

Level sensor

For industrial applications, plastic version

Model RLT-2000

WIKA data sheet LM 50.01

Applications

- Level measurement of liquids in machine building
- Control and monitoring tasks for critical media

Special features

- Media compatibility: aqueous media and corrosive liquids
- Wetted parts: PP or PVDF
- Output signal: Resistance in a 3-wire potentiometer circuit, current output 4 ... 20 mA
- Accuracy, resolution: 24 mm [0.9 in], 12 mm [0.5 in], 10 mm [0.4 in], 6 mm [0.2 in] or 3 mm [0.1 in]



Fig. left: Mounting thread, angular connector
Fig. right: Cable outlet

Description

The model RLT-2000 level sensor has been developed for measuring the level of liquids.

Measuring principle

A permanent magnet built into the float triggers, with its magnetic field, the resistance measuring chain built into the guide tube. The entire assembly corresponds to a 3-wire potentiometer circuit. The measured resistance signal is proportional to the level. The model RLT-2000 is optionally available with a 4 ... 20 mA output signal.

Specifications

Level sensor, model RLT-2000					
Measuring principle	Reed-chain technology with optional analogue amplifier				
Measuring range M	The measuring range is determined from the selected guide tube length L and the position of the 100 % mark. For dimensions see drawing				
Guide tube length L	150 ... 1,500 mm [6 ... 59 in]				
Output signal	<ul style="list-style-type: none"> ■ Variable resistance The overall resistance of the reed chain is approx. 1 ... 10 kΩ, depending on the measuring range Max. voltage < DC 40 V ■ Current output, 4 ... 20 mA, 2-wire Power supply: DC 12 ... 32 V Load in Ω: ≤ (power supply - 12 V) / 0.02 A 				
Accuracy, resolution	<ul style="list-style-type: none"> ■ 24 mm [0.9 in] ¹⁾ ■ 12 mm [0.5 in] ¹⁾ ■ 10 mm [0.4 in] ²⁾ ■ 6 mm [0.2 in] ¹⁾ ■ 3 mm [0.1 in] ¹⁾ 				
Mounting position	Vertical ±30°				
Process connection	<ul style="list-style-type: none"> ■ G 1 ½, installation from outside ³⁾ ■ G 2, installation from outside ■ G ¾, installation from inside ⁴⁾ ■ G ½, installation from inside ⁴⁾ 				
Material	<ul style="list-style-type: none"> ■ Wetted ■ Non-wetted 				
	Process connection, guide tube: PP, PVDF (option) Float: See table page 3 Case: PP, PVDF (option) Electrical connection: See table below				
Permissible temperatures	<table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> PP version <ul style="list-style-type: none"> ■ Medium ■ Ambient ■ Storage </td> <td style="width: 50%; vertical-align: top;"> PVDF version (option) <ul style="list-style-type: none"> -10 ... +80 °C [14 ... 176 °F] -10 ... +80 °C [14 ... 176 °F] -10 ... +80 °C [14 ... 176 °F] </td> </tr> <tr> <td></td> <td style="vertical-align: top;"> <ul style="list-style-type: none"> -10 ... +80 °C [14 ... 176 °F], option: -30 ... +120 °C [-22 ... +248 °F] ⁵⁾ -30 ... +80 °C [-22 ... +176 °F] -30 ... +80 °C [-22 ... +176 °F] </td> </tr> </table>	PP version <ul style="list-style-type: none"> ■ Medium ■ Ambient ■ Storage 	PVDF version (option) <ul style="list-style-type: none"> -10 ... +80 °C [14 ... 176 °F] -10 ... +80 °C [14 ... 176 °F] -10 ... +80 °C [14 ... 176 °F] 		<ul style="list-style-type: none"> -10 ... +80 °C [14 ... 176 °F], option: -30 ... +120 °C [-22 ... +248 °F] ⁵⁾ -30 ... +80 °C [-22 ... +176 °F] -30 ... +80 °C [-22 ... +176 °F]
PP version <ul style="list-style-type: none"> ■ Medium ■ Ambient ■ Storage 	PVDF version (option) <ul style="list-style-type: none"> -10 ... +80 °C [14 ... 176 °F] -10 ... +80 °C [14 ... 176 °F] -10 ... +80 °C [14 ... 176 °F] 				
	<ul style="list-style-type: none"> -10 ... +80 °C [14 ... 176 °F], option: -30 ... +120 °C [-22 ... +248 °F] ⁵⁾ -30 ... +80 °C [-22 ... +176 °F] -30 ... +80 °C [-22 ... +176 °F] 				

