

**Weems  
& Plath**

**OGM**

Series

LXCOLLECTION

# BRIGHTWIND™

**Ultrasonic Wind Sensor & LED Navigation Light**  
Model: LXTA-WSP

## OWNER'S MANUAL



**USCG 2NM Approved**

33 CFR 183.810 Meets ABYC-A16

Tested by Imanna Laboratories 4/30/2004

**Swedish Approved**

Certifikat SP LT 523

Tested by SP Swedish National Testing  
and Research Institute

# BRIGHTWIND™



## INSTALLATION INSTRUCTIONS

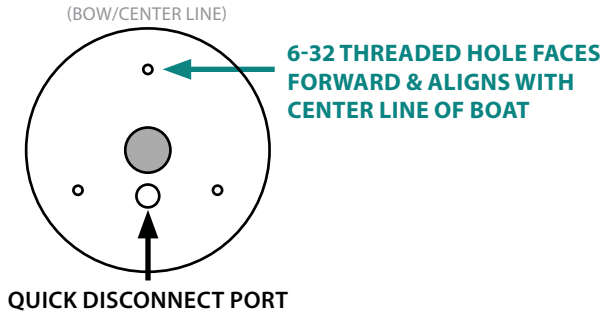
Weems & Plath's BRIGHTWIND™ is a unique, state-of-the-art pairing that combines the ultra-low-powered, non-mechanical, ultrasonic wind sensor from Calypso Instruments with Weems & Plath's powerful, yet energy efficient LX TriColor/Anchor LED Navigation Light with Strobe and Photodiode (Auto Day/Night Control). BRIGHTWIND is designed for use on sailboats under 65.5-foot (20-meters) in length.

While the ideal operating range is 9 V to 18 V DC, the Wind Sensor has an operating range of 4 V to 18 V DC and the TriColor/Anchor Navigation Light has an operating range of 9 V to 30 V DC. This ensures the light will meet or exceed the visibility requirements as the battery voltage drops from use.

To ensure compliance with the '72 COLREGS and U.S. Inland Rules, the installation instructions provided must be followed.

# MOUNTING:

1. BRIGHTWIND should be mounted at the top of the mast and with the “center” 6-32 threaded hole facing directly forward (the hole is found on the bottom of the instrument and located farthest from the quick disconnect port).



2. The three 6-32 threaded holes on the bottom of the instrument's housing should be used to secure BRIGHTWIND to an accessory bracket or mounting plate\* for optimal performance and accuracy.
3. We recommend using an anti-seize lubricant (such as Tef-Gel®) when installing the stainless steel fasteners in aluminum housing.
4. BRIGHTWIND is weather resistant, so no extra precautions are necessary to protect the components. **BRIGHTWIND is not designed to be opened; doing so will void the warranty.**

*\*After installation, if you wish to fine-tune the wind angle, please refer to your wind display's instructions to complete an offset adjustment procedure.*

## \*RECOMMENDED: MOUNTING OPTIONS

*The following mounts are optional and can be purchased from Weems & Plath or your local marine retailer.*



#LXBRKT-02  
TOP MOUNT BRACKET



#LXPOST 6"  
6" STAINLESS STEEL  
POST MOUNT



#LXPOST 12"  
12" STAINLESS STEEL  
POST MOUNT

# WIRING:

BRIGHTWIND is equipped with a 6-conductor (6-pin) waterproof connector. The mating plug and 6-foot, 26 AWG/6 cable are included. BRIGHTWIND is capable of full operation with these six wires and can be spliced into a sufficient length of 6-conductor cable to complete the power and data connections. Mast wiring of 22 AWG is sufficient to supply power to BRIGHTWIND.

**CAUTION: BRIGHTWIND is polarity protected but take extra care - do NOT apply power to the wind sensor data wires (WHITE & GREY); this could damage the instrument, which is not covered by the warranty.**

The proper connection for these wires is shown in the table below:

Wire Color from Yellow Cable	Connection / Function
<b>Black</b>	Electrical Ground (-) / TriColor-Anchor-Wind Sensor
<b>Brown</b>	Power (+) for Anchor light
<b>Blue</b>	Power (+) for TriColor light
<b>Pink</b>	Power (+) for Wind Sensor
<b>White</b>	Data ONLY (+) for Wind Sensor
<b>Grey</b>	Data ONLY (-) for Wind Sensor

# LIGHT OPERATION:

The table below will aid in the understanding of the light operation and the operation of the photodiode and strobe options\*:

