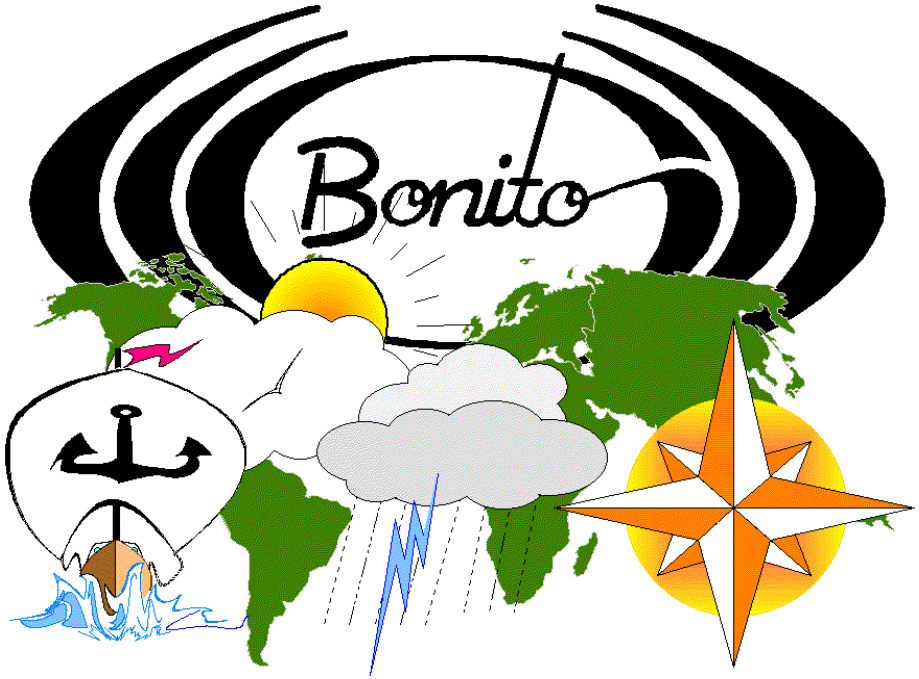
BoardTerminal ´98

a Bonito-compatible nautical terminal

Weather-Receiving and NMEA-Controler



Operating-Instructions

CONTENTS

The nautical Terminal . . . 1
First steps (Installation) . . . 2
The Boardterminal . . . 2
The NMEA-Control-System . . . 3
Dialog-Window and frequency-manager . . . 4
Time-manager . . . 7
Message-manager . . . 8
Correct generelly receiver-deviation . . . 9

Receiving, Adjust and Paramreters . . . 10
Receiver-Control . . . 10
Mode . . . 10
Adjust Frequencies . . . 10
Receiver-Driver . . . 10
Receiving and Antenna . . . 11
Signal-Adjustment- Wath is a useful Signal? . . . 12
Adjustmed-display . . . 13
Frequenz-Spectrum . . . 13
X/Y Adjustment-Display (Adjusment-Cross) . . . 14
Speed-problems of the adjustment-display . . . 14

Receive RTTY,NAVTEX,SYNOP . . . 15
Load Text . . . 15
Save Text . . . 15
Print . . . 16
Fonts . . . 16
Synop . . . 16
RTTY-Setup . . . 16
RTTY-Mode . . . 17
Adjust Bautrate . . . 17
Shift+Markfrequency . . . 17
Polarity . . . 17
Stopbits . . . 18
Squelch . . . 18
Adjust . . . 18
CPU Usage . . . 19
Record Audio-Signal . . . 19
Read Audio-Signal . . . 19

Reciving of weatherfax . . . 20
Save . . . 20
Save fax-buffer (Slant correction) . . . 21
IOC and RPM . . . 22
Shift & Center . . . 22
Filter, Bandwidth . . . 22
Start/Stop-Frequency . . . 22
Spektrum-Analyser . . . 23
CPU-Usage . . . 23
FAX View . . . 23

View or revise weatherfax . . . 24
FAX load . . . 24
FAX save and print . . . 24
+/- Zoom in / out . . . 25
FAX-Overview and Edit picture . . . 25
synchroniozise . . . 25
Slant-correction . . . 25
Cut a picture . . . 25
invert picture . . . 25
Rotate picture . . . 25

View Warnings and text . . . 26
Load text . . . 26
Save and print . . . 26

View synop messages . . . 27
Map . . . 27
Whole world . . . 27
Raster / Grid . . . 27
Synop-Stations . . . 27
Synop-Data . . . 27
Synop . . . 28
Display-Periode . . . 28
Schedule . . . 28
Symbol View . . . 28
Viewdata rastered . . . 28
Animation . . . 29
Create . . . 29
Play . . . 29

Receive CW-Signals . . . 30
Load . . . 30
Save and printing . . . 30
Select font . . . 30
Adjust-display . . . 30

Extensions, Options . . . 31
Summertime - adjustment prolems . . . 32

Appendix - NautiCom

Technical necessary preparations . . . 33
NautiCom Funktions and junctions . . . 34
SUB-D Plug-pin-covering: . . . 34
Cable- and tools-junctions . . . 35

Computer system-adjustments . . . 37
Soundsystem, connection of a radio . . . 37

THE NAUTICAL TERMINAL

FIRST STEPS

Das vorliegende Programm ist ein nautisches Terminal. Es die Basis für alle Anwendungen, die in der Sportschiffahrt eingesetzt werden.

Basic conditions:

Windows-95 or Windows-NT System
with intel-pentium-CPU > 100 MHz
Soundcard 16 Bit Stereo with Line-In plug-jack.

Other basic-conditions would give to you by windows.

There are 4 main functions for a nautical terminal:

1. Meteorology ;receiving from weather-messages etc.
2. Geometry ;weather and navigation using geographically
3. Telemetry ;instruments-technology and NMEA-controling
4. Sundries ;all more useful usings

Install:

Click on the field "start" (on the task-strip).
Choose the adjustments, system-control and the software.
Put the first disk into the disk drive and start the installation.
Choose your receiver.

Then you get a directory BoardTerminal '98.

NAUTICOM (modul) Installation:

To the software belongs a little modul **NAUTICOM**. This you put in a free comport from the computer. The connection to the receiver is usually a jack-jack-cable and has to put into the loudspeaker- sound- or remote-output from the receiver and in the line-in input from the soundcard of the computer. To control a SSB-receiver or to read the NMEA you need a connection from the 9-pol plug-connection of **NAUTICOM**. Further informations of **NAUTICOM** take from the added instructions (see last pages).

Programm Start:

Click on the Icon On the Desktop.

BoardTerminal '98

- Connect the radio with the computer and produce the basic for a good receive. Test the programme. After adjust the windows and lists of the programm-parts. Correct the slant of fax-pictures (see page 21).

THE BOARDTERMINAL

The nautical terminal is the basic, from where you start and control everything.

It got following assignments:

Toolbar	;to call tools and programme manuel
Frequencies	;to organize frequency-lists
Timer	;to organize timer-lists
Messages	;to organize messages-lists

If a timer was loaded and activated, the programme is working for you in the background. In doing so it controls the radio and is choosing the receiving-programmes. Also it controls, if messages are older than 48 hours and kill them. Are there new messages, it put them in the message-list to keep them ready.

If everything is adjusted optimal, the frequency-list, the timerlist and the receiving-programmes aren`t very interesting. The nautical terminal should be seen always with the message-list on the screen. Now you could click on the desired message-icon with a double-click and the whole message is on the screen.

To reach this working condition of the programme, a few adjustments are necessary before. It`s also good to understand some context, that there is no trouble in the programme- or termin-due.

THE PROMETEO

If you got the blackbox receiver IC-PCR 1000 ICOM and you have choosed this receiver by installation then an additional programme named appears.

ProMeteo

A special icon belongs to the receiver IC PCR 1000 to connect with the computer. This icon only is for using the IC PCR 1000 and will be delivered only with the programme-package. The programme instruction and the using is the same like the programme BOARD TERMINAL, because both seize the opportunity of the resources from the nautical, meteorological background-programme MeteoCom 5.0. If needful use the handbook of ProMeteo.

THE NMEA-CONTROL-SYSTEM

The programme got some more functions, which the user didn`t notice, but it`s better he knows something about them. There are a lot of things in the background, which make possible different usings. The nautical terminal got an NMEA-controler, who brings informations from the com-interface to a using with a wind-tool or a seamap-programme.

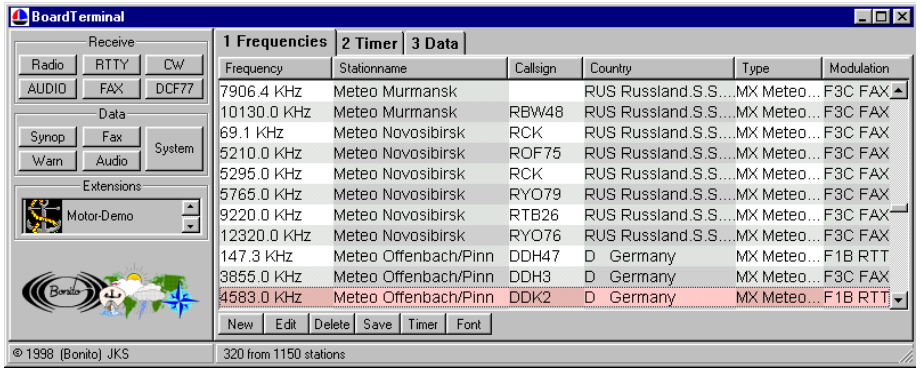
A different using from a different trader must be BONITO-compatible. Even if you use a multiplexer with some data-in-puts, to provide the only com-port at the computer with NMEA-signals. It doesn`t help, because the programme take the com-port and therefore no different programme evaluated the dates !! Also 4 comports didn`t help, because windows 95 only can organize 2 comports. And last but not least a few comports didn`t help, when the dates from only one aneometer will be taken from different programmes.

Only the nautical terminal receive the dates and give them with an unvisible background-progamme to different usings. The electrical part of this NMEA-control is the small modem **NAUTICOM**. With that the receiver and tools will be controled and the data-lines operated. The technical necessary things for the programmer are made available in NMEA_CONTROL.ZIP on install-disk. There can be special modems (NMEA-multiplexer) for different things, too.