Electrical connections ⁶⁾	Ingress protection ⁷⁾	Material	Cable length
Angular connector DIN 175301-803 A	IP65	PA	-
Cable outlet	IP67	PVC	<ul style="list-style-type: none"> ■ 2 m [6.5 ft] ■ 5 m [16.4 ft]
Cable outlet	IP67	Silicone	other lengths on request
Connection housing Dimensions: 80 x 82 x 55 mm [3.1 x 3.2 x 2.2 in] For cable diameter: 5 ... 10 mm [0.2 ... 0.4 in]	IP66	Polycarbonate, glands from polyamide, brass, stainless steel	-

1) Not with float diameter 44 mm [1.7 in] from PP

2) Only with float diameter 44 mm [1.7 in] from PP and guide tube length L ≤ 500 mm (L ≤ 19,68 in)

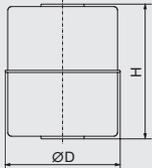
3) Only with float diameter 44 mm [1.7 in] from PP

4) Only with cable outlets

5) Not with PVC cable

6) Cable outlets not available with current output, 4 ... 20 mA

7) The stated ingress protection (per IEC/EN 60529) only applies when plugged in using mating connectors that have the appropriate ingress protection.

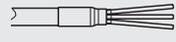
Float	Form	Outer diameter $\varnothing D$	Height H	Operating pressure	Medium temperature	Density	Material
	Cylinder ⁸⁾	44 mm [1.7 in]	44 mm [1.7 in]	≤ 3 bar [≤ 43.5 psi]	≤ 80 °C [≤ 176 °F]	≥ 500 kg/m ³ [31.2 lbs/ft ³]	PP
	Cylinder ⁹⁾	55 mm [2.2 in]	55 mm [2.2 in]	≤ 3 bar [≤ 43.5 psi]	≤ 80 °C [≤ 176 °F]	≥ 500 kg/m ³ [31.2 lbs/ft ³]	PP
	Cylinder ⁹⁾	55 mm [2.2 in]	65 mm [2.6 in]	≤ 3 bar [≤ 43.5 psi]	≤ 120 °C [≤ 248 °F]	≥ 850 kg/m ³ [53.1 lbs/ft ³]	PVDF

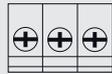
8) Guide tube length $L \leq 500$ mm [$L \leq 19,68$ in], not with process connection G 2

9) Not with process connection G 1 1/2

Connection diagram

Angular connector DIN 175301-803 A				
	Variable resistance		Current output, 4 ... 20 mA, 2-wire	
	Overall resistance	Pin 2 / 3	U+	Pin 1
	100 ... 0 %	Pin 1 / 3	U-	Pin 2
	0 ... 100 %	Pin 1 / 2		

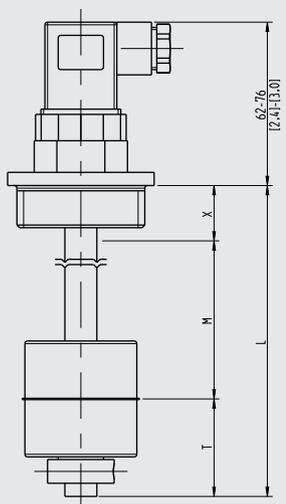
Cable outlet		
	Variable resistance	
	Overall resistance	green / white
	100 ... 0 %	white / brown
	0 ... 100 %	brown / green

Polycarbonate case				
	Variable resistance		Current output, 4 ... 20 mA, 2-wire	
	Overall resistance	Terminal W1 / W3	U+	Terminal U+
	100 ... 0 %	Terminal W1 / W2	U-	Terminal U-
	0 ... 100 %	Terminal W2 / W3		

