



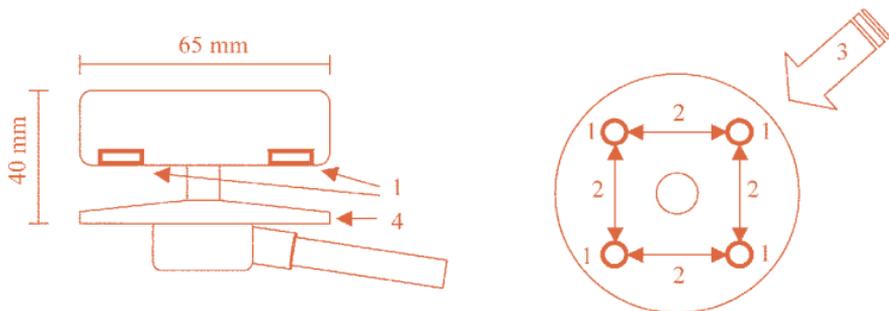
**A new
way**
to read the wind

ULTRASONIC
WIND SENSOR

LCJ CAPTEURS

How does it work?

A conventional wind vane/anemometer features mechanical rotating parts. These moving parts expose the sensor to failure. The ultrasonic sensor has been designed to avoid any mechanical part to ensure the best possible and most reliable operation. The sonic wind-vane/anemometers shows very stable results over the long term and without maintenance.



The sound (and ultrasound) is conveyed by the movement of the fluid in which it crosses.

The electro acoustic transducers (1) communicate between themselves two by two using ultrasonic signals (2) to determine, following the orthogonal axes, the wave transit time differences induced by the air flow (3). CV7 Transducers communicate between themselves delivering four independent measures, while head wind measured vectors are preferably used for calculations.

The measurements are combined in an integrated calculation to establish the wind speed and its direction in relation to a reference axis. The temperature measurements are used for calibration corrections.

The sensor's design minimises the effect of heel angle (4) (the effect of an inclination of the wind sensor is partially corrected due to the shape given by the space).

The CV7 range of products features lateral transducers delivering four independent measurements. The validity checks are used to measure head wind vectors for calculations.

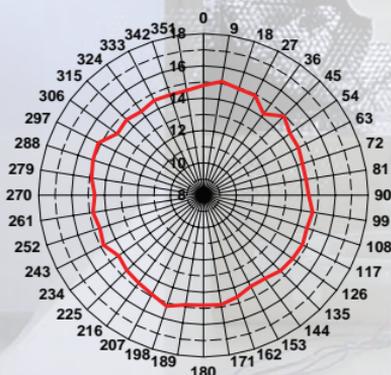
This method gives a wind speed sensitivity of 0.15 m/s, and reliability and excellent linearity up to 40 m/s.*

LCJ Capteurs has designed and manufactured wind sensors since 1999. Our range of wind vanes/anemometers covers the needs over many applications. They have proved their robustness and accuracy on the marine sector, and they are now widely used in other fields such as weather stations, industry, security and agriculture to name a few.

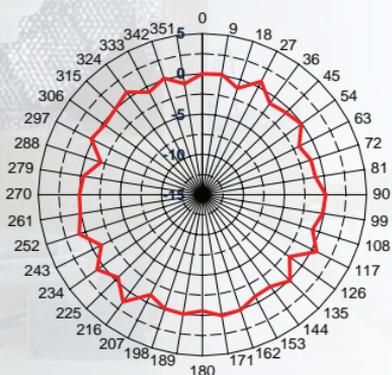
At LCJ Capteurs, every sensor is fully tested before dispatch. Each unit is tested and the results are logged against the serial number. The sensor is placed in our wind tunnel on a rotating bracket which rotates by 9 degrees steps. This is computer controlled. The sensor is aligned in the wind direction and set at 0 degrees. 40 measure points are logged with both angle and speed.

Here is an extract of our typical wind tunnel report. The full version is available on our website.

Wind speed against direction



Wind angle against direction



Wind tunnel speed: 11.4 Hz = 15.0 knots - test temperature: 20°C

*1 m/s = 1.94384 kts

ULTRASONIC WIND SENSOR

LCJ CAPTEURS

We started in 1999 when Mr Lamiroux, famous in the marine industry for his long career in radio-positioning systems at MLR Electronique, founded LCJ Capteurs with the aim to lead the way in robust and accurate wind sensors.

