Knick

User Manual

SensoGate WA132

Retractable Fitting

Read before installation.
Keep for future use.

www.knick-international.com

Supplemental Directives

READ AND SAVE THIS DOCUMENT FOR FUTURE REFERENCE. BEFORE ATTEMPTING TO ASSEMBLE, INSTALL, OPERATE OR MAINTAIN THE PRODUCT, PLEASE ENSURE A COMPLETE UNDERSTANDING OF THE INSTRUCTIONS AND RISKS DESCRIBED HEREIN. ALWAYS OBSERVE ALL SAFETY INFORMATION. FAILURE TO COMPLY WITH INSTRUCTIONS IN THIS DOCUMENT COULD RESULT IN SERIOUS INJURY AND/OR PROPERTY DAMAGE. THIS DOCUMENT IS SUBJECT TO CHANGE WITHOUT NOTICE.

These supplemental directives explain how safety information is laid out in this document and what content it covers.

Safety Chapter

This document's safety chapter is designed to give the reader a basic understanding of safety. It illustrates general hazards and gives strategies on how to avoid them.

Warnings

This document uses the following warnings to indicate hazardous situations:

Symbol	Category	Meaning	Remark
⚠	**WARNING**	Designates a situation that can lead to death or serious (irreversible) injury.	The warnings contain information on how to avoid the hazard.
⚠	**CAUTION**	Designates a situation that can lead to slight or moderate (reversible) injury.	
None	**NOTICE**	Designates a situation that can lead to property or environmental damage.	

Symbols Used in this Document

Symbol	Meaning
→	Reference to additional information
✓	Interim or final result in instructions for action
▶	Sequence of figures attached to an instruction for action
①	Item number in a figure
(1)	Item number in text

Table of Contents

1 Safety

This document contains important instructions for the use of the product. Always follow all instructions and operate the product with caution. If you have any questions, please contact Knick Elektronische Messgeräte GmbH & Co. KG (hereinafter sometimes referred to as "Knick") using the information provided on the back page of this document.

1.1 Intended Use

The SensoGate WA132 (the "product") is a retractable fitting for installation in boilers, tanks, and pipes. The product is used to mount a sensor for measuring process parameters. The sensor is immersed in the process medium by the SensoGate WA132. The SensoGate WA132 is pneumatically operated.

Cleaning, calibration, or sensor replacement under process conditions by the customer (hereinafter sometimes referred to as the "operating company") may be conducted, subject to the requirements set forth herein, by placing the product into the service position (SERVICE limit position).

If the product is used with any product or part not authorized by Knick, the operating company assumes all risks and liabilities related thereto.

The SensoGate WA132 is suitable for the following sensor types:

Solid-electrolyte sensors	Body diameter 12 mm, body length 225 mm, sensor head thread PG 13.5
Liquid-electrolyte sensors	Body diameter 12 mm, body length 250 mm

For further information, refer to the applicable documentation of the sensor manufacturer.

The defined operating conditions must be observed when using this product. → *Specifications, p. 53*

With the modular structure, customers can easily adapt the SensoGate WA132 to changed conditions. → *Permissible Changes, p. 18*

USE CAUTION AT ALL TIMES WHEN INSTALLING, USING, MAINTAINING OR OTHERWISE INTERACTING WITH THE PRODUCT. ANY USE OF THE PRODUCT EXCEPT AS SET FORTH HEREIN IS PROHIBITED, AND MAY RESULT IN SERIOUS INJURY OR DEATH, AS WELL AS DAMAGE TO PROPERTY. THE OPERATING COMPANY SHALL BE SOLELY RESPONSIBLE FOR ANY DAMAGES RESULTING FROM OR ARISING OUT OF AN UNINTENDED USE OF THE PRODUCT.

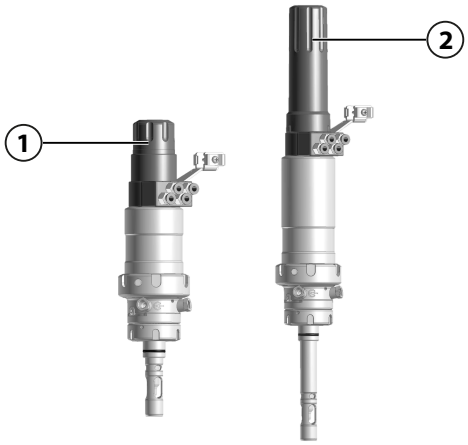
The SensoGate WA132-X version is certified for operation in hazardous locations. → *Operation in Explosive Atmospheres, p. 8*

1.2 Personnel Requirements

The operating company shall ensure that any personnel using or otherwise interacting with the product is adequately trained and has been properly instructed.

The operating company shall comply and cause its personnel to comply with all applicable laws, regulations, codes, ordinances, and relevant industry qualification standards related to product. Failure to comply with the foregoing shall constitute a violation of operating company's obligations concerning the product, including but not limited to an unintended use as described in this document.

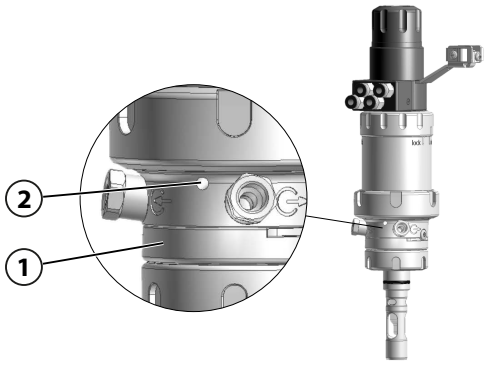
1.3 Safeguards



Solid Electrolyte Sensor Remove Guard

For versions of SensoGate WA132 for solid electrolyte sensors, sensors can only be removed in the service position (SERVICE limit position).

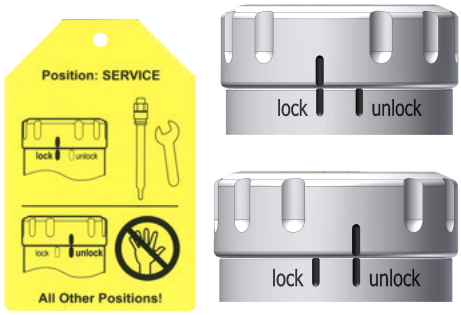
In the process position (PROCESS limit position), the sensor is in the protection sleeve **(1)** or the extension **(2)** and is not accessible.



Leakage Bores

The calibration chamber **(1)** is provided with three radial leakage bores **(2)**.

