

Operating instructions 操作说明书

Pressure transmitter model IS-3

IS-3 型压力变送器



Pressure transmitters model IS-3



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	更多语言请见 www.wika.com		

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 WIKA® is a registered trademark in various countries.
 WIKA® 是在各个国家/地区的注册商标。

Prior to starting any work, read the operating instructions!
 Keep for later use!
 在开始任何工作之前，请阅读本操作说明书！
 请妥善保存，以备将来使用！

Vor Beginn aller Arbeiten Betriebsanleitung lesen!
 Zum späteren Gebrauch aufbewahren!

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Declarations of conformity can be found online at www.wika.com.

1. General information

1. General information

- The pressure transmitter described in the operating instructions has been designed and manufactured using state-of-the-art technology. All components are subject to stringent quality and environmental criteria during production. Our management systems are certified to ISO 9001 and ISO 14001.
- These operating instructions contain important information on handling the instrument. Working safely requires that all safety instructions and work instructions are observed.
- Observe the relevant local accident prevention regulations and general safety regulations for the instrument's range of use.
- The operating instructions are part of the product and must be kept in the immediate vicinity of the instrument and readily accessible to skilled personnel at any time.
- Skilled personnel must have carefully read and understood the operating instructions prior to beginning any work.
- The manufacturer's liability is void in the case of any damage caused by using the product contrary to its intended use, non-compliance with these operating instructions, assignment of insufficiently qualified skilled personnel or unauthorised modifications to the instrument.
- The general terms and conditions contained in the sales documentation shall apply.
- Subject to technical modifications.
- Further information:
 - Internet address: www.wika.de / www.wika.com
 - Relevant data sheet: PE 81.58
 - Application consultant: Tel.: +49 9372 132-8976
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support-tronic@wika.de

1. General information

Explanation of symbols



WARNING!

... indicates a potentially dangerous situation that can result in serious injury or death, if not avoided.



WARNING!

... indicates a potentially dangerous situation in the hazardous area that can result in serious injury or death, if not avoided.



WARNING!

... indicates a potentially dangerous situation that can result in burns, caused by hot surfaces or liquids, if not avoided.



CAUTION!

... indicates a potentially dangerous situation that can result in light injuries or damage to equipment or the environment, if not avoided.



Information

... points out useful tips, recommendations and information for efficient and trouble-free operation.

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2. Safety

2. Safety

EN



WARNING!

Before installation, commissioning and operation, ensure that the appropriate instrument has been selected in terms of measuring range, design and specific measuring conditions. Non-observance can result in serious injury and/or damage to the equipment.



WARNING!

Danger of injury and damage to property due to escaping media

Escaping media can lead to serious injury. In the event of failure, components can be ejected or media exhausted under high pressure.

- Open the connections only after the system has been depressurised.
- For pressures from 1,000 bar, employ a protective device to prevent parts from being ejected. The protective device must not be removable without the use of tools.
- Always operate the pressure measuring instrument within the overpressure limit, see chapter 3 "Specifications".
- Ensure that the pressure in the system as a whole does not exceed the lowest maximum pressure of any of its components. If varying or different pressures are to be expected in the system, components must be used that can withstand the maximum expected pressure spikes.
- Observe the working conditions in accordance with chapter 3 "Specifications".
- Actions or alterations to the pressure transmitter, which are not described in these operating instructions, are not permitted.



Further important safety instructions can be found in the individual chapters of these operating instructions.

2.1 Intended use

The pressure transmitter is an intrinsically-safe supplied pressure measuring instrument and is used for the continuous monitoring of gaseous media or liquids in potentially explosive areas which require category 1, 1/2 and 2 equipment.

ATEX and IECEx approval:

Pressure measuring instrument approved for use in hazardous areas.

2. Safety

Approval ratings ATEX and IECEx:

Gases and mist:	Mounting to zone 0 (EPL Ga/Gb); installation in zone 0 (EPL Ga) and zone 2 (EPL Gc)
Dusts:	Mounting to zone 20 (EPL Da/Db); installation in zone 20 (EPL Da) and zone 22 (EPL Dc)
Mining:	EPL Ma

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The instrument has been designed and built solely for the intended use described here, and may only be used accordingly.

The technical specifications contained in these operating instructions must be observed. Improper handling or operation of the instrument outside of its technical specifications requires the instrument to be taken out of service immediately and inspected by an authorised WIKA service engineer.

2.2 Personnel qualification



WARNING!

Risk of injury should qualification be insufficient!

Improper handling can result in considerable injury and damage to equipment.

- The activities described in these operating instructions may only be carried out by skilled personnel who have the qualifications described below.
- Keep unqualified personnel away from hazardous areas.

Skilled personnel

Skilled personnel are understood to be personnel who, based on their technical training, knowledge of measurement and control technology and on their experience and knowledge of country-specific regulations, current standards and directives, are capable of carrying out the work described and independently recognising potential hazards.

Special operating conditions require further appropriate knowledge, e.g. of aggressive media.

2. Safety

2.3 Special hazards

For ignition protection Ex nA and Ex tc: The thermal tests according to IEC 60079-0:2011 26.5.1 were conducted for the operation in the nominal pressure range.

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WARNING!

Observe the information given in the applicable type examination certificate and the relevant country-specific regulations for installation and use in hazardous areas (e.g. IEC 60079-14, NEC, CEC). Non-observance can result in serious injury and/or damage to the equipment.



WARNING!

Physical injury and damage to property caused by hair-line cracks

The service life of the pressure transmitter is limited by a maximum number of load cycles. The maximum number depends on the pressure profile of the application (extent of change in pressure, time of pressure rise and pressure drop, ...). Once the maximum number of load cycles has been exceeded, it can lead to leaks through hair-line cracks, which can cause physical injury and damage to property.

- Request the maximum number of load cycles from the manufacturer.
- Replace the pressure transmitter once it has exceeded the maximum number of load cycles.
- Take safety measures to eliminate hazards due to hair-line cracks.



WARNING!

For hazardous media such as oxygen, acetylene, flammable or toxic gases or liquids, and refrigeration plants, compressors, etc., in addition to all standard regulations, the appropriate existing codes or regulations must also be followed.



WARNING!

Residual media in the dismantled instrument can result in a risk to persons, the environment and equipment. Take sufficient precautionary measures.

Do not use this instrument in safety or emergency stop devices. Incorrect use of the instrument can result in injury.

Should a failure occur, aggressive media with extremely high temperature and under high pressure or vacuum may be present at the instrument.



Further important safety instructions can be found in the individual chapters of these operating instructions.

2. Safety

2.4 Labelling, safety marks

Product label

WIKA **CE 0158**

Model designation → **IS — 3**

Measuring range → **30 inHg ... 300 psi**

Output signal → **4 ... 20 mA**

Power supply → **DC 10 ... 30 V**

P# Product no. → **00639080**

S# Serial no. → **11639110**

Ignition protection type → **Ex**

Type code → **Code IS - 3 - X - XXXX - XXX - XXXXXXXX - XXXXXXXX - XXXX**

U+ bn
U- gn
gy

For dust see manual!
Shield not connected to the case

2F

Safety-related maximum values (for ignition protection Ex i)

Pin assignment

Explanation of symbols



Before mounting and commissioning the instrument, ensure you read the operating instructions!



CE, Communauté Européenne

Instruments bearing this mark comply with the relevant European directives.



ATEX European Explosion Protection Directive

(Atmosphère = AT, explosible = EX)

Instruments bearing this mark comply with the requirements of the European directive 94/9/EC (ATEX) on explosion protection.

2. Safety

2.5 Type code

IS-3-A-BCDE-***-*****-*QRST**-W***

* = not relevant for instruments in Ex-version

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Position	Description	Feature
A	process connection type	0 = pressure channel
		1 = front flush
BC	area of use	11 = EPL Ga (ATEX: II 1G)
		12 = EPL Ga (ATEX: II 1G) + EPL Ma (ATEX: I M1)
		13 = EPL Ga (ATEX: II 1G) + EPL Da (ATEX: II 1D)
		14 = EPL Ga (ATEX: II 1G) + EPL Da (ATEX: II 1D) + EPL Ma (ATEX: I M1)
		21 = EPL Ga/Gb (ATEX: II 1/2G)
		22 = EPL Ga/Gb (ATEX: II 1/2G) + EPL Ma (ATEX: I M1)
		23 = EPL Ga/Gb (ATEX: II 1/2G) + EPL Da/Db (ATEX: II 1/2D)
		24 = EPL Ga/Gb (ATEX: II 1/2G) + EPL Da/Db (ATEX: II 1/2D) + EPL Ma (ATEX: I M1)
		31 = EPL Gc (ATEX: II 3G)
		33 = EPL Gc (ATEX: II 3G) + EPL Dc (ATEX: II 3D)
D	approvals	1 or 3 = ATEX + IECEx
		4 = IECEx + ATEX zone 2 / 22
E	ignition protection type	1 = intrinsically safe
		2 = non sparking nA
		3 = non sparking nA + dust ignition protection by enclosure tc
Q	adjustability	Z = without
		T = zero point / span adjustable

2. Safety

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Position	Description	Feature
RS	electrical connection	electrical outputs two characters according to tables "Ambient and medium temperatures of the respective electrical connections for safe operation, for medium temperatures $\leq 105\text{ }^{\circ}\text{C}$ (for ignition protection Ex i)" and "Maximum ambient and medium temperatures (for ignition protection Ex nA and Ex tc)"
T	cable material	Z = without
		A = PUR
		B = FEP
W	temperature range of medium	U = $-20 \dots +80\text{ }^{\circ}\text{C}$
		E = $-20 \dots +60\text{ }^{\circ}\text{C}$
		C = $-20 \dots +150\text{ }^{\circ}\text{C}$
		6 = $-15 \dots +60\text{ }^{\circ}\text{C}$
		7 = $-15 \dots +70\text{ }^{\circ}\text{C}$
		8 = $-40 \dots +150\text{ }^{\circ}\text{C}$
		9 = $-40 \dots +200\text{ }^{\circ}\text{C}$

3. Specifications

3. Specifications

When designing the system, please note that the values given (e.g. burst pressure, overpressure limit) are dependent upon the material and thread used.

3.1 Measuring ranges and overpressure limits (for measuring range see product label)

Gauge pressure in bar

Measuring range	0 ... 0.1	0 ... 0.16	0 ... 0.25	0 ... 0.4	0 ... 0.6	0 ... 1	0 ... 1.6
Overpressure limit	1.4	1.4	1.4	4.1	4.1	4.1	8.3
Measuring range	0 ... 2.5	0 ... 4	0 ... 6	0 ... 10	0 ... 16	0 ... 25	0 ... 40
Overpressure limit	8.3	19.3	41.4	41.4	82.8	82.8	80
Measuring range	0 ... 60	0 ... 100	0 ... 160	0 ... 250	0 ... 400	0 ... 600	0 ... 1,000 ¹⁾
Overpressure limit	120	200	320	500	800	1,200	1,500
Measuring range	0 ... 1,600 ^{1) 2)}	0 ... 2,500 ^{1) 2)}	0 ... 4,000 ^{1) 2)}	0 ... 5,000 ^{1) 2)}	0 ... 6,000 ^{1) 2)}		
Overpressure limit	2,300	3,500	5,000	6,000	7,000		

1) Only for instruments without flush process connection

2) Only for instruments with ignition protection type Ex i. Not for instruments with SIL2.

Absolute pressure in bar

Measuring range	0 ... 0.25	0.8 ... 1.2	0 ... 0.4	0 ... 0.6	0 ... 1	0 ... 1.6	0 ... 2.5
Overpressure limit	1.4	4.1	4.1	4.1	4.1	8.3	8.3
Measuring range	0 ... 4	0 ... 6	0 ... 10	0 ... 16	0 ... 25		
Overpressure limit	19.3	41.4	41.4	82.8	82.8		

3. Specifications

Vacuum and +/- measuring ranges in bar

Measuring range	-1 ... 0	-1 ... +0.6	-1 ... +1.5	-1 ... +3	-1 ... +5	-1 ... +9	-1 ... +15
Overpressure limit	4.1	8.3	8.3	19.3	41.4	41.4	82.8
Measuring range	-1 ... +24						
Overpressure limit	82.8						

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3.2 Process connections and overpressure limits (process connection see type code)

Process connections, standard

Standard	Thread size	Max. nominal pressure [bar]	Overpressure limit [bar]
EN 837	G ¼ B	1,000	1,400
	G ½ B	1,000	1,800
	G ¾ B	1,000	1,400
DIN 3852-E	G ¼ A	600	600
	G ½ A	600	600
ANSI/ASME B1.20.1	¼ NPT	1,000	1,500
	½ NPT	1,000	1,500
SAE J514 E	7/16-20 UNF BOSS	600	600
	9/16-18 UNF BOSS	600	600
DIN 16288	M20 x 1,5	1,000	1,800
ISO 7	R ¼	1,000	1,600
	R ¾	1,000	1,400
JIS B7505-76	G ¼ B	1,000	1,000

MM/YYYY country code based on 14095850.02 12/2014 EV/CN

3. Specifications

Standard	Thread size	Max. nominal pressure [bar]	Overpressure limit [bar]
-	G ½ B male / G ¼ female	1,000	1,400
	M20 x 1.5 female with sealing cone	6,000	15,000
	M16 x 1.5 female with sealing cone	6,000	10,000
	9/16-18 UNF female F250-C	6,000	10,000
	G ½ B flush	600	600
	G 1 B flush	1.6	10
	G 1 B flush, hygienic	25	50

Process connections for the optional medium temperatures

Standard	Thread size	Max. nominal pressure [bar]	Overpressure limit [bar]
EN 837	G ¼ B	400	800
	G ½ B	400	800
DIN 3852-E	G ¼ A	400	600
ANSI/ASME B1.20.1	½ NPT	400	800
ISO 7	R ¼	400	800
-	G ½ B flush	600 ¹⁾	600 ¹⁾
	G 1 B flush	1,6	10
	G 1 B flush, hygienic	25	50

1) Restrictions dependent on the sealing material, see table "Restrictions of the sealing materials for process connection G½ B flush"

3. Specifications

Sealings

Process connection	Standard	Option
EN 837	Copper	Stainless steel
DIN 3852-E	NBR ¹⁾	FKM/FPM (Viton®) ²⁾
SAE J514 E	NBR ¹⁾	FKM/FPM (Viton®) ²⁾
G ½ B flush	NBR ⁴⁾	FKM/FPM (Viton®) ⁴⁾ or FFKM (Kalrez) ⁴⁾
G 1 B flush	NBR ¹⁾	FKM/FPM (Viton®) ²⁾
G 1 B flush, hygienic	EPDM ³⁾	-

1) Permissible temperature range: -20 ... +100 °C

2) Permissible temperature range: -15 ... +200 °C

3) Permissible temperature range: -40 ... +150 °C

4) see table „Restrictions of the sealing materials for process connection G ½ B flush“

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Restrictions of the sealing materials for process connection G ½ B flush

Material	Overpressure limit [bar]				
	T= -20 °C	T= 80 °C	T= 100 °C	T= 120 °C	T= 150 °C
NBR	600	600	600	N/A	N/A
FKM/FPM (Viton®)	600	600	600	400	300
FFKM (Kalrez)	600	600	600	600	600

T= Ambient temperature

N/A = not possible

3. Specifications

3.3 Output signal

Analogue signal 4 ... 20 mA

Permissible load in Ω

- Model IS-3: $\leq (\text{power supply} - 10 \text{ V}) / 0.02 \text{ A} - (\text{cable length in m} \times 0.14 \Omega)$
- Model IS-3 with field case: $\leq (\text{power supply} - 11 \text{ V}) / 0.02 \text{ A}$

For the test circuit signal of the IS-3 model with field case a load of $\leq 15 \Omega$ applies

3.4 Voltage supply (see product label)

Power supply U_+

- Model IS-3: DC 10 ... 30 V
- Model IS-3 with field case: DC 11 ... 30 V

Power consumption P_i 800 mW (for group III 750/650/550 mW)
(ignition protection Ex i)

Supply and signal circuit for ignition protection Ex i (see product label)

Voltage $U_i = \text{DC } 30 \text{ V}$

Current $I_i = 100 \text{ mA}$

Power $P_i = 800 \text{ mW}$ (for group III 750/650/550 mW)

Effective internal capacitance $C_i \leq 16.5 \text{ nF}$
(version with non-detachable cable connection) $C_i \leq 16.5 \text{ nF} + 0.2 \text{ nF/m}$

Effective internal inductance $L_i = 0 \mu\text{H}$
(version with non-detachable cable connection) $L_i = 0 \mu\text{H} + 2 \mu\text{H/m}$

3.5 Reference conditions (per IEC 61298-1)

Temperature 15 ... 25 °C

Atmospheric pressure 860 ... 1,060 mbar

Humidity 45 ... 75 % r. h., non-condensing

Mounting position Calibrated in vertical mounting position with process connection facing downwards.

