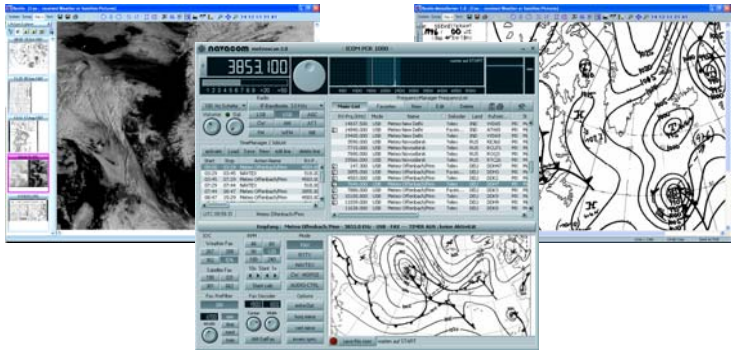
ProMeteo 2.0



Operating Manual

Content

The first steps

In the package you will find a CD, a switchbox, an audio cable and this manual.

Basic requirements:

An operating system: Windows 2000/XP or Windows NT 4.0 SP3

An IBM compatible PC with Intel® Pentium III- CPU 450 MHz or better and a 16 Bit soundcard with a line-in or microphone jack.

Other minimum requirements are stipulated by the system.

IMPORTANT for PCR1500 / 2500 users

If you want to use an ICOM PCR1500 / 2500, read the ICOM Manual carefully and follow ALL the instructions until it's completely installed. After the succeed Installation, the ICOM Driver change the Soundcard settings and you can't hear other Sounds anymore. To change it back, go to standard settings: Start\Setting\Control Panel\Sounds and Multimedia Click "AUDIO" and choose under "Sound Playback" the Soundcard of the PC and do the same with "Sound Recording".

You have to choose the

DON'T USE THE ICOM SOFTWARE WHILE USING ProMeteo!!!

Installing the switch box

Depending of the version you purchased the package contains one audio cable and one BONITO switch box.

The RC-HAM switchbox works with all radios except the ICOM IC-PCR series.
The IC-SWL switchbox works with ICOM IC-PCR100/1000/1500/2500.

Connect the Switchbox to the COM-port/Serial interface. ProMeteo automatically finds the COM-port. Therefore, the port must be free and not blocked by any other programs. Ot oMeteo will not start. Programs that like to use the COM-port are u ile phone and PDA applications. Please deactivate those before usi eo. If you PC don't have a Comport you can use a USB to Serial Adapter. Please refer to "Using USB-Serial Adapters" on Site 29.

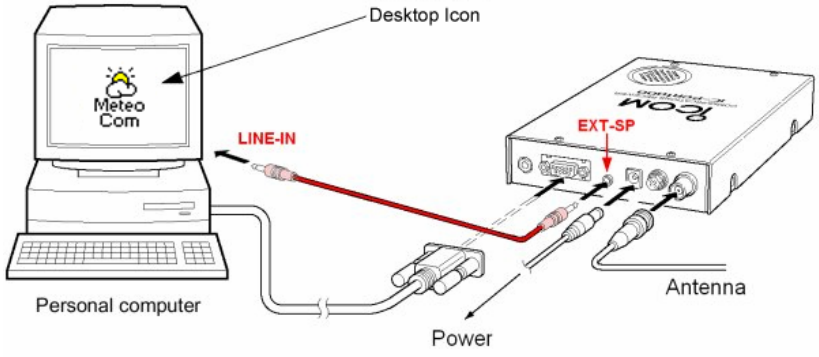
NOTE: The ICOM PCR1500 / 2500 is a USB Device, but you still have to plug the BONITO Switchbox to a separate free Comport.

Connecting an antenna to the SSB radio

If you have an amplified antenna please connect it in the proper way. If you want to use a backstay or long wire please refer to Site 9 of this Manual.

Connecting the audio cable

Connect the audio cable as follows: Insert the red stereo plug (two rings) into the "line-in/microphone" jack of your PC. Insert the mono plug (one ring) into the "speaker/line-out" jack of your SSB radio. If there is a control cable, please plug it into the back of the switchbox and the respective interface of the SSB radio. The wire connections for various radios are indicated on the CD in the "technical service" menu and are available on our website at **www.bonito.net**



Installation

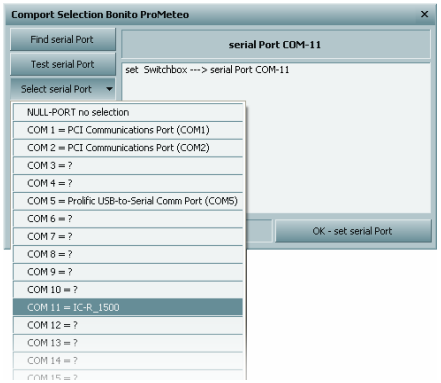
After connecting the BONITO Switchbox, the Audio cable and turning the radio on, you can now insert the CD. The following window appears:
The CD-Key is burned on the CD and appears automatically.

Select now your radio from the „radio selection" list. If your radio does not appear in the list, we recommend installing the Radio YAESU FRG-100.

With „Comport Selection" you can now select the correct Comport, in case ProMeteo was not able to find it and displays an error message.

If the Setup displays error messages you have to select the Comport manually.

Manual Comport Selection



„Find serial port“ will prompt ProMeteo to search for the switchbox. *„Test serial port“* enables you to test the connectivity of the COM-port. „Select serial port“ assigns a concrete COM-port number to a particular device.

Important for PCR/R 1500 / 2500 users

For these Radios you have to select the Comport of your Radio instead the Comport of the Switchbox.

Audio Output / Input Selection:

If you have different Soundcards or the ICOM PCR/R 1500/2500 installed, you can choose the Audio Input Card here. You can choose the Audio Input Jack (Line IN or Microphone) here as well.

When you have completed your selections you are ready to press the „install“ button. ProMeteo will now install. When the installation is complete, this operating manual and a connection layout will open automatically in PDF format.

You will have one icon on the Windows desktop.

ProMeteo Setup

The installation program is capable of even more. If you should ever change to a different radio, reinstall or update ProMeteo via the internet, you don't have to insert the CD all the time. You can easily open the ProMeteo Setup.

You'll find the ProMeteo Setup here:

[Start] [(All) Programs] [Bonito ProMeteo] [Setup ProMeteo]

Changing the radio: You can select a different radio in „Channel selection“ and close it. You don't have to reinstall.

Reinstall: Go to „keep adjustments“ and select whether audio or fax skew were okay. Press „install“.

Update service: You can update ProMeteo via the internet by pressing the "Update" button. ProMeteo automatically downloads the required updates and installs them. Before updating the Software you have to register your self first.

