

MP300 Air velocity and temperature meter, thermoanemometer

Application

Air velocity meter model MP 300 is a portable meter operating with probes: the thermoanemometric and the ultrasonic, applied to determine air velocity and temperature. It is applied in air-conditioning and ventilation for determining air velocity in ventilation ducts, as well as in industrial processes measurements. The velocity measuring range - $0.4 \div 40$ m/s within the temperature range of $0 \div 260$ °C for the thermoanemometric probe and for the ultrasonic probe - $0 \div 240$ °C. The probe design allows for measurements under varied conditions, also in aggressive environments. The measured velocity and temperature value is presented on the large liquid-crystal display, with 25 mm digits high. The meter is supplied from built-in accumulators or from the external power supply adapter. The measuring part of the probes is fixed in the grip of the probe or in the sleeve on the cable that connects the probe with the meter. The signal that contains the measured values is transmitted digitally to MP300 meter.



Description of MP300 thermoanemometer

Measuring part of STA300A probe

The measuring system of the probe is a constant temperature thermoanemometric bridge, with platinum velocity and temperature sensors. The probe is fitted with a precise bridge temperature compensation device, ensuring independent velocity indications within a wide range of temperature variations in flow. Velocity measuring range is divided into two partially corresponding sub-ranges for the improvement of indication accuracy. Limit velocities of the sub-ranges are selected during calibration of the instrument because their values depend on total velocity and temperature measuring ranges and also individual properties of a concrete measuring probe. Usually for the probes that measure within the range of up to 40 m/s, the division of sub-ranges is following: $0 \div 12$ and $8 \div 40$ m/s. During operation, electronic system of the meter selects automatically velocity measuring range in the way to obtain the best indication accuracy. During the change of the range that lasts 30 seconds, the instrument displays the value of measured velocity just before the change of the range begins.



The displayed value remains constant for 30 seconds that are necessary to stabilize indications of measuring system for the new range. The meter has got a distinct system for measuring ambient temperature that operates in the four-cord quotient circuit. Thermoanemometric bridge temperature compensation device requires the acquaintance of the ambient temperature.

The measuring part of STA300A probe is made of acid-resistant steel and plastics resistant to the temperature and the influence of aggressive substances. Two platinum cylindrical sensors were used for the measurement of the velocity and the temperature located opposite in the distance that guarantees the undisturbed measurement.

The another part of the probe is a jib which is in the shape of a tube (the length of the tube is selected by the purchaser). The outside diameter is 32 mm. The length of the probe may reach up to 3

metres. A linear scale is along the jib that allows the user to know the location of the velocity sensor inside the measuring duct. The jib can also be manufactured as the kit of a few twisted tubes, segmental probe.

The base forms the last third part of the probe. Measuring system of the meter is inside the base. The base is made, as the second part, of acid-resistant steel, its external outline approximates to cylinder, that is 150 mm high and has got the diameter of 35 mm, permanently fixed on the end of the jib. In case of the segmental probe, the cylinder is more tall and narrow, 180 mm high, has got the diameter of 28 mm and the cylinder is fixed on the cable connecting the probe with the meter. After it was agreed, it is possible to make the probe with different construction to special order. The measuring probe is connected with the measuring meter by the use of flexible cable no longer than 20 metres. The output signal from the measuring probe is transmitted digitally.

Software

Software for computers working at Windows98/ME/2000/XP/VISTA/ Windows7 operating systems is provided together with the device. The software allows to monitor the current values of velocity and temperature. There are also graphs of momentary values presented on the screen. A computer program allows the user moreover to update the inside instrument software. For this purpose the user should download via the Internet the up-to-date version of the software, to install and to start on a computer, to connect the device and have the program of the internal meter updated. This facility is very useful in case of the appearance of the error in the software, then there is no need to send the instrument back to the producer.

Technical data

Measuring system:

- Measuring ranges:
 - Velocity: 0,4 ÷ 40,0 m/s
 - Temperature: 0 ÷ 260 °C
- Indication resolution:
 - Velocity: 0,01 m/s
 - Temperature: 0,1 °C
- Expanded uncertainty:
 - Velocity: ± (0,15 + 4% wartości mierzonej)
 - Temperature: ± 0,15 °C
- Power supply:
 - DC voltage: 12 V
 - Maximum current: 300 mA

Casing:

- Dimensions (height x width x length): 211 x 100 x 26 mm
 - Weight of probe: 0,45 kg

Production in cooperation with: **SENSOTRON - Aparatura Elektroniczna - dr inż. Wojciech Kierat**
www.sensotron.pl