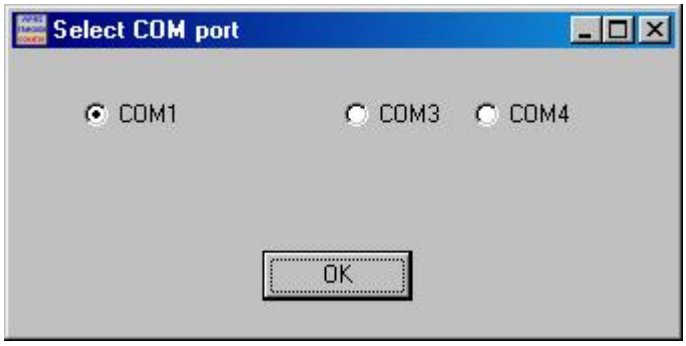
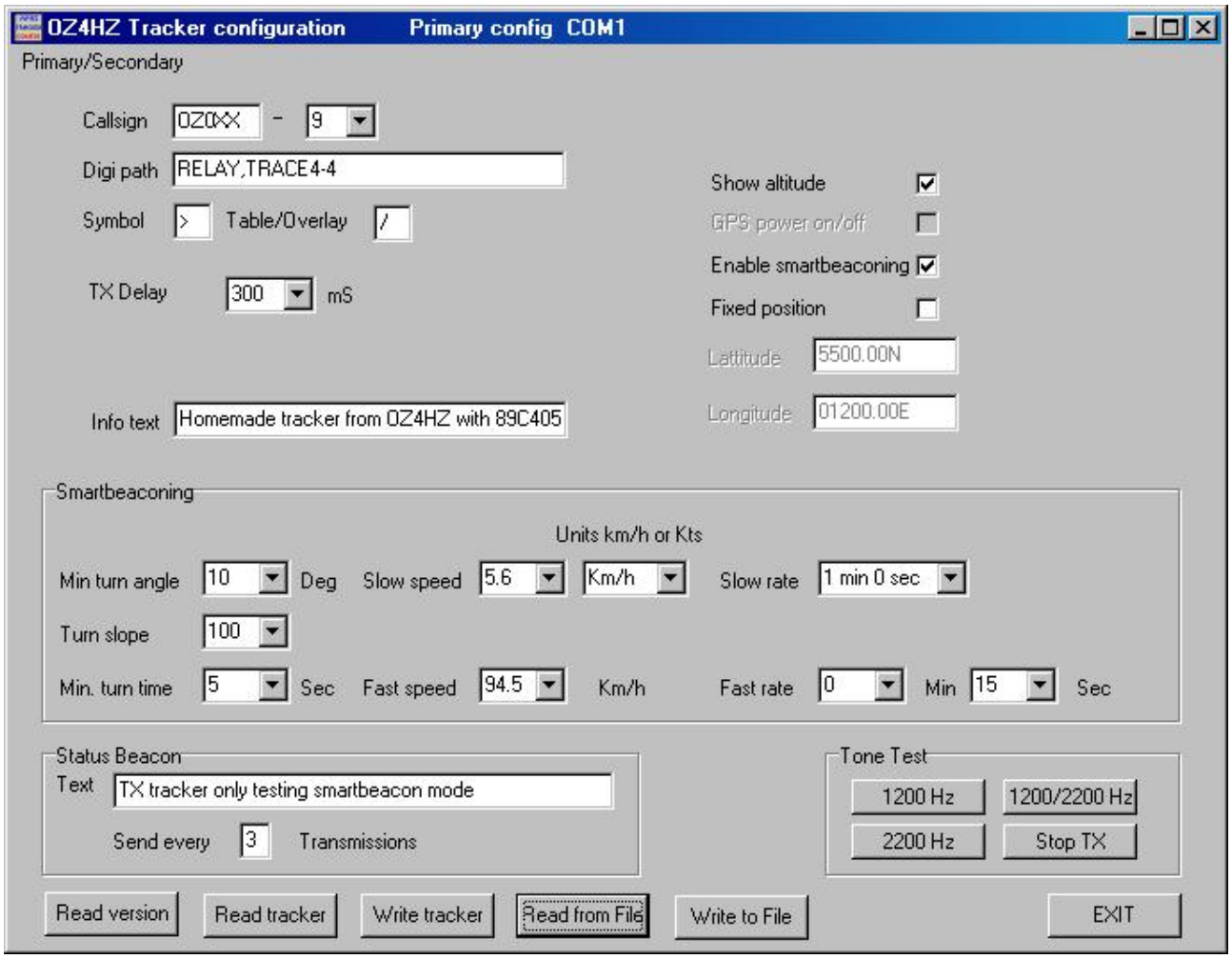
Configuration Program for version 1.1 Tracker (rev 2008-12-05)