LCJ Capteurs is an innovative company located in Vertou, in the heart of the dynamic French region "Pays de la Loire" where we are now manufacturing the 5th generation of our sonic sensors. From the design office to the final product, all technical and manufacturing aspects are carried out in France in a 50 km radius from the office in Vertou. All assembly and quality control processes are handled in our own office with quality control applied at every stage.

Each sensor is set-up and tested in our own wind tunnel and environmental test chamber. During these tests, all data is logged for each product against the serial number. External tests on LCJ Capteurs sonic sensors have been run successfully by many independent laboratories and magazines.

The CV3F was the first ultrasonic sensor sold by LCJ CAPTEURS in 2000. It has proven its reliability by having a one year in-field test mounted on the rear stand of French trawlers from Boulogne and Lorient, fishing in the North Sea and Irish Sea. As a result, since 2001 we know that the CV3F sensor is not afraid of bad weather, sea water and vibrations!

Now, with the CV7 range, our products meet a wide range of needs for various applications on land or at sea, for leisure mariners as well as professionals. Our mission is to offer the best ultrasonic wind sensors, compact, light, inconspicuous with low energy consumption at reasonable prices.

LCJ Capteurs offer wind measurement equipment which is robust, reliable, accurate and which interfaces with all modern devices available on the market.

As a design office and manufacturer, we are also able to create unique systems matching your specification.

There are already around 10 000 of our sensors giving satisfaction to users all around the world, at sea and on land.

You can rely on LCJ Capteurs' Ultrasonic Wind Sensors.

Find us on Internet : www.lcjcapteurs.com



CV7

THE STANDARD VERSION FOR MASTHEAD MOUNTING



The oblique arm of this ultrasonic wind sensor fits perfectly on sailboats where the mast head already carries antennas and navigation lights.

Specifications

| | |
|-------------------------|-----------------------------------------------------|
| Output data format | NMEA0183; MWV, XDR |
| Output rate | 2 Hz (with a 30 Hz measurement) |
| Wind module sensitivity | 0.13 m/s 0.25 knots |
| Wind module resolution | 0.05 m/s 0.1 knots |
| Wind module dynamic | 0.13 to 41.16 m/s 0.25 to 80 knots |
| Direction sensitivity | +/- 1.5° |
| Direction resolution | 1° |
| Power supply | 8 to 30 V DC |
| Electrical consumption | 9 mA |
| Op. temp. without icing | -15°C to + 55°C |
| Cable | 25 m (included) 4 x 0.22 mm ² , 20 gr /m |
| Weight of the head | 100 gr |
| Weight of unit assembly | 200 gr |
| Mounting arm | Oblic, 300 aluminium arm, Ø 12mm |

CV7-V

VERTICAL ARM FOR EASY INSTALLATION



This ultrasonic wind sensor with a vertical arm is easy to mount on any kind of boat or ashore. The CV7-V is ideal for many various applications.

Specifications

| | |
|-------------------------|-----------------------------------------------------|
| Output data format | NMEA0183; MWV, XDR |
| Output rate | 2 Hz (with a 30 Hz measurement) |
| Wind module sensitivity | 0.13 m/s 0.25 knots |
| Wind module resolution | 0.05 m/s 0.1 knots |
| Wind module dynamic | 0.13 to 41.16 m/s 0.25 to 80 knots |
| Direction sensitivity | +/- 1.5° |
| Direction resolution | 1° |
| Power supply | 8 to 30 V DC |
| Electrical consumption | 9 mA |
| Op. temp. without icing | -15°C to + 55°C |
| Cable | 25 m (included) 4 x 0.22 mm ² , 20 gr /m |
| Weight of the head | 100 gr |
| Weight of unit assembly | 200 gr |
| Mounting | vertical, 300 aluminium arm, Ø 16mm |

CV7-C

FOR PERFORMANCE SAILING VERTICAL CARBON ARM AND HIGH SPEED DATA



This is the Performance model! High data rate, high above the mast top and light weight. The 700 mm carbon arm places the sensor out of the upwash affecting the accuracy of wind data.

