Reed-chain level sensor
For industrial applications, with temperature output
Model RLT-3000

Applications

- Combined level and temperature measurement of liquids in machine building
- Control and monitoring tasks for hydraulic power packs, compressors and cooling systems

Special features

- Media compatibility: Oil, water, diesel, refrigerants and other liquids
- Level: Current output 4 ... 20 mA
- Temperature: Pt100, Pt1000, accuracy: Class B

Version with connection housing

Description

The model RLT-3000 level sensor with temperature output combines the recording of the level and temperature of liquids in a single measuring point. The stainless steel used is suitable for a multitude of media, such as, for example, oil, water, diesel and refrigerants.

Measuring principle
A permanent magnet built into the float triggers, with its magnetic field, the resistance measuring chain built into the guide tube. The built-in transmitter converts the signal of the resistance measuring chain into a 4 ... 20 mA current signal. The current signal is proportional to the level.

For the temperature measurement, there is a platinum measuring resistor built into the end of the guide tube.

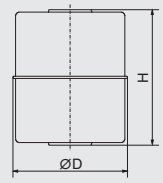
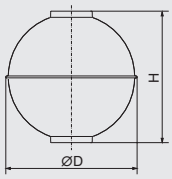
Data sheets showing similar products:
Reed-chain level sensor, plastic version, model RLT-2000; see data sheet LM 50.01
Reed-chain level sensor; model RLT-1000; see data sheet LM 50.02

Specifications

Level sensor, model RLT-3000	Level	Temperature
Measuring principle	Reed-chain technology with optional analogue amplifier	Pt100 or Pt1000 measuring resistor
Measuring range	The measuring range M is determined from the selected guide tube length L and the position of the 100 % mark. For dimensions see drawing	■ Pt100 ■ Pt1000
Guide tube length L	150 ... 1,500 mm [6 ... 59 in], greater lengths on request	
Output signal	Current output, 4 ... 20 mA, 2-wire Power supply: DC 12 ... 32 V Load in Ω: ≤ (power supply - 12 V) / 0.02 A	■ Pt100, 2-wire ■ Pt1000, 2-wire
Accuracy	■ 24 mm [0.9 in] 1) ■ 12 mm [0.5 in] 2) ■ 10 mm [0.4 in] 3) ■ 6 mm [0.2 in] 2) ■ 3 mm [0.1 in] 2) For reed-chain technology, the accuracy corresponds to the resolution.	Class B per DIN EN 60751
Mounting position	Vertical ±30°	
Process connection	■ G 1, installation from outside ■ G 1 ½, installation from outside ■ G 2, installation from outside ■ Flange DN 50, form B per DIN 2527/EN 1092, PN 16, installation from outside	
Material		
Wetted	Process connection, guide tube: Stainless steel 1.4571 (316 Ti) Float: See table on page 3	
Non-wetted	Case: Stainless steel 1.4571 (316Ti) Electrical connection: See table below	
Permissible temperatures		
Medium	-30 … +100 °C [-22 … +212 °F]	
Ambient	-30 … +80 °C [-22 … +176 °F]	
Storage	-30 … +80 °C [-22 … +176 °F]	

Electrical connections	Ingress protection	Material
“Standard” connection housing Dimensions: 75 x 80 x 57 mm [3.0 x 3.1 x 2.2 in] For cable diameter: 5 ... 10 mm [0.2 ... 0.4 in]	IP66	■ Aluminium ■ Glands from polyamide ■ Brass ■ Stainless steel

1) Not with float diameter 30 mm [1.2 in] or 25 mm [1.0 in]
2) Not with float diameter 30 mm [1.2 in]
3) Only with float diameter 30 mm [1.2 in]

Float	Form	Outer diameter ⌀ D	Height H	Operating pressure	Medium temperature	Density	Material
	Cylinder [1]	44 mm [1.7 in]	52 mm [2.0 in]	≤ 16 bar [≤ 232 psi]	≤ 120 °C [≤ 248 °F]	≥ 750 kg/m³ [46.8 lbs/ft³]	1.4571 (316Ti)
	Cylinder [2]	30 mm [1.2 in]	36 mm [1.4 in]	≤ 10 bar [≤ 145 psi]	≤ 80 °C [≤ 176 °F]	≥ 850 kg/m³ [53.1 lbs/ft³]	1.4571 (316Ti)
	Cylinder	25 mm [1.0 in]	20 mm [0.8 in]	≤ 16 bar [≤ 232 psi]	≤ 80 °C [≤ 176 °F]	≥ 750 kg/m³ [46.8 lbs/ft³]	Buna / NBR
	Sphere [3]	52 mm [2.0 in]	52 mm [2.0 in]	≤ 40 bar [≤ 580 psi]	≤ 120 °C [≤ 248 °F]	≥ 750 kg/m³ [46.8 lbs/ft³]	1.4571 (316Ti)

1) Not with process connection G 1
2) Guide tube length ≤ 1,000 mm [39.4 in]
3) Not with process connection G 1, G 1 ½

