

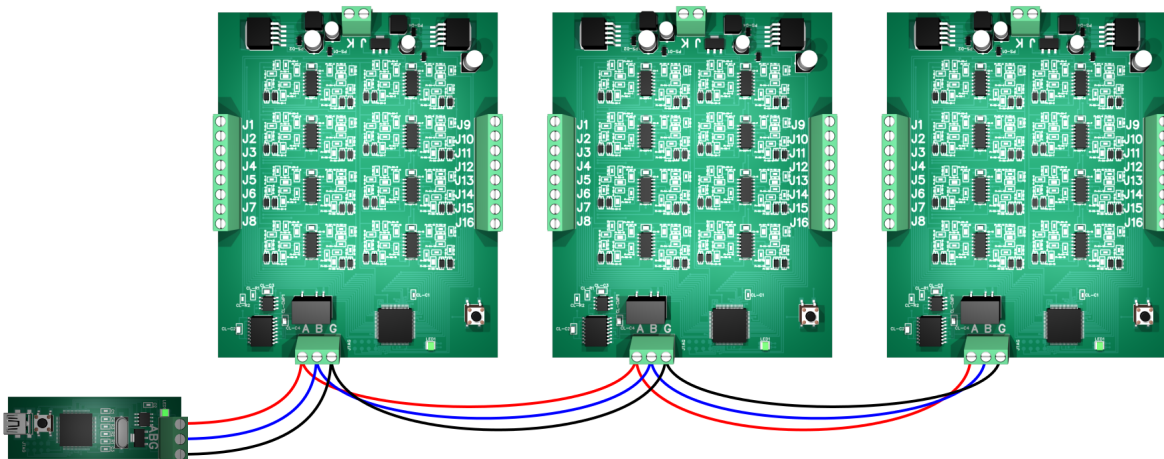
# Computer Interface Device Manual

DCC<sub>4</sub>PC

2<sup>nd</sup> December 2011

## 1 How to connect the Computer Interface Device

The Computer Interface Device allows up to 256 Omnibus devices to be attached. All Omnibus devices have three terminals labelled A, B and G. Omnibus devices should be wired in a chain with the Computer Interface Device at one end such that a wire runs from A on the Computer Interface Device to A on the first device, then from A on the first device to A on the second device and so on. The same applies to the B and G terminals.



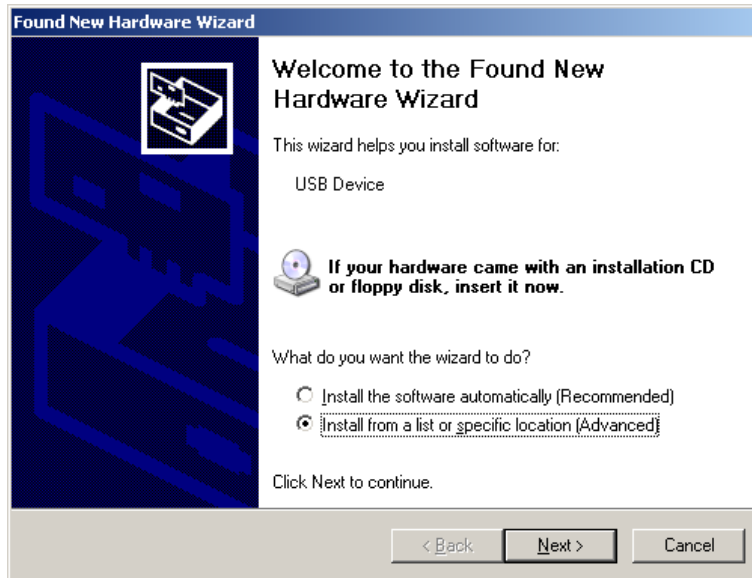
Here we have demonstrated a Computer Interface Device with 3 RailCom<sup>TM</sup> Readers attached.

**Warning:** Under **no circumstances** should A, B or G ever be wired to anything other than their counterparts on other Omnibus devices.

