



*Your partner for measurement
technology and automation*



fill level



water level



pressure



temperature



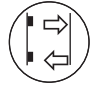
flow



visualization



signal converter



sensoric

Sensors for your various applications

Pressure measurement



Pressure sensors - digital & analog

Pressure switches & transmitters

Differential pressure transmitters



ACS-CONTROL-SYSTEM

knowhow with system

Your partner for measuring technology and automation



Pressure measurement of ACS



Higher plant safety, product quality and automation optimization require new precise and long term stable pressure gauges. For these requirements ACS CONTROL SYSTEM GmbH manufactures a practical program of pressure transmitters. Modern measuring cells of high purity ceramic resp. metall with sensor technologies like capacitive, thin-film strain gauges, thick-film technologies and piezoresistive DMS are in use. Thus result high temperature stability, long-term stability and overload resistance. Process connections are available in all common shapes and materials. Use the experience and expertise of ACS-CONTROL-SYSTEM GmbH for your process automation.



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What to use where

Pressure type	Precont® PN4SC	Precont® PN4SM	Precont® PN4LM	Precont® S10	Precont® S20	Precont® S30	Precont® S40	Precont® S70	Precont® D40	Precont® PS4SC	Precont® PS4SK	Precont® PS4SM	Precont® PS4LM	Precont® PU4SE	Precont® PU4SC	Precont® PU4SK	Precont® PU4SM	Precont® PU4LM	Precont® PK4SH	Precont® TM	Precont® MT	Precont® ML	Precont® KT	Precont® CT	Precont® ECO	Precont® DD121G	Precont® DD109A	Precont® DD110A	Prelog PDL
Relative pressure	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•
Absolute pressure	•	•	•	•	•	•	•	•		•	•	•	•							•	•	•	•	•					•
Differential pressure																									•	•	•		

Function

Pressure measurement	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
FILL level measurement			•			•	•	•	•	•			•							•		•		•					•
Flow measurement	•	•	•																										
Limit transmitter with switching outputs	4	4	4	2	2	2	2	2	2	2	2	2	2																
Data logger	•	•	•																										•

Media







Liquids	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•				•
Gases	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Hydraulic oil / oils		•			•						•	•		•	•	•	•	•			•		•		•				
Viscous media		•	•		•	•	•	•	•	•		•	•							•	•	•		•					





Operating conditions

Hazardous area				Ex	Ex	Ex	Ex	Ex	Ex											Ex	Ex		Ex	Ex	Ex	Ex	Ex	Ex	Ex
Aggressive media	•			•			•		•	•	•									•				•					
Coat forming media		•	•		•	•	•	•	•	•		•	•							•	•	•		•					
Pressure blow resistive	•			•			•		•	•										•				•					
High temperature applications								•											•										
High pressure applications		•			•						•	•		•	•	•	•	•	•		•		•						
Extreme climatic conditions									•																				
Hygienic sector			•			•	•	•	•				•					•				•							

Type Principle of operation	Precont® PN4SC	Precont® PN4SM	Precont® PN4LM	Precont® S10	Precont® S20	Precont® S30	Precont® S40	Precont® S70
	Digital pressure sensor and pressure transmitter with internal ceramic membrane  0,05% accuracy	Digital pressure sensor and pressure transmitter with metal membrane up to 1000 bar  1000 bar	Digital pressure sensor and pressure transmitter for hygienic applications  3-5 mPa	Digital pressure sensor and pressure transmitter with ceramic membrane  1000 bar	Digital pressure sensor and pressure transmitter with metal membrane up to 1000 bar  1000 bar	Digital pressure sensor and pressure transmitter for hygienic applications  3-5 mPa	Digital pressure sensor with flush capacitive ceramic cell  3-5 mPa	Digital pressure sensor for high temperature areas  3-5 mPa 400°C
page	08	12	16	20	24	28	32	36
Design	compact	compact	compact	compact	compact	compact	compact	compact with diaphragm seal
Application areas	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement	Hygienic applications, CIP, SIP, food technology	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, hydraulic oil, standard measurement	Hygienic applications, CIP, SIP, food technology	Liquids, gases, vapors standard measurement, hygienic areas, viscose media	Liquids, vapors, gases, high temperature, Hygienic applications
Measuring ranges	-1 up to 60 bar absolute/relative	-1 up to 1000 bar absolute/relative	-1 up to 25 bar absolute/relative	-1 up to 60 bar absolute/relative	-1...-1000 bar absolute/relative	-1...+25 bar absolute/relative	-1 up to 60 bar absolute/relative	-1 up to 400 bar absolute/relative
Measuring cell	Capacitive Ceramic	Metal Thin film - resp. piezoresistive DMS	Metal, front-flush piezoresistive DMS	Capacitive Ceramic	Thin film - resp. piezoresistive DMS	Metal, front-flush piezoresistive DMS	Capacitive Ceramic	Metal capacitive ceramic thin film - DMS
Process connections	Thread G 1/4", G 1/2"	Thread G 1/4", G 1/2", G 1"	Thread 1" Milk tube Varivent DRD	Thread G 1/4", G 1/2"	Thread G 1/4", G 1/2"	Thread 1" Milk tube Varivent DRD	Thread G 1/4", G 1/2", Milk tube, Varivent, DRD, Tri-Clamp, Flange	Thread G 1/2", G 3/4", Thread G 1 1/2", G 2", DIN-Flange Diaphragm seal
Process temperatures	-40 up to +125°C	-40 up to +125°C	-20 up to +150°C	-40 up to +125°C	-40 up to +125°C	-20...+150°C	-40 up to +125°C	-90 up to +400°C
Electronics	3-wire: 0/4...20 mA / 0...10 V	3-wire: 0/4...20 mA / 0...10 V	3-wire: 0/4...20 mA / 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V
Outputs can be calibrated	via display keys	via display keys	via display keys	via display keys	via display keys	via display keys	via display keys	via display keys
Switching points	4x PNP	4x PNP	4x PNP	2x PNP	2x PNP	2 x PNP	2x PNP	2x PNP
Display	2" TFT-Display	2" TFT-Display	2" TFT-Display	4-digit LED	4-digit LED	4-digit LED	4-digit LED	4-digit LED
Certification				ATEX	ATEX	ATEX	ATEX	ATEX
Accuracy	< 0,05% / 0,10% / 0,20%	< 0,15% / 0,50%	< 0,15% / 0,50%	< 0,05% / 0,10% / 0,20%	< 0,15% / 0,50%	< 0,15% / 0,5%	< 0,05% / 0,10% / 0,20%	< 0,20% / 0,50%
Long term stability	0,1% / year	0,2% / year	0,2% / year	0,1% / year	0,2% / year	>0,2% / year	0,1% / year	0,2% / year

Type Principle of operation	Precont® D40 Digital pressure sensor for extreme climatic conditions	Precont® PS4SC Digital pressure sensor with capacitive ceramic cell	Precont® PS4SK Digital pressure sensor with ceramic membrane	Precont® PS4SM Digital pressure sensor with metallic membrane	Precont® PS4LM Digital pressure sensor for hygienic applications	Precont® PU4SE Pressure transmitter with Modbus-Option	Precont® PU4SC Pressure transmitter with Modbus-Option	Precont® PU4SK Pressure transmitter with Modbus-Option
	 	 	 	 	 	 	 	 
page	40	44	48	52	56	60	64	68
Design	compact	compact	compact	compact	compact	compact	compact	compact
Application areas	Liquids, vapors, gases, extreme climatic conditions	Liquids, vapors, gases, standard measurements, pressure switch, oils	Liquids, vapors, gases, standard measurements, pressure switch, oils	Liquids, vapors, gases, standard measurements, pressure switch, oils	Hygienic applications, CIP, SIP, food technology	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement
Measuring ranges	0,2 up to 16 bar relative	-1...60 bar relative/absolute	0...600 bar relative/absolute	-1...1000 bar relative/absolute	-1...+25 bar relative/ absolute	0...+600 bar relative/absolute	50mbar...+25 bar relative/absolute	-1 mbar...+600 bar relative/absolute
Measuring cell	Capacitive Ceramic	capacitive ceramic	Ceramic, thick film - DMS	Metal Thin film - resp. piezoresistive DMS	Metal, front-flush piezoresistive DMS	Ceramic, Thickfilm-DMS	capacitive ceramic	Ceramic, Thickfilm-DMS
Process connections	Thread G¼", G½", Milk tube, Varivent, DRD, Tri-Clamp, Flange	Thread G¼", G½", G¾", G1", G1½" also front-flush	Thread G¼", G½", G1"	Thread G¼", G½", G1" also front-flush	Thread 1" Milk tube Varivent DRD	Thread G¼", G½"	Thread G¼", G1½", Milk tube, Varivent, DRD, Tri-Clamp, Flange	Thread G¼", G½", G¾", G1", also front-flush
Process temperatures	-40 up to +125°C	-40...+125°C	-40...+135°C	-40...+125°C	-20...+150°C	-40...+100°C	-40...+125°C	-40...+135°C
Electronics	2-wire: 4...20 mA 3-wire: 0...10 V	3-wire: 4...20 mA	3-wire: 4...20 mA	3-wire: 4...20 mA	3-wire: 4...20 mA	2-wire: 4...20 mA, HART™ 4-wire: Modbus RTU	2-wire: 4...20 mA, HART® 4-wire: Modbus RTU	2-wire: 4...20 mA, HART® 4-wire: Modbus RTU
Outputs can be calibrated	via display keys	via display keys	via display keys	via display keys	via display keys	HART™	HART®	HART®
Switching points	2x PNP	2 x PNP	2 x PNP	2 x PNP	2 x PNP	-	-	-
Display	4-digit LED	4-digit LED	4-digit LED	4-digit LED	4-digit LED	-	-	-
Certification	ATEX	-	-	-	-	-	-	-
Accuracy	γ 0,10% / 0,20%	< 0,2%	< 0,5%	< 0,5%	< 0,5%	< 0,50%	< 0,050%	< 0,150%
Long term stability	0,1% / year	0,1% / year	0,2%/year	0,2%/year	0,2%/year	0,2% / year	0,15% / year	0,2% / year

Type Principle of operation	Precont® PU4SM Pressure transmitter with Modbus-Option	Precont® PU4LM Pressure transmitter with Modbus-Option	Precont® PK4SH Pressure transmitter small design	Precont® DD109B Differential pressure transmitter	Precont® TM Pressure sensor with capacitive ceramic cell	Precont® MT Pressure sensor with metal membrane
	 Protection IP69K HART Modbus RTU	 Protection IP69K HART Modbus RTU	 HART Protection IP69K	 Low Cost	 Protection IP69K	 Protection IP69K 1000 mbar
page	72	76	80	84	86	90
Design	kompakt	compact	compact	compact	compact	compact
Application areas	Flüssigkeiten, Dämpfe, Gase, Standardmessung	Liquids, vapors, gases, standard measurement	Flüssigkeiten, Dämpfe, Gase, Standardmessung	air as well as dry, not aggressive gases	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement
Measuring ranges	-1 mbar...+1000 bar relativ/absolut	-1 mbar...+25 bar relative/absolute	-0...+600 bar relative	0...100 bar	-1 up to 60 bar absolute/relative	-1...+1000 bar relative/absolute
Measuring cell	Metall Dünnschicht - bzw. piezoresistiver DMS	Metall, front-flush piezoresistive DMS	Metall, Thin film-DMS	semiconductor sensor	Capacitive Ceramic	Metall Thin film - resp. piezoresistive DMS
Process connections	Gewinde G 1/4", G 1/2", G 1", auch frontbündig	Thread 1" Milk tube Varivent DRD	Gewinde G 1/4"	quick coupling for 6 mm outer diameter	Thread G 1/4", G 1/2" Milk tube also front-flush	Thread G 1/4", G 1/2"
Process temperatures	-40...+125°C	-40...+150°C	-40...+200°C	-20...+55°C	-40 up to +125°C	-40...+125°C
Electronics	2-Draht: 4...20 mA, HART® 4-Draht: Modbus RTU	2-wire: 4...20 mA, HART® 4-wire: Modbus RTU	2-wire: 4...20 mA, HART®	2-wire: 4...20 mA	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V
Outputs can be calibrated	HART®	HART®	HART®	via keyboard	-	-
Switching points	-	-	-	-	-	-
Display	-	-	-	LCD	-	-
Certification	-	-	-	ATEX	ATEX	ATEX
Accuracy	< 0,150%	< 0,150%	< 0,50%	< ± 1 % from terminal value	< 0,10% / 0,20%	< 0,50%
Long term stability	0,2% / Jahr	0,2% / year	0,2% / year	-	0,1% / year	0,2% / year

Type Principle of operation	Precont® ML Pressure sensor for hygienic applications 	Precont® KT Pressure sensor with ceramic membrane 	Precont® CT Pressure sensor with front-flush capacitive ceramic cell 	Prelog PDL Batteriespeicher pres- sure transmitter with Datenlogger 
page	94	98	102	106
Design	compact	compact	compact	compact
Application areas	Hygienic applications, CIP, SIP, food technology	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement	Liquids, vapors, gases, standard measurement
Measuring ranges	-1...+25 bar relative/absolute	0...+600 bar relative/absolute	-1...+16 bar relative/absolute	-1...+20 bar absolute/relative
Measuring cell	Metal, front-flush piezoresistive DMS	Ceramic Thickfilm-DMS	Capacitive Ceramic	Capacitive ceramic
Process connections	Thread 1" Milk tube Varivent DRD	Thread G¼", G½" also front-flush	Thread G½" front-flush	Thread G½"
Process temperatures	-20...+150°C	-40...+125°C	-40...+125°C	-25...+70°C
Electronics	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	2-wire: 4...20 mA 3-wire: 0...10 V	Data storage 128 kB
Outputs can be calibrated	-	-	-	Software
Switching points	-	-	-	-
Display	-	-	-	-
Certification	ATEX	ATEX	ATEX	-
Accuracy	< 0,50%	< 0,50%	< 0,10% / 0,25%	≤ 0,1% resp. 0,25%
Long term stability	0,2% / year	0,15% / year	0,15% / year	0,15% / year



Description

The device is an electronic pressure transmitter / pressure switch for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts. Due to the device construction with measuring ranges from -1 bar to 60 bar (gauge), measuring ranges from 0 bar to 60 bar (absolute), measuring spans from 50 mbar to 60 bar, process temperatures from -40°C to +125°C, process materials Al2O3-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer, Inner thread, front-flush), dairy coupling DIN 11851 (front-flush), Varivent® (front-flush), clamp ISO 2852 / BS 4825 / DIN 32676 (front-flush), DRD (front-flush) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology, facility and building automation.

The device is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

Through its optimized design, the front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process.

The device is suitable for the use at CIP/SIP cleaning processes. Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

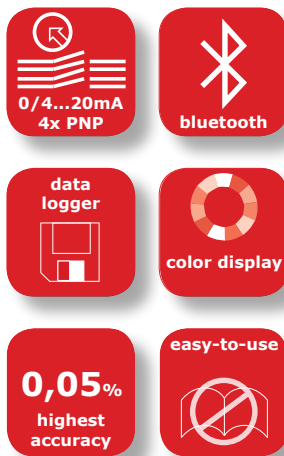
The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether low temperatures when used outdoors, high shock and vibration or aggressive media.

Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology
 - Facility and building automation



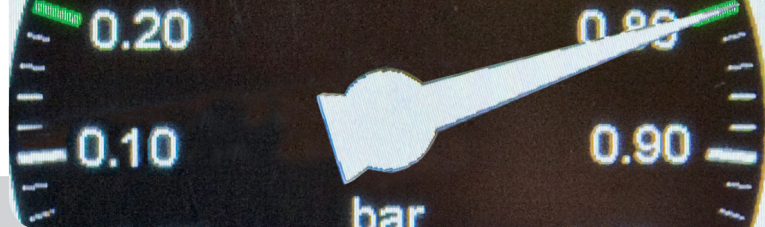
Specials



Your benefits

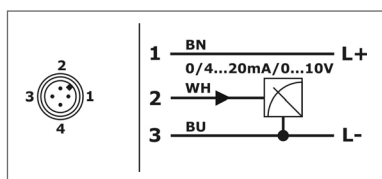
- **Wide range of applications**
- Finely graded measuring ranges from 50 mbar up to 60 bar
- Wide process temperature range -40°C to +125°C
- Wide variety of process connections
- High protection class IP65 / IP67
- Wide environmental temperature range -20°C to +70°C
- Ceramic front-flush or internal diaphragm
- Highest accuracy – characteristic deviation to $\leq 0,05\%$ of measuring range
- Integrated evaluation electronic: Graphic display, keyboard; 4x PNP switch output; 1x current output 0/4...20mA – voltage output 0...10V; Measure data memory for more than 500.000 measuring values; Battery powered data logger function ; Bluetooth-Interface; Connector plug M12
- High operating comfort: Enclosure and display rotatable for optimal operability in each installation position; High contrast high brightness TFT-LCD display for best readability; 3-key operation without additional assistance with tactile feedback; Easy handling by clear menu navigation; Extensive diagnostic functions for system analysis

Technical data

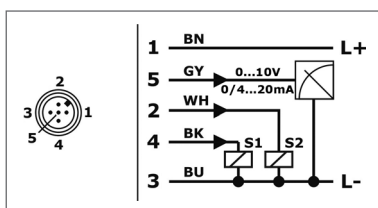


Technical data	
Supply voltage:	Setting output 0/4...20 mA: 9...30 VDC, reverse polarity protected Setting output 0...10 V: 14...30 VDC, reverse polarity protected
Analogue output	
Operating range:	current 0...20mA: 0...20,5mA, max. 22mA current 4...20mA: 3,8...20,5mA, min. 3,6mA, max. 22mA voltage 0...10V: 0 ... 10,5 V, max. 11 V
Permitted load:	current 0...20mA / current 4...20mA: $\leq (U_S - 9V) / 22mA$ voltage 0...10V: $\geq U_{Out} / 3mA$
Step response time:	$\leq 15 \text{ ms}$ ($t_d = 0s$)
Start-up time:	$\leq 1s$
Switch output PNP S1 / S2 / S3 / S4	
Function:	PNP switch to +L
Output current:	IL 0... $\leq 200mA$, current limited, short circuit protected
Step response time:	$\leq 25 \text{ ms}$ ($t_d = 0s$)
Switch cycles:	$\geq 100.000.000$
Bluetooth Interface	
Version:	Bluetooth 2.1 + EDR
Specification:	Class 2
Transmit power:	$\leq 2,5mW/4dBm$
Range:	$\leq 10m$
Measuring accuracy	
Characteristic deviation:	$\leq \pm 0,05\% / \pm 0,1\% / \pm 0,2\% \text{ FS}$
Long term drift:	$\leq \pm 0,15\% \text{ FS / year}$
Temperature deviation:	Zero: $\leq \pm 0,015\% \text{ FS / K / max. } \pm 0,75\% (-20^\circ\text{C}...+80^\circ\text{C})$ Span: $\leq \pm 0,015\% \text{ FS / K / max. } \pm 0,5\% (-20^\circ\text{C}...+80^\circ\text{C} / > 0,4 \text{ bar}) /$ max. $\pm 0,8\% (-20^\circ\text{C}...+80^\circ\text{C} / \leq 0,4 \text{ bar})$
Materials	
Membrane (process wetted):	Measuring range $\leq 1\text{bar}$: Ceramic Al_2O_3 – 99,7% (SIP suitable) Measuring range $\geq 1,6\text{bar}$: Ceramic Al_2O_3 – 96% (SIP suitable) Process connection 1/2/4/6/7/A/N/M/P/L/S/T: Ceramic Al_2O_3 – 99,9% (CIP/SIP suitable)
Process connection (process wetted):	Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Control panel surface:	PES
Gaskets (process wetted):	FPM – fluorelastomere (e.g. Viton®) / EPDM – ethylene-propylene-dienmonomere, FDA-listed / FFKM – perfluorelastomere (e.g. Kalrez®) / FFKM hd – perfluorelastomere high density
Environmental conditions	
Environmental temperature:	$-20^\circ\text{C}...+70^\circ\text{C}$
Process temperature:	$-40^\circ\text{C}...+100^\circ\text{C}$ resp. 125°C
Process pressure:	50 mbar up to 60 bar depending on type
Protection:	IP68 EN/IEC 60529

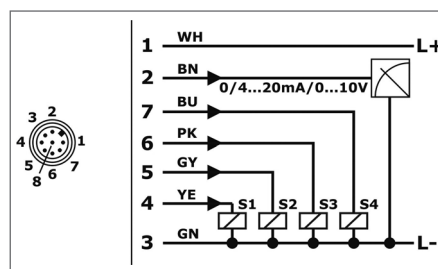
Connection



Electronic output type M
1x signal 0/4...20mA-0...10V, supply 24VDC



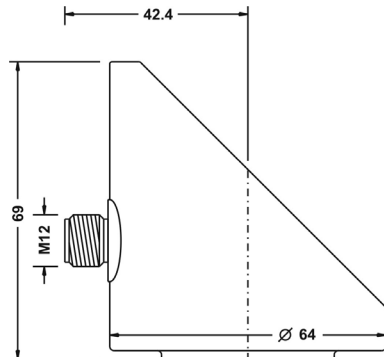
Electronic output type K
1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC



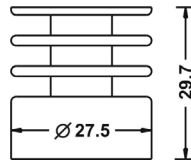
Electronic output type R
1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

Conductor color standard connection cable M12 – A-coded:
BN = brown, WH = white, BU = blue, BK = black, GY = grey, YE = yellow, GN = green, PK = pink

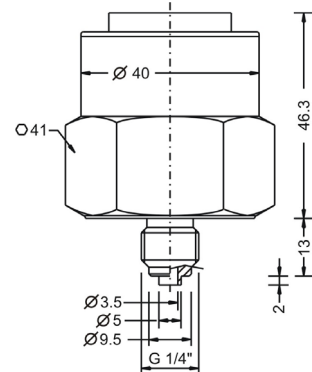
Terminal enclosure



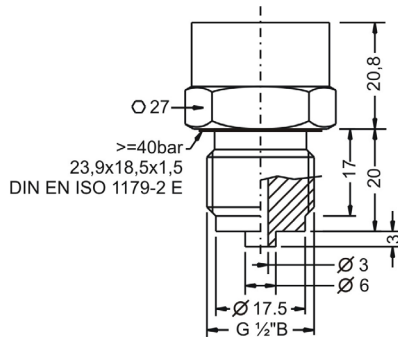
Temperature decoupler



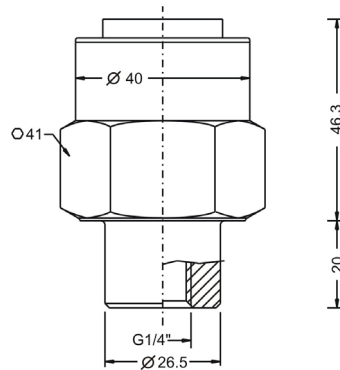
Type 6 – Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837



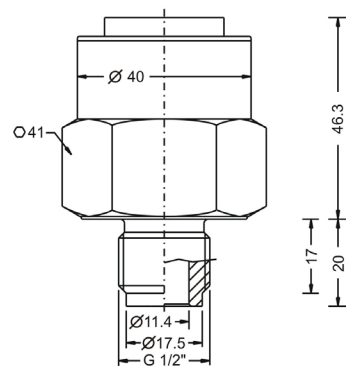
Type 1 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837



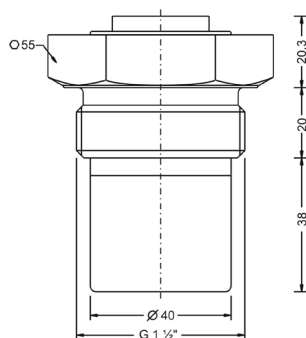
Type 4 – Thread ISO 228-1 – G $\frac{1}{4}$ "I, inner thread



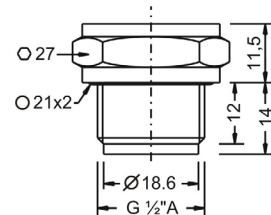
Type 2 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, inner bore



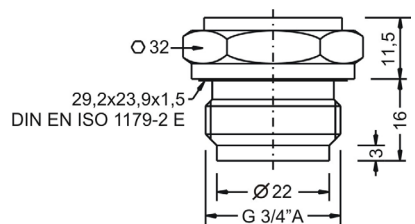
Type A – Thread ISO 228-1 – G $\frac{1}{2}$ "A



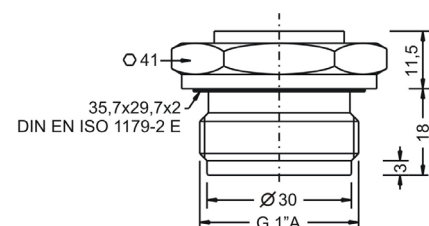
Type 9 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush



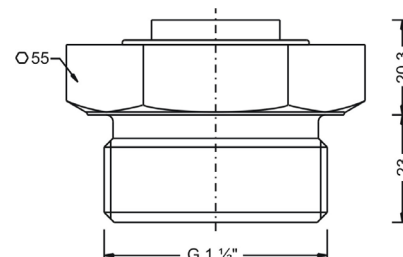
Type 8 – Thread ISO 228-1 – G $\frac{3}{4}$ "A, front-flush



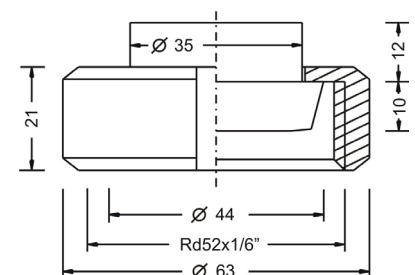
Type 5 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, front-flush



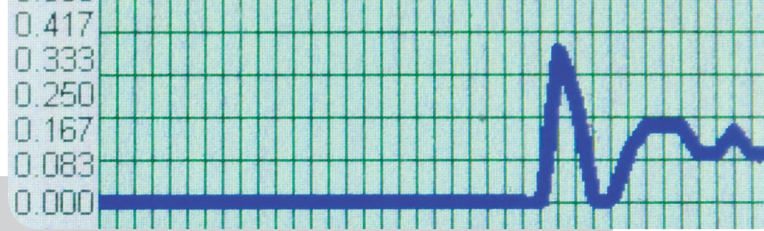
Type 7 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush



Type R – Dairy coupling DIN 11851 – DN25, PN40



You will find further dimension drawings in the operating instructions.



Type
PN4S Standard

Measuring system – material diaphragm (process wetted) / **sensor type**
Ceramic Al_2O_3 96%/99,7%/99,9% / capacitive

Approval
S Standard

Process connection

- 6 Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837 manometer
- 1 Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837 manometer
- 4 Thread ISO 228-1 – G $\frac{1}{4}$ "I, inner thread
- 2 Thread ISO 228-1 – G $\frac{1}{2}$ "A, inner bore
- A Thread ISO 228-1 – G $1\frac{1}{2}$ "A
- 9 Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush, ≤ 20 bar
- 8 Thread ISO 228-1 – G $\frac{3}{4}$ "A, front-flush, ≤ 20 bar
- 5 Thread ISO 228-1 – G 1 "A, front-flush, ≤ 20 bar
- 7 Thread ISO 228-1 – G $1\frac{1}{2}$ "B, front-flush
- R Dairy coupling DIN 11851 – DN25, PN40, ≤ 20 bar
- N Dairy coupling DIN 11851 – DN40, PN25
- M Dairy coupling DIN 11851 – DN50, PN25
- P Varivent® – Type N / tube DN40-162 / $1\frac{1}{2}$ "-6", PN40
- L DRD – DN50 / $\varnothing 65$ mm, PN25
- S Clamp ISO 2852 – DN25-38 / BS 4825 – $1"-1\frac{1}{2}"$ / DIN 32676 – DN25-38, PN25
- T Clamp ISO 2852 – DN40-51 / BS 4825 – 2" / DIN 32676 – DN50, PN25
- Y others

Material gaskets (process wetted)

- 1 FPM – fluorelastomere (e.g. Viton®)
- 3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
- 4 FFKM – perfluorelastomere (e.g. Kalrez®)
- 6 FFKM hd – perfluorelastomere high density - gas applications
- Y others

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range

- | | | | |
|----|-------------------------|----|------------------|
| 26 | 0...50 mbar | 10 | 0...10 bar |
| 01 | 0...100 mbar | 11 | 0...16 bar |
| 02 | 0...200 mbar | 12 | 0...20 bar |
| 03 | 0...400 mbar | 13 | 0...40 bar |
| 04 | 0...600 mbar | 14 | 0...60 bar |
| 05 | 0...1 bar | 15 | -100...0 mbar |
| 06 | 0...1,6 bar | 16 | -1...0 bar |
| 07 | 0...2,5 bar | 17 | -1...+1 bar |
| 08 | 0...4 bar | 18 | -100...+100 mbar |
| 09 | 0...6 bar | | |
| YY | Special measuring range | | |

Electronic – output

- M 1x signal 0/4...20mA-0...10V, supply 24VDC
- K 1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC
- R 1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

Electronic – function

- 0 without
- 1 Bluetooth-Interface
- 2 Data logger with time stamp, battery powered
- 3 Bluetooth-Interface / Data logger with time stamp, battery powered
- Y others

Process temperature

- 0 Standard -40°C...+100°C
- 1 Extended -40°C...+125°C, temperature decoupler

Pressure type

- R Gauge pressure
- A Absolute pressure (FS ≥ 100 mbar)

Measuring system – accuracy

- 1 0,2%
- 3 0,1% (FS ≥ 100 mbar), linearization protocol
- 6 Xcellence – 0,05% (FS ≥ 200 mbar), linearization protocol

Electrical connection

Plug M12x1

Order code

Precont®

PN4S

C

S

V

C

S



Description

The device is an electronic pressure transmitter / pressure switch for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts. Due to the device construction with measuring ranges from -1 bar to 1000 bar (gauge), measuring ranges from 0 bar to 1000 bar (absolute), measuring spans from 400 mbar to 1000 bar, process temperatures from -40°C to +125°C, process material CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer, front-flush) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology, facility and building automation. The device is suitable for demanding measuring requirements. Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

The front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether low temperatures when used outdoors, high shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology
 - Facility and building automation

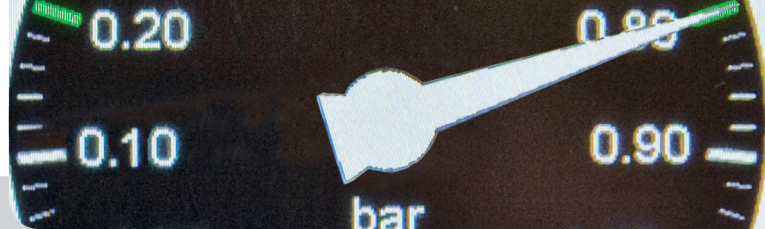


Specials



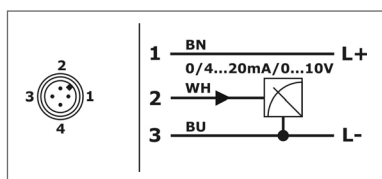
Your benefits

- **Wide range of applications**
- Finely graded measuring ranges from 400 mbar up to 1000 bar
- Wide process temperature range -40°C to +125°C
- Wide variety of process connections
- High protection class IP65 / IP67
- Wide environmental temperature range -20°C to +70°C
- Metallic front-flush or internal diaphragm
- Highest accuracy – characteristic deviation to $\leq 0,15\%$ of measuring range
- Integrated evaluation electronic: Graphic display, keyboard; 4x PNP switch output; 1x current output 0/4...20mA – voltage output 0...10V; Measure data memory for more than 500.000 measuring values; Battery powered data logger function ; Bluetooth-Interface; Connector plug M12
- High operating comfort: Enclosure and display rotatable for optimal operability in each installation position; High contrast high brightness TFT-LCD display for best readability; 3-key operation without additional assistance with tactile feedback; Easy handling by clear menu navigation; Extensive diagnostic functions for system analysis

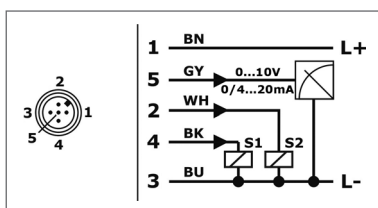


Technical data	
Supply voltage:	Setting output 0/4...20 mA: 9...30 VDC, reverse polarity protected Setting output 0...10 V: 14...30 VDC, reverse polarity protected
Analogue output	
Operating range:	current 0...20mA: 0...20,5mA, max. 22mA current 4...20mA: 3,8...20,5mA, min. 3,6mA, max. 22mA voltage 0...10V: 0 ... 10,5 V, max. 11 V
Permitted load:	current 0...20mA / current 4...20mA: $\leq (U_S - 9V) / 22mA$ voltage 0...10V: $\geq U_{Out} / 3mA$
Step response time:	$\leq 15 \text{ ms}$ ($t_d = 0s$)
Start-up time:	$\leq 1s$
Switch output PNP S1 / S2 / S3 / S4	
Function:	PNP switch to +L
Output current:	IL 0... $\leq 200mA$, current limited, short circuit protected
Step response time:	$\leq 25 \text{ ms}$ ($t_d = 0s$)
Switch cycles:	$\geq 100.000.000$
Bluetooth Interface	
Version:	Bluetooth 2.1 + EDR
Specification:	Class 2
Transmit power:	$\leq 2,5mW/4dBm$
Range:	$\leq 10m$
Measuring accuracy	
Characteristic deviation:	$\leq \pm 0,15\% / \pm 0,5\% \text{ FS}$
Long term drift:	$\leq \pm 0,2\% \text{ FS / year}$
Temperature deviation:	Measuring range $\leq 25 \text{ bar}$: $\leq \pm 0,02\% \text{ FS / K}$ ($0...+80^\circ\text{C}$) / $\leq \pm 0,03\% \text{ FS / K}$ ($-40...0^\circ\text{C} / +80...+125^\circ\text{C}$) Measuring range $\geq 40 \text{ bar}$: $\leq \pm 0,02\% \text{ FS / K}$ ($-40...+100^\circ\text{C}$) / $\leq \pm 0,03\% \text{ FS / K}$ ($+100...+125^\circ\text{C}$)
Materials	
Membrane (process wetted):	Measuring range $\leq 1\text{bar}$: Ceramic Al_2O_3 - 99,7% (SIP suitable) Measuring range $\geq 1,6\text{bar}$: Ceramic Al_2O_3 - 96% (SIP suitable) Process connection 1/2/4/6/7/A/N/M/P/L/S/T: Ceramic Al_2O_3 - 99,9% (CIP/SIP suitable)
Process connection (process wetted):	Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Control panel surface:	PES
Gaskets (process wetted):	FPM - fluorelastomere (e.g. Viton®) / EPDM - ethylene-propylene-dienmonomere, FDA-listed / FFKM - perfluorelastomere (e.g. Kalrez®) / FFKM hd - perfluorelastomere high density
Environmental conditions	
Environmental temperature:	$-20^\circ\text{C}...+70^\circ\text{C}$
Process temperature:	$-40^\circ\text{C}...+100^\circ\text{C}$ resp. 125°C
Process pressure:	400 mbar up to 1000 bar depending on type
Protection:	IP68 EN/IEC 60529

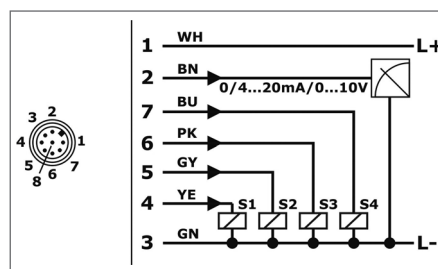
Connection



Electronic output type M
1x signal 0/4...20mA-0...10V, supply 24VDC



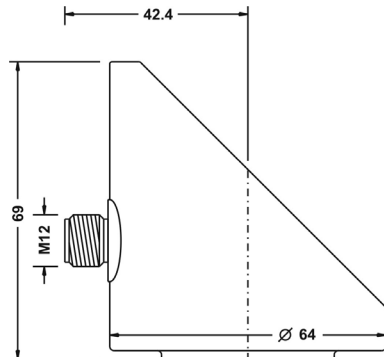
Electronic output type K
1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC



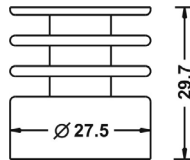
Electronic output type R
1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

Conductor color standard connection cable M12 - A-coded:
BN = brown, WH = white, BU = blue, BK = black, GY = grey, YE = yellow, GN = green, PK = pink

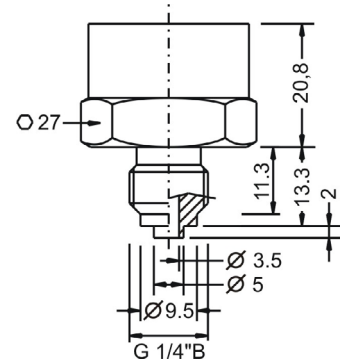
Terminal enclosure



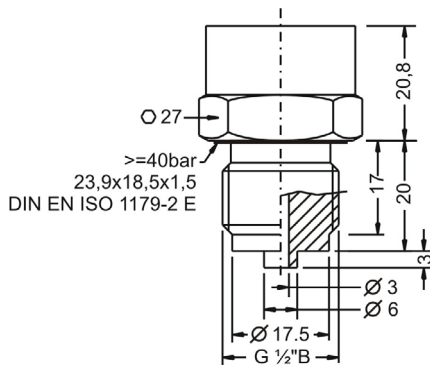
Temperature decoupler



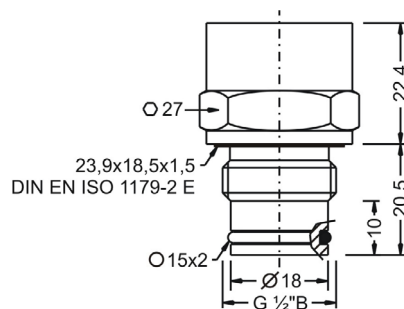
Type 6 – Thread ISO 228-1 – G $\frac{1}{4}$ "B, EN 837



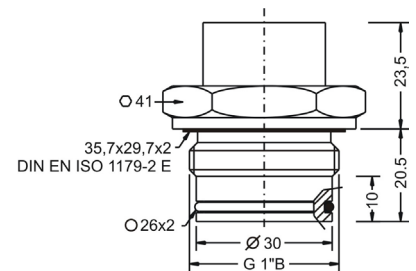
Type 1 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, EN 837

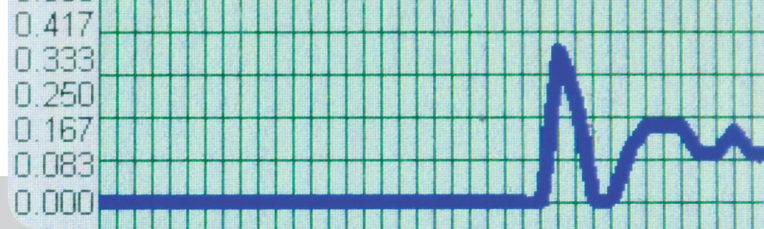


Type 0 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush



Type 5 – Thread ISO 228-1 – G1"B, front-flush





Type
PN4S Standard

Measuring system – material diaphragm (process wetted) / sensor type
CrNi-steel / strain gauge

Approval
S Standard

Process connection

- 6 Thread ISO 228-1 – G $\frac{1}{4}$ "B, EN 837 manometer (without process gasket)
- 1 Thread ISO 228-1 – G $\frac{1}{2}$ "B, EN 837 manometer (≥ 40 bar without process gasket)
- 0 Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush, O-ring gasket
not for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar / 0...1000 bar
- 5 Thread ISO 228-1 – G1"B, front-flush, O-ring gasket
for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar
- Y others

Material gaskets (process wetted)

- 0 without / NBR – nitrile-butadiene-rubber
- 1 FPM – fluorelastomere (e.g. Viton®)
- 3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
- Y others

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range

- 03 0...400 mbar
- 05 0...1 bar
- 08 0...4 bar
- 09 0...6 bar
- 10 0...10 bar
- 11 0...16 bar
- 12 0...20 bar
- 13 0...40 bar
- 14 0...60 bar
- 19 0...100 bar
- 20 0...160 bar
- 21 0...250 bar
- 22 0...320 bar
- 23 0...400 bar
- 24 0...600 bar
- 25 0...1000 bar,
only for process connection type 1, 6 – G $\frac{1}{4}$ "B, G $\frac{1}{2}$ "B (EN 837)
- 16 -1...0 bar
- 17 -1...+1 bar
- YY Special measuring range

Electronic – output

- M 1x signal 0/4...20mA-0...10V, supply 24VDC
- K 1x signal 0/4...20mA-0...10V, 2x switch PNP,
supply 24VDC
- R 1x signal 0/4...20mA-0...10V, 4x switch PNP,
supply 24VDC

Electronic – function

- 0 without
- 1 Bluetooth-Interface
- 2 Data logger with time stamp, battery powered
- 3 Bluetooth-Interface / Data logger with time stamp,
battery powered
- Y others

Process temperature

- 0 Standard -40°C...+100°C
- 1 Extended -40°C...+125°C, temperature decoupler

Pressure type

- R Gauge pressure
- A Absolute pressure (FS ≥ 100 mbar)

Measuring system – accuracy

- 4 0,5%
- 8 Xcellence – 0,15%, linearization protocol

Electrical connection

- S Plug M12x1

Order code

Precont®

PN4S

M

S

V

C

S



Description

The device is an electronic pressure transmitter / pressure switch for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts. Due to the device construction with measuring ranges from -1 bar to 25 bar (gauge), measuring ranges from 0 bar to 25 bar (absolute), measuring spans from 100 mbar to 25 bar, process temperatures from -20°C to +150°C, process material CrNi-steel as well as the availability of a variety of hygienic EHEDG-conformal process connections like thread ISO 228-1 with front-flush O-ring gasket, dairy coupling DIN 11851, Varivent® and DRD the device is especially suitable for the use for food and beverage industry, pharmaceutical industry, biotechnology and sterile process engineering.

