

# CL4x90 Configuration Tutorial for Simple Point-to-Point Cable Replacement

This tutorial is designed to give simple step-by-step instructions on how to configure and use the CL4x90 devices - RS232, RS485 or USB interface. Throughout this document the CL4x90 will be referred to as “device”.

## Selecting the right device to use

The CL4x90 devices are made up of the CL4490 and CL4790 families. There are RS232, RS485 and USB interface versions. **(NB. The USB version is only 200mW RF as it is USB bus powered – no plug pack required)**

Functionality between the 2 series is very similar with the main differences being:

CL4490	CL4790
Link LED shows when paired units are within range	Link LED is lit only when data is being transmitted
Server-client device	Peer-to-Peer device – mesh capable

## Download Software

The Configuration software can be downloaded from:

[http://www.lairdtech.com/zips/Developer\\_Kit.zip](http://www.lairdtech.com/zips/Developer_Kit.zip)

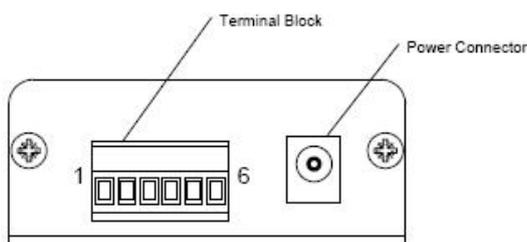
This is the configuration software for the modules but can also be used with the modems and offers some extra features that can help with the debug.

## Communicating to the Units

### IMPORTANT

- The default baud rate to the device is 57600bps, 8, N, 1. This can be changed to suit the host device with the configuration tool later.
- When first powered up the device does not know “who” it is sending data to – it needs to be “paired” first.
- The device when powered on is in “data-mode” by default. Any characters being sent to the device are transmitted over the RF link unless:
  - The characters are received as a continuous “string” which matches one of the AT commands.
- Power the units with the plug packs provided or from a DC source to suit – input range 6-18V 1.3A max.
- Connection for the RS485 version below:

