

# DATASHEET



## Fill level probe with pendulum electrodes for level controller

### Description



### Characteristic features

- Conductive operating principle, electrolytic fill level measurement
- High reliability, safe evaluation set-up
- High grade stainless steel pendulum electrodes
- AC voltage signal evaluation, low AC sensing current
- Robust plastic housing
- Connection to Level controller WLSW-12V, WLSW-24V und WLS-GEH230V

### Areas of application

- Fill level probe for cisterns
- Industrial applications
- Agriculture

### Technical data

Fill level probe with Pendulum electrodes	
Sensor element	Protected Hanging electrode
Switching point Impedance	15 ... 80 kOhm
Signal evaluation	With AC impedance measurement
Temperature range	2 ... 80 °C
Terminal box dimensions	Approx. 84 x 84 x 60 mm
Probe material	Stainless steel cable V2A, 1.4305, corrosion resistant, 10 m
Housing material	ABS, white
Connection	RJ12-plug, 6-pin
Cable gland	M12 x 1.5 (polyamide)
Connection cable	TPE/Cu/TPE, 5x 0,14 mm <sup>2</sup>
Guarantee	24 months
Scope of supply	Measuring probe with documentation
Article	Art.-No.
Fill level probe with pendulum electrodes for level controller	ELEKT-PEND

### Application range

The probe is used for sensing the fill level at 4 stages in water or other conductive liquids. The probe has five hanging electrodes, which hang out at different lengths inside the medium up to the switching point of that stage. The hanging electrodes are in the form of corrosion protected stainless steel weight (plumb), which are hung up with a stainless steel rope. When the fill level in the container rises up to the electrode, it gets wet and the presence of medium is registered due to its conductivity.

Because of its flexible constructional arrangement, the electrode length can be individually set at desired switching points. The set contains 10 m of stainless steel rope, so that each probe can be made with over 2 m length.

Because of the hanging construction, contamination is prevented and a reliable switching behaviour is also guaranteed in contaminated media. Typical application areas which emerge out are e.g. as fill level probe for water tanks or rain water cisterns .

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### Application notes



The fill level probe is meant for connection to the level controllers WLSW-12V, WLSW-24V und WLS-GEH230V, which performs the evaluation and provides two switch outputs through potential free relays. The device is not suitable for use in medical equipment or in swimming pools. The user has to ensure through suitable measures (e.g. grounding of metallic containers) so that no dangerous contact voltage occurs in the medium. The safety regulations valid for special applications should be absolutely observed by the user!

Suitable liquids are all type of waters, conductive liquids, for example tap water. The probe is not suitable for inflammable, aggressive, caustic or electrically insulating liquids. For special applications, the suitability of measuring probes should be checked before usage.

### Mounting

The liquid level probe is supplied as a kit and must be improvised by the user as per local conditions.

The kit consists of 5 modules. You can also order the individual components separately. Please refer to the Part Number Index listed.

Module	Amount	Article
1	1	Housing 80 x 82 x 57 mm incl. cover and fixing screw
Art.-No.	0209 0014-10	

Module	Amount	Article
2	1	Connection cable, length 3 meters and RJ12 connector
	1	M12 cable gland
Art.-No.	0554 9020	

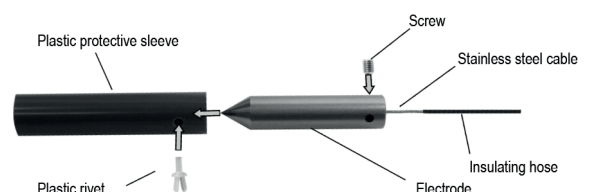
Module	Amount	Article
3	5	Stainless steel pendant
	5	Plastic protective sleeves
Art.-Nr.	0554 9020-10	

Module	Amount	Article
4	5	Rivets

5	Slices
2	Discs made of PVC plastic-cladded
5	Strain reliefs
5	1-pole terminal block
5	Screw
Art.-No.	0554 0920-20

Module	Amount	Article
5	1	Stainless steel cable 10 m
	1	Insulation hose 10 m
Art.-No.	0087 0078	

First plan the construction and decide the length of pendulums. The reference electrode COM must at least to go up to the deepest sensing electrode. Then cut the stainless steel rope and insulation hose to required length with a suitable scissor. Avoid split up at the ends. Then join the stainless steel rope to the stainless steel pendulum, for this put the steel rope up to the stopper in the hole and lock with the Allen screw. Slide the plastic protection sleeve over the pendulum and press the plastic rivets into the hole on other side of Allen screw. Then slide the insulation hose over the whole length of the bare stainless steel rope, leaving 10 mm length at the end for cable connection. The middle reference electrode COM need not be insulated. Then plug the rubber grommets into the holes of housing from inside.



