

## Ultrasonic Wind Sensor

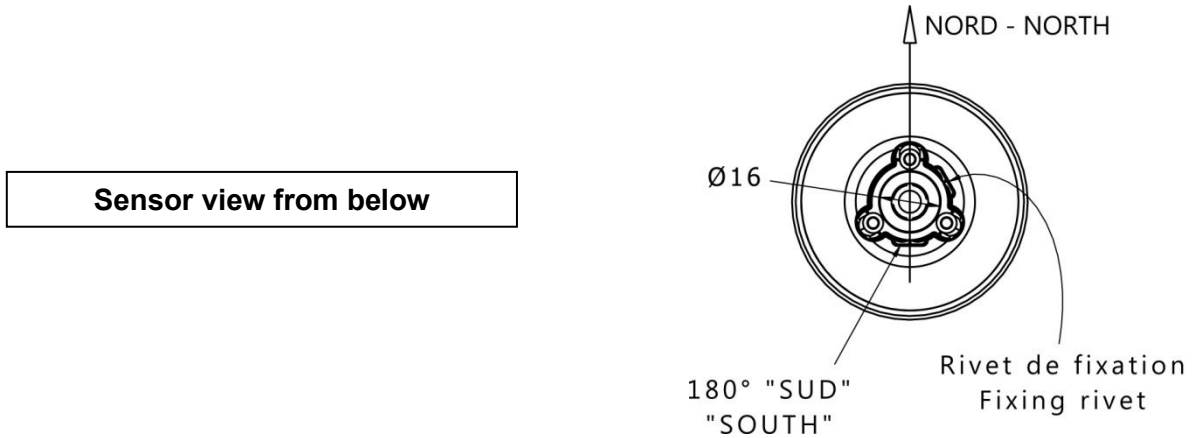


## 1. Installation

Prepare the mast head for the mechanical installation. Use the template for the bracket's screwing. Align the bracket in order to have the CV7-V\_T sensor heading to the bow while the mast is aligned to the North.

The sensor's fine alignment will be obtained with the software calibration application.

Run the cable down to the display's interface, avoiding locations where other cables or equipment may produce electromagnetic interferences.



## 2. Wind sensor alignment and configuration

CV7-V\_T is delivered with the following configuration :

