WINDY SMARTPHONE ANEMOMETER

MANUAL

Models:
WINDY B/S (wind speed sensor)
WINDY B/SD (wind speed/direction sensor)

PREFACE

Thank you for buying Navis wind speed/direction sensor. This manual provides information for the best performance and safe application of the WINDY B/S and WINDY B/SD wind sensors.
Read this manual carefully before starting the installation of the sensors. Keep this manual after installation for future reference.

PRODUCT LAYOUT (exploded view)

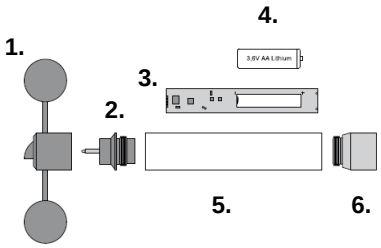


Figure 1. WINDY B/S sensor

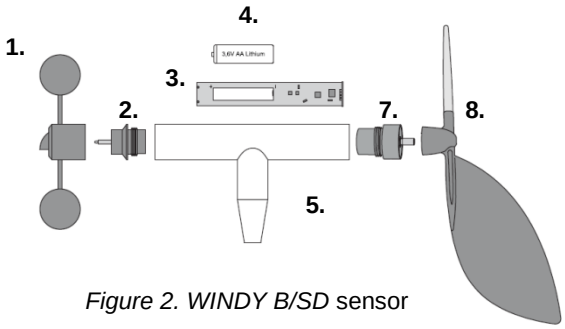


Figure 2. WINDY B/SD sensor

1. Wind cups
2. Wind speed head with bearings
3. PCB - Electronic driving circuitry
4. Battery
5. Sensor main body
6. Aluminum bottom plug
7. Wind direction head with bearings
8. Wind vane

ASSEMBLY

The sensor is supplied with a battery inserted and is ready for installation. Before installation insert the cups on sensor. Place the cups on axe and press the center part with moderate force to end position. To remove the cups, grab them in the center part and pull from the axle with moderate force.

INSTALLATION

WINDY B/S and WINDY B/SD sensors to be mounted on 20 mm diameter vertical pool as shown on *Figure 3*.

At WINDY B/SD sensor turn the N mark to Nord.
Calibrating of North is possible also after installation in smartphone application.
Mount sensor to highest possible position with unobstructed air flow.
Use self-leveling mounting assembly (optional) if vertical sensor position can't be ensured with vertical holder (for example at mobile cranes).

For maximum range there should be a clear and unobstructed line of sight between the sensor and receiving smart device.

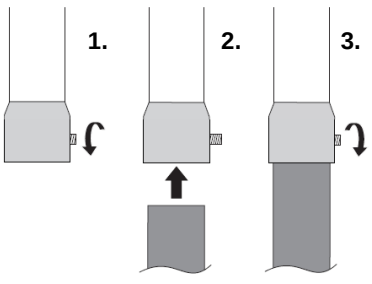


Figure 3. Sensor installation on vertical pool

OPERATION

Sensor switches "ON" automatically when the anemometer cups revolve. Wind speed or direction data are continuously measured and fresh data are transmitted every second.
Auto OFF function: In no wind condition the sensor switches "OFF" 6 hours after the anemometer cups have stopped rotating.
Auto OFF can be disabled by the user.

FUNCTIONS

Setting of "Auto Off" function:

"Auto OFF" function is enabled by default - the sensor switches OFF 6 hours after the anemometer cups stop revolving.
During sleep mode sensor does not transmit data and battery consumption is close to 0. Cups rotation will switch the anemometer ON automatically.
If you wish that anemometer never switches off, for example for temperature monitoring without interruption, you can disable this function. If "Auto OFF" function is disabled, the sensor will transmits the data continuously, regardless of wind condition. Battery consumption can be slightly higher in this case.
Please note: If "Auto OFF" function is disabled, remove the battery when shipping or storing the sensor.

