

# 2-Axis Ultrasonic Anemometer

HD52.3D SERIES...

## INTRODUCTION

The HD52.3D... series is your all-in-one solution for meteorological monitoring! These 2-axis ultrasonic static anemometers are very powerful and deliver unparalleled precision and versatility in a sleek, compact design. Imagine having a meteorological station at your fingertips - that's exactly what you get with the HD52.3D series.

Measure key meteorological parameters with ease: wind speed and direction, U-V Cartesian components of wind speed and wind gust. Optional features like global solar radiation, temperature, relative humidity, barometric pressure, take your measurements to the next level, ensuring you have all the data you need at your disposal.

But that's not all - we understand flexibility is key. Choose between rainfall or global solar radiation options to suit your specific needs. Plus, with the ability to calculate averages over configurable periods, you have complete control over your data.

## FEATURES

### Magnetic compass

Equipped with a magnetic compass, and wind speed and direction measurements are automatically compensated and referred to magnetic North, even if alignment to North is not performed. This allows obtaining accurate measurements even in case of mobile installations.

### Low power consumption

The low power consumption of the instrument allows installation in remote sites, with power supplied by photovoltaic panel and backup battery.

### Low maintenance

The HD52.3D series boasts minimal upkeep thanks to its innovative design with no moving parts. Don't let environmental conditions hold you back - our optional heater ensures reliable operation in all environmental conditions.

## CONFIGURATION & MEASUREMENT

### Easy intergration in any system

RS232, RS485, RS422 and SDI-12 serial interfaces are available with ASCII proprietary or NMEA, MODBUS-RTU and SDI-12 standard communication protocols. Moreover, all versions have two analog outputs, for wind speed and direction. With multiple serial interfaces and communication protocols available, integration into your existing systems is seamless.

### Easy configuration

PC application software free of charge to configure the instrument and view the real time measurements.

### Calibration report

All instrument sensors are factory-calibrated and do not require additional interventions of the user. ISO 17025 calibration available upon request.



[www.senseca.com](http://www.senseca.com)



**ALL-IN-ONE COMPACT AND LIGHT**  
All main quantities of meteorological interest combined in a single instrument



**EASY TO SET UP & QUICK TO INSTALL**  
Easy mounting & alignment facilitated by built-in compass.  
Configuration and real time data monitoring via software.



**ACCURATE & RELIABLE**  
All instrument sensors are factory-calibrated and do not require additional interventions of the user.



**LOW POWER CONSUMPTION**  
Ideal for installation in remote sites - it can be powered by photovoltaic panel and backup battery



**GREAT FLEXIBILITY**  
Wide variety of outputs choice.

## Measurement specifications

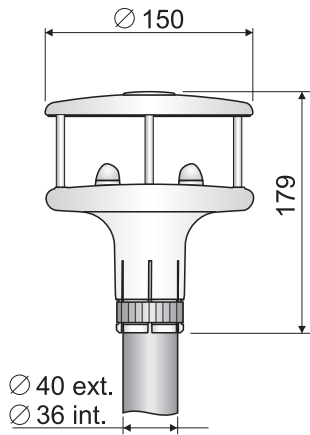
Wind speed	Sensor	Ultrasound
	Measuring range	0...60 m/s (0...50 m/s with rain gauge option)
	Resolution	0.01 m/s
	Accuracy	± 0.2 m/s or ± 2%, the greatest (0...35 m/s), ± 3% (> 35 m/s)
Wind direction	Sensor	Ultrasound
	Measuring range	0...359.9°
	Resolution	0.1°
	Accuracy	± 2° RMSE from 1.0 m/s
Compass	Sensor	Magnetic
	Measuring range	0...360°
	Resolution	0.1°
	Accuracy	± 1°
Temperature	Sensor	Pt100
	Measuring range	-40...+70 °C
	Resolution	0.1°C
	Accuracy	± 0.15 °C ± 0.1% of measurement
Relative Humidity	Sensor	Capacitive
	Measuring range	0...100 %RH
	Resolution	0.1 %RH
	Accuracy (@ T = 15...35 °C)	± 1.5% RH (0...90% RH), ± 2% RH (remaining range)
	Accuracy (@ T = -40...+70 °C)	± (1.5 + 1.5% of measurement) % RH
Barometric Pressure	Sensor	Piezoresistive
	Measuring range	300...1100 hPa
	Resolution	0.1 hPa
	Accuracy	± 0.5 hPa @ 20 °C
Solar Radiation	Sensor	Thermopile
	Measuring range	0...2000 W/m <sup>2</sup>
	Resolution	1 W/m <sup>2</sup>
	Accuracy	Spectrally Flat Class C
Rainfall	Sensor	Tipping bucket
	Resolution	0.2 mm
	Accuracy	98% @ 20 mm/h 96% @ 50 mm/h 95% @ 120 mm/h
	Maximum rainfall rate	2000 mm/h
	Collector area	127 cm <sup>2</sup>

