User Manual

WIB3S

concerning Software-Version 1.0.x

NAVTEX receiver for 518kHz in English language and for 490kHz in national language
Sea weather receiver of the German weather service at 147,3kHz
Barograph

This manual contains important information for correct using of this device.
Please read the manual carefully before start up.

MÖRER SCHIFFSELEKTRONIK

Bäckerstraße 18
21244 Buchholz i.d. Nordheide
Tel.: +49 (0) 4181 / 97483
E-Mail: info@moerer.de
Web: www.wetterinfobox.com

An liability for the correctness of the contents of this publication cannot be taken over.

In spite of careful processing and programming a defect and/or complete failure of the WIB3S can not be completely excluded. Due to atmospheric disturbances or to disturbances of other electrical and electronic devices, contents of messages can be falsified. The operators of the transmitting plants can change or stop the broadcasting service (temporarily or permanent).

Therefore no liability for availability and correctness of the indicated messages are taken over. In particular no liability for possible damages resulting from use of the WIB3S and information of this manual will be taken over.

In this manual trademark, trade names, customer names, etc. are used. Even if these are not particularly characterized, the appropriate protection regulations are effective.

Note

Software updates for this product are available in the Internet:
http://www.weatherinfobox.com/english/Downloads.htm

Contents

Scope of delivery

The following parts belong to the scope of delivery of the WIB2S:

- 1 x WIB3S,
- 1 x USB cable,
- 2 x fastening screws,
- 1 x retaining brackets,
- 1 x CD with WIB3 software,
- 1 x User Manual.

Introduction

The WIB3S is a NAVTEX and sea weather receiver. The device receives NAVTEX messages on medium wave frequencies 518 kHz (international, English) and 490 kHz (national, national language) and sea weather messages on 147,3 kHz in German.

All three frequencies are received simultaneously. Thus adjusting a time-controlled frequency shift is not necessary. This simplifies the handling of the device.

The NAVTEX and weather messages are displayed on 240 x 128 pixel LCD.

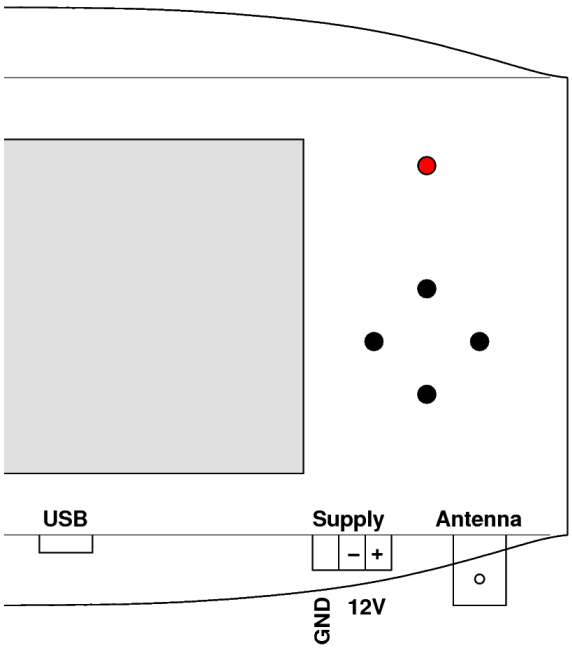
The WIB3S equiped with an inserted precision air pressure sensor, is able to record the air pressure during a period of up to seven days. On the device display only the air pressure of the last two days can be seen.

The device can be connected to the PC via an USB interface. The data of the WIB3S will be displayed by a comfortable Windows software. The software is working with the operating systems Windows XP, Vista and 7.

Software updates for the WIB3S are available in the Internet at:
http://www.weatherinfobox.com/english/Downloads.htm

Connections

The figure below shows the connection assignment of the WIB3S:



The antenna socket (BNC) can be connected with an active antenna (12V) or a passive antenna (e.g., isolated backstay with passiv-balun).

In the WIB3S menu you have to determine whether you use an active or passive antenna (see page 14).

The antenna input impedance is 50Ω.

For an easier connecting of the supply lines, the supply terminal can be pulled out off the device. If possible, please connect line *GND* with the grounding bar of the ship or boot.

With water contact the signal to noise ratio and therefore the reception of weak signals improves. The line *GND* is decoupled to the 12V(-) connection by an 100nF/50V capacitor in parallel with a100kΩ resistor.

When connecting the supply voltage please pay attention to the correct polarity. Protect the supply lines of the WIB3S with time-lag 150mA fuse. The WIB3S is protected internally with a resetable fuse element.

The WIB3S can be integrated to the board connecting block. For receiving and saving messages in spite of the board network is switched off, the WIB3S must be connected directly to the battery. Additionally the supply lines must be protected by a fuse directly at battery.

With the enclosed USB cable the connection of the WIB3S (outlet USB) with PC/Notebook will be done.

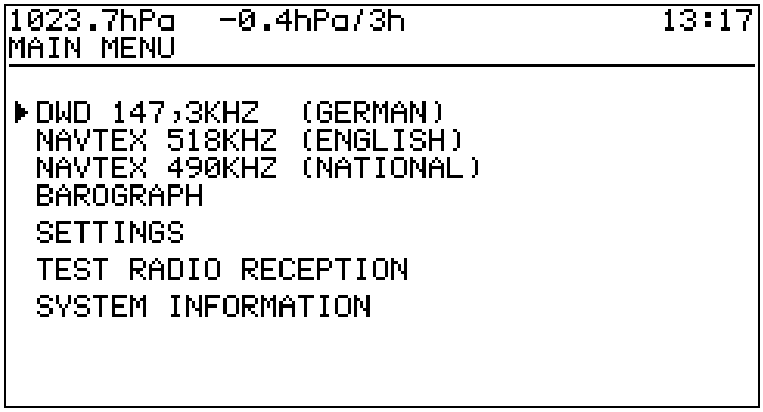
The bulk of the USB jack as well as the connection 12V(-) are coupled with each other. Please note: you can get undesirable ground-loops between the USB connection and the PC. In such a case other electric devices can be parasetical connected with ground (or battery -). Devices needing much current could cause a damage in wiring or connected devices.

