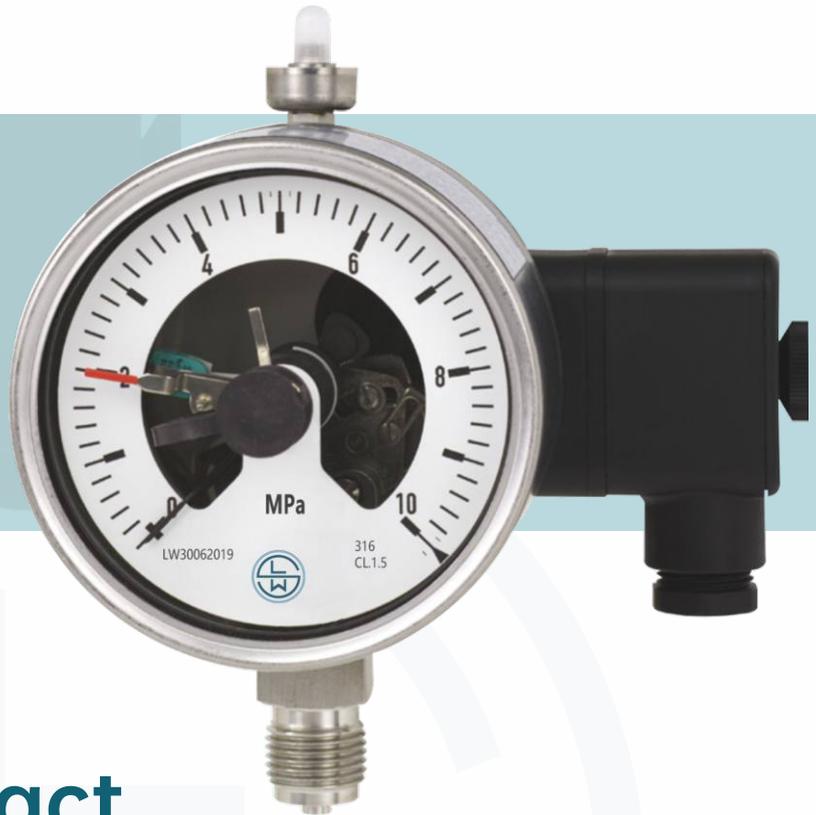


The selection is detailed on page 8



LPG

Electric Contact Pressure Gauge

Working principle

The electric contact pressure gauge is based on the spring tube in the measuring system under the pressure of the measured medium, forcing the end of the spring tube to produce the corresponding elastic deformation - displacement, with the help of the tie rod through the transmission of the gear transmission mechanism and amplification, the indicator on the fixed gear together with the contact is gradually indicated on the dial. At the same time, when it is connected with the contact limit on the set pointer, the circuit in the control system can be disconnected, or when it is connected with the lower limit of the contact on the set pointer, the circuit in the control system can be connected to achieve the purpose of automatic control and alarm.

Product description

In any case, if you want to perform on-off operations on the circuit while displaying the process pressure locally, an electric contact pressure gauge is ideal.

Switching electrical contact (electric alarm electrical contact) can be switched on and off according to the pointer position of the instrument electrical control circuit. The switching electrical contact is adjustable in the full range. Under normal circumstances, the electrical contacts are installed below the dial, and only a few are installed above the dial. The instrument pointer (actual value pointer) can rotate freely throughout the range, regardless of the setting. The setting pointer can be adjusted using the detachable adjustment key in the window.

Switching electrical contacts not only contain multiple electrical contacts, but also can be set to a single setting value. When the actual value pointer exceeds or falls below the set value, the electrical contact switches.

Manufactured according to DIN 16085 and in compliance with all relevant standards (e.g. EN 837-1) and the safety requirements of the code, this type of pressure gauge is perfectly suitable for on-site measurement of the working pressure of high-pressure vessels.

Switching electrical contacts include magnetic-assisted electrical contacts, dry-reed electrical contacts, inductive electrical contacts and electronic electrical contacts. Inductive electrical contacts can be used in hazardous areas. For connecting PLCs, electronic electrical contacts and dry-reed electrical contacts can be used.

Product application

Control and regulate industrial processes

Monitor equipment and control circuit on and off

Suitable for aggressive gas and liquid media with non-high viscosity and not easy to crystallize, as well as aggressive environments.

