

Level Indicator

Series LP80



Level indicator for liquids

- Metallic construction, optional with plastic rod
- Provides a reliable level measurement under extreme process conditions (very high temperatures, pressures and with corrosive fluids)
- Standard construction in EN 1.4404 (SS 316L)
- Indication by means of magnetic coupling
- Linear scales in % or height
- Connections:
 - Standard: DN40 DIN flanges
 - Other flange standards on request (ANSI, JIS)
 - Screwed connections BSP or NPT
 - Sanitary connections to DIN 11851, CLAMP ISO 2852, SMS 1145
- Range of measurement: 300 mm to 6 m
- Local indication
- Options:
 - 1 or 2 limit switches
 - Electronic transmitter with 4-20 mA analog output for safe or hazardous area with EEx ia IIC T4/T6 (ATEX) protection
 - Pneumatic transmitter 3-15 psi (0.2-1 bar)



Measurement principle

According to Archimedes principle of body submerged in a liquid.

A rod with a density similar to the measured liquid is suspended by a spring to maintain an equilibrium with its weight. A variation in liquid level produces a change in the weight of the rod (partially submerged), which can be measured by the extension of the spring that supports the rod. The variation of the length of the spring is transmitted to the indicating needle via a magnetic coupling between a magnet on the end of the spring and a magnet fixed to the indicator.

This measurement principle is well suited to dirty environments.

Applications

The LP80 is used in a broad range of applications, such as:

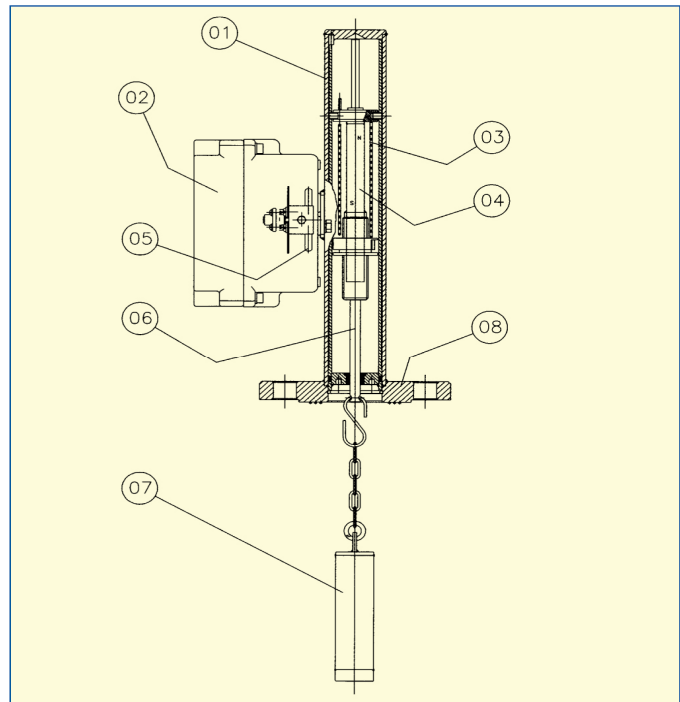
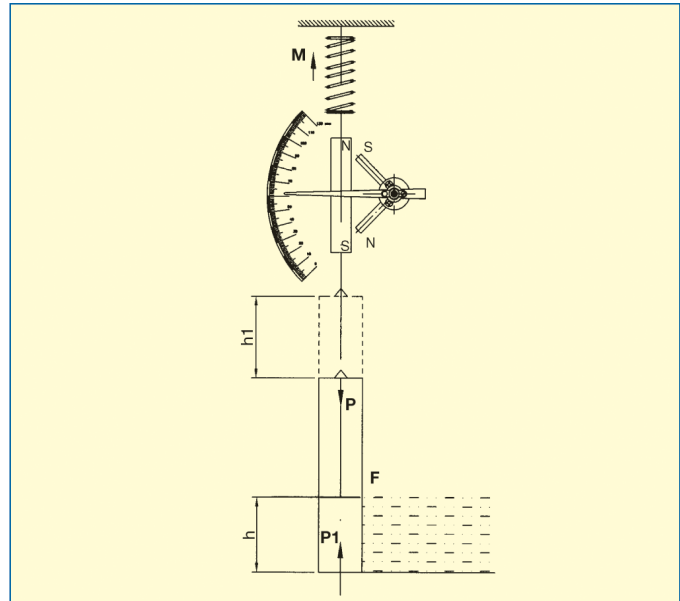
- Chemical and Petrochemical
- Oil and Gas
- Steam/Power
- Food and beverage
- Storage of toxic products
- Monitoring and control of common processes

