WIKA Standard product portfolio

Pressure | Temperature | Level | Force | Flow | Calibration technology





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In this brochure you will find standard products from all WIKA product lines.

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You can find our industry-specific products with a lot of additional information in our segment brochures at www.wika.com.

- Sanitary applications
- Ventilation and air-conditioning
- SF₆ lifecycle solutions
- High purity & ultra high purity



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WIKA



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Bourdon tube pressure gauges

Copper alloy

These pressure gauges are suitable for liquid and gaseous media, so long as they are not highly viscous or crystallising and do not attack copper alloy parts. The scale ranges cover pressures from 0.6 ... 1,000 bar. These instruments are manufactured in accordance with the European standard EN837-1 (except for model 116.15 and 111.12 in NS 27).

For the individual models, various approvals such as EAC, GL and KBA exist. For measuring points with high dynamic loads, such as fast load cycles or vibrations, a liquid-filled design should be used.



113.13 214.11 Plastic case, liquid filling EAL 💿 Nominal size 40, 50, 63 mm Nominal size Scale range -1 ... 0 to 0 ... 400 bar Sc Accuracy class 25 Data sheet PM 01.04 Aco Da

Edgewise panel design



ale range	■ NS 96 x 96: 0 0.6 to 0 1,000 ba ■ NS 72 x 72: 0 0.6 to 0 400 bar
curacy class	1.6, 1.0
ta sheet	PM 02.07

116.15

DirectDrive, spiral tube



Nominal size 36. 41 mm Scale range Accuracy class 40 Data sheet PM 01.16

0 ... 185 to 0 ... 450 bar

212.20

Stainless steel case



Accuracy class 1.0 Data sheet PM 02.01

0 ... 0.6 to 0 ... 1,000 bar

213.40

Heavy-duty version, liquid filling



[f][@L

Nominal size Scale range Accuracy class Data sheet

63, 80, 100 mm -1 ... 0 to 0 ... 1,000 bar 1.0 (NS 100), 1.6 (NS 63 and 80) PM 02.06

113.53, 213.53

Stainless steel case, liquid filling



Thermomanometer

MFT **THM10** 100.02 With capillaries, for pressure and temperature measurement Eco version, for pressure and For pressure and temperature measurement temperature measurement EAL 💿 \odot \bigcirc Nominal size 40, 42, 52 mm Nominal size 63, 80 mm Nominal size 63, 80 mm Pressure 0 ... 4 bar Temperature 0 ... 120 °C Scale range Pressure 0 ... 1 to 0 ... 16 bar Temperature 0 ... 100 to 0 ... 150 °C Scale range Scale range ■ Pressure 0 ... 4 to 0 ... 10 bar ■ Temperature 0 ... 120 °C Accuracy class ■ Pressure 2.5 (EN 837-1) Connection location Lower mount or back mount Accuracy class Pressure 2.5 (EN 837-1) Temperature 2.5 Accuracy class Pressure 2.5 (EN 837-1) Temperature 2.5 Data sheet PM 01.20 ■ Temperature 2 (EN 13190) Data sheet PM 01.23 Data sheet PM 01.24

Bourdon tube pressure gauge

Stainless steel

The application areas for these pressure gauges, manufactured entirely in stainless steel, are gaseous and liquid aggressive media that are not highly viscous or crystallising, also in aggressive environments. They are suitable for scale ranges from $0 \dots 0.6$ to $0 \dots 7,000$ bar.

Dependant upon the pressure range and the instrument model, overload safety of up to a maximum of 5 x full scale value is possible. To this point, the measurement accuracy is maintained. Liquid filling the case ensures a precise instrument display, even with high dynamic pressure loads and vibrations.

131.11

Compact version



232.50, 233.50

 For the process industry, standard version

 Image: Standard version<

232.30, 233.30

Ingress protection IP65

Data sheet

 For the process industry, safety version

 Image: second state of the process industry, safety version

 Image: second state of the process industry, safety version

 Image: second state of the process industry, safety version

 Image: second state of the process industry, safety version

 Image: second state of the process industry, safety version

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PM 02.04

232.36, 233.36

High overload safety up to the 4-fold full scale value, safety version



& [f] (S)

Nominal size Scale range Overload safety Accuracy class Data sheet 100, 160 mm 0 ... 0.6 to 0 ... 40 bar Up to 4 times the measuring range 1.0 PM 02.15

232.34, 233.34

Data sheet

Process Gauge, safety version per ASME B40.100

PM 02.02



Test gauge

For highest accuracy

Depending upon the instrument model, accuracies of 0.1, 0.25 or 0.6 % of full scale value can be measured.

The pressure ranges cover from 0 ... 6 mbar to 0 ... max. 1,600 bar and are suitable for calibration tasks. For each of the pressure gauges specified here, a DKD/DAkkS certificate can be provided.

312.20

Copper alloy, class 0.6



PM 03.01

332.50, 333.50

EAE

Stainless steel, standard version, class 0.6



Nominal size	160 mm
Scale range	0 0.6 to 0 1,600 bar
Accuracy class	0.6
Ingress protection	IP65
Data sheet	PM 03.06

332.30, 333.30

Data sheet

Stainless steel, safety version, class 0.6 [fills] Nominal size 160 mm Scale range 0 ... 0.6 to 0 ... 1,600 bar Accuracy class 0.6 Ingress protection IP65

PM 03.05

342.11

Accuracy class

Data sheet

Ingress protection IP54

0.1

PM 03.03

Data sheet

Class 0.1, with transport case and acceptance test certificate EAE Nominal size 250 mm Scale range 0 ... 1 to 0 ... 1,600 bar

610.20, 630.20

For low pressure ranges to 600 mbar, class 0.6



Diaphragm pressure gauge

The application areas for diaphragm pressure gauges are very versatile. They are the specialists in the process industry when it comes to critical measuring tasks such as with highly corrosive or viscous media or when it comes to low pressures and high overload. The scale ranges are from as low as 0 ... 16 mbar to typically 0 ... 25 to 0 ... 40 bar. Dependant upon the pressure range and the instrument model, overload safety of 3 x or 5 x full scale value is possible as standard.

For special designs, an overload safety of up to 400 bar is possible, with the measurement accuracy maintained. Diaphragm pressure gauges are even suitable for highly viscous or contaminated media by using an open connecting flange (per DIN/ASME). For measuring particularly aggressive media, the complete wetted surface can be lined with a large selection of special materials (e.g. PTFE, Hastelloy, tantalum, and many more).

422.12, 423.12

Grey cast iron case

EAL

Nominal size



110111110110120	100, 100 1111
Scale range	0 16 mbar to 0 40 bar
Accuracy class	1.6
Ingress protection	IP54, with liquid filling IP65
Data sheet	PM 04.02

432.50, 433.50





Nominal size	100, 160 mm
Scale range	0 16 mbar to 0 25 bar
Accuracy class	1.6
Ingress protection	IP54, with liquid filling IP65
Data sheet	PM 04.03

432.36, 432.56

For the process industry, high overload safety to 40, 100 or 400 bar



€ FAE

Nominal s

Data shee

Nominal size	100, 160 mm
Scale range	0 16 mbar to 0 40 bar
Accuracy class	1.6
Ingress protection	IP54, with liquid filling IP65
Data sheet	PM 04 07

Capsule pressure gauge

For very low pressures

These measuring instruments are particularly suited to gaseous media. The scale ranges are between 0 ... 2.5 mbar and 0 ... 1,000 mbar in accuracy classes from 0.1 to 2.5. Capsule pressure gauges consist of two circular, corrugated diaphragms, joined together around the edge with a pressure-tight seal. Overload protection is possible in certain cases.

These capsule pressure gauges are used mainly within medical, vacuum, environmental and laboratory technology for contents measurement and filter monitoring.

611.10

Standard version



611.13



612.20

Stainless steel case



614.11, 634.11 Edgewise panel design For the process industry C **&** C3 Nominal size 72 x 72, 96 x 96, 144 x 144, 144 x 72 mm Nominal size Scale range ■ NS 72 x 72: 0 ... 25 to 0 ... 600 mbar Scale range ■ NS 96 x 96: 0 ... 10 to 0 ... 600 mbar NS 144 x 144: 0 ... 6 to 0 ... 600 mbar NS 144 x 72: 0 ... 4 to 0 ... 600 mbar

	=
Accuracy class	1.6
Data sheet	PM 06.05

632.50



632.51

Nomin

Scale

Accura

Ingress

Data s

For the process industry, high overload safety



al size	100, 160 mm
ange	0 2.5 mbar to 0 100 mbar
cy class	1.6
s protection	IP54
neet	PM 06.06

Differential pressure gauge

Differential pressure gauges work with a wide range of pressure elements. With this variety, measuring ranges from 0 ... 0.5 mbar to 0 ... 1,000 bar and static overlay pressures up to 400 bar are possible.

These measuring instruments monitor

- the pollution degree in filter systems н.
- the level in closed tanks
- the overpressure in clean rooms
- н. the flow of gaseous and liquid media
- and they control pumping plants

700.01, 700.02

With magnetic piston or with magnetic piston and separating diaphragm



700.01: 0 400 mbar to 0 10 bar 700.02: 0 160 mbar to 0 2.5 bar
700.01: ± 3 % 700.02: ± 5 % with increasing differential pressure
IP54
PM 07.14

711.12, 731.12

With parallel entry, copper alloy or stainless steel



Nominal size	100, 160 mm
Scale range	0 0.6 to 0 1,000 bar
Accuracy class	1.6
Ingress protection	IP33
Data sheet	PM 07.02

DPG40

With integrated working pressure indication (DELTA-plus)



Nominal size	100 mm
Scale range	0 0.16 to 0 10 bar
Accuracy class	2.5
ngress protection	IP65
Data sheet	PM 07.20

716.11, 736.11

EAE

For very low differential pressures from 2.5 mbar, copper alloy or stainless steel



Nominal size 100, 160 mm Scale range NS 100: 0 ... 10 to 0 ... 250 mbar NS 160: 0 ... 2.5 to 0 ... 250 mbar Accuracy class 1.6 Ingress protection IP66 Data sheet PM 07.07

732.51

EAE

N

For the process industry, all-metal media chamber



Nominal size 100, 160 mm Scale range 0 ... 16 mbar to 0 ... 25 bar Accuracy class 1.6 Ingress protection IP54, with liquid filling IP65 Data sheet PM 07.05

732.14

For the process industry, high overload safety to 40, 100, 250 or 400 bar



	100, 100 11111
Scale range	 0 60 to 0 250 mbar (measuring cell DN 140) 0 0.25 to 0 40 bar (measuring cell DN 82)
Accuracy class	1.6
Ingress protection	IP54, with liquid filling IP65
Data sheet	PM 07.13

EAE

Absolute pressure gauge

Absolute pressure gauges are used when measured pressures are independent of the natural fluctuations in atmospheric pressure. The pressure of the measured media is determined against a reference pressure, which corresponds to the absolute pressure zero point. For this, the reference chamber is completely evacuated, so that there is a near-perfect vacuum in it. Applications for these high-precision measuring instruments are, for example, monitoring of vacuum pumps and vacuum packing machines. They are also used in laboratories, in order to monitor condensation pressures or to determine the vapour pressure of liquids.

532.52, 532.53, 532.54

High overload safety

Geo FIII	
Nominal size	100, 160 mm
Scale range	0 25 mbar to 0 25 bar abs., high overload safety
Accuracy class	1.0 2.5
Ingress protection	IP54, with liquid filling IP65
Data sheet	PM 05.02

Digital pressure gauge

DG-10

Digital pressure gauge for general industrial applications



CPG500

Digital pressure gauge



Accuracy	
(% of span)	0.25 ±1 digit
Measuring range	■ 0 60 to 0 1,000 bar ■ -1 +20 to -1 + 40 bar
Special feature	 Robust case with protective rubber cap Simple operation using four buttons
Data sheet	CT 09.01

CPG1500

Precision digital pressure gauge



Process transmitters

UPT-20

Universal process transmitter with standard connection, Ex intrinsically safe



steel case

PE 86.05

Freely scalable measuring range ■ Simple menu navigation Conductive plastic case or stainless

Large LC display, rotatable

UPT-21

Universal process transmitter with flush process connection



Non-linearity (% of span) Output signal Measuring range	≤ 0.1 4 20 mA, HART [®] ■ 0 0.4 to 0 600 bar ■ 0 1.6 to 0 40 bar abs. ■ -0.2 +0.2 to -1 +40 bar
Special feature	 Multi-functional display (optional) Freely scalable measuring range Simple menu navigation Conductive plastic case or stainless steel case in hygienic design Large LC display, rotatable
Data sheet	PE 86.05

IPT-10, IPT-11

Process pressure transmitter, intrinsically safe or with flame-proof enclosure



Non-linearity	
(% of span)	≤ 0.075 0.1
Output signal	4 … 20 mA, HART [®] protocol (optional), PROFIBUS [®] PA, FOUNDATION [™] Fieldbus
Measuring range	 0 0.1 to 0 4,000 bar 0 0.1 to 0 60 bar abs. -1 0 to -1 +60 bar
Special feature	 Freely scalable measuring ranges (turndown to 30:1) Case from plastic, aluminium or stain- less steel Flush process connection (optional) With integrated display and instrument mounting bracket for wall/pipe mounting (optional)
Data sheet	PE 86.11

DPT-10

Data sheet

Differential pressure transmitter, intrinsically safe or with flameproof enclosure



E EALEX

N

Ion-linearity	
% of span)	≤ 0.075 0.15
Dutput signal	4 20 mA, HART® protocol (optional), PROFIBUS® PA
leasuring range	0 10 mbar to 0 40 bar
Special feature	Freely scalable measuring ranges (turndown to 30:1)
	Static load 160 bar, optionally 420 bar
	Case from plastic, aluminium or stain-
	less steel
	With integrated display and instrument

PE 86.21

lay and instrument mounting bracket for wall/pipe mounting (optional)

Data sheet

Pressure sensors

A-10



S-20

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S

For superior industrial applications



lon-linearity ± % of span)	≤ 0.125, 0.25 or 0.5 BFSL
leasuring range	 0 0.4 to 0 1,600 bar 0 0.4 to 0 40 bar abs. -1 0 to -1 +59 bar
Special feature	 Extreme operating conditions Customer-specific variants Free test report
Data sheet	PE 81.61

S-11

Flush diaphragm



Non-linearity ± % of span)	≤ 0.2 BFSL
Measuring range	 0 0.1 to 0 600 bar 0 0.25 to 0 16 bar abs. -1 0 to -1 +24 bar
Special feature	 Flush process connection Medium temperature up to 150 °C Comprehensive stocks
Data sheet	PE 81.02

IS-3		E-10, E-11		
Intrinsic safety Ex i		Flameproo	Flameproof enclosure Ex d	
<a>€<a>€<a>6<a>6				
Accuracy (± % of span)	≤ 0.5	Accuracy (± % of span)	≤ 0.5	
Measuring range	 0 0.1 to 0 6,000 bar 0 0.25 to 0 25 bar abs. -1 0 to -1 +24 bar 	Measuring range	 0 0.4 to 0 1,000 bar 0 0.4 to 0 16 bar abs. -1 0 to -1 +25 bar 	
Special feature	 Further worldwide Ex approvals High-pressure version (optional) Flush process connection (optional) Suitable for SIL 2 per IEC 61508/ IEC 61511 	Special feature	 Low-power version For sour gas applications (NACE) Flush process connection (optional) Worldwide Ex approvals 	
Data sheet	PE 81.58	Data sheet	PE 81.27	