Chemical, petrochemical, power plant, mining, coastal platform, environmental protection technology, machinery manufacturing and general plant construction

Functional characteristics

Each meter has up to 4 switching electrical contacts

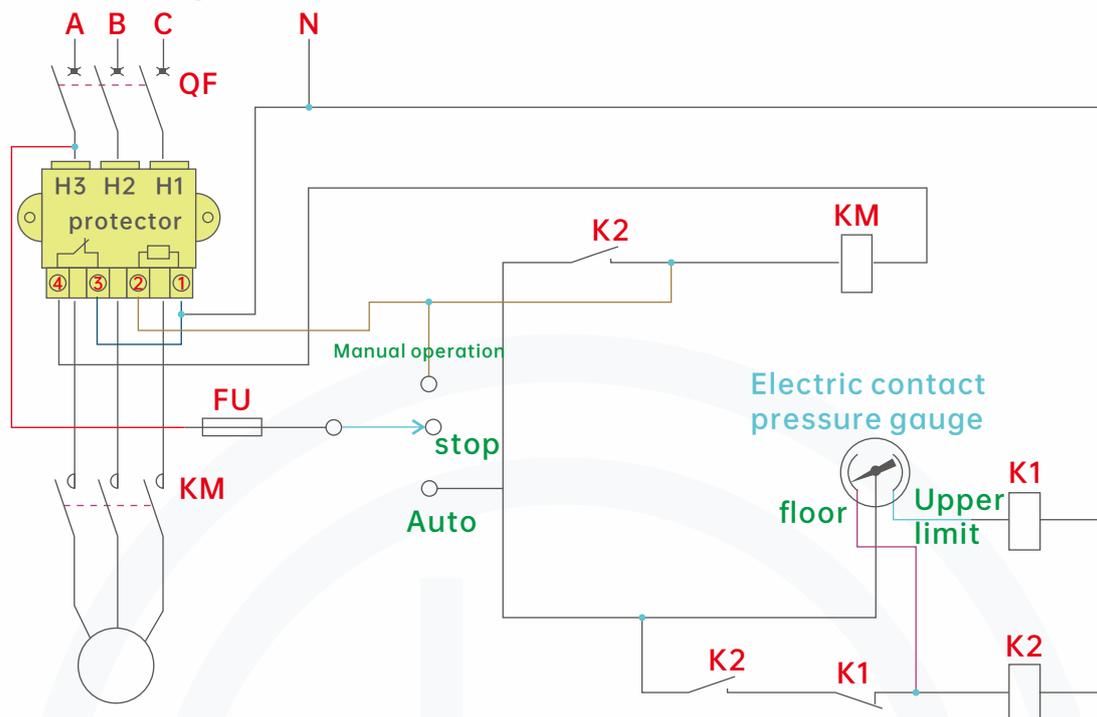
Available in liquid-filled housing for high dynamic pressure loads and high vibration environments

Gauges with inductive electrical contacts are available for use in hazardous areas

Meters with live contacts for PLC applications

Optional S3 safe meter according to EN 837

Working principle diagram



Specification parameter

Nominal size mm	100/160
Accuracy class	1.0
Scale range	0 ... 0.06 MPa [0 ... 8.7 psi] to 0 ... 160 MPa [0 ... 23,206 psi] Other units (e.g., psi, kPa) are available Or all other negative and positive pressure ranges
Scale	Single scale Optional: Double scale
Pressure limit	
▪ Static pressure	full-scale
▪ Dynamic pressure	0.9 x FS
▪ Transient overvoltage	1.3 x FS
Installation mode	Radial mounting Axial eccentric installation
Process connection	G1/2B G1/4B G3/8B 1/2NPT M20 x 1.5 Additional process connections are available upon request
Allowable temperature ¹⁾	
▪ Medium	Max. +200 °C [+392 °F] non-liquid meter
▪ Environment	Max. +100 °C [+212 °F] liquid-filled meter



