or specific location (Advanced)" as shown in Figure 2-2 and then click "Next".



Figure 2-2

- Select "Search for the best driver in these locations" and enter the file path in the combo-box (for example, "C:\CDM 2.02.04" in Figure 2-3) or browse to it by clicking the browse button. Once the file path has been entered in the box, click next to proceed.

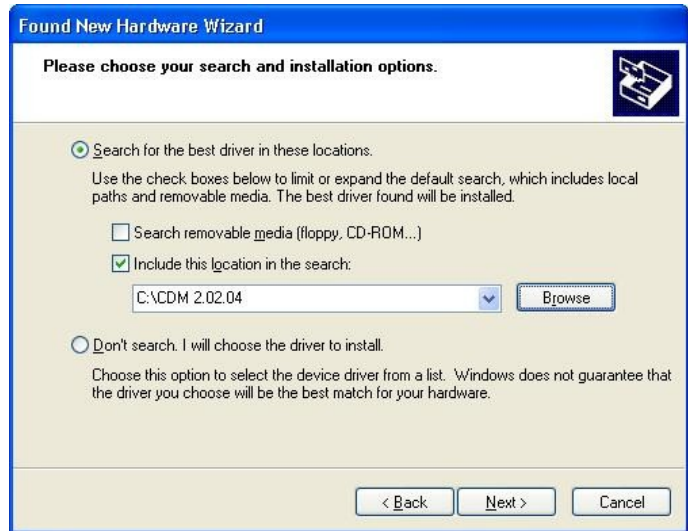


Figure 2-3

- If Windows XP is configured to warn when unsigned (non-WHQL certified) drivers are about to be installed, the message dialogue shown in Figure 2-4 will be displayed. Click on "Continue Anyway" to continue with the installation. If Windows XP is configured to ignore file signature warnings, no message will appear.



Figure 2-4

- The screen shown in Figure 2-5 will be displayed as Windows XP copies the required driver files.



Figure 2-5

- Windows should then display a message indicating that the installation was successful (Figure 2-6). Click "Finish" to complete the installation for the first port of the device.



Figure 2-6

If the device is based on the FT2232, the Found New Hardware Wizard will continue by installing the USB Serial Converter driver for the second port of the FT2232 device. The procedure for installing the second port is identical to that for installing the first port from the first screen of the Found New Hardware Wizard.

## 2.2 To View the Ports Allocated

- Open the Device Manager (located in "Control Panel\System") then select the "Hardware" tab and click "Device Manger") and select "View > Devices by Connection". The device appears as a "USB Serial Converter" with an additional COM port with the label "USB Serial Port" (Figure 2-7). If the device is based on the FT2232, two ports will be available from a composite USB device.

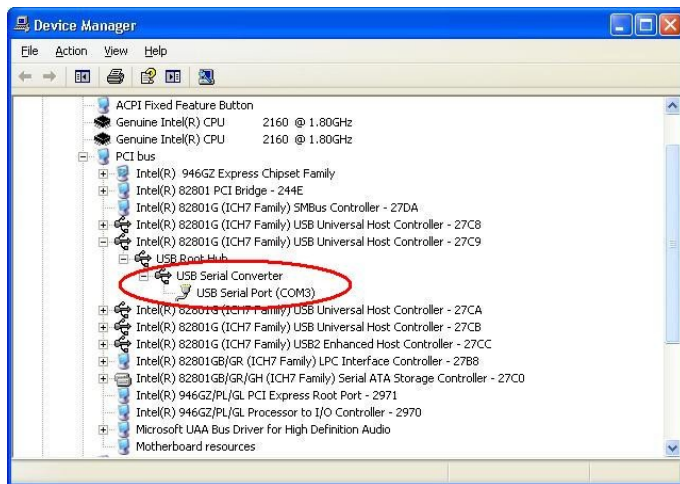


Figure 2-7

- In the case of the FT2232, port A of the FT2232 will be installed as COMX and port B will be installed as COMX+1 where COMX is the first available COM port number.