Handling

The WIB3S is handled by five keys. Press the power key (⏻) to switch the device on or off. In order to switch off, the power key must be pressed during approx. 3 seconds.

Use the four cursor keys (▲▼◄►) to navigate within the menus. After switch on, the WIB3S displays the main menu (see figure below).

On the left beside the menu entries an arrow is located which can be moved by the keys ▲ and ▼.



With the key ► the menu entry beside the arrow is selected. With the key ◄ the previous menu step can be reached until the main base. Practice a while with the handling of the cursor keys, until you are familar.

On top of the display the actual air pressure, the air pressure tendency and the time of day are displayed. If the WIB3S is in timer operation the remaining term is also shown.
The menu language of the WIB3S can be changed (see section *Language*, page 15).

Menu Overview

The menu of the WIB3S is constructed as follows:

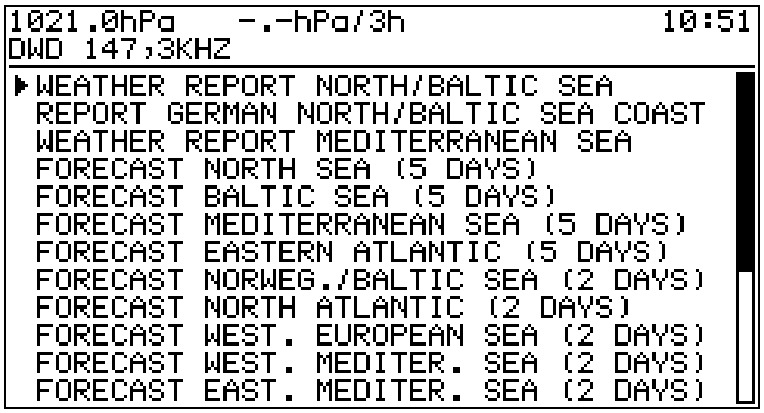
```
DWD 147,3KHZ (GERMAN)
      WEATHER REPORT NORTH/BALTIC SEA
      REPORT GERMAN NORTH/BALTIC SEA COAST
      WEATHER REPORT MEDITERRANEAN SEA
      FORECAST NORTH SEA (5 DAYS)
      FORECAST BALTIC SEA (5 DAYS)
      FORECAST MEDITERRANEAN SEA (5 DAYS)
      FORECAST EASTERN ATLANTIC (5 DAYS)
      FORECAST NORWEG./BALTIC SEA (2 DAYS)
      FORECAST NORTH ATLANTIC (2 DAYS)
      FORECAST WEST. EUROPEAN SEA (2 DAYS)
      FORECAST WEST. MEDITER. SEA (2 DAYS)
      FORECAST EAST. MEDITER. SEA (2 DAYS)
      GALE AND STORM WARNINGS
      NAVIGATIONAL WARNINGS
      WARNINGS BALTIC SEA (ENGLISH)
      WARNINGS NORTH/BALTIC SEA (ENGLISH)
      STATION REPORTS NORTH/BALTIC SEA
      STATION REPORTS MEDITERRANEAN SEA
      ADVICE TRANSMISSION TROUBLE/NOTICES
      ADVICE ON THE USE OF WEATHER DATA
NAVTEX 518KHZ (ENGLISH)
      ALL MESSAGES
      NAVIGATIONAL WARNINGS
      WEATHER WARNINGS
      ICE REPORTS
      SEARCH AND RESCURE INFORMATIONS
      WEATHER FORECASTS
      PILOT SERVICE MESSAGES
      ELEC. NAVAID MESSAGES
      REMAINING MESSAGES
NAVTEX 490KHZ (NATIONAL)
      ALL MESSAGES
      NAVIGATIONAL WARNINGS
      WEATHER WARNINGS
      ICE REPORTS
      SEARCH AND RESCURE INFORMATIONS
      WEATHER FORECASTS
      PILOT SERVICE MESSAGES
      ELEC. NAVAID MESSAGES
      REMAINING MESSAGES
BAROGRAPH
SETTINGS
      NAVTEX 518KHZ STATION LIST
      NAVTEX 490KHZ STATION LIST
      CLOCK
      TIMER
      DISPLAY CONTRAST
      DISPLAY BACKLIGHT
      SCREENSAVER
      BAROMETER ALTITUDE
      CALIBRATE BAROMETER
      ACTIVE ANTENNA REMOTE POWER SUPPLY
      LANGUAGE
TEST RADIO RECEPTION
SYSTEM INFORMATION
```

DWD Messages

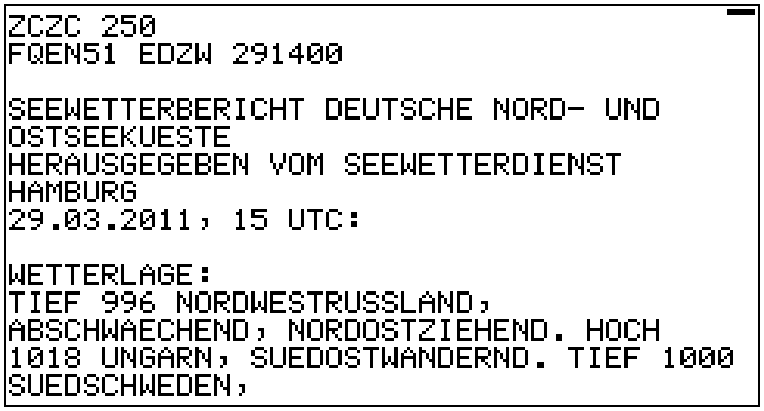
The German Weather Service transmits sea weather reports, weather forecasts and station messages in German language on the long wave frequency 147,3kHz.

The WIB3S receives and stores this messages sorted by message type. To Display the messages please select the menu item **DWD 147,3KHZ(GERMAN)** in the main menu.

In this menu an overview of the different message types is shown:



By selecting a message type from the menu the corresponding message appears. If a selected message is not available in then memory of the WIB3S you see the note: **NO MESSAGE AVAILABLE**.



With the cursor keys ▲ and ▼ the shown message can be scrolled up and down.
With the key ► you can switch to older messages in the memory of the device.

