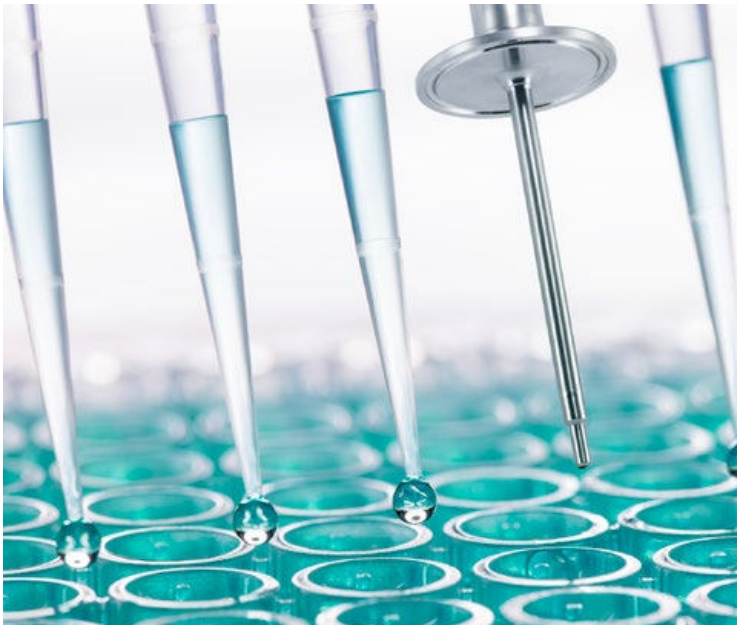
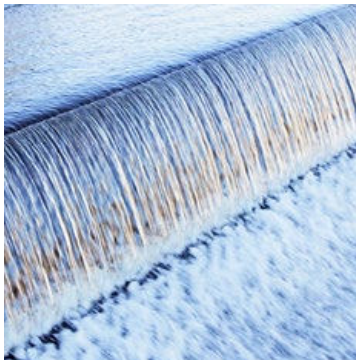
SCHNEIDER MESSTECHNIK

Labom MEASUREMENT TECHNOLOGY

Made to measure. Since 1968.





LABOM INSIDE

RELIABLE MEASUREMENT & MONITORING

Pressure Temperature Level Accessories

CONTENT

Labom
MEASUREMENT TECHNOLOGY

MADE-TO-MEASURE SOLUTIONS

Standard and Custom Solutions

For nearly 50 years LABOM has been one of the leaders in quality for industrial pressure and temperature measurement technology. The German company specialises on the measuring and monitoring of pressure, level and temperature.

In addition to a wide range of standard products, we offer custom-built instruments. We work closely with our customers to provide tailor-made solutions.

What challenges do you face in your industry?

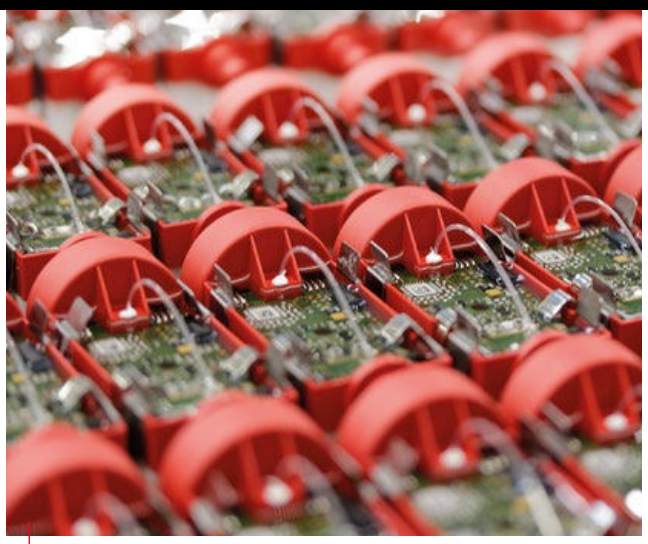
LABOM pressure and temperature measuring devices are developed exclusively to meet the most stringent quality requirements. Hygienic design is a requirement of users in food processing, pharmaceutical and biotechnology. Our customers from the shipping and petrochemical industries expect robust casings that can withstand rugged service environments. Aggressive media, high process temperatures and the highest safety requirements are typical standards in the chemical industry, in the field of water/wastewater and in power generation.

Smart communication systems can be connected to our electronic instruments and put to work in virtually any process environment. A high degree of accuracy coupled with reliability over many years of service are the primary quality requirements that every LABOM process instrument must satisfy.

Flexibility with our own manufacturing and warehousing facilities

Meeting the high demands of our customers is responsible motivation for us. We've been in this business for almost 50 years: This gives us confidence to have used the most advanced technologies to ensure our future. We serve our customers as partners at home and abroad. We have your processes and control challenges at heart and we will always look to find the best solution for you!

The headquarters of our development and production are our factory in Hude (Oldenburg). Many of our staff have been with us for years; they are highly qualified. We are a vertically integrated manufacturer with large inventory, sophisticated quality standards and a considerable number of variants with short lead times.



Attention to detail

Different designs

Customised production

PROCESS MANUFACTURING

In process manufacturing measurement devices monitor or control the processing of ingredients and materials in chemical, physical, biological or other technical proceedings. Special properties are required with respect to the measuring technology used: For example, hygienic process connections or process media compatibility, silicone or oil-free equipment and many more.