Specifications

| | |
|-------------------------|-----------------------------------------------------|
| Output data format | NMEA0183; MWV, XDR |
| Output rate | 4 Hz (with a 60 Hz measurement) |
| Wind module sensitivity | 0.13 m/s 0.25 knots |
| Wind module resolution | 0.05 m/s 0.1 knots |
| Wind module dynamic | 0.13 to 41.16 m/s 0.25 to 80 knots |
| Direction sensitivity | +/- 1.5° |
| Direction resolution | 1° |
| Power supply | 8 to 30 V DC |
| Electrical consumption | 9 mA |
| Op. temp. without icing | -15°C to + 55°C |
| Cable | 25 m (included) 4 x 0.22 mm ² , 20 gr /m |
| Weight of the head | 100 gr |
| Weight of unit assembly | 200 gr |
| Mounting | vertical, 300 carbon arm, Ø 16mm |

CV7SF

WIRELESS WIND DATA DIRECT ON YOUR PC



This sensor is powered by its own solar panel and the receiver can be powered by the USB port where it is plugged to transmit the wind data to the PC. It is well suited to motor boats, small sail boats, club-houses, weather stations, sports grounds, golf courses, marinas...

Specifications

| | |
|-------------------------|-------------------------------------------------------------|
| Output data format | NMEA0183; MWV, XDR |
| Output rate | 1 / s day-light, 1 / 3 s sunrise & sunset, 1 / 15 s @ night |
| Wind module sensitivity | 0.26 m/s 0.50 knots |
| Wind module resolution | 0.05 m/s 0.1 knots |
| Wind module dynamic | 0.13 to 41.16 m/s 0.25 to 80 knots |
| Direction sensitivity | +/- 1.5° |
| Direction resolution | 1° |
| Power supply | Photovoltaic (sensor) 5 to 15 V DC (receiver) |
| Electrical consumption | no consumption (sensor) 5 mA (receiver) |
| Op. temp. without icing | -10°C to + 50°C |
| Wireless range | 50 meters in open spaces. |
| Weight of the head | 100 gr |
| Weight of unit assembly | 200 gr |
| Mounting | vertical, 300 aluminium arm, Ø 16mm |

CV3F

THE REFERENCE FOR WORKBOAT



CV3F* is the sensor which built our reputation. It was specifically designed for all-weather working boats.

Specifications

| | |
|-------------------------|----------------------------------------------|
| Output data format | NMEA0183; MWV, XDR |
| Output rate | 2 Hz (with a 30 Hz measurement) |
| Wind module sensitivity | 0.31 m/s 0.60 knots |
| Wind module resolution | 0.05 m/s 0.1 knots |
| Wind module dynamic | 0.31 to 50.93 m/s 0.60 to 99 knots |
| Direction sensitivity | +/- 2.5° |
| Direction resolution | 1° |
| Power supply | 10 to 14 V DC 11 V to 33V (option) |
| Electrical consumption | 25 mA |
| Op. temp. without icing | -10°C to + 50°C |
| Cable | 25 m (included) RG58 C/U coaxial, 40 gr /m |
| Weight of the head | 175 gr |
| Weight of unit assembly | 280 gr |
| Mounting | vertical, 300 aluminium arm, Ø 20mm |

* Not available in North America

BaroPlug

**PLUG AND PLAY
BAROMETER AND
TEMPERATURE SENSOR
FOR
NMEA2000 SYSTEMS.**



scale 1:1

**NEW!
BaroPlug**



BaroPlug is an atmospheric pressure and ambient temperature sensor for NMEA 2000 systems. It features a MICRO C male plug to connect directly to the NMEA 2000 bus. This is a Plug and Play device: Just install the sensor on your NMEA system's backbone.

| | |
|----------------------------|----------------------------------------------------------------------------------------|
| Connector | MICRO C male NMEA2000 |
| Transmitted data | Atm. pressure, air temp |
| Weight / Length / Diameter | 20 gr / 82 mm / 17.5 mm |
| Operation indicator | 1 flashing LED |
| Pressure sensor | Hydrophobic membrane |
| Pressure's measure range | 850 hPa / 1150 hPa |
| Resolution* | 1 hPa with NMEA2000 Version 2 systems 0.1 hPa with NMEA2000 Version 3 systems |
| Relative accuracy* | +/- 0.5 hPa @ 20°C |
| Absolute accuracy* | +/- 1.5 hPa @ 20°C |
| Power supply | via NMEA2000 network. 8V / 28VDC |
| Electrical consumption | 1 LEN < 25mA |
| NMEA2000 V2 PGNS | TX: 59392; 60928; 126464; 126996; 130311 RX: 59392; 59904; 60928; 130315 |
| NMEA2000 V3 PGNS | TX: 59904; 60928; 126464; 126996; 130312; 130314 RX: 59392; 59904; 60928; 130315 |