Specification parameter

Temperature effect	-20 ... +60 °C [-4 ... 140 °F]
	When the temperature of the measuring system deviates from the reference temperature (+20 °C) : maximum $\pm 0.4\%$ range /10 K
Watch case	Type K1 according to EN 837: housing with pressure relief hole at the back
	Safe K3 according to EN 837: with flameproof plate (solid front panel) and automatic pressure relief rear cover
Fill the case with liquid	not have
	Optional: Fill the case with liquid
Liquid receiving material	
▪ Process connection, pressure element	Stainless steel 316L, optional: Monel alloy
Non-liquid material	
▪ Case, movement, clasp lock ring	Stainless steel
▪ Dial plate	Aluminum, white, black print
▪ Instrument pointer	Aluminum, black
▪ Set pointer	Aluminum, red
▪ Watch window	Laminated safety glass
Complies with IEC/EN 60529	IP65 ²⁾
Standard level of protection	selectable: IP66
Electrical connection	Cable sleeve PA6, black
	According to VDE 0110 standard, insulation group C/250 V
	M20 x 1.5 gran head
	Compaction device
	6 screw terminals + PE (2.5 mm ² cross-sectional wire)
	See page 5 for dimensions
	Other electrical connections are available upon request

1) For hazardous areas, the instrument must also not exceed the permissible temperature (see the operating instructions for details).
If necessary, cooling measures must be taken (e.g. siphon, instrument valve, etc.).

2) Protection class IP54, with safety housing and axial eccentric mounting connection.

Switch contact

Type S1/K1 magnetically assisted electrical contact

- No control unit and additional power supply required
- Can directly switch 250 V, 1 A load
- Each measuring instrument can be equipped with up to 4 switching contacts

K2 electronic electrical contact

- Use in hazardous areas requires additional control units
- Non-contact sensor, long service life
- It has little influence on the accuracy of the indication
- Fail-safe switches at high switching frequencies
- Not susceptible to corrosion
- There is a safe version
- Each measuring instrument can be equipped with up to 3 switching contacts

K3 explosion-proof electrical contact

- For direct triggering of programmable logic controllers (PLCS)
- 2-wire system (Optional: 3-wire system)
- Non-contact sensor, long service life
- It has little influence on the accuracy of the indication
- Fail-safe switches at high switching frequencies
- Not susceptible to corrosion
- Each measuring instrument can be equipped with up to 3 switching contacts

Switching function

- The switching function of the switch is indicated by the function label 1, 2, or 3.

- 1: The contact is closed (the pointer moves clockwise)
- 2: The contact is disconnected (the pointer moves clockwise)
- 3: Switch contact, when the pointer reaches the set point, a contact is disconnected, The other contact closes simultaneously



Specifications of S1/K1 magnetically assisted electrical contacts

The adjustment range of the contact is 25... 75% (0... available upon request 100%).

Contact material (standard): Silver nickel alloy, gold plated

1) Design of contact coil:
Version "L" = Lightweight
Version S = Heavy weight

Range	Nominal size	Maximum number of contacts	Switching current range	Contact version ¹⁾
≤ 0.10 MPa	100, 160	1	0.02 ... 0.3 A	L
> 0.10 MPa	100, 160	1	0.02 ... 0.6 A	S
≤ 0.16 MPa	100, 160	2	0.02 ... 0.3 A	L
> 0.16 MPa	100, 160	2	0.02 ... 0.6 A	S
≤ 0.40 MPa	100	3 or 4	0.02 ... 0.3 A	L
> 0.40 MPa	100	3 or 4	0.02 ... 0.6 A	S
≤ 0.25 MPa	160	3 or 4	0.02 ... 0.3 A	L
≤ 0.25 MPa	160	3 or 4	0.02 ... 0.6 A	S

Contact setting

The minimum gap between the two contacts is recommended to be 20% of the range. Switch lag is 2... 5% (typical value).

Peculiarity	Non-filled type		Non-filled type	
	Resistive load		Resistive load	
	Contact version "S"	Contact version "L"	Contact version "S"	Contact version "L"
Rated voltage U_{eff}	≤ 250 V		≤ 250 V	
Rated operating current				
▪ Making current	≤ 1.0 A	≤ 0.5 A	≤ 1.0 A	≤ 0.5 A
▪ Turn-off current	≤ 1.0 A	≤ 0.5 A	≤ 1.0 A	≤ 0.5 A
▪ Sustained current	≤ 0.6 A	≤ 0.3 A	≤ 0.6 A	≤ 0.3 A
Switching power supply	≤ 30 W / ≤ 50 VA		≤ 20 W / ≤ 20 VA	

