Z-Max.Net – Application Note
How to set up a Z-Max or Z-Xtreme as a Direct IP Base

Z-Max.Net

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Overview

1. INTRODUCTION

This document provides all the technical information required in order to setup a Z-Max or Z-Xtreme as a Direct IP base (hereinafter referred to as simple the base).

In this configuration, the base is considered as a “fixed base” installed in an office, and it is connected to a PC via a cable.

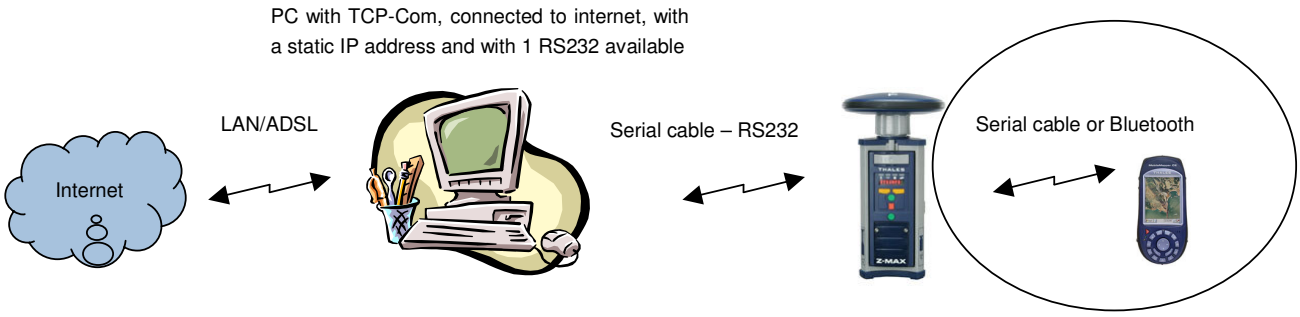
The PC is connected to the Internet network through a LAN network or any xDSL connection, and must be visible from the public internet with a static IP address.

This procedure is only valid for a Z-Max or Z-Xtreme receiver that has the B and K options installed.

2. WHAT YOU NEED

- A field terminal like Allegro/MMCE (a serial cable PN 730178 is required to connect the Allegro to the Z-Xtreme, and serial cable PN 702091 is required to connect the MM CE to the Z-Xtreme. These cables are optional for the Z-Max because of the Z-Max Bluetooth capability) with FAST Survey,
- A Z-Max or Z-Xtreme base,
- An RS232 cable, PN 700461, to connect the base to the PC
- A battery module or any other source power compatible with Z-Max. The power supply kit, PN 111118, is the preferred power source
- An RS232 to TCP/IP converter. In this application note we will use a software converter which is TCP-COM. This software can be bought/downloaded (license price $259) at the following address:
    - http://www.taltech.com/products/tcpcom.html
- A PC with Windows 98/ME/NT/2K/XP/2003, with a one RS232 COM port available, connected to internet and with a static IP address visible from the public internet.

3. BASE CONFIGURATION



Only for the configuration

To set up a base in Direct IP mode, the GPS receiver configuration is simply the RTK base configuration. The following example is done using a serial cable connection to the base.

1. In FAST Survey, go to:
    - « Equip » menu
    - « Configure Base » menu
    - « Station » menu
        - Receiver Type: Chose the correct type from the list
        - Base Ant. Hgt: 0
        - Antenna Type: Pick from list