Chemical / Petrochemical industries

LABOM devices meet requirements such as extreme environmental conditions like high temperatures or aggressive media and most of them are intrinsically safe as prescribed by the ATEX standard.

Pharmaceutical industry / Biotechnology

LABOM specialised in manufacturing measuring equipment in hygienic design: Hygienic surfaces, easy-to-clean housings, elimination of dead space or aseptic process connections are some of the properties of the devices.

Food / Beverages

LABOM develops and manufactures measuring equipment for food and beverages applications according to internationally recognised standards for hygienic design. All devices are suitable for CIP or SIP cleaning.

Paint industry / Plastics industry

In the painting industry, the use of dead-zone free measuring devices with perfect cleaning characteristics is as important as in hygienic applications, where even the smallest amount of residue from a previous process can result in undesired colour mixtures.

MACHINERY AND PLANT ENGINEERING

The machinery and plant engineering industries produce complex products and equipment for all manufacturing industries. The demands on the measuring equipment they use are also subject to specific requirements depending on the target industry or end user – be it hygienic or robust qualities or specific approvals that are required. The long list of LABOM customers from the machinery, automation technology, industrial equipment manufacturing and plant engineering sectors appreciate LABOM products because of their versatility and flexibility.

Machinery / Automotive Industry

One of the challenges in automotive industry lies in the trend towards the use of water-soluble paints. As a result, LABOM offers a diaphragm seal system filling for painting systems, which is absolutely free of any silicone that could inhibit paint wetting.

Shipbuilding and Marine Equipment

The very aggressive environment in particular (salt water, vibrations etc.) requires highest demands on measuring equipment. It must therefore be designed to be especially robust and reliable.

Industrial production

Depending on the target sector of machinery and equipment, special requirements are to be considered for measurement instrumentation: LABOM provides a broad range of proven devices suitable for many different application areas.

ENERGY AND ENVIRONMENTAL TECHNOLOGIES

Environmental technology refers to technical and technological processes to protect the environment and restore ecosystems: for example, waste management/disposal, technologies for the effective use of renewable energies or instruments for the detection and monitoring of pollutants and environmental damage.

Renewable Energies

LABOM is familiar with the energy storage sector and when it comes to designing equipment for wind turbines, LABOM is working in close cooperation with leading manufacturers of wind power plants.

Power Plants/Public Utilities

Efficiency, security of supply, reliability and long-term stability without maintenance are important criteria when choosing the measurement components for public utilities and power plants.

Oil and Gas Production/Onshore/Offshore

Measurement devices in oil and gas production must be particularly robust and reliable to be able to withstand the harsh environments with temperature peaks and dirt.

Water and Waste Water

LABOM standard stainless steel equipment can take on many tasks in the area of water and waste water because of its robust design with excellent moisture protection.

Quick finder

	Certificates						Industries										Page
							Process Industries				Energy and environmental technologies				Machinery and plant engineering		
	EX	SIL2	S Safety pattern gauge	EHEDG	HART®	Profibus	Chemical / Petrochemical	Pharma / Biotechnology	Food / Beverages	Paint / Plastics industry	Renewable energies	Power plants / Public utilities	Oil and gas production	Water and waste waster	Machinery / Automotive	Shipbuilding and marine equipment	Industrial production	
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Outdoor and indoor thermometer	■	■					■	■					■		■	■	■	27
Resistance thermometer clamp-on technology	■	■					■	■	■									28
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ELECTRONIC PRESSURE AND DIFFERENTIAL PRESSURE

PASCAL Ci4 COMMUNICATIVE

With intuitive operation – for highest demands

- Simultaneous display of pressure, pressure in %, pressure in mA
- Multilanguage, illuminated graphical display
- Display structure configurable, numerical display enhanced by bar graph
- Intuitive 4-button operation with quick-setup

This unit contains optional extras

- Freely rotatable display with detents every 90° to adapt to the installation position
- Display and control unit can be fitted up to 10 m away from the measuring point
- Degree of protection IP 65/67 or IP 69 K
- Comprehensive parameterisation, simulation and diagnostic functions
- Quick setup provides a fast overview of parameterisation
- Nominal range 0.1 to 400 bar
- Turndown up to 100:1
- Measuring rate up to 100 Hz
- Accuracy 0.1 %, Model CI4340: up to 0.068 %
- Output signal 4 … 20 mA with HART®-protocol
- Many process connections with internal or flush mounted diaphragm
- Differential pressure with metallic membrane
- Configuration memory
- Approved according to NAMUR (NE 95)
- Ex protection for gases and dust, IECEx
- Material and calibration certificates
- SIL2 certificate

CI4100

HIGHLIGHTS

- Comfortable operation due to intuitive user navigation
- Quick access to all device data
- Comprehensive parameterisation, simulation and diagnostic functions
- Backlight display can be steplessly rotated
- Display removable for remote mounting
- Development according to SIL2 criteria

The **digital pressure transmitter** PASCAL Ci4 is designed to meet the highest requirements. It measures pressure in nominal ranges from 100 mbar to 400 bar at a measuring rate of up to 100 Hz with accuracy of 0.1 percent. It is compatible with a wide range of process connections and diaphragm seals. Pressure, differential pressure and level devices are available (Page 22).

