ULTRA-MINIATURE COLD-WIRE THERMOMETER SYSTEM

This ultra-miniature analogue constant-current 'cold-wire' thermometry system is a fully self-contained, economical solution for high-bandwidth temperature measurements with low noise susceptibility and minimal flow blockage. This unit is compatible with market-leading hot-wire probes.

- World's smallest self-contained cold-wire anemometry system
- Plug-and-play operation
- Integrated analogue output gain
- Integrated fourth-order analogue output filter
- Simple linear transfer function
- Compatible with leading probe brands

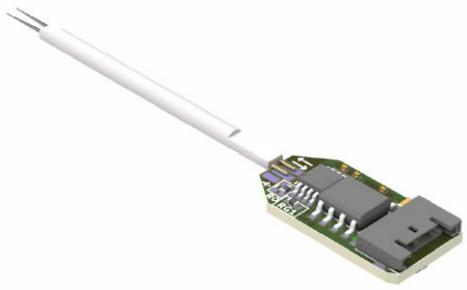

Image for illustrative purposes only.
Probe not included.

Specifications

Product code	MUCW-1A	
Measuring temperature range	min. -70°C non-condensing	max. 180°C
Frequency response[1]	0.59 kHz at 0 m/s	5 kHz at 100 m/s
Wire cold resistance range (fixed)	3.5 Ω nominal	
Power requirement	typ. 30 mW, max. 60 mW	
Wire operating current	100 μA	
Temperature stability	0.0025 μA/°C	
Supply voltage	5.0 Vdc, well-regulated	max. 5.5 Vdc
Output signal range	± 5 V	
System gain	typ. 31600	
Ambient operating temperature[2]	min. -40°C non-condensing	max. 85°C
Output signal conditioning	Fixed 4th order active Butterworth low-pass filter	
Connector type (cable)	4-way Molex Pico-lock (15131-040)	
Connector type (probe)[3]	Suitable for 1 mm pitch, 0.45 mm dia. x 2 mm long straight prong leads	
Dimensions	18 mm x 9 mm footprint (excluding probe)	

[1] Specifications shown are for use in air at sea level. Maximum possible 10 kHz at 500 m/s.
[2] Temperature limits of electronic components.
[3] Probe not included.

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Additional custom modifications available:

- Compatible probe recommendation and supply
- Insulated / IP68 enclosures for field use or use in non-conductive liquids
- Extension leads and sockets and / or compatible probe holders
- Extended product support and warranty

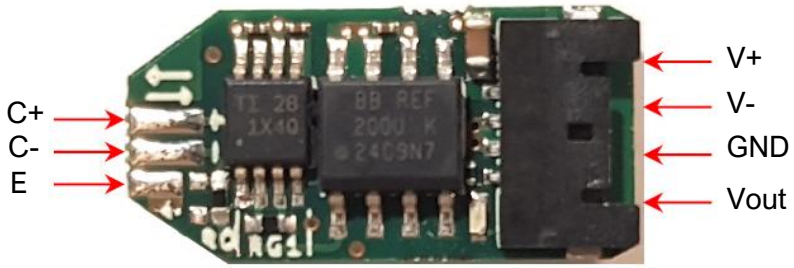
Transfer function:

The temperature T can be recovered from the output signal voltage V_{out} from the linear transfer function

$$T = (A \times V_{out}) + B$$

where A and B are the probe-specific calibration constants.

Connections:



Vout	Analogue voltage output, -5V to +5V
GND	Output signal ground
V-	Supply ground
V+	Supply voltage (regulated 5 Vdc)
C+	Constant current out to sensing element
C-	Constant current return from sensing element
E	Constant current ground. For two-wire sensing element connection, bridge C- to E