

Level transmitters Series LE

Float level transmitter for liquids



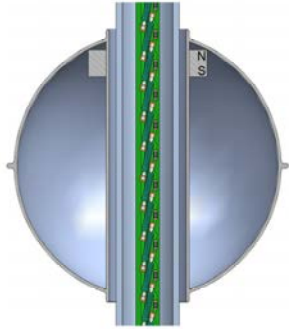
- Simple construction
- Top mounted, or side mounted by means of external chamber
- Watertight and safe installation
- Excellent chemical resistance
- Measuring range: 150 mm ... 6 m
- Resolution: 10 mm
- Connections:
 - EN 1092-1 or ASME B16.5 flange. Other flange standards on request (JIS,...)
 - Threaded 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 or Ex d protection, ATEX certified). HART, PROFIBUS, FIELDBUS, MODBUS protocols available on request
- Optional:
 - Level indication
 - Alarm outputs



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 0.7 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: ≥ 0.7 kg/l
 - Models LE: ≥ 0.6 kg/l
- **Maximum liquid viscosity:** 1500 cSt
- **Measuring range:**
 - Models LEM: 150 ... 2000 mm
 - Models LE: 150 ... 6000 mm
 - PVC / PP / PTFE / PVDF manufactured with AISI 316L rod inside

Others on request

- **Liquid temperature:**
 - EN 1.4404 (AISI 316L): $-20^{\circ}\text{C} \dots +150^{\circ}\text{C}$
 - PTFE, PVDF: $-20^{\circ}\text{C} \dots +150^{\circ}\text{C}$
 - PVC: $0^{\circ}\text{C} \dots +50^{\circ}\text{C}$
 - PP: $-10^{\circ}\text{C} \dots +80^{\circ}\text{C}$

- **Ambient temperature:**
 - EN 1.4404 (AISI 316L): $-20^{\circ}\text{C} \dots +60^{\circ}\text{C}$
 - PTFE, PVDF: $-20^{\circ}\text{C} \dots +60^{\circ}\text{C}$
 - PVC: $0^{\circ}\text{C} \dots +50^{\circ}\text{C}$
 - PP: $-10^{\circ}\text{C} \dots +60^{\circ}\text{C}$

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

Others on request

- **Connections:**
 - Models LEM:
 - EN 1092-1 DN50 or ASME B16.5 2" 150# flange
 - G1½ or 1 ½" NPT thread
 - Models LE: EN 1092-1 DN100 flange

Others on request

- **Ingress protection:** IP67 for plastic housing. IP65 for connector DIN43650. IP68 for aluminium housing
- **Mounting:** vertical on top of the tank or in a side chamber
- **Special design** with bent rod on request

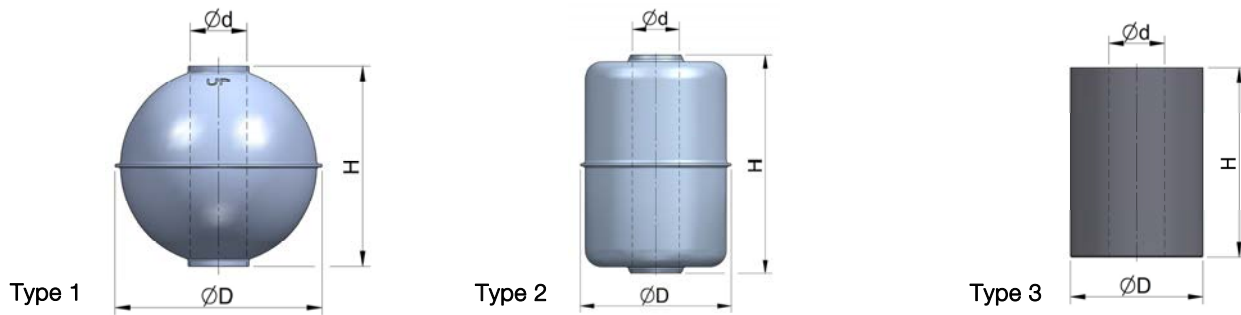
Transmitters

- **Level transmitter** by means of resistive sensor. Output signal 4-20 mA:
 - TR3420: 24 VDC 2-wire system, compact or DIN rail mounted, for safe area and with ATEX certificate Ex d
 - TR2420: 24 VDC 2-wire system, compact mounted, for safe area and with ATEX certificate Ex ia, and HART, PROFIBUS, FIELDBUS,... protocols