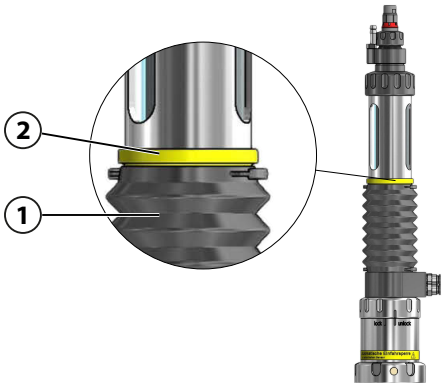
Process medium escaping from the leakage bores **(2)** is indicative of damage to the calibration chamber's O-rings. This damage can be detected and repaired.



SensoLock Locking

The SensoLock immersion lock prevents the SensoGate WA132 from accidentally moving into the process position (PROCESS limit position).

In the service position (SERVICE limit position), manually setting the SensoLock ring to "lock" locks the SensoGate WA132 and prevents it from moving into the process position (PROCESS limit position).

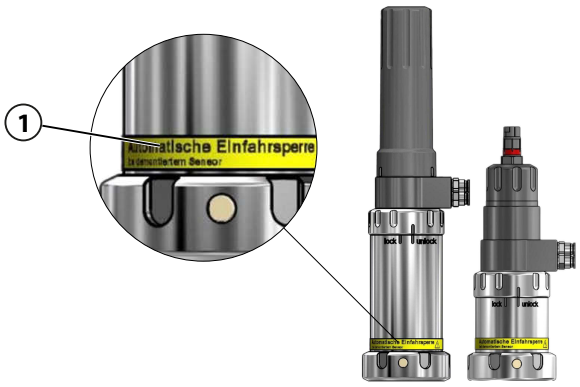


Immersion Lock Without a Mounted Liquid-Electrolyte Sensor

The safeguard is only available with special version V.
→ *Product Code, p. 12*

The immersion lock can be seen at the yellow indicator ring **(2)** above the bellows **(1)**. If the yellow indicator ring **(2)** is missing, the safeguard function is not available.

A mechanical lock prevents the SensoGate WA132 without a mounted liquid-electrolyte sensor from being moved into the process position (PROCESS limit position).



Immersion Lock Without a Mounted Solid-Electrolyte Sensor

The safeguard is only available with special version W.
→ *Product Code, p. 12*

The immersion lock can be seen at the yellow indicator ring **(1)** on the drive unit of the SensoGate WA132. If the yellow indicator ring **(1)** is missing, the safeguard function is not available.

A mechanical lock prevents the without a mounted solid-electrolyte sensor from being moved into the process position (PROCESS limit position).

The availability of safeguards is in part dependent on the version of the SensoGate WA132.
→ *Product Code, p. 12*

Ambient influences can have a negative effect on the functionality of safeguards (e.g., from components sticking together). → *Residual Risks, p. 7*

1.4 Residual Risks

The product has been developed and manufactured in accordance with generally accepted safety rules and regulations, as well as an internal risk assessment. Despite the foregoing, the product may among others bear the following risks:

Environmental Influences

The effects of moisture, ambient temperature, chemicals, and corrosion can negatively impact the safe operation of the product.

Please observe the following instructions:

- SensoGate WA132 may only be operated in compliance with the specified operating conditions.
  → *Specifications, p. 53*
- If possible, install the product inside a protected area of the plant. Alternatively, take appropriate measures to protect the SensoGate WA132 (e.g., install ZU0759 protective cap).
  → *Accessories, p. 47*
- If using aggressive chemical process media, adjust the inspection and maintenance intervals accordingly. → *Inspection and Maintenance Intervals, p. 33*
- Adhering and sticky process media can impact the functionality of the SensoGate WA132 (e.g., by causing components to stick together). Adjust the inspection and maintenance intervals accordingly. → *Inspection and Maintenance Intervals, p. 33*

Accidental Loosening of the Process Connection

Movement of the sensor into the SERVICE/PROCESS limit positions is triggered on the SensoGate WA132 by the pressurization of the control or process air.

Some versions of the SensoGate WA132 are screwed to process connections with a thread or secured with coupling nuts. Travel movements or process-related vibrations may cause the process connection to accidentally come loose from the process or a coupling nut. Pressurized process medium may escape.

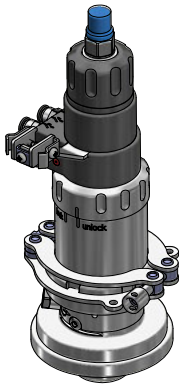
Use of an appropriate retainer clamp or locking clamp is strongly recommended.
→ *Safety Accessories, p. 8*

Operating companies operate the SensoGate WA132 without a retainer clamp or locking clamp at their own risk. In this case, the operating company must implement measures that exclude the possibility of accidental loosening of the coupling nut of the screw joint.

1.5 Safety Accessories

To increase safety, specially developed accessories are available. → *Accessories, p. 47*

Note: We urgently recommend using the safety accessories.



ZU1138 Retainer Clamp for SensoGate Retractable Fitting

The accessory prevents the screw joint between the retractable fitting's drive unit and the process connection from accidentally coming loose.

The retainer clamp wires connect the SensoGate WA132's drive unit with the coupling nut. The locking lugs on the retainer clamp engage in the grooves of the coupling nut (form-fit) and secure the screw joint.

1.6 Hazardous Substances

IN THE EVENT OF ANY CONTACT WITH HAZARDOUS SUBSTANCES OR OTHER INJURY HEREUNDER, SEEK IMMEDIATE MEDICAL ATTENTION OR FOLLOW APPLICABLE PROCEDURES TO ADDRESS HEALTH AND SAFETY OF PERSONNEL. FAILURE TO SEEK IMMEDIATE MEDICAL ATTENTION MAY RESULT IN SERIOUS INJURY OR DEATH.

In certain situations (e.g., sensor replacement or corrective maintenance), personnel may come into contact with the following hazardous substances:

- Process medium
- Calibration or cleaning medium
- Lubricant

The operating company is responsible for conducting a job hazard analysis.

See the relevant manufacturers' safety datasheets for hazard and safety instructions on handling hazardous substances.

1.7 Operation in Explosive Atmospheres

SensoGate WA132-X is certified for operation in hazardous locations.

- EU Type Examination Certificate KEMA 04ATEX4035X
- IECEx Certificate of Conformity IECEx DEK 23.0051X

The conditions for installation and operation in hazardous locations can be found on the corresponding certificates.

Exceeding the standardized atmospheric conditions within the manufacturer's specifications, e.g., with regard to the ambient temperature and pressure, does not endanger the retractable fitting's durability. → *Specifications, p. 53*

Related certificates are included in the product's scope of delivery and are available at www.knick-international.com in the current version.

