

A person with long, flowing red hair is shown from the back, wearing a tan wind jacket. The hair is blowing in the wind, framing a view of a green valley with rolling hills and a line of trees in the distance under a clear blue sky.

**A new
way**
to read the wind

ULTRASONIC
WIND SENSOR

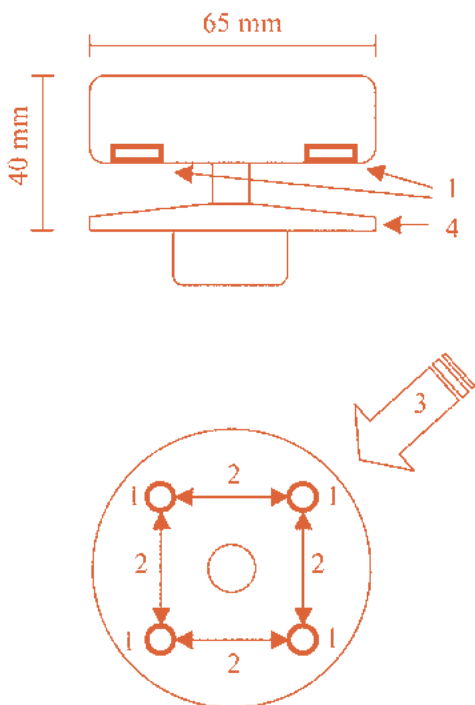
LCJ CAPTEURS

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How does it work ?

A conventional wind vane/anemometer features mechanical rotating parts exposing the sensor to failure. The ultrasonic sensor has been designed **to avoid any mechanical part** to ensure the best possible and most reliable operation. Our sonic wind-vane/anemometers show 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).

The LCJ Capteurs' patented system includes measurements in square shape, resulting in 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 an inclination of the wind sensor.

CV7-V

ULTRASONIC ANEMOMETER-WINDVANE ULTRALIGHT WEIGHT ULTRA COMPACT



The CV7-V is easily integrated into measurement and monitoring systems. The CV7-V is powered by 8-30 VDC power supply and it outputs RS232/RS422 (5V level signal) / NMEA0183.

| | |
|--------------------------------|--|
| Output data format | NMEA0183; MWV, XDR |
| Information transmitted | Instant. W. Speed, Instant. W. Angle, availability |
| Output rate | 2 Hz / 30 Hz measurement |
| Wind module sensitivity | 0.12 m/s |
| Wind module resolution | 0.05 m/s |
| Wind module dynamic | 0.12 to 40 m/s |
| Direction sensitivity | +/-1.5° |
| Direction resolution | 1° |
| Power supply | 8 V to 30 V DC |
| Electrical consumption | 9 mA |
| Op. temp. without icing | -15° C to +55° C |
| Cable | 25 m / 4x0.22 mm ² |
| Connection | 4 wires |
| Weight of the head | 100 gr |
| Weight of unit assembly | 200 gr with mounting part |
| Mounting | Vertical ; 300 mm aluminium arm, Ø 16 mm |

ROBUST

CV7-E

ULTRASONIC WIND SENSOR ULTRA RESPONSIVE REAL TIME DATA



The CV7-E is easily integrated into measurement and monitoring systems. Detects gusts with great responsiveness and low latency.

The CV7-E is powered by 8-30 VDC power supply and it outputs RS232/RS422/ 5 V level signal / NMEA0183.

| | |
|--------------------------------|--|
| Output data format | NMEA0183, MWV, XDR |
| Information transmitted | Instant. W. Speed, Instant. W. Angle, availability |
| Output rate | 4 Hz / 60 Hz measurement |
| Wind module sensitivity | 0.12 m/s |
| Wind module resolution | 0.05 m/s |
| Wind module dynamic | 0.12 to 40 m/s |
| Direction sensitivity | +/-1.5° |
| Direction resolution | 1° |
| Power supply | 8 V to 30 V DC |
| Electrical consumption | 9 mA |
| Op. temp. without icing | -15° C to +55° C |
| Cable | 25 m / 4x0.22 mm ² , 20 g/m |
| Connection | 4 wires |
| Weight of the head | 100 gr |
| Weight of unit assembly | 200 gr with mounting parts |
| Mounting | Vertical, 300 mm aluminium arm, Ø 16 mm |

