ZLP Electronics

DigiMaster ProPlus

www.g4zlp.co.uk

CAT and DATA interface

Supports ALL CAT PROGRAMS THAT SUPPORT YOUR RADIO.

Supports ALL AFSK DATA MODES using ANY AFSK DATA MODE SOFTWARE.

Supports FSK using HRD V6.0 or ANY software that uses the MMTTY+EXTFSK engine.

CONFIGURATION of the interface...
There are no configuration settings for the interface as such, other than a link for the PTT link, (some radios need the link closed, for example the IC910 the vast majority do not and the default for this link is open).
The only configuration you need to make is to your software and in some cases to your radio.
If your software (and radio configuration) is not set correctly then you may not get the correct results.

ALWAYS ENSURE THAT YOUR INTERFACE IS PLUGGED IN
AND TURNED ON BEFORE STARTING YOUR SOFTWARE.
ALWAYS TURN YOUR RADIO AND THE INTERFACE OFF WHILE PLUGGING OR UNPLUGGING CABLES.

AUDIO   **DATA**   **CAT**   **CW**   **USB**
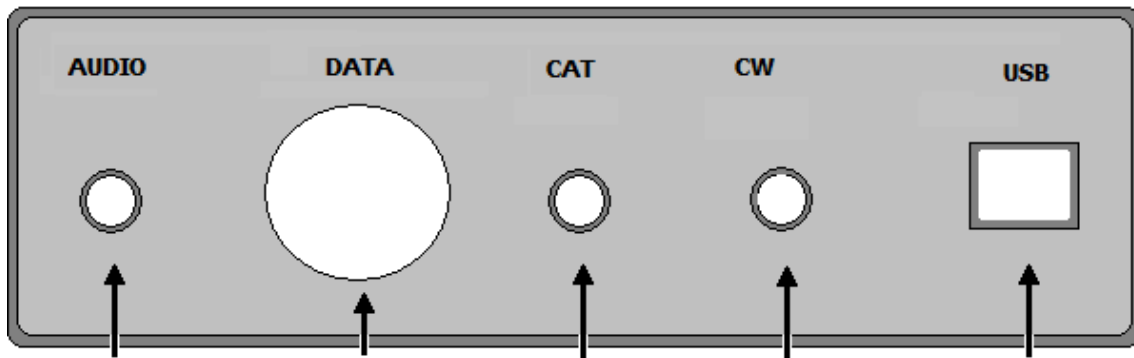
Audio to/from PC   DATA lead to radio   CAT lead to radio   CW lead to radio   USB lead to PC
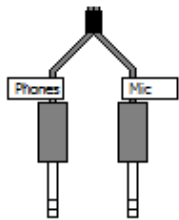
DATA lead to radio is available for most radios and the 6 pin mini din connector fits here, the other end of the cable connects to your radio.
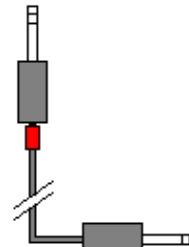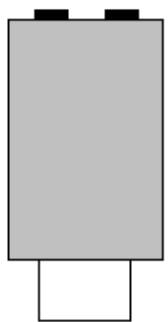
To Radio
3.5mm
CW socket