NMEA0183®

Filtering: 2 s

Forces of wind unity : Nds

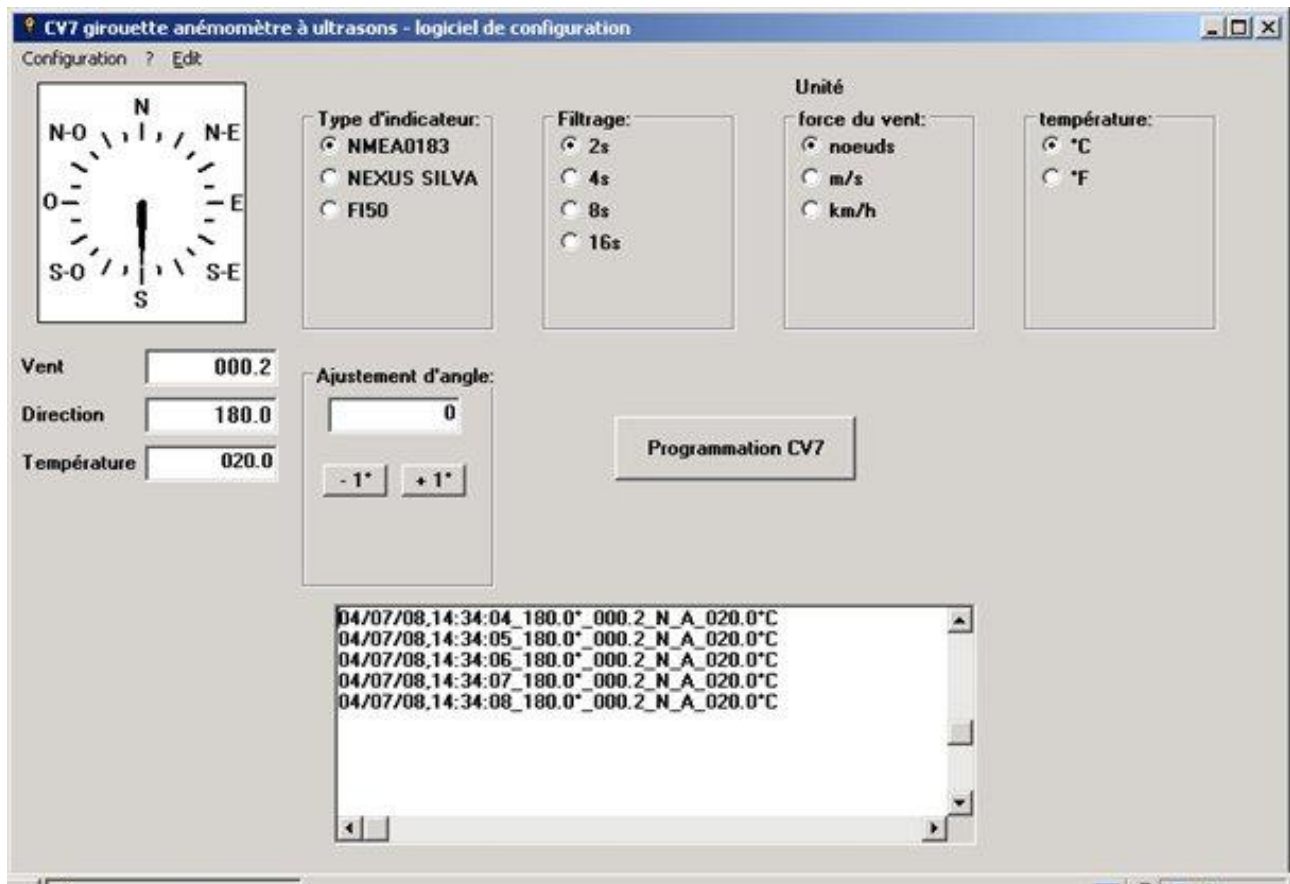
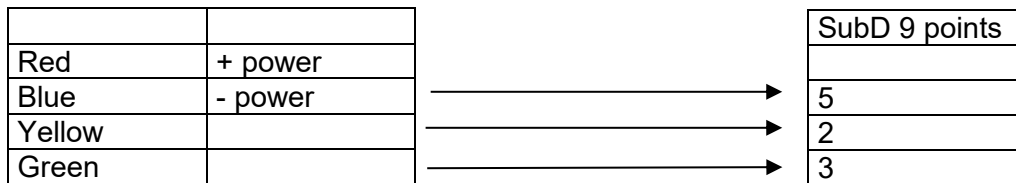
Temperature unity: °C

Adjustment of the angle of the wind: 0°

To select other parameters, use the downloadable software on this website:

[www.lcjecteurs.com](http://www.lcjecteurs.com). « Configuration CV7 ».

Make the following connections (only for configuration):

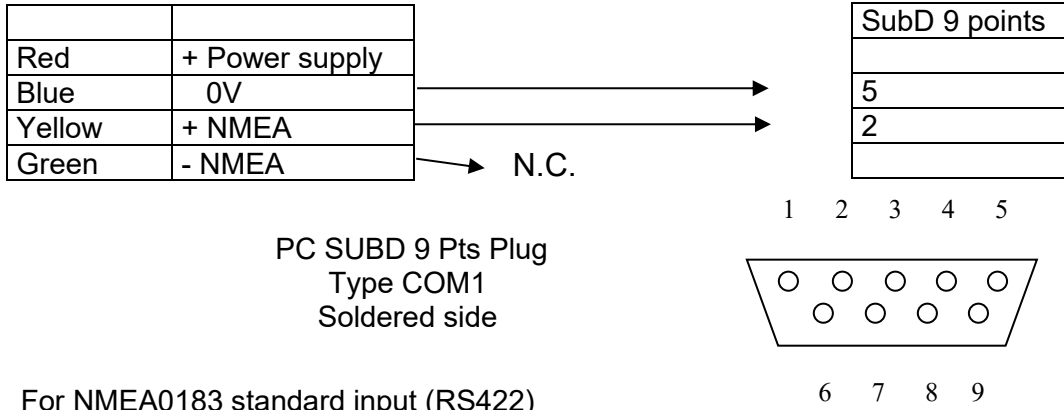


### 3. Interconnections NMEA0183

Make the following connections:

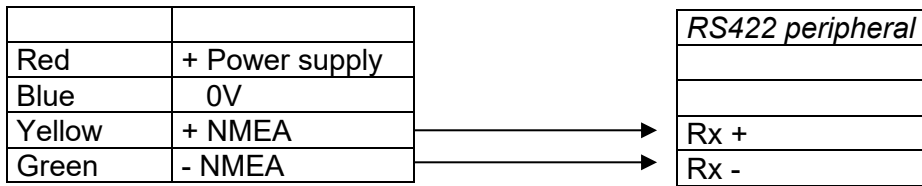
- For RS232 Type PC input

Power supply connections 12V (8 à 30 VDC). Wire Blue - / Wire Red +

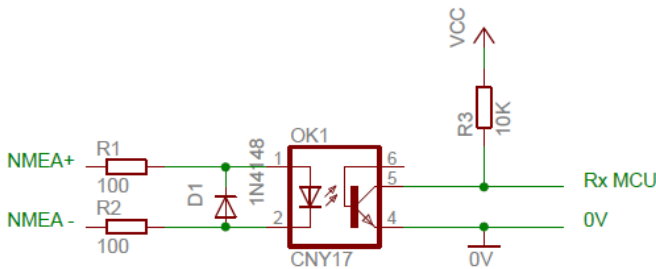


- For NMEA0183 standard input (RS422)

Power supply connections 12V (8 à 30 VDC). Wire Blue - / Wire Red +



Typical diagram NMEA0183 to use a long cable:



#### 4. CV7-V Technical Specifications:

Wind speed range	0.12-40 m/s (0.25 – 80 knots)
Wind speed resolution	0.1 m/s (0.1 knots)
Wind speed sensitivity	0.12 m/s (0.25 knots) Independent of weather conditions
Output data rate	2 Hz (30 Hz measurement)
Wind direction range	0-359 °
Wind direction resolution	1°
Wind direction sensitivity	+/- 1 °
Power requirement	8 V to 33 V DC
Power consumption	9 mA
Dimensions / Sensor	Cylinder Ø 64 mm - height 61 mm
Boot up delay	4 seconds
Cable	25 m standard delivery +/- 10% 4x0.22 mm <sup>2</sup> . Ø4 mm
Arm	Aluminium, 300 mm
Cable weight	20 gr/m
Weight / Sensor + arm and base	200 gr
Weight / Sensor	100 gr
Operational temperature	-15 °C to +55°C (without icing)
Environment	Sensor IP67
CE Mark	EN 55022 EN 55024

Typical wind tunnel report:

wind tunnel speed: 5.2 Hz = 5.9 knots - test temperature: 20°C  
Measuring wind speed depending on its direction

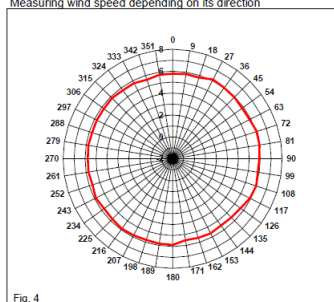


Fig. 4  
mean force: 5.80 Nds  
sigma force: 0.14 Nds

angle to direction deviation

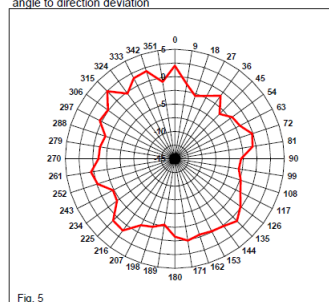


Fig. 5  
mean angle deviation: -0.74 °  
sigma angle deviation: 1.48 °

wind tunnel speed: 11.4 Hz = 15.0 knots - test temperature: 20°C  
Measuring wind speed depending on its direction

