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# ENVIROMENTAL CONTROLS

## HD 2003 HD 2003.1 THREE AXIS ULTRASONIC ANEMOMETER



**HD2003** and **HD2003.1** are three axis ultrasonic anemometers, they measure the speed and direction of wind, the U-V-W Cartesian components of speed, sound speed and sonic temperature.

**The HD2003 allows also to detect temperature and relative humidity of the air and barometric pressure.**

- 4 analog input
- 5 analog output
- different voltage ranges, high resolution

Communication interface:

- RS232C serial output, RS485 multidrop
- RS485 connection possible a network of anemometers with data 'on demand' for bidirectional link

Operating Software reliable, flexible, easy to use, configurable in RS232C from User's PC according to your requirements.

Acquisition of data in different units of measurement and middle periods.

Self-diagnostics with checking and report errors.

Updating the software via RS232C or RS485. Instrument reliable, accurate throughout its range of measurement, maintenance due to lack of moving parts. Possibility of overheating the ultrasonic sensors to avoid the formation of ice or sleet

### Typical applications:

- Meteorology
- Aviation and Navigation
- Tunnels, Highways
- Climatology
- Sport and winter stations
- Safety in yards
- Industrial buildings

### TECHNICAL SPECIFICATIONS

#### Ultrasonic Measures.

- Parameters UVW, Polar Speed Sound Sonic Temperature
- Unit measure m / s, cm / s, km / h, Knots, mph
- Sox 1 ÷ 60 sec
- Custom protocols

#### Wind Speed

- Range 0 – 50 m/s (180 Km/h)
- Resolution 0.01 m/s
- Accuracy ± 1% de la lectura

#### Wind Direction

- Range Azimuth: 0÷360° Elevation: ± 60°
- Resolution 0.1°
- Accuracy ± 1°

#### Sound speed

- Range 300 ÷ 380 m/s
- Resolution 0.01 m/s
- Accuracy ± 1% of reading

#### Sonic Temperature

- Range -40 + 60°C
- Resolution 0.1 °C
- Accuracy ± 1°C

#### Digital Outputs

- Communications RS-232 full duplex, Multidrop RS-485 half duplex
- Baud Rate 9600 ÷ 115200 bit/sec.
- Output Rate Normal functioning mode: 1 ÷ 3600 sec
- Digital high frequency: 1/50 sec

#### Analog Outputs

- Number 5, selectable between all available output quantities
- Range 0÷20mA, 4÷20mA, 0÷1V, 0÷5V, 1÷5V, 0÷10V
- Resolution 14 bit max

#### Analog Inputs.

- Number 4
- Range 0-1V (on request: 0-5V, 1-5V, 0-10V)
- Resolution 12 bits

#### Power supply

- Range 12 ÷ 30 VDC
- Power <2W (typically 110mA @ 15Vdc)
- <6W Models with heaters and environment temperature not lower than -10°C

#### Heaters (On request at the time of placing the order)

Heating with automatic temperature control on sonic transducers, to prevent ice and snow formation.

**Dimensions** See drawing

#### Weight

- HD2003: 2.2kg
- HD2003.1: 1.6kg

#### Environmental Conditions.

- Temperature Range -40 +60 ° C
- EMC CE Regulations
- Precipitation Operability guaranteed up to level 6 • Humidity 0% - 100% RH

### ORDER CODES

MODELO	DESCRIPTION
HD 2003	Three-Axis Ultrasonic Anemometer with internal sensors of Temperature - Relative Humidity - Pressure
HD 2003.R	Heaters Option for Three-Axis Ultrasonic Anemometer with internal sensors of Temperature - Relative Humidity - Pressure
HD 2003.1	Three-Axis Ultrasonic Anemometer
CP 2003-5	Cable Ø = 8mm, length=5m, with 26 poles shielded plug (only on one end)
CP 2003.10	Cable Ø = 8mm, length=10m, with 26 poles shielded plug (only on one end)
CP 2003.C	26 poles plug Tyco 62IN-16A-16-26S-4 0445



HD 2003



HD 2003.1

**When ordering, you must specify:**

Remote Interface Module ICP DAS I-7024 ® specifying the range: 0 ... 20 mA, 4 ... 20 mA, 0 ... 10 V, -10 ... 10 V, 0 ... 5 V, -5 ... 5 V

The range of the analog inputs (0 ... 5 V, 1 ... 5 V or 0 ... 10 V) if not stated is supplied standard 0 ... 1 V

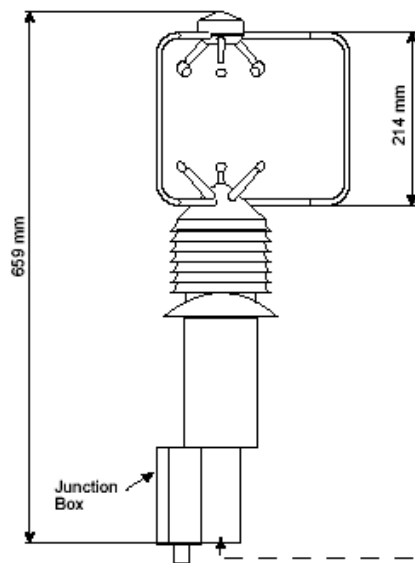
The range of analog outputs (0 ... 5 V, 1 ... 5 V or 0 ... 10 V) if not given the standard provides 0 ... 1 V

For Model 2003 HD:

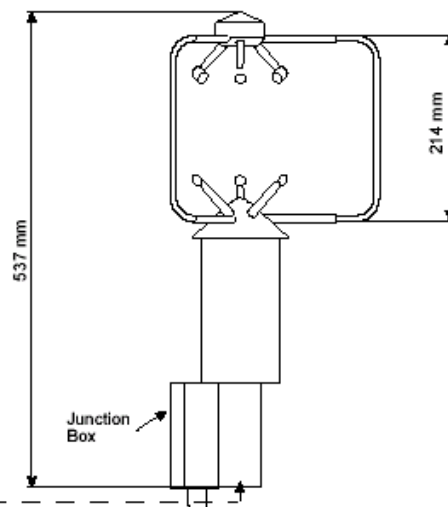
Analog input range temperature sensors, pressure and relative humidity (0 ... 5 ... 10 V V0) if not given the standard provides 0 ... 1 V

Pressure sensor range (600 ... 1100 mbar) if not given the standard provides 800 ... 110 mbar

Convertidor RS232/RS485-ICP das I-7250®



HD 2003



HD 2003.1

