



# LS 300

## Level Switch

with IO-Link interface

capacitive ceramic sensor

accuracy according to IEC 60770:  
0.5 % FSO

### Measuring range / rod length

from 250 mm up to 1000 mm

### Digital output signal

IO-Link according to specification V 1.1

Smart sensor profile

Data transfer 38.4 kBaud

1 or 2 contact, free configurable

### Analog output (optional)

4 ... 20 mA or 0 ... 10 V

### Special characteristics

- ▶ rod probe stainless steel
- ▶ teach function
- ▶ independent contacts
- ▶ display and switching module rotatable
- ▶ easy installation and commissioning

### Optional versions

- ▶ different kinds of elastomer
- ▶ rod probe PP (in preparation)
- ▶ temperature output (in preparation)

The **LS 300** level switch is a natural evolution of proven cable-type level probes in the form of a compact rod probe for reliable level detection in open and closed containers and tanks. A variety of probe versions are available for use with virtually all liquids.

The **LS 300** is equipped with an IO-Link interface as standard, for exchanging process data, diagnostic messages and status messages with a higher-level control system.

Minimum and maximum fill levels can be configured using the teach function, and switch points can be set in the range of 0 to 100% to control pumps for reservoir and tank systems, or for overflow protection.

With a variety of rod lengths and mounting accessories, the device is easily adaptable to diverse installation situations and container sizes.

### Preferred areas of use are



#### Plant and Machine Engineering

- reservoirs with pump control systems
- overflow protection
- limit value messages



IO-Link

Measuring ranges <sup>1</sup> / rod lengths (in mm)					
250	380	450	550	750	1000
<sup>1</sup> max. measuring range for density <sup>1</sup>					
Contact					
Voltage supply	V <sub>S</sub> = 18 ... 30 V <sub>DC</sub>				
	<b>Output signal 1</b>		<b>Output signal 2</b>		
Standard	IO-Link / SIO (PNP or NPN) +		1 PNP contact		
Optional	IO-Link / SIO (PNP or NPN) +		1 NPN contact (on request)		
Switching current	200 mA				
Accuracy of switching points <sup>2</sup>	≤ ± 0.35 % FSO				
Repeatability	≤ ± 0.1 % FSO				
Switching frequency	max. 20 Hz				
Switching cycles	> 100 x 10 <sup>6</sup>				
Delay time	0.0 ... 50.0 sec				
Analog output (optional)					
	<b>Output signal 1</b>		<b>Output signal 2</b>		
Voltage (3-wire)	IO-Link / SIO (PNP or NPN) +		0 ... 10 V	permissible load: R <sub>min</sub> ≥ 10 kΩ	
Current (3-wire)	IO-Link / SIO (PNP or NPN) +		4 ... 20 mA	permissible load: R <sub>max</sub> ≤ 330 Ω	
Accuracy <sup>2</sup>	≤ ± 0.5 % FSO				
Influence effects	supply: 0.05 % FSO		load: ≤ 0.1 % FSO		
Long term stability	≤ ± 0.3 % FSO / year at reference conditions				
Response time	< 120 msec				
<sup>2</sup> accuracy according to IEC 60770 – limit point adjustment (non-linearity, hysteresis, repeatability)					
Thermal effects (Offset and Span)					
Thermal error	≤ ± 0,3% FSO / 10 K (typ.)				
in compensated range [°C]	-25 ... 85				
Permissible temperatures					
Permissible temperatures	medium: -25 ... 125 °C storage: -40 ... 85 °C		electronics/environment: -25 ... 85 °C		
Electrical protection					
Short-circuit protection	permanent				
Reverse polarity protection	no damage, but also no function				
Electromagnetic compatibility	emission according to EN 61000-6-4:2007 immunity according to EN 61000-6-2:2005				
IO-Link					
Interface	IO-Link 1.1; Slave				
Data transfer	COM2, 38.4 kBaud				
Mode	SIO / IO-Link				
Standard	IEC 61131-9				
Mechanical stability					
Vibration	10 g / 25 Hz ... 2 kHz		according to DIN EN 60068-2-6		
Shock	500 g / 1 msec		according to DIN EN 60068-2-27		
Materials					
Rod probe	stainless steel 316L (1.4404)				
Display housing	standard: PA 6.6				
Seals (media wetted)	standard: FKM		option: EPDM		
Diaphragm	AL <sub>2</sub> O <sub>3</sub> 96 %				
Miscellaneous					
Display	4-digit, red LED display, digit height 7 mm, range of indication -1999 ... +9999, visible range 22.5 x 10.5 mm, 4 LED's for unit switching (bar, mbar, PSI, MPa) status display contact: contact 1 : LED, green, contact 2: LED, yellow				
Operation	2 buttons / functions according to VDMA 24574-1				
Turn-on time	110 msec				
Weight	approx. xxx g (depending on rod length)				
Current consumption	< 50 mA				
Protection class	IP 65 IP67				
Installation position	vertical				
CE-conformity	EMC Directive: 2014/30/EU				

### Wiring diagrams

**3-wire-system (IO-Link / SIO with contact)**

**3-wire-system (IO-Link / SIO with analogue output)**

### Pin configuration

Electrical connections	M12x1 (4-pin) metal (without analogue output)	M12x1 (4-pin) metal (with analogue output)
supply +	1	1
supply -	3	3
signal +	-	2
communication / contact 1	4	4
contact 2	2	-
shield	pressure port	pressure port

### dimensions in mm/inch

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