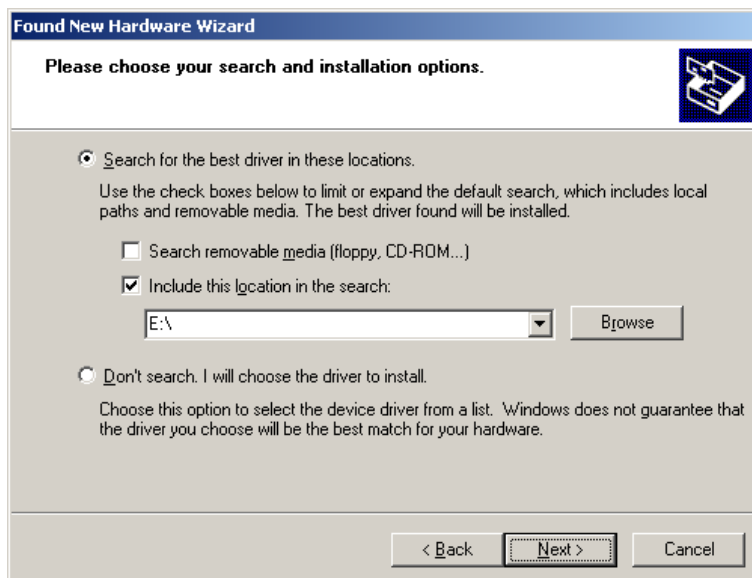
## 2 Installing the Computer Interface Device

### 2.1 Windows

To use a Computer Interface Device in Windows you will need a file `omnibus.inf` which is supplied on the CD provided with the Computer Interface Device and can also be downloaded from our website ([www.dcc4pc.co.uk](http://www.dcc4pc.co.uk)). When a Computer Interface Device is plugged in for the first time, the Find New Hardware wizard will run. If you are using the supplied CD select **Install the software automatically (Recommended)** and click **Next**. Otherwise, if you have downloaded `omnibus.inf`, select **Install from a list or specific location (Advanced)** and click **Next**.



This step is only required if you selected Install from a list or specific location (Advanced) previously. Select Search for the best driver in these locations, Include this location in the search and Browse for the location of the omnibus.inf file. Then click Next.



When prompted click Continue Anyway.



Click **Finish** and the Computer Interface Device is installed.