Food / Pharmaceutical / Biotechnology

CI4110

Chemical / Petrochemical / Diaphragm seal operation

CI4120

Rear-sided connection

CI4103

Front flange for flush mounting

CI4103

Differential pressure for diaphragm seal operation

CI4330

Differential pressure

CI4300 (PN 70)
CI4340 (PN 160)

ELECTRONIC PRESSURE AND DIFFERENTIAL PRESSURE

PASCAL CV MODULAR

With smart modular technology – for high demands

Base

Displays

HART®

Profibus

Switch

CV3100

OPERATING MENUES

- Min Max
- Phys. unit
- Damping
- Alarm status
- Table function
- Current adjustment
- System information etc.

The **modular pressure transmitter** PASCAL CV is suitable for measuring relative and absolute pressures of gases, vapours and liquids. A wide range of versions is available, for hygiene-sensitive applications as well as for extreme environments. For instance, the CV with HYGIENIC process connection adapters is suitable for various process connections in the food and pharmaceutical industry. The diaphragm seal version with flange-type design is ideally suited for measuring aggressive, highly viscous, crystalline media as well as adhesive media.

The modular concept with variable adapters reduces long term stocking expenses. All of the modules in the modular system can be mixed and matched.

With inline diaphragm seal

CV3110

Food / Pharmaceutical / Biotech

CV3110

Chemical / Petrochemical

CV3120

Food / Pharmaceutical / Biotech

CV3110

- Modular pressure transmitter with function modules:
  - Multifunctional display with 5-digit display and bar graph
  - Switching module with 2 floating contacts, max. 0.5 A switching current, electrically isolated in every direction, operates without an additional power source
- Function module replacement on site without the need to recalibration, simply "plug and measure"
- Output signal: 4 … 20 mA, optionally with HART® protocol (version 6), optionally with PROFIBUS PA
- Hygienic design in accordance with EHEDG, FDA and GMP recommendations
- Material and surface quality in accordance with hygiene requirements
- All process connections / diaphragm seal technologies available
- Measuring range 0 … 80 mbar to 0 … 400 bar
- Accuracy ≤ 0.15 %
- Turndown 5:1
- Degree of protection IP 66, directly ventilated piezoresistive measuring cell, optional IP 69 K
- Explosion protection for gases and dust
- Classification per SIL2
- Inspection certificates

PASCAL CV DELTA P COMPACT DESIGN

Differential pressure transmitter in modular design with metallic membrane

HIGHLIGHTS

- Small and compact design, case of stainless steel, metallic membrane
- High accuracy of ≤ 0.15 %
- Suitable for filter monitoring or level measurement
- Switching option

CV330.

The **digital pressure transmitter** PASCAL CV Delta P is suitable for level measurement of pressurised vessels and filter monitoring.

The small, compact design combined with the modular concept of the CV type series (plug and measure) makes it applicable for a broad range of applications.

ELECTRONIC PRESSURE

PASCAL CS
MULTIFUNCTIONAL

Measuring, switching, indicating – for high demands

CS2100

Food / Pharmaceutical / Biotech with variable hygienic connections

CS2110

Food / Pharmaceutical / Biotech

CS2110

Chemical / Petrochemical

CS2120

The pressure transmitter/pressure switch PASCAL CS is suitable for measuring the relative and absolute pressures of gases, vapours and liquids. The multifunctional PASCAL CS displays the measured value as well as outputting a current signal proportional to the pressure. It has two optional contacts.

- Functional, rotatable case in seamless design
- 4-digit LED display, can be mirror-imaged by 180°
- Display unit can be rotated by 300°
- Output signal 4 ... 20 mA, 2-wire technology
- Measuring ranges 0 ... 100 mbar to 0 ... 400 bar rel., 0 ... 1 to 0 ... 6 bar abs.
- Fully encapsulated electronics
- Accuracy ≤ 0.2 %
- 2 floating contacts
- Galvanic isolation between transmitter and switching outputs
- Hygienic design in accordance with EHEDG recommendations
- Parameterisation locally or via PC software

CA2100

UNIVERSAL CA UNIVERSAL

For measuring relative and absolute pressure

General applications

CA2100

- Stainless steel case, degree of protection IP 65
- Directly ventilated sensor element
- Output signal 4 … 20 mA, 2-wire technology
- Accuracy ≤ 0.2 %
- Easy zero setting by means of a magnet

Food / Pharmaceutical / Biotech

CA2110

- Measuring ranges 0 … 100 mbar to 0 … 400 bar rel., 0 … 1 to 0 … 6 bar abs.
- Hygienic design in accordance with EHEDG recommendations

Chemical / Petrochemical

CA2120

COMPACT ECO ADVANTAGEOUS

Cost-efficient standard design

General applications

CA1100

- Relative pressure of gases, vapours and liquids
- Measuring ranges 0 … 1 to 0 … 600 bar, -1 … 0 to -1 … 15 bar
- Accuracy ≤ 0.5 %

Food / Pharmaceutical / Biotech

CA1110

- Output signal 4 … 20 mA, 2-wire technology
- Stainless steel case, degree of protection IP 65
- Process temperature -20 … +120 °C
- Easy zero setting by means of a magnet

For hydrogen applications

CA1600

ELECTRONIC PRESSURE

UNIVERSAL ANALOGUE

For measuring relative and absolute pressures

CB1(2)02 / CE1(2)01

For filter monitoring

CP1310

Highly overload resistant

CD102./202.

