Electronic Level Switch
HNS 3000

Description:

The HNS 3000 is an electronic level switch with integrated display.
The float-based sensor for high-precision analogue monitoring of the fluid level has 1, 2 or 4 switching outputs and an analogue output signal is available as an option.

In addition to the conventional minimum and maximum switching signal, with the 4 output version it is possible to set additional warning signals to prevent problems such as tank overflow or aeration of the pump.

The main applications of this HNS 3000 are primarily in hydraulics, e.g. for fluid level monitoring of a tank.

The sensor is available in probe lengths from 250 to 2500 mm. The instrument is also available with or without temperature sensor.

Depending on the application, several different floats are available, e.g. stainless steel for aggressive media or plastic.

Special features:

- 1, 2 or 4 independent PNP transistor switching outputs
- User-selectable switch outputs based on the measured value
- Switching and switch-back points can be adjusted independently
- Selectable analogue output available as an option
- 4-digit display
- Various types of float available

Technical data:

Input data	
Sensor type	Magnetostrictive
Measuring ranges	178; 208; 298; 338; 448; 658 mm
Probe length[1)]	250; 280; 370; 410; 520; 730 mm
Max. speed of change in fluid level	Optional
Repeatability[2)]	≤ ± 1 % FS
Switching point accuracy	≤ ± 1 % FS
Temperature (optional)	
Sensor type	Semi-conductor sensor
Measuring range	-25 °C .. +100 °C
Accuracy	± 1.5 °C
Reaction time (t_{90})	< 100 s
Output data	
Analogue output (optional)	
With 1 or 2 SP selectable	4 .. 20 mA load resistance ≤ 500 Ω 0 .. 10 V load resistance ≥ 1 kΩ corresponds to measurement range selected
With 4 SP (only with temperature sensor)	0 .. 10 V load resistance ≥ 1kΩ corresponds to measurement range selected
Switch outputs	
Type	PNP transistor output programmable as N/O / N/C
Assignment	On version with temperature measurement user-selectable temperature or fluid level
Switching current	1 or 2 SP: max. 1.2 A per output 4 SP: max. 0.25 A per output
Switching cycles	> 100 million
Environmental conditions	
Max. tank pressure	3 bar (short-term 10 bar, t < 1 min)
Operating temperature range	-40 .. +85°C
Storage temperature range	-40 .. +100 °C
Fluid temperature range	-40 .. +120 °C
CE - mark	EN 61000-6-1 / 2 / 3 / 4
Vibration resistance to DIN EN 60068-2-6	7.5 mm (5 .. 8.2 Hz) 2.0 g (8.2 .. 150 Hz)
Shock resistance to DIN EN 60068-2-27	20 g (11ms)
Protection class to IEC 60529	IP67
Other data	
Supply voltage (U_B)	9 .. 35 V DC (without analogue output) 18 .. 35 V DC (with analogue output)
Current consumption (without output)	≤ 150 mA
Residual ripple of supply voltage	≤ 250 mV
Fluids	Hydraulic oils, cooling lubricants
Parts in contact with medium	Stainless steel (1.4301 / 1.4571)
Float	PP (polypropylene); 0.6 kg/dm³
Display	4-digit, LED, 7-segment, red, height of digits 7 mm
Weight (dependent on the probe length)	~ 1000 g

Note: Reverse polarity protection of the supply voltage, excess voltage, override and short circuit protection are provided.
FS (**F**ull **S**cale) = relative to the complete measuring range

1) Other probe lengths on request
2) Specified for calm, non-turbulent fluid

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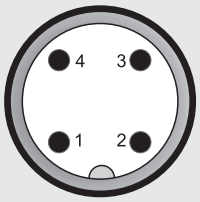
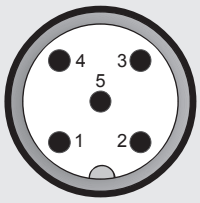
Pin connections:

M12x1, 4 pole



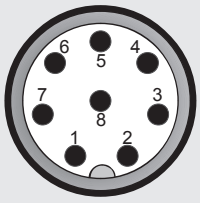
Pin	HNS 3X26-2	HNS 3X26-3
1	$+U_B$	$+U_B$
2	SP 2	Analogue
3	0 V	0 V
4	SP 1	SP 1

M12x1, 5 pole



Pin	HNS 3X28-5
1	$+U_B$
2	Analogue
3	0 V
4	SP 1
5	SP 2

M12x1, 8 pole



Pin	HNS 3X2P-8
1	$+U_B$
2	SP 2
3	0 V
4	SP 1
5	SP 3
6	SP 4
7	Analogue level
8	Analogue temperature

Model code:

HNS 3 X X X – X – XXXX – 000

Temperature sensor
1 = With temperature sensor
2 = Without temperature sensor

Mechanical connection
2 = G3/4 A DIN 3852 (male)

Electrical connection
6 = Male M12x1, 4 pole
only for output models "2" and "3"
8 = Male M12x1, 5 pole
possible only for output model "5"
P = Male M12x1, 8 pole
only for output model "8"

Output
2 = 2 switching outputs
only in conjunction with electrical connection type "6"
3 = 1 switching output and 1 analogue output
only in conjunction with electrical connection type "6"
5 = 2 switching outputs and 1 analogue output
only in conjunction with electrical connection code type "8"
8 = 4 switching outputs and 2 analogue outputs
only in conjunction with electrical connection type "P"

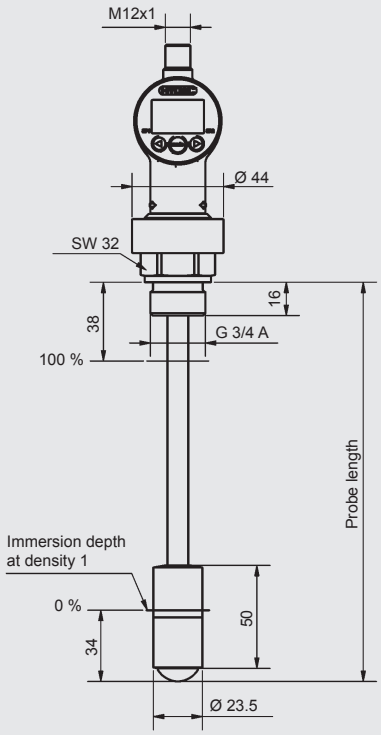
Probe length (physical) in mm
0250; 0280; 0370; 0410; 0520; 0730

Modification number
000 = Standard

Notes:
Special models on request.
On instruments with a different modification number, please read the label or the technical amendment details supplied with the instrument.

Accessories:
Appropriate accessories, such as electrical connectors, splash guards, etc. can be found in the Accessories brochure.

Dimensions:



Note:

The information in this brochure relates to the operating conditions and applications described.
For applications or operating conditions not described, please contact the relevant technical department.
Subject to technical modifications.

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