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Title:

USB Driver Installation instructions for PPM4-MK1 and ISPnano programmers

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Abstract:

This application note describes how to install the USB Drivers for any Equinox device programmer which features an on-board USB port.

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1.0 Introduction

1.1 Overview

The Equinox ‘*PPM4-MK1*’, ‘*FS2009USB*’, ‘*EPSILON5-MK4*’ and ‘*ISPnano*’ family of programmers all feature on-board hardware USB Ports. This allows them to communicate with a host PC via USB. It is possible to set the communications speed in the Equinox PC control software to a maximum of 230,400 baud when using USB which gives significantly faster ‘*Project Upload*’ and programming when operating under PC control. If the programmer is being used to program e.g. a hex or binary file directly from a file on the PC hard disk, then using the USB port at the highest baud rate should yield a much faster programming time.

This application note describes how to install the USB Drivers for the on-board hardware USB Port of these programmers.

1.2 Programmers supported

This USB Driver is only compatible with the programmers listed in the table below. These programmers have an on-board USB Port which allows for a direct connection between the programmer USB port and a spare USB port on the PC.

A list of compatible programmers is detailed in the table below.

Programmer	On-board USB Port	Power programmer from USB port
EPSILON5-MK4	YES	YES
FS2009USB	YES	YES – newest version only
ISPnano Series II	YES	NO
ISPnano Series III	YES	NO
ISPnano Series III ATE	YES	NO
ISPnano Series IV	YES	NO
ISPnano-MUX2 / MUX4 / MUX8	YES	NO
PPM4-MK1	YES	NO

Important note:

For most Equinox programmers, it is not possible to power the programmer from the PC USB port.

1.3 Windows versions supported

This USB Driver is only compatible with the versions of Microsoft Windows detailed in the table below. A list of compatible programmers is detailed in the table below.

Windows version	Comment
Windows 2000	No – requires a different USB driver
Windows XP	YES
Windows NT	YES
Windows Vista	YES (but driver is not signed)
Windows 7 32-bit	YES
Windows 7 64-bit	No – requires a signed driver Please contact Equinox for further instructions.

1.4 Windows 7 – 64-bit signed driver

Windows 7 64-bit requires a '**Digitally signed**' USB driver otherwise the driver will not install onto the target PC. The USB driver detailed in this application note is an **unsigned driver** and therefore does **NOT** support PCs running Windows 7 - 64-bit PCs.

Equinox are currently working on a a '**Digitally signed**' USB driver.
Please contact support@equinox-tech.com for further information.

2.0 USB Driver Installation

2.1 Overview

The following instructions detail how to install the USB drivers for on-board USB port of the PPM4-MK1, FS2009USB and ISPnano Series II / III programmers. The USB drivers are installed into Windows as a '**USB Device**' which can then be viewed in '**Device Manager**'.

Please note:

- You must be logged in as the '**Administrator**' of the PC or as a '**Local Administrator**' in order to install the USB Drivers.
- Make sure that the '**USB Cable**' is **NOT** connected to the PC during the USB Driver installation process.

2.2 Locating the USB Driver

The USB Driver can be found as follows....

1. On the CD-ROM which came with the programmer

The driver should be in the following sub-folder on the CD:

\\USBDrivers\\Equinox_USB_Driver

2. On the Equinox website

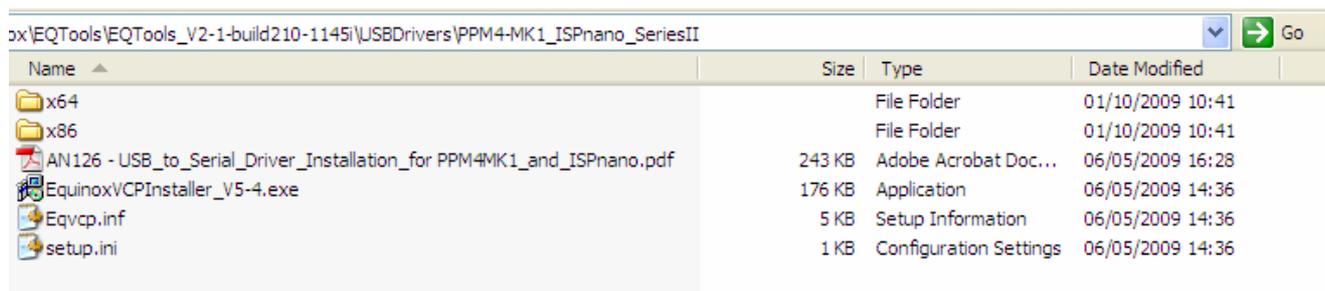
The latest USB Driver can always be found on the Equinox Website. This version may be more up-to-date than the one on the CD-ROM so it is usually a good idea to check the website version first.

