



Description

The acoustic CTA is a full-fledged hotwire bridge to perform dynamic flow velocity measurements in air. The calibrated velocity range goes up to 50m/s. Higher velocities are possible. Due to the measurement principle, the aCTA is particularly suitable for low flow velocities. The device can be used for other gases as well, in which case a special calibration is needed.

The aCTA is "plug and play" ready to use with hotwire probes of the type HWP10/xx. No presets or adjustments have to be made.

As output signal the device provides a voltage of $\pm 10V$. Based on the calibration data and the fluid temperature it can be converted into the flow velocity. An integrated 5kHz lowpass filter prevents alias-effects when using digital data acquisitions. Alternatively there is an unfiltered output for measurements up to 20kHz.

Additionally the flow fluctuations can be made audible through the provided headphones. This provides an intuitive and easy to use method to gain information about the quality of the flow. Aerodynamic phenomena like turbulence, flow separation, shear layers, or periodic detached flow can be heard. This provides a powerful tool to detect areas that are likely to cause acoustic noise.

The headphones can be plugged directly into the 3,5mm phone jack.

The power supply has a wide input range from 9 to 18V DC. This makes it easy to use in automotive applications as well.

Technical data

Hotwire probes

HWP10/xx

Ambient conditions for hotwire probes

Fluid	Air, other non-corrosive gases possible
Temperature	-40°C ... 80°C
Humidity	non-condensing
No particles, no pollution	

Range

Velocity 0 - 20m/s	0,1m/s + 0,5%v.M. (typ.)
Velocity 20-50m/s	1%v.M. (typ.)
Frequency resolution	0 - 20kHz (Bypass, low pass filter 5kHz)

Electrical characteristics

Power-supply	9 - 18VDC, min. 0,5 A, 10W
Signal	$\pm 10V$ (Voltage < -2V: broken sensor)
Hotwire	max. 7V, max. 250mA
Headphones	min. 32Ohm

Ambient conditions

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

Connectors

Power supply / signal	Binder 711/712 4-pin
Signal	BNC
Hotwire	Binder 711 2-pin
Headphones	3,5mm phone jack

Dimensions

aCTA bridge	150 mm x 56 mm x 24 mm
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Ordering options

Single (aCTA bridge only)

Set: aCTA, power supply, headphones, 2 hotwire probes, case