Model LEM70, flanged connection and polycarbonate housing

Float types

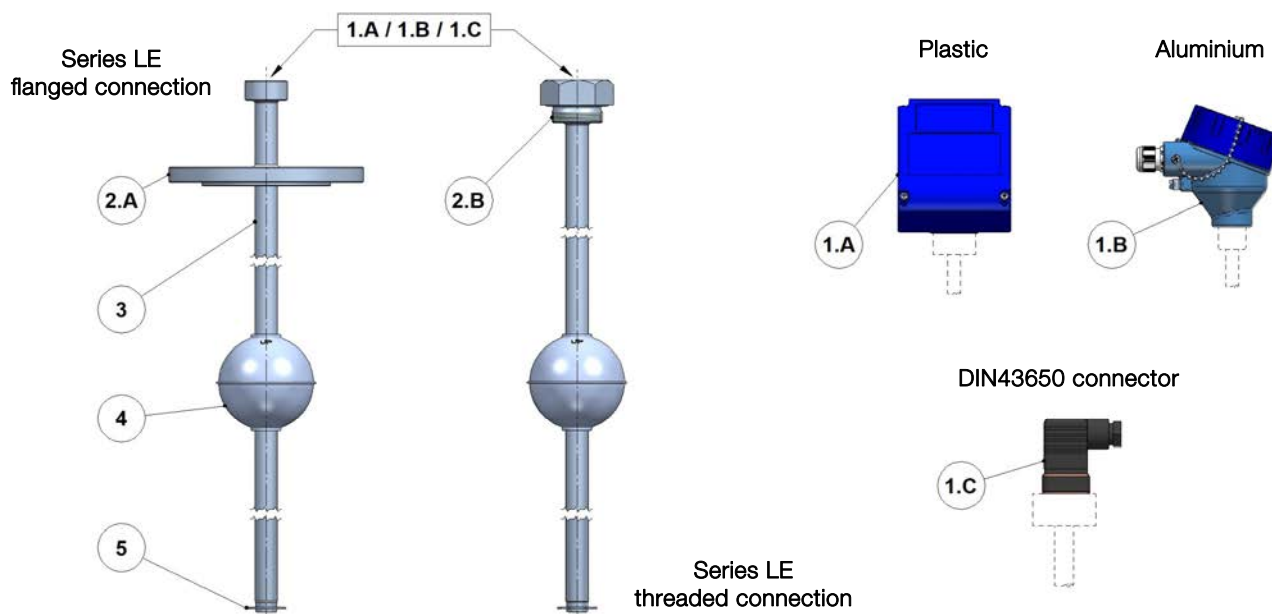


| | Floats models LE | | | | | | Floats models LEM | | | | |
|-----------------|------------------|-----------|--------|------|------|------|-------------------|-----------|--------|-----|------|
| | Type 1 | | Type 3 | | | | Type 1 | Type 2 | Type 3 | | |
| Material | EN 1.4404 | EN 1.4404 | PVC | PP | 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 |
| $\varnothing D$ | 115 | 95 | 63 | 63 | 63 | 63 | 52 | 44 | 45 | 45 | 45 |
| H | 112 | 92 | 90 | 90 | 150 | 90 | 52 | 64 | 70 | 70 | 70 |
| $\varnothing d$ | 26 | 26 | 26.5 | 26.5 | 27 | 27 | 13.5 | 13,5 | 17 | 21 | 17 |