To download the USB Driver, please browse to the following web page:

<http://www.equinox-tech.com/products/downloads.asp?details=286>

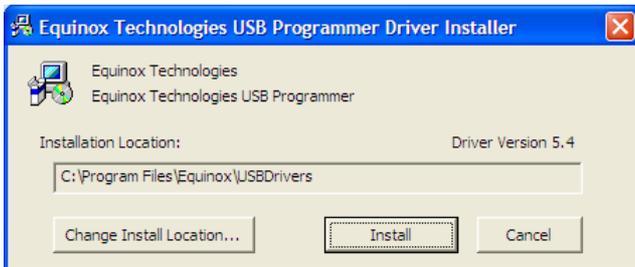
The USB Driver version is shown in the '**Version**' field. Please check that this is the same or newer than the version which you are already using.

- Click the **<Download>** button to download the file.
- You will be asked to register / log in to download this file.
- Unzip the contents of the zip file into a temporary directory on your hard disk.
- You should end up with the following files and the two sub-directories – see screenshot below.



2.3 Installation instructions

- Make sure that the '**USB to Serial Cable**' is **NOT** connected to the PC
 - Download the the **EquinoxVCPIInstaller.exe** file from the Equinox website.
 - Double-click the **EquinoxVCPIInstaller.exe** file to start the installation
- The following screen is displayed:



Please note:

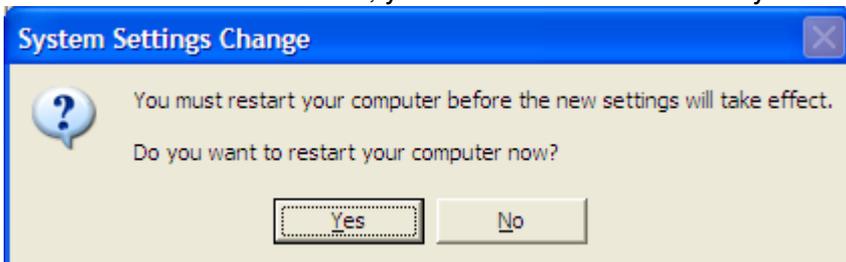
- It is possible to change the default installation path of the drivers by clicking the **<Change Install Location>** button.
- The 'Driver Version' is shown here e.g. 5.4. It is worth checking on the Equinox website for a later version of this driver.

→ The following Windows warning message box (or similar) will be displayed:



- This simply means that the USB Driver is not "**Digitally Signed**". It will not damage your PC in any way.
 - Click the **<Continue Anyway>** button
- The USB Driver files will now be copied to the specified installation directory on your PC.

At the end of the installation, you will be asked to re-start your computer.



- Click **<Yes>** to restart your computer
- The installation of the USB Drivers is now complete.

