

## VENUS - THREE AXIS ULTRASONIC ANEMOMETER

The VENUS and VENUS2 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. VENUS/2 version allows also to detect temperature and relative humidity of the air and barometric pressure.

5 analog outputs in current or voltage, with different ranges. Up to 12 extended analog outputs in current and voltage, at different measuring ranges. 4 digital communication interfaces RS232, RS422, RS485 and AoXnd. Digital strings of output data at a configurable emission frequency.

Self-diagnosis with checking and error reporting. Reliability and precision for the whole measurement field, without any need for further calibrations. Flexible and easy-to-use demonstration software which can be adapted to the customer's requirements through a computer interface. Compass with magnetoresistive sensor for automatic alignment to the Magnetic North. No moving parts, with reduced maintenance and servicing costs. Robust construction, apt to operate continuously in severe climatic conditions.

On request, sonic transducers integrated heating device, to prevent ice and snow formation, ensuring a correct functioning even when sleeting or snowing.



### Applications

- Meteorology, climatology
- Aviation, navigation, sport and winter stations, construction/crane safety
- Tunnels, Highways, safety in yards, industrial building

## TECHNICAL SPECIFICATIONS

### Output quantities:

Anemometric:	Wind speed and direction, U-V-W components, sound speed, sonic temperature
Meteorological (VENUS/2):	Pressure, Temperature, Relative Humidity
Heading:	Compass with magnetic azimuth
Wind Speed (SoW):	Units: m/s, cm/s, km/h, knots, mph Range: 0 ÷ 70 m/s (252 km/h), Resolution 0.01 m/s, Accuracy ± 1% v.l.
Wind direction:	Range Azimut: 0 - 360° Elevation: ± 60 °, Resolution 0.1 °, Accuracy ± 1 °
Sound speed (SoS):	Range 300 - 380 m/s, Resolution 0.01 m/s, Accuracy ± 1% v.l.
Sonic temperature:	Range -40...+60 °C, Resolution 0.1 °C, Accuracy ± 1 °C
Compass:	Range 0 - 3600/10°, Resolution 0.1 °, Accuracy ± 1 °
Moving Averages:	1÷60 sec / 1÷60 min
Ultrasonic rate:	60 Hz
Pressure (VENUS2):	Piezo resistive Sensor. Analog Output: 0-20mA, 4-20mA, 0÷1V, 0÷5V, 0÷10V, 1÷5V Analog Output Extended (AoXnd): 0-20mA, 4-20mA, 0÷5V, 0÷10V Range: 600 ÷ 1100 mbar, resolution 0.1 mbar, Accuracy +/- 0.4 mbar @ 20 °C Temperature Effects +/- 0.8mbar between -40°C and +60°C Long-term stability 1mbar in 6 months @ 20 °C
Temperature (VENUS2):	Sensor PT100 - Analog Output: 0-20 mA, 4-20 mA, 0÷1V, 0÷5V, 0÷10V, 1÷5V Analog Output Extended (AoXnd): 0-20mA, 4-20mA, 0÷5V, 0÷10V Range -40 + 60 °C, resolution 0.1 °C, Accuracy ± 0.2 °C, ± 0.15% of reading
Relative Humidity (VENUS2):	Capacity sensor, Analog Output (0÷100%RH): 0-20mA, 4-20mA, 0÷1V, 0÷5V, 0÷10V, 1÷5V Analog Output Extended (AoXnd): 0-20mA, 4-20mA, 0÷5V, 0÷10V Range 5÷98% RH, resolution 0.1 %, Accuracy ± 2.5% RH @ 23°C



**SATEMA**

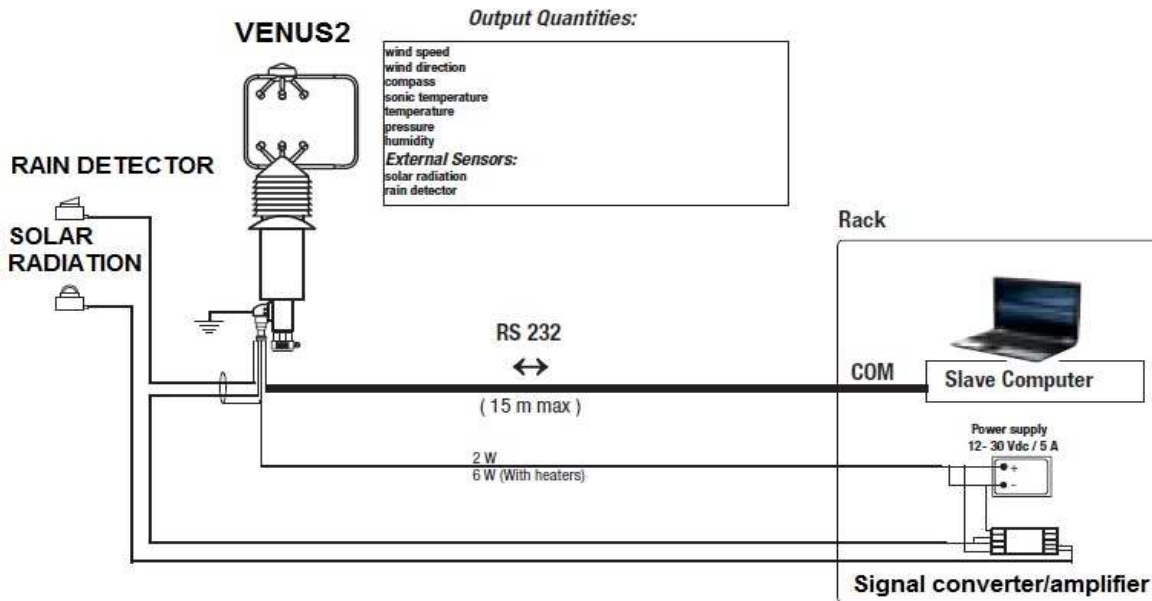
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## TECHNICAL SPECIFICATIONS