Figure 3- RS-485 CL4790 Back View

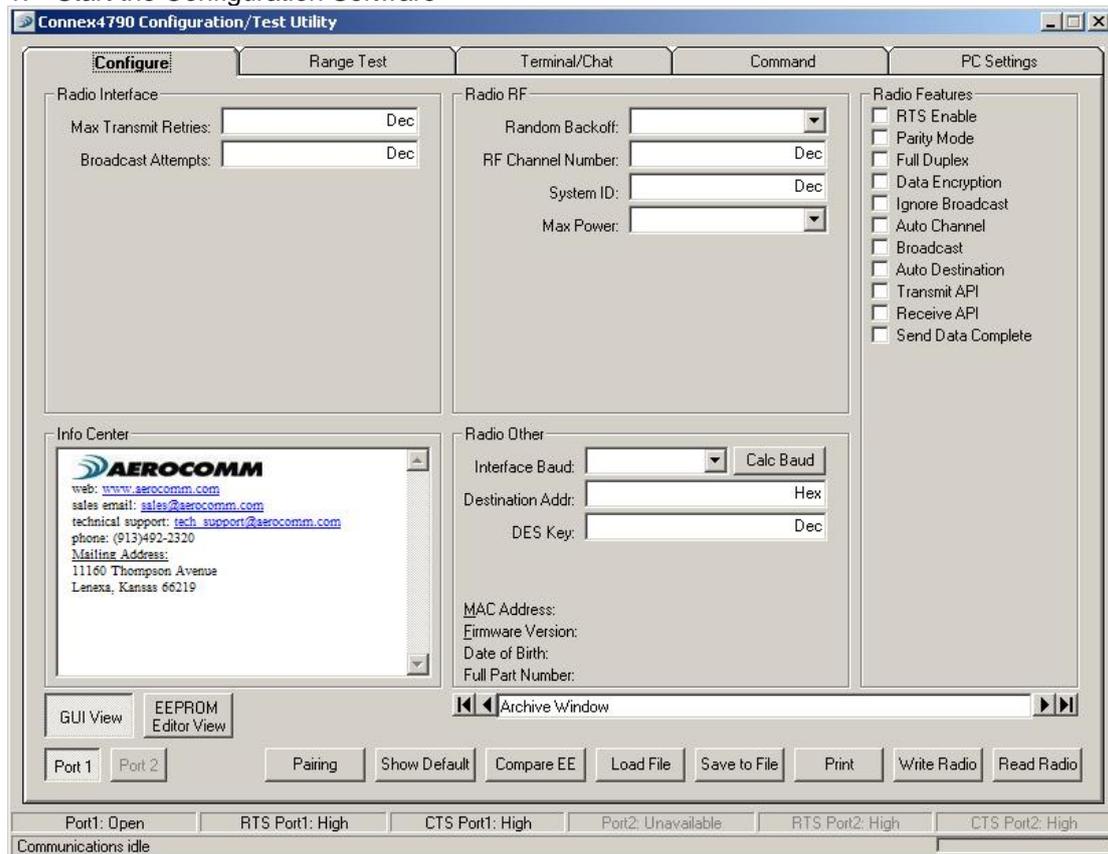


Pin	Description
1	VCC (6V-18V)(1.3 A Required)
2	485- (485B)
3	No Connect
4	No Connect
5	485+ (485A)
6	GND

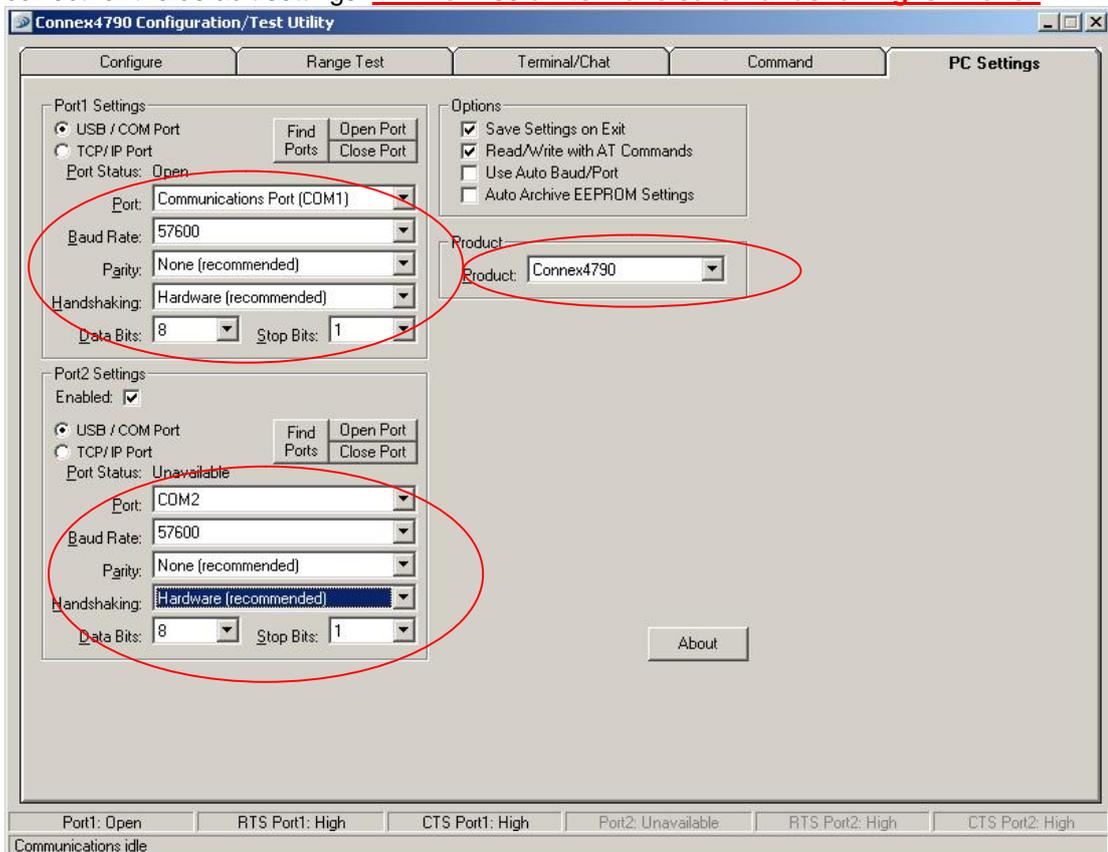
## **Pair the devices**

The simplest way to do this is to connect both modems to a single PC. ie. One device - COM1 and the other on COM2.

