

Reed level transmitter for connection to WIKA radio unit

Model FLRU

WIKA data sheet LM 20.13



for further approvals,
see page 5

Applications

- Condition-based and preventive maintenance through centralised big data analysis
- Chemical industry, petrochemical industry, natural gas, offshore, shipbuilding, machine building, power generating equipment, power plants, process water and drinking water treatment
- Level detection for almost all liquid media

Special features

- IIoT-capable measuring instrument in combination with WIKA radio unit, model NETRIS®3
- Process- and procedure-specific solutions possible
- Operating limits:
 - Process temperature: $T = -80 \dots +200 \text{ °C}$
[$-112 \dots +842 \text{ °F}$]
 - Operating pressure: $P = \text{vacuum to } 80 \text{ bar [1,160 psi]}$
 - Limit density: $\rho \geq 400 \text{ kg/m}^3$
- Wide variety of different process connections and materials
- Intrinsically safe version Ex i



Level transmitter, model FLRU

Description

The model FLRU level transmitter with reed-chain technology in combination with the WIKA model NETRIS®3 radio unit is used wherever web-based remote monitoring of level measurement in liquid media is desired. Condition-based and preventive maintenance through centralised big data analysis is thus possible.

Level transmitters of this model series work on the float principle with magnetic transmission and are used wherever centralised, web-based remote monitoring is required. The float's magnetic system in the guide tube actuates a resistance measuring chain that corresponds to a 3-wire

potentiometer circuit. The measurement voltage generated by this is proportional to the fill level.

The measurement voltage is very finely stepped due to the contact separation of the measuring chain and is thus virtually continuous. Depending on the requirements, several different contact separations are available.

The FLRU reed level transmitter is part of the WIKA IIoT solution. With this, WIKA offers a holistic solution for your digitalisation strategy.

Installation example

Model FLRU with WIKA radio unit, model NETRIS®3



Specifications

Basic information	
Guide tube diameter	<ul style="list-style-type: none"> ■ 8 mm [0.32 in] ■ 12 mm [0.42 in] ■ 14 mm [0.55 in] ■ 18 mm [0.71 in]
Max. guide tube length L	<ul style="list-style-type: none"> ■ 500 mm [19.69 in] (guide tube diameter 8 mm [0.32 in]) ■ 1,500 mm [59.10 in] (guide tube diameter 12 mm [0.47 in]) ■ 3,500 mm [137.8 in] (guide tube diameter 14 mm [0.55 in]) ■ 6,000 mm [236.22 in] (guide tube diameter 18 mm [0.71 in])
Overall resistance of the measuring chain	Depending on length and separation
Connection location	<ul style="list-style-type: none"> ■ Top mount ■ Lower mount
Float diameter	44 ... 120 mm [1.732 ... 4.724 in]

Accuracy specifications	
Resolution	<ul style="list-style-type: none"> ■ 2.7 mm [0.11 in] ■ 5.5 mm [0.22 in] ■ 7.5 mm [0.30 in] ■ 9 mm [0.35 in]
	Depending on contact separation
Mounting position	Vertical $\pm 30^\circ$

Process connection	
Standard	<ul style="list-style-type: none"> ■ DIN EN ISO 228-1 ■ EN 1092-1 ■ ASME B16.5
Thread size	
DIN EN ISO 228-1	<ul style="list-style-type: none"> ■ G 1 ½, male thread ■ G 2, male thread
Mounting flange	
EN 1092-1	DN 50 ... DN 200, PN 6 ... PN 100
ASME B16.5	2" ... 8", Class 150 ... Class 600

Digital interface	
Signal type	Unified WIKA Interface (UWI)
Connection type	M12 x 1 circular connector (4-pin), B-coded, for use with WIKA radio unit model NETRIS®3

Material	
Material (wetted)	
Guide tube	<ul style="list-style-type: none"> ■ Stainless steel 1.4571 (316Ti) ■ Stainless steel 1.4401 (316L) ■ Stainless steel 1.4404 (316L) ■ Stainless steel 1.4435 (316L)
Float	<ul style="list-style-type: none"> ■ Stainless steel 1.4571 (316Ti) ■ Buna ■ Titanium
Process connection	<ul style="list-style-type: none"> ■ Stainless steel 1.4571 (316Ti) ■ Stainless steel 1.4401 (316L) ■ Stainless steel 1.4404 (316L) ■ Stainless steel 1.4435 (316L)

Operating conditions		
Process temperature range	<ul style="list-style-type: none"> ■ -40 ... +120 °C [-40 ... +248 °F] ■ -40 ... +200 °C [-40 ... +392 °F] (high-temperature version) 	
Ambient and storage temperature range	-40 ... +105 °C [-40 ... +221 °F]	
	Version with FKM O-ring -20 ... +105 °C [-4 ... +221 °F]	
Climate class per IEC 60654-1	Cx (-40 ... +105 °C [-40 ... +221 °F], 5 ... 95 % r. h.)	
	Version with FKM O-ring: -20 ... +105 °C [-4 ... +221 °F]	
Maximum permissible humidity, condensation	100 % r. h., condensation permissible	
Maximum operating pressure	80 bar [1,160 psi]	
Limit density	$\rho \geq 400 \text{ kg/m}^3$	
Salt mist	IEC 60068-2-11	
Vibration resistance	EN IEC 60721-3-2	Cl. 2M4
	EN IEC 60068-2-6	10 ... 55 Hz; 20 m/s ² 10 frequency cycles per axis
Shock resistance per IEC 60068-2-27	<ul style="list-style-type: none"> ■ 50 g ■ 6 ms ■ 3 axes ■ 3 directions ■ 3 times in each direction 	
Ingress protection per EN IEC 60529 ¹⁾	<ul style="list-style-type: none"> ■ IP66 ■ IP68 	
Mounting position	Vertical $\pm 30^\circ$	

1) Ingress protection only applies with a correct plug connection with model NETRIS®3.

