



# DT-01

## Calorimetric Flow Sensor



## Features

- / Short reaction time
- / High temperature gradient
- / Negligible pressure drop
- / Nominal diameter independent
- / High-quality materials
- / No moving parts

## Description:

The calorimetric principle of measurement while monitoring flow is based on the premise that transmission of heat from a wall surface to a fluid improves as the velocity of flow increases and thus more energy passes to the flowing medium. In the tip of a sensor made of stainless steel, an unheated PT100 resistance records the medium's temperature, while a second one is heated electrically and exposed to the flow. The difference in temperature of both these resistances is proportional to the speed of flow and, therefore, to the volume of flow. On reaching a value of approx. 150 cm/s so much of heat is released to the fluid, that both the resistances indicate the same temperature which determines the upper limit of the operating range.

The DT-01 is a compact flow sensor and, as a standard, it consists of a stainless steel sensor and plastic housing with a 9-digit trend, 2-coloured status indicator and a setpoint adjustable through a potentiometer with PNP or NPN output. If required, the device can be supplied with an additional temperature setpoint.

## Application:

The DT-01 series of devices is intended for cost-effectively monitoring the flow of water-like media. Due to their low resistance to flow and their insensitivity to soiling by solid particles, they provide an excellent alternative to the vane method. Thanks to their design the sensors are suited for use in any type of tube diameters. However, it must be ensured that a certain minimum speed of flow is present at the tip of the sensor. Calorimetric flow sensors are widely used in steel and metal-processing industries including the chemical and beverage industries. Some of the typical applications are, for example, monitoring coolants in automated welding machines, plasma pumps or cooling aggregates, as protection against pump dry running and monitoring water flow in sprinkler systems.



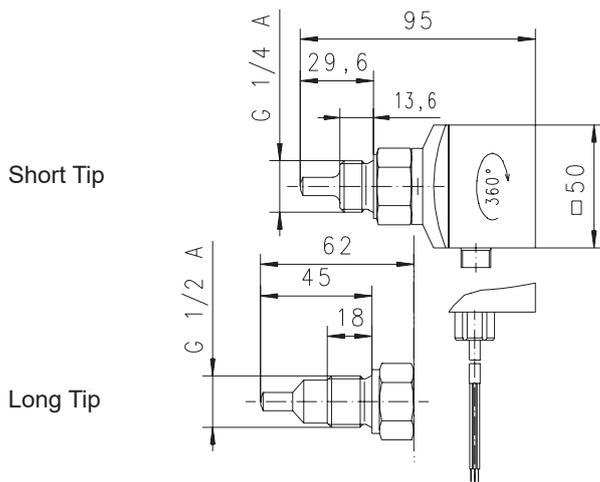
## Technical Specifications:

<b>max. Pressure /</b>	100 bar, optional 200 bar
<b>Media temperature /</b>	0...+70°C
<b>Temperature gradient /</b>	4 K/s max.
<b>Housing /</b>	PA6.6, brass Ni plated
<b>Sensor /</b>	stainless steel 1.4571
<b>Process connection /</b>	G1/4"-male, G1/2"-male
<b>Op. range (water) /</b>	2...150 cm/s or 3...300 cm/s optimal at 20...50 cm/s

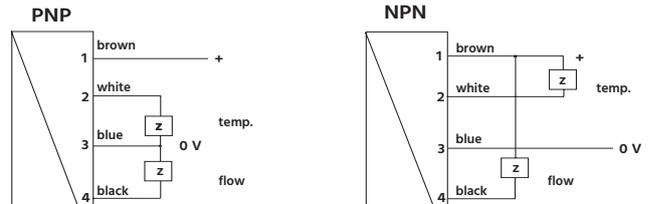
## Electrical Specifications:

<b>Supply voltage /</b>	24 VDC ±10%
<b>Power /</b>	100 mA no load
<b>El. connection /</b>	plug M12x1, 4-pole
<b>Protection class /</b>	IP60 with plastic housing IP67 with metal housing
<b>Types of el. protection /</b>	polarity-reversal-proof, short-circuit-proof
<b>Display /</b>	9-digit LED
<b>Potentiometer /</b>	single-lead
<b>Output /</b>	PNP, NPN, 100 mA max., relays on req.
<b>Conformity /</b>	CE

## Dimensions in mm:



## Electrical Connection:



## Ordering Codes:

<b>Order number</b>	<b>DT-01.</b>	<b>1.</b>	<b>1.</b>	<b>2.</b>	<b>1.</b>	<b>1.</b>	<b>1.</b>	<b>0</b>
<b>DT-01 Calorimetric Flow Sensor</b>								
<b>Configuration /</b>	1 = standard 2 = with additional temperature setpoint							
<b>Electrical connection /</b>	1 = plug connection M12x1, 4-pole							
<b>Process connection /</b>	1 = G1/4" male thread 2 = G1/2" male thread							
<b>Sensor /</b>	1 = short sensor 2 = long sensor (not G1/4")							
<b>Output /</b>	1 = PNP 2 = NPN							
<b>Housing /</b>	1 = plastic housing IP60 2 = Metal housing IP67 with transparent disc 3 = Metal housing IP67 with all-metal cover							
<b>Option /</b>	0 = none 1 = counter plug M12x1, 4-pole							