

*Instruments made to measure!*

## PASCAL CV LEVEL

### Hydrostatic level measurement based on LTC technology \* sets new standards for accuracy

Continuous hydrostatic level measurement in fluids is the one of the most important and widely used principles of measurement involving diaphragm seals. The new generation of membrane technology significantly reduces the process temperature error of these systems. The process temperature error in applications with temperature changes is reduced up to 0.1 mbar / 10 K by the new low temperature coefficient (LTC) membrane - irrespective of the rated pressure range of the transmitter. The LTC membrane is a reliable, robust and non-sensitive stainless steel membrane.

#### Features



- Temperature compensation up to 0.1 mbar / 10K ( $\pm 0.01\%$  / 10 K at 1000 mbar nominal range)
- Mechanically robust stainless-steel membrane
- Various process connections available
- Hygienic design
- Output signal 4...20 mA, option: HART protocol, PROFIBUS PA
- „smart“ function modules for displaying, switching and communicating
- Easy parameter assignment
- High level of protection against moisture (IP 66)
- Medium temperature -20...90 °C, -20...160 °C optional
- Explosion protection: TÜV 04 ATEX 2387 X  
II 1/2G EEx ia II C T6  
II 2 D T60°C IP 65



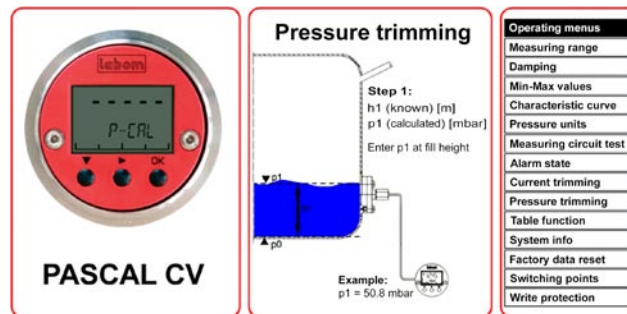
\* Patent pending

# PASCAL CV LEVEL

## Level Measurement for food/pharmaceutical/biotechnology

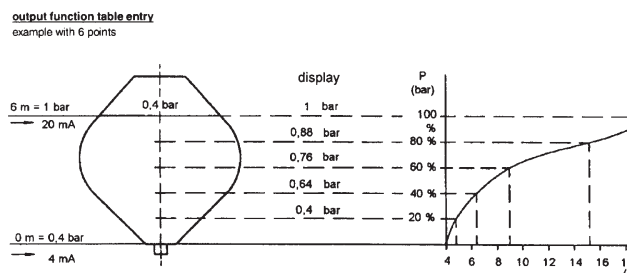
### Level measurement - a piece of cake

- Use the menu function “Pressure trimming” locally on the device to correct the zero point.
- Use the “Teach-in” function to accept zero point and fill height in the vessel.
- The measurement is displayed on the display module. The value is displayed as a function of the pressure in the desired engineering unit (e.g. mm wg or m wg).



### Measuring tank contents - no problem either

- The physical dimensions of a tank can be parameterized with the “Table Function” in order to measure the tank contents.
- The tank contents is output as a current signal.
- The current output can be customized to suit the physical dimensions of the vessel by means of 31 points in a table.



### Hygienic design - as a matter of course

Housing design according to EHEDG specifications is crucial in the food and pharmaceutical industries. The hygienic housing design made of stainless steel with two chambers and fully encapsulated function modules ensures outstanding protection against moisture under all operating conditions (IP66 protection rating). The piezo-resistive measuring cell is directly aerated by a PTFE filter system – there is no interior gasket.

Another key feature of the device is the hygienic design of the different aseptic process connections. We have focussed, especially, on producing high surface quality so that we can offer roughness values to the order of Ra 0.8 µm for wetted-parts applications. The entire system is electropolished for higher specifications.

