



Operating Manual

Water in fuel sensor 12 – 24 V

Summary:

Operating Manual for water in fuel sensor

Item numbers: 06 1381
 06 3416
 06 1241
 06 1273
 06 1209
 06 1310

Electronics used: HW-Version 0.1R13
 SW-Version 2.9
 (SW-Version 2.9OM only for 06 1310)



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1 Safety instructions

The plus output and the minus output must not be connected directly to the operating voltage. Connecting one output or both outputs to the operating voltage (+12 VDC to +24 VDC or vehicle ground) will destroy the water sensor.

2 Intended use

The water sensor is designed for the use in fuel filters of the company Lösing Filterproduktion GmbH for the detection of water in fuel. The use in explosive areas is not allowed. Any other use than water detection is not intended.

All work on the water sensor must be carried out in a de-energized state.

3 Technical data

This operating Manual describes the device in the following configuration:

Hardware-version:

Software-version:

3.1 Electrical data

Operating voltage:	12 VDC bis 24 VDC
Maximum operating voltage:	34 VDC
Operating temperature:	-40°C ... 85°C
Storage temperatur:	-40°C ... 85°C
Output impedance @ logic 0:	approx. 100 Ohm
Output impedance @ logic 1:	approx. 2.300 Ohm
Operating current :	approx. 15 mA without external connection (no indication bulb connected)

4 Connection

The sensor has four connections:

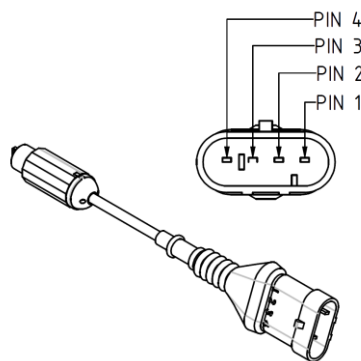
U+:	Operating voltage 12 VDC to 24 VDC
U-:	Vehicle ground
Output terminal plus :	0 Volt when monitoring fuel, Operating voltage when monitoring water On this terminal an LED can be directly connected (Anode to „output terminal plus“, cathode to ground).
Output terminal minus:	Operating voltage when monitoring fuel, 0 Volt when monitoring water On this terminal an LED can be directly connected (Anode to „output terminal minus“, cathode to ground).

The water in fuel sensor is protected against reversed polarity. An operation of the water in fuel sensor being connected with reversed polarity is not possible.

The water in fuel sensor is available in an aluminum housing without connectors, supplied with shielded cable under item number 06 1273. With a four pin AMP Superseal plug it is available under the item numbers 06 1381, 06 1241, 06 3416 and 06 1310.

4.1 Connector pinout and cable colours

Connection	06 1273 shielded, round cable without plug	06 1381, 06 1241 and 06 1310 AMP-plug	06 3416 AMP-plug
U+	blue	Pin 2	Pin 1
U-	black	Pin 1	Pin 2
Output terminal plus	brown	Pin 4	Pin 4
Output terminal minus	white	Pin 3	Pin 3





5 Assembly

The water sensor with the PG7 thread can be screwed into almost all filters made by Lösing Filterproduktion GmbH. The filter bowls have a suitable threaded hole for this. The sealing will be effected with the attached O-ring. The thread of the water sensor should be coated with a suitable, alcohol-free and removable screw locking agent (e.g. Delo ML 5298) to prevent it from falling out. The sensor prepared in this way is screwed into the filter bowl hand-tight.

The thread of the water sensor in the aluminum housing (Art. No. 06 1273: M18 x 1.5) is also coated with a suitable, alcohol-free and removable screw locking agent (e.g. Delo ML 5298) to prevent it from falling out. A suitable Usit ring is used here for sealing.

6 Function

After switching on the operating voltage, the output terminals show no water, regardless of the media, whereas the monitoring tip is exposed to (output terminal plus carries approx. 0 volts, output terminal minus carries approx. operating voltage). About 1 second later the measuring process starts. The water sensor carries out the required measurements by the two surfaces on the tip exposed to the surrounding media.