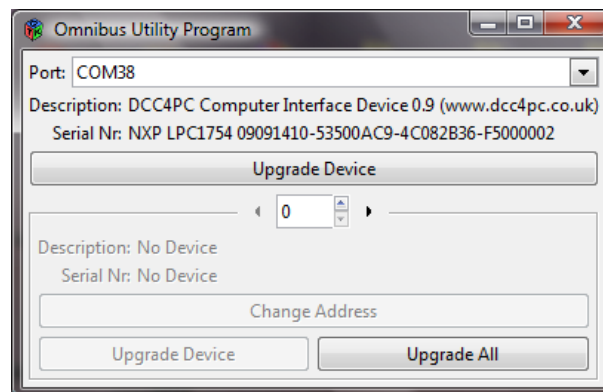


## 2.2 Linux

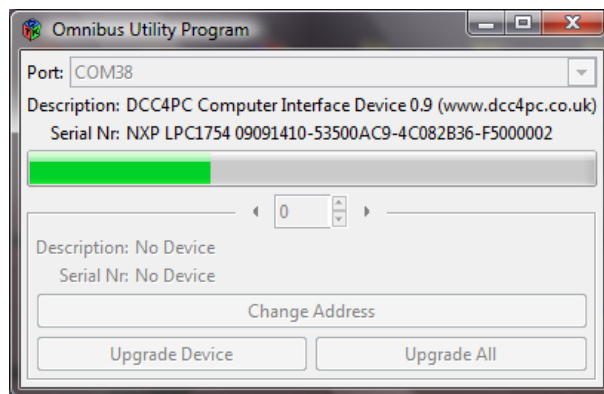
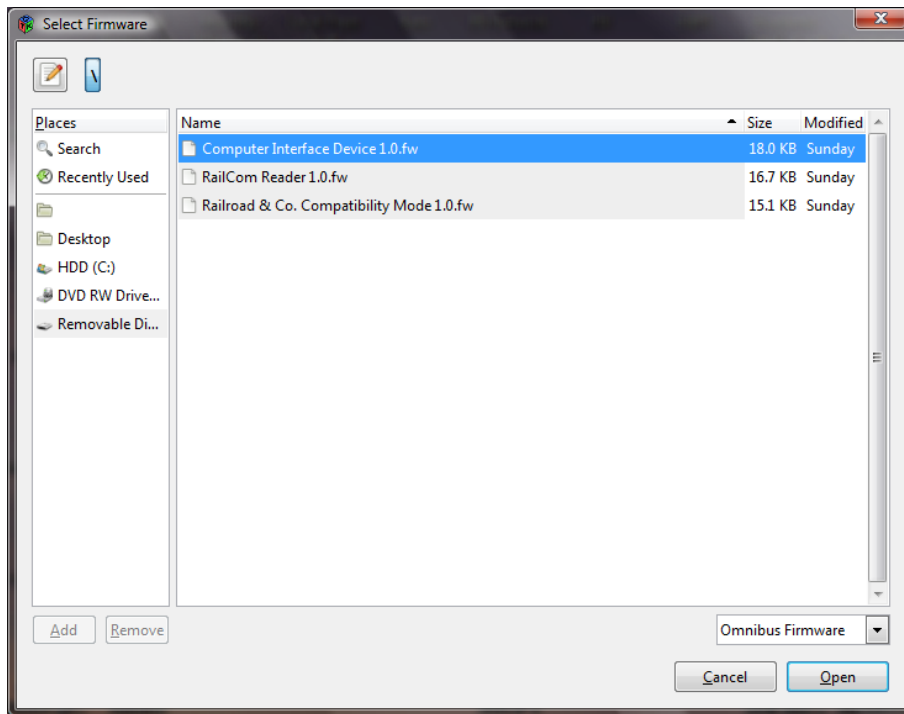
The Computer Interface Device uses the `cdc-acm` driver which is included in most distributions. No further setup is required.

## 3 Upgrading firmware

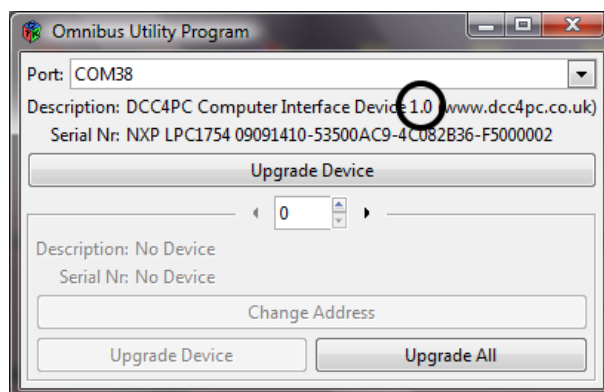
Firmware upgrades are performed using the Omnibus Utility program which is available on the CD supplied with the Computer Interface Device and from our website ([www.dcc4pc.co.uk](http://www.dcc4pc.co.uk)). The utility program is separated into two parts. The upper section describes the Computer Interface Device itself. The lower, framed, section describes the Omnibus device with the address indicated in the frame. The Computer Interface Device is selected using **Port**, only ports with a Computer Interface Device attached appear in the list. As the COM number assignment is random it is simplest to use the utility program with only one Computer Interface Device plugged in at a time. To perform a firmware upgrade on the Computer Interface Device first click **Upgrade Device** in the upper section.



Select the upgrade you desire when asked by the program and click **Open**.



During the upgrade the LED on the Computer Interface Device will blink red. After the upgrade is complete the LED will turn green and the description of the device provided by the utility program should change to indicate the new firmware version. If the upgrade failed to complete then the LED will remain a solid red.



## 4 Repairing damaged firmware

If a firmware upgrade fails, most likely due to being cut off part way, it will render the device unusable. This will be shown by the LED turning red when the Computer Interface Device is plugged in. If this happens then perform the following procedure to restore the device to out-of-box condition:

1. Unplug the Computer Interface Device.
2. Hold down the reset button.
3. Plug in the Computer Interface Device. The LED will remain unlit.
4. Wait for 10 seconds until the LED begins blinking red slowly.
5. Release the reset button while still blinking (within 5 seconds).
6. The reset procedure has begun. The LED will blink red quickly.
7. When the LED goes solid green the procedure has completed successfully.