Usually the GPS-option got a screen, to control the NMEA-signals. If you think, there is no signal from GPS to the aneometer you can control as an amateur too, if dates come into the computer. Are these dates by standard-NMEA-tools absolut unreadable, then it might be, the baud-rate in the programme is adjusted wrong or the polarity (data +/- exchanged) of the NMEA-tool is disorted.

Connetions from Receivers and NMEA (see page 33).

DIALOG-WINDOW AND FREQUENCY-MANAGER



Is the timer not activated, the programme only can be operate manuel. Otherwise the receiving-options are blocked. The nautical terminal got a dialog-window for the operating-fields and one for the lists.

Receive:

All receiving-options can be controled with the operating-fields radio, audio,rtty, dcf77, fax or the frequency-list.

Date:

All received messages can be watched or read with the options synop, warn and fax. It`s easier to work with the map "messages".

Extensions:

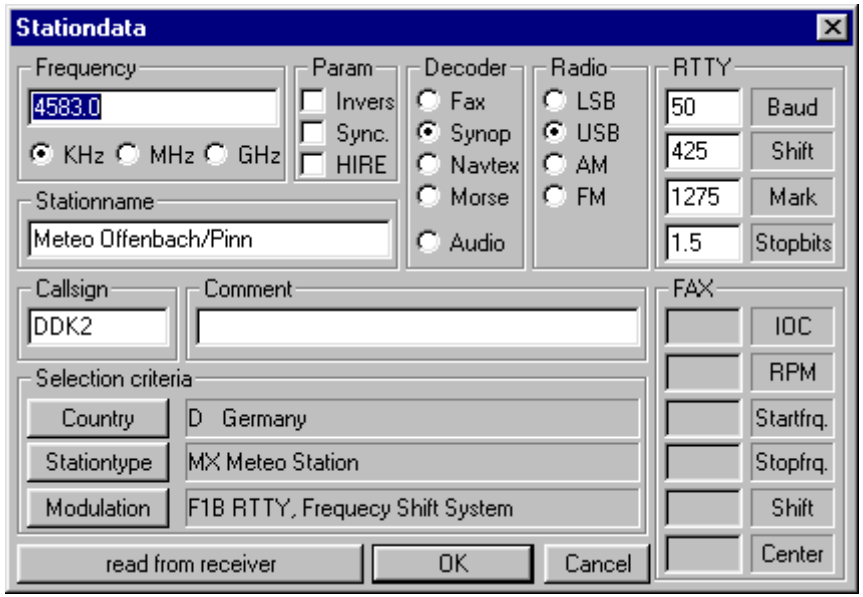
Different programmes like CHART, GPS, WIND, DEEP, SPEED can be started with the option-list. A file named PROGRAMME\BONITO\EXTENS.LST determined this list. The programme can be put into the list with the drag & drop method.

Frequencies:

This is a list, which contens the necessary dates to receive the weathermessages. With double-click the station will be steer to the receiver and the corresponding receive-programme will be called with the adjust-dates.

New:
a window appears with some inputs. It can be build up new dates, which is decribe in the next paragraph.

Edit:
To adjust dates in the right way you have to start the corresponding receiving-programme first and after adjust the frequency with receiver-control. After the parametre of the receiving-programme will be adjusted so, that there is a good receive.



Then you put in the station-name, the call-sign etc. After you choose the land, stations-type and modulation-type. Then you type in the frequency, which should be shown in the list. This don`t must be the frequency, which the radio is controling. The real controled frequency is minus mark and minus shift /2. It can be control a different frequency, if it was reading from the receiver-controling first.

read from the receiver: (pay attention here)
Here the dates will be read from the FAX or RTTY-parametre and from the receiver-control. There it will be read in the just adjusted frequency and by FAX the slant. The working-condition will be taken so how the dates are found momentary. If you save the whole list, the adjust-frequency and the slant are put in forever. This way you set up individual deviations from the adjust-frequency and may be a slant correction from the fax-stations. The slant from a fax-picture and the controled radio-frequency can`t be understand later, because this dates are unvisible.

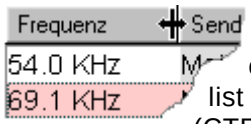
Delete:
The selected Frequency will be deleted in the list.

Save:
The whole list can be saved. If you changed something in the list, it`s better to save them too.

Timer:
A selected input, will be take over into the timer-list. Change to time-manager, there you find the input.

Font:
Load the type for the frequencylist, if you think it`s necessary. Because not every choosed screen-type got an optimal.

Lists- arrangement, selection und reducing:
If you put the mouse on the lines between the upper beam of the list, a cross appears. If you catch it now with the left mousekey and pull on the right or the left, you can determine the broad of the screen. If you click on the first three rubrics, the list will assort corresponding. Select the list with "STRG" (CTRL) and click simultaneous the desired line, then a multiple choosing is possible. Individuel selected lists reduce the quantity of the injure, which come in the frequency-list on the screen.



Frequency-choosing:

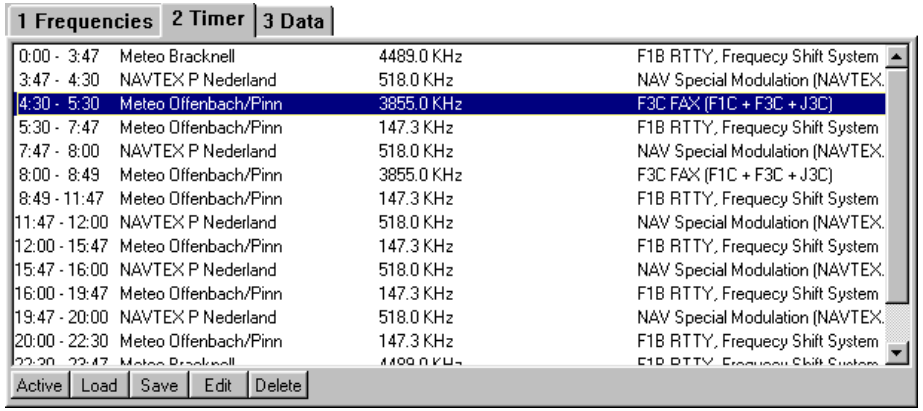
If you selected a frequency-injure and touch the space-type only the frequency on the radio will be turn on. This you do, to watch, if something useful is on the frequency. The receiving-programme isn`t choose and not ready too. If yet, then it must be accidentally.

If you push the enter-type, set with a double-click on a list-injure then the frequency will be adjusted, the receiving-programme is reading to work and the necessary set of parametres for receiving is given. The receiving-programme is ready for work now.

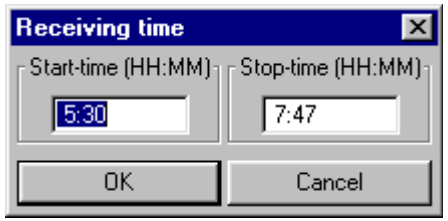
$ = settle list:

Like described under "Edit and read from receiver" you can saved frequency-differences and a FAX-picture-slant too. If you want to have a "clean list", without individuel, unvisible inputs, you have to type the sign "$". then all inputs for frequencies and slants are killed. Only if you save the list now, this change will be saved. Otherwise you can test the problem now. May be the problem was only a senseless input. If it wasn`the problem leave the programme - without saving -.

TIME-MANAGER



The time-manager controls, what and how you wants to receive. An input in the timer-list you got, when you push in the frequency-manager on the field "timer". With this you got a copy of the just selected frequency.



Edit:

Now you have to change the start- and stop-time, after the timerlist is working. You can get the function "change" also, when you set a double-click on an list-input.

Active:

The timer must be activatet to do everything what`s in the list. You have to push the field "active".

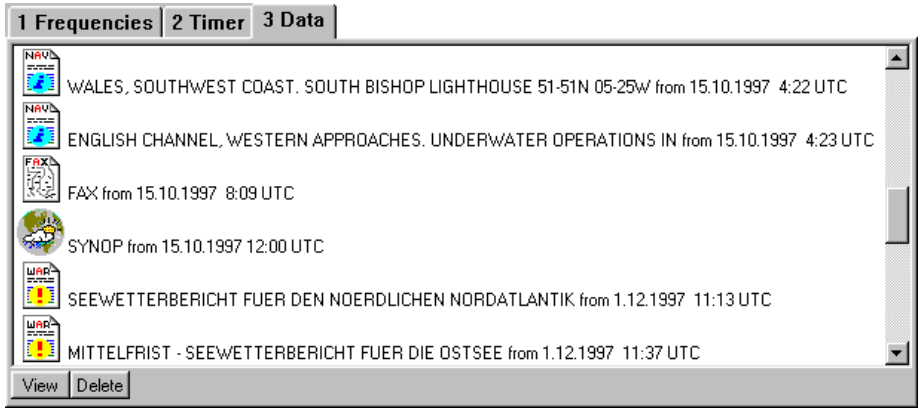
Load and save:

You can save the list with any name. So you get your own list for every usings. Therefore you can save a list. A list, which was activated by saving, will be activated after loading.

Delete:

Also you can remove an input of the list, by killing the input with this function. The screen in the lowest line shows the time in UTC. This is the time, on which the station applies and the timer is working. Pay attention, that your clock is setting right. Notice too, that you had choose the correct time-zone. If you got problems with incorrect summer-time changes read the appendix.

MESSAGES-MANAGER



View: (also listen too)

Every received message will be shown on the screen. With choosing such a list-input and click on the field "watching" the corresponding diagram-programme will show this message. You can get it too, if you set a double-click on the input.

Audio:

Inputs with audio-icon naturally wouldn`t be watch, but will be made hearable. Pay attention, that the speakers are turned on. Soundcards, which are not bi-directional, will issue a mistake-message, if you had turn on a receiving-programme. To hear an audio-record during a receiving-programme is working, you need a sound-card, which can work in both directions (bi-directional). A lot of note-books can`t do that.

A little tip:

If you got a bi-directional sound-card, you can take an audio-record for doing experiments or demonstrations as a tone-source for the receiving-programmes.

The reproduction of sounds demands, that in window-system under "record" from the volume-control the wave-function is turned on too.

Delete:

If you didn`t need a message after watching it, you can delete the message with the field "del.". Otherwise the inputs will be delete automatically after a time or not. This time is been determined in the system-adjustment-menue.

SYSTEM-ADJUSTMENT

Fundamental most of the things, which determine the look of the windows etc, can be adjusted. Usually you set the different windows of using, how you want to use them later. Then after leaving the using an init-data will be produced, which will be loaded after call in again. Different adjustments will be saved this way too.