RESPONSIVE

SONIC-ANEMO-DVC

ULTRASONIC ANEMOMETER- WINDVANE FOR ANALOG DATALOGGER

DAVIS
Compatible



This UltraSonic Wind Vane-Anemometer connects directly to a pulse or potentiometer input (i.e. on Davis instruments). This sensor is easy to integrate to a weather station or to install in replacement of a mechanical sensor.

| | |
|--------------------------------|---|
| Output data format | WA: 25K Ω , 5V max; WS: Pulse open collector 10 mA max |
| Information transmitted | Instant. W. Speed, Instant. W. Angle |
| Output rate | 2 Hz / 30 Hz measurement |
| Wind module sensitivity | 0.12 m/s |
| Wind module resolution | 0.05 m/s (16 bits) |
| Wind module dynamic | 0.12 to 40 m/s |
| Direction sensitivity | +/-1.5° |
| Direction resolution | 1° (9 bits) |
| Power supply | 2.7 V to 35 V DC |
| Electrical consumption | 2.6 mA Avg. @ 12 V |
| Op. temp. without icing | -15° C to +55° C |
| Cable | 5 m / UV proof |
| Connection | RJ11, 2 wires Power Supply |
| Weight of the head | N/A |
| Weight of unit assembly | 200 gr with mounting part |
| Mounting | Vertical, 300 mm aluminium arm, \varnothing 16 mm |

MAINTENANCE FREE

SONIC-ANEMO-DZP

SELF-POWERED ULTRASONIC WIND SENSOR



DAVIS 
Compatible

This UltraSonic Anemometer is powered by its own solar panel. It is well suited to remote installations where power consumption matters. This unit connects directly to a pulse or potentiometer input (i.e. on Davis instruments). It is a useful product for professionals, integration to AWS (Autonomous Weather Station), and well-informed users.

| |
|--------------------------------|
| Output data format |
| Information transmitted |
| Output rate |
| Wind module sensitivity |
| Wind module resolution |
| Wind module dynamic |
| Direction sensitivity |
| Direction resolution |
| Power supply |
| Electrical consumption |
| Op. temp. without icing |
| Cable |
| Connection |
| Weight of the head |
| Weight of unit assembly |
| Mounting |

| |
|---|
| WA: 25K Ω , 5V max, WS: Pulse open collector 10 mA max |
| Instant. W. Speed, Instant. W. Angle |
| 1 measure and update per second |
| 0.12 m/s |
| 0.05 m/s |
| 0.12 to 40 m/s |
| +/-1.5° |
| 1° (9 bits) |
| Photovoltaic Panel, Battery LIFEPO4 |
| n.a. / operates from exposition of 50 W / m ² |
| -15° C to +55° C |
| 12 m / 4x0.22 mm ² UV proof |
| RJ11 |
| N/A |
| 200 gr with mounting part |
| Vertical ; 300 mm aluminium arm, \varnothing 16 mm |

EASY MOUNTING

SONIC-ANEMO-MODBUS

VARIATION OF THE CV7-V INTEGRATING MODBUS PROTOCOL



This sonic anemometer meets a widespread standard in the industry, for instance for dust, soot or noise production monitoring, or even for smart building applications which connect the wind sensor to automates.

| | |
|--------------------------------|--|
| Output data format | ModBus RTU RS485 Half duplex |
| Information transmitted | Instant. W. Speed, Instant. W. Angle |
| Output rate | 2 Hz / 30 Hz measurement |
| Wind module sensitivity | 0.12 m/s |
| Wind module resolution | 0.05 m/s |
| Wind module dynamic | 0.12 to 40 m/s |
| Direction sensitivity | +/-1,5° |
| Direction resolution | 1° |
| Power supply | 24 VDC / 24 VAC or 5 to 30 VDC |
| Electrical consumption | 17 mA |
| Op. temp. without icing | -15° C to +55° C |
| Cable | 25 m UV proof |
| Connection | 2 wires power / 2 wires Modbus / shield |
| Weight of the head | 100 gr |
| Weight of unit assembly | 200 gr with mounting parts |
| Mounting | Stainless steel vertical arm 300 mm, Ø 16 mm |

INDUSTRIAL COMPATIBLE

SONIC-ANEMO-SDI

VARIATION OF THE CV7-V INTEGRATING THE SDI12 PROTOCOL

SONIC-ANEMO-SDI integrates the SDI12 protocol and optimises electrical consumption. Sample rate is 2 Hz.