For diaphragm seals

CC1(2)02

With field housing

CB1(2)03

- Case and wetted parts made of stainless steel
- Measuring ranges 0 … 160 mbar to 0 … 400 bar rel., 0 … 0.4 to 0 … 25 bar abs.
- Linearity error incl. hysteresis < 0.3 %
- Measuring system overload protected
- Signal output 4 … 20 mA, optionally 0 … 20 mA, 0 … 10 V DC and 0.5 V DC
- Zero point and measuring span can be adjusted externally by means of a potentiometer
- Explosion protection, IECEx

UNIVERSAL HEAVY DUTY DESIGN

For use in tough environments

CB203. HDD

- Measuring range 0 … 25 up to 0 … 600 bar rel.
- Thin film sensor element
- Degree of protection IP 66 per EN 60529
- Electronic unit completely encapsulated
- Wetted parts of stainless steel, completely welded
- Output signal: 4 … 20 mA, alternative: 0 … 20 mA, 0 … 10 V DC, 0 … 5 V DC
- Ex-protection, IECEx, Queensland Mining approval, ANZEx

CB60..

COMPACT STURDY

Internal or flush mounted diaphragm

General applications

CB6010

Food / Pharmaceutical / Biotech

CC6010

Chemical / Petrochemical

CC6010

- Case and wetted parts made of stainless steel
- Process temperature up to 200 °C
- Measuring range of 0 … 250 mbar to 0 … 400 bar
- Linearity error incl. hysteresis < 0.2 %
- Signal output 4 … 20 mA, optionally 0 … 20 mA
- Explosion protection for gases
- Fully encapsulated electronics for high degree of moisture protection
- Various electrical connections available

CK5 WITH BOURDON TUBE

Mechanical safety pressure gauge with local display and integrated, electronic transmitter

CK5200

- Pressure transmitter with local indication for relative pressure measurement
- Safety pressure gauge S3 per EN 837-1 in NS 100 and NS 160, alternatively in S1 version
- Output signal: 4 … 20 mA (20 … 4 mA) with 2-wire technology
- Display range 0 … 0.6 to 1000 bar
- Integrated angle-of-rotation sensor, not subject to wear
- Explosion protection for gases and dust
- Additional contact device available
- Easy zero setting by means of a magnet

MECHANICAL PRESSURE MEASUREMENT

PRESSURE GAUGES
STANDARD DEVICES

The proven stainless steel instruments for industrial use

BA42/43

Bourdon tube

BA51/BA52ECO

Diaphragm pressure gauge

BA2500

With capsular element

BA1230

Absolute pressure

BB2000

For differential pressure, highly overload resistant

BD3200

Pressure gauges by LABOM are used in a range of industrial applications as trusted, heavy duty and reliable measuring instruments. All of the measuring instruments are made of high quality stainless steel. The instruments are suitable for outdoor applications and in aggressive environments. LABOM pressure gauges meet the requirements of the applicable standards (e.g. Pressure Equipment Directive 97/23/EG) as well as the requirements of independent certification authorities.

- Quality bayonet ring case in NS 63, NS 100 and NS 160
- Optionally with S3 safety case per EN 837-1
- Measuring ranges from 2.5 mbar to 1600 bar and 60 mbar to 2500 mbar abs.
- Casing and measuring elements made of stainless steel
- High overload protection
- Accuracy classes 0.6 to 1.6
- Explosion protection (ATEX) for mechanical devices
- Connection to zone 0

PRESSURE GAUGES
WITH SWITCH FUNCTION

A variation of our proven mechanical pressure gauges

BE4

Diaphragm pressure gauge

BE2200

Differential pressure gauges, high overload protection

BG3200

Pressure switch with bourdon tube

BN4200

Absolute pressure gauge

BF2200

Mechanical pressure gauges with switch function for measuring liquids and gases. The switch function opens, closes or changes electrical circuits. The limit values are set by means of a contact arm, moved by the actual value pointer.

- Quality bayonet ring case in NS 100 and NS 160
- Measuring range of 60 mbar to 1600 bar
- Casing and measuring elements made of stainless steel
- Measuring instruments with explosion protection
- Safety pattern gauge S3, per EN 837-1
- Switch function per DIN 16085
- Features: Slow acting contact, magnetic snap contacts, inductive contact devices
- SIL2 classification, GL-approved

DIAPHRAGM SEALS

DIAPHRAGM SEALS FOOD / PHARMA

Varivent in-line access unit

DL8080

HYGIENIC Tubus

DL8140

Screw-in type HYGIENIC

DE2130

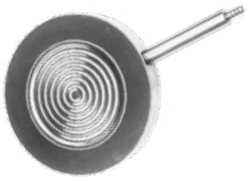
NEUMO BioControl

DL8110

DIAPHRAGM SEALS GENERAL APPLICATIONS

Flange type

DA1420



Cell type

DC4680

Screw-in type

DE1180

DIAPHRAGM SEALS SPECIAL APPLICATIONS

Diaphragm seal, plastic

DD8040

Variable connection designs

DD1100

Saddle flange design

DD4200

INLINE DIAPHRAGM SEALS FOOD / PHARMA

Aseptic design

DF6100

DN 10 with clamp connection

DF5100

Standard design

DF....