Black Wire	Brown Wire	Blue Wire	Day/Night	Function w/ Photodiode	Function w/ Strobe	Function w/ Photodiode & Strobe
Ground (-)	OFF	OFF	Night	OFF	OFF	OFF
Ground (-)	OFF	OFF	Day	OFF	OFF	OFF
Ground (-)	OFF	On	Night	TriColor On	TriColor On	TriColor On
Ground (-)	OFF	On	Day	TriColor On	TriColor On	TriColor On
Ground (-)	On	OFF	Night	Anchor On	Anchor On	Anchor On
Ground (-)	On	OFF	Day	OFF	Anchor On	OFF
Ground (-)	On	On	Night	OFF	Strobe	Strobe
Ground (-)	On	On	Day	OFF	Strobe	Strobe

*If power is applied to both the BROWN and BLUE wires at the same time, the strobe will activate.*

**Since BRIGHTWIND's Anchor light (only) has a photodiode, the anchor light will blink twice and then turn off in ambient light. This is normal operation.**

## \*RECOMMENDED: SELECTOR SWITCH

The optional Selector Switch (#SWITCH SEL) can be purchased from Weems & Plath or your local marine retailer and provides a convenient control panel switch for operating the light portion of BRIGHTWIND.



#SWITCH-SEL  
LX SELECTOR SWITCH

## CURRENT DRAW AND FUSING:

- Calypso Sensor Only: 0.0025 Amps at 12 V DC
- Calypso Sensor + OGM LXTA: 0.35 Amps at 12 V DC

A circuit breaker or fuse of 2 Amps is recommended.

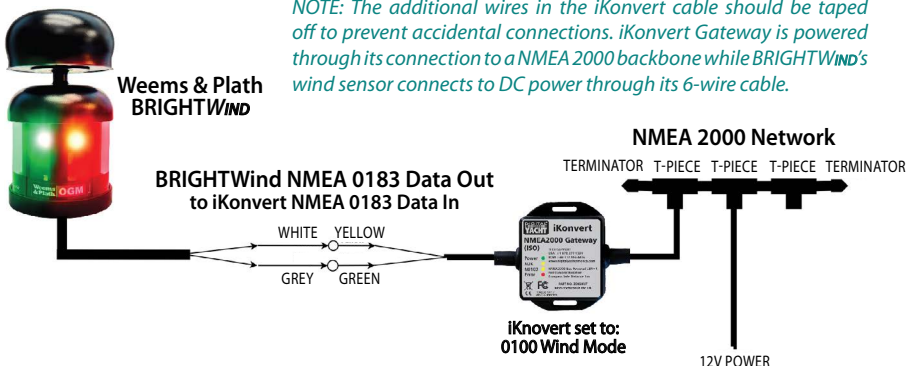
**Improper fuse protection could result in severe damage to the instrument, boat, or persons in the event of a catastrophic failure.**

## NMEA 0183-2000 WIND SENSOR DATA INTERFACE:

BRIGHTWIND uses Calypso Instrument's Ultra-Low-Power Ultrasonic STD (ULP STD) Wind Meter. This wind sensor transmits wind speed and direction data through 2 of its 6 wires using NMEA 0183 protocol.

The data can be converted to NMEA 2000 for a connection to a NMEA 2000 backbone and compatible displays via a converter (also known as a "gateway"). Converters are available from several manufacturers, however Weems & Plath offers the iKonvert NMEA 2000/NMEA 0183 Converter from Digital Yacht USA, which has been preset to Wind Mode to provide seamless connectivity.

*NOTE: The additional wires in the iKonvert cable should be taped off to prevent accidental connections. iKonvert Gateway is powered through its connection to a NMEA 2000 backbone while BRIGHTWIND's wind sensor connects to DC power through its 6-wire cable.*



# TECHNICAL SPECIFICATIONS

**Wiring:** 6-conductor waterproof connector with supplied mating plug and 6-foot cable (26 AWG/6)

**Construction:** Military Spec Anodized Aluminum, UV Resistant Acrylic

## NAVIGATION LIGHT SPECIFICATIONS:

**Visibility:** 2+ nautical miles

**Power Consumption:** 4 Watts

**Voltage Range:** 9 V to 30 V DC

**Current Draw:**  $\leq 0.33$  Amps at 12 V DC

**Horizontal Viewing Angle:** 225°

**Vertical Viewing Angle:** +/- 36°

## WIND SENSOR SPECIFICATIONS:

**Number of Ultrasonic Transducers:** 4

**Wind Speed:** Measures up to 100 mph

**Wind Direction:** 0° - 359°

**Accuracy:**  $\pm 0.1$  m/s at 10 m/s (0.22 mph at 22.40 mph)

**Data Output:** NMEA 0183 (NMEA 2000 Adapter available from Weems & Plath)

**Power Consumption:** < 0.5 Watts

**Voltage Range:** 4 V to 18 V DC

**Current Draw:** 0.0025 Amps at 12 V DC

Model #	Description
LXTA-WSP	BRIGHTWIND – Ultrasonic Wind Sensor & TriColor/Anchor LED Navigation Light Combination

## ACCURACY:

Every unit is calibrated for accuracy in a wind tunnel using the same calibration standards for each unit. The standard deviation is also checked to guarantee that each unit has been calibrated to the highest standards.