The choice of CAT connecting lead is determined by the choice of CM[x] module

Lead is marked Phones and Mic

Phones   Mic

Audio from PC   Audio to PC

PHONES   MIC

Optional external plug in USB soundcard

Icom CAT lead   **CM1 CAT module installed**

Stereo
To Interface
I1
Mono
To Radio
CAT / CI-V socket

Yaesu CAT leads
Interface   Radio

Y1   Y1   6 pin din

Y2   Y2   6 pin mini din

Y3   Y3   8 pin mini din

Kenwood CAT lead   **CM2 CAT module installed**   Radio

Interface   K1   6 pin din

Yaesu / Kenwood   **CM3 CAT module installed**
Serial RS232 CAT lead

Radio

Interface   T1
To Radio
CAT / RS232 socket

DigiMaster 6 pin mini din connector details

Audio / DATA from Radio

FSK
PTT

AudioGND

Audio / DATA to Radio

Chassis GND / Screen to radio chassis GND
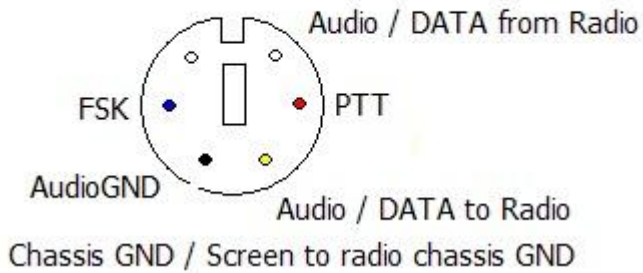
View is looking into the socket and is exactly as you would wire the plug.
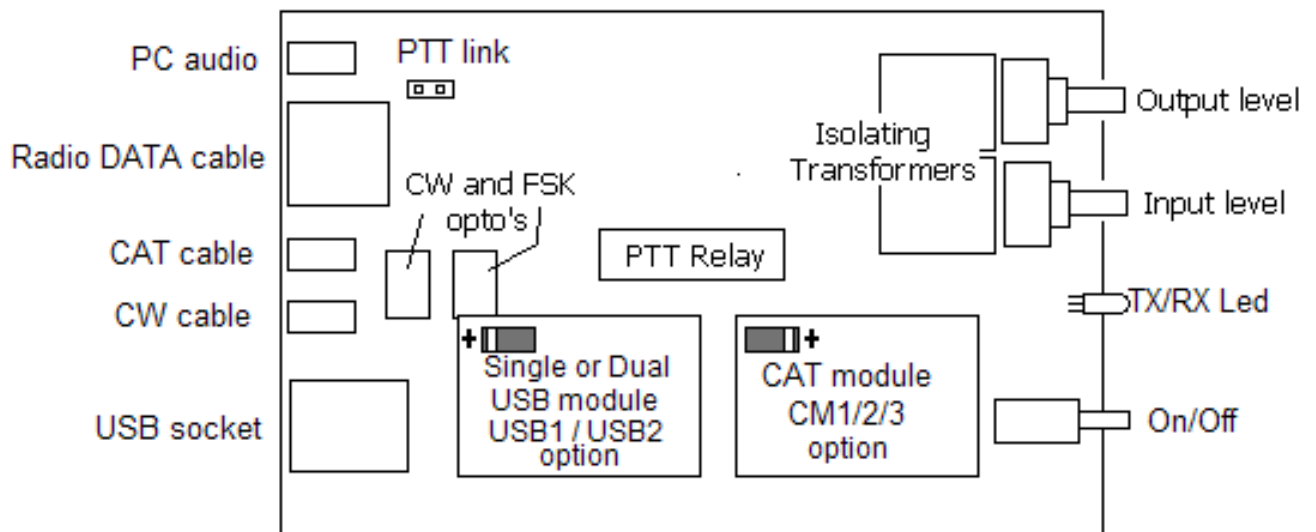(The same view you would see from the rear of the plug when soldering)..
Note, that this is the view of the connection into the rear of the DigiMaster Interface and shows signals available.
Some radios do not support FSK so the leads for those radios may not have anything connected to the FSK connection.
Other radios may obtain FSK keying line from the CW/FSK socket.
NOTE: The FSK output is also available from the "ring connector" of the 3.5mm stereo CW jack socket.

Internal layout

DigiMaster PRO

PC audio — PTT link
Radio DATA cable
CW and FSK opto's
CAT cable — PTT Relay
CW cable
+ Single or Dual USB module USB1 / USB2 option
CAT module CM1/2/3 option
USB socket

