

aCTA

Hot-wire Bridge

- Dynamic measurements of flow velocities
- Velocity range: 0.1 – 50 m/s in air,
higher velocities and other gases possible
- Measurement accuracy:
 $0.1 \text{ m/s} + 0.5\% \text{ FS}$ ($v < 20 \text{ m/s}$) / $1\% \text{ FS}$ ($20 \text{ m/s} \leq v < 50 \text{ m/s}$)
- Different hot-wire probes are available
- Immediate use
- Acoustic analysis via headphone



General Description

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

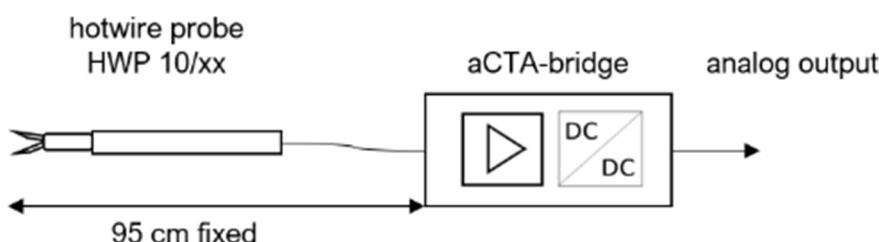
The *aCTA* is "plug and play" ready to use with hotwire probes of the type *HWP10/xx*. No presets or adjustments must be made.

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

Via AC-decoupling of the signal flow fluctuations can be made audible. A headphone can be directly connected to the 3.5 mm phone jack. This provides an intuitive method to gain information about interferences in acoustically striking flows.

The power supply is driven by a plug-in power supply or alternatively via a random DC voltage source with an input range from 9 to 18 V.

Components



Technical Specifications

Measurement system	
Velocity range	0.1 - 50 m/s, higher velocities possible
Frequency resolution	0...5 kHz with 3 dB lowpass, unfiltered up to about 10 kHz
Ambient conditions for hot-wire probes	
Fluid	Air, other non-corrosive gases are possible but must be calibrated separately no particles, no air pollution
Temperature	10... 50°C within factory calibration, -10...70°C possible
Humidity	Non-condensing
Measurement accuracy	
Velocity 0...20 m/s	0.1 m/s + 0.5% v.M.
Velocity 20...50 m/s	1% FS (typ.)
Electrical parameters	
Supply	9...18 V DC, min. 0.5 A, 10 W
Signal	±10 V
Headphone	min. 32 Ohm
Connections	
Supply / signal / enable	Binder 711/712, 4 pin
Signal	BNC
Hot-wire probe	Binder 711, 2 pin
Headphones	3.5 mm audio jack
Ambient conditions for electronics	
Temperature	5° C...40°C
Humidity	Non-condensing
Dimensions	
aCTA hot-wire bridge	150 mm x 56 mm x 24 mm

Ordering Options

aCTA	1x hot-wire bridge 1x power supply
aCTA-set	1x hot-wire bridge 1x power supply 1x headphone 2x hot-wire probes HWP10/xx at buyer's option Carrying case