Baumer
Passion for Sensors

Process sensors

Product overview

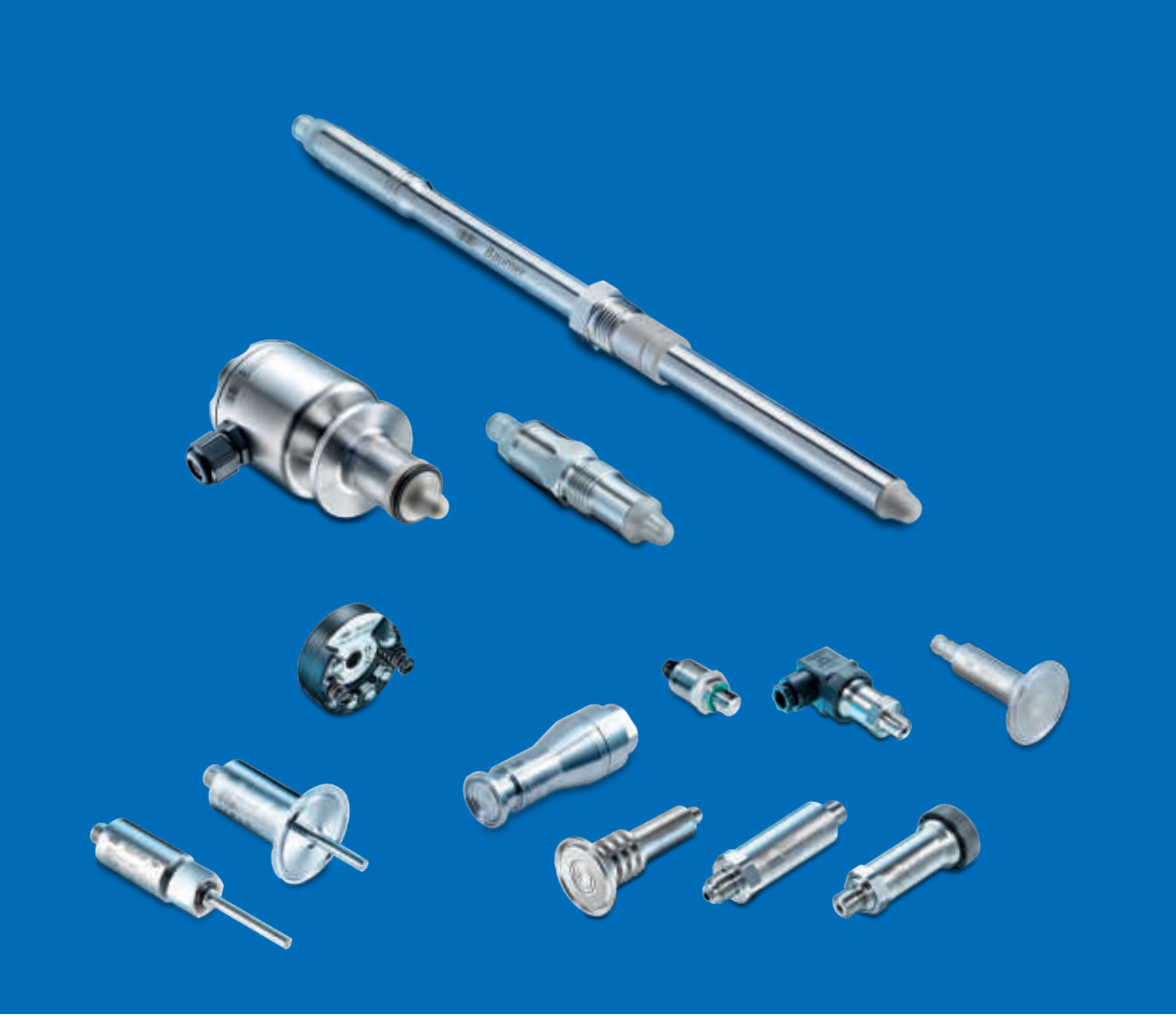
Partnership.
Precise.
Pioneering.

Visibly better: Baumer sensors.

The Baumer Group is leading at international level in the development and production of sensors, shaft encoders, measuring instruments as well as components for automatic image processing. As an owner-managed family business, we employ about 2700 workers worldwide in 39 subsidiaries and 19 countries. With marked customer orientation, consistently high quality and vast innovation capability, Baumer develops specific solutions for many industries and applications worldwide.

Our standards – your benefits.

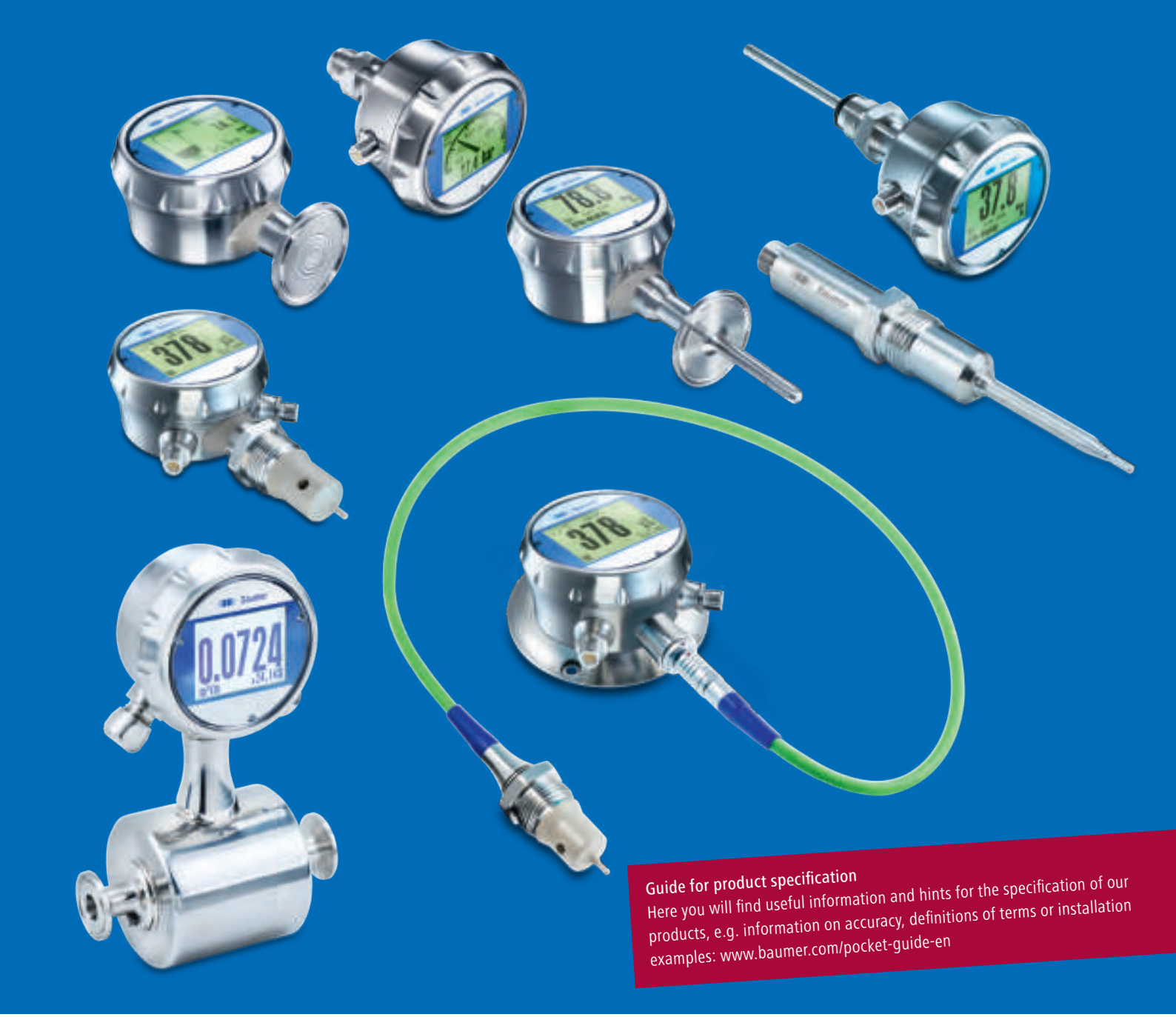
- Passion coupled with expertise – both have made us a sensor pioneer and technology leader
- Our range of services is hard to beat – we have the right product, developed by our own team, for every task
- Inspiring through innovation – a challenge Baumer employees take on every day
- Reliability, precision and quality – our customers' requirements are what drives us
- Partnership from the start – together with our customers we develop suitable solutions
- Always a step ahead – thanks to our production depth, our flexibility and our delivery reliability
- Available worldwide – Baumer is Baumer everywhere



Baumer – rely on our technological advantage

Sophisticated and proven products, top precision and expert consultancy – Baumer meets all these demands in every respect. Our broad product portfolio provides optimally suited, dependable solutions, which provide a one-stop solution to meet your individual requirements. Our longstanding expertise, practical insights and technological supremacy give you the control you need to maximize production and equipment performance as well to reduce downtime and maintenance to a minimum.

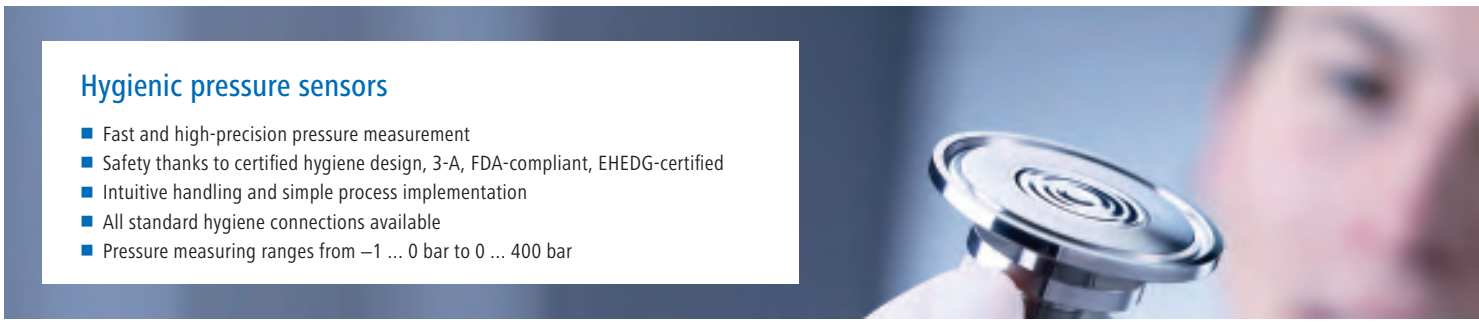
Customization – our understanding of individual needs
Operating worldwide and present across the globe, we are always close to provide you with competent on-site support. The customer is at the very heart of our services, and our level of commitment is characterized by taking swift and effective action to respond to our customers' needs. Furthermore, beside our standard portfolio, we are specialized to produce your individual product in terms of your application demands.