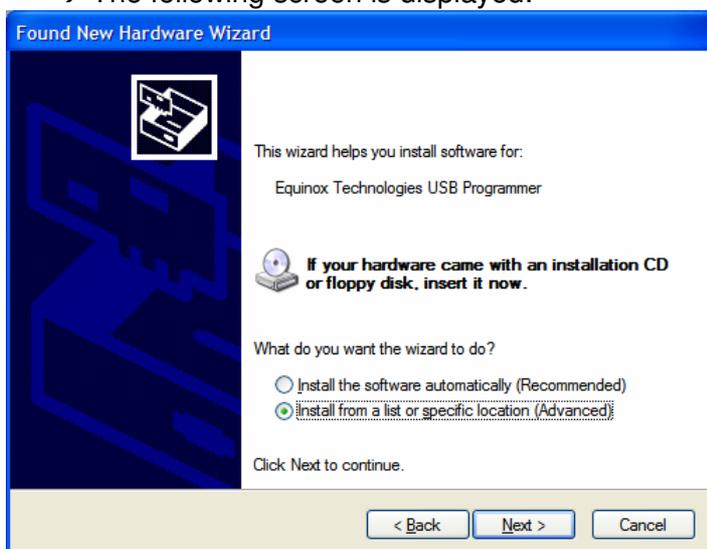
2.4 Found new Hardware wizard

- Plug the mini USB connector end of the USB cable into the programmer USB Port.
 - Plug the larger USB connector end of the USB cable into a spare USB port on your PC.
 - Apply power to the programmer
 - If you are using a PPM4-MK1 programmer, make sure the DIP Switch is set to 'USB'.
- The PC should now detect that new hardware has been attached and will display the following screen:



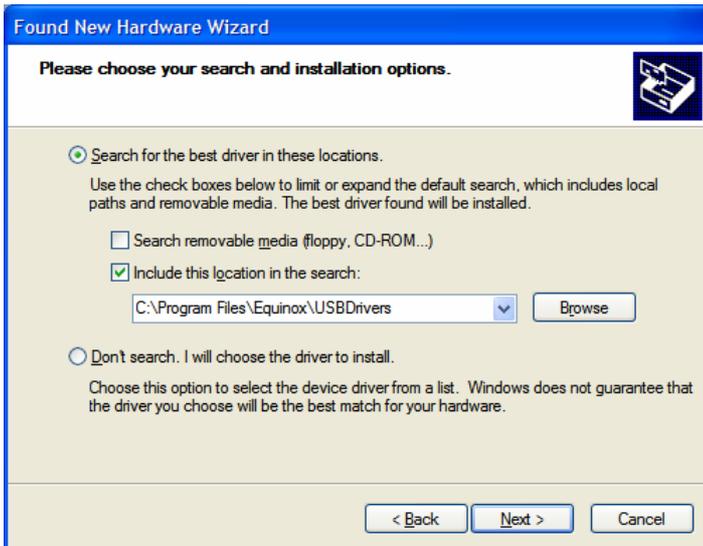
- Select “No, not at this time” and click **<Next>**

→ The following screen is displayed:



- Select **“Install from a list or specific location (Advanced)”**
- Click **<Next>**

→ The following screen is displayed:

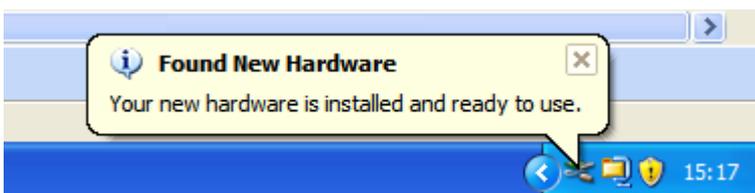


- Browse to: **c:\Program Files\Equinox\USBDrivers** folder
- Click **<Next>**

The following warning will then be displayed...



- Click **<Continue Anyway>**
- The USB Driver is then installed for the device found on the specified USB port
- Once the installation is complete, you should see the following message displayed near the clock on the bottom-right of your desktop.....



- Installation of the USB Driver for the attached programmer is now complete.