Observe all applicable local and national codes and standards for the installation of equipment in explosive atmospheres. For further guidance, consult the following:

- IEC 60079-14
- EU directives 2014/34/EU and 1999/92/EC (ATEX)

1.7.1 Possible Ignition Hazards During Installation and Maintenance

To avoid mechanically generated sparks, handle the SensoGate WA132-X with care and take suitable protective action, e.g., use covers and pads.

The metallic parts of the SensoGate WA132-X must be connected to the plant's equipotential bonding system using the metallic process connection and the grounding connection provided for that purpose.

When components are replaced with genuine Knick spare parts made of other materials (e.g., O-rings), the information on the nameplate may then deviate from the actual version of the SensoGate WA132-X. The operating company must assess and document the changes.
→ *Nameplates, p. 13*

Electrostatic Charging

The drive unit of specific versions of the SensoGate WA132-X contains housing components made of non-conductive plastic. Due to their surface, the housing components may build up an electrostatic charge. To prevent this charge from becoming an effective ignition source in Zone 0, ensure that the following conditions are met:

- There is no risk of highly efficient charge-generating mechanisms.
- Non-metallic components are cleaned with a moist cloth only.

Mechanically Generated Sparks

Single impacts on metal parts or collisions between metal parts of the SensoGate WA132-X are not a potential ignition source if the following conditions are met:

- Possible impact velocity is less than 1 m/s.
- Possible impact energy is less than 500 J.

If these conditions cannot be ensured, the operating company must reassess single impacts on metal parts or collisions between metal parts as potential sources of ignition. The operating company must implement suitable risk minimization measures, e.g., by ensuring a non-explosive atmosphere.

1.7.2 Possible Ignition Hazards During Operation

When using non-water-based cleaning, rinsing, or calibration media with a low conductivity of less than 1 nS/m, electrostatic charging of internal, conductive components may occur. The operating company must assess the associated risks and take appropriate action.

The sensors that are used must be approved for operation in hazardous locations. Further information can be found in the sensor manufacturer's documentation.

Electrostatic Charging

The wetted components of the SensoGate WA132-X process unit are made of non-conductive PTFE plastic. The components can build up an electrostatic charge. To prevent this charge from becoming an effective ignition source, ensure that the following conditions are met:

- Efficient charge generating mechanisms are excluded
- Process media are grounded and have a minimum conductivity of 10 nS/cm

If these conditions cannot be ensured, operation in Zone 0 and Zone 1 is not permitted.

1.8 Safety Training

Upon request, Knick Elektronische Messgeräte GmbH & Co. KG will provide safety briefings and product training during initial commissioning of the product. More information is available from the relevant local contacts.

1.9 Maintenance and Spare Parts

Preventive Maintenance

Preventive maintenance can keep the product in good condition and minimize downtimes. Knick provides recommended inspection and maintenance intervals. → *Maintenance, p. 33*

Lubricants

Only use lubricants approved by Knick. Special applications or upgrades to special lubricants are available on request. Usage of any other lubricants shall constitute an unintended use of the product.
→ *Maintenance, p. 33*

Tools and Mounting Aids

Special and accessory tools help maintenance personnel to replace components and wear parts safely and professionally. → *Tools, p. 48*

Spare Parts

For professional corrective maintenance of the product, only use Knick genuine spare parts. Usage of any other spare parts shall constitute an unintended use of the product.
→ *Spare Parts, p. 47*

Repair Service

The Knick Repair Service offers professional corrective maintenance for the product to the original quality. Upon request, a replacement unit can be obtained for the period of the repair.

Further information can be found at www.knick-international.com.

2 Product

2.1 Package Contents

- SensoGate WA132 in the version ordered
- User Manual
- As applicable, supplementary datasheet for special versions[1)]
- EU Declaration of Conformity[2)]
- EU Type Examination Certificate[2)]

2.2 Product Identification

The various versions of the SensoGate WA132 product are coded in a model designation.

The model designation is stated on the nameplate, the delivery note, and the product packaging.
→ *Nameplates, p. 13*

2.2.1 Model Designation Example

Model Designation		**WA132**	**–**	**X**	**0**	**F**	**R**	**T**	**A**	**A**	**C**	**–**	**0**	**0**	**1**
Explosion protection	ATEX Zone 0			**X**								**–**			
Sensor	Sensor Ø12 mm with PG13.5				**0**							**–**			
Seal material	FKM - FDA					**F**						**–**			
Wetted materials [3)]	PTFE / PTFE / PTFE						**R**					**–**			
Process connections	Fitting DIN 3237-2, PN16, DN 40							**T**	**A**			**–**			
Immersion depth	Short									**A**		**–**			
Connection	PEEK media connection with an integrated connection for an additional medium										**C**	**–**			
Special version	Equipment with special grease (provided by customer)											**–**	**0**	**0**	**1**

1) Supplied depending on the ordered version of the SensoGate WA132. → *Product Code, p. 12*

2) Only for versions certified for operation in hazardous locations.

3) Material combinations: process-wetted part of calibration chamber / rinse-wetted part of calibration chamber / immersion tube

2.2.2 Product Code

Basic Unit		**WA132**	–	_	_	_	_	_	_	_	–	_	_	_
Explosion protection	ATEX Zone 0			**X**							–			
	Without			**N**							–			
Sensor	Sensor Ø12 mm with PG13.5				**0**						–			
	Ø12 mm pH sensor with compressed air supply				**1**						–			
Seal material	FKM					**A**					–			
	EPDM					**B**					–			
	EPDM - FDA					**E**					–			
	FKM - FDA					**F**					–			
	FFKM - FDA					**H**					–			
	FFKM					**K**					–			
Wetted materials [1]	PTFE / PTFE / PTFE						**R**				–			
Process connections	Loose flange, 1.4571, PN10/16, DN 32							**B**	**0**		–			
	Loose flange, 1.4571, PN10/16, DN 40							**B**	**A**		–			
	Loose flange, 1.4571, PN10/16, DN 50							**B**	**1**		–			
	Loose flange, 1.4571, PN10/16, DN 65							**B**	**2**		–			
	Loose flange, 1.4571, PN10/16, DN 80							**B**	**3**		–			
	Loose flange, 1.4571, PN10/16, DN 100							**B**	**4**		–			
	Loose flange, ANSI 316, 150 lbs, 2”							**D**	**1**		–			
	Loose flange, ANSI 316, 150 lbs, 2.5”							**D**	**2**		–			
	Loose flange, ANSI 316, 150 lbs, 3”							**D**	**3**		–			
	Loose flange, ANSI 316, 150 lbs, 3.5”							**D**	**4**		–			
	Fitting DIN 3237-2, PN16, DN 40							**T**	**A**		–			
	Fitting DIN 3237-2, PN16, DN 50							**T**	**1**		–			
	Loose flange, 1.4571, DN 40, for flat flanges made from glass							**U**	**A**		–			
	Loose flange, 1.4571, DN 50, for flat flanges made from glass							**U**	**1**		–			
Immersion depth	Short									**A**	–			
	Long									**B**	–			
Connection	PP media connection										**A** –			
	PEEK media connection										**B** –			
	PEEK media connection with an integrated connection for an additional medium										**C** –			
Special version	Without										–	**0**	**0**	**0**
	Equipment with special grease (provided by customer)										–	**0**	**0**	**1**
	Customer-specific special datasheet										–	**0**	**0**	**F**
	Immersion lock for fitting without a mounted sensor. For immersion depths A, K, and pH sensor type 1.										–	**0**	**0**	**V**
	Immersion lock for fitting without a mounted sensor. For sensor type 0.										–	**0**	**0**	**W**

