Operating instructions

Pressure transmitter, model A-10

WIKA

Contents

EN

1. General information

- Prior to starting any work, read the operating instructions! Keep for later use!
- These operating instructions contain important information on handling the instrument. Working safely requires that all safety instructions and work instructions are observed.

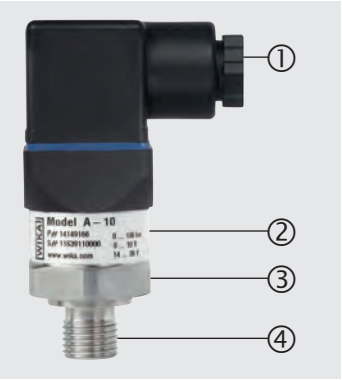
11218720.17 06/2023 EN/DE/FR/ES

- In case of a different interpretation of the translated and the English operating instructions, the English wording shall prevail.
-

EN

2. Short overview

2.1 Overview



① Electrical connection
② Case; product label
③ Process connection, spanner flats
④ Process connection, thread

11218720.17 06/2023 EN/DE/FR/ES

3. Safety

3. Safety

EN

3.1 Explanation of symbols and terms

WARNING!
The signal word indicates a hazard with a medium degree of risk which, if not avoided, may result in death or serious injury.

CAUTION!
The signal word indicates a hazard with a low degree of risk which, if not avoided, may result in minor or moderate injury.

Information
The signal word points out useful tips, recommendations and information for efficient and trouble-free operation.

3.2 Intended use

The model A-10 is a pressure transmitter that is used for pressure measurement in general industrial applications. The pressure transmitter may only be used in such applications as are within its technical performance limits, in particular with regard to its material resistance limit, leakage rate limits and permissible temperature and pressure limits.
It is the sole responsibility of the manufacturer or operator of a machine or plant to ensure the suitability of the pressure transmitter, and its media resistance, within the application through proper choice of materials and maintenance cycles. (For performance limits, see chapter 8 "Specifications")

The mounting, dismounting, installation, parameterisation and maintenance of the pressure transmitter in industrial environments absolutely requires suitably skilled personnel in accordance with chapter 3.4 "Personnel qualification".

This is a class B instrument for emissions and is intended for use in industrial environments. In other environments, e.g. residential or commercial installations, such instruments can interfere with other equipment under certain conditions. In such circumstances the operator is expected to take the appropriate measures.

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

The manufacturer shall not be liable for claims of any type based on operation contrary to the intended use.

11218720.17 06/2023 EN/DE/FR/ES

3. Safety

3.3 Improper use

Any use beyond or different to the intended use is considered as improper use. Unauthorised modifications to the instrument are not permissible.
Use in the following application areas counts as improper use:

EN

- Safety or emergency shutdown devices
- Hazardous areas
- Abrasive or viscous media and applications with hydrogen and oxygen
- Rail vehicles, medical devices and refrigeration technology
- Places of use that are not protected from weather influences
- Processes with high condensation

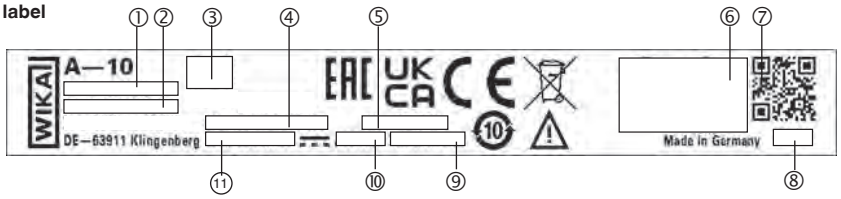
3.4 Personnel qualification

Skilled personnel

Skilled personnel, authorised by the operator, 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, must be capable of carrying out the work described and independently recognising potential hazards.

3.5 Labelling, safety marks

Product label



① Article number
② Intelligent serial number
③ Pin assignment
④ Measuring range
⑤ Output signal
⑥ Approvals
⑦ Identification link per IEC 61406-1
⑧ Coded date of manufacture
⑨ Non-linearity
⑩ Current supply
⑪ Auxiliary power

11218720.17 06/2023 EN/DE/FR/ES

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

EN

DC voltage

Do not dispose of with household waste. Ensure a proper disposal in accordance with national regulations.