Update-Service:

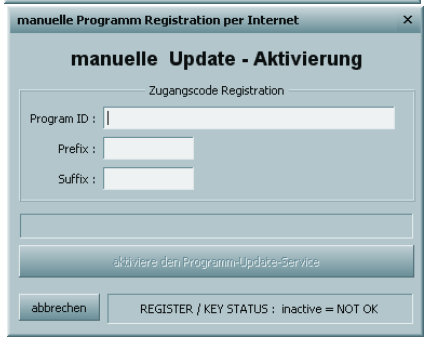
the Program ProMeteo must be switched off!

Open the ProMeteo Setup:
[Start] [(All) Programs] [Bonito ProMeteo] [Setup ProMeteo]

ProMeteo is using some Recourse (for example Frequency lists, Timer lists and Program updates), that you can download without extra costs via the internet. There you simply have to click "Update" and the following window appears.

Now, you have to register your self. Please click the Button "Registration". If you ignore the entries, you cannot be identified and the service is always lost in the case of a problem. If you want to remain anonymous, set under name, road and city your own passwords. If no email will register, but only @ and one point, you'll not receive an email with the access code, with which you can re-activate a registration or transfer the code to another computer.

The computer saves the access code in the Windows registry. You can see and copy and keep it surely at any time, in order to be able to realize a reactivation of the Registration.

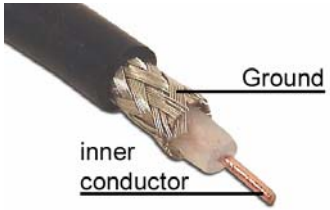


The suffix changes after each Internet update. This should be absolutely considered, if you uninstall the program or operate it on several computers.
For such a change or the error message "SUFFIX_OPEN_ERR" the manual activation must be called and the access code be entered by hand, because a Registration by Internet is only possible one time.

If the suffix should have been lost, it is possible to use a wrong suffix, in order to eliminate this problem. However this could happen only 8 times within 90 days.

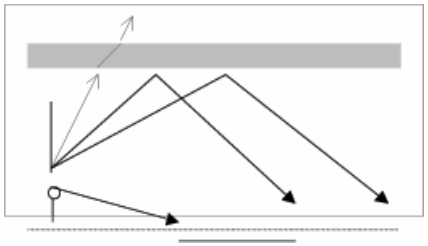
Reception and Antenna

Everything depends on the quality of reception and the antenna is the most crucial part of the receiving system. It is not difficult to make a good antenna. Simply take a piece of wire six meters in length (20 ft) and connect it to the inner conductor of a coax cable. Then you take another piece of wire of the same length and connect it to the outer conductor of the coax cable. Now you string up the wires horizontally, with the coax hanging down in the center. Twelve meters (40 ft) or 18 meters (60 ft) are even better. A different wire length is not advisable for the reception of weather frequencies. A simple wire antenna is still a reference antenna for all other types of antennas.



The conclusion is clear: **„We have never been offered a better antenna!“**

It is also common to use the backstay as an antenna. There are various other compromises in case you are not able to string a wire on your boat. Active antennas (amplified antennas) on boats should be considered with caution. These antennas often amplify interferences, not usable signals. We are offering a special antenna, but would never claim that it is better than a perfectly strung wire. Our antennas are simply better than all other compromises, in cases where no decent wire antenna can be erected. Most importantly, our antenna has been tested.



In contrast to VHF transmitting stations, short wave stations are mainly emitted into the ionosphere. The ionospheric layer reflects the signals back to earth. Therefore, it is possible to bridge large distances. This also means that a horizontally erected antenna offers the best reception. Direct reception of the radio station is only possible in relative proximity to the station antenna. The space that extends between direct and indirect reception areas is called skip zone. Here reception is either strongly inhibited or altogether impossible. That's why in these cases a station on a different frequency should be selected.

Tip:

The further away you are from the received radio station the higher the selected frequency should be. If, for example, you are in the German area of the Baltic Sea, you will receive „Meteo Offenbach“ very well on 147,3kHz or 4553kH. If you are cruising in the Mediterranean you need to tune your receiver to 13885kHz or 14467kHz.

The first test should always start with a clear reception. If you don't receive any usable signals you need to improve the antenna. You can also wait for the reception to improve. If you ignore this rule and try with a very weak signal, it will be difficult to interpret the tuning elements and their function properly. This is not to say that it won't work at all. A knowledgeable individual can still use a signal that seems unintelligible.

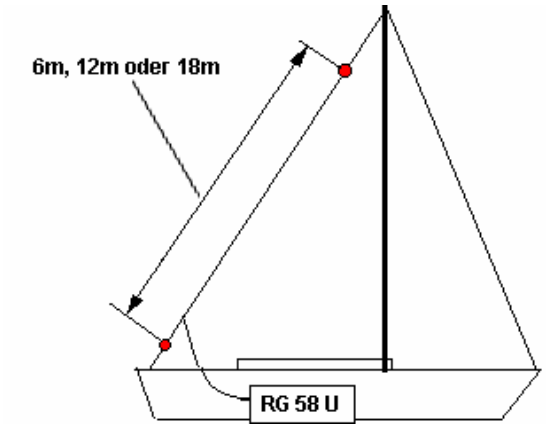
How am I supposed to adjust something that I can't see or hear?

Once you have tuned a signal under good receiving conditions it can still be decoded in less favourable circumstances. Since tuning and parameters are saved in the frequency list, it can be reloaded in exactly the same way later on. It is therefore not necessary to do the tuning procedure again. This is where the decoder shows off its real capabilities. It still decodes the signal because it does not "hear" the interferences the same way you do with your ears. The electronic components are able to filter through the unwanted parts of the signal and pick out the essential ones. The loudspeaker on the other hand simply reports what is being received. You will hear all kinds of things which make it impossible for the human ear to ascertain whether there still is a usable signal or not.

