

CV7-V-USB

Ultrasonic Wind Sensor



Data supplied :

Wind speed range 0,12 to 40 m/s

Wind direction range 0 to 359°

Wind temperature range -15°C (without icing) to +55°C

Specifications :

Wind speed sensitivity : 0,12 m/s

Wind speed resolution : 0,1 m/s

Wind direction sensitivity : $\pm 1^\circ$

Wind direction resolution : 1°

Accuracy of wind speed measurement and wind direction measurement (TYPICAL Values) .

Speed : $\pm 5\%$ of true value $\pm 0,5$ m/s to 25 m/s

Angle : ± 3 degrees for speed over 7 m/s.

Wind temperature resolution : 1°C

Digital output : RS422 / RS232

Sentences NMEA0183 :

Wind data – MWV- 2 times per second

Temperature data – XDR - 2 times per second

Transmission speed : baud rate 4800

Supply voltage : de 9 to 14 Volts DC

Operational temperature : -15°C (without icing) to +55°C

Sensor dimensions : Cylindrical \varnothing 64 mm, height 61 mm

Mounting dimensions : aluminium arm, height 330 mm, \varnothing 16mm

Programmables configurations :

Angle correction in degrees

Speed unit: knots, m/s, km/h

Temperature unit : Celsius or Fahrenheit

Delivery contents :

– CV7-V sensor, vertical mounting

– 25m cable length +/- 10%

– User manual

– 2-year warranty in our workshops

USB interface

– 1 input opto-coupled data

– 1 supply output 12VDC for the sensor

– 1 USB port (driver FTDI) A-type cord

Dimensions : L. 151mm X l. 64mm X H. 35mm

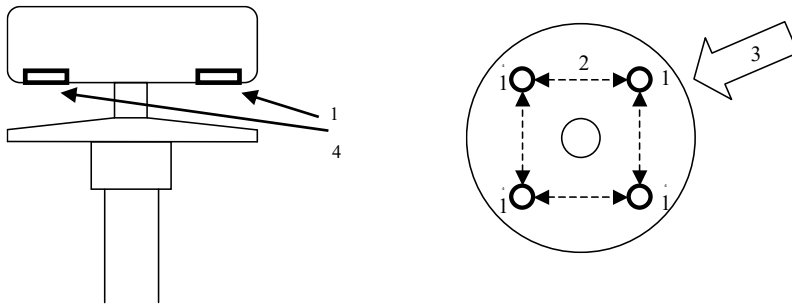


EN 55022 EN 55024

1) Principle of operation: how the equipment works

The sound, the ultrasonic sound is conveyed by the movement of the fluid in which it crosses. The electroacoustic transducers (1) communicate between themselves two by two by ultrasonic signals (2) to determine, following the orthogonal axes, the wave transit time differences induced by the air flow (3).

The measurements are combined in an integrated calculator in order to establish the wind module and its direction in relation to a reference axis. The temperature measurements are used for calibration corrections. CV7 transducers communicate between themselves delivering four independent measurements while head wind measured vectors are preferably used for calculations. The method provides a sensitivity of 0.25 knots, a dynamic range of 80 knots and excellent linearity. The shape (4) partially corrects the effects of the tilt angle of the sensor against the wind module.



2) USB Option

The junction box features a screw terminal and a standard USB cable. Open the box to complete the connections.

The USB junction box is powered by the USB connection to the PC.

Connect the wire coming from the CV7 as indicated on the diagram above.

Plug the USB cable to the PC. The driver will automatically be installed by the Windows® system (Windows 7® and above). Alternatively, the latest version of the driver can be downloaded from the technical support section of the website (www.lcicapteurs.com). It is an executable file. Double-click on the file to launch the installation.

Once the CV7 is connected to the USB port, your relevant software will immediately identify the NMEA0183® sentences via an emulated COM port.

3) Installation

Find a place free from obstacles to the wind, generally at the top of the mast.

Align the bracket in order to have the CV7-V-USB sensor heading to the bow while the mast is aligned to the North.

Tighten the clamps.