4. Mounting

4.1 Mechanical mounting

Only use the pressure transmitter if it is in perfect condition with respect to safety.
Prior to commissioning, the pressure transmitter must be subjected to a visual inspection.

- Leaking liquid is indicative of damage.
- Obvious damage must be reported immediately.

. 4.2 Electrical mounting

Voltage supply

→ For auxiliary power, see product label
→ For further details on electrical mounting, see IN 00.50

For instruments without North American certification:
This equipment is intended for operation with low voltages, which are separated from the AC 230 V (50 Hz) mains voltage or voltages greater than AC 50 V or DC 120 V for dry environments. A connection to an SELV circuit is recommended, or alternatively to circuits with a different protective measure in accordance with IEC 60364-4-41 installation standard.

11218720.17 06/2023 EN/DE/FR/ES

For instruments with North American certification per UL/CSA IEC 61010-1:
The power supply for the pressure transmitter must be made via a limited-energy circuit in accordance with section 9.4 of UL/IEC/EN 61010-1, or an LPS in accordance with UL/IEC/EN 60950-1/CSA C22.2 no.60950-1 or class 2 per UL1310/UL1585 (NEC or CEC). The voltage supply must be suitable for operation above 2,000 m should the pressure transmitter be used at this altitude.

EN

Shielding and grounding
Include the pressure transmitter in the equipotential bonding via the process connection or connect it to ground (earth).

Pin assignment
→ For pin assignments, see product label

5. Faults

CAUTION!
Physical injuries and damage to property and the environment
If faults cannot be eliminated by means of the listed measures, the pressure transmitter must be taken out of operation immediately.
- ► Ensure that pressure or signal is no longer present and protect against accidental commissioning.
- ► Contact the manufacturer.
- ► If a return is needed, please follow the instructions given in chapter 7.2 "Return".

For contact details, see chapter 1 “General information” or the back page of the operating instructions.

In the event of any faults, first check whether the pressure transmitter is mounted correctly, mechanically and electrically.

Faults	Causes	Measures
No output signal	Cable break	Check the continuity
Deviating zero point signal	Overpressure limit exceeded	Maintain permissible overpressure limit

11218720.17 06/2023 EN/DE/FR/ES

Faults	Causes	Measures
Deviating zero point signal	Too high/low temperature of use	Observe the permissible temperatures
Constant output signal upon change in pressure	Mechanical overload caused by overpressure	Replace instrument; if it fails repeatedly, contact the manufacturer
Signal span varies	EMC interference sources in the environment, e.g., frequency converter	Use shielded cable; remove source of interference
Signal span varies/inaccurate	Too high/low temperature of use	Observe the permissible temperatures
Signal span drops/too small	Mechanical overload caused by overpressure	Replace instrument; if it fails repeatedly, contact the manufacturer

6. Maintenance

6.1 Maintenance

This pressure transmitter is maintenance-free.
Repairs must only be carried out by the manufacturer.

6.2 Cleaning

Only use commercially available and solvent-free cleaning agents.

7. Dismounting, return and disposal

7.1 Dismounting

WARNING!
Hazardous media

- Should a failure occur, aggressive media with extremely high temperature and under high pressure or vacuum may be present at the instrument.
- Depressurise and deenergise the pressure transmitter before dismounting it.

11218720.17 06/2023 EN/DE/FR/ES

7. Dismounting, return and disposal

7.2 Return

WARNING!
Physical injuries and damage to property and the environment through residual media
Residual media in the dismounted instrument can result in a risk to persons, the environment and equipment.
▶ With hazardous substances, enclose the material safety data sheet for the corresponding medium.

EN

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.) and must therefore be cleaned before being returned.

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

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

7.3 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.

Do not dispose of with household waste. Ensure a proper disposal in accordance with national regulations.

11218720.17 06/2023 EN/DE/FR/ES

8. Specifications

EN

Depending on the selected instrument version (e.g. sealings), the specification may deviate from the specifications listed here. The specifications in the order documentation are definitive.
For further specifications, see WIKA data sheet PE 81.60.