Contact loads with resistive and inductive loads are recommended

Operating voltage	Non-filled type			Liquid-filled type		
	Resistive load		Inductive load	Resistive load		Inductive load
	Direct current	Alternating current		Direct current	Alternating current	
DC 220 V / AC 230 V	100 mA	120 mA	65 mA	65 mA	90 mA	40 mA
DC 110 V / AC 110 V	200 mA	240 mA	130 mA	130 mA	180 mA	85 mA
DC 48 V / AC 48 V	300 mA	450 mA	200 mA	190 mA	330 mA	130 mA
DC 24 V / AC 24 V	400 mA	600 mA	250 mA	250 mA	450 mA	150 mA

Specifications of K2 electronic electrical contact

Caption:
S1 = Standard type with automatic pressure relief (according to EN 837)
S3 = Safe type with solid flameproof plate (according to EN 837)

The adjustment range of the contact is 10... 90% (0... available upon request 100%).

Range	Nominal size	Maximum number of contacts	Shell version
0.06 MPa	100, 160	1	S1
0.06 MPa	160	1	S3
0.1 MPa	100, 160	2	S1
0.1 MPa	100	1	S3
0.1 MPa	160	2	S3
≥ 0.16 MPa	100, 160	3	S1, S3

Set the contacts to the same set point

You can set up to 2 contacts to the same set point. This does not apply to versions with 3 contacts. The left (1st) or right (3rd) contact cannot be set to the same set point as the other 2 contacts. When both contacts are set to the same set point, shift the other contact to the left or right by about 30°.

Allowable temperature range

T6: -20 ... +60 °C
T5 ... T1: -20 ... +70 °C
T135 °C: -20 ... +70 °C



Specifications of K3 explosion-proof electrical contact

Caption:
 S1 = Standard type with automatic pressure relief (according to EN 837)
 S3 = Safe type with solid flameproof plate (according to EN 837)
 The adjustment range of the contact is 10...90% (0... available upon request 100%).

range	Nominal size	Maximum number of contacts	Shell version
0.06 MPa	100, 160	1	S1
0.06 MPa	160	1	S3
0.1 MPa	100, 160	2	S1
0.1 MPa	100	1	S3
0.1 MPa	160	2	S3
≥ 0.16 MPa	100, 160	3	S1, S3

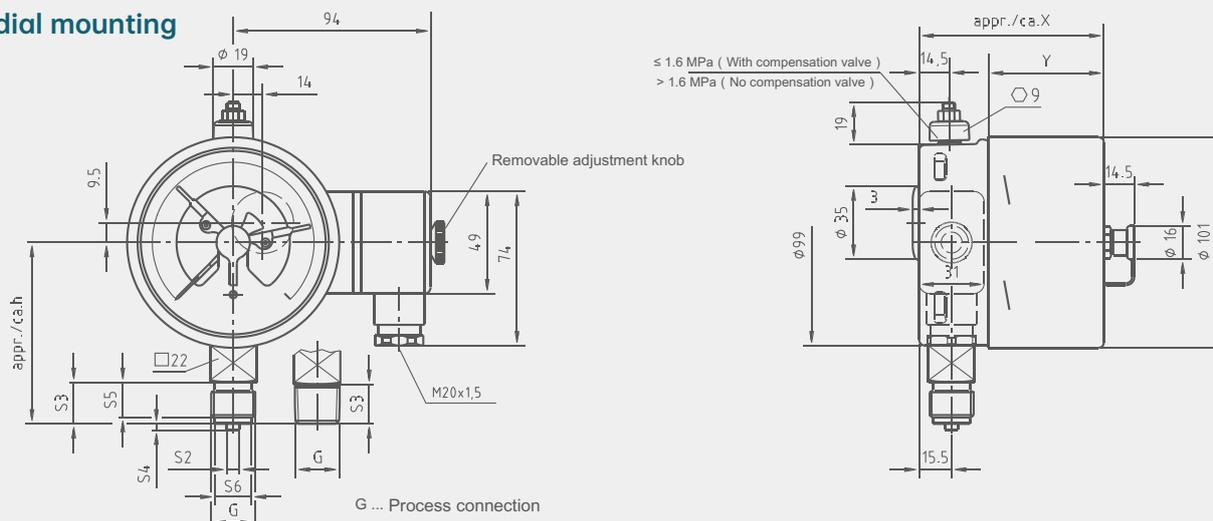
Set the contacts to the same set point

You can set up to 2 contacts to the same set point. This does not apply to versions with 3 contacts. The left (1st) or right (3rd) contact cannot be set to the same set point as the other 2 contacts. When both contacts are set to the same set point, shift the other contact to the left or right by about 30°.