The tracker is configured with a Windows program witch can be downloaded from the website.
Use a standard null-modem cable to connect the tracker to the PC. Switch the tracker on (if battery operated) or connect external power to it.
When the tracker is connected start the configuration program. The first window shows all available COM ports.



Select the COM port the tracker is connected to and click OK.

The next window shows the configuration program

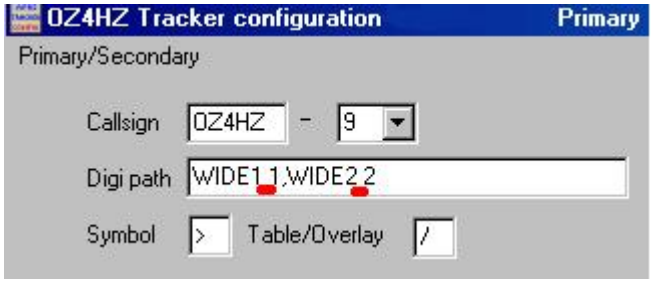


Configuration options.

Primary/Secondary menu selects whether the config program sets or shows the primary or secondary parameters. All parameters (except the Status beacon) can be set independently in the 2 configurations. Primary configuration is used if switch S1 is open and secondary configuration is used when S1 is closed.

Callsign The radio callsign of the transmitting station with max 6 characters excluding SSID. The SSID can be selected with the drop down box right to the callsign.

Digipath Specifies the digipeater path to use. For normal APRS operation in Denmark we now use WIDE1-1,WIDE3-3 but it is of course possible to use other paths i.e. callsigns.
There is a smal "bug" in the configuration program. If you are using WIDEx-x you must replace "-" with a space " " i.e. "WIDE1 1" and NOT "WIDE1-1" See picture below.

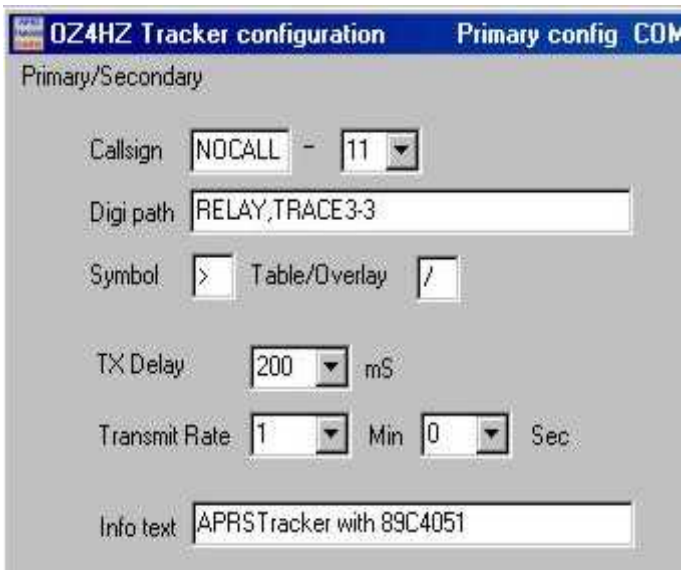


Symbol & Table/Overlay
Specifies the symbol most APRS programs will display when data from the tracker is received.
Use "/" for primary symbols or "\" for alternate symbols.
In the table are shown some symbol examples.
(this table is copied from the TinyTrak manual)

Symbol	Table/Overlay	Icon
>	/	
j	/	
<	/	
[	/	
k	/	
S	\	

TXDelay From the dropdown box you can select the delay in mS after the transmitter is keyed and the data transmission starts. During this time there will only be transmitted flags with the bit sequence 0x7e (01111110 in binary). Range is from 25 mS to 1000 mS with a step of 25 mS.

Transmit rate If the Enable smartbeacon box has not been checked select the transmit rate from the dropdown box.
Range is approx. From 5 seconds to 53 minutes.



Info text A short text send with every transmission.