A Q/C report for both wind speed and direction is generated and kept on file by Calypso Instruments for each unit.

## MAINTENANCE:

BRIGHTWIND does not require a lot of maintenance since there are no movable parts and it has been engineered to be a robust device with minimal downtime. However, frost and ice may affect measurements if they block the wave path.

The transducers and the space around them must be kept clean. Impacts or incorrect handling may lead to the transducers being misaligned. Any changes made to the transducers' positions/alignments will void the warranty.

- Do NOT attempt to access the transducer 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
- Do NOT allow BRIGHTWIND to be fully or partially submerged in water

## FIRMWARE:

BRIGHTWIND is firmware upgradeable and configurable via the USB converter cable and using the "Configurator" program which can be found at [www.CalypsoInstruments.com](http://www.CalypsoInstruments.com).

## WARRANTY:

The LED Navigation Light is covered by a Limited LIFETIME Warranty. The Wind Sensor is covered by a 2 Year Warranty.

**CAUTION: BRIGHTWIND is polarity protected but take extra caution - do NOT apply power to the wind sensor data wires (WHITE & GREY); this could damage the instrument, which is not covered by warranty.**

For more details on the warranties, please visit:  
[www.Weems-Plath.com/Support/Warranties](http://www.Weems-Plath.com/Support/Warranties)

To register your product visit: [www.Weems-Plath.com/Product-Registration](http://www.Weems-Plath.com/Product-Registration)

[ Serial # ]

# APPENDIX

## OPTIONAL – CHANGING DATA RATE CONFIGURATION:

Your unit has been configured for NMEA 0183 by use at 4800 baud. However, should you feel a need to change the speed for any reason, please follow the instructions below.

The baud rate can be configured by using a special computer program made by Calypso Instruments. In order to use the program, you should download the “Configurator” program from their website at [www.CalypsoInstruments.com](http://www.CalypsoInstruments.com).

On their website:

1. Click on Support Center in the main navigation menu, then Technical Information.
2. Click the “Get Configurator” button within the “Ultra-Low-Power Ultrasonic Wind Meter Section”.
3. Download the “Configurator” folder to your computer and unzip the folder by following the instructions found within the password.txt file (located within the “Configurator” folder).

The following can be changed with the configuration program:

**Data Protocol:** RS485 to Modbus (or vice versa)

**Baud Rate:** The number of signal units per second that the wind sensor sends. A baud can contain several bits of data.

**Data Rate:** The number of bits that are transmitted per unit time through a digital transmission system or between two digital devices.

**Wind Filter:** Allows you to choose the sensibility of the wind filter.

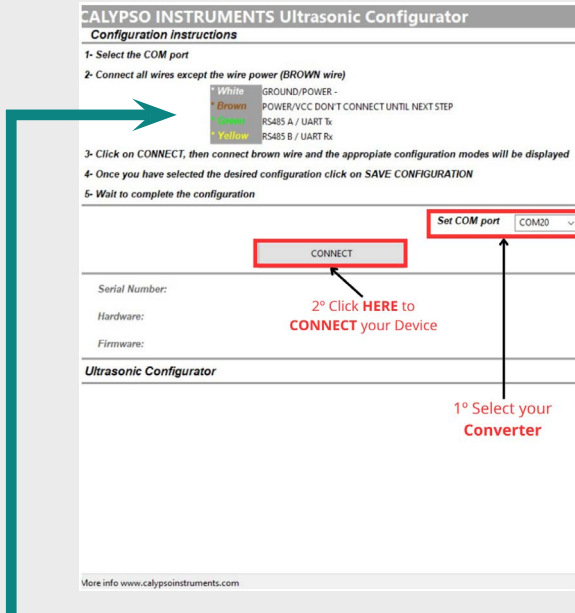
<b>Baud Rate:</b>	2400 to 115200 (8n1)
<b>Output Rate:</b>	0.1 to 10 Hertz (Depends on the filter you select)
<b>Output Units:</b>	m/sec., knots or km/h

*\*USB converter cables can be purchased from an electronics retailer, as well as [www.CalypsoInstruments.com](http://www.CalypsoInstruments.com).*



## TO CONFIGURE YOUR DEVICE SUCCESSFULLY:

1. Use a USB to NMEA 0183 (RS485) Converter cable to connect BRIGHTWIND to your computer.
2. Connect all the wires to the USB converter cable EXCEPT for the PINK wire.
3. Open the "Configurator" program, select your COM port, and click on the "Connect button".