EN 1.4404 = AISI 316L

All dimensions in mm

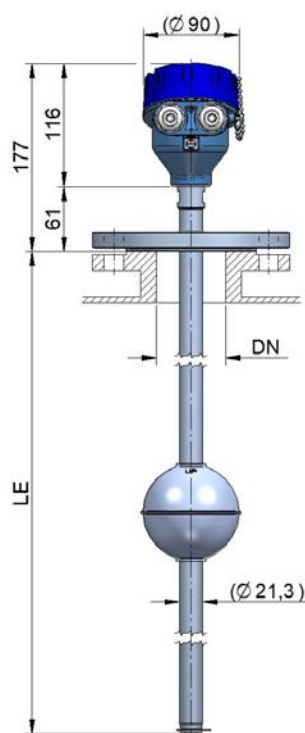
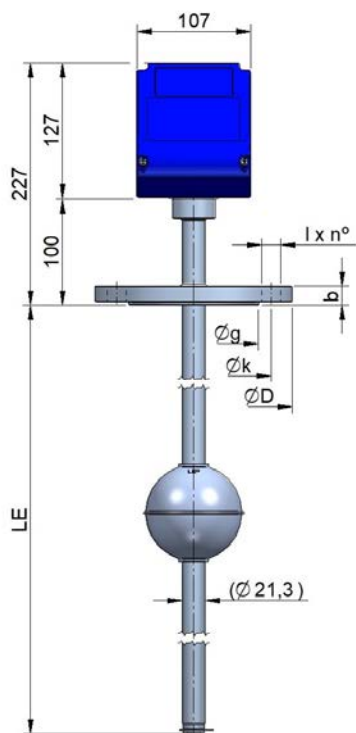
Materials



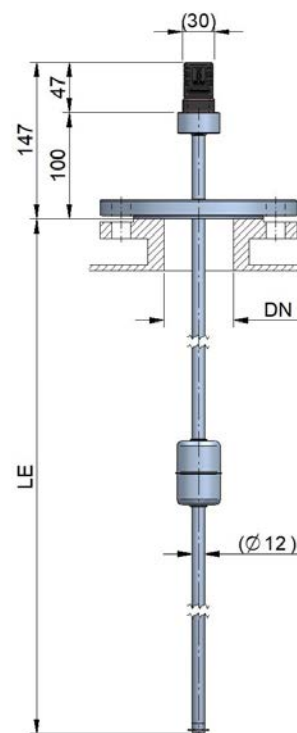
| N° | Description | Materials | | |
|-----------|-----------------|---------------------------|----------------------------------|-------------------|
| | | LE ... LEM / AISI 316L | LE ... LEM / PVC ... PP ... PVDF | LE ... LEM / PTFE |
| 1.A / 1.B | Housing | Polycarbonate / Aluminium | | |
| 1.C | 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 / PVDF |
| 5 | Float stop | EN 1.4404 (AISI 316L) | PVC ... PP ... PVDF | PTFE |

Dimensions

Models LE

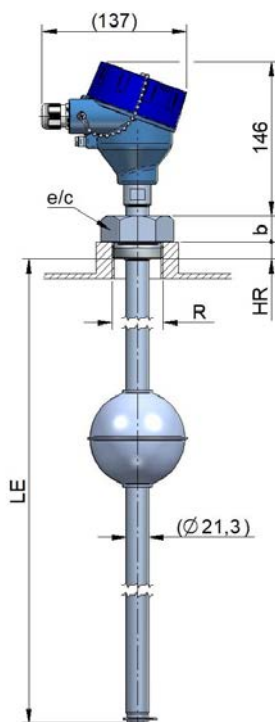
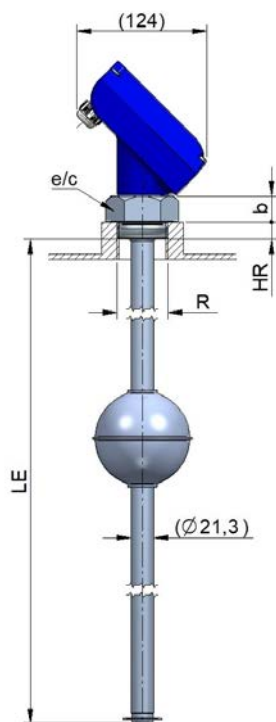


Models LEM

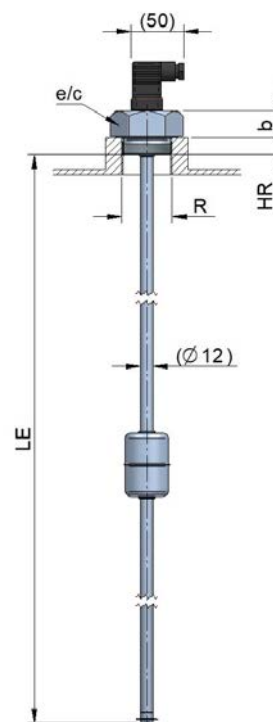


| Models | DN | PN | D | g | k | l x n° | b | LE |
|--------|-----|----|-----|-----|-----|--------|----|---------------|
| LEM | 50 | 40 | 165 | 102 | 125 | 18 x 4 | 20 | Acc. to order |
| LE | 100 | 16 | 220 | 158 | 180 | 18 x 8 | 20 | |

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 (all dimensions in mm). Standard connections are shown. Others on request.