NAVTEX Messages

The structure of a NAVTEX message is to be explained on the basis of following example:

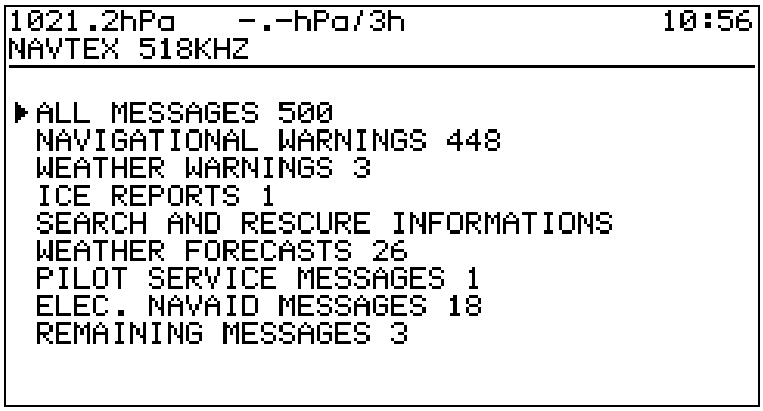
ZCZC PA09
NETHERLANDS COASTGUARD
NAVIGATIONAL WARNING NR. 9 172128 UTC AUG
PLATFORM L10-G 53-29.4N 004-11.7E
UNLIT
NNNN

Each NAVTEX-message begins with the letters **ZCZC**, followed by the message identification (**PA09**). The first letter of the message identification serves the master station for identification. In this example it is **NETHERLANDS COASTGUARD** (P).

In the second letter the kind of message is coded, here navigational warning (navigation warnings). The last two numbers of the message identification (**09**) are a serial numbers. The number 00 has a privileged position. It is reserved for distress messages.

NAVTEX messages have a time stamp. It is shown at the end of the third line (**172128 UTC AUG**) and means: 17. August, 21:28 UTC. The time stamp refers to the date, the message was produced and not to the time of the radiant transmission. Afterwards the message content follows. The message ends with **NNNN**.

To display NAVTEX messages please follow the menus entries
NAVTEX 518KHZ (ENGLISH) (internationale messages) or
NAVTEX 490KHZ (NATIONAL) (national messages) in the main menu.

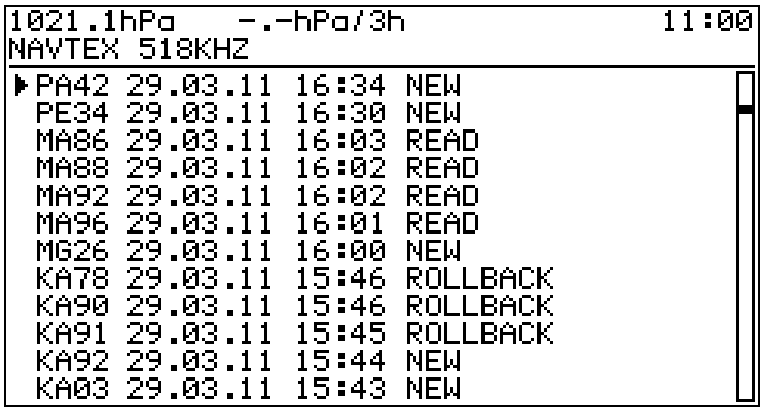


An overview of the different message types is shown. The number behind the message types indicates the number of messages of the corresponding type stored in the WIB3S. Old messages are deleted automatically after two days uptime.

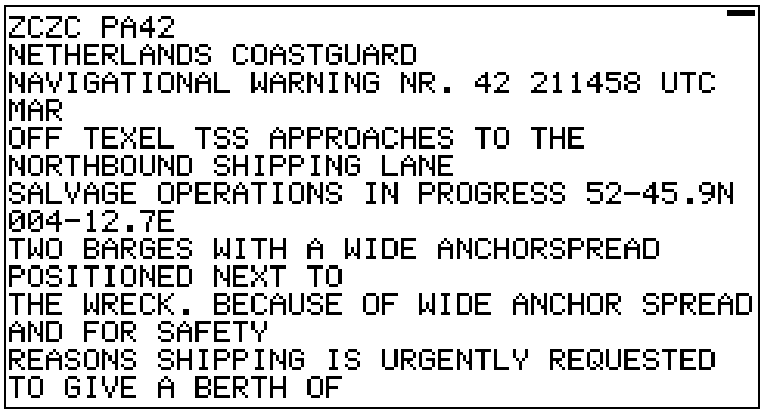
The following table gives an overview about the message types:

Code	Menu	Comment
A - Z	**ALL MESSAGES**	
A, L	**NAVIGATIONAL WARNINGS**	
B	**WEATHER WARNINGS**	(Meteorological warnings)
C	**ICE REPORTS**	
D	**SEARCH AND RESCURE INFO**	
E	**WEATHER FORECASTS**	
F	**PILOT SERVICE MESSAGES**	
G - K	**ELEC. NAVAID MESSAGES**	Information about DECCA, LORAN, GPS
M - Z	**REMAINING MESSAGES**	

By selecting a message type from the menu (figure on the page 6), a list with all messages of corresponding type appears.



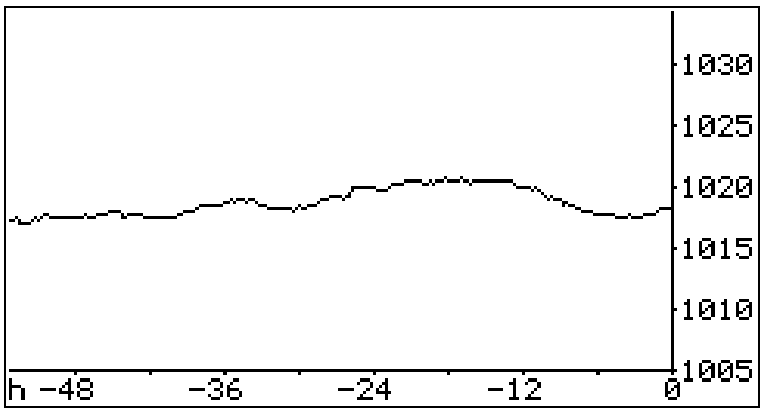
The last received message is on top of the list. The date and time behind the message identification shows when the message was received. The message identifications are marked with either **NEW**, **ROLLBACK** or **READ** accordingly new, repeated or read messages.



