

Level transmitters

Series LE



Float level transmitter for liquids

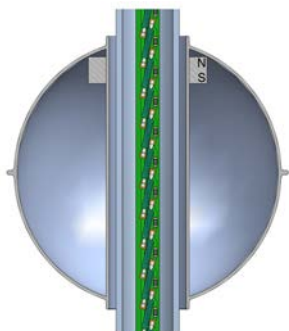
- Simple construction
- Top mounted, or side mounted by means of external chamber
- Watertight and safe installation
- Excellent chemical resistance
- Measuring range: 150 mm ... 6 m
- Resolution: 10 mm
- Connections:
 - EN 1092-1 flange. Other flange standards on request (ANSI, JIS,...)
 - Threaded connections BSP or NPT
- Materials: EN 1.4404 (AISI 316L), PVC, PP, PVDF, PTFE
- Level transmitter:
 - 4-20 mA analog output for safe or hazardous area (Ex ia IIC T4 or T6 protection, ATEX certified). HART, PROFIBUS, FIELDBUS protocols available on request



Working principle

By means of float with magnetic field and reed chain.

A reed switches / resistance chain is mounted inside a guide tube. The changes in liquid level modify the float position in this guide tube, so that it activates the reed switches providing an output signal of variation of resistance, which can be later converted into an analog output of voltage or current.



Applications

- Control of industrial processes and dosing tanks
- Storage for food and beverage industry
- Level control in shipping industry
- Chemical and textile industry

Models

- **Models LEM:** guide tube length shorter than 2000 mm. Minimum liquid density 0.8 kg/l
- **Models LE:** guide tube length longer than 2000 mm. Minimum liquid density 0.6 kg/l

- **LE ... LEM70** flanged connection
- **LE ... LEM71** threaded connection

Technical data

- **Resolution:** 10 mm
- **Hysteresis:** ± 5 mm
- **Liquid density:**
 - Models LEM: ≥ 0.8 kg/l
 - Models LE: ≥ 0.6 kg/l
- **Maximum liquid viscosity:** 1500 cSt
- **Measuring range:**
 - Models LEM: 150 ... 2000 mm
 - Models LE:
 - EN 1.4404 (AISI 316L): 150 ... 6000 mm
 - PVC / PP / PTFE / PVDF: 150 ... 2500 mm
 - PVC / PP / PTFE / PVDF, with AISI 316L inside: 150 ... 6000 mm

Others on request

- **Liquid temperature:**
 - EN 1.4404 (AISI 316L): -20°C ... +150°C
 - PTFE, PVDF: -20°C ... +150°C
 - PVC: 0°C ... +50°C
 - PP: -10°C ... +90°C

- **Ambient temperature:**
 - EN 1.4404 (AISI 316L): -20°C ... +60°C
 - PTFE, PVDF: -20°C ... +60°C
 - PVC: 0°C ... +50°C
 - PP: -10°C ... +60°C

- **Working pressure:**
 - EN 1.4404 (AISI 316L) and PVC / PP / PTFE with AISI 316L inside: PN16
 - PVC / PP / PTFE: PN10

Others on request

- **Connections:**
 - Models LEM:
 - EN 1092-1 DN50 flange
 - G1½ or 1½" NPT thread
 - Models LE: EN 1092-1 DN100 flange

Others on request

- **Ingress protection:** IP67 for plastic housing. IP65 for connector DIN43650 and aluminium housing.
- **Mounting:** vertical on top of the tank or in a side chamber
- **Special design** with bent rod on request

Transmitters

- **Level transmitter** by means of reed / resistance chain. Output signal 0 ... 4-20 mA:
 - TR2420: 24 VDC, 2-wire system, with compact converter
 - TR420: 24, 125, 220 VAC, 50/60 Hz / 24 VDC, 4-wire system, with remote converter
- HART, PROFIBUS, FIELDBUS,... protocols and ATEX certified Ex ia IIC T6 on request