Power supply U_+ DC 24 V

3. Specifications

3.6 Time response

Settling time ≤ 2 ms (≤ 10 ms, for medium temperatures below -30 °C)

3.7 Accuracy data

Accuracy at reference conditions	0.50 % of span Optional: 0.25 % (only for measuring ranges ≥ 0.25 bar and $\leq 1,000$ bar) Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2).
Non-linearity (IEC 61298-2)	≤ 0.2 % of span BFSL
Non-repeatability	≤ 0.1 % of span
Mean temperature coefficient of zero point (0 ... 80 °C)	Measuring range ≤ 0.25 bar: ≤ 0.4 % of span/10 K Measuring range > 0.25 bar: ≤ 0.2 % of span/10 K
Mean temperature coefficient of span (0 ... 80 °C)	≤ 0.2 % of span/10 K
Long-term stability at reference conditions	$\leq \pm 0.2$ % of span/year
Adjustability of zero point and span	Adjustment is made using potentiometers inside the instrument. Zero point and span: ± 5 %

3.8 Operating conditions

Ignition protection types	■ II 1G Ex ia IIA T4/T5/T6 Ga
(see product label)	■ II 1G Ex ia IIC T4/T5/T6 Ga
	■ II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb
	■ II 3G Ex ic IIC T4/T5/T6 Gc X
	■ II 3G Ex nA IIC T4/T5/T6 Gc X
	■ II 3D Ex tc IIIC T90 °C Dc X
	■ II 1D Ex ia IIIC T135 °C Da
	■ II 1/2D Ex ia IIIC T135 °C Da/Db
	■ I M1 Ex ia I Ma

3. Specifications

Ingress protection (per IEC 60529)

The ingress protection depends on the respective electrical connection. The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

- Angular connector acc. to DIN EN 175301-803 A: IP 65
- Circular connector M12 x 1 acc. to IEC 61076-2-101 A-COD: IP 67
- Circular connector M16 x 0.75 acc. to IEC 61076-2-106: IP 67
- Cable outlet IP 67: IP 67
- Cable outlet IP 68 cable gland: IP 68 ¹⁾
- Cable outlet IP 68 (continuous use in the medium): IP 68 ²⁾
- Cable outlet IP67 with protection cap: IP 67 ³⁾
- Bayonet connector acc. to MIL-DTL-26482: IP 67
- Field case: IP 69K

1) 72 h / 300 mbar

2) Maximum pressure of the surrounding medium: 2 bar

3) Requirement: Avoidance of water collection in protection cap

Vibration resistance
(per IEC 60068-2-6, vibration under resonance)

- Model IS-3: 20 g
- Model IS-3 with field case and cable outlet IP 67 with protection cap: 10 g
- Measuring range > 1,000 bar and optional medium temperature ranges: 5 g
- Field case combined with optional medium temperature ranges: 2 g

Shock resistance
(per IEC 60068-2-27, mechanical shock)

- Model IS-3: 1,000 g
- Model IS-3 with field case: 600 g
- Measuring range > 1,000 bar, optional medium temperature ranges and cable outlet IP 67 with protection cap: 100 g
- Field case combined with optional medium temperature ranges: 50 g

3. Specifications

Permissible temperatures for operation in accordance with the data sheet specifications (for ignition protection Ex i)

The selected temperature range of the particular pressure transmitter can be found on the delivery note.

Medium	
Standard	-20 ... +80 °C
Option 1	-20 ... +150 °C (only for flush process connections and measuring ranges ≤ 600 bar)
Option 2	-40 ... +150 °C (only for process connections with pressure channel and measuring ranges ≤ 400 bar)
Option 3	-40 ... +200 °C (only for process connections with pressure channel and measuring ranges ≤ 400 bar)
Oxygen	-20 ... +60 °C

- Ambient: -20 ... +80 °C
 - Cable outlet IP 68 (continuous use in the medium), PUR cable: -15 ... +70 °C
 - Cable outlet IP 68 (continuous use in the medium), FEP cable: -15 ... +80 °C
- Storage: -20 ... +80 °C

Permissible temperature ranges for operation in accordance with the data sheet specifications (for ignition protection Ex nA and Ex tc)

- Medium: -15 ... +70 °C (with oxygen -15 ... +60 °C)
- Ambient: -15 ... +70 °C
- Storage: -15 ... +70 °C

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3. Specifications

Ambient and medium temperatures of the respective electrical connections for safe operation, for medium temperatures $\leq 105^{\circ}\text{C}$ (for ignition protection Ex i)

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The electrical connection for the pressure transmitter is taken from the type code on the product label (see chapter 2.4 "Labelling, safety markings"). The coding of the individual connector is taken from the following table (e.g. IS-3-*-*-*-*-*-*-*-*-*-*Z05Z**-*-*-*-*).

The table is applicable when one of the following features is selected at position W of the typecode: U or E.

Electrical connection	94/9/EC (ATEX)	EPL	Group	Ambient and medium temperatures ($^{\circ}\text{C}$)	Temperature class / surface temperature
Bayonet connector acc. to MIL-DTL-26482	1/2G 3G	Ga/Gb Gc	IIC	$-50 \leq T_a \leq +60$ $-50 \leq T_a \leq +75$ $-50 \leq T_a \leq +105$	T6 T5 T4
Not adjustable IS-3-*-*-*-*-*-*-*-*Z05Z**-*-*-*-* IS-3-*-*-*-*-*-*-*-*Z06Z**-*-*-*-*	1/2D	Da/Db	IIIC	$-50 \leq T_a \leq +40$ (750 mW) $-50 \leq T_a \leq +70$ (650 mW) $-50 \leq T_a \leq +100$ (550 mW)	135 $^{\circ}\text{C}$
Bayonet connector acc. to MIL-DTL-26482	1/2G 3G	Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +75$ $-30 \leq T_a \leq +105$	T6 T5 T4
Adjustable IS-3-*-*-*-*-*-*-*-*TO5Z**-*-*-*-* IS-3-*-*-*-*-*-*-*-*TO6Z**-*-*-*-*	1/2D	Da/Db	IIIC	$-50 \leq T_a \leq +40$ (750 mW) $-50 \leq T_a \leq +70$ (650 mW) $-50 \leq T_a \leq +100$ (550 mW)	135 $^{\circ}\text{C}$
Circular connector M16 x 0.75 acc. to IEC 61076-2-106 (5-pin)	M1	Ma	I	$-30 \leq T_a \leq +85$	N/A
Not adjustable IS-3-*-*-*-*-*-*-*-*ZB4Z**-*-*-*-*	1/2G 3G	Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +75$ $-30 \leq T_a \leq +85$	T6 T5 T4
Adjustable IS-3-*-*-*-*-*-*-*-*TB4Z**-*-*-*-*	1/2D	Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +85$ (550 mW)	135 $^{\circ}\text{C}$
Circular connector M12 x 1 acc. to IEC 61076-2-101 A-COD (4-pin)	M1	Ma	I	$-30 \leq T_a \leq +105$	N/A
Not adjustable IS-3-*-*-*-*-*-*-*-*ZM2Z**-*-*-*-*	1/2G 3G	Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +75$ $-30 \leq T_a \leq +105$	T6 T5 T4
Adjustable IS-3-*-*-*-*-*-*-*-*TM2Z**-*-*-*-*	1/2D	Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +100$ (550 mW)	135 $^{\circ}\text{C}$

3. Specifications

Electrical connection	94/9/EC (ATEX)	EPL	Group	Ambient and medium temperatures (°C)	Temperature class / surface temperature
Circular connector 7/8-16 UN (4-pin) Not adjustable IS-3-*-*-*-*-*-*-*-*-*-*ZM6Z**-*	M1	Ma	I	$-40 \leq T_a \leq +70$	N/A
	1/2G 3G	Ga/Gb Gc	IIC	$-40 \leq T_a \leq +60$ $-40 \leq T_a \leq +70$ $-40 \leq T_a \leq +70$	T6 T5 T4
	1/2D	Da/Db	IIIC	$-40 \leq T_a \leq +40$ (750 mW) $-40 \leq T_a \leq +70$ (650 mW) $-40 \leq T_a \leq +70$ (550 mW)	135 °C
Angular connector acc. to DIN EN 175301-803 A Adjustable IS-3-*-*-*-*-*-*-*-*-*-*TA3Z**-* IS-3-*-*-*-*-*-*-*-*-*-*TAWZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TAVZ**-*	M1	Ma	I	$-30 \leq T_a \leq +105$	N/A
	1/2G 3G	Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +75$ $-30 \leq T_a \leq +105$	T6 T5 T4
	1/2D	Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +100$ (550 mW)	135 °C
Cable outlet IP 67 Adjustable IS-3-*-*-*-*-*-*-*-*-*-*TDPA**-*	M1	Ma	I	$-30 \leq T_a \leq +70$	N/A
	1/2G 3G	Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +70$ $-30 \leq T_a \leq +70$	T6 T5 T4
	1/2D	Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +70$ (550 mW)	135 °C
Cable outlet IP 68 Cable gland Not adjustable IS-3-*-*-*-*-*-*-*-*-*-*ZXPA**-* Adjustable IS-3-*-*-*-*-*-*-*-*-*-*TXPA**-*	M1	Ma	I	$-30 \leq T_a \leq +70$	N/A
	1G 1/2G 3G	Ga Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +70$ $-30 \leq T_a \leq +70$	T6 T5 T4
	1D 1/2D	Da Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +70$ (550 mW)	135 °C
Cable outlet IP 68 Cable gland conduit ½ NPT Not adjustable IS-3-*-*-*-*-*-*-*-*-*-*Z5WA**-*	M1	Ma	I	$-30 \leq T_a \leq +70$	N/A
	1G 1/2G 3G	Ga Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +70$ $-30 \leq T_a \leq +70$	T6 T5 T4
	1D 1/2D	Da Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +70$ (550 mW)	135 °C

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3. Specifications

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Electrical connection	94/9/EC (ATEX)	EPL	Group	Ambient and medium temperatures (°C)	Temperature class / surface temperature
Cable outlet IP 68 (continuous use in the medium) PUR Not adjustable IS-3-*.****.*.*****.ZDCA*.****	M1	Ma	I	$-30 \leq T_a \leq +70$	N/A
	1G	Ga	IIA	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +70$ $-30 \leq T_a \leq +70$	T6 T5 T4
	1/2G 3G	Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +70$ $-30 \leq T_a \leq +70$	T6 T5 T4
	1D 1/2D	Da Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +70$ (550 mW)	135 °C
Cable outlet IP 68 (continuous use in the medium) FEP Not adjustable IS-3-*.****.*.*****.ZDCB*.****	M1	Ma	I	$-30 \leq T_a \leq +95$	N/A
	1G	Ga	IIA	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +75$ $-30 \leq T_a \leq +95$	T6 T5 T4
	1/2G 3G	Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +75$ $-30 \leq T_a \leq +95$	T6 T5 T4
	1D 1/2D	Da Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +95$ (550 mW)	135 °C
Field case Cable gland nickel-plated brass IS-3-*.****.*.*****.TFHZ*.**** IS-3-*.****.*.*****.TFKZ*.****	M1	Ma	I	$-50 \leq T_a \leq +105$	N/A
	1/2G 3G	Ga/Gb Gc	IIC	$-50 \leq T_a \leq +60$ $-50 \leq T_a \leq +75$ $-50 \leq T_a \leq +105$	T6 T5 T4
	1/2D	Da/Db	IIIC	$-50 \leq T_a \leq +40$ (750 mW) $-50 \leq T_a \leq +70$ (650 mW) $-50 \leq T_a \leq +100$ (550 mW)	135 °C
Field case Cable gland stainless steel IS-3-*.****.*.*****.TFCZ*.**** IS-3-*.****.*.*****.TFDZ*.****					
Field case conduit IS-3-*.****.*.*****.TFSZ*.**** IS-3-*.****.*.*****.TFTZ*.**** IS-3-*.****.*.*****.TFLZ*.**** IS-3-*.****.*.*****.TFMZ*.****					

MM/YYYY country code based on 14095850.02 12/2014 EN/CN

3. Specifications

Electrical connection	94/9/EC (ATEX)	EPL	Group	Ambient and medium temperatures (°C)	Temperature class / surface temperature
Field case Cable gland plastic	M1	Ma	I	$-20 \leq T_a \leq +85$	N/A
IS-3-*.****-***.*****.*TFAZ**.*	1/2G 3G	Ga/Gb Gc	II C	$-20 \leq T_a \leq +60$ $-20 \leq T_a \leq +75$ $-20 \leq T_a \leq +85$	T6 T5 T4
IS-3-*.****-***.*****.*TFBZ**.*	1/2D	Da/Db	III C	$-20 \leq T_a \leq +40$ (750 mW) $-20 \leq T_a \leq +70$ (650 mW) $-20 \leq T_a \leq +85$ (550 mW)	135 °C

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If an associated mating connector from WIKA is used, the ambient and medium temperature ranges for the following variants of electrical connection are reduced:

Circular connector M12 x 1: -20 ... +80 °C

Angular connector acc. to DIN EN 175301-803 A

Order no. 1604627: -30 ... +85 °C

Order no. 11250186, 11225793: -25 ... +85 °C

3. Specifications

Temperature class	T2	T3				T4		
Max. medium temperature (°C)	200	195	175	155	135	130	110	105
	Max. ambient temperature (°C)							
Circular connector M12 x 1 IS-3-*****-TM2Z**** IS-3-*****-ZM2Z****								
Bayonet connector IS-3-*****-ZO5Z**** IS-3-*****-ZO6Z**** IS-3-*****-TO5Z**** IS-3-*****-TO6Z****								
Angular connector acc. to DIN EN 175301-803 A IS-3-*****-TA3Z**** IS-3-*****-TAWZ**** IS-3-*****-TAVZ****	40	45	55	70	85	85	100	105
Field case Cable gland nickel-plated brass IS-3-*****-TFHZ**** IS-3-*****-TFKZ****								
Field case Cable gland stainless steel IS-3-*****-TFCZ**** IS-3-*****-TFDZ****								
Field case conduit IS-3-*****-TFSZ**** IS-3-*****-TFTZ**** IS-3-*****-TFLZ**** IS-3-*****-TFMZ****								

If an associated mating connector from WIKA is used, the max. ambient temperature for the following variants of electrical connection is reduced:

Circular connector M12 x 1: -20 ... +80 °C

3. Specifications

Maximum ambient and medium temperatures for safe operation, for flush process connections and medium temperatures > 105 °C (for ignition protection Ex i)

EN

The electrical connection for the pressure transmitter is taken from the type code on the product label (see chapter 2.4 "Labelling, safety markings"). The coding of the individual connector is taken from the following table (e.g. IS-3-*-*-*-*Z05Z**-*-*-*).

The table is applicable when the following feature is selected at position W of the typecode: C.

The minimum ambient and medium temperatures of table "Ambient and medium temperatures of the respective electrical connections for safe operation, for medium temperatures ≤ 105 °C" remain valid.

Linear interpolation between adjacent values within a temperature class is possible for temperature classes 3 and 4.