HP-2

For highest pressure applications to 15,000 bar



[fil ©

Accuracy	
(± % of span)	≤ 0.25 or 0.5
Measuring range	0 1,600 to 0 15,000 bar
Special feature	 Very high long-term stability Excellent load cycle stability Cavitation protection (optional)
Data sheet	PE 81.53

M-10, M-11

Spanner width 19

Non-linearity	
(± % of span)	≤ 0.2 BFSL
Measuring range	■ 0 6 to 0 1,000 bar
Special feature	 Small spanner width 19 mm Flush connection G ¼ available
Data sheet	PE 81.25

P-30, P-31

EHE 🞯

For precision measurements



Accuracy ± % of span)	≤ 0.1 or 0.05
Measuring range	 0 0.25 to 0 1,000 bar 0 0.25 to 0 25 bar abs. -1 0 to -1 +15 bar
Special feature	 No additional temperature error in the range 10 60 °C Flush process connection (optional) Analogue, CANopen[®] or USB
Data sheet	PE 81.54

Accuracy (a vol of span) s 1 or 0.5 Special feature 0... 0.0 to 0... 1,000 bar Special feature 0... 0.0 to 0... 1,000 bar Special feature 0... 0.0 to 0... 1,000 bar Data sheet Persion with integrated Y-connector

OEM pressure sensors

O-10

For industrial applications



Non-linearity (± % of span)	≤ 0.5 BFSL
Measuring range	■ 0 6 to 0 600 bar ■ -1 +5 to -1 +59 bar
Special feature	 For OEM quantities Customer-specific variants Special version for applications with water as medium
Data sheet	PE 81.65

MH-3

For mobile working machines



€ EAE

Accuracy	
(± % of span)	\leq
Measuring range	0
Special feature	
	•
	-
Data sheet	P

≤ 1
0 6 to 0 600 bar
For extreme operating conditions
Compact and robust design
 Diagnostic function (optional)
Signal clamping (optional)
 Customer-specific adaptations possible

E 81.59

R-1

For refrigeration and air-conditioning applications



c 🔊 us EAE 🞯

Accuracy (± % of span) ≤2 Measuring range Special feature

Data sheet

- 0 ... 6 to 0 ... 160 bar ■ -1 ... +7 to -1 ... +45 bar
- Special case design for the best
 - possible condensation tightness Resistant to all common refrigerants

PE 81.45

C-2 For air compressors Accuracy (± % of span) $\leq 1 \text{ or } 2$ Measuring range 0 ... 6 to 0 ... 60 bar ■ -1 ... +10 to -1 ... +45 bar Robust design Special feature

Compact design Long service life and high reliability PE 81.47

MG-1

For medical gases EHE 🎯 Accuracy (± % of sp

(± % 01 spart)	52
Measuring range	■ 0 6 to 0 400 bar ■ -1 +6 bar
Special feature	Cleaned, packed and labelled for oxygen per international standards
Data sheet	PE 81.44

Data sheet

Sensor assemblies and modules

Customer-specific electronic pressure measurement solutions

We see ourselves not only as a provider of top quality measurement technology, but also as a highly competent partner that is able to create individually designed solutions together with you. We are ready to develop products for you that are tailor made to cater for your individual needs. Create your perfect pressure sensor solution together with us. Here, the experience from a multitude of completed projects is incorporated - thus we can refer back to numerous proven solutions and components. As required, we will adapt our systems to your individual application or develop new ones.

Talk to us - we are happy to provide you with advice!

TTF-1 SCT-1 SPR-2, TPR-2 Metal thin-film sensor assembly Ceramic sensor assembly Piezo sensor element and sensor assembly Non-linearity Non-linearity Non-linearity ≤ 0.1 ... 0.5 ≤ 0.25 ... 0.5 ≤ 0.3 (± % of span) (± % of span) (± % of span) Measuring range 0 ... 10 to 0 ... 1,000 bar Measuring range 0 ... 2 to 0 ... 100 bar Measuring range 0 ... 0.4 to 0 ... 25 bar Special feature Excellent resistance to media Special feature Excellent resistance to media 0 ... 0.4 to 0 ... 25 bar abs. Very good pressure spike and burst mV/V Special feature Gauge and absolute pressure Signal pressure safety measurement Data sheet PE 81.40 High output signal mV/V Signal PE 81.16 High overpressure safety Data sheet Signal mV/V Data sheet PE 81.62

TI-1

Piezo or metal thin-film sensor module



Accuracy (± % of span)	≤ 0.25
Measuring range	0 0.4 to 0 1,000 bar
Special feature	 Processed signal High variance in process connection
Signal	Analogue and digital
Data sheet	PE 81.57

ections

Pressure gauges with output signal

The multi-functional intelliGAUGEs present a cost-effective and, at the same time, reliable solution for nearly all pressure measurement applications. They combine the analogue indication of a mechanical pressure gauge, needing no external power, with the electrical output signal of a pressure sensor. These hybrid instruments are available with all commonly used electrical signals. The sensor works in a non-contact way, without any influence on the measuring signal. Many of the instruments can be delivered in accordance with ATEX Ex ia.

Depending on the pressure gauge, the following electrical output signals are possible:

- 0.5 ... 4.5 V (ratiometric)
- н. 4 ... 20 mA, 2-wire
- 4 ... 20 mA, 2-wire with Ex approvals н.
- 0 ... 20 mA, 3-wire
- 0 ... 10 V, 3-wire

For pressure gauges with nominal sizes 100 and 160 mm, the electrical output signals can also be combined with switch contacts.

PGT21

Bourdon tube, stainless steel case

ERE ©	
Nominal size	50, 63 mm
Scale range	0 1.6 to 0 400 bar
Accuracy class	2.5

Ingress protection IP65, optional IP67

PV 11.03

PGT43

Data sheet

Diaphragm element, for the process industry, high overload safety up to the 10-fold full scale value, max. 40 bar



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Nominal size	100, 160 mm
Scale range	0 16 mbar to 0 25 bar
Accuracy class	1.6
Ingress protection	IP54, with liquid filling IP65
Data sheet	PV 14.03

PGT23.063

Bourdon tube, for the process industry, safety version



NUTIIIIai Size	03 11111
Scale range	0 1 to 0 1,000 bar
Accuracy class	1.6
Ingress protection	IP54, filled IP65
Data sheet	PV 12.03

PGT43HP

No

Diaphragm element, for the process industry, high overload safety to 40, 100 or 400 bar



Scale range 0 ... 16 mbar to 0 ... 40 bar Accuracy class 1.6 Ingress protection IP54, with liquid filling IP65 Data sheet PV 14.07

PGT23.100, PGT23.160



PGT63HP

🚱 [fil

Capsule element, for the process industry, high overload safety

No. 1
<u></u>

Nominal size	100, 160 mm
Scale range	2.5 100 mbar
Accuracy class	1.6
Ingress protection	IP54
Data sheet	PV 16.06

intelliGAUGE®

DPGT43

Differential pressure, for the process industry, all-metal media chamber



Nominal size	100, 160 mm
Scale range	0 16 mbar to 0 25 bar
Accuracy class	1.6
Ingress protection	IP54, filled IP65
Data sheet	PV 17.05

😡 [A[

PV 17.05 DPGT40

Differential pressure, with integrated working pressure indication (DELTA-trans)

IP65

PV 17.19



🐼 [f][💷 🎬 🕥

Nominal size
Scale range
Accuracy class
Ingress protection
Data shoot

e
100 mm
0 0.16 to 0 10 bar
2.5 (optional 1.6)

DPGT43HP

Differential pressure, for the process industry, high overload safety to 40, 100, 250 or 400 bar



Nominal size	100, 160 mm
Scale range	0 60 mbar to 0 40 bar
Accuracy class	1.6
Ingress protection	IP54, filled IP65
Data sheet	PV 17.13

APGT43

€⊋ [**f**][

Absolute pressure, for the process industry



Nominal size	100, 160 mm
Scale range	0 25 mbar to 0 25 bar abs.
Accuracy class	2.5
Ingress protection	IP54, with liquid filling IP65
Data sheet	PV 15.02

Contact pressure gauge

Control systems are gaining more and more importance in industrial applications. Consequently, mere pressure indication on the measuring instrument itself is no longer sufficient, rather the measured value must be transferred to the control system via an electrical signal, e.g. by closing or opening of a circuit. WIKA is focusing on its contact pressure gauges in order to satisfy this trend.

All instruments with inductive contacts are certified in accordance with ATEX Ex ia.

Depending on the model the following contacts are built-in:

- Magnetic snap-action contact, e.g. model 821, for general applications
- Inductive contact model 831, for hazardous areas
- н. Electronic contact model 830E, for PLC
- Reed contact model 851, for general applications and PLC
- . Micro switch model 850
- Transistor output NPN or PNP

PGS21

Accurac

Ingress

Special

Data she

Bourdon tube, stainless steel case

EAL ©	
Nominal size	40, 50, 63 mm
Scale range	0 2.5 to 0 400 bar

nge	0 2.5 to 0 400 bar
y class	2.5
protection	IP65
feature	NS 50: Version with VdS or LPCB approval possible
eet	PV 21.02

PGS23.100, PGS23.160

Bourdon tube, for the process industry, standard or safety version



€ [ff[(S)

Nominal size	1
Scale range	С
Accuracy class	1
Ingress protection	П
Data shoot	E

E

00, 160 mm	
0.6 to 0 1,600 bar	
.0	
P65 or IP66	
1/ 22 02	

PGS25

Bourdon tube, with electronic pressure switch, stainless steel case



Nominal size	50, 63 mm
Scale range	0 1.6 to 0 400 bar
Accuracy class	2.5
Ingress protection	IP65
Data sheet	PV 21.04

PGS23.063

No Sca

Aco

Ing Da

Bourdon tube, for the process industry, safety version



minal size	63 mm
ale range	0 4 to 0 400 bar
curacy class	1.6
ress protection	IP54
a sheet	PV 22.03

PGS21.100, PGS21.160

Bourdon tube, stainless steel case



© [f][
Nominal size	

100, 160 mm Scale range 0 ... 0.6 to 0 ... 600 bar Accuracy class 1.0 Ingress protection IP54 Data sheet PV 22 01

PGS43.100, PGS43.160

Diaphragm element, for the process industry, high overload safety up to the 10-fold full scale value, max. 40 bar



Nominal size	100, 160 mm
Scale range	0 25 mbar to 0 25 bar
Accuracy class	1.6
Ingress protection	IP54, with liquid filling IP65
Data sheet	PV 24.03

432.36, 432.56 with 8xx

Diaphragm element, for the process industry, high overload safety to 100 or 400 bar



€ F#E

Nominal size	100, 1
Scale range	0 25
Accuracy class	1.6
Ingress protection	IP54, v
Data sheet	PV 24.

60 mm 5 mbar to 0 ... 40 bar with liquid filling IP65 .07

DPGS40

Differential pressure, with micro switches, with integrated working pressure indication (DELTA-comb)



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Nominal size
Scale range
Accuracy class
Ingress protection
Data sheet

	100 mm
	0 0.25 to 0 10 bar
	2.5 (optional 1.6)
۱	IP65
	PV 27.20

532.53 with 8xx

Absolute pressure, for the process industry, high overload safety



Nominal size	100, 160 mm
Scale range	0 25 mbar to 0 25 bar abs.
Accuracy class	1.6
Ingress protection	IP54, with liquid filling IP65
Data sheet	PV 25.02

DPGS43

Differential pressure, for the process industry, all-metal media chamber



Scale range Accuracy class 1.6 Ingress protection IP54, filled IP65 Data sheet PV 27.05

632.51 with 8xx

Capsule element, for the process industry, high overload safety



Nominal size	100, 160 mm
Scale range	0 2.5 to 0 100 mbar
Accuracy class	1.6
Ingress protection	IP54
Data sheet	PV 26.06

DPGS43HP

€ FHE

Differential pressure, for the process industry, high overload safety to 400 bar



Nominal size	100, 160 mm
Scale range	0 60 mbar to 0 40 bar
Accuracy class	1.6
Ingress protection	IP54, filled IP65
Data sheet	PV 27.13

Pressure switches

Electronic pressure switches

PSD-4		
Electronic pressure switch with display		
🏨 🏵 IO -Lin	ık EHE ⊕	
Accuracy (± % of span)	≤ 0.5	
Measuring range	 0 0.4 to 0 1,000 bar 0 0.4 to 0 25 bar abs. -1 0 to -1 +24 bar 	
Special feature	 Easily readable, robust display Intuitive and fast setup Easy and flexible mounting configurations Flexibly configurable and scalable output signals 	
Data sheet	PE 81.86	

Mechanical pressure switches for industrial applications

PSM01

Setting range

Switching power

Material

Data sheet

standard version

WIKAI BE

1A/4A, AC 48 V

PV 34.81

0.5A/2A, DC 24 V

PSM02

OEM compact pressure switch, with settable hysteresis **OEM compact pressure switch,** -0.85 ... -0.15 bar 0.2 ... 2 bar to 40 ... 400 bar Setting range -0.85 ... -0.15 bar 0.2 ... 2 bar to 40 ... 400 bar Switching function Change-over contact (SPDT) Switching function Change-over contact (SPDT) Galvanised steel, stainless steel Material Galvanised steel, stainless steel

Switching power

Data sheet

1A/4A, AC 250 V

0.5A/2A, DC 24 V

PV 34.82

Mechanical pressure switches for the process industry

Due to the use of high-quality micro switches, the mechanical pressure switches are notable for their high precision and longterm stability. Furthermore, the direct switching of electrical loads up to AC 250 V / 20 A is enabled, while simultaneously ensuring a high switch point reproducibility.

The instruments come with a SIL certificate and are thus particularly suited for safety-critical applications. In addition, with their 'intrinsically safe' and 'flameproof enclosure' ignition protection types the pressure switches are ideally suited for permanent use in hazardous environments. All mechanical pressure switches for the process industry are available with EAC certificate and technical passport.





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Setting range	1 2.5 to 50 400 bar
Ignition protection	
type	Ex ia or Ex d
Switch	1 x SPDT
Switching power	AC 250 V / 5 A DC 24 V / 5 A
Data sheet	PV 34.36, PV 34.38



Compact pressure switch



Setting range	-0.2 1.2 to 100 600 bar
Ignition protection	
type	Ex ia or Ex d
Switch	1 x SPDT or DPDT
Switching power	AC 250 V / 15 A DC 24 V / 2 A
Data sheet	PV 33.30, PV 33.31

MW, MA

Diaphragm pressure switch



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Setting range	0 16 mbar to 30 600 bar
Ignition protection	
type	Ex ia or Ex d
Switch	1 or 2 x SPDT or 1 x DPDT
Switching power	AC 250 V / 20 A DC 24 V / 2 A
Data sheet	PV 31.10, PV 31.11

BWX, BA

Bourdon tube pressure switch



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Setting range	0 2.5 to 0 1,000 bar
Ignition protection	
type	Ex ia or Ex d
Switch	1 or 2 x SPDT or 1 x DPDT
Switching power	AC 250 V / 20 A DC 24 V / 2 A
Data sheet	PV 32.20, PV 32.22

DW, DA

Set

Differential pressure switch



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Setting range	0 16 mbar to 0 40 bar, static pressure to 160 bar
Ignition protection type	Ex ia or Ex d
Switch	1 or 2 x SPDT or 1 x DPDT
Switching power	AC 250 V / 20 A DC 24 V / 2 A
Data sheet	PV 35.42, PV 35.43

APW, APA

F

Absolute pressure switch



Setting range	0 25 mbar to 0 1.5 bar abs.
Proof pressure	11 bar abs.
gnition protection	
уре	Ex ia or Ex d
Switch	1 or 2 x SPDT or 1 x DPDT
Data sheet	PV 35.49
	PV 35.48

Diaphragm seal systems

These combinations of diaphragm seals and pressure gauges or pressure sensors feature fast availability. They are particularly suitable for demanding measuring tasks in the pharmaceutical and biotechnology industries, food and beverage industries, and through to the oil & gas, chemical, petrochemical and semiconductor industries.