By selecting a message from the message list, the contents of the message appears on the display. With the cursor keys ▲ and ▼ the messages can be scrolled up and down.Characters, which were not received correctly, will be shown by the WIB3S as an underline (_).

Barograph

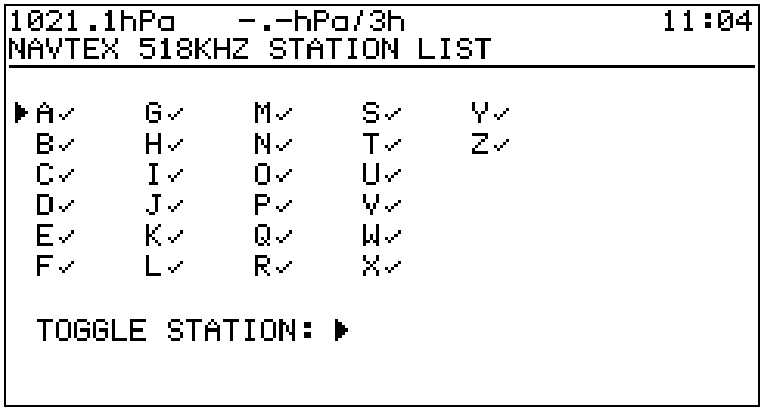
Please select the menu entry **BAROGRAPH** in the main menu to display the barograph data.



The air pressure of the last 48 hours will be displayed. The actual air pressure is located on the right of the diagram.

Station List

To view the station list, please select in the main menu the menu entries
SETTINGS→STATION LIST 518KHZ for international and
SETTINGS→STATION LIST 490KHZ for national NAVTEX messages.



The station list is used to hide undesirable NAVTEX stations.

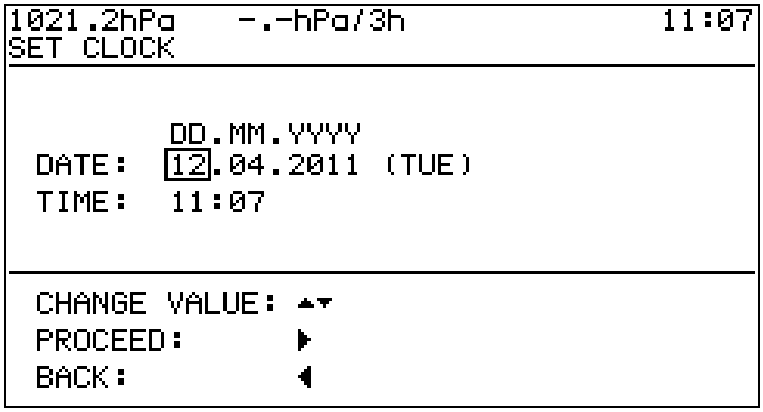
To hide a station, please select the corresponding station key with the keys ▲ and ▼. Then the station can be deactivated and activated with the key ►.

Hidden stations will still be received, and appear again in the message list if they are reactivated. You find a list of the NAVTEX stations in Europe on page 18 (*Appendix NAVTEX Stations*).

Please note: Hiding of NAVTEX stations is not quite harmless. Thus, e.g., important messages are not displayed if you use the device in another sea area.

Set Clock

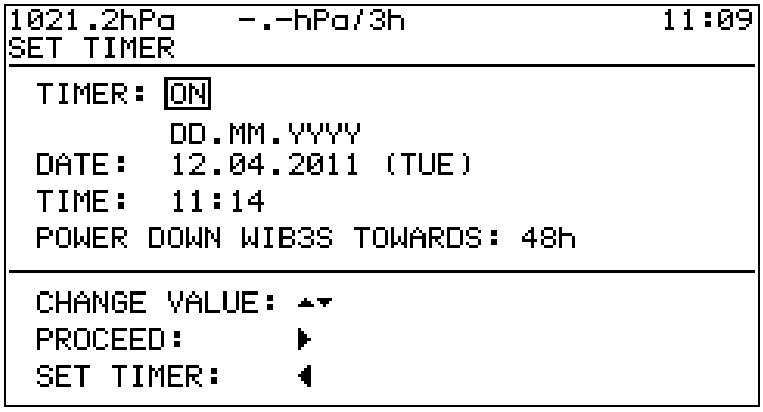
To reach the *Set Clock* dialog please choose the menu entries **SETTINGS→CLOCK** in the main menu.



In the *Set Clock* dialog you can set time and date of the clock in the WIB3S. Please, select the field to be changed with the key ►. The value of the field can be changed with the keys ▲ and ▼. The clock is adjusted by quitting the dialog with the key ◄.

Set Timer

The Timer of the WIB3S allows to switch the WIB3S time-controlled on and off. To adjust the timer please choose the menu entries **SETTINGS→TIMER** in the main menu.

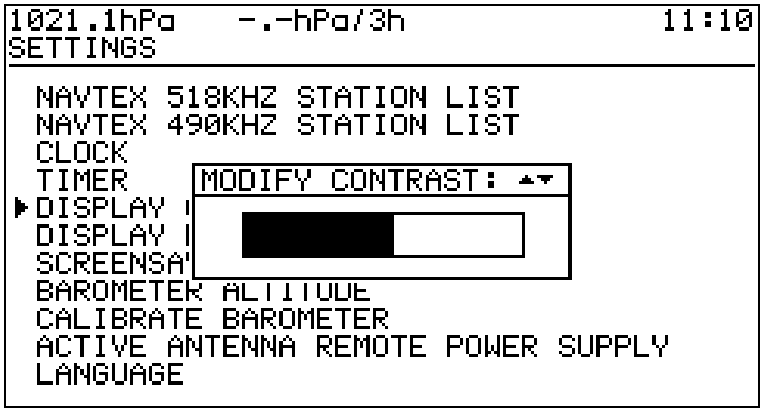


In the first field of the timer dialog you can switch the timer on and off. In the following fields the switch on time and the timer operating time can be adjusted. To activate the timer please quitt the timer dialog an switch the WIB3S off. Then the device switches itself on at the adjusted time. In timer operation the remainig timer term is displayed in first display line left to the day time.