Temperature class	T3		T4		
Max. medium temperature (°C)	150	135	130	110	105
	Max. ambient temperature (°C)				
Cable outlet IP 68, FEP (continuous use in the medium) IS-3-*-*-*-*ZDCB**-*-*-*	20	50	55	85	85
Circular connector M16 x 0.75 IS-3-*-*-*-*TB4Z**-*-*-* IS-3-*-*-*-*ZB4Z**-*-*-*	20	50	55	70	70
Field case Cable gland plastic IS-3-*-*-*-*TFAZ**-*-*-* IS-3-*-*-*-*TFBZ**-*-*-*	20	50	55	70	70
Circular connector 7/8-16 UN IS-3-*-*-*-*ZM6Z**-*-*-*	20	50	50	50	50
Cable outlets PUR IS-3-*-*-*-*TDPA**-*-*-* IS-3-*-*-*-*ZXP**-*-*-* IS-3-*-*-*-*TXPA**-*-*-* IS-3-*-*-*-*Z5WA**-*-*-* IS-3-*-*-*-*ZDCA**-*-*-*	20	50	50	50	50

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3. Specifications

Temperature class	T3		T4		
Max. medium temperature (°C)	150	135	130	110	105
	Max. ambient temperature (°C)				
Circular connector M12 x 1 IS-3-*-*-*-*-*-*-*-*-*-*TM2Z**-* IS-3-*-*-*-*-*-*-*-*-*-*ZM2Z**-*					
Bayonet connector IS-3-*-*-*-*-*-*-*-*-*-*ZO5Z**-* IS-3-*-*-*-*-*-*-*-*-*-*ZO6Z**-* IS-3-*-*-*-*-*-*-*-*-*-*TO5Z**-* IS-3-*-*-*-*-*-*-*-*-*-*TO6Z**-*					
Angular connector acc. to DIN EN 175301-803 A IS-3-*-*-*-*-*-*-*-*-*-*TA3Z**-* IS-3-*-*-*-*-*-*-*-*-*-*TAWZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TAVZ**-*					
Field case Cable gland nickel-plated brass IS-3-*-*-*-*-*-*-*-*-*-*TFHZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TFKZ**-*	20	50	55	95	105
Field case Cable gland stainless steel IS-3-*-*-*-*-*-*-*-*-*-*TFCZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TFDZ**-*					
Field case conduit IS-3-*-*-*-*-*-*-*-*-*-*TFSZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TFTZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TFLZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TFMZ**-*					

If an associated mating connector from WIKA is used, the max. ambient temperature for the following variants of electrical connection are reduced:

Circular connector M12 x 1: -20 ... +80 °C

3. Specifications

Maximum ambient and medium temperatures (for ignition protection Ex nA and Ex tc)

Electrical connection	94/9/EC (ATEX)	EPL	Group	Ambient and medium temperatures (°C)	Temperature class / surface temperature
Circular connector M16 x 0.75 acc. to IEC 61076-2-106 (5-pin) Not adjustable IS-3-*-*-*-*-*-*-*-*-*-*ZB4Z**.*	3G	Gc	IIC	$-15 \leq T_a \leq +55$ $-15 \leq T_a \leq +70$ $-15 \leq T_a \leq +70$	T6 T5 T4
Cable outlet IP 68 (continuous use in the medium) PUR Not adjustable IS-3-*-*-*-*-*-*-*-*-*-*ZDCA**.*					
Cable outlet IP 68 (continuous use in the medium) FEP Not adjustable IS-3-*-*-*-*-*-*-*-*-*-*ZDCB**.*					
Cable outlet IP 67 with protection cap not adjustable IS-3-*-*-*-*-*-*-*-*-*-*ZDOA**.*					
Cable outlet IP 68 (continuous use in the medium) PUR Not adjustable IS-3-*-*-*-*-*-*-*-*-*-*ZDCA**.*	3D	Dc	IIIC	$-15 \leq T_a \leq +70$	T90 °C
Cable outlet IP 68 (continuous use in the medium) FEP Not adjustable IS-3-*-*-*-*-*-*-*-*-*-*ZDCB**.*					
Cable outlet IP 67 with protection cap not adjustable IS-3-*-*-*-*-*-*-*-*-*-*ZDOA**.*					

3. Specifications

3.9 Electrical connections

Reverse polarity protection U+ vs. U-

Insulation voltage DC 500 V

3.10 Dimensions

approx. 130 mm

Variants field case, FEP cable and measuring ranges > 1,000 bar: approx. 150 mm

3.11 Materials

The materials used meet the requirements of the RoHS directive 2011/65/EC, except for the following device variants:

- Electrical output bayonet connector
- Measuring ranges > 1,000 bar

Wetted parts ■ Pressure transmitter: Stainless steel

- Sealings: See chapter 3.2 "Process connections and overpressure limits"

Non-wetted parts

- Case: stainless steel
- Angular connector DIN EN 175301-803 A: PA6
- Circular connector M12 x 1 adjustable: PA6 , stainless steel
- Circular connector M12 x 1 not adjustable: Stainless steel
- Circular connector M16 x 0.75 adjustable: PA6 , stainless steel, Zn nickel-plated
- Circular connector M16 x 0.75 not adjustable: Stainless steel, Zn nickel-plated
- Bayonet connector adjustable: PA6, stainless steel, Al cadmium-plated
- Bayonet connector not adjustable: Stainless steel, Al cadmium-plated
- Circular connector 7/8-16UN: Stainless steel
- Cable outlet IP 67: PA6, stainless steel, nickel-plated brass
- Cable outlet IP 67 with protection cap: Stainless steel, PA66/6-FR
- Cable outlet IP 68 with cable gland: Stainless steel, nickel-plated brass
- Cable outlet IP 68: Stainless steel
- Field case: Stainless steel, nickel-plated brass, stainless steel, PA
- Internal transmission medium
 - No oxygen application: Synthetic oil
 - Oxygen application: Halocarbon oil
 - Instruments with measuring range > 25 bar: Dry measuring cell

3. Specifications

3.12 Weight

approx. 0.2 kg

Field case approx. 0.35 kg

Measuring ranges > 1,000 bar approx. 0.3 kg (approx. 0.45 kg with field case)

3.13 CE conformity

Pressure equipment directive

97/23/EC

EMC directive

2004/108/EC, EN 61326 emission (group 1, class B) and interference immunity (industrial application)

During interference respect an increased measuring deviation up to 1 %.

ATEX directive

94/9/EC

3.14 Approvals

- IECEx, international certification for the Ex area
- SIL2, functional safety
- GL, ships, shipbuilding (e.g. offshore), Germany

For further specifications see WIKA data sheet PE 81.58 and the order documentation.

4. Design and function / 5. Transport, packaging and storage

4. Design and function

4.1 Short description

The prevailing pressure is measured at the sensor element through the deformation of a diaphragm. By supplying power, this deformation of the diaphragm is converted into an electrical signal. The output signal from the pressure transmitter is amplified and standardised. The output signal is proportional to the measured pressure.

4.2 Scope of delivery

- Fully mounted pressure transmitter
 - In order to protect the diaphragms of flush process connections, they are provided with a special protection cap.
- Cross-check scope of delivery with delivery note.

5. Transport, packaging and storage

5.1 Transport

Check the instrument for any damage that may have been caused by transport.

Obvious damage must be reported immediately.

Fit the protective cap before transporting the instrument in order to protect the process connection from damage.

5.2 Packaging

Do not remove packaging until just before mounting.

Keep the packaging as it will provide optimum protection during transport (e.g. change in installation site, sending for repair).

5.3 Storage

Fit the protective cap before storing the instrument in order to protect the process connection from damage.

Permissible conditions at the place of storage:

- Storage temperature: -20 ... +80 °C
- Humidity: 35 ... 85 % r. h. (no condensation)

5. Transport, packaging and storage

Avoid exposure to the following factors:

- Direct sunlight or proximity to hot objects
- Mechanical vibration, mechanical shock (putting it down hard)
- Soot, vapour, dust and corrosive gases

Store the instrument in its original packaging in a location that fulfils the conditions listed above. If the original packaging is not available, pack and store the instrument as described below:

1. Wrap the instrument in an antistatic plastic film.
2. Place the instrument along with shock-absorbent material in the packaging.
3. If stored for a prolonged period of time (more than 30 days), place a bag containing a desiccant inside the packaging.



WARNING!

Before storing the instrument (following operation), remove any residual media. This is of particular importance if the medium is hazardous to health, e.g. caustic, toxic, carcinogenic, radioactive, etc.

6. Commissioning, operation

6. Commissioning, operation

6.1 Mounting notes



WARNING!

Before installation, commissioning and operation, ensure that the appropriate instrument has been selected in terms of measuring range, design and specific measuring conditions. Non-observance can result in serious injury and/or damage to the equipment.



WARNING!

Danger to life through improper mounting

Improper installation can lead to the loss of the explosion protection and to life-threatening situations.

- Adhere to the permissible ambient and medium temperatures which are valid for this area on the basis of the specified temperature classes.
- Consider possible additional restrictions on the ambient temperature range by the mating connector used.
- Guard the pressure transmitter against being touched, or display a warning about risk of burns.
- Mount the pressure transmitter horizontally in order to ensure unhindered airflow around the cooling element.
- Protect the pressure transmitter from heat sources (e.g. pipes or tanks).
- In dust-Ex areas, ensure that the cooling element is not dirty and there is no dust lying on it, otherwise the cooling action cannot be guaranteed.
- Observe the specifications for the use of the pressure transmitter in combination with aggressive/corrosive media and for avoiding mechanical hazards.
- For ignition protection types Ex nA and Ex tc: Install the cable output IP 67 version with protection cap protected from the influence of light.
- For ignition protection type Ex tc: Not suitable for areas where intensive electrostatic charging is likely to occur.

If the medium temperature to be measured is $> 105^{\circ}\text{C}$, then, for the maximum ambient temperature, the tables in chapter 3.8 "Maximum ambient and medium temperatures for process connections with pressure channel for medium temperatures $> 105^{\circ}\text{C}$ " and "Maximum ambient and medium temperatures for flush process connections for medium temperatures $> 105^{\circ}\text{C}$ " are valid.

However, the permitted surface temperature values, which apply to this range due to the defined temperature classes, shall not be exceeded.

6. Commissioning, operation

Additional notes on installation in and mounting to zone 0 and zone 20



WARNING!

Danger to life through improper mounting

If the pressure transmitter is not mounted properly, there is the risk of a carry-through between zones.

- For areas that require **EPL Ga**, the pressure transmitter or the cable gland must be mounted into the barrier between areas in such a way that IP 67 ingress protection in accordance with IEC 60529 is ensured.
- For areas that require **EPL Da**, the pressure transmitter or the cable gland must be mounted into the barrier between areas in such a way that IP 6X in accordance with IEC 60529 is ensured.
- When using the pressure transmitter in areas that require **EPL Ga or Da**, the shield of the connecting cable and the metallic part of the strain relief clamp must be included within the equipotential bonding of the enclosure.

6.1.1 Special conditions for safe use in explosive atmosphere (for ignition protection Ex i)

- When used in areas which require category 1G equipment, the pressure transmitter has to be wall-mounted in such a way that degrees of IP 67 are ensured in compliance with EN 60529.
- When used in areas which require category 1D equipment, the pressure transmitter has to be wall-mounted in such a way that degree of IP 6X is ensured in compliance with EN 60529.
- The technical information provided by the manufacturer regarding the avoidance of mechanical hazards as well as the use of the pressure transmitter in conjunction with aggressive or corrosive media has to be adhered to.
- When using the pressure transmitters in areas which require category 1 equipment, the screen of the connecting cable needs to be integrated into the equipotential bonding of the equipment.
- When used in areas which require category 1G equipment, the cable gland has to be designed in such a way that degrees of IP 67 are ensured in compliance with EN 60529.
- When used in areas which require category 1D equipment, the cable gland has to be designed in such a way that degree of IP 6X is ensured in compliance with EN 60529.
- The measuring of process media with temperatures exceeding the values of the measuring media temperature ranges stated in Table "Ambient and medium temperatures of the respective electrical connections for safe operation, for medium temperatures ≤ 105 °C (for ignition protection Ex i)" is only permitted if special cooling necks are used. However, the permitted surface temperature values, which apply to this range due to the defined temperature classes, shall not be exceeded.

6. Commissioning, operation

6.1.2 Special conditions for safe use in explosive atmosphere (for ignition protection Ex nA and Ex tc)

- The connector provided by the end user in the end use application shall be in accordance with all applicable clauses of IEC 60079-0 and IEC 60079-15. A minimum degree of protection IP54 according to IEC 60529 shall be ensured.
- The external earthing has to be established by the end user in the end use application.

EN

6.2 Mechanical mounting

Tools required:

- Torque spanner 27 mm or 41 mm flats

1. With the help of the product label, check that the pressure transmitter is suitable for the intended application.



WARNING!

Before installation, commissioning and operation, ensure that the appropriate instrument has been selected in terms of measuring range, design and specific measuring conditions. Non-observance can result in serious injury and/or damage to the equipment.

2. The sealing faces and threads on the pressure transmitter and at the mounting point must be clean and without damage. Clean the sealing faces if contaminated.



WARNING!

Danger of injury and damage to property due to escaping media

Escaping media can lead to serious injury. In the event of failure, components can be ejected or media exhausted under high pressure.

- Employ a protective device that prevents parts from being ejected. The protective device must not be removable without the use of tools.
- Ensure that the pressure in the system as a whole does not exceed the lowest maximum pressure of any of its components. If varying or different pressures are to be expected in the system, components must be used that can withstand the maximum expected pressure spikes.
- Ensure that the mounting point has been made absolutely free from burrs and is clean.
- With pressures > 1,000 bar, use a suitable pressure ring.

6. Commissioning, operation

3. Only pull the protective cap off shortly before installation. Make sure that the diaphragm of the process connection does not get damaged (only for flush process connections).



WARNING!

Danger to life due to loss of explosion protection from damaged process connection

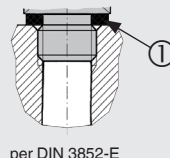
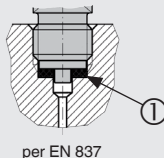
The diaphragm of the flush process connection is a safety-relevant component. If it is damaged, the explosion protection is no longer guaranteed. Through any explosion resulting from this, there will be a high danger to life.

- Before commissioning the pressure transmitter, the diaphragm of the flush process connection should be checked for visible damage.
- Leaking fluid is indicative of a damaged diaphragm.
- Protect the diaphragm from contact with abrasive media and against any impacts.
- Observe the specifications for the use of the pressure measuring instrument in combination with aggressive/corrosive media and for avoiding mechanical hazards.
- Only use the pressure transmitter if it is in perfect condition with respect to safety.

4. Seal the process connection as follows.

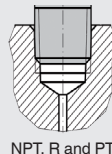
Parallel threads

Correct sealing at the sealing face ① must be made using suitable flat gaskets, sealing rings or WIKA profile seals.



Tapered threads

For sealing, the thread should be wound with additional sealing material, e.g. PTFE tape.

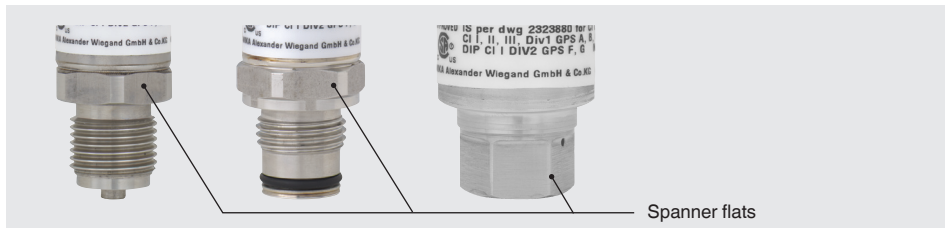


6. Commissioning, operation

5. Screw in the instrument by hand, taking care not to cross the threads.

Tighten the pressure transmitter with a suitable torque spanner using the spanner flats. The correct torque depends on the dimension of the pressure connection and the sealing used (form/material). The maximum torque is **50 Nm**. The specified tightening torque for the high-pressure pipes must be adhered to (see pipe supplier's specifications). Non-compliance can damage the instrument or the measuring point.

EN



For information on tapped holes and welding sockets, see Technical information IN 00.14 at www.wika.com

6. Commissioning, operation

6.3 Electrical mounting

1. Use and assemble connection cable that is suitable for the application. The specifications of the individual electrical connections are found in the following table, "Specifications of electrical connections".

- For cables with flexible wires, always use ferrules appropriate for the wire cross-section.
- Select a cable diameter that matches the cable gland of the plug. Make sure that the cable gland of the mounted plug has a tight fit and that the seals are present and undamaged. Tighten the threaded connection and check that the seals are correctly seated.



WARNING!

Danger to life through improper mounting

If the pressure transmitter is not mounted properly, the explosion protection can no longer be ensured.

- Leads with bare ends must be finished with end splices (cable preparation).

2. Ground the case via the process connection to protect the pressure transmitter against electromagnetic fields and electrostatic discharge. Include the case in the equipotential bonding of the application.

3. Setting up an intrinsically safe voltage supply.

- For ignition protection Ex i
 - Power the pressure transmitter via an intrinsically safe circuit (Ex ia). Both the internal capacitance and inductance must be considered, see chapter 3 "Specifications". With a certified isolated barrier (e.g. model KFD2-STC4-Ex1) or a certified Zener barrier, the isolation of the voltage and current supply between Ex and non-Ex areas, which is an absolute requirement, can be realised.
 - For applications that require EPL Gb or Db, the power supply and signal circuit should have a protection level of "ib". Then the interconnections and thus the pressure transmitter will have a protection level of II 2G Ex ib IIC T4/T5/T6 Gb or II 2D Ex ib IIIC T4/T5/T6 Db, although the pressure transmitter is marked otherwise (see EN 60079-14 section 5.4).
- For ignition protection Ex nA and Ex tc
 - For ignition protection Ex nA: Connect the pressure transmitter marked "Ex nA IIC T4/T5/T6" to a power supply and signal circuit with protection against transients in accordance with IEC 60079-15:2010 section 13 c).

6. Commissioning, operation

4.



WARNING!

For ignition protection Ex nA and Ex tc:
Do not separate when energized.

Making the electrical connection

The electrical mounting of the field case and the angle connector is described in detail below.

- Ground the cable shield at one end, preferably in the non-Ex area (EN 60079-14).
- For pressure transmitters with cable output, the shield is usually connected to the case. The simultaneous connection of the case and the cable shield to ground is only permitted if any accidental energisation between the shield connection (e.g. at the isolated barrier) and the case can be excluded (see EN 60079-14). If with pressure transmitters with cable outputs the shield is not connected to the case, the remarks "Shield not connected to the case" is on the product label. In this case as well the case has to be grounded via the process connection as the shield has to be grounded.
- Ensure that no moisture can enter at the cable end of pressure transmitters with cable outlet.