Guide for product specification
Here you will find useful information and hints for the specification of our products, e.g. information on accuracy, definitions of terms or installation examples: www.baumer.com/pocket-guide-en

Content

Pressure measurement



Hygienic pressure sensors

- Fast and high-precision pressure measurement
- Safety thanks to certified hygiene design, 3-A, FDA-compliant, EHEDG-certified
- Intuitive handling and simple process implementation
- All standard hygiene connections available
- Pressure measuring ranges from –1 ... 0 bar to 0 ... 400 bar

IO-Link

IO-Link

	PP20H	*CombiPress*® PFMH	PBMH hygienic
Product highlights	■ Absolute pressure, relative pressure and vacuum measurement ■ Resistant to all conventional CIP cleaning media ■ Condensation-resistant measuring cell ■ Optional with IO-Link (parallel to 4 ... 20 mA) ■ Space-saving installation from DN 25	■ Resistant to all conventional CIP cleaning media and SIP-enabled ■ Programmable via touchscreen ■ Optional with additional relay outputs	■ Absolute pressure, relative pressure and vacuum measurement ■ 3-A sanitary standards, FDA-compliant, EHEDG-certified ■ Resistant to all conventional CIP cleaning media and SIP-enabled ■ Surface roughness ≤ 0.8 Ra
Measuring ranges	–1 … 40 bar	–1 … 0 bar to 0 … 60 bar	–1 … 0 bar to 0 … 40 bar
Media temperature	–20 … +125 °C	–40 … +125 °C –40 … +200 °C (with cooling section)	–40 … +125 °C –40 … +200 °C (with cooling section)
Technology	Piezoresistive pressure measurement	Silicon piezoresistive	Silicon piezoresistive
Material of the parts in contact with the media	AISI 316L (1.4404)	AISI 316L (1.4404) AISI 316L (1.4435)	AISI 316L (1.4404) AISI 316L (1.4435)
Precision (max. measurement error)	± 0.5 % FSR ± 1.0 % FSR, 0 ... 0.4 bar	≤ 0.1 % FS (NP ≥ 400 mbar) ≤ 0.25 % FS	≤ 0.1 % FS (NP ≥ 400 mbar) ≤ 0.25 % FS
Output signal	4 … 20 mA 2-conductor IO-Link 1.1	4 … 20 mA + HART®	4 … 20 mA 0 … 10 V IO-Link 1.1
Overload limit	Factor 2	> 3× NP	> 3× NP
Electrical connection	M12-A, 4-pin M12-A, 5-pin	M12-A, 5-pin M12-A, 8-pin Cable screw connection, M16	M12-A, 4-pin DIN 43650 Shielded cable
Protection category	IP 67, without plug connection M12-A, 4-pin IP 69, with suitable cable	IP 67, IP 69K	IP 65, IP 67
Conformity and approvals	3-A EHEDG UL EAC	ATEX 3-A EHEDG UL EAC	ATEX 3-A EHEDG UL EAC
Process connections	For various process connection options see the enclosed selection guide		
Additional information		■ External programming with FlexProgram ■ Optional electropolished process connection	■ External programming of the zero point and measuring range with FlexProgram

Pressure sensors for industrial applications with flush membrane

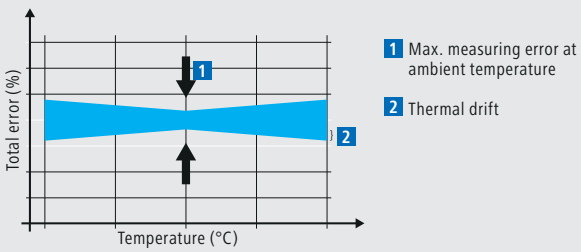
- Process connection with cavity-free design
- Compact installation from G 1/2 A
- Absolute pressure, relative pressure and vacuum measurement

IO-Link

	CombiPress® PFMN	PBMN flush
Product highlights	■ Absolute pressure, relative pressure and vacuum measurement ■ Programmable via touchscreen ■ Dead space-free process connection ■ Optional with relay outputs	■ Flush-mounted diaphragm ■ Fully welded version ■ Robust stainless steel housing ■ High overpressure resistance
Measuring ranges	–1 … 0 bar to 0 … 400 bar	–1 … 0 bar to 0 … 400 bar
Media temperature	–40 … +125 °C –40 … +200 °C (with cooling section)	–40 … +125 °C –40 … +200 °C (with cooling section)
Technology	Silicon piezoresistive	Silicon piezoresistive
Material of the parts in contact with the media	AISI 316L (1.4404) AISI 316L (1.4435)	AISI 316L (1.4404) AISI 316L (1.4435)
Precision (max. measurement error)	≤ 0.1 % FS (NP ≥ 400 mbar) ≤ 0.25 % FS	≤ 0.1 % FS (NP ≥ 400 mbar) ≤ 0.25 % FS
Output signal	4 … 20 mA + HART® 2× PNP switching output	4 … 20 mA 0 … 10 V IO-Link 1.1
Overload limit	3× NP, max. 690 bar	3× NP, max. 690 bar
Electrical connection	M12-A, 5-pin M12-A, 8-pin Cable screw connection, M16	M12-A, 4-pin M12-A, 5-pin DIN 43650 Shielded cable
Protection category	IP 67, IP 69K	IP 65 , IP 67
Conformity and approvals	ATEX	ATEX, UL, EAC
Process connections	For various process connection options see the enclosed selection guide	
Additional information	■ Internal setting of the zero point ■ External programming with FlexProgram	■ External programming of the zero point and measuring range with FlexProgram

Pressure sensors from Baumer are exceptionally precise

The total error band indicates the maximum measurement error (zero point and measured range error, non-linearity, hysteresis, and non-repeatability according to EN 61298-2) and the temperature drift across a temperature range.



Pressure measurement

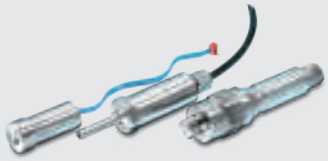
Pressure sensors for industrial applications

- For applications in gases, fluids and hydraulics
- Robust and durable even under extreme conditions
- Simple process implementation
- All standard industry connections available
- Pressure measuring ranges from –1 ... 0 bar to 0 ... 1600 bar

IO-Link

	CombiPress® PFMN	PBMN low pressure	PBMN high pressure	PBSN
Product highlights	■ Absolute pressure, relative pressure and vacuum measurement ■ Programmable via touchscreen ■ Dead space-free process connection ■ Optional with relay outputs	■ Absolute pressure, relative pressure and vacuum measurement ■ Excellent precision and active temperature compensation for precise pressure measurements ■ Universally applicable thanks to fully welded and robust stainless steel housing	■ Relative pressure measurement ■ Precision measurement from 60 to 1600 bar ■ Excellent thermal stability ■ High overpressure resistance	■ Absolute pressure, relative pressure and vacuum measurement ■ Robust stainless steel housing and abrasion-resistant ceramic cell for harsh ambient conditions
Measuring ranges	–1 … 0 bar to 0 … 400 bar	–1 … 0 bar to 0 … 40 bar	0 … 60 bar to 0 … 1600 bar	–1 … 0 bar to 0 … 600 bar
Media temperature	–40 … +125 °C –40 … +200 °C (with cooling section)	–40 … +120 °C	–40 … +120 °C	–40 … +125 °C
Technology	Silicon piezoresistive	Silicon piezoresistive	Metal thin film	Ceramic thick film
Material of the parts in contact with the media	AISI 316L (1.4404) AISI 316L (1.4435)	AISI 316L (1.4404)	AISI 316L (1.4404)	AISI 316L (1.4404) Ceramic (96 % AI2O3) NBR, EPDM, FKM
Precision (max. measurement error)	≤ 0.1 % FS (NP ≥ 400 mbar) ≤ 0.25 % FS	≤ 0.1 % FS (NP ≥ 400 mbar) ≤ 0.25 % FS	≤ 0.1 % FS ≤ 0.25 % FS	≤ 0.5 % FS ≤ 0.7 % FS
Output signal	4 … 20 mA + HART®	4 … 20 mA 0 … 10 V IO-Link 1.1	4 … 20 mA 0 … 10 V	4 … 20 mA 0 … 10 V
Overload limit	3× NP, max. 690 bar	3× NP	> 2× NP	> 2× NP, max. 600 bar
Electrical connection	M12-A, 5-pin M12-A, 8-pin Cable screw connection, M16	M12-A, 4-pin M12-A, 5-pin DIN 43650 Shielded cable	M12-A, 4-pin DIN 43650 Shielded cable	M12-A, 4-pin DIN 43650 Shielded cable
Protection category	IP 67, IP 69K	IP 65 , IP 67	IP 67, IP 69K	IP 65, IP 67
Conformity and approvals	ATEX	ATEX UL EAC	ATEX UL EAC	
Process connections	For various process connection options see the enclosed selection guide			
Additional information	■ Internal setting of the zero point ■ External programming with FlexProgram	■ External programming of the zero point and measuring range with FlexProgram	■ External programming of the zero point and measuring range with FlexProgram	■ External programming of the zero point and measuring range with FlexProgram

Customized solutions are our passion! One of our strengths is to match our products to your individual demands.



	PBM4	CTL/CTX	CPX
Product highlights	■ Relative pressure measurement ■ Application in hydraulics ■ Fully welded dry measurement cell ■ CANopen as an option	■ Relative pressure and vacuum measurement ■ Robust ceramic cell ■ Stainless steel housing ■ Compact design	■ Absolute pressure, relative pressure and vacuum measurement ■ OEM applications ■ 2 switching outputs: PMP transistors ■ Compact and robust stainless steel housing
Measuring ranges	0 … 10 bar to 0 … 1000 bar	–1 … 0 bar to 0 … 200 bar	–1 … 0 bar to 0 … 600 bar
Media temperature	–40 … +150 °C	–40 … +100 °C	–20 … +100 °C
Technology	Metal thin film	Ceramic thick film	Ceramic thick film
Material of the parts in contact with the media	AISI 630 (1.4548)	CTL: brass CTX: AISI 316L (1.4404) Ceramic (96 % Al_2O_3) NBR, EPDM, FKM	AISI 316L (1.4404) Ceramic (96 % Al_2O_3) NBR, EPDM, FKM
Precision (max. measurement error)	≤ 0.5 % FS	≤ 0.5 % FS (BFSL)	≤ 0.5 % FS (BFSL)
Output signal	4 … 20 mA 1 … 6 V 0 … 5 V 0 … 10 V 0.5 … 4.5 V ratiometric	4 … 20 mA 0 … 10 V 1 … 5 V 0.5 … 4.5 V ratiometric	2× PNP switch
Overload limit	> 2× NP, max. 1200 bar	> 2× NP, max. 360 bar	> 2× NP, max. 500 bar
Electrical connection	M12-A, 5-pin	M12-A, 4-pin DIN 43650 Shielded cable	M12-A, 5-pin DIN 43650
Protection category	IP 67	IP 65, IP 67	IP 65, IP 67
Conformity and approvals	ATEX UL	UL	
Process connections	For various process connection options see the enclosed selection guide		
Additional information			■ External programming of the switching thresholds with FlexProgram