The diaphragm seal systems can be used for processes with gases, compressed air or vapour, with liquid, paste-like, powdery and crystallising media and also with aggressive, adhesive,

corrosive, highly viscous, environmentally hazardous or toxic media.

The diaphragm seal is directly welded to the pressure gauge or pressure sensor. The diaphragm made of stainless steel provides for the separation from the medium. The pressure is transmitted to the measuring instrument via the system fill fluid which is inside the diaphragm seal system.

With flange connection



DSS27M

With pressure gauge per EN 837-1, flush diaphragm



Applications with high requirements in the process industry, in	
machine building and in plant construction	
PN max	40 bar
System fill fluid	KN2
Data sheet	DS 95.12

DSS27T

With high-quality pressure sensor, flush diaphragm



Applications with high requirements in the process industry, in machine building and in plant construction	
PN max	40 bar
System fill fluid	KN2
Data sheet	DS 95.13

With threaded connection



DSS34M

With pressure gauge per EN 837-1, welded design



Applications with high requirements in the chemical,	
petrochemical and water treatment industries	
PN max	60 bar
System fill fluid	KN2 for general applications
Data sheet	DS 95.15

DSS34T

Ρ

With high-quality pressure sensor, welded design



PN max	60 bar
System fill fluid	KN2 for general applications
Data sheet	DS 95.16

Diaphragm seals – combinations and accessories

WIKA diaphragm seals can be connected to almost all pressure gauges, process transmitters, pressure switches or pressure sensors. Mounting may be made via a direct connection, a cooling element or a corresponding capillary.

The combined systems can therefore withstand a pressure of 10 mbar up to 3,600 bar at extreme temperatures (-130 \ldots +400 $^\circ C)$

and with a wide variety of media, thus enabling pressure measurements under extreme conditions. The optimal diaphragm seal designs, materials, system fill fluids and accessories are available for each application. The diaphragm seals can be supplied with test certificates and approvals for special applications.



Accessories

- Sealings (also with approvals)
- Clamp connections
- Flushing rings
- Plug screws
- Valves
- Instrument mounting brackets and adapters
- Union nuts
- Transition pieces
- Connection adapters, e.g. VARIVENT[®], clamp, aseptic, welding sleeves, weld stubs

Extensive information can be found in our brochure "Diaphragm seals – combinations and accessories" at www.wika.de.



Electrical accessories

A-AI-1, A-IAI-1

LCD attachable indicator, 50 x 50 mm



M12 x 1 cable

Cable assemblies M12 x 1



Circular connector M12 x 1, 4- and 5-pin
 Straight and angled version
 2, 5 or 10 m cable

Ingress protection IP67

(!)

IS Barrier

Intrinsically safe repeater power supply



1-channel input 0/4 ... 20 mA

- Intrinsically safe [Ex ia], supplying and non-supplying
- Galvanic isolation
 Bidirection and the provided statement of the provi
- Bidirectional HART[®] signal transmission
 Suitable for SIL 2 per IEC 61508/IEC 61511
- Suitable for SIL 2 per IEC 61508/IEC 615
 Data shoot AC 90.14
- Data sheet AC 80.14

905

Contact protection relay for model 821 switch contacts



 Application
 For optimal contact protection and highest switching reliability

 Data sheet
 AC 08.01

904

Control unit for inductive contacts model 831



Valves and protective devices

Valves

910.10, 910.11

Stopcock and DIN shut-off valve



IV10, IV11

Needle valve and multiport valve



Application	For shutting off pressure measuring instruments with threaded connection
Version	Needle valve and multiport valve
Material	Stainless steel
Nominal pressure	To PN 420 (6,000 psi) Option: To PN 680 (10,000 psi)
Data sheet	AC 09.22

IV20, IV21

Block-and-bleed valve, square or flat form



Application	For shutting off and venting pressure measuring instruments with threaded connection
Version	Block-and-bleed valve
Material	Stainless steel
Nominal pressure	To PN 420 (6,000 psi) Option: To PN 680 (10,000 psi)
Data sheet	AC 09.19

IV30, IV31, IV50, IV51

Valve manifold for differential pressure measuring instruments



	as well as purging and venting differential pressure measuring instruments
Version	Three-way and five-way valves
Material	Stainless steel
Nominal pressure	To PN 420 (6,000 psi) Option: To PN 680 (10,000 psi)
Data sheet	AC 09.23

910.80

Ν Г

Monoflanges



	connection
Version	Flange connection per ASMI or EN
Material	Stainless steel
Nominal pressure	To 160 bar
Data sheet	AC 09.17

Protective devices

910.12, 910.13

Snubbers and	
overpressure protectors	



AC 09.03, AC 09.04

910.15	
Syphons	
Application	For the protection of pressure measuring instruments from excessive pulsation and heat
Version	U-form, trumpet form, compact form, standard
Material	Steel, stainless steel
Nominal pressure	To 160 bar
Data sheet	AC 09.06

Mounting accessories

910.14, 910.16, 910.17

Adapters, instrument mounting brackets and sealings



Application Data sheet

Data sheet

For mounting and sealing pressure gauges AC 09.05, AC 09.07, AC 09.08

Dial thermometers

Our dial thermometers work on the bimetal, expansion or gas actuation principle. This enables scale ranges of -200 ... +700 °C in different class accuracies, response times and resilience to environmental influences. Diverse connection designs, stem diameters and individual stem lengths enable a flexible measuring point design.

Dial thermometers with capillaries are particularly versatile. All thermometers are suited for operation in a thermowell if necessary.

Bimetal thermometer

A43 A48 A51 Heating technology **Refrigeration and air-conditioning** Heating technology, technology high-quality version WIKA Nominal size 63, 80, 100 mm Nominal size 63, 80, 100, 160 mm Nominal size 63, 80, 100 mm -30 ... +250 °C Scale range -30 ... +120 °C Scale range -30 ... +120 °C Scale range Permissible operating pres-Wetted parts Copper alloy Connection Smooth, with surface mounting sure at thermowell/stem Max. 6 bar TM 48.01 flange Data sheet Smooth, with sliding plastic Wetted parts Copper alloy flange ■ Smooth, with 18 mm collar Ø TM 43.01 Data sheet for thermowell mounting Wetted parts Copper alloy Data sheet TM 51.01 52 53 54 Industrial series, Industrial series, **Process version to EN 13190** axial and radial axial, adjustable stem and dial 6 GL 💿 €2€ Nominal size 25, 33, 40, 50, 63, 80, Nominal size Nominal size 63, 80, 100, 160 mm 3", 5" 100, 160 mm Scale range -70 ... +70 to 0 ... +600 °C Scale range -70 ... +70 to 0 ... +600 °C -30 ... +50 to 0 ... +500 °C Wetted parts Wetted parts Stainless steel Scale range Stainless steel Permissible operating pres-Option Liquid damping to max. 250 °C Option Liquid damping to max. 250 °C Max. 25 bar sure at thermowell/stem (case and probe) (case and probe) Wetted parts Stainless steel Data sheet TM 53.01 Data sheet TM 54.01 Data sheet TM 52.01

Bimetal thermometer



Expansion thermometers



70

With capillary, stainless steel version

Machine glass thermometer



IFC

With capillary, standard version



Nominal size	52, 60, 80, 100 mm
	48 x 48, 72 x 72, 96 x 96 mm
Scale range	-100 +400 °C
Wetted parts	Copper alloy
Option	Square case version
	 Other case materials
	With micro switch
Data sheet	TM 80.01

Dial thermometers

Gas-actuated thermometers



Thermomanometers

MFT With capillaries, for pressure and temperature measurement [A[🕥 \odot Nominal size 40, 42, 52 mm 1 Scale range ■ Pressure 0 ... 4 bar ■ Temperature 0 ... 120 °C Pressure 2.5 (EN 837-1) Accuracy class 0 ■ Temperature 2.5 Data sheet PM 01.20

THM10

Eco version, for pressure and temperature measurement



lominal size	63, 80 mm
Scale range	 Pressure 0 4 to 0 10 bar Temperature 0 120 °C
Connection location	Lower mount or back mount
Accuracy class	 Pressure 2.5 (EN 837-1) Temperature 2 (EN 13190)
Data sheet	PM 01.24

100.02

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No

Sca

Aco

Dat

For pressure and temperature measurement



minal size	63, 80 mm
ale range	 Pressure 0 1 to 0 16 bar Temperature 0 100 to 0 150 °C
curacy class	 Pressure 2.5 (EN 837-1) Temperature 2.5 °C
a sheet	PM 01.23

Dial thermometers with output signal

TGT70		TGT73	
Expansion thermometer with output signal		Gas-actu with outp	ated thermometer out signal
ERE			
Nominal size	63, 100 mm	Nominal size	100, 160 mm
Scale range	-40 +60 to 0 250 °C	Scale range	-200 +100 to 0 700 °C
Wetted parts	Stainless steel	Wetted parts	Stainless steel
Option	 Capillary Output signals 4 20 mA or 0.5 4.5 V Other connection designs 	Option	Capillary Liquid damping (case) Output signal 4 20 mA or 0 10 V
Data sheet	TV 18.01	Data Sheet	1 17.10

Digital indicators

DI10

For panel mounting, current loop display, 96 x 48 mm



Input	4 20 mA, 2-wire
Alarm output	2 electronic contacts (optional)
Special feature	Wall-mounting case (optional)
Power supply	From the 4 20 mA current loop
Data sheet	AC 80.06

DI25

For panel mounting, 96 x 48 mm



Input	Multi-function input for resistance thermo- meters, thermocouples and standard signals
Alarm output	 3 relays 2 relays for instruments with integrated transmitter power supply DC 24 V
Power supply	■ AC 100 240 V ■ AC/DC 24 V
Special feature	Analogue output signal
Data sheet	AC 08.02

DI30

For panel mounting, 96 x 96 mm



Input	Standard signals
Alarm output	2 relays
Special feature	Integrated transmitter power supply
	 Wall-mounting case (optional)
Power supply	AC 230 V or AC 115 V
Data sheet	AC 80.05

DI32-1

For panel mounting, 48 x 24 mm



	meters, thermocouples and standard signals
Alarm output	2 electronic contacts
Power supply	DC 9 28 V
Data sheet	AC 80.13

DI35

For panel mounting, 96 x 48 mm

Input	 Multi-function input for resistance thermometers, thermocouples and standard signals Alternatively double input for standard signals with calculation function (+ - x / for two transmitters
Alarm output	2 or 4 relays (optional)
Special feature	 Integrated transmitter power supply Analogue output signal (optional)
Power supply	 AC/DC 100 240 V DC 10 40 V, AC 18 30 V
Data sheet	AC 80.03

DIH10

Connection head with digital indicator



DIH50, DIH52

For current loops with HART[®] communication



Dimensions Case Special feature	150 x 127 x 127 mm Aluminium, stainless steel ■ Adjustment of indication range and unit via HART [®] communication ■ Model DIH52 additionally suitable for multidrop operation and with local master function
Approval	 Intrinsically safe per ATEX Elameproof enclosure
Data sheet	AC 80 10
Data oncot	/10 00.10

TF-LCD

Longlife digital thermometer



Measuring range	-40 +120 °C
Feature	 Dust and waterproof case, IP68 Battery or solar powered Extremely long service life
Data sheet	TE 85.01

Thermocouples

Thermocouples generate a voltage directly dependent on temperature. They are particularly suitable for high temperatures to 1,700 °C and for very high oscillating stresses. For thermocouples, the accuracy classes 1 and 2 apply (ASTM: Standard and special). They are available with a tolerance value in accordance with IEC 60584-4 / ASTM E230.

In our range of products you will find all market-standard instrument versions. If required, a temperature transmitter can be installed in the connection head.

TC10-A



Measuring range Measuring point Data sheet Type K, J, E, N or T -200 ... +1,200 °C Ungrounded or grounded TE 65.01





Process connection Mounting thread

Data sheet

TE 65.03

TC10-D

Threaded, miniature design



Sensor element	Type K, J, E, N or T
Measuring range	-200 +600 °C
Measuring point	Ungrounded or grounded
Process connection	Mounting thread
Data sheet	TE 65.04
Measuring point Process connection Data sheet	Ungrounded or grounded Mounting thread TE 65.04

TC10-F

Data sheet



TE 65.06



TC10-K

Measuring insert, for installation in TC10-L



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Sensor element Measuring range Measuring point Data sheet

TC12 A

Measuring point Data sheet

Type K, J, E, N or T -200 ... +1,200 °C Ungrounded or grounded TE 65.11



1012-A		
Measuring process the	insert for ermocouple	١
©© 🕾 🕾 [A[[Cs N	
Sensor element	Type K J N or T	
Measuring range	-200 +1 200 °C	
inousuaring runge	200,200 0	

TE 65.16

Ungrounded or grounded

Т	C1	2-	E
	<u> </u>		-

Option

Data sheet



Ex i, Ex d

TE 65.17

TC12-M


Thermocouples

TC40



TC46

Hot runner thermocouple		
<)		
Sensor element	Type J or K	
Measuring range	-25 +400 °C	
Measuring point	Ungrounded or grounded	
Feature	 Probe diameter 0.5 3.0 mm Plastic-moulded transition 	
Data sheet	TE 65.46	

TC47





TE 65.50

TC53 TC59 Bayonet thermocouple Tubeskin thermocouple 🚱 些 🎬 [A[🙈 🕼 🕥 😥 🛄 🚰 [H[👜][s 🔝 🐝 🏵 Measuring element Model K, J, N, E or T Sensor element Type K or N Measuring range -200 ... +1,200 °C Measuring range 0 ... +1,200 °C Measuring point Ungrounded or grounded Measuring point Welded or exchangeable Feature Single and dual thermocouple Process connection Surface mounting Explosion-protected versions Data sheet TE 65.56 - TE 65.59

38

Data sheet

TC80

High-temperature thermocouple EAE Sensor element Type S, R, B, K, N or J Measuring range 0 ... 1,700 °C Measuring point Ungrounded Process connection Stop flange, threaded bushing Data sheet TE 65.80

TC81

For flue gas temperature measurements



TC84

Sapphire-design thermocouple



TC90

High-pressure thermocouple



Thermocouples
Measuring range
Tip
Process connectio
Data sheet

Types K, J, or E 0 ... 350 °C, 0 ... 662 °F Ungrounded or grounded n Various high-pressure connections TE 65.90

TC95

Multipoint thermocouple in band design



Thermocouples Measuring range Tip Data sheet

0 ... +1,200 °C, 32 ... 2,192 °F Ungrounded or grounded Process connection Various process connections TE 70.01

TC96-R

Tip

Flexible multipoint thermometer



Types K, J, E, or N Thermocouples 0 ... +1,200 °C, 32 ... 2,192 °F Measuring range Ungrounded or grounded Process connection Various process connections Data sheet TE 70.10

Resistance thermometers

Resistance thermometers are equipped with platinum sensor elements which change their electrical resistance as a function of temperature. In our range of products you will find resistance thermometers with connected cable as well as versions with connection head. A temperature transmitter can be installed directly in the connection head. Resistance thermometers are suitable for applications between -196 ... +600 °C (dependent on instrument model, sensor element, accuracy class and materials coming into contact with the medium).

