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Davis Compatible

Ultrasonic wind sensor

User manual

English version 1.0
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CE FC 0809

If you want to know more about our new Davis Compatible Ultrasonic wind sensor, please keep reading or visit our website www.calypsoinstruments.com

0. Index

1. Product overview

Thank you for choosing the Davis Compatible Ultrasonic wind sensor from Calypso Instruments.

· Both shape and firmware have been enhanced for an improved rain performance, being this point key for static applications such as weather stations.
· Mechanical design has been revamped making the unit more robust and dependable.
· Powered by two lithium batteries, with a duration of 3 years.

Applications for the Davis Compatible Ultrasonic are the following:

Weather Stations | Air Quality
Gardening | Agriculture

2. Package content

The package contains the following:
· Ultrasonic Wired Wind Instrument connected to the Box with a 12m cable + cable 50cm to connect to Davis Station.
· Two lithium batteries.
· Serial number reference in the back of the packaging.
· Quality control reference in the same place as the previous one.
(Both shown in the Image 1)
· User Quick guide at the back of the packaging and some more information useful for the customer.
· Connection instructions picture including at the box package.
· M4 headless screw (x6)
· M4 screw (x3)

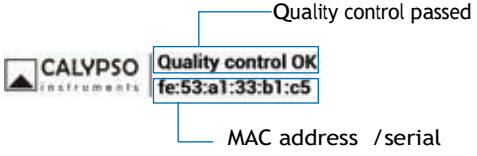

Image 1. Serial number/Control quality label

3. Technical specifications

Davis Compatible Ultrasonic wind sensor is made up of the wind sensor and the Davis compatible box.

3.1 Wind sensor Dimensions	· Diameter: 68 mm · Height: 65mm

Image 2. Main dimensions of the wind sensor.

3.2 Wind sensor Weight	· Weight: 210 grams
3.3 BOX Dimensions	· 127 x 70 x 38 mm

Image 3. Davis compatible box.

3.5 Mechanical data

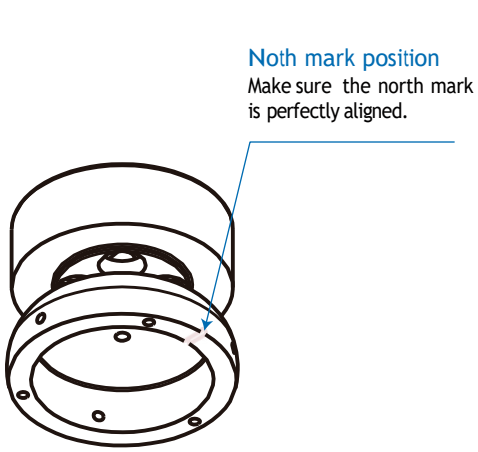

Image 4. North Mark

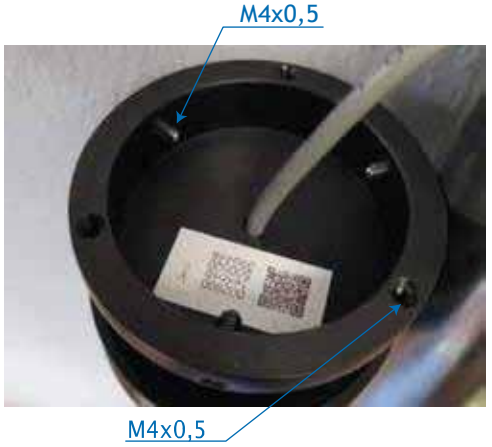

Image 5. Screw Holes positon.

3. Technical specifications
(continuation)

3.6 Power	· 2xAA, 3.6V Lithium primary batteries (duration 6 years)

3.7 Attached cable

The Davis compatible ultrasonic wind sensor incorporates 12m of cable between the wind sensor and the box.

50cm of cable terminated in RJ-11 comes out of the box.

3.8 Connections	· Modular Connector (RJ-11)

3.9 Internal Connections

Inside the box there are two connectors, one where is connected the wind sensor and other where is connected the cable for the Davis Station.

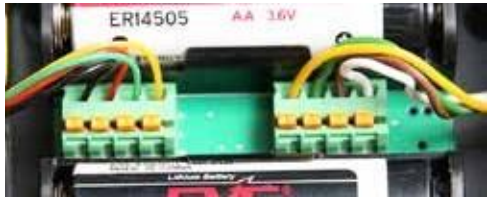

Image 6. Wire connections.

Davis compatible unit connections:

Black WIND Speed	Green WIND Direction
Red GND (Power -)	Yellow VCC (Power +)

Wind sensor connections:

Yellow DATA Rx	Brown VCC (Power +)
Green DATA Tx	White GND (Power -)

3.10 Sensors	· Ultrasonic transducter (4x)

The wind sensor has been designed to avoid any mechanical parts to maximize reliability and minimize maintenance.

