



## FUEL CONSUMPTION MEASUREMENT

# FUEL TEMPERATURE CONTROL

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### Main Item Description

Applications which require the engine to be tested over a longer period at a constant preselectable fuel temperature (e.g. certification) call for optimum fuel conditioning.

The AVL Fuel Temperature Control with its high accurate and stable temperature regulation is an unchallenged market leader in the field of fuel conditioning systems.

As a controlled cooling system it allows the user to set the fuel temperature anywhere within the range of 10 ... 80 °C. The achievable fuel temperature, however, depends on the cooling water temperature or the amount of heat retained in the engine return fuel.

The high precise temperature control gives a constant pre-set fuel temperature at the engine and guarantees the high measurement accuracy of the whole test system.

Continuous fuel vapour bubble separation ensures that the fuel supply to the engine is free of bubbles. The integrated bubble monitor outputs a warning when gas bubbles occur in the measurement system.

It is designed to work together with the AVL Fuel Balance 730/733/733S/734 and the Fuel Mass Flow Meter 735/735S.

Any existing fuel measuring device can be retrofitted to improve the accuracy of the whole measuring system.

With the FlexFuel option, up to 100% alcohol and biodiesel can be conditioned.



## Function Summary

The following functions are available:

- Selection of nominal fuel temperature – analogue or via RS232
- Indication of actual fuel temperature – analogue or via RS232
- Fast and efficient fuel change
- Indication of error and status report
- Easy parametrizing
- Gas bubble separation and monitoring
- Monitoring of cooling water supply

## Application

Engine- and Chassis Dyno Test Beds especially for gasoline and diesel engines – transient and steady – state measurement.

## Benefits

- Precise fuel temperature regulation
- Fast and simple engine homologation
- Extremely high thermal stability of 0.02 °C
- Gas bubble detector and separator included
- Guarantees high accuracy of the whole measuring system under typical test bed conditions
- Allows the user to set the fuel temperature anywhere in the range of 10 ... 80 °C (special version down to -30 °C)



## Technical Insight

With its high-precision and very stable temperature control the AVL Fuel Temperature Control is the most suitable system in the field of fuel conditioning.

The fuel can be temperature-controlled by preselection within the range of 10 ... 80 °C. The achievable fuel temperature, however, depends on the cooling water temperature or the amount of heat retained in the engine return fuel.

The high-precision temperature control enables constant pre-selectable fuel temperatures at the engine and thus ensures the high measuring accuracy of the whole measuring system.

Continuous gas bubble separation ensures that the fuel supply to the engine is free of bubbles. The integrated gas bubble monitor detects and gives a warning when gas bubbles occur in the measurement system.

The engine feed pressure can be controlled up to 6 bar (rel.) (pressure control on request). Built-in service interval displays enable preventive maintenance which helps to reduce and plan downtimes.

## Technical Data

Ambient temperature:	5 ... 50 °C
Fuels:	Otto (EN228), Diesel (EN590), up to 6% Biodiesel (EN14214) and 20% alcohol With FlexFuel option: up to 100% alcohol and biodiesel
Fuel circulation capacity at 50 Hz:	Standard 240 l/h, optional 450 l/h
Pressure control (option):	feed pressure: ~0 ... 6 bar (rel.) turn pressure: ~0 ... 0.5 bar (rel.) special ranges available on request
Temperature control range:	adjustable from appr. 10 °C* ... 80 °C** * depending on cooling water temperature ** depending on heat return flow of the engine and fuel properties – gas bubble formation has to be avoided
Temperature stability:	better than 0.02 °C
Heating power (option):	1.6 kW
Special temperature ranges (option):	-8 °C ... 70 °C -30 °C ... 80 °C
Cooling power:	1.6 kW at 10 °C spread and 0.5 bar cooling water differential pressure
Interfaces:	2x RS232 (AK compliant) Analog 0 ... 10 V (optional) Digital I/O (optional)
Power supply:	230 V, 50 Hz 220 V, 60 Hz (option) 100 V, 50-60 Hz (option) 115 V, 60 Hz (option)
Power consumption:	0.4 kW
Power consumption with heating option:	2.25 kW
Dimensions:	770 x 910 x 345 mm (W x H x D)
Weight (dry):	90 kg (95 kg with heating option)



## Compatibility

The AVL Fuel Temperature Control can be combined with the following systems:

- AVL Fuel Mass Flow Meter
- AVL Fuel Balance
- AVL Continuous Fuel Balance
- AVL Engine Feed Pressure Control PR1
- AVL Engine Feed and Return Pressure Control PR3PR1
- AVL Return Pressure Control PR3

## Scope of Supply

Each consisting of:

- 1x AVL Fuel Temperature Control
- 1x Set connecting cables 15m
- 1x Set operating manual
- 1x PC Software

Note: Cable for power supply is not included in scope of supply

## Options/Extensions

- Option FlexFuel
- Instrument Controller
- Trolley
- System flow rate 450 l/h
- Engine feed and return pressure controls
- Fuel filter coarse
- Connection sets to Fuel Balance and Fuel Mass Flow Meter