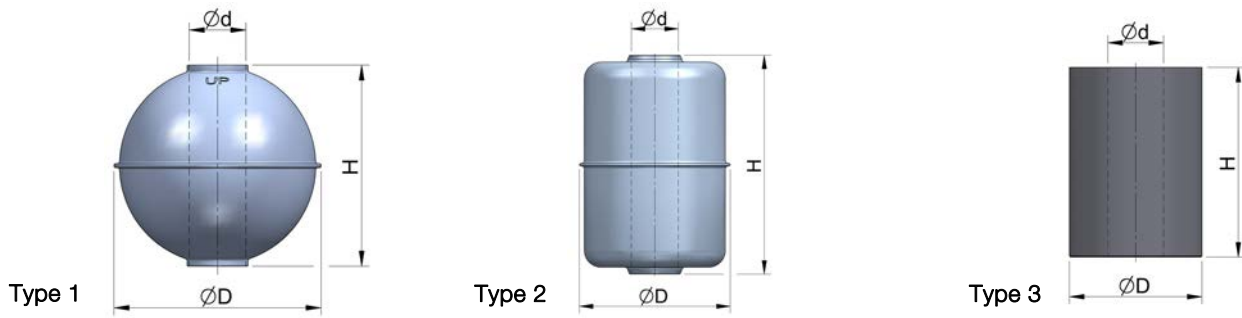


Model LEM70, flanged connection and polycarbonate housing

Level transmitters

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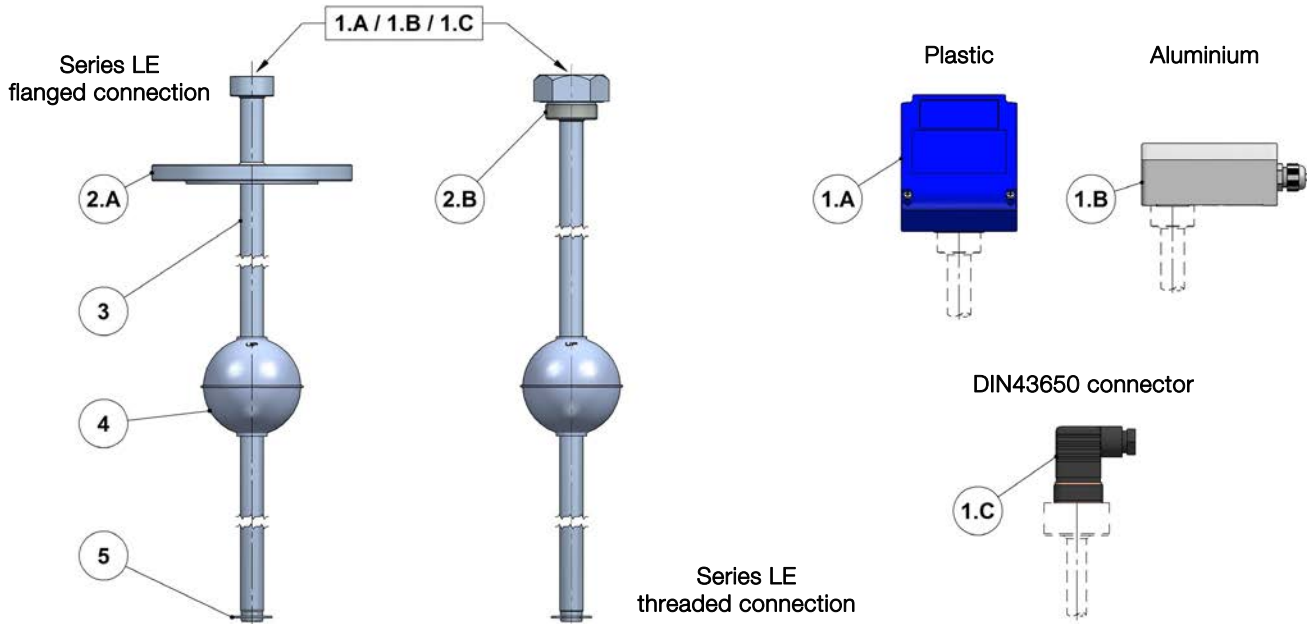
Float types



	Floats models LE						Floats models LEM				
	Type 1		Type 3				Type 1	Type 2	Type 3		
Material	EN 1.4404	EN 1.4404	PVC	PP	PVDF	PVDF	EN 1.4404	EN 1.4404	PVC	PP	PVDF
PN	25	25	10	10	10	10	25	25	10	10	10
d _{min}	0.6	0.65	0.8	0.7	0.8	1.0	0.75	0.8	0.8	0.7	1.0
T _{max}	150	150	45	90	135	135	150	150	45	90	135
ØD	115	95	63	63	63	63	52	44	45	45	45
H	112	92	90	90	150	90	52	64	70	70	70
Ød	26	26	26.5	26.5	27	27	13.5	13,5	17	21	17

