W410/BAT DISPLAY UNIT

MANUAL

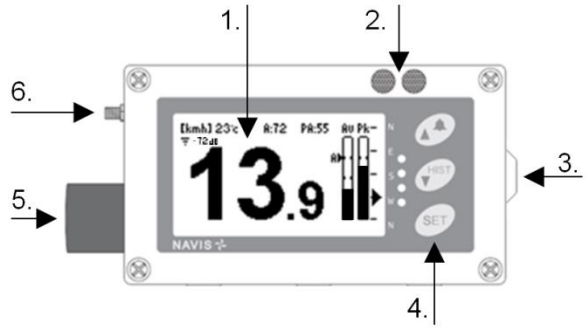
Models: W410/BAT/D, W410XB/BAT/D

PREFACE

Thank you for purchasing the Navis anemometer. This manual provides information for the best performance and safe application of the anemometer display unit. This manual does not cover the anemometer sensors for which the manuals will come separately. Read this manual carefully before starting the installation. Keep this manual after installation for future reference.

INTRODUCTION

W410/BAT models are long-range receiver/display units which receive data from NAVIS wind sensors, display various wind data, and use alarms for warnings about excess wind speed. Smartphone compatibility (W410XB/BAT model only) allows real-time wind data monitoring on smartphones or tablets.



1. Display
2. Red and Yellow alarm lights
3. ON/OFF switch
4. Keys
5. Buzzer
6. SMA antenna connector

Figure 1. (W410/BAT display unit – front panel)

The W410/BAT display is compatible with NAVIS sensors: WS 010-1 (wind speed sensor, standard range), WS 011-1 (wind speed sensor, extended range), WSD 010-1 (wind speed/direction sensor, standard range), WSD 011-1 (wind speed/direction sensor, extended range).

MOUNTING

Select the position where the signal reception is strong enough under all conditions. Use remote antenna if necessary.
Display unit can be mounted onto the ferrous surface with four mounting magnets (optional accessories) or with mounting screws (not enclosed) to any flat surface.

Mounting the display unit with screws:
Unscrew all 4 plastic screws and remove the front panel. Note that the screws can be pulled out only at the correct angle. Place the rear panel of the display unit to the final mounting position and mark the position for the bores. Remove the casing and drill holes for the mounting screws. Place the rear panel of the display unit in position and tighten the mounting screws. Attach the front panel of the display unit with 4 plastic screws.

ANTENNA CONNECTION

Connect the enclosed antenna to the SMA connector on the display unit only when the display unit is switched OFF.

OPERATION

Display unit is activated by a switch on the side of the housing.
If the display unit is delivered as a set, with the sensor included, the correct sensor address is already set.
Otherwise please set the correspondent sensor address first. Check the address settings procedure in the chapter “SETTINGS”.
Turn the sensor ON by rotating the sensor cups (see sensor user manual).
Fresh wind data are received every two seconds. If data are not received for more than 30 seconds, the “No data” notification appears on the display.

DISPLAY
Switching between pages:
With short presses of the HIST key you can open pages 2 and 3 to see the “Wind speed” and “Max alarm” history respectively.
The display will return to the first page by holding down the HIST key for 3 seconds or automatically after 1 minutes of inactivity.

1st page:
1. Current wind speed
2. Current wind speed bar graph
   (set max alarm level is always on ¾ bar height)
3. Peak wind speed in the last 2 minutes bar graph
   (set max alarm level is always on ¾ bar height)
4. 10 seconds average wind direction indicator (only at WSD sensor)
5. Unit of wind speed measurement
6. Temperature at sensor
7. Max Alarm value
8. Pre alarm value
9. Received data package indicator
10. Signal strength value (in dB)
11. Sound alarm OFF icon

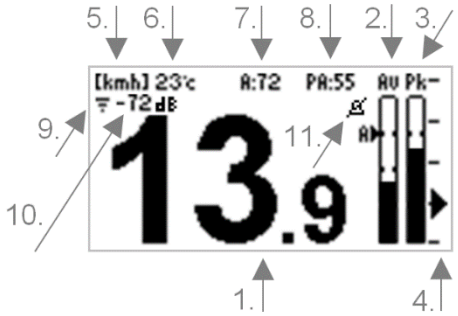


Figure 4. (Display – 1st page)

2st page:
8-hour peak wind speed history graph.
Each column represents peak wind speed during the 5-minutes interval

3st page:
8-hour “Max alarm” history graph with 5-minutes intervals

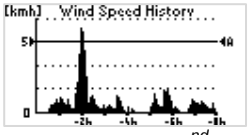


Figure 5. (Display – 2nd page)

Figure 6. (Display – 3rd page)

DISPLAY BACKLIGHT
Switched ON and OFF by short pressing the upper key.

