

Product Information

Constant Voltage Anemometer: Model VC-01

Applications

- Velocity and turbulence measurement using single or multiple sensors in isothermal and non-isothermal flow
- Measurement of velocity and temperature fluctuations
- Measurement of high-speed compressible turbulent flows
- Measurement of transitional and turbulent boundary layers

Features

- High frequency response (470 kHz max, no tuning required)
- Real time continuous output signal
- Operates with commercial or in-house probes
- In-situ temperature correction without an auxiliary probe
- Circuit stability ensured regardless of probe cable length
- Long probe cable length (up to 100m) without deterioration of the frequency response
- Low noise level



Description

The Constant Voltage Anemometer (CVA) is a new type of hot-wire anemometer specifically designed for high-performance flow measurements. It enables real-time measurements of fluctuating velocity and temperature in air and gases without the need for careful tuning of its frequency response.

CVA's principle of operation allows for an almost constant bandwidth operation even when the flow and sensor conditions are varied. Because of its high frequency response and low noise characteristics, CVA is especially suitable for turbulent flows with large frequency content and/or low turbulent intensity.

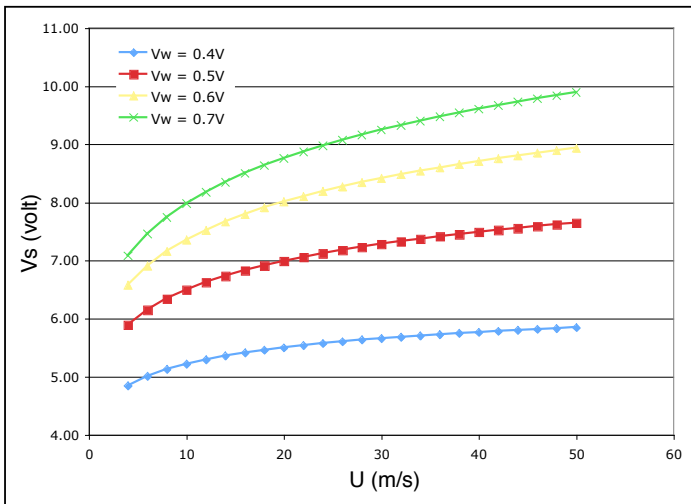
Principle of Operation

CVA holds the voltage across the probe constant while the velocity and temperature fluctuations in the flow result in a change of the hot-wire resistance. This change of resistance produces a current change in the wire, which is converted to an output voltage signal. The thermal inertia of the wire is compensated in the CVA circuit, thus enabling measurements up to a maximum of 470 kHz.



Multichannel Systems

A multichannel box with several CVA boards can be configured for measurements of several velocity and temperature fluctuations with multi-array probes. The multichannel CVA system is available upon request.



Typical calibration curves for CVA with wire probe

Specifications

Maximum probe current	200 mA
Maximum probe voltage, V_w	2 V
Range of output voltage, V_s	0-20 V
Frequency response	DC - 470 kHz
Equivalent input noise	2.6 nV/ $\sqrt{\text{Hz}}$
Operating resistance	2-20 Ω
Probe cable	0-100 m
Probe connection	BNC connector
Output impedance	100 Ω
Output connection	BNC connector
Power supply	110V/220V
Dimensions	180 x 255 x 90 mm
Weight	1.8 kg

Tao Systems continuously updates its products to attain the highest performance and reliability. As a result, the specifications in this document are subject to change without notice.