

Ultrasonic wind speed sensor----CV7-V

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.*

Specification:

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 aluminium arm, Ø 16 mm

Options

These industrial option are "Din" boxes with:

- 1x connection for 24VDC/AC power supply
- 1x connection for CV7-V data
- 1x 12 V connection for CV7-V power supply
- Galvanic isolation between power supply and analog outputs
- Galvanic isolation between power supply and sensor's power supply
- The sensor input is optocoupled.

420 AC

This option features :

- 1 4-20 mA output loop current for wind speed ranging from 0.25 Kts to 80 Kts and CV7 measurement check.
- 1 4-20 mA output loop current for wind direction ranging from 0 to 359° and CV7 measurement check.
- 2 Dry contacts for wind speed alarm

ANA-AC

This option features 3 outputs 0-10V:

- 0-15m/s
- 0-30m/s or 0-40m/s selectable
- 0-359° wind direction.