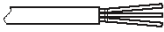
Specifications of the electrical connections

	Angular connector acc. to DIN 175301-803 A	Circular connector M12 x 1 acc. to IEC 61076-2-101 A-COD (4-pin)	Bayonet connector acc. to MIL-DTL-26482 (6-pin)	Bayonet connector acc. to MIL-DTL-26482 (4-pin)
Connection diagram				
Assignment (2-wire)	U ₊ = 1 U ₋ = 2	U ₊ = 1 U ₋ = 3	U ₊ = A U ₋ = B	U ₊ = A U ₋ = B
Cable shield				
Wire cross-section	max. 1.5 mm ²			
Cable diameter	6 ... 8 mm Ship approval: 10 ... 14 mm			
Ingress protection per IEC 60529	IP 65	IP 67	IP 67	IP 67

The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

6. Commissioning, operation

Specifications of the electrical connections

	Circular connector M16 x 0.75 acc. to IEC 61076-2-106 (5-pin) ¹⁾		Circular connector 7/8-16 UN (4-pin)		All cable outlets	
Connection diagram						
Assignment (2-wire)	U ₊ = 3	U ₋ = 1	U ₊ = 1	U ₋ = 2	U ₊ = brown	U ₋ = green
Cable shield					grey	
Wire cross-section					0.5 mm ²	
Cable diameter					6.8 mm 7.5 mm (variants for continuous use in the medium)	
Ingress protection per IEC 60529	IP 67		IP 67		IP 68 (IP 67 for instrument with clamping nut from plastic)	

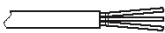

1) For ignition protection Ex nA:

- The connector provided by the end user in the end use application shall be in accordance with all applicable clauses of IEC 60079-0 and IEC 60079-15. A minimum degree of protection IP54 according to IEC 60529 shall be ensured.
- The torque required for mounting the counterconnector should be ensured: 1 Nm for M16 x 0.75 acc. to IEC 61076-2-106

The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

6. Commissioning, operation

Specifications of the electrical connections

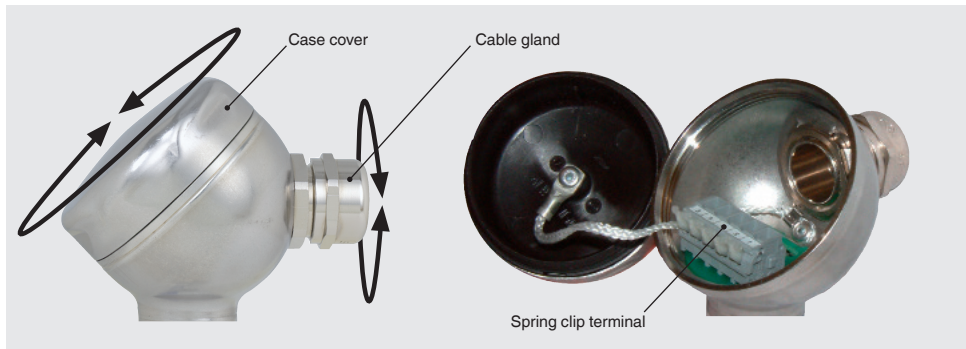
	Cable outlet IP 67 with protection cap	Field case
Connection diagram		
Assignment	U ₊ = brown U ₋ = blue	U ₊ = 1 U ₋ = 2 Test ₊ = 3 Test ₋ = 4
Cable shield	Shield braid	5
Wire cross-section	0.34 mm ²	max. 1.5 mm ²
Cable diameter	5.5 mm	Cable gland nickel-plated brass: 7 ... 13 mm Cable gland stainless steel: 8 ... 15 mm Cable gland plastic: 6.5...12 mm
Ingress protection per IEC 60529	IP 67 (Requirement: Avoidance of water collection in protection cap)	IP 69K

The stated ingress protection only applies when plugged in using mating connectors that have the appropriate ingress protection.

6. Commissioning, operation

Mounting of field case

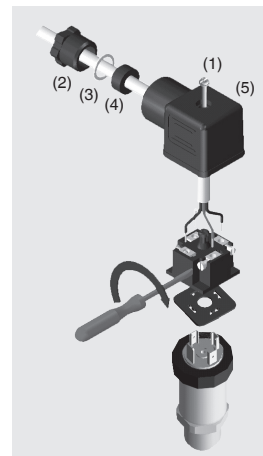
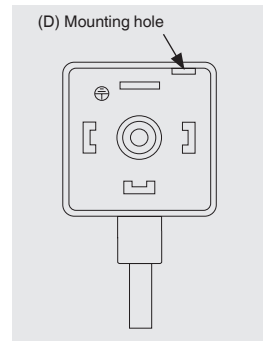
1. Unscrew the case cover and open the cable gland using a suitable open-ended spanner.
2. Slide the cable through the cable gland into the open case head.
3. Press down the corresponding plastic lever on the spring clip terminal, using a screwdriver, in order to open the terminal contact.
Insert the prepared cable end into the opening and let the plastic lever go. The cable end is now clamped in the spring clip terminal.
4. After connecting the individual wires, tighten the cable gland and screw down the case cover.



6. Commissioning, operation

Fitting a DIN 175301-803 angular connector

1. Loosen the screw (1).
2. Loosen the cable gland (2).
3. Pull the angle housing (5), with the terminal block (6) inside, away from the instrument.
4. Via the mounting hole (D), lever the terminal block (6) out of the angle housing (5). Do not try to push the terminal block (6) out using the screw hole (1) or the cable gland (2), otherwise the sealing of the angle housing could be damaged.
5. Select a conductor with an outer diameter matched to the angle housing's cable gland. Slide the cable through the cable gland (2), washer (3), gland seal (4) and angle housing (5).
6. Connect the cable ends to the appropriate connection terminals on the terminal block (6) (see table "Electrical connections").
7. Press the angle housing (5) onto the terminal block (6).
8. Tighten the cable gland (2) around the cable. Make sure that the seals are not damaged and that the cable gland and seals are assembled correctly in order to ensure ingress protection.
9. Place the flat, square gasket over the pressure transmitter's connection pins.
10. Slide the terminal block (6) onto the pressure transmitter's connection pins.
11. Secure the angle housing (5) and terminal block (6) to the pressure transmitter with the screw (1).



6. Commissioning, operation / 7. Adjusting the zero point and span

6.4 Function of the test circuit for 2-wire

This function is only possible for instrument designs with a field case.

EN

Using the test circuit, it is possible to carry out a current measurement during normal operation without disconnecting the pressure transmitter. For this purpose, connect an ammeter suitable for your Ex applications (internal resistance $< 15 \Omega$) to the test₊ and test₋ terminals.

Functional check

The output signal must be proportional to the prevailing pressure. If this is not the case, this may indicate a damaged diaphragm of the process connection. In this case, see chapter 9 "Faults".

7. Adjusting the zero point and span



The span-setting potentiometer is used for factory adjustment and should only be readjusted if calibration equipment is available which has at least three times the accuracy of the pressure transmitter.

7.1 Access to potentiometer

To gain access to the potentiometers, open the instrument as follows:

Clamping nut (figure A)

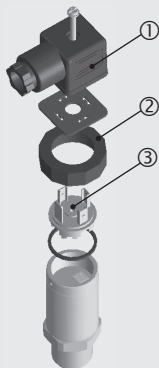
1. Disconnect the electrical connection (1) from the instrument.
2. Remove the clamping nut (2).
3. Carefully pull the instrument connector (3) from the instrument.

Screw, field case (figure A)

Unscrew the screw on the top of the case or the case cover.

7. Adjusting the zero point and span

A



Clamping nut



Screw



Field case

7.2 Adjusting the zero point (figure B)

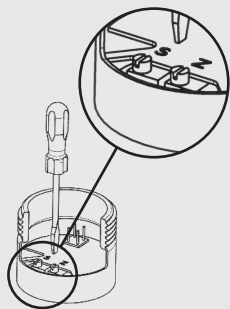
1. Connect the instrument connector (3) to the power supply and a display unit (e.g. ammeter, voltmeter) according to the connection diagram.
2. Go to the start of the measuring range.
3. Using potentiometer "Z", adjust the minimum output signal (e.g. 4 mA)

7.3 Adjusting the span (figure B)

1. Connect the instrument connector (3) to the power supply and a display unit (e.g. ammeter, voltmeter) according to the connection diagram.
2. Go to the end of the measuring range.
3. Using potentiometer "S", adjust the maximum output signal (e.g. 20 mA)
4. Check the zero point and if there is any deviation, re-adjust it.
5. Repeat the procedure until the zero point and the span are set correctly.

7. Adjusting the zero point and span

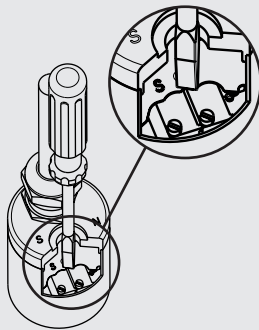
B



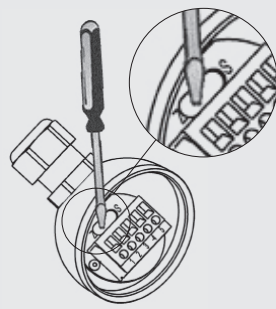
Clamping nut

S = span

Z = zero point



Screw



Field case

7.4 Finish the adjustment (figure A)

Clamping nut (figure A)

1. Disconnect the instrument connector (3) from the power supply and the display unit.
2. Carefully insert the instrument connector (3) into the instrument, without damaging the wires or sealing. The seals must be clean and free from damage in order to ensure the specified ingress protection.
3. Tighten the clamping nut (2).

Screw, field case (figure A)

Screw the screw or the case cover back in.

After the adjustment, check that the system is functioning correctly.

Recommended recalibration cycle: Annually (see chapter 8.3 "Recalibration")

For any questions, please contact the manufacturer. See application consultant under chapter 1 "General information"

8. Maintenance and cleaning

8. Maintenance and cleaning

8.1 Maintenance

This instrument is maintenance-free.

Repairs must only be carried out by the manufacturer.

EN

8.2 Cleaning



CAUTION!

- Before cleaning, correctly disconnect the instrument from the pressure supply, switch it off and disconnect it from the voltage supply.
- Clean the instrument with a moist cloth.
- Electrical connections must not come into contact with moisture.
- Wash or clean the dismantled instrument before returning it, in order to protect persons and the environment from exposure to residual media.
- Residual media in the dismantled instrument can result in a risk to persons, the environment and equipment. Take sufficient precautionary measures.



For information on returning the instrument see chapter 10.2 "Return".

8.3 Recalibration

We recommend that the instrument is regularly recalibrated by the manufacturer, with time intervals of approx. 12 months. The basic settings will be corrected if necessary.

9. Faults

9. Faults

In the event of any faults, first check whether the pressure transmitter is mounted correctly, mechanically and electrically. If complaint is unjustified, the handling costs will be charged.



WARNING!

Danger of injury and damage to property due to escaping media

Escaping media can lead to serious injury. In the event of failure, components can be ejected or media exhausted under high pressure.

- Open the connections only after the system has been depressurised.
- Employ a protective device that prevents parts being ejected. The protective device must not be removable without the use of tools.



WARNING!

Physical injuries and damage to property and the environment caused by hazardous media

In the event of contact with hazardous media (e.g. oxygen, acetylene, flammable or toxic substances), harmful media (e.g. corrosive, toxic, carcinogenic, radioactive), and also with refrigeration plants and compressors, there is a danger of physical injury and damage to property and the environment. Should a failure occur, aggressive media with extremely high temperature and under high pressure or vacuum may be present at the instrument.

- For these media, in addition to all standard regulations, the appropriate existing codes or regulations must also be followed.
- Wear the requisite protective equipment.

9. Faults

EN

Faults	Causes	Measures
Constant output signal upon change in pressure	Mechanical overload caused by overpressure	Replace instrument; if it fails repeatedly, contact the manufacturer
	Wrong power supply or current pulse	Replace instrument
No output signal	No or wrong power supply, current pulse	Rectify the power supply
	Cable break	Check the connection cables for continuity
No or wrong output signal	Wiring error	Rectify the wiring
Deviating output signal	Span maladjusted	Readjust span and use suitable reference ¹⁾
Deviating zero point signal	Overpressure limit exceeded	Readjust zero point ¹⁾ Observe overpressure limit
	Damage at the process connection	Replace instrument
Signal span drops	Damage at the process connection	Replace instrument; if it fails repeatedly, contact the manufacturer
	Sealing is damaged or soiled	If soiled, clean the sealing and the measuring point. If damaged, replace the sealing.
	Sealing does not have a tight fit	Remove the instrument and seal correctly
	Threads jammed	Mount the instrument correctly
Signal span too small	Mechanical overload caused by overpressure	Readjust the instrument ¹⁾
	Wrong power supply	Rectify the power supply
Signal span varies	Strongly varying pressure of the medium	Damping; consulting by the manufacturer

1) After the adjustment, check that the system is functioning correctly. If the error still persists, replace the instrument or send it for repair (see chapter 10.2 "Return").



CAUTION!

If faults cannot be eliminated by means of the measures listed above, shut down the instrument immediately, and ensure that pressure and/or signal are no longer present, and secure the instrument from being put back into operation inadvertently. In this case, contact the manufacturer. If a return is needed, follow the instructions given in chapter 10.2 "Return".

10. Mounting, return and disposal

10. Dismounting, return and disposal

EN



WARNING!

Residual media in the dismantled instrument can result in a risk to persons, the environment and equipment.

Take sufficient precautionary measures.

10.1 Dismounting



WARNING!

For ignition protection Ex nA and Ex tc:

Do not separate when energized.

1. Isolate the voltage supply from the pressure transmitter.
2. Loosen the pressure transmitter with a suitable torque spanner using the spanner flats (for spanner flats, see figure under chapter 6.2 "Mechanical mounting"). Only disconnect the pressure transmitter once the system has been depressurised.



WARNING!

Risk of burns!

Let the instrument cool down sufficiently before dismantling it!

During dismantling there is a risk of dangerously hot pressure media escaping.



WARNING!

Danger of injury and damage to property due to escaping media

Escaping media can lead to serious injury. In the event of failure, components can be ejected or media exhausted under high pressure.

- Open the connections only after the system has been depressurised.
- Employ a protective device that prevents parts from being ejected. The protective device must not be removable without the use of tools.

3. Remove any residual media from the pressure transmitter (see chapter 8.2 "Cleaning").
4. Pack the pressure transmitter (see chapter 5.2 "Packaging").

10. Mounting, return and disposal

10.2 Return



WARNING!

Strictly observe the following when shipping the instrument:

All instruments delivered to WIKA must be free from any kind of hazardous substances (acids, bases, solutions, etc.).

When returning the instrument, use the original packaging or a suitable transport package.

To avoid damage:

1. Wrap the instrument in an antistatic plastic film.
2. Place the instrument, along with the shock-absorbent material, in the packaging.
Place shock-absorbent material evenly on all sides of the transport packaging.
3. If possible, place a bag, containing a desiccant, inside the packaging.
4. Label the shipment as transport of a highly sensitive measuring instrument.



Information on returns can be found under the heading "Service" on our local website.

10.3 Disposal

Incorrect disposal can put the environment at risk.

Dispose of instrument components and packaging materials in an environmentally compatible way and in accordance with the country-specific waste disposal regulations.