Digital Output:	Anemometric and compass. (VENUS2) Pressure, Temperature, Relative Humidity
Communication:	RS232 and RS422 full duplex, RS485 Multidrop and AoXnd half duplex
BaudRate & Output rate:	9600 ÷ 115200 bit/sec & Output rate Slow: 1 ÷ 3600 sec, Fast: fixed 50Hz
Analog Output:	5 to be selected from output quantities (anemometric, compass, meteo) Range 0-20mA, 4-20mA, 0÷1V, 0÷5V, 0÷10V, 1÷5V, Resolution 14 bits
Analog Outputs Extended:	up to 12 to be selected from output quantities (anemometric, compass, meteo) Range 0-20mA, 4-20mA, 0÷5V, 0÷10V, Resolution 14 bits Normal (Slow): 1÷3600sec, High Frequency (Fast): 5Hz...20Hz depending on the baud rate
Power supply:	12 - 30 Vdc
Power:	< 2W (110mA @ 15Vdc); < 6W with heaters and environ. Temperat. not lower than -10 °C
Heaters Option:	with automatic temperature control on sonic transducers (on request)
Pesi:	2.2 Kg (VENUS/2); 1.6 Kg (VENUS)
Environmental condition:	Temperature range -40...+60 °C Precipitation: Operation ensured up to 300mm/hr of water Humidity 0...100% RH
Safety	EN61000-4-2, EN61010-1 level 3
Electrostatic discharge immunity test	EN61000-4-2 level 3
Radiated, radio-frequency, electromagnetic field immunity	EN61000-4-3 level 3
Electrical fast transient/burst immunity	EN61000-4-4 level 3
Immunity to conducted disturbances, induced by RF fields	EN61000-4-6
Voltage dips, short interruptions and voltage variations immunity	EN61000-4-11
Radio disturbance characteristics (conducted and radiated emissions)	EN55022:2007 class B



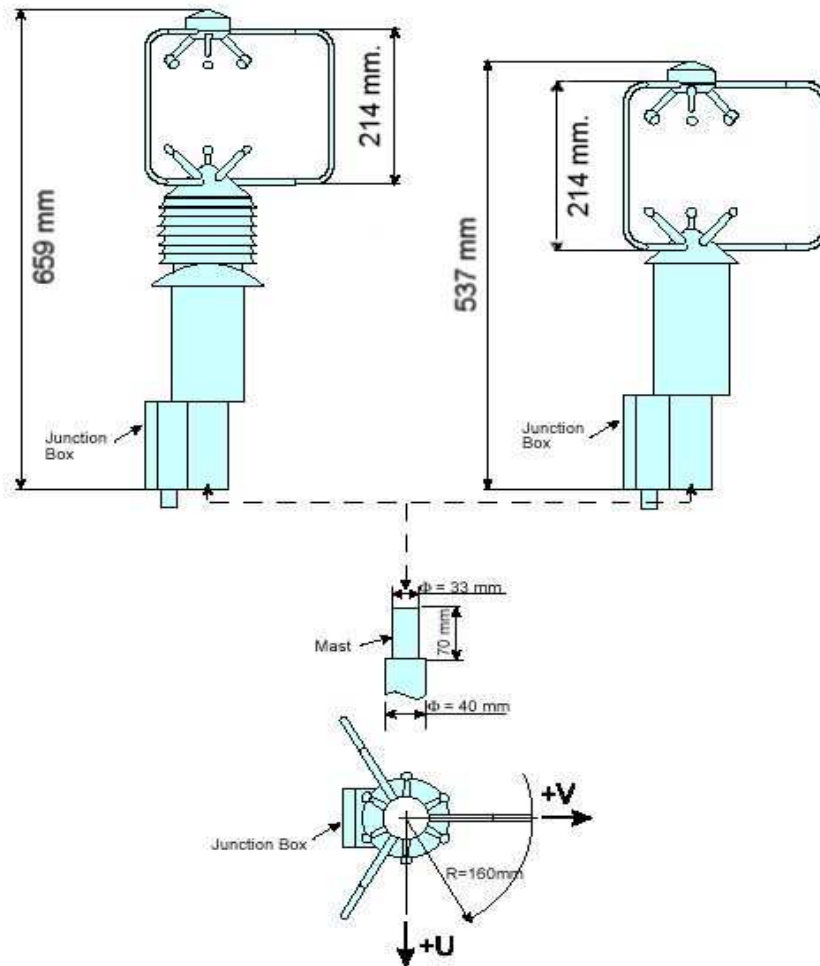
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## DIMENSIONS