Autoclavable pressure sensors

- High-precision and stable pressure measurement
- Safety thanks to certified hygiene design
- Fully autoclavable pressure sensor
- Pressure measuring ranges from –1 ... 0 bar to 0 ... 40 bar

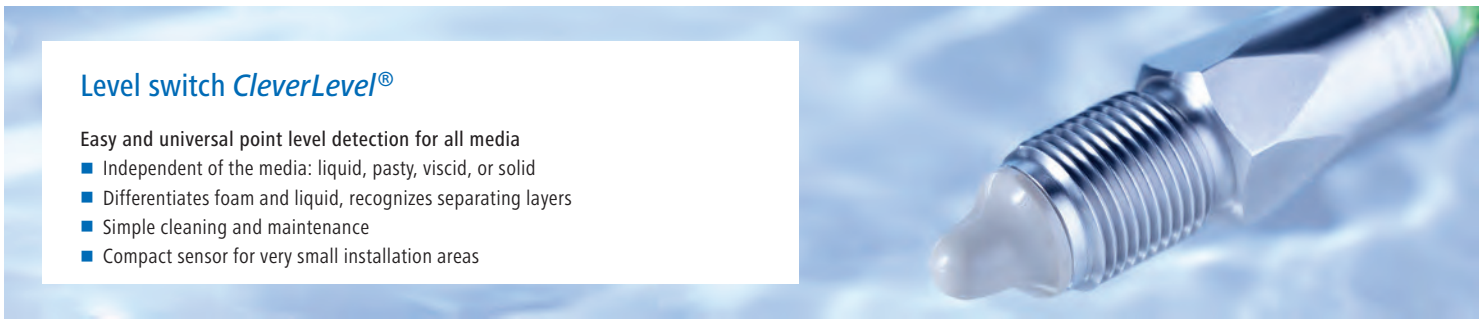
IO-Link

	PBMH autoclavable
Product highlights	■ For standard sterilization processes ■ High temperature resistance ■ Surface roughness ≤ 0.8 Ra ■ Fully welded compact design for residue-free cleaning processes
Measuring ranges	–1 … 0 bar to 0 … 40 bar
Media temperature	–10 … +125 °C –10 … +200 °C (with cooling section)
Technology	Silicon piezoresistive
Material of the parts in contact with the media	AISI 316L (1.4435)
Precision (max. measurement error)	≤ 0.1 % FS ≤ 0.25 % FS
Output signal	4 … 20 mA 0 … 10 V IO-Link 1.1
Overload limit	> 3× NP
Electrical connection	M12-A, 4-pin M12-A, 5-pin Fischer connection, 4-pin
Protection category	IP 67
Conformity and approvals	3-A EHEDG UL EAC
Process connections	For various process connection options see the enclosed selection guide
Additional information	■ External programming with FlexProgram ■ Optional electropolished process connection

Railway-certified pressure sensors

- Safety thanks to EN 50155 certification
- Secured long-term product availability
- Extensive expertise in railway applications
- Pressure measuring ranges from –1 ... 40 bar to 0 ... 250 bar

	EF6	PBMR	PP20R
Product highlights	■ Robust stainless steel housing for harsh ambient conditions ■ High EMV protection ■ Maintenance-free	■ Excellent precision and long-term stability up to ≤ 0.1% FS ■ Active temperature compensation across the entire operational temperature range ■ Sensor element fully welded with the stainless steel housing	■ High insulation strength of 1 kV AC exceeds the standard EN 50155 ■ High precision across an extensive temperature range (–40 … 125 °C) through active temperature compensation ■ Enhanced EMV strength compared to EN 50121-3-2 ■ Traceability according to GS1 standard
Measuring ranges	0 … 2.5 bar to 0 … 250 bar	–1 … 0 bar to 0 … 40 bar	–1 … 400 bar
Media temperature	–40 … +125 °C	–40 … +120 °C	–40 … +125 °C
Technology	Ceramic thick film	Silicon piezoresistive	Ceramic thick film
Material of the parts in contact with the media	AISI 316L (1.4404) Ceramic (96 % AI2O3) FVMQ, NBR, EPDM, FKM	AISI 316L (1.4404) AISI 316L (1.4435)	AISI 304 (1.4301) Ceramic (96 % AI2O3) FVMQ, NBR, EPDM, FKM-(VitonR)
Precision (max. measurement error)	≤ 0.5 % FS	≤ 0.1 % FS (NP ≥ 400 mbar) ≤ 0.25 % FS ≤ 0.5 % FS	± 0.3 % FSR ± 0.5 % FSR ± 1.0 % FSR
Output signal	4 … 20 mA 0 … 10 V	4 … 20 mA 0 … 10 V	4 ... 20 mA 0 ... 2 V 1 ... 5 V 0 ... 10 V
Overload limit	> 2× NP	> 3× NP	32 bar (approx. factor 2 depending on the pressure area)
Electrical connection	M12-A, 4-pin DIN 43650 Shielded cable	M12-A, 4-pin DIN 43650	M12-A, 4-pin DIN EN 175301-803 A (DIN 43650 A), 4-pin
Protection category	IP 65, IP 67	IP 65, IP 67	IP 65, IP 67, IP 69K
Conformity and approvals	EN 50155 (railway applications)	EN 50155 (railway applications) UL EAC	EAC EN 50155 (railway applications)
Process connections	For various process connection options see the enclosed selection guide		

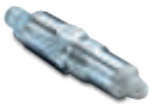


Level switch *CleverLevel*®

Easy and universal point level detection for all media

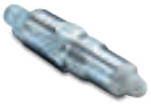
- Independent of the media: liquid, pasty, viscid, or solid
- Differentiates foam and liquid, recognizes separating layers
- Simple cleaning and maintenance
- Compact sensor for very small installation areas

IO-Link



	CleverLevel® PL20 Adaptive-Trigger
Product highlights	■ Active adaptation to medium, no parameterization Analog output ■ Two adjustable switching outputs ■ Minimal immersion depth ■ Application-specific switching functions ■ Unaffected by adhesion ■ Multi-color 360° LED activity indicator
Application examples	For all point level applications, especially suited for adhering media, CIP cleaning, and for media with different dk values
Media temperature	–40 … +135 °C max. (t < 1 h)
Output signal	PNP, NPN, Digital (push-pull), 4 … 20 mA, programmable IO-Link 1.1
Material of the parts in contact with the media	PEEK AISI 316L (1.4404)
Protection category	IP 67, IP 69K
Conformity and approvals	3-A EHEDG EN 50155 (railway applications)
Process connections	For various process connection options see the enclosed selection guide
Additional information	■ Multiple trigger functions in one sensor

Level measurement



	CleverLevel® LBFS	*CleverLevel*® LBFI	*CleverLevel*® LBFH	*CleverLevel*® LFFS
Product highlights	■ Certified hygienic design ■ SIP/CIP capacity ■ Minimal immersion depth ■ Detects all types of media (liquid, viscous, sticky or solid) ■ Compact and light-weight ■ 360° LED activity indicator	■ Compact and robust stainless steel housing ■ On-site adjustment with *qTeach*® ■ Minimal immersion depth ■ Two adjustable switching outputs ■ Multi-color 360° LED activity indicator	■ Certified hygienic design ■ On-site adjustment with *qTeach*® ■ SIP/CIP capacity ■ Minimal immersion depth ■ Foam detection or blanking ■ Unaffected by adhesion ■ Two adjustable switching outputs ■ Multi-color 360° LED activity indicator	■ Certified hygienic design ■ SIP/CIP capacity ■ Minimal immersion depth ■ Detects all types of media (liquid, viscous, sticky or solid) ■ 360° LED activity indicator ■ Visible from a long distance
Application examples	Point level detection in containers, empty pipe monitoring, overflow protection Leakage detection, high temperature applications up to 200 °C	Point level detection in containers, empty pipe monitoring, max./min. Liquid level detection Separating layer detection	Control of CIP processes, point level detection in containers, empty pipe monitoring, separating layer detection	Point level detection in containers, empty pipe monitoring, overflow protection Leakage detection
Media temperature	–40 … +115 °C –40 … +200 °C (shiftable connection)	–40 … +115 °C –40 … +135 °C max. (t < 1 h)	–40 … +115 °C –40 … +135 °C max. (t < 1 h)	–40 … +115 °C –40 … +200 °C (shiftable connection)
Output signal	1× programmable switching output	2× programmable switching output IO-Link 1.1	2× programmable switching output IO-Link 1.1	1× programmable switching output
Material of the parts in contact with the media	PEEK AISI 316L (1.4404) AISI 304 (1.4301) (optional)	PEEK AISI 316L (1.4404)	PEEK AISI 316L (1.4404)	PEEK AISI 316L (1.4404)
Protection category	IP 67, IP 69K	IP 67, IP69K	IP 67, IP 69K	IP 67
Conformity and approvals	ATEX 3-A EHEDG WHG EN 50155 (railway applications) DNV-GL Lloyd's register CCS	ATEX cULus WHG	ATEX cULus 3-A EHEDG WHG	ATEX 3-A EHEDG WHG
Process connections	For various process connection options see the enclosed selection guide			
Additional information	■ M18×1 directly replaces a capacitive sensor ■ Available with shiftable connection 250 mm ■ Suspended version for silos			■ Available with shiftable connection 100 mm and 250 mm

Level switch

- Conductive level detectors with hygiene design with up to 4 measuring points

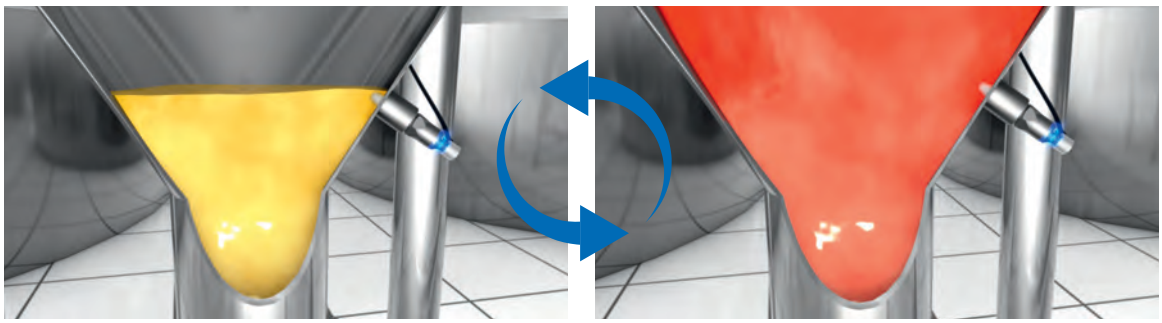
	LSKx2x	LSKx5x
Product highlights	■ Can be installed on top or the side ■ Rod can be shortened on location ■ PTFE coating for foamy media ■ Robust stainless steel connecting head	■ Multiple-point level detection ■ Rod can be shortened on location ■ PTFE coating for foamy media ■ Robust stainless steel connecting head
Application examples	Point level detection in containers, overflow protection	Multiple-point level detection in containers Overflow protection
Media temperature	–20 … +140 °C	–20 … +140 °C
Measuring ranges	20 … 2000 mm	20 … 2000 mm
Output signal	Electrode connection PNP switching output (with LKP100)	2× … 4× electrode connection
Material of the parts in contact with the media	PEEK PTFE (with coating) AISI 316L (1.4404)	PEEK PTFE (with coating) AISI 316L (1.4404)
Protection category	IP 67	IP 67
Conformity and approvals	3-A	3-A
Process connections	For various process connection options see the enclosed selection guide	
Additional information	■ Adapter for other hygienic connections available	■ Adapter for other hygienic connections available ■ Evaluation unit DNGA-230.100 available as an accessory

