ELECTRONIC LEVEL AND TEMPERATURE SENSOR



- LEVEL AND TEMPERATURE IN ONE DEVICE
- MEASURING LENGTH 100 ... 1000 MM
- UP TO FOUR SWITCHING OUTPUTS
- TWO ANALOGUE OUTPUTS · RS485
- LED DISPLAY · IP67 · M12

IP67 · Stainless Steel AISI 304 · 1.4301 · M12 · RS485 · 4...20 mA 0...10 V · Display

VERSIONS

Feature	Versions
Measuring length	100 ... 1000 mm in steps of 50 mm
Float	NBR, Ø 32 mm, for oil and hydraulic oil · stainless steel 304, Ø 40 mm, for water or hydraulic oil
Resolution	10 mm (default) · 5 mm
Output	four switching + two analogue outputs 4 ... 20 mA (8-pin) · four switching + two analogue outputs 0 ... 10 V (8-pin) · three switching outputs (5-pin) · two analogue outputs 4 ... 20 mA (4-pin) · two analogue outputs 0 ... 10 V (4-pin) · RS485 (4-pin)
Electrical connection	M12 × 1 connector

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OVERVIEW

Level and temperature with one device through a single tank opening – with LED display, up to four switching outputs and two analogue outputs.

A float on a stainless steel rod detects the level while the sensor also measures the temperature of the medium, saving a hole in the tank. The LED display shows both values at once, four signal lamps the switching states. Switching points and the range of the analogue outputs are set with three keys and a menu; the switching outputs can be changed between PNP and NPN, normally open and normally closed. The sensor is fixed with a Ø 76 mm flange and three M4 screws.

100 ... 1000 mm
measuring length

± 1 °C
temperature accuracy

4 + 2
switching + analogue outputs

IP67
protection class

LEVEL
■ float NBR or stainless steel 304
■ measuring length 100 ... 1000 mm
■ resolution 10 mm or 5 mm
■ switching outputs OUT1 and OUT2

TEMPERATURE
■ medium temperature –20 ... +85 °C
■ accuracy ± 1 °C
■ range adjustable, default –20 ... +80 °C
■ switching outputs OUT3 and OUT4

TECHNICAL DATA

MEASUREMENT AND PRECISION

Measured variables	level and temperature
Level measuring length	100 ... 1000 mm
Level resolution	10 mm (default) or 5 mm
Temperature range	adjustable, factory setting –20 ... +80 °C
Temperature accuracy	± 1 °C

ENVIRONMENT

Medium temperature	–20 ... +85 °C
Ambient temperature	–20 ... +80 °C
Storage temperature	–20 ... +65 °C
Relative humidity	45 ... 75 %
Vibration resistance	20 g, 10 ... 2000 Hz (IEC 60068-2-6)
Shock resistance	50 g, 6 ms (IEC 60068-2-27)

MECHANICAL PROPERTIES

Housing	engineering plastic POM
Rod	stainless steel 304
Float	NBR, Ø 32 mm, or stainless steel 304, Ø 40 mm
Mounting	flange Ø 76 mm, 3 × M4 on Ø 65 mm, gasket supplied
Tank opening (recommended)	Ø 45 mm (stainless steel float) · Ø 35 ... 40 mm (NBR float)
Protection class	IP67
Electrical connection	M12 × 1 connector, 4-, 5- or 8-pin

ELECTRICAL PROPERTIES

Supply voltage	18 ... 30 V DC
Current consumption	max. 600 mA including switching current
Overvoltage	36 V DC
Insulation	500 V DC
Protection	short circuit, reverse polarity
Start-up time	< 3 s

OUTPUTS

Switching outputs	up to 4: OUT1, OUT2 level · OUT3, OUT4 temperature
Switching function	PNP / NPN, NO / NC selectable
Switching current	max. 400 mA
Service life	1 million switching cycles
Analogue outputs	2 (level, temperature): 4 ... 20 mA or 0 ... 10 V, range adjustable
Load (4 ... 20 mA)	≤ 500 Ω
Response time	0.2 ... 5 s
Communication	RS485 (separate version)

DISPLAY AND OPERATION

Display	LED, two lines: level (mm) and temperature (°C)
Signal lamps	SP1 ... SP4, one per switching output
Operation	three keys (–, M, +) with menu

PIN ASSIGNMENT M12 × 1, 8-PIN – FOUR SWITCHING AND TWO ANALOGUE OUTPUTS

Pin · wire	Assignment
2 · BN brown	supply + (18 ... 30 V DC)
7 · BU blue	supply –
8 · RD red	SP1: level (default), can be set to temperature
4 · YE yellow	SP2: level (default), can be set to temperature
6 · PK pink	SP3: temperature (default), can be set to level
1 · WH white	SP4: temperature (default), can be set to level
3 · GN green	analogue output level L (mA / V)
5 · GY grey	analogue output temperature T (mA / V)

