The art of measuring

Level indicators

Series NPC

Indicator by means of pulleys and counterweight system for liquids

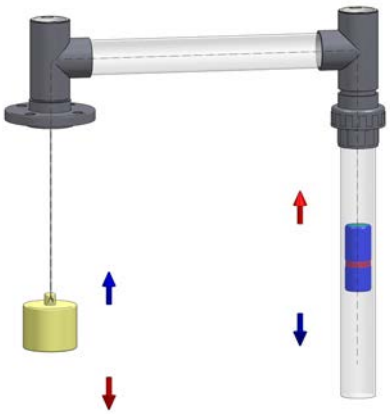
- Simple and cheap construction
- Suitable for almost all the liquids, even agressive and corrosive fluids
- No risk of leakage
- Excellent chemical resistance
- Measuring range: up to 15 m
- Connections:
  - DN50 EN 1092-1 flanges. Other sizes on request
  - Solvent weld socket connection
- Materials:
  - Pulleys: PVC
  - Float: PP, PVC, PVDF, EN 1.4404 (AISI 316L)
  - External counterweight-indicator: PVC
- Local indication by means of external counterweight
- Options:
  - Switches
  - Electronic transmitter with 4-20 mA analog output for safe or hazardous area (Ex ia IIC T6 protection, ATEX certified). HART, PROFIBUS, FIELDBUS protocols available on request

HART COMMUNICATION PROTOCOL

Working principle

A PVC counterweight which is joined to a PP, PVC, PVDF or EN 1.4404 float by means of a cable, moves along two protected pulleys and show the tank level externally. Changes in tank level displace the float up and down. This movement is transferred to the external counterweight.

The float is always wetted by process fluid. A magnet inside the counterweight allows this instrument to fit alarm switches or electronical transmitters.



Applications

- Water treatment plants
- Storage of chemicals and petrochemical industry
- Paper industry
- Car industry

Technical data

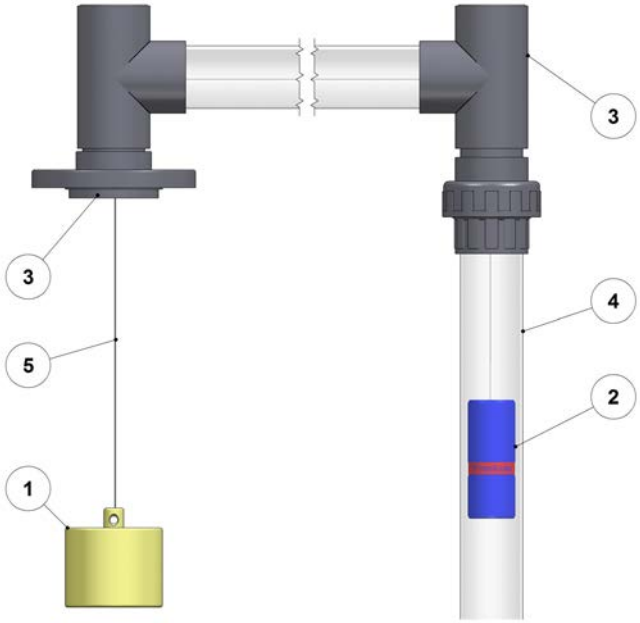
- Scale in cm available on request
- Liquid density: ≥ 0.8 kg/l
- Measuring range: up to 15 m
- Liquid temperature: 0ºC … +60ºC
- Ambient temperature: 0ºC … +60ºC
- Working pressure: Ambient (PN10 on request)
- Connections:
  - DN50 EN 1092-1 flanges. Other sizes available
  - Solvent weld socket connection
- Mounting: on top of the tank

Limit switches and transmitters

- LNPC-APR: adjustable reed switches
- LNPC-AMM: adjustable micro-switches
- LNPC-AMD: adjustable inductive switches (+ relays on request)
- LTE: Resistive sensor transmitter 0 ... 4-20 mA:
  - TR2420: 24 VDC 2-wire system, compact mounted
  - TR420: 24, 125, 220 VAC, 50/60 Hz / 24 VDC, 4-wire system, DIN rail mounted

HART, PROFIBUS, FIELDBUS protocols, and Ex version available on request

Materials



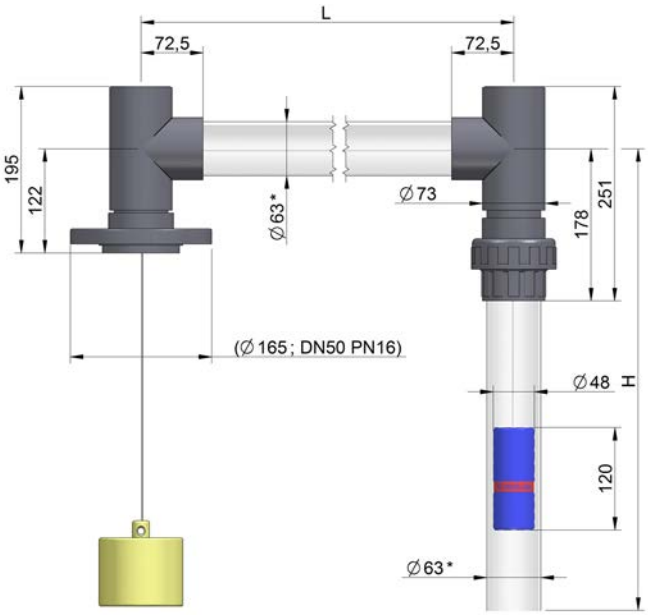
Nº	Description	Materials
1	Float	PP, PVC, EN 1.4404 (AISI 316L)
2	Counterweight-indicator	PVC
3	Pulleys	PVC
4	Tube *	Transparent PVC
5	Cable *	PP, EN 1.4401