INLINE DIAPHRAGM SEALS GENERAL APPLICATIONS

Cell type flange connection

DP2100

Flange connection

DP4100

Inline diaphragm seal DN 15

DS1260

Diaphragm seals are components in pressure measuring instruments which prevent the measured media from entering the measuring system. Measuring challenges which are often impossible to solve simply with a pressure gauge can be solved by selecting the correct diaphragm seal system. The appropriate design of a diaphragm seal depends on the special requirements of the process. Two available categories are flange diaphragm seals and inline diaphragm seals.

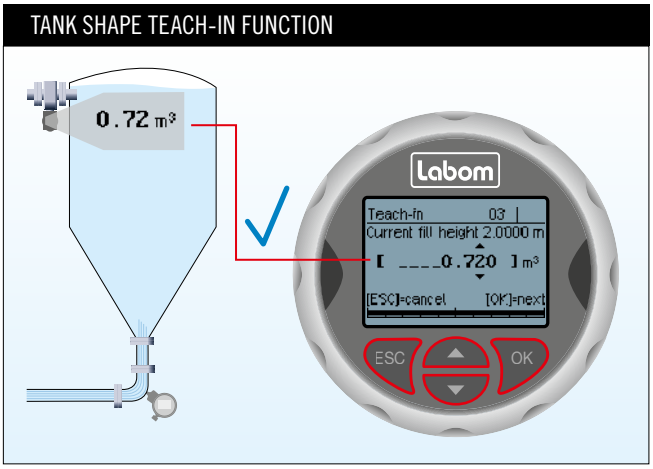
- Body and flush-mounted diaphragm made of stainless steel
- Special materials such as tantalum, titanium, Hastelloy, highly vacuum-resistant PTFE partitions
- Very low temperature influence
- Patented LTC diaphragm technology
- Hygienic surface structure
- Variety of measuring instrument connections possible
- More than 60 designs available

ELECTRONIC LEVEL MEASUREMENT

PASCAL Ci4 LEVEL INTUITIVE

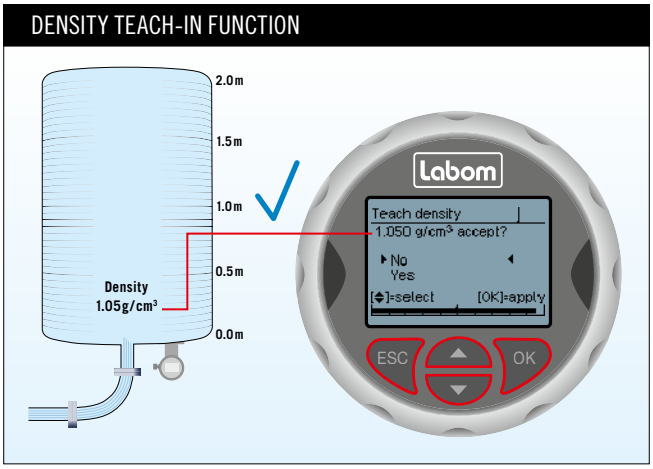
- Simultaneous display of level, volume and weight
- Multilanguage, illuminated graphical display
- Different display modes with configurable content available
- Intuitive 4-button operation with level wizard
- Calculation and scaling performed by transmitter
- Easy teach-in function for all level parameters (Tank shape, density, height offset)
- Display structure configurable, numerical display enhanced by bar graph
- Rotatable display and control unit; can be fitted up to 10 m away from the measuring point
- Degree of protection IP 65/67 or IP 69 K
- Comprehensive parameterisation, simulation and diagnostic functions
- Quick setup provides a fast overview of parameterisation
- Nominal range 0.25 to 16 bar
- Turndown up to 100:1
- Measuring rate up to 100 Hz
- Accuracy up to 0.1 %
- Output signal 4 ... 20 mA with HART®-protocol
- Many process connections with internal or flush mounted diaphragm
- Configuration memory
- Approved according to NAMUR (NE 95)
- Ex protection for gases and dust, IECEx
- Material and calibration certificates
- SIL2 certificate

TANK SHAPE TEACH-IN FUNCTION



You can teach-in the tank shape by filling or discharging. The entered volumes, combined with the measured fill height, are stored as control points of the tank shape table.

DENSITY TEACH-IN FUNCTION



For the density there is a teach-in function, too. The device calculates the density from the measured pressure and the entered fill height and suggests the density to be saved.

The **PASCAL Ci4 Level** transmitter is suitable for measurements of pressurised or atmospheric vessels. The measured value can be displayed as level, volume, or weight of the tank content. For the first time, the user-interface software has been fully optimised to enable hydrostatic level measurement. Additionally, PASCAL Ci4 supports users in gauging the total volume of a given tank with a guided menu. This makes it possible to model the shape of the tank in a few steps, so that lengthy calculations of height and volume based on complicated tables are not necessary anymore. The device also offers the option of calculating the density of the tank content based on a detected level.

