

Reed-chain level sensor

For industrial applications, with temperature output

Model RLT-3000

WIKA data sheet LM 50.05

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 or current output 4 ... 20 mA



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. The model RLT-3000 is also available with 2 optional 4 ... 20 mA analogue outputs.

Specifications

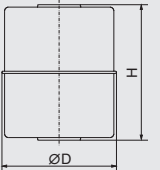
Level sensor, model RLT-3000	Level	Temperature
Measuring principle	Reed-chain technology with optional analogue amplifier	Pt100 or Pt1000 measuring resistor with optional analogue amplifier
Measuring range	The measuring range M is determined from the selected guide tube length L and the position of the 100 % mark. For dimensions see drawing	<ul style="list-style-type: none"> ■ 4 ... 20 mA: -30 ... +100 °C [-22 ... +212 °F] 0 ... 100 °C [32 ... 212 °F] ■ 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	<ul style="list-style-type: none"> ■ Pt100, 2-wire ■ Pt1000, 2-wire ■ Current output, 4 ... 20 mA, 2-wire Power supply: DC 12 ... 32 V Load in Ω: ≤ (power supply - 12 V) / 0.02 A
Accuracy	<ul style="list-style-type: none"> ■ 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, for Pt100 / Pt1000 0.5 %, for current output 4 ... 20 mA
Mounting position	Vertical ±30°	
Process connection	<ul style="list-style-type: none"> ■ 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	<ul style="list-style-type: none"> ■ 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 $\varnothing D$	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/m ³ [46.8 lbs/ft ³]	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/m ³ [53.1 lbs/ft ³]	1.4571 (316Ti)
	Cylinder	25 mm [1.0 in]	20 mm [0.8 in]	≤ 16 bar [≤ 232 psi]	≤ 80 °C [≤ 176 °F]	≥ 750 kg/m ³ [46.8 lbs/ft ³]	Buna / NBR
	Sphere ³⁾	52 mm [2.0 in]	52 mm [2.0 in]	≤ 40 bar [≤ 580 psi]	≤ 120 °C [≤ 248 °F]	≥ 750 kg/m ³ [46.8 lbs/ft ³]	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

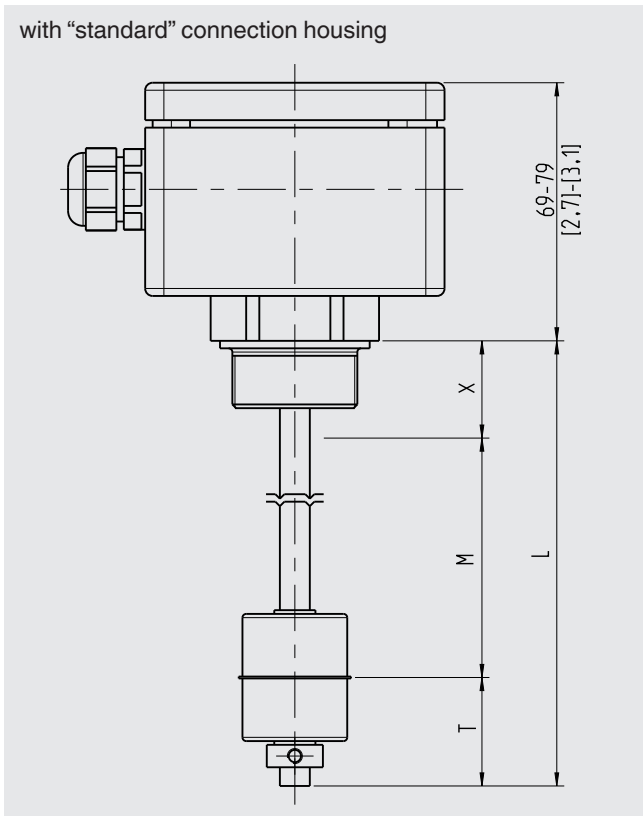
Connection diagram

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



Legend

- L Guide tube length
- M Measuring range
- X Distance sealing face to 100 % mark
($X \geq \text{dead band } T \text{ in mm [in] (from sealing edge)}$)
- T Dead band (pipe end)

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

Process connection	Outer diameter float $\varnothing D$			
	$\varnothing 30 \text{ mm [1.2 in]}$	$\varnothing 44 \text{ mm [1.7 in]}$	$\varnothing 52 \text{ mm [2.0 in]}$	$\varnothing 25 \text{ mm [1.0 in]}$
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)

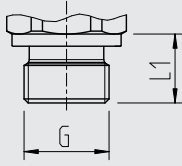
Dead band	Outer diameter float $\varnothing D$			
	$\varnothing 30 \text{ mm [1.2 in]}$	$\varnothing 44 \text{ mm [1.7 in]}$	$\varnothing 52 \text{ mm [2.0 in]}$	$\varnothing 25 \text{ mm [1.0 in]}$
T	35 mm [1.4 in]	45 mm [1.8 in]	45 mm [1.8 in]	45 mm [1.8 in]

Float stop at guide tube end

- Adjusting collar, for medium temperature $\leq 80 \text{ °C } [\leq 176 \text{ °F}]$
- Pipe clamp, for medium temperature $> 80 \text{ °C } [> 176 \text{ °F}]$

Process connection

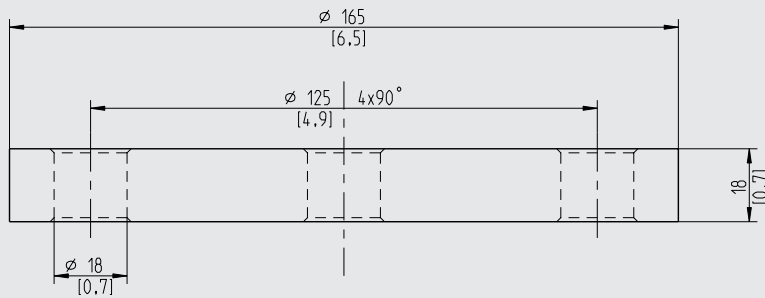
Installation from outside



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 <ul style="list-style-type: none"> ■ 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 / Temperature measuring range / Process connection / Guide tube length L /
100 % mark (optional) / Accuracy, resolution / Float

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