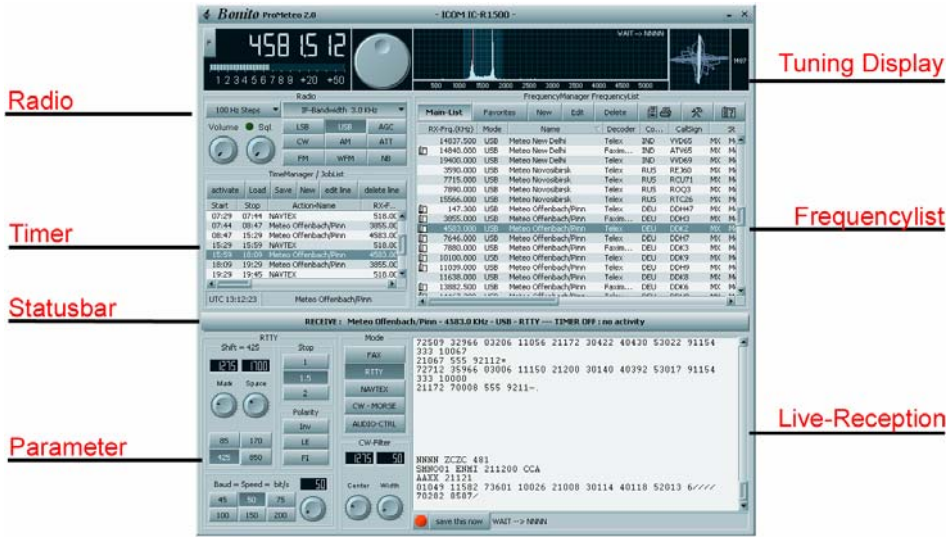
Backstay

If you own a sailing boat the installation of an antenna is often very simple. In most cases you can use the backstay. It would be advantageous if the length of the isolated wire would be 6, 12 or 18 meters (20ft, 40ft or 60ft). Attach the inner conductor of the RG58U coax cable to the isolated wire part of the backstay and the outer conductor below the insulator. It is possible to use hose clips to attach the wires.

If there is no isolated wire piece in the backstay, simply attach the inner conductor of the coax to the backstay and leave the outer conductor as is.
You can use another hose clip to attach the coax itself to the backstay and thereby relieve the tension on the coax.

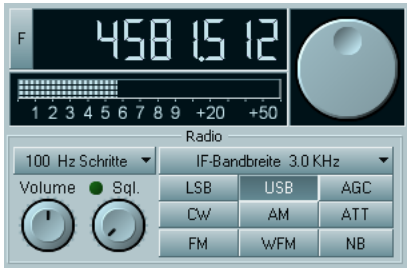


Starting ProMeteo



You can now start ProMeteo by double clicking the ProMeteo Symbol on your Windows Desktop.

ProMeteo controls the SSB reception. After correct adjustment, this program can work fully automatically. There are a number of possible adjustments. The received data and pictures are displayed in MeteoViewer.



The *„Radio“* display shows you various adjustment possibilities, depending on the type of radio being used. This way you can make manual adjustments to your radio. Make sure to acquaint yourself with the functions of your radio beforehand. Frequencies are decreased or increased by clicking the tuning knob in the respective direction. The frequency step width is selected in *„Steps“*. You can click on the frequency readout with your mouse (right click + / left click -). The segment you click on will be increased or decreased by one step. Clicking on the *„F“* button will open a window in which you can manually enter a frequency.

„NB“ is a noise blanker which serves the suppression of cracking noises. *„AGC“* is an automatic gain control which adjusts the receiver depending on the signal strength. The signal strength is indicated on the S-meter. If a signal becomes stronger than S7 you can activate the signal attenuator *„ATT“*. The attenuator protects the receiver from excessively strong signals.

The *„USB“*, *„LSB“*, *„CW“*, *„AM“*, *„FM“* and *„WFM“* buttons switch between operation modes. For normal weather data reception we recommend to use *„USB“* at a bandwidth of 3 KHz IF. “*AM*” is used for normal broadcast reception at 6 KHz IF. “*WFM*” is used for the VHF broadcast band on frequencies between 87 and 106 MHz and an IF bandwidth setting of 50 KHz.

„SQL“ is the squelch, which suppresses receiver noise in the absence of a signal. *„VOL“* is the volume adjustment of the radio. This control should never be set to zero, because that would prevent a signal from getting through to the computer. We recommend to set the volume control to *„AUDIO-CTRL“.*

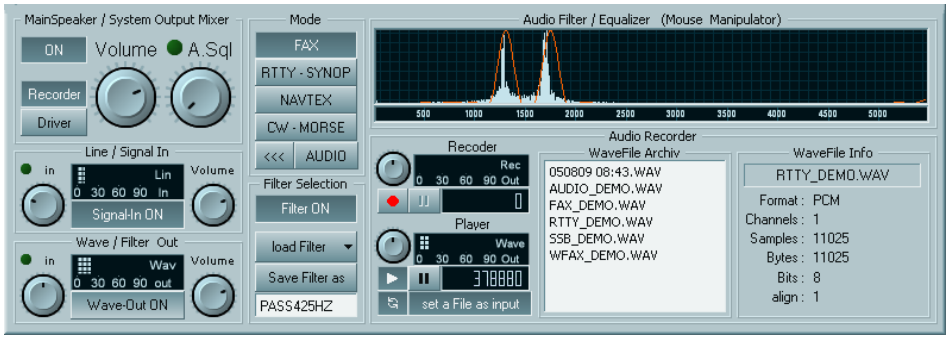
Soundcard Adjustments

Which audio connections does my computer have?

For notebooks there are two possible varieties: The first one has three jacks *„Line- IN“*, *„Mikrophone“* and *„Loudspeaker“*. Type 2 only has two jacks, *„Mikrophone“* and *„Loudspeaker“*. ProMeteo automatically looks for the *„Line-IN“* connection and usually finds it.

Activating the microphone jack:

If your computer only has a microphone jack, it first has to be set up as a source for reception. Click on *„AUDIO-CTRL“* in the *„RadioControl“* tab to get to the audio adjustments.
The lower part of the window will look like this:



n *„AUDIO-CTRL“* you can make changes to all necessary audio adjustments. *„Mainspeaker on“* toggles the speaker for monitoring. *„Volume“* controls the volume of your PC.

In the *„Line/Signal IN“* area you can adjust the volume of the incoming signal. It is important to adjust the signal in such way that there is no distortion (red area). In the *„Wave/Filter Out“* area you can hear the filtered signal. In this case it makes sense to deactivate *„Signal-In ON“*.

Click on *„Driver* “ and on the right site the following window appears:

AudioMixer Driver Selection

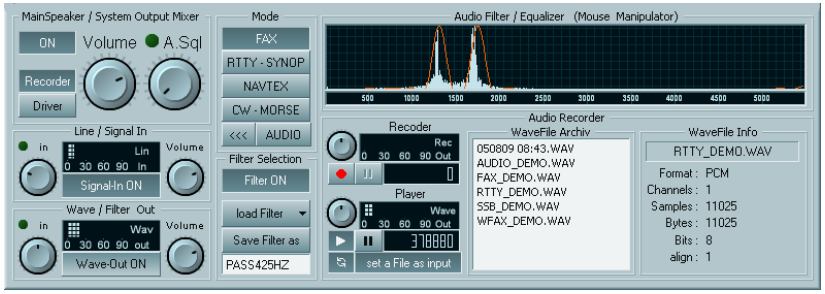
In *„Input Select“ you can now* select “*Microphone*” instead of “*Line-in*”.
The denomination may vary depending on the soundcard.