Safety-related characteristic values (Ex)

Hazardous gas atmosphere	Temperature class	Ambient temperature range (T _a)	Process temperature
II 1G Ex ia IIC T1 - T6 Ga II 1/2G Ex ia IIC T1 - T6 Ga/Gb II 2G Ex ia IIC T1 - T6 Gb	T6	-40 ... +50 °C [-40 ... +122 °F]	-80 ... +71.5 °C [-112 ... +160.7 °F]
	T5	-40 ... +75 °C [-40 ... +167 °F]	-80 ... +86.5 °C [-112 ... +187.7 °F]
	T4	-40 ... +105 °C [-40 ... +221 °F]	-80 ... +121.5 °C [-112 ... +250.7 °F]
	T3	-40 ... +105 °C [-40 ... +221 °F]	-80 ... +186.5 °C [-112 ... +367.7 °F]
	T2	-40 ... +105 °C [-40 ... +221 °F]	-80 ... +200 °C [-112 ... +392 °F]
	T1	-40 ... +105 °C [-40 ... +221 °F]	-80 ... +200 °C [-112 ... +392 °F]

Hazardous dust/air atmospheres	Power P _i	Ambient temperature range (T _a)	Process temperature
II 1D Ex ia IIIC T* Da II 1/2D Ex ia IIIC T Da/Db II 2D Ex ia IIIC T* Db	330 mW	-40 ... +100 °C [-40 ... 212 °F]	-80 ... 200 °C [-112 ... +392 °F] - 9 K ¹⁾




1) Please take a self heating of 9 K into consideration.

Explosion protection

The permissible ambient temperature for the respective category can be seen on the EC-type examination certificate and the certificate for hazardous areas or the operating instructions.

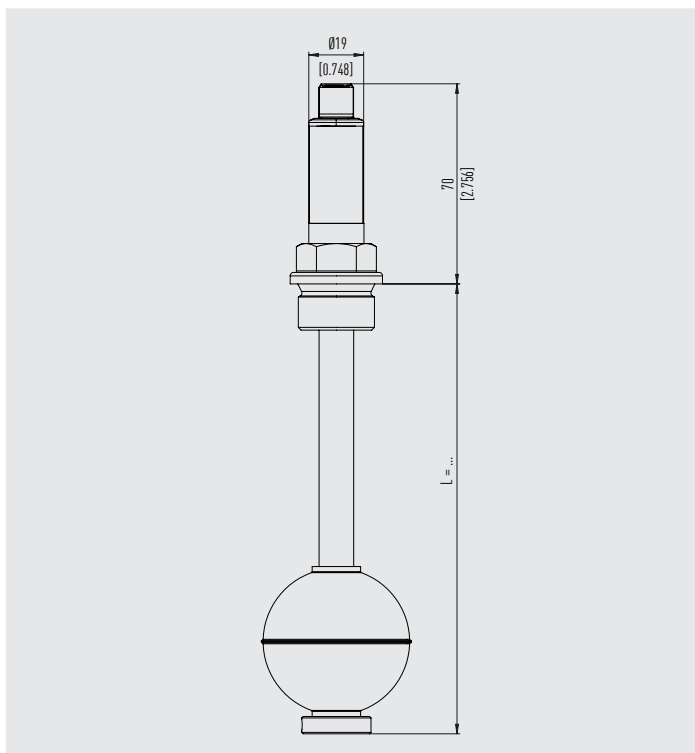
Approvals

Included in delivery

Logo	Description	Region
	EU declaration of conformity EMC directive EN 61326 emission (group 1, class B) and immunity (industrial application) RoHS directive	European Union
	ATEX directive Hazardous areas - Ex i Zone 0 gas II 1G Ex ia IIC T1...T6 Ga Zone 1 mounting to zone 0 gas II 1/2G Ex ia IIC T1...T6 Ga/Gb Zone 1 gas II 2G Ex ia IIC T1...T6 Gb Zone 20 dust II 1D Ex ia IIIC T* Da Zone 21 mounting to zone 20 dust II 1/2D Ex ia IIIC T* Da/Db Zone 21 dust II 2D Ex ia IIIC T* Db	
	IECEx - in combination with ATEX Hazardous areas - Ex i Zone 0 gas Ex ia IIC T1...T6 Ga Zone 1 mounting to zone 0 gas Ex ia IIC T1...T6 Ga/Gb Zone 1 gas Ex ia IIC T1...T6 Gb Zone 20 dust Ex ia IIIC T* Da Zone 21 mounting to zone 20 dust Ex ia IIIC T* Da/Db Zone 21 dust Ex ia IIIC T* Db	International

Dimensions in mm [in]

Process connection with parallel thread



Accessories

Description	Relevant data sheet	Further information
NETRIS®3 radio unit	AC 40.03	on request

Ordering information

Model / Process temperature / Process connection / Process pressure / Density / Insertion length L / Accessories / Certificates

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