Calypso Ultrasonic ULP Wind Instrument and Data Logger User Manual

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CALYPSO instruments

Calypso Ultrasonic ULP Wind Instrument and Data Logger

Product overview

Thank you for choosing the ULP Ultrasonic Anemometer from Calypso Instruments. This ULP is the first model or our generation II, representing an important technology breakthrough condensing an extensive R+D investment:

- 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.
- We feel very proud to release a unit that requires under 0,4 mA of power at 5V, sampling at 1Hz.
- Different output options available: RS485, UART/TTL and MODBUS.

Applications for the ULP485 are the following:

- Weather Stations
- Drones
- Temporary Scaffolding and construction
- Infrastructures and building
- Cranes
- Spraying
- Irrigation
- Fertilizing
- Precision Agriculture
- Smart Cities
- Wild fires
- Shooting
- Scientific

Package content

The package contains the following:

- Ultrasonic ULP Wind Instrument plus 2 meter (6.5 ft) cable for connection
- Serial number reference on the side of the packaging.

- A quick user guide on the back of the packaging and some more useful information for the customer.
- M4 headless screw (x6)
- M4 screw (x3)

Technical specications

The Ultrasonic ULP has the following technical specifications:

- **Dimensions**
  - **Diameter:** 68 mm (2.68 in.)
  - **Height:** 65 mm (2.56 in.)

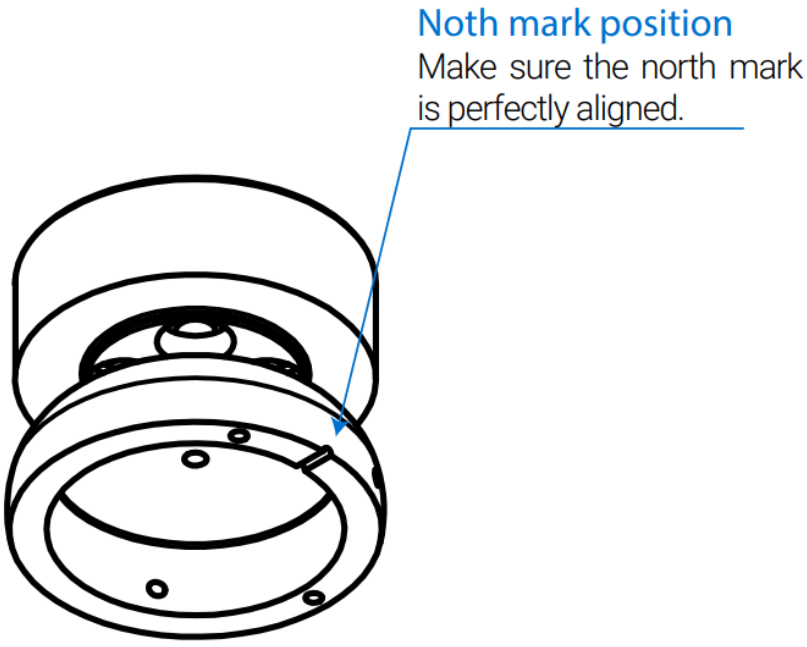
- **Weight** 210 grams (7.4 ounces)
- **Power** · 3.3-18 DCV
- **RS485/MODBUS RTU Output:**
  - **White:** GND (Power -)
  - **Yellow:** DATA (B -)
  - **Brown:** VCC (Power +)
  - **Green:** DATA (A +)

Data interface	1Autotransmit 2-POLL telegram 3-MODBUS
Data format	NMEA0183
Baudrate	2400 to 115200 bauds
Voltage range	3.3-18V

- **Power consumption:**
  - (RS485) 0.25 mA at 38400 bauds, 1 Hz. (5V)
  - (UART) 0.15 mA at 38400 bauds, 1 Hz. (5V)
  - (MODBUS) 0.25 mA at 38400 bauds, 1 Hz. (5V)
- Sensors
  - **Ultrasonic transducers:** (4x)
  - **Sample rate:** 0.1 Hz to 10 Hz

    The ULP 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 pair of transductors calculates the signal delay and gets information about both, wind direction and wind speed.
- **Wind Information**
  - Wind speed
  - Wind direction
- **Sample rate:** 1 Hz
- **Wind Speed**
  - **Range** : Range: 0 to 45 m/s (1.12 to 100 mph)
  - **Accuracy:** ±0.1 m/s at 10m/s (0.22 at 22.4 mph)
  - **Threshold:** 1 m/s (2.24 mph)
- **Wind direction**
  - **Range:** 0 – 359º
  - **Accuracy:** ±1º
- **Easy mount**
  - 3 x M4 lateral female thread
  - 3 x M4 inferior female thread
- Lateral and inferior female thread. It can be mounted either on a plate (inferior screws) or on a tube (lateral screws).