Technical Data

- Installation:
 - Vertically, on the top of the tank
 - (Side mounting with external chamber)
- Connections:
 - DN40 Flanges PN16...PN40 DIN 2501 (EN 1092-1)
 - 1½" (BSP) Screwed connections
 - Others available on request
- Range: 300 mm to 6 m
- Accuracy:
 - +/- 1.5% of the measured value
- Scale: % or height
- Working pressure:
 - Standard: PN16...PN40
 - Max: up to PN400, on request
- Temperature of liquid (for EN 1.4404 - SS 316L):
 - Standard: -60°C to 150°C
 - On request: -120°C to 400°C
- Ambient Temperature:
 - 10°C to 80°C (see transmitter data)

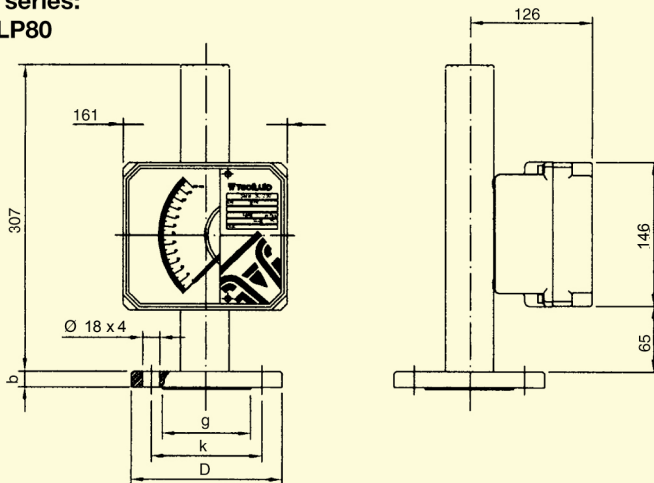
Limit switches and transmitters

- .../AMM1...2 ; 1 or 2 adjustable micro-switches
- .../AMD1...2 ; 1 or 2 adjustable inductive detectors (+relays on order)
- TH4... TH4H 4-20 mA transmitter 2 wire; HART™ protocol on demand
- TH32Ex 4-20 mA transmitter 2 wire EEx ia IIC T4 (ATEX)
- TKEx 4-20 mA Transmitter 2 wire EEx ia IIC T6 (ATEX)
- TP1200 Pneumatic Transmitter 3-15 psi (0.2-1 bar)

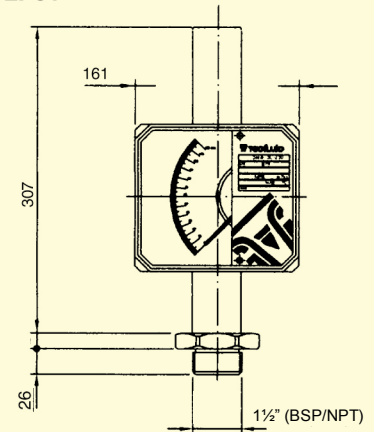


N°	Piece	Materials		
		LP-.../INOX	LP-.../PVC	LP-.../PTFE
1	Body	EN 1.4404 (SS 316L)		
2	Indicator box	Coated Aluminium		
3	Spring	EN 1.4401 (SS 316)		
4	Float Magnet	Alnico		
5	Indicator Magnet	Alnico		
6	Float Guide	EN 1.4404 (SS 316L)		
7	Rod	EN 1.4404 (SS 316L)	PVC	PTFE
8	Connection	EN 1.4404 (SS 316L)		