The device is suitable for demanding measuring requirements. Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

The device with front-flush diaphragm

has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections. Through its optimized design, the front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process.

The device is particularly suitable for the special conditions of CIP/SIP cleaning processes, such as chemical stability towards cleaning liquids and high temperatures.

Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

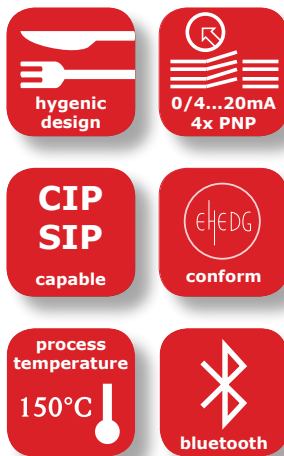
The front-flush diaphragm is completely welded with the process connection and supplied with a positive seal. A reliable, dead-space free sealing between the process connection and the process adapter resp. measuring medium is thus assured.

Application

- Hygienic and aseptic applications in
 - Food and beverage industry
 - Pharmaceutical industry
 - Biotechnology
 - Sterile process engineering



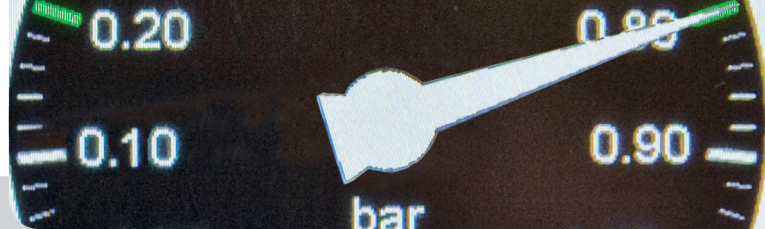
Specials



Your benefits

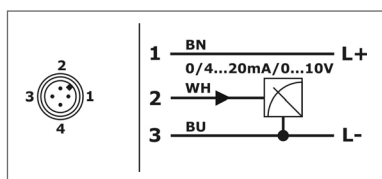
- **Wide range of applications**
- Finely graded measuring ranges from 100 mbar up to 25 bar
- Wide process temperature range -20°C to +150°C
- Various hygienic and aseptic process connections
- High protection class IP65 / IP67
- Wide environmental temperature range -20°C to +70°C
- Metallic front-flush EHEDG conformal diaphragm
- Highest accuracy – characteristic deviation to ≤ 0,15% of measuring range
- Integrated evaluation electronic: Graphic display, keyboard; 4x PNP switch output; 1x current output 0/4...20mA – voltage output 0...10V; Measure data memory for more than 500.000 measuring values; Battery powered data logger function ; Bluetooth-Interface; Connector plug M12
- High operating comfort: Enclosure and display rotatable for optimal operability in each installation position; High contrast high brightness TFT-LCD display for best readability; 3-key operation without additional assistance with tactile feedback; Easy handling by clear menu navigation; Extensive diagnostic functions for system analysis

Technical data

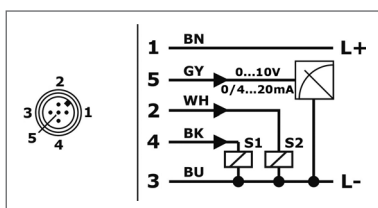


Technical data	
Supply voltage:	Setting output 0/4...20 mA: 9...30 VDC, reverse polarity protected Setting output 0...10 V: 14...30 VDC, reverse polarity protected
Analogue output	
Operating range:	current 0...20mA: 0...20,5mA, max. 22mA current 4...20mA: 3,8...20,5mA, min. 3,6mA, max. 22mA voltage 0...10V: 0 ... 10,5 V, max. 11 V
Permitted load:	current 0...20mA / current 4...20mA: $\leq (U_S - 9V) / 22mA$ voltage 0...10V: $\geq U_{Out} / 3mA$
Step response time:	$\leq 15 \text{ ms}$ ($t_d = 0s$)
Start-up time:	$\leq 1s$
Switch output PNP S1 / S2 / S3 / S4	
Function:	PNP switch to +L
Output current:	IL 0... $\leq 200mA$, current limited, short circuit protected
Step response time:	$\leq 25 \text{ ms}$ ($t_d = 0s$)
Switch cycles:	$\geq 100.000.000$
Bluetooth Interface	
Version:	Bluetooth 2.1 + EDR
Specification:	Class 2
Transmit power:	$\leq 2,5mW/4dBm$
Range:	$\leq 10m$
Measuring accuracy	
Characteristic deviation:	$\leq \pm 0,15\% / \pm 0,5\% \text{ FS}$
Long term drift:	$\leq \pm 0,2\% \text{ FS / year}$
Temperature deviation:	Measuring range $\leq 250 \text{ mbar}$: $\leq \pm 0,04\% \text{ FS / K}$ (0...+80°C) / $\leq \pm 0,06\% \text{ FS / K}$ (-20...0°C / +80...+150°C) Measuring range $\geq 400 \text{ mbar}$: $\leq \pm 0,02\% \text{ FS / K}$ (0...+80°C) / $\leq \pm 0,03\% \text{ FS / K}$ (-20...0°C / +80...+150°C)
Materials	
Membrane (process wetted):	Steel 1.4435/316L
Process connection (process wetted):	Steel 1.4435/316L
Terminal enclosure:	CrNi-steel
Control panel surface:	PES
Gaskets (process wetted):	FPM – fluorelastomere (e.g. Viton®), FDA-listed EPDM – ethylene-propylene-dienmonomere, FDA-listed
Environmental conditions	
Environmental temperature:	- 20°C...+70°C
Process temperature:	- 20°C...+150°C
Process pressure:	100 mbar up to 25 bar depending on type
Protection:	IP68 EN/IEC 60529

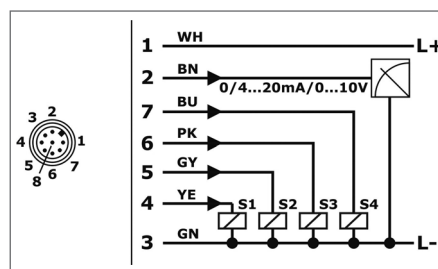
Connection



Electronic output type M
1x signal 0/4...20mA-0...10V, supply 24VDC



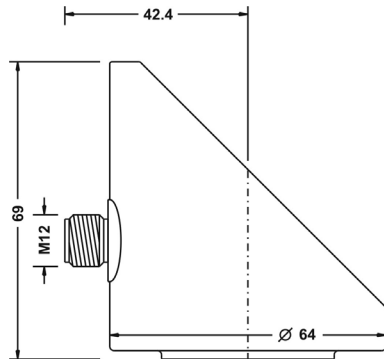
Electronic output type K
1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC



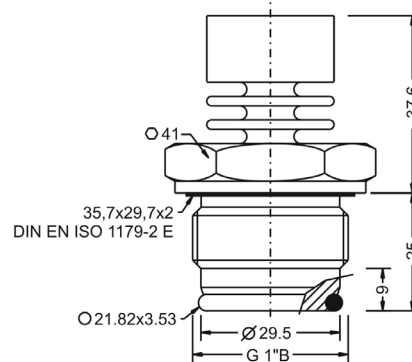
Electronic output type R
1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

Conductor color standard connection cable M12 – A-coded:
BN = brown, WH = white, BU = blue, BK = black, GY = grey, YE = yellow, GN = green, PK = pink

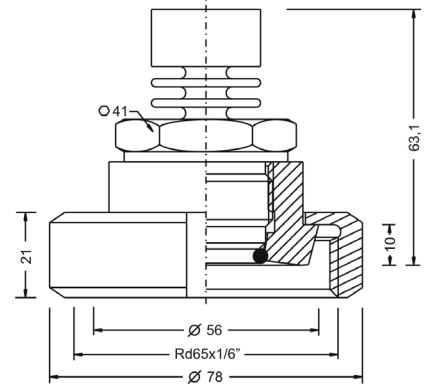
Terminal enclosure



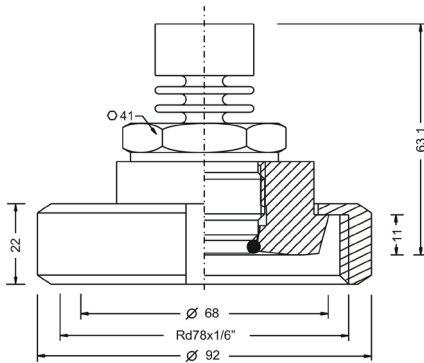
Type 5 – Thread ISO 228-1 – G1" B,
front-flush



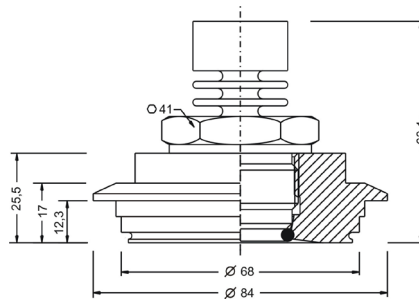
Type N – Dairy coupling DIN 11851 –
DN40, PN25



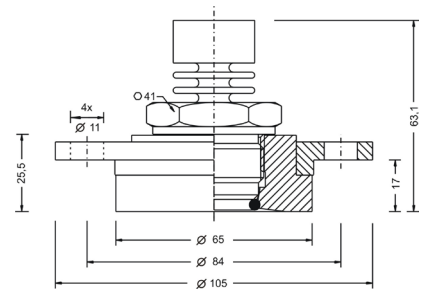
Type M – Dairy coupling DIN 11851 –
DN50, PN25

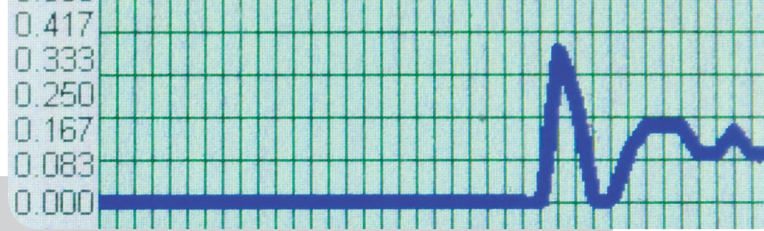


Type P – Varivent® – Type N / tube
DN40-162 / 1½"-6", PN40



Type L – DRD – DN50 / Ø65mm, PN25





Type
PN4L Hygienic applications

Measuring system – material diaphragm (process wetted) / sensor type
CrNi-steel / strain gauge

Approval
S Standard

Process connection
S Thread ISO 228-1 – G1" B, front-flush, O-ring gasket, EHEDG conformal, for welding socket BEFVE10
N Dairy coupling DIN 11851 – DN40, PN25
M Dairy coupling DIN 11851 – DN50, PN25
P Varivent® – Type N / tube DN40-162 / 1½"-6", PN40
L DRD – DN50 / Ø65mm, PN25
Y others

Material gaskets (process wetted)
1 FPM – fluorelastomere (e.g. Viton®), FDA-listed
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
Y others

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range
01 0...100 mbar
02 0...250 mbar
03 0...400 mbar
04 0...600 mbar
05 0...1 bar
07 0...2,5 bar
08 0...4 bar
09 0...6 bar
10 0...10 bar
11 0...16 bar
12 0...25 bar
16 -1...0 bar
17 -1...+1 bar
YY Special measuring range

Electronic – output
M 1x signal 0/4...20mA-0...10V, supply 24VDC
K 1x signal 0/4...20mA-0...10V, 2x switch PNP, supply 24VDC
R 1x signal 0/4...20mA-0...10V, 4x switch PNP, supply 24VDC

Electronic – function
0 without
1 Bluetooth-Interface
2 Data logger with time stamp, battery powered
3 Bluetooth-Interface / Data logger with time stamp, battery powered
Y others

Process temperature
1 Standard -20°C...+150°C

Pressure type
R Gauge pressure
A Absolute pressure (FS ≥ 100mbar)

Measuring system – accuracy
4 0,5%
8 Xcellence – 0,15%, linearization protocol

Electrical connection
S Plug M12x1

Order code

Precont®

PN4L

M

S

V

C

S



Description

The Precont® S10 is used in all fields of proceeding and process technique.

The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

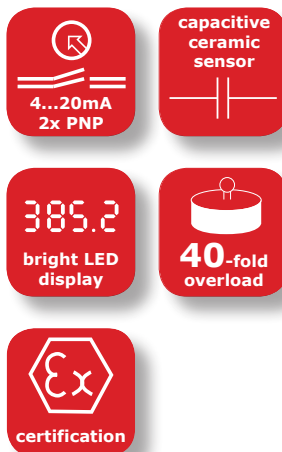
Application

- High precise pressure measurement in gases and liquids
- Relative and absolute up to 60 bar
- Medium temperatures from – 40°C up to +125°C
- Connection housing out of stainless steel or PBT with terminal chamber or connector M12x1
- 2 PNP-switching outputs resp. 2- or 3-wire electronics selectable
- Application even in harzadous areas
- As Pressure switch and pressure transmitter usable

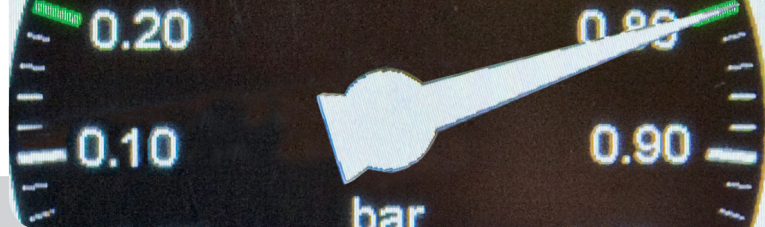
Your benefits

- **Robust** and **highly accurate** capacitive ceramic cell
- Up to 40-times overload resistance, vacuum-proof
- Electronics 330° rotatable
- **Fast adjustment** by key combinations and menu-driven adjustment by LED display
- Bright LED-Display - readable from far away
- **Password protection** for protection of the settings against changes
- Simple switching points setting through separate menu

Specials

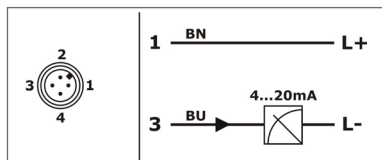


Order code page | 23 |

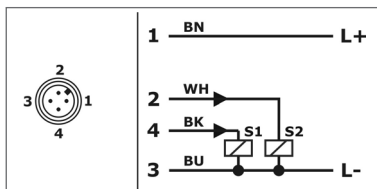


Technical data	
Power supply:	14,5...45V DC at output signal 4...20mA / with display / Ex 14,5...30V DC 10,5...45V DC at output signal 4...20mA / without display / Ex 10,5...30V DC 14,5...45V DC at output signal 0...10V / Ex 14,5...30V DC
Supply current:	≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral ≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral
PNP-switching output	
Function:	PNP-switching on +Vs
Output current:	≤ 250 mA current limited, short circuit protected
Measurement accuracy	
Characteristics deviation:	≤ ±0,05 / 0,1% / 0,2% FS
Long term drift:	≤ ±0,1% FS / year not cumulative
Temperature deviation:	≤ ±0,15% FS / 10 K (Zero / Span)
Material	
Membrane: (medium contact)	Ceramic AL ₂ O ₃ 99,9%
Process connection: (medium contact)	Steel 1.4404 / 316L resp. 1.4571 / 316 Ti
Connection housing:	CrNi-Steel / PBT Polybutylenterephthalat / PP – polypropylene / POM – polyoxymethylene (Delrin®)
Gaskets: (medium contact)	FPM – fluorelastomer (Viton®) EPDM – ethylene-propylene-diene monomer CR – chloroprene rubber (Neopren®) FFKM – perfluorelastomere (Kalrez®) NBR – nitrile-butadiene rubber
Environmental conditions	
Ambient temperature:	– 40°C...+85°C
Process temperatures:	– 40°C...+100°C resp. +125°C
Process pressure ranges:	– 1 bar ...60 bar
Turn-Down:	30:1
Protection:	IP65 / IP67 EN/IEC 60529

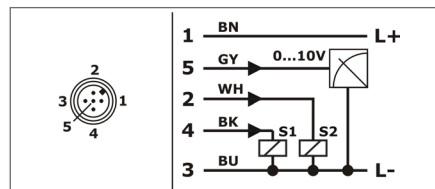
Connection



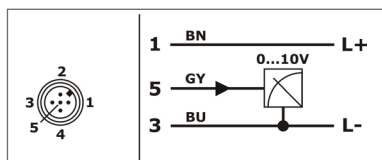
Signal 4...20 mA
Wire colors standard connection cable M12:
BN = brown, BU = blue



Signal 4...20 mA / 2x PNP switching output
Wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black

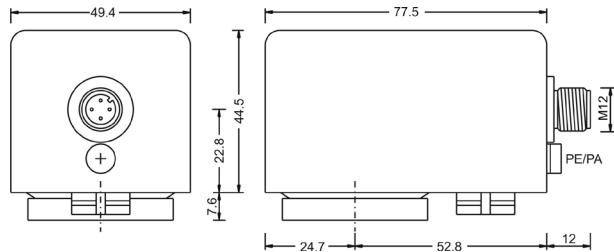


Signal 0...10 V / 2x PNP switching output
Wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black,
GY = grey

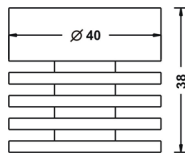


Signal 0...10 V
Wire colors standard connection cable M12:
BN = brown, GY = grey, BU = blue

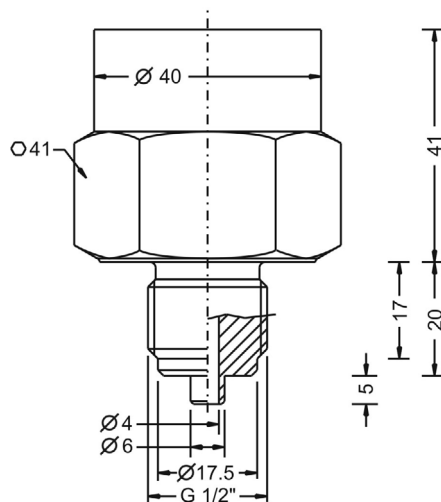
Connection housing
Electrical connection Type S - Plug M12
Material connection housing Type A - PBT



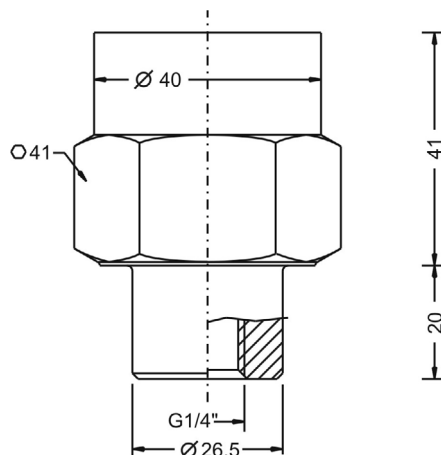
Temperature decoupler



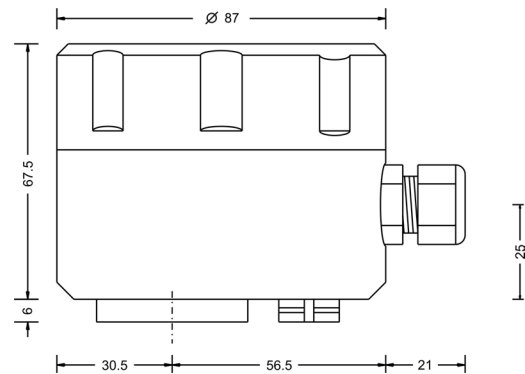
Type 0
G 1/2" ISO 228-1 - DIN 837-3



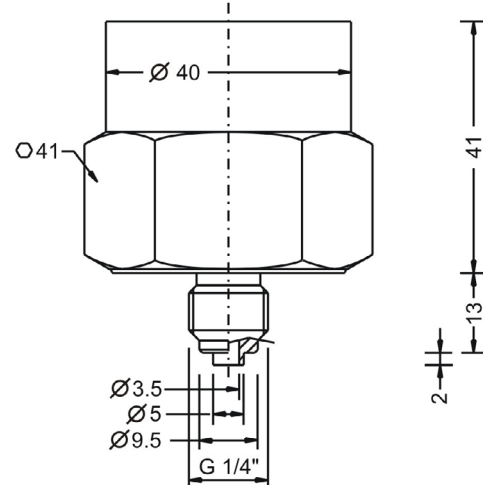
Type 4
G 1/4" ISO 228-1 - Internal thread



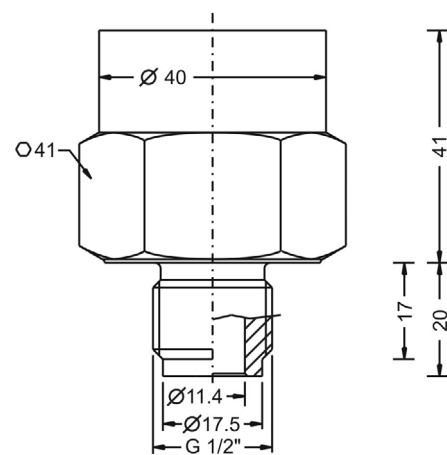
Connection housing
Electrical connection Type A - terminal compartment
Material connection housing Type C
CrNi-Steel / Type D - POM / Type E - PP

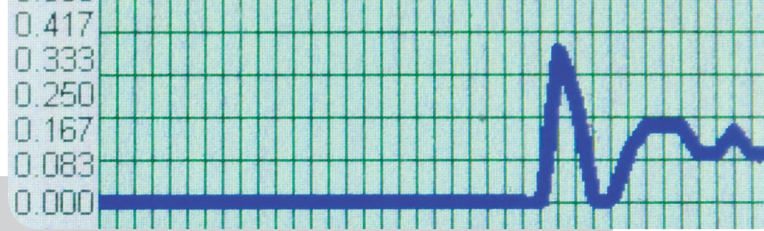


Type 1
G 1/4" ISO 228-1 - DIN 837-3



Type 6
G 1/2" ISO 228-1 - Inner bore 11,4mm





Model

S10 Standard
 ExS10 ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
 XDS10 ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db
only for material terminal enclosure type C – CrNi-steel

Process connection

0 G½" A DIN EN 837-3, DIN EN ISO228-1
 6 G½" A with inner bore 11 mm, DIN EN ISO228-1
 1 G¼" A, DIN EN 837-3, DIN EN ISO228-1
 4 G¼" ISO 228-1 - internal thread

Transmitter electronics

A 4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs
 B 4...20 mA, 2-wire-electronics, with display
 C 4...20 mA, 2-wire-electronics, without display, adjustment via keys
 D 4...20 mA, 2-wire-electronics, preset, without display
 E 0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs
 F 0...10 V 3-wire-electronics, with display
 G 0...10 V 3-wire-electronics, without display, adjustment via keys
 H 0...10 V 3-wire-electronics, preset, without display

Material connection

V Stainless steel 1.4404

Material Connection housing *(for type XD only material steel possible)*

A PBT (polybutylene terephthalate) (not with terminal compartment)
 C CrNi-steel
 D POM (Polyacetal - Delrin®) - only with terminal compartment housing

Measuring range

01 0...100 mbar	10 0...10 bar
02 0...200 mbar	11 0...16 bar
03 0...400 mbar	12 0...20 bar
04 0...600 mbar	13 0...40 bar
05 0...1 bar	14 0...60 bar
06 0...1,6 bar	15 -100...0 mbar
07 0...2,5 bar	16 -1...0 bar
08 0...4 bar	17 -1...1 bar
09 0...6 bar	18 -100...+100 mbar
	YY Special measuring range

Material gaskets *(process wetted)*

1 FPM - fluoroelastomer (Viton®)
 2 CR - chloroprene rubber (Neopren®)
 3 EPDM - ethylene-propylene-diene monomer - food applications
 4 FFKM - perfluorelastomere (Kalrez®)
 6 FFKM hd - high density perfluorelastomere - gas applications

Process temperature

0 Standard -40°C up to +100°C
 1 Extended, -40°C...+125°C, temperature decoupler

Pressure type

R Gauge pressure
 A Absolute pressure

Measuring system - accuracy

1 Ceramics 99,9% high purity, capacitive / 0,2%
 3 Ceramics 99,9%, capacitive / 0,1%, linearization protocol
 6 Xcellence - ceramics 99,9% high purity, capacitive / 0,05%, linearization protocol

Electrical connection

S Plug M12x1
 K Cable 2 m
 A Terminal compartment housing

Order code

Precont®

V

Equipment

Order information
 BKZ0412-VA
 BKZ0512-VA
 LKZ0405PUR-AS
 LKZ0410PUR-AS
 LKZ0505PUR-AS
 LKZ0510PUR-AS

Model
 Matching cable socket, VA-nut
 Matching cable socket, VA-nut (bei 0...10 V)
 Connection cable 5 m, 4-pole, shielded
 Connection cable 10 m, 4-pole, shielded
 Connection cable 5 m, 5-pole, shielded
 Connection cable 10 m, 5-pole, shielded



Description

The Precont® S20 is used in all fields of proceeding and process technique.

The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

The polysilicone resp. thin-film measurement sensor guarantees highest pressure ranges, good reproduceability and hysteresis, an up to 4 times overload resistance and a good long term stability.

Application

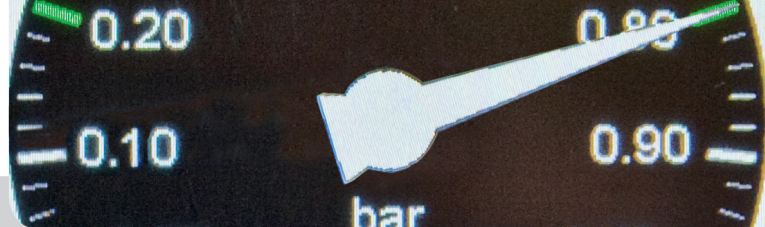
- High precise pressure measurement from -1...1000 bar in gases and liquids
- Metall membrane provides high strength against pressure and pressure blows
- Connection housing out of stainless steel or PBT with terminal chamber or connector M12x1
- 2 PNP-switching outputs resp. 2- or 3-wire electronics
- As Pressure switch and pressure transmitter usable

Specials



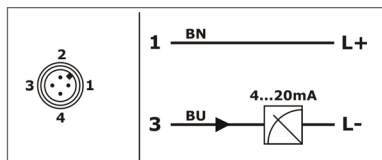
Your benefits

- Robust design – *maintenance-free*
- Electronics 330° rotatable
- Front-flush membrane for coat forming media possible
- Bright LED-Display - readable from far away
- *Password protection* for protection of the settings against changes
- Simple switching points setting through separate menu
- Good *long term stability* and low influence of temperature

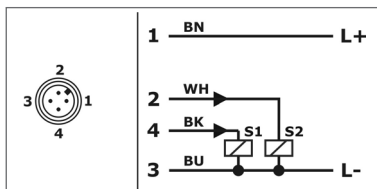


Technical data	
Power supply:	14,5...45V DC at output signal 4...20mA / with display / Ex 14,5...30V DC 10,5...45V DC at output signal 4...20mA / without display / Ex 10,5...30V DC 14,5...45V DC at output signal 0...10V / Ex 14,5...30V DC
Supply current:	≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral ≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral
PNP-switching output	
Function:	PNP-switching on +Vs
Output current:	≤ 250 mA current limited, short circuit protected
Measurement accuracy	
Characteristics deviation:	≤ ±0,15 / 0,5% FS
Long term drift:	≤ ±0,2% FS / year not cumulative
Temperature deviation:	≤ ±0,20% FS / 10 K (Zero / Span)
Material	
Membrane: (medium contact)	≥ 40 bar Steel 1.4571/316Ti < 40 bar Steel 1.4542/630 resp. 1.4534
Process connection: (medium contact)	Steel 1.4571/316Ti
Connection housing:	CrNi-Steel / PBT Polybutylenterephthalat / PP – polypropylene / POM – polyoxymethylene (Delrin®)
Gaskets: (medium contact)	FPM – fluorelastomer (Viton®) EPDM – ethylene-propylene-diene monomer NBR – nitrile-butadiene rubber
Environmental conditions	
Ambient temperature:	– 40°C...+85°C
Process temperatures:	– 40°C...+100°C resp. +125°C
Process pressure ranges:	– 1 bar ...1000 bar
Turn-Down:	30:1
Protection:	IP65 / IP67 EN/IEC 60529

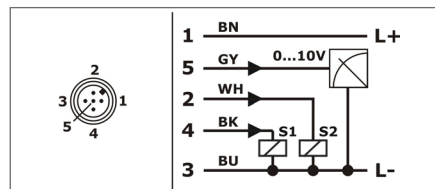
Connection



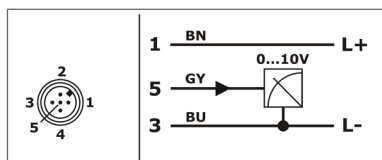
Signal 4...20 mA
Wire colors standard connction cable M12:
BN = brown, BU = blue



Signal 4...20 mA / 2x PNP switching output
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black

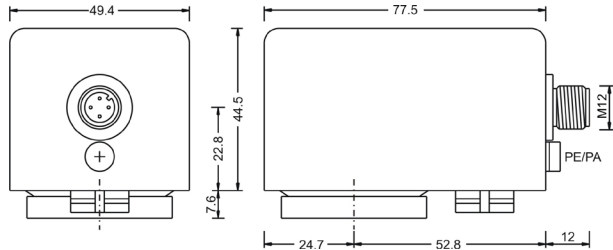


Signal 0...10 V / 2x PNP switching output
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black,
GY = grey

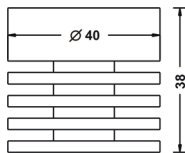


Signal 0...10 V
Wire colors standard connction cable M12:
BN = brown, GY = grey, BU = blue

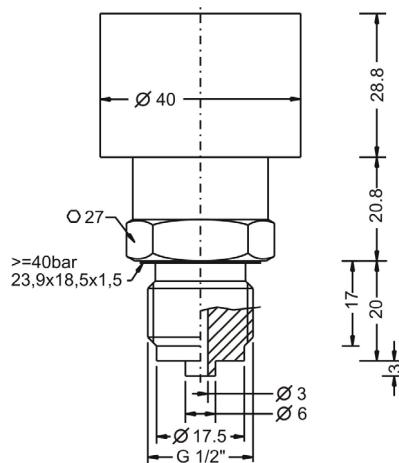
Connection housing
Electrical connection Type S - Plug M12
Material connection housing Type A - PBT



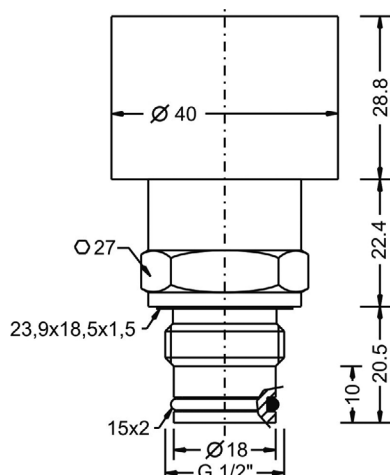
Temperature decoupler



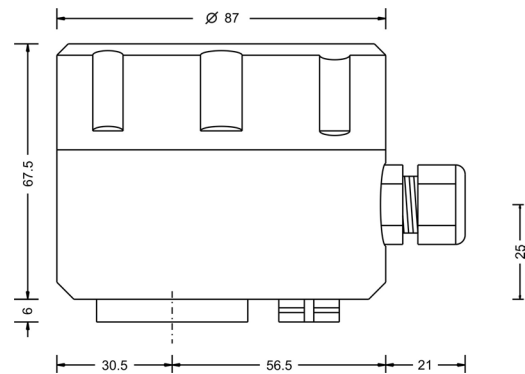
Type 0
G 1/2" ISO 228-1 - DIN 837-3



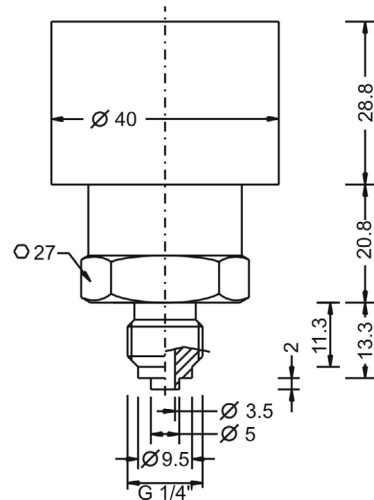
Type 2
G 1/2" ISO 228-1 - front-flush



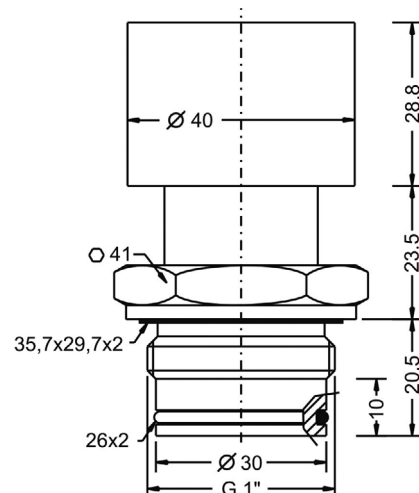
Connection housing
Electrical connection Type A - terminal compartment
Material connection housing Type C
CrNi-Steel / Type D - POM / Type E - PP

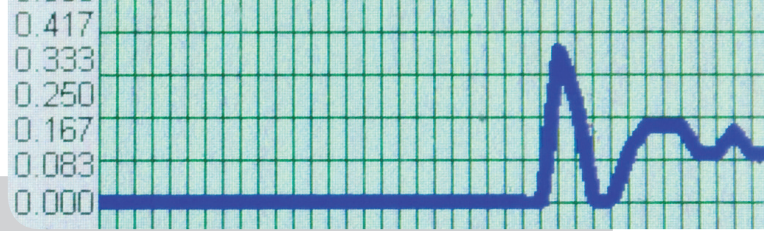


Type 6
G 1/4" ISO 228-1 - DIN 837-3



Type 5
G 1" ISO 228-1 - front-flush





Model
 S20 Standard
 ExS20 ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
 XDS20 ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
only for material terminal enclosure type C – CrNi-steel

Process connection

- 0 G½" B, DIN EN ISO228-1 DIN EN 837-3, manometer connection
- 2 G½" B, DIN EN ISO228-1 front-flush, with radial O-ring
not for following ranges 0...400 mbar, 0...1 bar and -1...0 bar
- 5 G1" B, DIN EN ISO228-1 front-flush, with radial O-ring
for ranges 0...400 mbar, 0...1 bar and -1...0 bar
- 6 G¾" B, DIN EN ISO228-1 DIN EN 837-3, manometer connection

Electronics - output

- A 4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs
- B 4...20 mA, 2-wire-electronics, with display
- C 4...20 mA, 2-wire-electronics, without display, adjustment via keys
- D 4...20 mA, 2-wire-electronics, preset, without display
- E 0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs
- F 0...10 V 3-wire-electronics, with display
- G 0...10 V 3-wire-electronics, without display, adjustment via keys
- H 0...10 V 3-wire-electronics, preset, without display

Material process connection (medium contact)

- V Stainless steel 1.4571/316Ti / 1.4542 (AISI 630) / 1.4534

Gaskets (medium contact)

- 0 NBR - nitrile-butadiene rubber
- 1 FPM - fluoroelastomer (Viton®)
- 3 EPDM - ethylene-propylene-diene monomer, for food applications

Measuring range

- | | |
|-----------------|--|
| 03 0...400 mbar | 19 0...100 bar |
| 05 0...1 bar | 20 0...160 bar |
| 08 0...4 bar | 21 0...250 bar |
| 09 0...6 bar | 22 0...320 bar |
| 10 0...10 bar | 23 0...400 bar |
| 11 0...16 bar | 24 0...600 bar |
| 12 0...25 bar | 25 0...1000 bar (not for G½" B according to DIN EN837-3) |
| 13 0...40 bar | 16 -1...0 bar |
| 14 0...60 bar | 17 -1...+1 bar |
| | YY Special measuring range |

Material Connection housing

(for type XD only material steel - C - possible)

- A PBT polybutylene terephthalate
only with housing with plug M12x1 or cable
- C CrNi-steel
- D POM Polyacetal (Delrin®) - only with housing with terminal compartment

Process temperature

- 0 Standard -40...+100°C
- 1 Advanced, -40...+125°C, temperature decoupler

Pressure type

- R Gauge pressure
- A Absolute pressure
≥ 40bar only with accuracy measuring system type 4 – 0,5%

Measuring system - accuracy

- 4 Metall, DMS-thin-film/piezoresistive / 0,5%
- 8 Xcellence - metall, DMS-thin-film/piezoresistive / 0,15%, linearization protocol

Electrical connection

- S Plug M12x1
- K Cable 2 m
- A Terminal compartment housing

Order code

Precont®

V

Equipment

Order information
 BKZ0412-VA
 BKZ0512-VA
 LKZ0405PUR-AS
 LKZ0410PUR-AS
 LKZ0505PUR-AS
 LKZ0510PUR-AS

REMO12
 REMO10
 BEFK12

Model
 Matching cable socket, VA-nut
 Matching cable socket, VA-nut (bei 0...10 V)
 Connection cable 5 m, 4-pole, shielded
 Connection cable 10 m, 4-pole, shielded
 Connection cable 5 m, 5-pole, shielded
 Connection cable 10 m, 5-pole

Sliding sleeve, for connection 2
 Sliding sleeve, for connection 5
 Sliding sleeve, for connection 0



Description

The Precont® S30 with EHEDG conform process connection for hygienic applications are used for supervision, control and also for continuous measurement of pressures from -1 up to +25 bar in gases, steams, liquids and dusts within closed containers or pipelines at process temperatures from -40°C to +150°C.

The pressure sensor Precont® S30 is especially designed for the requirements in the food and semi-luxury item industry, as well as the pharmaceutical industry and biotechnology. This is especially relevant for the extreme conditions like chemical resistance against cleaning agents as well as insensitiveness against increases temperatures in the case of CIP/SIP cleaning processes.

Due to the availability of adapters for the common process connections like varivent or connections acc. to DIN11851 with cone flange with nut groove for pipes acc. to DIN 11850, as well as a suitable weld-in sleeve the

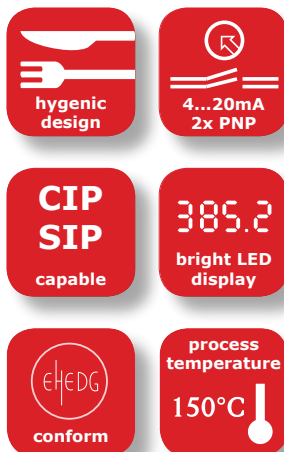
pressure transmitter can be installed in nearly hygienic application.