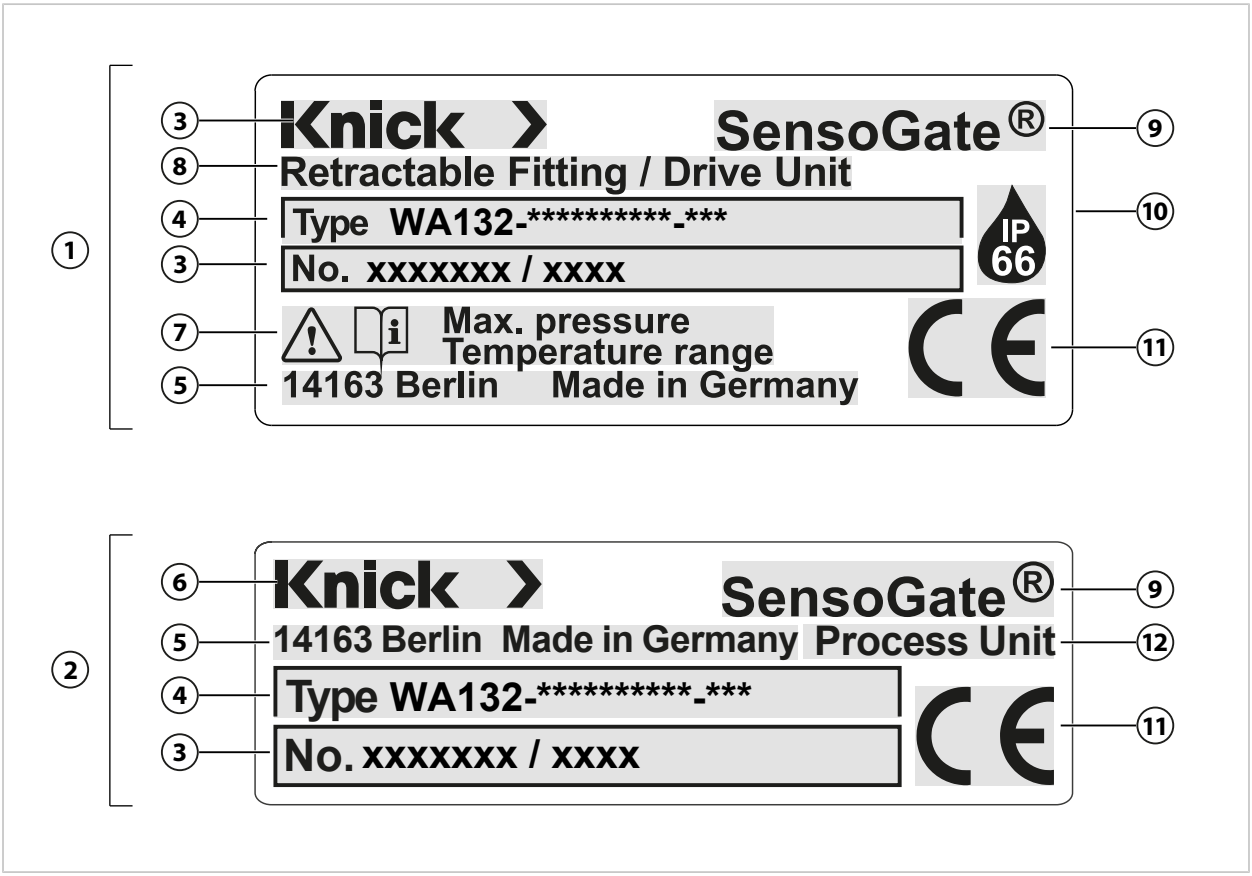
[1] Material combinations: process-wetted part of calibration chamber / rinse-wetted part of calibration chamber / immersion tube

2.3 Nameplates

The SensoGate WA132 is identified by nameplates on the drive unit and the process unit. The information provided on the nameplates varies according to the version of the SensoGate WA132.

Nameplate, Version Without Ex Approval

Note: The figure shows a nameplate for the SensoGate WA132-N version by way of example.



1	Drive unit nameplate	7	Reference to the maximum operating pressure and temperature range [1]
2	Process unit nameplate	8	Product line: Retractable fitting Assembly group: Drive unit
3	Serial number / production year and week YYWW	9	Product family
4	Model designation	10	IP protection
5	Manufacturer address with designation of origin	11	CE mark
6	Manufacturer name	12	Assembly group: Process unit

[1] Further information is available in the → *Safety, p. 5* and → *Specifications, p. 53* chapters.

Nameplate, Version with Ex Approval

Note: The figure shows a nameplate for the SensoGate WA132-X version by way of example.

1	Drive unit nameplate	10	ATEX marking/information on explosion protection
2	Process unit nameplate	11	EU Type Examination Certificate test number
3	Maximum operating pressure and temperature range	12	Serial number / production year and week YYWW
4	Model designation	13	Product line: Retractable fitting Assembly group: Drive unit
5	Manufacturer address with designation of origin	14	Product family
6	Manufacturer	15	IP protection
7	Warning: Risk of electrostatic discharge[1)]	16	CE mark with identification number
8	No self heating/special conditions [1)]	17	Assembly group: Process unit
9	Permitted ambient temperature	18	ATEX specifications of the drive unit

[1)] Additional information can be found in the related EU Type Examination Certificate or in the sections → *Safety, p. 5* and → *Specifications, p. 53*.