SETTING PROCEDURE:
Unscrew the aluminum bottom plug (or wind speed head on B/SD sensor) and carefully pull out the PCB from the casing.
Remove the battery for minimum 1 minute.
Insert back the battery. Within 2 seconds from inserting the battery, place the magnet (not included) on the edge of top of PCB (*Figure 4.*). After 2 seconds the LED will start blinking. Remove the magnet after first blink to enable "auto off" or after second blink to disable "auto off". Settings are stored in permanent memory.

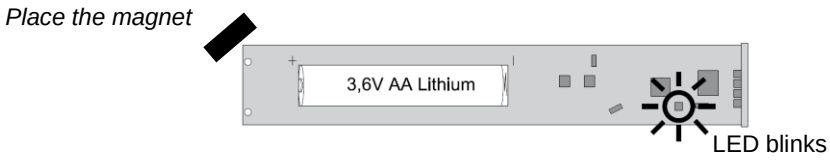


Figure 4.Setting of "Auto Off" function

Checking the selected AUTO OFF status:

Remove the battery for minimum 1 minute. Two seconds after inserting the battery, the LED will blink once or twice. One blink indicates that "Auto OFF" is enabled and two blinks indicate that "Auto OFF" is disabled. Ignore the shorter blink that follows later.

Sensor address:

The sensor address is indicated on the label attached to the sensor and on the sensor's PCB.
In application in the smart device, parameter of sensor address should be SET correspondent to address of WINDY B/S or WINDY B/SD sensor to receive the data from the particular sensor.

Operating with multiple smart devices:

Unlimited number of smart devices can read the data simultaneously from a single sensor, whereby all receiver/display units must be inside the sensor range with properly set selected sensor address.

RANGE

The range is up to 100 meters - at 10 m sensor mounting height and when there is no obstacle between the sensor and the receiver. Inside the building the range is much smaller. Range also varies with type of smart device.

APPLICATION

Application "WINDY ANEMOMETER" can be downloaded from Google Play or Apple App Store.
ANDROID: Application requires device with Android 6 or newer with Bluetooth Low Energy (BLE).
APPLE: Application requires device with iOS 12 or newer with Bluetooth Low Energy (BLE).
Please note that application will increase battery consumption of your smart device because of active Bluetooth communication.

STORAGE

When not in use, it is recommended the cups to be removed, both, the cups and the sensor body to be placed into the original packaging. Never store the sensor in a lying position with cups mounted. The cups will become deformed.

MAINTENANCE

Cleaning:

Cleaning can be done with a soft tissue or a cloth soaked in mild detergent. Never use aggressive solvents such as acetone. Make sure to use a proper force when cleaning the cups in order not to deform the cup arms.

Wind vane replacement:

Unscrew the screw on the top of the vane holder by turning it anticlockwise. Pull out the old vane. New vane place into a correct position and fix it with screw.

Battery replacement:

B/S sensor: Unscrew the aluminum bottom part by turning it anticlockwise (step 1). Pull out the PCB with the battery (step 2) and insert a new battery (1x 3,6V AA Lithium battery). Return the PCB with the battery and screw the bottom part back.	B/SD sensor: Remove the cups by pulling them off the axis (step 1). Unscrew wind speed head with bearings by turning it anticlockwise (step 2). Pull out the PCB with the battery (step 3) and insert a new battery (1x 3.6 V AA Lithium battery). Return the PCB with the battery back into the casing and make sure to align the gap on the round part of the PCB over the rail inside the sensor casing, allowing for the PCB to be pushed to the end position. Screw wind speed head with bearings back to its original position and reattach the cups.