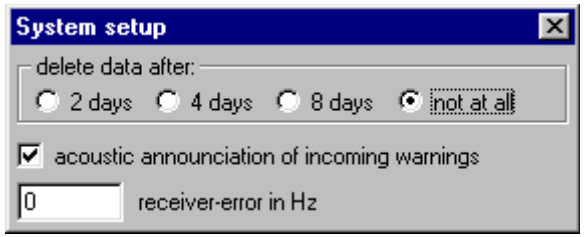
Sometimes you have deformed an using that way, that it would be better, to got a reset-function. Such a reset-function we didn`t make available, because it didn`t get every possibilities which are necessary. Here now a solution for it:

In the index \PROGRAMME\BONITO you find the init-data.
These dates always ends with INI. like Fftrtty.ini

Fftrtty.ini

If you delete these dates, then by starting the using the inputs for this init-data will be reset new on standard-worth. By delete normally don`t forget, that the init-data goes into the wastepaper-basket and from there it could be restored.

You can also try, to manipulate the init-data with text-programme by hand to correct some adjustments. Important dates can be changed with the following menue. It got an own init-data, in which the system-dates are saved. They determine the delete of the messages after a time, the bleeping by warnings and the frequency-correction of the receiver.



CORRECT GENERELLY RECEIVER-DEVIATION

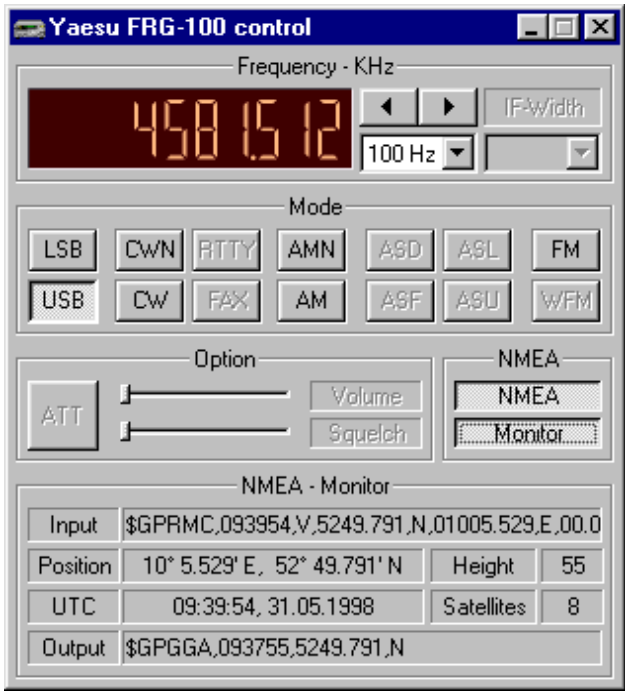
A lot of receiver got a difference between screen and actual frequency. For a safty work with an adjusted frequency-list an exactness of the frequency is necessary. If you notice, that a frequency always got the same difference, then here you injure the difference. (f. e. 30 or -100 Hz). After the receiver will add or deduct this difference on principle.

Frequencies, which were read in the frequency-list in "change" are always individuel frequency-adjustments and weren`t be allude from the general deviation-difference.

RECEIVING, ADJUST AND PARAMRETERS

RECEIVER-CONTROL

This small programme you always find in the task-strip. It depends which receiver you choosed by installation a lot of things are controlable. The programme usually is controlled by the frequency-manager. Before you change something here, it will be better to change the frequency-list and the system-option (receiver-deviation) This programme only has to control the receiver and the NMEA.



MODE

You can control LSB, USB, AM, FM etc. For the usual timer-work you should know, that every receiving from weather-messages only needs the mode USB.

ADJUST FREQUENCIES

If you click on the numbers of the frequency-display, a small insert-window appears and you can insert a frequency. If you type of one of the edge, then the frequency counts up and down with the steps of the under laying list. The ZF-broad isn`t necessary by every receiver, like different things after choosing receiver-types.

NMEA AND MONITOR

If the field NMEA is activated the serial port controls the incoming NMEA signals (see page 3). With the field MONITOR the window opens more and you can see the NMEA signals. Incoming GPS-signals will appear additional as a position.

About connections from radios and NMEA you will find more on page 33.

RECEIVING AND ANTENNA

Everything is being attached by the quality of the receiving. Decisive is the antenna. But it`s not so difficult to build the best antenna. Take an exactly 6 metre simple wire and connect it with the core of a coaxial-wire. Then take a next 6 metre simple wire and connect it with the screen. Then tighten all horizontal like a T. 12 or 18 metres are a little bit better. Any other lenght for weather-frequencies are not avisable. The simple wire-antenna from BONITO is still the reference-antenna, which is been compared with others.

The result is:

"Nobody offer us an antenna, which were better"

It`s usual to use the stern-post like an antenna. There a different compromises, if you don`t can connect the wire on your boat. Activa-antenna used on board are very difficult to handle. They amplify the jammings more than the signal. We offer a special antenna, but we never say, that our antenna is better than a perfect tightend wire. Our antenna only is better than all other compromises, when a wire-antenna can`t be tightend.

The first try always should be started with a good receive. If you didn`t get a clear signal, you have to optimate the antenna or have to wait until the signal is become better. If you ignore this rule and you try it with a senseless signal it`s difficult to interpret the parts of adjustment and the function of it. But it doesn`t mean, it doesn`t work. Because a profi can get something from a senseless signal.

How to adjust something, what you can`t see and hear ?

If you had adjust a signal by good receiving-conditions perfectly, you can decode it by worth conditions too. Because the adjustment and the parametres are saved in the frequency-list and you can call them later. It`s not necessary to adjust again. In doing so we will see, what the decoder can do. In every case he is working well, because the decoder didn`t "hear" the jammings like you. The electronity filtered a lot. On the other hand the speaker is repeating everything like it comes in. And so there is something to "hear" but your ears can`t check, if there is a good signal or not.

SIGNAL-ADJUSTMENT- WATH IS A USEFUL SIGNAL?

Before you adjust a signal it`s necessary to perceive the tone-signals. After you can start the receiving-programme. If you didn`t know the difference between morsing, fax, rtty etc. it`s useful to acquaint youself with the tone-demos (CW, FAX, RTTY etc) in the nautical terminal. If you got a bi-directionale sound-card you can use such signals as tone-sources for your frist tries.

A signal is being composed of, that there are different arts of tones (pitches), which will be interpret (decoded) different. The distance between the first and the last tone-condition you call band-width. There are a lot of different tones in the radio. One thing real decoded signals have common. If you have doubts, if there is a real and senseful signal, then there is no signal. Senseful signals always are very different to senseless signals. Now you only have to perceive which kind of signal it is: morsing, rtty or fax.

These things you will learn soon. Only by the different types of rtty it`s a little bit difficult. We only evaluate NAVTEX and RTTY. But there are a lot of types, which we didn`t evaluate, but the radio is still sending it. Therefore not every senseful signal is a useful signal. There are signals, which we are decoding correctly, but the letters are very senseless. Maybe it was an arabian, who was writing letters with a telex, which are very senseless in our latin alphabet.

If you receive correct synoptical number-codes, it can happen, that a user think, this are senseless dates.

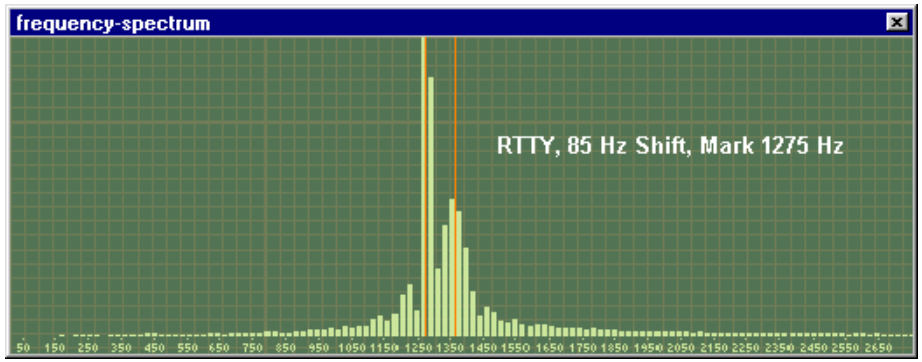
To adjust a signal that way, that the receiving-programme works exactly now, you need a adjust-help. These adjust-helps shows, where the signal is and how jammed the surrounding is. The rtty-programme got two possibilities, the fax-programme got only one, which is the same like the rtty-adjust-helps.

ADJUSTMED-DISPLAY

The adjustment-displays generally repeat the income tones of the radio that way, that you can watch the adjustment-conduction from the radio. These displays should help to make the adjustment transparent. By your first tries you only should turn the adjustment-button of the radio, to see, how everything works. But later, when you adjust excactly, because you want to take this into the frequency-list, then you have to do these things with the receiver-control. Because the computer didn`t know, when you turn the radio. He only can know it, when you adjust all with the receiver-control.

FREQUENCY-SPECTRUM

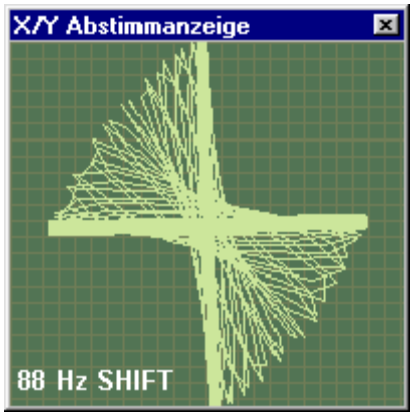
This is a display, in which all tone-frequencies up to 2500 Hz will be marked from left to right. The high is according to more volume (amplitude). By doing the adjustment you can see how the amplitude is dependent on the pitch. Here is to say, that you always should try to find the pitch, which devoted the biggest amplitude. There are excact instructions by which pitch is adjusted right, but the practise is dependent on the filter-curves of the radio and they are not always so, they should be. The unfinished frequency-list always is a theoretical and isn`t adjusted to your individuel radio.