2.4 Symbols and Markings

	Special conditions and danger points! Observe the safety information and instructions on safe use of the product as outlined in the product documentation.
	Reminder to read the documentation
	CE mark with identification number[1] of the notified body involved in the production control.
	ATEX marking[1] of the European Union for operation in hazardous locations → *Operation in Explosive Atmospheres, p. 8*
	IP66 protection: The product is dust-tight and offers complete protection against contact as well as protection against strong water jets.
	Symbol to show that the SensoGate WA132 is mechanically locked.
	Symbol to show that the SensoGate WA132 is not mechanically locked.
	Outlet symbol marking the outlet port of the SensoGate WA132

2.5 Design and Function

SensoGate WA132 consists of two main assemblies:

- Drive unit
- Process unit

The drive unit is connected to the process unit with a coupling nut. The drive unit and process unit can be separated. → *Drive Unit: Removal, p. 36*

Various different versions of drive and process unit can be combined. → *Permissible Changes, p. 18*

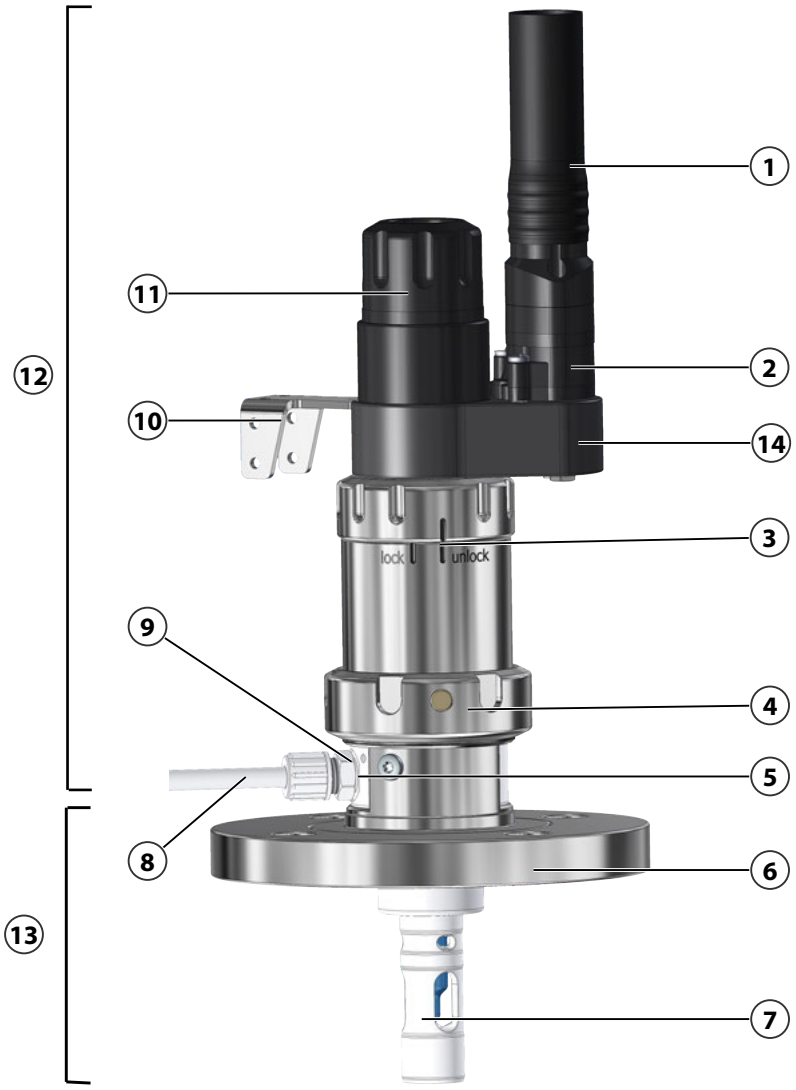
The process connection is used to fasten the SensoGate WA132 to the process port.

The pneumatically operated drive unit moves the SensoGate WA132 into the service position (SERVICE limit position) or the process position (PROCESS limit position).
→ *SERVICE/PROCESS Limit Positions, p. 19*

[1] Dependent on the ordered version → *Product Code, p. 12*

2.5.1 Retractable Fitting

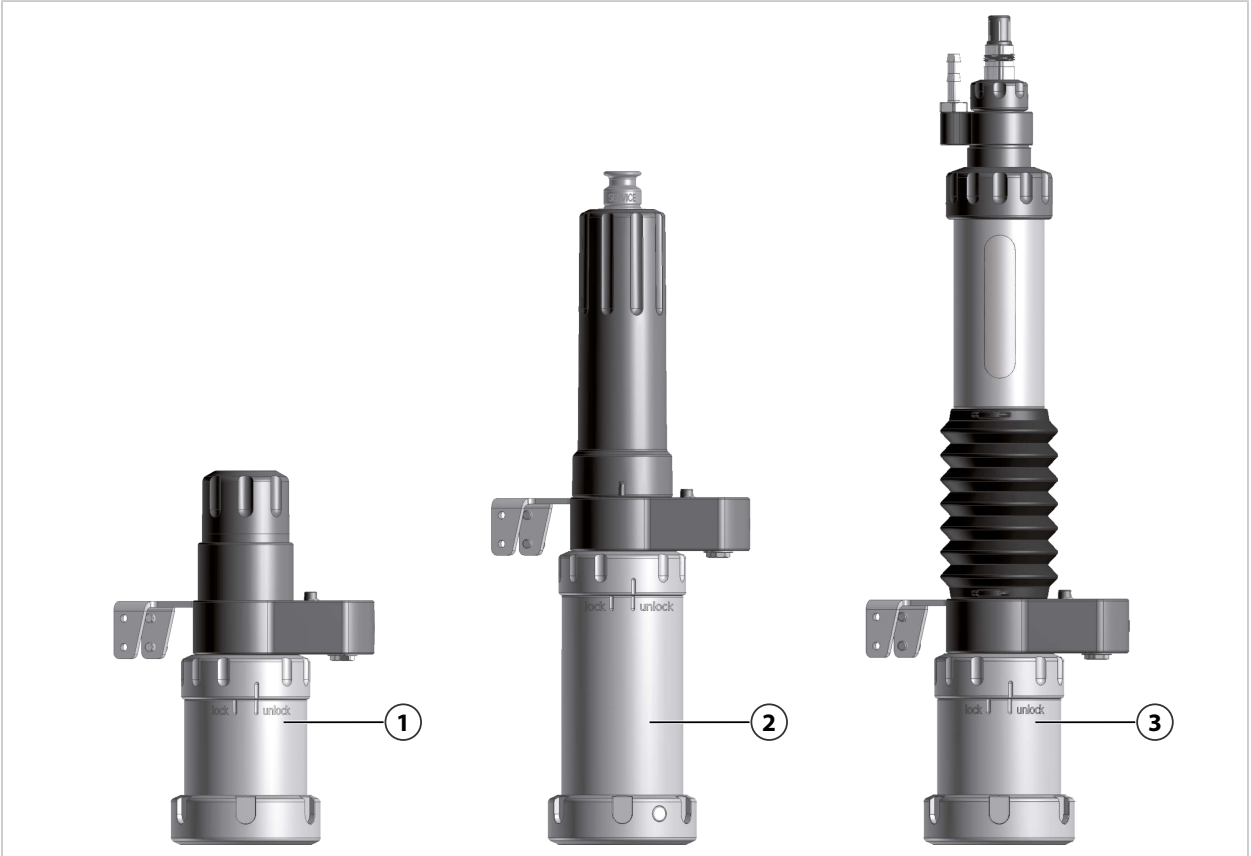
Note: The figure shows an example version of the SensoGate. → *Product Code, p. 12*