Resistance thermometers are available in classes AA, A and B in accordance with IEC 60751.

TR10-A



TR10-B

For additional thermowell





TR10-D



Process connection Mounting thread

TE 60.04

Т	E I		<u>ا</u>	
		U		





Sensor element 1 x Pt100, 2 x Pt100 Measuring range 196 ... +600 °C Connection method 2-, 3- and 4-wire Process connection Flange Data sheet TE 60.06

TR10-H

Data sheet

Process connection Mounting thread

TE 60.03



Data sheet

TR10-J

Threaded, with perforated thermowell

TE 60.10



TR11-A



TR10-K



TR10-L

Data sheet



TR12-A



TR12-B



TR12-M



Resistance thermometers

TR30





TR31

OEM miniature design

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 Sensor element
 1 x Pt100, 1 x Pt1000

 Measuring range
 -50 ... +250 °C

 Output
 Pt100, Pt1000, 4 ... 20 mA

 CSA
 Ordinary and hazardous locations

 Data sheet
 TE 60.31

TR33





TR40



TR50

Surface resistance thermometer



TR53

Bayonet resistance thermometer



TR55

With spring-loaded tip



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Measuring range -50 ... +450 °C Connection method 2-, 3- and 4-wire Process connection Compression fitting Data sheet TE 60.55

Sensor element 1 x Pt100, 2 x Pt100

TR57-M

Pipe surface resistance thermometer, for clamping



Sensor element 1 x Pt100 Measuring range -20 ... +150 °C Connection method Pt100 3-wire, 4 ... 20 mA TE 60.57 Data sheet

TR60

Data sheet

Process connection Bayonet

Indoor and outdoor resistance thermometer

TE 60.53



Measuring range	-40 +80 °C
Connection method	2-, 3- and 4-wire
Process connection	Wall mounting
Data sheet	TE 60.60

TR75

DiwiTherm[®] with digital indicator



Measuring range	-40.0 +199.9 °C/+200 +450 with automatic measuring range changeover (autorange)
Power supply	Battery operation
Data sheet	TE 60.75

TR81

Thermowell

Data sheet

For flue gas temperature measurements

🚱 🛄 🎬 🔠 🔛 Sensor element 1 x Pt100, 2 x Pt100 Measuring range -196 ... +600 °C Connection method 2-, 3- and 4-wire

Metal

TE 60.81

TR95

Multipoint resistance thermometer in band design



Resistance thermometers

TF35

OEM screw-in thermometer,
with plug connectionImage: Stream of the stream of t

TF37

Screw-in thermometer with connection lead



TF40



TF41

Outdoor thermometer



TF43

OEM insertion thermometer for refrigeration technology



TF44

Strap-on thermometer with connection lead



TF45

M

M

Fe

Da

OEM insertion thermometer with connection lead



asunny range	-30 +230 0
easuring element	Pt100, Pt1000, NTC, KTY, Ni1000
ature	 Connection lead from PVC, silicone, PTFE Probe sleeve from stainless steel Protected against dust and water jets, IP65
ita sheet	TE 67.15

Temperature transmitters

T15





Input	Resistance thermometers, potentiometers
Accuracy	< 0.1 %
Output	4 20 mA
Special feature	The fastest and simplest configuration on the market
Data sheet	TE 15.01

T16

Digital temperature transmitter for thermocouples



nput	All commercially available thermocouples
Accuracy	Typical < 2 K
Output	4 20 mA
Special feature	The fastest and simplest configuration on the market

TE 16.01

T32

HART[®] temperature transmitter



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nput	Resistance thermometers, thermocouples, potentiometers
Accuracy	< 0.1 %
Dutput	4 20 mA, HART® protocol
Special feature	TÜV certified SIL version (full assessment)
Data sheet	TE 32.04

T53

FOUNDATION™ Fieldbus and PROFIBUS[®] PA transmitter



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Ir

Input	Resistance thermometers,
	thermocouples, potentiometers
Accuracy	< 0.1 %
Special feature	PC configurable
Data sheet	TE 53.01

T91

Data sheet

Analogue temperature transmitter 3-wire, 0 ... 10 V



Input	Resistance thermometers, thermocouples
Accuracy	< 0.5 or < 1 %
Output	0 10 V, 0 5 V
Special feature	Fixed measuring range
Data sheet	TE 91.01, TE 91.02

TIF50, TIF52

[

HART[®] field temperature transmitter



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Input	Resistance thermometers, thermocouples, potentiometers
Accuracy	< 0.1 %
Output	4 20 mA, HART® protocol
Special feature	PC configurable
Data sheet	TE 62.01

TFT35

Compact temperature transmitter



Measuring range	-50 +200 °C
-eature	 Output signal 4 20 mA, 0 10 V, 0.5 4.5 V Factory configured Measuring insert exchangeable Electr. connection via plug connection
Data sheet	TE 76.18

Temperature switches

Temperature switches for industrial applications



Temperature switches for the process industry

TXS, TX	Α	TCS, TC	Α	TWG, TA	G
Mini tempe	rature switches	Compact te switches	emperature	Heavy-duty	version
€ FAT	99	€ [#[₅⊌		€ ⊞ ∞	
Setting range	-15 +20 to +180 +250 °C	Setting range	-30 +10 to +160 +250 °C	Setting range	-30 +70 to 0 600 °C
Ignition protection	Exia or Exd	Ignition protection	Exia or Ex d	Ignition protection	Exia or Exd
Switch	1 x SPDT	Switch	1 x SPDT or 1 x DPDT	Switch	1 or 2 SPDT or 1x DPDT
Switching power	AC 220 V / 5 A DC 24 V / 5 A	Switching power	AC 250 V / 15 A DC 24 V / 2 A	Switching power	AC 250 V / 20 A DC 24 V / 2 A
Data sheet	TV 31.70, TV 31.72 (Ex)	Data sheet	TV 31.64, TV 31.65 (Ex)	Data sheet	TV 31.60, TV 31.61

Thermometers with switch contacts

SC15

Expansion thermometer with micro switch, indicating temperature controller

EAC	
Nominal size	60, 80, 100 mm 45 x 45, 72 x 72, 96 x 96 mm
Scale range	-100 +400 °C
Wetted parts	Copper alloy
Option	Sheet steel version
Data abaat	TV 29 02

SW15

EAE

Expansion thermometer with micro switch, Safety temperature controller



Nominal size	60, 80, 100 mm 72 x 72, 96 x 96 mm
Scale range	0 400 °C
Wetted parts	Copper alloy
Option	Sheet steel version
Data sheet	TV 28.04

70 with 8xx

SB15

Data sheet

Expansion thermometer with micro switch, Safety temperature limiter

55 with 8xx

(Ex)

Nominal size

Scale range

Wetted parts

Data sheet

Option

Bimetal thermometer, stainless steel version

probe)

TV 25.01



Liquid damping to max. 250 °C (case and

Expansion thermometer with micro switch With micro switch File Nominal size 100 mm Scale range -60 ... +40 to 0 ... 250 °C Vetted parts Stainless steel Option Various contact versions Data sheet TV 28.01

73 with 8xx

Gas-actuated thermometer, stainless steel version

TV 28 03



Temperature controllers

CS4M

For panel mounting, 48 x 24 mm



nput	Multi-function input for resistance thermometers, thermocouples and standard signals
Control mode	PID, PI, PD, P, ON/OFF (configurable)
Monitoring output	Relay or logic level DC 0/12 V for 3-point control to control an electronic switch relay (SSR) or analogue current signal 4 20 mA
Power supply	 AC 100 240 V AC/DC 24 V
Data sheet	AC 85.06

CS4R

For rail mounting, 22.5 x 75 mm



Input	Multi-function input for resistance thermo- meters, thermocouples and standard signals
Control mode	PID, PI, PD, P, ON/OFF (configurable)
Monitoring output	Relay or logic level DC 0/12 V to control ar electronic switch relay (SSR) or analogue current signal 4 20 mA
Power supply	■ AC 100 240 V
	AC/DC 24 V
Data sheet	AC 85.05

CS6S, CS6H, CS6L

For panel mounting, 48 x 48, 48 x 96, 96 x 96 mm



Input	Multi-function input for resistance thermo- meters, thermocouples and standard signals
Control mode	PID, PI, PD, P, ON/OFF (configurable)
Monitoring output	Relay (AC 250 V, 3A, (R) or 1A (L)) or logic level DC 0/12 V for 3-point control to control an electronic switch relay (SSR) or analogue current signal 4 20 mA
Power supply	■ AC 100 240 V
	AC/DC 24 V
Data sheet	AC 85.08

SC58

For panel mounting, 62 x 28 mm

	355 °C*** ♥ ♥ ₩KA
Input	Pt100 or PTC
Control mode	Simple 2-point controller
Monitoring output	Relay switching output 12 A, 250 V
Power supply	 AC 230 V AC 12 24 V or DC 16 32 V
Data shoot	AC 85 24

SC64

For panel mounting, 64 mm, round



Thermowells

Whether in aggressive or abrasive process media, whether in high- or low-temperature ranges: For electrical or mechanical thermometers, to prevent direct exposure of their temperature probes to the medium, thermowells that suit each application are available. Thermowells can be machined from solid-body material or assembled from tube sections and can either be screw-, weldor flange-fitted.

They are offered in standard and special materials such as stainless steel 1.4571, 316L, Hastelloy® or titanium. Each version, depending on its construction type and its mounting to the process, has certain advantages and drawbacks with respect to its load limits and the special materials that can be used.

In order to manufacture thermowells for flange mounting at low cost from special materials, the designs used differ from standard thermowells in accordance with DIN 43772.

Thus, only the wetted parts of the thermowell are manufactured from special materials, whereas the non-wetted flange is made of stainless steel and is welded to the special material.

This design is used both for fabricated and solid-machined thermowells. With tantalum as special material a removable jacket is used, which is slid over the supporting thermowell from stainless steel.

TW10

Data sheet

Solid-machined with flange



ASME to 2,500 lbs (DIN/EN to PN 100) Pressure rating TW 95.10, TW 95.11, TW 95.12

TW15

Solid-machined to screw in



Hexagon, round with hexagon, or Head version round with spanner flats Process connection 1/2, 3/4 or 1 NPT Data sheet TW 95 15

TW20



Thermowells

TW25

Weld-in (solid-machined)



Head diameter Data sheet Tapered, straight or stepped Up to 2 inch (50.8 mm) TW 95.25

TW30

Vanstone (solid-machined) for lap flanges



Nominal width Pressure rating Data sheet ASME 1, 1½ or 2 inch ASME up to 2,500 lbs TW 95.30 **TW35**

Threaded (fabricated) (DIN 43772 form 2, 2G, 3, 3G)



TW40

Fabricated with flange (DIN 43772 form 2F, 3F)



I hermowell form	Form 2F or 3F
Nominal width	DIN/EN DN 25 50 ASME 1 2 inch
Pressure rating	DIN/EN up to PN 100 (ASME up to 1,500 psig)
Data sheet	TW 95.40

TW45

Threaded (fabricated, DIN 43772 form 5, 8)



Thermowell form	Form 5 or 8
Material	Stainless steel or copper alloy
Data sheet	TW 95.45

TW50

Threaded (solid-machined, DIN 43772 form 6, 7, 9)



Thermowell form	Form 6, 7 or 9
Data sheet	TW 95.50

TW55

Solid-machined for weld-in or with flange (DIN 43772 form 4, 4F)



Thermowell form	Form 4 or 4F
Nominal width	DIN/EN DN 25 50
	ASME 1 2 inch
Pressure rating	DIN/EN up to PN 100
	(ASME up to 2,500 psig)
Data sheet	TW 95.55

Accessories

PU-548

Programming unit for temperature transmitters



LED status display

- Compact design
- No further voltage supply needed, neither for the programming unit nor for the transmitter
- Due to the magWIK quick connector, fast connection to the
- transmitter possible
- Data sheet AC 80.18

magWIK

Magnetic quick connector



- For accelerated connection for all configuration and calibration processes
- Connection of 2-mm plug contacts or
- 4-mm plug contacts with adapter
- Data sheet AC 80.15

905

Fittings

Contact protection relay for model 821 switch contacts



904

Control unit for inductive contacts



Coupler connector



Wires & cables



Bypass level indicators

Continuous level measurement via visual indication of the level without power supply

Applications

- Continuous level indication without power supply
- Indication of the level proportional to height
- Individual design and corrosion-resistant materials make the products suitable for a broad range of applications
- Chemical, petrochemical industry, oil and natural gas extraction (on- and offshore), shipbuilding, machine building, power generating equipment, power plants
- Process water and drinking water treatment, food and beverage industry, pharmaceutical industry

Special features

- Process- and system-specific production
 - Operating limits: \Box Operating temperature: T = -196 ... +450 °C \Box Operating pressure: P = vacuum to 400 bar ¹) \Box Limit density: $\rho \ge 340$ kg/m³
- Wide variety of different process connections and materials
- Mounting of level sensors and magnetic switches possible as an option
- Explosion-protected versions

¹⁾ Individual limit values. For application limits, the joint consideration of temperature and pressure is required.



BNA-S	.A.	BNA-P		
Standard v	ersion	Plastic vers	sion	-
Chamber	■ Ø 60.3 x 2 mm	Chamber	Ø 60.3 x 3 mm	_U
Material	 Stainless steel 1.4571/316TI 	Material		
	■ 1.4404/316L	Process connection	Flange DIN, ANSI, EN	
Process connection	Flange DIN, ANSI, EN	Pressure	Max. 6 bar	
	Thread	Temperature	-10 +100 °C	
	Weld stub	Data sheet	LM 10.01	
Pressure	Max. 64 bar			
Temperature	-196 +450 °C			
Data sheet	LM 10.01			





53

Sight glass level indicators

Direct level indication without power supply

Applications

- Continuous level indication without power supply
- Direct indication of the level
- Individual design and corrosion-resistant materials make the products suitable for a broad range of applications
- Chemical, petrochemical industry, oil and natural gas extraction (on- and offshore), shipbuilding, machine building, power generating equipment, power plants
- Oil and gas, heat transfer and refrigeration systems, plants for cryogenics

Special features

- Process- and system-specific production
- Operating limits:
 Operating temperature: T = -196 ... +374 °C ¹)

 Operating pressure: Vacuum to 250 bar ¹)
- Wide variety of different process connections and materials
- Illumination optional
- Heating and/or insulation optional

¹⁾ Individual limit values. For application limits, the joint consideration of temperature and pressure is required.