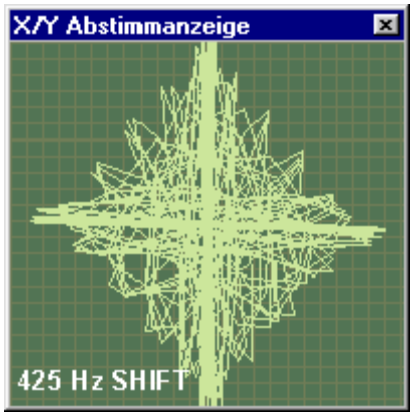


You should take care, that the signal exactly is between the red lines. The difference between the lines is being connected with the band-width (shift). The position on the scale is the pitch. The pitch is the amplitude. This picture is the reproduction of a rtty-signal with two different tones. One for mark and one for space. Both tones should be placed on the red line. By a fax-signal usually the band-width is bigger (the red lines have a bigger distance). Usually you only see one beam on the right red line. The adjustment-process will be explain in the respectively programme-sections.

X/Y ADJUSTMENT-DISPLAY (ADJUSMENT-CROSS)

On the page before is an example with an rtty-signal, which excact adjustment-possibilities here with an X/Y-display will be realized. This adjustment-help only will be used by rtty. First you have to take care that you are between the red lines with the shift. This you do with the frequency-spectrum. With an exactly adjustment after you try to build a cross. If it didn`t work, try to play with the shift. Is the shift exact, the beams in the cross are really right-angled. Now you have to watch and to take care, that the cross exactly is in raise.





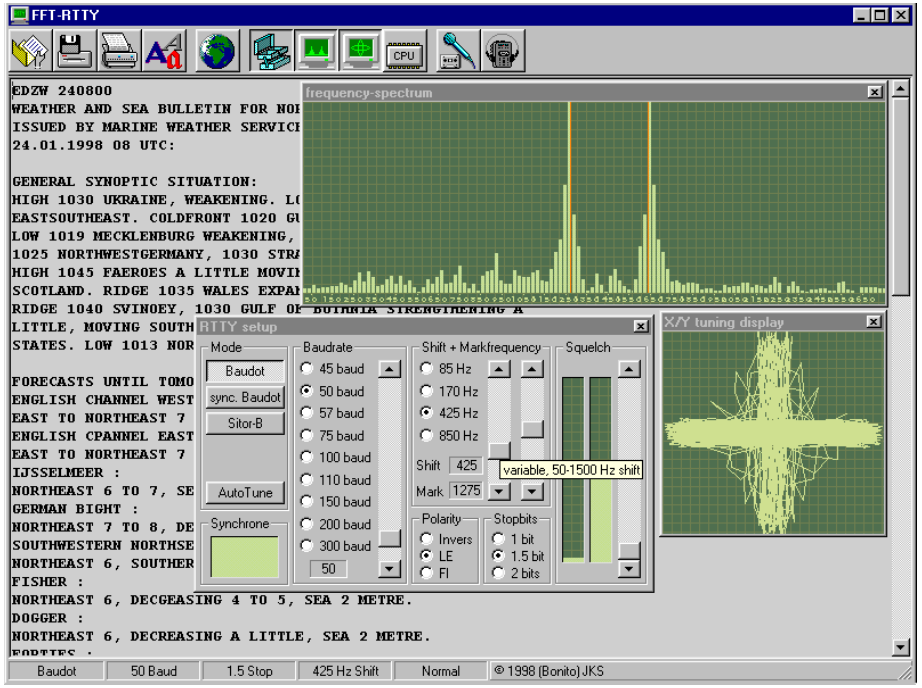
SPEED-PROBLEMS OF THE ADJUSTMENT-DISPLAY

The adjustment-displays used the CPU very often. If you consider now, that the receiving-programme is working, a lot of windows are open and a lot of different things are working too, then very quickly a computer with low measure-frequency can`t work anymore. The only help now is:

CTRL + ALT + DEL

Stop the task with rtty or fax and retain when and by what kind of doing you overtax your computer. In the future only turn on one adjustment-window. Use the CPU-option in the receiving-programme. This one shows, how wide you have overtax your computer and if you can risk to open a next window. BONITO-programmes are very active and shows what multitasking is and what it means to use multitasking and Pentium.

RECEIVE RTTY,NAVTEX,SYNOP



This is the surface of a receiving-programme , which can receive RTTY. The text-window repeats the receiving text. In normal case you always see the lowest line, which is writing live. If you want to read the unvisible text, you have to click with the mouse into the text. If you want to go back to the lowest line, you have to click on the highest blue window-edge.

LOAD TEXT

You can load in or inquire a text in RTF-File-format or in normally ASCII-text.

SAVE TEXT

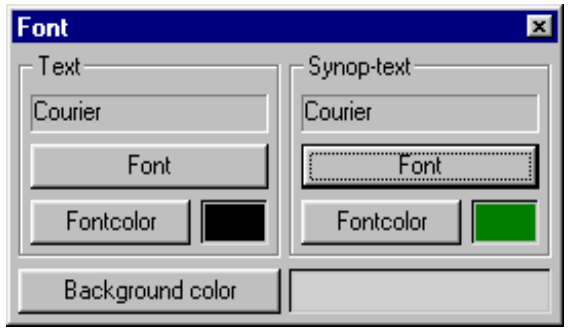
The whole text is in the text-memory. If you leave the programme, the text will be lost. The received text usually will be inquire, if he got message-format and if need be saved as a message. But it might be, that the message-start is come
in wrecked. With this function you got the possibility now, to save a marked text-section.

Mark: Put the mouse on the first position of the text, press the left mouse-key and pull to the last textposition.

PRINT

Here you can mark and print the text.

FONTS

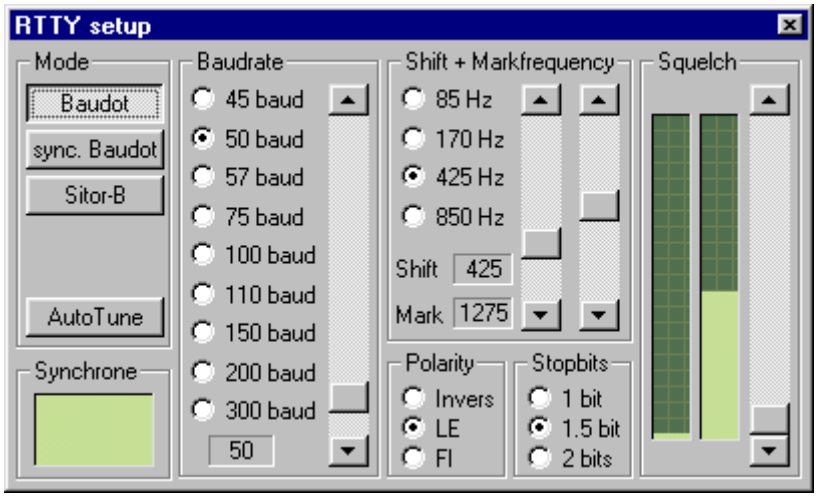


The received text and the synop-decoder-text can get a different textcolor and character.
It`s usefull to choose an unproportional character (courier), because the weatherlists can become badly arranged.

SYNOP

Here you can go to "watch Synop-messages"

RTTY-SETUP



Here you can adjust all important parametres.

RTTY-MODE

Baudot: This utility refers to the usually rtty-text and is an asynchrone utility. This type will be used usually by press- and weather-messages. Synop-messages will be send too. Asynchron means, the signs are marked with a start- and stop-bit, because the signs come in very irregular.

Sync. baudot: Baudot is an asynchron utility. But you can assume, that the dates will be send from automatically machines. If there are interferences the programme proceed, that start- and stop-bits come to the expected position. So you can proceed, the start- and stop-bits always are on these supposed positions, also when they are wrecked too. This contribute too, that the result got less mistakes. But if the sending is be writing by hand, it`s not useful to choose this utility.

Sitor-B: This is an synchrone utility, which is build up different to baudot, but it`s using the logic of baudot. It got peculiarities, which are essential undisturbed. Sitor is been used by NAVTEX and always got 100 baud.

AutoTune: You can use it by adjusting automatically. Assumption is, that you have take the signal in the decoded area. This is the try to adjust the situation better.

ADJUST BAUTRATE

The speed of the different bits we call baudrate. Baudrate is coming from baudot. The most used baudrates are nearly always 50 baud, sometimes it happens that a message is been sended with 75 baud (Meteo Bracknell). Seldom 100 baud will be used (Meteo Grengel). NAVTEX always got 100 baud, but this type is called Sitor-B.

SHIFT+MARKFREQUENCY

Shift is the distance of both bleeping tones, which are signalize the bitcondition of rtty-bytes. They will be marked with two red lines in the frequency-analyser. The mark-frequency determine the position of both marks. 85 Hz Shift will be send from Meteo Offenbach 147,3. 170 Hz Shift will be used from NAVTEX. 425 Hz will be used from Meteo Offenbach on short-wave >3 Mhz . 850 Hz will be used from Meteo Moskau or Meteo Roma.

POLARITY

If by good conditions the letters might be complete senseless, you should try, if the conditions of readable become better. NAVTEX always is sending invers. But there can be different things, why it`s unreadable. It might be, that the text got an erroneous sign and the decoder only is writing number and signs now. In such case you could try, if in LE-mode the letters become readable. FL you only take, when the reverse happend, namely synop-5èr-number-groups become letter-groups.

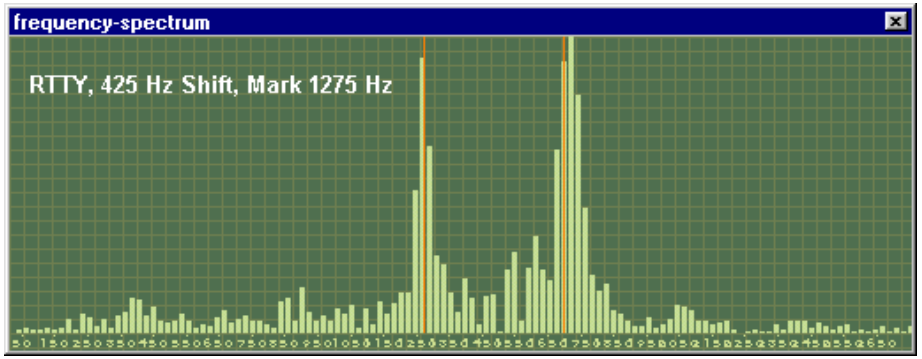
STOPBITS

By baudot there a only 1,5 stopbits. But it can happen, that a station is sending 2 stopbits. Therefore this adjustment-possibility. By sitor it`s not neccessary to adjust something, because this utility got no stopbits.