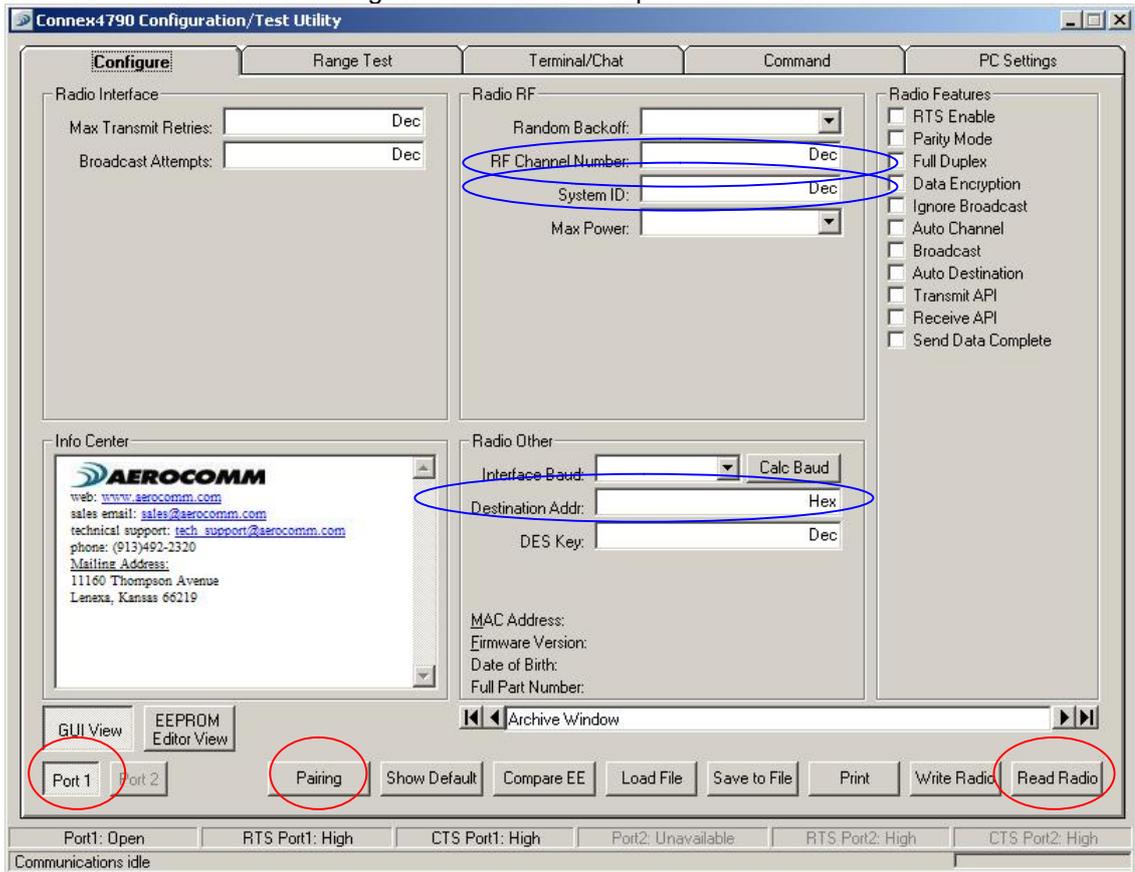
## 1. Start the Configuration Software



2. Select the PC Settings tab and Make sure the Port Settings and Product type below are correct for the default settings. **NB. For 485 units make sure Handshaking is "None"**



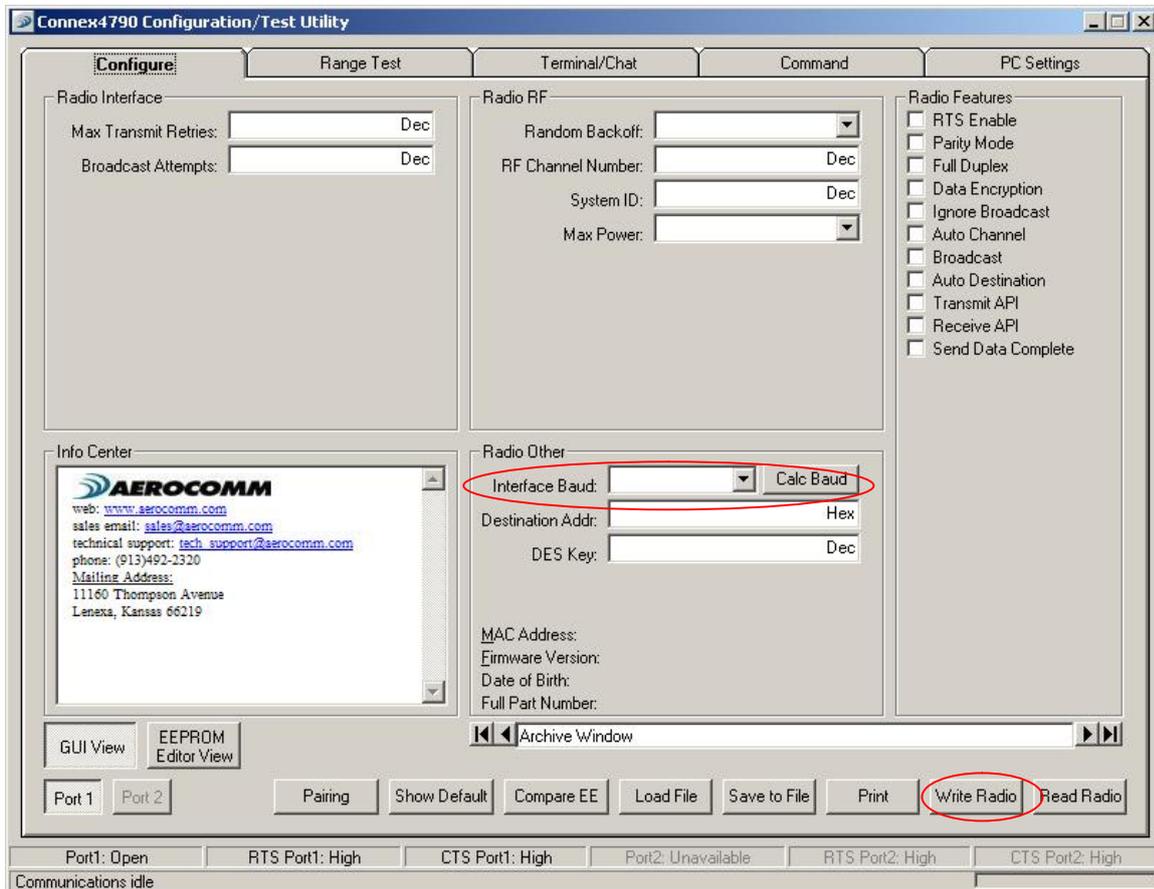
- Go back to the Configure tab and first select the "Port 1" and click on the "Read Radio" button. This will read the current settings from the device. Repeat for Port 2.