LGG-E







ize	2 11
r of seg-	
	1 5 (others on request)
eet	LM 33.01

Numbe

ments Data sh

LGG-RI, LGG-TI

High-pressure version



Display type	Beflex/transparent	Display type
Material	Steel 1.5415	Material
	Stainless steel 1.4404/316L	Process connect
Process connection	 Flange DIN, ANSI, EN Male thread ½" NPT, ¾" NPT 	
	Weld stub ½", ¾"	Pressure
Pressure	Max. 250 bar	Temperature
Temperature	-196 +100 °C	Glass size
Glass size	29	Number of seg-
Number of seg-		ments
ments	1 5	Data sheet
Data sheet	LM 33.01	

LGG-M

Refraction version

	Internet (1990)
Э	Refraction
	Steel 1.5415
nnection	 Flange DIN, ANSI, EN Male thread G ½, G ¾, ½" NPT, ¾" NPT Weld stub ½", ¾"
	Max. 250 bar
е	-10 +374 °C
	211

1 ... 9

LM 33.01

Submersible pressure sensors

Hydrostatic level measurement

Applications

- Level measurement in rivers and lakes
- Control of sewage lift and pumping stations
- Monitoring of sewage, settling and rainwater retention basins
- Level measurement in vessel and storage systems for oils and fuels

Special features

- Slimline and hermetically sealed design up to 300 m water column
- Highly resistant versions available
- Explosion protection per ATEX, IECEx, FM and CSA
- Drinking water conformity per KTW and ACS
- Temperature output, HART[®] and low-power output signal for battery operation





Continuous measurement with float for industrial applications

With reed measuring chain

Applications

- Level measurement of liquids in machine building
- Control and monitoring tasks for hydraulic power packs, compressors and cooling systems

Special features

- Media compatibility: Oil, water, diesel, refrigerants and other liquids
- Permissible medium temperature: -30 ... +120 °C
- Output signals for level and temperature (optional) as resistance output signal or 4 ... 20 mA current output
- Measuring principle: Reed-chain technology
- Accuracy, resolution: 12, 10, 6 or 3 mm



RLT-1000		RLT-2000			RLT-3000		
Stainless steel version		Plastic version		Stainless steel version with temperature output signal			
Accuracy	12, 10, 6 or 3 mm	- mart	Accuracy	12, 10, 6 or 3 mm		Accuracy	12, 10, 6 or 3 mm
Output signal	Resistance signal	11E	Output signal	Resistance signal		Level output signal	4 20 mA
Tamparatura	or 4 20 mA	m	To man a week wee	or 4 20 mA		Output signal	4 20 mA, Pt100
remperature	(+120 °C optional)		Temperature	(-30 +120 °C optic	onal)	Temperature	-30 100 °C
Guide tube lenath	150 1.500 mm		Guide tube length	150 1.500 mm		Guide tube length	150 1.500 mm
Data sheet	LM 50.02		Data sheet	LM 50.01	-	Data sheet	LM 50.05
					9		

Continuous measurement with float for the process industry

Magnetostrictive

Applications

- High-accuracy level measurement for almost all liquid media
- Chemical, petrochemical industry, natural gas, offshore, shipbuilding, machine building, power generating equipment, power plants
- Process water and drinking water treatment, food and beverage industry, pharmaceutical industry

Special features

- Process- and system-specific solutions possible
- Operating limits: □ Operating temperature: T = -90 ... +400 °C
 - Operating pressure: P = vacuum to 100 bar
 - \Box Limit density: $\rho \ge 400 \text{ kg/m}^3$
- Resolution < 0.1 mm</p>
- Wide variety of different electrical connections, process connections and materials
- Explosion-protected versions



FLM-S		FLM-SP	FLM-SP		FLM-H		
Stainless s	teel version	Plastic ver	sion		Hygienic ve application	ersion, for sanitary Is	
	(Î)						
Process connection	 Mounting thread Flange: DIN, ANSI 	Process connection	 Mounting thread Flange DIN, ANSI 	T	Process connection	 Clamp ISO 2852 Clamp DIN 32767 	Y
Guide tube length	Max. 6,000 mm	Guide tube length	Max. 5,000 mm			Aseptic thread DIN 11864-1	
Pressure	0 200 bar	Pressure	0 16 bar			Aseptic liner DIN 11864-1	
Temperature	-90 +450 °C	Temperature	-10 +100 °C			Aseptic flange DIN 11864-2	
Density	≥ 400 kg/m ³	Density	≥ 800 kg/m ³			Aseptic clamp DIN 11864-3 VARIVENT®	
Data sheet	LM 20.01	Data sheet	LM 20.01			■ BioConnect®	
	é				Material	1.4435 (316L) or 1.4404 (316L)	
					Guide tube length	Max. 6,000 mm	-
					Pressure	10 bar	
					Temperature	-40°C +250 °C	
					Density	$>770 kg/m^3$	

LM 20.01

Data sheet

With reed measuring chain

Applications

- Level measurement for almost all liquid media
- Chemical, petrochemical industry, natural gas, offshore, shipbuilding, machine building, power generating equipment, power plants
- Process water and drinking water treatment, food and beverage industry, pharmaceutical industry

Special features

- Process- and system-specific solutions possible
- Operating limits: □ Operating temperature: T = -80 ... +200 °C
 - Operating pressure: P = vacuum to 80 bar
 - \Box Limit density: $\rho \ge 400 \text{ kg/m}^3$
- Wide variety of different electrical connections, process connections and materials
- Optionally with programmable and configurable head-mounted transmitter for 4 ... 20 mA field signals, HART[®], PROFIBUS[®] PA and FOUNDATION[™] Fieldbus
- Explosion-protected versions





Float switches for industrial applications

Applications

- Level measurement of liquids in machine building
- Control and monitoring tasks for hydraulic power packs, compressors and cooling systems

Special features

- Media compatibility: Oil, water, diesel, refrigerants and other liquids
- Permissible medium temperature range: -30 ... +150 °C
- Up to 4 switching outputs freely definable as normally open, normally closed or change-over contact
- Optional temperature output signal, selectable as preconfigured bimetal switch or either Pt100 or Pt1000



RLS-1000			RLS-2000			RLS-3000		
Stainless steel version			Plastic version		Stainless steel version, with temperature output signal			
Switch points	Up to 4 (normally closed, normally open, change-over contact)		Switch points	Up to 4 (normally closed, normally open, change-over contact)		Switch points	Up to 3 (normally closed, normally open, change-over contact)	
Medium temperature	-30 +80 °C -30 +150 °C optional		Medium temperature	-10 +80 °C		Temperature output	Normally closed, normally	0
Guide tube length	60 1,500 mm			-30 +120 °C optional			open, Pt100, Pt1000	
Data sheet	LM 50.03		Guide tube length	100 1,500 mm		Medium temperature	-30 +80 °C	
			Data sheet	sheet LM 50.04			(-30 +150 °C optional)	NIP
						Guide tube length	60 1,500 mm	0

RLS-6000

RLS-4000

Intrinsic safety Ex i Intrinsic safety Ex i Image: Switch points Up to 4 (normally closed, normally open, change-over contact) Temperature output optional Normally closed, normally open, Pt100, Pt1000 Medium temperature -30 ... +80 °C (-30 ... +150 °C optional) Guide tube length Data sheet

RLS-5000



LSD-30



HLS-M1

Plastic version, with cable outlet



 Process connection
 = ½" NPT (installation in the tank from outside)

 = G ¼" (installation in the tank from inside)

 Pressure
 1 bar

 Temperature
 -10 ... +80 °C

 Material
 PP

 Electrical
 Cable

 Data sheet
 LM 30.06

HLS-M2

Stainless steel version, with cable outlet



Process connection	 ½" NPT (installation in the tank from outside) G ¼" (installation in the tank from inside)
Pressure	5 bar
Temperature	-40 +120 °C
Material	Stainless steel 1.4301
Electrical	
connection	Cable or connector
Data sheet	LM 30.06

Float switches for the process industry

Robust switches for liquid media

Applications

- Level measurement for almost all liquid media
- Pump and level control and monitoring of distinct filling levels
- Chemical, petrochemical industry, natural gas, offshore, shipbuilding, machine building, power generating equipment, power plants
- Process water and drinking water treatment, food and beverage industry

Special features

- Large range of application due to the simple, proven functional principle
- For harsh operating conditions, long service life
- Operating limits:

 Operating temperature: T = -196 ... +350 °C
 Operating pressure: P = vacuum to 40 bar
 - \Box Limit density: $\rho \ge 300 \text{ kg/m}^3$
- Wide variety of different electrical connections, process connections and materials
- Explosion-protected versions



FLS-SA, FLS-SB			FLS-PA,	FLS-PB		FLR-HA3		
Stainless steel version, for vertical installation		Plastic vers for vertical	Plastic version, or vertical installation		ersion, y applications			
Switch points Process connection Guide tube length Pressure Temperature Density Data sheet	Max. 8 switch points ■ Mounting thread ■ Flange DIN, ANSI, EN Max. 6,000 mm 0 100 bar -196 +300 °C ≥ 390 kg/m ³ LM 30.01	Ì	Switch points Process connection Guide tube length Pressure Temperature Density Data sheet	Max. 8 switch points ■ Mounting thread ■ Flange DIN, ANSI, EN Max. 5,000 mm 0 3 bar -10 +100 °C ≥ 400 kg/m ³ M 30 01		Process connection	Clamp ISO 2852 Clamp DIN 32767 Aseptic thread DIN 11864-1 Aseptic liner DIN 11864-1 Aseptic clamp DIN 11864-2 Aseptic clamp DIN 11864-3 VARIVENT BioConnect	
Dald Sileet	LW 50.01					Material Guide tube length Pressure Temperature Density Data sheet	1.4435 (316L) or 1.4404 (316L) Max. 6,000 mm 10 bar -40°C +250 °C ≥ 770 kg/m ³ LM 20.02	

VARIVENT[®] is a registered trademark of the company Tuchenhagen BioControl[®] is a registered trademark of the company NEUMO

ELS-S



ELS-A



HLS-S

Stainless steel version, for horizontal installation



Process connection	Flange DIN, ANSI, EN
Pressure	0 232 bar
Temperature	-196 +350 °C
Density	≥ 600 kg/m ³
Material	Stainless steel, titanium
Data sheet	LM 30.02

HLS-P

Plastic version, for horizontal installation



Process connection Flange DIN, ANSI, EN Pressure Temperature Density Material Data sheet

0 ... 3 bar -10 ... +80 °C ≥ 750 kg/m³ PP LM 30.02

HLS-S Ex i

Intrinsically safe stainless steel

version for horizontal installation

A Busher

T6



Optoelectronic switches for the process industry

For applications with limited mounting space

Applications

- Chemical, petrochemical, natural gas, offshore industries
- Shipbuilding, machine building, refrigerator units
- Power generating equipment, power plants
- Process water and drinking water treatment
- Wastewater and environmental engineering

Special features

- Temperature ranges from -269 ... +400 °C
- Versions for pressure ranges from vacuum to 500 bar
- Special versions: High pressure, interface measurement
- Explosion-protected versions
- Signal processing is made using a separate model OSA-S switching amplifier



OLS-S, OLS-H

Standard and high-pressure مسمر



Material Stainless steel, Hastelloy, KM-glass, quartz glass, sapphire, graphite Process connection G ½ A ½ NPT Pressure 0 ... 500 bar Temperature -269 ... +400 °C Approval Ex i Data sheet LM 31.01

OSA-S

🕢 si

Switching amplifier, for models OLS-S, OLS-H



Output	1 signal relay, 1 failure relay
Function	High or low alarm
Time delay	Up to 8 s
Voltage supply	AC 24/115/120/230 V DC 24 V
Approval	Exi
Data sheet	LM 31.01

OLS-C20

Compact design, high-pressure version



Material	Stainless steel, quartz glass
Process connection	■ M16 x 1.5
	■ G ½ A
	■ ½ NPT
Insertion length	24 mm
Pressure	0 50 bar
Temperature	-30 +135 °C
Data sheet	LM 31.02

Ex si

Optoelectronic switches for industrial applications

Applications

- Limit detection of liquids
- Machine tools
- Hydraulics

- Machine building
- Water technology

Special features

- For liquids such as oils, water, distilled water, aqueous media
- Compact design
- Mounting position as required
- Accuracy ±2 mm
- No moving components

Optoelectronic limit level switches - for general applications in machine building

OLS-CO	1	OLS-CO	2		OLS-CO	5
Level switc	h, standard version	Level switch, with selectable switch length		Level switc high-tempe	h, erature version	
<	The second se					
Material	Stainless steel, borosilicate glass	Material	Stainless steel, borosilicate glass		Material	Stainless steel, borosilicate glass
Process connection	G 3/8", G 1/2" or M12 x 1	Process connection	G ½"		Process connection	G ½"
Pressure	Max. 25 bar	Pressure	Max. 25 bar		Pressure	Max. 25 bar
Temperature	-30 +100 °C	Temperature	-30 +100 °C	1.1.1	Iemperature	-40 +170 °C
Switching output	1 X PNP	Switch length	65 1,500 mm		Switching output	1 X PNP
Data sheet	LM 31.31	Switching output	1 x PNP	and the second se	Data sheet	LM 31.33
		Data sheet	LM 31.32			

Optoelectronic limit level switches – application specialists

013-031		U
Intrinsic sa	Intrinsic safety Ex i	
 Example 2 		
Material	Stainless steel, borosilicate glass	Mat
Process connection	G ½"	Proc
Pressure	Max. 40 bar	Pres
Temperature	-30 +135 °C	
Approval	Exi	
Output signal	4 20 mA low/high	
Data sheet	LM 31.04	

OLS-C04





Material	Steel, nickel-plated; glass
Process connection	G 1/2", 1/2" NPT
Pressure	Max. 40 bar
Temperature	-40 +100 °C
Switching output	1 x PNP
Data sheet	LM 31.34

OLS-5200

For the shipbuilding industry



Material	Stainless steel, borosilicate glass
Process connection	Male thread G 1/2" or M18 x 1.5
Pressure	Max. 25 bar
Temperature	-40 +130 °C
Switching output	1 x PNP
Vibration resistance	10 5,000 Hz, 0 60 g
Data sheet	LM 31.06

Accessories for bypass

Combines the tried-and-trusted bypass with further independent measuring principles

BLM-S



BLM-SF-FM



Accessories

The comprehensive accessory programme includes a wide variety of electronic equipment required for the evaluation and indication of our sensors.

904



IS Barrier

Intrinsically safe repeater power supply



- 1-channel input 0/4 ... 20 mA
- Intrinsically safe [Ex ia], supplying and non-supplying
- Galvanic isolation
- Bidirectional HART[®] signal transmission
- Suitable for SIL 2 per IEC 61508/IEC 61511
- Data sheet AC 80.14

DI35

For panel mounting, 96 x 48 mm



Input	 Multi-function input for resistance thermometers, thermocouples and standard signals Alternatively double input for standard signals with calculation function (+ - x /) for two transmitters
Alarm output	2 or 4 relays (optional)
Special feature	 Integrated transmitter power supply Analogue output signal
Power supply	 AC/DC 100 240 V DC 10 40 V, AC 18 30 V
Data sheet	AC 80.03

DI32-1

Digital indicator for panel mounting, 48 x 24 mm



input	meters, thermocouples and standard signals
Alarm output	2 electronic contacts
Power supply	DC 9 28 V
Data sheet	AC 80.13

Force transducer

Force transducers from WIKA can be delivered with affixed strain gauges or thin-film sensors. The strain gauge technology offers a large geometrical variety and high accuracy, and it is well suited for detecting even the smallest forces.