## General specifications

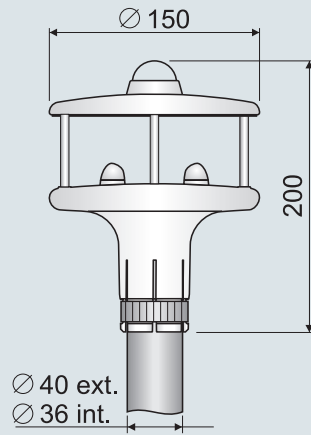
Power supply	10...30 Vdc
Power consumption	26 mA @ 24 Vdc without heater 8 W @ 24 Vdc with heater
Serial outputs	RS232, RS485 (¼ Unit Load), RS422 and SDI-12
Communication protocols	NMEA, MODBUS-RTU, SDI-12, proprietary RS232 and RS485
Analog outputs	2 analog outputs, for wind speed and direction. Output at choice among 4...20 mA (standard), 0...1, 0...5 and 0...10 V (option 0...10 V needs 15...30 Vdc power supply)
Wind speed averaging interval	Configurable from 1 s to 10 min
Electrical connection	19-pole M23 male connector
Operating temperature	-40...+70 °C Minimum temperature for the rainfall sensor 1 °C
Protection degree	IP66
Survival speed	90 m/s (60 m/s with rain gauge option)
Weight	About 1 kg (version HD52.3DP147) About 1.5 kg (version HD52.3DT147)
Case	Plastic material. Metal parts: AISI 316



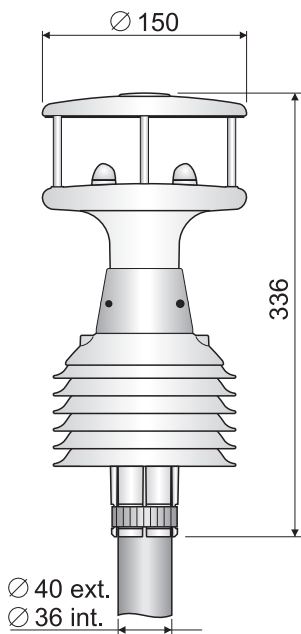
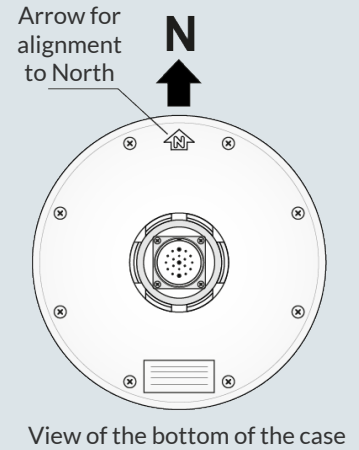
## Dimensions



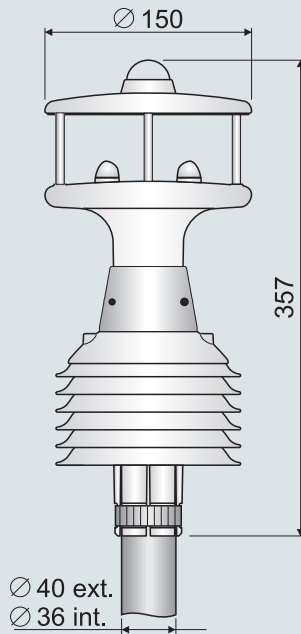
Air speed  
 Air direction  
 Pressure (optionally)