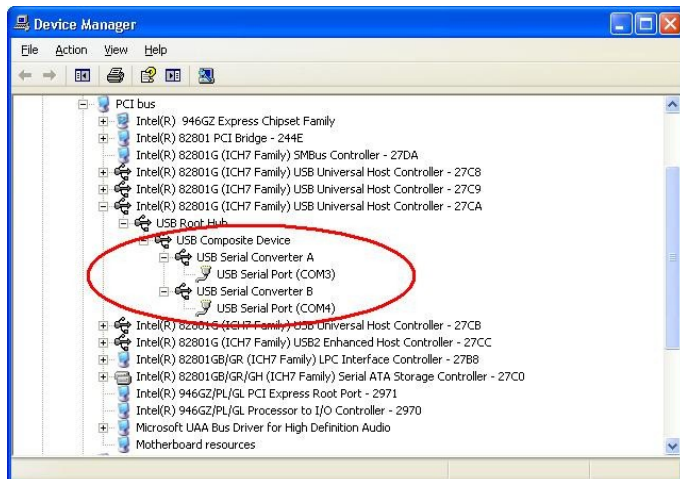


Figure 2-8



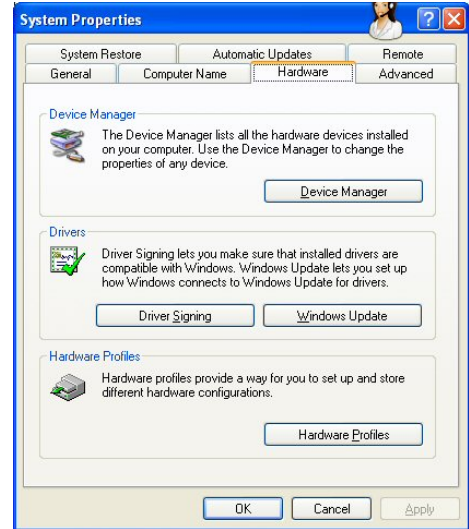
### 3. VCP Driver Installation under Windows 7 x32/x64

Connect the device to a spare USB port on your PC.

With Windows 7, drivers should be installed automatically.

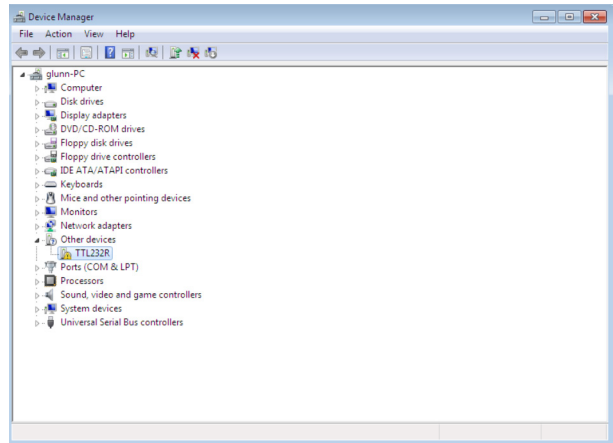
If no suitable driver is automatically found then the following procedure should be followed.

- Press the Windows 'Start' button to bring up the start menu and select "Control Panel".
- From the Control Panel window select System

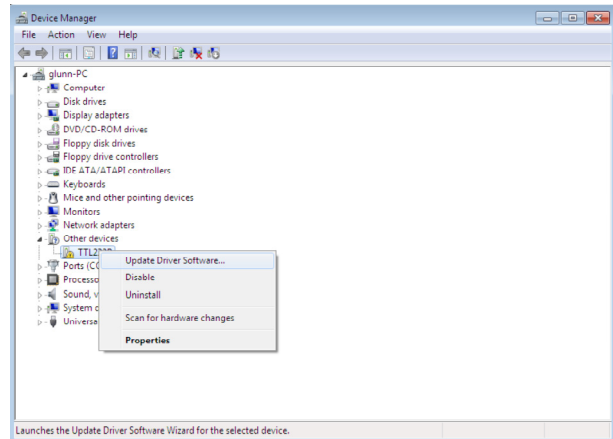


- In the Hardware tab select Device Manager.

- 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 will launch the 'Welcome to the Found New Hardware Wizard' shown in section 2.1.
- Repeat the procedure in section 2.1 to install the driver.



## 4. Uninstalling VCP Drivers

Devices can be removed using the Device Manager by simply right-clicking on the device and selecting "Uninstall". This will delete the associated registry entries for that device only.