Available data:

- Average speed and direction over 10 minutes
- Minimum wind speed and direction for that period
- Maximum wind speed (gust 3s) and direction for that period
- Software version and serial number
- Data measurement quality rate from the sensor
- Data for sensor diagnostic (manufacturer use only)

| | |
|--------------------------------|---|
| Output data format | SDI-12 V1.3 |
| Information transmitted | Inst. W. Speed, W. Angle, Gust WS/WA, Avg, Min, Max, availability |
| Output rate | 2 Hz / 30 Hz measurement |
| Wind module sensitivity | 0.12 m/s |
| Wind module resolution | 0.05 m/s |
| Wind module dynamic | 0.12 to 40 m/s |
| Direction sensitivity | +/-1.5° |
| Direction resolution | 1° |
| Power supply | 2.7 V to 35 V DC |
| Electrical consumption | 2.9 mA Avg. @ 12 V |
| Op. temp. without icing | -15° C to +55° C |
| Cable | 5 m / 3x0.22 mm ² UV proof |
| Connection | 3 wires |
| Weight of the head | N/A |
| Weight of unit assembly | 200 gr with mounting part |
| Mounting | Vertical ; 300 mm aluminium arm, Ø 16 mm |

ACCURATE

SONIC-ANEMO-MOBILE

**ULTRASONIC WIND SENSOR
INTEGRATED COMPASS
INTEGRATED GPS**



The CV7-Compass/GPS is an all integrated solution for mobile applications. Alignment is no longer an issue. It is powered by 8-30 VDC power supply and it outputs RS232/RS422/ 5 V level signal / NMEA0183.

| | |
|--------------------------------|--|
| Output data format | NMEA HIGH SPEED A0183, MWV, XDR |
| Information transmitted | Instant. W. Speed, Instant. W. Angle, availability |
| Output rate | 2 Hz / 30 Hz measurement |
| Wind module sensitivity | 0.12 m/s |
| Wind module resolution | 0.05 m/s |
| Wind module dynamic | 0.12 to 40 m/s |
| Direction sensitivity | +/-1.5° |
| Direction resolution | 1° |
| Power supply | 8 V to 30 V DC |
| Electrical consumption | TBD |
| Op. temp. without icing | -15° C to +55° C |
| Cable | 12 m / 4x0.22 mm ² , 20 g/m |
| Connection | 4 wires |
| Weight of the head | 160 gr |
| Weight of unit assembly | 260 gr with mounting parts |
| Mounting | Vertical, 300 mm aluminium arm, Ø 16 mm |

ROBUST

SONIC-ANEMO-ANA5

VARIATION OF THE CV7-V FEATURING TWO 0-5 V ANALOG OUTPUTS



This model of wind sensor is an alternative to the Modbus model, to interface with systems featuring analog inputs.

| | |
|--------------------------------|--|
| Output data format | 2 x 0-5V |
| Information transmitted | Inst. Wind Speed, inst. Wind Angle |
| Output rate | 2 Hz / 30 Hz measurement |
| Wind module sensitivity | 0.12 m/s |
| Wind module resolution | 0.05 m/s |
| Wind module dynamic | 0.12 @ 40 m/s |
| Direction sensitivity | +/-1.5° |
| Direction resolution | 1° |
| Power supply | 2.7 V to 35 V DC (10 to 16 V DC for "L" model) |
| Electrical consumption | 2.5 mA @ 12V (12 mA for "L" model) |
| Op. temp. without icing | -15° C to +55° C |
| Cable | 25 m UV proof |
| Connection | 2 wires power / 2 wires analog. / analog ref. |
| Weight of the head | 100 gr |
| Weight of unit assembly | 200 gr with mounting parts |
| Mounting | vertical arm 300 mm aluminium, Ø 16 mm |