CleverLevel® PL20

- Adaptive point level detection without parameterization

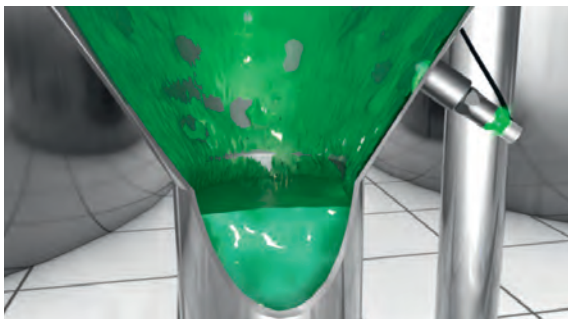
Automatic adaptation to medium

For applications in food and beverage with changing recipes or batch production, the *CleverLevel*® PL20 offers true added value thanks to adaptive setting of the switching point. Without any parameterization effort, the sensor adapts the switching point to the medium for reliable detection. This ensures maximum flexibility and minimized set-up time.



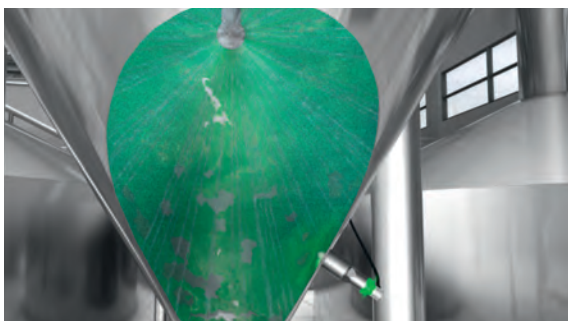
Unaffected by adherence

Even adherence typically present in pasty media will not impair the sensor performance. In the event of any adherence, the sensor adapts the switching level without the need for any parameterization and hence will increase process safety.



Optimized for cleaning processes

During cleaning processes, such as CIP cleaning, sensors frequently switch incorrectly as they cannot differentiate between the process media and the cleaning media. The *CleverLevel*® PL20 masters this challenge by ignoring cleaning media such as caustic soda solution and acids during the cleaning process.



Conductivity measurement

Conductivity measurement

Precise analysis and exact differentiation of fluid media

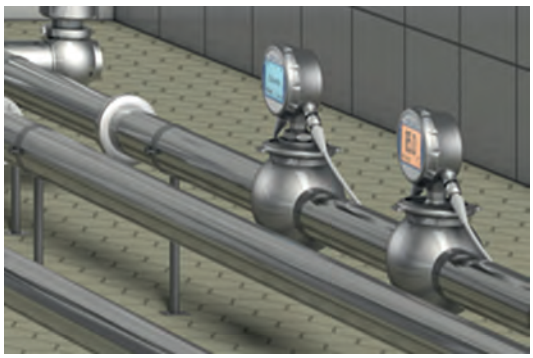
- Choice of output of conductivity or concentration
- Large touchscreen with varied presentation of process variables
- Short reaction time and quick temperature compensation
- Integrated programmable switching output
- Available with IO-Link interface or HART® protocol

IO-Link

IO-Link

	CombiLyz® AFI4	*CombiLyz*® AFI5
Product highlights	■ Output for conductivity or concentration ■ Quick internal temperature compensation ■ Short reaction time ■ High precision ≤ 1 % ■ Programmable via touchscreen, FlexProgram, IO-Link or HART®	■ Remote sensor with cable up to 10 m ■ Output for conductivity or concentration ■ Quick internal temperature compensation ■ Short reaction time ■ High precision ≤ 1 % ■ Programmable via touchscreen, FlexProgram, IO-Link or HART®
Application examples	Concentration measurement Monitoring of ingredients, phase separation	Concentration measurement Monitoring of ingredients, phase separation
Media temperature	–20 … +140 °C, permanent –20 … +150 °C max. (t < 1 h)	–20 … +140 °C, permanent –20 … +150 °C max. (t < 1 h)
Measuring ranges	14 configurable measuring ranges 0 … 500 µS/cm up to 0 … 1000 mS/cm	14 configurable measuring ranges 0 … 500 µS/cm up to 0 … 1000 mS/cm
Material of the parts in contact with the media	PEEK	PEEK
Output signal	2 × 4 … 20 mA (galvanically separated) IO-Link HART® 2 × relay output	2 × 4 … 20 mA (galvanically separated) IO-Link HART® 2 × relay output
Precision	≤ 1 % of the selected area	≤ 1 % of the selected area
Step response time-temperature, T90	≤ 15 s	≤ 15 s
Protection category	IP 67, IP 69K	IP 67, IP 69K
Conformity and approvals	3-A EHEDG UL cULus	3-A EHEDG UL cULus
Process connections	G 1 hygienic connection; For various process connection options see the enclosed selection guide	
Additional information	■ Adapter for other hygienic connections available	■ Adapter for other hygienic connections available

Typical application



Phase separation at the quality measuring point
Fast, temperature-compensating conductivity measurement is a prerequisite for optimum use of detergents and phase changes with pinpoint accuracy. The conductivity sensor *CombiLyz*® AFI supports CIP cleaning by a technology that is outstanding on the market. The resilient, all-Peek sensor body with integrated temperature compensation delivers measured values faster than any other sensor. Signal quality, together with the measured values from temperature and flow detection ensure safe CIP cleaning.

Flow measurement

www.baumer.com/flexflow

Flow sensors

Efficient monitoring of flow velocity and media temperature

- Robust and compact design
- Completely made of stainless steel
- For aqueous media in closed systems
- Various process connections and sensor lengths

	FlexFlow® PF20H	*FlexFlow*® PF20S
Product highlights	■ Hygienic design ■ SIP/CIP capacity ■ Flow and temperature measurement in a single sensor ■ Compact and robust ■ Two analog outputs or IO-Link plus programmable output ■ No movable parts	■ Industrial process connections ■ Flow and temperature measurement in a single sensor ■ Compact and robust ■ Two analog outputs or IO-Link plus programmable output ■ No movable parts
Application examples	Flow control, control of CIP processes	Flow control, control of CIP processes
Media	Water Beverages Cleaning agents	Water Water-glycol mix (max. 30 % glycol)
Media temperature	–25 … +150 °C 40 bar max.	–25 … +150 °C 100 bar max.
Measuring ranges	10 … 400 cm/s –25 … +125 °C	10 … 400 cm/s –25 … +125 °C
Material of the parts in contact with the media	AISI 316L (1.4404)	AISI 316L (1.4404)
Output signal	Programmable switching output IO-Link 1.1 4 … 20 mA 0 … 10 V	Programmable switching output IO-Link 1.1 4 … 20 mA 0 … 10 V
Precision	≤ 2 % (FS)	≤ 2 % (FS)
Protection category	IP 67, IP 68, IP 69K	IP 67, IP 68, IP 69K
Conformity and approvals	cULus FDA EHEDG	cULus
Process connections	For various process connection options see the enclosed selection guide	

Volume measurement

Electromagnetic flow meters

- Precision measurements with up to 0.2 % accuracy
- No energy loss thanks to unobstructed measuring tube without narrowings
- For media conductivity > 5 µS/cm
- Selection flexibility in process connections and pipe diameters

	PF55S	*CombiFlow*® PF75S	*CombiFlow*® PF75H
Product highlights	■ Volume, velocity and temperature measurement in one sensor ■ Precision up to 0.5 % ■ Compact, robust and resistant to temperature jumps ■ No moving parts	■ Volume and velocity measurement in one sensor ■ Precision up to 0.5 % ■ Robust and resistant to temperature jumps ■ No energy loss thanks to unobstructed measuring tube without narrowings ■ No moving parts	■ Volume and velocity measurement in one sensor ■ Precision up to 0.2 % ■ Hygiene design for SIP / CIP applications ■ No energy loss thanks to unobstructed measuring tube without narrowings ■ No moving parts
Application examples	■ Detection and monitoring of continuous flow ■ Monitoring of cooling circuits	■ Detection and monitoring of continuous flow ■ Volume measurement in tanks ■ High-precision filling and dosing of fluids	■ Detection and monitoring of continuous flow ■ Volume measurement in tanks ■ High-precision filling and dosing of fluids
Media	Conductive media with a conductivity of > 50 µS/cm	Conductive media with a conductivity of > 5 µS/cm	Conductive media with a conductivity of > 5 µS/cm
Media temperature	–10 … +100 °C	–20 … +100 °C	–20 … +100 °C –20 … +130 °C (max. 30 min)
Measuring ranges	0 … 72 m³/h 0.4 … 10 m/s –10 … +100 °C	0 … 1770 m³/h 0.4 … 10 m/s	0 … 280 m³/h 0.4 … 10 m/s
Material of the parts in contact with the media	PTFE/FPM, AISI 316, FPM, AISI 304	PTFE, Rilsan, Ebonit, PP, FKM	PTFE, PFA, FKM, AISI 316L, EPDM
Output signal	1× 4 … 20 mA 2× pulse and frequency outputs Digital input	1× 4 … 20 mA 2× pulse and frequency outputs Digital input	1× 4 … 20 mA 2× pulse and frequency outputs Digital input
Precision (max. measuring error)	± 1 % (opt. 0.5 %) ± 2 °C	± 0.8 % (opt. 0.5 %)	± 0.5 % (opt. 0.2 %)
Protection category	IP 67	IP 65, IP 67	IP 65, IP 67
Conformity and approvals	CE DGRL PED	CE DGRL PED WRAS	CE DGRL PED 3A FDA EHEDG 1935/2004
Process connections	For various process connection options see the enclosed selection guide		

Temperature sensors for hygienic applications

- 3-A sanitary standards, FDA-compliant, EHEDG-certified
- Efficient and quick temperature measurement
- SIP-compatible without limitations