Specifications		
Measuring range	→ See product label	
Maximum working pressure	→ Corresponds to the upper measuring range value/measuring range full scale value	
Overpressure limit	The overpressure limit is based on the measuring range. Depending on the selected process connection and sealing, restrictions in overpressure limit can result.	
bar	Measuring ranges ≤ 0.1 bar	0.2 bar
	Measuring ranges ≤ 0.4 bar	1 bar
	Measuring ranges < 1.6 bar	3 bar
	Measuring ranges ≥ 1.6 bar	2 times
	Measuring range 1,000 bar	1.43 times
bar abs.	Measuring ranges ≤ 0.4 bar abs.	1 bar abs.
	Measuring ranges < 1.6 bar abs.	3 bar abs.
	Measuring ranges ≥ 1.6 bar abs.	2 times
psi	Measuring ranges ≤ 1 psi	3 psi
	Measuring ranges ≤ 5 psi	14.5 psi
	Measuring ranges < 25 psi	45 psi
	Measuring ranges ≥ 25 psi	2 times
	Measuring ranges 160 psi, 1,000 psi, 1,500 psi and 10,000 psi	1.7 times
	Measuring range 15,000 psi	1.43 times

11218720.17 06/2023 EN/DE/FR/ES

8. Specifications

Specifications		
psi abs.	Measuring ranges ≤ 5 psi abs.	14.5 psi abs.
	Measuring ranges < 25 psi abs.	45 psi abs.
	Measuring ranges ≥ 25 psi abs.	2 times
inWC	Measuring ranges ≤ 40 inWC	80 inWC
	Measuring ranges ≤ 200 inWC	400 inWC
	Measuring ranges ≤ 400 inWC	1,200 inWC
inWC abs.	Measuring ranges ≤ 200 inWC abs.	400 inWC abs.
	Measuring ranges ≤ 400 inWC abs.	1,200 inWC abs.
Max. measured error per IEC 61298-2		
Measuring range ≥ 0.6 bar [≥ 8.7 psi]	≤ ±1 % of span	≤ ±0.5 % of span
Measuring range ≥ 0.4 bar [≥ 5.8 psi]	≤ ±1.2 % of span	≤ ±0.7 % of span
Measuring range ≥ 0.25 bar [≥ 3.6 psi]	≤ ±1.3 % of span	≤ ±0.8 % of span
Measuring range ≥ 0.16 bar [≥ 2.3 psi]	≤ ±1.5 % of span	≤ ±1 % of span
Measuring range ≥ 0.1 bar [≥ 1.45 psi]	≤ ±1.8 % of span	-
Measuring range ≥ 0.05 bar [≥ 0.73 psi]	≤ ±2.4 % of span	-
Temperature error at 0 ... 80 °C [32 ... 176 °F]		
Typical	≤ ±1 % of span	
Maximum	■ ≤ ±2.5 % of span ■ ≤ ±1.5 % of span on request	
Additional zero point error depending on the mounting position for measuring ranges ≤ 1 bar [15 psi]		
Mounting position 180°, vertical, top process connection	≤ 1 mbar [≤ 0.015 psi]	
Mounting position 90°, horizontal	≤ 0.6 mbar [≤ 0.009 psi]	
Vacuum resistance	Yes (restriction with measuring ranges ≤ 0.1 bar [≤ 1 psi, ≤ 40 inWC]: -0.2 bar [-3 psi, -80 inWC])	

EN

11218720.17 06/2023 EN/DE/FR/ES

8. Specifications

Specifications		
Output signal	→ See product label	
Auxiliary power	→ See product label	
Current supply	→ See product label	
Settling time per IEC 61298-2	Measuring range ≥ 0.4 bar [≥ 5.8 psi]	< 1 ms [1)]
	Measuring range < 0.4 bar [< 5.8 psi]	< 1 min
Switch-on time	Measuring range ≥ 0.4 bar [≥ 5.8 psi]	< 15 ms
	Measuring range < 0.4 bar [< 5.8 psi]	< 1 min
Pin assignment	→ See product label	
Short-circuit resistance	S+ vs. U-	
Reverse polarity protection	U+ vs. U- No reverse polarity protection with ratiometric output signal	
Insulation voltage	DC 500 V	
Material (wetted)	< 10 bar [150 psi]	Stainless steel 316L
	≥ 10 bar [150 psi]	Stainless steel 316L and PH grade steel
	≤ 25 bar abs. [400 psi abs.]	Stainless steel 316L
Medium temperature limit	→ See order documentation or identification link per IEC 61406-1	
Ambient temperature limit	→ See order documentation or identification link per IEC 61406-1	
Storage temperature limit	-40 ... +70 °C [-40 ... +158 °F]	
Relative humidity	45 ... 75 % relative humidity (non-condensing)	
Max. permissible altitude	Above 2,000 m above sea level	
Pollution degree	2	
Overvoltage category	I	
Service life	Measuring range ≥ 600 bar [≥ 8,700 psi]	10 million load cycles
	Measuring range > 0.1 bar [> 1.45 psi]	100 million load cycles
	Measuring range ≤ 0.1 bar [≤ 1.45 psi]	10 million load cycles