- Elevation mask: 0
- Log OBEN Data for Avg. RTK Rdgs: unticked

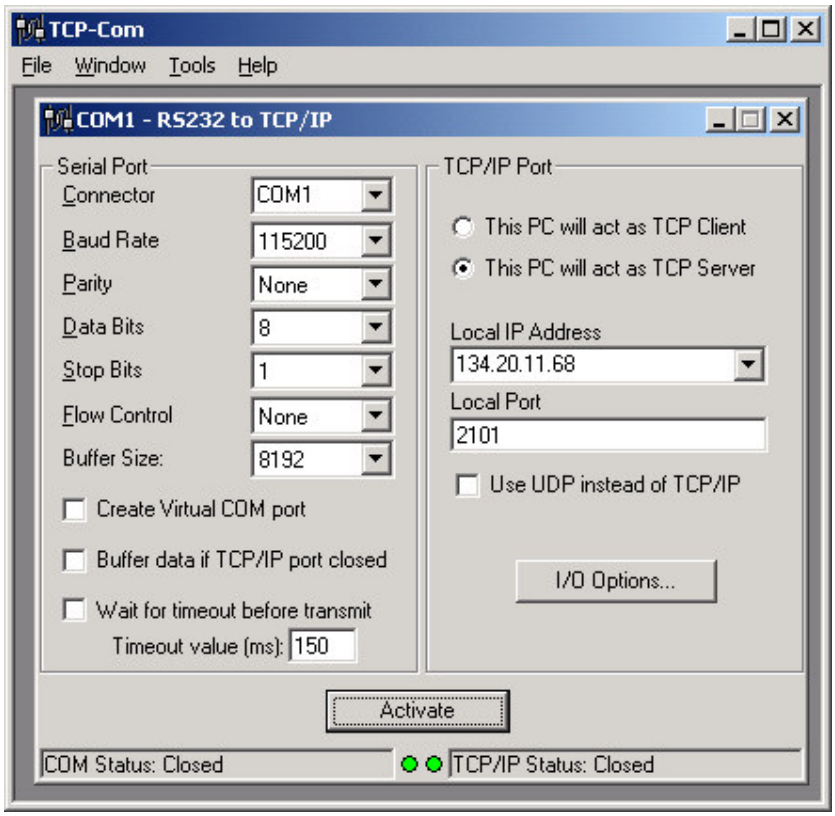
- « Ports » menu
  - Type: Cable.
  - Radio Port: default value is port B.
  - Message Type: select one that is available.
  - Radio Baud Rate: This is the baud rate on the GPS receiver port. We recommend at least 38400.
- Click “OK” on the top of the window to launch the configuration.
- To the message “Rod height of zero…” Answer: Yes
- Set the Reference Station Base position with the known coordinates of the antenna. These coordinates should be determined using OPUS, Auto GIPSY, or some other accurate processing system.

2. Connect the Z-Max port B to the PC using the RS232 cable.
3. Use TCP-Com RS232/TCP IP converter (refer to section 4).

4. TCP-COM CONFIGURATION

Once the Z-Max is configured and connected to the PC using the RS232 cable, run TCP-Com program.

1. The following window will appear:



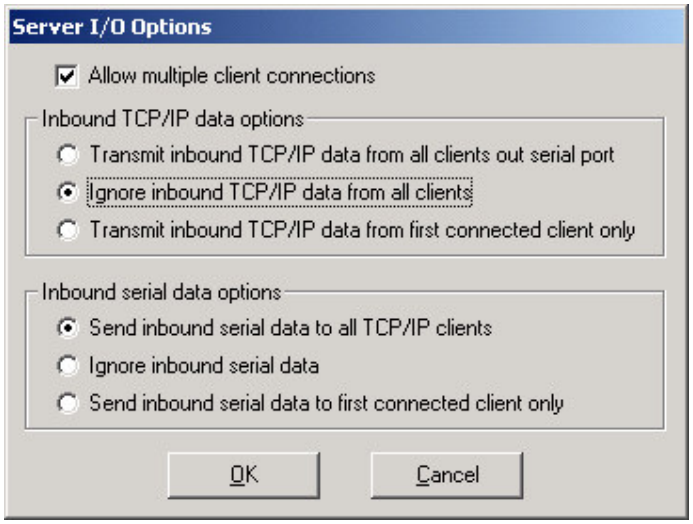
2. On the left part of the window – Serial Port – you must select the COM port and the appropriate parameters, including baud rate, which correspond to the COM port where the Z-Max is connected.
3. On the right part of the window – TCP/IP Port – you must select:

- This PC will act as TCP server

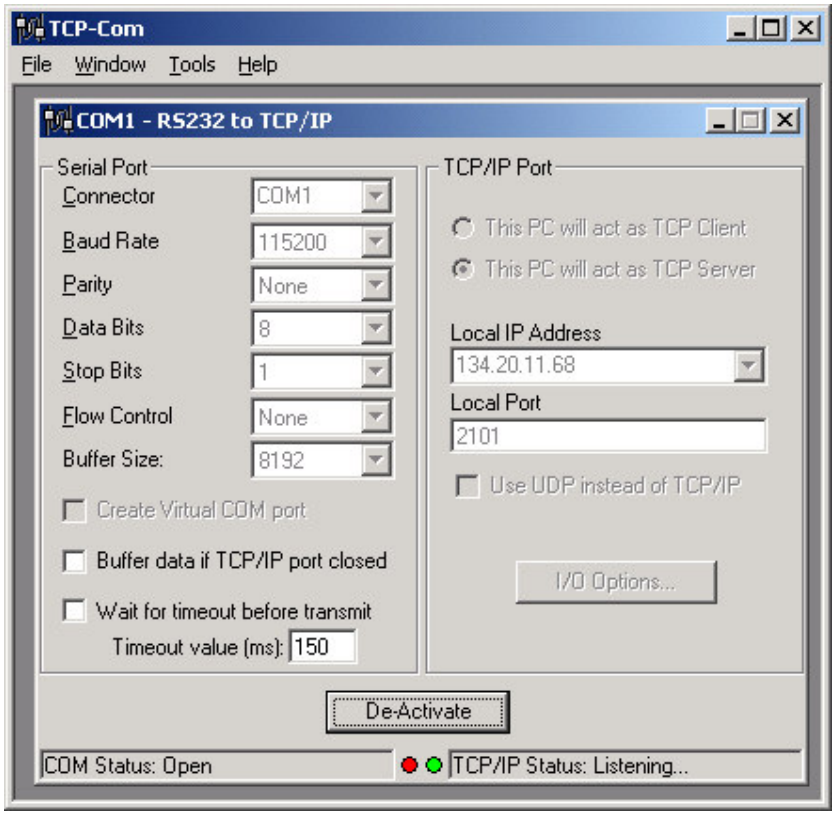
The local IP address will be automatically filled with the IP address of the PC. Then fill the "Local Port" section with the port number you want to use. Typically for GPS purposes port numbers 210x are used. In the above example the port 2101 is used.

4. Click on "I/O Options…" button and make sure that:

- "Allow multiple client connections" is ticked, **then several Z-Max.Net rovers will be able to connect to the base by using the same IP address and port number**.
- "Ignore inbound TCP/IP data from all clients" is ticked,
- "Send inbound serial data to all TCP/IP clients" is ticked.



5. In the main window, click on "Activate" button:



At the bottom of the window, the COM Status should be: Open and the TCP/IP Status should be: Listening.

The COM status LED will blink green/red/green/red when the corrections from the Z-Max pass through the serial COM.

In case of a problem when opening the TCP/IP port, the TCP/IP Status will indicate an error.

IMPORTANT: the IP address and the port used must be visible from the public Internet network). Please contact your IT manager or your internet provider for any questions/issues related to this specific point.

6. Congratulations, your Z-Max or Z-Xtreme is now a Direct IP base which can be accessed by multiple users with the above IP address and port number.

5. HOW TO CONNECT TO THE Z-MAX BASE FROM THE FIELD

You may use one or more Z-Max.Net Rovers in the field to connect to your Direct IP Base.

In FAST Survey, go to:

- « Equip » menu
- « Configure Rover » menu
- « Ports » menu
    - At the bottom of the windows, “Base Config”, select: Manual
    - Message Type: choose the type which correspond to the way you configure your Base
    - Type: select GRPS/IP or Direct IP
    - At the bottom of the windows, “Base Config”, click Add
        - Enter a name for your configuration, example: Direct IP
        - Select the Band: 850/1900 for North America and 900/1800 for Europe
        - PIN: to avoid any problem, make sure that your SIM card does not have a PIN code. Then leave this field empty.
        - APN Server / User Name / Password: fill these fields with the parameters provided by your GPRS provider
        - Click on “Base IP Settings:
            - IP address: put the IP address of your Direct IP Base
            - Port: put the port number of your Direct IP Base
            - Click OK on the top of the window
        - Click OK on the top of the window
- Click “OK” on the top of the window to launch the configuration.

6. TCP-COM INFORMATION

Here attached a short description of the TCP-Com software:

TCP Com.pdf

It is possible to download a free 30-days evaluation version of TCP-Com version 4.1 at http://www.taltech.com/products/tcpcom.html.

With this evaluation version, each connection will be available for 1 hour and will allow you to check your set up.