The use of a strain gauge with metallic membrane guarantees excellent characteristics like high pressure and pressure blow strength, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interferences, high accuracy and long term stability as well as low temperature sensitiveness.

Application

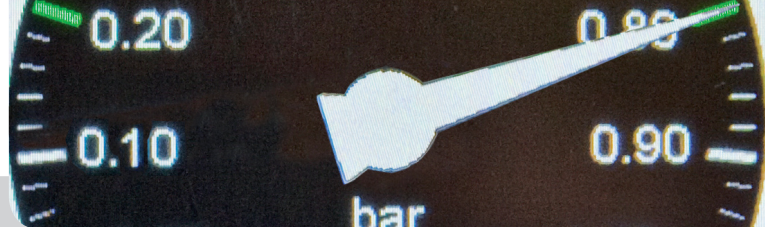
- High precise fill level and pressure measurement from -1...25 bar
- Front flush, dead-space-free metall membrane for hygienic- and food application
- Suitable for CIP and SIP cleaning
- 2 PNP-switching outputs resp. 2- or 3-wire electronics

Specials



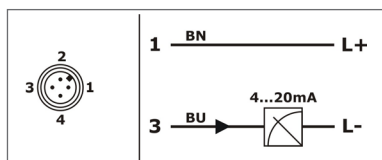
Your benefits

- EHEDG conform design - *hygienic safety*
- Electronics 330° rotatable
- *Fast adjustment* by key combinations and menu-driven adjustment by LED display
- High temperature range up to + 150 ° C - various applications in the food industry
- *Password protection* for protection of the settings against changes
- Good *long term stability* and low influence of temperature
- Various hygienic connections available

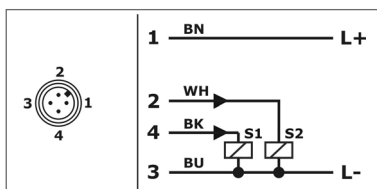


Technical data	
Power supply:	14,5...45V DC at output signal 4...20mA / with display / Ex 14,5...30V DC 10,5...45V DC at output signal 4...20mA / without display / Ex 10,5...30V DC 14,5...45V DC at output signal 0...10V / Ex 14,5...30V DC
Supply current:	≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral ≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral
PNP-switching output	
Function:	PNP-switching on +Vs
Output current:	≤ 250 mA current limited, short circuit protected
Measurement accuracy	
Characteristics deviation:	≤ ±0,15 / 0,5% FS
Long term drift:	≤ ±0,2% FS / year not cumulative
Temperature deviation:	≤ ±0,20% FS / 10 K (Zero / Span)
Material	
Membrane: (medium contact)	Steel 1.4435/316L
Process connection: (medium contact)	Steel 1.4435/316L
Connection housing:	CrNi-Steel / PBT Polybutylenterephthalat / PP – polypropylene / POM – polyoxymethylene (Delrin®)
Gaskets: (medium contact)	FPM – fluorelastomer (Viton®) EPDM – ethylene-propylene-diene monomer Silicone
Environmental conditions	
Ambient temperature:	– 40°C...+85°C
Process temperatures:	– 20°C...+150°C
Process pressure ranges:	– 1 bar ...25 bar
Turn-Down:	30:1
Protection:	IP65 / IP67 EN/IEC 60529

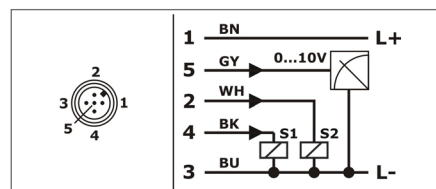
Connection



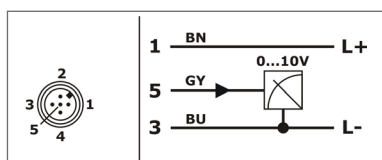
Signal 4...20 mA
Wire colors standard connection cable M12:
BN = brown, BU = blue



Signal 4...20 mA / 2x PNP switching output
Wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black

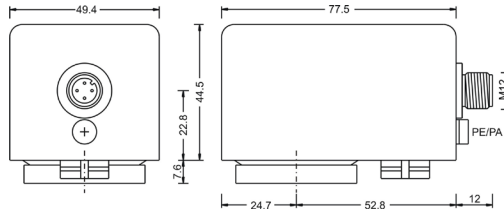


Signal 0...10 V / 2x PNP switching output
Wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black,
GY = grey

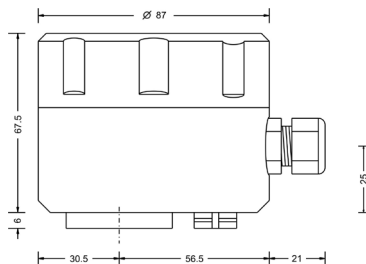


Signal 0...10 V
Wire colors standard connection cable M12:
BN = brown, GY = grey, BU = blue

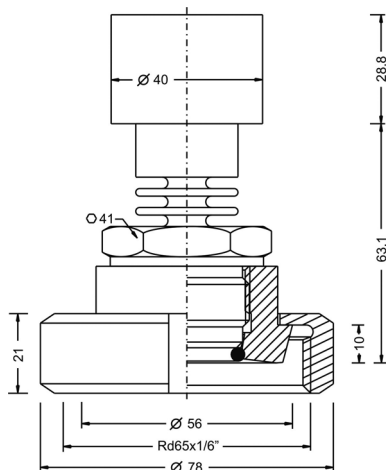
Connection housing
Electrical connection Type S - Plug M12
Material connection housing Type A - PBT



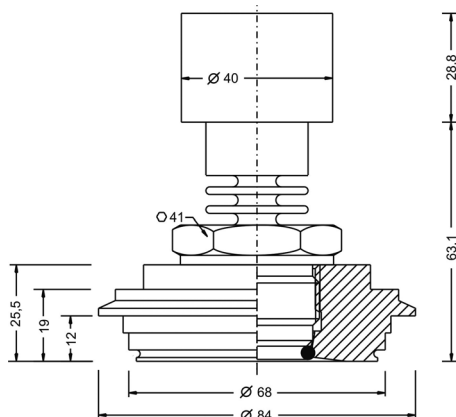
Connection housing
Electrical connection Type A - terminal compartment
Material connection housing Type C CrNi-Steel /
Type D - POM / Type E - PP



Type N
DN40 DIN 11851 - front-flush



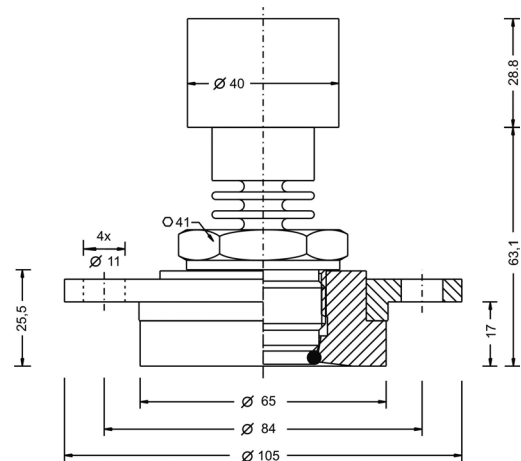
Type P
Varivent® N, Ø68 mm



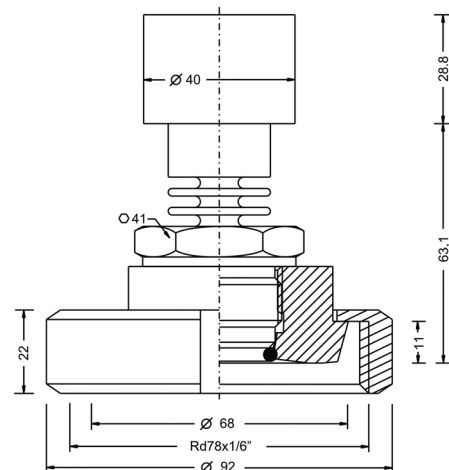
Temperature decoupler



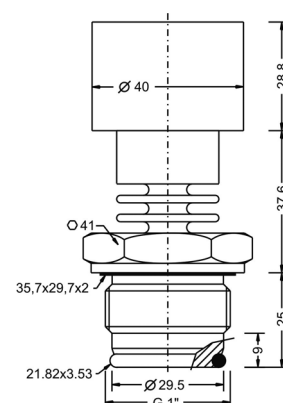
Type L
DRD DN50, Ø65 mm

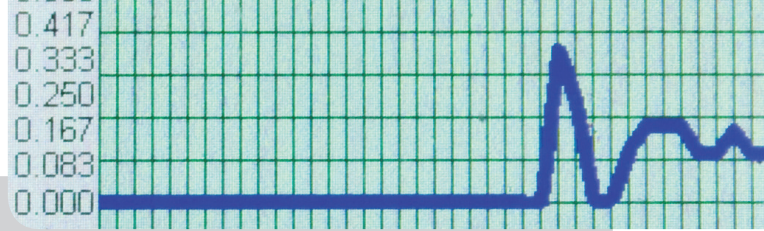


Type M
DN50 DIN 11851 - front-flush



Type 5
G 1" ISO 228-1 - front-flush





Model
 S30 Standard
 ExS30 ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
 XDS30 ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
only for material terminal enclosure type C – CrNi-steel

Process connection
 5 G1" B, DIN EN ISO228-1 front-flush, with radial O-ring, EHEDG conform
 N Milk tube DN 40 DIN 11851
 M Milk tube DN 50 DIN 11851
 P Varivent® Ø 68 mm
 L DRD-connection Ø 65 mm

Electronics - output
 A 4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs
 B 4...20 mA, 2-wire-electronics, with display
 C 4...20 mA, 2-wire-electronics, without display, adjustment via keys
 D 4...20 mA, 2-wire-electronics, preset, without display
 E 0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs
 F 0...10 V 3-wire-electronics, with display
 G 0...10 V 3-wire-electronics, without display, adjustment via keys
 H 0...10 V 3-wire-electronics, preset, without display

Material process connection (medium contact)
 V Stainless steel 1.4571/316Ti / 1.4542/630 resp. 1.4534

Measuring range
 01 0...100 mbar
 02 0...250 mbar
 03 0...400 mbar
 04 0...600 mbar
 05 0...1 bar
 07 0...2,5 bar
 08 0...4 bar
 09 0...6 bar
 10 0...10 bar
 11 0...16 bar
 12 0...25 bar
 16 -1...0 bar
 17 -1...+1 bar
 YY Special measuring range

Material Connection housing
 (for type XD only material steel-C possible)
 A PBT polybutylene terephthalate
 only with housing with plug M12x1 or cable
 C CrNi-steel
 D POM Polyacetal (Delrin®) - only with housing with terminal compartment

Process temperature
 1 Standard, -20 up to +150°C

Pressure type
 R Gauge pressure
 A Absolute pressure

Measuring system - accuracy
 4 Metall, DMS-thin-film/piezoresistive / 0,5%
 8 Xcellence - metall, DMS-thin-film/piezoresistive / 0,15%, linearization protocol

Electrical connection
 S Plug M12x1
 K Cable 2 m
 A Terminal compartment housing

Order code

Precont®

Equipment

Order information
 BKZ0412-VA
 BKZ0512-VA
 LKZ0405PUR-AS
 LKZ0410PUR-AS
 LKZ0505PUR-AS
 LKZ0510PUR-AS

O-Ring 21,82 x 3,53 EPDM
 O-Ring 21,82 x 3,53 FPM
 O-Ring 21,82 x 3,53 Silicone

BEFVE-10

Model
 Matching cable socket, VA-nut
 Matching cable socket, VA-nut (bei 0...10 V)
 Connection cable 5 m, 4-pole, shielded
 Connection cable 10 m, 4-pole, shielded
 Connection cable 5 m, 5-pole, shielded
 Connection cable 10 m, 5-pole

Replacement seal for standard O-Ring
 Viton ®-O-Ring with FDA approval
 Silicone O-ring with FDA approval

Sliding sleeve, for connection 5



Description

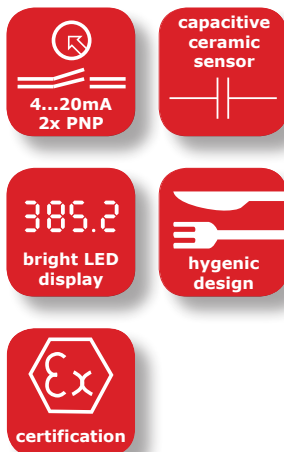
The Precont® S40 is used in all fields of proceeding and process technique.

The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

Application

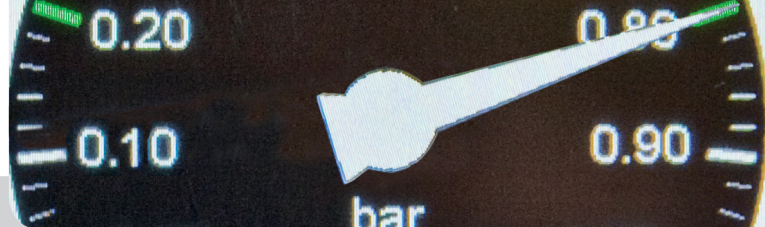
- High precise pressure measurement, relative and absolute, up to 60 bar
- Up to 40-times overload resistance, vacuum-proof
- Medium temperatures from – 40°C up to +125°C
- Connection housing out of stainless steel or PBT with terminal chamber or connector M12x1
- 2 PNP-switching outputs resp. 2- or 3-wire electronics
- As Pressure switch and pressure transmitter usable

Specials



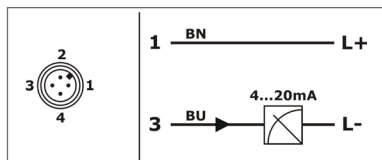
Your benefits

- **Robust** and **highly accurate** capacitive ceramic cell
- Up to 40-times overload resistance, vacuum-proof
- Electronics 330° rotatable
- **Fast adjustment** by key combinations and menu-driven adjustment by LED display
- Bright LED-Display - readable from far away
- **Password protection** for protection of the settings against changes
- Various process connections with front-flush measurement cell selectable

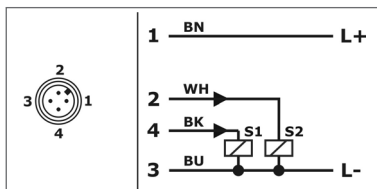


Technical data	
Power supply:	14,5...45V DC at output signal 4...20mA / with display / Ex 14,5...30V DC 10,5...45V DC at output signal 4...20mA / without display / Ex 10,5...30V DC 14,5...45V DC at output signal 0...10V / Ex 14,5...30V DC
Supply current:	≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral ≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral
PNP-switching output	
Function:	PNP-switching on +Vs
Output current:	≤ 250 mA current limited, short circuit protected
Measurement accuracy	
Characteristics deviation:	≤ ±0,05 / 0,1 / 0,2% FS
Long term drift:	≤ ±0,1% FS / year not cumulative
Temperature deviation:	≤ ±0,15% FS / 10 K (Zero / Span)
Material	
Membrane: (medium contact)	Ceramic AL ₂ O ₃ 99,9%
Process connection: (medium contact)	Steel 1.4404/316L resp. 1.4571/316Ti
Connection housing:	CrNi-Steel / PBT Polybutylenterephthalat / PP – polypropylene / POM – polyoxymethylene (Delrin®)
Gaskets: (medium contact)	FPM – fluorelastomer (Viton®) EPDM – ethylene-propylene-diene monomer CR – chloroprene rubber (Neopren®) FFKM – perfluorelastomere (Kalrez®) NBR – nitrile-butadiene rubber
Environmental conditions	
Ambient temperature:	– 40°C...+85°C
Process temperatures:	– 40°C...+100°C resp. +125°C
Process pressure ranges:	– 1 bar ...60 bar
Turn-Down:	30:1
Protection:	IP65 / IP67 EN/IEC 60529

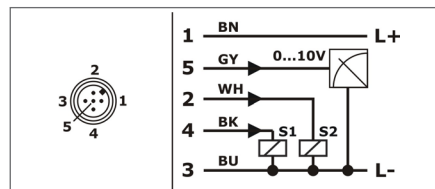
Connection



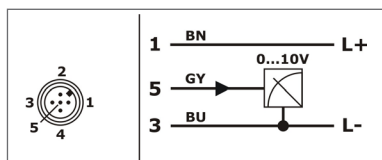
Signal 4...20 mA
Wire colors standard connection cable M12:
BN = brown, BU = blue



Signal 4...20 mA / 2x PNP switching output
Wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black

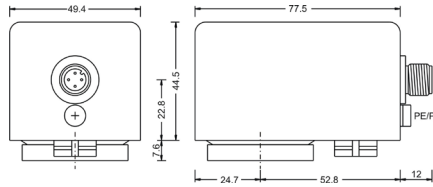


Signal 0...10 V / 2x PNP switching output
Wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black,
GY = grey

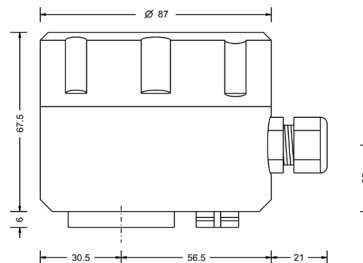


Signal 0...10 V
Wire colors standard connection cable M12:
BN = brown, GY = grey, BU = blue

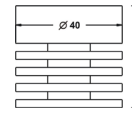
Connection housing
Electrical connection Type S - Plug M12
Material connection housing Type A - PBT



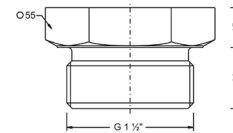
Connection housing
Electrical connection Type A - terminal compartment
Material connection housing Type C CrNi-Steel / Type D - POM / Type E - PP



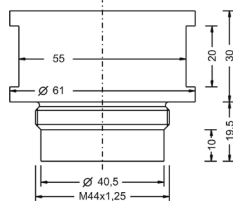
Temperature decoupler



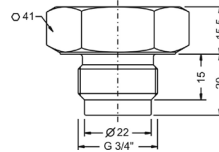
Type 7
G 1 1/2" ISO 228-1 - front-flush



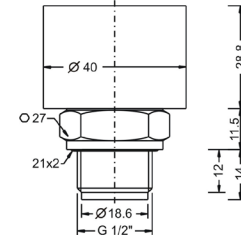
Type Z
M44x1,25 DIN 13 M



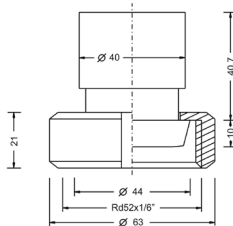
Type 8
G 3/4" ISO 228-1 - front-flush



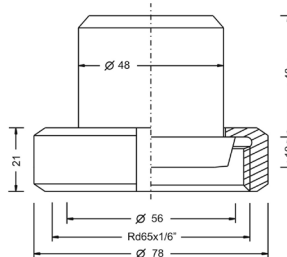
Type 9
G 1/2" ISO 228-1 - front-flush



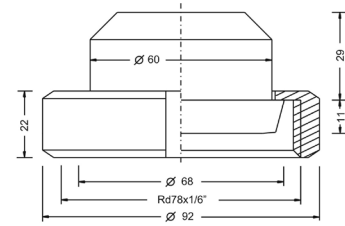
Type R
DN25 DIN 11851 - front-flush



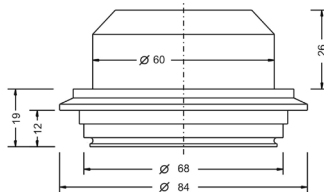
Type N
DN40 DIN 11851 - front-flush



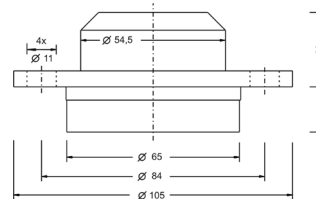
Type M
DN50 DIN 11851 - front-flush



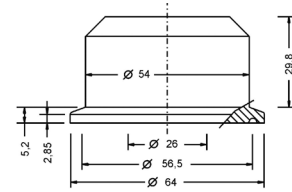
Type P
Varivent® N, Ø68 mm



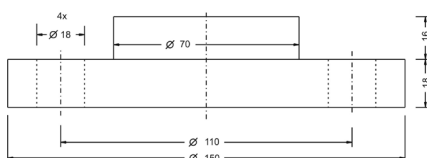
Type L
DRD DN50, Ø65 mm



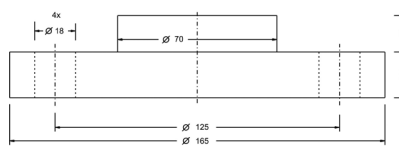
Type T
Tri-Clamp 2"/DN51
PN16/40



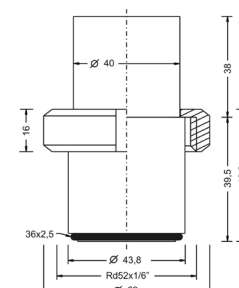
Type F
Flange DIN EN 1092-1, A (B - DIN 2527), DN40

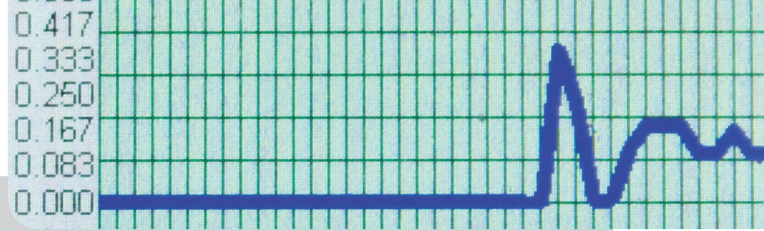


Type G
Flange DIN EN 1092-1, A (B - DIN 2527), DN50



Type B
Groove nut adapter Ø44mm





Model

S40 Standard
 ExS40 ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
 XDS40 ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
only for material terminal enclosure type C - CrNi-steel

Process connection

7 G1½" B, ISO 228-1, front-flush
 8 G¾" A, ISO 228-1, front-flush, ≤ 20 bar
 9 G½" B, ISO 228-1, front-flush, ≤ 20 bar
 R Milk tube DIN 11851, DN25, PN40, ≤ 20 bar
 N Milk tube DIN 11851, DN40, PN40
 M Milk tube DIN 11851, DN50, PN40
 P Varivent® N, DN68, PN16
 L DRD DN65, Ø 65 mm, PN25
 T TriClamp 2"/DN51, PN16/40
 G Flange DIN EN 1092-1, A (B - DIN 2527), DN50, PN10-40
 F Flange DIN EN 1092-1, A (B - DIN 2527), DN40, PN10-40
 Z M44x 1,25 DIN 13 M - paper industry
 B Groove nut adapter Ø 44 mm

Transmitter electronics

A 4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs
 B 4...20 mA, 2-wire-electronics, with display
 C 4...20 mA, 2-wire-electronics, without display, adjustment via keys
 D 4...20 mA, 2-wire-electronics, preset, without display
 E 0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs
 F 0...10 V 3-wire-electronics, with display
 G 0...10 V 3-wire-electronics, without display, adjustment via keys
 H 0...10 V 3-wire-electronics, preset, without display

Material connection

V Stainless steel 1.4404/316L resp. 1.4571/316Ti

Material Connection housing (for type XD only material steel possible)

A PBT (polybutylene terephthalate) (not with terminal compartment)
 C CrNi-steel
 D POM (Polyacetal - Delrin®) - only with terminal compartment housing

Measuring range

01 0...100 mbar	10 0...10 bar
02 0...200 mbar	11 0...16 bar
03 0...400 mbar	12 0...20 bar
04 0...600 mbar	13 0...40 bar
05 0...1 bar	14 0...60 bar
06 0...1,6 bar	15 -100...0 mbar
07 0...2,5 bar	16 -1...0 bar
08 0...4 bar	17 -1...1 bar
09 0...6 bar	18 -100...+100 mbar
YY Special measuring range	

Material gaskets (process wetted)

1 FPM - fluoroelastomer (Viton®)
 2 CR - chloroprene rubber (Neopren®)
 3 EPDM - ethylene-propylene-diene monomer - food applications
 4 FFKM - perfluorelastomere (Kalrez®)
 6 FFKM - perfluorelastomere high density - gas applications

Process temperature

0 Standard -40°C up to +100°C
 1 Advanced -40°C up to +125°C, temperature decoupler

Pressure type

R Gauge pressure
 A Absolute pressure

Measuring system - accuracy

1 Ceramics 99,9%, capacitive / 0,2%
 With process connection 8/9/R >> membrane
 Ceramics 96%
 3 Ceramics 99,9%, capacitive / 0,1%,
 linearization protocol
 With process connection 8/9/R >> membrane
 Ceramics 96%
 6 Xcellence - ceramics 99,9%, capacitive / 0,05%,
 linearization protocol
 Measuring span 0,2 bar
 With process connection 8/R >> membrane
 Ceramics 96%
 not for process connection 9

Electrical connection

S Plug M12x1
 K Cable 2 m
 A Terminal compartment housing

Order code

Precont®

V

Equipment

Order information

BKZ0412-VA
 BKZ0512-VA
 LKZ0405PUR-AS
 LKZ0410PUR-AS
 LKZ0505PUR-AS
 LKZ0510PUR-AS

Model

Matching cable socket, VA-nut
 Matching cable socket, VA-nut (bei 0...10 V)
 Connection cable 5 m, 4-pole, shielded
 Connection cable 10 m, 4-pole, shielded
 Connection cable 5 m, 5-pole, shielded
 Connection cable 10 m, 5-pole, shielded



Description

The Precont® S70 is used in all fields of proceeding and process technique.

The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

The process pressure is applied to the metallic membrane of the diaphragm seal and is transferred by vegetable oil to the behind placed ceramic or metallic membrane of the respective measurement sensor. By this an essential extension of the permitted process temperature range up to -40...+370°C is achieved. Strömungsrichtung auf.

Application

- High precise pressure measurement, relative and absolute, up to 400 bar
- Medium temperatures from - 90°C up to +400°C for use in high temperature areas
- Connection housing out of stainless steel or PBT with terminal chamber or connector M12x1
- 2 PNP-switching outputs resp. 2- or 3-wire electronics
- As Pressure switch and pressure transmitter usable

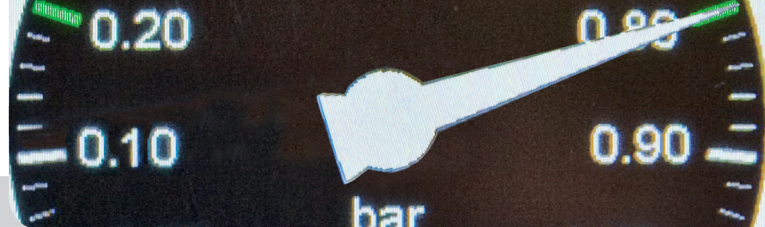
Your benefits

- Various applications
- Electronics 330° rotatable
- **Fast adjustment** by key combinations and menu-driven adjustment by LED display
- Bright LED-Display - readable from far away
- **Password protection** for protection of the settings against changes
- Also suitable for flowing or highly viscous fluids
- Various process connections and diaphragm seals possible

Specials

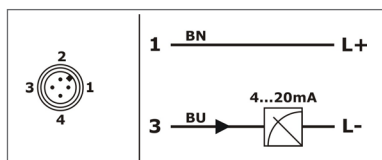


Order code page | 39 |

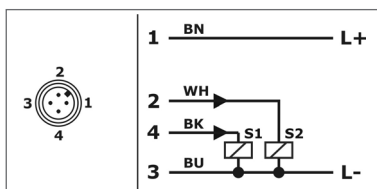


Technical data	
Power supply:	14,5...45V DC at output signal 4...20mA / with display / Ex 14,5...30V DC 10,5...45V DC at output signal 4...20mA / without display / Ex 10,5...30V DC 14,5...45V DC at output signal 0...10V / Ex 14,5...30V DC
Supply current:	≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral ≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral
PNP-switching output	
Function:	PNP-switching on +Vs
Output current:	≤ 250 mA current limited, short circuit protected
Measurement accuracy	
Characteristics deviation:	≤ ±0,2%/ 0,5% FS, depending on sensor element
Long term drift:	≤ ±0,2% year not cumulative
Temperature deviation:	depending on membrane diameter, sensor element, fill fluid and diaphragm seal
Material	
Membrane: (medium contact)	Steel 1.4432 (316L) optional z.B. Steel 1.4571 (316Ti); Hastelloy; Titan; coating gold/rhodium etc. depending on used diaphragm seal
Process connection: (medium contact)	Steel 1.4432 (316L) optional z.B. Steel 1.4571 (316Ti); Hastelloy; Titan; depending on used diaphragm seal
Connection housing:	CrNi-Steel / PBT Polybutylenterephthalat / PP – polypropylene / POM – polyoxymethylene (Delrin®)
Environmental conditions	
Ambient temperature:	– 40°C...+85°C
Process temperatures:	– 90°C...+400°C
Process pressure ranges:	– 1 bar ...400 bar
Turn-Down:	30:1
Protection:	IP65 / IP67 EN/IEC 60529

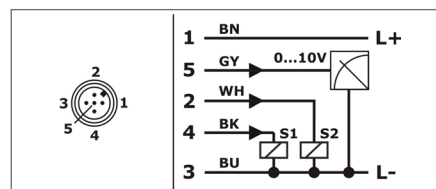
Connection



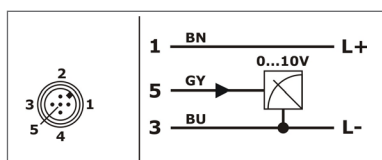
Signal 4...20 mA
Wire colors standard connection cable M12:
BN = brown, BU = blue



Signal 4...20 mA / 2x PNP switching output
Wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black

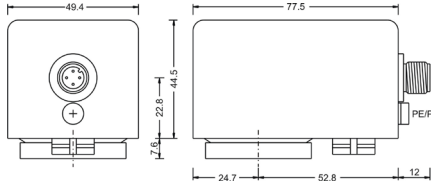


Signal 0...10 V / 2x PNP switching output
Wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black,
GY = grey

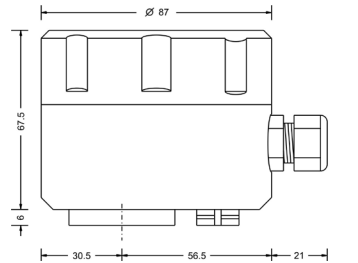


Signal 0...10 V
Wire colors standard connection cable M12:
BN = brown, GY = grey, BU = blue

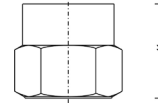
Connection housing
Electrical connection Type S - Plug M12
Material connection housing Type A - PBT



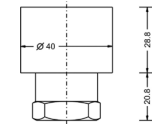
Connection housing
Electrical connection Type A - terminal compartment
Material connection housing Type C
CrNi-Steel / Type D - POM / Type E - PP



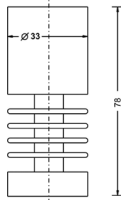
Adapter ≤ 60 bar



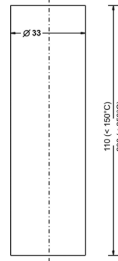
Adapter ≥ 100 bar



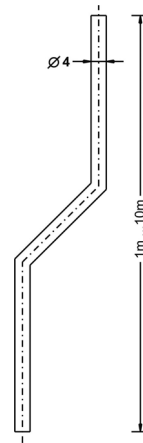
Temperature decoupler
cooling fins up to 150°C



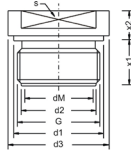
Temperature decoupler
Standard up to 150°C/250°C



Temperature decoupler
Long-distance line

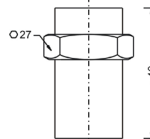


Type Gx
Thread ISO 228-1

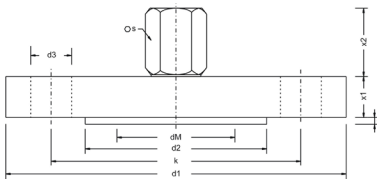


	G	PN	d1	d2	dM	x1	d3	x2	s
G1	G 1/2" B	600	-	18	16	20	-	35	27
G2	G 3/4" B	600	32	22	20	20	-	36	32
G3	G 1" B	600	39	29	28	21	-	34	41
G4	G 1 1/2" B	600	55	44	38	30	58	35	50
G5	G 2" B	600	68	56	46	30	78	40	65

Temperature decoupler
Adapter up to 100°C for
process connections Dx, Mx and Tx

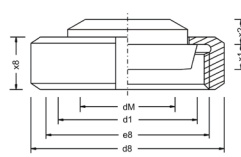


Type Fx
Flange DIN EN 1092-1, B1



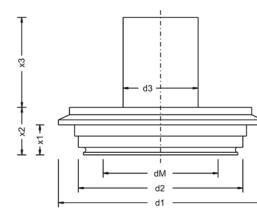
	DN	PN	d1	d2	dM	x1	f	k	d3	s	x2 ±2
F1	25	40	115	68	28	15	3	85	4xØ14	27	34,5
F3	50	40	165	102	52	17	3	125	4xØ18	27	34,5
F5	80	40	200	138	80	20,5	3,5	160	8xØ18	27	34
F6	100	16	220	158	80	16	4	180	8xØ18	27	33,5

Type Mx
DIN 11851



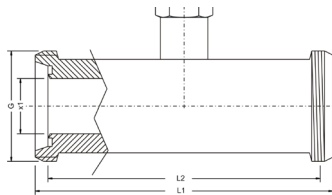
	DN	PN	d1	dM	x1	x2	d8	x8	e8
M2	25	40	44	26	10	10	63	21	Rd52x1/6"
M4	40	40	56	38	10	10	78	21	Rd65x1/6"
M5	50	25	68	48	11	9	92	22	Rd78x1/6"

Type Vx
Varivent®



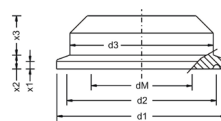
	DN	PN	d1	d2	dM	x1	x2	d3	x3
V1	N	68	16	84	68	46	12	19	30
V2	F	50	25	66	50	30	12	19	30

Type Rx
Tube DIN 11851



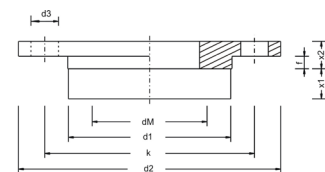
	DN	PN	L1	L2	x1	G
R1	25	40	140	128	26,2	Rd52x1/6"
R3	40	40	140	128	38	Rd65x1/6"
R4	50	25	114	100	50,7	Rd78x1/6"
R5	65	25	116	100	65,7	Rd95x1/6"
R6	80	25	116	100	79,7	Rd110x1/4"
R7	100	25	120	100	99,7	Rd130x1/4"

Type Tx
Tri-Clamp

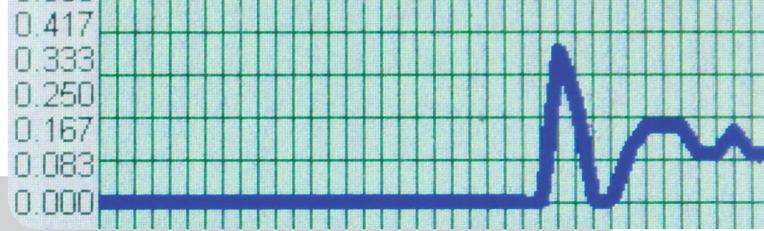


	NPS	DN	PN	d1	d2	dM	x1	x2	d3	x3
T1	1"	25	16/40	64	50,5	21	2,85	5,2	25,6	14,8
T2	1 1/2"	38	16/40	64	50,5	30	2,85	5,2	38,6	14,8
T3	2"	51	16/40	64	56,5	38	2,85	5,2	51,6	14,8

Type Dx
DRD



	DN	PN	d1	d2	dM	x1	x2	f	k	d3
D1	50	40	65	105	46	12	11	5	84	4xØ10,5



Model

S70 Standard
 ExS70 ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
 XDS70 ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
only for material terminal enclosure type C - CrNi-steel

Process connection

G1 G $\frac{1}{2}$ " B, ISO 228-1, DIN 3852-A
 G2 G $\frac{3}{4}$ " B, ISO 228-1, DIN 3852-A
 G3 G1" B, ISO 228-1, DIN 3852-A
 G4 G1 $\frac{1}{2}$ " B, ISO 228-1, DIN 3852-A
 G5 G2" B, ISO 228-1, DIN 3852-A
 F1 Flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN25, PN10-40
 F3 Flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN50, PN10-40
 F5 Flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN80, PN10-40
 F6 Flange DIN EN 1092-1, B1 (C/D - DIN 2527), DN100, PN16
 M2 Milk tube DIN 11851, DN25, PN40
 M4 Milk tube DIN 11851, DN40, PN40
 M5 Milk tube DIN 11851, DN50, PN25
 V1 Varivent® N, DN68, PN16
 V2 Varivent® F, DN50, PN25
 D1 DRD DN50, Ø65 mm, PN40
 T1 Tri-Clamp 1"/DN25, PN16/40
 T2 Tri-Clamp 1 $\frac{1}{2}$ "/DN38, PN16/40
 T3 Tri-Clamp 2"/DN51, PN16/40
 R1 Pipe diaphragm seal milk tube DIN 11851, DN25, PN40
 R3 Pipe diaphragm seal milk tube DIN 11851, DN40, PN40
 R4 Pipe diaphragm seal milk tube DIN 11851, DN50, PN25
 R5 Pipe diaphragm seal milk tube DIN 11851, DN65, PN25
 R6 Pipe diaphragm seal milk tube DIN 11851, DN80, PN25
 R7 Pipe diaphragm seal milk tube DIN 11851, DN100, PN25
 YY Others

Process temperature

A Standard, -20°C...+100°C silicone oil
 B Advanced, -10°C...+150°C, temperature decoupler, white oil (paraffin oil) {FDA} free of silicone
 C Advanced, -40°C...+250°C, temperature decoupler, silicone oil 005
 D Advanced, 0°C...+400°C, capillary line, silicone oil FA5
 Y Others (temperature range, reference temperatur, fill fluid)

Transmitter electronics

A 4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs
 B 4...20 mA, 2-wire-electronics, with display
 C 4...20 mA, 2-wire-electronics, without display, adjustment via keys
 E 0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs
 F 0...10 V 3-wire-electronics, with display
 G 0...10 V 3-wire-electronics, without display, adjustment via keys

Material connection

V Steel 1.4404/316L
 Y Others

Material Connection housing

(for type XD only material steel possible)

A PBT (polybutylene terephthalate) (not with terminal compartment)
 C CrNi-steel
 D POM (Polyacetal - Delrin®) - only with terminal compartment housing

Measuring range

01 0...100 mbar	13 0...40 bar
02 0...200 mbar	14 0...60 bar
03 0...400 mbar	15 -100...0 mbar
04 0...600 mbar	16 -1...0 bar
05 0...1 bar	17 -1...1 bar
06 0...1,6 bar	18 -100...+100 mbar
07 0...2,5 bar	19 0...100 bar
08 0...4 bar	20 0...160 bar
09 0...6 bar	21 0...250 bar
10 0...10 bar	22 0...320 bar
11 0...16 bar	23 0...400 bar
12 0...20 bar	YY Special measuring range

Pressure type

R Gauge pressure
 A Absolute pressure

Measuring system - accuracy

2 Ceramics 96%, capacitive / 0,2% \leq 60 bar
 4 Metall, DMS-thin-film / 0,5% \geq 100 bar

Electrical connection

S Plug M12x1
 K Cable 2 m
 A Terminal compartment housing

Order code

Precont®

Equipment

Order information

BKZ0412-VA
 BKZ0512-VA
 LKZ0405PUR-AS
 LKZ0410PUR-AS
 LKZ0505PUR-AS
 LKZ0510PUR-AS

Model

Matching cable socket, VA-nut
 Matching cable socket, VA-nut (bei 0...10 V)
 Connection cable 5 m, 4-pole, shielded
 Connection cable 10 m, 4-pole, shielded
 Connection cable 5 m, 5-pole, shielded
 Connection cable 10 m, 5-pole, shielded



Description

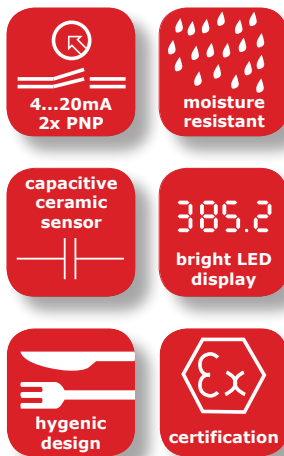
The Precont® D40 is used in all fields of proceeding and process technique. The excellent characteristics like pressure strength, high chemical resistance, corrosion protection and insensitivity against temperature shocks allows the use in the hardest applications for the measurement of gases, steams and liquids.