### Hydrostatic level measurement with diaphragm seals – offering many advantages:

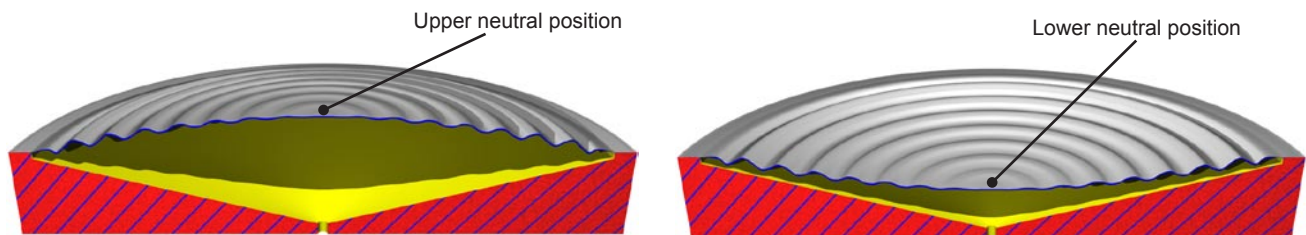
- unaffected by foaming
- a measuring arrangement that is free of dead pockets under very hygienic operating conditions
- no issues with the changing electrical properties of process fluids
- insensitive to high process fluid temperatures and temperature variations
- mechanically robust stainless-steel membrane

## The new LTC membrane for continuous level measurement

The new LTC membrane (LTC = Low Temperature Coefficient) compensates for the volumetric coefficient of expansion of the pressure transmitting fluid in the entire pressure measuring system.

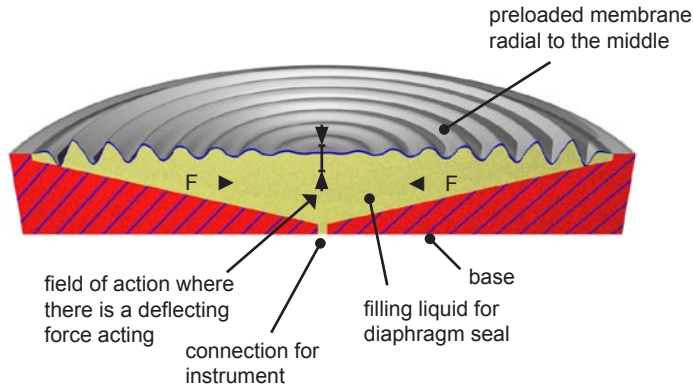
The LTC membrane is stretched and spread over the base radially to the center in a special manufacturing process. There are at least two neutral positions at which the membrane can settle: an upper and a lower neutral position.

Within the neutral positions the LTC membrane essentially exerts no restoring force.



The membrane is fitted to a suitable diaphragm seal and is positioned between these neutral positions by means of a special filling process.

### Operating state



Practically no deflecting force acts on the LTC membrane. The membrane compensates almost all diaphragm seal errors arising from temperature effects. The compensation gradient is a function of the diameter of the active membrane surface. The bigger the membrane, the smaller the temperature error.