2.5 Using Device Manager to check the USB Port status

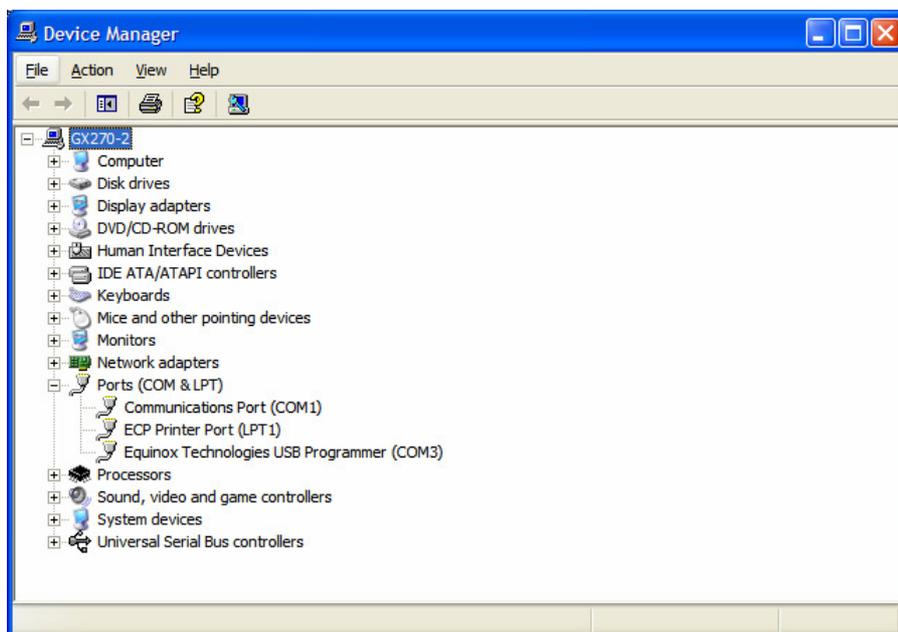
This USB Driver installation creates a VCP (Virtual COM Port) on your PC which is used by the Equinox applications eg. EQTools to communicate with an attached Equinox Programmer via USB. This VCP is automatically created by Windows when the programmer is plugged into a USB port on your PC. When the programmer USB cable is removed, the USB VCP will disappear.

You can check the status of the VCP (Virtual COM Port) on your PC by using Device Manager.

- Right-click on the <My Computer> icon
→ The 'System Properties' screen will be displayed.



- Click the <Device Manager> button
→ The 'Device Manager' screen will be displayed.



- If the Equinox VCP has installed correctly, then you should see an entry under the heading '**Ports COM & LPT**' for '**Equinox Technologies USB Programmer**'
- It will also specify which COM port has been allocated to the Equinox VCP e.g. COM3 in this case.

3.0 Testing USB connection with EQTools

3.1 Connecting the cable

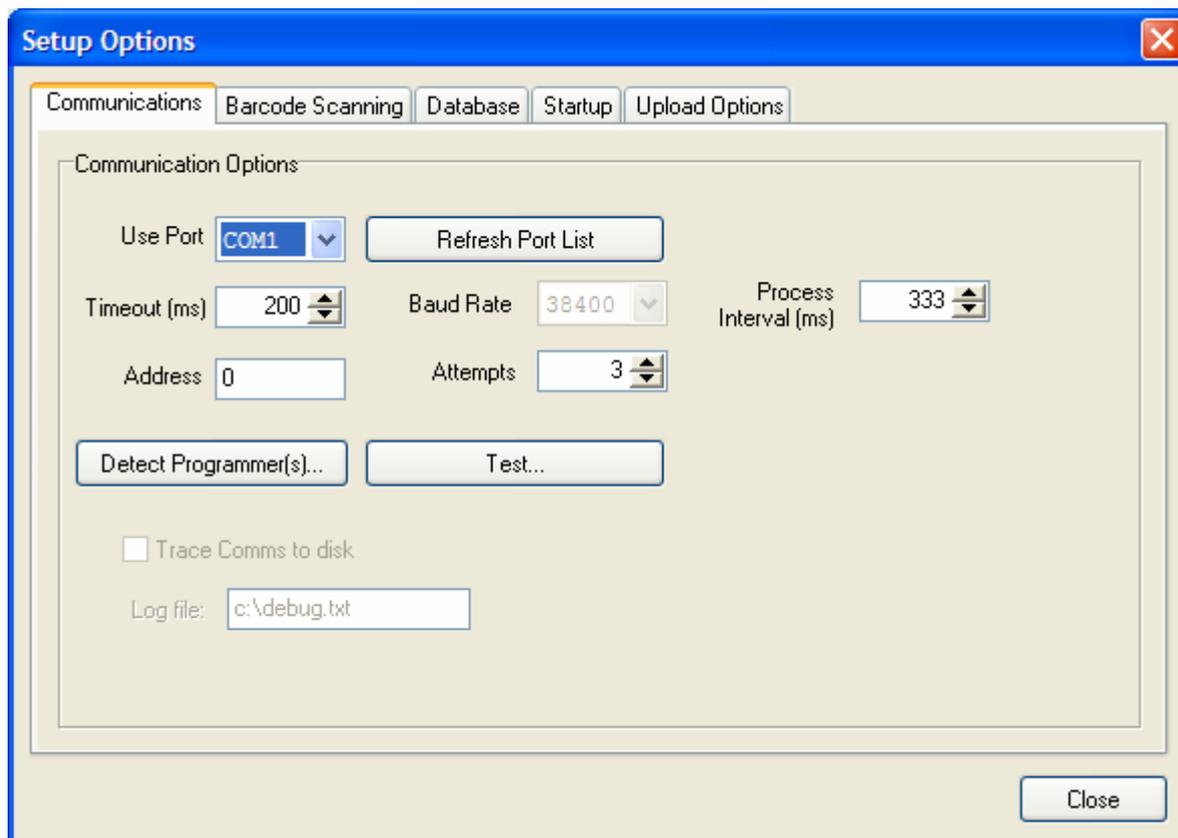
- Connect the larger USB end of the '**USB Cable**' to a spare USB port on the host PC.
- Connect the miniature USB connector end of the cable to the USB port on the programmer.
- Switch on power to the programmer