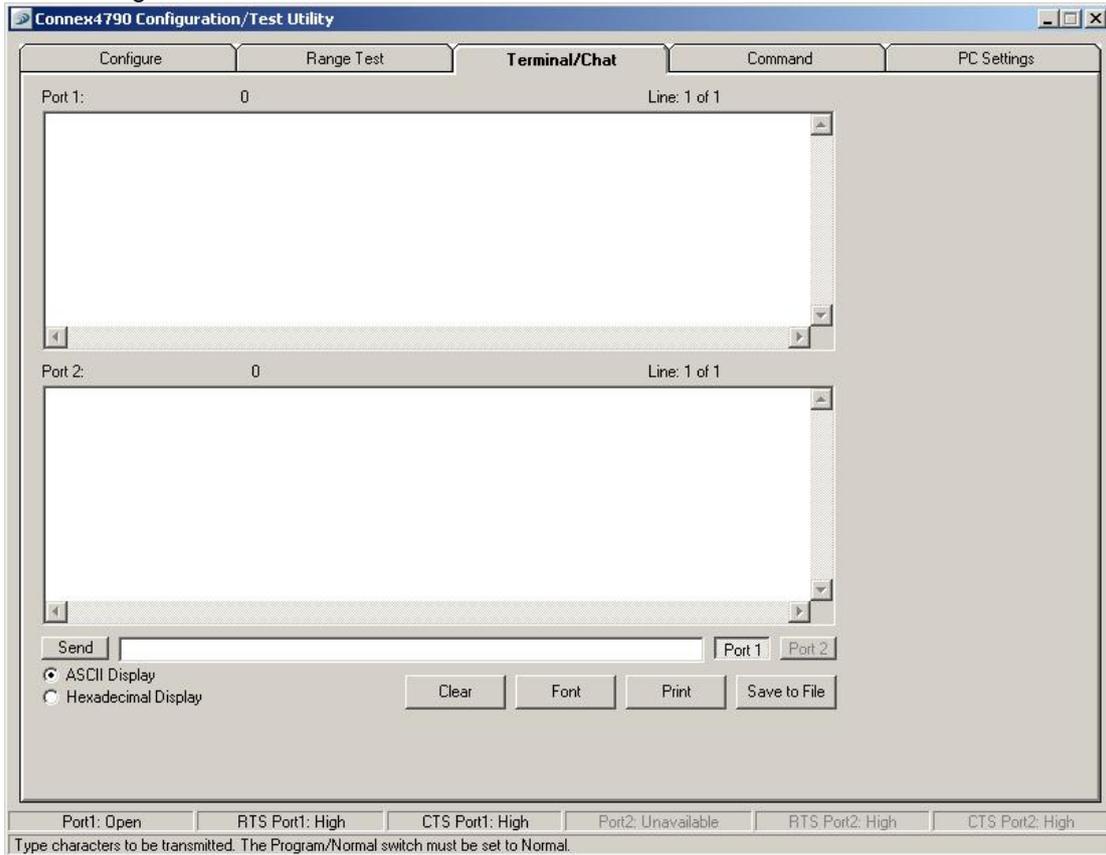
If you have difficulty reading from either device go back to the "PC Settings" tab and fix. The first thing to try is "Use Autobaud/Port" to communicate with the device.