	CombiTemp® TFRH	TE2	TER8	PT20H
Product highlights	■ Certified hygienic design ■ SIP/CIP capacity ■ Immersion depth up to 3000 mm ■ Touch display with alarm signals via background colors	■ Compact design ■ Hygienic and industrial process connections ■ SIP/CIP capacity ■ Immersion depth up to 3000 mm ■ Integrated 4 … 20 mA transmitter or Pt100 output ■ Simple process implementation from DN 25 or in the tank	■ Flush-mounted or immersion depth 20 mm, 50 mm ■ Certified hygienic design ■ SIP/CIP capacity ■ Optimal placement also for agitators and scraper systems ■ Integrated 4 … 20 mA transmitter or Pt100 output ■ Short reaction time ■ 3-A compliant without elastomers	■ Integrated 4 … 20 mA transmitter with high accuracy ■ Fast power-up time < 2 s ■ Short response time < 1.1 s ■ Fully welded and compact design
Application examples	Control of CIP processes, pasteurization system control, pharmaceutical systems	Control of CIP processes, temperature monitoring, pasteurization system control	Ice cream and cooking containers with skimmer, scraping systems	Control of temperature in tanks CIP processes Pasteurization systems Pharmacautical systems
Measuring ranges	–50 … +250 °C –50 … +400 °C (with cooling section)	–50 … +125 °C –50 … +250 °C (with cooling section)	–40 … +115 °C –40 … +135 °C max. (t < 1 h)	–50 … +125 °C –50 … +200 °C (process temperature with cooling zone, sensing tip ø 3 mm) –50 … +250 °C (process temperature with cooling zone, sensing tip ø 6 mm)
Sensor element	Pt100	Pt100	Pt100	Pt100
Precision class (EN 60751)	1/6 B, AA, A, B	1/6 B, AA, A, B	1/6 B, AA, A, B	1/6 B, AA, A, B
Output signal	4 … 20 mA + HART® Pt100	4 … 20 mA Pt100	4 … 20 mA Pt100	4 … 20 mA
Material of the parts in contact with the media	AISI 316L (1.4404)	AISI 316L (1.4404) (PEEK)	PEEK	AISI 316L (1.4404)
Step response time-temperature	T50: < 1.5 s (ø 4 mm) < 6.1 s (ø 6 mm) < 7.6 s (ø 8 mm)	T90: < 3.0 s (ø 3 mm) < 3.6 s (ø 4 mm) < 8.5 s (ø 6 mm)	T90: < 6.5 s (20 mm) < 6.7 s (50 mm) < 66 s (front-flush)	T90 with transmitter: < 1.1 s, short response tip (ø 3 mm) < 8.9 s, standard response tip (ø 6 mm)
Protection category	IP 67, IP 69K	IP 65, IP 67	IP 67, IP 69K	IP 65, IP68, IP69K
Conformity and approvals	ATEX 3-A	3-A EN 50155 (railway applications)	3-A	3-A
Process connections	For various process connection options see the enclosed selection guide			

	Hygienic cable sensor
Product highlights	■ Compact and light-weight ■ Hygienic design ■ Pt100 sensor element
Application examples	Piping systems, pasteurization systems control
Measuring ranges	–50 … +205 °C
Sensor element	Pt100
Precision class (EN 60751)	1/6 B, AA, B
Material of the parts in contact with the media	AISI 316L (1.4404)
Protection category	IP 65
Process connections	For various process connection options see the enclosed selection guide

Temperature sensors for industrial applications

- Robust, compact and durable
- Cost-saving by standard designs
- Extensive portfolio of process connections

	CombiTemp® TFRN	TCR6	TE2	*CombiTemp*® TFR5
Product highlights	■ Process connections with thread ■ Immersion depth up to 3000 mm ■ Touch display with alarm signals via background colors	■ Housing DIN Form B ■ Immersion depth up to 3000 mm ■ 4 … 20 mA + HART®, Pt100 or Pt1000 outpu	■ Compact design ■ Hygienic and industrial process connections ■ SIP/CIP capacity ■ Immersion depth up to 3000 mm ■ Integrated 4 … 20 mA transmitter or Pt100 output ■ Simple process implementation from DN 25 or in the tank	■ Wall or pipe installation ■ Internal and external application ■ Cable sensors or fixed sensors ■ Touch display with alarm signals via background colors
Application examples	Monitoring of cooling circuits, heat exchanger control, Laboratory equipment	Monitoring of cooling circuits, pumps and compressors, marine applications	Control of CIP processes, temperature monitoring, pasteurization system control	Piping systems, Room temperature measurement, Refrigerator monitoring
Measuring ranges	–50 … +250 °C –50 … +400 °C (with cooling section)	–50 … +400 °C –50 … +600 °C (with cooling section)	–50 … +125 °C –50 … +250 °C (with cooling section)	–30 ... +80 °C –200 … +850 °C (with detachable sensor)
Sensor element	Pt100	Pt100, Pt1000	Pt100	Pt100
Precision class (EN 60751)	1/6 B, AA, A, B	1/6 B, AA, A, B	1/6 B, AA, A, B	1/6 B, AA, A, B
Output signal	4 … 20 mA + HART® Pt100	4 … 20 mA + HART® Pt100 Pt1000	4 … 20 mA Pt100	4 … 20 mA + HART® Pt100 Pt1000
Material of the parts in contact with the media	AISI 316L (1.4404)	AISI 316L (1.4404)	AISI 316L (1.4404) (PEEK)	
Step response time-temperature	T50: < 1.5 s (ø 4 mm) < 6.1 s (ø 6 mm) < 7.6 s (ø 8 mm)	T50: < 1.5 s (ø 4 mm) < 6.1 s (ø 6 mm) < 7.6 s (ø 8 mm) < 11.1 s (ø 10 mm)	T90: < 3.0 s (ø 3 mm) < 3.6 s (ø 4 mm) < 8.5 s (ø 6 mm)	
Protection category	IP 67, IP 69K	IP 65	IP 65, IP 67	IP 67
Conformity and approvals	ATEX	ATEX EN50155 (railway applications)	3-A EN50155 (railway applications)	ATEX
Process connections	For various process connection options see the enclosed selection guide			

	PT20S	Universal cable sensor
	■ High transmitter accuracy ■ Fast power-up time < 2 s ■ Short response time ■ Fully welded and compact design	■ Air temperature or protective pipe installation ■ Cable length according to customer specifications ■ Pt100 or Pt1000 sensor element
	Transportation, water treatment, energy generation, oil temperature monitoring	Heating systems, HVAC
	–50 ... +125 °C –50 … +200 °C (process temperature with cooling zone, sensing tip ø 3 mm) –50 … +250 °C (process temperature with cooling zone, sensing tip ø 6 mm)	–50 … +205 °C
	Pt100	Pt100 Pt1000
	1/6 B, AA, A, B	1/6 B, AA, B
	4 … 20 mA	
	AISI 316L (1.4404)	AISI 316Ti (1.4571)
	T90 with transmitter: < 1.1 s, short response tip (ø 3 mm) < 8.9 s, standard response tip (ø 6 mm)	
	IP 65, IP68, IP69K	IP 65

Temperature transmitters

Components for OEM sensor manufacturers

- Programmable transmitters for RTD and C/T
- 4 ... 20 mA with optional HART interface
- Sensor calibration on location

	FlexTop 2202	FlexTop 2203	FlexTop 2204
Product highlights	■ Specifically for Pt100 ■ ATEX explosion protection ■ DIN Form B housing installation	■ Specifically for T/C ■ ATEX explosion protection ■ DIN Form B housing installation	■ Specifically for Pt500 ■ ATEX explosion protection ■ DIN Form B housing installation
Application examples	OEM applications	OEM applications	OEM applications
Precision	< 0.25 °C	< 3 … 5 °C	< 0.25 °C
Measuring ranges	Pt100: –200 … +850 °C R: 0 … 500 Ohm	T/C: –100 … +1820 °C U: –10 … 100 mV	Pt500: –100 … +160 °C R: 0 … 1000 Ohm
Input	Pt100, R	T/C, U	Pt500, R
Output	4 … 20 mA	4 … 20 mA	4 … 20 mA
Protection category	IP 40	IP 40	IP 40
Conformity and approvals	ATEX	ATEX	ATEX

Transmitter with your individual logo and the desired housing color.

	FlexTop 2212	FlexTop 2222
Product highlights	■ Automatic cable resistance compensation ■ Temperature deviation < 0.1 °C ■ Parameterization directly via USB connection	■ Automatic cable resistance compensation ■ Temperature deviation < 0.1 °C ■ Parameterization directly via USB connection
Application examples	Temperature insert for form B DIN housing	Temperature insert for form B DIN housing
Precision	< 0.1 °C	< 0.1 °C
Measuring ranges	RTD: –200 … +850 °C T/C: –250 … +2310 °C U: –500 … 2000 mV R: 0 … 7000 Ohm	RTD: –200 … +850 °C T/C: –250 … +2310 °C U: –500 … 2000 mV R: 0 … 7000 Ohm
Input		
Output	4 … 20 mA 2-conductor 20 … 4 mA 2-conductor	4 … 20 mA 2-conductor + HART®
Protection category	IP 55	IP 55
Conformity and approvals	Namur NE21	Namur NE21

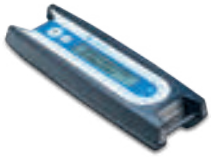
HART® enhances the tried and tested 4…20 mA interface with digital communication for data transfer and parameterization. The standardization and interoperability is appreciated and used around the world. A special advantage is the continued use of existing cabling when there is a need for retrofitting additional digital options. This is especially of interest in explosive environments. A large number of standard components is available for linking to higher bus systems. This makes HART® a key component of Industry 4.0.

