

Thermoanemometer

[@wikipedia](#)

A device measuring the difference between the incoming fluid flow temperature and the temperature of artificially heated fluid (see **Fig. 1**).

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Fig. 1. [Thermoanemometer](#) sensor schematic .

Mathematical Model

The temperature difference is related to thermal properties of fluid ($\{\lambda, a, \nu\}$) and flow velocity u :

$$(1) \quad \Delta T = \frac{q r}{\lambda} \frac{1}{\text{Nu}}$$

The calibration plot is usually set in $\left\{ \frac{1}{\Delta T}, \text{Nu} \right\}$ coordinates or in case of a small velocity range in $\left\{ \frac{1}{\Delta T}, u \right\}$ coordinates.

See also

[Physics](#) / [Mechanics](#) / [Continuum mechanics](#) / [Fluid Mechanics](#) / [Fluid Dynamics](#)

[Physics](#) / [Thermodynamics](#) / [Heat Transfer](#) / [Heat Transfer Coefficient \(HTC\)](#)

[[Thermal conductivity](#)][[Nusselt Number](#)]