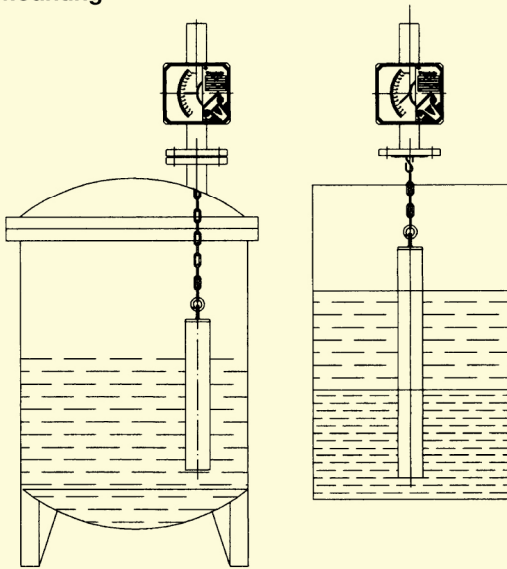
**Dimensions series:
LP80**



LP81

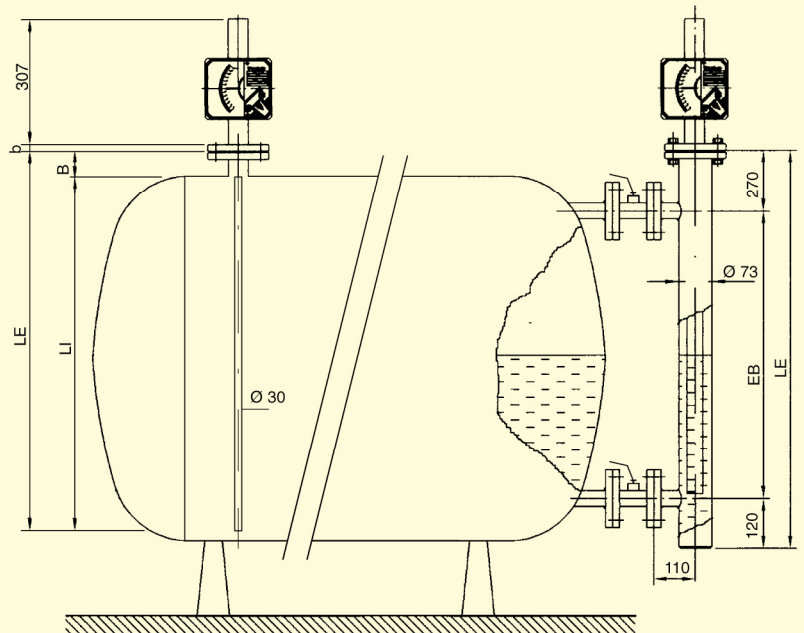


Mounting



High pressure level measurement

Interface level measurement



LP80 + 80ME

Series LP80 & LP80+80ME

DN	PN	D	k	g	l x n	b	B	EB	LE	LI
40	40	150	110	88	18x4	18				to specify

Series LP81 1 1/2\"(BSP/NPT) Thread

Clamp, ISO, etc... on request

Thermal Separator DT

- Standard in aluminium, optional in EN 1.4404 (SS316L)
- For working with fluids at high and low temperatures
- Maximum temperature up to 400°C (Reference ambient temperature = 20°C)

Stainless Steel Housing CTI series

- Specially indicated for working within sanitary or sterile installations
- For saline atmospheres (marine platforms), etc.
- All stainless steel construction EN 1.4404 (SS 316L)
- Can fit standard limit switches and Halltec transmitters
- Ingress protection: IP67

Limit Switches and Transmitter Options

Adjustable limit switch LP-AMM

Electrical micro-switch mounted in the indicator housing.

- LP-AMM1...2: 1...2 adjustable limit switches
- Ratings: 3(1) A, 250 V (VDE/CEE)
- Hysteresis: $\pm 10\%$ of full scale value
- Ambient temperature: -25°C to $+80^{\circ}\text{C}$
- Mechanical life: 10^7 Operations

Gold plated contacts on order.

Adjustable limit switch LP-AMD

NAMUR (DIN19234) 3.5 mm slot type inductive detector activated by vane, mounted in the indicator housing.

- LP-AMD1...2: 1...2 bi-stable limit switches
- Detector power supply: 8 Vdc
- Ambient temperature: -25°C to $+70^{\circ}\text{C}$

Control Relay (on demand)

NAMUR (DIN19234) for 1 or 2 inductive detectors.

- Power supply: 24...230 V ac 50-60 Hz
24...250 V dc
- Input: NAMUR EEx ia IIC
- Output: 1 or 2 inductive detectors
- Output Rating: 2...5 A / 40 Vdc
- Ambient temperature: -25°C to $+70^{\circ}\text{C}$



Electric transmitter LP-TKEx

The TKEx electric transmitter is an angular position converter coupled to the indicating system of the flowmeter and uses a 2 wire connection. It provides a linear output of 4-20 mA proportional to the flow rate. It is intrinsic safety ATEX certified to EEx ia IIC T6.