Caution!

Since most microphones are very sensitive, adjust the gain button to the lower 25% range. Some soundcards offer a microphone boost function. This function must be deactivated!

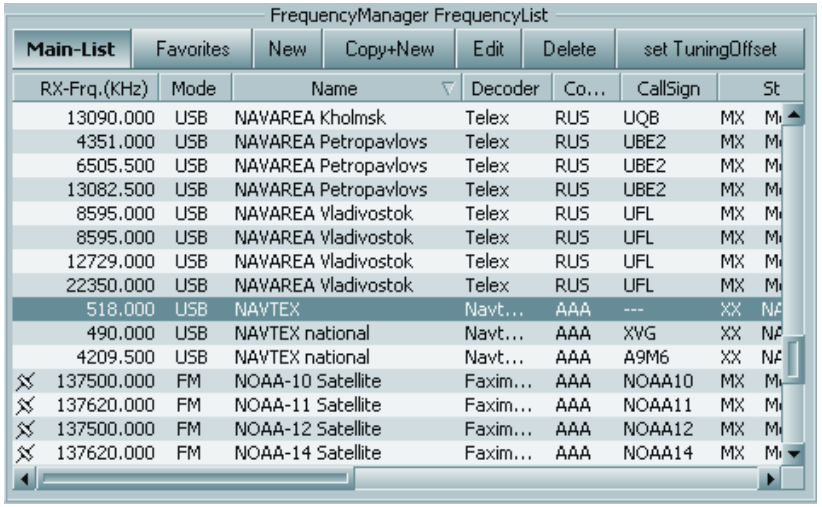
Audio-Recorder

ProMeteo can also record spoken weather reports. Just double-click on a broadcast service that transmits spoken language (e.g. Deutsche Welle) in the frequency list. If you want to listen to a recording simply double-click an entry in the *„Wavefile-Archive“*.



Adjusting the „*Equalizer*“ works like drawing with your mouse. Click and hold the mouse button and then draw the filter curve to your liking. With this you can notch out interferences and unwanted noises very effectively while audio recording.

Frequency Manager



RX-Frq.(KHz)	Mode	Name	Decoder	Co...	CallSign	St
13090.000	USB	NAVAREA Kholmsk	Telex	RUS	UQB	MX
4351.000	USB	NAVAREA Petropavlovs	Telex	RUS	UBE2	MX
6505.500	USB	NAVAREA Petropavlovs	Telex	RUS	UBE2	MX
13082.500	USB	NAVAREA Petropavlovs	Telex	RUS	UBE2	MX
8595.000	USB	NAVAREA Vladivostok	Telex	RUS	UFL	MX
8595.000	USB	NAVAREA Vladivostok	Telex	RUS	UFL	MX
12729.000	USB	NAVAREA Vladivostok	Telex	RUS	UFL	MX
22350.000	USB	NAVAREA Vladivostok	Telex	RUS	UFL	MX
518.000	USB	NAVTEX	Navt...	AAA	---	XX
490.000	USB	NAVTEX national	Navt...	AAA	XVG	XX
4209.500	USB	NAVTEX national	Navt...	AAA	A9M6	XX
137500.000	FM	NOAA-10 Satellite	Faxim...	AAA	NOAA10	MX
137620.000	FM	NOAA-11 Satellite	Faxim...	AAA	NOAA11	MX
137500.000	FM	NOAA-12 Satellite	Faxim...	AAA	NOAA12	MX
137620.000	FM	NOAA-14 Satellite	Faxim...	AAA	NOAA14	MX

This list comprises all necessary data for the reception of weather reports. With a double mouse click the radio station is tuned in on the radio with the correct frequency shift and the reception program is started with all parameters.

Easy frequency selection: When you have chosen a list entry and press the space bar, the frequency of the radio will be switched. This way you can check whether there is any usable reception.

However, if you press Enter or double-click on the list entry the frequency will be tuned in, the reception program will be launched and the necessary reception parameters transferred. The Decoder will start decoding data.

There are two available lists: *„Main-List“* and *„Favourites“*. You can arrange the favourites list easily by deleting all radio stations that are not applicable to your area.

Arranging and Sorting Lists:

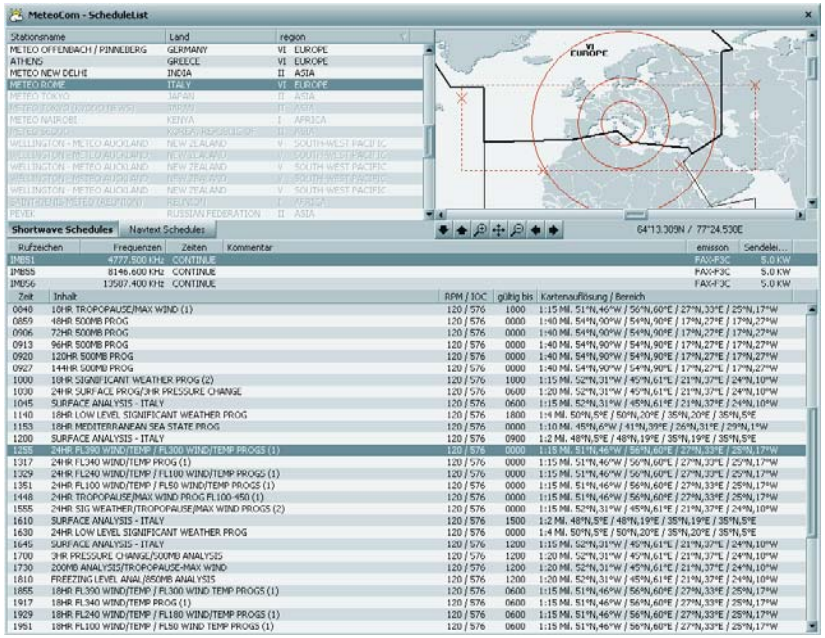
If you point your mouse arrow on the dividing lines between the upper bar and the list, a cross will appear. If you capture the cross with the left mouse button and pull to the left or right you can adjust the display width. Clicking on the list areas *„RX-Frq“, „Mode“*, *„Name“* etc., will sort the list respectively. This will help you find a particular radio station.

The Context Menu:

Clicking the right mouse button will open the context menu. This menu is also used in other parts of the program and allows you to make additional adjustments. You can enter a radio station, copy, sort or delete. If this icon appears in front of a station entry, there is an entry about this station in the *„BONITO ScheduleList“*.