You can deactivate the timer, while switch if off in the timer dialog. The timer is switched off as well if you switch off the WIB3S in timer operation.

Set Display Contrast

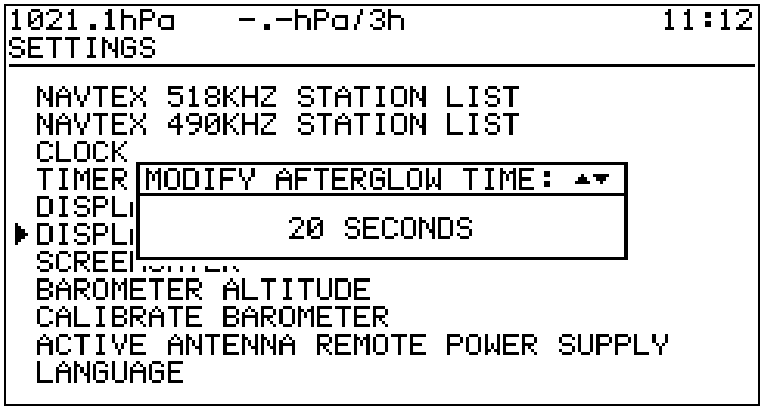
To reach the *Display Contrast* menu please choose the menu entries **SETTINGS→ DISPLAY CONTRAST** in the main menu.



the adjustment of the display contrast is possible with the keys ▲ and ▼.
With the key ◄ you will return to the menu *Settings.*

Set Display Backlight

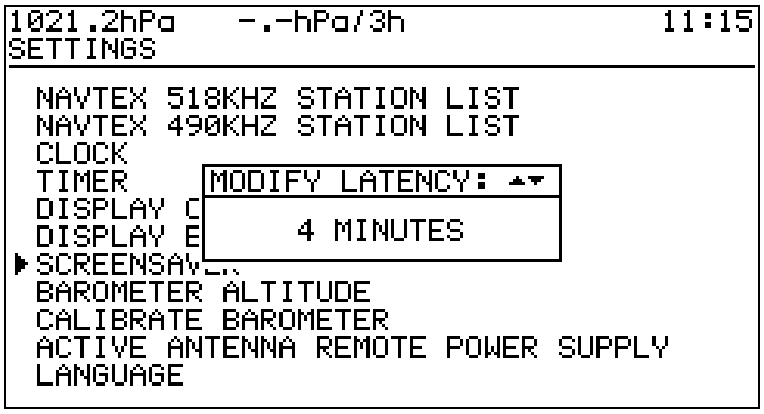
By selecting the menu entry **DISPLAY BACKLIGHT** in the menu **SETTINGS** the adjustment of the afterglow time of the display backlighting is possible with the keys ▲ and ▼.



The afterglow time determines, how long the backlighting remains enabled after the last keystroke. The adjustment range is between 0 and 60 seconds.

Set Screensaver

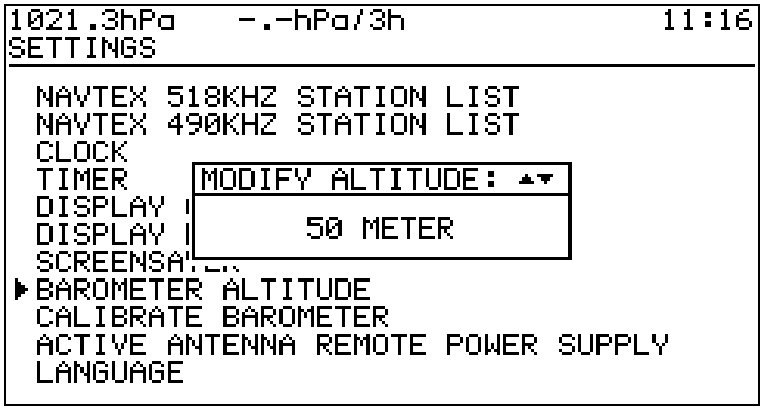
By selecting the menu entry **SCREENSAVER** in the menu **SETTINGS** the adjustment of the screensaver latency or switch off the screensaver is possible with the keys ▲ and ▼.



The adjustment range is between 2 and 10 minutes. The screensaver latency determines, how long it lasts, until the screen saver becomes active after the last keystroke. If the screensaver is active, the display is switched off. This raises the life time of the display and reduces the current consumption of the device.

Set Barometer Altitude

By selecting the menu entry **BAROMETER ALTITUDE** in the menu **SETTINGS** the adjustment of the baromter altitude (height of the device above sea level) in 5 meter steps is possible with the keys ▲ and ▼.



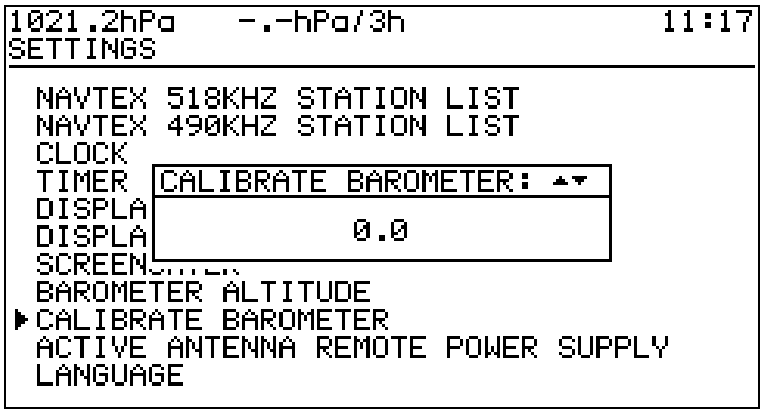
With correctly justified barometer height the WIB3S displays the air pressure referred to sea level.

The adjustment range of the barometer altitude is between 0 and 1000 meter.

Calibrate Barometer

The typical long term stability of the air pressure sensor of the WIB3S is -1 hPa/year. Every year the displayed air pressure sinks by approx. 1 hPa. You can correct this by calibrating the device. You need a reference air pressure referred on sea level. The baromter altitude must be adjusted correctly before calibration.

