



# Air mass sensor with frequency output

## Testing and test values

Vehicles: Citroën, Ford, Peugeot	Product: Air mass sensor		
Models with 1.6 l diesel engine	Pierburg no.	Replacement for	Ref. no.*
Citroën Berlingo, C2, C3, C4, C5, Jumpy, Xsara Picasso (HDi) Ford Fiesta, Focus, Fusion (TDCi) Peugeot Expert, Partner, 1007, 206, 207, 307, 308, 407 (HDi)	7.28342.06.0	7.28342.04.0	9650010780; 1232096; 1255117 3M5A12B579BA; 3M5A12B579BB; Y60113215; 1920GV; 30774680



### Potential complaints:

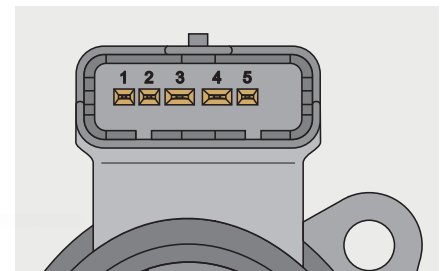
- Black smoke
- Lack of power
- Limp home function
- Diagnostic trouble code  
P0100 to P0104



These complaints can indicate a defective air mass sensor.

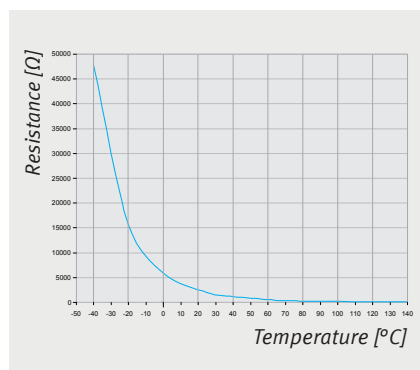
With this air mass sensor, the measured air mass flow rate is output as a frequency modulated rectangular signal. Therefore, an oscilloscope or a multimeter with frequency measuring range is required for testing.

An integrated temperature sensor records the intake air temperature. It can be measured as an electrical resistance with a standard ohmmeter or multimeter.

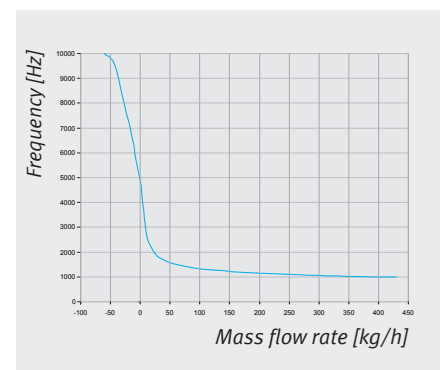


### Pin assignment

- 1 Temperature resistance
- 2 Earth
- 3 (not assigned)
- 4 Supply voltage (12 V)
- 5 Frequency output



Temperature sensor characteristic curve



Mass flow sensor characteristic curve



### Testing the supply voltage

**Equipment:**

Oscilloscope or corresponding function on an engine tester or multimeter

- Disconnect the plug from the air mass sensor.
- Connect multimeter or oscilloscope to pin 4 and pin 2 of the connecting cable ("Volt" measuring range).
- Turn on the ignition.  
Set-point value: on-board voltage (> 11 V)

### Testing the temperature sensor

**Equipment:**

Multimeter or engine tester, thermometer, suitable equipment for generating heat, e.g. hot air gun

- Use an engine tester to test the actual intake air temperature values stored in the engine control unit.  
Set-point value: ambient air temperature

**Alternatively:**

- Disconnect the plug from the air mass sensor.
- Connect the multimeter to pin 1 and earth (2) on air mass sensor ("Resistance" measuring range).
- Use a hot air gun and the thermometer to set various testing points.

**Example:**

°C	0	25	40	60	120
Ω	5846	2000	1128	546	103

### Testing the air mass flow rate

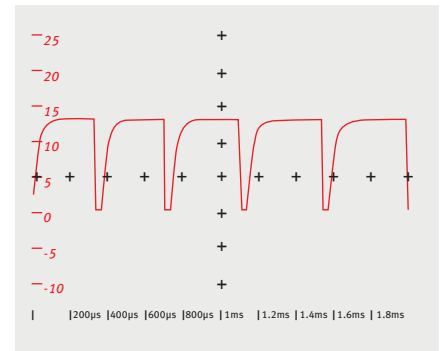
**Equipment:**

Oscilloscope or corresponding function on an engine tester

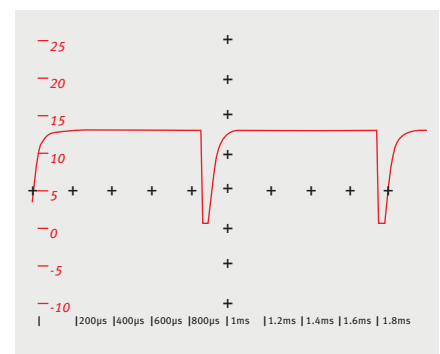
- Air mass sensor can remain installed.  
Plug must remain connected.

As no method is available in the repair shop for determining the actual air mass passing through as a reference, the measured value with the engine stopped, i.e. air mass = 0, is used as a reference variable.

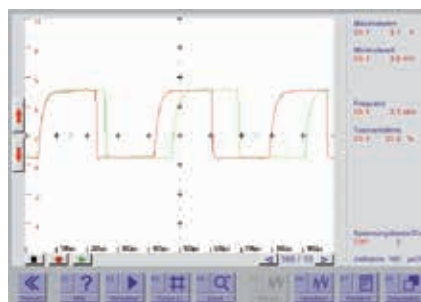
- Turn on the ignition. Do not start the engine.
- Measure the frequency between pin 2 and pin 5.  
Set-point value: 5000 ±10 Hz
- The signal voltage of the sensor must be around 12 V. In the oscilloscope image, this is the highest value of the rectangular signal.
- Start the engine.
- Press the accelerator pedal.
- The frequency must now fall, i.e. the curve in the oscilloscope is extended further.



Signal when idle (depending on idle speed)



Signal when accelerator pedal pressed



Green: displayed reference signal

On some engine testers that have an integrated oscilloscope, it is possible to display a reference signal. The reference signal shows the voltage curve when idle. The two curves must be approximately congruent when idle.