1	Media connection for Unical 9000 (not included in package contents)	8	Outlet hose (not included in package contents)
2	Multiplug	9	Outlet port
3	SensoLock	10	Strain relief bracket
4	Coupling nut	11	Sensor holder
5	Calibration chamber	12	Drive unit
6	Process connection	13	Process unit
7	Immersion tube	14	Multiplug connection

2.5.2 Drives and Sensor Holders

Note: The figure shows a selection from the product line. → *Product Code, p. 12*

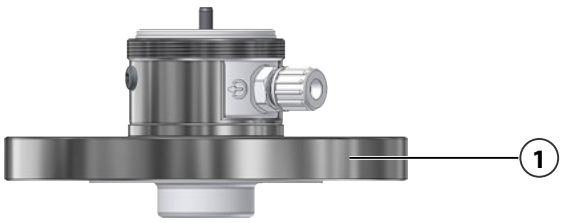


1	Short immersion depth, sensors with solid-electrolyte
2	Long immersion depth, sensors with solid-electrolyte
3	Short immersion depth, sensors with liquid-electrolyte

See also
→ *Drives and Sensor Holders, p. 17*

2.5.3 Process Connections

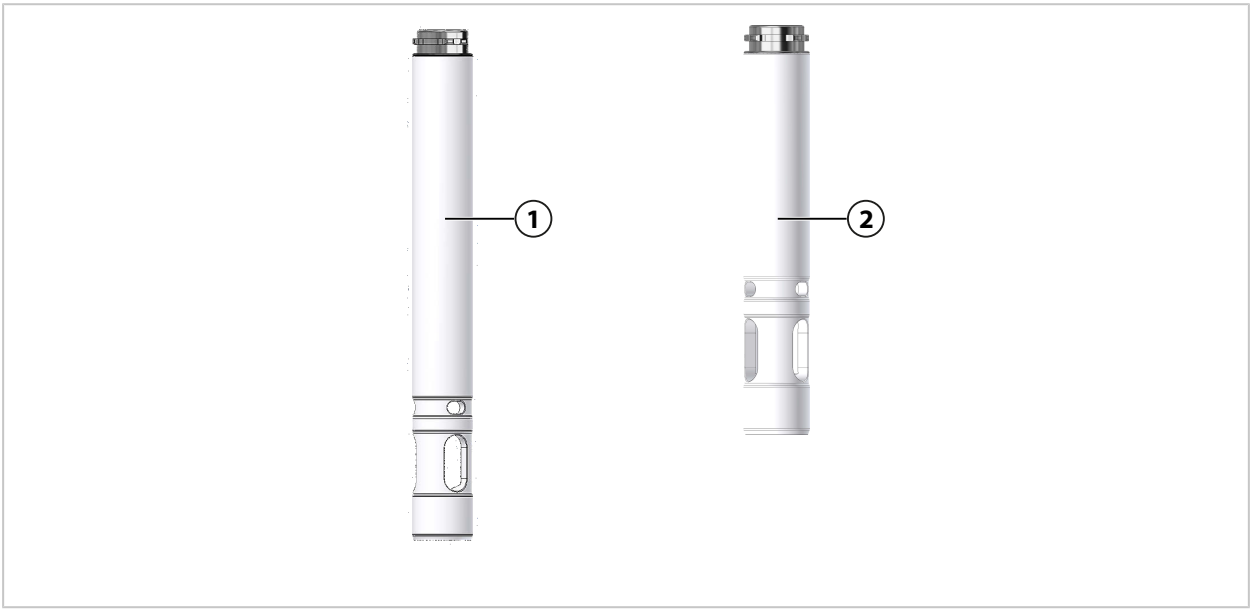
Note: The figure shows a selection from the product line. → *Product Code, p. 12*



1	Flange

2.5.4 Immersion Tubes

Note: The figure shows a selection from the product line. → *Product Code, p. 12*



1 Immersion tube, long (204 mm)
Materials: 1.4571, PTFE

2 Immersion tube, short (149 mm)
Materials: 1.4571, PTFE

See also
→ *Spare Parts, p. 47*

2.6 Permissible Changes

The SensoGate WA132 can be adapted to changed conditions by the customer. Prior to making any changes, contact Knick Elektronische Messgeräte GmbH & Co. KG. The following are examples of possible changes:

- Modification of the sensor holder to fit another sensor type → *Drives and Sensor Holders, p. 17*
- Replacement of process-wetted components (calibration chamber, immersion tube, seals) with other material characteristics → *Maintenance, p. 33*
- Retrofit of safeguards, e.g., “Immersion Lock Without a Mounted Liquid-Electrolyte Sensor” → *Safeguards, p. 6*

Any changes may result in deviations between the information on the nameplate and the actual version of the SensoGate WA132. The operating company must assess and document the changes. In the event of a change to the version, the product must be identified accordingly.

It is recommended that changes to the SensoGate WA132 be carried out by the Knick Repair Service. After making the necessary changes, a functional and pressure test is carried out and, if necessary, a modified nameplate is attached. → *Knick Repair Service, p. 41*

More information on changes can be found in the related supplementary datasheet. Maintenance instructions with detailed instructions for action are available on request.

2.7 SERVICE/PROCESS Limit Positions

2.7.1 Service and Process Position

The SensoGate WA132 can take one of two limit positions (service or process position).

Note: The SensoGate WA132 is only disconnected from the process in the service position (SERVICE limit position). This is *not* the case in any other position, i.e., there remains contact with the process.