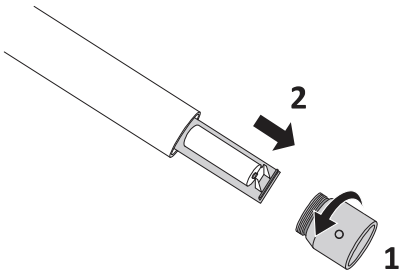


Figure 5. B/S sensor battery replacement

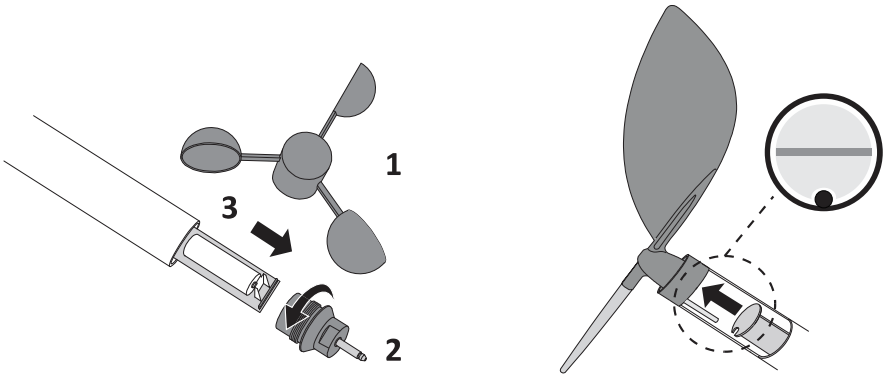


Figure 6. B/SD sensor battery replacement

Bearings replacement:

If cups or wind vane not turns at low wind speeds, it is time to replace the head with bearings.

PROCEDURE FOR WIND SPEED HEAD WITH BEARINGS (*Figure 7*):

Remove the cups by pulling them off the axis (step 1). Unscrew the head with bearings by turning it anticlockwise (step 2). Mount back the replacement head and reattach the cups.

PROCEDURE FOR WIND DIRECTION HEAD WITH BEARINGS (*Figure 8*):

Unscrew the screw on the top of the vane holder by turning it anticlockwise and pull out the wind vane (step 1). Unscrew the head with bearings by turning it anticlockwise (step 2). Mount back the replacement head and reattach the wind vane.

<u>Warning: Please make sure the washer to be greased for proper sealing!</u>

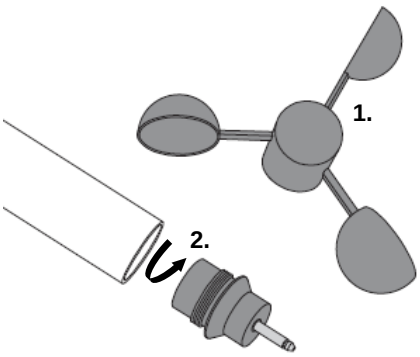


Figure 7. Cups bearings replacement

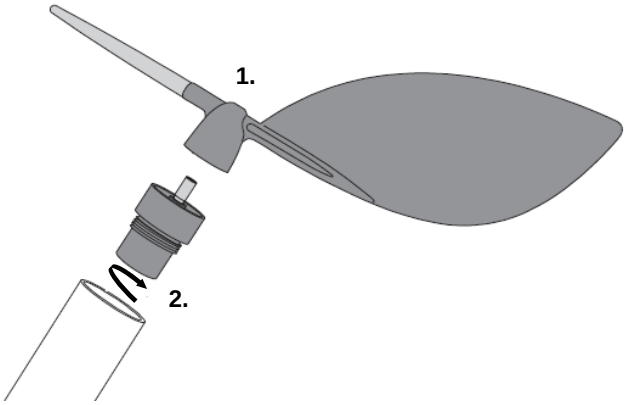


*Figure 8. Wind vane b*earings replacement (wind speed/direction sensor*)*

TROUBLESHOOTING

Symptom	Action
The receiver cannot read the sensor	• check if correct sensor address is set in application settings • check if 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 receiver on a different position with better signal reception • reduce distance to the receiver
Cups do not turn at low wind speeds	• take off the cups and check bearings • replace the head with bearings if necessary