HIGHLIGHTS

- Fully optimised user-interface specially designed for hydrostatic level measurement
- Level wizard for guided tank shape configuration in a few steps
- Easy teach-in function for all level parameters

ELECTRONIC LEVEL MEASUREMENT

PASCAL Ci4 LEVEL HYDROSTATIC

Level transmitter for hydrostatic level measurement

CI4200

- Level transmitter for atmospheric vessels

CI4400

- Level transmitter for pressurised vessels

SUBMERSIBLE PRESSURE TRANSMITTER HYDROSTATIC

For hydrostatic level measurement

CG2010

- Digital design of the electronic unit
- Measuring range 0 … 160 to 0 … 2500 mbar
- Output signal 4 … 20 mA
- Immersion case coated in stainless steel
- Plug-in cable connection
- Parameterisation via PC software

LIMES LIMIT SWITCH

Limit detection

LV1110

- Filling level limit detection of liquids
- Particularly suitable as a substitute for vibrating fork sensor systems
- 7 basic settings for various media
- Suitable for media with a permittivity > 2
- Hygienic installation as per EHEDG
- Various process connections via adapter

DIAL THERMOMETER
STURDY

Thermometers for outdoor use and in aggressive environments

FA2300

Bimetal thermometer

FA2/FA3

Gas expansion thermometer

FN2/FN3

Gas expansion thermometer with capillary

FN2/FN3

Gas expansion thermometer with clip-on bulb

FN2/FN3

- Quality bayonet ring case in NS 100 and NS 160
- Degree of protection IP66

- Case and wetted parts made of stainless steel
- Accuracy class 1 per EN 13190
- Various connection types available

FP2400

DIAL THERMOMETER
WITH SWITCH FUNCTION

Radial bottom or centre back connection

Bimetal thermometer

FP2300

Gas expansion thermometer

FN2/FN3

Gas expansion thermometer with capillary

FN2/FN3

- Quality bayonet ring case in NS 100 and NS 160
- Case and wetted parts made of stainless steel
- Explosion protection and classification per SIL2

- Switch function per DIN 16196:
  - Slow acting contact
  - Magnetic snap contact
  - Inductive contact devices

ELECTRONIC TEMPERATURE MEASUREMENT

RESISTANCE THERMOMETER
FOOD / PHARMA / BIOTECH

Electronic temperature measurement for food / pharmaceutical / biotech

GA2540

MiniTherm
fast response

GA2700

MiniTherm for installation
in a sep. thermowell

GA2730

Resistance thermometer
In-process

GA254.

Inline
transducer

GA2200

Temperature is one of the seven basic units of the international unit system. In general, it is the most familiar measuring unit and, in addition, the most important one for nearly all production processes. Resistance sensors utilise a natural phenomenon: The electrical resistance of a material changes as a function of its temperature. This change in resistance can be measured and converted to a unit of temperature.

- Measuring resistor 1 x Pt100; 3- or 4-wire technology
- Interchangeable measuring insert
- Measuring inserts for In-Process calibration
- Process connections for food / pharmaceutical / biotech
- Hygienic design as per EHEDG
- Fast response
- Explosion protected devices, classification per SIL2

RESISTANCE THERMOMETER GENERAL APPLICATIONS

For measuring temperatures in tanks and pipework

Without thermowell

GA2500

With thermowell

GA2510

With weld-in thermowell

GA2520

MiniTherm with screw-in thread

GA2700

- Measuring resistor 1 x Pt100; 3- or 4-wire technology
- Interchangeable measuring insert
- Transmitter can be integrated
- Explosion protected devices, classification per SIL2

RESISTANCE THERMOMETER SURFACES

For measuring surface temperature

GA2650

- Flush-mounted temperature sensor, thermally isolated
- Replaceable 6 mm measuring insert, pre-tensioned
- Temperature range -20 … +150 °C
- Mounted with weld-on or weld-in socket
- Explosion protected devices, classification per SIL2

RESISTANCE THERMOMETER OUTDOOR / INDOOR

For measuring outdoor and indoor temperatures

- Outdoor and indoor resistance thermometer for ambient temperature measurement
- Sturdy design
- Measuring resistor 1 x Pt100; 3-wire technology, class A
- Operating temperature range -40 … +80 °C
- Fast response
- Explosion protection
- Transmitter can be integrated
- Classification per SIL2

GA810.

ELECTRONIC TEMPERATURE MEASUREMENT

CLAMP-ON PATENTED

Resistance thermometer/temperature switch in clamp-on design for food/pharmaceutical/biotech

GA26

With field housing

GA2610/GA2611

For large-diameter pipes

GA2620

With mounting bracket

GA2610

Temperature switch

GP2610

The resistance thermometer in clamp-on technology is used for temperature sensing and process control, mainly for sterile applications. The resistance thermometer can be fitted quickly and easily to already existing pipework. There are no changes necessary to the piping and no welding required. Installation for dead-zone free measurement is easy, cost-efficient, and requires no interruption of the process.