By the special contruction the device is especially suitable for the use in areas with high air humidity and at condensed water formation where conventional devices can not or can only be used with an expensive placed air compensation capillary.

Application

- Hermetically sealed measuring system for moisture resistant pressure measurement and areas with aggressive and dirty atmosphere
- Capacitive ceramic membrane for highest strength against pressure and pressure blows up to 40-times of the nominal pressure
- Connection housing out of stainless steel
- 2 PNP-switching outputs resp. 2- or 3-wire electronics selectable

Specials

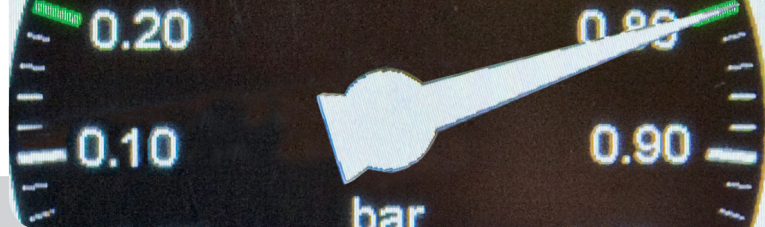


Your benefits

- No problems with high humidity
- Robust design – *maintenance-free*
- Electronics 330° rotatable
- Very high *resistance to* chemicals, corrosion and abrasion
- *Fast adjustment* by key combinations and menu-driven adjustment by LED display
- *Password protection* for protection of the settings against changes
- Highest accuracy and *long term stability*
- Good resistance to thermal shock
- Various process connections with front-flush measurement cell selectable

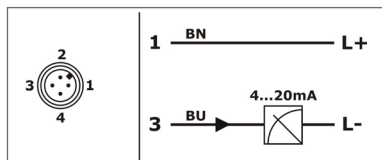
Order code page | |

Technical data

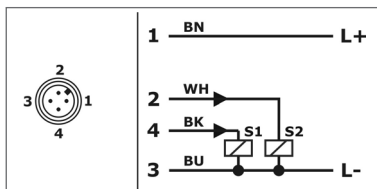


Technical data	
Power supply:	16,5...45V DC at output signal 4...20mA / with display / Ex 16,5...30V DC 12,5...45V DC at output signal 4...20mA / without display / Ex 12,5...30V DC 16,5...45V DC at output signal 0...10V / Ex 16,5...30V DC
Supply current:	≤ 22 mA; at 2-wire 4...20mA PNP-switching outputs in neutral ≤ 10 mA; at 3-wire 0...10V PNP-switching outputs in neutral
PNP-switching output	
Function:	PNP-switching on +Vs
Output current:	≤ 250 mA current limited, short circuit protected
Measurement accuracy	
Characteristics deviation:	≤ ±0,1% / ±0,2% FS; Measuring range 0,2bar/0,4bar/0,6bar: ±0,35% FS
Long term drift:	≤ ±0,1% FS / year not cumulative
Temperature deviation:	≤ ±0,30% FS / 10 K (Zero / Span)
Material	
Membrane: (medium contact)	Ceramic AL ₂ O ₃ 99,9%
Process connection: (medium contact)	Steel 1.4404/316L resp. 1.4571/316Ti
Connection housing:	CrNi-Steel / PBT Polybutylenterephthalat / PP – polypropylene / POM – polyoxymethylene (Delrin®)
Gaskets: (medium contact)	FPM – fluorelastomer (Viton®) EPDM – ethylene-propylene-diene monomer CR – chloroprene rubber (Neopren®) FFKM – perfluorelastomere (Kalrez®) NBR – nitrile-butadiene rubber
Environmental conditions	
Ambient temperature:	– 40°C...+85°C
Process temperatures:	– 40°C...+125°C
Process pressure ranges:	– 1 bar ...16 bar
Turn-Down:	4:1
Protection:	IP65 / IP67 EN/IEC 60529

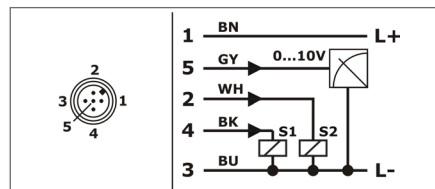
Connection



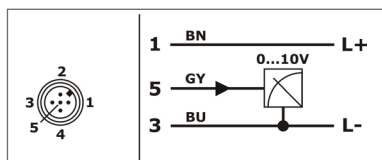
Signal 4...20 mA
Wire colors standard connection cable M12:
BN = brown, BU = blue



Signal 4...20 mA / 2x PNP switching output
Wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black

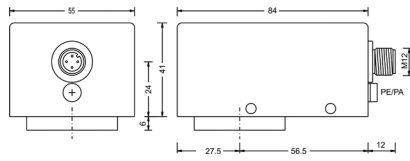


Signal 0...10 V / 2x PNP switching output
Wire colors standard connection cable M12:
BN = brown, WH = white, BU = blue, BK = black,
GY = grey

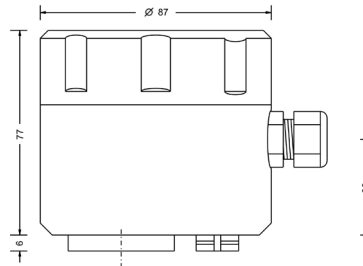


Signal 0...10 V
Wire colors standard connection cable M12:
BN = brown, GY = grey, BU = blue

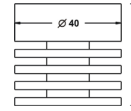
Connection housing
Electrical connection Type S - Plug M12



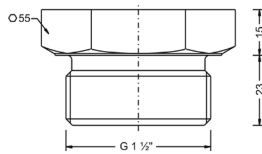
Connection housing
Electrical connection Type A - terminal compartment



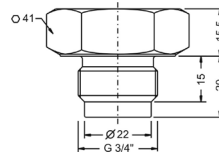
Temperature decoupler



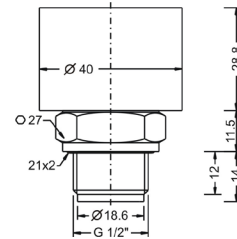
Type 7
G 1 1/2" ISO 228-1 - front-flush



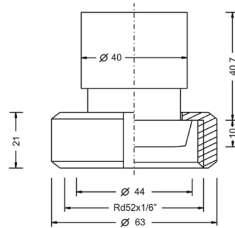
Type 8
G 3/4" ISO 228-1 - front-flush



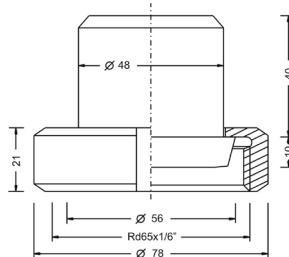
Type 9
G 1/2" ISO 228-1 - front-flush



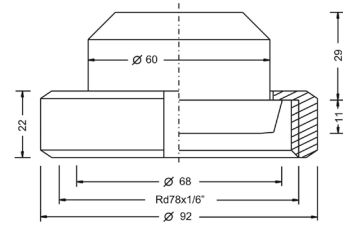
Type R
DN25 DIN 11851 - front-flush



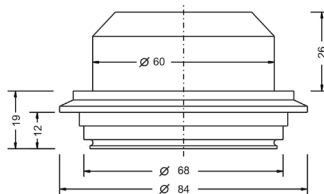
Type N
DN40 DIN 11851 - front-flush



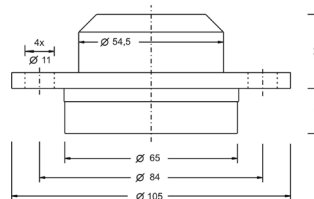
Type M
DN50 DIN 11851 - front-flush

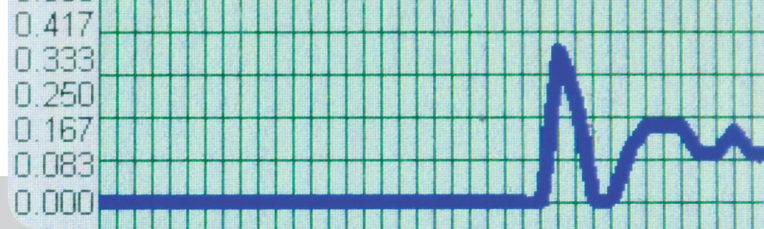


Type P
Varivent® N, Ø68 mm



Type L
DRD DN50, Ø65 mm





Model
D40 Standard
ExD40 ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
XDD40 ATEX II 1/2 D Ex ia IIIC T60°C/T102°C Da/Db + ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
only for material terminal enclosure type C – CrNi-steel

Process connection

7 G1½" B, ISO 228-1, front-flush
8 G¾" A, ISO 228-1, front-flush
9 G½" B, ISO 228-1, front-flush
R Milk tube DIN 11851, DN25, PN40
N Milk tube DIN 11851, DN40, PN40
M Milk tube DIN 11851, DN50, PN40
P Varivent® N, DN68, PN16
L DRD DN50, Ø65 mm, PN25

Transmitter electronics

A 4...20 mA, 2-wire-electronics, with display, 2 PNP-switching outputs
B 4...20 mA, 2-wire-electronics, with display
C 4...20 mA, 2-wire-electronics, without display, adjustment via keys
D 4...20 mA, 2-wire-electronics, preset, without display
E 0...10 V 3-wire-electronics, with display, 2 PNP-switching outputs
F 0...10 V 3-wire-electronics, with display
G 0...10 V 3-wire-electronics, without display, adjustment via keys
H 0...10 V 3-wire-electronics, preset, without display

Material connection

V Stainless steel 1.4404/316L resp. 1.4571/316Ti

Material Connection housing

C CrNi-steel

Measuring range

02 0...200 mbar	07 0...2,5 bar
03 0...400 mbar	08 0...4 bar
04 0...600 mbar	09 0...6 bar
05 0...1 bar	10 0...10 bar
06 0...1,6 bar	11 0...16 bar
	16 -1...0 bar
	YY Special measuring range

Gaskets

1 FPM - fluoroelastomer (Viton®)
2 CR - chloroprene rubber (Neopren®)
3 EPDM - ethylene-propylene-diene monomer - food applications
4 FFKM - perfluorelastomere (Kalrez®)
6 FFKM hd - perfluorelastomere high density - gas applications

Process temperature

1 Standard, -40°C...+125°C, temperature decoupler

Pressure type

R Gauge pressure

Measuring system - accuracy

1 Ceramics 99,9%, capacitive / 0,2%
With process connection 8 / 9 / R >> membrane
Ceramics 96%
3 Ceramics 99,9%, capacitive / 0,1%,
linearization protocol
With process connection 8 / 9 / R >> membrane
Ceramics 96%

Electrical connection

S Plug M12x1
K Cable 2 m
A Terminal compartment housing

Order code

Precont®

Equipment

Order information
BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS

Model
Matching cable socket, VA-nut
Matching cable socket, VA-nut (bei 0...10 V)
Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole, shielded
Connection cable 5 m, 5-pole, shielded
Connection cable 10 m, 5-pole, shielded



Description

Due to the device construction with measuring ranges from -1 bar to 60 bar (gauge), measuring ranges from 0 bar to 60 bar (absolute), measuring spans from 100 mbar to 60 bar, process temperatures from -40°C to +125°C and process materials high purity Al₂O₃-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer / inner thread / front-flush), dairy coupling DIN 11851 (front-flush), Varivent® (front-flush), clamp ISO 2852 / BS 4825 / DIN 32676 (front-flush) and DRD (front-flush) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology and facility and building automation. The device is suitable for demanding measuring requirements. Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

Through its optimized design, the front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process. The device is suitable for the use at CIP/SIP cleaning processes. Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media. A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device. Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

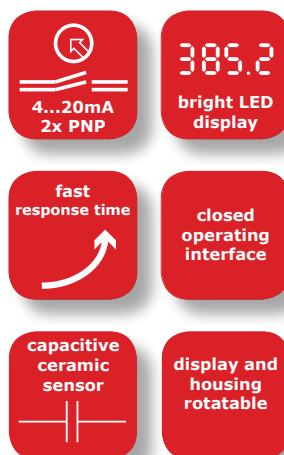
Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology

Your benefits

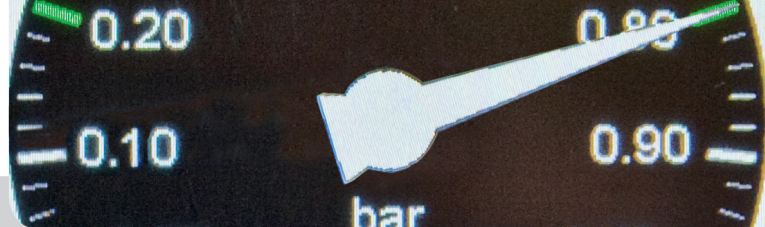
- **Wide range of applications**
- Finely graded measuring ranges from 100 mbar up to 60 bar
- Wide process temperature range -40°C to +125°C
- Wide variety of process connections
- High protection class IP65 / IP67
- Wide environmental temperature range -40°C to +85°C
- Ceramic *front-flush or internal diaphragm*
- Increased accuracy – characteristic deviation ≤ 0,2% of measuring range
- Integrated evaluation electronic: Digital display, function LED's, keyboard / 2x PNP switch output / 1x current output 4...20mA / Connector plug M12
- **High operating comfort:** enclosure and display rotatable for *optimal operability* in each installation position
- Robust high brightness LED display for *best readability*
- 3-key operation without additional assistance with tactile feedback

Specials



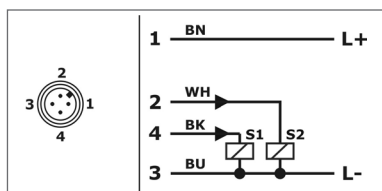
Order code page | 47 |

Technical data

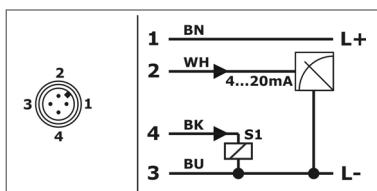


Technical Data	
Supply voltage:	10,5...35VDC, reverse polarity protected
Supply current:	≤ 60mA Analogue output max. 22,5mA Switch output with no load
2xPNP-switch output	
Function:	PNP switch to +L
Output current:	0... ≤ 200mA current limited, short circuit protected
Analogue output 4...20mA	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (US - 10,5V) / 22mA
Start-up time:	≤ 1 ms
Measuring accuracy	
Characteristic deviation:	≤ ± 0,2% FS
Long term drift:	≤ ± 0,1% FS / year not cumulative
Temperature deviation	Zero: ≤ ± 0,015% FS / K, max. ± 0,75% (-20°C...+80°C) Span: ≤ ± 0,015% FS / K, max. ± 0,5% (-20°C...+80°C / > 400mbar), max. ± 0,8% (-20°C...+80°C / ≤ 400 mbar)
Materials	
Diaphragm: (process wetted)	Measuring range ≤ 1bar: Ceramic Al ₂ O ₃ - 99,7% (SIP suitable) Measuring range ≥ 1,6bar: Ceramic Al ₂ O ₃ - 96% (SIP suitable) Process connection 1/2/4/6/7/N/M/P/L/S/T: Ceramic Al ₂ O ₃ - 99,9% (CIP/SIP suitable)
Process connection: (process wetted)	Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	FPM – fluorelastomere (e.g. Viton®) EPDM – ethylene-propylene-dienmonomere, FDA-listed FFKM – perfluorelastomere (e.g. Kalrez®) FFKM hd – perfluorelastomere high density
Environmental conditions	
Environmental temperature:	- 40°C...+85°C
Process temperature:	-40...+100°C (extended -40...+125°C)
Process pressure:	- 1 bar ...60 bar (depending on process connection)
Protection:	IP65/IP67 EN/IEC 60529

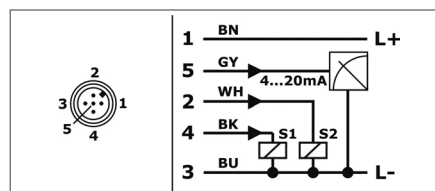
Connection



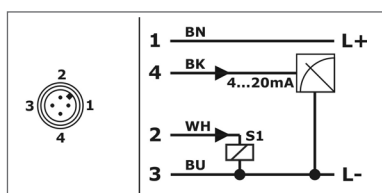
Signal 2x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black



Signal 4...20 mA / 1x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black

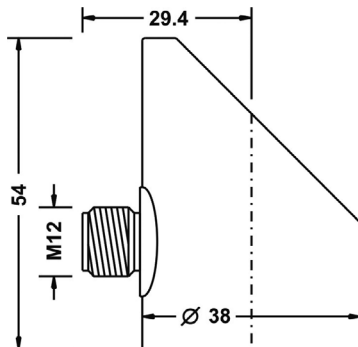


Signal 4...20 mA / 2x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black,
GY = grey

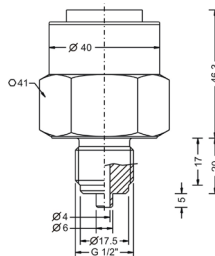


Signal 4...20 mA / 1x PNP / Desina
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black

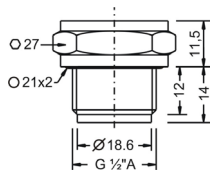
Terminal enclosure



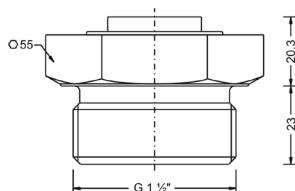
Type 1 – Thread ISO 228-1 –
G½"A, EN 837



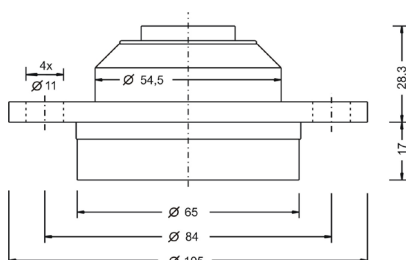
Type 9 – Thread ISO 228-1 –
G½"B, front-flush



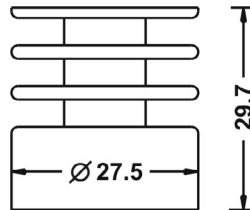
Type 7 – Thread ISO 228-1 –
G1½"B, front-flush



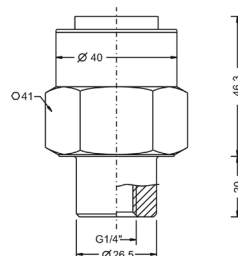
Type M – Dairy coupling DIN
11851 – DN50, PN25



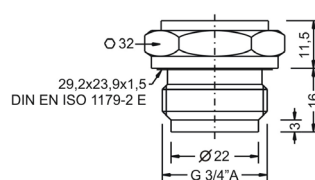
Temperature decoupler



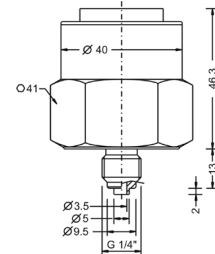
Type 4 – Thread ISO 228-1 –
G¼"I, inner thread



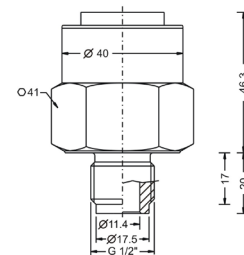
Type 8 – Thread ISO 228-1 –
G¾"A, front-flush



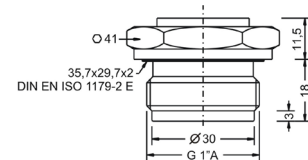
Type 6 – Thread ISO 228-1 –
G¼"A, EN 837



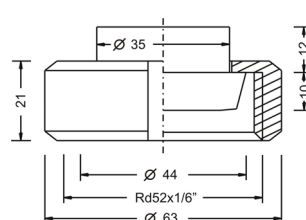
Type 2 – Thread ISO 228-1 –
G½"A, inner bore



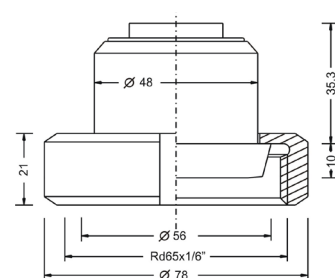
Type 5 – Thread ISO 228-1 –
G1"A, front-flush



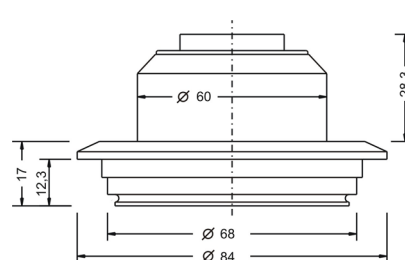
Type R – Dairy coupling DIN
11851 – DN25, PN40



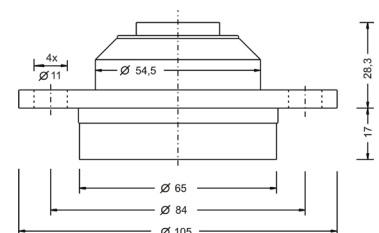
Type N – Dairy coupling DIN
11851 – DN40, PN25

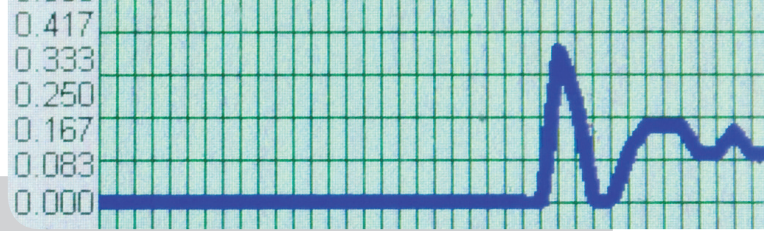


Type P – Varivent® – Type N /
tube DN40-162 / 1½"-6", PN40



Type L – DRD – DN50 / Ø65mm,
PN25





PS4S
Type
Standard

Measuring system – material diaphragm (process wetted) / sensor type / accuracy
Ceramic Al₂O₃ 96%/99,7%/99,9% / capacitive

Approval
S Standard

Process connection

- 6 Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837 manometer
- 1 Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837 manometer
- 4 Thread ISO 228-1 – G $\frac{1}{4}$ "I, inner thread
- 2 Thread ISO 228-1 – G $\frac{1}{2}$ "A, inner bore
- 9 Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush, \leq 20 bar
- 8 Thread ISO 228-1 – G $\frac{3}{4}$ "A, front-flush, \leq 20 bar
- 5 Thread ISO 228-1 – G1"A, front-flush, \leq 20 bar
- 7 Thread ISO 228-1 – G1 $\frac{1}{2}$ "B, front-flush
- R Dairy coupling DIN 11851 – DN25, PN40, \leq 20 bar
- N Dairy coupling DIN 11851 – DN40, PN25
- M Dairy coupling DIN 11851 – DN50, PN25
- P Varivent® – Type N / tube DN40-162 / 1 $\frac{1}{2}$ "-6", PN40
- L DRD – DN50 / \varnothing 65mm, PN25
- S Clamp ISO 2852 – DN25-38 / BS 4825 – 1"-1 $\frac{1}{2}$ " / DIN 32676 – DN25-38, PN25
- T Clamp ISO 2852 – DN40-51 / BS 4825 – 2" / DIN 32676 – DN50, PN25
- Y others

Material process gaskets (process wetted)

- 1 FPM – fluorelastomere (e.g. Viton®)
- 3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
- 4 FFKM – perfluorelastomere (e.g. Kalrez®)
- 6 FFKM hd – perfluorelastomere high density - gas applications
- Y others

Material process connection (process wetted)

V CrNi-steel

Material terminal enclosure

C CrNi-steel

Measuring range

- 01 0...100 mbar
- 02 0...200 mbar
- 03 0...400 mbar
- 04 0...600 mbar
- 05 0...1 bar
- 06 0...1,6 bar
- 07 0...2,5 bar
- 08 0...4 bar
- 09 0...6 bar
- 10 0...10 bar
- 11 0...16 bar
- 12 0...20 bar
- 13 0...40 bar
- 14 0...60 bar
- 15 -100...0 mbar
- 16 -1...0 bar
- 17 -1...+1 bar
- 18 -100...+100 mbar
- YY Special measuring range

Electronic – output

- A 2x switch PNP, supply 24VDC
- B 1x switch PNP, 1x signal 4...20mA, supply 24VDC
- C 2x switch PNP, 1x signal 4...20mA, supply 24VDC
- D 1x switch PNP, 1x signal 4...20mA, supply 24VDC, Desina

Electronic – function

S Standard

Process temperature

- 0 Standard -40°C...+100°C
- 1 Extended -40°C...+125°C, temperature decoupler

Pressure type

- R Gauge pressure
- A Absolute pressure, \geq 1 bar

Measuring system – accuracy

1 0,2%

Electrical connection

S Plug M12x1

Order code

Precont®

Equipment

Order information

BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS

Model

Matching cable socket, VA-nut
Matching cable socket, VA-nut
Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole, shielded
Connection cable 5 m, 5-pole, shielded
Connection cable 10 m, 5-pole



Description

Due to the device construction with measuring ranges from -1 bar to 600 bar, gauge, measuring ranges from 1 bar to 40 bar, absolute, measuring spans from 250 mbar to 600 bar, process temperatures from -40°C to +135°C and process materials Al₂O₃-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread connection ISO 228-1, EN 837 manometer, thread connection ISO 228-1 (inner thread), thread connection ISO 228-1 (EN 1179-2 E), thread connection ISO 228-1 (inner bore) and thread connection ISO 228-1 (front-flush) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology and facility and building automation.

The device is suitable for demanding measuring requirements.

Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media.

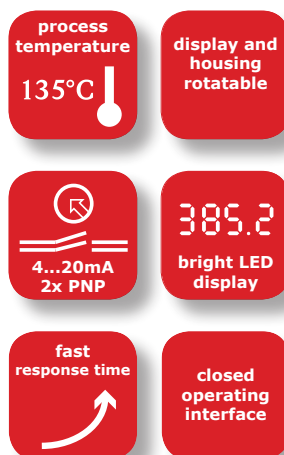
A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology

Specials

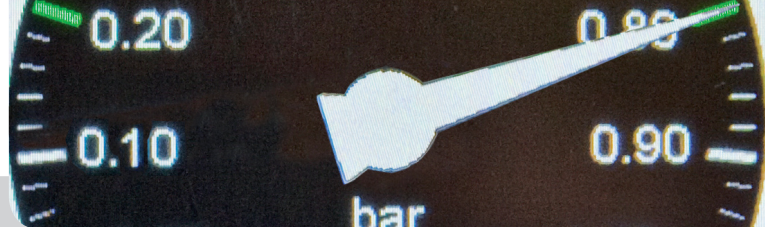


Your benefits

- *Wide range of applications*
- Finely graded measuring ranges from 250 mbar up to 600 bar
- Wide process temperature range -40°C to +135°C
- Wide variety of process connections
- High protection class IP65 / IP67
- Wide environmental temperature range -40°C to +85°C
- Ceramic front-flush or internal diaphragm
- High accuracy – characteristic deviation ≤ 0,5% of measuring range
- Integrated evaluation electronic: Digital display, function LED's, keyboard / 2x PNP switch output / 1x current output 4...20mA / Connector plug M12
- *High operating comfort*: enclosure and display rotatable for *optimal operability* in each installation position
- Robust high brightness LED display for *best readability*
- 3-key operation without additional assistance with tactile feedback

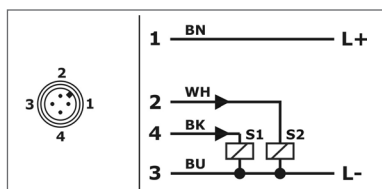
Order code page | **51** |

Technical data

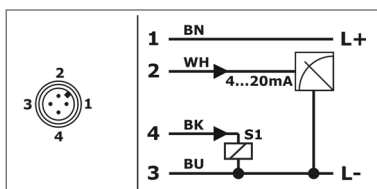


Technical Data	
Supply voltage:	10,5...35VDC, reverse polarity protected
Supply current:	≤ 60mA Analogue output max. 22,5mA Switch output with no load
Switch output S1 / S2	
Function:	PNP switch to +L
Output current:	0... ≤ 200mA current limited, short circuit protected
Analogue output 4...20mA	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (US - 10,5V) / 22mA
Start-up time:	≤ 1 s
Analogue output – current 4...20mA	
Characteristic deviation:	≤ ± 0,5% FS
Long term drift:	≤ ± 0,2% FS / year not cumulative
Temperature deviation	Measuring range 0...250 mbar to 0...2,5 bar: ≤ ±0,05% FS / K Measuring range 0...4 bar to 0...600 bar: ≤ ±0,04% FS / K
Materials	
Diaphragm: (process wetted)	Ceramic aluminum oxide Al ₂ O ₃ – 96%
Process connection: (process wetted)	Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	FPM – fluorelastomere (Viton®) EPDM – ethylene-propylene-dienmonomere, FDA-listed
Environmental conditions	
Environmental temperature:	– 40°C...+85°C
Process temperature:	– 40...+100°C (extended -40...+135°C)
Process pressure:	0 bar ...600 bar (depending on process connection)
Protection:	IP65/IP67 EN/IEC 60529

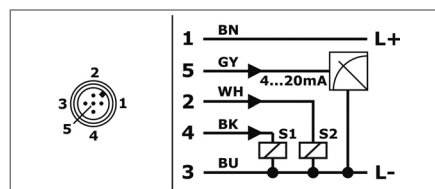
Connection



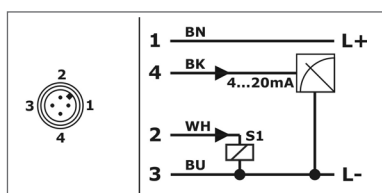
Signal 2x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black



Signal 4...20 mA / 1x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black

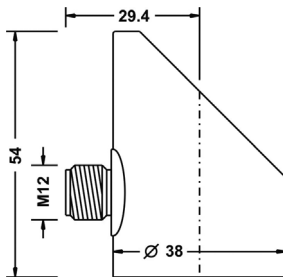


Signal 4...20 mA / 2x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black,
GY = grey

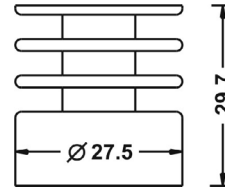


Signal 4...20 mA / 1x PNP / Desina
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black

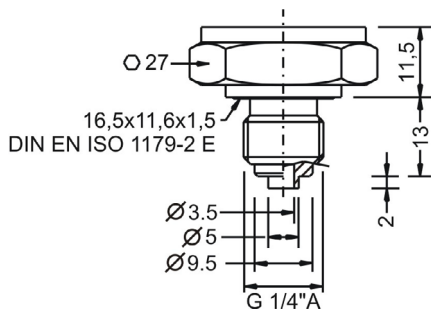
Anschlussgehäuse



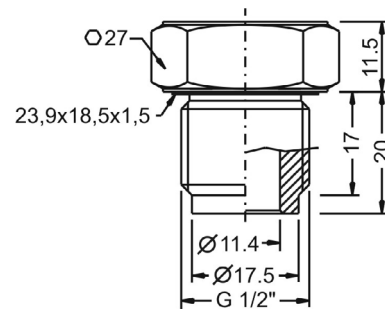
Temperaturentkoppler



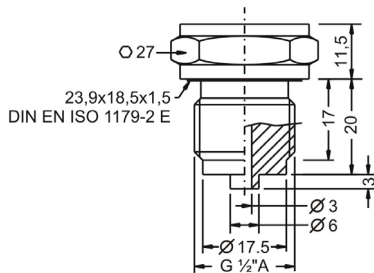
Type 6 – Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837



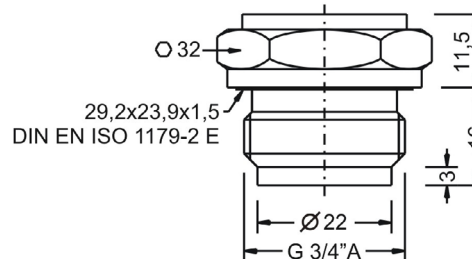
Type 2 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, inner bore



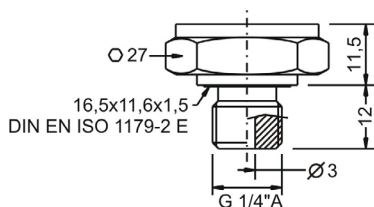
Type 1 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837



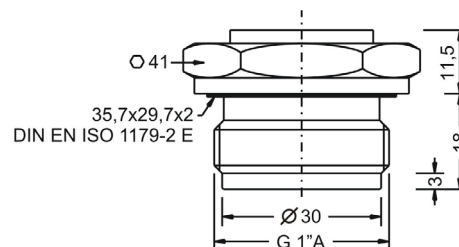
Type 8 – Thread ISO 228-1 – G $\frac{3}{4}$ "A, front-flush



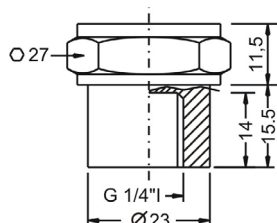
Type 3 – Thread ISO 228-1 – G $\frac{1}{4}$ "A, DIN EN ISO 1179-2 E2 E

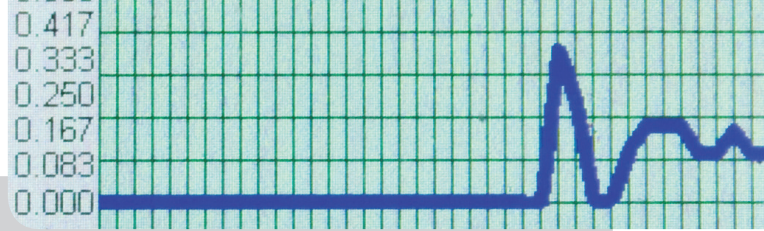


Type 5 – Thread ISO 228-1 – G1"A, front-flush



Type 4 – Thread ISO 228-1 – G $\frac{1}{4}$ " I, inner thread





Order code

Precont®

Equipment

Order information
BKZ0412-VA
BKZ0512-VA
LKZ0405PUR-AS
LKZ0410PUR-AS
LKZ0505PUR-AS
LKZ0510PUR-AS

Model
Matching cable socket, VA-nut
Matching cable socket, VA-nut
Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole, shielded
Connection cable 5 m, 5-pole, shielded
Connection cable 10 m, 5-pole

PS4S

Type
Standard

Measuring system – material diaphragm (process wetted) / sensor type / accuracy
Ceramic Al₂O₃ 96% / strain gauge

Approval
S Standard

Process connection

- 6 Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837 manometer
- 1 Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837 manometer
- 3 Thread ISO 228-1 – G $\frac{1}{4}$ "A, DIN EN ISO 1179-2 E
- 4 Thread ISO 228-1 – G $\frac{1}{4}$ "I, inner thread
- 2 Thread ISO 228-1 – G $\frac{1}{2}$ "B, inner bore
- 8 Thread ISO 228-1 – G $\frac{3}{4}$ "A, front-flush, ≤ 10 bar
- 5 Thread ISO 228-1 – G1"A, front-flush, ≤ 1 bar
- Y others

Material gaskets (process wetted)

- 1 FPM – fluorelastomere (Viton®)
- 3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
- Y andere

Material process connection (process wetted)

- V CrNi-steel

Material terminal enclosure

- C CrNi-steel

Measuring range

- 02 0...250 mbar
- 03 0...400 mbar
- 04 0...600 mbar
- 05 0...1 bar
- 06 0...1,6 bar
- 07 0...2,5 bar
- 08 0...4 bar
- 09 0...6 bar
- 10 0...10 bar
- 11 0...16 bar
- 12 0...25 bar
- 13 0...40 bar
- 14 0...60 bar
- 19 0...100 bar
- 20 0...160 bar
- 21 0...250 bar
- 22 0...320 bar
- 23 0...400 bar
- 24 0...600 bar
- 16 -1...0 bar
- 17 -1...+1 bar
- YY Special measuring range

Electronic – output

- A 4-wire, 2x switch PNP
- B 4-wire, 1x switch PNP, 1x signal 4...20mA
- C 5-wire, 2x switch PNP, 1x signal 4...20mA
- D 4-wire, 1x switch PNP, 1x signal 4...20mA, Desina

Electronic – function

- S Standard

Process temperature

- 0 Standard -40°C...+100°C
- 1 Extended -40°C...+135°C, temperature decoupler

Pressure type

- R Gauge pressure
- A Absolute pressure, ≥ 1 bar ... ≤ 40 bar

Measuring system – accuracy
0,5%

Electrical connection
S Plug M12x1

PS4S

K

S

V

C

S

4

S



Description

Due to the device construction as well as the availability of industrial standard process connections the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry and environmental technology. The pressure switch is suitable for demanding measuring requirements. Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications. The pressure switch with front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections. The front-flush diaphragm is completely welded with the process connection and supplied with a positive seal. A reliable, dead-space free sealing between the process connection and the process adapter resp. measuring medium is thus assured.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media. A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device. Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking. A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or factory certifications for drink water resp. food suitability.

Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology

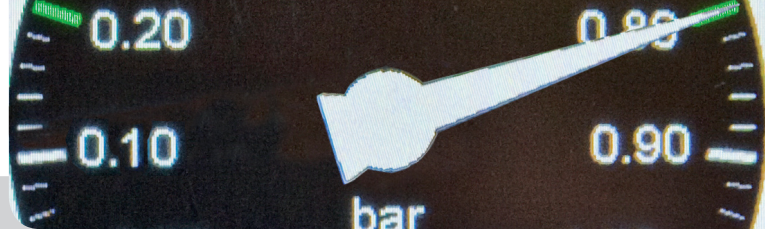
Your benefits

- **Wide range of applications**
- Finely graded measuring ranges from 400 mbar up to 1000 bar
- Wide process temperature range -40°C to +125°C
- High protection class IP65 / IP67
- Wide environmental temperature range -40°C to +85°C
- Metallic front-flush or internal diaphragm
- High accuracy – characteristic deviation ≤ 0,5% of measuring range
- Integrated evaluation electronic: Digital display, function LED's, keyboard / 2x PNP switch output / 1x current output 4...20mA / Connector plug M12
- **High operating comfort:** enclosure and display rotatable for **optimal operability** in each installation position
- Robust high brightness LED display for **best readability**
- 3-key operation without additional assistance with tactile feedback

Specials

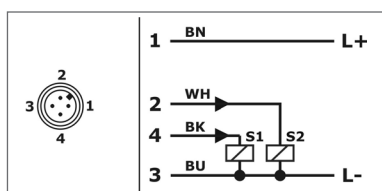

 Order code page | **55** |

Technical data

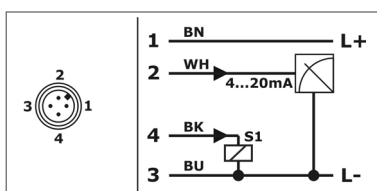


Technical Data	
Supply voltage:	10,5...35VDC, reverse polarity protected
Supply current:	≤ 60mA Analogue output max. 22,5mA Switch output with no load
2xPNP-switch output	
Function:	PNP switch to +L
Output current:	0... ≤ 200mA current limited, short circuit protected
Analogue output 4...20mA	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (US - 10,5V) / 22mA
Start-up time:	≤ 1 ms
Measuring accuracy	
Characteristic deviation:	≤ ± 0,5% FS
Long term drift:	≤ ± 0,2% FS / year not cumulative
Temperature deviation	≤ ± 0,2% FS / 10K (Measuring range < 40 bar: 0...80°C / ≥ 40 bar: -40...100°C)
Materials	
Diaphragm: (process wetted)	Steel 1.4571/316Ti / Steel 1.4542/630 / Steel 1.4534/SI13800
Process connection: (process wetted)	Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	NBR – nitrile-butadiene-rubber FPM – fluorelastomere (Viton®) EPDM – ethylene-propylene-dienmonomere
Environmental conditions	
Environmental temperature:	- 40°C...+85°C
Process temperature:	- 40°C...+100°C (Expansion: -40°C...+125°C)
Process pressure:	-1 bar ...1000 bar (depending on process connection)
Protection:	IP65/IP67 EN/IEC 60529

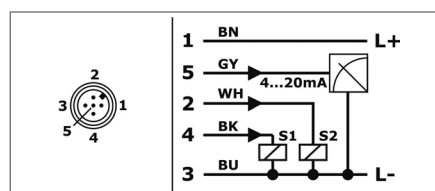
Connection



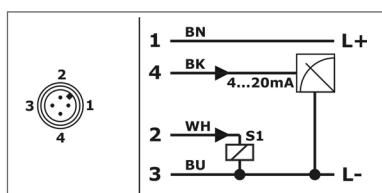
Signal 2x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black



Signal 4...20 mA / 1x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black

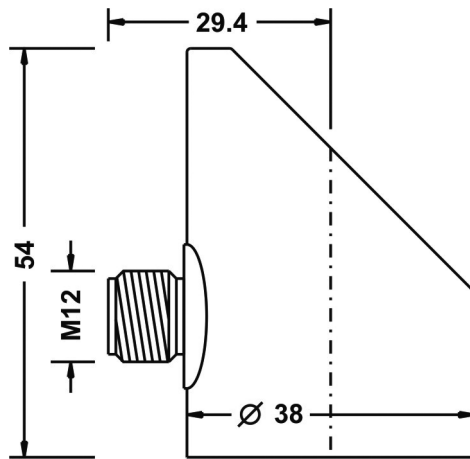


Signal 4...20 mA / 2x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black,
GY = grey

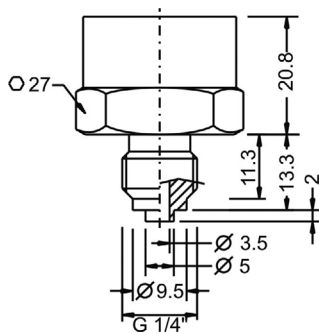


Signal 4...20 mA / 1x PNP / Desina
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black

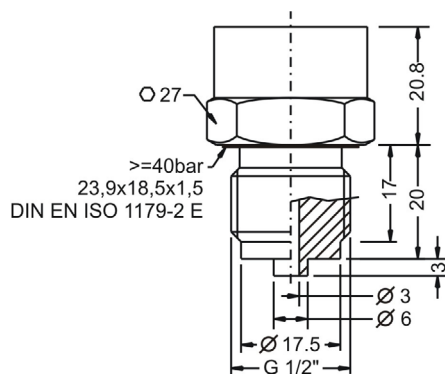
Terminal enclosure



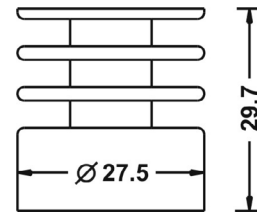
Type 6 – Thread ISO 228-1 – G $\frac{1}{4}$ "B, EN 837



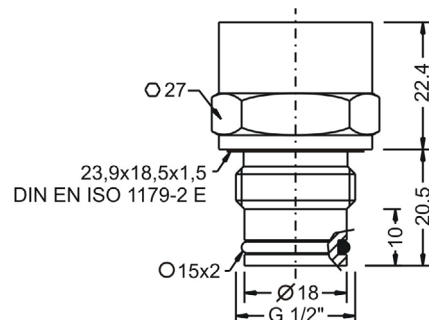
Type 1 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, EN 837



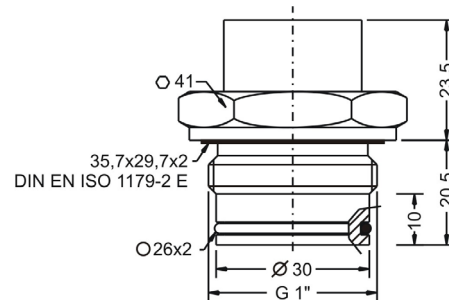
Temperature decoupler



Type 0 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush



Type 5 – Thread ISO 228-1 – G1"B, front-flush



Precont®

Type
Standard

Measuring system – material diaphragm (process wetted) / sensor type

CrNi-steel / strain gauge

Approval

S Standard

Process connection

- 6 Thread ISO 228-1 – G½" B, EN 837 manometer (without process gasket)
- 1 Thread ISO 228-1 – G½" B, EN 837 manometer (≥ 40 bar without process gasket)
- 0 Thread ISO 228-1 – G½" B, front-flush, O-ring gasket
not for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar / 0...1000 bar
- 5 Thread ISO 228-1 – G1" B, front-flush, O-ring gasket
for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar
- Y others

Material process gaskets (process wetted)

- 0 without / NBR – nitrile-butadiene-rubber
- 1 FPM – fluorelastomere (e.g. Viton®)
- 3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
- Y others

Material process connection (process wetted)

V CrNi-steel

Material terminal enclosure

C CrNi-steel

Measuring range

- 03 0...400 mbar
- 05 0...1 bar
- 08 0...4 bar
- 09 0...6 bar
- 10 0...10 bar
- 11 0...16 bar
- 12 0...25 bar
- 13 0...40 bar
- 14 0...60 bar
- 19 0...100 bar
- 20 0...160 bar
- 21 0...250 bar
- 22 0...320 bar
- 23 0...400 bar
- 24 0...600 bar
- 25 0...1000 bar, only for process connection type 1, 6 – G½" B, G¼" B EN 837
- 16 -1...0 bar
- 17 -1...+1 bar
- YY Special measuring range

Electronic – output

- A 2x switch PNP, supply 24VDC
- B 1x switch PNP, 1x signal 4...20mA, supply 24VDC
- C 2x switch PNP, 1x signal 4...20mA, supply 24VDC
- D 1x switch PNP, 1x signal 4...20mA, supply 24VDC, Desina

Electronic – function

S Standard

Process temperature

- 0 Standard -40°C...+100°C
- 1 Extended -40°C...+125°C, temperature decoupler

Pressure type

- R Gauge pressure
- A Absolute pressure, (≤ 25 bar)

Measuring system – accuracy

- 4 0,5%

Electrical connection

- S Plug M12x1

Sliding sleeve, for connection 2
Sliding sleeve, for connection 5
Sliding sleeve, for connection 0



Description

The device is an electronic pressure switch for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

The operational reliability of the device is ensured only at the intended use. Due to the device construction with measuring ranges from -1 bar to 25 bar (gauge), measuring ranges from 0 bar to 25 bar (absolute), measuring spans from 100 mbar to 25 bar, process temperatures from -20°C to +150°C, process material CrNi-steel as well as the availability of a variety of hygienic EHEDG-conformal process connections like thread ISO 228-1 with front-flush O-ring gasket dairy coupling DIN 11851, Varivent® and DRD the device is especially suitable for the use for food and beverage industry, pharmaceutical industry, biotechnology and sterile process engineering.

The pressure switch is suitable for demanding measuring requirements. Due to its high accuracy and the high flexibility of configuration, the device can be suited a wide variety of applications.

The device with front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden

and contaminated media, which would clog the pressure channel of conventional process connections. Through its optimized design, the front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the process.

The device is particularly suitable for the special conditions of CIP/SIP cleaning processes, such as chemical stability towards cleaning liquids and high temperatures. Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

The front-flush diaphragm is completely welded with the process connection and supplied with a positive seal. A reliable, dead-space free sealing between the process connection and the process adapter resp. measuring medium is thus assured.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media.

Application

- Hygienic and aseptic applications in
 - Food and beverage industry
 - Pharmaceutical industry
 - Biotechnology
 - Sterile process engineering

Your benefits

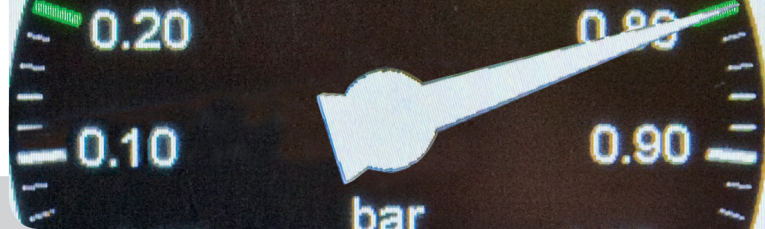
- *Wide range of applications*
- Finely graded measuring ranges from 100 mbar up to 25 bar
- Wide process temperature range -20°C to +150°C
- Various *hygienic and aseptic process connections*
- High protection class IP65 / IP67
- Wide environmental temperature range -40°C to +85°C
- Metallic front-flush *EHEDG conformal diaphragm*
- High accuracy – characteristic deviation ≤ 0,5% of measuring range
- Integrated evaluation electronic: Digital display, function LED's, keyboard / 2x PNP switch output / 1x current output 4...20mA / Connector plug M12
- *High operating comfort*: enclosure and display rotatable for *optimal operability* in each installation position
- Robust high brightness LED display for *best readability*
- 3-key operation without additional assistance with tactile feedback

Specials



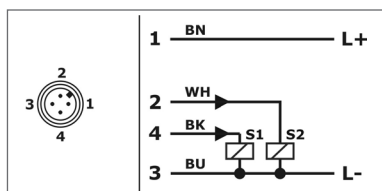
Order code page | 59 |

Technical data

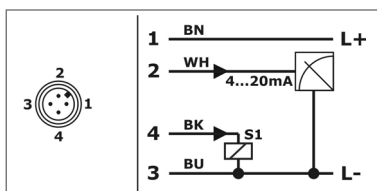


Technical Data		
Supply voltage:	10,5...35VDC, reverse polarity protected	
Supply current:	≤ 60mA	Analogue output max. 22,5mA Switch output with no load
Switch output S1/S2		
Function:	PNP switch to +L	
Output current:	0... ≤ 200mA	current limited, short circuit protected
Analogue output 4...20mA		
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA	
Permitted load:	≤ (US - 10,5V) / 22mA	
Start-up time:	≤ 1 ms	
Measuring accuracy		
Characteristic deviation:	≤ ± 0,5% FS	
Long term drift:	≤ ± 0,2% FS / year	not cumulative
Temperature deviation	Zero: ≤ ±0,02% FS 2) / K (0...80°C) / ≤ ±0,03% FS 2) / K (-20...0°C / +80...+150°C) Zero - Measuring range 0...100 mbar / 0...250 mbar: ≤ ±0,04% FS 2) / K (0...+80°C) / ≤ ±0,06% FS 2) / K (-20...0°C / +80...+150°C) Span: ≤ ±0,02% FS 2) / K (0...80°C) / ≤ ±0,03% FS 2) / K (-20...0°C / +80...+150°C)	
Materials		
Diaphragm: (process wetted)	Steel 1.4435/316L	
Process connection: (process wetted)	Steel 1.4435/316L	
Terminal enclosure:	CrNi-steel	
Gaskets: (process wetted)	FPM – fluorelastomere (e.g. Viton®) EPDM – ethylene-propylene-dienmonomere, FDA-listed	
Environmental conditions		
Environmental temperature:	– 40°C...+85°C	
Process temperature:	-20°C...+150°C	
Process pressure:	– 1 bar ...25 bar	
Protection:	IP65/IP67	EN/IEC 60529

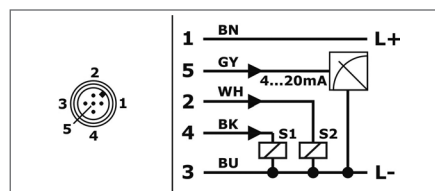
Connection



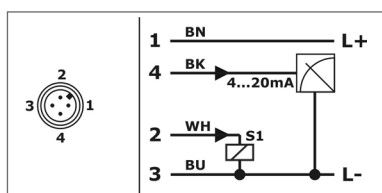
Signal 2x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black



Signal 4...20 mA / 1x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black

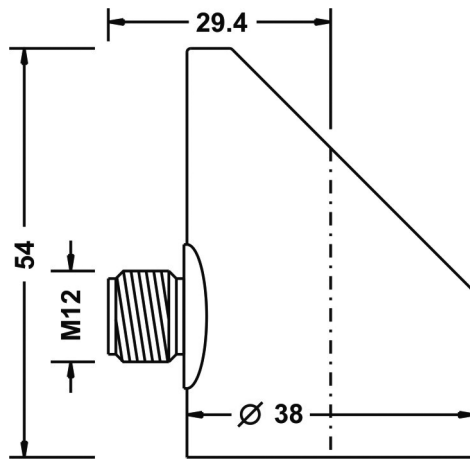


Signal 4...20 mA / 2x PNP
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black,
GY = grey

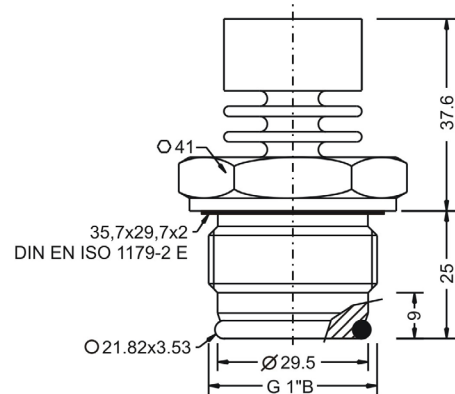


Signal 4...20 mA / 1x PNP / Desina
Wire colors standard connction cable M12:
BN = brown, WH = white, BU = blue, BK = black

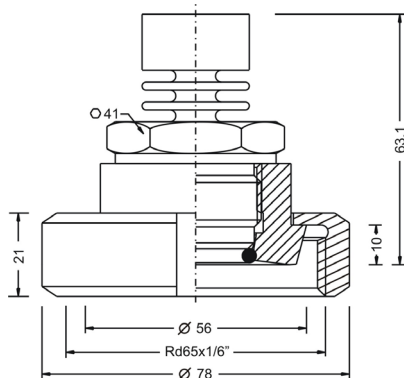
Terminal enclosure



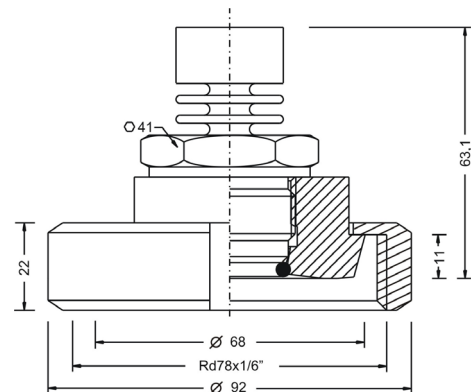
Type 5 – Thread ISO 228-1 – G1" B, front-flush



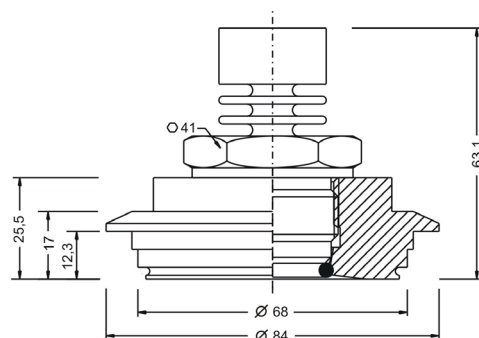
Type N – Dairy coupling DIN 11851 – DN40, PN25



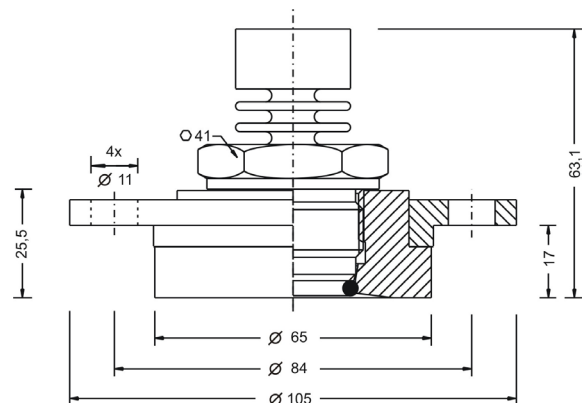
Type M – Dairy coupling DIN 11851 – DN50, PN25

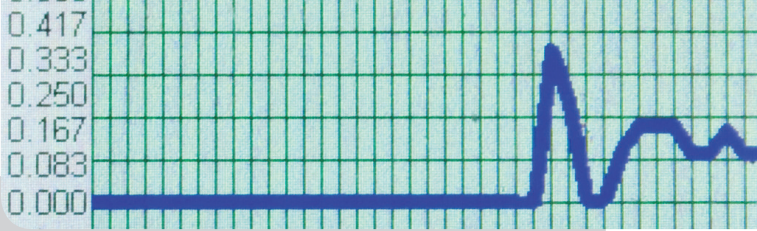


Type P – Varivent® – Type N / tube DN40-162 / 1½"-6", PN40



Type L – DRD – DN50 / Ø65mm, PN25





Type
PS4LHygienic applications

M
Measuring system – material diaphragm (process wetted) / sensor type
CrNi-steel / strain gauge

S
Approval
Standard

S
Process connection
Thread ISO 228-1 – G1" B, front-flush, O-ring gasket, EHEDG conformal, for welding socket BEFVE10
N Dairy coupling DIN 11851 – DN40, PN40
M Dairy coupling DIN 11851 – DN50, PN25
P Varivent® N tube – DN40...DN162 / 1½"...6", PN40
L DRD – DN50 / Ø65mm, PN25
Y others

1
3
Material process gaskets (process wetted)
FPM – fluorelastomere (e.g. Viton®), FDA-listed
EPDM – ethylene-propylene-dienmonomere, FDA-listed

V
Material process connection (process wetted)
CrNi-steel

C
Material terminal enclosure
CrNi-steel

01
02
03
04
05
07
08
09
10
11
12
16
17
YY
Measuring range
0...100 mbar
0...250 mbar
0...400 mbar
0...600 mbar
0...1 bar
0...2,5 bar
0...4 bar
0...6 bar
0...10 bar
0...16 bar
0...25 bar
-1...0 bar
-1...+1 bar
Special measuring range

A
B
C
D
Electronic – output
2x switch PNP, supply 24VDC
1x switch PNP, 1x signal 4...20mA , supply 24VDC
2x switch PNP, 1x signal 4...20mA, supply 24VDC
1x switch PNP, 1x signal 4...20mA, supply 24VDC, Desina

S
Electronic – function
Standard

1
Process temperature
Standard -20°C...+150°C

R
A
Pressure type
Gauge pressure
Absolute pressure

4
Measuring system – accuracy
0,5%

S
Electrical connection
Plug M12x1

Order code

Precont®

PS4L

M

S

V

C

S

4

S

Equipment

Order information	Model
BKZ0412-VA	Matching cable socket, VA-nut
BKZ0512-VA	Matching cable socket, VA-nut
LKZ0405PUR-AS	Connection cable 5 m, 4-pole, shielded
LKZ0410PUR-AS	Connection cable 10 m, 4-pole, shielded
LKZ0505PUR-AS	Connection cable 5 m, 5-pole, shielded
LKZ0510PUR-AS	Connection cable 10 m, 5-pole
O-Ring 21,82 x 3,53 EPDM	Replacement seal for standard O-Ring
O-Ring 21,82 x 3,53 FPM	Viton ®-O-Ring with FDA approval
O-Ring 21,82 x 3,53 Silicone	Silicone O-ring with FDA approval
BEFVE-10	Sliding sleeve, for connection 5



Description

The device is an electronic pressure transmitter for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with Measuring ranges from 1 bar to 100 bar, gauge process temperatures from -25°C to +100°C, environmental temperatures from -25°C to +100°C, process materials Al₂O₃-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer), thread ISO 228-1 (DIN EN ISO 1179-2 E) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology, facility and building automation.

The pressure transmitter is suitable for cost sensitive as well as demanding measuring requirements.

Due to its high accuracy and the digital adjustability by HART® (7.0) or RS485 Modbus RTU, the device can be suited a wide variety of applications. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental

conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1.

Customer specific special versions can be realized short-term on request, e.g. extended process temperature range up to 400°C, special designs for the process connection, e.g. thread connection acc. to ANSI NPT (DIN 13 or JIS), other process materials, e.g. Hastelloy, Titan, PEEK, etc. other process gasket (EPDM, NBR, FFKM, etc.), special adjustment and higher accuracy.

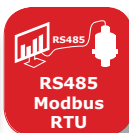
Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology

Your benefits

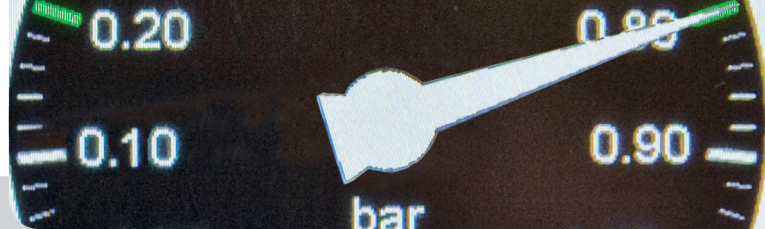
- **Wide range of applications**
- Measuring ranges from 1 bar up to 100 bar
- Wide process temperature range -25°C to +100°C
- High protection class IP69K
- Wide environmental temperature range -25°C to +100°C
- Ceramic internal diaphragm
- High accuracy – characteristic deviation ≤ 0,5% of measuring range
- Integrated evaluation electronic
- Current output 4...20mA – HART® compliant (7.0)
- Digital output and adjustability per RS485 Modbus RTU
- Connector plug M12

Specials



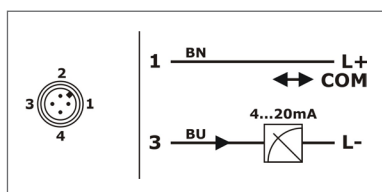
Order code page | 63 |

Technical data



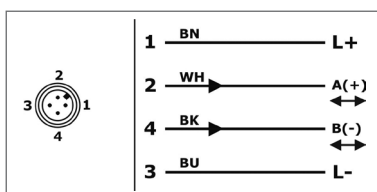
Technical Data	
Supply voltage:	9...35V _{DC} , reverse polarity protected
Supply current:	≤ 22mA Electronic output type A – 2-wire, current 4...20mA
	≤ 10mA Electronic output type V – 4-wire, RS485 Modbus RTU
RS485 Modbus RTU	
Interface	RS485, bidirectional
Signal	Digital – Modbus RTU
Address	001 (001...247)
Transmission rate	9600 Baud (4800 / 9600 / 19200 / 38400)
Parity	Odd (None / Odd / Even)
Step response time T ₉₀	≤ 5ms (t _d = 0s)
Start-up time t _{on}	≤ 0,1s
Current 4...20mA – HART® compliant	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (U _s - 9V) / 22mA
Start-up time:	≤ 0,2s
Communication	FSK modulated current signal – HART® compliant (7.0)
Signal	± 0,5mA _{SS} – 1200Hz / 2200Hz
Communication resistor	≥ 250Ω, external
Activity	20s (t _d = 0...<1s) ∞ (t _d = ≥1s)
Address	0 (0...15)
Transmission rate	1200 Bit/s
Measuring accuracy	
Characteristic deviation:	≤ ± 0,5% FS
Long term drift:	≤ ± 0,2% FS / year not cumulative
Temperature deviation	≤ ±0,05% FS / 10K
Materials	
Diaphragm: (process wetted)	Ceramic aluminum oxide Al ₂ O ₃ – 96%
Process connection: (process wetted)	Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	FPM – fluorelastomere (e.g. Viton®)
Environmental conditions	
Environmental temperature:	– 25°C...+100°C
Process temperature:	– 25°C...+100°C
Process pressure:	0...1 bar / 0...4 bar / 0...10 bar / 0...40 bar / 0...100 bar
Protection:	IP69K/IP67 (EN/IEC 60529)

Electrical connection



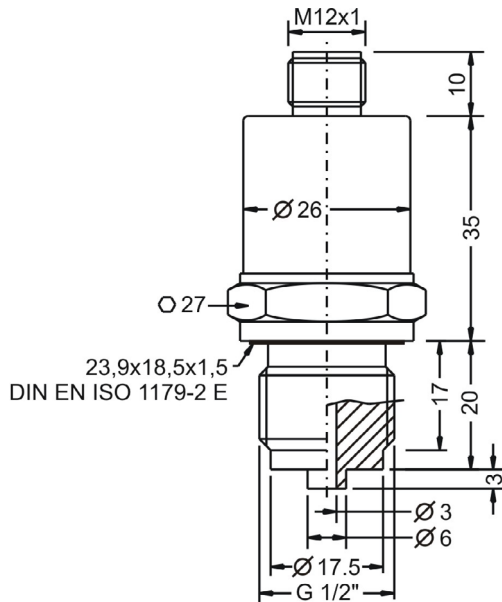
Electronic output – 2-wire, current 4...20mA
HART®
Conductor color standard connection cable M12
– A-coded:
BN = brown, BU = blue

For the HART® communication by a HART®
interface a minimum communication resistance of
250Ω has to be taken into account.

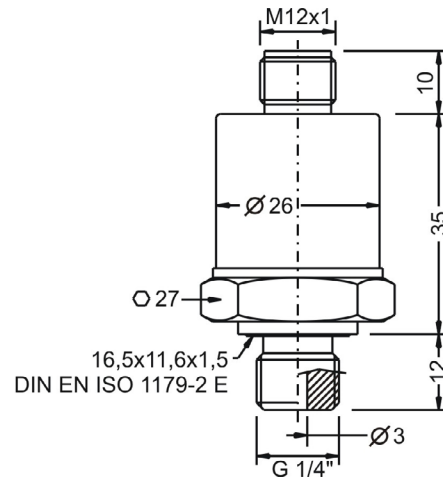


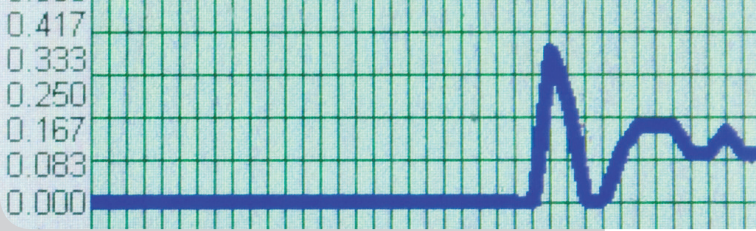
Electronic output – 4-wire, RS485
Conductor color standard connection cable M12
– A-coded:
BN = brown, WH = white, BU = blue, BK = black

Type 1 – Thread ISO 228-1 – G 1/2" – EN 837



Type 3 – Thread ISO 228-1 – G 1/4" –
DIN EN ISO 1179-2 E





Type											
PU4S Standard											
Measuring system – material diaphragm (process wetted) / sensor type											
E Ceramic 96%, DMS											
Approval											
S Standard											
Process connection											
1 Thread ISO 228-1 – G½"A, EN 837 manometer											
3 Thread ISO 228-1 – G¼"A, DIN EN ISO 1179-2 E											
Y others											
Material gaskets (process wetted)											
1 FPM – fluorelastomere (e.g. Viton®)											
Y others											
Material process connection (process wetted)											
V CrNi-steel											
Material terminal enclosure											
C CrNi-steel											
Measuring range											
05 0...1 bar											
08 0...4 bar											
10 0...10 bar											
13 0...40 bar											
19 0...100 bar											
YY Special measuring range											
Electronic – output											
A 4-wire, current 4...20mA, HART® compliant											
V 4-wire, RS485, Modbus RTU											
Electronic – function											
S Standard											
Process temperature											
0 Standard –25°C...+100°C											
Y others											
Pressure type											
R Gauge pressure											
Measuring system – accuracy											
4 0,5%											
Y others											
Electrical connection											
S Plug M12x1											



Description

The device is an electronic pressure transmitter for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with Measuring ranges from 1 bar to 100 bar, gauge process temperatures from -25°C to +100°C, environmental temperatures from -25°C to +100°C, process materials Al₂O₃-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer), thread ISO 228-1 (DIN EN ISO 1179-2 E) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology, facility and building automation.

The pressure transmitter is suitable for cost sensitive as well as demanding measuring requirements.

Due to its high accuracy and the digital adjustability by HART® (7.0) or RS485 Modbus RTU, the device can be suited a wide variety of applications. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental

conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1.

Customer specific special versions can be realized short-term on request, e.g. extended process temperature range up to 400°C, special designs for the process connection, e.g. thread connection acc. to ANSI NPT (DIN 13 or JIS), other process materials, e.g. Hastelloy, Titan, PEEK, etc. other process gasket (EPDM, NBR, FFKM, etc.), special adjustment and higher accuracy.

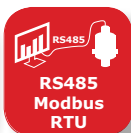
Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology

Your benefits

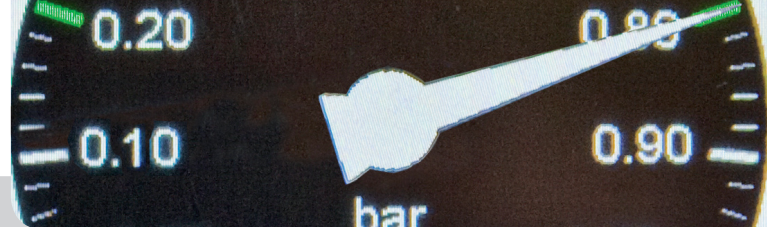
- *Wide range of applications*
- Finely graded measuring ranges from 50 mbar up to 20 bar
- Wide process temperature range -40°C to +125°C
- Wide variety of process connections
- High protection class IP69K
- Wide environmental temperature range -40°C to +100°C
- Ceramic front-flush or internal diaphragm
- High accuracy – characteristic deviation ≤ 0,05% of measuring range
- Integrated evaluation electronic: Current output 4...20mA – HART® compliant (7.0); Digital output RS485 – Modbus RTU; Connector plug M12

Specials



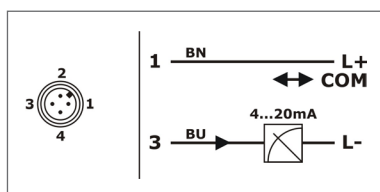
Order code page | 67 |

Technical data



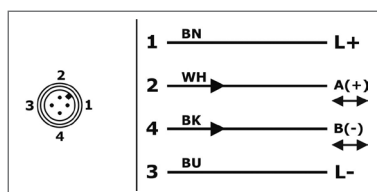
Technical Data	
Supply voltage:	9...35V _{DC} , reverse polarity protected
Supply current:	≤ 22mA Electronic output type A – 2-wire, current 4...20mA
	≤ 10mA Electronic output type V – 4-wire, RS485 Modbus RTU
RS485 Modbus RTU	
Interface	RS485, bidirectional
Signal	Digital – Modbus RTU
Address	001 (001...247)
Transmission rate	9600 Baud (4800 / 9600 / 19200 / 38400)
Parity	Odd (None / Odd / Even)
Step response time T ₉₀	≤ 5ms (t _d = 0s)
Start-up time t _{on}	≤ 0,1s
Current 4...20mA – HART® compliant	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (U _s - 9V) / 22mA
Start-up time:	≤ 0,2s
Communication	FSK modulated current signal – HART® compliant (7.0)
Signal	± 0,5mA _{SS} – 1200Hz / 2200Hz
Communication resistor	≥ 250Ω, external
Activity	20s (t _d = 0...<1s) ∞ (t _d = ≥1s)
Address	0 (0...15)
Transmission rate	1200 Bit/s
Measuring accuracy	
Characteristic deviation:	≤ ±0,05% / ±0,1% / ±0,2% FS
Long term drift:	≤ ±0,15% FS / year
Temperature deviation	≤ ±0,015% FS / K / max. ±0,75 % (-20°C...+80°C) Span: ≤ ±0,015% FS / K / max. ±0,5 % (-20°C...+80°C / ≥ 0,4 bar) / max. ±0,8 % (-20°C...+80°C / < 0,4 bar)
Materials	
Diaphragm: (process wetted)	Measuring range ≤ 1bar: Ceramic Al ₂ O ₃ – 99,7% (SIP suitable) Measuring range ≥ 1,6bar: Ceramic Al ₂ O ₃ – 96% (SIP suitable) Process connection N/M/P/L/S/T: Ceramic Al ₂ O ₃ – 99,9% (CIP/SIP suitable)
Process connection: (process wetted)	Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	FPM – fluorelastomere (e.g. Viton®) / EPDM – ethylene-propylene-dienmonomere, FDA-listed / FFKM – perfluorelastomere (e.g. Kalrez®) / FFKM hd – perfluorelastomere high density
Environmental conditions	
Environmental temperature:	- 40°C...+100°C
Process temperature:	- 40°C...+100°C / 135°C
Process pressure:	50 mbar bis 20 bar depending on type
Protection:	IP69K/IP67 (EN/IEC 60529)

Electrical connection



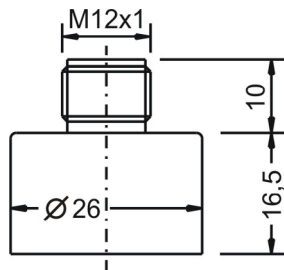
Electronic output – 2-wire, current 4...20mA
HART®
Conductor color standard connection cable M12
– A-coded:
BN = brown, BU = blue

For the HART® communication by a HART®
interface a minimum communication resistance of
250Ω has to be taken into account.

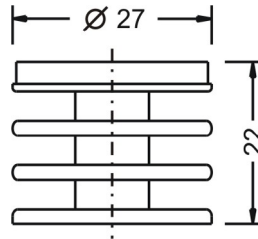


Electronic output – 4-wire, RS485
Conductor color standard connection cable M12
– A-coded:
BN = brown, WH = white, BU = blue, BK = black

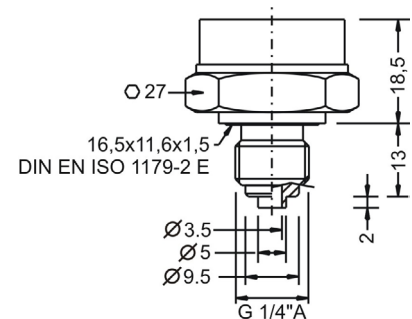
Terminal enclosure



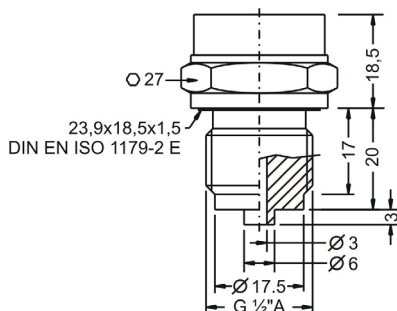
Temperature decoupler



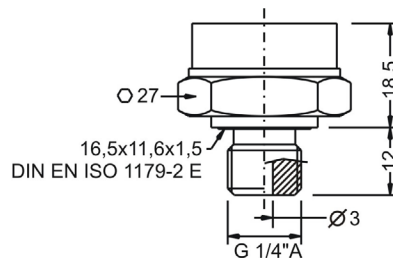
Type 6 – Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837



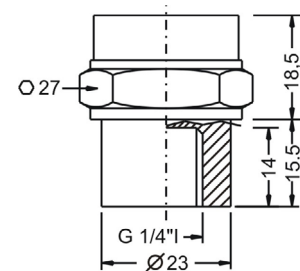
Type 1 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837



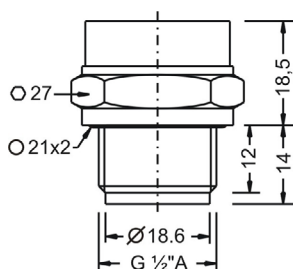
Type 3 – Thread ISO 228-1 – G $\frac{1}{4}$ "A, DIN EN ISO 1179-2 E



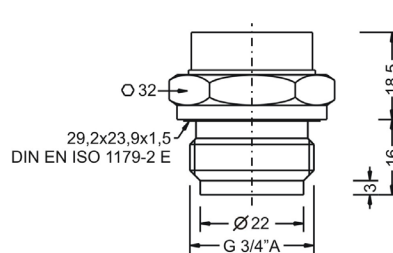
Type 4 – Thread ISO 228-1 – G $\frac{1}{4}$ " I, inner thread



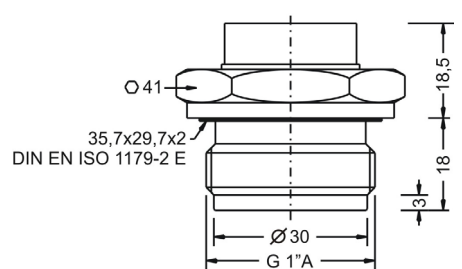
Type 9 – Thread ISO 228-1 – G $\frac{1}{2}$ "A, front-flush



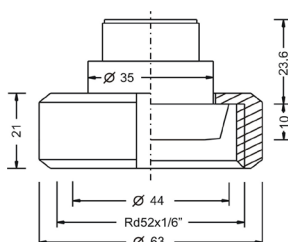
Type 8 – Thread ISO 228-1 – G $\frac{3}{4}$ "A, front-flush



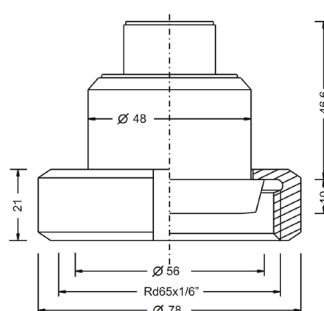
Type 5 – Thread ISO 228-1 – G1"A, front-flush



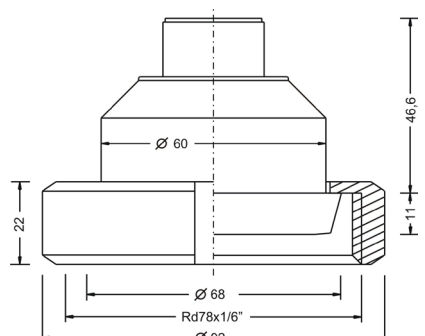
Type R – Dairy coupling DIN 11851 – DN25, PN40



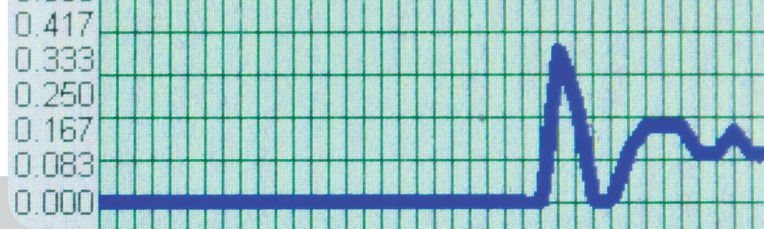
Type N – Dairy coupling DIN 11851 – DN40, PN25



Type M – Dairy coupling DIN 11851 – DN50, PN25



You will find further dimension drawings in the operating instructions.



Type
PU4S Standard

Measuring system – material diaphragm (process wetted) / **sensor type**
C Ceramic Al_2O_3 96%/99,7%/99,9% / capacitive

Approval
S Standard
X ATEX II 1 G / IECEx Ex ia IIC T6...T1 Ga resp. ATEX II 1 D / IECEx Ex ia IIIC Tx Da

Process connection
6 Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837 manometer
1 Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837 manometer
3 Thread ISO 228-1 – G $\frac{1}{4}$ "A, DIN EN ISO 1179-2 E
4 Thread ISO 228-1 – G $\frac{1}{4}$ "I, inner thread
9 Thread ISO 228-1 – G $\frac{1}{2}$ "A, front-flush
8 Thread ISO 228-1 – G $\frac{3}{4}$ "A, front-flush, ≤ 10 bar
5 Thread ISO 228-1 – G1"A, front-flush, ≤ 1 bar
R Dairy coupling DIN 11851 – DN25, PN40
N Dairy coupling DIN 11851 – DN40, PN25
M Dairy coupling DIN 11851 – DN50, PN25
P Varivent® – Type N / tube DN40-162 / 1 $\frac{1}{2}$ "-6", PN40
L DRD – DN50 / Ø65mm, PN25
S Clamp ISO 2852 – DN25-38 / BS 4825 – 1"-1 $\frac{1}{2}$ " / DIN 32676 – DN25-38, PN25
T Clamp ISO 2852 – DN40-51 / BS 4825 – 2" / DIN 32676 – DN50, PN25
Y others

Material gaskets (process wetted)
1 FPM – fluorelastomere (e.g. Viton®)
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
4 FFKM – perfluorelastomere (e.g. Kalrez®)
6 FFKM hd – perfluorelastomere high density - gas applications
Y others

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range
26 0...0,05 bar
01 0...0,1 bar
02 0...0,25 bar
03 0...0,4 bar
04 0...0,6 bar
05 0...1 bar
06 0...1,6 bar
07 0...2,5 bar
08 0...4 bar
09 0...6 bar
10 0...10 bar
11 0...16 bar
12 0...20 bar
15 -0,1...0 bar
16 -1...0 bar
17 -1...+1 bar
18 -0,1...+0,1 bar
YY Special measuring range

Electronic – output
A 4-wire, current 4...20mA, HART® compliant
V 4-wire, RS485, Modbus RTU

Electronic – function
S Standard

Process temperature
0 Standard -40°C...+100°C
1 Extended -40°C...+125°C, temperature decoupler

Pressure type
R Gauge pressure
A Absolute pressure (FS ≥ 100 mbar)

Measuring system – accuracy
1 0,2%
3 0,1% (FS ≥ 100 mbar), linearization protocol
6 Xcellence – 0,05% (FS ≥ 200 mbar), linearization protocol

Electrical connection
S Plug M12x1

Precont®

PU4S

C

V

C

S

S



Description

The device is an electronic pressure transmitter for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with Measuring ranges from 1 bar to 100 bar, gauge process temperatures from -25°C to +100°C, environmental temperatures from -25°C to +100°C, process materials Al₂O₃-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer), thread ISO 228-1 (DIN EN ISO 1179-2 E) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology, facility and building automation.