BONITO ScheduleList

To set up a timer you first have to know the frequency of the correct radio station and the time of transmission. The *„BONITO ScheduleList“* is the proper tool. Since ProMeteo 2 this tool is no longer limited to weather fax but has been expanded to include RTTY and NavTex.



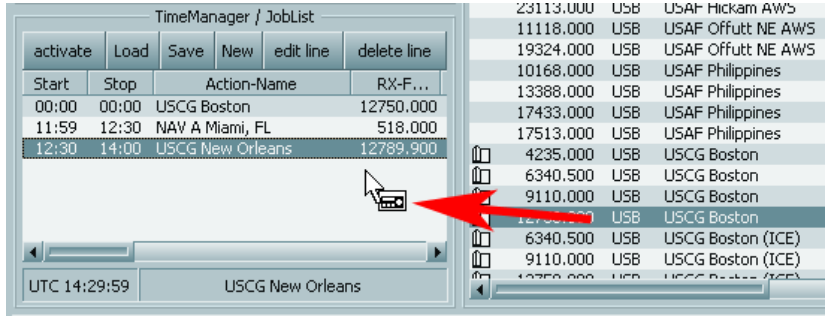
If you press this button  in the TimeManager the *„BONITO ScheduleList“* will open. This allows you to receive a Fax Transmitter at your position. Now expand your area on the global map. The radio stations you can receive in your area are automatically marked in the list. If you select one of these stations, all frequencies of this station will be displayed, including all transmitting times. Clicking on one time slot in the transmission schedule will show you the map area covered by this particular transmission. All times indicated are UTC.

TimeManager

The *„TimeManager“* controls time-operated reception. With this function is it possible that ProMeteo received specific Weather information to a specific time. For this function you need a controllable Radio and you have to create a Timer. After you create a personal timer, ProMeteo controls the Radio to the right frequency and start decoding automatically.

Creating a Timer

You can select, drag and drop the desired radio station from the Frequency list into the timer list window.

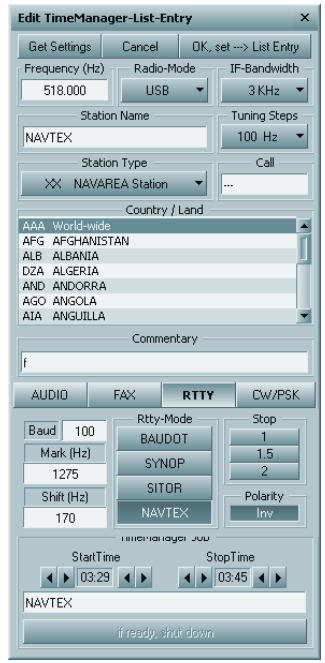


If you double-click the entry, a new window opens, indicating the station adjustments. In this window you can adjust the start and stop time. Please make sure to use UTC at all times.

If you are ready, save the Timer by using the “save” button.

Now you can “active” the timer and ProMeteo starts working automatically.

Tip:
Your computer should always be set to the time zone and local time of your actual location. The ProMeteo timer calculates the UTC based on your set time. If you independently set UTC to any time zone on your computer, the timer will not work.



Active: This activates the current timer.

Load/Save: Here you can load or save a pre-configured timer.

New: Creates a new list.

Edit Line: Edits an entry (same as double-click).

Delete Line: *Deletes the selected entry.*

Tuning a signal – What is a usable signal?

In order to tune a signal it is useful to be able to distinguish the tone signals of the various operation modes.

There is a demo version available on the Web. Open the demo, bring up the frequency list and double-click on a frequency. The reception window will open, as it will in the full version. You can now hear the signal and also observe how ProMeteo processes the different tones, in a weather fax map for example.

A signal is composed of tones with varying pitch, which are decoded differently. The spacing between the first tone and the last is called band width. All decodable signals have one thing in common: If you have doubts that the signal is usable, it usually isn't. Intelligible signals are always discernable and stand out of the general noise and other indefinable signals. Now we need to find out whether the signal is Morse code, RTTY or FAX. The ProMeteo demo CD will help you with that.

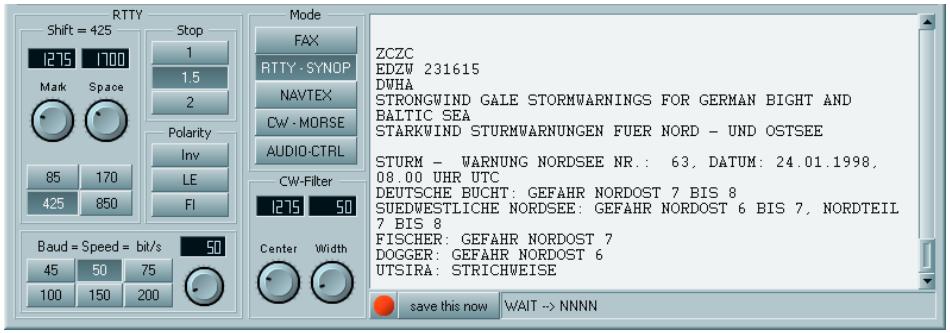
Distinguishing the various RTTY signals, however, is a little bit more complicated. „*BordTerminal*“ only analyzes Navtex and RTTY. There are other forms of RTTY that are not picked up by the software even though they are received by the radio. That's why not every intelligible signal is a usable signal in the context of maritime use. There are also signals that are decoded properly but don't make any sense. This could be the case when you pick up a station from an Arab country that uses different letters.

In order for the receiving program to work properly, you will need assistance for correct tuning. The tuning assistant shows you where the signal is and how much interference there is in its neighbourhood. There are two different tuning assistants for RTTY: the frequency spectrum and the X/Y tuning assistant. For Fax you only have the frequency spectrum.

If you control your radio using the software, all frequencies and parameters are set perfectly. If the radio is stable there should be no deviations and the program should be starting to decode right away. In this case the tuning assistants are used merely to monitor the signal.

Receiving Weather data

Receiving Radio Teletype (RTTY, Navtex, and Synop)



This is the RTTY surface. The text window displays the received message. Usually you will see the lowest row, meaning the one being received at that moment. If you want to read text that has scrolled off the screen and is no longer visible, click on the screen once. To reverse the process click onto the title bar above the text screen.

Tuning RTTY

Usually, the tuning displays process the tones received by the radio in such way that you can observe the way the radio tunes the signal. These displays should help you understand how the tuning process works. As a first test it may be useful to just turn the main tuning knob of your radio to acquaint yourself with it. If, later on, you want to tune more precisely, you need to use the „*Receiver-Control*“ because your radio doesn't report to ProMeteo when you tune your radio manually.