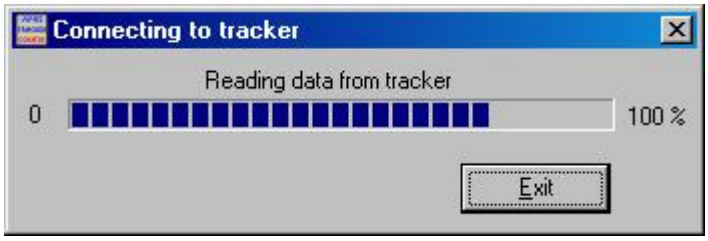
Status Beacon Text beacon to be transmitted after ”normal” position transmissions
The status becon text is the same in both primary and secondary configuration.

Status Beacon Send every Controls how often a status beacon will be sent. If set to 3 the status beacon text will be transmitted after 3 position transmission

Tone Test These buttons is used to transmit either a 1200Hz a 2200Hz tone or alternate between the two at 1200 Baud. This could be used to check the frequency deviation of the transmitter.
Deviation is set by the variable resistor R6.

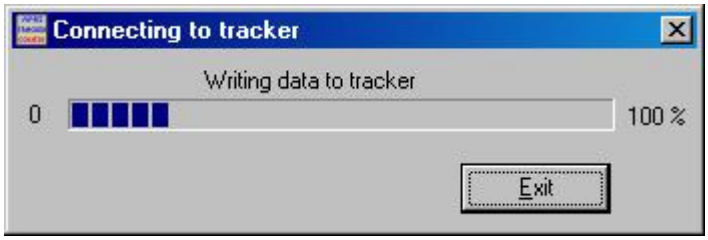
Read version Button Reads the software version of the tracker.

Read tracker Button Read the configuration (both primary and secondary) from the trackers EEPROM



A progress bar will be shown

Write tracker Button Writes the configuration to the trackers EEPROM



A progress bar will be shown

Read from File / Write to File Read or writes the configuration to a file.

EXIT closes the configuration program.

Checkbox options.

Show altitude Checking this setting will enable altitude information to be sent. When the tracker receives A correct $GPGGA message from the GPS altitude information will be sent.

GPS power on/off Checking this setting will enable power control of the GPS unit approx 12 seconds before a transmission takes place. If the GPS data is not valid power will stay on the GPS unit until next

transmission.
If Smartbeacon is enabled it is not possible to use this setting (there will be continuous power on the GPS).

Enable smartbecon Enable this setting will enable the smartbeacon mode. SmartBeaconing is an algorithm originally developed for the HamHUD by Tony Arnerich , KD7TA and Steve Bragg , KA9MVA, the Smartbeaconing ™ algorithm allows the tracker to operate more efficiently by changing how often it transmits depending on speed and heading. If using Smartbeaconing ™ the GPS must sent speed and heading information with the $GPRMC sentence.

When the tracker is moving at a speed at or below the **Slow speed** the tracker will transmit at the **Slow rate** and when it's moving at or faster than the **Fast speed** it will transmit at the **Fast rate** . Between those limits the transmit rate varies between the slow rate and the fast rate. Smartbeaconing ™ also uses heading changes also known as CornerPegging to let transmissions occur when the tracker changes heading.
The parameters used in CornerPegging are :

Min. turn angle
Turn slope
Min. turn time

From these parameters and the actual speed the tracker calculates the Turn threshold from the formula :

Turn threshold = Min Turn angle + Turn slope/Speed (Speed = Actual speed)

An example.
Min turn angle = 10
Turn slope = 100
Min Turn time = 5

1. With a speed of 10 the Turn Threshold is 20 (10+ 100/10)
2. With a speed of 20 the Turn Threshold is 15 (10+ 100/20)
3. With a speed of 50 the Turn Threshold is 12 (10+ 100/50)
4. With a speed of 100 the Turn Threshold is 11 (10+ 100/100)

This means if your heading changes more than the Turn threshold and the time since last transmission is more than the Min Turn time (set to 5 sec in this example) the tracker will transmit a new position beacon.

Fixed position Enable this setting and you will be able to set a fixed position. This is only possible in the primary configuration . In this mode you will not need to connect a GPS and transmissions will only occur at the Transmit Rate.

References:

TinyTrack http://www.byonics.com/tinytrak

Hamhud http://www.hamhud.net

OpenTracker http://n1vg.net/opentracker/