- Patented measuring system: Hygienic temperature measurement, no contact with media
- High accuracy, fast response
- Measuring resistor 1 x Pt100; 3-wire technology, class A
- Clamp-on system allows quick and cost-efficient installation
- Hygienic design as per EHEDG
- Measuring range -40 … +150 °C
- Optional: transmitter 4 … 20 mA
- Explosion protected devices, classification per SIL2

IN-PROCESS CALIBRATION

Resistance thermometer

- Measuring resistor 1 x Pt100; 3- or 4-wire technology
- Measuring insert for In-Process calibration
- Process connections for food/pharmaceutical/biotech
- Hygienic design, constructive design according to the EHEDG recommendations
- Available with reduced tip (fast response)
- Explosion protection
- Transmitter can be integrated
- Classification per SIL2

GA3110

Reference sensor

- Measuring resistor per EN 60751
- Measuring sensor Ø 1.6 mm
- Temperature range 0 ... +400 °C
- Accuracy per EN 60751 class A (1/3 B)
- Electrical connection in 4-wire technology
- Electrical connection with plug upon request
- Calibration certificate per EN 10204-3.1
- DKD calibration certificate

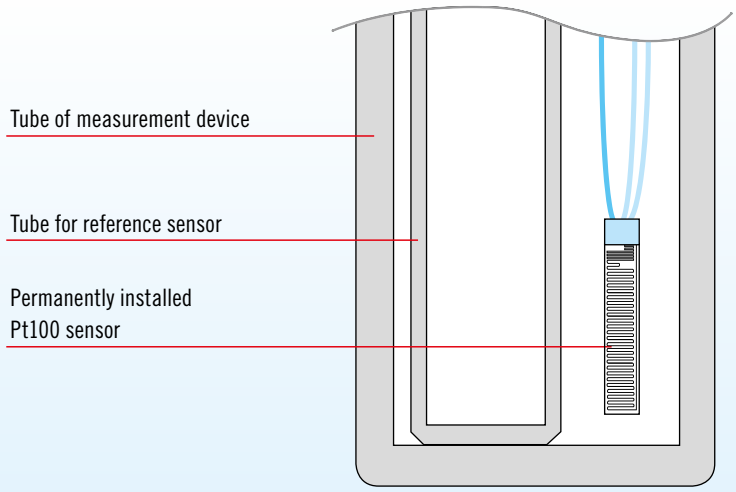
GA3100

Measuring inserts

- Measuring insert per DIN 43762 with additional tube
- Measuring insert Ø 6 or 4 mm
- Temperature range -50 ... +400 °C
- Measuring resistor per EN 60751
- Accuracy per EN 60751 class A
- Electrical connection in 4-wire technology
- Calibration of installed resistance thermometer without disassembling the measuring insert

WORKING PRINCIPLE "IN-PROCESS"

New concept: Comparison between installed device and reference sensor performed in process. Special calibration opening in the housing allows both temperature sensors to warm in the same manner.



TRANSMITTER FOR TEMPERATURE
HEAD MOUNTING

The transmitter converts a temperature-dependent change in resistance into a current signal typical to process control systems. An extensive range of configuration options is available.

Sitrans TH100

PA210.

- Digital programmable transmitter
- Suitable for installation in connecting heads in accordance with DIN, form B
- Input for resistance thermometer, thermo couples, etc.
- Output signal: 4 ... 20 mA invertible, 2-wire technology

Sitrans TH200

PA220.

- Electrically isolated (PA220.)
- Programmable output signal for sensor breakage and sensor short circuit
- Power supply: 8 ... 35 V DC; 8 ... 30 V DC (Ex)
- Configurable via HART® (PA230.)
- Explosion protection

Sitrans TH300

PA230.

PA2430

- Transmitter for resistance thermometer MiniTherm and Clamp-on technology
- Output signal: 4 ... 20 mA, temperature linear
- Input Pt100 per EN 60751
- Measuring range -60 ... +160 °C
- Programmable
- Error signal following sensor breakage
- Electrical connection circular connector M12

INLINE UNIT HYGIENIC

ASEPTconnect inline unit with aseptic clamp connection enables residue-free cleaning and sterilisation

The CIP and SIP suitable inline unit for inserting pressure and temperature gauges free of dead zones into rigidly assembled pipes comes with an aseptic clamp connection. ASEPTconnect has an especially low surface roughness: On inner surfaces under 0.8 µm (optionally 0.4 µm), on outer surfaces below 0.8 µm, which consequently contributes to its cleaning ability.

ASEPTconnect
MZ2300

VIEW FROM TOP

ASEPTconnect inline unit with pressure transmitter PASCAL CS

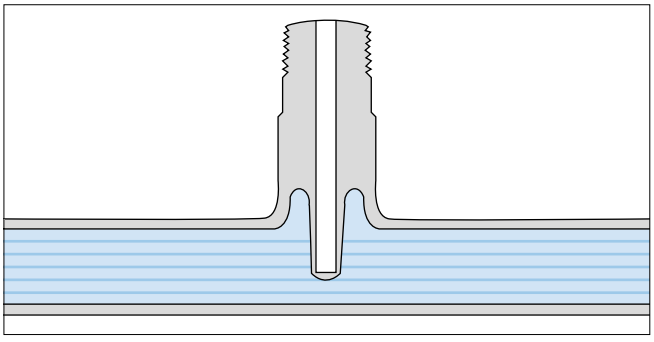
ASEPTconnect inline unit with temperature transmitter MiniTherm

