

2 | On-Board-Diagnosis

2.2

Requirements of OBD systems

OBD systems must perform the following functions:

Monitoring

of all exhaust gas relevant components and functions in the drive train of vehicle.

Detection

of deviations and errors.

Recording

of errors and state information.

Displaying

of errors.

Output

of fault codes and state information.

The goals of OBD systems are

- continuous monitoring of all exhaust gas relevant components and systems
- immediate detection and reporting of essential errors that produce increased emissions
- permanently low exhaust gas emissions of all vehicles over the entire product life

The following are monitored

- the current flow to earth connection, plus connection and interruption.
- the input and output signals of sensors and actuators.
- the plausibility of signals.

Depending on the OBD standard

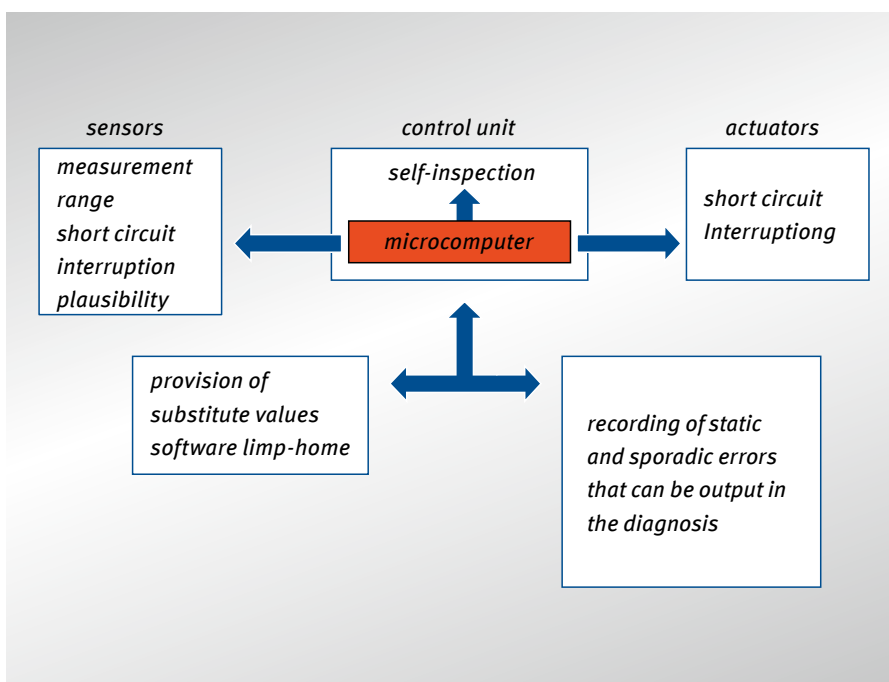
- a simple function test (open/closed – yes/no – on/off) or
- a qualitative function check will be made. Here values (results of the function) are measured and compared to set-point values.



Important note:

Legislation does not specify the methods for monitoring a module or component. This can be done in different ways depending on the manufacturer. What is important is that the module or component be monitored.

Responses to errors, and thus the effects, differ according to system and applicable OBD standard.



What is relevant is the possible consequences of the errors that occur:

- deviations from the set-point
- errors that increase pollutants considerably
- errors that can cause damage to the engine or the catalytic converter

The range extends from an insignificant correction to the use of replacement values, to switching on the malfunction indicator lamp (MIL), to reduced performance, to the “limp home” function.

Fig. 1: self diagnosis of electronic systems (On-Board-Diagnosis)