Under Windows XP, driver files and OEM INF and PNF files must be removed manually or by using a custom application. OEM INF and PNF files are located in the Windows\Inf directory and can be identified by searching for a VID and PID string matching the device installed e.g. VID\_0403&PID\_6001. Once the matching OEM INF files are found (e.g. oem10.inf for FTDIBUS.INF and oem11.inf for FTDIPOINT.INF), the corresponding PNF files must also be removed (e.g. oem10.pnf and oem11.pnf). Driver files are located in the Windows\System32 and Windows\System32\Drivers directories.

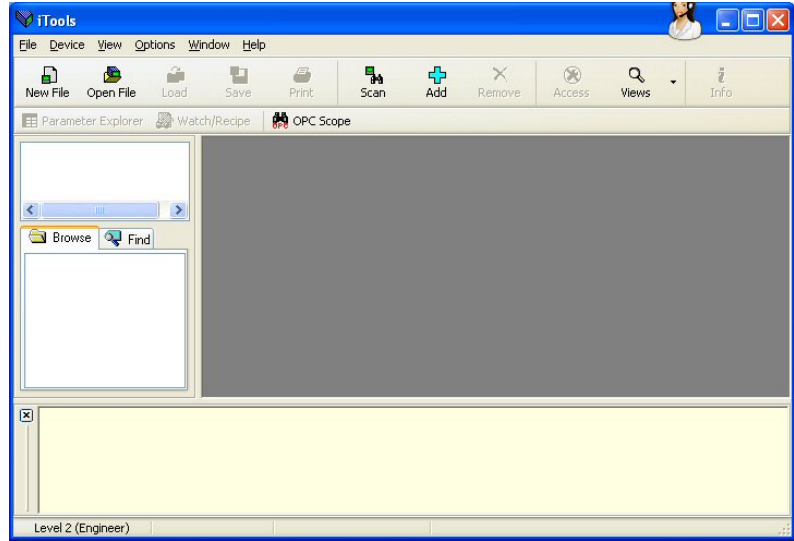
Some points to note about this un-installation method:

- In the case of FT2232 devices, a composite device is also installed. This can also be removed by clicking on the composite device in the Device Manager and selecting "Uninstall".
- If the VCP driver has been installed, the COM port driver should be removed before the bus driver. If the bus is removed first, the COM port will no longer appear in the Device Manager.
- If the driver files are deleted while other installed devices still require them those devices will not work correctly. This can be fixed by right clicking the device and selecting "Reinstall Driver" which will replace the missing files.

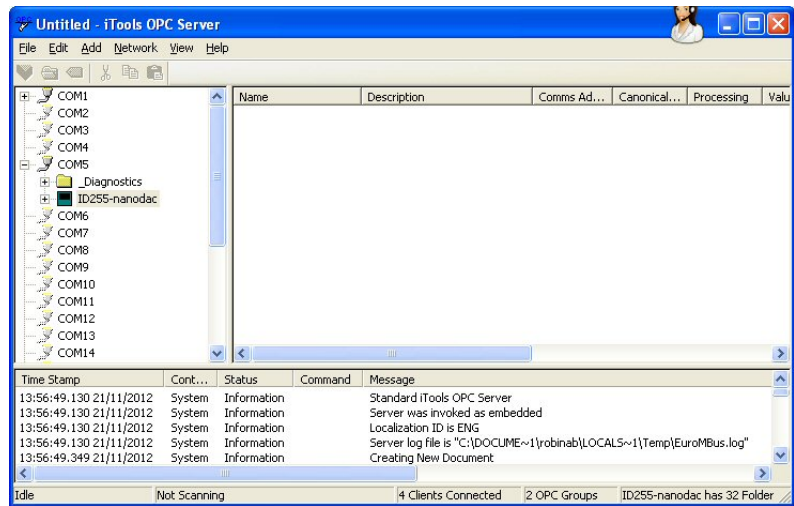
## 5. Using the USB Clip to Configure an Instrument


Instruments are normally configured using iTools. This is a propriety configuration package available from [www.eurotherm.co.uk](http://www.eurotherm.co.uk).