SQUELCH

If you receive rtty on short-wave it`s absolutly normal, that signs will be decoded because it`s permanently bleeping and crackling. If the station isn`t sending something, there is regulary a "letter-salade". If the real signal isn`t disturbed now, you can adjust the slide of squelch that way, that no signs become decoded , if they didn`t got the right amplitude. Both scales shows the average of noiselevel and the momentary signallevel. Stay always with the slide a little bit over the noiselevel and a little bit under the signallevel.

ADJUST



I f you can percept both signals , you can percept the shift too. Adjust the radio with receiver-control so, that both green-colored signal-amplitudes come exactly on the red lines, or that the adjustment-cross is standing exactly vertical upon. If necessary read under adjustment-display, X/Y adjustment-display (adjustment-cross) page 14 or frequency-analyser on page 13.

CPU-USAGE

Here you can check the utilization of the computer, if he got enough power to open a next window. Specially the adjustments-displays can be work really intensive. (read page 14 too)

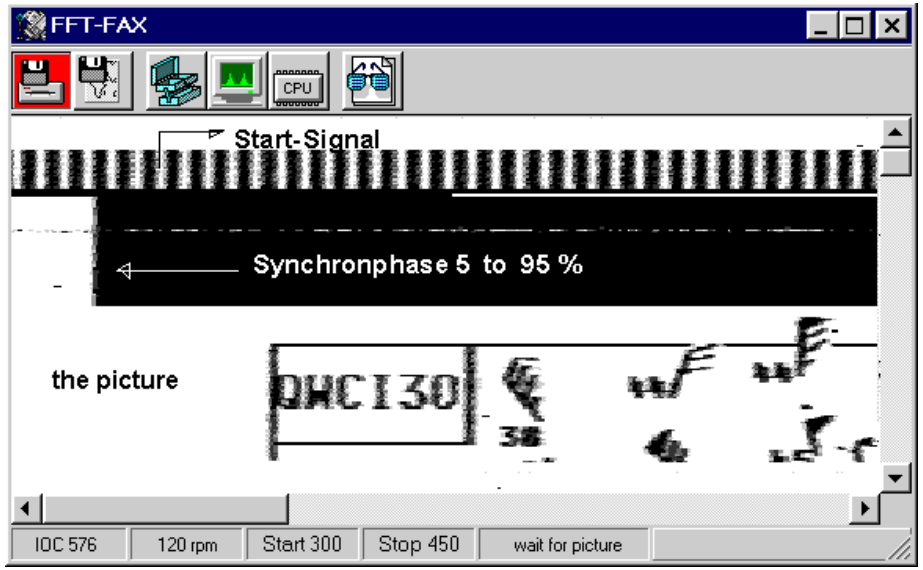
RECORD AUDIO-SIGNAL

Here you can record the received signals to do some experiments. Some sendings, like NAVTEX, can be so short, that you can`t test all parametre-possibilities.

READ AUDIO-SIGNAL

With that you can read in the record of a short sending. The adjustment-displays and parametres try subsequent to adjust senseful, to find out, how to adjust optimate, to catch the next sending.

RECIVING OF WEATHERFAX



Such a window you see, when you activate the FAX-programm. The screen of the receiving is 1:1. So you didn`t see the whole picture, if the window is smaller than the modul-resolution. The repeating of 1:1 is necessary, to realize the smallest details by recording.

In the mentioned window you see the start-tone, followed from the synchron-phase and the start of a picture. Later the stop-tone follows, which started the saving of a picture, so the starttone has activate the "saving". (see completely left, the icon is press down ((red)).

SAVE

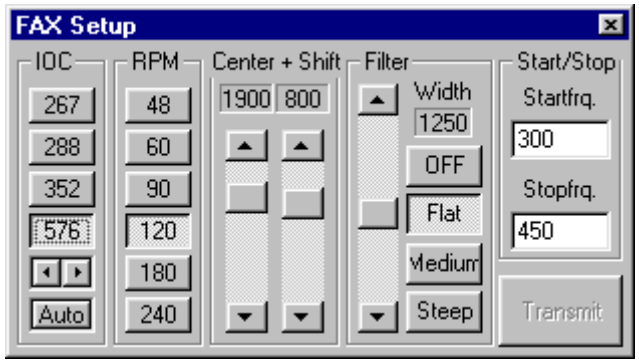
If you activate this field, from this moment the picture will be recorded. Normally a picture will do this automatically by receiving the starttone from its own. But if you had turn on just in the middle of a fax-picture, you can activate the saving manuel. But it will be saved only from that moment you had turn on "saving". The next stopsignal will saved the momentary picture.

Not only the recording isn`t activated by starting the programme, the left screenmargine isn`t synchron too. Press the right mouse-key, then the picture will become left-synchron.

SAVE FAX-BUFFER

If you want to save the fax-picture manuel, the whole picture-memory will be saved with this function. This picture can be revised and sized with fax-view subsequent.

FAX-ADJUSTMENT



SLANT-CORRECTION

Here you can adjust all parametres of a fax-picture and correct the slant of a fax-picture. Trying the first time the picture will come in in a slant. In this case you can equalize with both fields "<>" (with "Auto") the picture to the left or to the right. Press the small angel so long, until you see an effect. Then type so long, until the picture is running straight. After press "auto", with that you convert all moduls to this equalize. If you didn`t do that, you have to adjust every slant for every U/min and every modul yourself.

This adjustment will be saved in FAX-INIT-file and will be used for every FAX-calling. The frequency-list got an unvisible data-field, in which the slant-corection will be hold. Usually it`s on zero. After the list would changed in FAX-mode and the dates would load in with "read receiver", the slant-correction will be take and saved into the list. If there is a zero in the list-input for a Fax-station, the slant from the usual FAX-INIT-file will be used. If there was "reading" a slant-correction, then this will taken to the Fax-programme.

Not every Fax-station got an exactly progress of the picture-frequency. It might be, that a picture from a station is running in a slant. If you correct the slant now, then all pictures from all other stations will running in a slant.

What to do now? Correct the slant for this picture individuel and save it in the frequency-list under "Change and read receiver". Then search for a different fax-station and correct the slant exactly. With this, the FAX-INIT-file is on that worth, which normally station should be adjusted with, which got no individuel input for slant in the list.

IOC

IOC are different picture-sizes, which can be there by normally fax-receiving. By our wanted weatherfaxes we regularly used the IOC 576, sometimes 288'er too.

IOC 267	;directly receiving of Meteosat-pictures
IOC 288	;Small weathermap-IOCl, ca. 800 pixel width
IOC 352	;Press-pictures, ca 1100 pixelwidth
IOC 576	;Big weathermap-IOCl, ca 1800 pixel width

RPM

The number of revolutions of a fax is named with rpm. A normal weatherfax everytime used 120 rpm. Seawathermaps from Russia come in with different rpm like 60, 90 or 120. Otherones they didn`t use.

SHIFT & CENTER

There a several reasons to slide the adjustment from the normally higher ton-area into a deeper tone-area, to didn`t get any interferences. That means, you slide both red lines from the frequency-spectrum-display horizontal on the scale.

FILTER, BAND-WIDTH

The band-width is the distance, which constitute a signal from the first tone-frequency until to the last tone-frequency. That`s the distance between both red lines in the spectrum-display. The filter should have the same broad. But smaller or wider filter-adjustments will give improvements too. Otherwise you have to try, when and how a wrecked fax becomes better conditions.

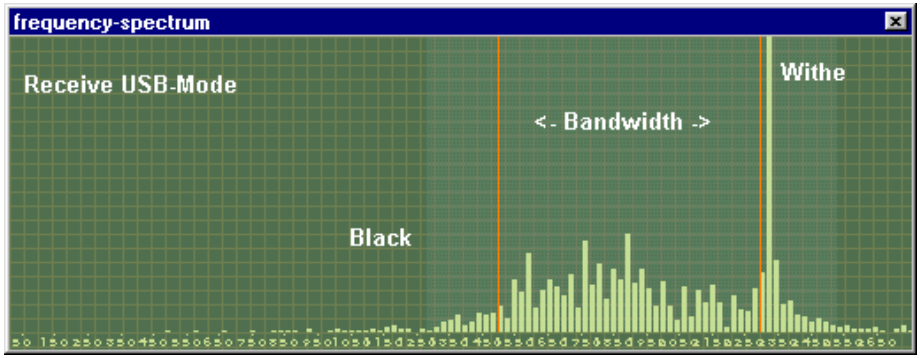
START/STOP-FREQUENCY

Start- and stop-frequencies are tones, which will be sended at the beginning and at the end of a picture. Usually there is 450 for start and 300 for stop. A 288'er IOC everytime comes with 675 Hz.

The start-tone turn the programme on recording and the stop-tone would be save the picture.

SPECTRUM-ANALYSER

This is the display to adjust the tone-frequency (see page 13 too). Using USB usually the fax-picture got more signal-beams on the right, which deflect nearly unvisible left to the end (left red line) of the band-width.



To get clear, white pictures, the main-beam always will be before the red line. If there are interferences you can slide the center-frequency to the left or to the right, reduce the band-width or change the filter. To see what you do, you can turn on this window.

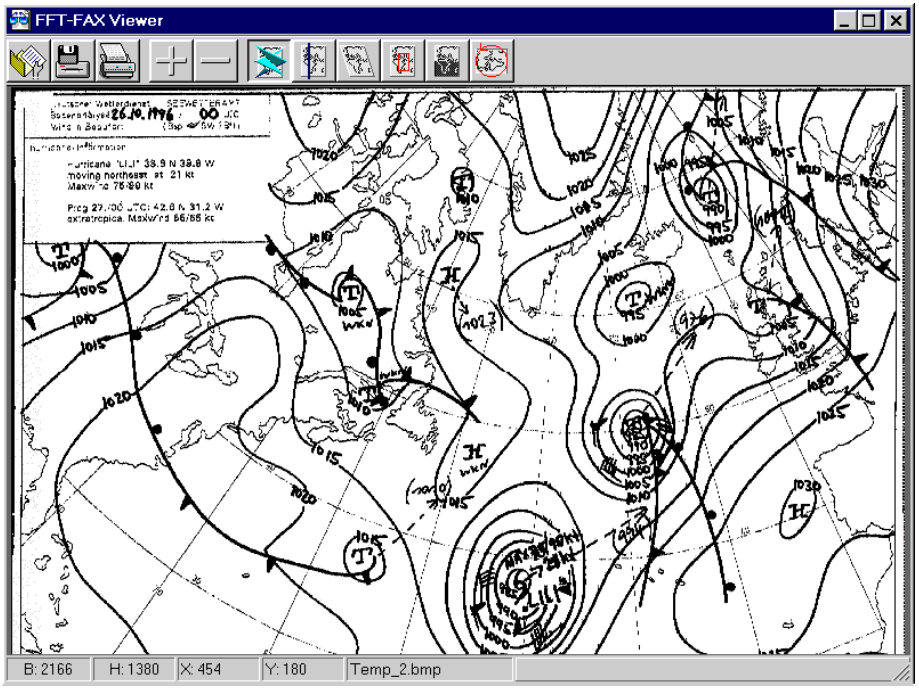
CPU-USAGE

Here you can check the usage of your computer, if there is enough power to open a next window. Specially the adjustment-display of the spectrum-analyser can be work really intensiv (see page 14).