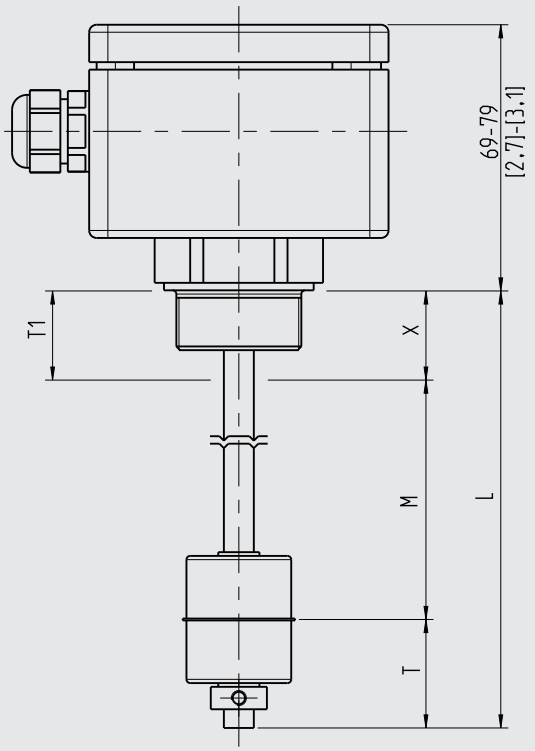
Connection diagram

Aluminium case				
	Level		Temperature	
	4 ... 20 mA, 2-wire		Pt100/Pt1000	
	U+	Terminal MU005+	+	Terminal MU004+
	U-	Terminal MU005-	-	Terminal MU004-

Electrical safety	
Reverse polarity protection	U+ vs. U-
Insulation voltage	DC 1,500 V
Overvoltage protection	DC 40 V

Dimensions in mm [in]

with “standard” connection housing



Legend

L Guide tube length
M Measuring range
X Distance sealing face to 100 % mark
(X ≥ dead band T in mm [in] (from sealing edge))
T Dead band (pipe end)
T1 Dead band (from sealing edge)

Dead band T1 in mm [inch] (from sealing edge)

Process connection	Outer diameter float Ø D			
	Ø 30 mm [1.2 in]	Ø 44 mm [1.7 in]	Ø 52 mm [2.0 in]	Ø 25 mm [1.0 in]
G 1 (from outside)	35 mm [1.4 in]	-	-	-
G 1 ½ (from outside)	35 mm [1.4 in]	45 mm [1.8 in]	-	25 mm [1.0 in]
G 2 (from outside)	40 mm [1.6 in]	50 mm [2.0 in]	50 mm [2.0 in]	25 mm [1.0 in]
Flange (from outside)	20 mm [0.8 in]	30 mm [1.2 in]	30 mm [1.2 in]	5 mm [0.2 in]

Dead band T in mm [inch] (pipe end)

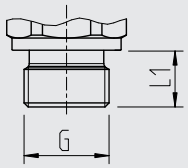
Dead band	Outer diameter float Ø D			
	Ø 30 mm [1.2 in]	Ø 44 mm [1.7 in]	Ø 52 mm [2.0 in]	Ø 25 mm [1.0 in]
T	35 mm [1.4 in]	45 mm [1.8 in]	45 mm [1.8 in]	45 mm [1.8 in]

Float stop at guide tube end

- Adjusting collar, for medium temperature ≤ 80 °C [≤ 176 °F]
- Pipe clamp, for medium temperature > 80 °C [> 176 °F]

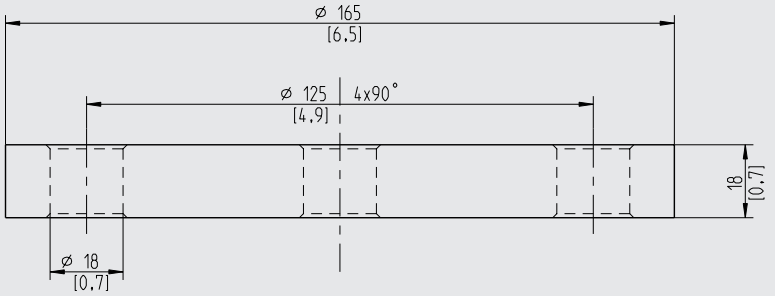
Process connection

Installation from outside



G	L_1	Spanner width
G 1	16 mm [0.63 in]	41 mm [1.6 in]
G 1 ½	18 mm [0.71 in]	30 mm [1.2 in]
G 2	20 mm [0.79 in]	36 mm [1.4 in]

Flange
DN 50, form B per EN 1092-1 (DIN 2527), PN 16



Approvals

Logo	Description	Country
CE	**EU declaration of conformity** ■ EMC directive EN 61326 emission (group 1, class B) and interference immunity (industrial application) ■ RoHS directive	European Union

Manufacturer‘s information and certificates

Logo	Description
-	**China RoHS directive**

Approvals and certificates, see website

Ordering information

Model / Temperature output signal / Process connection / Guide tube length L / 100 % mark (optional) / Accuracy, resolution / Float

WIKA Alexander Wiegand SE & Co. KG
Alexander-Wiegand-Straße 30
63911 Klingenberg/Germany
Tel. +49 9372 132-0
Fax +49 9372 132-406
info@wika.de
www.wika.de