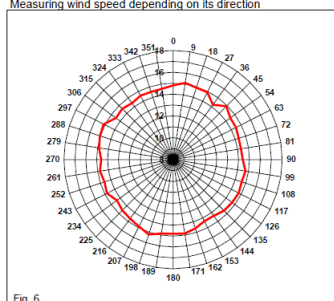


Fig. 6  
mean force: 14.67 Nds  
sigma force: 0.24 Nds

angle to direction deviation

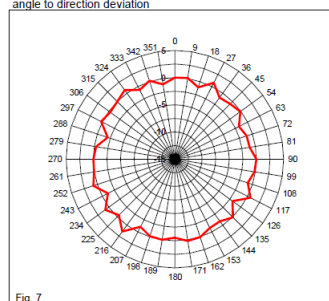


Fig. 7  
mean angle deviation: -0.33 °  
sigma angle deviation: 0.77 °

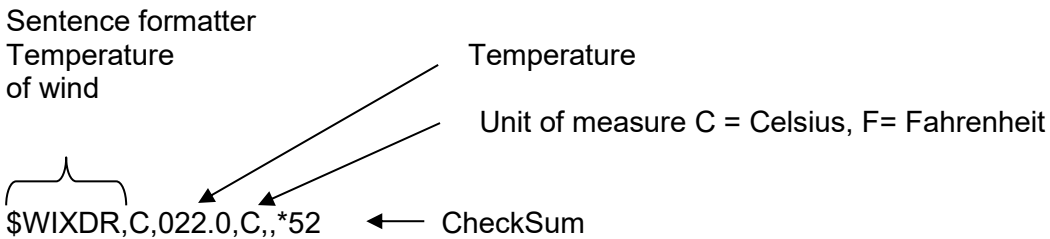
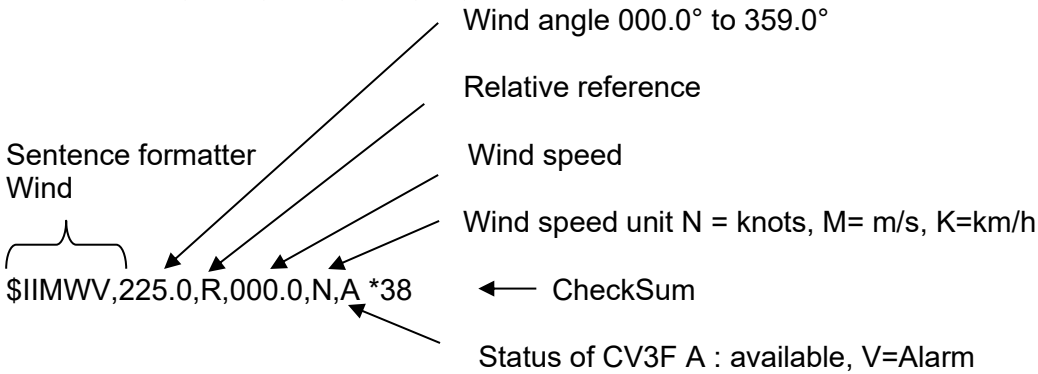
Note: The wind sensors are mounted on an arm of 16 mm diameter by 15 cm length for factory calibration. It is your responsibility to evaluate the changes in air flow out of these conditions.

**5. NMEA0183 protocol:**

Baud rate 4800, data bit 8, parity none, stop bit 1  
 Flow every 533 milliseconds  
 Variable length fields, delimiter « , ».  
 Start of sentence: \$  
 End of sentence: CR,LF  
 Output voltage: 0 or 5V  
 Symmetrical outputs

