# Inlet Air Temperature (IAT) Sensor

## General

IAT sensors sense the air temperature on the inlet side of the engine. The voltage signal, produced by the sensor, is passed to the ECU. The ECU evaluates the signal and influences the fuel injection timing and ignition timing.

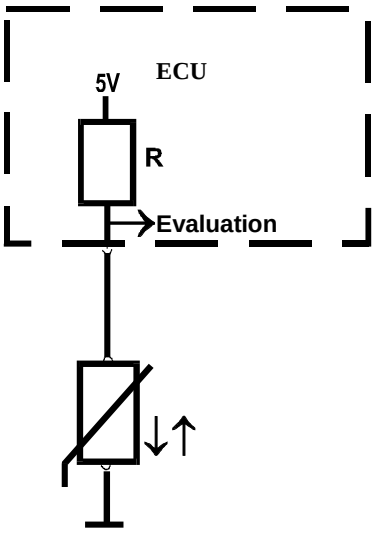
## Function

Depending on the inlet temperature the resistor of the IAT changes. If the temperature rises up the sensor is reduces the voltage of the sensor. The ECU assesses the voltage value because it is in direct relation to the inlet air temperature. That means low temperature high voltage, high temperature low voltage.

## Effects of failure

A faulty IAT can be noticed through:

- engine warning light illumination
- hard starting
- less engine power
- higher fuel consumption
- fault code present




Causes of failure

- mechanical damage
- wire short circuit/open circuit
- internal short circuit
- sensor tip soiled

## Diagnostics

For fault recognition consider the following system tests:
read out fault codes
electrical leads checked for correct fitting and contact

Use a Multimeter to check.

**1.**
Find out the internal resistance. It is dependent on the temperature, cold engine high ohm, hot engine low ohm.
According to the manufacturer:

25°C
2,0 – 5,0Kohm
80°C
300 – 700ohm

Note the set point specification.

Internal resistance check

**2.**
Wiring harness to the ECU plug, check for continuity and short circuit to earth.

- Measurement with a ohmmeter between sensor plug and removed ECU plug, measured value:
  < 1 Ohm (circuit diagram needed for pin definition)
- Respective pin from the sensor plug checked for short circuit to earth, ECU plug removed, measured value:
  >30 MOhm

Resistance of the sensor plug to ECU

**3.**
Measurement with a voltmeter on the sensor plug, checking the supply voltage. ECU plug fitted, ignition on, measured value approximately 5 V.
If the voltage is not enough check the operation voltage and the ground of the ECU(circuit diagram needed).

Voltage check