FAX VIEW

From here you can go to revise or to watch the fax-picture.

VIEW OR REVISE WEATHERFAX



A received weathermap is a BMP-picture, which can be revised with the usual window-programmes. Sometimes you miss special tools, to change or revise the problems of a fax-receiving. With this programme now, you can turn, synchronize etc. fax-pictures much faster, because it`s special for our usings.

FAX LOAD

With the usual disk-requester you load a picture. In the lower part of the disk-requester you find a field, in which received pictures will be shown, if they were selected in the list above. In the index these pictures are named BBM. If there are no preview-pictures , you have to turn off in windos-explorer under view, options the display-option "No MS-DOS options ....", because we need the display from such MS-DOS options (extensions)

FAX SAVE AND PRINT

The picture can be saved or print. The usual windows appear without special attributes.

+/- ZOOM IN / OUT

The picture can be zoom in or zoom out with plus or minus. In the general-view-mode it`s possible to choose a section with the mouse. That means too, only one time.

FAX-OVERVIEW AND EDIT PICTURE

If this field is pressed down, then the whole picture is on the screen. In this mode the following fields on the right are activated and the picture can be manipulate like follows..

SYNCHRONIOZISE

If you rceived a picture, which got the left margine in the center of the picture, use this function to synchronozise. Click the field and click on the place, where you want to have the left margine the next time.

SLANT-CORRECTION

If a picture got a slant, use this function. After click on the picture-margine on the top and drwa a line along the slant of the picture. With a next click the picture will be corrected.

CUT A PICTURE

Click on the field and draw a rectangle with the left mouse-key. The rectangle will be on the screen blinking, until you press the right mouse-key, to edit the picture. You can also slide the margins additional with the mouse. Click on the margine with the left mouse-key and draw with pressed key the blinking line to the desired position.

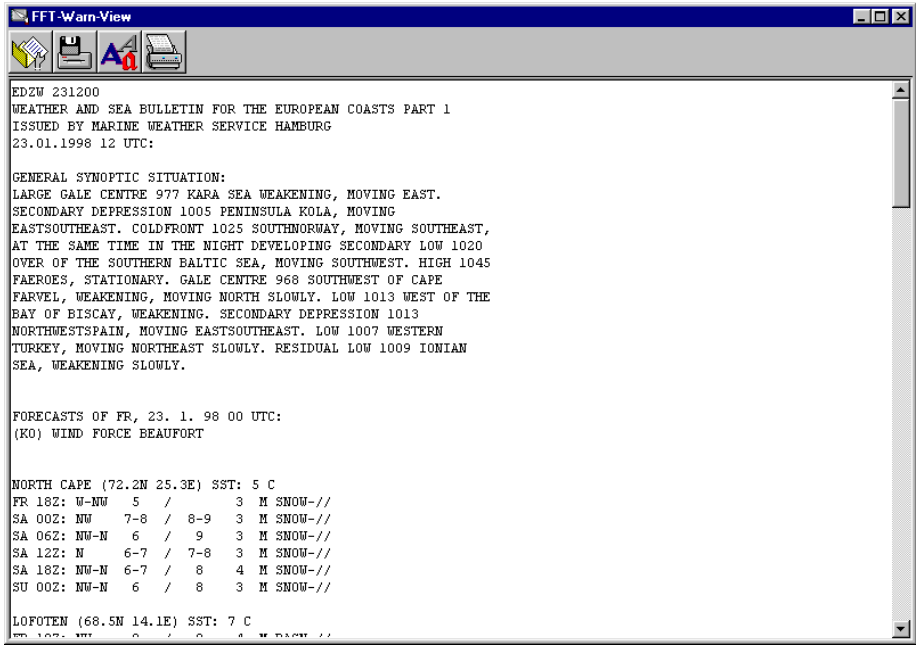
INVERT PICTURE

With LSB you can receive a picture revers. This you do, to get a better picture-quality. The picture becomes negative and with this function you can invert the picture, to become white.

ROTATE PICTURE

Is the picture placed wrong, you can rotate it, until it`s in the right position.

VIEW WARNINGS AND TEXT



This is a simple programme to watch, print and save the received text-messages. Usually the text can be edit with any other programmes too.

Mark text
Mark with the pressed left mouse-key and draw down.

Slide text
Click on the marked text with the left mouse-key and slide it to the right position.

Delete text
With the key DEL a sign can be killed. If a text is been marked, the whole passage will be killed.

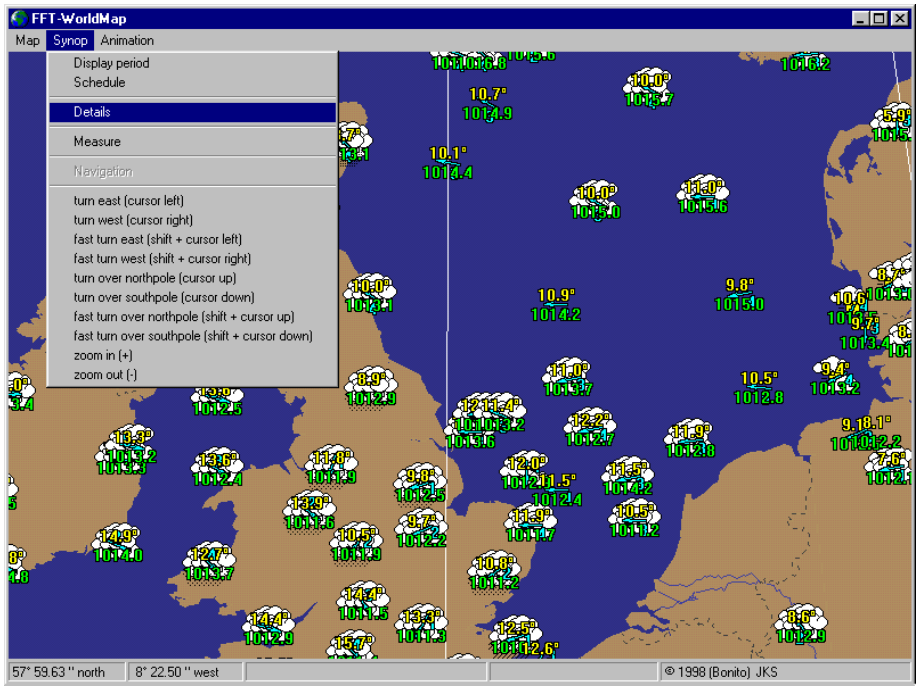
LOAD TEXT

With a disk-requester a text will be load, which you can watch and edit.

SAVE AND PRINT

Der Text kann gespeichert oder gedruckt werden. Ist ein Text markiert wird nur dieser gespeichert oder gedruckt.

VIEW SYNOP MESSAGES



This programme shows received synop-dates as weather-symbols on a world-map. With a simple click on such symbols a window appears with the informations. Every new station-message will be shown, so it`s in the choosed period. The messages can be shown only from one term too. If you click with the right mouse-key, then you can kill a senseless message too.

The globe can be rotate with the cursor-keys left, right, above and down. If you press the shift-key then everything works faster. The keys plus and minus of the number-keys (Attention with notebooks) zoom in or zoom out the section. You can choose some functions with the menue-list.

MAP

WHOLE WORLD

The whole globe is on the screen

RASTER / GRID

The geography should be shown with coordinate-grid or without.

SYNOP-STATIONS

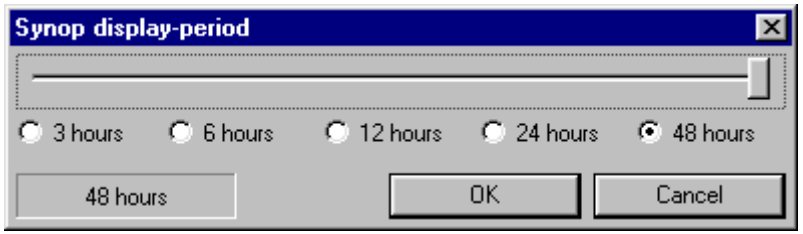
You can show the stationpoints or not.

SYNOP-DATA

Maybe you want to see the synop-dates - or not

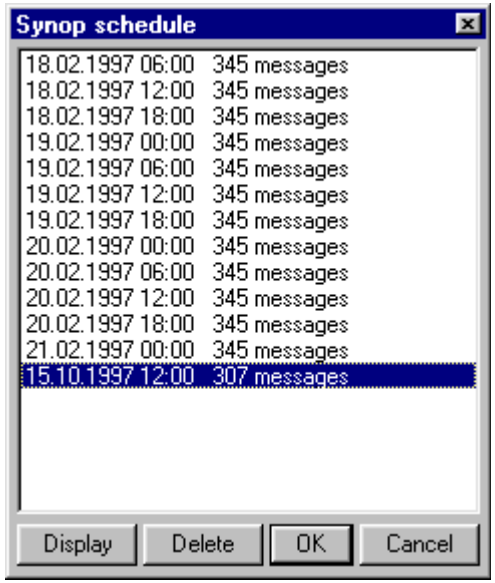
SYNOP

DISPLAY-PERIODE



The station-messages usually will be shown from a determined period without choosing a term. This you can determine with this function..

SCHEDULE



Everytime, when you receive synop-dates, these dates will be write into the memory and a term-list will be keep.

Station-messages even by choosing can be shown only from a choosed term. Several choosing with Strg (CTRL) is possible. This terms must be choosed by raster-date-views and animation.