EASY MOUNTING

SONIC-ANEMO-ANA-AC

VARIATION OF THE CV7-V FEATURING TWO 0-10 V ANALOG OUTPUTS



This is the analog version of the CV7. The 0-10 V output allows direct integration to existing systems requiring an analog signal.

| | |
|--------------------------------|--|
| Output data format | 3 x 0-10 V |
| Information transmitted | Instant. W. Speed, Instant. W. Angle, availability |
| Output rate | 2 Hz / 30 Hz measurement |
| Wind module sensitivity | 0.12 m/s |
| Wind module resolution | 0.05 m/s |
| Wind module dynamic | 0.12 to 40 m/s |
| Direction sensitivity | +/-1.5° |
| Direction resolution | 1° |
| Power supply | 24 V DC/AC |
| Electrical consumption | 0.75 W |
| Op. temp. without icing | -15°C to 55°C |
| Cable | 25 m / 4x0.22 mm ² |
| Connection | 4 wires |
| Weight of the head | 100 gr |
| Weight of unit assembly | N/A |
| Mounting | Stainless steel vertical arm 300 mm, Ø 16 mm |

COST EFFECTIVE

OEM solutions

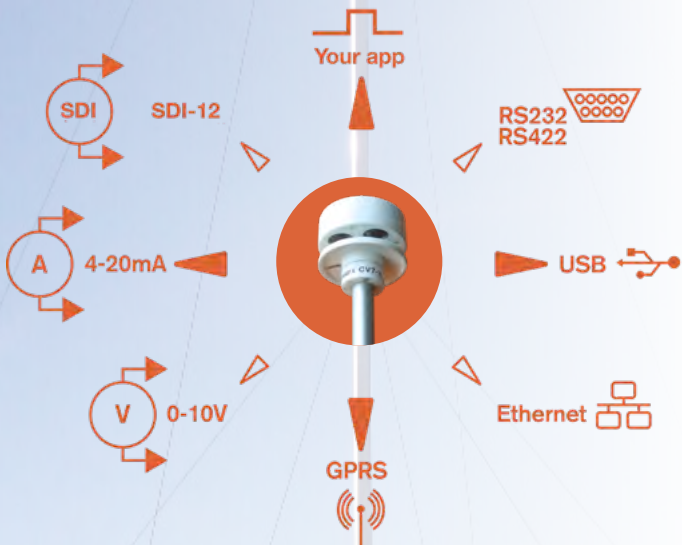
TAILORED SOLUTIONS

As a designer and manufacturer of ultrasonic wind sensors LCJ Capteurs can provide tailored solutions for specific applications and according to technical specifications.

You can take the benefit of our expertise and quality manufacturing practice which has been proven since 1999. The light structure of our privately owned company gives us the flexibility and adaptability required to address specific projects. Our design office is ready to listen to your enquiries and our manufacturing facilities will adapt to your requirement. The whole team work to match your expectations.

With a wide range of industrial interfaces, the sensors of the CV7 series are easily integrated into measurement and monitoring systems. The standard models of the CV7 series can be powered by a USB port, a 8-33 VDC power supply and the options allow using 24 VAC.

Should you have any other power supply and interface specific requirement, ask us to make it!



ACCURATE

SONIC-ANEMO-MICRO

ULTRA-LOW ENERGY CONSUMPTION FOR REMOTE INSTALLATION



Photo credit: Holfuy



Photo credit: Sens Of Life

As a result of its very special electronic architecture the SONIC-ANEMO-MICRO shows a very low electrical consumption. It is ideal for remote stations or mobile installation.

| | |
|--------------------------------|--|
| Output data format | ASCII format, availability |
| Information transmitted | Instant. W. Speed, Instant. W. Angle, availability |
| Output rate | select. 1 meas. and Tx: every 1,6 or 18 s |
| Wind module sensitivity | 0.12 m/s |
| Wind module resolution | 0.05 m/s |
| Wind module dynamic | 0.12 to 40 m/s |
| Direction sensitivity | +/-1.5° |
| Direction resolution | 1° |
| Power supply | 3 V to 3.6 V DC |
| Electrical consumption | 400µA avg |
| Op. temp. without icing | -15° C to +55° C |
| Cable | 50 cm / 4x0.22 mm ² |
| Connection | 4 wires |
| Weight of the head | 100 gr |
| Weight of unit assembly | N/A |
| Mounting | N/A |

ACCURATE

CV7-OEM

MAKE IT YOURS!