Service Position (SERVICE Limit Position)

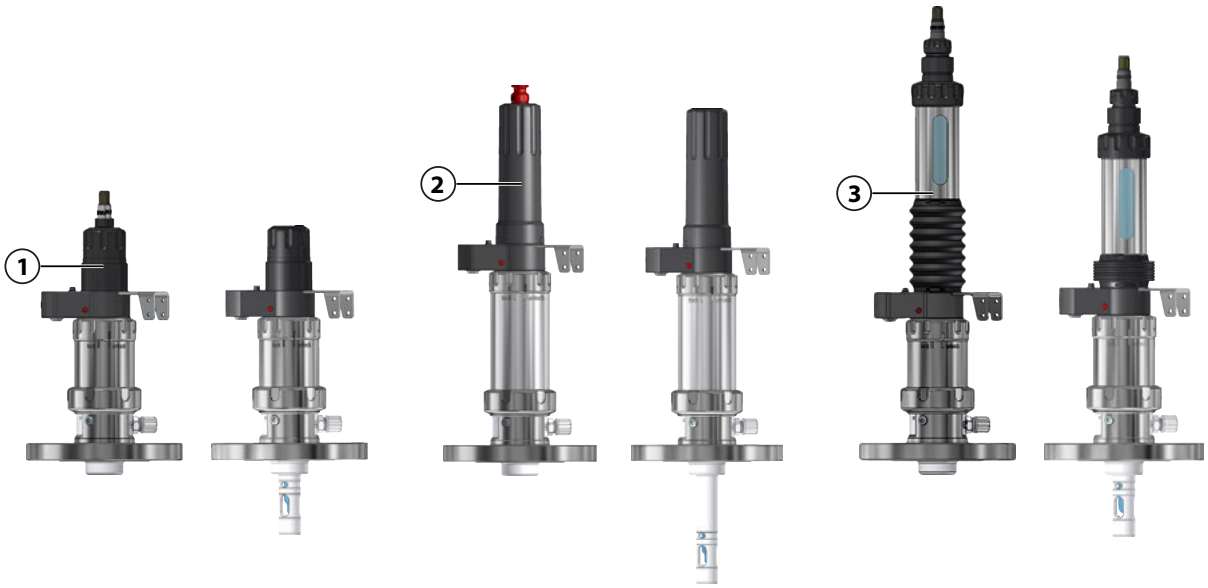
- The sensor does not have contact with the process medium.
- The sensor can be installed or removed and cleaned if necessary in an ongoing process.
- The measuring system can be calibrated and adjusted.
- The limit position can be monitored pneumatically.[1)]

Process Position (PROCESS Limit Position)

- The sensor has contact with the process medium.
- The required process parameters can be measured.
- The limit position can be monitored pneumatically.[1)]

The service position (SERVICE limit position) and process position (PROCESS limit position) are indicated in different ways depending on the version of the SensoGate WA132.

Gel-electrolyte sensor, short immersion depth	Gel-electrolyte sensor, long immersion depth	Liquid-electrolyte sensor, short immersion depth



SERVICE	PROCESS	SERVICE	PROCESS	SERVICE	PROCESS
In the service position, the sensor head **(1)** is visible at the top end of the protection sleeve.		In the service position, the service cap **(2)** is visible at the top end of the extension.		In the service position, the bellows **(3)** is pulled apart.	
In the process position, the sensor head **(1)** is retracted into the protection sleeve.		In the process position, the service cap **(2)** is retracted into the extension.		In the process position, the bellows **(3)** is pressed together.	

[1)] Availability of functions depends on the ordered version. → *Product Code, p. 12*

3 Installation

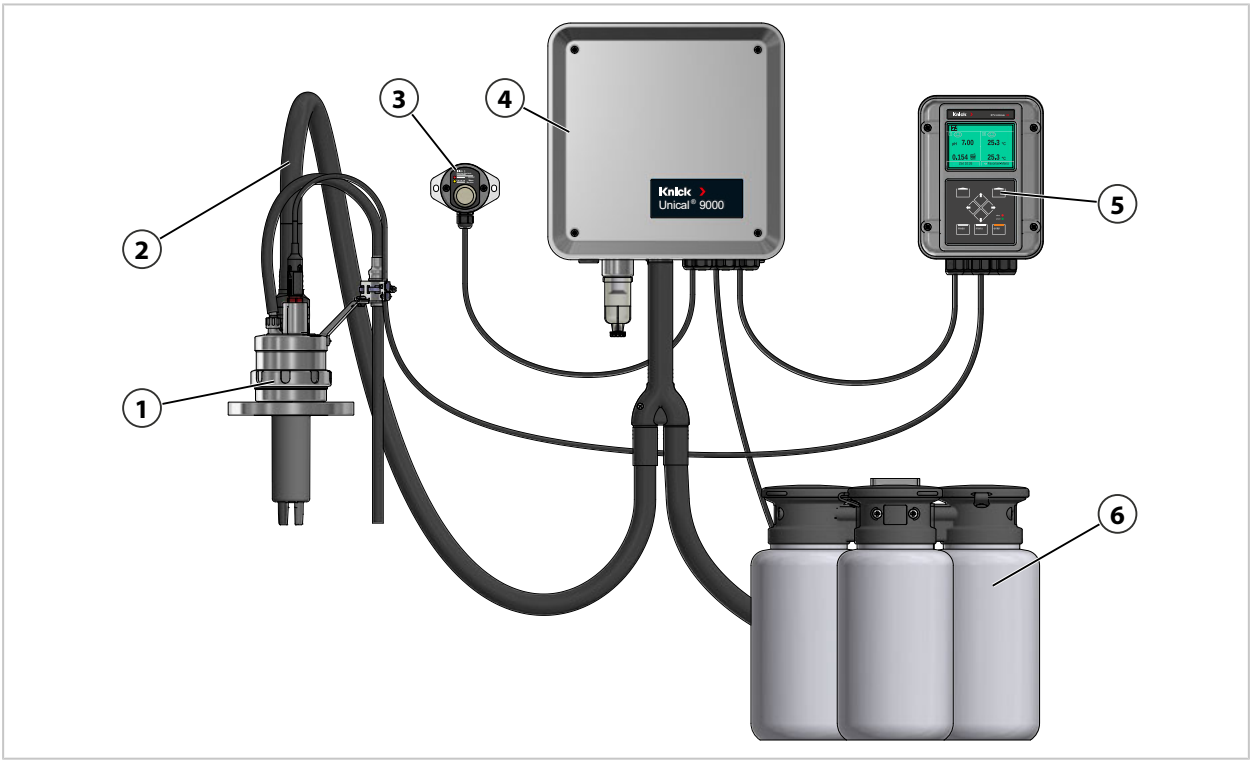
3.1 General Installation Instructions

Process Analysis System: Installation Example

The SensoGate WA132 is designed for operation within a fully automatic Knick process analysis system. The process analysis system may typically comprise the following products:

- Protos industrial transmitter
- Unical 9000 electro-pneumatic controller
- SensoGate WA132 retractable fitting

Note: The figure shows an installation example of a process analysis system from Knick. More information is available on www.knick-international.com.