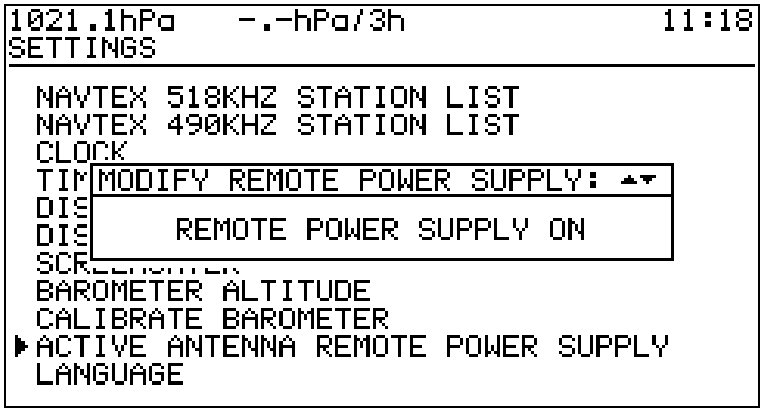
In order to calibrate the air pressure sensor please select the menu entry **CALIBRATE BAROMETER** in the menu **SETTINGS.**



Now adjust the air pressure display (on top of the left) with the keys ▲ and ▼ until it is conform to the reference air pressure.

Antenna remote Power Supply

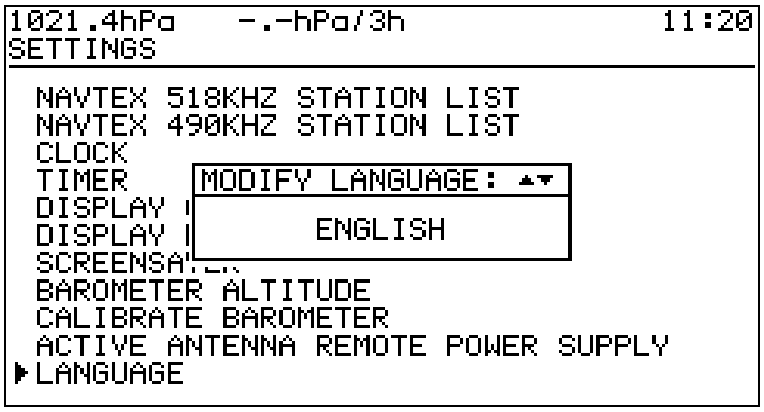
If the WIB3S is running with an active antenna (12V), the remote power supply must be switched on, so that the antenna is supplied with current. In order to switch the remote power supply on, select the menu entry **ACTIVE ANTENNA REMOTE POWER SUPPLY** in the menu **SETTINGS.**



To switch on and off the remote power supply please use the keys ▲ and ▼.
If you use a passive antenna the remote power supply must be switched off.

Set Language

By selecting the menu entry **LANGUAGE** in the menu **SETTINGS** the adjustment of the menu language of the WIB3S is possible with the keys ▲ and ▼.

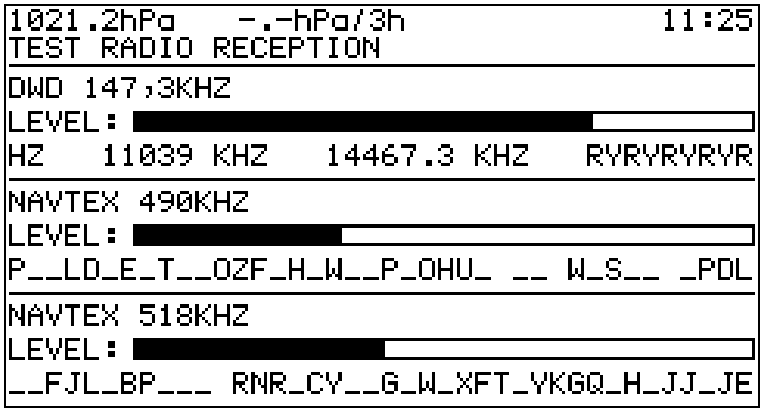


At present the WIB3S supports the languages German and English. The following list contains the path to the language settings in all supported languages:

EINSTELLUNGEN→SPRACHE
SETTINGS→LANGUAGE

Test Radio Reception

The reception test is reachable either via main menu item **TEST RADIO RECEPTION** in the main menu.

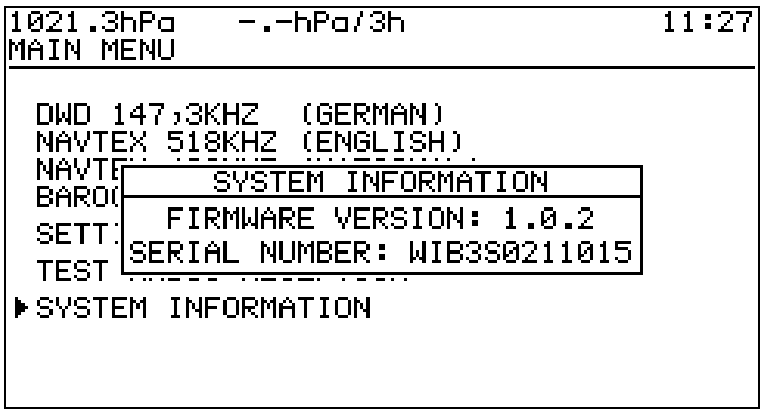


In the reception test the reception level and the received text is displayed for all three frequencies.

Note please: The NAVTEX transmitters emit messages only at there transmitting times, so at the NAVTEX frequencies most time only senseless text appears.
The German weather service at 147,3 kHz transmits continuously. If no message is transmitted, RY waiting loops are emitted.

System Information

To display the system information select the menu item **SYSTEM INFORMATION** in the main menu.



The system information shows the firmware version and the serial number of the device.

Software

You can also use your PC to read the data of the WIB3S. The software appropriate is included in the scope of supply of the WIB3S. The software is working with the operating systems Windows XP, Vista and 7.

Software updates for the WIB3S will be spread via internet. Nevertheless, please look form time to time under http://www.weatherinfobox.com, to make sure, you have the latest version.

Software installation

The software of the WIB3S is stored on the enclosed CD. The folder *Deutsch* contains the installation program for the German version and the folder *English contains the* appropriate installation program for the English version.

In order to install the software please start the required installation program (Setup.exe) with a double click. Afterwards you have to follow the instructions shown on the screen. After installation please attach the WIB3S via USB cable to the PC and start the WIB3 program.