- Once communication has been made to the device click on the "Pairing" button above. This will write the corresponding "Destination Addr", "System ID" and "RF Channel Number" of into each device. **Circled in Blue**

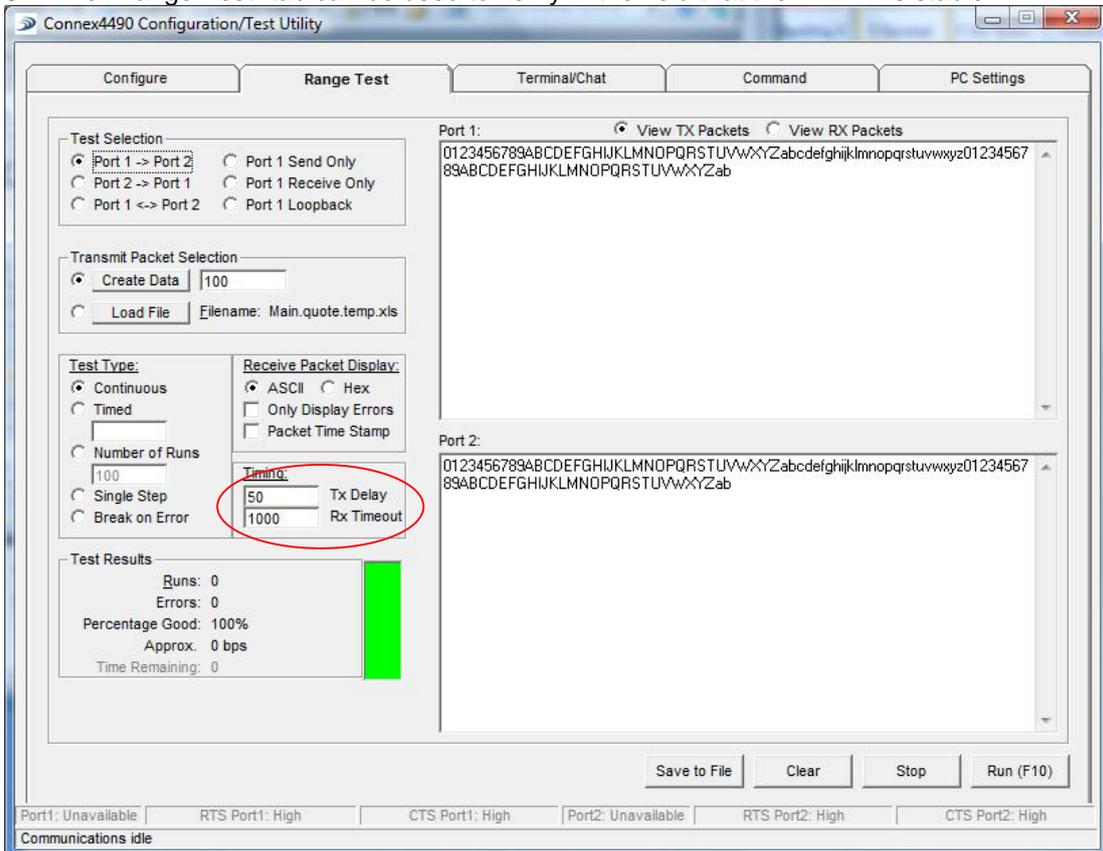
5. Once paired the devices can then be configured to a different baud rate to match the actual equipment to use the devices – ie. Datalogger, PLC, etc.
6. To change the baud rate interface –
  - a. Select the correct device on “Port 1” or “Port 2”
  - b. Change the “Interface Baud” field below to the desired speed.
  - c. Click on the “Write Radio” button – this will save the setting to the EEPROM of the device.
  - d. Repeat for the other device if required.
  - e. If you want to do further tests with the device you will now have to go to the “PC Settings” tab and change the baud rate to the new value.



- To verify that the units are paired correctly you can select the "Terminal/Chat" tab and send messages between the 2 devices.



- The "Range Test" tab can be used to verify in the field that the RF link is stable.



Note the timing values are in mS and can affect the throughput of the test. The RF data rate is 78Kbps.

9. This tutorial is a basic setup of 2 units used as a cable replacement using RF comms. There are many other features avail in these Laird products that have not been covered here.