3.2 Testing with EQTools

EQTools sees the '**USB Device**' as a '**Virtual COM Port (VCP)**'. The following instructions detail how to get EQTools to detect a programmer which is connected to the host PC via the '**USB Port**'.

Instructions:

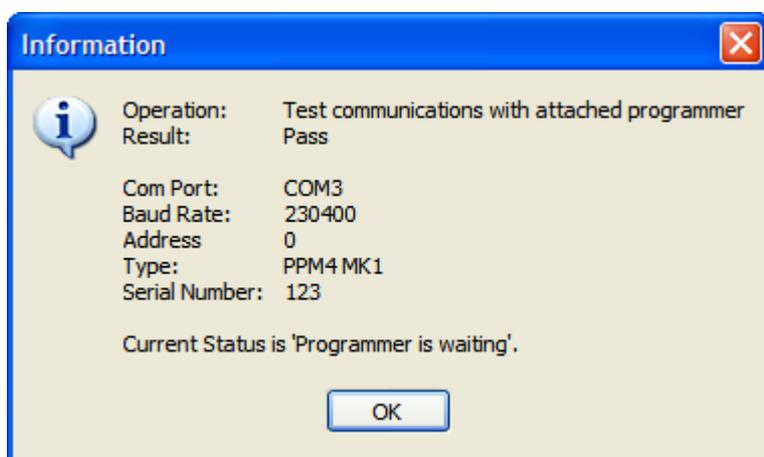
- If you have not already installed the Equinox EQTools software, please install it now
- Check that the programmer is connected to the PC USB port and is powered up.
- Launch the EQTools software
- Select **<Programmer><Communications and Scripting Setup>**
→ EQTools will display the following screen



- Click the down arrow next to the '**Use Port**' field
→ A list of the available '**COM Ports**' on the host PC is displayed.
- If your PC does not have a physical '**Serial Port**', then it is likely that there is only one '**COM Port**' now displayed in the list. This will be the COM port to which the '**USB Cable**' is connected.

- If your PC has multiple '**Serial Ports**' listed, then it could be that you have an internal modem or other serial devices installed in your PC. The '**USB Cable**' is likely to be the last '**COM Port**' in the list.
 - Select the correct '**COM Port**' to which the '**USB Cable**' is connected. If you are unsure which COM Port the programmer is connected to, you can use **Device Manager** to find the correct port.
 - Click the **<Test>** button
- EQTools will attempt to communicate with the attached programmer via the '**USB Cable**'.

If EQTools communicates OK with the attached programmer, you should receive a message similar to the one below.....



→ The installation procedure is complete and you can now use EQTools as you would normally.

If EQTools cannot communicate with the attached programmer:

- Try selecting a different COM port
- Make sure the '**USB Cable**' is connected to the programmer
- Make sure the attached programmer is powered on
- Try clicking the **<Refresh Port List>** button and then reselect the correct COM port to which the programmer is attached. This will refresh the list of available COM ports detected on your PC.
- If communications is still not possible and/or the '**Virtual COM port**' does not appear in the list of COM ports in EQTools, then re-check the status of the COM port in Device Manager – see section 2.4

Important note!

If your PC is running Windows 7 64-bit, then the USB installation may complete OK but the USB driver will not work.