

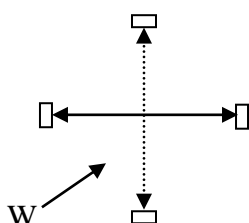
CV3Fm6

ULTRASONIC WIND VANE-ANEMOMETER

CV3F is a new generation wind measurement sensor providing, on a standardised series electric line, the values from the wind module in knots or metres per second, relative wind direction and its temperature in degrees C.

The sensor can be used directly with a PC type computer or read by modern repeaters with a standard NMEA0183 input.

Operating principle :



Sound, ultrasound, is carried by the movement of the fluid through which it passes.

Four electro-acoustic transducers communicate in twos using ultra-sound signals to determine, in two orthogonal axes, the differences in transit times of the waves, induced by the air flow. The measurements are used in an integrated computer to establish the wind module and its direction relative to a reference axis.

The measurement of temperature serves to refine the calibration.

The method provides a sensitivity of 0.5 knots, a range of up to 100 knots and excellent linearity.

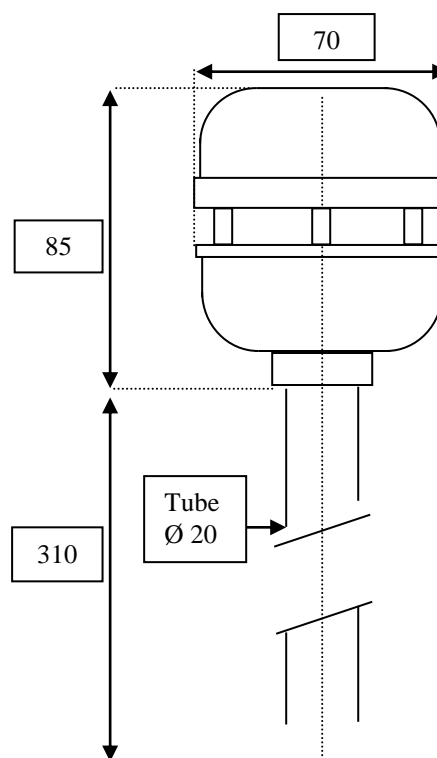
Equipment supplied :

- CV3F sensor head and 300mm pole
- 2 stainless steel brackets
- 25 m coaxial cable fitted with a connector
- Box for connecting power supply and display reader
- Installation instructions

Electrical characteristics :

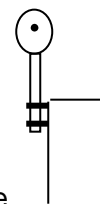
- Digital output signals:
 - NMEA0183, MWV: 5 digits for the module, 4 digits for the direction, 1 digit for validity state.
 - NMEA0183, XDR: 4 digits for the temperature.
- BARO Option
 - NMEA0183, MDA: 4 digits for the pressure, 4 digits for the temperature.
 - NMEA0183, XDR: 4 digits for the temperature, 4 digits for the atmospheric pressure.
- Wind module resolution: 0.1 knots
- Wind module dynamics: 0.5 to 99.5 knots
- Resolution: 1 degree
- Sensitivity to direction: + / 1.5 degrees
- Supply: 9,5 to 14 V DC
- Consumption: 25 milliamperes
- Operating temperature: -10°C (without ice) to +50°C



Mechanical characteristics (mm):**Installation :**

Find a place free from obstructions to the wind.

The CV3F sensor can be fitted using the two stainless steel brackets to the side or top of the mast as shown.



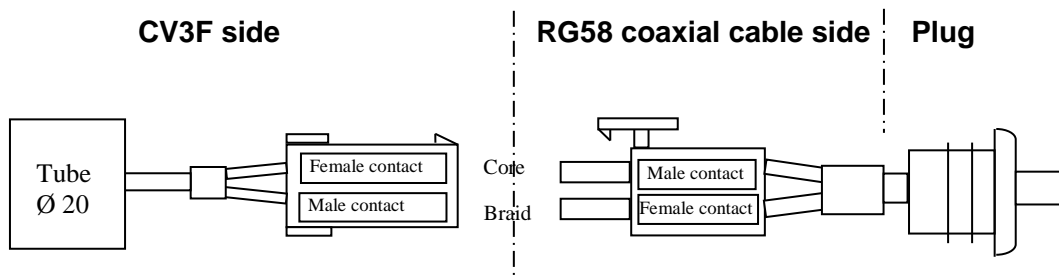
Set up the alignment mark parallel to the axis of the vessel pointing towards the bow or, when it is a land installation towards a reference direction, as a rule, true north.

Better precision is obtained by taking the struts linking the two halves of the sensor as an axis for the alignment.