Appendix: EC declaration of conformity

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符合性声明请见 www.wika.com。

1. 一般信息

1. 一般信息

- 本操作说明书所述的压力变送器采用最先进的技术设计制造而成，所有元件在生产过程中都恪守严格的质量和标准。我们的管理体系通过了 ISO 9001 和 ISO 14001 认证。
- 本操作说明书包含重要的仪器处理信息。工作安全法规要求遵守所有的安全指令和工作指令。
- 请遵守适用于本仪器使用范围的当地事故预防条例和一般安全法规。
- 操作说明书是产品的一部分，必须与仪器一起放置，便于熟练的操作人员随时取用。
- 熟练的操作人员在开始任何工作之前，必须仔细阅读并理解本操作说明书。
- 对于不按预期用途使用产品、不遵守操作说明、指派不合格的人员进行操作或擅自修改压力变送器而造成的损坏，制造商概不负责。
- 销售文档中包含的一般条款和条件适用本仪器。
- 将来可能进行技术修改。
- 更多信息：
 - 网址：www.wika.de / www.wika.com
 - 相关数据表：PE 81.58
 - 应用顾问：电话：+49 9372 132-8976
传真：+49 9372 132-8008976
support-tronic@wika.de

1. 一般信息

符号说明



警告！

... 表示潜在的紧急情况，如不可避免，可导致严重人身伤害或死亡。



警告！

... 表示在危险区域潜在的紧急情况，如不可避免，可导致严重人身伤害或死亡。



警告！

... 表示潜在的紧急情况，如不可避免，可因高温表面或液体导致灼伤。



小心！

... 表示潜在的紧急情况，如不可避免，可导致轻微人身伤害或设备损坏，或可能造成环境破坏。



提示

... 表示有帮助的提示、建议和信息，以供高效无故障运行之需。

2. 安全性

2. 安全性

CN



警告！

安装、调试和操作前，请确保选择量程、设计和特定测量条件等方面均适宜的仪器。否则可能会导致严重人身伤害和/或设备损坏。



警告！

泄漏的介质可能造成人身伤害以及财产损失。

泄漏的介质可能导致严重人身伤害。如发生故障，在高压下可能导致元件喷出或介质泄漏。

- 仅在系统消压后打开连接。
- 若压力高于 100 Mpa，应使用保护装置以防止零件喷出。保护装置必须借助工具才能拆除。
- 始终在过压限制内使用压力测量仪器，请参阅第 3 节“规格”。
- 确保系统中的总压力低于所有组件中最小的压力上限。如在系统中存在变化或不同的压力，必须使用可承受最大预期压力极值的组件。
- 遵循第 3 节“规格”中的工作条件。
- 不得对压力变送器进行操作说明书规定以外的操作或改动。



有关详细的重要安全说明，请参见本操作说明书的各个部分。

2.1 预期用途

本压力变送器是一款本安压力测量仪器，在可能爆炸从而需要 1、1/2 和 2 类设备的区域持续监测气体或液体介质。

ATEX 和 IECEx 认证：

压力测量仪器获得在危险区域工作的认证。

2. 安全性

ATEX 和IECEX 认证等级:

气体和水汽:	固定在区域 0 (EPL Ga/Gb) ; 安装在区域 0 (EPL Ga) 和区域 2 (EPL Gc)
粉尘:	固定在区域 20 (EPL Da/Db) ; 安装在区域 20 (EPL Da) 和区域 22 (EPL Dc)
采矿:	EPL Ma

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本仪器专为此处所述的预期用途设计和制造, 不得另作他用。

必须严格遵守本操作说明书所载的技术规格。如因仪器操作或处理不当而导致超出其技术规格, 必须立即停止使用仪器, 并交由授权的 WIKA 服务工程师进行检查。

2.2 人员资质



警告!

操作人员不符合资质可能导致人身伤害!

处理不当可能导致严重人身伤害和设备损坏。

- 本操作说明书所述的操作只可由具有下列资格的熟练操作人员进行。
- 无资格人员须远离危险区域。

熟练的操作人员

熟练的操作人员是指基于其技术培训、测量和控制技术知识, 以及其对国家特定法规、当前标准和指令的了解与经验, 有能力执行所述工作, 并能独立辨识潜在危险的人员。

特殊操作条件要求更多相关的知识, 例如腐蚀性介质。

2. 安全性

2.3 特殊危险

对于防燃 Ex nA 和 Ex tc: 根据 IEC 60079-0:2011 26.5.1 的规定, 对在标称压力范围下的运行进行热测试。

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警告！

遵循适用于此类型的测试证书, 以及在危险区域安装和使用相关的国家特定法规 (如 IEC 60079-14、NEC、CEC)。否则可能会导致严重人身伤害和/或设备损坏。



警告！

细小裂痕可能造成人身伤害以及财产损失

压力变送器的使用年限受最大负载循环次数限制。最大次数取决于应用场合的压力状况 (压力变化的范围、压力升高和降低的时间...)。一旦超过最大负载循环次数, 可能导致通过细小裂痕出现泄漏, 造成人身伤害或财产损失。

- 请向生产商索要最大负载循环次数。
- 压力变送器一旦超过最大负载循环次数后, 请立即更换。
- 采取安全措施以消除细小裂痕造成的危险。



警告！

对于危险介质 (如氧气、乙炔、易燃或有毒的气体 and 液体) 以及制冷装置、压缩机等, 除所有标准规定外, 还必须遵守适当的现有规范或规定。



警告！

拆下的仪器中残余的介质可能对人员、环境和设备造成危险。请采取充分的预防措施。

切勿将本仪器用于安全或紧急停止设备。不正确使用仪器可能造成人身伤害。

高压或真空中高温腐蚀性介质进入仪器可能引起故障。



有关详细的重要安全说明, 请参见本操作说明书的各个部分。

2.安全性

2.4 标签、安全标志

产品标签

型号名称 → **IS — 3**

测量量程 → **-30 inHg ... 300 psi**

输出信号 → **4 ... 20 mA**

电源 → **DC 10 ... 30 V**

P# 产品编号 → **00639080**

S# 序列号 → **11639110**

防爆型 → **Ex**

类型代码 → **Code IS - 3 - X - XXXX- XXX - XXXXXXXX - XXXXXXXX - XXXX**

安全性相关的最大值 (对于 防爆 Ex i)

引脚分配

For dust see manual!
Shield not connected to the case

2F

符号说明



在安装和调试仪器之前，确保先阅读本操作说明书！



CE, Communauté Européenne

具有此标记的仪器符合相关的欧盟指令。



ATEX 欧洲防爆指令

(空气环境 = AT, 爆炸性环境 = EX)

具有此标记的仪器符合欧盟指令 94/9/EC (ATEX) 有关爆炸保护的要求。

2. 安全性

2.5 类型代码

IS-3-A-BCDE-***-*****-*QRST**-W***

* = 与 Ex 型号仪器无关

位置	说明	特性
A	过程连接件类型	0 = 压力通道
		1 = 前置平嵌隔膜
BC	使用区域	11 = EPL Ga (ATEX:II 1G)
		12 = EPL Ga (ATEX:II 1G) + EPL Ma (ATEX:I M1)
		13 = EPL Ga (ATEX:II 1G) + EPL Da (ATEX:II 1D)
		14 = EPL Ga (ATEX:II 1G) + EPL Da (ATEX:II 1D) + EPL Ma (ATEX:I M1)
		21 = EPL Ga/Gb (ATEX:II 1/2G)
		22 = EPL Ga/Gb (ATEX:II 1/2G) + EPL Ma (ATEX:I M1)
		23 = EPL Ga/Gb (ATEX:II 1/2G) + EPL Da/Db (ATEX:II 1/2D)
		24 = EPL Ga/Gb (ATEX:II 1/2G) + EPL Da/Db (ATEX:II 1/2D) + EPL Ma (ATEX:I M1)
		31 = EPL Gc (ATEX:II 3G)
D	认证	1 或 3 = ATEX + IECEx
		4 = IECEx + ATEX 区域 2 / 22
E	防燃类型	1 = 本安
		2 = 无火花 nA
		3 = 无火花 nA + 粉尘环境外壳防燃 tc
Q	可调性	Z = 无
		T = 零点/量程可调

2.安全性

位置	说明	特性
RS	电气连接件	根据表“安全操作要求的相应电气连接环境与介质温度，介质温度 $\leq 105^{\circ}\text{C}$ 时（针对防燃 Ex i）”和“最大环境与介质温度（针对防燃 Ex nA 和 Ex tc）”电气输出两个特性
T	线缆材料	Z = 无
		A = PUR
		B = FEP
W	介质温度范围	U = $-20 \cdots +80^{\circ}\text{C}$
		E = $-20 \cdots +60^{\circ}\text{C}$
		C = $-20 \cdots +150^{\circ}\text{C}$
		6 = $-15 \cdots +60^{\circ}\text{C}$
		7 = $-15 \cdots +70^{\circ}\text{C}$
		8 = $-40 \cdots +150^{\circ}\text{C}$
		9 = $-40 \cdots +200^{\circ}\text{C}$

CN

3.规格

3. 规格

在设计系统时，请注意给出值（例如爆裂压力、过压限制）取决于使用的材料和螺纹尺寸。

3.1 测量量程和过压限制（测量量程请见产品标签）

表压 (MPa)							
测量量程	0 ...0.01	0 ...0.016	0 ...0.025	0 ...0.04	0 ...0.06	0 ...0.1	0 ...0.16
过压限制	0.14	0.14	0.14	0.41	0.41	0.41	0.83
测量量程	0 ...0.25	0 ...0.4	0 ...0.6	0 ...1	0 ...1.6	0 ...2.5	0 ...4
过压限制	0.83	1.93	4.14	4.14	8.28	8.28	8
测量量程	0 ...6	0 ...10	0 ...16	0 ...25	0 ...40	0 ...60	0 ...100 ¹⁾
过压限制	12	20	32	50	80	120	150
测量量程	0 ...160 ^{1) 2)}	0 ...250 ^{1) 2)}	0 ...400 ^{1) 2)}	0 ...500 ^{1) 2)}	0 ...600 ^{1) 2)}		
过压限制	230	350	500	600	700		

1) 仅适用于无平嵌隔膜过程连接件的仪器。

2) 仅适用于防爆型 Ex i 的仪器。不适用于 SIL2 标准等级的仪器。

绝压 (Mpa)							
测量量程	0 ...0.025	0.08 ...0.12	0 ...0.04	0 ...0.06	0 ...0.1	0 ...0.16	0 ...0.25
过压限制	0.14	0.41	0.41	0.41	0.41	0.83	0.83
测量量程	0 ...0.4	0 ...0.6	0 ...1	0 ...1.6	0 ...2.5		
过压限制	1.93	4.14	4.14	8.28	8.28		

3.规格

真空和 +/- 测量量程 (Mpa)

测量量程	-0.1 ...0	-0.1 ...+0.06	-0.1 ...+0.15	-0.1 ...+0.3	-0.1 ...+0.5	-0.1 ...+0.9	-0.1 ...+1.5
过压限制	0.41	0.83	0.83	1.93	4.14	4.14	8.28
测量量程	-0.1 ...+2.4						
过压限制	8.28						

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3.2 过程连接件和过压限制（过程连接件请见类型代码）

标准过程连接件

标准	螺纹尺寸	最大标称压力 [Mpa]	过压限制 [Mpa]
EN 837	G ¼ B	100	140
	G ½ B	100	180
	G ¾ B	100	140
DIN 3852-E	G ¼ A	60	60
	G ½ A	60	60
ANSI / ASME B1.20.1	¼ NPT	100	150
	½ NPT	100	150
SAE J514 E	7/16-20 UNF 凸缘	60	60
	9/16-18 UNF 凸缘	60	60
DIN 16288	M20 x 1.5	100	180
ISO 7	R ¼	100	160
	R ¾	100	140
JIS B7505-76	G ¼ B	100	100

3.规格

标准	螺纹尺寸	最大标称压力 [Mpa]	过压限制 [Mpa]
-	G ½ B 外螺纹 / G ¼ 内螺纹	100	140
	M20 x 1.5 内螺纹兼有密封锥面	600	1500
	M16 x 1.5 内螺纹兼有密封锥面	600	1000
	9/16-18 UNF 内螺纹 F250-C	600	1000
	G ½ B 平嵌隔膜	60	60
	G 1 B 平嵌隔膜	0.16	1
	G 1 B 平嵌隔膜, 卫生型	2.5	5

在可选介质温度下使用的过程连接件

标准	螺纹尺寸	最大标称压力 [Mpa]	过压限制 [Mpa]
EN 837	G ¼ B	40	80
	G ½ B	40	80
DIN 3852-E	G ¼ A	40	60
ANSI / ASME B1.20.1	½ NPT	40	80
ISO 7	R ¼	40	80
-	G ½ B 平嵌隔膜	60 ¹⁾	60 ¹⁾
	G 1 B 平嵌隔膜	0.16	1
	G 1 B 平嵌隔膜, 卫生型	2.5	5

1) 相关限制取决于密封件材料, 请参见“过程连接件 G ½ B 平嵌隔膜的密封材料限制”表

3.规格

密封件

过程连接件	标准	可选
EN 837	铜	不锈钢
DIN 3852-E	NBR ¹⁾	FKM/FPM (Viton®) ²⁾
SAE J514 E	NBR ¹⁾	FKM/FPM (Viton®) ²⁾
G ½ B 平嵌隔膜	NBR ⁴⁾	FKM/FPM (Viton®) ⁴⁾ or FFKM (Kalrez) ⁴⁾
G 1 B 平嵌隔膜	NBR ¹⁾	FKM/FPM (Viton®) ²⁾
G 1 B 平嵌隔膜, 卫生型	EPDM ³⁾	-

- 1) 容许温度范围: -20 ...+100 °C
2) 容许温度范围: -15 ...+200 °C
3) 容许温度范围: -40 ...+150 °C
4) 请参见“过程连接件 G ½ B 平嵌隔膜的密封材料限制”表。

Viton® 是 DuPont Performance Elastomers 的注册商标。

过程连接件 G ½ B 平嵌隔膜的密封材料限制

材料	过压限制 [Mpa]				
	T= -20 °C	T= 80 °C	T= 100 °C	T= 120 °C	T= 150 °C
NBR	60	60	60	N/A	N/A
FKM/FPM (Viton®)	60	60	60	40	30
FFKM (Kalrez)	60	60	60	60	60

T = 环境温度
N/A = 不适用

3.规格

3.3 输出信号

模拟信号 4 ...20 mA

容许负载 (单位: Ω)

- IS-3 型: $\leq (\text{电源} - 10\text{ V}) / 0.02\text{ A} - (\text{以 m 为单位的线缆长度} \times 0.14\ \Omega)$
- 带室外外壳的 IS-3 型: $\leq (\text{电源} - 11\text{ V}) / 0.02\text{ A}$
对于带室外外壳的 IS-3 型测试电路信号, 适用 $\leq 15\ \Omega$ 的负载

3.4 供给电压 (参见产品标签)

电源供给 U_+

- IS-3 型: 直流 10 ...30 V
- 带室外外壳的 IS-3 型: 直流 11 ...30 V

功耗 P_i 800 mW (对于 III 组 750/650/550 mW)
(防燃 Ex i)

防燃 Ex i 的电源和信号电路 (参见产品标签)

电压 U_i = 直流 30 V

电流 I_i = 100 mA

功耗 P_i = 800 mW (对于 III 组 750/650/550 mW)

有效内部电容 $C_i \leq 16.5\text{ nF}$
(固定式线缆连接型号) $C_i \leq 16.5\text{ nF} + 0.2\text{ nF/m}$

有效内部电感 $L_i = 0\ \mu\text{H}$
(固定式线缆连接型号) $L_i = 0\ \mu\text{H} + 2\ \mu\text{H/m}$

3.5 参考条件 (根据 IEC 61298-1)

温度 15 ...25 $^{\circ}\text{C}$

气压 86 ... 106 Kpa

湿度 45 ...75% RH (无凝结)

安装位置 已针对垂直安装位置且过程连接件朝下进行校准。

电源供给 U_+ 直流 24 V

3.规格

3.6 时间响应

稳定时间 $\leq 2 \text{ ms}$ ($\leq 10 \text{ ms}$, 对于介质温度低于 -30°C 的情况)

3.7 精度数据

参考条件下的精度

0.50 % 满量程

可选: 0.25 % (仅适用于 $\geq 0.025 \text{ Mpa}$ 和 $\leq 100 \text{ Mpa}$ 的测量量程)

包括非线性、迟滞、零点偏移和满量程点偏移

(对应于根据 IEC 61298-2 测得的误差)

非线性度 (IEC 61298-2)

$\leq 0.2 \%$ 满量程 BFSL

非可重复性

$\leq 0.1 \%$ 满量程

零点平均温度系数 ($0 \dots 80^\circ\text{C}$)

测量量程 $\leq 0.025 \text{ Mpa}$ 时: $\leq 0.4 \%$ 满量程 / 10 K

测量量程 $> 0.025 \text{ Mpa}$ 时: $\leq 0.2 \%$ 满量程 / 10 K

测量范围平均温度系数 ($0 \dots 80^\circ\text{C}$)

$\leq 0.2 \%$ 满量程 / 10 K

参考条件下的长期稳定性

$\leq \pm 0.2 \%$ 满量程/年

零点和测量范围的可调节性

使用仪器内部的电位计进行调节。

零点和测量范围: $\pm 5 \%$

3.8 工作条件

防燃型

(参见产品标签)

- II 1G Ex ia IIA T4/T5/T6 Ga
- II 1G Ex ia IIC T4/T5/T6 Ga
- II 1/2G Ex ia IIC T4/T5/T6 Ga/Gb
- II 3G Ex ic IIC T4/T5/T6 Gc X
- II 3G Ex nA IIC T4/T5/T6 Gc X
- II 3D Ex tc IIIC T90 °C Dc X
- II 1D Ex ia IIIC T135 °C Da
- II 1/2D Ex ia IIIC T135 °C Da/Db
- I M1 Ex ia I Ma

3.规格

IP 防护等级（根据 IEC 60529）

- IP 防护等级取决于各个电气连接件。
上述 IP 防护等级仅在使用具有相应 IP 防护等级的匹配接头插入时适用。
- 符合 DIN EN 175301-803 A 标准的赫斯曼接头：IP 65
 - 符合 IEC 61076-2-101 A-COD 标准的航空插头 M12 x 1：IP 67
 - 符合 IEC 61076-2-106 标准的航空插头 M16 x 0.75：IP 67
 - IP 67 等级线缆直出线式：IP 67
 - IP 68 等级线缆直出线式的线缆密封套：IP 68 ¹⁾
 - IP 68 等级电缆直出线式（在介质中连续使用）：IP 68 ²⁾
 - 带防护盖的 IP 67 等级线缆直出线式：IP 67 ³⁾
 - 符合 MIL-DTL-26482 标准的卡口接头：IP 67
 - 室外外壳：IP 69K