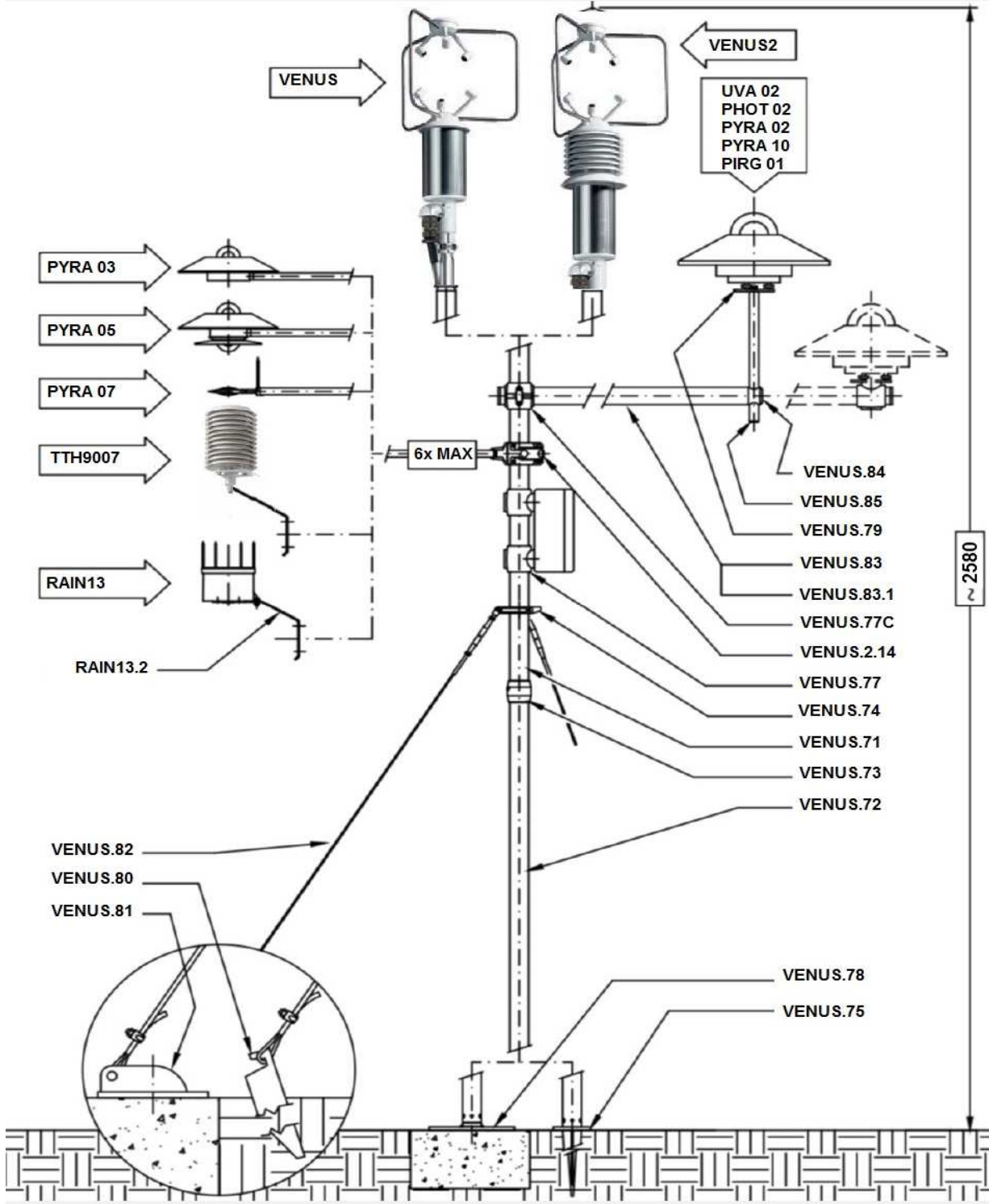
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## CONFIGURATION EXAMPLE



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