User interfaces

User interfaces

Process data at a glance

- Display for presenting errors and threshold values
- Configuration tools for process sensors

	CombiView® DFON	FlexProgrammer 9701	USB IO-Link Master	*SensControl*
Product highlights	■ Large digits and symbols, readable from a distance ■ Configurable via touch-screen or FlexProgram ■ Changing background color, depending on the alarm setting ■ 3 configurable background colors	■ Simple configuration by menu control ■ Data transfer from the PC to the device via USB connection ■ Configuration of a device on location without PC ■ Robust synthetic housing with digital display and keys ■ Rechargeable battery (USB) ■ Free FlexProgram updates via the Baumer website	■ IO-Link Device Tool, Windows-based software ■ Complete set incl. power supply unit	■ Wireless (WLAN and Bluetooth LE) IO-Link master with integrated battery ■ App for iOS and Android mobile devices
Application examples	Remote monitoring, value visualization, alarm actuation	Sensor parameterization Setup duplication, data monitoring and logging	Parameterization of IO-Link sensors via IO-Link master with USB interface	■ Visualization of device status information and process data ■ Uniform, simple and reproducible parameter-ization ■ Diagnosis and analysis
Communication interfaces			IO-Link V1.0 and V1.1, USB	IO-Link V1.0 and V1.1, WLAN or Bluetooth LE
Number of IO-Link ports			1	1
IO-Link port type			Class A	Class A
Baud rate			4.8 kBaud (COM1) 38.4 kBaud (COM2) 230.4 kBaud (COM3)	4.8 kBaud (COM1) 38.4 kBaud (COM2) 230.4 kBaud (COM3)
Power supply			USB connection, wall power supply	
Supply voltage	Current loop supply	Via USB connection	Via USB connection, wall power supply	USB connection, external IO-Link master, integrated battery
Precision	0.1% ± 1 point			
Output signal	2× PNP switches	Sensor interface		
Ambient conditions	–30 … +80 °C	0 … +50 °C, rel. humidity < 90%	–25 … +45 °C	0 … +40 °C
Protection category	IP 67	IP 42	IP 20	IP 20
Software		FlexProgram FDT/DTM-based	FlexProgram IO-Link Device Tool	*SensControl* app for iOS and Android
Conformity and approvals	ATEX			

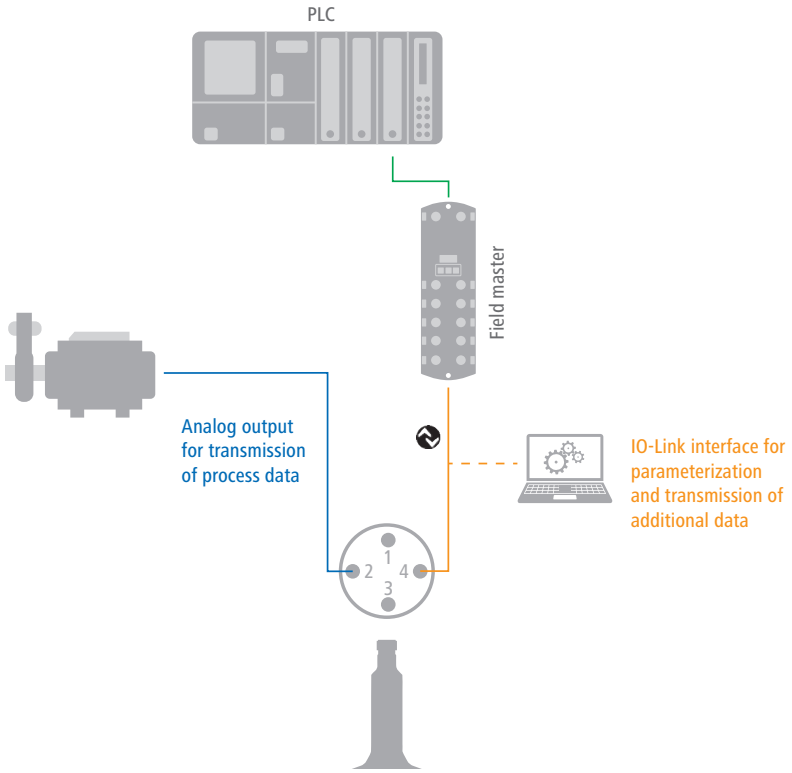
The bridge to the digital future

Added value by digital sensor data

- Easy and quick commissioning
- Secondary data for process optimation

Digital and analog interface benefits all at once thanks to Dual Channel:

Thanks to Dual Channel with analog output, the sensor is capable of both conventional control architectures and digital interface communication. In other words, the sensors feature 4 … 20 mA analog output and digital IO-Link interface. The benefits of IO-Link can therefore be used during sensor commissioning, which considerably simplifies the parameterization, yet the sensor is capable of process control via the 4 … 20 mA analog output.



Additional benefits of digital sensor data:

1 Easy and quick commissioning

- Parameterization either via controller or input device
- Automated parameter adoption at restart or in the event of sensor exchange
- Easy parameter adjustment when changing profiles or formats increases flexibility and machine uptime

2 Secondary data

- Diagnostic, analytical and identification data
- Sensor data monitoring such as temperature of the electronics cuts down on malfunction risk and is basic for preventive maintenance
- Readout of additional process parameters and verification of other sensors

Process connections

Process connections

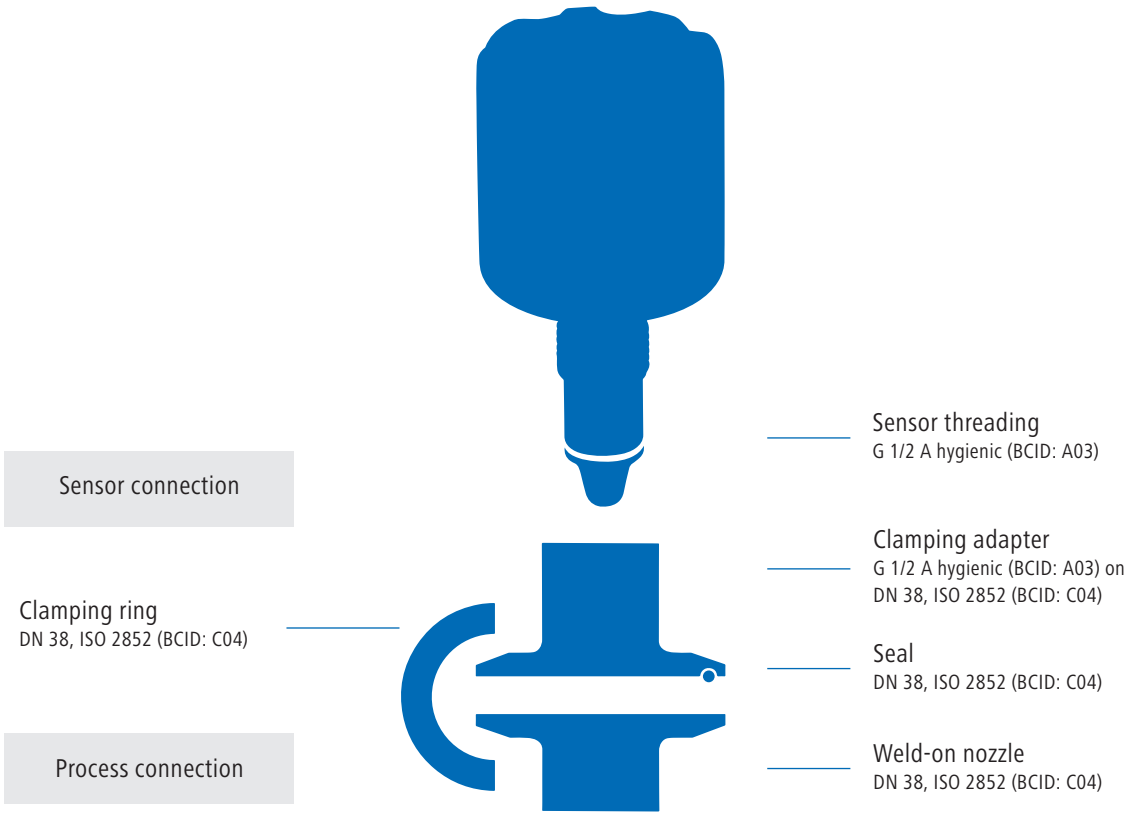
The Baumer BCID system: suitable for every process

- Clearly allocated accessories for various process connections
- Compatible with standard and high brand process connections
- Simple installation considerably expedites commissioning
- Connections ensure full functionality, high precision and durability

The sensors from Baumer are suitable for almost all process connections. Thanks to our more than 40 connection types you do not have to change your system design at all. The Baumer Connection Identifier (BCID) offers a convenient and safe system for the identification of the correct process adapter for the integration of your Baumer sensor into the respective application.

How to find the suitable adapter for your sensor
First you have to decide if it should be a threaded connection, a clamp connection or a welded connection. For further information regarding this see the next page. In the sensor data sheet you can then find the BCID code for the selected connection type. This encoding is also found on the product data sheets. Accessories with the same BCID code always match – whether adapters, welded parts, clamping rings, or seals.

Examples of the Baumer BCID system



Threaded connections		BCID
Hygienic cone connection	G 1/8 B external thread, hygienic	A01
	M12×1.5 hygienic	A02
	G 1/2 A hygienic	A03
	G1 A hygienic	A04
Industrial standard	G 1/4 A ISO 228-1	G03
	G 1/2 A ISO 228-1	G06
	G 1/2 A ISO 228-1 BSC	G07
	G 1/2 A ISO 228-1 with cone	G08
	G 1/2 A DIN 3852-E with front O-ring	G09
	G 3/4 A ISO 228-1	G10
	G 1 A ISO 228-1	G11
	G 1 A DIN 3852-E with front O-ring	G12
	G 1 1/4 A ISO 228-1	G13
	G 1 1/2 A ISO 228-1	G14
	G 2 A ISO 228-1	G16
	G 1/8 A ISO 228-1 internal thread	G20
	G 1/4 A ISO 228-1 internal thread	G21
	G 1/2 A ISO 228-1 internal thread	G23
	G 3/4 A ISO 228-1 internal thread	G24
	G 1/4 B EN 837-1	G30
	G 1/2 B EN 837-1	G31
	G 3/8 B EN 837-1	G32
	G 1/2 A DIN 3852-A	G44
	G 1/4 A DIN 3852-E	G50
	G 1/2 A DIN 3852-E	G51
	G 1/2 A DIN 3852-E, opening Ø 10 mm	G52
Tuning fork replacement	Rd52 (EH FTL EE2)	T02
	G 1 A ISO 228-1 (EH FTL GW2)	T03
	G 3/4 A ISO 228-1 (EH FTL GQ2)	T04
	G 3/4 A ISO228-1 (VS Ø 21.3)	T06
	G 1 A ISO228-1 (VS Ø 21.3)	T07
	UNI D65 (Ø 44 × 39.5)	T08
Reverse installation	G 1/2 A ISO 228-1 for internal installation	T10
Coupling nut	Seal cone M18×1.5	T44
	Clamp screw connection Ø 6	T52
	Protective sleeve Ø 5.8 mm	T64
	Protective sleeve Ø 6 mm	T65
	Protective sleeve Ø 8 mm	T66
	Protective sleeve Ø 10 mm	T67
Metric	M12×1.5, metric fine thread, DIN 837	M02
	M14×1.5, cone 60°	M05
	M18×1.5 ISO 261 / ISO 965	M07
	M20×1.5 ISO 261 / ISO 965	M08
	M18×1 ISO 261 / ISO 965	M11
UTS (Unified Thread Standard)	7/16-20 UNF with cone (SAE 4)	U01
	7/16-20 UNF with O-Ring (SAE 4)	U02
	9/16-18 UNF with O-Ring (SAE 6)	U04
NPT (ANSI/ASME B1.20.1)	1/4-18 NPT	N01
	1/2-14 NPT	N02
	3/4-14 NPT	N03
	1-11.5 NPT	N04
Whitworth pipe thread	R 1/2 ISO 7/1	R01
	R 1 1/4 ISO 7/1	R02
	R 1/4 BSP - Tr	R03