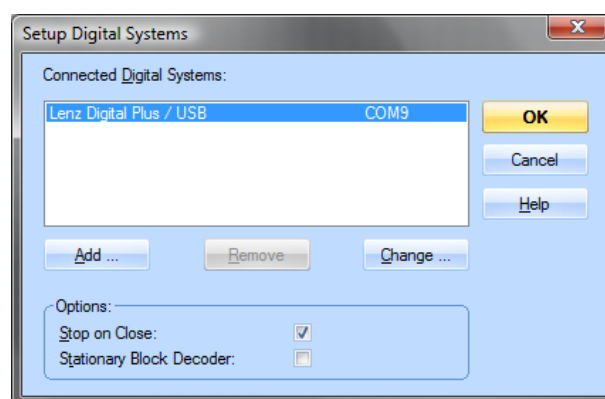
This procedure can also be used if you have upgraded the firmware of your device and are unhappy with the change, but can't use the utility program to load the old firmware again (possibly due to not having a copy of the old firmware). If this happens you can use the procedure described above to revert to the firmware installed when you purchased your device, after which you can upgrade to another firmware version if you desire.

## 5 Railroad & Co./Rocrail Compatibility Mode

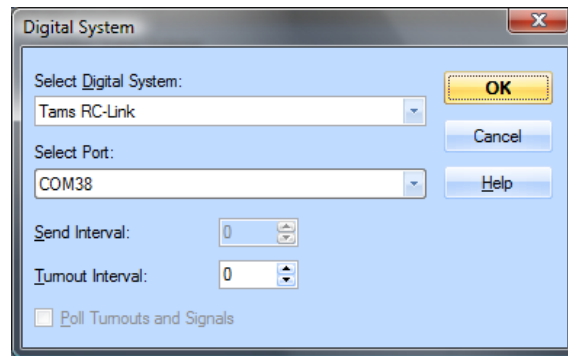
To permit RailCom<sup>TM</sup> Readers to be use with software which already supports the Tams RC-Link protocol we have created an alternative firmware version which causes a Computer Interface Device to appear as a Tams device. In this mode up to 15 RailCom<sup>TM</sup> Readers are supported (however the last input of the last board is unusable).

Because the compatibility mode doesn't support Omnibus commands, the firmware assumes that the Omnibus devices are numbered sequentially from 1 upwards. As such you must first set up all your Omnibus devices with correct addresses before using a firmware upgrade to load the compatibility mode firmware.

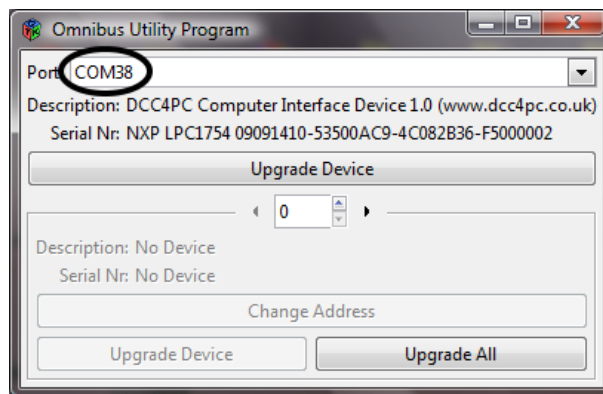
To add a Computer Interface Device in TrainController select **Setup Digital Systems** in the **Railroad** menu.



Click **Add** and select **Tams RC-Link** as the digital system.



To determine the correct COM port to use, run the Omnibus Utility Program: the COM port shown next to Port is the COM port used by the Computer Interface Device.



The Tams RC-Link protocol has two major shortcomings: first it only supports one locomotive per zone, second it has no way of indicating a zone is occupied by a non-RailCom™ enabled locomotive or coach. The former is unsolvable but in an attempt to circumvent the latter we have written our Tams RC-Link emulation to output an “impossible” address when occupied and no RailCom™ identity has been observed. Unfortunately TrainController incorrectly interprets this address as address 255. As such, provided address 255 is not used by any locomotives on your layout, this workaround permits pure occupancy information to be transmitted via the Tams RC-Link protocol.