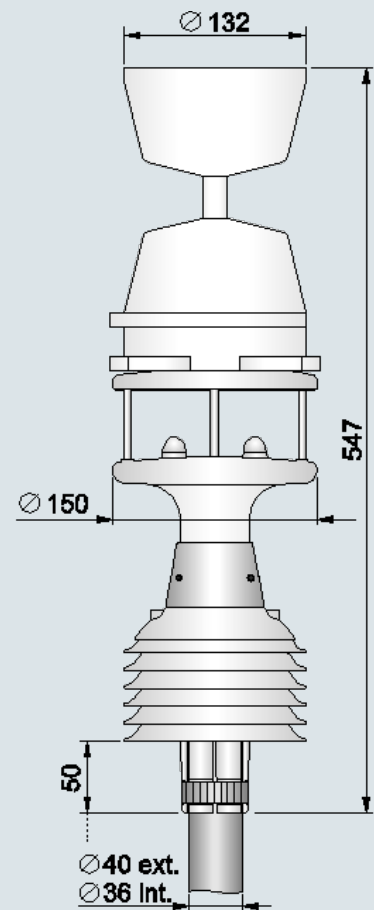
Air speed  
 Air direction  
 Solar radiation  
 Pressure (optionally)



Air speed  
 Air direction  
 Temperature  
 Relative Humidity  
 Pressure (optionally)

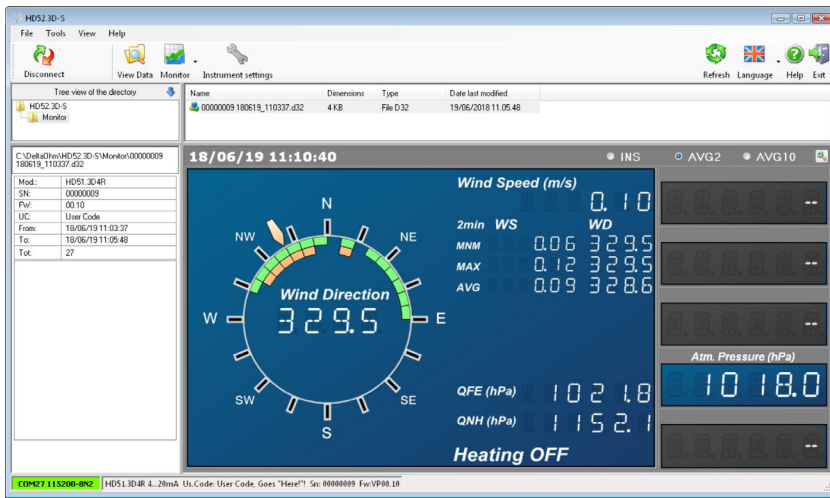


Air speed  
 Air direction  
 Temperature  
 Relative Humidity  
 Solar radiation  
 Pressure (optionally)



Air speed  
 Air direction  
 Temperature  
 Relative Humidity  
 Precipitation  
 Pressure

## PC application software



The PC software HD52.3D-S allows configuring the instrument, viewing the real time measurements both graphically and numerically, managing graphical presentation, printing and export in Excel® format of the data acquired with the Monitor function.

## Ordering codes

HD52.3D

<p><b>Analog output</b>  <b>Blank</b> = 4...20 mA (default)  <b>V</b> = 0...10 V  <b>V1</b> = 0...1 V  <b>V5</b> = 0...5 V</p>
<p><b>Heating</b>  <b>Blank</b> = without heating (default)  <b>R</b> = with heating</p>
<p><b>Temperature</b>  <b>Blank</b> = without (default)  <b>7</b> = with temperature            (option 1 'RH' required)</p>
<p><b>Atmospheric Pressure</b>  <b>Blank</b> = without (default)  <b>4</b> = with atmospheric pressure</p>
<p><b>Relative Humidity</b>  <b>Blank</b> = without (default)  <b>1</b> = with relative humidity            (option 7 'temperature' required)</p>
<p>P = pyranometer            K = bird spike  <b>Blank</b> = without pyranometer and/or bird spike</p>