PIN ASSIGNMENT M12 × 1, 5-PIN – THREE SWITCHING OUTPUTS

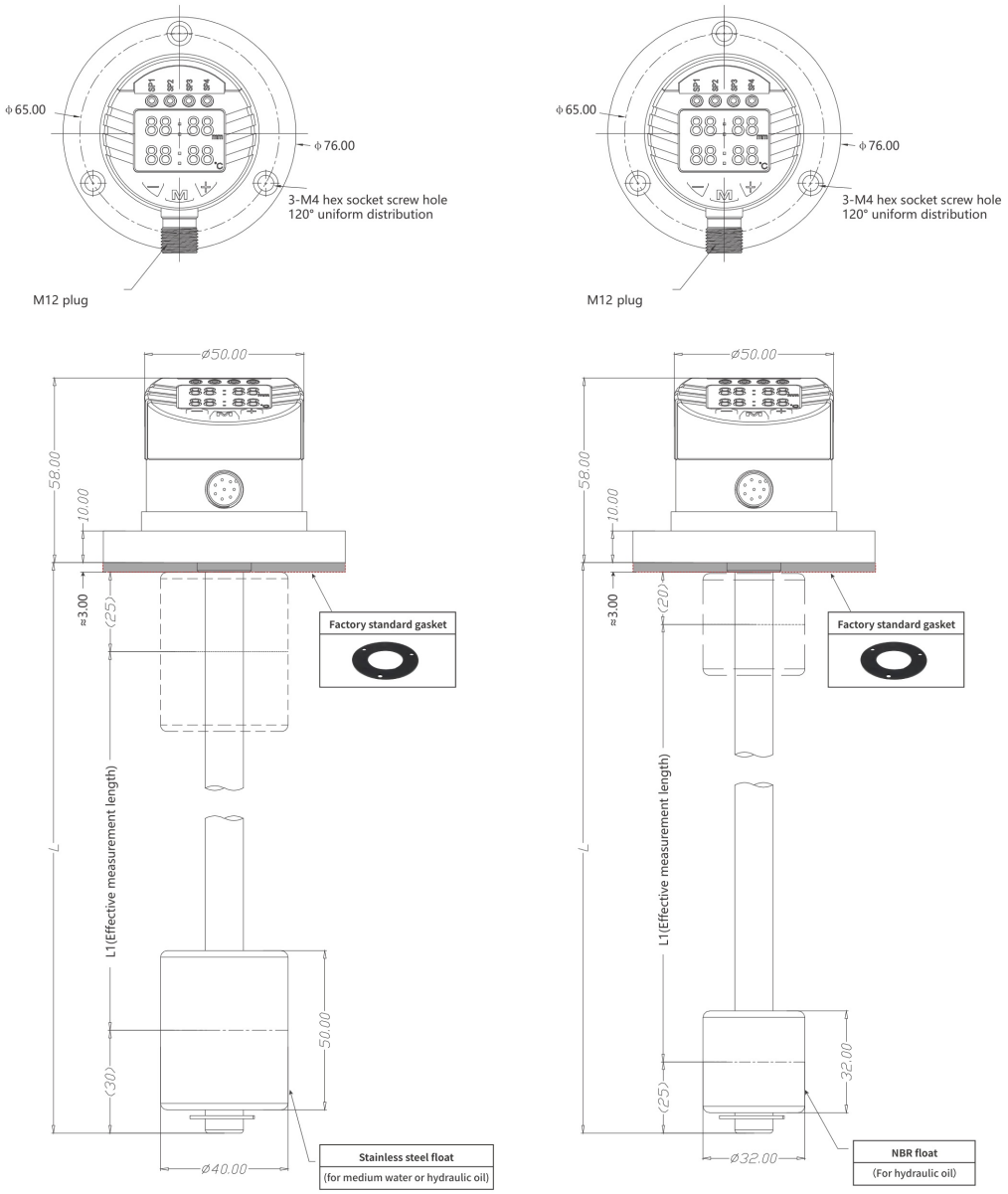
Pin · wire	Assignment
1 · BN brown	supply + (18 ... 30 V DC)
3 · BU blue	supply –
4 · BK black	SP1: level (default), can be set to temperature
2 · WH white	SP2: level (default), can be set to temperature
5 · GY grey	SP3: temperature (default), can be set to level

PIN ASSIGNMENT M12 × 1, 4-PIN – TWO ANALOGUE OUTPUTS · RS485

Pin · wire	two analogue outputs	RS485
1 · BN brown	supply + (18 ... 30 V DC)	supply + (18 ... 30 V DC)
3 · BU blue	supply –	supply –
4 · BK black	analogue output level L (mA / V)	RS485 (B)
2 · WH white	analogue output temperature T (mA / V)	RS485 (A)

DIMENSIONS (mm)

Left stainless steel float Ø 40 mm (water or hydraulic oil), right NBR float Ø 32 mm (hydraulic oil); top view above each



Dimensions in mm. L = length from underside of flange, L1 = effective measuring length; dimensions in brackets to the float centre in its top and bottom position. Mounting 3 × M4 (hexagon socket), 120° apart; factory gasket ≈ 3 mm. Recommended tank opening Ø 45 mm (stainless steel float) or Ø 35 … 40 mm (NBR float).

COMPLIANCE AND CERTIFICATION

Protection Rating	IP67