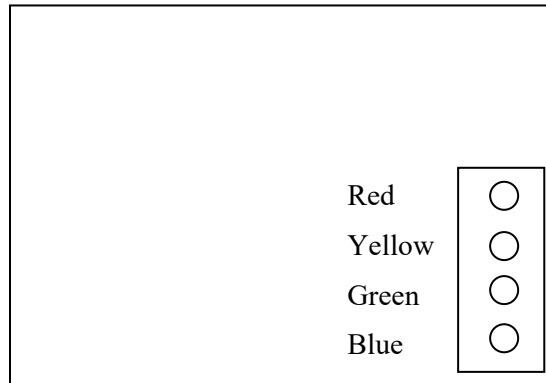
Avoid, as far as possible, the proximity of cables likely to induce high levels of radio interference.

5) USB interconnections

Download the file « DRIVER USB» in FTDI website

<https://ftdichip.com/drivers/vcp-drivers/>

Double click on the « CDMXXXXX » logo to install USB driver



Connect USB cable to USB port of PC.

For first connection, it is not recommended to connect the sensor to the USB interface.

It is possible that the PC considers the USB interface as a computer mouse.

The USB interface supplies the power of the 12VDC CV7-V ultrasonic wind sensor.

6) NMEA0183 protocol

Baud rate 4800, data bit 8, parity none, stop bit 1

Constant flow 0.5 seconds

Variable length fields, delimiter « , ».

Start of sentence : \$

End of sentence : CR,LF

Voltage outputs: 0 or 5V

Symmetrical outputs

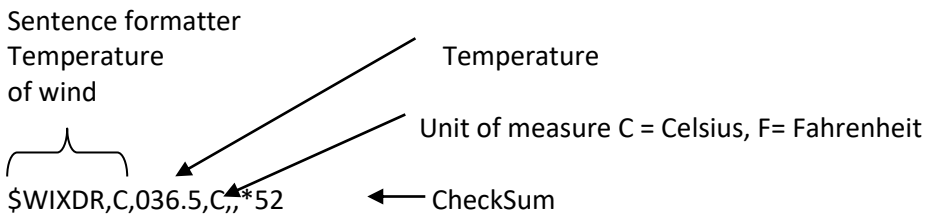
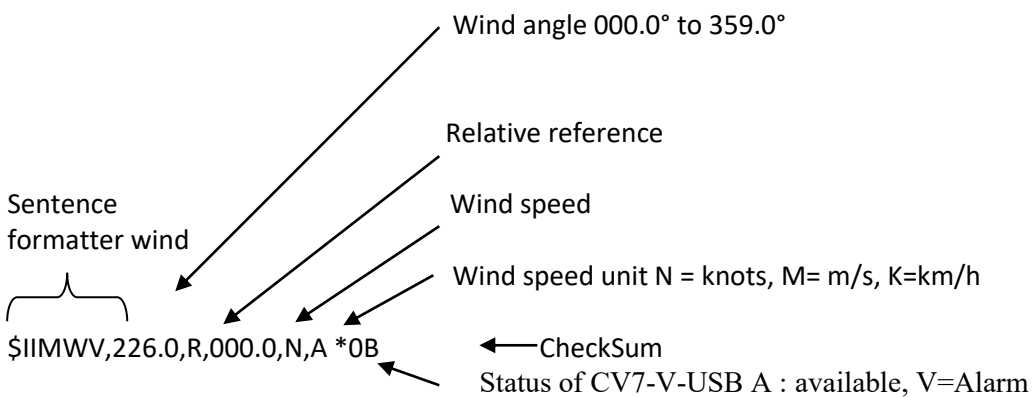
Examples :