The transducers communicate between themselves two by two using ultrasonic range waves. Each couple of transductors calculates the signal delay and gets information about both, wind direction and wind speed.

3.11 Wind information	· Speed Range: 0-40 m/s · Direction Range: 0-360 °

3.12 Easy mount	· 3 x M4 lateral female thread · 3 x M4 inferior female thread

The wind sensor has lateral and inferior female thread. It can be mounted either on a plate (inferior screws) or on a tube (lateral screws).

North mark position
Make sure the north mark is perfectly aligned

Mounting accessories

Pole mount up to 52 mm

Adapter to Poles up to 39mm

Aluminio and Carbon Fiber poles

Flat mount

The box can be attached to the pole with cable ties or similar.

3. Technical specifications
(continuation)

3.13 Limitations

Wind sensor is engineered to be a robust device with minimal downtime. This new shape has been designed for optimum water spillage which implies lower probability of ice formation. Frost might affect measurements if it blocks the wave path.

The box has IP68 rating (outdoors & underwater).

The input wires are protected by Transient Voltage Suppression (TVS) diodes. Also, the instrument body is built in Polyamide.

3.14 Quality control

Every single unit is automatically calibrated on a wind tunnel. A Q/C report for both module and angle is generated and kept in our files. Standard deviation is checked to warranty that each unit has been calibrated to the highest standards.

4. Installation

The installation of Davis Compatible Ultrasonic wind sensor is very easy.

4.1 Battery placement

When you receive the Davis compatible ultrasonic wind sensor, you have to put the included batteries inside the box.

Remove the screws to open the box and insert them in the battery holder in the correct position, after that close the box with the screws.

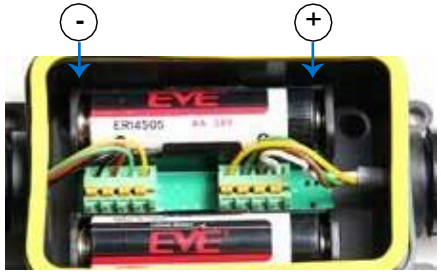

Image 7. Battery placement.

4.2 Wind sensor and box connection

Once you have mounted the wind sensor and box in a suitable location, insert the RJ-11 end into the cable access port of the 'Sensor Interface' and firmly insert the RJ connector into the socket labeled WIND.

Image 8. Connection to Sensor Interface.

4.3 Console configuration

To configure the console:
1. Enter the Setup Mode by pressing DONE and the – key at the same time.

2. Press DONE repeatedly to scroll through the screens until you come to the Wind Cup Size screen.

3. Press the + and - keys to toggle the sizes until OTHER appears.

4. Press and hold the DONE key to exit Setup Mode and return to the Current Weather Screen.

Image 9. Davis Console.

5. General information

5.1 General recommendations

As described previously is important to understand that the unit can be mounted directly on a pole or using a flat bracket. In either case make sure the north mark is perfectly aligned.

Then install the sensor in a location free from wind perturbation.

Other important aspects
· Do not try to modify by any case the unit.
· Avoid touching the transducers
· Do not modify/customizethe surfaceof the unit.

If you have any questions or doubts, please contact directly with us. We will be glad to assist you in any time.

5.2 Maintenance and repair

Thanks to the mechanical simplicity the ultrasonic does not require mechanical maintenance.

Transducers must be kept clean and aligned. Impacts or incorrect impulsive handling may lead to transducers misalignment.

The space in between the transducers and its reflection surface must be empty and clean. Dust, frost, water, etc… will make the unit stop working. Rinse with fresh water and let it dry.

The batteries have a duration of about three years, after this time they must be replaced.

5.3 Warranty

Warranty is void in case of non-following the instruct ions of use, repair or maintenance without written authorization. Every Calypso product offers a 2-Year Performance Warranty.

Calypso Instruments shall not be liable for any damages arising out of:

· Exposition of the Ultrasonic at temperatures out of the range stated above.
· Transducers misalignment or damage duet to external impact.
· Geometry changes on the flow channel due to external actions.
· Use inappropriate voltages.
· Do not install the Davis compatible ultrasonic wind sensor as stated above which causes damage on the ultrasonic.

You can return unopened items in the original packaging within 30 days of your purchase with proof of purchase. Upon receipt of the returned item, we will fully examine it and notify you via email, within a reasonable period of time on the status. If we decide a return is appropriate, we will refund your purchase price and a credit will be applied to your original method of payment.

For further information please contact Calypso Technical Support through

aftersales@calypsoinstruments.com
or visit www.calypsoinstruments.com

Calypso Instruments team thanks you for your confidence.

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