



Description

The 4CTA measurement system is a 4-channel hotwire anemometer. Up to 4 hotwire probes can be operated simultaneously. Due to the extreme short response time, the system is particularly suitable for measurements of instationary flow processes.

The system is shipped with calibrated and balanced hotwire probes and is ready to use out of the box. The integrated USB data acquisition reads the sensor signals and sends them to a connected PC, where the raw data is instantly converted to the appropriate velocities. Furthermore additional sensors like microphones or acceleration sensors can be connected. The integrated 5 kHz lowpass filter avoids alias-effects. Through the implemented barometer and the front connectable temperature sensor a determination of the air density is possible.

By high pass filtering of the velocity fluctuation signals the flow can be made audible in real-time, giving an intuitive impression of the flow conditions. Since the ear is the best frequency analyser, the systems represents one of the most efficient methods to analyse aeroacoustic problems.

Technical data

Measurement system

Velocity range	0,1 - 50 m/s (optional, up to 200 m/s)
Frequency solution	0 - 20 kHz (Bypass, standard lowpass 5 kHz)
Headphones	Uncoupling, fluctuation of signals channels can be chosen separately

Resolution

Velocity 0 - 20m/s	0,1 m/s + 0,5 % f.M. (typ.)
Velocity 20 - 50m/s	1 % f.M. (typ.)

Power supply

AC	110...264 V AC, 47-63 Hz, 100 W
Connector	IEC socket
DC	11...18 V DC, min 4 A, 40 W
Connector	Male connector Binder 712 2-pol.

Data acquisition card (Option 4CTA-DAQ)

National Instruments USB-6211/USB-6218 (16 bit, max 250 kHz)

Distribution signal inputs and outputs

Front panel

PT100 Temperatursensor	Female connector Binder series 712 2-pol.
4 hotwire bridges	Female connector Binder series 712 2-pol.

Audio Volume and Channel switch

Headphones	3,5 mm jack
2 Analog inputs	BNC

Rear panel

free analog- and digital output according to the customers' request. E.g.:

8 analog inputs	BNC (Example configuration)
2 analog outputs	BNC (Example configuration)
5 digital channels	D-Sub 9pol. (Example configuration)

for usage with adapted software

Surrounding conditions

Temperature	5 °C ... 40 °C
Humidity	non-condensing

Dimensions

Box	420 x 44 x 280 mm
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Options

4CTA-DAQ	Data acquisition card
4CTA-Supply	Supply and amplifier for eCTA/eCCA
4CTA-FS	Flowsound software
eCCT	Amplifier for temperature measurement
eCTA	Amplifier for acceleration measurement
HWP10/xx	Hotwire probes