**ADD "ULTRASONIC WIND SENSOR"
TO THE SPECIFICATIONS OF YOUR
PRODUCTS**



With this OEM version of the Static Wind Transducer CV7, you can add an accurate Ultrasonic Wind Sensor to your own products and installations. It is powered by 8-30 VDC power supply and it outputs RS232/RS422/NMEA0183 signal. Provide your systems with a solid state sensor! CV7: a compact and discreet Ultrasonic Wind Sensor

| | |
|--------------------------------|--|
| Output data format | NMEA0183, MWV, XDR |
| Information transmitted | Instant. W. Speed, Instant. W. Angle, availability |
| Output rate | 2 Hz / 30 Hz measurement 4 Hz / 60 Hz meas. |
| Wind module sensitivity | 0.12 m/s |
| Wind module resolution | 0.05 m/s |
| Wind module dynamic | 0.12 to 40 m/s |
| Direction sensitivity | +/-1.5° |
| Direction resolution | 1° |
| Power supply | 8 V to 30 V DC |
| Electrical consumption | 9 mA |
| Op. temp. without icing | -15° C to +55° C |
| Cable | 50 cm / 4x0.22 mm ² |
| Connection | 4 wires |
| Weight of the head | 100 gr |
| Weight of unit assembly | N/A |
| Mounting | N/A |

COST EFFECTIVE

Custom made sensors

Our engineering team offers the design of ultrasonic wind sensors specifically adapted to your applications. The range of possibilities is wide: from bare sensor for integration to your existing systems, to assembly ready to be mounted.

Sensors can be adapted to analog or digital systems.

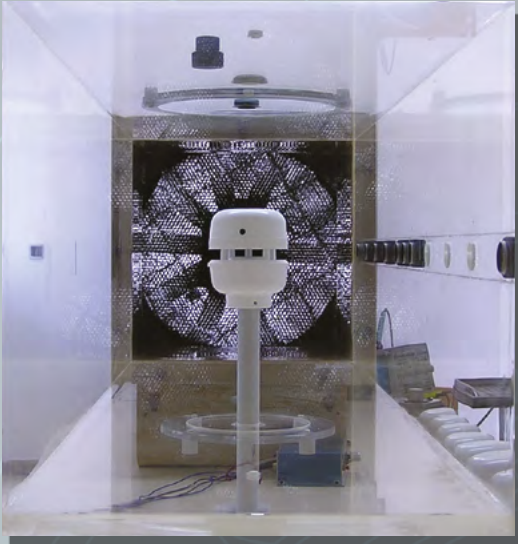
As there is available room in the sensor's head, we can integrate a specific component using communication protocols as Bluetooth or other IOT, for example. From the first draft to the working prototype, production and delivery of your units, we follow all steps of your project.

Have you a challenging project? Contact us and let's find solutions together!

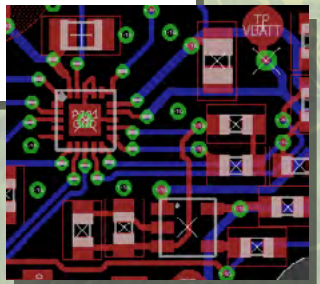
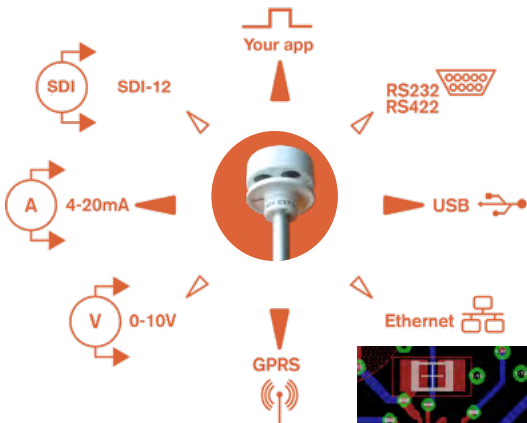