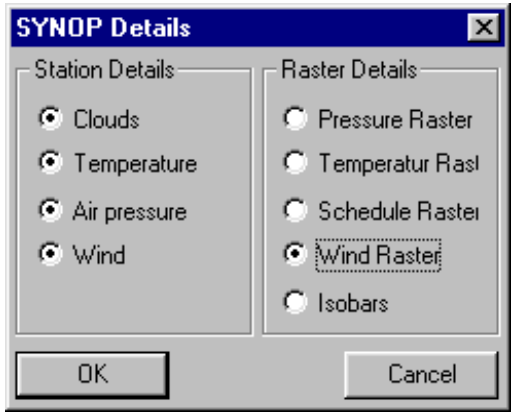
You can kill a term or bring to view at once.

SYMBOL VIEW

The dates will be shown als small picture-symbols. You can choose clouds, wind, pressure and temperature. Maybe you only want to see wind or clouds or temperature.

VIEWDATA RASTERED

You can supply the picture with a wind- or pressure-raster, which calculated the average worth. Wind will be shown as a small arrow, pressure and temperature als color-raster. The combination from different views and raster is possible.



DETAILS

The details can be shown mixed too. The schedule-raster applies to the left dates, like clouds, temperatures etc. and put a symbol-field over the present picture. In connection with a schedule-raster the given worth are average-worths.

MEASURE

This is a help-function for calculating distances. Click on the edge and a line is created. Another click lays down the point and down in the picture the distance will be shown. If you click with the right mouse-key, the function is turned off.

ANIMATION

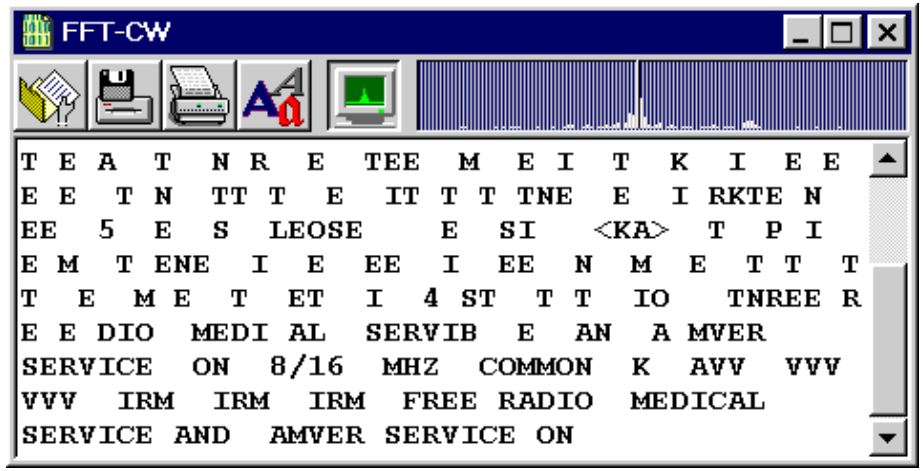
CREATE

As you seen by "raster dates" you can also create such picture as an animation, to realize the movements. The choosed terms determines, from which period the pictures will be create. If you select an area in the term-list with the pressed mouse-key, this pictures will be animated with this terms.

PLAY

With this function you can see the created animation.

RECEIVE CW-SIGNALS



As by RTTY, it`s a receiving-programme for CW, because the adjustment-peculiarities by CW-signals are different.

LOAD

Dates could be loaded. Otherwise the CW-messages will be shown with the programme WARN too.

SAVE AND PRINTING

As usual you can print or save the received text. If a text is marked, only this one will be saved or printed.

SELECT FONT

You can change the font of the visible text.

ADJUST-DISPLAY

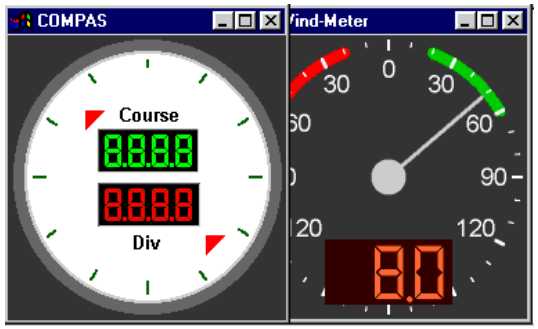
The signal must be adjusted with receiver-control so, that the signal-flank exactly is on the line. Then you have to determine in the frequency-list under "Change and read receiver" the frequency, with it the adjustment can be repeat very exactly.

EXTENSIONS, OPTIONS

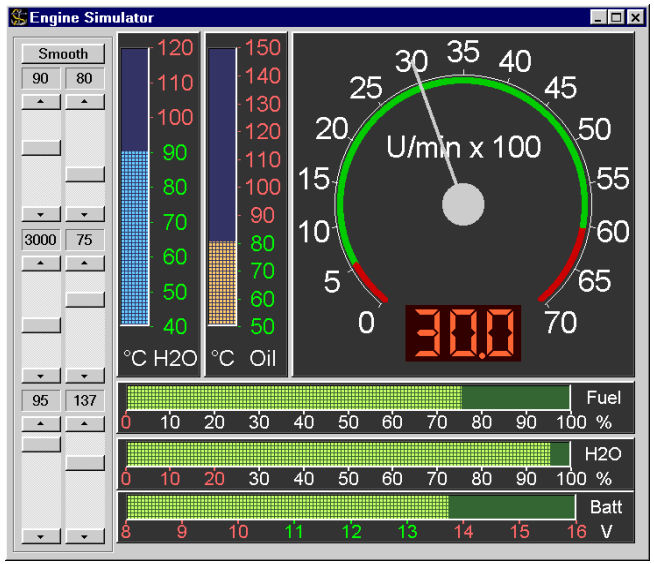
Options are different programmes, which were determine from a list. You search a file, named EXTENS.LST and call it. The inputs in this list will be create with an usual text-programme and got following inputs:

Programme, disk-drive, index, name
then seperated with one SPACE the name, which should be appear in the list.

C:\PROGRAMME\BONITO\WIND.EXE Wind-Demo
C:\PROGRAMME\BONITO\ENGINE.EXE Motor-Demo



You also can click and hold with drag & drop an EXE-File, to draw it into a option-window. Now there are only demos in this list. This only should show, what you are able to do. The instrumental-displays for your tools will be delivered from several producer. Ask your dealer for BONITO-compatible instrumental-drivers. You can get a lot of different BONITO-compatible programmes for sea-maps,speed, deep, GPS-waypoint, radar etc. Soon we will offer you a chart-programme for nautical navigation.



APPENDIX

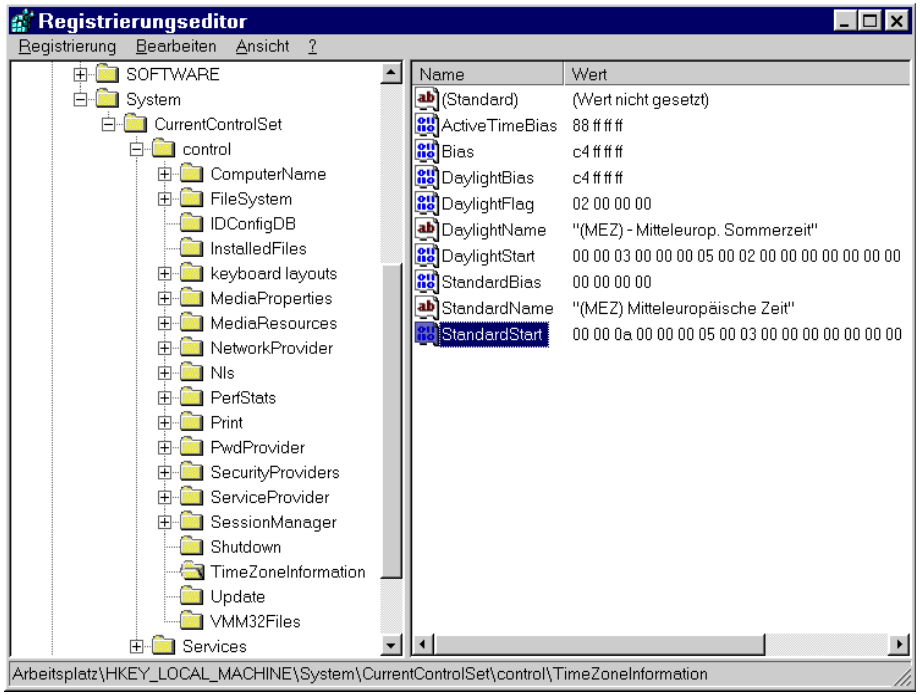
SUMMERTIME - ADJUSTMENT PROLEMS

Older window-versions got problems with the summertime The changing-date isn`t correct - it change to early to wintertime. So the time changed in september, but it has to change in october. So you got problems with an incorrect time-manager. The right solution is a windows 95 update. But there is another solution too:

Choose **START** and Programm direct running.
Type REGEDIT
HKEY_LOCAL_MASCHINE,
SYSTEM,
CurretControlSet,
control,
TimeZoneInformation.

Then click on Standartstart change the worth 09 to 0A. The small picture contents a correct adjustment.

-- **00 00 0a 00 00 00 05 00 03 00 00 00 00 00 00** --



NAUTICOM

NMEA-CONTROLER AND SWITCH FOR NAUTIC TERMINALS

TECHNICAL NECESSARY PREPARATIONS

To use a computer on board you usually need a NMEA-com-port. Modern work-systems like windows 95 or NT make possible to use a few programmes at one time. This you call multi-tasking. Now you might think, all programmes are able to be multi-task and you can use the programmes parallel without hesitation. But the practise will improve you the difference, not everything works the way it looks like.

If you use a notebook with only one comport a seamap-programme, which needs the NMEA-signal from GPS, will took the comport. The next application, which now controls a receiver, receipt NAVTEX or weathermessages or read out an anemometer etc. isn`t available anymore, because the missing next comport.

Only one programme can control the only comport in the system.

Modern computer will be used on board and now you should be able to do a lot of different things. You talk about NMEA and networks etc. All is being about instrument-communication. All about informations, which should be work out from a nautical terminal. But one thing is still remaining, if you would to realize the idea from multi-tasking:

Somewhere is the governmental, somewhere you need a control-system.