*Due to BRIGHTWIND's specific wiring, the colors of the wires shown in the program and the screenshot above will be different. Please refer to the color scheme below for the correct wiring.*

### Wire Color from Yellow Cable

### Connection / Function

Wire Color from Yellow Cable	Connection / Function
<b>Black</b>	Electrical Ground (-) / TriColor-Anchor-Wind Sensor
<b>Brown</b>	Power (+) for Anchor light
<b>Blue</b>	Power (+) for TriColor light
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<b>Grey</b>	Data ONLY (-) for Wind Sensor

4. Connect the PINK wire when the program instructs you to connect the Brown wire.

5. Momentarily, you will be able to configure your anemometer by selecting “Stream”. When you have finished, click on “Start Configuration” (shown as “SAVE Configuration” in the screenshot below.)

**CALYPSO INSTRUMENTS Ultrasonic Configurator**

**Configuration instructions**

- 1- Select the COM port
- 2- Connect all wires except the wire power (BROWN wire)  

White	GROUND/POWER -
Brown	POWER/VCC DON'T CONNECT UNTIL NEXT STEP
Green	RS485 A / UART Tx
Yellow	RS485 B / UART Rx
- 3- Click on CONNECT, then connect brown wire and the appropriate configuration modes will be displayed
- 4- Once you have selected the desired configuration click on SAVE CONFIGURATION
- 5- Wait to complete the configuration

4° Click HERE to SAVE your Configuration → **SAVE CONFIGURATION**

Serial Number: 001e00274e30501020303747  
Hardware: UAM\_3.10  
Firmware: 1.43

Set COM port: COM20

**Ultrasonic Configurator**

Stream     Demand     IRC

Baudrate: 38400 bauds  
Wind Filter: Medium  
Data Rate: 1Hz --> 1 per second  
Wind Units: m/s

**DEVICE CONNECTED**

More info [www.calypsoinstruments.com](http://www.calypsoinstruments.com)

6. Wait for the configuration to be completed, then disconnect the USB cable and wires.
7. Your unit is now re-configured.

**CALYPSO INSTRUMENTS Ultrasonic Configurator**

**Configuration instructions**

- 1- Select the COM port
- 2- Connect all wires except the wire power (BROWN wire)  

White	GROUND/POWER -
Brown	POWER/VCC DON'T CONNECT UNTIL NEXT STEP
Green	RS485 A / UART Tx
Yellow	RS485 B / UART Rx
- 3- Click on CONNECT, then connect brown wire and the appropriate configuration modes will be displayed
- 4- Once you have selected the desired configuration click on SAVE CONFIGURATION
- 5- Wait to complete the configuration

Set COM port: COM20

**CONNECT**

Serial Number: 003b003d3830500720333658  
Hardware: UAR\_3.10  
Firmware: 1.42

**Ultrasonic Configurator**

Stream     Demand     IRC

**CONFIGURATION COMPLETE**

More info [www.calypsoinstruments.com](http://www.calypsoinstruments.com)

## NMEA 0183 (RS485) REGISTERS:

MWV Wind Speed and Angle

1 2 3 4 5

||||

\$--MWV,x.x,ax.x,a\*hh

- 1) Wind Angle, 0 to 360 degrees
- 2) Reference, R = Relative, T = True
- 3) Wind Speed
- 4) Wind Speed Units, K/M/N
- 5) Status, A = Data Valid
- 6) Checksum

By default, the communication parameters are 38400 bps, 8N1.

Some examples of sentences are:

\$IIMWV,316,R,06.9,N,A\*18

\$IIMWV,316,R,06.8,N,A\*19

The connection is straightforward with no configuration required in RAW mode configuration.

In case of ON DEMAND configuration mode, the sentence received is almost the same, but there is a need of this sentence for every time data is requested:

\$ULPI\*00\r\n //I=id node by default

\$ULPA\*08\r\n

\$ULPB\*0B\r\n

P1\*78\r\n

The received sentence has the following structure but slightly modified:

\$IiMWV,x.x,a,x.x,a\*hh, being i the node (I,A,B,C,...) configured.

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