Isolating Transformers — Output level
Input level
TX/RX Led
On/Off

**INITIAL TEST of the interface.**

On delivery, connect the PRO+ to the PC via the supplied USB cable. DO NOT connect any other cables at this time.
Connecting any other cable to the interface during the initial test may affect the accuracy / validity of the test.
Switch the interface on and the led will be green (if not then use a different / powered usb port), wait for windows to install drivers, if windows prompts you for the location of drivers always allow windows to search the net so that you will always obtain the latest drivers.
When Windows has installed the device driver the led will flash green - red several times. This indicates that the drivers have been installed and the interface is communicating correctly with the PC.
When windows will inform you that the device has been installed, run the following test program, "Find DigiMaster PRO" (click on the "Find" button) which will fully test the interface and will tell you what comports windows has assigned to the interface. In the PRO+ you will get 2 comports. The test program will identify the comports, the program will also run a test of the CAT Interface. When the program tests the first comport, the led will turn red then change back to green.
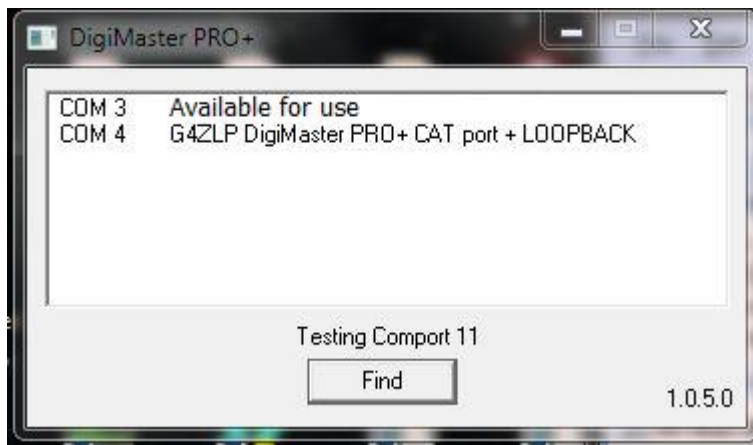
The above shows an example of a successful test of the DigiMaster PRO+
Your results will most likely show different COM[x] results (normal) which you should note.
If you have several USB devices connected then your list will contain more ports than those shown above.
If you are uncertain as to what the results are showing then temporarily disconnect other devices which may be interfering with the results.

Quick Start

For connections see the first diagram above.
The following information is based on the PRO+, the PRO does not have CAT functionality and only one comport for control of the interface is available.
ALWAYS setup and use the DATA interface section before configuring the CAT connection.
When configuring the cat section DO NOT assume that your software and / or radio settings will be the same as you have used on a previous CAT interface.
Note: If your radio is a Yaesu and you have a 6 pin DATA socket and an 8 pin CAT socket be careful and ensure you connect the 6 pin plug to the 6 pin socket and the 8 pin plug to the 8 pin socket otherwise you may damage on or more pins in the 8 pin plug.
Plug the USB cable from the interface into the PC and switch on.
Windows will detect the USB interface and either install the drivers automatically, or ask you for the driver.
If Windows asks you for the driver, you can download the latest driver using the link Click here for latest USB drivers and here for the latest USB installation guides.
If windows asks you for the driver, you can also decide to allow windows to "search the net", doing this will ensure that you always get the latest driver.
After installation of the driver, the LED will alternate green/red several times, this indicates that the driver has been installed and the the USB section of the interface is working. With the cables connected to the radio (specifically the DATA cable) your radio will also switch between RX and TX several times each time you power up the interface, this is normal Windows operation and Windows does this to test the interface each sees the USB device.
You can check driver installation using Device Manager Click here for help using Windows and Device Manager to identify virtual comports (PDF).
The LED will toggle RX / TX at every time you power up the interface, this is Windows normal procedure as it tests the interface and this action proves the interface is recognised and can be controlled by software.
The LED when green indicates power is on and the interface is in receive mode.
When red, the LED indicates TX, either DATA or CW or FSK.
Open device manager and view comports, you will see 2 comports that you did not previously have.
If you are unsure which they are, turn the interface off and the 2 comports will disappear from the comport view.
Switch the interface back on and they will reappear. Windows will also toggle RX / TX again when it sees the interface power up.
Note the comport numbers; you will need these later when configuring your software.
REMEMBER, if you swap the interface between USB ports on your PC, Windows may reassign the virtual comport numbers, if it does so, then your software's configuration will need changing to reflect this. The virtual comports provided by Windows will almost certainly be different on a different PC.
Windows will assign the 2 comport numbers and there is no way to know in advance what numbers windows will assign. However, Windows will normally number these consecutively. I will call these comports [x] and [x+1].
Comport [x] is used by the interface to control PTT and CW lines.
Configure your DATA mode software so that comport[x] (the lower numbered of the two new comports) is used for PTT.
Select the "RTS" signal line for PTT, and the "DTR" signal line for CW.
Your software needs configuring so that RTS=PTT and DTR=CW. That's all you need to do to configure your DATA mode software and you do not configure comport[x] any further unless you intend to use FSK, in which case TXd is used for the FSK keying.
REMEMBER, if you swap the interface between USB ports on your PC, Windows may reassign the virtual comport numbers, if it does so, then your software's configuration will need changing to reflect this. The virtual comports provided by Windows will almost certainly be different on a different PC.