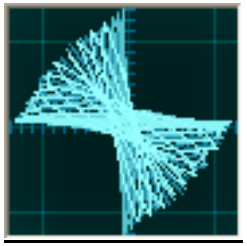
Frequency-Spectrum

This is a display showing all tone frequencies up to 2500 Hz from left to right. The height corresponds with the volume (amplitude). The amplitude is dependent upon the tone's frequency. You should always try to find the tone frequency yielding the strongest amplitude. There are precise technical standards which specify at which tone a signal is tuned properly. In real life, however, all this depends on the filters used in your radio. The filter curves are not always the way they should be. This means that the frequency list is always a theoretical tool and not adapted to your specific radio.

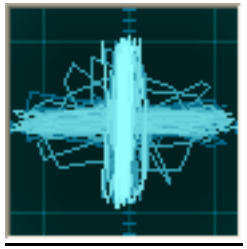
Make sure that both amplitudes are lined up exactly with the red lines. The spacing between the red lines corresponds with the band width (shift). The position on the scale is the tone's frequency or pitch. The height shows the volume. This picture shows an RTTY signal with two different tones. One for "mark" and one for "space". Both tones should be lined up with the vertical red lines. In case of a Fax signal, the bandwidth is usually greater, meaning that the two vertical lines are further apart and there is almost always only one bar at the red line on the right. The tuning process is explained in detail later on.

X/Y-Tuning Display (Tuning Cross)

The previous page showed an example for a RTTY-signal. The exact tuning possibilities are indicated here on the X/Y display. This tuning tool is used only for RTTY. Before using the tuning cross you should tune the signal with the frequency spectrum in such way that it lines up with the red vertical markers. Only after that should you try to use the tuning display and establish a cross shape. If this should not work initially, try playing with the bandwidth (page 25). If the bandwidth is correct the tuning display will show a cross. Now make sure that the lines forming the cross shape are straight, meaning aligned with the X-axis and Y-axis respectively.

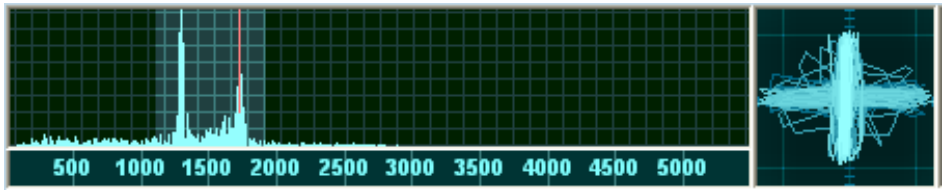


85 Hz bandwidth



425 Hz bandwidth

Tuning



If you can make out the two signals clearly, then you can also read the bandwidth.

Using the *„Receiver-Control"* tune the radio in such way that both of the green colored signal amplitudes line up with the red markers or the lines of the tuning cross are exactly perpendicular. Also refer to page 17 (X/Y tuning display (tuning cross) or frequency analyzer.

Operation Modes

Baudot:

This operation mode usually concerns common teletype text and is an asynchronous mode. It is often used by press and weather services. SYNOP messages are also broadcast in this mode.
Asynchronous means that the characters are marked with a start- and stop bit, because they are transferred in an irregular way.

Sync. Baudot:

Baudot is an asynchronous mode. But it can be assumed that today's broadcasters use automatic machines for their transmissions. If the reception of the signal is distorted the program presumes that the start and stop bits are transmitted at a certain expectable position. It is therefore likely that there really are start and stop bits at those positions, even though they are not received properly. This logic contributes to a low amount of reading errors. Should a message be transmitted by a manually operated typewriter, this mode of operation should not be selected.

Sitor-B:

This is a synchronous mode which is different from Baudot. But it does use the same logic. This mode is much less affected by distortion. Sitor is used for Navtex and is then always at 100 Baud.

Adjusting the Baud rate

The speed of the individual bits in teletype is called Baud rate. Baud rate is derived from BAUDot. The most frequently used Baud rates for normal Baudot are usually 50 Baud, sometimes 75 Baud (Meteo Bracknell). On rare occasions you may encounter 100 Baud (Meteo Grengel). Navtex always uses 100 Baud, in mode Sitor-B, however.

Shift + Marker frequency

The spacing of the two chirpy warbling sounds is the shift. The sounds indicate the bit status of a RTTY bit. The shift is represented by two red markers in the frequency analyzer. The marker frequency governs the position of the markers. Meteo Offenbach 147.3 for example transmits at an 85 Hz shift. Navtex uses a 170 Hz shift. Above 3 MHz Radio Offenbach uses 425 Hz. Meteo Moscow and Meteo Roma both use 850 Hz.

Polarity

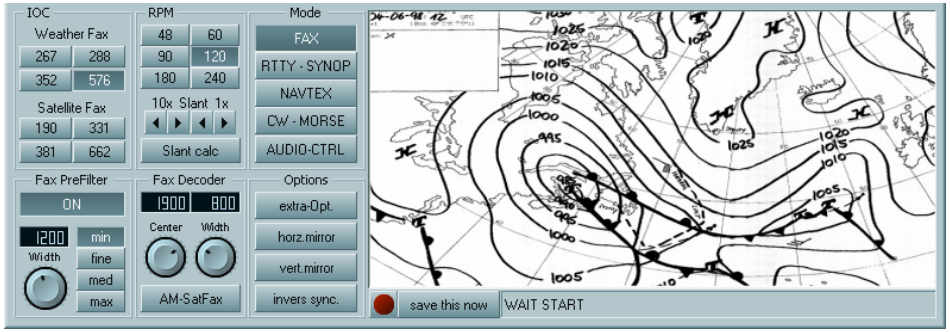
If reception is clear but the received characters don't appear to make sense, try switching the polarity to improve readability. Navtex for example always transmits with an inverted polarity. But there may be other reasons for an unreadable signal. It is possible that the message text includes a character which causes the decoder to only read digits and other data.

In this case you should try using the LE-mode to improve readability. Activate FI only in a contrary situation when Synop 5-digit groups are turned into groups of letters.

Stopbits

Baudot normally uses 1.5 stop bits. But it is possible to come across a station using 2 stop bits. That is why there is an adjustment possibility. Adjustment is not necessary in Sitor mode, since this mode does not use stop bits.

WeatherFax



Weather maps are broadcast using „WeatherFax". WeatherFax is the most frequently used way of broadcasting processed weather data.
Normally there is no need for adjustments because all parameters are set automatically when double-clicking the frequency. If, however, you still wish to make adjustments, you may use the following procedures:

IOC

There are several different image formats that can be used to receive Fax. They are called modules. In our case module 576 is used most often, sometimes module 288.

Modul 288: Small weather map module, approx. 800 pixels wide.