EN 1.4404 = AISI 316L

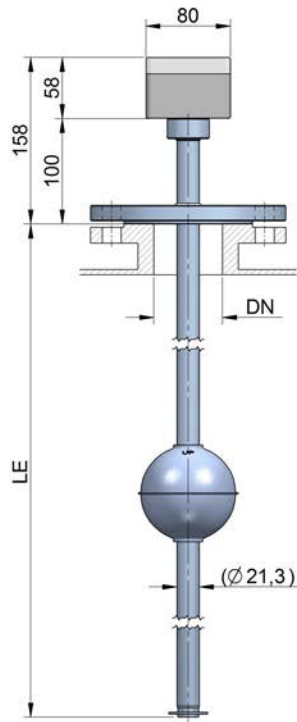
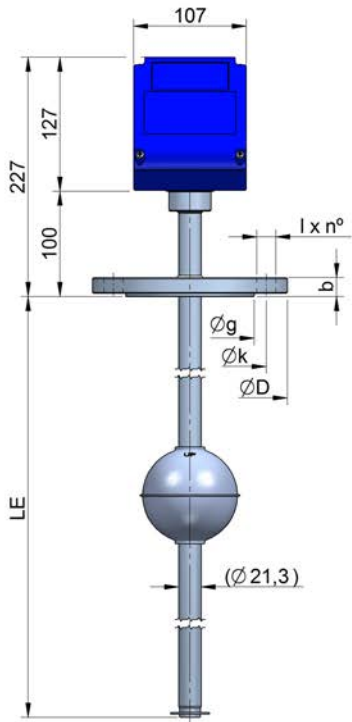
Materials



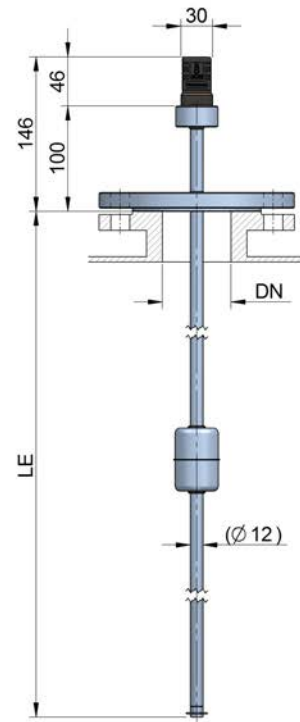
N°	Description	Materials		
		LE ... LEM / INOX	LE ... LEM / PVC ... PP ... PVDF	LE ... LEM / PTFE
1.A / 1.B	Housing	Polycarbonate / Aluminium		
1.C	Connector	Polyamide		
2.A / 2.B	Flange / Thread	EN 1.4404 (AISI 316L)	PVC ... PP ... PVDF	PTFE
3	Guide tube	EN 1.4404 (AISI 316L)	PVC ... PP ... PVDF	PTFE
4	Float	EN 1.4404 (AISI 316L)	PVC ... PP ... PVDF	PTFE
5	Float stop	EN 1.4404 (AISI 316L)	PVC ... PP ... PVDF	PTFE

Dimensions

Models LE

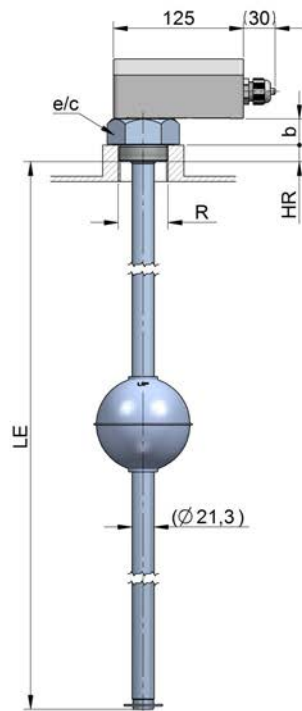
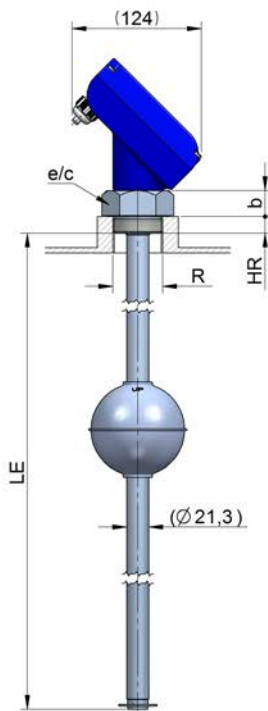


Models LEM

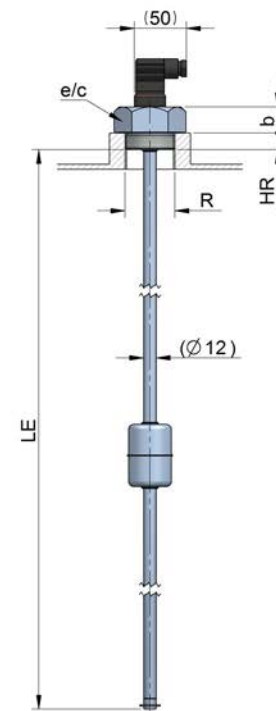


Models	DN	PN	D	g	k	l x n°	b	LE
LEM	50	40	165	102	125	18 x 4	20	Acc. to order
LE	100	16	220	158	180	18 x 8	20	

Models LE



Models LEM



Models	R	e/c	b	HR	LE
LE / LEM	G1½	60	25	16	Acc. to order

The different housings can be used with all models of level transmitters. Drawings are shown only for dimensional data. Standard connections are shown. Others on request.