The pressure transmitter is suitable for cost sensitive as well as demanding measuring requirements.

Due to its high accuracy and the digital adjustability by HART® (7.0) or RS485 Modbus RTU, the device can be suited a wide variety of applications. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental

conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1.

Customer specific special versions can be realized short-term on request, e.g. extended process temperature range up to 400°C, special designs for the process connection, e.g. thread connection acc. to ANSI NPT (DIN 13 or JIS), other process materials, e.g. Hastelloy, Titan, PEEK, etc. other process gasket (EPDM, NBR, FFKM, etc.), special adjustment and higher accuracy.

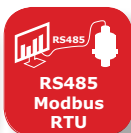
Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology

Your benefits

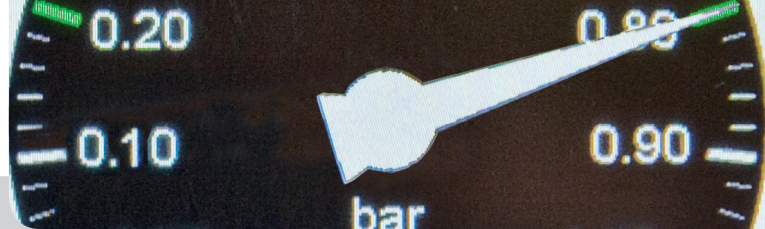
- *Wide range of applications*
- Finely graded measuring ranges from 250 mbar up to 600 bar
- Wide process temperature range -40°C to +135°C
- Wide variety of process connections
- High protection class IP69K
- Wide environmental temperature range -40°C to +100°C
- Ceramic front-flush or internal diaphragm
- High accuracy – characteristic deviation ≤ 0,15% of measuring range
- Integrated evaluation electronic: Current output 4...20mA – HART® compliant (7.0); Digital output RS485 – Modbus RTU; Connector plug M12

Specials



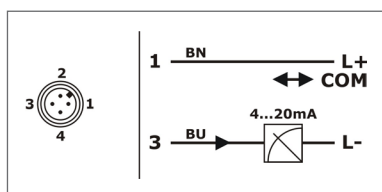
Order code page | **71** |

Technical data



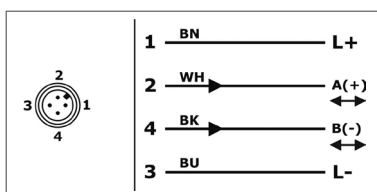
Technical Data	
Supply voltage:	9...35V _{DC} , reverse polarity protected
Supply current:	≤ 22mA Electronic output type A – 2-wire, current 4...20mA
	≤ 10mA Electronic output type V – 4-wire, RS485 Modbus RTU
RS485 Modbus RTU	
Interface	RS485, bidirectional
Signal	Digital – Modbus RTU
Address	001 (001...247)
Transmission rate	9600 Baud (4800 / 9600 / 19200 / 38400)
Parity	Odd (None / Odd / Even)
Step response time T ₉₀	≤ 5ms (t _d = 0s)
Start-up time t _{on}	≤ 0,1s
Current 4...20mA – HART® compliant	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (U _s - 9V) / 22mA
Start-up time:	≤ 0,2s
Communication	FSK modulated current signal – HART® compliant (7.0)
Signal	± 0,5mA _{SS} – 1200Hz / 2200Hz
Communication resistor	≥ 250Ω, external
Activity	20s (t _d = 0...<1s) ∞ (t _d = ≥1s)
Address	0 (0...15)
Transmission rate	1200 Bit/s
Measuring accuracy	
Characteristic deviation:	≤ ±0,15% / ±0,5% FS
Long term drift:	≤ ±0,2% FS / year
Temperature deviation	≤ ±0,05% FS / K
Materials	
Diaphragm: (process wetted)	Ceramic aluminum oxide Al ₂ O ₃ – 96%
Process connection: (process wetted)	Steel 1.4404/316L
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	FPM – fluorelastomere (e.g. Viton®) EPDM – ethylene-propylene-dienmonomere, FDA-listed
Environmental conditions	
Environmental temperature:	– 40°C...+100°C
Process temperature:	– 40°C...+100°C / 135°C
Process pressure:	-1...600 bar depending on type
Protection:	IP69K/IP67 (EN/IEC 60529)

Electrical connection



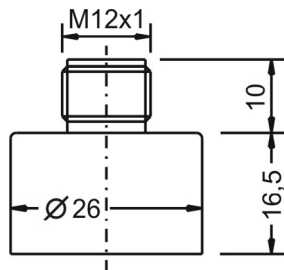
Electronic output – 2-wire, current 4...20mA
HART®
Conductor color standard connection cable M12
– A-coded:
BN = brown, BU = blue

For the HART® communication by a HART®
interface a minimum communication resistance of
250Ω has to be taken into account.

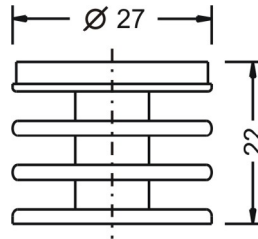


Electronic output – 4-wire, RS485
Conductor color standard connection cable M12
– A-coded:
BN = brown, WH = white, BU = blue, BK = black

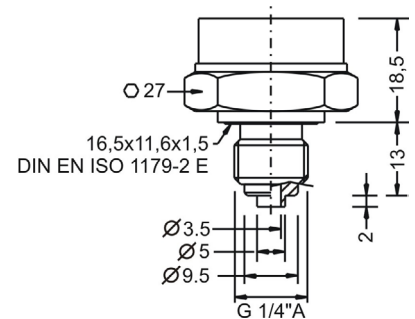
Terminal enclosure



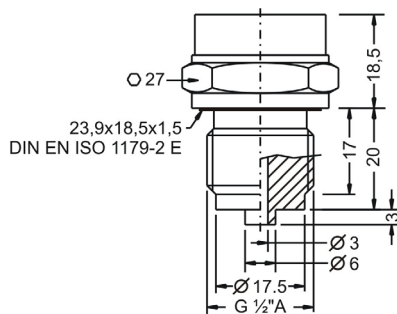
Temperature decoupler



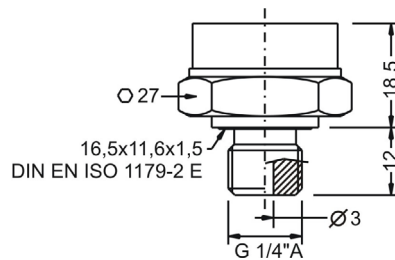
Type 6 – Thread ISO 228-1 – G $\frac{1}{4}$ "A,
EN 837



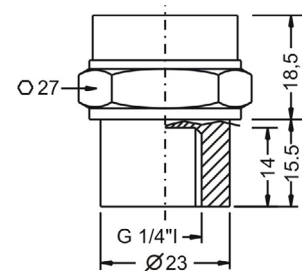
Type 1 – Thread ISO 228-1 – G $\frac{1}{2}$ "A,
EN 837



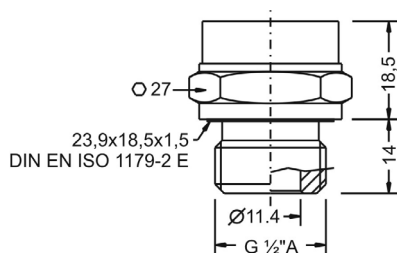
Type 3 – Thread ISO 228-1 – G $\frac{1}{4}$ "A,
DIN EN ISO 1179-2 E



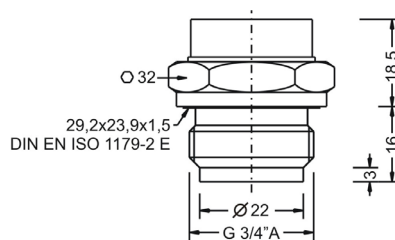
Type 4 – Thread ISO 228-1 – G $\frac{1}{4}$ " I,
inner thread



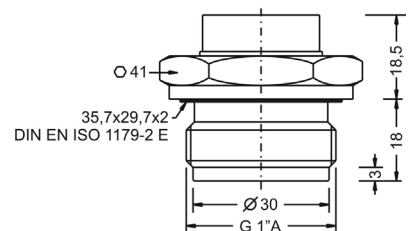
Type 2 – Thread ISO 228-1 – G $\frac{1}{2}$ "A,
DIN EN ISO 1179-2 E, inner bore

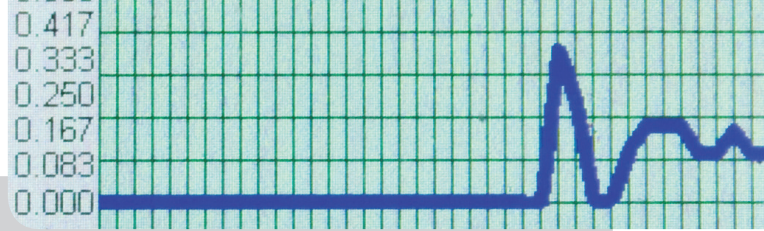


Type 8 – Thread ISO 228-1 – G $\frac{3}{4}$ "A,
front-flush



Type 5 – Thread ISO 228-1 – G1"A,
front-flush





Type
PU4S Standard

Measuring system – material diaphragm (process wetted) / **sensor type**
Ceramic Al_2O_3 96% / strain gauge

Approval
S Standard
X ATEX II 1 G / IECEx Ex ia IIC T6...T1 Ga resp. ATEX II 1 D / IECEx Ex ia IIIC Tx Da

Process connection
6 Thread ISO 228-1 – G $\frac{1}{4}$ "A, EN 837 manometer
1 Thread ISO 228-1 – G $\frac{1}{2}$ "A, EN 837 manometer
3 Thread ISO 228-1 – G $\frac{1}{4}$ "A, DIN EN ISO 1179-2 E
4 Thread ISO 228-1 – G $\frac{1}{4}$ "I, inner thread
2 Thread ISO 228-1 – G $\frac{1}{2}$ "A, DIN EN ISO 1179-2 E, inner bore
8 Thread ISO 228-1 – G $\frac{3}{4}$ "A, front-flush, ≤ 10 bar
5 Thread ISO 228-1 – G1"A, front-flush, ≤ 1 bar
Y others

Material gaskets (process wetted)
1 FPM – fluorelastomere (e.g. Viton®)
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
Y others

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range
02 0...250 mbar
03 0...400 mbar
04 0...600 mbar
05 0...1 bar
06 0...1,6 bar
07 0...2,5 bar
08 0...4 bar
09 0...6 bar
10 0...10 bar
11 0...16 bar
12 0...25 bar
13 0...40 bar
14 0...60 bar
19 0...100 bar
20 0...160 bar
21 0...250 bar
22 0...320 bar
23 0...400 bar
24 0...600 bar
16 -1...0 bar
17 -1...+1 bar
YY Special measuring range

Electronic – output
A 4-wire, current 4...20mA, HART® compliant
V 4-wire, RS485, Modbus RTU

Electronic – function
S Standard

Process temperature
0 Standard -40°C...+100°C
1 Extended -40°C...+135°C, temperature decoupler

Pressure type
R Gauge pressure
A Absolute pressure, ≥ 1 bar ... ≤ 40 bar

Measuring system – accuracy
4 0,5%
8 Xcellence – 0,15%, linearization protocol

Electrical connection
S Plug M12x1

Precont®

PU4S

K

V

C

S

S



Description

The device is an electronic pressure transmitter for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with Measuring ranges from 1 bar to 100 bar, gauge process temperatures from -25°C to +100°C, environmental temperatures from -25°C to +100°C, process materials Al₂O₃-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer), thread ISO 228-1 (DIN EN ISO 1179-2 E) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology, facility and building automation.

The pressure transmitter is suitable for cost sensitive as well as demanding measuring requirements.

Due to its high accuracy and the digital adjustability by HART® (7.0) or RS485 Modbus RTU, the device can be suited a wide variety of applications. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental

conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1.

Customer specific special versions can be realized short-term on request, e.g. extended process temperature range up to 400°C, special designs for the process connection, e.g. thread connection acc. to ANSI NPT (DIN 13 or JIS), other process materials, e.g. Hastelloy, Titan, PEEK, etc. other process gasket (EPDM, NBR, FFKM, etc.), special adjustment and higher accuracy.

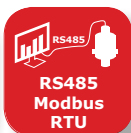
Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology

Your benefits

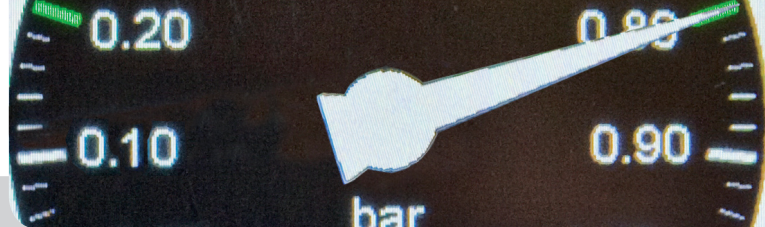
- *Wide range of applications*
- Finely graded measuring ranges from 400 mbar up to 1000 bar
- Wide process temperature range -40°C to +125°C
- Wide variety of process connections
- High protection class IP69K
- Wide environmental temperature range -40°C to +100°C
- Metallic front-flush or internal diaphragm
- High accuracy – characteristic deviation ≤ 0,15% of measuring range
- Integrated evaluation electronic: Current output 4...20mA – HART® compliant (7.0); Digital output RS485 – Modbus RTU; Connector plug M12

Specials



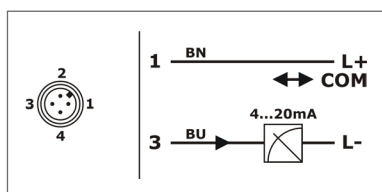
Order code page | **75** |

Technical data



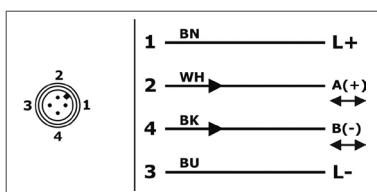
Technical Data	
Supply voltage:	9...35V _{DC} , reverse polarity protected
Supply current:	≤ 22mA Electronic output type A – 2-wire, current 4...20mA
	≤ 10mA Electronic output type V – 4-wire, RS485 Modbus RTU
RS485 Modbus RTU	
Interface	RS485, bidirectional
Signal	Digital – Modbus RTU
Address	001 (001...247)
Transmission rate	9600 Baud (4800 / 9600 / 19200 / 38400)
Parity	Odd (None / Odd / Even)
Step response time T ₉₀	≤ 5ms (t _d = 0s)
Start-up time t _{on}	≤ 0,1s
Current 4...20mA – HART® compliant	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (U _s - 9V) / 22mA
Start-up time:	≤ 0,2s
Communication	FSK modulated current signal – HART® compliant (7.0)
Signal	± 0,5mA _{SS} – 1200Hz / 2200Hz
Communication resistor	≥ 250Ω, external
Activity	20s (t _d = 0...<1s) ∞ (t _d = ≥1s)
Address	0 (0...15)
Transmission rate	1200 Bit/s
Measuring accuracy	
Characteristic deviation:	≤ ±0,15% / ±0,5% FS
Long term drift:	≤ ±0,2% FS / Jahr
Temperature deviation	Measuring range ≤ 25 bar: ≤ ±0,02% FS / K (0...+80°C) / ≤ ±0,03% FS / K (-40...0°C / +80...+125°C); Measuring range ≥ 40 bar: ≤ ±0,02% FS / K (-40...+100°C) / ≤ ±0,03% FS / K (+100...+125°C)
Materials	
Diaphragm: (process wetted)	Process connection type 0 / type 5 – front-flush / Process connection type 1 / type 6 – EN 837 / ≤ 25 bar: Steel 1.4571/316Ti Process connection type 1 / type 6 – EN 837 / ≥ 40 bar: Steel 1.4542/630 / Steel 1.4534/SI13800
Process connection: (process wetted)	Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	NBR – nitrile-butadiene-rubber; FPM – fluorelastomere (e.g. Viton®) EPDM – ethylene-propylene-dienmonomere
Environmental conditions	
Environmental temperature:	- 40°C...+100°C
Process temperature:	- 40°C...+100°C / 125°C
Process pressure:	400 mbar up to 1000 bar depending on type
Protection:	IP69K/IP67 (EN/IEC 60529)

Electrical connection



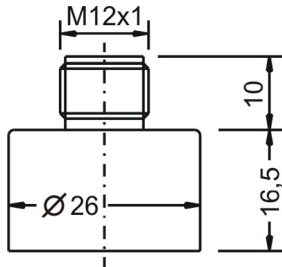
Electronic output – 2-wire, current 4...20mA
HART®
Conductor color standard connection cable M12
– A-coded:
BN = brown, BU = blue

For the HART® communication by a HART® interface a minimum communication resistance of 250Ω has to be taken into account.

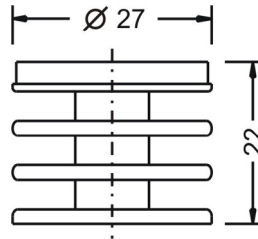


Electronic output – 4-wire, RS485
Conductor color standard connection cable M12
– A-coded:
BN = brown, WH = white, BU = blue, BK = black

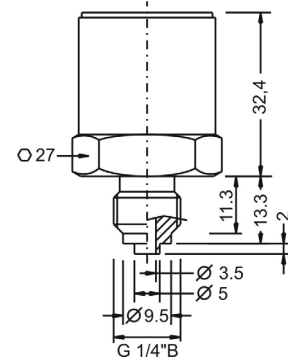
Terminal enclosure



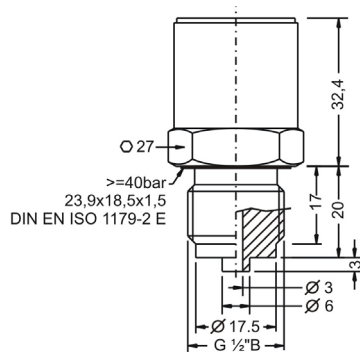
Temperature decoupler



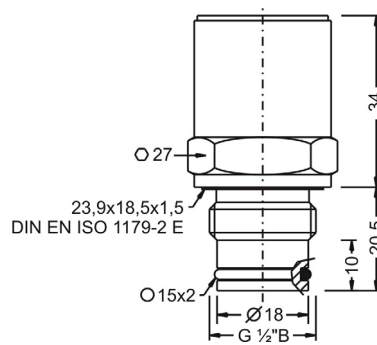
Type 6 – Thread ISO 228-1 – G $\frac{1}{4}$ "B, EN 837



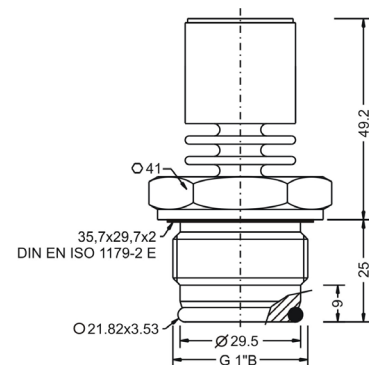
Type 1 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, EN 837

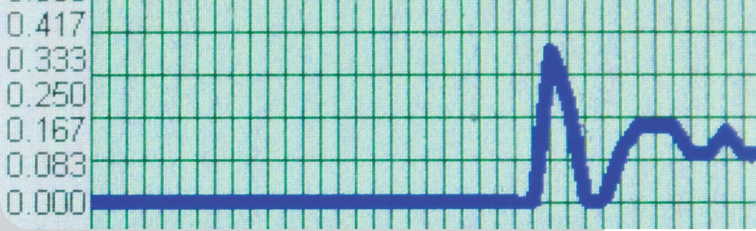


Type 0 – Thread ISO 228-1 – G $\frac{1}{2}$ "B, front-flush



Type 5 – Thread ISO 228-1 – G1"B, front-flush





Type
PU4S Standard

Measuring system – material diaphragm (process wetted) / sensor type
CrNi-steel / strain gauge

Approval
S Standard
X ATEX II 1 G / IECEx Ex ia IIC T6...T1 Ga resp. ATEX II 1 D / IECEx Ex ia IIIC Tx Da

Process connection
6 Thread ISO 228-1 – G¼" B, EN 837 manometer (without process gasket)
1 Thread ISO 228-1 – G½" B, EN 837 manometer (≥ 40 bar without process gasket)
0 Thread ISO 228-1 – G½" B, front-flush, O-ring gasket
not for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar / 0...1000 bar
5 Thread ISO 228-1 – G1" B, front-flush, O-ring gasket
for measuring ranges 0...400 mbar / 0...1 bar / -1...0 bar
Y others

Material gaskets (process wetted)
1 FPM – fluorelastomere (e.g. Viton®)
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
Y others

Material process connection (process wetted)
V CrNi-steel

Material terminal enclosure
C CrNi-steel

Measuring range
03 0...0,4 bar
05 0...1 bar
08 0...4 bar
09 0...6 bar
10 0...10 bar
11 0...16 bar
12 0...25 bar
13 0...40 bar
14 0...60 bar
19 0...100 bar
20 0...160 bar
21 0...250 bar
22 0...320 bar
23 0...400 bar
24 0...600 bar
25 0...1000 bar, only for process connection type 1,
6 – G½" B, G¼" B (EN 837)
16 -1...0 bar
17 -1...+1 bar
YY Special measuring range

Electronic – output
A 4-wire, current 4...20mA, HART® compliant
V 4-wire, RS485, Modbus RTU

Electronic – function
S Standard

Process temperature
0 Standard -40°C...+100°C
1 Extended -40°C...+125°C, temperature decoupler

Pressure type
R Gauge pressure
A Absolute pressure (FS ≥ 100mbar)

Measuring system – accuracy
4 0,5%
8 Xcellence – 0,15%, linearization protocol

Electrical connection
S Plug M12x1

Precont®

PU4S

M

V

C

S

S



Description

The device is an electronic pressure transmitter for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with Measuring ranges from 1 bar to 100 bar, gauge process temperatures from -25°C to +100°C, environmental temperatures from -25°C to +100°C, process materials Al₂O₃-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer), thread ISO 228-1 (DIN EN ISO 1179-2 E) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology, facility and building automation.

The pressure transmitter is suitable for cost sensitive as well as demanding measuring requirements.

Due to its high accuracy and the digital adjustability by HART® (7.0) or RS485 Modbus RTU, the device can be suited a wide variety of applications. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental

conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1.

Customer specific special versions can be realized short-term on request, e.g. extended process temperature range up to 400°C, special designs for the process connection, e.g. thread connection acc. to ANSI NPT (DIN 13 or JIS), other process materials, e.g. Hastelloy, Titan, PEEK, etc. other process gasket (EPDM, NBR, FFKM, etc.), special adjustment and higher accuracy.

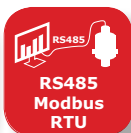
Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology

Your benefits

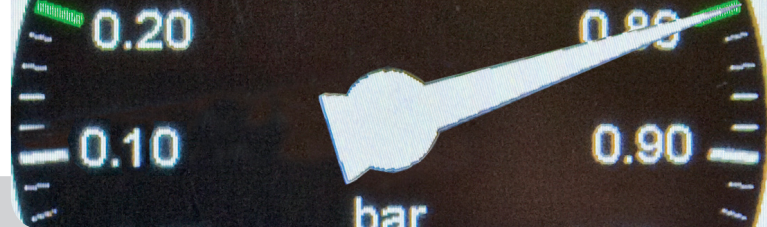
- *Wide range of applications*
- Finely graded measuring ranges from 100 mbar up to 25 bar
- Wide process temperature range -20°C to +150°C
- Various hygienic and aseptic process connections
- High protection class IP69K
- Wide environmental temperature range -20°C to +100°C
- Metallic front-flush EHEDG conformal diaphragm
- High accuracy – characteristic deviation ≤ 0,15% of measuring range
- Integrated evaluation electronic: Current output 4...20mA – HART® compliant (7.0); Digital output RS485 – Modbus RTU; Connector plug M12

Specials



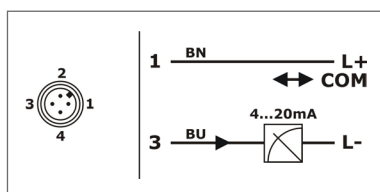
Order code page | **79** |

Technical data



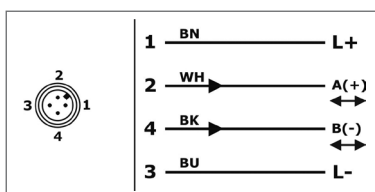
Technical Data	
Supply voltage:	9...35V _{DC} , reverse polarity protected
Supply current:	≤ 22mA Electronic output type A – 2-wire, current 4...20mA
	≤ 10mA Electronic output type V – 4-wire, RS485 Modbus RTU
RS485 Modbus RTU	
Interface	RS485, bidirectional
Signal	Digital – Modbus RTU
Address	001 (001...247)
Transmission rate	9600 Baud (4800 / 9600 / 19200 / 38400)
Parity	Odd (None / Odd / Even)
Step response time T ₉₀	≤ 5ms (t _d = 0s)
Start-up time t _{on}	≤ 0,1s
Current 4...20mA – HART® compliant	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (U _s - 9V) / 22mA
Start-up time:	≤ 0,2s
Communication	FSK modulated current signal – HART® compliant (7.0)
Signal	± 0,5mA _{SS} – 1200Hz / 2200Hz
Communication resistor	≥ 250Ω, external
Activity	20s (t _d = 0...<1s) ∞ (t _d = ≥1s)
Address	0 (0...15)
Transmission rate	1200 Bit/s
Measuring accuracy	
Characteristic deviation:	≤ ±0,15% / ±0,5% FS
Long term drift:	≤ ±0,2% FS / Jahr
Temperature deviation	Measuring range ≤ 250 mbar: ≤ ±0,04% FS / K (0...+80°C) / ≤ ±0,06% FS / K (-20...0°C / +80...+150°C) Measuring range ≥ 400 mbar: ≤ ±0,02% FS / K (0...+80°C) / ≤ ±0,03% FS / K (-20...0°C / +80...+150°C)
Materials	
Diaphragm: (process wetted)	Steel 1.4435/316L
Process connection: (process wetted)	Steel 1.4435/316L
Terminal enclosure:	CrNi-steel
Gaskets: (process wetted)	FPM – fluorelastomere (e.g. Viton®), FDA-listed EPDM – ethylene-propylene-dienmonomere, FDA-listed
Environmental conditions	
Environmental temperature:	- 20°C...+100°C
Process temperature:	- 20°C...+150°C
Process pressure:	400 mbar up to 1000 bar depending on type
Protection:	IP69K/IP67 (EN/IEC 60529)

Electrical connection



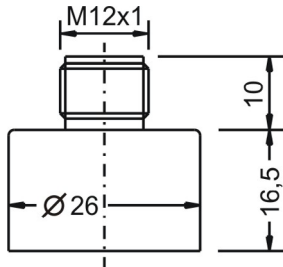
Electronic output – 2-wire, current 4...20mA
HART®
Conductor color standard connection cable M12
– A-coded:
BN = brown, BU = blue

For the HART® communication by a HART®
interface a minimum communication resistance of
250Ω has to be taken into account.

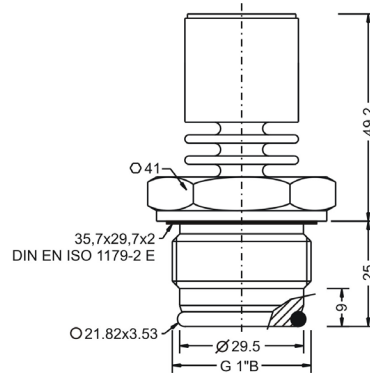


Electronic output – 4-wire, RS485
Conductor color standard connection cable M12
– A-coded:
BN = brown, WH = white, BU = blue, BK = black

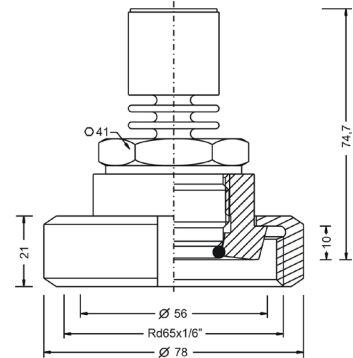
Terminal enclosure



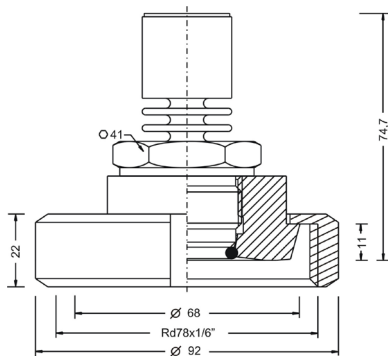
Type 5 – Thread ISO 228-1 – G1" B, front-flush



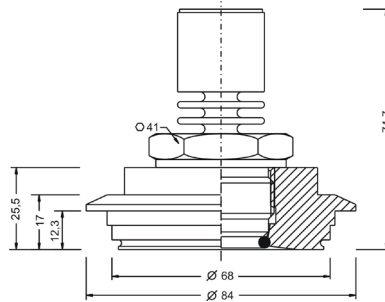
Type N – Dairy coupling DIN 11851 – DN40, PN25



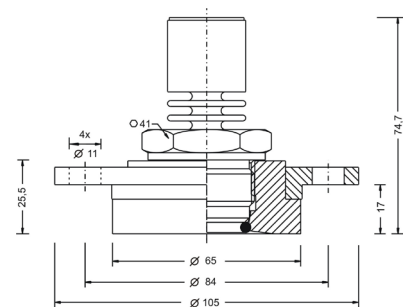
Type M – Dairy coupling DIN 11851 – DN50, PN25

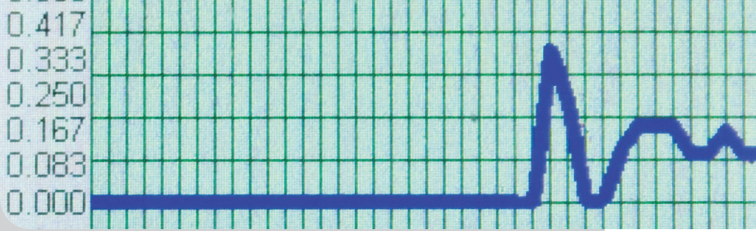


Type P – Varivent® – Type N / tube DN40-162 / 1½"-6", PN40



Type L – DRD – DN50 / Ø65mm, PN25





Type

PU4L Hygienic applications

Measuring system – material diaphragm (process wetted) / **sensor type**
CrNi-steel / strain gauge

Approval

S Standard
X ATEX II 1 G / IECEx Ex ia IIC T6...T1 Ga resp. ATEX II 1 D / IECEx Ex ia IIIC Tx Da

Process connection

5 Thread ISO 228-1 – G1" B, front-flush, O-ring gasket, EHEDG conformal, for welding socket BEFVE10
N Dairy coupling DIN 11851 – DN40, PN25
M Dairy coupling DIN 11851 – DN50, PN25
P Varivent® – Type N / tube DN40-162 / 1½"-6", PN40
L DRD – DN50 / Ø65mm, PN25
Y others

Material gaskets (process wetted)

1 FPM – fluorelastomere (e.g. Viton®), FDA-listed
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
Y others

Material process connection (process wetted)

V CrNi-steel

Material terminal enclosure

C CrNi-steel

Measuring range

01 0...0,1 bar
02 0...0,25 bar
03 0...0,4 mbar
04 0...0,6 bar
05 0...1 bar
07 0...2,5 bar
08 0...4 bar
09 0...6 bar
10 0...10 bar
11 0...16 bar
12 0...25 bar
16 -1...0 bar
17 -1...+1 bar
YY Special measuring range

Electronic – output

A 4-wire, current 4...20mA, HART® compliant
V 4-wire, RS485, Modbus RTU

Electronic – function

S Standard

Process temperature

0 Standard -20°C...+150°C

Pressure type

R Gauge pressure
A Absolute pressure

Measuring system – accuracy

4 0,5%
8 Xcellence – 0,15%, linearization protocol

Electrical connection

S Plug M12x1

Precont®

PU4L

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Description

Due to the miniaturized device construction with small diameter and short length, with measuring ranges from 10 bar to 600 bar, gauge, adjustable, with process temperatures from -40°C to +125°C/+200°C, with process material and terminal enclosure CrNi-steel, fully welded, with environmental temperatures from -40°C to +125°C and as well as the availability of industrial standard process connections like thread ISO 228-1, DIN EN ISO 1179-2 E, like thread ISO 228-1, EN 837 manometer – on request or thread ANSI NPT – on request the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology and facility and building automation.

The pressure transmitter is suitable for demanding measuring requirements, especially at constricted installation situations and high temperature stress.

Due to its high accuracy and the digital adjustability by HART® (7.0) or RS485 Modbus RTU, the device can be suited a wide variety of applications.

The robust design and the high-quality workmanship turns the device into a very high quality product, which

even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1 or factory certifications for drink water resp. food suitability.

Customer specific special versions can be realized on request, e.g. other process gasket (EPDM, NBR, FFKM, etc.), special designs for the process connection, higher measuring accuracy, lower temperature deviation or other measuring range.

Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology
 - Facility and building automation

Your benefits

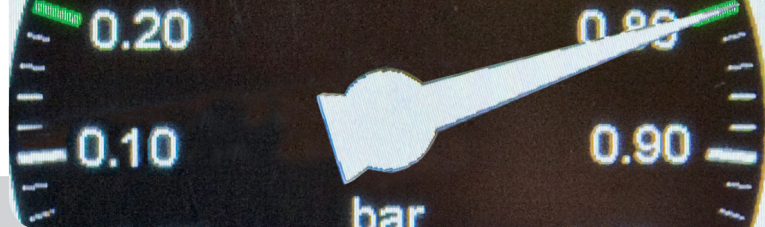
- **Wide range of applications**
- Miniaturized construction
- Measuring ranges from 10 bar to 600 bar, adjustable
- Wide process temperature range -40°C to +125°C/+200°C
- High protection class IP67 / IP69K – fully welded
- Wide environmental temperature range -40°C to +125°C
- Metallic internal diaphragm
- High accuracy – characteristic deviation ≤ 0,5% of measuring range
- Integrated evaluation electronic
- Current output 4...20mA
- Adjustability and programmability – HART® compliant (7.0)
- Connector plug M12

Specials



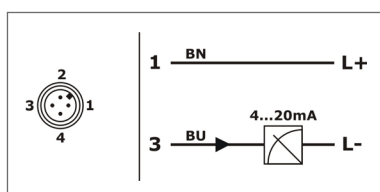
Order code page | 83 |

Technical data



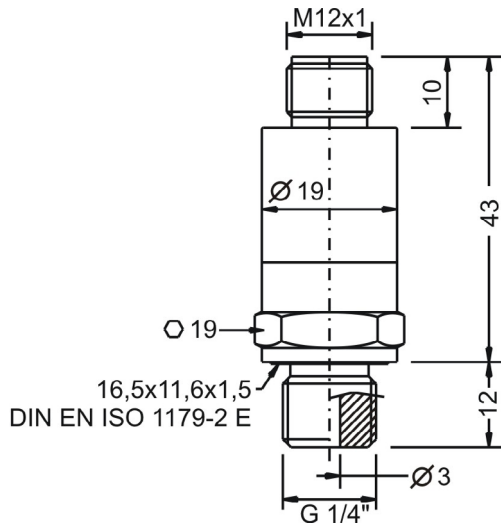
Technical Data	
Supply voltage:	9...35V _{DC} , reverse polarity protected
Supply current:	≤ 22mA
Analogue output 4...20mA	
Operating range:	3,9...21mA, min. 3,8mA, max. 22mA
Permitted load:	≤ (US - 9V) / 22mA
Start-up time:	≤ 0,2s
Communication	FSK modulated current signal – HART® compliant (7.0)
Signal	0,5mASS – 1200Hz / 2200Hz
Communication resistor	≥ 250Ω, external
Activity	20s (td = 0...<1s) / ∞ (td = ≥1s)
Address	0 (0...15)
Transmission rate	1200 Bit/s
Measuring accuracy	
Characteristic deviation:	≤ ±0,15% / ±0,5% FS
Long term drift:	Process temperature type 0 – Standard -40...+125°C: ≤ ±0,2% FS (1000h/+125°C)
	Process temperature type 1 – Extended -40...+200°C: ≤ ±0,5% FS (1000h/+200°C)
Temperature deviation:	Tk 4) Zero: ≤ ±0,015% FS / 10K Tk 4) Span: ≤ ±0,015% FS / 10K
Materials	
Diaphragm: (process wetted)	Process temperature type 0 – Standard -40...+125°C: Steel 1.4548
	Process temperature type 1 – Extended -40...+200°C: Inconel 718
Process connection: (process wetted)	Steel 1.4404/316L
Terminal enclosure:	CrNi-steel
Electrical connection part	Device plug PUR
Pressure compensation element	Acrylic copolymer
Gaskets	FPM – fluorelastomere (Viton®)
Gaskets: (process wetted)	FPM – fluorelastomere (Viton®)
Environmental conditions	
Environmental temperature Ta:	Process temperature Type 0 - Standard -40...+125°C: Ta = -40°C...+125°C
	Process temperature Type 1 - Extended -40...+200°C: Ta = -40°C...+125°C, Tp = -40...+150°C / Ta = -40°C...+100°C, Tp = +150...+175°C / Ta = -40°C...+85°C, Tp = +175...+200°C
Process temperature Tp:	Process temperature type 0 - Standard: -40°C...+125°C
	Process temperature type 1 - Extended: -40°C...+200°C
Process pressure:	0...10 bar [R] / 0...40 bar [R] / 0...100 bar [R] / 0...600 bar [R]
Protection:	IP69K/IP67 (EN/IEC 60529)

Connection

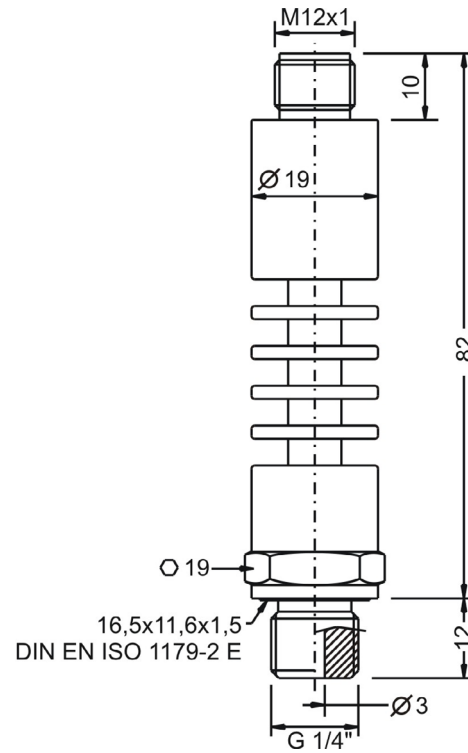


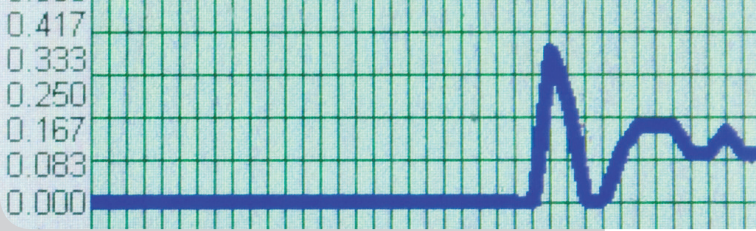
Conductor color standard connection cable M12
– A-coded:
BN = brown, BU = blue

Type 0 – Standard -40...+125°C
Process connection type 3 – Thread ISO 228-1 –
G 1/4" – DIN EN ISO 1179-2 E



Type 1 – Extended -40...+200°C
Process connection type 3 – Thread ISO 228-1 –
G 1/4" – DIN EN ISO 1179-2 E





Order code

PK4S

H

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A

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R

S

Type

Standard

Measuring system – material diaphragm (process wetted) / sensor type

CrNi-steel / strain gauge

Approval

Standard

Process connection

3 Thread ISO 228-1 – G¼"A, DIN EN ISO 1179-2 E

Y others

Material gaskets (process wetted)

1 FPM – fluorelastomere (e.g. Viton®)

Y others

Material process connection (process wetted)

V CrNi-steel

Material terminal enclosure

C CrNi-steel

Measuring range

10 0...10 bar

13 0...40 bar

19 0...100 bar

24 0...600 bar

YY Special measuring range

Electronic – output

A 2-wire, current 4...20mA, HART® compliant

Electronic – function

S Standard

Process temperature

0 Standard –40°C...+125°C

1 Extended –40°C...+200°C

Pressure type

R Gauge pressure

Measuring system – accuracy

4 0,5%

8 Xcellence – 0,15%, linearization protocol

Electrical connection

S Plug M12x1

Precont®

PK4S

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Description

The differential pressure transmitter is a transmitter Precont® DD109A for small and medium pressures. Due to the layout with different pressure sensors measuring ranges between 0 and 2,5 mbar, 0 and 5 mbar, 0 and 10 mbar, 0 and 25 can mbar, 0 to 50 mbar and performed 0 to 100 mbar. Two connecting cables are used for power supply. The supply current is the measurement signal of 4 ... 20 mA. The state is indicated by an LED.