Join the coaxial cable to the sensor as in the diagram below and lead the cable to the site for the display unit.

Avoid as far as possible closeness to cables which might induce high levels of radio-electrical interference.

Connection in the sensor tube:



The plug at the end of the tube has a hole to allow the passage of coaxial cable RG58 and a small hole (1.5mm), sufficient to assure a natural weatherproofing and at the same time to stabilize the internal and external pressures on CV3F. During installation care must be taken to ensure that this hole is not closed, and to be left in the same atmospheric pressure as the sensor itself.

Interconnections

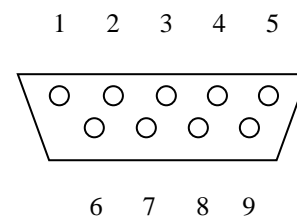
Connect the 12V (9,5 to 14VDC) supply. Blue - / Brown +

Connect the coaxial cable of the CV3F sensor correctly connecting the core and screening.

Connect the display receiver equipment to the NMEA connector:

- for the COM(1) port of an RS232 computer

connect b1 to Rx terminal 2 of COM1
 connect b3 to 0V terminal 5 of COM1
 if necessary, connect terminals 6 and 7 of COM1 together.



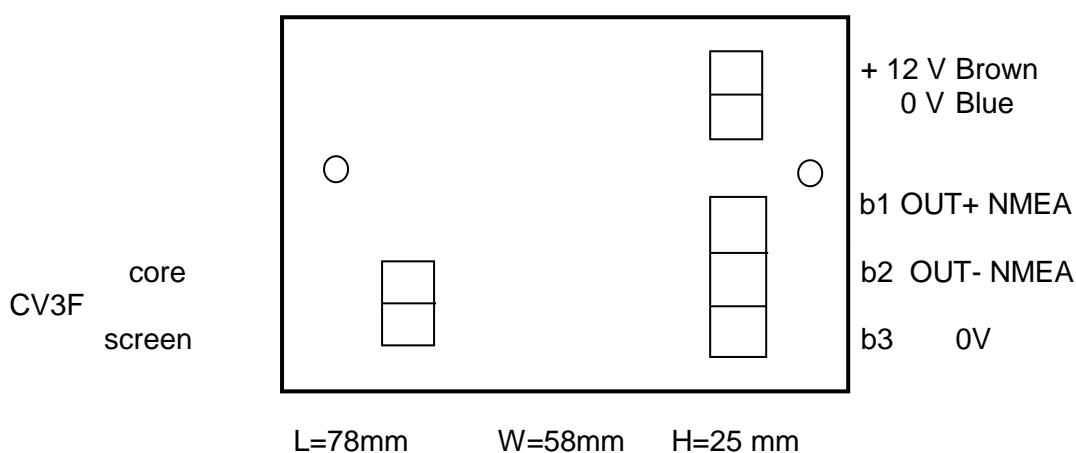
PC SUBD 9
 terminal COM1
 type connector -
 Soldering side

- for a floating RS422 standardised NMEA0183 input

Make sure in advance that none of the receiver inputs is connected to 0 Volts, otherwise use the RS232 type connection.

connect b1 to +Ve (or In +) or A of the NMEA display
 connect b2 to -Ve (or In -) or B of the NMEA display

The b1 b2 output supplies a differential voltage greater than 2 Volts at a load of 4 mA which allows two receivers to be controlled simultaneously.



Output messages

Example:

```
$IIMWV,226.0,R,000.00,N,A*0B
$WIXDR,C,036.5,C,,*52
$PLCJ,67FF,6EFF,28,,,5050,5050
$PLCJEA870,6D98,C500,0056,AC,
```

CV3F-WindyPlug

Consumption: 2 LEN / < 50mA with sensor.
NMEA2000 manufacturer ID: 499

NMEA2000 V2 PGNs:

- TX: 59392; 60928; 126464; 126996; 130306; 130311
- RX: 59392, 59904; 60928; 130315

Product ID:

- LCJ Capteurs CV7_Ultrasonic_Wind_SensorV2

NMEA2000 V3 PGNs:

- TX: 59904; 60928; 126464; 126996; 130306; 130312; 130314
- RX: 59392; 59904; 60928; 130315

Product ID:

- LCJ Capteurs CV7_Ultrasonic_Wind_SensorV3

Pressure's measure range: 850 hPa / 1150 hPa

Resolution:

- 1 hPa (mbar) with NMEA2000 Version 2 systems
- 0.1 hPa (mbar) with NMEA2000 Version 3 systems

Relative accuracy: +/- 0.5 hPa @ 20°C

Absolute accuracy: +/- 1.5 hPa @ 20°C