Clamp and coupling nut connections		BCID
Baumer hygienic connection	BHC 3A DN 38 BHC 3A DN 76	B01 B02
ISO 2852 (Tri-Clamp)	DN 21.3, Ø 34.0 DN 25, Ø 50.5 DN 33.7; 38, Ø 50.5 DN 40; 51, Ø 64.0	C02 C03 C04 C05
DIN 32676-A (Tri-Clamp)	DN 20, Ø 34.0 DN 25; 32; 40, Ø 50.5 DN 50, Ø 64.0	C02 C04 C05
DIN 32676-B (Tri-Clamp)	DN 26.9, Ø 50.5 DN 33.7, Ø 50.5 DN 42.4; 48.3, Ø 64.0	C03 C04 C05
DIN 32676-C (Tri-Clamp)	DN 3/4", Ø 24.9 DN 1", Ø 50.5 DN 1 1/2", Ø 50.5 DN 2", Ø 64.0	C01 C03 C04 C05
DIN 11851 (Dairy pipe screw joint)	DN 25 DN 32 DN 40 DN 50 DN 65	D01 D02 D03 D04 D05
DIN 11864-1-A (Aseptic screwed pipe connection)	DN 40 DN 50	H03 H04
DIN 11864-3-A (Aseptic clamp)	DN25, Ø 50.5	H41
SMS 1145	SMS 1145, DN 38 SMS 1145, DN 51	S01 S02
VARIVENT®	VARIVENT® DN 25; 1" (Typ F), Ø 50 VARIVENT® DN 32 … 125; 1 1/2" … 6" (Typ N), Ø 68	V01 V02

Welded connections		BCID
Thin walled tanks	Ø 16 × 12.2 Ø 25 × 17 Ø 45 × 34	W01 W05 W20
Thick walled tanks	Ø 26.5 × 15 Ø 26.5 × 25 Ø 30 × 26 Ø 30 × 34 Ø 35 × 20 Ø 50 × 23 Ø 55 × 23 Ø 60 × 20.5 Ø 55 × 32 Ø 120 × 32	W07 W08 W10 W21 W35 W45 W46 W50 W65 W70
Slanted installation	Ø 35 × 34 Schweisskegel Ø 16	W30 W31
Pipes without extrusion	DN 25, Ø 16	W02
Pipes with extrusion	DN 25 … 50, Ø 29 × 36.5 DN 65 … 150, Ø 30 × 36.5 DN 40 … 50, Ø 40 × 28 DN 65 … 150, Ø 41 × 28 DN 38, Ø 38 × 40	W25 W26 W40 W41 W60

Baumer – the strong partner.

We at Baumer are close to our customers, understand their needs and provide the best solution. Worldwide customer service for Baumer starts with on-the-spot personal discussions and qualified consultation. Our application engineers speak your language and strive from the start, through an interactive problem analysis, to offer comprehensive and user-compatible solutions.

We are close to you across the globe.

The worldwide Baumer sales organizations guarantee short delivery times and readiness to supply. Many of our customers are directly linked via our electronic order system with the JIT logistics process.

A worldwide network coupled with the most modern communication techniques enable us to deliver information quickly and transparently to decision makers in all Baumer locations.

Closeness to the customer for Baumer means being available for your needs anywhere and at any time.

Other sensors, rotary encoders, measuring instruments as well as components for automated image processing from Baumer can be found at www.baumer.com

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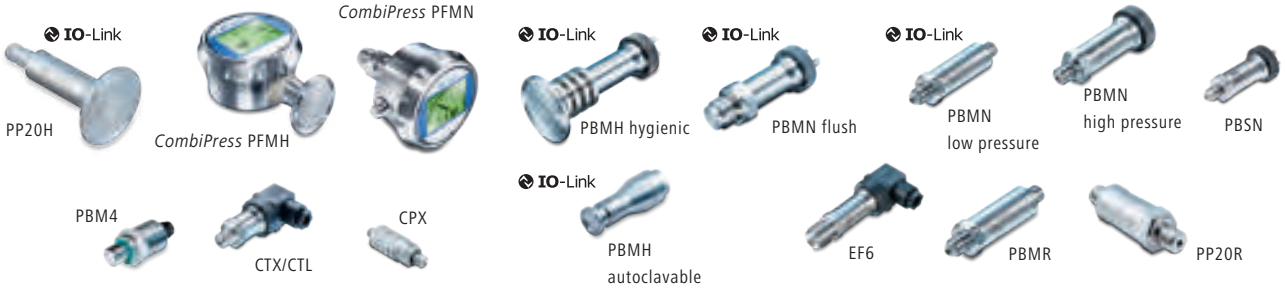
Process sensors

Selection Guide

Pressure measurement

	Measuring range (bar)	Min. span (bar)	Accuracy (± % FS)	Absolute pressure	Media temperature ≥ 125 °C	Dry cell (no liquids)	PNP switch	Current Loop 4 … 20 mA	Voltage output	HART	Display	IO-Link	ATEX	EN50155 (Railway)	Type	Page
Hygienic/front-flush	–1 … 40	0.4	0.2; 0.5	■	■		■	■				■			PP20H	6
Hygienic/front-flush	–1 … 68	0.05	0.1; 0.25	■	■		■	■		■	■		■		*CombiPress*® PFMH	6
Hygienic/front-flush	–1 … 40	0.1	0.1; 0.25	■	■			■	■			■	■		PBMH hygienic	6
Front-flush	–1 … 400	0.05	0.1; 0.25	■	■		■	■		■	■		■		*CombiPress*® PFMN	7/8
Front-flush	–1 … 400	0.1	0.1; 0.25	■	■			■	■			■	■		PBMN flush	7
General industrial	–1 … 40	0.1	0.1; 0.25	■	■			■	■			■	■		PBMN low pressure	8
General industrial	0 … 1600	60	0.1; 0.25		■	■		■	■				■		PBMN high pressure	8
General industrial	–1 … 600	1.0	0.5; 0.7	■	■	■		■	■						PBSN	8
Hydraulics	0 … 1000	10.0	0.5		■	■		■	■						PBM4	9
General industrial	–1 … 200	1.0	0.5 (BFSL)			■		■	■						CTX/CTL	9
General industrial	–1 … 600	1.0	0.5 (BFSL)	■		■	■								CPX	9
Hygienic/front-flush	–1 … 40	0.4	0.1; 0.25	■	■			■	■			■			PBMH autoclavable	10
Railway	0 … 250	1.0	0.5		■	■		■	■					■	EF6	11
Railway	–1 … 40	0.1	0.1; 0.25	■	■			■	■					■	PBMR	11
Railway	0 … 16	0.25	0.3; 0.5; 1.0	■	■			■	■					■	PP20R	11

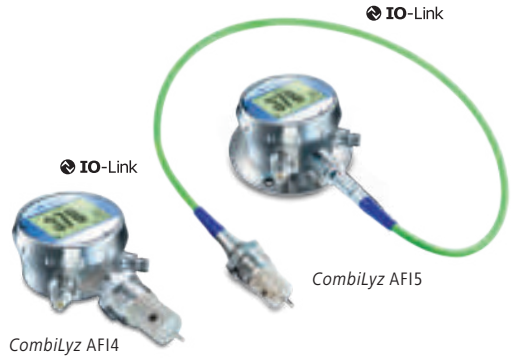


Level measurement

	Immersion depth (mm)	Point level	Continuous level	Bulk solids	Hygienic	PC programmable	LED indicator	LED indicator multicolor	Direct teach-in	*qTeach*	Electrode terminal	PNP/NPN switch	IO-Link	Current Loop 4 … 20 mA	ATEX	Type	Page
Frequency sweep		■		■	■	■		■	■	■		■	■	■		*CleverLevel*® PL20 Adaptive-Trigger	12
Frequency sweep	0 … 250	■		■	■	■	■					■			■	*CleverLevel*® LBFS	13
Frequency sweep		■		■		■		■		■		■	■		■	*CleverLevel*® LBFI	13
Frequency sweep		■		■	■	■		■		■		■	■		■	*CleverLevel*® LBFH	13
Frequency sweep	0 … 250	■		■	■	■	■		■			■			■	*CleverLevel*® LFFS	13
Conductive single rod	0 … 2000	■			■						■	■				LSKx2x	14
Conductive multi rod	0 … 2000	■			■						■					LSKx5x	14

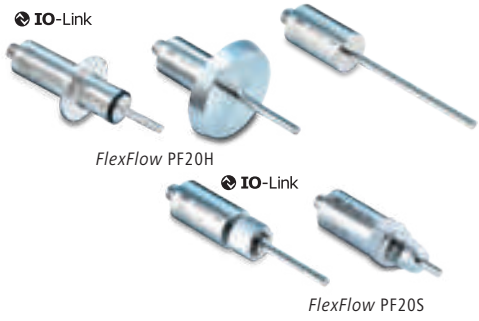
Conductivity measurement

	Measuring range (mS/cm)	Min. span (mS/cm)	PNP switch	Current Loop 4 … 20 mA	HART	IO-Link	Type	Page
Compact version	0 … 1000	0.5	■	■	■	■	*CombiLyz*® AFI4	16
Separate version	0 … 1000	0.5	■	■	■	■	*CombiLyz*® AFI5	16



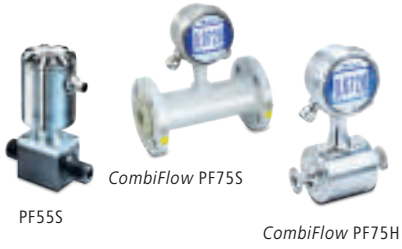
Flow measurement

	Measuring range cm/s	Immersion depth (mm)	PNP / NPN switch	IO-Link	Current Loop 4 … 20 mA	Type	Page
Hygienic	10 … 400	32 … 50	■	■	■	*FlexFlow*® PF20H	18
General industrial	10 … 400	16 … 100	■	■	■	*FlexFlow*® PF20S	18



Volume measurement

	Measuring range m/s	Pipe diameters	PNP / NPN switch	HART	Current Loop 4 … 20 mA	Pulse output (frequency)	Type	Page
General industrial	0.4 … 10	DN 10 … 50			■	■	PF55S	19
General industrial	0.4 … 10	DN 25 … 250	■	■	■	■	*CombiFlow*® PF75S	19
Hygienic	0.4 … 10	DN 3 … 100	■	■	■	■	*CombiFlow*® PF75H	19