### Attention

Please avoid extreme mechanical and inappropriate exposure.

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

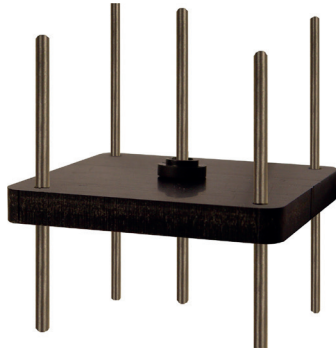
Pass the insulated stainless steel rope through the holes in the spacer plate and insert into the sockets in housing from outside.

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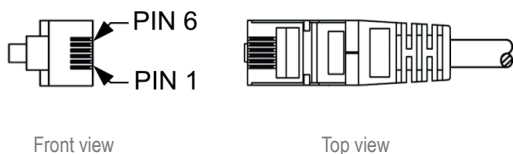
Take care the ropes are straight and not cross each other. Pass on a plastic washer over the ropes so that it lies between the socket and terminal.



Then connect the insulated terminals to the cable. Take care to maintain the correct sequence as per connection layout. The reference electrode COM is the longest, then follows E1 (lowermost level), E2, E3 and finally the shortest electrode E4 (uppermost level). Now the probe is ready and can be installed in the container.

### Connection layout

Pin	Function	Description	Colour
1	COM	Reference electrode	White
2	E 4	Level 4 (E4), topmost	Brown
3	E 3	Level 3 (E3)	Green
4	E 2	Level 2 (E2)	Grey
5	E 1	Level 1 (E1), bottom-most	Yellow
6	COM	Shielding	---



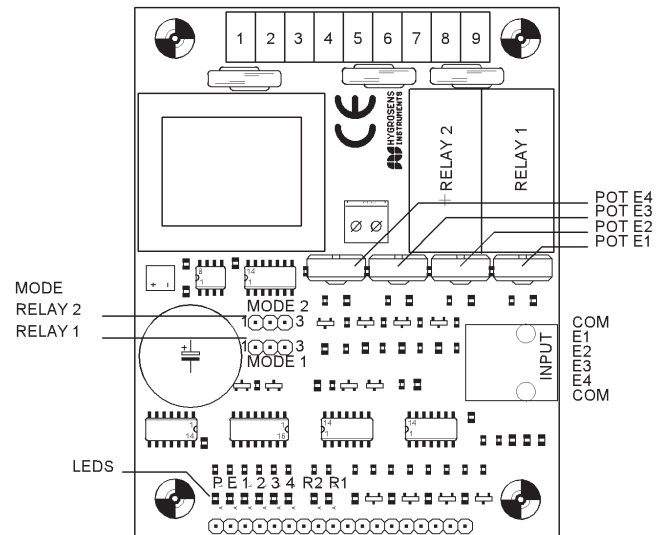
ler. The plug connector is brought out through the hole in housing and properly fitted on the PG7 gland. The plug connector of the probe is fitted on the RJ12 socket (see sketch).

### Adjustment and configuration

The switching point is adjusted with the trim potentiometers as per the conductivity of medium. The status can be seen at the LEDs. In normal practice, for most of the applications with clean rain water or tap water, it is good enough to leave potentiometer at the most sensitive position (extreme left), which corresponds to a switching point of approx. 12  $\mu$ S. If necessary, the sensitivity for each electrode can be separately adjusted. By turning the potentiometer in the anti-clockwise direction, the electronics become less sensitive and this gives better results with sewage water.

In normal practice, all potentiometers should be kept at the same position and only for very diverse conditions of the electrodes with respect to the reference electrode or for different lengths of the connection lines, it is practically required to separately adjust the sensitivity. After any change in cable length of the connection lines, the adjustment should be checked again.

The switching behaviour of the relays can be adjusted by the two jumper plugs titled "MODE".



### Connection to the level controller

(WLSW-12V, WLSW-24V und WLS-GEH230V)

The RJ12-plug connector is for direct connection to the level control-