Further instructions for using the software are available in the help of the application.

Operating instructions

Please use the equipment only in the interior in dry environment. Do not expose the equipment in use to temperatures higher than 50°C and lower than 0°C.

RTC Buffer Batterie

The WIB3S is equipped with an internal clock (RTC) which is buffered with a 3V lithium battery. If the clock does not work properly, the lithium battery must be changed. Wasted batteries must be disposed properly and do not belong in the domestic waste.

Specifications

Receipt-frequencies	147,3kHz, 490kHz and 518kHz
LC-Display	240x128 Pixel, monochrom
PC-interface	USB Full Speed
Battery for internal clock	1 x CR2032
Resolution of air pressure sensor	0,1hPa
Absolute measurement error of the air pressure sensor	±1,5hPa
Typical long-term stability of the air pressure sensor	-1hPa/year
Air pressure measuring interval	60s
Maximum recording span air pressure	7 dys PC, 48 hours display
Supply voltage	12V
Current consumption	Approx. 35mA without backlight
Antenna input	50Ω, BNC
Supply voltage active antenna	12V, max. 80mA
Operating temperature	0...50°C
Supported operating systems	Windows XP, Vista, 7
Memory for messages	each 256KB for NAVTEX 490/518kHz, 448KB for DWD, 63KB for barograph data
Dimensions (LxWxH)	Approx. 155mm x 97mm x 29mm
Weight	Approx. 300g

For inside use only.

Warranty

If the WIB3S exhibits a defect due to production or material defects within 24 months starting from the purchase date, it is either repaired by us or exchanged free of charge against appropriate equipment. To wearing parts (e.g. housing, batteries, etc.) the warranty applies for six months starting from purchase date.
The warranty does not apply, if the defect is caused on inappropriate treatment or neglection of the manuals. A receipt of the warranty voucher with purchase date is required.

Appendix NAVTEX Stations

A list of the NAVTEX stations for Navarea 1 (North Atlantic, North Sea and Baltic Sea), Navarea 2 (Atlantic East) and Navarea 3 (Mediterranean Sea) can be seen below.
A liability for the correctness and completeness of the following entries cannot be taken over.

NAVAREA 1 - North Atlantic, North Sea and Baltic Sea

518 kHz (international)

Code	Station	Latitude	Longitude	Time (UTC)
B	Bodø (NOR)	67° 16' N	14° 29' E	00:10, 04:10, 08:10, 12:10, 16:10, 20:10
E	Niton (GBR)	50° 35' N	01° 18' W	00:40, 04:40, 08:40, 12:40, 16:40, 20:40
G	Cullercoates (GBR)	55° 02' N	01° 26' W	01:00, 05:00, 09:00, 13:00, 17:00, 21:00
H	Bjuröklubb (SWE)	64° 28' N	21° 36' E	01:10, 05:10, 09:10, 13:10, 17:10, 21:10
I	Grimeton (SWE)	57° 06' N	12° 23' E	01:20, 05:20, 09:20, 13:20, 17:20, 21:20
J	Gislövshammar (SWE)	59° 29' N	14° 19' E	01:30, 05:30, 09:30, 13:30, 17:30, 21:30
K	Niton (GBR)	50° 35' N	01° 18' W	01:40, 05:40, 09:40, 13:40, 17:40, 21:40
L	Rogaland (NOR)	58° 39' N	05° 36' E	01:50, 05:50, 09:50, 13:50, 17:50, 21:50
M	Ostend (BEL)	51° 11' N	02° 48' E	02:00, 06:00, 10:00, 14:00, 18:00, 22:00
N	Ørlandet (NOR)	63° 40' N	09° 33' E	02:10, 06:10, 10:10, 14:10, 18:10, 22:10
O	Portpatrick (GBR)	54° 51' N	05° 07' W	02:20, 06:20, 10:20, 14:20, 18:20, 22:20
P	Netherlands Coastguard (HOL)	52° 57' N	04° 47' E	02:30, 06:30, 10:30, 14:30, 18:30, 22:30
Q	Malin Head (IRL)	55° 22' N	07° 21' W	02:40, 06:40, 10:40, 14:40, 18:40, 22:40
R	Reykjavik (ISL)	64° 05' N	21° 51' W	02:50, 06:50, 10:50, 14:50, 18:50, 22:50
S	Pinneberg (GER)	53° 38' N	09° 48' E	03:00, 07:00, 11:00, 15:00, 19:00, 23:00
T	Ostend (BEL)	51° 11' N	02° 48' E	03:10, 07:10, 11:10, 15:10, 19:10, 23:10
U	Tallin (EST)	59° 30' N	24° 30' E	03:20, 07:20, 11:20, 15:20, 19:20, 23:20
W	Valentia (IRL)	51° 56' N	10° 21' W	03:40, 07:40, 11:40, 15:40, 19:40, 23:40
X	Reykjavik (ISL)	64° 05' N	21° 51' W	03:50, 07:50, 11:50, 15:50, 19:50, 23:50

490 kHz (national)

Code	Station	Latitude	Longitude	Time (UTC)
C	Portpatrick (GBR)	54° 51' N	05° 07' W	08:20, 20:20
E	Corsen (FRA)	48° 28' N	05° 03' W	
L	Pinneberg (GER)	53° 38' N	09° 48' E	01:50, 05:50, 09:50, 13:50, 17:50, 21:50
T	Niton (GBR)	50° 35' N	01° 18' W	03:10, 07:10, 11:10, 15:10, 19:10, 23:10
R	Reykjavík (ISL)	64° 05' N	21° 51' W	03:18, 07:18, 11:18, 15:18, 19:18, 23:18
U	Cullercoats (GBR)	55° 02' N	01° 26' W	07:20, 19:20

NAVAREA 2 - Atlantic East

518 kHz (international)