1) 72 h / 30 Kpa
2) 最大周围介质压力：0.2 Kpa
3) 要求：避免防护盖内积水

抗振性
（根据 IEC 60068-2-6，在共振状态下）

- IS-3 型：20 g
- 带室外外壳和具有防护盖的 IP 67 等级线缆直出线式的 IS-3 型：10 g
- 测量量程 > 100 Mpa 并具有可选介质温度范围：5 g
- 室外外壳并具有可选介质温度范围：2 g

抗冲击性
（根据 IEC 60068-2-27，机械冲击）

- IS-3 型：1,000 g
- 带室外外壳的 IS-3 型：600 g
- 测量量程 > 100 Mpa，可选介质温度范围，并带防护盖的 IP 67 等级线缆直出线式：100 g
- 室外外壳并具有可选介质温度范围：50 g

3.规格

符合数据表规格的工作容许温度（适用于防燃 Ex i）

特定压力变送器的所选温度范围可见交货单。

介质温度范围	
标准	-20 ...+80 °C
选择 1	-20 ...+150 °C（仅适用于平嵌隔膜过程连接件且测量量程 ≤ 60 Mpa 时）
选择 2	-40 ...+150 °C（仅适用于带压力通道的过程连接件且测量量程 ≤ 40 Mpa 时）
选择 3	-40 ...+200 °C（仅适用于带压力通道的过程连接件且测量量程 ≤ 40 Mpa 时）
氧气	-20 ...+60 °C

- 环境温度：-20 ...+80 °C
 - IP 68 等级线缆直出线式（在介质中连续使用），PUR 线缆：-15 ...+70 °C
 - IP 68 等级线缆直出线式（在介质中连续使用），FEP 线缆：-15 ...+80 °C
- 存放温度：-20 ...+80 °C

符合数据表规格的工作容许温度范围（适用于防燃 Ex nA 和 Ex tc）

- 介质温度：-15 ...+70 °C（在氧气条件下为 -15 ...+60 °C）
- 环境温度：-15 ...+70 °C
- 存放温度：-15 ...+70 °C

3.规格

安全操作要求的相应电气连接环境和介质温度，针对介质温度 ≤ 105 °C 时（适用于防燃 Ex i）

压力变送器的电气连接参考产品标签的类型编码（参见 2.4 “标签、安全标志”）。每个连接件的编号见下表（例如 IS-3-*.****-***.*****-Z05Z**-.****）。

下表适用于所选特性在型号代码 W 位置的情形：U 或 E。

电气连接件	94/9/EC (ATEX)	EPL	组	环境和介质温度 (°C)	温度等级 / 表面温度
符合 MIL-DTL-26482 标准的卡口接头	1/2G 3G	Ga/Gb Gc	IIC	-50 ≤ T _a ≤ +60 -50 ≤ T _a ≤ +75 -50 ≤ T _a ≤ +105	T6 T5 T4
不可调节 IS-3-*.****-***.*****-Z05Z**-.**** IS-3-*.****-***.*****-Z06Z**-.****	1/2D	Da/Db	IIIC	-50 ≤ T _a ≤ +40 (750 mW) -50 ≤ T _a ≤ +70 (650 mW) -50 ≤ T _a ≤ +100 (550 mW)	135 °C
符合 MIL-DTL-26482 标准的卡口接头	1/2G 3G	Ga/Gb Gc	IIC	-30 ≤ T _a ≤ +60 -30 ≤ T _a ≤ +75 -30 ≤ T _a ≤ +105	T6 T5 T4
可调节 IS-3-*.****-***.*****-T05Z**-.**** IS-3-*.****-***.*****-T06Z**-.****	1/2D	Da/Db	IIIC	-50 ≤ T _a ≤ +40 (750 mW) -50 ≤ T _a ≤ +70 (650 mW) -50 ≤ T _a ≤ +100 (550 mW)	135 °C
符合 IEC 61076-2-106 标准的航空插头 M16 x 0.75 (5 针)	M1	Ma	I	-30 ≤ T _a ≤ +85	N/A
不可调节 IS-3-*.****-***.*****-ZB4Z**-.****	1/2G 3G	Ga/Gb Gc	IIC	-30 ≤ T _a ≤ +60 -30 ≤ T _a ≤ +75 -30 ≤ T _a ≤ +85	T6 T5 T4
可调节 IS-3-*.****-***.*****-TB4Z**-.****	1/2D	Da/Db	IIIC	-30 ≤ T _a ≤ +40 (750 mW) -30 ≤ T _a ≤ +70 (650 mW) -30 ≤ T _a ≤ +85 (550 mW)	135 °C
符合 IEC 61076-2-101 A-COD 标准的航空插头 M12 x 1 (4 针)	M1	Ma	I	-30 ≤ T _a ≤ +105	N/A
不可调节 IS-3-*.****-***.*****-ZM2Z**-.****	1/2G 3G	Ga/Gb Gc	IIC	-30 ≤ T _a ≤ +60 -30 ≤ T _a ≤ +75 -30 ≤ T _a ≤ +105	T6 T5 T4
可调节 IS-3-*.****-***.*****-TM2Z**-.****	1/2D	Da/Db	IIIC	-30 ≤ T _a ≤ +40 (750 mW) -30 ≤ T _a ≤ +70 (650 mW) -30 ≤ T _a ≤ +100 (550 mW)	135 °C

3.规格

电气连接件	94/9/EC (ATEX)	EPL	组	环境和介质温度 (°C)	温度等级 / 表面温度
航空插头 7/8-16 UN (4 针)	M1	Ma	I	$-40 \leq T_a \leq +70$	N/A
不可调节 IS-3-*.****_****_*****.*ZM6Z**.*	1/2G 3G	Ga/Gb Gc	IIC	$-40 \leq T_a \leq +60$ $-40 \leq T_a \leq +70$ $-40 \leq T_a \leq +70$	T6 T5 T4
	1/2D	Da/Db	IIIC	$-40 \leq T_a \leq +40$ (750 mW) $-40 \leq T_a \leq +70$ (650 mW) $-40 \leq T_a \leq +70$ (550 mW)	135 °C
符合 DIN EN 175301-803 A 标准的赫斯曼接头	M1	Ma	I	$-30 \leq T_a \leq +105$	N/A
可调节 IS-3-*.****_****_*****.*TA3Z**.*	1/2G 3G	Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +75$ $-30 \leq T_a \leq +105$	T6 T5 T4
IS-3-*.****_****_*****.*TAVZ**.*	1/2D	Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +100$ (550 mW)	135 °C
IS-3-*.****_****_*****.*TAVZ**.*					
IP 67 等级线缆直出线式	M1	Ma	I	$-30 \leq T_a \leq +70$	N/A
可调节 IS-3-*.****_****_*****.*TDPA**.*	1/2G 3G	Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +70$ $-30 \leq T_a \leq +70$	T6 T5 T4
	1/2D	Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +70$ (550 mW)	135 °C
IP 68 等级线缆直出线式 线缆密封套	M1	Ma	I	$-30 \leq T_a \leq +70$	N/A
不可调节 IS-3-*.****_****_*****.*ZXPA**.*	1G 1/2G 3G	Ga Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +70$ $-30 \leq T_a \leq +70$	T6 T5 T4
可调节 IS-3-*.****_****_*****.*TXPA**.*	1D 1/2D	Da Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +70$ (550 mW)	135 °C
IP 68 等级线缆直出线式 线缆密封套导管 ½ NPT	M1	Ma	I	$-30 \leq T_a \leq +70$	N/A
不可调节 IS-3-*.****_****_*****.*Z5WA**.*	1G 1/2G 3G	Ga Ga/Gb Gc	IIC	$-30 \leq T_a \leq +60$ $-30 \leq T_a \leq +70$ $-30 \leq T_a \leq +70$	T6 T5 T4
	1D 1/2D	Da Da/Db	IIIC	$-30 \leq T_a \leq +40$ (750 mW) $-30 \leq T_a \leq +70$ (650 mW) $-30 \leq T_a \leq +70$ (550 mW)	135 °C

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MM/YYYY 国家代码基于 14095850.02 12/2014 EN/CN

3.规格

电气连接件	94/9/EC (ATEX)	EPL	组	环境和介质温度 (°C)	温度等级 / 表面温度
室外外壳 塑料线缆密封套 IS-3-*.****-***-*****-TFAZ*-**** IS-3-*.****-***-*****-TFBZ*-****	M1	Ma	I	-20 ≤ T _a ≤ +85	N/A
	1/2G 3G	Ga/Gb Gc	II C	-20 ≤ T _a ≤ +60 -20 ≤ T _a ≤ +75 -20 ≤ T _a ≤ +85	T6 T5 T4
	1/2D	Da/Db	IIIC	-20 ≤ T _a ≤ +40 (750 mW) -20 ≤ T _a ≤ +70 (650 mW) -20 ≤ T _a ≤ +85 (550 mW)	135 °C

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如果使用 WIKA 的相关配套连接件，以下电气连接件各种型号的环境和介质温度范围会降低：

- 航空插头 M12 x 1:-20 ...+80 °C
- 符合 DIN EN 175301-803 A 标准的赫斯曼接头
- 订购号 1604627: -30 ...+85 °C
- 订购号 11250186、11225793: -25 ...+85 °C

3.规格

安全操作要求的最高环境和介质温度，针对带压力通道的过程连接件且介质温度 >105 °C 时（适用于防燃 Ex i）

压力变送器的电气连接参考产品标签的类型编码（参见 2.4 “标签、安全标志”）。每个连接件的编号见下表（例如 IS-3-**-****-**-*****-Z05Z**-****）。

下表适用于所选特性在型号代码 W 位置的情形：8 或 9

“安全操作要求的相应电气连接环境和介质温度，针对介质温度 ≤ 105 °C 时”的最小环境和介质温度仍然有效。

对于温度等级 3 和 4，可在一个温度等级内的临近值之间进行线性插值。

温度等级	T2		T3				T4	
最高介质温度 (°C)	200	195	175	155	135	130	110	105
	最高环境温度 (°C)							
IP 68 等级线缆直出线式 FEP (在介质中连续使用) IS-3-**-****-**-*****-ZDCB**-****	40	45	55	70	85	85	85	85
航空插头 M16 x 0.75 IS-3-**-****-**-*****-TB4Z**-**** IS-3-**-****-**-*****-ZB4Z**-****								
室外外壳 塑料线缆密封套 IS-3-**-****-**-*****-TFAZ**-**** IS-3-**-****-**-*****-TFBZ**-****	40	45	55	70	70	70	70	70
航空插头 7/8-16 UN IS-3-**-****-**-*****-ZM6Z**-****								
线缆直出线式 PUR IS-3-**-****-**-*****-TDPA**-**** IS-3-**-****-**-*****-ZXPA**-**** IS-3-**-****-**-*****-TXPA**-**** IS-3-**-****-**-*****-Z5WA**-**** IS-3-**-****-**-*****-ZDCA**-****	40	45	50	50	50	50	50	50

3.规格

温度等级	T3					T4		
最高介质温度 (°C)	200	195	175	155	135	130	110	105
	最高环境温度 (°C)							
航空插头 M12 x 1 IS-3-*-*-*-*-*-*-*-*-*-*TM2Z**-* IS-3-*-*-*-*-*-*-*-*-*-*ZM2Z**-*								
卡口接头 IS-3-*-*-*-*-*-*-*-*-*-*ZO5Z**-* IS-3-*-*-*-*-*-*-*-*-*-*ZO6Z**-* IS-3-*-*-*-*-*-*-*-*-*-*TO5Z**-* IS-3-*-*-*-*-*-*-*-*-*-*TO6Z**-*								
符合 DIN EN 175301-803 A 标准的 赫斯曼接头 IS-3-*-*-*-*-*-*-*-*-*-*TA3Z**-* IS-3-*-*-*-*-*-*-*-*-*-*TAWZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TAVZ**-*	40	45	55	70	85	85	100	105
室外外壳 黄铜镀银线缆密封套 IS-3-*-*-*-*-*-*-*-*-*-*TFHZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TFKZ**-*								
室外外壳 不锈钢线缆密封套 IS-3-*-*-*-*-*-*-*-*-*-*TFCZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TFDZ**-*								
室外外壳导管 IS-3-*-*-*-*-*-*-*-*-*-*TFSZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TFTZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TFLZ**-* IS-3-*-*-*-*-*-*-*-*-*-*TFMZ**-*								

如果使用 WIKA 的相关配套连接件，以下电气连接件各种型号的最高环境温度会降低：

航空插头 M12 x 1: -20 ...+80 °C

3.规格

安全操作要求的最高环境和介质温度，针对平嵌隔膜过程连接件且介质温度 >105 °C 时（适用于防燃 Ex i）

压力变送器的电气连接参考产品标签的类型编码（参见 2.4 “标签、安全标志”）。每个连接件的编号见下表（例如 IS-3-**-****-**-*****-*ZO5Z**-*）。

下表适用于所选特性在型号代码 W 位置的情形：C。

“安全操作要求的相应电气连接环境和介质温度，针对介质温度 ≤ 105 °C 时”的最小环境和介质温度仍然有效。

对于温度等级 3 和 4，可在一个温度等级内的临近值之间进行线性插值。

温度等级	T3		T4		
	150	135	130	110	105
最高介质温度（°C）	最高环境温度（°C）				
IP 68 等级线缆直出线式 FEP （在介质中连续使用） IS-3-**-****-**-*****-*ZDCB**-*	20	50	55	85	85
航空插头 M16 x 0.75 IS-3-**-****-**-*****-*TB4Z**-* IS-3-**-****-**-*****-*ZB4Z**-*	20	50	55	70	70
室外外壳 塑料线缆密封套 IS-3-**-****-**-*****-*TFAZ**-* IS-3-**-****-**-*****-*TFBZ**-*	20	50	55	50	50
航空插头 7/8-16 UN IS-3-**-****-**-*****-*ZM6Z**-*	20	50	50	50	50
线缆直出线式 PUR IS-3-**-****-**-*****-*TDPA**-* IS-3-**-****-**-*****-*ZXP**-* IS-3-**-****-**-*****-*TXPA**-* IS-3-**-****-**-*****-*Z5WA**-* IS-3-**-****-**-*****-*ZDCA**-*	20	50	50	50	50

3.规格

温度等级	T3		T4		
最高介质温度 (°C)	150	135	130	110	105
	最高环境温度 (°C)				
航空插头 M12 x 1 IS-3-*-*-*-*-*TM2Z**-* IS-3-*-*-*-*-*ZM2Z**-*					
卡口接头 IS-3-*-*-*-*-*ZO5Z**-* IS-3-*-*-*-*-*ZO6Z**-* IS-3-*-*-*-*-*TO5Z**-* IS-3-*-*-*-*-*TO6Z**-*					
符合 DIN EN 175301-803 A 标准的 赫斯曼接头 IS-3-*-*-*-*-*TA3Z**-* IS-3-*-*-*-*-*TAWZ**-* IS-3-*-*-*-*-*TAVZ**-*	20	50	55	95	105
室外外壳 黄铜镀镍线缆密封套 IS-3-*-*-*-*-*TFHZ**-* IS-3-*-*-*-*-*TFKZ**-*					
室外外壳 不锈钢线缆密封套 IS-3-*-*-*-*-*TFCZ**-* IS-3-*-*-*-*-*TFDZ**-*					
室外外壳导管 IS-3-*-*-*-*-*TFSZ**-* IS-3-*-*-*-*-*TFTZ**-* IS-3-*-*-*-*-*TFLZ**-* IS-3-*-*-*-*-*TFMZ**-*					

如果使用 WIKA 的相关配套连接件，以下电气连接件各种型号的最高环境温度会降低：

航空插头 M12 x 1: -20 ...+80 °C

3.规格

最高环境和介质温度（适用于防燃 Ex nA 和 Ex tc）

电气连接件	94/9/EC (ATEX)	EPL	组	环境和介质温度（℃）	温度等级 / 表面温度
符合 IEC 61076-2-106 标准的航空插头 M16 x 0.75（5 针） 不可调节 IS-3-**-****-***-*****-*ZB4Z**-**** IP 68 等级线缆直出线式 （在介质中连续使用） PUR 不可调节 IS-3-**-****-***-*****-*ZDCA**-**** IP 68 等级线缆直出线式 （在介质中连续使用） FEP 不可调节 IS-3-**-****-***-*****-*ZDCB**-**** IP 67 等级线缆直出线式 带防护盖 不可调节 IS-3-**-****-***-*****-*ZDOA**-****	3G	Gc	IIC	-15 ≤ Ta ≤ +55 -15 ≤ Ta ≤ +70 -15 ≤ Ta ≤ +70	T6 T5 T4
IP 68 等级线缆直出线式 （在介质中连续使用） PUR 不可调节 IS-3-**-****-***-*****-*ZDCA**-**** IP 68 等级线缆直出线式 （在介质中连续使用） FEP 不可调节 IS-3-**-****-***-*****-*ZDCB**-**** IP 67 等级线缆直出线式 带防护盖 不可调节 IS-3-**-****-***-*****-*ZDOA**-****	3D	Dc	IIIC	-15 ≤ Ta ≤ +70	T90 °C