Modul 352: Press images, approx. 1100 pixels.

Modul 576: Large weather map module, approx. 1800 pixels.

Drum Speed RPM

The drum rotation speed of a fax is denominated in revolutions per minute (rpm). A normal weather fax uses 120 rpm. Weather maps from Russia and Japan may come at varying speeds such as 60, 90 or 120 rpm.

Shift & Center frequency Fax Decoder

It is important to shift the tuning from high frequency tones to lower frequency tones in order to avoid interference. This means you are shifting the red markers in the frequency spectrum along the horizontal scale.

Fax PreFilter

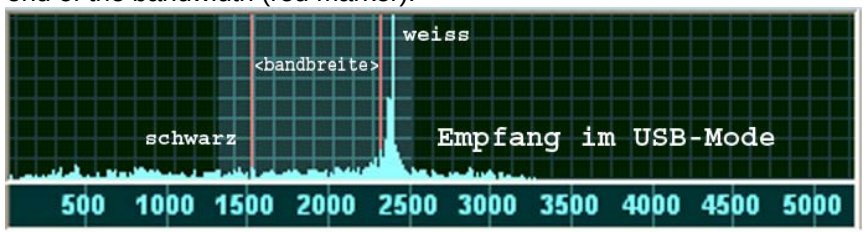
„Width" is the spacing between the lowest and highest tone frequency of a signal. That is the spacing between the two red markers in the spectrum display. The filter should be the same width. Filter adjustments that are narrower or wider may also improve the reception.

Start/Stop Frequencies

Start- and Stop frequencies are sounds played at the beginning and end of an image. Normally there would be a 450 Hz tone for start and a 300 Hz tone for stop. After the start tone ProMeteo starts recording the fax and saves it to the hard drive after the stop tone.

Spectrum- Analyzer

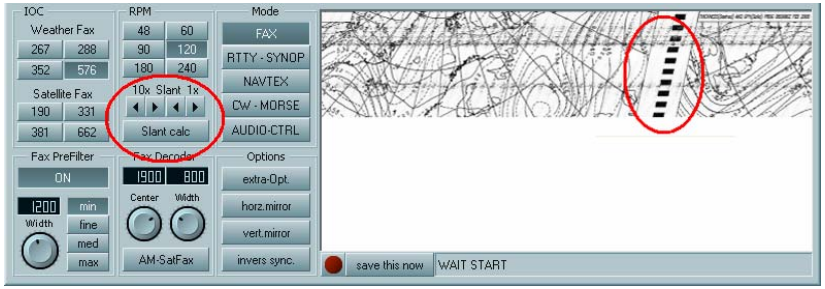
This is the display for tuning the tone frequency (also page 16). In most cases a fax signal USB shows more activity on the right side that degrades towards the left end of the bandwidth (red marker).



In order to receive good, clear images, the main signal activity bar should always be just in front of the red marker. In case of distortion you can shift the IF to the left or right, narrow the bandwidth or manipulate the filter.

Slant Correction

During the first test the image will come out skewed. In this case you can rectify the image by using the „<“ and „>“ buttons. Always use the button that points in the opposite direction of the skew (e.g. the right button in the case shown in the image below). You can use the **10x** function to do large step correction or **1x** for fine corrections. After completing the correction click on *“This calc to all”* which will apply these values to all other modules and fax frequencies.

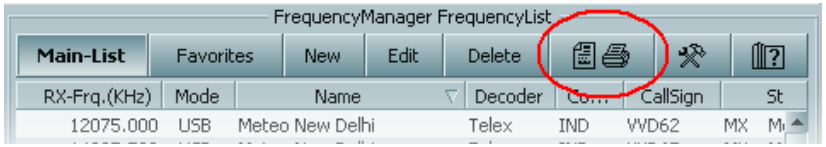


Recommendation: If you are located in Europe, we recommend to use the „Northwood RN London“ broadcast station for skew correction. This station transmits a synchronizing signal which can be used as a marker (red circle on right hand side of the image above).

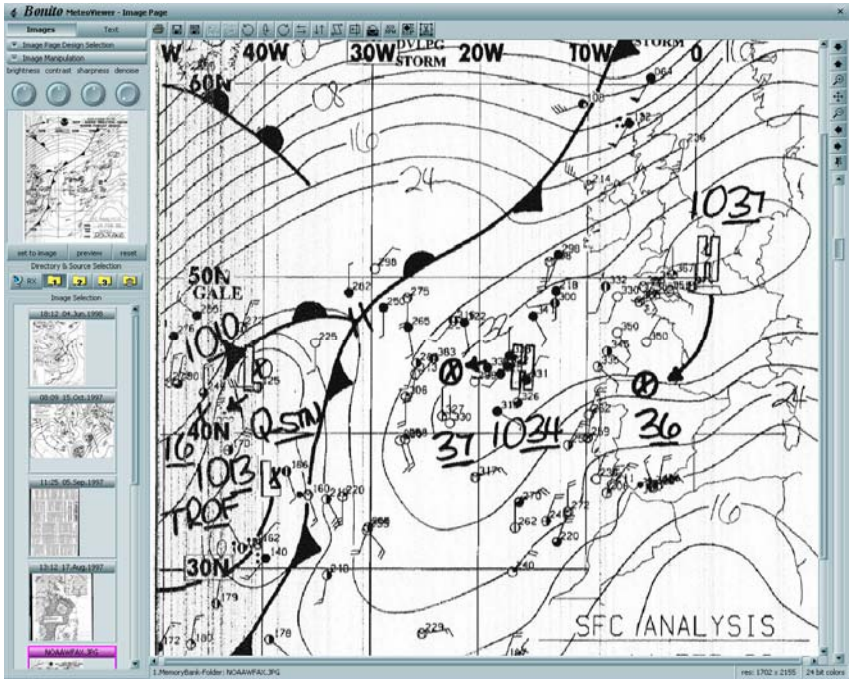
MeteoViewer

ProMeteo comes with the MeteoViewer. This is where weather data are displayed, that where received from the SSB Radio. There are two categories: *„Images“* and *„Text“*.

You can open this Viewer here:



Images



Here all types of images are displayed received in SSB.

Directory and source selection

This is where the sources of the various images are:

Weather maps received on the radio, saved and deleted images.

If you would like to archive images, simply drag and drop them to one of the „banks“. Images saved there will not be deleted by the “automatic deleting routine”.

„Images selection“ contains images sorted by date. Double-clicking an image will bring it up in the large window on the right where it can be viewed and edited.