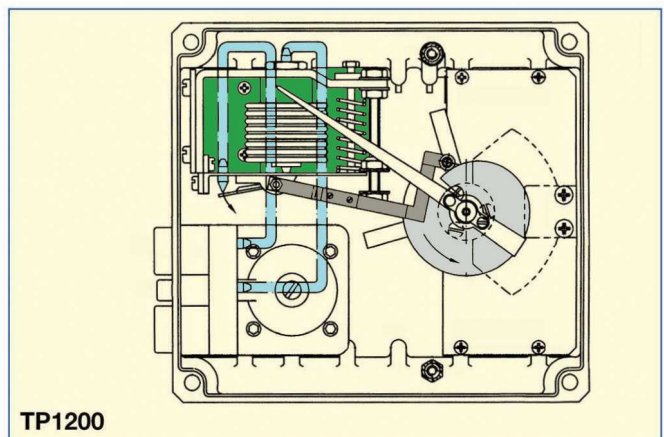
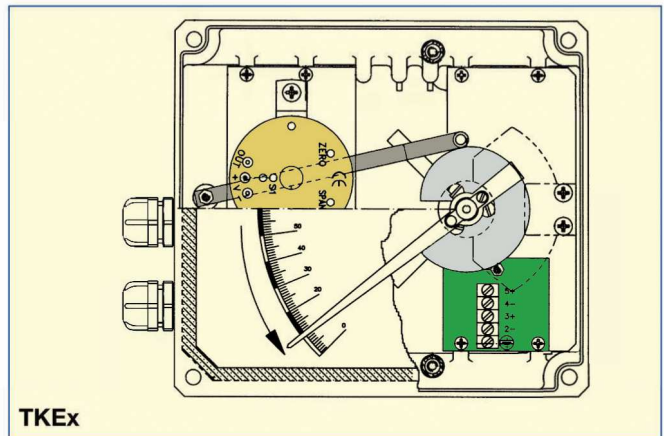
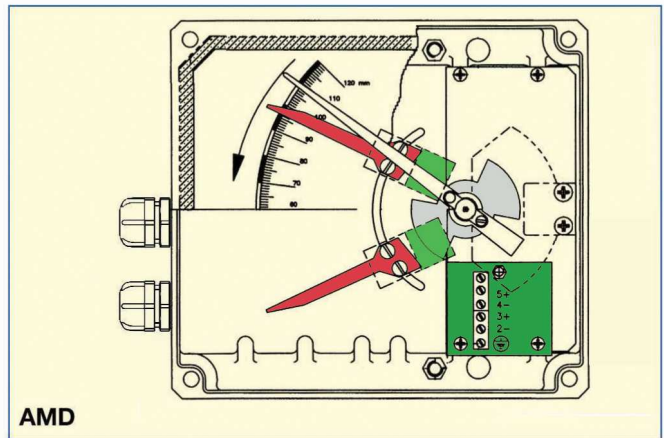
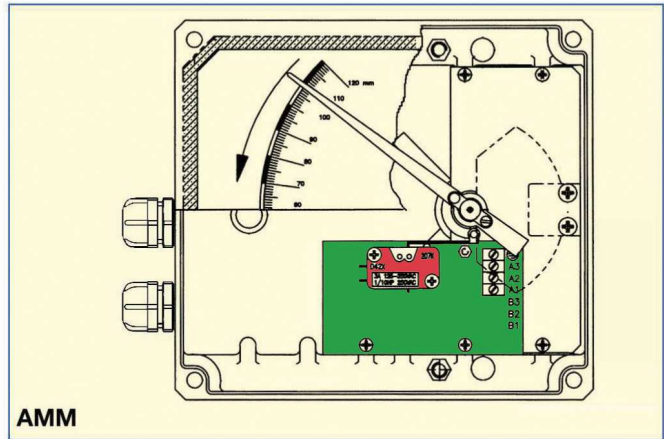
- Power supply: 12...30 Vdc
- Output signal: 4-20 mA
- Electrical connection: 2 wire
- Short circuit current: <160 mA
- Internal Inductance: $L_i=0$
- Internal Capacitance: $C_i \leq 10$ nF
- Ambient Temperature: -20°C to $+40^{\circ}\text{C}$



Pneumatic Transmitter LP-TP1200

The TP1200 pneumatic transmitter provides a 3-15 psi or 0.2-1 bar, proportional to the flow rate.

