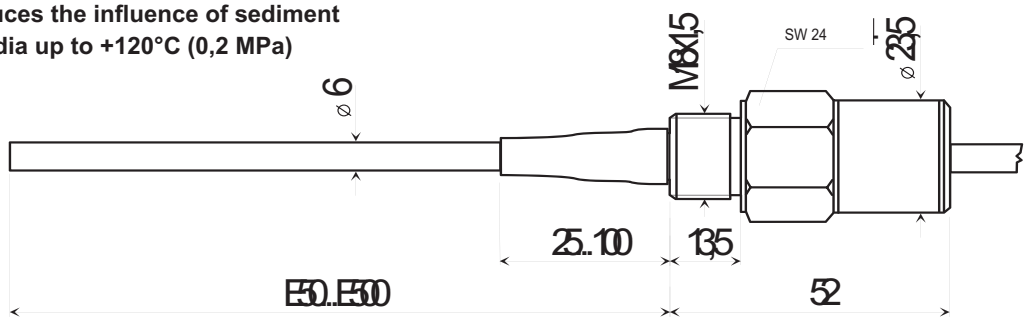
Features

- for limit level detection of conductive liquids
- compact "low cost" miniature performance without adjustment elements
- universal two-wire DC current switch
- direct connection to relay circuit or to binary input of PLC

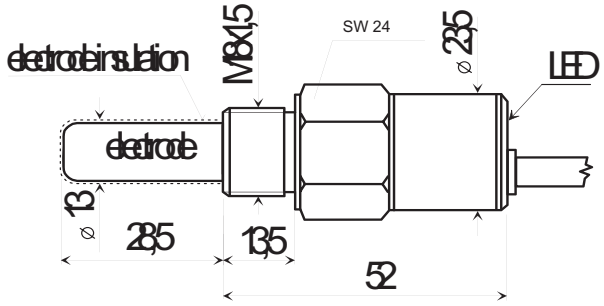
CLS-18L-20

- specified for water (or other conductive liquids) level detection in applications where miniature performance is required - transport vehicles, etc.
- designed for mounting into small metallic vessel at vertical position
- liquid level is sensed just by touch of the end of the electrode
- insulation bushing reduces the influence of sediment
- for temperatures of media up to +120°C (0,2 MPa)



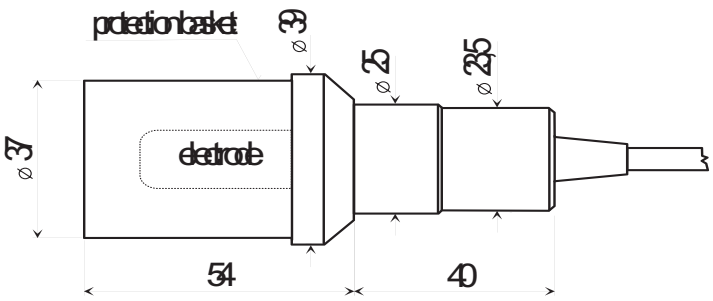
CLS-18N-11

- for water level sensing in vessels and pipes
- it allows to detect the boundary between water and oil
- for temperatures of media up to +105°C (3 MPa)
- LED state indication



CLS-18S-11

- submersible limit level sensor for water used in bores, wells and sumps
- stainless protection basket avoids mechanical demages of electrode
- possible submersion down to 100 m



Description

Capacitive level sensors CLS-18 are developed as reliable and low-cost solution for limit level sensing of water (or water solutions) with miniature outer dimensions without the needs of any adjustment. In comparison with conductive method probes the CLS sensors are much more resistant to the water conductivity changes and sediment adhesion.
The output of CLS-18 is performed as a current switch with very low quiescent current.