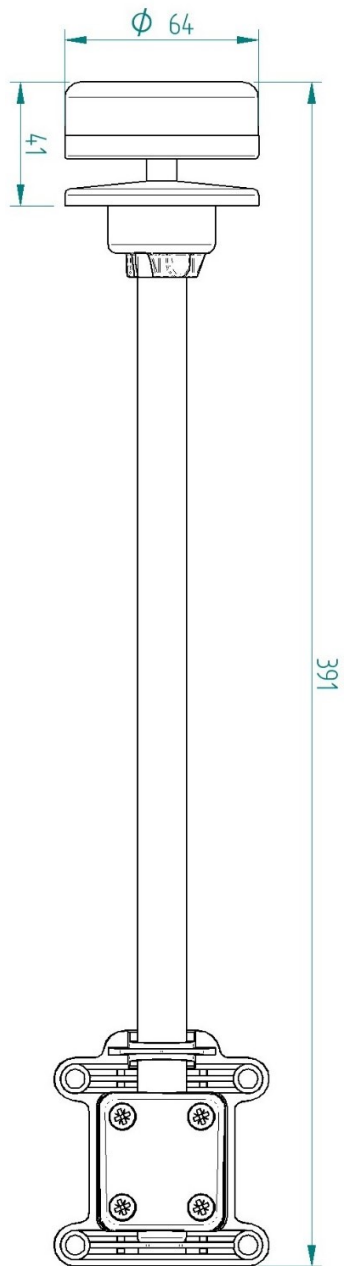
Examples :

\$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,

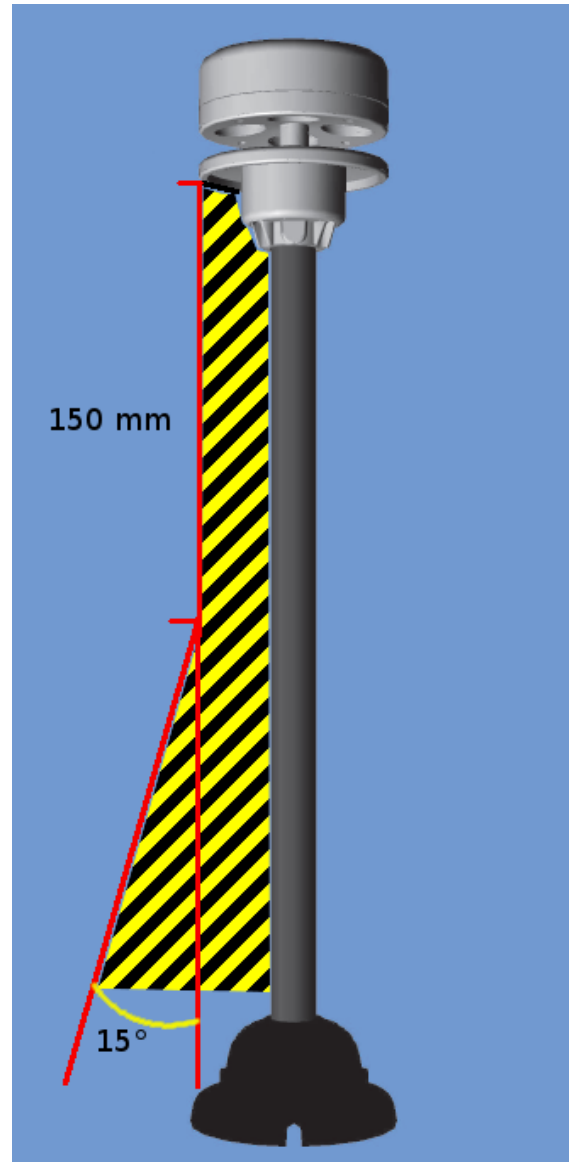


\$PLCJ,AAAA,BBBB,CC,,,,DDDD,EEEE  
 \$PLCJEFFFF,GGGG,HHHH,IIII,JJ } Sentences for LCJ CAPTEURS technical service

## 6. Dimensions



Shaded area:  
keep clear of any obstacles



## 7. Warranty

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

LCJ Capteurs will repair or replace, at its discretion, faulty product free of charge excluding shipping costs. Proof of purchase shall be required in order for a warranty claim. All claims shall be made in writing to LCJ Capteurs and once it is accepted by LCJ Capteurs, the faulty product must be sent to LCJ Capteurs address in Vertou, France.

For further information, please visit [www.lcjecteurs.com](http://www.lcjecteurs.com) where video presentations are available.



EN 55022 EN 55024



Remember to respect the local regulations: dispose non-working electronic equipment to an appropriate waste disposal center.