- Air supply: 1.4 bar \pm 0.1 bar
- Air consumption: 460 NI/h
- Output signal: 3-15 psi (0.2-1 bar)
- Linearity: $\pm 0.4\%$
- Hysteresis: $\pm 0.25\%$
- Ambient temperature: $-10...+70^{\circ}\text{C}$



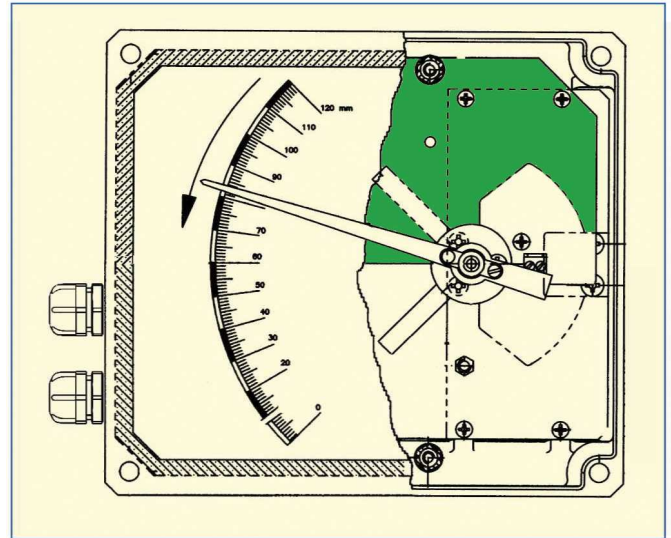
Transmitters HALLTEC

The HALLTEC electronic transducers provide an analog output proportional to the height. They are based on the Hall effect and they are mounted in the indicator housing.

HALLTEC IV TH4 Transmitter
TH4H Transmitter + HART™

Technical characteristics

- Power supply: 2 wire, 12...50 Vdc
- Power consumption: max. 20 mA less than 2 VA
- Outputs:
 - Analog output (4...20 mA):**
 - Precision: < 0.6% of the magnet position
 - Maximum load in 4-20 mA loop: 2 kΩ (with 50 Vdc power supply)
- Ambient temperature: -5°C to +70°C



HALLTEC III (EEx ia IIC T4 ATEX)

TH32Ex Transmitter

Technical characteristics

- Power consumption: 4...20 mA for 0...100% of scale
- Output:
 - Analog output (4...20 mA):**
 - Precision: < 0.6% of the magnet position
 - Maximum load in 4-20 mA loop: 700 Ω (with 24 Vdc power supply)
- Ambient temperature: -5°C to +70°C



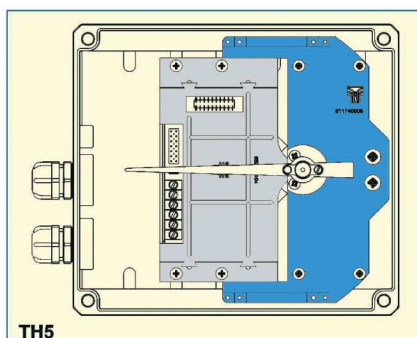
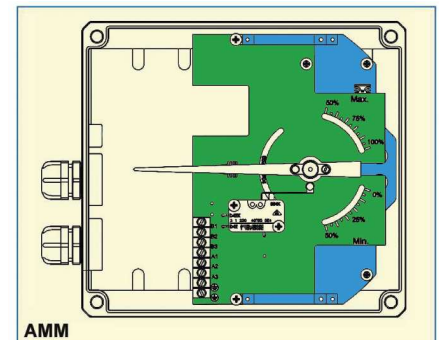
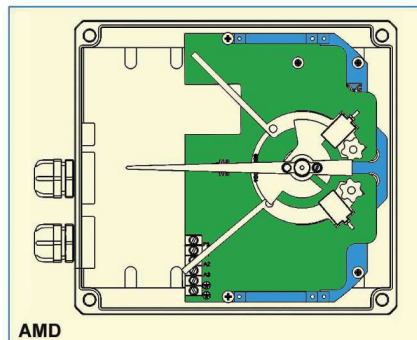
The TH32Ex belongs to group II. It is destined for use in locations where there may be the hazard of the formation of explosive atmospheres, except for mining.