The span of the measuring ranges that can be delivered stretches from 0.5 N to over 10,000 kN. Force transducers with thin-film sensors are very cost-effective for customer-specific solutions or OEM applications and also for safety-related applications.

F1222

Miniature compression force transducer from 0.5 N



Nominal force F _{nom}	0 0.5 to 0 5,000 N
Relative linearity	
error	±1 % F _{nom}
Output signal	1 10 mV/V/N
Ingress protection	IP65
Data sheet	FO 51.11

F2211

Tension/compression force transducer, S-type to 50 kN



Nominal force F _{nom}
Relative linearity
error
Output signal
Ingress protection
Data sheet

0 ... 0.02 to 0 ... 50 kN $\leq \pm 0.2 \% F_{no}$ 2 mV/V (1 mV/V at 0.02 kN) IP67, to 1 kN IP65 FO 51.15

F1224

Miniature compression force transducer from 1 kN



Nominal force F _{nom}	0 1 to 0 500 kN
Relative linearity	
error	±1.0 % F _{nom}
Output signal	1.5 mV/V
Ingress protection	IP65
Data sheet	FO 51.12

F2220

Miniature tension/compression force transducer, from 1.5 N



Nominal force F _{nom}	0 1.5 to 0 5,000 N
Relative linearity	
error	±0.5 % F _{nom}
Output signal	2 mV/V (to 5 N 15 mV/V)
Ingress protection	IP65
Data sheet	FO 51.16

F1211

Compression force transducer to 1,000 kN



Nominal force F _{nom}	0 1 to 0 1,000 kN
Relative linearity	
error	$\leq \pm 0.2 \% F_{nom}$
Dutput signal	2 mV/V
ngress protection	IP67
Data sheet	FO 51.10

F2210

Tension/compression force transducer, flat bar to 2,000 kN



Nominal force F _{nom}	0 0.5 to 0 2,000 kN
Relative linearity	$\equiv \pm 0.15 \%$ F _{nom} tension o. pressure
	■ ±0.30 % F _{nom} tension a. pressure
Dutput signal	2 mV/V
ngress protection	IP67
Data sheet	FO 51.14

F2221

Tension/compression force transducer from 0.01 kN



Nominal force F _{nom}	0 0.01 to 0 50 kN
Relative linearity	
error	±0.2 % F _{nom}
Output signal	2 mV/V
Ingress protection	IP65
Data sheet	FO 51.26

F2301, F23C1, F23S1

Tension/compression force transducer with thin-film technology to 500 kN



Nominal force F _{nom}	0 1 to 0 500 kN
Relative linearity	
error	±0.2 % F _{nom}
Output signal	 4 20 mA, 2-wire/3-wire 2 x 4 20 mA redundant 0 10 V, 3-wire 2 x 0 10 V redundant
Ingress protection	IP67 (optional IP69k)
Data sheet	FO 51.17

F5301, F53C1, F53S1

Load pin with thin-film technology to 500 kN





F6210

Ring force transducer to 500 kN



Nominal force F _{nom}	0 15 to 0 500 kN
Relative linearity	$\equiv \pm 1 \% F_{nom}$ for compression force
error	measurement
	\blacksquare 3 % F_{nom} for preload force measurement
Output signal	0.8 1.2 mV/V
Ingress protection	IP65
Data sheet	FO 51.20

F3831

Ν

Shear beam to 10 t



Nominal force F	0 500 to 0 10,000 kg
Relative linearity	
error	0.03 % F _{nom}
Output signal	 ■ 2.0 ± 1 % mV/V ■ 3.0 ± 1 % mV/V (option)
Ingress protection	IP65 (< 500 kg), IP67 (500 kg)
Data sheet	FO 51.21

F6212

Ring force transducer to 100 kN



Nominal force F _{nom}	0 2 to 0 100 kN
Relative linearity	
error	±0.2 % F _{nom}
Output signal	0.8 1.2 mV/V
Ingress protection	IP65
Data sheet	FO 51.27

F3833

1

Bending beam to 500 kg



Nominal force F _{nom}	0 20 to 0 500 kg
Relative linearity	
error	0.02 % F _{nom}
Output signal	2.0 ± 1 % mV/V
Ingress protection	IP68
Data sheet	FO 51.22

Force transducers

F5302

Shackle load cell, measuring ranges to 15 t



Nominal force F _{nom}	 1.5 % for rated loads from 0.5 5 t 1 % for rated loads from 7.5 t
Relative linearity	
error	$\leq \pm 1 \% F_{nom}$
Output signal	 4 20 mA, 2-wire, CANopen[®] DC 0 10 V, 3-wire, CANopen[®]
Ingress protection	IP67
Data sheet	FO 51.23

F9204

Wire rope force transducer to 15 t

Nominal force F _{nom}	0 1 to 0 15 t
Relative linearity	
error	±3 % F _{nom}
Output signal	4 20 mA, 2-wire
Ingress protection	IP66
Data sheet	FO 51.25

F9302



F1119, F1136



Load cells

Load cells are designed as a special form of force transducers for use in weighing equipment. They enable very high measurement accuracies between 0.01 % and 0.05 % FS. Typical and widely used load cell geometries are single-point load cells, bending and shear beam load cells, S-type load cells, pendulum load cells and compression force load cells. In addition, there are corresponding mounting kits and complete weighing modules available.

F4817

Single-point load cell to 2,000 kg



Nominal force F _{nom}	0 100 to 0 2,000 kg
Relative linearity	
error	0.02 % F _{nom}
Output signal	2.0 ± 10 % mV/V
Ingress protection	IP65
Data sheet	FO 53.12

F4801

Single-point load cell to 250 kg



 Nominal force F_{nom}
 0... 3 to 0 ... 250 kg

 Relative linearity error
 0.02 % F_{nom}

 Output signal
 2.0 ± 10 % mV/V

 Ingress protection
 IP65

 Data sheet
 FO 53.10

F4812

Single-point load cell to 650 kg



Nominal force F _{nom}	0 50 to
Relative linearity	
error	0.02 % F _n
Output signal	2.0 ± 10 %
Ingress protection	IP65
Data sheet	FO 53.11

0 ... 50 to 0 ... 650 kg 0.02 % F_{nom} 2.0 ± 10 % mV/V

Your needs ... our solutions

Primary flow elements

The most common way to measure flow is differential-pressure flow measurement. This measuring principle has proven itself over many years and is applicable for all common types of media.

Our portfolio of primary flow elements includes orifice plates, orifice assemblies, meter runs, flow nozzles, Venturi tubes and averaging pitot tubes.

Restriction orifices

When the process requires a pressure drop, a restriction orifice can be installed in the line. The design must take into consideration the flow conditions, and the differential pressure required to avoid issues (cavitation, choking and noise).

Single- or multi-step restriction orifice solutions are selected depending on the differential pressure and medium. Single-bore or multi-bore options must be selected to ensure an acceptable noise level.

Pressure drop

When using a differential pressure flow meter a permanent pressure drop is always generated. The graph shows a comparison between the different types of differential-pressure flow measurement instruments. Pressure loss is shown as a percentage of the measured differential pressure.

The graph can assist in the selection of the best instrument for your application.



Medium characteristics

Not all instruments can be used in all applications. The type of medium (gas, liquid or steam) and its conditions must be taken into account when selecting the right instrument for your medium condition.

The following selection chart will assist in choosing the right instrument:

		Orifice plate and related assemblies (Orifice flange / Meter run / Annular chambers)			Flow nozzle	Venturi tube	Averaging pitot tube		
		Square edge	Quarter circle	Conical entrance	Eccentric	Segmental			
Cas	Clean	++	-	-	+	+	++	++	++
Gas	Dirty	-	-	-	++	++	+	+	-
	Clean	++	++	++	+	+	++	++	++
المسلط	Viscous	-	++	++	-	-	+	+	+
Liquid	Dirty	+	+	+	++	++	+	+	-
	Corrosive	+	+	+	+	+	+	+	+
Steam		+	+	+	+	+	++	+	-
Page		6 8				9	10	11	

++ Preferred + Suitable - Not suitable

Reynolds number

It is difficult to evaluate the many variables affecting the velocity profile for all flow meters and for all pipeline conditions. To combine medium properties (density and viscosity), flow rate and geometrical aspects the Reynolds number is used.

The table shows you the smallest possible Reynolds number that can be used with each instrument.

			Dimens	ions	Reynolds	
			N	ND	number	
	Orifice plate and related assemblies Orifice flange Meter run Annular chambers	Integral	< 1.5"	< 40	> 100	
		Square edge	> 1.5"	> 40	> 2,000	
		Quarter circle	> 1.5"	> 40	> 200	
		Conical entrance	> 1.5"	> 40	> 200	
		Eccentric	> 4"	> 100	> 10,000	
		Segmental	> 4"	> 100	> 1,000	
	Flow nozzle		> 2"	> 50	> 75,000	
	Venturi tube		> 2"	> 50	> 12,500	
	Averaging pitot tube	veraging pitot tube			no limits	
Orifice plates and assemblies

Orifice plates represent the most common primary flow elements in the world due to their proven technology and ease of installation and maintenance.

Main characteristics

- Maximum operating temperature up to 800 °C
- Maximum operating pressure up to 400 bar
- Suitable for liquid, gas and steam flow measurement
- Accuracy: Uncalibrated ±0.5 ... 2.5 %
- Repeatability of measurement 0.1 %

FLC-OP

Orifice plate



	ASME MFC3M
Pipe size	$\equiv \geq 2^{"}$
	■ 2 50 mm
β	Depending on version
Accuracy 1)	Uncalibrated ±0.5 2.5 %
Data sheet	FL 10.01

FLC-CO



Standards Pipe size	 ISO 5167-2 ANSI/ASME B16.5 2 14" DN 50 350
β	Depending on version
Accuracy	≤ ±0.5 %
Data sheet	FL 10.10

Versions

Square edge orifice plates (standard version)
 This design is intended for general applications in clean liquids and gases.



Quarter circle and conical entrance orifice plates
 The best choice for measurement of liquids with low Reynolds number.



Segmental orifice plates

For measurements with two-phase, dirty and particle-laden media.



Eccentric orifice plates

The application areas are similar to the segmental version. However, an eccentric orifice plate is the better solution for smaller pipe diameters.



Orifice flanges are intended for use instead of standard pipe flanges when an orifice plate or flow nozzle must be installed. Pairs of pressure tappings are machined into the orifice flange, making separate orifice carriers or tappings in the pipe wall unnecessary.

Main characteristics

- Wide range of materials available
- The number and type of pressure tapping (flange tap or corner tap) can be manufactured to customer requirements
- Special assemblies can be designed on request

FLC-FL

Orifice flanges





Annular chambers are designed to be mounted between standard pipe flanges. Versions are available to suit all common flange standards, including DIN and ANSI B16.5.

Main characteristics

- Standard material is 316/316L stainless steel, but a wide range of alternative materials is available
- Gaskets are included in the scope of delivery (as standard, 4.4 mm thick spiral-wound gasket 316/graphite filler, unless requested otherwise)

Meter runs

To ensure high accuracy in the flow measurement of liquids, gases and steam the primary flow element is supplied as an assembly incorporating the upstream and downstream pipe sections required by ISO 5167-1:2003. This assembly is known as a "meter run".

Main characteristics

- Nominal width < 1 ½"</p>
- Nominal pressure rating 300 ... 2,500 depending on model/ version
- Wide range of materials available

A calibration of the instrument can be performed if higher accuracy is required.

An integral orifice plate is normally selected when the pipe diameter is 1 $\frac{1}{2}$ " or smaller and the medium is clean. An extremely compact installation can be ensured as the pressure sensor can be mounted directly onto the meter run. Without a calibration, an accuracy of $\pm 1 \dots 2$ % can be expected, the actual values will be confirmed during the engineering phase.

FLC-MR



Special assemblies

and

FLC-HHR-PP

ProPak flow meter for oil and gas



e size	2", 3", 4", 6" or 8"
nd pipe length	0.75 or 0.40
cial feature	No need for straight upstream downstream pipes
a sheet	FL 10.07

FLC-HHR-FP

FlowPak flow meter



FLC-WG

Wedge flow meter for slurries and highly viscous media



Pip

ßar

Spe

Data

Flow nozzles

A flow nozzle consists of a convergent section with a rounded profile and a cylindrical throat. This design is generally selected for steam flow measurement at high velocity.

To reduce pressure loss an axisymmetric solution, called a Venturi nozzle, can be offered. It combines the standard features of a flow nozzle with a divergent section.

Main characteristics

- Suitable for liquid, gas and steam flow measurement
- Optimum solution for measuring the flow of steam
- Accuracy: Uncalibrated ±0.8 ... 2 %
- Repeatability of measurement 0.1 %
- Ensure a lower pressure loss compared to orifice plate family.





FLC-FN-PIP

Flow nozzle for in-pipe installation



Pipe size	■ ≥ 2 in
	■ ≥ 50 mm
β	0.2 0.8
Accuracy 1)	Uncalibrated ±2 %
Data sheet	FL 10.03

FLC-FN-FLN



FLC-VN

Venturi nozzle



Pipe size	$\equiv 2 in$
	■ ≥ 50 mm
β	0.2 0.8
Accuracy 1)	Uncalibrated ±1 %
Data sheet	FL 10.03

Venturi tubes

A Venturi tube is a reliable and easily-managed and maintained instrument that can measure a wide range of clean liquids and gases.

The main advantage of a Venturi tube over other differential pressure flow measuring instruments is the higher pressure recovery and the lower upstream and downstream straight tube length requirements.

Main characteristics

- In accordance with ISO 5167-4 & ASME MFC-3M standards
- Fabricated from plate or machined from bar/forgings
- Flanged or weld-in construction
- Wide range of materials available
- Pipe sizes from 50 ... 1,200 mm
- Wide variety of pressure tappings available
- Calibration possible on request
- Accuracy: Uncalibrated ±1 ... 1.5 % н.



FLC-VT-BAR

Venturi tube, bar body



■ 2 32 in
■ 50 250 mm
0.4 0.75
Uncalibrated ±1.25 %
FL 10.04

FLC-VT-WS

Venturi tube, welded sheet



	■ 200 1,200 mm
	0.4 0.7
curacy 1)	Uncalibrated ±1.5 %
ata sheet	FL 10.04
ata sheet	FL 10.04

FloTec (averaging pitot tubes)

Flotec (a multi-port, averaging pitot tube) measures the difference between the static pressure and the dynamic pressure of the media in the pipe. The volumetric flow is calculated from that difference using Bernoulli's principle and taking into account the pipe inner diameter. Using four dynamic ports this instrument is able to evaluate a better velocity profile inside the pipe. This ensures a higher accuracy in the flow measurement.

Main characteristics

- Low installation costs
- Long-term accuracy
- Minimal permanent pressure loss
- Fixed and extractable versions available

Vortex shedding frequency

Depending on the inner diameter, the medium characteristics and the Reynolds number, a vortex will be generated around the pitot tube. A support mounted on the opposite side of the pipe can be supplied should the natural frequency of the pitot coincide with the vortex shedding frequency. The necessity test is performed during the design phase.



Vortex generation



Flow measurement | Primary flow elements

Restriction orifices

When a reduction of pressure or a limitation of the flow rate is required, a restriction orifice must be inserted into the pipeline. Our technical department will produce the correct design for the restriction orifice, depending on customer requirements and flow conditions.

