



## OZS operation

1. Housing
2. Outer metal tube
3. Inner metal tube
4. Engine oil (maximum)
5. Engine oil (average)
6. Engine oil (minimum)
7. Oil pan
8. Oil temperature sensor
9. Sensor electronics
10. Sensor connector

OZS consists of two cylindrical capacitors arranged one above the other. Oil condition is determined by the lower, smaller capacitor. Two metal tubes (1, 2), arranged one inside the other, serve as capacitor electrodes. The dielectric is the engine oil between the electrodes. The electrical property of engine oil changes with age and break-down of oil additives, changing the OZS capacitance. This change is processed in the sensor electronics (9) and converted to a digital signal. The digital sensor signal is transferred to the ECM, which uses it to calculate the next oil change service due.

Engine oil level is determined in the upper part of the OZS. As oil level drops, sensor capacitance changes accordingly. This change is processed in the sensor electronics (9) and converted to a digital signal. The digital sensor signal is transferred to the ECM and displayed to the driver.

A platinum temperature sensor (8) is installed at the base of the oil condition sensor.

Engine oil level, temperature and condition are monitored continuously as long as voltage is applied at terminal 15 (ignition ON). OZS is powered via terminal 87.

## OZS fault evaluation

OZS electronic circuitry features a self-diagnosis function. In case of a fault in the sensor, an error message is sent to the ECM. The fault can be viewed using a BMW scan tool or equivalent.