



## **FLEXIBLE LEVEL SENSOR FLD-48 "MEDUSE"**

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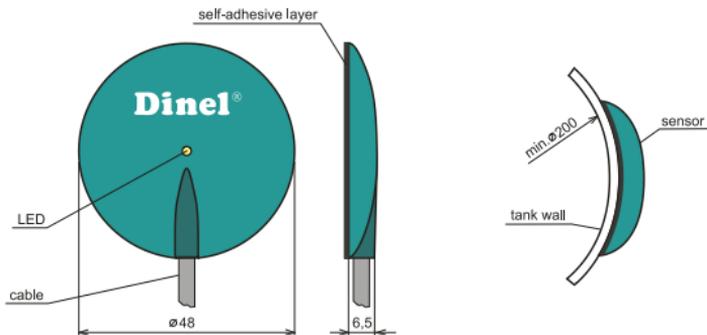
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## PRODUCT DESCRIPTION

FLD level sensor FLD – 48 “Meduse” is designed for detecting levels of various liquids in non-conductive vessels. It is made from polyurethane flexible housing with flexible self adhesive layer, enabling simple attachment on flat and mildly bent surfaces of the vessel walls. Special configuration of the sensing surfaces and control by means of single-chip microprocessor enable reliable detection of the agent and concurrent elimination of settled contamination on the internal side of the vessel. The sensor can be attached in the relay electrical circuit or on the control system binary inlet.

TECHNICAL SPECIFICATIONS	
Supply voltage	6 ... 30 VDC
Current supply (static state)	max. 0.6 mA
Switching current (min. / max.)	3.3 / 40 mA
Remanet voltage in switched on state	max. 6 V
Maximum switching frequency	2 Hz
Ambient temperature range	-10 ... +60°C
Vessel diameter for attaching the sensor	min. 200 mm
Max. thickness of the vessel wall	- conductive liquids 8 mm - non-conductive liquids 3 mm
Protection class	IP67
Housing material	polyurethane
Connection cable type	PUR 3 x 0.14 mm <sup>2</sup>
Weight (including 2m cable)	approx. 45 g

## DIMENSION DRAWING AND APPLICATION



## INSTALLATION AND SENSOR SETTING

The sensor is attached by means of self adhesive removable layer, which is equipped with a protection foil. Prior to the installation, remove the foil and then place the sensor on the vessel wall by means of mild pressure. The sensor orientation is optional, nevertheless we recommend to secure the sensor with a cable facing downwards. Prior to the commissioning, leave the sensor for approx. 30 minutes to reach the tank wall temperature. Remove the sensor carefully from the tank wall during the replacement or dismantling procedure. Due to the excellent adhesive properties of the adhesive layer, the removal may be more complicated. In such case, use sharper flat subject (e.g. a screwdriver) to remove the sensor from the wall. Do not remove by means of pulling the input cable. Irreversible damage to the electronics may occur!

If the original self adhesive layer becomes damaged, it is necessary to remove the layer from the sensor and then replace it (supplied as accessory).

The setting can be performed by means of green, so called programming, conductor (P) Use the conductor to set the upper and lower limit of the level sensing, SO modes (opens when the level drops) and SC (connects when the level drops).

**SO mode:** Attach the programming conductor (P) to terminal 0V for approximate 2 seconds; if the tank is empty or partially filled (water is under the sensor bottom end).

When the level reaches the upper end of the sensor, or the tank is completely filled, attach conductor (P) for the same period (2 seconds) to terminal +U.

**SC mode:** The setting procedure is reversed.

Note: Wire (P) is used only for sensor's programming. In another cases the wire (P) must be disconnected.

For comfortable setting of the sensor, we recommend using a wall-mounted evaluation and switching unit *Dinel, SDSU-1222-W*, which contains setting buttons, power supply, optical signalization of the state, and relay output.