Transmitters

Transmitter composed of a resistive sensor based on a reed and resistances chain, mounted on a printed circuit placed inside a guide tube.

Variations in level inside the tank move the float, which by means of magnetic coupling changes the value of the resistance of the resistive sensor in correspondence to the measured liquid level.

These variations of resistance are processed by an electronic converter in order to obtain a 0 ... 4-20 mA current output proportional to liquid level.

Technical data LE

- Connection by means of IP65 connector, IP67 polycarbonate housing or IP65 aluminium housing
- Distance between reed switches: 10 mm
- Liquid temperature: depending on material
- Ambient temperature: depending on material



2-wire system

For 2-wire system, the TR2420 resistance/mA converter is supplied, in an IP67 plastic housing or optionally in an IP65 aluminium housing compact mounted on the sensor head.

Technical data TR2420

- Power supply: 12 ... 36 VDC, safe area version
- Power consumption: 0.8 W
- Output: 4-20 mA
- Programmable locally or by means of USB cable and software Winsmeter TR available for download at www.tecfluid.com

Also available with 2-wire system:

- TR2420Ex: hazardous area version ATEX Ex ia IIC T6
Power supply: 8 ... 30 VDC
- TR2420H (HART protocol), TR2420P (Profibus protocol) or TR2420F (Fieldbus protocol). Also available in combination with their Ex versions

4-wire system

For 4-wire system the TR420 resistance/mA converter is supplied, DIN 46277 rail mounted.

Technical data TR420

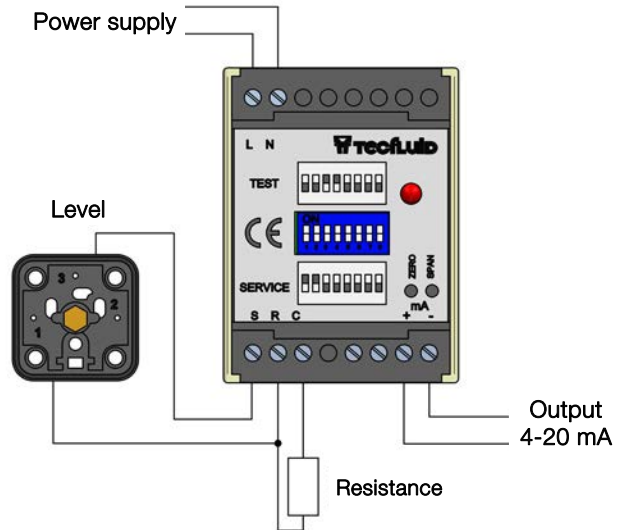
- Power supply: 24, 110, 230, 240 VAC 50/60 Hz / 24 VDC
- Power consumption: <1 VA
- Outputs: 0-20 mA, 4-20 mA, 0-5 V, 0-10 V, 1-5 V, 2-10 V



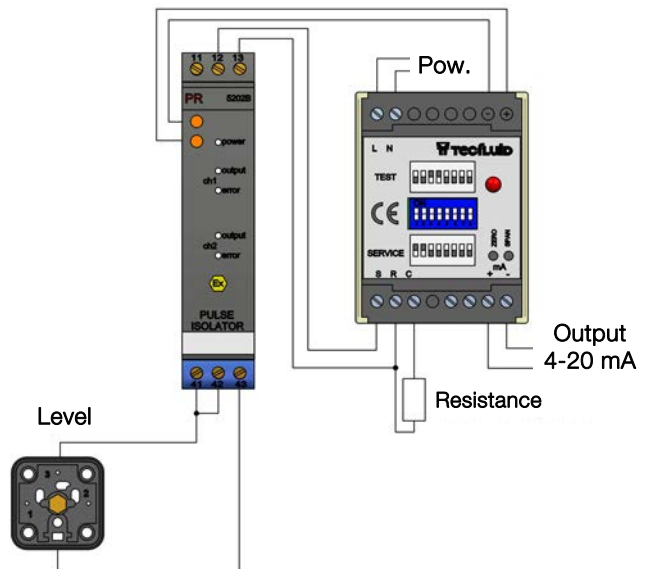
TR420
(remote converter
 Ω /mA)

Wiring diagram for 4-wire system level transmitter

without galvanic isolation



with galvanic isolation



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The technical data described in this specification sheet is subject to modification without notification if the technical innovations in the manufacturing processes so require.