3.规格

3.9 电气连接件

反向极性保护

U+ 对 U-

绝缘电压

直流 500 V

3.10 尺寸

大约 130 mm

各种室外外壳，FEP 线缆，且测量量程 > 100 Mpa：约 150 mm

3.11 材料

使用的材料符合 RoHS 指令 2011/65/EC 的要求，但下列设备情况除外：

■ 电气输出卡口接头

■ 测量量程 > 100 Mpa

接液部件

■ 压力变送器：不锈钢

■ 密封件：参见 3.2 “过程连接件和过压限制”

非接液部件

■ 外壳：不锈钢

■ DIN EN 175301-803 A 赫斯曼接头：PA6

■ 可调节的航空插头 M12 x 1：PA6，不锈钢

■ 不可调节的航空插头 M12 x 1：不锈钢

■ 可调节的航空插头 M16 x 0.75：PA6，不锈钢，锌镀镍

■ 不可调节的航空插头 M16 x 0.75：不锈钢，锌镀镍

■ 可调节的卡口接头：PA6，不锈钢，铝镀镉

■ 不可调节的卡口接头：不锈钢，铝镀镉

■ 航空插头 7/8-16 UN 不锈钢

■ IP 67 等级线缆直出线式：PA6，不锈钢，铜镀镍

■ 带防护盖的 IP 67 等级线缆直出线式：不锈钢，PA66/6-FR

■ 带密封套的 IP 68 等级线缆直出线式不锈钢，铜镀镍

■ IP 68 等级线缆直出线式：不锈钢

■ 室外外壳：不锈钢、铜镀镍、不锈钢、PA

■ 内部传输介质

- 无氧应用场合：合成油

- 有氧应用场合：卤烃油

- 仪器测量量程 > 25 bar 时：干法测量元件

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3.规格

3.12 重量

约 0.2 kg

室外外壳约 0.35 kg

测量量程 > 100 Mpa 约 0.3 kg (带室外外壳时约 0.45 kg)

3.13 CE 符合性

压力设备指令

97/23/EC

电磁兼容指令

2004/108/EC, EN 61326 发射 (1 组 B 类) 和抗干扰性 (工业应用)

干扰期间需考虑不超过 1% 的测量偏差增幅。

ATEX 指令

94/9/EC

3.14 认证

- IECEx: 对可爆区域使用的国际认证
- SIL2: 功能安全性认证
- GL: 德国船舶和船舶制造认证 (例如海上)

有关详细规格, 请参见 WIKA 数据表 PE 81.58 和订单文档。

4.设计和功能 / 5.运输、包装和存放

4. 设计和功能

4.1 简介

由传感器元件通过隔膜变形来测量主压力。供电后，这种隔膜变形将转化为电信号。压力变送器的输出信号将放大并进行标准化。输出信号与测量的压力成正比。

4.2 交付产品

- 完全组装好的压力变送器
- 为保护平嵌隔膜过程连接件的隔膜，还提供特殊防护盖。

按照装箱单交叉检查交付产品。

5. 运输、包装和存放

5.1 运输

检查仪器有无运输过程中造成的损坏。

必须及时报告明显的损坏。

为保护过程连接件，应在运输仪器前盖上防护盖。

5.2 包装

只在安装时才能拆下包装。

请保留包装材料，以便在下次运输过程中提供最佳保护（例如安装场地变更、送修等）。

5.3 存放

为保护过程连接件，应在存放仪器前盖上防护盖。

存放地点的允许条件：

- 存放温度：-20 ... +80 °C
- 湿度：35 ... 85 % RH（无凝结）

5. 运输、包装和存放

避免置于以下状况中：

- 阳光直射或靠近高温物体
- 机械振动、机械冲击（用力放下）
- 油烟、蒸汽、粉尘及腐蚀性气体

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在处于上述状况的地点将仪器置于原包装中存放。如果原包装不可用，按以下方式包装和存放仪器：

1. 将仪器包裹在防静电塑料薄膜中。
2. 将仪器连同吸振材料放入包装中。
3. 如果长时间存放（超过 30 天），在包装中放置一个干燥剂包。



警告！

（使用完毕后）存放仪器前，请排放出所有残余介质。这对于有害健康的介质（如腐蚀性、毒性、致癌性、放射性物质等）尤为重要。

6.调试操作

6. 调试操作

6.1 安装注意事项



警告！

安装、调试和操作前，请确保选择量程、设计和特定测量条件等方面均适宜的仪器。否则可能会导致严重人身伤害和/或设备损坏。



警告！

不当安装可能会有生命危险

不当安装可能导致无法提供爆炸保护，甚至出现威胁生命的状况。

- 在特定温度等级的基础上，遵守适用于该区域的允许环境和介质温度规定。
- 考虑因使用配套连接件而导致的额外环境温度范围限制。
- 防止触碰压力变送器，或标明有烫伤风险的警示。
- 水平安装压力变送器，以确保冷却元件周围气流畅通。
- 保护压力变送器远离热源（例如管道或水箱）
- 在存在尘爆风险的区域，确保冷却元件清洁并且无粉尘附着，否则无法保证冷却效果。
- 在腐蚀性介质中使用压力变送器时，请遵循相关要求并防止出现机械故障。
- 对于防燃型 Ex nA 和 Ex tc：为防止光影响，安装 IP 67 线缆输出型号时请加装防护盖。
- 对于防燃型 Ex tc：不适合可能发生高强度静电放电的场合。

若待测量介质温度 $> 105^{\circ}\text{C}$ ，则 3.8 “安全操作要求的最高环境和介质温度，针对带压力通道的过程连接件且介质温度 $> 105^{\circ}\text{C}$ 时”和“安全操作要求的最高环境和介质温度，针对平隔膜过程连接件且介质温度 $> 105^{\circ}\text{C}$ 时”中表格规定的最大环境温度有效。

但不应超出因所定义温度等级而适用于此范围的允许表面温度值。

6.调试操作

在区域 0 和 20 中安装的其他注意事项

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警告！

不当安装可能会有生命危险

如果压力变送器安装不正确，可能会贯通区域。

- 对于需要 **EPL Ga** 的区域，压力变送器或线缆密封套必须安装到区域间的隔离栅中，并确保达到符合 IEC 60529 规定的 IP 67 防护等级。
- 对于需要 **EPL Da** 的区域，压力变送器或线缆密封套必须安装到区域间的隔离栅中，并确保达到符合 IEC 60529 规定的 IP 6X 防护等级。
- 当在需要 **EPL Ga 或 Da** 区域使用压力变送器时，连接线缆的屏蔽部分和应力释放夹的金属部分必须与外壳进行等电位连接。

6.1.1 在爆炸性环境中安全使用的特殊情况（适用于防燃 Ex i）

- 在需要 1G 类设备的区域中使用时，压力变送器必须固定在墙上，并确保达到符合 IEC 60529 规定的 IP 67 防护等级。
- 在需要 1D 类设备的区域中使用时，压力变送器必须固定在墙上，并确保达到符合 IEC 60529 规定的 IP 6X 防护等级。
- 必须遵循制造商提供的有关避免机械危险和在腐蚀性介质中使用压力变送器时的技术信息。
- 在需要 1 类设备的区域中使用压力变送器时，连接电缆的屏蔽必须与仪器进行等电位连接。
- 在需要 1G 类设备的区域中使用时，线缆密封套的设计必须确保达到符合 IEC 60529 规定的 IP 67 防护等级。
- 在需要 1D 类设备的区域中使用时，线缆密封套的设计必须确保达到符合 IEC 60529 规定的 IP 6X 防护等级。
- 如果过程介质的温度超过“安全操作要求的相应电气连接环境和介质温度，针对介质温度 $\leq 105\text{ }^{\circ}\text{C}$ 时（适用于防燃 Ex i）”表中定义的测量介质温度范围值，则必须在使用特殊冷却装置时才可对其进行测量。但不应超出因所定义温度等级而适用于此范围的允许表面温度值。

6.调试操作

6.1.2 在爆炸性气体中安全使用的特殊情况（适用于防燃 Ex nA 和 Ex tc）

- 最终使用场合的终端使用者提供的连接件应符合 IEC 60079-0 和 IEC 60079-15 所有适用条款的规定。至少应保证符合 IEC 60529 规定的 IP 54 防护等级。
- 最终使用场合的终端使用者必须建立外部接地连接。

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6.2 机械安装

所需工具：

- 27 mm 扭矩扳手或 41 mm 平板手

1. 根据产品标签的信息，检查压力变送器是否适合将要使用的环境。



警告！

安装、调试和操作前，请确保选择量程、设计和特定测量条件等方面均适宜的仪器。否则可能会导致严重人身伤害和/或设备损坏。

2. 压力变送器和安装点的密封面与螺纹必须清洁且完好无损。如果密封面脏污，请清洁。



警告！

泄漏的介质可能造成人身伤害以及财产损失。

泄漏的介质可能导致严重人身伤害。如发生故障，在高压下可能导致元件喷出或介质泄漏。

- 使用保护装置以防止零件喷出。保护装置必须借助工具才能拆除。
- 确保系统中的总压力低于所有组件中最小的压力上限。如在系统中存在变化或不同的压力，必须使用可承受最大预期压力极值的组件。
- 保证安装点完全去毛刺并清洁干净。
- 如果压力 > 100 Mpa，请使用合适的压力环。

6.调试操作

3. 仅在安装前拔出防护盖。确保过程连接件的隔膜未损坏（仅适用于平嵌隔膜过程连接件）。

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警告！

过程连接件损坏后可能无法提供爆炸防护，从而导致生命危险

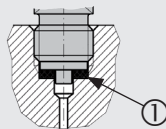
平嵌隔膜过程连接件的隔膜与安全紧密相关。如果损坏，则无法提供爆炸防护。由此引起的任何爆炸都会对生命产生极大威胁。

- 在调试压力变送器前，应对平嵌隔膜过程连接件的隔膜进行检查是否存在可见损坏。
- 如有液体泄漏则表示隔膜损坏。
- 避免隔膜与磨料介质接触并免受各种冲击。
- 在腐蚀性介质中使用测量仪器时，请遵循相关要求并防止出现机械故障。
- 出于安全考虑，仅在压力变送器处于良好状态时才使用。

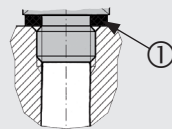
4. 按如下步骤密封过程连接件。

平行螺纹

必须使用合适的平垫片、密封环或 WIKA 成型密封垫，确保在密封面正确密封①。



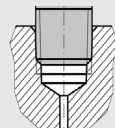
EN 837 标准



DIN 3852-E 标准

锥形螺纹

要达到密封效果，要使用额外的密封材料（如 PTFE 胶带）对螺纹头进行缠裹。



NPT、R 和 PT

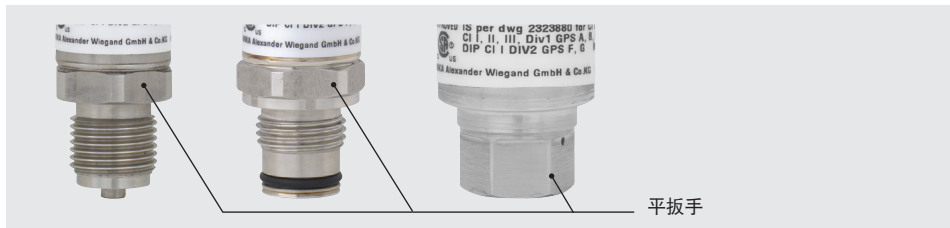
6.调试操作

5. 用手拧入仪器，小心不要拧错螺纹。

用合适扭矩扳手或平扳手拧紧压力变送器。正确的扭矩取决于压力连接的尺寸和所用的密封（密封形式/材料）。最大扭矩为 50 Nm。

必须遵守高压管道的特定拧紧扭矩（参见管道供应商的规格）。否则可能损坏仪器或测量点。

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有关螺纹孔和焊接套管的信息，请参见 www.wika.com 上的技术信息 IN 00.14

6. 调试操作

6.3 电气安装

1. 使用并组装适于应用场合的连接线缆。各个电气连接件规格可参见下表“电气连接件规格”。

- 对于具有灵活导线的线缆，请始终使用适合导线截面的套圈。
- 选择与插头线缆密封套匹配的线缆直径。确保固定插头的线缆密封套紧密配合并且密封完好。拧紧螺纹连接件，并检查密封是否到位。



警告！

不当安装可能会有生命危险

如果压力变送器未正确安装，则无法提供爆炸防护。

- 线缆的裸露端必须用末端接头保护（线缆准备）。

2. 使用过程连接件将外壳接地，以保护压力变送器免受电磁场和静电放电干扰。将外壳与应用场合的等电位体相连。

3. 建立本安电源供电。

■ 对于防燃 Ex i

- 通过本安回路对压力变送器供电 (Ex ia)。电容和电感都应考虑，参见 3 “规格”。使用经认证的隔离栅（如 KFD2-STC4-Ex1 型）或经认证的 Zener 安全栅，可以将易爆区与非爆区之间的电压和电流供给隔离，这一点非常有必要。

- 对于需要 EPL Gb 或 Db 的应用场合，电源和信号电流需要等级“ib”的保护。这样，相互之间的连接以及压力变送器的保护等级都将达到 II 2G Ex ib IIC T4/T5/T6 Gb 或 II 2D Ex ib IIIC T4/T5/T6 Db，尽管压力变送器标记为另外的保护等级（请参见 EN 60079-14 第 5.4 部分）

■ 对于防燃 Ex nA 和 Ex tc

对于防燃 Ex nA：将标记为“Ex nA IIC T4/T5/T6”的压力变送器连接到电源和信号电路，后者应可提供符合 IEC 60079-15:2010 第 13 c 部分规定的瞬态电涌保护。

6.调试操作

4.



警告！
对于防燃 Ex nA 和 Ex tc:
不要在通电时拆下仪器。

CN

进行电气连接

室外外壳和赫斯曼接头的电气安装在以下部分详述。

- 在非爆区域最好将线缆屏蔽一端接地 (EN 60079-14)。
- 对于具有线缆输出的压力变送器，屏蔽一般连接到外壳。只有屏蔽连接（如隔离栅处）与外壳之间不会发生偶然通电时，才允许将外壳连接和线缆屏蔽同时接地（参见 EN 60079-14）。
对于具有线缆输出的压力变送器，如果屏蔽未连接到外壳，产品标签上会标注“屏蔽未连接到外壳”。在这种情况下，外壳必须通过过程连接件接地，屏蔽也必须接地。
- 确保没有水分可以通过具有线缆直出线式的压力变送器的线缆端进入仪器。



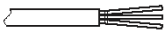
电气连接件规格

	符合 DIN 175301-803 A 标 准的赫斯曼接头	符合 IEC 61076-2-101 A-COD 标准的航空插头 M12 x 1 (4 针)	符合 MIL-DTL-26482 标 准的卡口接头 (6 针)	符合 MIL-DTL-26482 标 准的卡口接头 (4 针)
连接图				
分配 (2 线)	U ₊ = 1 U ₋ = 2	U ₊ = 1 U ₋ = 3	U ₊ = A U ₋ = B	U ₊ = A U ₋ = B
线缆屏蔽				
导线截面	最大 1.5 mm ²			
线缆直径	6 ...8 mm 发货许可: 10 ...14 mm			
防护等级 (根据 IEC 60529)	IP 65	IP 67	IP 67	IP 67

上述 IP 防护等级仅在使用具有相应 IP 防护等级的匹配接头插入时适用。

6.调试操作

电气连接件规格

	符合 IEC 61076-2-106 标准的航空插头 M16 x 0.75 (5 针) ¹⁾		航空插头 7/8-16 UN (4 针)		所有线缆直出线式	
连接图						
分配 (2 线)	U ₊ = 3	U ₋ = 1	U ₊ = 1	U ₋ = 2	U ₊ = 棕色	U ₋ = 绿色
线缆屏蔽					灰色	
导线截面					0.5 mm ²	
线缆直径					6.8 mm 7.5 mm (各种型号以在介质中连续使用)	
防护等级 (根据 IEC 60529)	IP 67		IP 67		IP 68 (IP 67 用于带有塑料外壳夹紧螺母的仪器)	

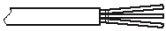

1) 对于防爆 Ex nA:

- 最终使用场合的终端使用者提供的连接件应符合 IEC 60079-0 和 IEC 60079-15 所有适用条款的规定。至少应保证符合 IEC 60529 规定的 IP 54 防护等级。
- 应确保安装反接接头所需的扭矩: 根据 IEC 61076-2-106 标准, M16 x 0.75 为 1 Nm