*1 hPa = 1 mBar = 0.003 inHg / 0 °C = 32 °F

MAINTENANCE FREE

WindyPlug

**PLUG AND PLAY
ULTRASONIC WIND
SENSOR INTERFACE FOR
NMEA2000 SYSTEMS.**



**NEW!
WindyPlug**

WindyPlug is a BaroPlug with an interface to connect any of our Ultrasonic Wind Sensor to a NMEA 2000 system. It features a MICRO C male plug to connect directly to the NMEA 2000 bus. This is a Plug and Play device: Just install the sensor on your NMEA system's backbone.

| | |
|----------------------------|------------------------------------------------------------------------------------------------|
| Connector | MICRO C male NMEA2000 |
| Transmitted data | Atm. press., wind speed, wind angle, wind temp |
| Weight / Length / Diameter | 35 gr / 135 mm / 17.5 mm |
| Operation indicator | 1 flashing LED |
| Pressure sensor | Hydrophobic membrane |
| Pressure's measure range | 850 hPa / 1150 hPa |
| Resolution* | 1 hPa with NMEA2000 Version 2 systems 0.1 hPa with NMEA2000 Version 3 systems |
| Relative accuracy* | +/- 0.5 hPa @ 20°C |
| Absolute accuracy* | +/- 1.5 hPa @ 20°C |
| Power supply | via NMEA2000 network. 8V / 28VDC |
| Electrical consumption | 1 LEN < 50mA with wind sensor |
| NMEA2000 V2 PGNS | TX: 59392; 60928; 126464; 126996; 130306; 130311 RX: 59392; 59904; 60928; 130315 |
| NMEA2000 V3 PGNS | TX: 59904; 60928; 126464; 126996; 130306; 130312; 130314 RX: 59392; 59904; 60928; 130315 |

*1 hPa = 1 mBar = 0.003 inHg / 0 °C = 32 °F

EASY MOUNTING

Options

**SIL OPTION
(NEXUS NX2, SILVA AND
FI30)**

CV7-Sil is a firmware setup for any CV7 models. To set this specific configuration, simply connect your CV7 to the serial port of a PC and use our configuration software.

BG OPTION

This option allows the connection of a CV7 directly to the MHU 213 and 283 input on your B&G instrument system.
(Compatible with: Hornet IV, Hydra, Hercules, Network, H1000, H2000, H3000).

ST OPTION

This option allows the connection of a CV7 directly to the ROTAVECTA® input on your Raymarine instrument (ST60 Wind).

**CANBUS-RM OPTION
FOR ULTRASONIC WIND
SENSORS ON ROTATING
MAST.**



The CanBus-RM option is compatible with all CV7 sensors. Connectors and mast angle sensor are not supplied. With the RM option, the CanBus junction box features an extra connection terminal for the mast angle sensor (potentiometer).

COST EFFECTIVE

Options

USB OPTION

This junction box features a screw terminal and a standard USB cable. It allows using the wind data (speed, angle and temperature) with a navigation or dedicated software that can read wind data. The USB junction box and the sensor are powered by the USB connection.
Option for PC running Windows.

MOUNT ADAPTERS

1" ADAPTOR
This optional accessory allows mounting a CV7 sensor on any standard antenna mounting bracket.
External diameter: 40 mm
Height: 50 mm

MOUNT ON VERTICAL SURFACE

The CV7-V base is compatible with standard brackets available on the market, such as the GLOMEX bracket shown on this picture.



ROBUST

Testimonials



"We have used many anemometers, and the CV7-C is the best for our application. It has greatly improved our ability to measure the performance of our kiteboats".
Jamie Schulte
KAI project



"In 2004, when sailing single-handed for the record around the world westbound against the prevailing winds, I needed an accurate and robust anemometer, as the shock loads experienced at the mast head when the boat hits the water after a wave, are extremely violent. I used an ultrasonic wind sensor from LCJ Capteurs and since then I have never changed. Now, my Feeling 1.40 ALGIMOUS, which I race and am currently leading the "OSIRIS Atlantique 2015" ranking, is also equipped with that ultrasonic wind sensor which is perfectly accurate"
Jean-Luc Van Den Heede
Single-handed Westbound around the world record holder



"Because LCJ Capteur's Ultrasonic Wind Sensors have no moving parts to wear out, rendering their performance constant and reliable, we at Tidal Transit took the decision to fit them to our fleet of four PTVs (Passenger Transfer Vessels). The ultrasonic wind sensors provide security for the vessels, which are in daily service on various UK offshore wind farm sites around the UK coast."
Leo Hambro, Commercial Director of Tidal Transit

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All LCJ Capteurs products are CE compliant.
2 year warranty - back to our factory

ACCURATE

LIGHT WEIGHT