Once the evaluation is complete, the result will be passed via the "Output terminal plus" and "Output terminal minus". The display of the result is delayed in all cases to avoid flickering in the case of a rocking motion of the media.

Normal operation: The sensor is surrounded by fuel. Approx. 0 volts (over 100 ohms internal resistance) are present at the "Output terminal plus" and operating voltage (over 2,300 ohms internal resistance) is present at the "Output terminal minus".

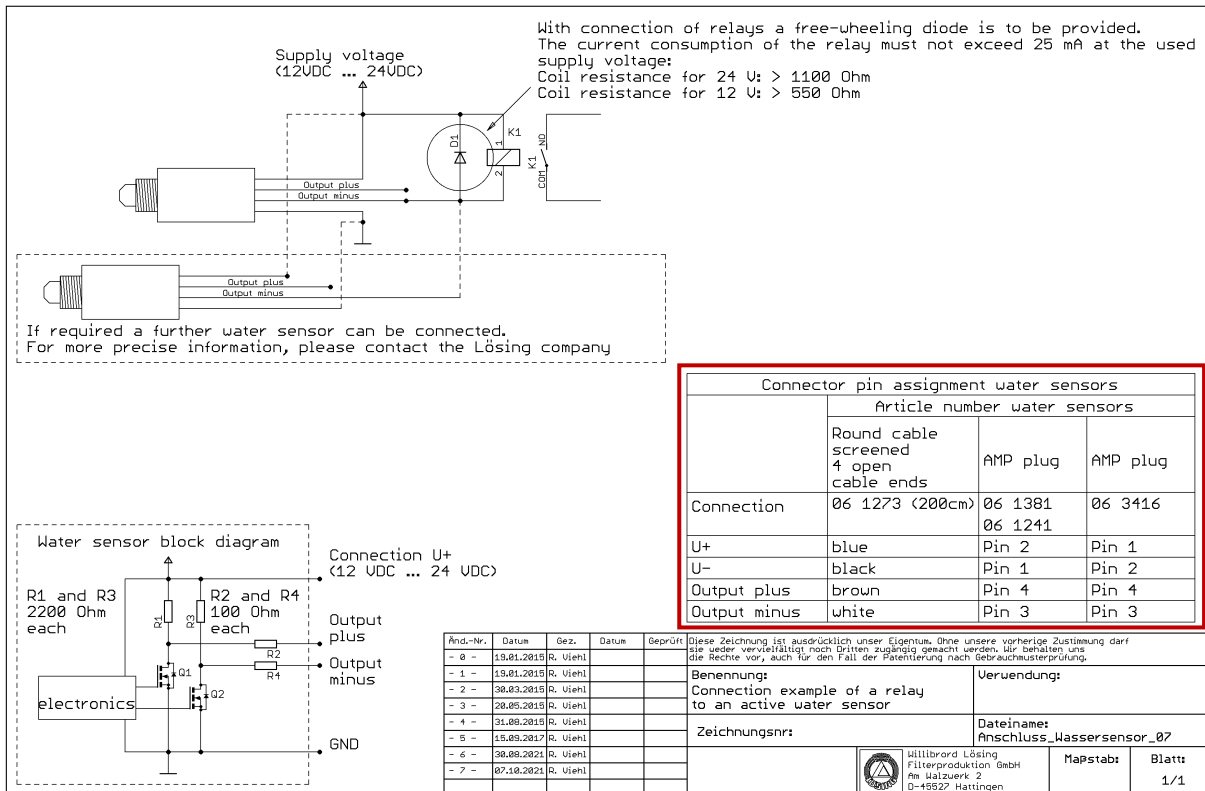
Water in fuel: The sensor is surrounded by water. Operating voltage (over 2,300 Ohm internal resistance) is present at the "Output terminal plus" and approx. 0 Volt (over 100 Ohm internal resistance) is present at the "Output terminal minus". The polarity of the outputs is reversed compared to normal operation. This message remains until the operating voltage is switched off, even if the sensor is no longer surrounded by water (Exception: 06 1310 automatically resets the message).