Technical specifications

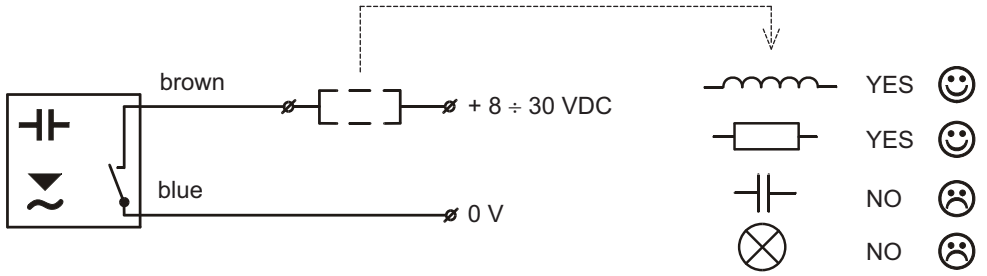
Type	**CLS - 18L - 20**	**CLS - 18N - 11**	**CLS - 18S - 11**
Supply voltage	8 ÷ 30 V DC		
Supply current - OFF state	max. 0,5 mA		
Max. switched current	100 mA		
Max. remanent voltage - ON state	5 V		
Sensitivity	c. 30 pF		
Output - 2-wire switch	normally open (SO) / normally closed (SC)		
LED state indication	NO	YES	NO
Max. switching frequency	2 Hz	1 Hz	
Coupling capacity (housing - leads)	10 nF	10 nF	10 nF
Input resistance (electrode - housing)	1 MΩ	-	-
Medium operating temperature	-30 to +105 °C *	0 to +105 °C	0 to +60 °C
Ambient temperature	-30 to +70 °C *	-20 to +70 °C	0 to +60 °C
Max. operating pressure	0,2 MPa	3 MPa	1 MPa
Protection degree	IP 67	IP 67	IP 68
Cable / standard length**	PVC 2 x 0,75 / 2 m	PVC 2 x 0,75 / 2 m	PVC 2 x 0,75 / 5 m
Materials - housing	Ms-Ni (nickel plated brass)		SS W. Nr. 1.4301
- electrode	SS W. Nr. 1.4301	-	-
- electrode coating	polyolefin	Tefzel	
- protection basket	-	-	SS W. Nr. 1.4301
Weight	c. 0,2 kg (without cable)		

* special performance - max. temperature 120°C (must be specified)
** upon request up to ca. 15m

Installation and electrical connection

Level sensor CLS-18L and CLS-18N is mounted directly into a vessel or container by means of welding flange.
Level sensor CLS-18S is defined to be hang down into a bore hole, well or sump.

Sensor is allowed to lead only by resistive or inductive lead - see picture below. The output is equipped with pulse short circuit protection. So the capacitive leads (> ca. 100nF) and leads with low zero - time resistance (bulb lamps) are taken as a short circuit.
It is recommended to lead the cable separately from power distribution leads and strong sources of EMI (pulse converters, electric motors).



Safety, protections and compatibility

Level sensor CLS is equipped with protection against, reverse polarity, current overload, short circuit and short time overvoltages.
Electromagnetic compatibility is provided by conformity with standards: EN 55022/B, EN 61326-1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-6

Accessories and delivery

To each unit of CLS we add
- 1 pc of seal (asbestos free), other seals are on request (PTFE, Al, etc.)
- quality confirmation and guarantee note

To each delivery we add
- directions for use

On request we can issue copy of ES Declaration of Conformity and copy of certificates.

Order code

CLS-18□ - □□ - □ - **S**□ **E**□□□ — length of electrode in mm

thread dimm.

performance:
L - "low cost"
N - normal
S - submersible

output state at non activated electrode: : **O** - open (low current) / **C** - closed (high current)

cable connection: **A** - standard bushing / **D** - long cable outlet

type and electrode perform.: **11** - bar, Tefzel fully coated (length 30 mm) / **20** - rod, partly insulated (50 ÷ 500 mm)

Example of correct specification

CLS-18L-20-A-SC E200	cable 3 m
CLS-18N-11-A-SC	cable 4 m
CLS-18S-11-D-SO	cable 15 m

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QMS ISO 9001