\$IIMWV,225.0,R,000.0,N,A*38

\$WIXDR,C,022.0,C,,*52

\$PLCJ,5801,5F01,AA,4253,3341

\$PLCJEA870,6D98,C500,0056,AC

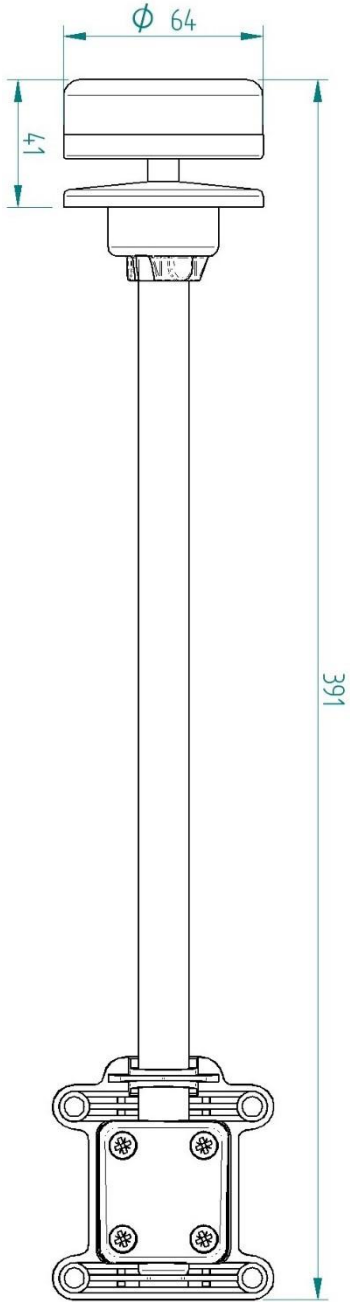


\$PLCJ,AAAA,BBBB,CC,,,DDDD,EEEE

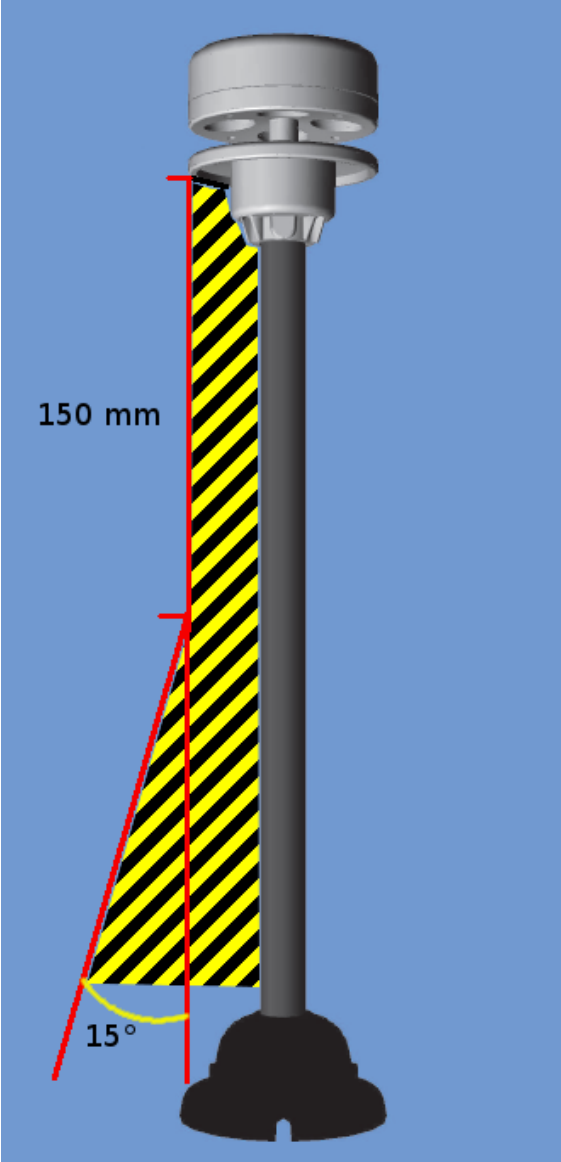
\$PLCJEFFFF,GGGG,HHHH,IIII,JJ

} Sentences for LCJ CAPTEURS technical service

7) CV7-V dimensions



Shaded area:
keep clear of any obstacles

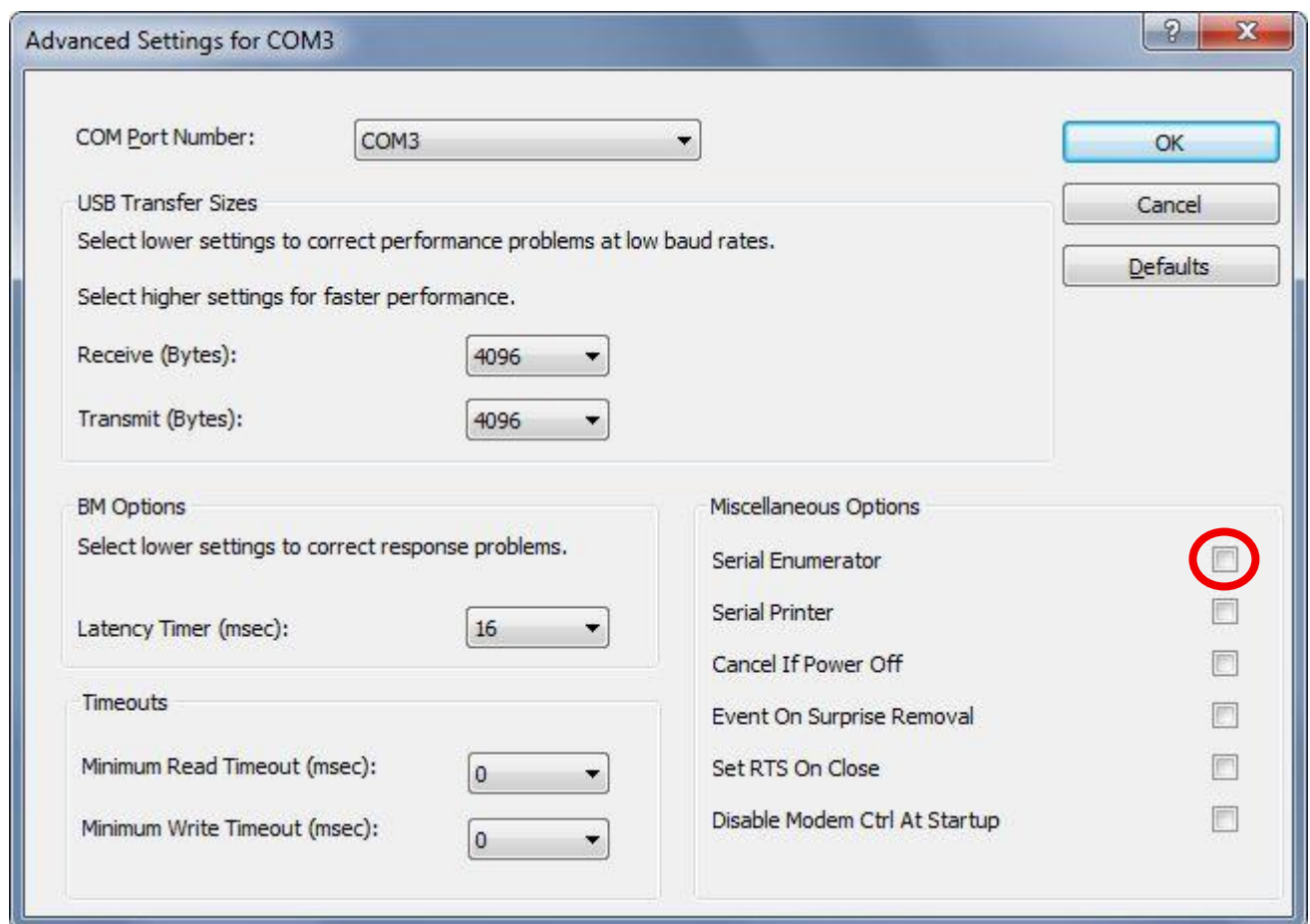


9) How to fix “crazy mouse” syndrome with USB serial adapters

The crazy mouse phenomenon is unfortunately known in some version configuration of Windows Vs PC Hardware.

To open the USB interface, by a slight support on the corner on the top left of the PCB, you activate a switch which will cut the connection of data. You can then, in the configuration of Windows, disable / uninstall the crazy mouse, usually detected as a trackball.

- *In the Advanced Settings window, locate the Miscellaneous Options section and uncheck the box for ‘Serial Enumerator’, as shown. This will prevent serenum.sys from being associated with this COM port.*



- *Click the OK button to confirm your changes.*
- *Click the OK button to close the Device Properties window.*
- *Close the Device Manager by clicking the ‘X’ in the top-right corner.*

Afterwards, care should be taken to always connect the same interface box to the same USB socket of your PC. Otherwise the phenomenon will reproduce.

You will find the latest version of the VCP (Virtual Com Port) driver here:

<https://ftdichip.com/drivers/vcp-drivers/>

It will not change this problem known by Windows. (which is the same with GPS for example)".

10) Warranty

Your CV7-V-USB sensor is warranted against defects in materials and workmanship for a period of 2 years from the date of purchase.

LCJ Capteurs will repair or replace the defective product free of charge, excluding the shipping costs. Proof of purchase will be required for a warranty claim. All claims shall be addressed in writing to LCJ Capteurs. Once this has been accepted by LCJ Capteurs, the defective product shall be sent to the LCJ Capteurs' address in Vertou, France.

For more information, please visit www.lcjcaptteurs.com where video presentations are available.



EN 55022 EN 55024



Electronic equipment marked with the recycling symbol must be handed over to a recognised recycling agency. They can be returned to the manufacturer with agreement. Do not mix electronic equipment with household or industrial waste.