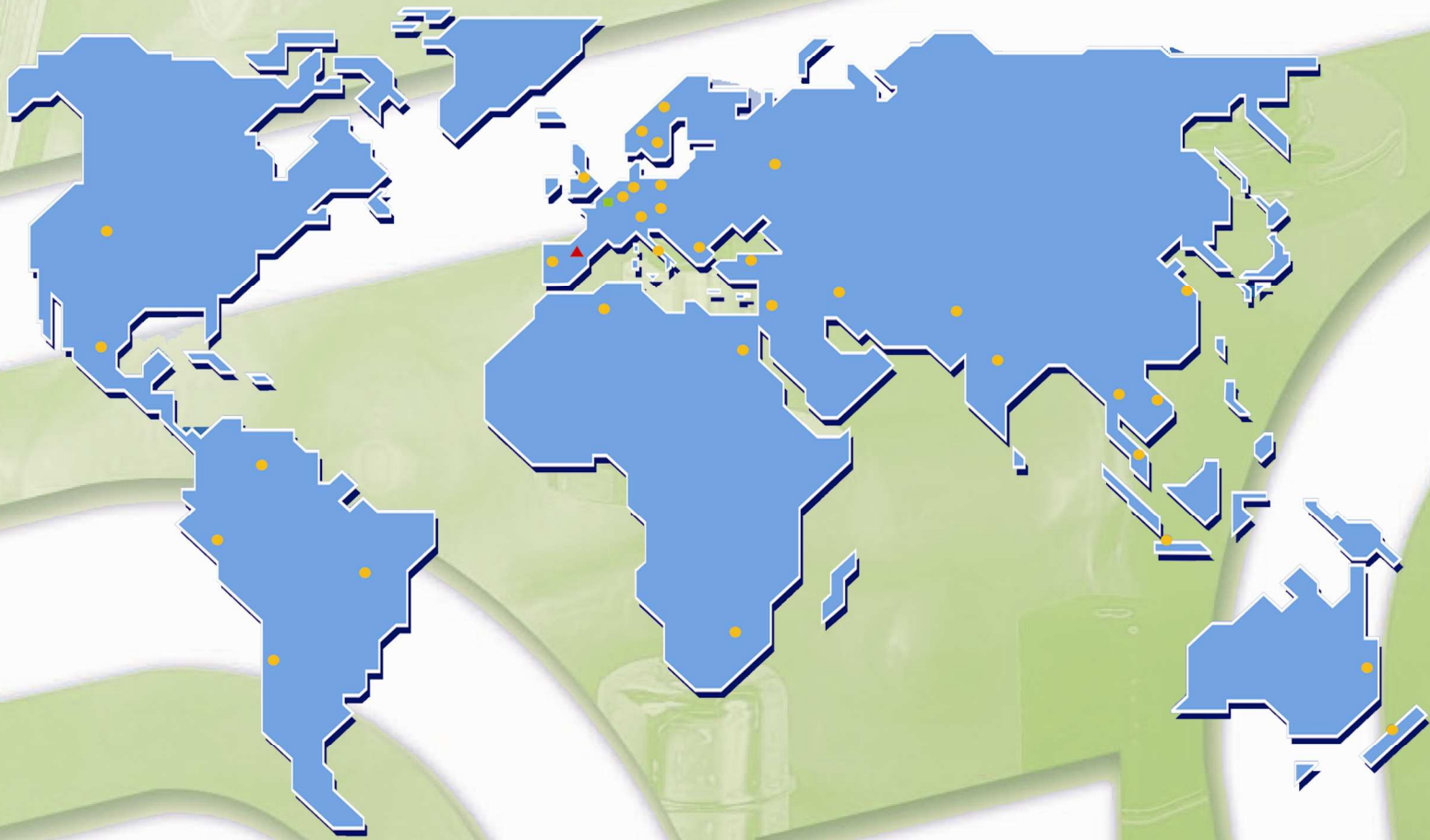
NEW INDICATOR BOX AND NEW ELECTRONICS AVAILABLE SOON:

New modular design for switches and electronic transmitters.

HALLTEC V

New series of transmitters HALLTEC V with analog output, HART™ protocol compatibility and ATEX version. Both limit switches (AMM or AMD) and electronic transmitters TH5 can be mounted together in the same indicator box.





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For the Pressure Equipment Directive 97/23/CE, Tecfluid S.A. is certified by



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The technical data in this pamphlet is subject to modification without notification, if the technical innovations in the product or manufacturing processes so require.