Technical data

Technische Daten

Measuring range:	0-10 mbar; 0-25 mbar; 0-50 mbar; 0-100 mbar; 0-1000 mbar
	according to the data on the type plate
Max. Differential pressure:	750 mbar
Max. Pressure against ambient:	1000 mbar
Medium:	air, as well as dry, non-aggressive gases
Basic Accuracy:	± 1% of full scale
Temperature drift:	± 0.05% / K of final value
Hysteresis:	± 0.5% of full scale
Measuring system:	semiconductor sensor
Auxiliary energy:	U _b = 10 ... 36 V DC
Analog output:	4 ... 20 mA, 2-wire technology
Max. Permissible load:	RA ≤ (U _b - 9 V) / 0,02 A
Pressure connection:	Schott plug-in fittings for 6 mm hose outer diameter
Housing:	Dust-proof polycarbonate housing
Dimension:	113x80x60 (wxhxd)
Protection class:	IP 65
Mounting:	wall mounting, installation vertical
Connection:	cage clamps
Cable gland:	1 × M 16 × 1.5 N for cable diameters of 4 ... 8 mm

Specials

Low
Cost



4...20mA
2-wire

easy-to-use

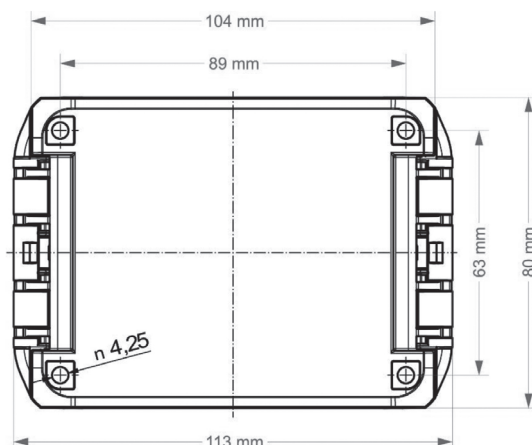


compact
design



easy
installation

Dimension drawings



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Order code



W	mounting	
	Wall mounting	
	Measuring range (difference)	
	A	0...2,5 mbar
	B	0...5 mbar
	C	0...10 mbar
	D	0...25 mbar
	G	0...50 mbar
	I	0...100 mbar
	Y	Special measuring range
	hose connection	
	6	push-in bulkhead connector for 6mm outer diameter
	power supply	
	0	10...36 V DC
	Output	
	0	4...20mA two-wire-technology
	licence	
	Ex	ATEX II 3D T135°C IP 65 zone 22

Order code

Precont® DD109B



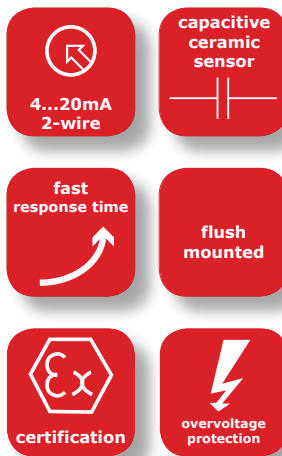
Description

The Precont® TM is a very rugged overload resistive pressure transmitter for gases, steams, liquids and dusts in hard industrial applications. By use of a dry capacitive ceramic measurement sensor in combination with high-grade steel 1.4571 (V4A), this pressure transmitter can be also used in very aggressive substances. The ceramic membrane has also an extreme overload resistance, highest measurement precision, long life time and no need for maintenance.

Application

- Pressure ranges from -1 up to 60 bar
- Ceramic high overload resp. pressure shock resistant membrane
- Integrated evaluation electronic with 2-wire technology and 4 ... 20mA
- Suitable for wide process temperature range from - 40 °C up to +125 °C
- Certification for the use in explosive hazardous areas
- Integrated overvoltage protection

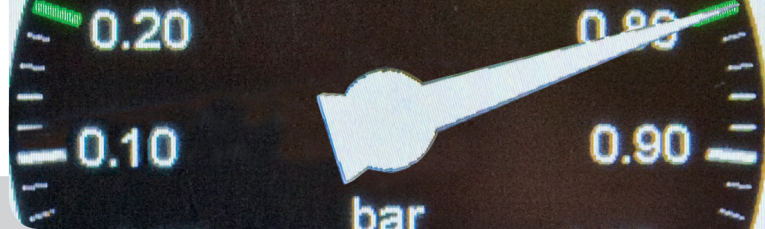
Specials



Your benefits

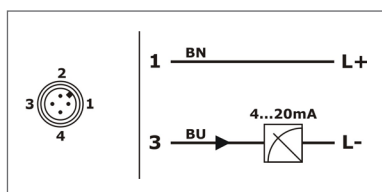
- Electrically and mechanically extremely stable
- *Versatile usability*, especially in *hygienic applications*
- Shortest response time and *excellent accuracy* up to < 0,1%
- Pressure resistance and *high chemical resistance* by highly stable stainless steel housing

Technical data

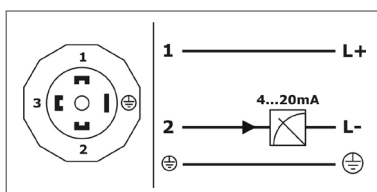


Technical data		
Power supply:	11,5...45 V DC	With EX-version 11,5...30 V DC
Analog output 4...20mA		
Min. delay time:	≤ ± 2 ms	
Overvoltage protection:		
Overvoltage protection:	not for Ex-version Ex0TM	
Category:	coarse protection / fine protection	
Signal voltage:	max. 30 V peak value, against PE-connection	
Nominal discharge current:	10 000 A - wave 8/20µs	
Measurement accuracy		
Characteristics deviation:	≤ ± 0,1% FS / 0,2% FS	
Long term drift:	≤ ± 0,1% FS / year not cumulative	
Temperature deviation:	≤ ± 0,10% FS / 10 K (Zero / Span)	
Materials		
Membrane: (medium contact)	Ceramic AL ₂ O ₃ 99,9%	
Process connection: (medium contact)	Steel 1.4404/316L resp. 1.4571/316Ti	
Housing pipe:	CrNi-steel	
Gaskets: (medium contact)	FPM – fluorelastomer (Viton®) EPDM – ethylene-propylene-diene monomer CR – chloroprene rubber (Neopren®) FFKM – perfluorelastomere (Kalrez®) NBR – nitrile-butadiene rubber	
Device plug:	DIN EN 175-301-803-A housing PA polyamide, contacts tinned, gasket NBR M12x1 socket CrNi-steel, inserted part PUR, contacts gold-plated	
Environmental conditions		
Ambient temperature:	– 40°C...+85°C	
Process temperatures:	– 40°C...+100°C resp. +125°C	
Process pressure ranges:	– 1 bar ...60 bar	
Protection:	Plug version according to DIN 175-301-803	
	IP65 DIN EN 60529	
	Plug version M12x1 and version with direct cable outlet	
	IP68 / 1mH ₂ O for 1h DIN EN 60529	

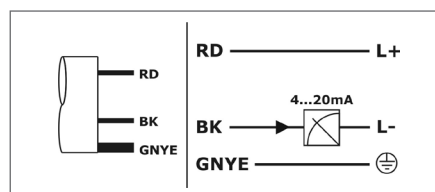
Connection



Plug M12
Wire colors standard connction cable M12:
BN = brown, BU = blue

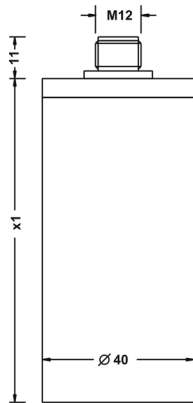


Plug EN 175-301-803

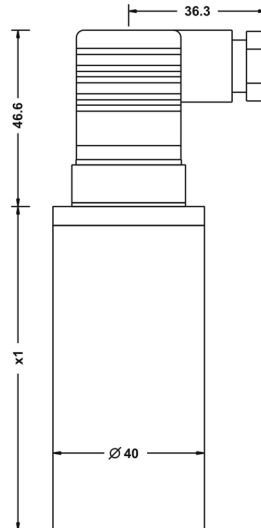


Cable outlet
Wire colors cable:
RD = red, BK = black, GNYE = green-yellow

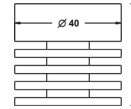
Connection housing
Electrical connection Type V - Plug M12



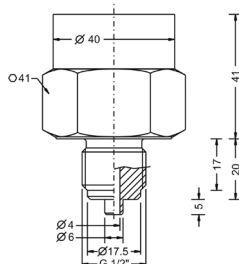
Connection housing
Electrical connection Type S
Plug EN 175-301-803-A



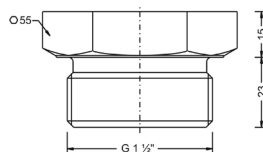
Temperature decoupler



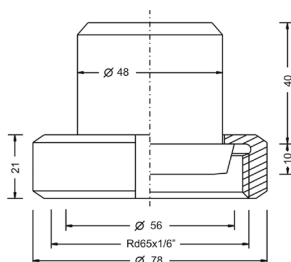
Type 0
G 1/2" ISO 228-1 - DIN 837-3



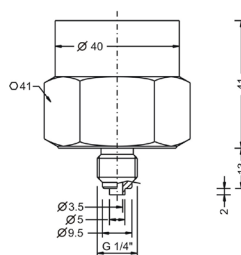
Type 7
G 1 1/2" ISO 228-1 - front-flush



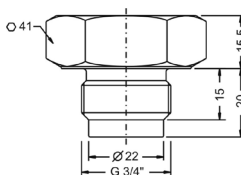
Type N
DN40 DIN 11851 - front-flush



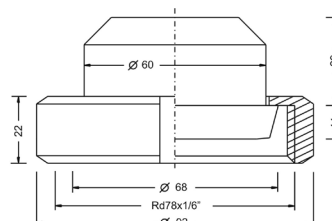
Type 1
G 1/4" ISO 228-1 - DIN 837-3



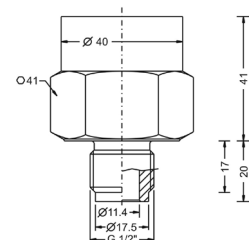
Type 8
G 3/4" ISO 228-1 - front-flush



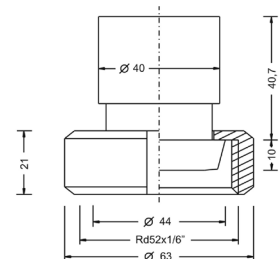
Type M
DN50 DIN 11851 - front-flush

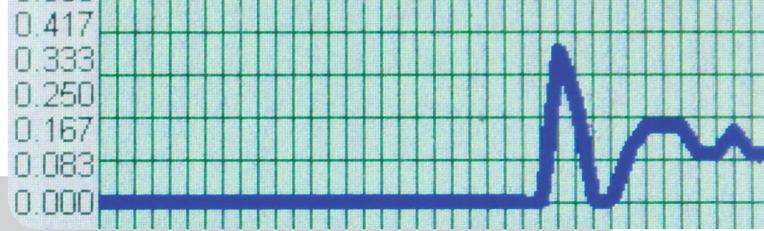


Type 6
G 1/2" ISO 228-1 - Inner bore 11,4mm



Type R
DN25 DIN 11851 - front-flush





Model

TM Standard
Ex0TM ATEX II 1/2 G Ex ia IIC T4 Ga/Gb
Ex1TM ATEX II 2 G Ex ib IIC T4 Gb

Process connection

0 G $\frac{1}{2}$ " A, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer
1 G $\frac{1}{4}$ " A, ISO 228-1, DIN EN 837-3 (DIN 16288) manometer
6 G $\frac{1}{2}$ " A, ISO 228-1, inner bore 11,4 mm
7 G1 $\frac{1}{2}$ " B, ISO 228-1, front-flush
8 G $\frac{3}{4}$ " A, ISO 228-1, front-flush, \leq 20 bar
9 G $\frac{1}{2}$ " B, ISO 228-1, front-flush, \leq 20 bar
R Milk tube DIN 11851, DN25, PN40, \leq 20 bar
N Milk tube DIN 11851, DN40, PN40
M Milk tube DIN 11851, DN50, PN40

Transmitter electronics

A 2-wire-electronics 4...20 mA

Material connection

V Stainless steel 1.4404/316L resp. 1.4571/316Ti

Over voltage protection

B With integrated overvoltage protection (*not for Ex0TM*)
0 Without overvoltage protection

Measurement ranges

01 0...100 mbar	10 0...10 bar
02 0...200 mbar	11 0...16 bar
03 0...400 mbar	12 0...25 bar
04 0...600 mbar	13 0...40 bar
05 0...1 bar	14 0...60 bar
06 0...1,6 bar	15 -100...0 mbar
07 0...2,5 bar	16 -1...0 bar
08 0...4 bar	17 -1...1 bar
09 0...6 bar	18 -100...+100 mbar
19 -1...+9 bar	YY Special measuring range

Material gasket

1 FPM - fluoroelastomer (Viton®)
2 CR - chloroprene rubber (Neopren®)
3 EPDM - ethylene-propylene-diene monomer - food applications
4 FFKM - perfluorelastomere (Kalrez®)
6 FFKM hd - perfluorelastomere high density - gas applications

Process temperature

0 Standard -20°C...+100°C
H Extended -40°C...+125°C, temperature decoupler

Pressure type

R Gauge pressure
A Absolute pressure

Measuring system - accuracy

1 Ceramics 99,9%, capacitive / 0,2%
With process connection 8 / 9 / R >> membrane
Ceramics 96%
3 Ceramics 99,9%, capacitive / 0,1%,
linearization protocol
With process connection 8 / 9 / R >> membrane
Ceramics 96%

Connection

S Plug according to DIN EN 175-301-803-A (DIN 43650-A)
V M12 plug
K Direct cable outlet 2m
surcharge per meter (*at cable*), PE

Order code

Precont®

A V

Order information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS

Model
Matching cable socket, VA-nut
Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole



Description

The device is an electronic pressure transmitter for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with measuring ranges from -1 bar to 1000 bar, gauge, measuring ranges from 0 bar to 1000 bar, absolute, measuring spans from 400 mbar to 1000 bar, process temperatures from -40°C to +125°C, environmental temperatures from -40°C to +100°C, process material CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 (EN 837 manometer) and thread ISO 228-1 (front-flush) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology and facility and building automation.

The device is suitable for demanding measuring requirements. The front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like,

adhesive, crystallizing, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections.

The certification acc. to ATEX II 1 G Ex ia IIB/IIC Tx Ga allows the use in explosion hazardous areas.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device. Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like factory certifications for drink water resp. food suitability.

Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology
 - Facility and building automation

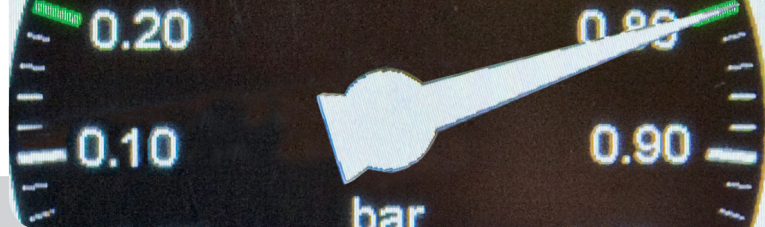
Specials



Your benefits

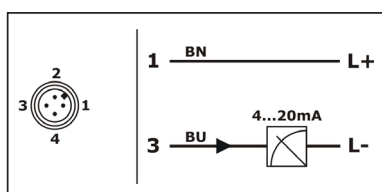
- Wide range of applications
- Finely graded measuring ranges from -1 bar up to 1000 bar
- Wide process temperature range -40°C to +125°C
- Wide variety of process connections
- High protection class IP69K/IP67
- Wide environmental temperature range -40°C to +85°C
- Certification ATEX II 1 G Ex ia IIB/IIC Tx Ga
- Metallic front-flush or internal diaphragm
- High accuracy – characteristic deviation to $\leq 0,5\%$ of measuring range
- Integrated evaluation electronic: current output 4...20mA / Voltage output 0...10V / connector plug M12 / connector plug EN 175-301-803-C / -A / connection cable with integrated reference air capillary

Technical data

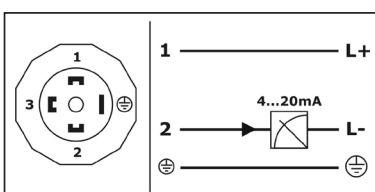


Technical data	
Power supply:	Type A – 2-wire, current 4...20mA: 10...30VDC, reverse polarity protected Type B – 3-wire, voltage 0...10V: 14...30VDC, reverse polarity protected
Supply current:	Type A – 2-wire, current 4...20mA: ≤ 30mA Type B – 3-wire, voltage 0...10V: ≤ 6mA
Measurement accuracy	
Characteristics deviation:	≤ ±0,5% FS
Long term drift:	≤ ±0,2% FS / year not cumulative
Temperature deviation:	Measuring range ≤ 25 bar: ≤ ±0,02% FS / K (0...+80°C) / ≤ ±0,03% FS / K (-40...0°C / +80...+125°C) Measuring range ≥ 40 bar: ≤ ±0,02% FS / K (-40...+100°C) / ≤ ±0,03% FS / K (+100...+125°C)
Material	
Membrane: (medium contact)	Process connection type 0 – front-flush / Process connection type 1 / type 6 – EN 837 / ≤ 25 bar: Steel 1.4571/316Ti Process connection type 1 / type 6 – EN 837 / ≥ 40 bar: Steel 1.4542/630 / Steel 1.4534/SI13800
Process connection: (medium contact)	Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (medium contact)	FPM – fluorelastomer (e.g. Viton®) EPDM – ethylene-propylene-diene monomer NBR – nitrile-butadiene rubber
Electrical connection part:	Electrical connection type V – Plug M12: Device plug PUR Electrical connection type S/T – Plug EN 175-301-803: Device plug PA / Gasket NBR Electrical connection type K – Cable: Cable gland PA / Gasket CR / NBR / Cable sheath PE
Environmental conditions	
Ambient temperature:	– 40°C...+85°C
Process temperatures:	– 40°C...+100°C resp. 125°C
Process pressure ranges:	– 1 bar ...1000 bar (depending on type)
Protection:	Electrical connection type V – Plug M12: IP69K/IP67 (EN/IEC 60529) Electrical connection type S/T – Plug EN 175-301-803: IP65 (EN/IEC 60529) Electrical connection type K – Cable: IP69K (EN/IEC 60529) / IP68 [≤ 10 mwc] (EN/IEC 60529)

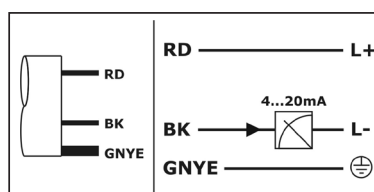
Connection



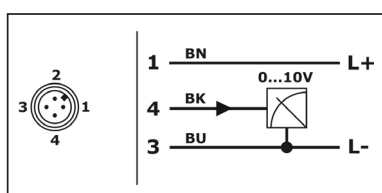
Electronic output – 2-wire, current 4...20mA
Plug M12: Conductor color standard connection cable M12 – A-coded: BN = brown, BU = blue



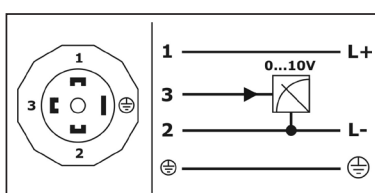
Electronic output – 2-wire, current 4...20mA
Plug EN 175-301-803



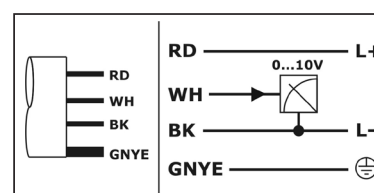
Electronic output – 2-wire, current 4...20mA
Cable
Conductor color cable: RD = red, BK = black, GNYE = greenyellow



Electronic output – 3-wire, voltage 0...10V
Plug M12
Conductor color standard connection cable M12 – A-coded: BN = brown, BU = blue, BK = black

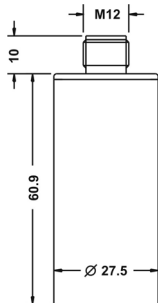


Electronic output – 3-wire, voltage 0...10V
Plug EN 175-301-803

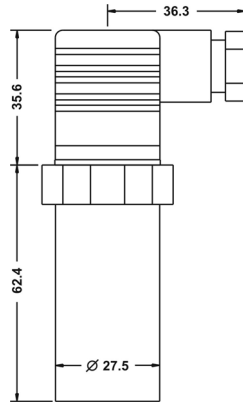


Electronic output – 3-wire, voltage 0...10V
Cable
Conductor color cable: RD = red, BK = black, WH = white, GNYE = greenyellow

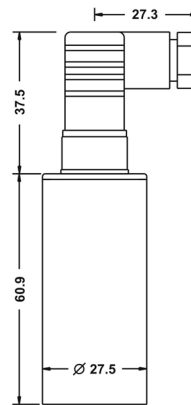
Terminal enclosure
Electrical connection type V -
Plug M12



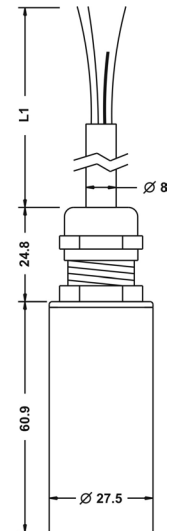
Terminal enclosure
Electrical connection type T -
Plug EN 175-301-803-A



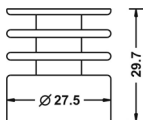
Terminal enclosure
Electrical connection type S -
Plug EN 175-301-803-C



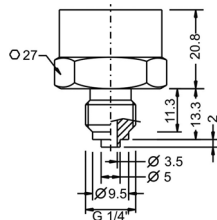
Terminal enclosure
Electrical connection type K -
Cable



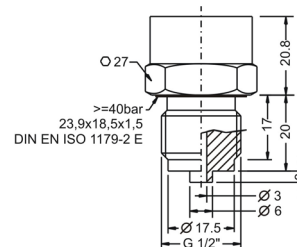
Temperature decoupler



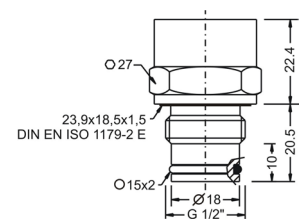
Process connection
Type 6 - Thread ISO 228-1 -
G 1/4" B, EN 837

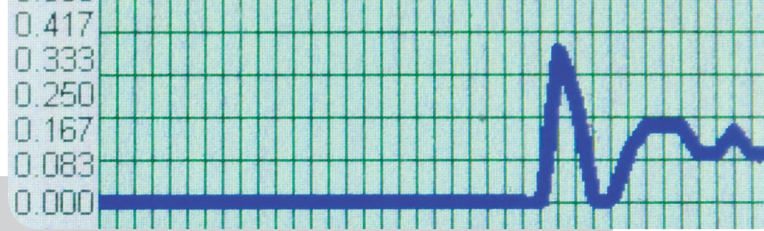


Process connection
Type 1 - Thread ISO 228-1 -
G 1/2" B, EN 837



Process connection
Type 0 - Thread ISO 228-1 -
G 1/2" B, front-flush





0	Type	Standard
Ex	ATEX II 1 G Ex ia IIB/IIC Tx Ga	
MT	Measuring system – material diaphragm (process wetted) / sensor type	CrNi-steel / strain gauge
	Process connection	
6	Thread ISO 228-1 – G¼" B, EN 837 manometer (without process gasket)	
1	Thread ISO 228-1 – G½" B, EN 837 manometer (≥ 40 bar without process gasket)	
0	Thread ISO 228-1 – G½" B, front-flush, O-ring gasket not for measuring range 0...1000 bar	
Y	others	
	Material process gaskets (process wetted)	
0	without / NBR – nitrile-butadiene-rubber	
1	FPM – fluorelastomere (e.g. Viton®)	
3	EPDM – ethylene-propylene-dienmonomere, FDA-listed	
Y	others	
V	Material process connection (process wetted)	CrNi-steel
C	Material terminal enclosure	CrNi-steel
	Measuring range	
05	0...1 bar	
06	0...1,6 bar	
07	0...2,5 bar	
08	0...4 bar	
09	0...6 bar	
10	0...10 bar	
11	0...16 bar	
12	0...25 bar	
13	0...40 bar	
14	0...60 bar	
19	0...100 bar	
20	0...160 bar	
21	0...250 bar	
22	0...320 bar	
23	0...400 bar	
24	0...600 bar	
25	0...1000 bar only for process connection type 1, 6 – G½" B, G¼" B (EN 837)	
16	-1...0 bar	
17	-1...+1 bar	
YY	Special measuring range	
	Electronic – output	
A	2-wire, current 4...20mA	
B	3-wire, voltage 0...10V	
	Process temperature	
0	Standard –40°C...+100°C	
1	Extended –40°C...+125°C, temperature decoupler	
	Pressure type	
R	Gauge pressure	
A	Absolute pressure (≤ 25 bar)	
	Measuring system – accuracy	
4	0,5%	
	Electrical connection	
V	Plug M12x1	
S	Plug EN 175-301-803-C (DIN 43650-C)	
T	Plug EN 175-301-803-A (DIN 43650-A)	
K	Kabel, L1 ≥ 2m	

Order code

Precont®

MT

V

C

4

Equipment

Order information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS

REMO12
BEFK12

Model
Matching cable socket, VA-nut
Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole

Sliding sleeve, for connection 0
Sliding sleeve, for connection 1



Description

The device is an electronic pressure transmitter for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with Measuring ranges from -1 bar to 25 bar, gauge measuring ranges from 0 bar to 25 bar (absolute), measuring spans from 100 mbar to 25 bar, process temperatures from -20°C to +150°C, environmental temperatures from -40°C to +85°C, process material CrNi-steel as well as the availability of a variety of hygienic EHEDG-conformal process connections like thread ISO 228-1 with front-flush O-ring gasket, dairy coupling DIN 11851 and Varivent® the device is especially suitable for the use for food and beverage industry, pharmaceutical industry, biotechnology and sterile process engineering.

The device is suitable for demanding measuring requirements.

The device with front-flush diaphragm has been specifically designed for the measurement of viscous, paste-like, adhesive, crystallizing, particle-laden and contaminated media, which would clog the pressure channel of conventional process connections.

Through its optimized design, the front-flush process connection enables the cleanability of the wetted

diaphragm to be integrated into the process. The device is particularly suitable for the special conditions of CIP/SIP cleaning processes, such as chemical stability towards cleaning liquids and high temperatures. Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

The front-flush diaphragm is completely welded with the process connection and supplied with a positive seal. A reliable, dead-space free sealing between the process connection and the process adapter resp. measuring medium is thus assured. The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

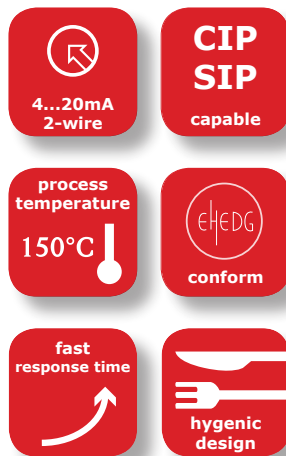
Application

- Hygienic and aseptic applications in
 - Food and beverage industry
 - Pharmaceutical industry
 - Biotechnology
 - Sterile process engineering

Your benefits

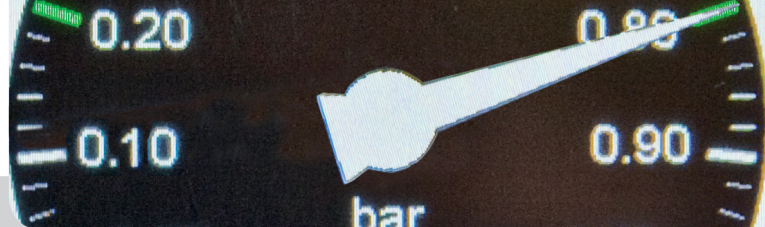
- Wide range of applications
- Finely graded measuring ranges from 100 mbar up to 25 bar
- Wide process temperature range -20°C to +150°C
- Various hygienic and aseptic process connections
- High protection class IP69K/IP67
- Wide environmental temperature range -20°C to +85°C
- Metallic front-flush EHEDG conformal diaphragm
- High accuracy – characteristic deviation to $\leq 0,5\%$ of measuring range
- Integrated evaluation electronic: current output 4...20mA / Voltage output 0...10V / connector plug M12 / connector plug EN 175-301-803-C / -A / connection cable with integrated reference air capillary

Specials



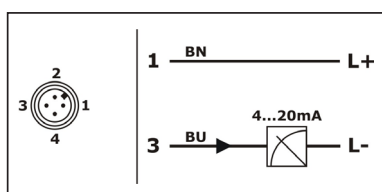
Order code page | 97 |

Technical data

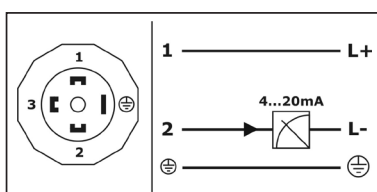


Technical data	
Power supply:	Type A – 2-wire, current 4...20mA: 10...30VDC, reverse polarity protected Type B – 3-wire, voltage 0...10V: 14...30VDC, reverse polarity protected
Supply current:	Type A – 2-wire, current 4...20mA: $\leq 30\text{mA}$ Type B – 3-wire, voltage 0...10V: $\leq 6\text{mA}$
Measurement accuracy	
Characteristics deviation:	$\leq \pm 0,5\%$ FS
Long term drift:	$\leq \pm 0,2\%$ FS / year not cumulative
Temperature deviation:	Measuring range $\leq 250\text{ mbar}$: $\leq \pm 0,04\%$ FS / K (0...+80°C) / $\leq \pm 0,06\%$ FS / K (-20...0°C / +80...+150°C) Measuring range $\geq 400\text{ mbar}$: $\leq \pm 0,02\%$ FS / K (0...+80°C) / $\leq \pm 0,03\%$ FS / K (-20...0°C / +80...+150°C)
Material	
Membrane (medium contact):	Steel 1.4435/316L
Process connection (medium contact):	Steel 1.4435/316L
Terminal enclosure:	CrNi-steel
Gaskets: (medium contact)	FPM – fluorelastomere (e.g. Viton®), FDA-listed EPDM – ethylene-propylene-dienmonomere, FDA-listed
Electrical connection part:	Electrical connection type V – Plug M12: Device plug PUR Electrical connection type S/T – Plug EN 175-301-803: Device plug PA / Gasket NBR Electrical connection type K – Cable: Cable gland PA / Gasket CR / NBR / Cable sheath PE
Environmental conditions	
Ambient temperature:	- 40°C...+85°C
Process temperatures:	- 40°C...+150°C
Process pressure ranges:	- 1 bar ...25 bar (depending on type)
Protection:	Electrical connection type V – Plug M12: IP69K/IP67 (EN/IEC 60529) Electrical connection type S/T – Plug EN 175-301-803: IP65 (EN/IEC 60529) Electrical connection type K – Cable: IP69K (EN/IEC 60529) / IP68 [$\leq 10\text{ mwc}$] (EN/IEC 60529)

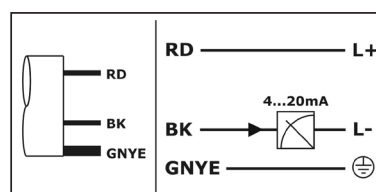
Connection



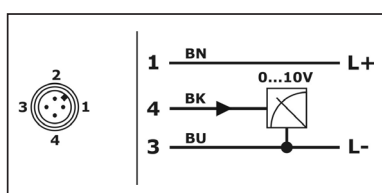
Electronic output – 2-wire, current 4...20mA
Plug M12: Conductor color standard connection cable M12 – A-coded: BN = brown, BU = blue



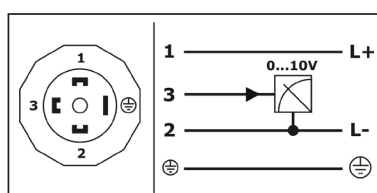
Electronic output – 2-wire, current 4...20mA
Plug EN 175-301-803



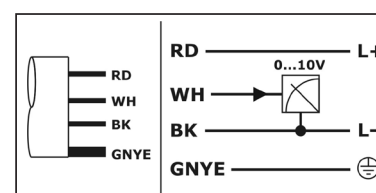
Electronic output – 2-wire, current 4...20mA
Cable
Conductor color cable: RD = red, BK = black, GNYE = greenyellow



Electronic output – 3-wire, voltage 0...10V
Plug M12
Conductor color standard connection cable M12 – A-coded: BN = brown, BU = blue, BK = black

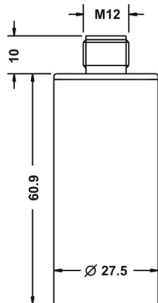


Electronic output – 3-wire, voltage 0...10V
Plug EN 175-301-803

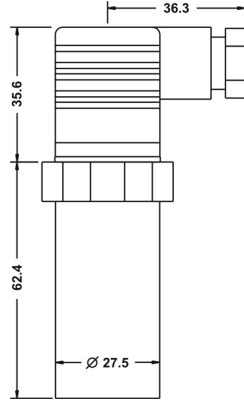


Electronic output – 3-wire, voltage 0...10V
Cable
Conductor color cable: RD = red, BK = black, WH = white, GNYE = greenyellow

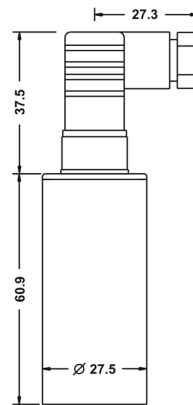
Terminal enclosure
Electrical connection type V -
Plug M12



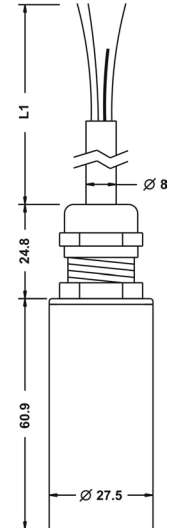
Terminal enclosure
Electrical connection type T -
Plug EN 175-301-803-A



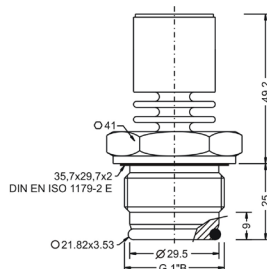
Terminal enclosure
Electrical connection type S -
Plug EN 175-301-803-C



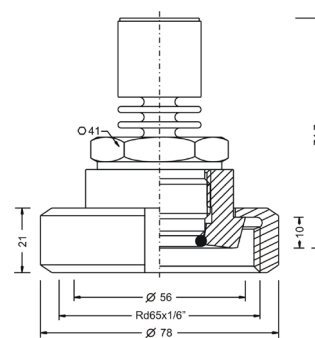
Terminal enclosure
Electrical connection type K -
Cable



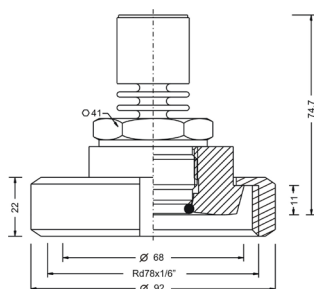
Proces connection
Type 5 - Thread ISO 228-1 -
G1" B, front-flush



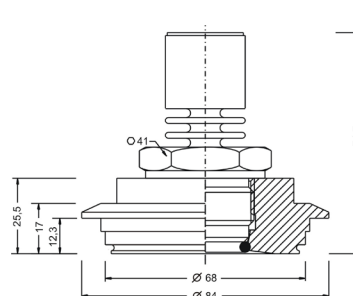
Proces connection
Type N - Dairy coupling DIN
11851 - DN40, PN25

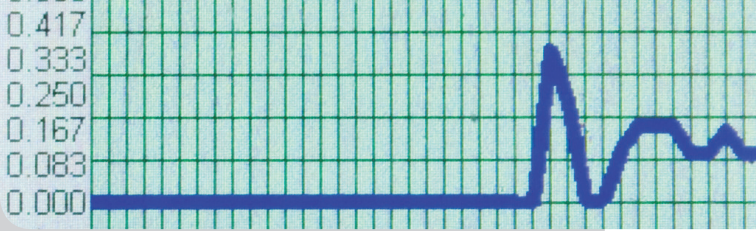


Proces connection
Type M - Dairy coupling DIN 11851 -
DN50, PN25



Proces connection
Type P - Varivent® - Type N /
tube DN40-162 / 1 1/2"-6", PN40





Type
0 Standard

ML Measuring system – material diaphragm (process wetted) / sensor type
CrNi-steel / strain gauge

Process connection

- 5 Thread ISO 228-1 – G1" B, front-flush, O-ring gasket, EHEDG conformal, for welding socket BEFVE10
N Dairy coupling DIN 11851 – DN40, PN25
M Dairy coupling DIN 11851 – DN50, PN25
P Varivent® – Type N / tube DN40-162 / 1½"-6", PN40
Y others

Material process gaskets (process wetted)

- 1 FPM – fluorelastomere (e.g. Viton®)
3 EPDM – ethylene-propylene-dienmonomere, FDA-listed
Y others

Material process connection (process wetted)

- V CrNi-steel

Material terminal enclosure

- C CrNi-steel

Measuring range

- 01 0...100 mbar
02 0...250 mbar
03 0...400 mbar
04 0...600 mbar
05 0...1 bar
06 0...1,6 bar
07 0...2,5 bar
08 0...4 bar
09 0...6 bar
10 0...10 bar
11 0...16 bar
12 0...25 bar
16 -1...0 bar
17 -1...+1 bar
YY Special measuring range

Electronic – output

- A 2-wire, current 4...20mA
B 3-wire, voltage 0...10V

Process temperature

- 0 Standard -40°C...+100°C

Pressure type

- R Gauge pressure
A Absolute pressure (≤ 25 bar)

Measuring system – accuracy

- 4 0,5%

Electrical connection

- V Plug M12x1
S Plug EN 175-301-803-C (DIN 43650-C)
T Plug EN 175-301-803-A (DIN 43650-A)
K Kabel, L1 = 2m

Order code

Precont®

0 ML

V C

0

4

Equipment

Order information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS

Model
Matching cable socket, VA-nut
Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole



Description

The device is an electronic pressure transmitter for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with measuring ranges from 0 bar to 600 bar (gauge), measuring ranges from 1 bar to 40 bar (absolute), measuring spans from 250 mbar to 600 bar, process temperatures from -40°C to +135°C, environmental temperatures from -40°C to +85°C, process materials Al₂O₃-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread connection ISO 228-1 (EN 837 manometer), thread connection ISO 228-1 (inner thread), thread connection ISO 228-1 (EN 1179-2 E), thread connection ISO 228-1 (inner bore) the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology and facility and building automation.

