wildtalk...
wireless communications

35 Hospital Fields Rd   01904 630 686
York   sales@wildtalk.com
YO10 4DZ

Universal Radio Programmer User Manual

1 Version Control

PCB V1.0
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2 Glossary

FTDI　　　　　Future Technology Devices International Ltd.

UART　　　　　Universal asynchronous receiver-transmitter.

Driver　　　　　Software to configure the UART

3 Introduction

A robustly engineered solution to USB programming multiple make of radios.
Uses a single Windows USB driver which is automatically downloaded from Windows update when using Windows XP, 7, 8 and 10.

4 Key Features

- One USB programmer to program virtually any radio.
- No drivers to download.
- Low cost leads available or build your own.
- Revive old RS232 Serial cables.
- A USB based radio programmer with an optional selection of cables to program most radios.
- No drivers to install. Self installs from Windows update. Tested on Window XP, 7 and 10.
- Super tough alloy housing designed to live in your toolbox. Fully repairable if you do damage it.
- Optional cables to suit most common radios.
- Full schematic details provided to build or rebuild your existing programming cables.
- No electronics in the cable. Uses easily available connectors.

5 How it Works

The unit contains an FTDI branded UART which translates USB to the digital voltage levels used in nearly all radios. The USB drivers are Windows signed and are normally automatically installed in the background on first use from Windows update. Because they are Windows signed they work correctly without clashing with other installed drivers.

The UART output is then converted to both positive and negative logic. Some radios require bi-directional data busses and some radios have separate data busses for data in and data out.

The logic sense and bus configuration is done by different wiring schemes inside the plug of the radio connecting cable so the one programmer box and driver can be used with a huge range of radio types and is compatible with various radio types from Motorola, Kenwood, Icom, HYT, Tait, Kirisun, Vertex and others.

The radio leads have a low-cost non-proprietary connector at one end and a radio specific connector at the other.

Wildtalk can supply suitable cables or you can build your own. Using our simple wiring diagrams and your own radio cable, perhaps salvaging the radio leads from old serial cables or from old programming leads for which the drivers are no longer supported a fully reliable, a serviceable programming kit for virtually all radios can be assembled.

6 Installation Requirements

- A Windows PC running XP or better.
- A live internet connection (for the initial installation only). If and internet connection is not available see the ['Offline Driver Installation'](#) section.
- Windows Update enabled (for the initial installation only).
- The programming software for the make and model of your radio.
- A suitable radio connecting cable. (see wiring diagrams)
- A Mini USB to USB A cable.

7 Driver Installation

Installation comprises as follows;

1. Ensure your PC is online.
2. Ensure Windows Update is enabled.
3. Plug in Programmer using the Mini USB cable.
4. After a few seconds Windows update will locate the driver and start the download. This may take several minutes depending on the quality of your internet connection. You may or may not get a notification of the driver download depending on version of windows you are using.