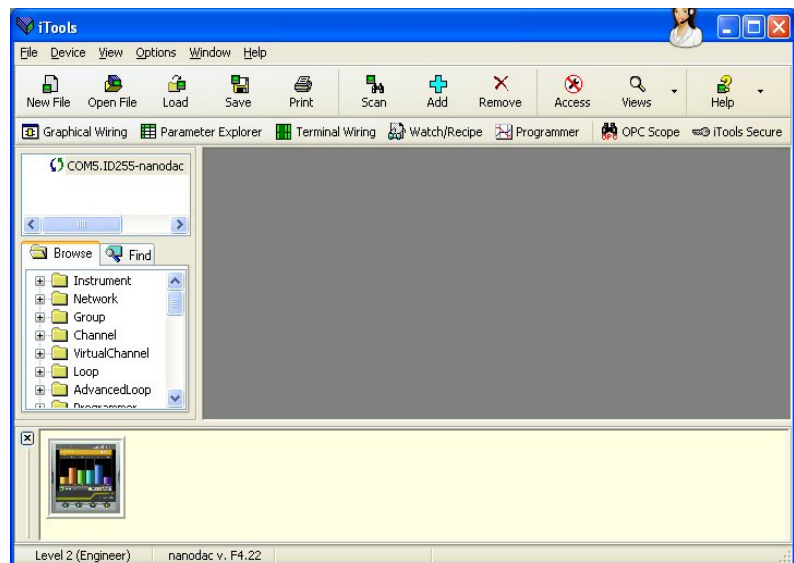
- Open iTools and, with the controller connected using the clip, press  on the iTools menu bar.
- Select 'Connect via CPI clip or IR cable' and press OK.
- You can also select 'Scan all device addresses (255 first, etc)' since controllers connected with the CPI clip, will be found at address 255 regardless of the address configured in the controller.
- iTools will search the communications ports and TCPIP connections for recognisable instruments.



- If the instrument is not found, it may be necessary to enable the port to which the clip is configured.
- In iTools select Options → Advanced → Show Server. Right click the port and select Enable.



- When an instrument is detected a screen view similar to the one shown will be displayed.
- Press  again to stop further scans.
- To configure or clone an instrument please refer to the iTools Help Manual Part Number HA28838 or the relevant instrument manual. These can be downloaded from [www.eurotherm.co.uk](http://www.eurotherm.co.uk).



## 6. Using the USB Clip to Upgrade an Instrument

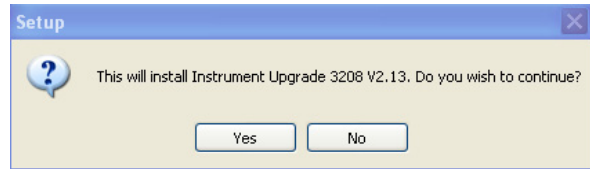
The clip can be used to upgrade the firmware in Eurotherm instruments.

### 6.1 To Install the Upgrade Software

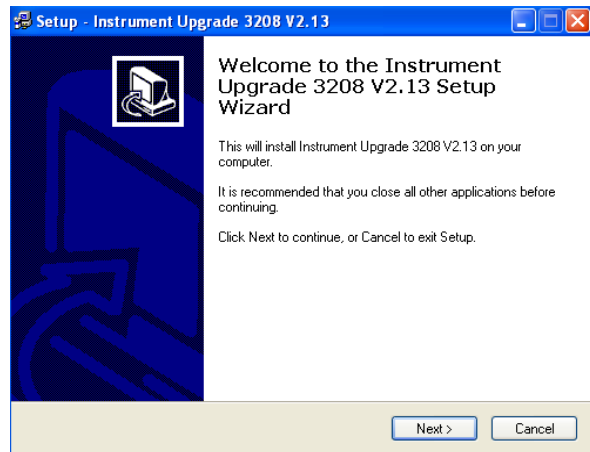
The upgrade software may be available through your sales channel.

For 3200 series instruments, for example, the upgrade file for the standard controller is '3208/3204 Standard Controller Software V2.13' (V2.13 shows the latest firmware version). Save this to a suitable location.