peculiarity	
Contact signal	Normally open, normally closed
Output type	PNP triode
Operating voltage	DC 10 ... 30 V
Residual ripple	Max. 10%
No-load current	≤ 10 mA
Switching current	≤ 100 mA
Residual current	≤ 100 μA
Pressure drop (I _{max})	≤ 0.7 V
Polarity reverse protection	Depends on UB condition (output 3 or 4 switch should not be set directly to negative)
Inductive free protection	1 kV, 0.1 ms, 1 kΩ
Oscillation frequency	about 1,000 kHz
EMC	In accordance with EN 60947-5-2

Size mm

Radial mounting



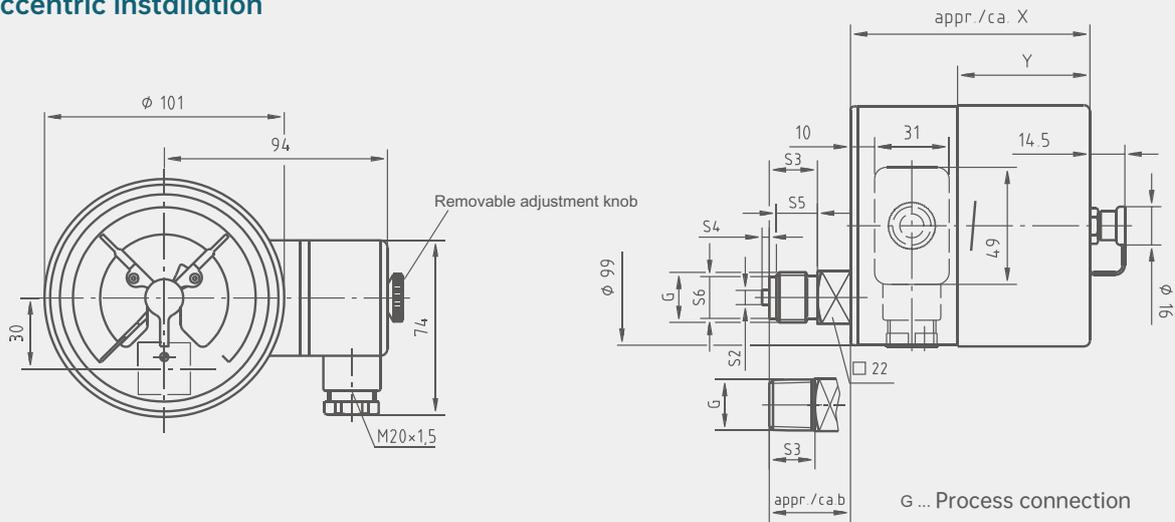
Contact type	Size mm	
	X	Y
Single or double electrical contact	88	55
Double (switching) electrical contact	113	80
Triple contact	96	63
Quadruple contact	113	80

Process connection	Size mm					
	h±1	S2	S3	S4	S5	S6
G1/2B	87	6	20	3	17	17.5
G1/4B	80	5	13	2	11	9.5
G3/8B	83	5.5	16	3	13	13
1/2NPT	86	-	19	-	-	-



Size mm

Axial eccentric installation



Contact type	Size mm	
	X	Y
Single or double electrical contact	88	55
Double (switching) electrical contact	113	80
Triple contact	96	63
Quadruple contact	113	80

Process connection	Size mm					
	b	S2	S3	S4	S5	S6
G1/2B	33.5	6	20	3	17	17.5
G1/4B	26.5	5	13	2	11	9.5
G3/8B	29.5	5.5	16	3	14	13
1/2NPT	32.5	-	19	-	-	-