8 Check which Port the Programmer has been installed to.

1. The programmer must be connected.
2. Open Windows Device Manager;
    - Windows 10; press the Windows Key and X to display the Power User Menu.
    - Windows 7; Control Panel > System and Security.
    - Windows Vista; Control Panel > System and Maintenance.
    - Windows XP: Control Panel > Performance and Maintenance.
3. Expand the Ports (COM & LPT) section.
4. Make a note of the COM port number the USB Serial Port is installed to. In the example below the Programer is installed to COM port 3. Note this for when you come to program the radio.
5. **It is worth noting that the COM port number can vary depending on which physical USB port you use and if other USB devices are connected so it is worth checking the Device Manager from time to time in case the assigned number has changed.**
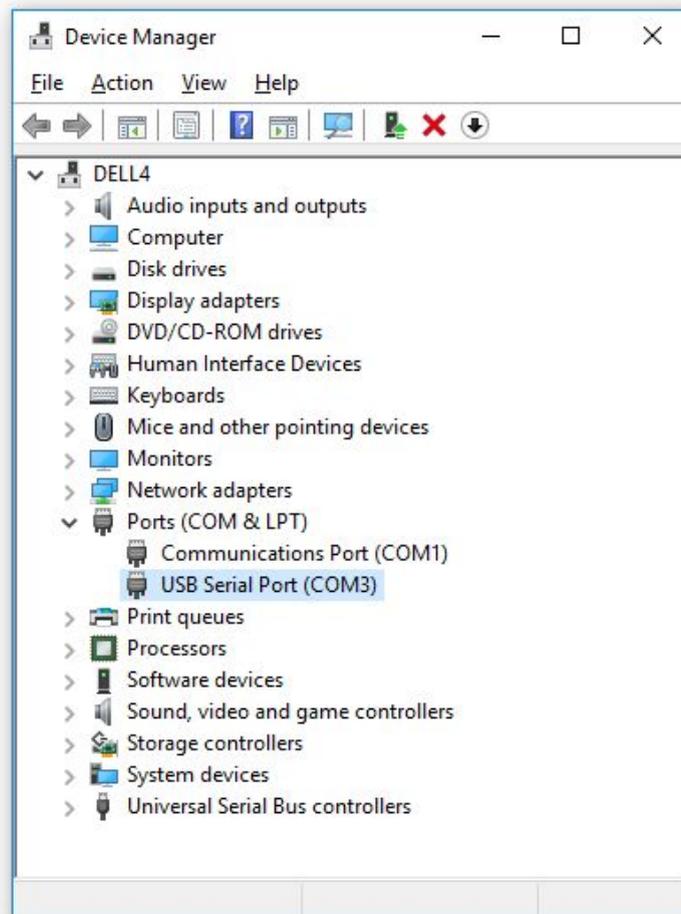
9 Program the Radio.

There are nearly as many radio programming applications as there are radios so the following description is only a general one for guidance.

Essentially the programming software runs exactly as it does with any programming cable but in some software you have to specify the COM port that you will be using. This is the COM port you recorded earlier in Section 8. How you select the COMM port depends on the software. General examples below:

Kenwood.
Setup>Com port
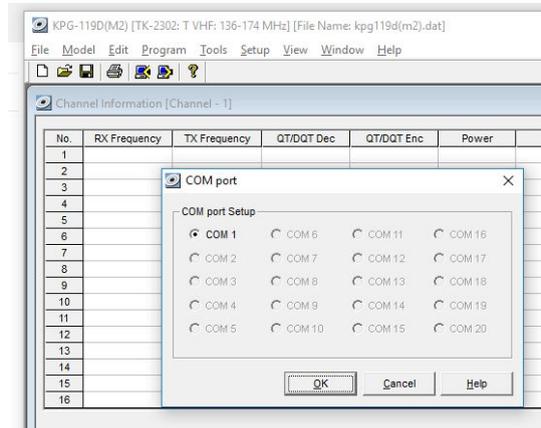
Icom
COM Ports>More
A popup window will allow you to select a Com Port.

Motorola
File>Read Device
A popup will allow you to select a Com Port.

Once you have selected the Com port you should now be able to Read and Write to the radio.

10 Appendix

10.1 Offline Driver Installation

- You will first need to download the VCP driver from the FTDI website and save it to a USB Flash drive. You can download it from here;
  http://www.ftdichip.com/Drivers/CDM/CDM21228_Setup.zip
- Make sure the Programmer is not plugged into the PC.
- Unzip the file to your PC Desktop and Run it.
- You will get the Smart Screen Warning. Click RUN
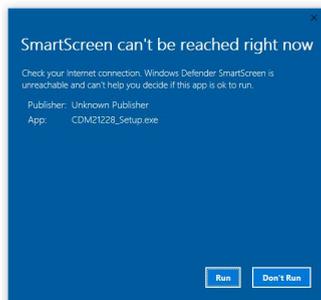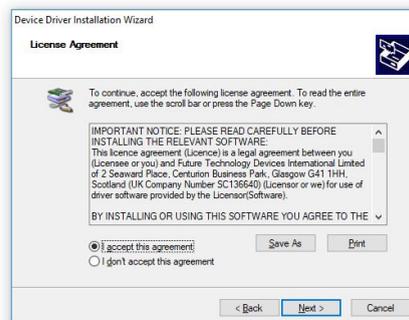

- Extract the FTDI drivers.

- Run the Driver Install Wizard

- Accept the Licence Agreement

- The drivers are now installed and the programmer can be plugged in.