TECHNICAL DATA

Wind speed measurement range:	0,6 - 50 m/s
Temperature measurement range:	-30 ^{0}C ... +60 ^{0}C
Data transmission rate:	1 second
Wind speed resolution:	0,1 m/s
Temperature resolution:	0,5 ^{0}C
Accuracy wind speed:	+/- 2,5 %
Accuracy temperature:	+/- 1 ^{0}C
Averaging period - current speed:	2 seconds
Averaging period - average speed:	selectable - 1, 3 or 10 minutes
Max. speed:	2 s peak since App start-up or since reset
Graphs:	10 min, 1h, 6h, 24h
Operating Frequency:	2.4 GHz
Output power:	+3 dB
Battery:	1x 3,6V AA Lithium battery (included)
Battery life time:	up to 2 years
Bearings:	2 x precision stainless steel Ball bearing (replaceable)
Material - cups (replaceable):	PA (Polyamide)
Dimensions:	height 210 mm, overall diameter cup to cup 120 mm
Mounting:	sensors to be mounted on a vertical pipe with 20 mm diameter

ADDITIONALLY FOR B/SD SENSOR

Wind direction measurement range:	0 - 360^0, no blank sector, contactless magnetic measuring principle
Wind direction resolution:	1 ^{0}
Accuracy wind direction:	+/- 2,5 ^{0}
Dimensions (without holder):	height 240 mm, overall vane diameter 220 mm

FCC STATEMENT:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

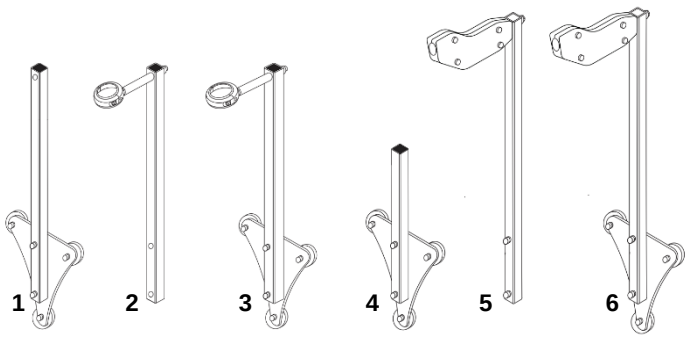
Contains FCC ID: QOQBLE112

OPTIONS

- individual wind tunnel tested sensors with calibration report
- full ceramic or hybrid ball bearings

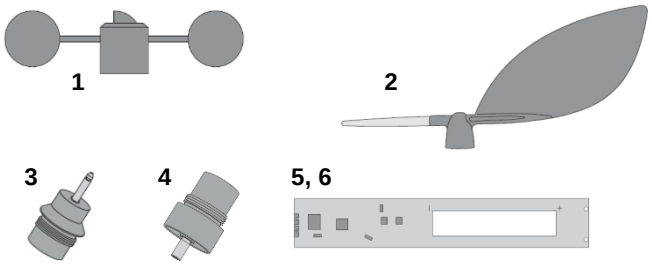
SENSOR MOUNTING ACCESSORIES (optional)

1 MMA/WS - Magnetic mounting assembly for WS sensor
2 SLMA/WS - Self-leveling mounting assembly for WS sensor
3 MSLMA/WS - Magnetic self-leveling mounting assembly for WS sensor
4 MMA/WSD - Magnetic mounting assembly for WSD sensor
5 SLMA/WSD - Self-leveling mounting assembly for WSD sensor
6 MSLMA/WSD - Magnetic self-leveling mounting assembly for WSD sensor



REPLACEMENT PARTS

1 Spare anemometer cups
2 Spare wind vane
3 WS sensor head with bearings
4 WD sensor head with bearings for WSD sensor
5 WINDY B/S sensor PCB
6 WINDY B/SD sensor PCB



WARRANTY (LIMITED)

The warranty period of NAVIS products is one year after the date of purchase. During limited warranty period any defective product will be repaired or replaced with 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 battery and damages of any kind including physical damages caused accidentally or misuse of the product. NAVIS does not accept responsibility for any problems which may arise from applications other than the product was designed for. Any liability for direct or indirect damage caused by product failure is excluded.

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