

FUB-FUB-END0204_FBDDE6DGKW FUB-FUB-END0204_FBDDE6DGKW - Speed sensor, crankshaft - V.2, VIN: KZ07432

ISTA system version	4.07.31.21115	Data version	R4.07.31	Programming data	-
VIN	KZ07432	Vehicle	3'/E91/Sports Wagon/320d/M47/AUTO/ECE/LL/2006/02		
Int.lev.works	-	Int.lev.(cur.)	-	Int.lev.(tar.)	-
Mileage	-				

The engine speed sensor is located in the rear end cover of the crankcase. The DDE control unit supplies the sensor with ground (M_KWG) and a supply voltage of 5 V (U_KWG).

Function

On the crankshaft there is a sensor wheel which has 58 small permanent magnets around its perimeter. As the crankshaft rotates, those magnets move past the engine speed sensor, thereby producing the speed sensor signal. In the point of the sensor, there are four resistors connected in a bridge circuit. When the permanent magnets move past the sensor, the direction of the magnetic field acting on the resistors. That change of direction generates a sine-wave fluctuation in resistor impedance.

The sensor has an integral evaluation circuit which converts the impedance fluctuation into a square-wave voltage signal. The DDE control unit analyses that voltage signal in order to calculate the engine speed.

The rpm sensor signal is used as a measurement variable for:

- Calculating the current engine speed
- Exhaust-gas recirculation
- Checking start conditions
- Calculating start volume
- Start of injection control
- Checking the deactivation conditions for the air conditioning
- Checking the deactivation conditions for cruise control
- Gear recognition
- Calculating limitation volume
- Calculating the power reserves for activation of the electrical auxiliary heater
- Calculating external delivery rate intervention
- Glowplug control
- Charge-air-pressure control
- Injection volume control
- Rail pressure control
- Idle speed control
- Smooth running control

Troubleshooting

The following faults are monitored:

- 3E90, No crankshaft speed sensor signal
- 3E91, Crankshaft speed sensor signal incorrect
- 3E90, Temporary loss of crankshaft speed sensor signal
- 3E91, Crankshaft speed sensor signal temporarily incorrect
- In addition, the speed difference between the camshaft and crankshaft is monitored.

Consequence:

- Engine shuts down