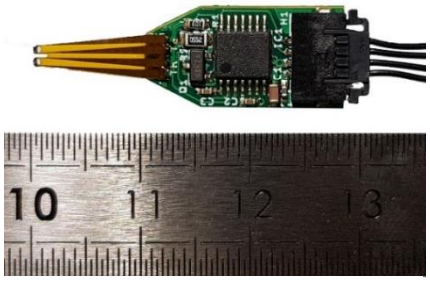
ANALOGUE ‘NANO-CTA’ THERMAL ANEMOMETRY SENSOR

This ultra-miniaturized, analogue thermal anemometer uses proprietary CMOS sensor technology to measure velocities in real-time at speeds down to 10 mm/s.



“nano-CTA” sensing element

- Ultralow velocity range: reliable measurement of speeds in air below 10 mm/s
- Robust, abrasion-resistant permanent sensing element
- Ultra-low calibration drift
- Analogue-balance temperature compensation system
- Surface array mountings available for high-resolution, nonintrusive measurement of wall velocities
- See our ‘nano-CTA array system’ for digital version with data acquisition unit with software and drivers supplied for plug-and-play USB operation

Specification

Velocity range[1]	10 mm/s – 100m/s		
Uncertainty	± 1 % relative		
Compensated temperature range[2]	0° to 70° C ambient for dry air		
Calibration drift	< 2 % over long periods of use or storage		
Storage temperature range	-40° to +85° C		
Maximum relative humidity	95 %		
Supply voltage V_{dd}	Min. 7 VDC	Typ. 15 VDC	Max. 36 VDC
Power	Min. 12mA at V_{dd} = 15 VDC		
Output analogue signal range	0 - V_{dd}		
Connector type	4-way Molex Pico-lock (Molex PN 15131-040x)		
Physical dimensions	Sensor package approx. 10 mm x 20 mm		

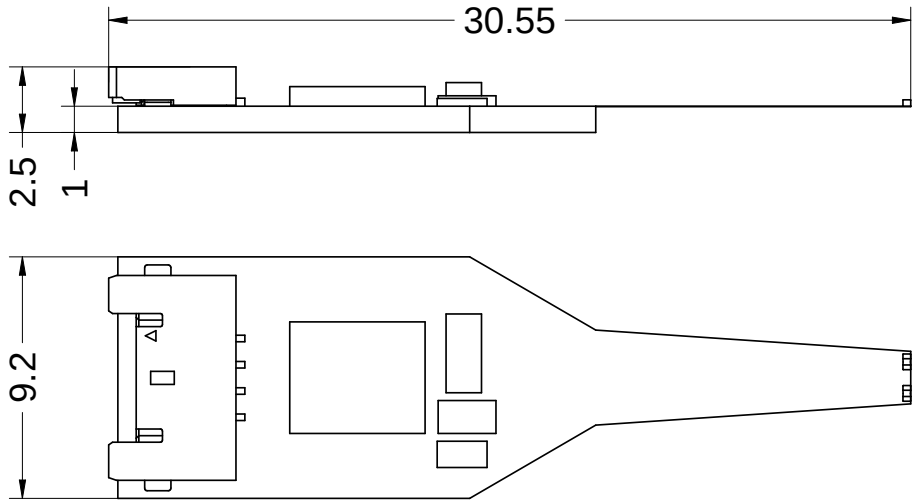
1- Custom extended range available
2- Using our analogue-balance temperature compensation system, available via LabVIEW DLL

Additional custom modifications available

- Custom enclosure design service available
- Range of prong diameters and lengths available
- Waterproof – Parylene-coated sensors available, allowing operation in conductive media, seawater and other corrosive or harsh environments
- Extended product support and warranty available

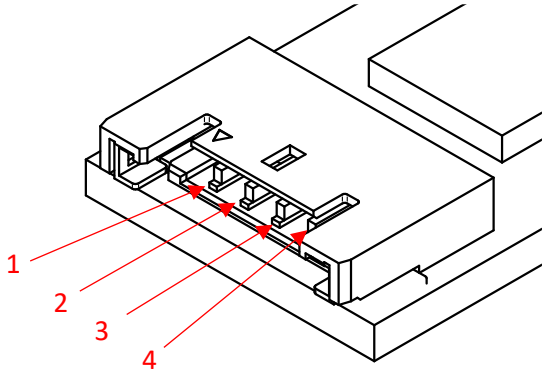
ANALOGUE ‘NANO-CTA’ THERMAL ANEMOMETRY SENSOR

Dimensions



Connector Terminal Description

There are four pins: V+ (1), GND (2), Vb (3) and Vc (4), where pin 1 is on the left with the board facing upwards.



1	**V+**	Supply Voltage. Recommended 15 VDC for typical application. Absolute maximum 36 VDC.
2	**GND**	Common ground, 0V.
3	**Vb**	Signal voltage (raw). The measurement variable of interest.
4	**Vc**	Compensation voltage (raw). Used for temperature corrections.

Note the connector terminal labels are written on the reverse side of the board.

The content of this datasheet is for general information only and is subject to change without notice. It may contain inaccuracies or errors and Surrey Sensors Ltd. expressly exclude liability for any such inaccuracies or errors to the fullest extent permitted by law. Your use of any information is entirely at your own risk, for which Surrey Sensors Ltd. shall not be liable.

© Surrey Sensors Ltd. (2020)

Temperature compensation

This sensing system includes an analogue temperature compensation system. A temperature-independent output variable X is obtained as

$$X = V_b V_c - V_c^2$$

where V_b and V_b are the analogue voltage outputs. The variable X (having units of volts^2) will be a function of fluid velocity only for a given fluid, and can be calibrated as required. Note that the calibration and the operating temperature range may vary with the fluid properties.

The content of this datasheet is for general information only and is subject to change without notice. It may contain inaccuracies or errors and Surrey Sensors Ltd. expressly exclude liability for any such inaccuracies or errors to the fullest extent permitted by law. Your use of any information is entirely at your own risk, for which Surrey Sensors Ltd. shall not be liable.

© Surrey Sensors Ltd. (2020)