Such a control-system consits of a hard- and a software, this is:

- a control-programme, which give every application the information from the comport and which sends informations to different tools and applications,
- and an electronic, named **NAUTICOM**, which supplies with different switches the different tools with electrical signals and with them you can adapted some special-tools.

But you can`t use every programme on the comport with **NAUTICOM**. Further it must be BONITO-compatible. BONITO-compatible means, that every using is well acquainted with BONITO and do nothing, what can disturb. But there are usings too, which mustn`t be compatible with BONITO, like word processing.

NAUTICOM FUNKTIONS AND JUNCTIONS

The NAUTICOM interface-controler is in a little box and got a 9-pol SUB-D socket and a 9-pol SUB D-plug. The socket must be connect with a comport of the computer . At the plug you can put different junctions from different tools. The plug didn`t got standard RS-232-junctions, following tools can be control:

- A receiver-controling for different receiver-types:

  1. LOWE-HF 150
  2. YEASU-FRG100 or CAT-controling
  3. ICOM-Radios with CT-17 Modems
  4. Conventionel serial receiver-controlings like:
     KENWOOD, AOR, NRD etc....

  LOWE-HF 150, ICOM and YEASU-FRG 100 can be plug without a next RS-232-modem directly. In NAUTICOM-electronics there are the necessary things you need.

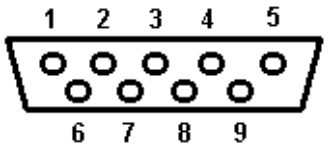
- A NMEA-controling without hand-shake.

  The necessary leads for NMEA- RX- and TX are so controled, that they can read and write every usual NMEA-format.

SUB-D PLUG-PIN-COVERING:

The necessary plug from the back.

(Seen on the soldering-place)



Pin - 3,5,7,9 = ground, GND

Pin - 1 = RX from Computer
Pin - 2 = TX from Computer
Pin - 4 = LOWE-HF-150 to the connection to keypad-junction
Pin - 6 = YAESU-FRG100 to the connection to CAT-junction PIN-3
Pin - 6 = ICOM to the connection to remote-jack (replaced CT-17 Modems)

CABLE- AND TOOLS-JUNCTIONS

The described junctions can be delivered by trade ready-made. But also you can do it yourself.

JUNTION LOWE-HF-150

It needs a connection with a 3,5 mm mono-jack-plug between keypad-junction and LOWE-HF150.

NautiCom LOWE-Keypad

Pin-5 ..... GND ..... jack-plug-shank
Pin-4 ..... Receiver controling ..... jack-plug-head

JUNCTION YAESU-FRG100 AND ICOM

YAESU: It needs a connection with a 6-pol-diod-plug (see CAT-junction in YAESU-handbook).

ICOM: It needs a connection with a 3,5 mm mono-jack-plug between remote-jack and ICOM (replaced CT-17 Modems).

NautiCom YAESU-CAT-socket ICOM

Pin-7 ..... GND .....Pin-1 ..... jack-plug-shank
Pin-6 ..... Receiver-controling .....Pin-3 ..... jack-plug-head

JUNKTION FROM DIFFERENT RECEIVER

For every receiver it needs a connection (see RS-232 junction in receiver-handbook).Usually the RX-junction from the computer wouldn`t be use for the receiver. If you got a special BONITO-compatible driver, then you have got also the necessary junction-describings. Otherwise here are only the fundamental considerations.

NautiCom RS-232-junction at the receiver

Pin-7 ..... GND ..... Signal-Masse-GND
Pin-2 ..... RS-232-TX from Computer..... to RX / DATA-IN (RD)

JUNCTION FROM GPS-RECEIVER (OR NMEA-INSTRUMENT)

A GPS-receiver or a NMEA-instrument need a connection too, which is also very easy.

NautiCom RS-232-Anschluß am GPS

Pin-7 ..... GND ..... Signal-GND
Pin-2 >>>> RS-232-TX from Computer >>>>> to NMEA-RX / DATA-IN
Pin-1 <<<< RS-232-RX from Computer <<<<< to NMEA-TX / Data out

JUNCTION AOR 3030

RC-SWLmodul	AOR AR-3030 25-Pol	AOR AR-3030 9-Pol
Pin-5 .....GND	Pin-7 Signal-GND	Pin-5 GND
Pin-2 .. RS-232-TX	Pin-2 RXD/ DATA-IN	Pin-2 RXD
Handshake.....	Pin 5 with 4 and 6 with 20 connected	Pin 7 with 8 and 6 with 4 connected

JUNCTION AOR 5000

RC-SWL modul	AOR AR-5000 9-Pol
Pin-5 .....GND	Pin-5 Signal-GND
Pin-2 ..... RS-232-TX vom Computer.....	Pin-2 RXD/ DATA-IN

JUNCTION AOR 7030

RC-SWL modul	AOR AR-7030 5-Pin
Pin-5 .....GND	Pin-5 Signal-GND
Pin-2 ..... RS-232-TX from Computer.....	Pin-2 RXD / DATA-IN

AOR 7030 Speaker cable 8-Pol
GND from Pin-2 to a 3.5 mm jack-plug-shank
Tone-Out from Pin-4+5 to jack-plug-head

JUNCTION NRD 535

RC-SWL modul	NRD 535 25-Pol
Pin-5 .....GND	Pin-7 Signal-GND
Pin-2 ..... RS-232-TX from Computer.....	Pin-3 RD/ DATA-IN
Handshake.....	Pin 6-20 conected

JUNCTION KENWOOD TS50 / 570 / 870 ... (universal Kennwood)

RC-SWL modul	Kenwood 9Pol
Pin-5 .....GND	Pin-5 Signal-GND
Pin-2 ..... RS-232-TX vom Computer.....	Pin-2 RXD/DATA-IN

actuell technical INTERNET-SERVICE:
http://www.bonito.net/bonito/service/service.htm

COMPUTER SYSTEM-ADJUSTMENTS

Basic condition of the BONITO-compatible software is, it must be a soundcard in your computer. So your computer got a line-in or microphone-input to hear income tones from outside. Every receiver got an output, from where the receiving signal is coming. Usually therefore you use the remote-, head-speaker or speaker-outputs. These outputs you have to connect with the line-in or microphone-input from the soundcard.

SOUNDSYSTEM, CONNECTION OF A RADIO

Control, if your windows-system has installed the soundcard-driver. Otherwise you have to install the soundsystem now. The soundcard is installed right, when you hear soundtones after turning on your windows-system. Check then, if your soundsystem is turned on. The basic usings are discribed in windows-help-system under soundcard, audio, multimedia, volume control . So here only some catchwords:

working area (choose with the right mouse-key)
choose attributes, tool-driver
choose audio, video (soundcards adjustments controling)
or start, programmes, utilitys, multimedia, volume-control:
options, attributes
play: volume control, line-in, speakers on
record: ine-in or microphone-inputs on
ATTENTION !! included microphone turn off as possible

Adjust the volume that way, that you can listenon the radio too und pay attention, that the recording -adjustment-display didn`t work in the red area. On the task-fillet (down, right side. start) you can see a small speaker-symbol. If you click on it, you can adjust the volume from the listening-tone. If you click on it with a double-click, the whole sound-menu is on the screen.

Included microphones (often to find by note-books) which "listen refused" often produce jammings by receiving the radio-signals.

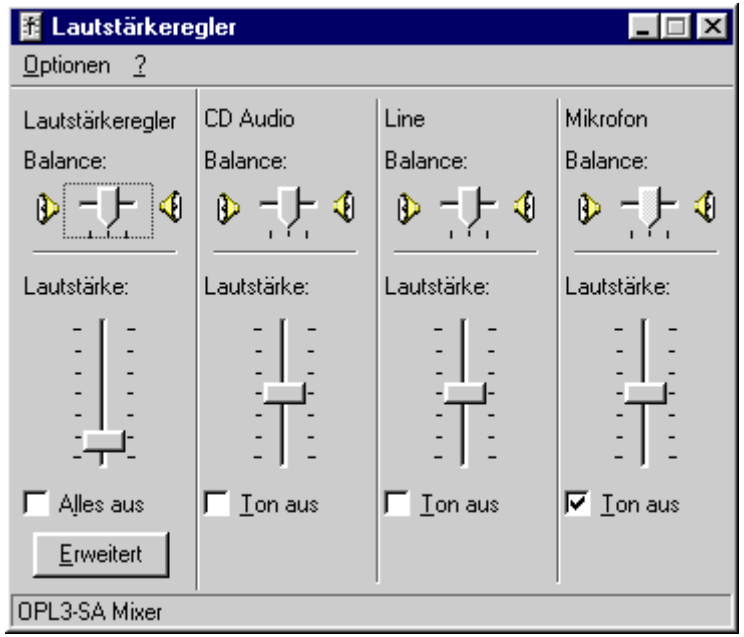
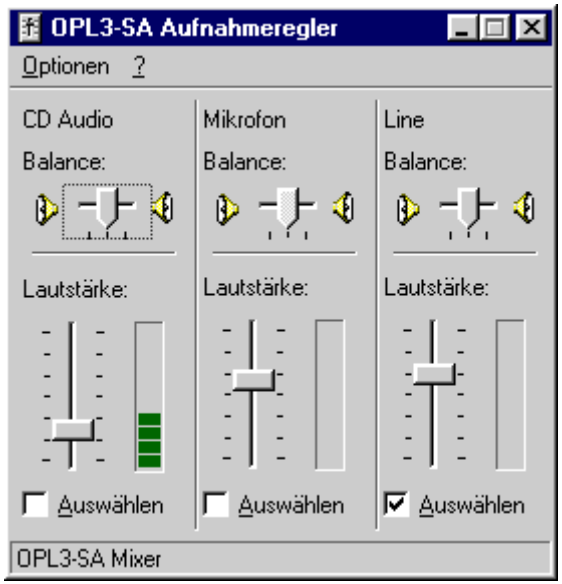
No listening-in tone ?

If you hear nothing out of the speaker, then it might be, that the tone-out-put is turn off or the connection from the radio to line-in or micro-phone isn`t correct. Also it could be, that the in-puts from the sound-system aren`t adjust correctly in the sound-menu or they could be turn off too.

No listening-in-tone after turn on the receiving programme ?

In some recording-menus you find extended adjustments, in which you should turn on the recording-display.

VOLOME-Control
Examble for playing (LINE-IN)



INPUT -Control
Examble for recording (LINE-IN)