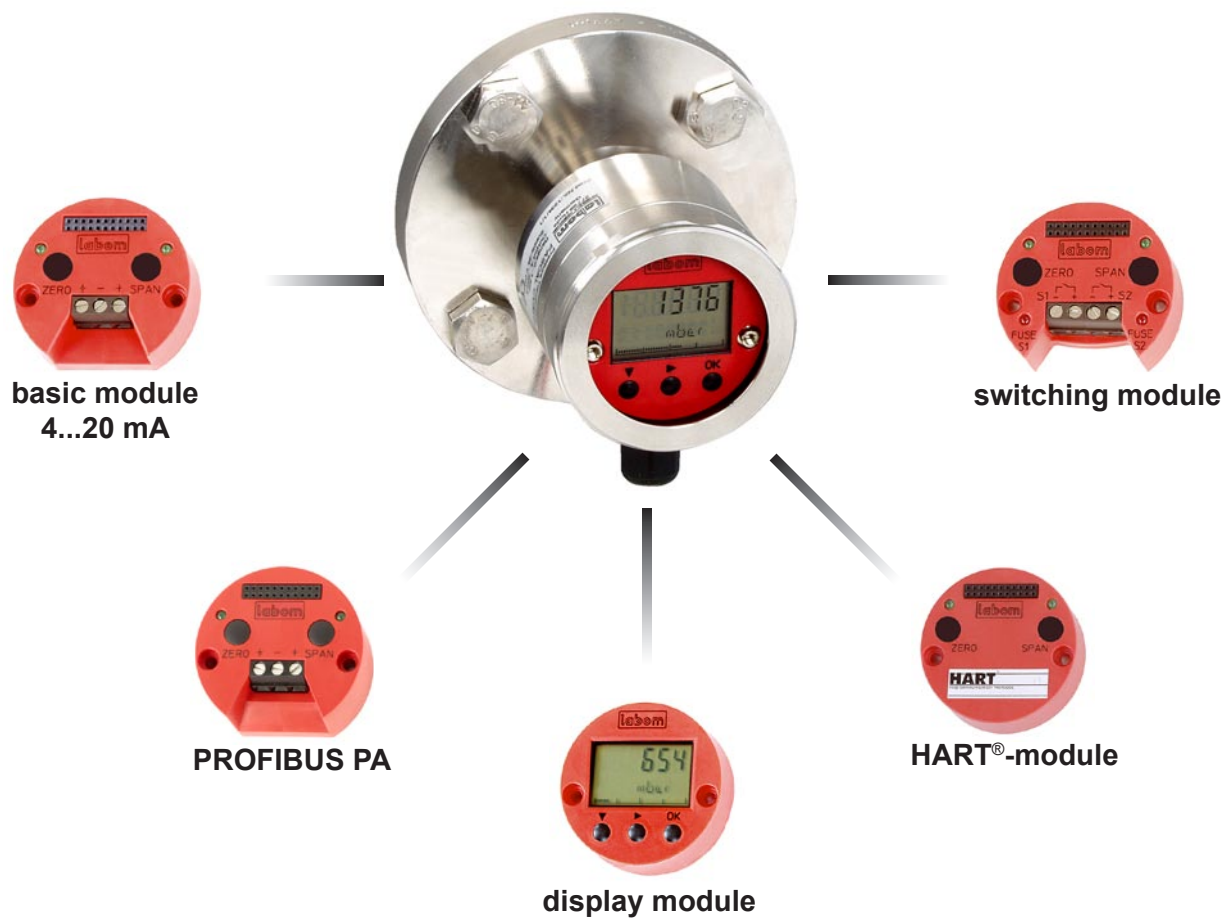
- active membrane surface approx.  $\varnothing$  85mm  $\rightarrow$  process temperature error  $< 0.1$  mbar / 10 K ( $\hat{=}$  0.01 % / 10 K at 1000 mbar nominal range)
- active membrane surface approx.  $\varnothing$  65 mm  $\rightarrow$  process temperature error  $< 0.2$  mbar / 10 K ( $\hat{=}$  0.02 % / 10 K at 1000 mbar nominal range)
- active membrane surface approx.  $\varnothing$  50 mm  $\rightarrow$  process temperature error  $< 0.4$  mbar / 10 K ( $\hat{=}$  0.04 % / 10 K at 1000 mbar nominal range)

Due to its high strength and special geometry, the membrane is

- mechanically robust against cleaning processes using hard water jets, cleaning nozzles and the like, and against coarsely-grained and abrasive substances
- chemically resistant to caustic solutions used in cleaning processes, and is resistant to product concentrates

## PASCAL CV LEVEL - the modular level transmitter

Smart function modules for display, switching and communication based on "plug and measure" technology allow the level transmitter to be configured to suit the application at hand.



## For special requirements - the necessary certificate