You navigate the WeatherFax using the up/down and left/right buttons. You can also use the black arrows on the right. The button below the arrows switches the map back to the overview. The image can be zoomed in or out using the magnifying glass symbols. You can also select a portion of the image with your mouse. Point your mouse pointer to the upper left corner of the area you would like to select, click the mouse button and then pull the mouse to the lower right until the desired area is inside the marked area. Release the mouse button. MeteoViewer will zoom into the selected area.

Below the navigation bar there is a slider which makes zooming even easier. Point your mouse to your position and click on the right mouse button. A context menu will open. Select “Set fixpoint”. If you now use the zoom slider, you will always zoom back to the selected position. Even when you are zooming into other areas you simply need to touch the slider to get back to where you were before.

A received WeatherFax is an image that can usually be edited with common Windows programs. However, there are no special tools that would enable you to improve fax reception. With this program you can rotate and synchronize fax images much more quickly because they are designed specifically for ProMeteo.

Save and print FAX

The image can be saved and printed. The regular processing windows appear without any special attributes.

Synchronize

If you have received an image where the left edge is displayed in the center of the image, you can use this function for subsequent synchronization. First click on the button. Now select the exact spot where you want the edge to be.

Skew correction

Use this function when an image comes in skewed.
Click on the upper edge of the image and draw a line along the skewed edge of the image. Clicking again will correct the image.

Crop image

Click on the button. Then click your left mouse button and draw a rectangle around the area you want to crop. Release the mouse button. You can now still manipulate the area by clicking on the edges and pulling them to a different position. Clicking the right mouse button will finalize the crop.

Invert image

You can receive a fax image in LSB reverse. You do that to improve image quality. The image will be received inverted. This function will revert the image to normal.

Rotate image

If the image is arranged wrongly you can rotate it here.

ICO RPM:

If a fax has been recorded with a wrong module or at the wrong speed, it can be turned into readable form here.

Contours, Soften, Sharpen, Brightness

„Contour“ displays lines such as isobars more clearly. If a line has been drawn very softly you can enhance it with this effect. “Soften” and “Sharpen” add a softening or sharpening effect to the image. “Brightness” controls the contrast of the image.

Undo / Redo

Use the UNDO command to reverse the last editing action, if possible.
Use the REDO command to reverse the UNDO command.

Text

This is where all received text messages such as forecasts, warnings, NavTex etc. are displayed. Texts belonging to certain areas will be stored in the respective folders. Forecasts for the Mediterranean can only be found in that folder. This makes finding the proper forecast much easier.

Icon bar Text

This bar contains the following symbols:

ProMeteo
Brings ProMeteo Server to the foreground

Print
This will print text messages

Save + Save as
Here you can save a text or overwrite it.

CLR

Deletes the text.

Format
This is where you can format a text.

RC-HAM SWITCHBOX

Wiring

The RC-HAM interface controller is housed in a small box and fitted with a 9-pin SUB-D socket and a 9-pin SUB-D plug. The socket is connected to a computer COM port. The plug connects to a large variety of devices. The plug does not have a normed RS-232 wiring used to control the following devices:

Radio control for various types of receivers:

1. YAESU CAT-control (and ICOM)
2. ICOM- Radios
3. Conventional serial control as is used in:

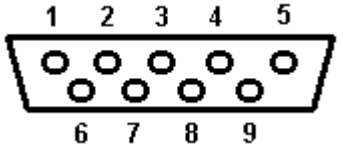
   KENWOOD, AOR, NRD, etc. ....

ICOM, YAESU, Kenwood, AOR, TenTec and many more types can be connected without using an additional RS-232 modem. The RC-HAM switchbox already contains the necessary electronics.

SUB-D

The necessary plug

(Viewed from behind, on the solder side).



Pin - 5 = GND

Pin - 2 = RX of Computer

Pin - 3 = TX of Computer

Pin - 4 = LOWE-HF-150 for connection to the keypad connector

Pin - 6 = YAESU-FRG100 for connection to CAT connector-pin 3

Pin - 6 = ICOM for connection to remote socket (replaces CT-17 modem)

Various cables and connectors

The connectors described above are available ready-made. You can also make the connectors yourself. The connection schematics for all supported radios are shown on the CD under “Technical Service” or on our website at ***www.bonito.net***

Connecting other radio receivers

A proper connection must be established to the type of receiver used (refer to RS-232 connection in your receiver’s manual). Only the TX is used (from the computer). RX is not used and should remain unconnected. The handshake wires are used for controlling the NautiCom electronics and cannot be used to control a radio. The handshake wires may be replaced (cross wiring) as described. The following description only looks at this from a general standpoint.

NautiCom RS-232-connection on the radio

Pin-5 .....GND..... Signal GND

Pin-3 ..... RS-232-TX from the computer..... to RX / DATA-IN (RD)

Handshake is rarely necessary. If it must be used, proceed as follows:

RS-232-connection on the radio

	25-pin -SUB-D	9-pin SUB-D
Handshake.....	Pin 5 with 4 and 6 with 20	Pin 7 with 8 and 6 with 4

Using USB-Serial Adapters:

For Maritime applications you can never have enough COM-ports (serial interfaces). Unfortunately, some notebook manufacturers terminated the use of this interface altogether.

In such cases you can overcome the problem by using a USB serial adapter. This turns a USB connection into a serial port. Theoretically you can create more than 100 COM-ports in this fashion. We have configured ProMeteo in such way that it will recognize such adapters.

ProMeteo routinely browses the first 16 COM-ports. When using a USB serial adapter you should make sure to install it in such way that it is set up as a port between 1 and 16 (**1-9 under WinXP**).

Some makers of USB serial ports provide outdated drivers. That's why we recommend to check the website of the manufacturer to see whether a newer driver available. If there is one, you should install it.

We are also able to directly provide you with USB-Serial-Adapters.

FAQs

Error message: „COM-Port not found“

Check the configuration of your COM-port in the device manager. If you are not sure which configuration is correct, press the „reset standard“ button under „connection configuration“.

Mobile phone and PDA programs like to use the COM-port and are active, even though the hardware is not connected. This happens because the respective software is started when the computer boots. Most of the time these programs are indicated in the info part of the task bar, next to the clock in the lower right corner of the screen. Click the symbol with your right mouse button and select “exit”. This will clear the COM-port until the next boot.

Make sure you have the proper switchbox to your radio because ProMeteo specifically looks for it. If a wrong switchbox is connected the above mentioned error message will appear.

No signal

Check if the radio is switched on and the connector cable is plugged into the correct outlets (audio and control cable).

Check the sound card configuration as described on page 2. If you are unsure about the audio connection of your computer please refer to the PC manual.

The timer records at the wrong time

Check the system time. It should always be set to the time zone and local time of your location. The ProMeteo timer then calculates the UTC. If you put in the UTC time yourself, the timer will not function properly.