The pressure transmitter is suitable for cost sensitive as well as demanding measuring requirements.

The certification acc. to ATEX II 1 G Ex ia IIB/IIC Tx Ga allows the use in explosion hazardous areas.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

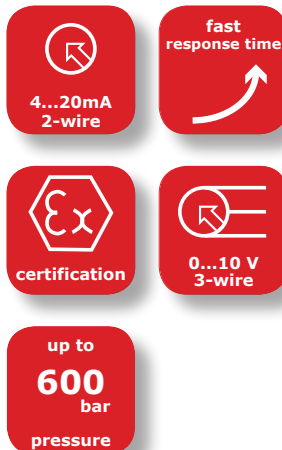
Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

A LABS-free resp. silicone-free version, a factory calibration with calibration certificate and a customer specific configuration resp. preset is also optionally available like a material test certificate EN10204 3.1.

Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology
 - Facility and building automation

Specials

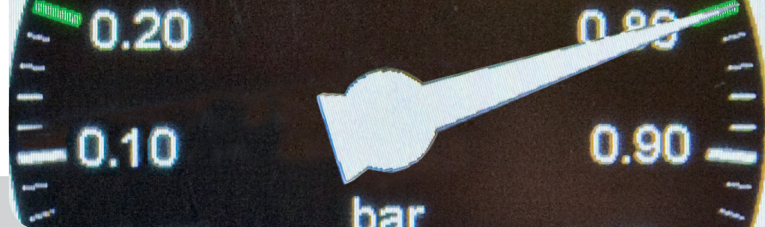


Your benefits

- Wide range of applications
- Finely graded measuring ranges from 250 mbar up to 600 bar
- Wide process temperature range -40°C to +135°C
- Wide variety of process connections
- High protection class IP69K/IP67
- Wide environmental temperature range -40°C to +85°C
- Certification ATEX II 1 G Ex ia IIB/IIC Tx Ga
- Ceramic front-flush or internal diaphragm
- High accuracy – characteristic deviation to ≤ 0,5% of measuring range
- Integrated evaluation electronic: current output 4...20mA / Voltage output 0...10V / connector plug M12 / connector plug EN 175-301-803-C / -A / connection cable with integrated reference air capillary

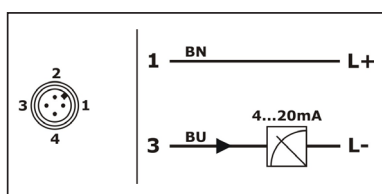
Order code page | **101** |

Technical data

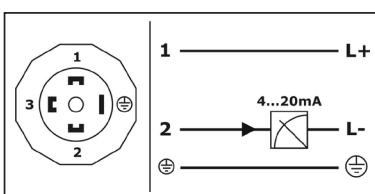


Technical data	
Power supply:	Type A – 2-wire, current 4...20mA: 10...30VDC, reverse polarity protected Type B – 3-wire, voltage 0...10V: 14...30VDC, reverse polarity protected
Supply current:	Type A – 2-wire, current 4...20mA: ≤ 30mA Type B – 3-wire, voltage 0...10V: ≤ 6mA
Measurement accuracy	
Characteristics deviation:	≤ ±0,5% FS
Long term drift:	≤ ±0,2% FS / year not cumulative
Temperature deviation:	Zero+ Span: ≤ ±0,05% FS / K
Material	
Membrane (medium contact):	Ceramic aluminum oxide Al ₂ O ₃ – 96%
Process connection (medium contact):	Steel 1.4404/316L
Terminal enclosure:	CrNi-steel
Gaskets (medium contact):	FPM – fluorelastomere (e.g. Viton®) EPDM – ethylene-propylene-dienmonomere, FDA-listed
Electrical connection part:	Electrical connection type V – Plug M12: Device plug PUR Electrical connection type S/T – Plug EN 175-301-803: Device plug PA / Gasket NBR Electrical connection type K – Cable: Cable gland PA / Gasket CR / NBR / Cable sheath PE
Environmental conditions	
Ambient temperature:	– 40°C...+85°C
Process temperatures:	– 40°C...+100°C resp. 135°C
Process pressure ranges:	– 1 bar ...600 bar (depending on type)
Protection:	Electrical connection type V – Plug M12: IP69K/IP67 (EN/IEC 60529) Electrical connection type S/T – Plug EN 175-301-803: IP65 (EN/IEC 60529) Electrical connection type K – Cable: IP69K (EN/IEC 60529) / IP68 [≤ 10 mwc] (EN/IEC 60529)

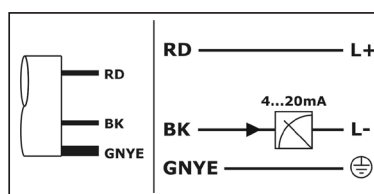
Connection



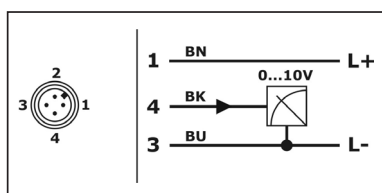
Electronic output – 2-wire, current 4...20mA
Plug M12: Conductor color standard connection cable M12 – A-coded: BN = brown, BU = blue



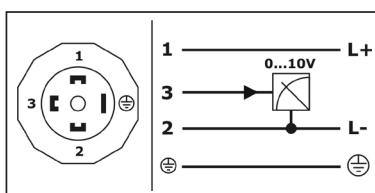
Electronic output – 2-wire, current 4...20mA
Plug EN 175-301-803



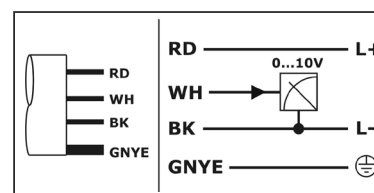
Electronic output – 2-wire, current 4...20mA
Cable
Conductor color cable: RD = red, BK = black, GNYE = greenyellow



Electronic output – 3-wire, voltage 0...10V
Plug M12
Conductor color standard connection cable M12 – A-coded: BN = brown, BU = blue, BK = black

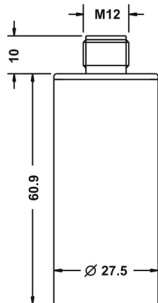


Electronic output – 3-wire, voltage 0...10V
Plug EN 175-301-803

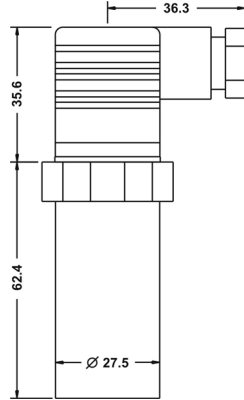


Electronic output – 3-wire, voltage 0...10V
Cable
Conductor color cable: RD = red, BK = black, WH = white, GNYE = greenyellow

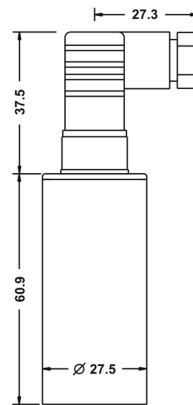
Terminal enclosure
Electrical connection type V -
Plug M12



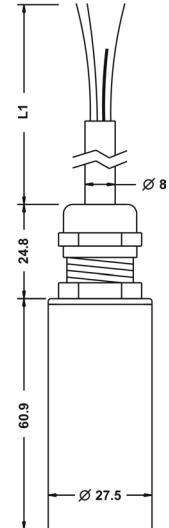
Terminal enclosure
Electrical connection type T -
Plug EN 175-301-803-A



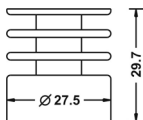
Terminal enclosure
Electrical connection type S -
Plug EN 175-301-803-C



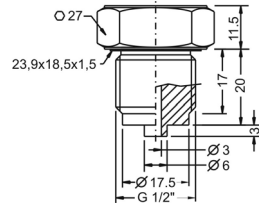
Terminal enclosure
Electrical connection type K -
Cable



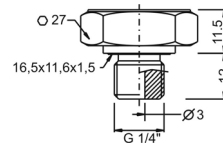
Temperature decoupler



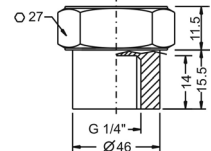
Process connection
Type 1 - Thread ISO 228-1 -
G 1/2" B, EN 837



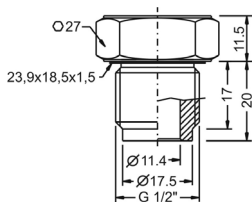
Process connection
Type 3 - Thread ISO 228-1 -
G 1/4" B, DIN EN ISO 1179-2 E

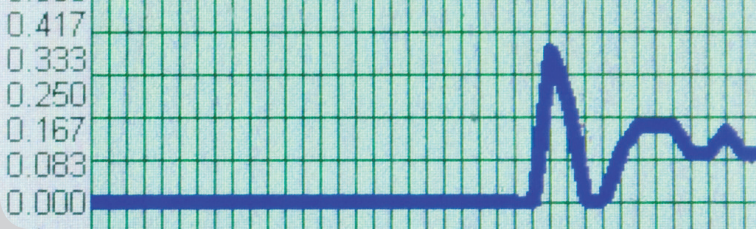


Process connection
Type 4 - Thread ISO 228-1 -
G 1/4" I, inner thread



Process connection
Type 2 - Thread ISO 228-1 - G 1/2" B, inner
bore





Type	
0	Standard
Ex	ATEX II 1 G Ex ia IIB/IIC Tx Ga
Measuring system – material diaphragm (process wetted) / sensor type	
KT	Ceramic Al ₂ O ₃ 96% / strain gauge
Process connection	
1	Thread ISO 228-1 – G½" B, EN 837 manometer
3	Thread ISO 228-1 – G¼" B, DIN EN ISO 1179-2 E
4	Thread ISO 228-1 – G¼" I, inner thread
2	Thread ISO 228-1 – G½" B, inner bore
Y	others
Material process gaskets (process wetted)	
1	FPM – fluorelastomere (e.g. Viton®)
3	EPDM – ethylene-propylene-dienmonomere, FDA-listed
Y	others
Material process connection (process wetted)	
V	CrNi-steel
L	Aluminum (measuring range ≤ 0..16 bar)
Material terminal enclosure	
C	CrNi-steel
Measuring range	
02	0...250 mbar
03	0...400 mbar
04	0...600 mbar
05	0...1 bar
06	0..1,6 bar
07	0..2,5 bar
08	0...4 bar
09	0...6 bar
10	0...10 bar
11	0...16 bar
12	0...25 bar
13	0...40 bar
14	0...60 bar
19	0...100 bar
20	0...160 bar
21	0...250 bar
22	0...320 bar
23	0...400 bar
24	0...600 bar
YY	Special measuring range
Electronic – output	
A	2-wire, current 4...20mA
B	3-wire, voltage 0...10V
Process temperature	
0	Standard –40°C...+100°C
1	Extended –40°C...+125°C, temperature decoupler
Pressure type	
R	Gauge pressure
A	Absolute pressure (≤ 25 bar)
Measuring system – accuracy	
4	0,5%
Electrical connection	
V	Plug M12x1
S	Plug EN 175-301-803-C (DIN 43650-C)
T	Plug EN 175-301-803-A (DIN 43650-A)
K	Kabel, L1 ≥ 2m

Order code

Precont®

KT

V

C

4

Equipment

Order information	Model
BKZ0412-VA	Matching cable socket, VA-nut
LKZ0405PUR-AS	Connection cable 5 m, 4-pole, shielded
LKZ0410PUR-AS	Connection cable 10 m, 4-pole



Description

The device is an electronic pressure transmitter for monitoring, control as well as continuous measurement of pressures in gases, vapors, liquids and dusts.

Due to the device construction with measuring ranges from -1 bar to 16 bar (gauge), measuring ranges from 0 bar to 16 bar (absolute), measuring spans from 100 mbar to 16 bar, process temperatures from -40°C to +125°C, environmental temperatures from -40°C to +85°C, process materials Al₂O₃-ceramic / CrNi-steel as well as the availability of industrial standard process connections like thread ISO 228-1 the device is especially suitable for the use for machinery and plant engineering, air-conditioning and refrigeration plant engineering, hydraulic and pneumatic systems, process industry, environmental technology, facility and building automation.

The device is suitable for demanding measuring requirements. Through its optimized design, the front-flush process connection enables the cleanability of the wetted diaphragm to be integrated into the

process.

The device is suitable for the use at SIP cleaning processes.

Low-maintenance and trouble-free pressure measurement is thus also guaranteed in critical applications with frequently changing media.

The certification acc. to ATEX II 1 G Ex ia IIB/IIC Tx Ga allows the use in explosion hazardous areas.

The robust design and the high-quality workmanship turns the device into a very high quality product, which even the most adverse environmental conditions cannot affect, whether the lowest temperatures when used outdoors, extreme shock and vibration stress or aggressive media.

A captive laser marking of the type label ensures the identifiability throughout the entire lifetime of the device.

Obviously is the optional marking of a measurement point designation resp. TAG, a customer label or of a neutral type label, of course also per laser marking.

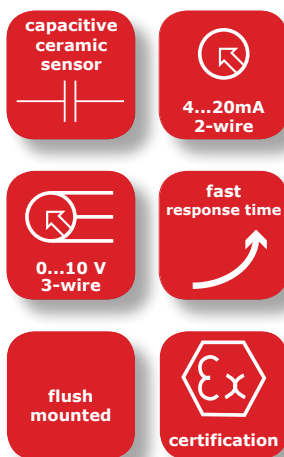
Application

- General applications in
 - Machinery and plant engineering
 - Air-conditioning and refrigeration plant engineering
 - Hydraulic and pneumatic systems
 - Process industry
 - Environmental technology
 - Facility and building automation

Your benefits

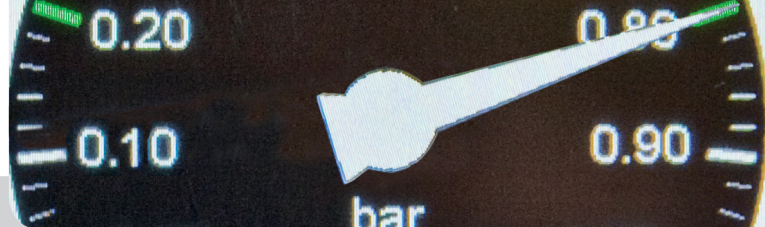
- Wide range of applications
- Finely graded measuring ranges from 100 mbar up to 16 bar
- Wide process temperature range -40°C to +125°C
- Wide variety of process connections
- High protection class IP69K/IP67
- Wide environmental temperature range -40°C to +85°C
- Certification ATEX II 1 G Ex ia IIB/IIC Tx Ga
- Ceramic front-flush diaphragm
- High accuracy – characteristic deviation to ≤ 0,1% of measuring range
- Integrated evaluation electronic: current output 4...20mA / Voltage output 0...10V / connector plug M12 / connector plug EN 175-301-803-C / -A / connection cable with integrated reference air capillary

Specials



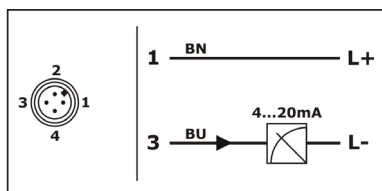
Order code page | **105**

Technical data

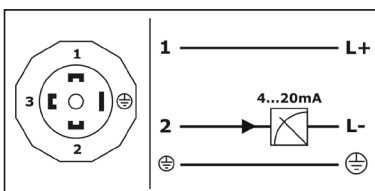


Technical data	
Power supply:	Type A – 2-wire, current 4...20mA: 10...30VDC, reverse polarity protected Type B – 3-wire, voltage 0...10V: 14...30VDC, reverse polarity protected
Supply current:	Type A – 2-wire, current 4...20mA: ≤ 30mA Type B – 3-wire, voltage 0...10V: ≤ 6mA
Measurement accuracy	
Characteristics deviation:	≤ ±0,1% / ±0,25% FS
Long term drift:	≤ ±0,15% FS / year not cumulative
Temperature deviation:	Zero: ≤ ±0,015% FS / K / max. ±0,75 % (-20°C...+80°C) Span: ≤ ±0,015% FS / K / max. ±0,5 % (-20°C...+80°C / > 0,4 bar) / max. ±0,8 % (-20°C...+80°C / ≤ 0,4 bar)
Material	
Membrane (medium contact):	Measuring range ≤ 1bar: Ceramic Al ₂ O ₃ – 99,7% (SIP suitable) Measuring range ≥ 1,6bar: Ceramic Al ₂ O ₃ – 96% (SIP suitable)
Process connection (medium contact):	Steel 1.4404/316L / Steel 1.4571/316Ti
Terminal enclosure:	CrNi-steel
Gaskets: (medium contact)	FPM – fluorelastomere (e.g. Viton®) EPDM – ethylene-propylene-dienmonomere, FDA-listed FFKM – perfluorelastomere (e.g. Kalrez®) FFKM hd – perfluorelastomere high density
Electrical connection part:	Electrical connection type V – Plug M12: Device plug PUR Electrical connection type S/T – Plug EN 175-301-803: Device plug PA / Gasket NBR Electrical connection type K – Cable: Cable gland PA / Gasket CR / NBR / Cable sheath PE
Environmental conditions	
Ambient temperature:	– 40°C...+85°C
Process temperatures:	– 40°C...+100°C resp. 125°C
Process pressure ranges:	– 1 bar ...16 bar (depending on type)
Protection:	Electrical connection type V – Plug M12: IP69K/IP67 (EN/IEC 60529) Electrical connection type S/T – Plug EN 175-301-803: IP65 (EN/IEC 60529) Electrical connection type K – Cable: IP69K (EN/IEC 60529) / IP68 [≤ 10 mwc] (EN/IEC 60529)

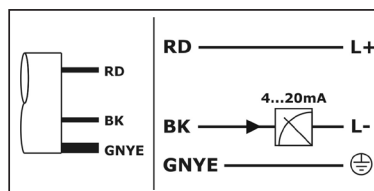
Connection



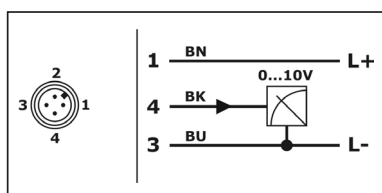
Electronic output – 2-wire, current 4...20mA
Plug M12: Conductor color standard connection
cable M12 – A-coded: BN = brown, BU = blue



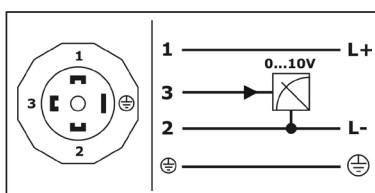
Electronic output – 2-wire, current 4...20mA
Plug EN 175-301-803



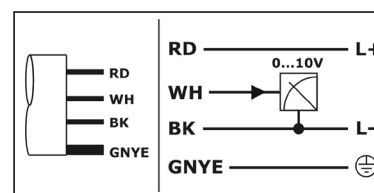
Electronic output – 2-wire, current 4...20mA
Cable
Conductor color cable: RD = red, BK = black,
GNYE = greenyellow



Electronic output – 3-wire, voltage 0...10V
Plug M12
Conductor color standard connection cable M12 –
A-coded: BN = brown, BU = blue, BK = black

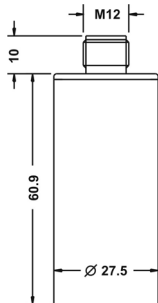


Electronic output – 3-wire, voltage 0...10V
Plug EN 175-301-803

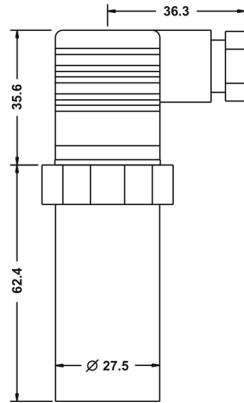


Electronic output – 3-wire, voltage 0...10V
Cable
Conductor color cable: RD = red, BK = black, WH
= white, GNYE = greenyellow

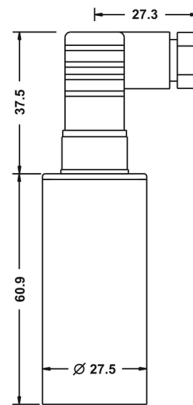
Terminal enclosure
Electrical connection type V -
Plug M12



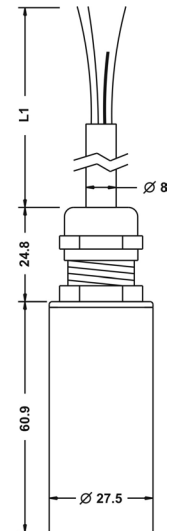
Terminal enclosure
Electrical connection type T -
Plug EN 175-301-803-A



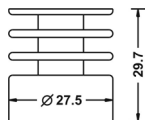
Terminal enclosure
Electrical connection type S -
Plug EN 175-301-803-C



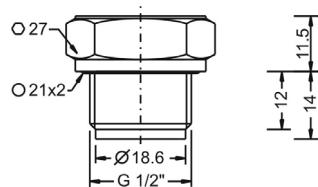
Terminal enclosure
Electrical connection type K -
Cable



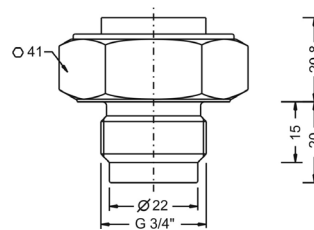
Temperature decoupler



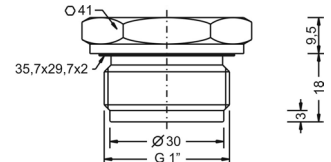
Process connection
Type 0 - Thread ISO 228-1 -
G 1/2" B, front-flush

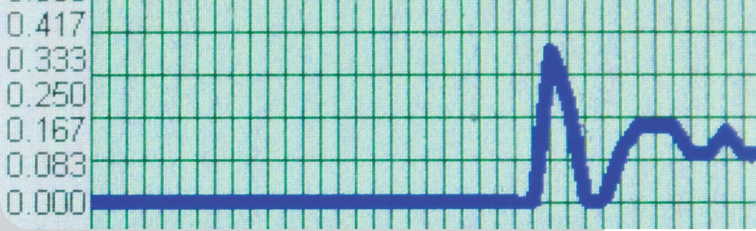


Process connection
Type 8 - Thread ISO 228-1 -
G 3/4" A, front-flush



Process connection
Type 5 - Thread ISO 228-1 -
G 1" A, front-flush





Type	
0	Standard
Ex	ATEX II 1 G Ex ia IIB/IIC Tx Ga
Measuring system – material diaphragm (process wetted) / sensor type	
CT	Ceramic Al ₂ O ₃ 96%/99,7% / capacitive
Process connection	
0	Thread ISO 228-1 – G½" B, front-flush
8	Thread ISO 228-1 – G¾" A, front-flush
5	Thread ISO 228-1 – G1" A, front-flush
Y	others
Material process gaskets (process wetted)	
1	FPM – fluorelastomere (e.g. Viton®)
3	EPDM – ethylene-propylene-dienmonomere, FDA-listed
4	FFKM – perfluorelastomere (e.g. Kalrez®)
6	FFKM hd – perfluorelastomere high density – gas applications
Y	others
Material process connection (process wetted)	
V	CrNi-steel
Material terminal enclosure	
C	CrNi-steel
Measuring range	
01	0...100 mbar
02	0...200 mbar
03	0...400 mbar
04	0...600 mbar
05	0...1 bar
06	0...1,6 bar
07	0...2,5 bar
08	0...4 bar
09	0...6 bar
10	0...10 bar
11	0...16 bar
17	-100...+100 mbar
18	-1...+1 bar
YY	Special measuring range
Electronic – output	
A	2-wire, current 4...20mA
B	3-wire, voltage 0...10V
Process temperature	
0	Standard -40°C...+100°C
1	Extended -40°C...+125°C, temperature decoupler
Pressure type	
R	Gauge pressure
A	Absolute pressure (≤ 25 bar)
Measuring system – accuracy	
2	0,25%
0	0,1%, linearization protocol
Electrical connection	
V	Plug M12x1
S	Plug EN 175-301-803-C (DIN 43650-C)
T	Plug EN 175-301-803-A (DIN 43650-A)
K	Kabel, L1 = 2m

Order code

Precont®

CT

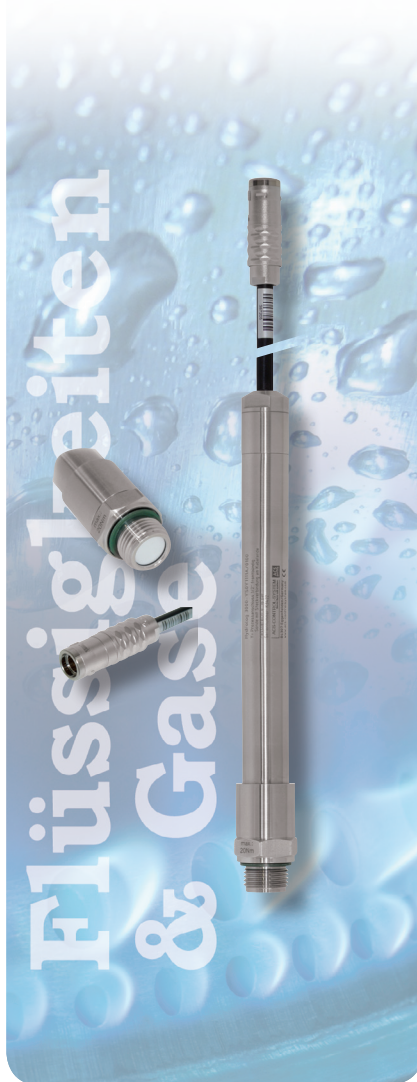
V

C

Equipment

Order information
BKZ0412-VA
LKZ0405PUR-AS
LKZ0410PUR-AS

Model
Matching cable socket, VA-nut
Connection cable 5 m, 4-pole, shielded
Connection cable 10 m, 4-pole



Description

The pressure sensor with data logger Prelog PDL is a battery powered system for autonomous measurement and registration of pressure in pipelines and containers.

The excellent characteristics like highest strength against pressure and pressure blows, high resistance against chemicals and corrosion, very good insensitiveness against temperature shocks and EM interference, highest accuracy and long term stability as well as low influence of temperature makes it possible to use the sensor in various fields with liquids like water, waste water, solvents, oil, sludge, grease, cleaning agents, etc., where levels and temperatures combined with date and time should be surveillanced without having any auxiliary power at the place of installation.

Because of an intelligent store management the internal data memory with a size of 64kB resp. 128kB allows a recording of minimum 21 600 up to maximum 216 000 measurement data sets at exclusive storage of the pressure measurement. A highly efficient lithium battery that is integrated in the probe ensures the power supply of the device. The battery life time is conceived for minimum 2.000.000 measurements. This equals a run time of minimum 10 years at a measurement rate of 1x per 3 minutes.

Because of many possibilities of adjustment a highest flexibility in the application for control level and especially for pumping test or long term surveillance is given.

Application

- pressure measurement from Vakuum up to Überdruck
- Aufzeichnung from Druckverläufen z.B. Druckluftversorgungen and Fernwassernetzen
- Protokollierung from Messwerten in der Heizungs- und Lüftungstechnik
- Dichtigkeitsüberprüfungen
- Aufzeichnung from Füllständen in Behältern

Your benefits

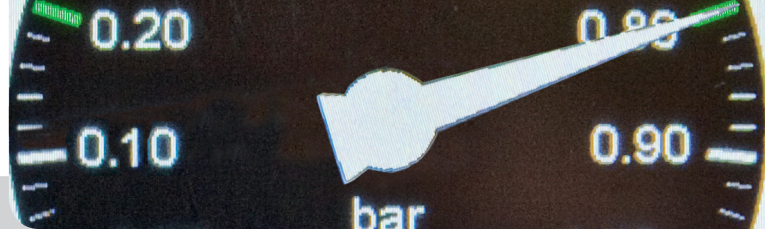
- High precise and *überlastfeste kapazitive Keramikmesszelle*
- Front flush Membrane; keine Ablagerungen and Verschmutzungen
- Für Relativ- Vakuum- or Absolutdruckmessung geeignet
- Sehr hohe *accuracy and long term stability*
- *Lange Batteriestandzeiten* durch Lithiumbatterie for mindestens 2 Mio. Messungen or 10 Jahre
- Komplette aus Edelstahl
- Nicht flüchtiger Messwertspeicher for up to zu 216 000 Messwerte
- *Einfaches Auslesen* der gesammelten Messwerte mittels Laptop or Handheld-PC

Specials

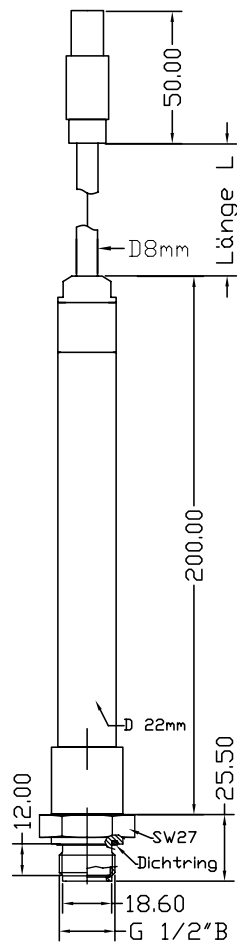
<p>Batterie-standzeit</p> <p>10 Jahre</p>	<p>bis</p> <p>216000</p> <p>Messungen</p>
<p>Alarm-management</p>	<p>robuste</p> <p>Keramik-messzelle</p>
<p>0,1%</p> <p>hohe</p> <p>Genauigkeit</p>	

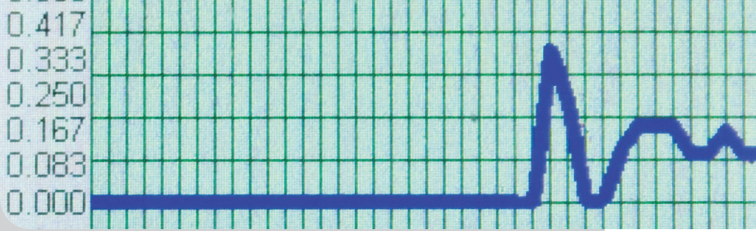
Order code page | 109 |

Technical data



Technical data	
Power supply:	Built-in lithium battery
Battery life:	≥ 2.000.000 measurements resp. ≥ 10 years at measurement interval from 1x per 3 minutes
Measurement accuracy	
Characteristics deviation:	≤ 0,1% resp. 0,25% FS
Units of measurement:	mWs / cmWs / bar / mbar / mNN / mredution
Measuring range:	-1...16bar
Material	
Membrane: (medium contact)	Ceramic AL ₂ O ₃ 96%
Process connection: (medium contact)	Steel 1.4404/316L resp. 1.4571/316Ti
Sondengehäuse: (medium contact)	Steel 1.4404/316L resp. 1.4571/316Ti
Gaskets: (medium contact)	FPM – fluorelastomer (Viton®) EPDM – ethylene-propylene-diene monomer
Cable:	PE polyethylene
Environmental conditions	
Ambient temperature:	– 25°C...+70°C, ice-free
Medium temperatures:	– 25°C...+70°C, ice-free





Model
0 Standard
T certificate for food- and drink water suitability of all medium contacting materials

Process connection
0 G½" B DIN EN ISO228-1, front-flush
8 G¾" A DIN EN ISO228-1, front-flush
5 G1" B, DIN EN ISO228-1 DIN 3852-11-E, front-flush

Gaskets (medium contact)
1 FPM - fluoroelastomer (Viton®)
3 EPDM - ethylene-propylene-diene monomer, for food applications

Material process connection (medium contact)
V Steel 1.4404/316L / 1.4571/316Ti

Material Connection housing
C CrNi-steel

Measuring range
01 0...100 mbar
02 0...200 mbar
03 0...400 mbar
04 0...600 mbar
05 0...1 bar
06 0...1,6 bar
07 0...2,5 bar
08 0...4 bar
09 0...6 bar
10 0...10 bar
11 0...16 bar
17 -100...+100 mbar
YY Special measuring range

storage capacity
1 128 kB max. 216 000 records measured value
max. 162 000 records measured value and temperature

Process temperature
0 Standard, -20°C up to +70°C

Pressure type
R Gauge pressure
A Absolute pressure (from 2,5 bar)

Measuring system - accuracy
0 0,1 %, with linearization protocol
2 0,25 %

Material connection cable
(Price per section of 100 mm)
A PE polyethylene

Cable length
dimension in mm

Order code

Prelog PDL

Order information
STK-RSU-232
STK-RSU-USB
GM600/GM620

Model
Schnittstellenkabel zur Verbindung Prelog with COM-Port (RS232) am PC
Schnittstellenkabel zur Verbindung Prelog with USB-Port am PC
Gerätemananger; Bedienungs- and Auswerteprogramm

Tables

Bar = bar
 Millibar = mbar
 Pound per square inch = PSI, lbf/in²
 Inch water column, 4°C = inch H₂O
 Inch mercury column 0°C = inch Hg

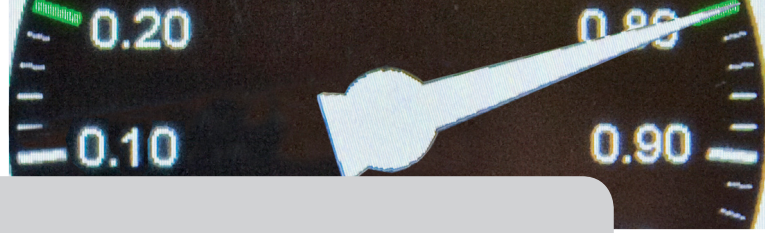
Pascal = Pa (N/m²)
 Meter water column 4°C = mWS, mH₂O
 Millimeter water column 4°C = mmWS
 Millimeter mercury column, 0°C . . . = mm Hg, Torr

Unit	bar	Pa	MPa	Kp/cm ³ /at	mm Hg (Torr)	mm WS	psi	inch H ₂ O	inch Hg
1 bar	1	10 ⁵	0,1	1,02	750	1,02x10 ⁻⁴	14,50	401,5	29,53
1 Pa	10 ⁻⁵	1	10 ⁻⁶	1,02x10 ⁻⁵	7,5x10 ⁻³	0,102	0,1450x10 ⁻³	4,015x10 ⁻³	0,2953x10 ⁻³
1 MPa	10	10 ⁶	1	10,2	7500	10,2x10 ⁻⁴	145,0	4015	295,3
1 kp/cm ³ (at)	0,981	9,81x10 ⁴	9,81x10 ⁻²	1	736	10 ⁻⁴	14,22	393,7	29,96
1 mm Hg (Torr)	1,333x10 ⁻³	133,32	1,333x10 ⁻⁴	1,36x10 ⁻³	1	13,6	1,934x10 ⁻²	0,535	3,937x10 ⁻²
1 mm WS	9,81x10 ⁻⁵	9,81	9,81x10 ⁻⁶	10 ⁻⁴	7,36x10 ⁻²	1	1,422x10 ⁻³	3,937x10 ⁻²	2,896x10 ⁻³
1 psi	6,895x10 ⁻²	6895	6,895x10 ⁻³	7,031x10 ⁻²	51,715	703,1	1	27,68	2,036
1 inch H ₂ O	2,491x10 ⁻³	249,1	2,491x10 ⁻⁴	2,54x10 ⁻³	1,868	25,4	3,613x10 ⁻²	1	7,36x10 ⁻²
1 inch Hg	3,386x10 ⁻²	3386,4	3,386x10 ⁻³	3,453x10 ⁻²	25,4	345,3	0,491	13,6	1

Temperature °C = 5/9 (°F-32)

Temperature °F = 9/5 °C +32

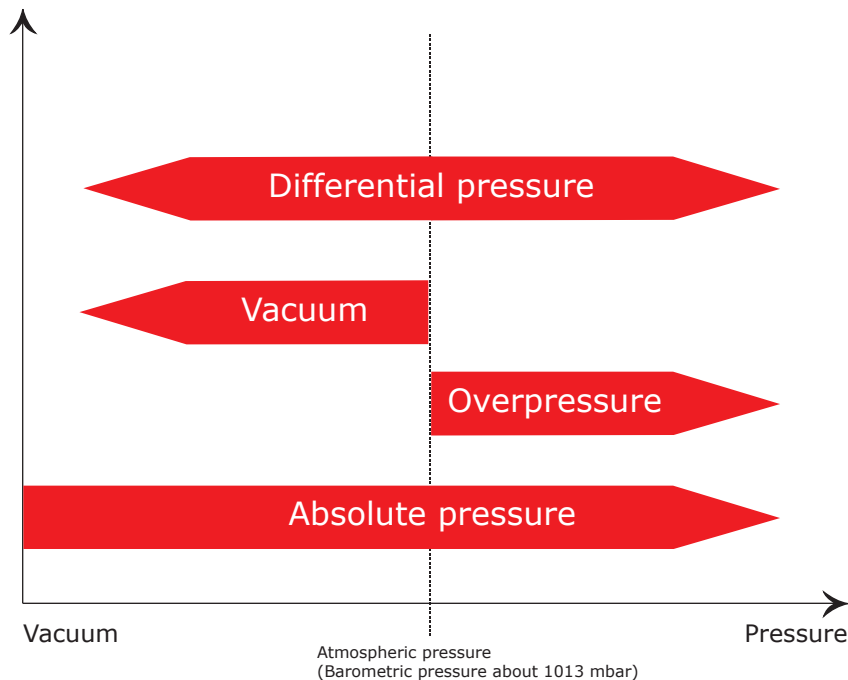
Temperature K = °C + 273,15

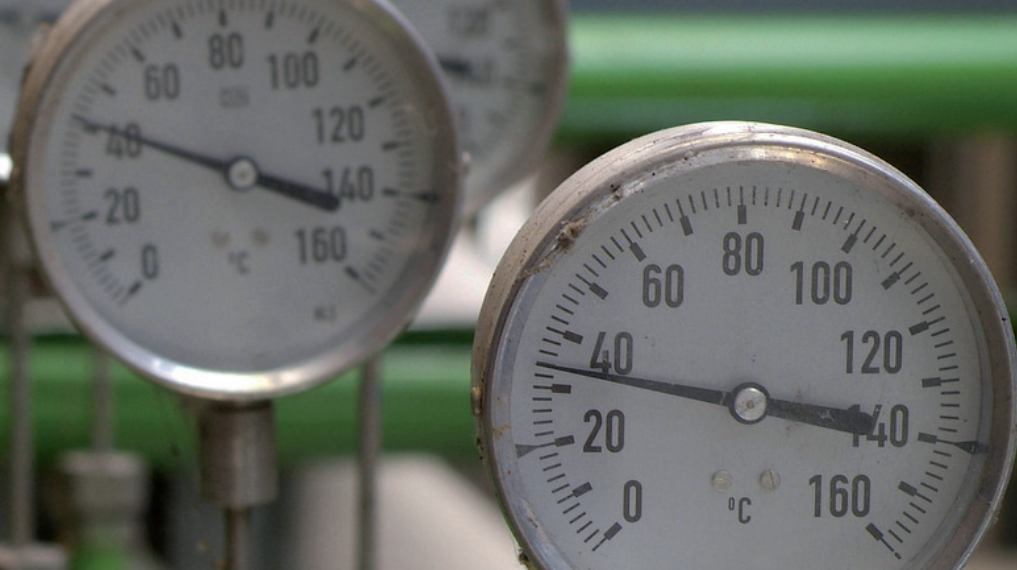


Pressure types

Pressure measurements are relative and refer to a reference pressure. In the Pressure Measurement four types of pressure are distinguished, which permit a statement about the relationship between the measured pressure to a reference pressure.

- Absolute pressure (A = absolute)
Measured pressure over absolute zero pressure,
Reference ideal vacuum,
Measured pressure is always higher than reference pressure
- Overpressure (G = gauge)
Measured pressure on the barometric daily air pressure,
Reference ambient pressure,
Measured pressure is always higher than reference pressure
- Vacuum (V = vacuum)
Pressure measured by barometric daily air pressure,
Reference ambient pressure,
Measured pressure is always less than the reference pressure
- Differential pressure (D = differential)
Measured pressure over or under any reference pressure,
Measured pressure of less or greater than reference pressure





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