SIGNAL RECEPTION
The reception symbol blinks when the display unit receives a signal from the sensor (every 2 seconds if the reception is good).
Signal strength is numerically shown in dB:
• -105 dB is approximately the limit where display unit stops receiving
• -100 dB and lower means very week signal
• -95 ... -90 dB is considered as still acceptable
• -85 dB and higher is a good signal

When the sensor doesn't send data (in the OFF state) or when the signal is lost for a more than 30 seconds, the “No data” notification appears on the display, indicating that the receiver doesn’t receive data from the sensor (sensor OFF or out of range).

RANGE
Connection between the sensor and display unit works on a free 868 MHz band. The range is up to 500 meters (1300 meters with an extended range sensor) when the sensor is mounted at a height of 10 meters and when there is no obstacle between the sensor and the display unit. Inside buildings the range is much smaller. Normally the signal can be received through two to three walls.

ALARMS
The alarms consist of red and yellow alarm lights signalization and sound signal from buzzer.

OPERATION OF ALARMS
Pre-alarm: when set value is exceeded, the yellow light will start blinking, and the buzzer will sound with short interruptions.
Max alarm: when set value is exceeded, the red light will flash, and the buzzer will sound continuously.

SOUND ALARM
By holding-down the upper key for 2 seconds you can switch the sound alarm ON and OFF.
The sound alarm is active each time the display unit is turned ON.
In the settings menu, the sound alarm can be disabled permanently.

SMARTPHONE COMPATIBILITY (W410XB/BAT/D model only)
A data packet is transmitted over Bluetooth every second. With the free “Windy Anemometer” application you can read the data of the current, average, and maximum wind speed, as well as wind direction and temperature, or view history graphs on your smartphone.
In the application settings menu, always set the address corresponding to the address of the W410XB/BAT sensor.
The range is up to 40 meters. Inside a building, the range is much smaller. The range also varies with the type of smartphone or tablet.

Application “WINDY ANEMOMETER” can be downloaded from Google Play or Apple Store.
Android: Applications requires device with Android 4.3 or newer with Bluetooth Low Energy (BLE).
Apple: In iOS settings for the Windy Anemometer application configure parameter "Allow Location Access" to "While Using the App".

SETTINGS: SETTINGS PROCEDURE

1. Hold down the SET key to enter the settings menu. If password protection is active, enter the correct password. The group of settings displays on the display.
2. Select the group by using the up and down keys and press the SET key to view the selected group.
3. Using the up and down keys select the parameter you wish to adjust and press the SET key to view the selected parameter. The adjustable parameter blinks.
4. With the up and down keys, adjust the parameter value. Press SET to enter the new value and move to the next parameter.
5. Exiting the settings menu: hold down the SET key to move back one level.
   The anemometer also returns to the main screen after 2 minutes of inactivity.

SETTINGS: SETTINGS LIST

Max Alarm	select to set Max Alarm parameters
Pre Alarm	select to set Pre Alarm parameters
General	select to set general parameters

Settings: Max Alarm (RED ALARM LIGHT, continuous sound)

	Factory preset:	Setting range:	Description:
Wind Speed:	72 km/h	1 - 50 m/s	Max Alarm limit
ON Delay:	0 s	0 - 600 s	Minimum time for excess wind speed to activate the Max alarm
OFF Delay:	0 min	0 - 60 min	Alarm switch OFF delay after wind speed drops below preset level

Settings: Pre Alarm (YELOW ALARM LIGHT, interrupted sound)

	Factory preset:	Setting range:	Description:
Wind Speed:	52 km/h	1 - 50 m/s	Pre Alarm 2 limit
ON Delay:	0 s	0 - 600 s	Minimum time of exceed Wind speed to activate the Pre Alarm 2
OFF Delay:	0 min	0 - 60 min	Alarm switch OFF delay after wind speed drop below preset level