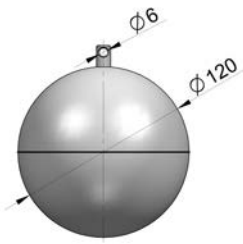
* Supplied on request

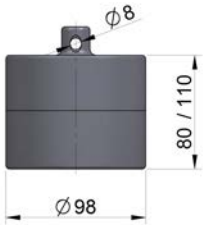
Float types

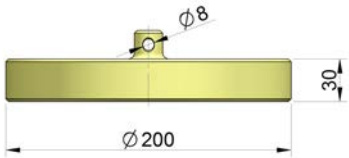
Materials	Dimensions mm	Liquid density kg/l
EN 1.4404	Ø 120	≥ 0.8
EN 1.4404	Ø 90 x 110	≥ 0.96
PP	Ø 98 x 80	≥ 0.93
PP	Ø 98 x 110	≥ 0.93
PP	Ø 200 x 30	≥ 0.93
PVC	Ø 98 x 80	≥ 0.93

Dimensions









Other flange sizes on request
* Supplied on request

Limit switches

Adjustable switch LNPC-AMM

- SPDT bi-stable micro-switch
- IP65 coated aluminium housing
- Contact rating: 3 A 220 VAC
- Hysteresis: ±6 mm
- Liquid temperature: 0ºC ... 60ºC
- Ambient temperature: -25ºC ... 80ºC
- Mechanical life: 20 x 10^6 operations
- Suitable for hazardous area, considered as "Simple apparatus"

Adjustable switch LNPC-AMD

NAMUR (EN 60947-5-6) 3.5 mm slot type inductive detector activated by vane, mounted in an aluminium housing.

- Power supply: 8 VDC
- Hysteresis: ±6 mm
- Liquid temperature: 0ºC ... 60ºC
- Ambient temperature: -25ºC ... +70ºC
- ATEX certification Ex ia IIC T6

Control relay (on request)

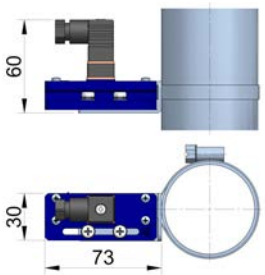
NAMUR (EN 60947-5-6) for 1 or 2 inductive detectors.

- Power supply: 24 … 253 VAC 50-60 Hz / 24 … 300 VDC
- Input: NAMUR Ex ia IIC
- Output: 1 or 2 relay contacts
- Output rating: 2 A 250 VAC 100 VA / 1 A 24 VDC
- Ambient temperature: -25ºC ... +70ºC

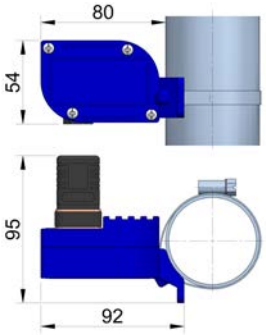
Adjustable switch LNPC-APR

- SPDT bi-stable reed switch
- IP65 polycarbonate housing
- Contact rating: 0.5 A 220 VAC 60 VA
- Hysteresis: ±6 mm
- Liquid temperature: 0ºC ... 60ºC
- Ambient temperature: -10ºC ... 70ºC
- Suitable for hazardous area, considered as "Simple apparatus"

LNPC-APR



LNPC-AMM / AMD



Transmitters

Transmitter LTE 0 ... 4-20 mA

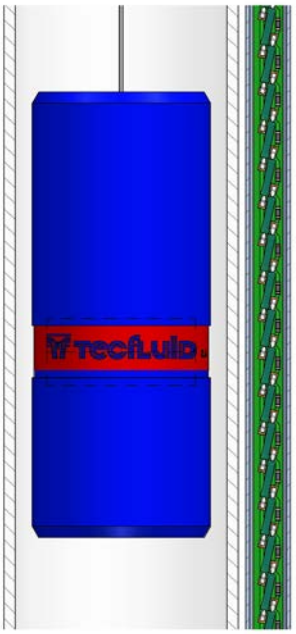
Transmitter composed of a resistive sensor based on a reed and resistances chain, mounted on a printed circuit placed inside a guide tube. Not wetted by the process liquid.

Variations in level inside the tank move the external NPC counterweight, which by means of magnetic coupling changes the value of the resistance of the resistive sensor in correspondance 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 LTE

- Connection by means of IP65 connector, IP67 polycarbonate housing or IP65 aluminium housing
- Distance between reed switches: 10 mm
- Liquid temperature: 0ºC ... 60ºC
- Ambient temperature: 0ºC ... 60ºC



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)

The art of measuring

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Pressure Equipment Directive 97/23/CE certified by Lloyd's Register

ATEX European Directive 94/9/CE certified by LCM

R-CT-NPC Rev. 0 english version