If high differential pressures, a change in phase or sonic issues can occur, a more-complex design will be required. The solution in these cases is to decrease the differential pressure in several steps, avoiding all the issues created by these factors. This solution is called multi-step restriction orifice.

Main characteristics

- Multi-step restriction orifices to reduce the pressure by more than 50 % of the inlet value
- Multi-bore designs to reduce the noise level



FLC-RO-ST

Single-step restriction orifice



FLC-RO-MS

Multi-step restriction orifice



Flow switches

For each flow monitoring the right flow switch

Flow switches are used for the display and monitoring of the flow of liquid and gaseous media. The instruments feature a high switching accuracy and functional safety, low switch hysteresis and continuous switch point setting by the operator.

The wide selection of WIKA flow switches also includes viscositycompensated models and ATEX-certified instruments for use in hazardous environments.

FWS

For liquid and gaseous media



FSD-3

For liquid media



Digital pressure gauges

High-quality digital pressure gauges from WIKA

Precision digital pressure gauges are suitable for stationary and also mobile measurement and display of pressures. In addition, a digital pressure gauge can be used as a pressure reference and enables the easy testing, adjustment and calibration of other pressure measuring equipment directly on site. Through efficient measuring cells with electronic linearisation of the characteristic curve, a high accuracy is achieved.

CPG500

Digital pressure gauge



CPG1500

Precision digital pressure gauge



of span)	down to 0.05 FS
ecial feature	 Integrated data logger WIKA-Cal compatible Data transfer via WIKA-Wireless Password protection possible Robust case IP65
ta sheet	CT 10.51

WIKA-Cal

Calibration software, accessories for digital pressure gauges



- Creation of calibration certificates for mechanical and electronic pressure measuring instruments
- Fully automatic calibration with pressure controllers
- For the recording of certificate-relevant data in combination with the CalibratorUnits of the CPU6000 series
- Determination of the required mass loads for pressure balances
- Calibration of gauge pressure measuring instruments with absolute pressure references and vice versa

Data sheet: CT 95.10

CPG-KITH

Hydraulic service kit



- Simple testing and adjustment of pressure measuring instruments
- Kit consists of a CPG1500 reference instrument and a CPP-700H hand pump (hydraulic Pmax. 700 bar) or CPP-1000H (hydraulic, Pmax.1,000 bar)

CPG-KITP

Sp

Da

Pneumatic service kit



- Simple testing and adjustment of pressure measuring instruments
- Kit consists of a CPG1500 reference instrument and a CPP-30 hand pump (pneumatic Pmax. 30 bar)

Hand-helds, calibrators

Hand-helds are portable calibration instruments for mobile use for the accurate measurement and recording of pressure profiles. There are interchangeable pressure sensors with measuring ranges of up to 10,000 bar available for the instruments. Through this, hand-helds are particularly suitable as test instruments for a large variety of applications in the widest range of industries. Data recorded in the hand-held can be evaluated via PC software, some instruments document calibrations in the internal memory, which can later be read on a PC. Optionally, a calibration certificate can be generated with our calibration software WIKA-Cal.

CPH6200

 Hand-held pressure indicator

 Image: state of the state of

CPH65I0

(Ex)

Measu

Accura

Specia

Data sl

Intrinsically safe hand-held pressure calibrator



ring range	-1 +700 bar
су	0.025 % FS
l feature	 2 internal reference sensors Differential pressure Measuring current from 4 20 mA Pressure switch function Temperature measurement with Pt100 probe
neet	■ CT 14.51

CPH6300

Hand-held pressure indicator





CPH6000



Complete test and service cases



These cases can be assembled exactly to your requirements. Thus you will be fully equipped on site!

Hand-helds, calibrators

CPH7000



Pascal ET

N

Hand-held multi-function calibrator



Measuring range	 0 100 mA, 0 80 V, 5 10,000 Ω 0 50 kHz -190 +1,200 °C (type J) -200 +850 °C (Pt100)
Accuracy	0.025 % FS
Special feature	 Large display with touchscreen Integrated data logger and calibration function Measurement and simulation of temperature, current, voltage, resistance, frequency, pressure HART[®] communication
Data sheet	CT 18.02

Pascal100

Hand-held multi-function calibrator

EF		
Measuring range	 -1 100 bar 0 50 kHz 0 10 kOhm -100+100 mA -100+100 mV 	
Accuracy	0.025 % FS	
Special feature	 Large display with touchscreen Internal pressure/vacuum generation Integrated data logger and calibration function Measurement and simulation of pressure, current, voltage, resistance, frequency, temperature and pulses HART[®] communication 	
Data sheet	CT 18.01	

WIKA-Cal

Calibration software, accessories for hand-helds/calibrators



- Creation of calibration certificates for mechanical and electronic pressure measuring instruments
- Fully automatic calibration with pressure controllers
- For the recording of certificate-relevant data in combination with the CalibratorUnits of the CPU6000 series
- Determination of the required mass loads for pressure balances
- Calibration of gauge pressure measuring instruments with absolute pressure references and vice versa

Data sheet: CT 95.10

Precision pressure measuring instruments

Precision pressure measuring instruments are electrical measuring systems which convert pressure into an electrical signal and optionally visualise it. Precise pressure transmitters and process transmitters are used for the monitoring and control of particularly sensitive processes. Due to the low, DKD/DAkkS certified measurement uncertainty of down to 0.008 % of the entire measuring chain, the particularly accurate instruments find their primary applications as a factory/ working standard for testing and/or calibrating a variety of pressure measuring instruments.

CPT2500

USB pressure transmitter



Measuring range	0 0.025 to 0 1,000 bar
Accuracy	0.2 %, 0.1 % (optional)
Special feature	 Recording interval adjustable from 1 ms 10 s No external voltage supply required Data storage and evaluation directly via PC
Data sheet	CT 05.01

CPT61x0

Precision pressure sensor



0 0.025 to 0 400 bar
0.01 %
RS-232 or RS-485 connection
Analogue output (optional)
CT 25.10

CPG2500

Precision pressure indicator



Management	0 0.005 to 0 0.000 how
weasuring range	0 0.025 to 0 2,890 bar
Accuracy	0.01 %
Medium	Non-corrosive gases, > 1 bar liquids
Special feature	Up to 2 internal sensors and
	1 external sensor
	Barometric reference (optional)
Data sheet	CT 25.02

CPA2501

Precision air data test indicator



Measuring range	Altitudes to 100,000 ft
	Speeds to 1,150 knots
Accuracy	Down to 0.01 % FS
Special feature	RVSM-compliant
	Ps, Qc, Ps/Pt or Ps/Qc configuration
Data sheet	CT 29.02

WIKA-Cal

Calibration software, accessories for precision measuring instruments



- Creation of calibration certificates for mechanical and electronic pressure measuring instruments
- Fully automatic calibration with pressure controllers
- For the recording of certificate-relevant data in combination with the CalibratorUnits of the CPU6000 series
 Determination of the required mass loads for pressure
- Determination of the required mass rodge for pressure balances
 Calibration of gauge pressure measuring instruments with
- Calibration of gauge pressure measuring instruments with absolute pressure references and vice versa

Data sheet: CT 95.10

Pressure controllers

WIKA pressure controllers: Always the right calibration solution

Pressure controllers are electronic controllers which quickly and automatically provide a pressure based on a supply pressure. Due to the high accuracy and control stability, pressure controllers are especially suitable as references for production lines and laboratories, in order to carry out automatic testing and/or calibration of all types of sensors.

CPC2000

Low-pressure version



Measuring range	0 1 to 0 1,000 mbar
Accuracy	0.1/0.3 % (for 0 1 mbar)
Medium	Ambient air
Special feature	Integrated pressure generation
	Integrated rechargeable battery
Data sheet	CT 27.51

CPC4000

Industrial pressure controller

mensor



Measuring range	0 0.35 to 0 210 bar
Accuracy	0.02 %
Medium	Dry clean air or nitrogen
Special feature	Up to 2 sensors
	Fast control speed
Data sheet	CT 27.40

CPC6050

Modular pressure controller

mensor



Measuring range	0 0.025 to 0 210 bar
Accuracy	0.01 %
Medium	Dry clean air or nitrogen
Special feature	 Up to 2 control/measuring channels with 2 sensors each Sensors exchangeable
Data sheet	CT 27.62

Pneumatic high-pressure controllers

Hydraulic pressure controller

CPC8000

Precision version



abanngnango	
curacy	0.01 0.008 %
dium	Dry clean air or nitrogen
ecial feature	 Excellent control stability and pressure control without overshooting Up to three interchangeable sensors
a sheet	CT 28.01



.cy	0.01 /0
n	Nitrogen
l feature	 Robust and low-wear valve technology with long-term stability Up to three interchangeable sensors
neet	CT 27.63



For aviation

Data sl

CPC7000

WIKA-Cal

Spe

Dat

Calibration software, accessories for pressure controllers



- Creation of calibration certificates for mechanical and electronic pressure measuring instruments
- Fully automatic calibration with pressure controllers
 For the recording of certificate-relevant data in combination
- with the CalibratorUnits of the CPU6000 series
 Determination of the required mass loads for pressure balances
- Calibration of gauge pressure measuring instruments with absolute pressure references and vice versa

Data sheet: CT 95.10

CPA8001

Air data test set

mensor



Measuring range	 Altitudes to 100,000 ft Speeds to 1 150 knots
Accuracy	0.009 %
Medium	Dry, clean air or nitrogen
Special feature	 Excellent control stability, even with rate control Overshoot-free control
Data sheet	CT 29.01

An air data test set is a an electronic controller which, based on a supply pressure, provides a pressure at a variable and adjustable rate.

CT 28.05

Data sheet

Air data test sets are specifically developed to convert the pressure to be controlled into a height or rate of climb and velocity. As a result of the high accuracy, control stability and ability to simulate altitude and velocity, an air data test set is particularly suitable as a reference for aircraft workshops and also for instrument manufacturers and calibration laboratories in the aviation industry, in order to make calibrations on sensors and displays.

Pressure balances

Industrial series

Compact and competitively priced dead-weight testers for use on site or for maintenance and service

The compact dimensions and low weight are key features of these dead-weight testers for their daily use in service and maintenance. With their integrated pressure generation and purely mechanical measuring principle, they are also specifically suited to on-site applications.

CPB3500

Data sheet

Pneumatic compact version



CPB3800

Hydraulic compact version



cylinder systems

Data sheet CT 31.06

CPB3800HP

Compact, high-pressure version with dual-range piston-cylinder system



Measuring range	1 2,600 bar
Accuracy	0.025 0.007 %
Medium	Special oil or others on request
Special feature	 Dual-range piston-cylinder systems with fully automated changing between ranges Compact dimensions and low weight
Data sheet	CT 31 07

Laboratory version

High-performance primary standards with excellent running characteristics for use in calibration laboratories

Through modern instrument design with excellent equipment features, the highest demands of operator convenience and performance are fulfilled. The selection of dual-range piston-cylinder systems with automated changing between ranges can ensure this measurement uncertainty over a large pressure range, even with a single measuring system.

CPB5000

Pneumatic version



CPB5000HP

High-pressure version



CPB5800

Hydraulic version with dual-range piston-cylinder systems



CPB5600DP

Differential pressure version



Measuring range	0.03 2 to 25 1,600 bar
Accuracy	0.015 0.008 %
Medium	Non-corrosive gases or special oil
Special feature	Two complete pressure balances within one case for real differential pressure measure- ments under static pressure
Data sheet	CT 31.56

CPS5000

Hydraulic single-range piston-cylinder systems Image: Colspan="2">Image: Colspan="2" Colspan="2">Image: Colspan="2" C

Pressure balances

High-end version

High-accuracy and powerful primary standards with excellent operating characteristics, based on the physical principle of Pressure = Force/Area

The direct measurement of the pressure (p = F/A), as well as the use of high-quality materials enable this small measurement uncertainty, in conjunction with an excellent long-term stability (recommended recalibration interval of five years in accordance with the German Calibration Service DKD/DAkkS). Furthermore, an automatic mass handling system and pressure generation ensure fully automated calibration. The pressure balance has therefore been used for years in factory and calibration laboratories in industry, national institutes and research laboratories, and also in production by sensor and transmitter manufacturers.



CPB6000DP

Primary standard for differential pressure



easuring range	30 800 bar
curacy	0.005 0.002 %
edium	Non-corrosive gases
pecial feature	For differential pressure measurements from 10 Pa to 800 bar
ata sheet	CT 32.02

Accessories for pressure balances



Measuring range	1 500 bar (abs. and rel.)
Accuracy	0.005 0.002 %
Medium	Non-corrosive, dry gases
Special feature	Unique operating principle, ideal for automatic calibrations, no mass handling needed
Data sheet	CT 32.04

CPU6000 series

CalibratorUnit

- Determination of the required mass loads or the reference pressure for calibration with pressure balances
- Recording of certificate-relevant data
- Calibration of gauge pressure measuring instruments with absolute pressure references and vice versa
- Easy calibration of pressure transmitters through the voltage supply and multimeter function

Data sheet: CT 35.02

WIKA-Cal

CPB8000

DH_{Budenberg}

Measuring range

Special feature

Data sheet

Accuracy

Medium

Automatic primary standard

Calibration software, accessories for pressure balances

■ 500 ... 5.000 bar

Others on request

Others on request

Automated calibration of the

highest-accuracy pressure sensors, integrated pressure generation

0.005 ... 0.003 %

Sebacate oil

CT 32 03



- Creation of calibration certificates for mechanical and electronic pressure measuring instruments
- Fully automatic calibration with pressure controllers
 For the recording of certificate-relevant data in combination
- with the CalibratorUnits of the CPU6000 series

 Determination of the required mass loads for pressure
- Determination of the required mass loads for pressure balances
- Calibration of gauge pressure measuring instruments with absolute pressure references and vice versa
 Data sheet: CT 95.10

Portable pressure generation

Simple manual pressure generation

Test pumps serve as pressure generators for the testing, adjustment and calibration of mechanical and electronic pressure measuring instruments through comparative measurements. These pressure tests can take place in the laboratory or workshop, or on site at the measuring point.

CPP7-H

 Pneumatic hand test pump

 Image: Provide the state of the

CPP30

Pneumatic hand test pump



СРР700-Н, СРР1000-Н



CPP1000-M, CPP1000-L

Hydraulic hand spindle pump



CPP120-X

Pneumatic comparison test pump



Measuring range	0 120 bar
Medium	Clean, dry, non-corrosive gases
Special feature	 Accurate pressure setting Robust industrial series
Data sheet	CT 91.03

CPPxx00-X

Hydraulic comparison test pump



Reference thermometers

Highly accurate temperature measurement with reference thermometers

Reference thermometers (standard thermometers) are, due to their excellent stability and their geometrical adaptations, ideally suited for applications in industrial laboratories. They enable easy comparative calibration in baths, in tube furnaces and in drywell calibrators. The advantage of reference thermometers is the wide temperature range, and with this, their flexible operation. Furthermore, with their low drift, a long service life is ensured.

CTP2000

Platinum resistance thermometer



CTP5000

Reference thermometer



CTP5000-T25

Reference thermometer



Measuring range	-189 +660 °C
Probe type	Pt25
Dimensions	d = 7 mm, l = 480 mm
Special feature	 Free cable ends DIN or SMART connector
Data sheet	CT 61.25

CTP9000

Thermocouple



Data sheet

■ 1.500 mm cable Ends with 4 mm banana plugs

Hand-helds

Hand-helds are portable calibration instruments for mobile use for the accurate measurement and recording of temperature profiles. For the instruments there are various designs of thermometers available. Through this, hand-helds are particularly suitable as test instruments for a large variety of applications in the widest range of industries.