Sensor malfunctions: The output terminals change their polarity approx. four times per second (flashing mode). After fixing the malfunctions the output terminals show the results of the monitored media.

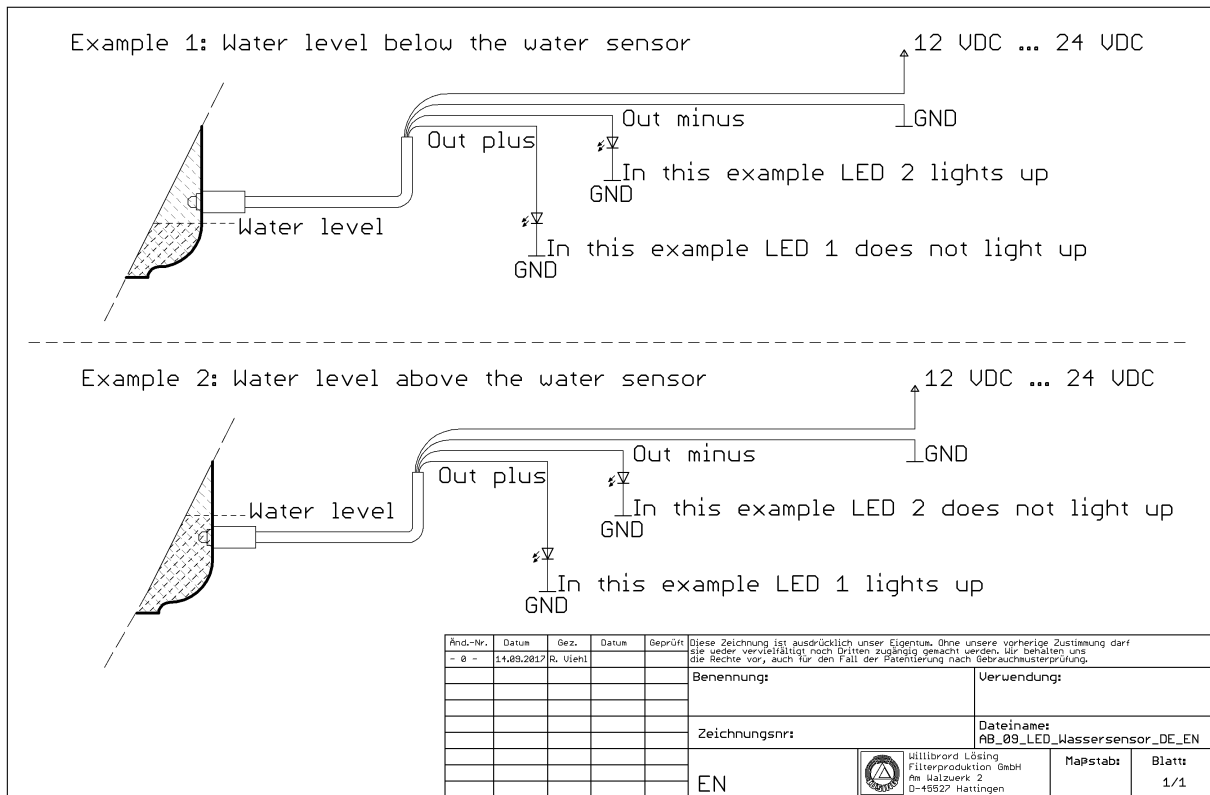
6.1 Anschluss- und Funktionsbeispiele

6.1.1 Terminal assignment and block diagram

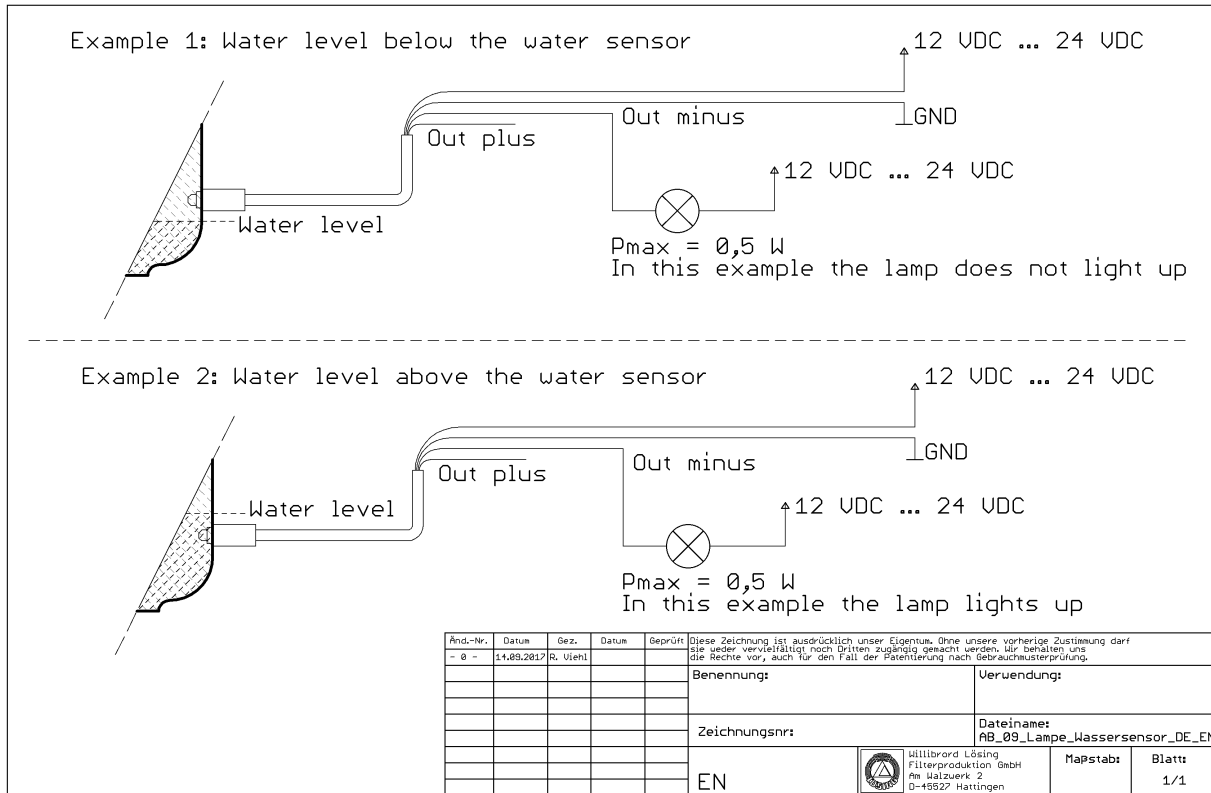
The pin assignment of the different water sensors can be taken from the following block diagram (red frame).



6.1.2 Connection of LEDs



6.1.3 Connection of bulbs (max. 0,5 Watt)



7 Application recommendations

The water sensor may not be used with damaged monitoring tip. For easier identification of damages the monitoring tip is painted with green lacquer. Scratches or lacquer free areas might indicate defects of the water in fuel sensor and make a sensor replacement necessary.

7.1 Maintenance

The water sensor itself is wear and maintenance-free. However, care must be taken to ensure that the sensor surfaces do not show contamination with dirt or damage for unambiguous measurement results.

7.2 Cleaning

The water sensor can be cleaned with a soft cloth. To remove sticky contaminates an alcohol free commercial household detergent can be applied the cleaning cloth. The household detergent must then be removed completely. The water sensor may only be used after it is completely dry, as described in chapter 5 Assembly.

The use of harsh cleaning detergents or sharp and pointed tools can cause damage to the sensor surfaces and must therefore be avoided



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