Transmitters

Transmitter LE 4-20 mA



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 level.

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

Technical data LE

- Connection by means of IP65 connector, IP67 polycarbonate housing or IP68 aluminium housing
- Distance between reed switches: 10 mm
- Liquid temperature: depending on material
- Ambient temperature: depending on material

Transmitters series TR

- 2-wire system with 4-20 mA output
- **TR3420** safe area or hazardous area ATEX Ex d IIC T6
 - Power supply: 12 ... 36 VDC
 - Consumption: 0.8 W
 - Local configuration by means of USB connection and Winsmeter TR software available for download at www.tecfluid.com
- **TR2420Ex** hazardous area ATEX Ex ia IIC T6
 - Power supply: 8 ... 30 VDC
- **TR2420H** (HART protocol), **TR2420FP** (FIELDBUS/PROFIBUS protocol). Also available in combination with their Ex ia versions

Electronic converter

Model MT03L

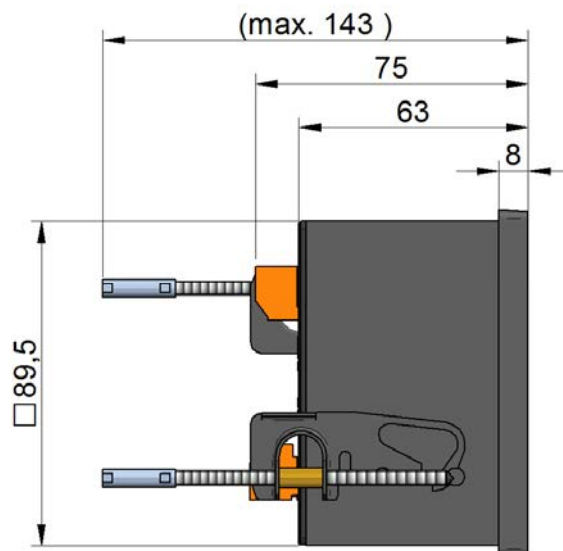
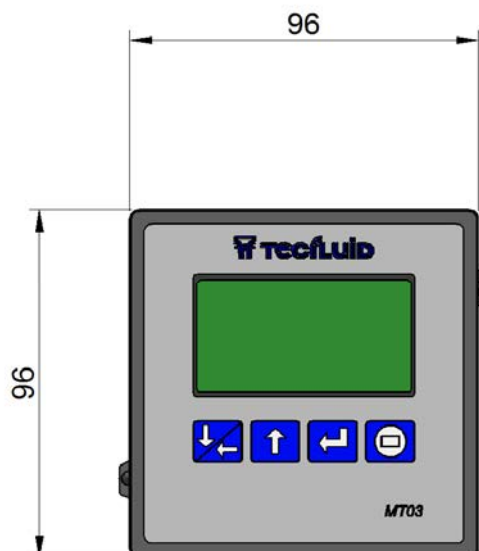


- Electronic converter for level applications
- Resistance and current inputs
- Programmable via USB cable by means of Tecfluid S.A. Winsmeter MT03 software or by means of keyboard and graphic display with intuitive menus
- Panel mounting with dimensions 96 x 96 mm DIN 43700
- Power supply: 100 ... 240 VAC 50 / 60 Hz
18 ... 36 VDC
- Full diagnosis. User selectable password protection
- 5 digits level indication
- Programmable 4-20 mA analog output
- 2 x relay outputs programmable as level alarms
- Ingress protection: IP50 front, IP30 back (Optional IP65 front with silicone cover)
- Ambient temperature: -20°C ... +60°C
- MODBUS RTU RS485 protocol on request



MT03L

Dimensions converter MT03L



**PRESENCE IN MORE THAN 50 COUNTRIES
ALL OVER THE WORLD**



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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.