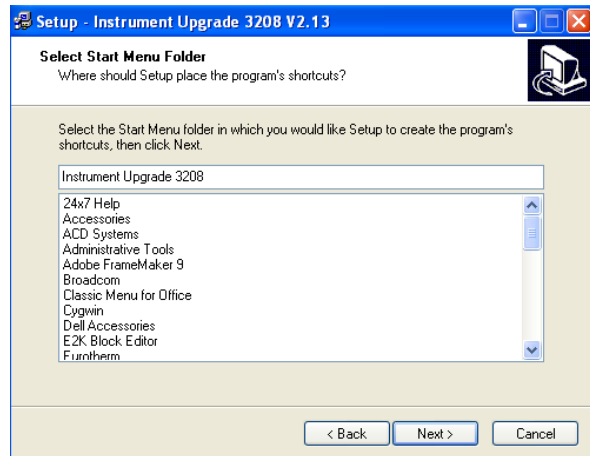
- Run the upgrade software



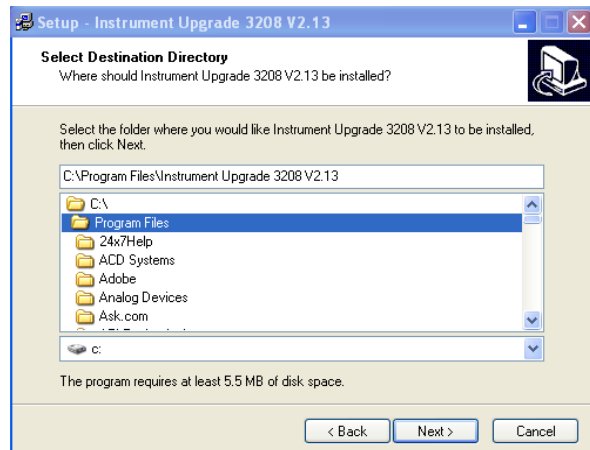
- Press 'Yes'.



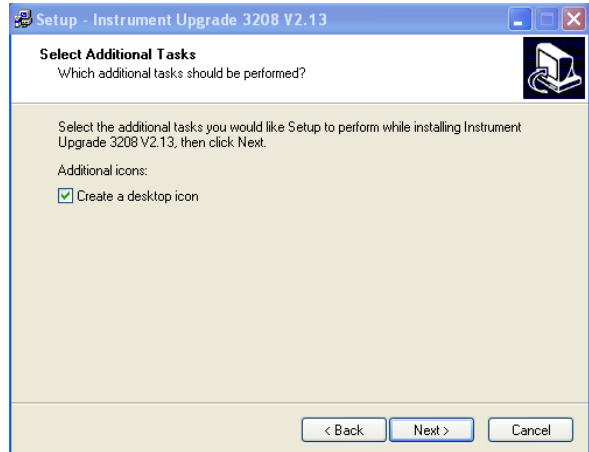
- Press 'Next'.
- Select where Setup should place the program's shortcuts.



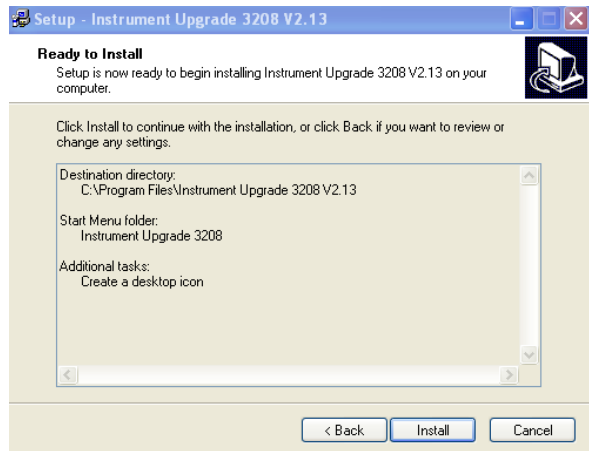
- Press 'Next'.
- Select where the instrument upgrade should be stored.