Temperature measurement

	Measuring range (°C)	Accuracy class (EN 60751)	Transmitter accuracy (± °C)	Fit for mounting head transmitter	Compact OEM version	RTD resistance output	Wall or pipe mounted	Remote sensor	PNP switch	Current Loop 4 … 20 mA	HART	Display	ATEX	EN 50155 (Railway)	Type	Page
Hygienic	−50 … +250	1/6 B, AA, A, B		■		■			■	■	■	■	■		*CombiTemp*® TFRH	20
Hygienic and general industrial	−50 … +125	1/6 B, AA, A, B	0,25		■	■				■				■	TE2	20, 22
Hygienic	−40 … +115	1/6 B, AA, A, B	0,25		■	■				■					TER8	20
Hygienic	−50 … +125	1/6 B, AA, A, B	0,05		■					■					PT20H	20
Hygienic	−50 … +205	1/6 B, AA, A, B				■		■							Hygienic cable sensor	21
General industrial	−50 … +250	1/6 B, AA, A, B		■		■			■	■	■	■	■		*CombiTemp*® TFRN	22
General industrial	−50 … +400	1/6 B, AA, A, B		■		■				■	■		■	■	TCR6	22
General industrial	−30 … +80	1/6 B, AA, A, B		■			■	■	■	■	■	■	■	■	*CombiTemp*® TFR5	22
General industrial	−50 … +125	1/6 B, AA, A, B	0,05		■					■					PT20S	23
HVAC, general industrial	−50 … +205	1/6 B, AA, B				■		■							Universal cable sensor	23

Temperature transmitter

	Measuring range (°C)	Accuracy (± °C)	Pt100	Pt500	Pt1000	T/C	Current Loop 4 … 20 mA	HART	ATEX	Type	Page
Head transmitter	−200 … +850	0.25 (0.1% FS)	■				■		■	FlexTop 2202 (Pt100)	24
Head transmitter	−100 … +1820	3.0; 4.0; 5.0				■	■		■	FlexTop 2203 (T/C)	24
Head transmitter	−100 … +160	0.25		■			■		■	FlexTop 2204 (Pt500)	24
Head transmitter	−250 … +2300	0.06 (Pt100); 1.0; 2.0 (T/C)	■	■	■	■	■		■	FlexTop 2212 (Universal)	25
Head transmitter	−250 … +2300	0.06 (Pt100); 1.0; 2.0 (T/C)	■	■	■	■	■	■	■	FlexTop 2222 (HART)	25

FlexTop

HART

Interfaces

	ATEX	Type	Page
Graphics display	■	*CombiView*® DFON	26
USB programming interface		FlexProgrammer 9701	26
IO-Link programming interface		USB IO-Link Master	26
Wireless IO-Link Master		*SensControl*	26

SensControl

FlexProgrammer 9701

CombiView DFON

USB IO-Link Master

Process connections & accessories

	Type
Hygienic adapters	ZPH1, ZPH3
Weld-in sleeves	ZPW1, ZPW2, ZPW3
Vibronic level switch replacement	ZPH1-32xx
Standard threaded adapters	ZPI1
Blind plugs, welding mandrels	ZPX5, ZPX6
Additional parts, gaskets, o-rings	ZPX2, ZPX3
Evaluation unit for LSK	DNGA
ATEX barrier for LxFS	PROFSI3

ZPH3-3213

ZPX4-x10

ZPI1-32A

ZPH1-327

ZPW3-327

ZPX6-66

ZPW2-626

ZPH1-524E

ZPH1-5236

Compliance and approvals

Baumer products meet international industrial standards. Where appropriate or selected by options, they are FDA compliant, fulfil the requirements of the respective 3-A Sanitary Standards or comply with EU regulations 1935/2004, 10/2011 and 2023/2006. In addition certain products are EHEDG certified. For hazardous environments you have a choice of ATEX approved products. Please refer to the related data sheets for details.

Information on product characteristics may relate to defined product options. Only the applicable product data sheet is of relevance.

Baumer
Passion for Sensors

Process connections

	Hygienic interfacing																												
Process connection	G 1/8 B male thread hygienic	M12×1.5 hygienic	G 1/2 A hygienic	G1 A hygienic	BHC 3A DN 38	BHC 3A DN 76	Tri-Clamp Ø 24.9	Tri-Clamp Ø 34.0	Tri-Clamp Ø 50.5, ID ≤ 23.7	Tri-Clamp Ø 50.5, ID ≥ 26.0	Tri-Clamp Ø 64.0	DIN 11851 (dairy pipe connection), DN 25	DIN 11851 (dairy pipe connection), DN 32	DIN 11851 (dairy pipe connection), DN 40	DIN 11851 (dairy pipe connection), DN 50	DIN 11851 (dairy pipe connection), DN 65	DIN 11864-1-A (aseptic screwed union), DN 40	DIN 11864-1-A (aseptic screwed union), DN 50	DIN 11864-3-A (Aseptic Clamp), DN25, Ø 50.5	SMS 1145, DN 38	SMS 1145, DN 51	Varivent® DN 25; 1" (Type F), Ø 50	Varivent® DN 32 … 125; 1 1/2" … 6" (Type N), Ø 68	G 1/4 A ISO 228-1	G 1/2 A ISO 228-1	G 1/2 A ISO 228-1 BSC	
BCID	A01	A02	A03	A04	B01	B02	C01	C02	C03	C04	C05	D01	D02	D03	D04	D05	H03	H04	H41	S01	S02	V01	V02	G03	G06	G07	
PP20H			■	■	●				■	●	■	●	●	■	■	●	■	■		●	●	■	■				
CombiPress® PFMH					■	■				■	■												■				
PBMH hygienic					■	■	■	■	■	■	■								■			■	■				
CombiPress® PFMN			■	■	●				●	●	●	●	●	●	●	●	●	●		●	●	●	●				
PBMN flush			■	■	●				●	●	●	●	●	●	●	●	●	●		●	●	●	●				
PBMN low pressure																											
PBMN high pressure																											
PBSN																											
PBM4																											
CTL																											
CTX																											
CPX																											
PBMH autoclavable							■	■	■	■	■								■								
EF6																											
PBMR																											
PP20R																											
CleverLevel® PL20			■	●	●				●	●	●	●		●	●		●	●			●	●	●			■	
CleverLevel® LBFS			■	●	●				●	●	●	●		●	●		●	●			●	●	●			■	
CleverLevel® LBFI			■	●	●				●	●	●	●		●	●		●	●			●	●	●			■	
CleverLevel® LBFH			■	●	●				●	●	●	●		●	●		●	●			●	●	●				
CleverLevel® LFFS			■	●	■				●	●	●	●		●	●		●	●			●	●	●				
LSKx2x			■	●	●				●	●	●	●		●	●		●	●			●		●				
LSKx5x				■						●	●		●	●	●	●	●	●		●	●		●				
CombiLyz® AFI4				■						●	●		●	●	●	●	●	●		●	●		●				
CombiLyz® AFI5				■						●	●		●	●	●	●	●	●		●	●		●				
FlexFlow® PF20H			■	●	■			■	■	■	■	■		■	■		●	●			●	■	■				
FlexFlow® PF20S																								●	●		
CombiTemp® TFRH			■	●	■				■	■	■	●		●	●		●	●			●	●	■				
TE2		■	■	●	■		■		■	■	●	●		●	●		●	●			●	●	●		■		
TER8			■	●	●				●	●	●	●		●	●		●	●			●	●	●				
CombiTemp® TFR5																											
CombiTemp® TFRN																											
TCR6																									■		
Hygienic cable sensor	■																										
Universal cable sensor																											
PT20S																									■		
PT20H		■	■	●	■				■	■	●	●		●	●		●	●			●	●	●				

■ One-Piece Design ● Adapter available

Industrial interfacing

G08 G 1/2 A ISO 228-1 with cone	G09 G 1/2 A DIN 3852-E with O-ring at the front	G10 G 3/4 A ISO 228-1	G11 G 1 A ISO 228-1	G12 G 1 A DIN 3852-E with O-ring at the front	G13 G 1 1/4 A ISO 228-1	G14 G 1 1/2 A ISO 228-1	G16 G 2 A ISO 228-1	G20 G 1/8 A ISO 228-1 female thread	G21 G 1/4 A ISO 228-1 female thread	G23 G 1/2 A ISO 228-1 female thread	G24 G 3/4 A ISO 228-1 female thread	G30 G 1/4 B EN 837-1	G31 G 1/2 B EN 837-1	G32 G 3/8 B EN 837-1	G44 G 1/2 A DIN 3852-A	G50 G 1/4 A DIN 3852-E	G51 G 1/2 A DIN 3852-E	G52 G 1/2 A DIN 3852-E, hole Ø 10 mm	M05 M14×1.5, cone 60°	M07 M18×1.5 ISO 261 / ISO 965	M08 M20×1.5 ISO 261 / ISO 965	M11 M18×1 ISO 261 / ISO 965	M12 M22 × 1.5 ISO 261 / ISO 6149-1	N01 1/4-18 NPT	N02 1/2-14 NPT	N03 3/4-14 NPT	N04 1-11.5 NPT	R03 R 1/4 ISO 7-1	R06 R 1/2 ISO 7-1	R13 R 1 1/4 ISO 7-1	T02 Rd52 (EH FTL EE2)	T03 G 1 A ISO 228-1 (EH FTL GW2)	T04 G 3/4 A ISO 228-1 (EH FTL GQ2)	T06 G 3/4 A ISO228-1 (VS Ø 21.3)	T
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G 1 A ISO228-1 (VS Ø 21.3)	UNI D65 (Ø 44 x 39.5)	G 1/2 A ISO 228-1 for reverse assembly	Sealing cone M18×1.5	Compression fitting Ø 6	Sleeve Ø 5.8	Sleeve Ø 6	Sleeve Ø 8	Sleeve Ø 10	7/16-20 UNF with cone (SAE 4)	7/16-20 UNF with o-ring (SAE 4)	9/16-18 UNF with o-ring (SAE 6)	Weld-in sleeves
T07	T08	T10	T44	T52	T64	T65	T66	T67	U01	U02	U04	
●	●											Ø 16 x 12.2 (Thin-walled tanks) W01
												DN 25, Ø 16 (Thin-walled tanks) W02
												Ø 25 x 17 (Pipes without collar) W05
												Ø 26.5 x 15 (Universal use) W07
												Ø 26.5 x 25 (Universal use) W08
												Ø 30 x 26 (Thick-walled tanks) W10
●	●											Ø 45 x 34 (Thin-walled tanks) W20
●	●	■										Ø 30 x 34 (Thick-walled tanks) W21
●	●											DN 25 … 50, Ø 29 x 36.5 (Pipes without collar) W25
●	●											DN 65 … 150, Ø 30 x 36.5 (Pipes without collar) W26
●	●											Ø 35 × 34 (Inclined mounting) W30
●	●											Taper Ø 16 W31
												Ø 35 × 20 (Thick-walled tanks) W35
												DN 40 … 50, Ø 40 x 28 (Pipes without collar) W40
												DN 65 … 150, Ø 41 x 28 (Pipes without collar) W41
												Ø 50 × 23 (Thick-walled tanks) W45
												Ø 55 × 23 (Thick-walled tanks) W46
												Ø 60 × 20.5 (Thick-walled tanks) W50
●	●											DN 38, Ø 38 x 40 (Pipes without collar) W60
●	●											Ø 55 × 32 (Thick-walled tanks) W65
●	●											Ø 120 × 32 (Thick-walled tanks) W70