Range table

Negative pressure	code	MPa	code	Bar	code	kPa	code	kg/cm ²	code	Psi-inHg
	MV001	-0.1/0	BV001	-1/0	KV001	-100/0	GV001	-1/0	RV030	-30"/0 Hg
Positive and negative pressure	code	MPa	code	Bar	code	kPa	code	kg/cm ²	code	Psi-inHg
	MC006	-0.1/0.06	BC006	-1/0.6	KC006	-100/60	GC006	-1/0.6	PC015	-30"/0/15
	MC015	-0.1/0.15	BC015	-1/1.5	KC015	-100/150	GC015	-1/1.5	PC030	-30"/0/30
	MC030	-0.1/0.3	BC030	-1/3	KC030	-100/300	GC030	-1/3	PC060	-30"/0/60
	MC050	-0.1/0.5	BC050	-1/5	KC050	-100/500	GC050	-1/5	PC100	-30"/0/100
	MC090	-0.1/0.9	BC090	-1/9	KC090	-100/900	GC090	-1/9	PC160	-30"/0/160
	MC150	-0.1/1.5	BC150	-1/15	KC150	-100/1500	GC150	-1/15	PC200	-30"/0/200
	MC240	-0.1/2.4	BC240	-1/24	KC240	-100/2400	GC240	-1/24	PC300	-30"/0/300
Positive pressure	code	MPa	code	Bar	code	kPa	code	kg/cm ²	code	Psi
	MP001	0/0.1	BP001	0/1	KP001	0/100	GP001	0/1	PP1E5	0/15
	MP1E6	0/0.16	BP1E6	0/1.6	KP1E6	0/160	GP1E6	0/1.6	PP003	0/30
	MP2E5	0/0.25	BP2E5	0/2.5	KP2E5	0/250	GP2E5	0/2.5	PP006	0/60
	MP004	0/0.4	BP004	0/4	KP004	0/400	GP004	0/4	PP010	0/100
	MP006	0/0.6	BP006	0/6	KP006	0/600	GP006	0/6	PP016	0/160
	MP010	0/1	BP010	0/10	KP010	0/1000	GP010	0/10	PP020	0/200
	MP016	0/1.6	BP016	0/16	KP016	0/1600	GP016	0/16	PP030	0/300
	MP025	0/2.5	BP025	0/25	KP025	0/2500	GP025	0/25	PP040	0/400
	MP040	0/4	BP040	0/40	KP040	0/4000	GP040	0/40	PP060	0/600
	MP060	0/6	BP060	0/60	KP060	0/6000	GP060	0/60	PP100	0/1000
	MP100	0/10	BP100	0/100	KP100	0/10000	GP100	0/100	PP150	0/1500
	MP160	0/16	BP160	0/160	KP160	0/16000	GP160	0/160	PP200	0/2000
	MP250	0/25	BP250	0/250	KP250	0/25000	GP250	0/250	PP300	0/3000
	MP400	0/40	BP400	0/400	KP400	0/40000	GP400	0/400	PP400	0/4000

LPG-Selection composition

Selection example LPG

1	A	2	G	3	MP001	4	S	5	V	6	X	7	A	8	C	9	K
---	---	---	---	---	-------	---	---	---	---	---	---	---	---	---	---	---	---

1.Product type	A	Magnetically assisted (economical)	
	B	Magnetically assisted (standard)	
	C	Inductive type	
	D	Explosion-proof type	
2.Dial diameter	G	100	
	H	160	
3.Range range	I	See range table (page 7)	
4.Second range unit	N	MPa	
	O	Bar	
	P	KPa	
	Q	Kg/cm ²	
	R	Psi	
	S	not have	
5.Process connection	U	1/2NPT	
	V	M20*1.5	
	W	G1/2B	
	T()	Other process connection	
6.Installation mode	X	Radial direction	
	Y	Axial direction	
	Z	Axis forward with edge	
7.Watch glass	A	PC plastic	
	B	Safety glass	
8.Contact signal	C	Normally open	
	D	Normal close	
9.Joint material	K	304SS	
	E	316L	
10.certificate	F	EN10204	
	N	not have	
11.Additional description	X	Yes (remarks)	
	N	not have	

Instructions:

Indicates that the LPG electric contact pressure gauge is magnetically assisted, the dial diameter is 100mm, and the measuring range is 0... 0.1MPa, no second range unit, process connection is M20*1.5, installation mode is radial, table glass is PC plastic, contact signal is normally open, joint material 304 stainless steel, item 10/11 in the table is not required.

Product Certification

Compliance and approval; Rodewieg pressure gauges meet key standards and certifications for process measurement technology; Thus guaranteeing the highest reliability in such Settings;