**Setting of initial values (reset of the sensor):** disconnect the sensor from power supply, attached wire SET to terminal +U and again connect power supply. After approx. 5 sec. the wire SET from terminal +U disconnect. Now are initial values setted from producer and sensor is ready for usage in mode SO.

## FAILURE ALARM

**incorrect setting:** If the sensor will not recognize upper and lower level limit or mistake will occur during setting, LED control will start blink in a short interval approx. 0,2 sec. In this case repeat the setting again.

**fault at output:** In case of short-circuit or overrun of max. allowed switched current, LED control will blink in interval approx. 0,8 sec. Re-checked the connection status.

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## RANGE OF APPLICATION

Detection of various types of liquids – water, diesel, oil, cooling liquids, water solutions, some types of solvents. It is suitable for plastic and glass vessels, plastic container tanks, plastic tubs, pools, canisters, etc.

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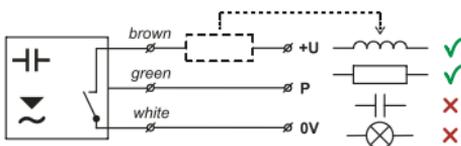
## ATTENTION

- Place the sensor on clean and fat-extracted surface.
- Do not expose the sensor to excessive mechanical deformations and pressures (e.g. during transport). The sensor sensitivity could be temporarily changed or damaged.
- Protect the sensor against direct sunlight and chemical effects (acidic vapors, etc.).

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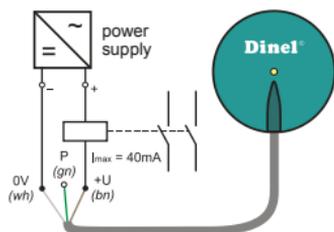
## ELECTRICAL CONNECTION

Positive supply pole (+U) is connected to the brown conductor, negative (0V) to the white. The sensor output is equipped with short circuit protection. The capacity loads and low resistance (bulb) is evaluated by the sensor as short circuit.

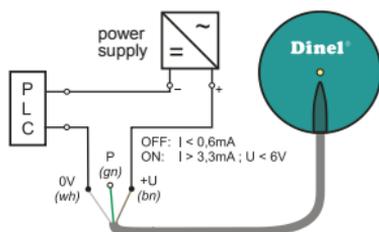


Note: In case of strong ambient electromg. interference, paralleling of conductors with power distribution, or for the distribution to distance over 30 m, we recommend to use shielded cable.

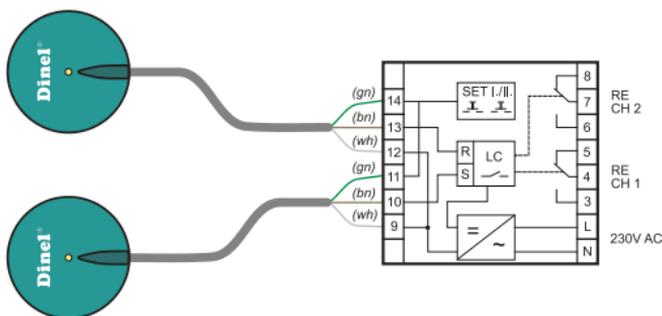
## APPLICATION CONNECTION



sensor connection to the relay coil



sensor connection to PLC logic unit



sensor connection to Dinel SDSU-1222-W  
evaluation and switching unit

### Comments:

wh – white  
bn – brown  
gn – green

## ACCESSORIES

**standard – included in the sensor price**

- 1x spare double-side self adhesive type

## SAFETY, PROTECTION AND COMPATIBILITY

The sensor is equipped with protection against reverse polarity, over-voltages, and against current overload. Protection from hazardous hand contact is provided by means of feeding safe voltage supply.

Electromagnetic compatibility is provided by conformity with standards: EN 55022/B, EN 61326-1, EN 61000-4-2, -3, -4, -6.

## NOTE

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průmyslová elektronika

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The latest version of this instruction manual can be found at [www.dinel.cz](http://www.dinel.cz)  
(version 06/2008)