上述 IP 防护等级仅在使用具有相应 IP 防护等级的匹配接头插入时适用。

6.调试操作

电气连接件规格

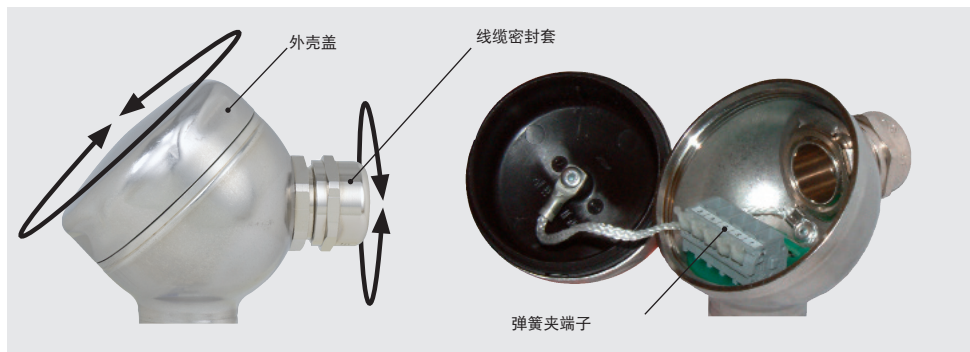
	带防护盖的 IP 67 等级线缆 直出线式		室外外壳			
连接图						
分配	U ₊ = 棕色	U ₋ = 蓝色	U ₊ = 1	U ₋ = 2	Test ₊ = 3	Test ₋ = 4
线缆屏蔽	屏蔽编织		5			
导线截面	0.34 mm²		最大 1.5 mm²			
线缆直径	5.5 mm		黄铜镀镍线缆密封套: 7 ...13 mm 不锈钢线缆密封套: 8 ...15 mm 塑料线缆密封套: 6.5 ...12 mm			
防护等级 (根据 IEC 60529)	IP 67 (要求: 避免防护盖内积水)		IP 69K			

上述 IP 防护等级仅在使用具有相应 IP 防护等级的匹配接头插入时适用。

6. 调试操作

安装室外外壳

1. 使用合适的开口扳手拧开外壳盖，并打开线缆密封套。
2. 将线缆穿过线缆密封套插入打开的外壳头。
3. 使用螺丝刀按下弹簧夹端子上对应的塑料杆，以打开端子触点。
将备好的线缆端插入开口，松开塑料杆。线缆端应夹紧在弹簧夹端子中。
4. 各导线连接完毕后，拧紧线缆密封套，并拧上外壳盖。

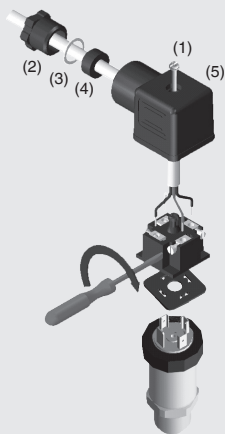
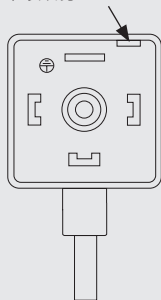


6. 调试操作

连接 DIN 175301-803 赫斯曼接头

1. 松开螺丝 (1)。
2. 松开线缆密封套 (2)。
3. 将端子体 (6) 留在内部，将接头外壳 (5) 从仪器中拉出。
4. 通过安装孔 (D) 将端子体 (6) 撬出接头外壳 (5)。不要试图从螺丝孔 (1) 或线缆密封套 (2) 顶出端子体 (6)，否则可能会破坏接头外壳的密封。
5. 选择一个外径与接头外壳线缆密封套匹配的导体。将线缆穿过线缆密封套 (2)、垫圈 (3)、密封圈 (4) 和接头外壳 (5)。
6. 将线缆端连接到端子体 (6) 的相应连接端子上（参见“电气连接”表）。
7. 将接头外壳 (5) 按到端子体 (6) 上。
8. 拧紧线缆周围的线缆密封套 (2)。为确保防护等级，应保证密封没有损坏，并且线缆密封套和密封件组装正确。
9. 将平面方形垫片置于压力变送器的连接针脚上。
10. 将端子体 (6) 插入压力变送器的连接针脚。
11. 使用螺钉 (1) 将接头外壳 (5) 和端子体 (6) 拧紧到压力变送器上。

(D) 安装孔



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6.调试操作 / 7.调节零点和测量范围

6.4 两线测试电路的功能

此功能仅限于带有室外外壳的仪器。

使用测试电路可以在正常运行中不断开压力变送器进行电流测量。为此，请将适合于易爆应用场合的电表（内电阻 $< 15 \Omega$ ）连接到 test₊ 和 test- 端子。

功能检验

输出信号必须与主压力成正比。否则，可能表示过程连接件的隔膜有损坏。如发生这种情况，请参见第 9 节“故障”。

7. 调节零点和测量范围



测量范围设置电位计用来进行出厂调整，并且只有校准设备可用且精度至少为压力变送器精度的三倍，才能进行重新调整。

7.1 取放电位计

要取放电位计，请按以下步骤打开仪器：

夹紧螺母（图 A）

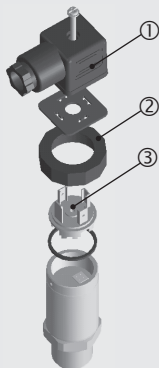
1. 断开仪器的电气连接 (1)。
2. 取下夹紧螺母 (2)
3. 小心地将仪器接头 (3) 从仪器中拉出。

螺钉，室外外壳（图 A）

拧下外壳或外壳盖的螺钉。

7. 调节零点和测量范围

A



夹紧螺钉



螺钉



室外外壳

7.2 调节零点 (图 B)

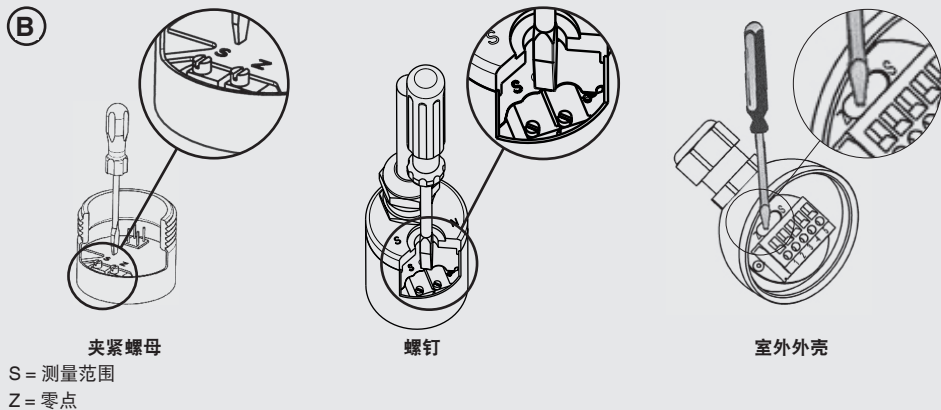
1. 根据连接图, 将仪器接头 (3) 连接到电源和显示单元 (如电流表或电压表)。
2. 调节到测量量程的开始点。
3. 使用电位计的“Z”调节最小输出信号 (例如 4 mA)

7.3 调节测量范围 (图 B)

1. 根据连接图, 将仪器接头 (3) 连接到电源和显示单元 (如电流表或电压表)。
2. 调节到测量量程的结束点。
3. 使用电位计的“S”调节最大输出信号 (例如 20 mA)
4. 检查零点, 如有偏差偏差请重新调整。
5. 重复以上过程, 直至零点和测量范围设置正确。

CN

7. 调节零点和测量范围



7.4 结束调整 (图 A)

夹紧螺母 (图 A)

1. 断开仪器接头 (3) 与电源和显示单元的连接。
2. 小心地将仪器接头 (3) 插入仪器中，不要破坏导线或密封。为保证特定的防护等级，密封必须清洁且完好无损。
3. 拧紧夹紧螺母 (2)。

螺钉，室外外壳 (图 A)

拧紧螺钉或外壳盖。

调整后，检查系统是否工作正常。

建议重新校准周期：每年一次（请参见第 8.3 节“重新校准”）

如有任何问题，请联系制造商。请参见第 1 节“一般信息”下的相关应用建议

8.维护和清洁

8. 维护和清洁

8.1 维护

本仪器为免维护型。

修理只能由制造商进行。

8.2 清洁



小心！

- 在清洁前，请正确断开仪器的压力供应，关闭仪器并断开电源。
- 使用湿布清洁仪器。
- 电气连接不得接触水气。
- 返还前，请冲洗或清洁拆卸的仪器，以避免人员接触到残余介质或排放到环境中。
- 拆下的仪器中残余的介质可能对人员、环境和设备造成危险。请采取充分的预防措施。



有关返还仪器的信息，请参见第 10.2 节“返还”。

8.3 重新校准

我们建议由制造商每隔约 12 个月定期对仪器进行重新校准。如有必要，还会更正基本设定。

9. 故障

若发生任何故障，请首先检查压力变送器的机械和电气安装是否正确。

如果是用户原因造成故障，将收取相应的处理费用。



警告！

泄漏的介质可能造成人身伤害以及财产损失。

泄漏的介质可能导致严重人身伤害。如发生故障，在高压下可能导致元件喷出或介质泄漏。

- 仅在系统消压后打开连接。
- 使用保护装置以防止零件喷出。保护装置必须借助工具才能拆除。



警告！

危险介质会造成人身伤害、财产损失以及环境破坏

如果接触危险介质（如氧气、乙炔、易燃性或有毒物质）、有害介质（如腐蚀性、毒性、致癌性、放射性物质）以及制冷装置和压缩机，可能会造成人身伤害、财产损失以及环境破坏。

高压或真空中高温腐蚀性介质进入仪器可能引起故障。

- 对于这些介质，除所有标准规定外，还必须遵守相应的现有规范或规定。
- 穿戴必要的防护装备。

9.故障

故障	原因	解决方法
压力变化时输出信号不变	由过压引起的机械过载	更换仪器，如再次发生故障，请联系制造商
	电源错误或电流脉冲	更换仪器
没有输出信号	没有电源或电源错误、电流脉冲	使用正确电源
	线缆断裂	检查连接线缆是否完好无损
输出信号没有或错误	布线错误	正确布线
输出信号偏差	测量范围调整错误	重新调整测量范围并使用合适的参考 ¹⁾
零点信号偏差	超过过压限制	重新调节零点 ¹⁾ 遵守过压限制
	过程连接件损坏	更换仪器
信号范围下降	过程连接件损坏	更换仪器，如再次发生故障，请联系制造商
	密封损坏或污染	若污染，请清洁密封和测量点。若损坏，请更换密封。
	密封未紧密贴合	拆下仪器并正确密封
信号范围太小	螺纹卡住	正确安装仪器
	由过压引起的机械过载	重新调整仪器 ¹⁾
	电源错误	使用正确电源
信号范围不断变化	介质压力剧烈变化	阻尼；咨询制造商

1) 调整后，检查系统是否工作正常。如故障仍然存在，请更换仪器或送修（参见第 10.2 节“返还”）。



小心！

如果故障不能经以上所列方法消除，请立即关闭仪器，并确保压力和/或信号消除，且仪器不会再被不经意使用。这种情况下，请联系制造商。如果需要返还给制造商，请按照第 10.2 节“返还”中的说明进行操作。

10. 拆卸、返还和处置

10. 拆卸、返还和处置

CN



警告！

拆下的仪器中残余的介质可能对人员、环境和设备造成危险。

请采取充分的预防措施。

10.1 拆卸



警告！

对于防燃 Ex nA 和 Ex tc:

不要在通电时拆下仪器。

1. 断开压力变送器的电源。
2. 使用合适扭矩的平板手松开压力变送器（有关平板手，参见第 6.2 节“机械安装”下的图形）。仅在系统消压后断开压力变送器。



警告！

灼伤危险！

让仪器充分冷却后再进行拆卸！

拆卸期间，可能存在高压热介质喷出的危险。



警告！

泄漏的介质可能造成人身伤害以及财产损失。

泄漏的介质可能导致严重人身伤害。如发生故障，在高压下可能导致元件喷出或介质泄漏。

- 仅在系统消压后打开连接。
- 使用保护装置以防止零件喷出。保护装置必须借助工具才能拆除。

3. 从压力变送器中排出所有残余介质（参见第 8.2 节“清洁”）。
4. 包装好压力变送器（参见第 5.2 节“包装”）。

10.拆卸、返还和处置

10.2 返还



警告！

运输仪器时，请严格遵循以下事项：

所有交付给 WIKA 的仪器必须不含任何有害物质（酸、碱、溶液等）。

返还仪器时，请使用原包装或合适的运输包装。

为避免损坏，请：

1. 将仪器包裹在防静电塑料薄膜中。
2. 仪器连同吸振材料放入包装中。
在运输包装的四壁均匀放置吸振材料。
3. 尽可能在包装内放入干燥剂包。
4. 在货件上贴上高灵敏测量仪器字样的运输标签。



有关返还的信息，请参阅我们本地网站中“服务”标题下的内容。

10.3 处置

处理不当可能危害环境。

请采取环保的方式处理仪器元件和包装材料，并遵守国家特定的废物处理法规。



EG-Konformitätserklärung

Dokument Nr.:
14103799.03

Wir erklären in alleiniger Verantwortung, dass die mit
CE gekennzeichneten Produkte

Typ:

IS-3

Beschreibung:

**Druckmessumformer für Anwendungen in
explosionsgefährdeten Bereichen**
gemäß gültigem Datenblatt: PE 81.58

die grundlegenden Schutzanforderungen der folgenden
Richtlinien erfüllen:

94/9/EG (ATEX)
97/23/EG (DGRL)⁽¹⁾
2004/108/EG (EMV)

Kennzeichnung:

II 1G Ex ia IIA T4/T5/T6 Ga⁽¹⁾
II 1G Ex ia IIC T4/T5/T6 Ga⁽¹⁾
II 1G Ex ia IIC T4/T5/T6 Ga/Gb⁽¹⁾
II 3G Ex ic IIC T4/T5/T6 Gc X
II 3G Ex na IIC T4/T5/T6 Gc X
II 1D Ex ia IIIC T135 °C Da⁽¹⁾
II 1/2 D Ex ia IIIC T135 °C Da/Da⁽¹⁾
II 3D Ex ic IIIC T90 °C Dc X
I M1 Ex ia I Ma⁽¹⁾

Die Geräte wurden entsprechend den folgenden
Normen geprüft:

EN 60079-0:2012 + A11:2013 EN 60079-15:2010
EN 60079-11:2012 EN 60079-31:2009
EN 60079-26:2007
EN 61326-1:2013 EN 61326-2-3:2013

- (1) EG-Baumusterprüfbescheinigung IVGS 14 ATEX E 035 X von
DCEHA EXAM GmbH, D-44600 Bochum (Reg.-Nr. 0156)
(2) PS = 200 bar; Modul A, druckhaltendes Auslastungsteil

Unterzeichnet für und im Namen von / Signed for and on behalf of

WIKAI Alexander Wiegand SE & Co. KG

Klingenberg, 2014-12-04

Geschäftsbereich / Company division: TRONIC

Fokko Stuke

Fokko Stuke

Unterschrift, autorisiert durch das Unternehmen / Signature authorized by the company

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Kompetenzstelle:
Wika, Alexander Wiegand SE - Sie Klingenberg -
Angebot: Auslieferung, Wika, IS-3
Vorname: Alexander Wiegand
Vorname des Kunden: Dr. Max Fgl

EC Declaration of Conformity

Document No.:
14103799.03

We declare under our sole responsibility that the CE
marked products

Model:

IS-3

Description:

**Pressure transmitter for applications in hazardous
areas**
according to the valid data sheet: PE 81.58

are in conformity with the essential protection
requirements of the directives

94/9/EC (ATEX)
97/23/EC (PED)⁽²⁾
2004/108/EC (EMC)

Marking:

II 1G Ex ia IIA T4/T5/T6 Ga⁽¹⁾
II 1G Ex ia IIC T4/T5/T6 Ga⁽¹⁾
II 1G Ex ia IIC T4/T5/T6 Ga/Gb⁽¹⁾
II 3G Ex ic IIC T4/T5/T6 Gc X
II 3G Ex na IIC T4/T5/T6 Gc X
II 1D Ex ia IIIC T135 °C Da⁽¹⁾
II 1/2 D Ex ia IIIC T135 °C Da/Da⁽¹⁾
II 3D Ex ic IIIC T90 °C Dc X
I M1 Ex ia I Ma⁽¹⁾

The devices have been tested according to the following
standards:

EN 60079-0:2012 + A11:2013 EN 60079-15:2010
EN 60079-11:2012 EN 60079-31:2009
EN 60079-26:2007
EN 61326-1:2013 EN 61326-2-3:2013

- (1) EC type examination certificate IVGS 14 ATEX E 035 X from
DCEHA EXAM GmbH, D-44600 Bochum (Reg. no. 0156)
(2) PS = 200 bar; Module A, pressure accessory

Qualitätsmanagement / Quality management : TRONIC

Schlesiona

Steffen Schlesiona

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