- **Mounting accessories**

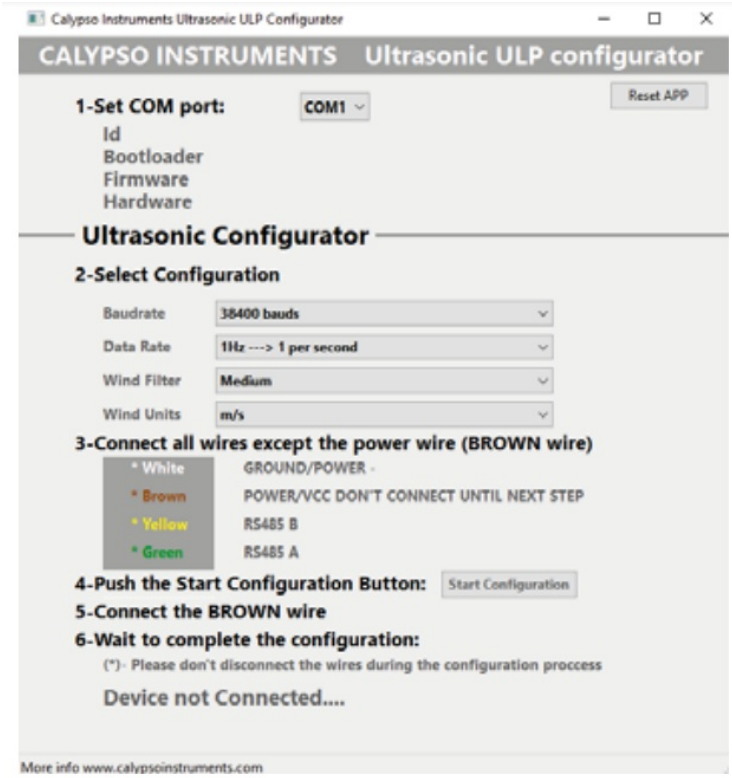
A wide range of accessories can be used with the device. The ULP can be mounted on a flat service and screwed on to different sizes of poles. It can also be used with an adaptor for poles of 39 mm.
Please, visit our website and check all the accessories available and their possible combinations.

- **Firmware:** Upgradable via RS485, MODBUS or UART/TTL
- **Product Material:** ULP 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 input wires are protected by Transient Voltage Suppression (TVS) diodes. Also, the instrument body is built in Polyamide.
- **Quality Control:** Every single unit is automatically calibrated on a wind tunnel. A Q/C report for both module and angle is generated and keptin our files. Standard deviation is checked to warranty that each unit is been calibrated to the hightest standards.

Conguration Options

The Ultrasonic ULP can be set up by using a special App made by Calypso Instruments. In order to use the APP you should download the following configurator from our website at **www.calypsoinstruments.com**.

- **baudrate:** 2400 to 115200 (8n1) bauds
- **output rate:** 0.1 to 10 Hertz
- **output units:** m/sec., knots or km/h



General information

General recommendations

- The Ultrasonic Ultra-Low-Power has been calibrated with accuracy, following the same calibration standards for each unit.
- Regarding mounting the unit, as we have described before, the mast head has to be prepared for the mechanical installation. Align the North mark of the Ultrasonic Portable Mini, in order to have it pointed towards the bow. Make sure to install the sensor in a location free from wind perturbation, usually on the mast head. Other important aspects:
    - Do not attempt to access the transducers area with your fingers;
    - Do not attempt any modification to the unit;
    - Never paint any part of the unit or alter its surface in any way.
    - NOT allow to be submerged fully or partially in water.
- If you have any questions or doubts, please contact us directly

Maintenance and repair

- The Ultrasonic Ultra-Low-Power does not require great maintenance thanks to the avoiding of the moving parts in this new design.
- Transducers must be kept clean and aligned. Impacts or incorrect impulsive handling may lead to transducers misalignment.
- The space around the transducers must be empty and clean. Dust, frost, water, etc… will make the unit stop working.

Warranty

- This Warranty covers the defects resulting from defective parts, materials and manufacturing, if such defects are revealed during the 24 months after the purchase date.
- Warranty is void in case of non-following the instructions of use, repair or maintenance without written authorisation.
- This product is for leisure purposes exclusively. Any wrongful use given by the user will not incur in any responsibility of Calypso Instruments. Therefore, any harm caused to the Ultrasonic Portable Mini by a mistake will not be covered by the guarantee. Using assembly elements different from those delivered with the product will void the guarantee.
- Changes on transducers position/alignment will avoid any warranty.
- For further information please contact Calypso Technical Support through info@calypsoinstruments.com or visit **www.calypsoinstruments.com**.

Documents / Resources

	**Calypso Ultrasonic ULP Wind Instrument and Data Logger** [pdf] User Manual Ultrasonic ULP Wind Instrument and Data Logger, Ultrasonic ULP, Wind Instrument and Data Logger, Wind Instrument, Data Logger, Wind Instrument Logger, Logger

References

- **Calypso Instruments**