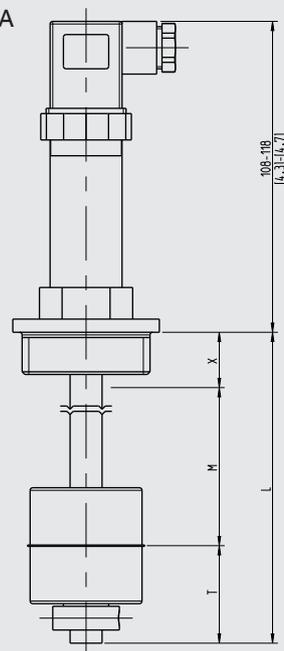
Electrical safety	
Reverse polarity protection	U+ vs. U-
Overvoltage protection	DC 40 V

Dimensions in mm [in]

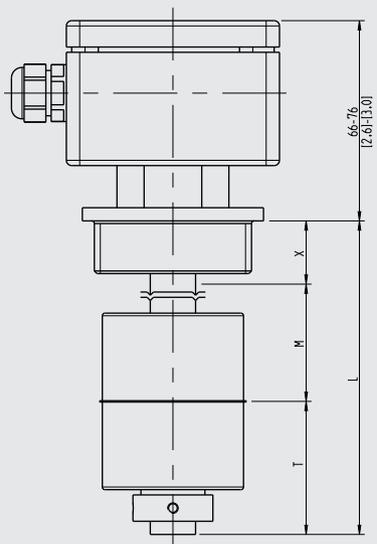
with angular connector form A
Resistance signal



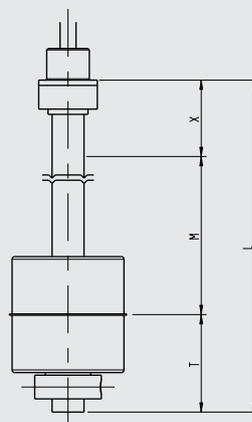
with angular connector form A
Current output 4 ... 20 mA



with connection housing



with cable outlet
Resistance signal



Legend

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

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

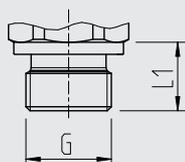
Process connection	Outer diameter float \varnothing D		
	\varnothing 44 mm [1.7 in]	\varnothing 55 mm [2.2 in]	\varnothing 55 mm PVDF [2.2 in]
G 1 ½ (from outside)	45 mm [1.8 in]	-	-
G 2 (from outside)	-	55 mm [2.2 in]	65 mm [2.6 in]
G ¾ B (from inside)	50 mm [2.0 in]	55 mm [2.2 in]	60 mm [2.4 in]
G ½ B (from inside)	50 mm [2.0 in]	55 mm [2.2 in]	60 mm [2.4 in]

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

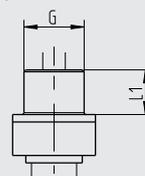
Dead band	Outer diameter float \varnothing D		
	\varnothing 44 mm [1.7 in]	\varnothing 55 mm [2.2 in]	\varnothing 55 mm PVDF [2.2 in]
T	40 mm [1.6 in]	45 mm [1.8 in]	55 mm [2.2 in]

Process connection

Installation from outside



Installation from inside



G	L ₁	Spanner width
G 1 ½	16 mm [0.63 in]	30 mm [1.2 in]
G 2	20 mm [0.79 in]	36 mm [1.4 in]

G	L ₁	Spanner width
G ¾ B	12 mm [0.47 in]	22 mm [0.9 in]
G ½ B	14 mm [0.55 in]	27 mm [1.1 in]

Approvals

Logo	Description	Country
	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 certifications

Logo	Description
-	China RoHS directive

Approvals and certificates, see website

Ordering information

Model / Output signal / Electrical connection / Process connection / Guide tube length L / 100 % mark (optional) / Accuracy, resolution / Medium temperature / Float

© 01/2017 WIKA Alexander Wiegand SE & Co. KG, all rights reserved.
The specifications given in this document represent the state of engineering at the time of publishing.
We reserve the right to make modifications to the specifications and materials.



ТОВ "Автоматік Сервіс Україна"

Україна, 79000, м. Львів, п-р Чорновола, 63 оф.201

+38 044 344 16 04, +38 068 166 16 01

<https://asu-tp.shop/> info@asu-tp.com.ua