Photo credit: Holfuy

Tailored to your needs

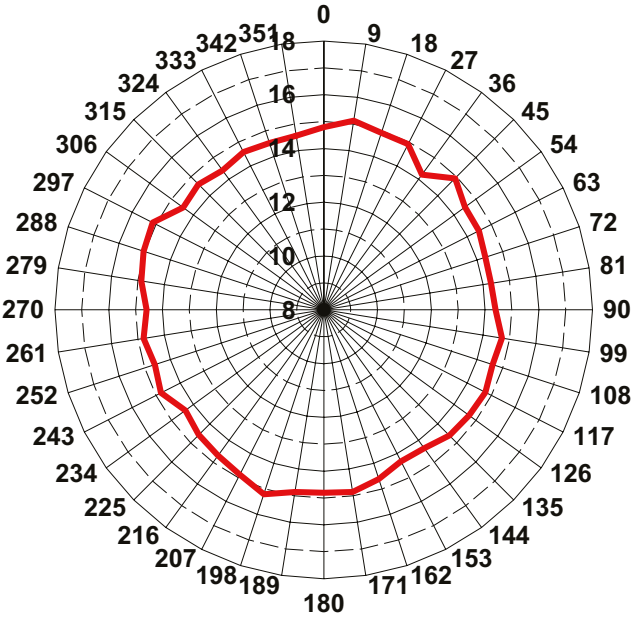


- Client-specific outputs
- Adaptation to your hardware
- Fully tested and calibrated in house before despatch
- Trackable test records against serial number
- Self-powered (solar cells) or power supply 2.7 V to 35 V

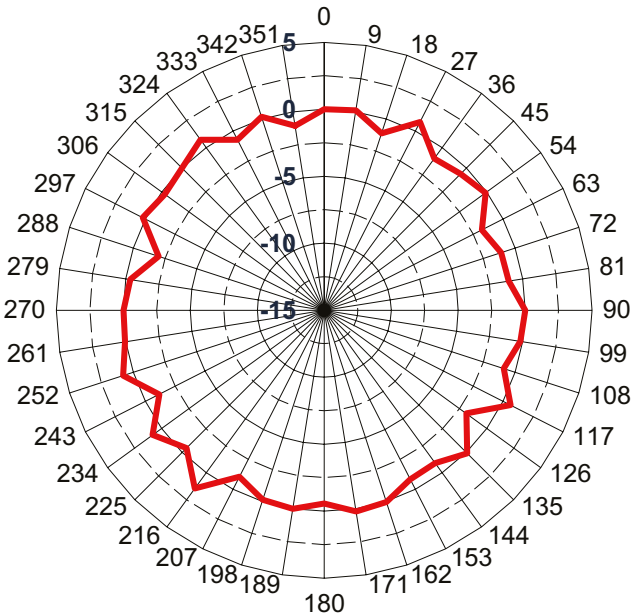


TECHNICAL INFORMATION

Wind speed against direction



Wind angle against direction





We started in 1999 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.

LCJ CAPTEURS sold their first Ultrasonic Wind Sensors in 2000. The reliability was proven by having a one year in-field test mounted on the rear stand of French trawlers from Boulogne and Lorient, fishing in North Sea and Irish Sea. As a result, since 2001 we know that our sensors are 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. 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 can be directly run either by a PC, or by any other equipment with normalized 0-10V inputs, 4-20mA inputs, SDI-12, NMEA, MODBUS, potentiometer (compatible Davis and other).

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

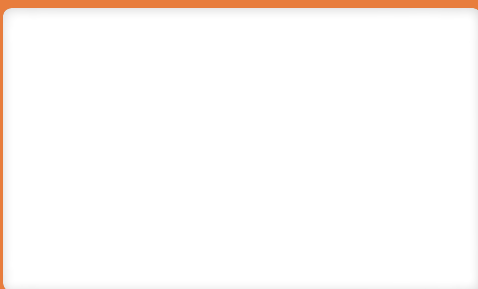
There are already over 14,000 of our sensors giving satisfaction to users all around the world, at sea and on land.

You can rely on LCJ Capteurs' Ultrasonic Wind Sensors.

Meet up with us again on Internet :

www.lcjscapteurs.com





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