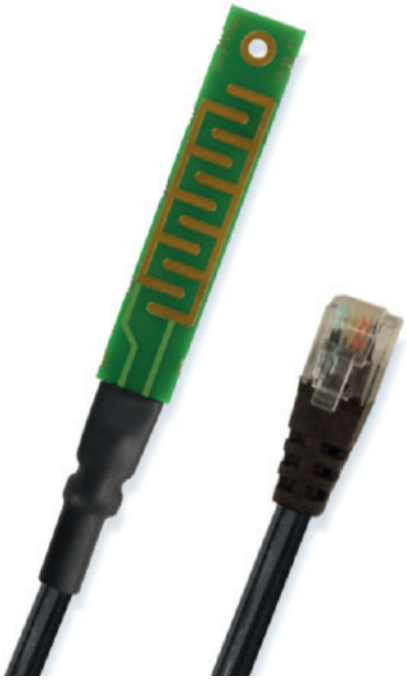
OPERATION MANUAL

Fill condition and conductance probe for sensor switching module

Description



Characteristic features

- Gold plated interdigital structure as sensor surface
- AC voltage signal evaluation
- Low AC test current

Areas of application

- Fill condition monitor
- Leakage probe
- Foam monitor
- Analysis of rain water
- Industrial applications
- Laboratory systems

Technical data

Conductance probe	
Measuring range	10...30 µS
Sensor element	Gold plated interdigital structure on a FR4 Epoxide substrate
General	
Probe dimensions	Approx. 12 x 90 mm
Probe material	PVC/Epoxide FR4
Cable material	PVC
Connection	RJ12-plug, 6-pole
Cable gland	M16
Cable length	1 m
Guarantee	24 months
CE-conformance	2014/30/EU
EMV-noise emission	EN 61000-6-3:2011
EMV-noise withstanding	EN 61000-6-1:2007
Scope of supply	Probe with documentation
Article	**Art.-No.**
Conductance probe	0636 0002

Application areas

The probe senses ion flow in conducting liquids. Electrolysis effects are prevented by gold plated surface and AC voltage evaluation, and hence, a reliable switching behaviour is also guaranteed in contaminated media. Typical application areas come up as a fill condition monitor in rainwater tanks, limit sensor for pumping plants or for monitoring of cooling water level in plants.

The conductance probe is suitable for connection to Universal sensor switching module 0557 0005, 0557 0005-01 and 0557 0005 02 which performs the evaluation and provides a switching output through a potential free relay.

Application notes

In order to achieve an optimum long-term stability, the sensor surface is gold plated and is partially lacquer coated. Occasionally, the surface should be cleaned with a wet cloth. This is all the more necessary, if the sensor is put in a contaminated medium.
Only the interdigital structure portion of the probe should be dipped in the medium. Long immersion up to the cable level is not allowed.
The sensor is not suitable for liquids which contain acids or alkalis. For special applications, the suitability of sensor should be checked before installation.

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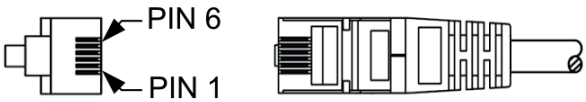
RJ12-plug connector

Pin 2 and Pin 4 are connected together inside the probe. The interdigital structure of conductance sensor is between Pin 2/4 to 3/5. Pin 1 and 6 are not occupied in case of measuring probe.
For Universal sensor-switching module, Pin 4 is connected to the AC signal (output) and Pin 2 is the input to measuring amplifiers. Pin 3 and 5 are AC like connected to ground through a capacitor.



View of contacts on the plug

Pin	Function	Description
1,6		Unoccupied
2	OUT	AC output
3	CAP	AC Ground
4	IN	Signal (Input)
5	CAP	AC Ground

Safety instructions

If the probe is used as fill condition monitor for bathtubs, then battery operation with safe voltage is prescribed according to the relevant safety regulations!
The applicable safety regulations should be followed! Connection and mounting operation should be carried out by only trained personnel after switching off the voltage supply.

Attention

Please avoid extreme mechanical and inappropriate exposure.

The device/product is not suitable for potential explosive areas and medical-technical applications.

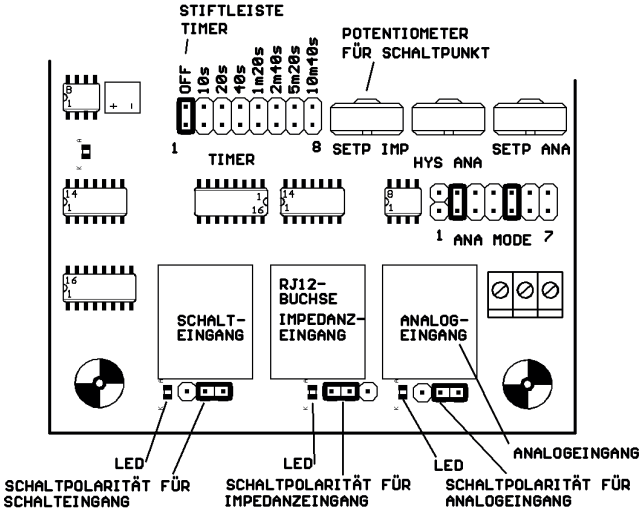
Connections for Universal Sensor switching module

The RJ12-plug connector is intended for direct connection to the sensor-switching module. The plug connector is brought out through the hole in the housing and properly secured through cable gland.
The plug connector of the probe is inserted at the middle RJ12 socket „IMPEDANCE INPUT“ (see sketch).

Configuration of jumpers

Since the three inputs of the module are „OR“ connected, the jumper connections „Switching polarity“ of two other unused inputs must be kept in unwired inactive position (see sketch). The associated LEDs below the input socket may not glow. If this is not ensured, the relay shall be always in ON condition!

The other two right potentiometers and jumpers of the pin strip „ANA-MODE“ will not have any influence on the functioning of conductance probe. The switching behaviour of the device is decided by the jumper connections below the input socket: In the right position, as shown in sketch, the relay switches ON while in contact with conducting medium. In the left position, the switching behaviour is reversed, i.e. the relay switches ON in absence of conducting medium. The switching behaviour of the device can be observed at the light emitting diode (LED). In active condition (= relay closed), the LED glows.



Adjustment of switching point

The adjustment of switching point for impedance input is done by a trim potentiometer „SETP IMP“. In the application as a conductance monitor, the calibration is done at the desired switching point with a comparison standard or a test resistance. Suitable test solutions are available as accessories.
The adjustment range is right from approx. 10 µS (nearly left end position of the potentiometer, i.e. anticlockwise direction) up to approx.30 µS (right end position, clockwise).

Adjustment of time delay

Finally, adjustment of time delay is carried out by placing the jumper connection of the pin strip „TIMER“ at the desired position. With this, the configuration is complete and the device is ready for use.

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