Data recorded in the hand-held can be evaluated via PC software, some instruments document calibrations in the internal memory, which can later be read on a PC. Optionally, a calibration certificate can be generated with our calibration software WIKA-Cal.

CTR1000

Infrared hand-held thermometer



Measuring range	-60 +1,000 °C
Accuracy	2 K or 2 % of reading
Special feature	Thermocouple connection (optional)
Data sheet	CT 55.21

CTH6200

Hand-held thermometer



Measuring range	-50 +250 °C
Accuracy	< 0.2
Probe type	Pt100
Special feature	Integrated data logger
Data sheet	CT 51.01

CTH6300

Special feature

Data sheet

Hand-held thermometer



CT 51.05

2 channels (optional), Ex version (optional)

CTH6500 CTH7000 Hand-held thermometer Hand-held thermometer Measuring range -200 ... +1,500 °C Measuring range -200 ... +962 °C Accuracy 0.03 ... 0.2 K Accuracy 0.015 K Probe type Pt100, TC Probe type Pt100, Pt25 and NTC Special feature Special feature Ex version (optional) Integrated data logger Data sheet Data sheet CT 55.10 CT 55.50

Calibration baths

Calibration baths are electronic controllers which automatically, quickly and with the help of a liquid supply a temperature Due to the high reliability, accuracy and exceptional homogeneity in the measuring chamber, calibration baths are particularly suitable as a factory/working standard for the automatic testing and/or calibration of the widest range of temperature probes independent of diameter. A special micro calibration bath design enables on-site applications.

CTB9100

Micro calibration bath DI BI -35 ... +255 °C Measuring range Accuracy 0.2 ... 0.3 K Stability ±0.05 K Special feature Short heating and cooling times Easy to use Data sheet CT 46.30

CTM9100-150

Mea

Multi-function calibrator



weasuring range	application
Accuracy	0.3 1 K depending on the application
Immersion depth	150 mm
Special feature	Use as a dry-well calibrator, micro calibra- tion bath, infrared calibrator and surface calibrator
Data sheet	CT 41.40

CTB9400

Calibration bath, medium measuring range



Measuring range 28 ... 300 °C 0.02 K Immersion depth 200 mm Data sheet CT 46.20

Stability

Medium

Water, oil or similar media

CTB9500

Calibration bath, low measuring range



Measuring range -45 ... +200 °C Stability Immersion depth Medium Data sheet

0.02 K
0.02 11
200 mm
Water, oil or similar media
CT 46.20

94

Portable temperature calibrators

Efficient calibration with temperature calibrators from WIKA

Portable temperature calibrators (dry-well calibrators) are electronic controllers which automatically, quickly and dryly supply a temperature. Due to the high reliability, accuracy and simple operation, portable temperature calibrators are particularly suitable as a factory/working standard for the automatic testing and/or calibration of temperature measuring instruments of all types.

CTD9100

Temperature dry-well calibrator



Measuring range Accuracy Stability Immersion depth Data sheet

0.15 ... 0.8 K

0.01 ... 0.05 K 150 mm CT 41.28

CTD9100-1100

High-temperature dry-well calibrator



Measuring range Accuracy 3 K Stability 0.3 K Immersion depth Data sheet CT 41.29

200 ... 1,100 °C 220 mm, bore depth 155 mm

CTD9300

Temperature dry-well calibrator



Measuring range Accuracy Stability Immersion depth Data sheet

-35 ... +650 °C 0.1 ... 0.65 K 0.01 ... 0.1 K 150 mm CT 41.38

CTD9100-375

Compact temperature dry-well calibrator



Measuring range	t _{ать} 375 °С
Accuracy	0.5 0.8 K
Stability	0.05 K
mmersion depth	100 mm
Data sheet	CT 41.32

CTI5000

Infrared calibrator



Stability 0.1 ... 0.4 K Special feature Large diameter of measuring surface Data sheet CT 41.42

CTM9100-150

Multi-function calibrator



Measuring range	-35 +165 °C depending on the application
Accuracy	0.3 1 K depending on the application
Immersion depth	150 mm
Special feature	Use as a dry-well calibrator, micro calibration bath, infrared calibrator and surface calibrator
Data sheet	CT 41.40

Resistance thermometry bridges

By using built-in or external standard resistors, resistance thermometry bridges measure resistance ratios with high accuracy, which are indicative of the temperature, among other things. These instruments are not only used in the field of temperature measurement, but – due to their high accuracy – also in electrical laboratories.

CTR2000

Precision thermometer



uring range	-200 +850 °C
acy	0.01 K (4-wire), 0.03 K (3-wire)
type	Pt100, Pt25
al feature	 3-wire measurement (optional) Up to 8 channels integrated in the instrument (optional)
sheet	CT 60.10

CTR3000

Multi-functional precision thermometer



asuring range	-210 +1,820 °C
curacy	 0.005 K (4-wire) ±0.03 K (3-wire) ±0.004 % + 2 µV for thermocouples
be type	Pt100, Pt25
ecial feature	 Versatile applications by measuring thermocouples and resistance thermometers Logger and scan functions Up to 44 channels possible
a sheet	CT 60.15

CTR6000

Accur

Probe

Speci

Data s

 DC resistance thermometry bridge

 Weasuring range

 -200 ... +962 °C

 Accuracy

 ±3 mK (full range)

 Probe type

 PRT, thermistors or fixed resistors

 Special feature

 Expendable to up to 60 channels (optional)

 Internal resistors 25 Ω, 100 Ω, 10 kΩ, 100 kΩ

 Data sheet
 CT 60.30

CTR6500

Me

Aco

Pro

Spe

Dat

AC resistance thermometry bridge



Measuring range	-200 +962 °C
Accuracy	0.1 1.25 mK depending on resistance ratio
Probe type	SPRT, PRT or fixed resistors
Special feature	 Expendable to up to 60 channels (optional) Internal resistors 25 Ω, 100 Ω AC technology
Data sheet	CT 60.40

Precision thermometer

CTR5000



Data sheet

CTR9000

Primary-standard resistance thermometry bridge

CT 60.20

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Measuring range	0 260 Ω
Accuracy	0.01 K, optional 0.005 K
Probe type	SPRT, PRT or fixed resistors
Special feature	 Expendable to up to 60 channels (optional) 4 selectable standby currents possible (optional) AC technology
Data sheet	CT 60.80

Standard reference resistors, AC/DC

Electrical comparison standard

Reference resistors with high-accuracy, fixed resistance values, which are used in connection with resistance thermometry bridges. They are also used as standards in accredited electrical laboratories.

CER6000-RR		CER6000-RW		
Reference resistor		Standard	Standard reference resistor	
that is a second se				
Resistance value	1, 10, 25, 100, 300, 400, 500, 1,000 and 10,000 Ω	Resistance value	1, 10, 25, 100, 300, 400, 500, 1,000 and 10,000 Ω	
Long-term stability Special feature	< ±5 ppm per year Low temperature coefficient	Long-term stability	2 ppm per year (HS version 0.5 ppm per year)	
Data shoot	Rugged stainless steel construction CT 70 30	Special feature	 Low temperature coefficient Bugged staipless steel construction 	
שמום שוופטו		Data sheet	CT 70.30	

Connections of the reference resistor, model CER6000-RR



Electrical calibration instruments

Electrical calibration instruments are used for calibration in industry (laboratories, production, workshops), in calibration service companies and in quality assurance. They are portable and mobile and are particularly notable for their low measurement uncertainty and high scope of operation. For the electrical calibration, the multi-function calibrators CPH7000, Pascal ET and Pascal 100 can also be used.

CEP3000

Hand-held temperature calibrator Image: Provide the state of the stat



Hand-held multi-function calibrator



Measuring range	■ 0 24 mA, 0 30 V, 5 4,000 Ω ■ 2 CPM 10 kHz ■ -210 +1,200 °C (type J) ■ -200 +800 °C (Pt100)
Accuracy	0.015 %
Special feature	Measurement and simulation of thermocouples, resistance thermometers, resistance, current, voltage, frequency, pulse and pressure
Data sheet	CT 83.01

CED7000

High-precision process calibrator



CT 85.51

simulation of thermocouples and resistance thermometers, resistance, current, voltage and pressure

Data sheet



Accessories

From individual components ... to complete turnkey kits

The following accessory components are the ideal complement to the individual calibration instruments. Thus a complete solution is not only quickly and easily configured, but can also be installed in the same manner. The various packages complete the product programme for calibration technology and can be used in many different applications.

Customer-specific drilled inserts, silicone oil suited for calibration in micro calibration baths and interface cables complete the product portfolio for temperature.

You can find a detailed description in our catalogue "Accessories for calibration technology".



Pressure supply cases



Pressure and vacuum supply packages



Connection components



Pressure control



Calibration and adjustment tools



Temperature accessories



Engineered solutions

Test and calibration systems for workshops and laboratories

Turnkey customer-specific systems for adjustment and calibration of pressure and temperature measuring instruments Precise calibration instruments are the starting point for resolving your test requirements, even though they are only one component of a high-performance calibration system. From our extensive product range, we can design you a complete and individual solution with adaptability for test items, pressure and vacuum supply, components for pressure control and fine adjustment, through to voltage supply and multimeters for the calibration of electrical test items.

Whether built-in to test benches, mobile test carts or 19" racks and supplemented with user-friendly calibration software, you will get a complete system, tailored to your requirements with the desired level of automation.

The use of high-quality proven components, ergonomic usability and a cost-effective overall concept with high customer benefit are made a priority. Take advantage of our experience and the proven operation of such systems in WIKA's own accredited laboratories and manufacturing facilities.

Adjustment and calibration benches



suring range	 1 400 bar pneumatic 10 1,600 bar hydraulic
iracy	Depending on the measuring devices used
ium	Compressed air, nitrogen, oil or water
cial feature	Provision of pressure in workshops and laboratories

Mobile calibration benches



Down to 0.008 % Compressed air, nitrogen, oil or water Special feature Self-contained, mobile calibration system for workshops and on-site service

Test systems



Measuring range Customer-specific Accuracy Down to 0.008 % Medium Compressed air, nitrogen, oil or water Special feature Measurement parameters pressure, temperature and electrical measurands

Automated pressure calibration systems



Measuring range Accuracy Medium Special feature

Accu

Med

Spec

Customer-specific Down to 0.008 % Compressed air, nitrogen, oil or water Complete turnkey system

Automated temperature calibration systems



Measuring range Stability Medium Special feature

Accuracy

Medium

Customer-specific Up to 0.001 K Water, alcohol, silicone oil or salt Complete turnkey system

Complete setup of laboratories



Measurin

Accuracy

Special fe

g range	Customer-specific
	 Measurand pressure up to 0.008 % Measurand temperature up to 0.001 K
eature	Complete solutions from one source - from factory calibration laboratories through calibration vehicles up to national laboratories



Test stands and calibration systems for production

From consultation through design to implementation - all from one source.

Our particular strength lies in the project planning, development and the building of complete, individual, application-specific systems - from simple manual work stations through to fully automated test systems in production lines - for the following applications:

Calibration and adjustment of

- Pressure sensors
- Pressure transmitter
- Process transmitters .

19" test and calibration racks for pressure sensors



N

Measuring range	Customer-specific Up to 400 bar pneumatic Up to 1,600 bar hydraulic
Accuracy	Down to 0.008 %
Special feature	Compact units with CPC series pressure controllers, working pressure supply, electrical supply and signal evaluation for the test items

for pressure sensors

Batch testing systems



Measuring range	Customer-specific Up to 1,050 bar pneumatic Up to 6,000 bar hydraulic
Accuracy	Down to 0.008 %
Temperature range	-40 +140 °C
Special feature	With retractable tempering chamber, workpiece carrier for up to 200 pressure sensors, electrical and pressure-side contacting

The precise interaction of measurement technology, test system mechanics and control components is a top priority here. The complete solutions are available in the widest variety of build stages incl. tempering units, workpiece transport systems, workpiece fixtures and electrical and pressure-side contacting. Furthermore, there is also the possibility of integrating mounting or labelling operations on the test components into the overall concept. You can be assured of our capabilities.

Inline calibration systems for pressure sensors



Measuring range	Customer-specific Up to 1,050 bar pneumatic Up to 6,000 bar hydraulic
Accuracy	Down to 0.008 %
Temperature range	-40 +140 °C
Special feature	Integration into customer's production line, linking multiple tempering chambers, automatic changeover of electrical and pressure-side contacts

Calibration services



Our calibration laboratories have been calibrated for pressure and temperature for over 30 years. Since 2014, our calibration laboratory has also been accredited for the electrical measurands DC current, DC voltage and DC resistance. Since 2017, the factory calibration for length measuring instruments has been expanding our portfolio.

- ISO 9001 certified
- DKD/DAkkS accredited (in accordance with DIN EN ISO/IEC 17025)
- Co-operation in the DKD/DAkkS working groups
- Over 60 years of experience in pressure and temperature . measurement
- Highly gualified, individually trained personnel
- Latest reference instruments with the highest accuracy

Manufacturer-independent calibration - fast and precise for ...

Pressure



- -1 bar ... +8,000 bar (to +9,500 bar possible with factory calibration)
- Calibration using working standards (precise electrical pressure measuring instruments) or high-accuracy reference standards (pressure balances)
- With an accuracy of 0.003 % ... 0.01 % of reading
- In accordance with the directives DIN EN 837, DAkkS-DKD-R 6-1 or EURAMET cg-3

Temperature



- н. -196 °C ... +1,200 °C
- Comparison calibration in calibration baths and tube furnaces with an accuracy of down to 1.5 mK
- Calibration at fixed points of ITS90 with the smallest possible measurement uncertainties
 - Triple point of mercury (-38.8344 °C)
 - Triple point of water (0.01 °C)
 - Melting point of gallium (29.7646 °C)
- In accordance with the appropriate DKD/DAkkS directives

Current, voltage, resistance



- DC current from 0 mA ... 100 mA
- DC voltage from 0 V ... 100 V
- DC resistance from 0 Ω ... 10 k Ω
- In accordance with the directives VDI/VDE/ **DGQ/DKD 2622**

Length



- Factory calibration within 10 working days
- Replacement of the measuring device if required
- Calibration of special-purpose gauges according to customer drawings
- Calibratable measuring devices
 - Caliper gauges to 800 mm
 - Testing pins to 100 mm
 - Ring gauges and plug gauges to 150 mm
 - Tapered thread gauges to 150 mm
 - Gauge blocks to 170 mm
 - (also possible as a set)
 - others on request

On site (pressure and temperature



In order to have the least possible impact on the production process, we offer you a timesaving, on-site DAkkS calibration throughout Germany.

- In our calibration van or on your workbench
- With a DAkkS accreditation for pressure - from -1 bar ... +8,000 bar - with accuracies between 0.025 % and 0.1 % of full scale for the standard used
- With a DAkkS accreditation for temperature from -55 °C ... +1,100 °C



In our segment brochures, you will find the entire product families for the areas of "ventilation and air-conditioning", "sanitary applications", "SF₆ lifecycle solutions" and "high purity & ultra high purity" and also their technical distinctions.

Ventilation and air-conditioning







WIKA