Configure your radio. The radio will also have a setting for the CW key; it should be set as a normal / straight key. Other radios need more configuration, (the 857 for example) when used in DATA modes needs to be set in "DIG" mode, which you should have previously configured (radios menu system) to be USR-USB. (Consult your radios operator manual). If you are using any data mode on FM (2M FM SSTV for example) simply select FM.
Many radios that use the 6 pin DATA socket also need to be configured so that the 6 pin DATA socket is selected for use - (you may need to set the radios packet baudrate to 1200).

If you don't configure the radio correctly then things probably won't operate as you would expect.
Advice, DO NOT RELY on using PTT via the CAT system for DATA transmission. This may work with the majority of radios but some, including ALL Kenwood radios open only the microphone socket and not the DATA socket when TXing via the CAT system. Always use the DATA interface (comport[x] RTS line for PTT and you will always have success when transmitting DATA.

To configure the CAT software, you use the second "virtual" comport, which is comport[x+1], (the higher of the 2 virtual comports created by the interface - this is NOT the same virtual comport that you just configured for the DATA interface above).
Some radios like the 817,857,897 have a multifunction CAT socket which can be set for other use than CAT, if you have one of these radios or a radio with a multifunction cat socket then you should use the radios menu system and set the multifunction socket for use as CAT rather than linear or atu.
Whatever radio you are using you may also need to use the radios menu system to configure and enable the radio's CAT system before you can access its CAT capabilities. In all cases where your radio has a menu system, you should use the menu system to obtain several settings from the radio. Baudrate, and in the case of Icom the CIV address, (consult your radios operator manual).
In your software you normally select your radio from a list, then select the appropriate comport, use the baudrate as set on the radio (this can often be changed via the radios menu system and so you should check the setting on the radio), if you're using an Icom, then also set the CIV address (again this can often be set via the radio menu system). You should double check baudrate and CIV address.
When you have checked the settings on the radio and have duplicated the settings in the software you then select the comport, this is comport[x+1].
If you specify any parameter wrongly you will not get a CAT connection but you won't hurt anything.
If you have the parameters set correctly you will get a CAT connection.
To identify the ports provided by the DigiMaster PRO+ you can download, unzip, and run this utility program. On the DigiMaster PRO+ has adjustable RX and TX level controls, should you wish to increase the range of these controls, the overall limit is set by Windows volume control (playback and record for TX and RX).

Configuration summary for the PRO+

The PRO+ provides 2 methods of PTT, 1 via CAT and 1 via the DATA interface (recommended setting), Windows assigns the comport numbers automatically and you will need to determine what values Windows has assigned. They will be different on different PCs. They will always be in the same order [x] and [x+1] (unless you change them). Your software should be configured as follows;-

Comport[x]
RTS = PTT
DTR = CW
TXd = FSK

The FSK (RTTY) keying should be configured to be keyed via comport[x] TXd line.
You also need to activate PTT (RTS on the same port) when transmitting FSK.
The ProPlus will also operate FSK with HRD's DM780 Version 6.0.3.135 build 3744 (DM780 automatically generates the required PTT on the FSK port). The interface will also operate FSK with any FSK software that allows you to activate PTT and TXd on the same port such as MMTTY+EXTFSK.

Comport[x+1] CAT control exclusively.
Exact configuration settings are unique for your computer and your radio.
It is not recommended that you renumber comports unless the comport numbers that Windows has assigned falls outside the comport range of your software. eg, Windows assigns comport 24 and 25 but your software only supports comports 1 to 8... Should you need to renumber comports it is easy to do so but if you are not familiar with process or not confident, then you should seek the assistance of someone who is. The "guide to device manager" - (advanced section) shows how easily it can be done.

It is not possible to list the comport configuration for your PC as your PC will assign and number the comports automatically. Nor is it possible to list every radio's settings for every piece of CAT software.

A guide to using device manager is here;- Click here for help using Windows and Device Manager to identify virtual comports (PDF).
Instructions for using your software should be obtained from your software supplier.
However a guide to configuring the interface to operate with DM780 and with MMTTY+EXTFSK is here; Configuring the DigiMaster PRO for use with DM780.

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AND TURNED ON BEFORE STARTING YOUR SOFTWARE.**