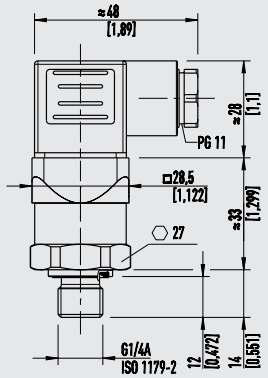
1) < 300 ms with DNV approval and measuring range ≥ 0.4 bar [≥ 5.8 psi] ... ≤ 0.6 bar [≤ 8.7psi]

11218720.17 06/2023 EN/DE/FR/ES

8. Specifications

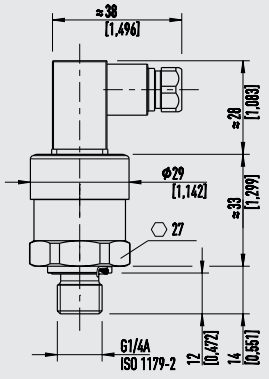
Dimensions in mm [in]

With angular connector form A



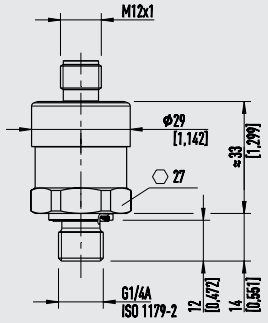
Weight: approx. 80 g [0.18 lb]

With angular connector form C



Weight: approx. 80 g [0.18 lb]

With circular connector M12 x 1



Weight: approx. 80 g [0.18 lb]

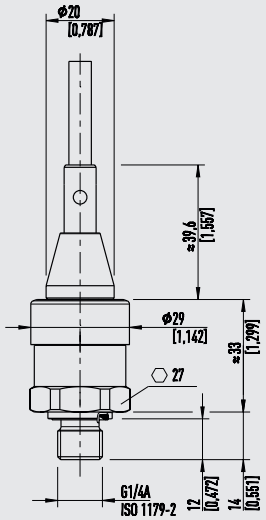
EN

11218720.17 06/2023 EN/DE/FR/ES

8. Specifications

EN

With standard cable outlet, unshielded

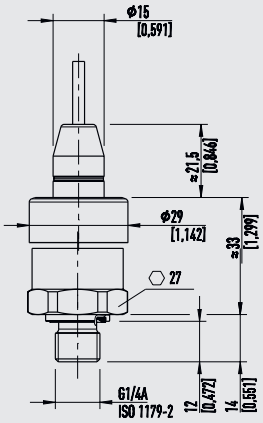


Weight: approx. 80 g [0.18 lb]

11218720.17 06/2023 EN/DE/FR/ES

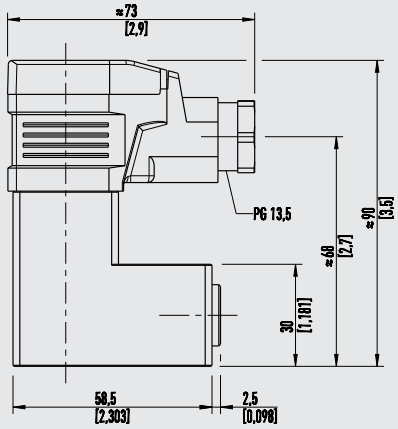
8. Specifications

With cable outlet, OEM version, unshielded



Weight: approx. 80 g [0.18 lb]

With angular connector form A and flange connection



Weight: approx. 350 g [0.77 lb]

EN

11218720.17 06/2023 EN/DE/FR/ES