- Inline unit with aseptic clamp-connection per DIN 11864-3, model A, dead-zone free
- Process connection: Pipe ends or clamp-connection
- Seals gap-free by means of an O-ring
- Various pipe diameters available
- Hygienic design
- Suitable for CIP or SIP procedures
- Pipe ends suitable for orbital welding
- Delta ferrite content < 0.5 %

THERMOWELL SYSTEM
ORBITALLY WELDED

Hygienically invasive temperature measurement by an orbitally welded thermowell system

- Wetted parts made of 1.4435 stainless steel
- Surface roughness < 0.6 µm, electropolished
- Certificate of approval 3.1 per EN 10204
- Delta-ferrite content ≤ 3 %
- Sterile process connection without gasket
- Pipe standards:
  - DIN 11866 series A, DIN 11850
  - DIN 11866 series B, ISO 1127
  - DIN 11866 series C, ASME BPE
- Shape: Straight or angled tube system
- Tube widths:
  - Series A: DN 10 to DN 32
  - Series B: DN 13.5 to DN 33.7
  - Series C: ½“ to 1 ½“
- Instrument connection for the temperature probe M12 x 1
- Nominal pressure up to PN 25
- Suitable temperature sensor MiniTherm GA2730
- Temperature sensor can be installed or removed without interrupting the process
- Material certificate



Sterile, accurate temperature measurement without gasket

THERMOWELL TAILOR-MADE

For separating the temperature sensor from the product

Hygienic, invasive thermowell system

HP1100

Thermowell screw-in type

HA8010 / HA8020

Thermowell weld-in type

HB8010

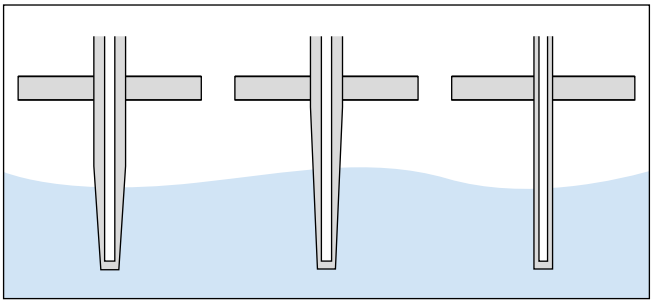
Thermowell clamp type

HP1200

LABOM thermowells are made of thermally conductive materials and are ment to separate the temperature sensor from the product. Thermowells are recommended for use in pressurised processes. Thermowells provide protection against corrosive product and they allow the thermometer to be replaced easily. Their design has been optimised for use with the corresponding dial thermometer or temperature transducer. On request, we will gladly provide a thermowell calculation and analysis for dynamic operating conditions.

THERMOWELL CALCULATION

LABOM thermowells are manufactured in accordance with national standards (DIN 43772) or customer specifications. The corresponding LABOM dial thermometers and temperature sensors have been specially designed for optimal compatibility.



Various designs

Typically thermowells are used in applications where they are to remain in the measured media and only the temperature sensor will be exchanged or retrofitted, or where the temperature sensor must be kept out of direct contact with the product. Thermowells also provide protection against mechanical loads.

As part of our services, we are pleased to offer calculation and analysis of the thermowells to mathematically determine the strength in respect to the static and dynamic load in the individual application.

MADE-TO-MEASURE SOLUTIONS

We will find the most appropriate solution for your individual requirements.

APPLICATION: PHARMACEUTICAL PRODUCTION

Autoclavable pressure gauge per EHEDG

- Hygienic casing as per EHEDG, no dead zones, hermetically sealed
- 1.4435 stainless steel with delta ferrite content < 3 %
- Can be sterilised in an autoclave and with gamma sterilisation
- FDA-compliant pressure transmitting fluid

APPLICATION: PAINT SHOP

Combibar – combined instrument with transmitter and local mechanical indication

- Piezoresistive sensor element
- Self-draining and piggable diaphragm seal with aseptic screw fitting
- Silicon-free diaphragm seal fluid
- Diaphragm seal with optimised internal volumes
- Degree of protection IP 67
- Measuring system overload protected

APPLICATION: STERILISATION MONITORING IN BIOTECHNOLOGY

Resistance thermometer GA2610 Clamp-on technology

GA2610

- Device with quick-release and articulation for fast installation
- Measuring range -20 … +160 °C
- Clamp-on device for variable temperature scanning, no contact to medium
- Easy to install, saves time and money

APPLICATION: FOOD-INDUSTRY

Pressure transmitter Compact Level

CE6310/CE6320

- Flat shape for level measurements in tanks for the food industry
- Hygienic design in accordance with recommendations of EHEDG, FDA and GMP
- Stainless steel case, degree of protection IP 65
- Flush-mounted stainless steel diaphragm
- Measuring range 0 … 160 mbar to 0 … 16 bar rel.

APPLICATION: WIND TURBINE

Measuring system for pressure, temperature and flow rate

- Customised components to be installed as complete system
- Compact and precise measuring devices made of stainless steel for all three measured variables
- Highly accurate and cost-efficient
- Tested quality from LABOM:
  Static calculation of welds and screw joints

Labom
MEASUREMENT TECHNOLOGY

DISTRIBUTORS WORLDWIDE

Concept, design and realisation: www.kern-kreativagentur.de | Pictures: www.fotolia.com | www.istockphoto.com | www.shutterstock.com | Version 1/16e

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