

General Description and Technical Data of BEDIA Level Monitoring Probes

BEDIA Level Monitoring Probe

BEDIA probes are designed to monitor the level of water, oil and other liquids with similar thermal conductivities. They are used in engines, commercial vehicles, boats, generators, compressors etc. to monitor the coolant, oil and fuel levels. In boats they are also used to monitor the supply and sewage tanks as well as bilge water.

BEDIA probes are very reliable and are easy to use in automatic filling systems, e. g. motor oil supply and fuel tanks etc.

The BEDIA probes offer the benefit of sensing critical operating conditions at a much earlier stage than the pressure-operated switches or thermal detectors used today for monitoring engines. Thermal detectors often respond too late because the medium being monitored is no longer present and the temperature rise is not transmitted to the sensor. Pressure-operated switches will indicate only when there is hardly any oil left, i. e. too late for the engine.

The BEDIA Level Monitoring Probe, however, will respond before the oil level is low enough to damage the engine.

A distinct advantage of the BEDIA level monitoring probes over floatswitches is their compact design and high resistance vibration. As they do not contain any moving parts, their performance cannot be impaired by dirt or metal particles in suspension in the fluid. The BEDIA probes also do not pass current through the medium. The sensor, being isolated, eliminates the possibility of electrolysis in the system.

Technical description

The BEDIA level monitoring probes operate on the principle of electrical capacitance changes arising when an electrode surrounded by air is immersed in liquid. This capacitance change causes an electric circuit to oscillate, switching the output transistor off. The use of latest state-of-the-art hybrid technology allows the sensor and the electronic circuitry to be enclosed in a single sealed unit.

The output signal will be completed as soon as the sensor emerges from the medium when minimum level is monitored, or as soon as it is immersed in the medium when maximum level is monitored. A load of 1 A (with 12 V = 12 W, with 24 V = 24 W) may be connected to this pole. To connect larger electrical loads, it is necessary to interconnect a relay. A free-wheeling diode is built into each probe to protect it from overvoltage as caused by inductive loads (see technical data). The output signal is delayed in order to prevent false indication when the liquid is temporarily above or below the set limit.

Integral control function

The BEDIA probes have an integral control function. When the The electrics are switched on, there is an output signal for 2 seconds, showing that the probe and circuit are working properly. If there is no output signal, the probe and circuit should be examined. This feature enables the probes to be checked remotely for correct operation and/or wire break-age.

In complex systems such as in boats, it is often difficult to physically check conventional probes, floatswitches and their wiring.

Technical Data of Minimum and Maximum Probes NOT approved by the relevant approval authorities		Technical Data of Minimum and Maximum Probes APPROVED by the relevant approval authorities	
Operating voltage	9 - 36 V DC	Operating voltage	24 V DC \pm 25 %
Power output	12 Watt at 12 Volt 24 Watt at 24 Volt output transistor	Power output:	max. 3 W lamp load at the output transistor, with minus potential switched on. A safety circuit such as a free-wheeling diode 1N4006 is required when an inductive load, e.g. a relay, is to be switched on
Short-circuit and overload protected throughout the entire temperature range. The minus switching probes should be connected to minus potential and the plus switching probes to plus potential.			
Sensing point	20 mm \pm 6 mm	Sensing point	20 mm \pm 6 mm
Closed-circuit current consumption	approx. 6 mA	Closed-circuit current consumption	approx. 10 mA
Voltage spikes	70 V dropping to U_n in 270 ns	Voltage spikes	70 V dropping to U_n in 270 ns
Medium temperature	water - 30°C to + 110°C oil - 30°C to + 125°C	Medium temperature	water - 30°C to + 100°C oil - 30°C to + 125°C
Ambient temperature	- 30°C to + 100°C	Ambient temperature	- 30°C to + 100°C
Storage temperature	- 50°C to + 125°C	Storage temperature	- 50°C to + 125°C
Response delay	see leaflet	Response delay	see leaflet
Integral control function	see leaflet	Integral control function	see leaflet
Shock resistance	50 g half-sine 11 ms	Shock resistance	50 g half-sine 11 ms
Pressure on sensor	up to 25 bar/367.5 PSI	Pressure on sensor	up to 25 bar/367.5 PSI
Environmental protection	IP 67	Environmental protection	IP67 tropicalized
Reverse polarity protection	in-built between plus and minus terminal	Mounting attitude	optional
Mounting attitude	optional	Connector	to VG 0095342
Housing	brass, CuZn 39 Pb 3 capacitively connected to frame	Housing	brass, CuZn 39 Pb 3 - potential-free, material no. 2.0401
Weight	approx. 125 g	Weight	approx. 175 g
CAUTION! Minus switching probes: Do not connect minus potential to the signal terminal or plus potential to the minus terminal, as otherwise the probes may be destroyed. Plus switching probes: Do not connect plus potential to the signal terminal or minus potential to the plus terminal, as otherwise the probes may be destroyed.		The housing of the probe is potential-free. The probe is adjusted so as to require that the potential of the liquid is applied to the housing. CAUTION! Reverse polarity protection is in-built between plus and minus terminal. Observe correct connection of plus and signal terminals.	