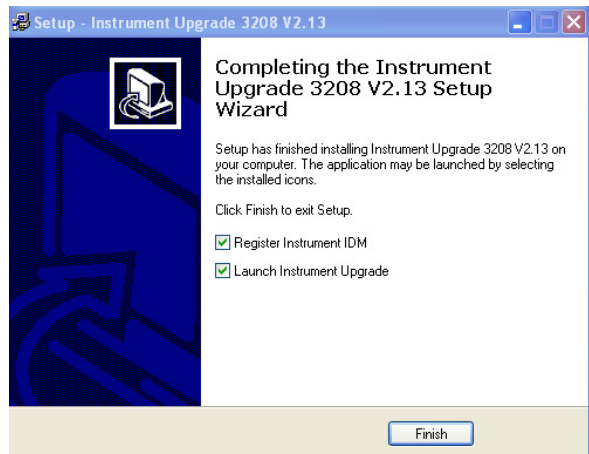
- Create a desktop icon



- Install

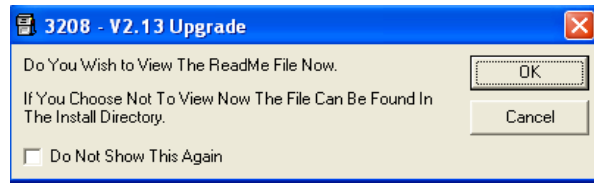


- Finish

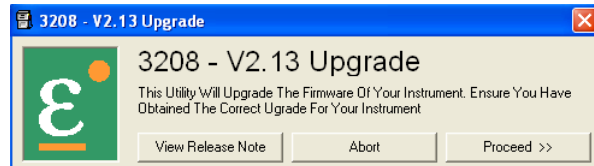


## 6.2 Launch the Upgrade

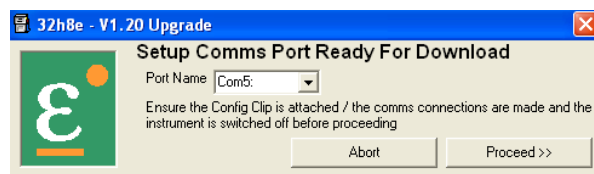
- A Read Me text file may be shown. Press 'OK' to view the file or 'Cancel' to go to the upgrade.



- Press 'Proceed'.



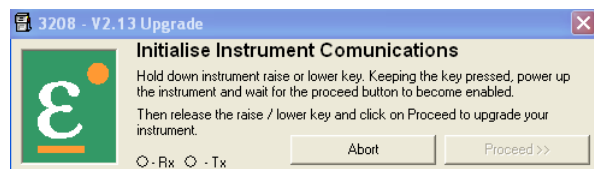
- Enter the Port Name as set up by the USB Clip driver. In this example Com5.



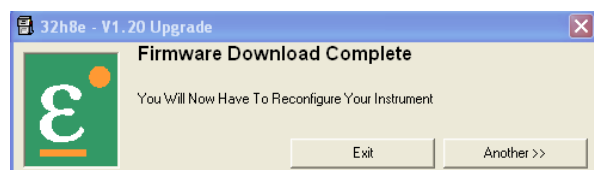
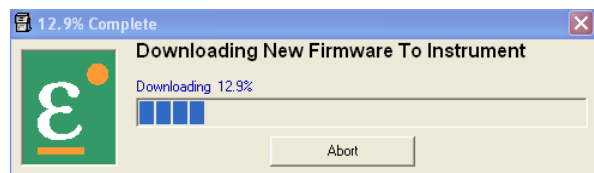
It is then necessary to follow the procedure in **the correct order** as described below:-

1. Connect the USB plug to the pc.
2. Hold down the raise  or lower  button on the instrument and then connect the green plug to the instrument. Keep the button held down.
3. Press 'Proceed'

- The 'Proceed' button will temporarily grey as the upgrade software searches for the instrument.
- Press the 'Proceed' key when it is enabled to continue with the upgrade and release the instrument button.



- The instrument may now be reconfigured, either using iTools as described in the previous section or through the user interface of the instrument.



## 7. Certifications, Environmental and Safety

Storage Temperature	-30 to 70 °C
Operating Temperature	0 to 55 °C
Relative Humidity	5 to 90%, non-condensing
Atmospheres	Non-corrosive, non-explosive
Vibration / Shock	EN61131-2 5-150Hz @ 2g
Approvals	CE
Electromagnetic Compatibility	EN61326 Emissions: Light industrial (Limit B) Immunity: Industrial
RoHS compliance	EU; China
USB compliance	USB 1, USB 2 and USB 3 (compatible)

### USB to serial cable mechanical features

The cable has a type A male USB plug at the Personal Computer interface and 5 pin spring pin header at the instrument connection.

Weight	150g approx
Indicator Red LED	"Flashing" for data communications
Indicator Green LED	USB connected
Overall cable length	200cm
Cable conductor material	Copper







**Contact Information**

**Eurotherm Head Office**

Faraday Close,  
Durrington,  
Worthing, West Sussex,  
BN13 3PL

**Sales Enquiries**

T +44 (01903) 695888  
F 0845 130 9936

**General Enquiries**

T +44 (01903) 268500  
F 0845 265982

**Worldwide Offices**

[www.eurotherm.com/global](http://www.eurotherm.com/global)



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