Settings: General

	Factory preset:	Setting range:	Description:
Sensor Address:	Enclosed sensor	1 - 255	Set the sensor address of your wind speed or wind speed / wind direction sensor
WS Averaging:	2 s	2, 10 or 30 s	Averaging period for displayed wind speed
WS units:	km/h	m/s, km/h, mph or knots	Unit for displaying wind speed
Temperature units:	^{0}C	^{0}C or ^{0}F	Unit for displaying Temperature
Password:	NO	NO / YES - 0000 to 9999	Activation of password protection and setting the password
Sound Alarm:	ON	ON/OFF	Switching sound alarm ON and OFF
Language:	English	English/French	Language selection
WS Cal. Factor	+0,0%		Calibration factor for wind speed (-15,0 ...+15,0% in 0,5% steps)
WD Cal.:	0°	-180° … +180°	Calibration angle for wind direction (-180° ...+180° in 1° steps)
Bluetooth*	ON	ON/OFF	Power ON/OFF Bluetooth transmitter * applicable only for W410XB model

RECEIVER BATTERY REPLACEMENT
Take off the front lid of receiver and replace the battery (3 x 1,5 V Alkaline, C type, LR14).

RESET OF DISPLAY UNIT
With upper button pressed at power ON, RESET is performed (all settings except »Sensor Address«, »WS Cal. Factor« and »WD Cal.« go to default values).

TROUBLESHOOTING

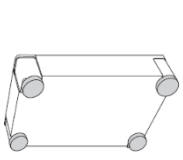
Symptom	Action
The receiver/display is turned OFF	- check the switch position on the side of the housing - check if a batteries of display unit are not empty
The receiver/display unit cannot read the sensor ("No data" appears on the display)	- check if the correct sensor address is set on the display unit - make sure the sensor is not in sleep mode (turn the cups to wake up the sensor) - check the sensor battery – replace the battery if needed - check the operation at a reduced distance to the display/receiver
Interrupting and weak sensor signal	- check for obstructions between sensor and display/receiver unit - place the sensor or display/receiver in a different position with better signal reception - reduce distance to the display/receiver - change or add antenna for the display/receiver unit

TECHNICAL DATA

Wind speed measurement range:	0,6 - 50,0 m/s
Wind direction measurement range:	0° - 359°
Temperature measurement range:	-30....+60 °C
Wind speed units:	m/s, km/h, knots, mph
Temperature units:	°C, °F
Wind speed averaging period:	selectable 2 s, 10 s, 30 s
Wind direction averaging period:	10 s
Wind speed resolution:	0,1 m/s
Wind direction resolution:	1^0
Temperature resolution:	$1\ ^0C$
Wind speed accuracy:	+/- 2,5 %
Wind direction accuracy:	+/- 2,5°
Temperature accuracy:	+/- 1°C
Operating range: with standard range sensor	up to 500 m
with extended range sensor	up to 1300 m
with connected Yagi antenna	3 - 5 x nominal range
Operating Frequency:	868 MHz
Temperature operating range:	-30 ... +60 °C
Sound signal (integrated):	85 dB
Antenna input:	50 Ohm, SMA connector
Measuring rate:	every 2 sec
Bluetooth data transmission rate (W410XB/BAT/D):	1 second
Bluetooth transmission frequency (W410XB/BAT/D):	2,4 GHz
Bluetooth output power (W410XB/BAT/D):	+ 3 dB
Application name on Google Play/Apple Store:	WINDY ANEMOMETER
Battery:	3 x 1,5 V Alkaline, size C, LR14 (not included)
Battery life:	up to 1 year
Material, casing:	PC (Polycarbonate)
Dimensions:	130 × 80 × 36 mm
Weight:	260 g

Subject to technical modification without notice.

ACCESSORIES (optional)
1. Magnetic display mounting assembly
2. External antenna with 3 m cable
3. External Yagi antenna with 3 m cable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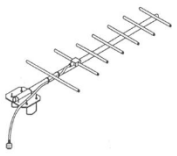
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WARRANTY (LIMITED)
The warranty period of NAVIS products is one year after the date of purchase. During the limited warranty period any defective product will be repaired or replaced with a comparable product without charges. The claimed product will be repaired or replaced only when returned to the store where it was purchased together with original invoice. Failure to follow these instructions may invalidate the warranty. The limited warranty does not cover the battery or damage of any kind, including physical damage caused accidentally or misuse of the product. NAVIS does not accept responsibility for any problems which may arise from applications other than those the product was designed for. Any liability for direct or indirect damage caused by product failure is excluded.

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