Code	Station	Latitude	Longitude	Time (UTC)
A	Corsen (FRA)	48° 28' N	05° 03' E	00:00, 04:00, 08:00, 12:00, 16:00, 20:00
D	Couna (ESP)	42° 54' N	09° 16' W	00:30, 04:30, 08:30, 12:30, 16:30, 20:30
F	Horta (AZR)	38° 32' N	28° 38' W	00:50, 04:50, 08:50, 12:50, 16:50, 20:50
G	Tarifa (ESP)	36° 01' N	05° 34' W	01:00, 05:00, 09:00, 13:00, 17:00, 21:00
I	Las Palmas (ESP)	28° 10' N	15° 25' W	01:20, 05:20, 09:20, 13:20, 17:20, 21:20
M	Casablanca (MRC)	33° 36' N	08° 38' W	02:00, 06:00, 10:00, 14:00, 18:00, 22:00
R	Monsanto (POR)	38° 44' N	09° 11' W	02:50, 06:50, 10:50, 14:50, 18:50, 22:50

490 kHz (national)

Code	Station	Latitude	Longitude	Time (UTC)
E	Corsen (FRA)	48° 28' N	05° 03' E	00:40, 04:40, 08:40, 12:40, 16:40, 20:40
G	Monsanto (POR)	38° 44' N	09° 11' W	01:00, 05:00, 09:00, 13:00, 17:00, 21:00
J	Horta (AZR)	38° 32' N	28° 38' W	01:30, 05:30, 09:30, 13:30, 17:30, 21:30

NAVAREA 3 - Mediterranean Sea

518 kHz (international)

Code	Station	Latitude	Longitude	Time (UTC)
A	Novorossiysk (RUS)	40° 42' N	37° 44' E	03:00, 07:00, 11:00, 15:00, 19:00, 23:00
B	Mariupol (UKR)	47° 04' N	37° 33' E	01:00, 05:00, 09:00, 13:00, 17:00, 21:00
C	Odessa (UKR)	46° 29' N	30° 44' E	02:30, 06:30, 10:30, 14:30, 18:30, 22:30
D	Istanbul (TUR)	41° 04' N	28° 57' E	00:30, 04:30, 08:30, 12:30, 16:30, 20:30
E	Samsun (TUR)	71° 17' N	36° 20' E	00:40, 04:40, 08:40, 12:40, 16:40, 20:40
F	Antalya (TUR)	36° 53' N	30° 42' E	00:50, 04:50, 08:50, 12:50, 16:50, 20:50
H	Heraklion (GRC)	35° 20' N	25° 07' E	01:10, 05:10, 09:10, 13:10, 17:10, 21:10
I	Izmir (TUR)	38° 22' N	26° 25' E	01:20, 05:20, 09:20, 13:20, 17:20, 21:20
J	Varna (BUL)	43° 04' N	27° 46' E	01:30, 05:30, 09:30, 13:30, 17:30, 21:30
K	Corfu (GRC)	39° 37' N	19° 55' E	01:40, 05:40, 09:40, 13:40, 17:40, 21:40
L	Limnos (GRC)	39° 52' N	25° 04' E	01:50, 05:50, 09:50, 13:50, 17:50, 21:50
M	Cyprus (CYP)	35° 02' N	33° 17' E	02:00, 06:00, 10:00, 14:00, 18:00, 22:00
N	Alexandria (EGY)	31° 11' N	29° 52' E	02:10, 06:10, 10:10, 14:10, 18:10, 22:10
O	Malta (MLT)	35° 49' N	14° 32' E	02:20, 06:20, 10:20, 14:20, 18:20, 22:20
P	Haifa (ISR)	32° 49' N	35° 00' E	00:20, 04:20, 08:20, 12:20, 16:20, 20:20
Q	Split (HRV)	43° 30' N	16° 29' E	02:40, 06:40, 10:40, 14:40, 18:40, 22:40
R	Rome (ITA)	41° 37 'N	12° 29' E	02:50, 06:50, 10:50, 14:50, 18:50, 22:50

Code	Station	Latitude	Longitude	Time (UTC)
T	Cagliari (ITA)	39° 13' N	09° 14' E	03:10, 07:10, 11:10, 15:10, 19:10, 23:10
U	Trieste (ITA)	45° 40' N	13' 45' E	03:20, 07:20, 11:20, 15:20, 19:20, 23:20
V	Augusta (ITA)	37° 14' N	15° 14' E	03:30, 07:30, 11:30, 15:30, 19:30, 23:30
W	La Garde (FRA)	43° 06' N	05° 59' E	03:40, 07:40, 11:40, 15:40, 19:40, 23:40
W	Astrakhan (RUS)	46° 18' N	47° 58' E	03:40, 07:40, 11:40, 15:40, 19:40, 23:40
X	Cabo de la Nao (ESP)	38° 43' N	00° 09' E	03:50, 07:50, 11:50, 15:50, 19:50, 23:50

490 kHz (national)

Code	Station	Latitude	Longitude	Time (UTC)
A	Samsun (TUR)	41° 19' N	36° 20' E	00:00, 04:00, 08:00, 12:00, 16:00, 20:00
B	Istanbul (TUR)	41° 04' N	28° 57' E	00:10, 04:10, 08:10, 12:10, 16:10, 20:10
C	Izmir (TUR)	38° 22' N	26° 36' E	00:20, 04:20, 08:20, 12:20, 16:20, 20:20
D	Antalya (TUR)	36° 53' N	30° 42' E	00:30, 04:30, 08:30, 12:30, 16:30, 20:30
L	Constanta (ROU)	44° 06' N	28° 37' E	01:50, 05:50, 09:50, 13:50, 17:50, 21:50
S	La Garde (FRA)	43° 06' N	05° 59' E	03:00, 07:00, 11:00, 15:00, 19:00, 23:00

Devices with a crossed out dustbin label have to disposed in the European Union via a separate garbage collection at a suitable collective places for the recycling of electric and electronic devices.

MÖRER SCHIFFSELEKTRONIK does not take responsibility for injuries or damages, which develop during or in consequence of the installation of this product. Each article of equipment can fail by various different reasons. Never use this equipment as the only information source, if by the loss of the equipment a danger exists for lives, health or material possession. Remember: This equipment is only assistance for the weather- and message information, and is no replacement for good sailor shank. The use of the equipment is on your own risk. Use it carefully and test its operability occasionally on the basis of other data from time to time.

The information contained herein can be changed at any time without previous proclamation. Mörer Schiffselektronik reserves itself the right to change or improve the products without notification.