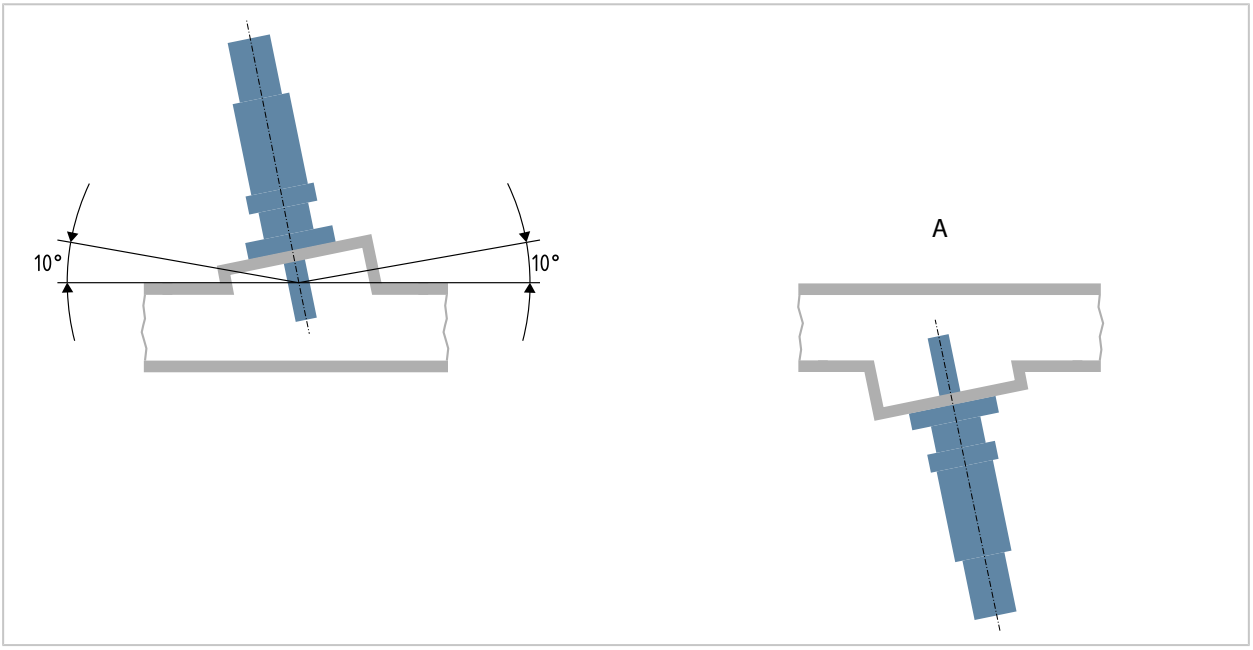


1	Retractable fitting (shown here: Ceramat WA153)	4	Unical 9000 controller
2	Media connection	5	Protos industrial transmitter
3	Service switch	6	Media adapter with metering pumps

Note: The SensoGate WA132 may also be operated without a process analysis system. Accessory ZU0733, ZU0734, or ZU0742 "Adapter for Free Hose Connection" is required for this. The adapter is installed instead of the multiplug with media connection.

3.2 Retractable Fitting: Installation

⚠ WARNING! Risk of explosion from mechanically generated sparks when used in explosive atmospheres. Take appropriate action to prevent mechanically generated sparks. Follow the safety instructions. --- FEHLENDER LINK ---



01. Check the package contents of the SensoGate WA132 for completeness. → *Package Contents, p. 11*
02. Check the SensoGate WA132 for damage.
03. Ensure the required installation clearances for the sensor installation.
    → *Dimension Drawings, p. 49*
    Note: The installation angle of the SensoGate WA132 depends on the sensor type. An installation angle of up to 10° above the horizontal plane is permissible for all sensor types. An installation angle upside down (see view A) is only permitted if using sensors approved for upside-down operation.
04. Fasten the SensoGate WA132 to the process port with the process connection.
05. Optional: When using in hazardous locations, connect the ground connection of the SensoGate WA132 with the equipotential bonding of the system.

See also
→ *Operation in Explosive Atmospheres, p. 8*
→ *Commissioning, p. 25*
→ *Operation in Explosive Atmospheres, p. 8*

3.3 Safety Accessories: Installation

The installation of the safety accessories is described in the associated accessories manuals.
→ *Safety Accessories, p. 8*

Note: We urgently recommend using the safety accessories.

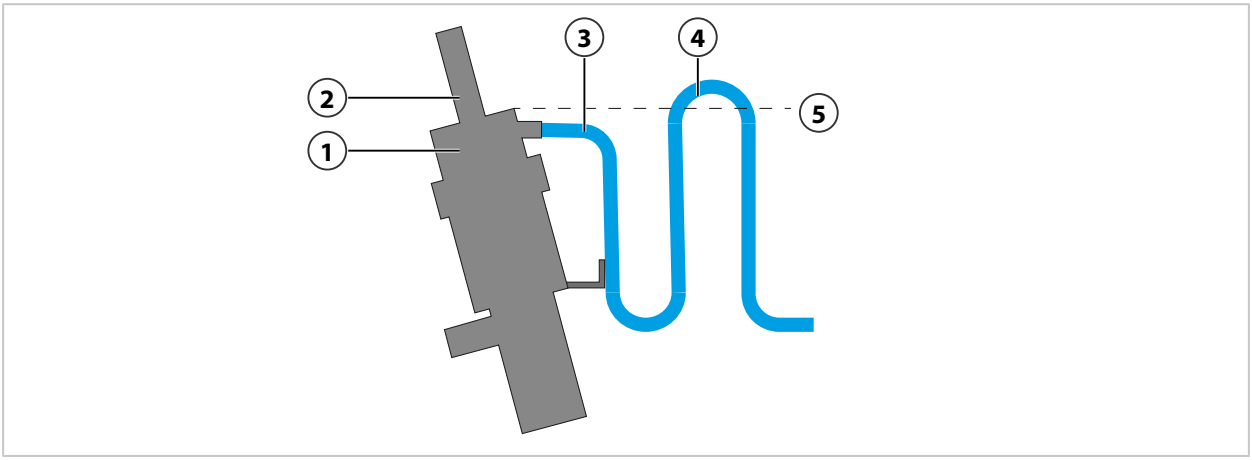
3.4 Outlet Hose: Installation

Note: The outlet is used to discharge rinsing medium and trapped process medium and must not be closed. Installation of the supplied outlet hose is also recommended for versions without a rinse connection. By moving the sensor to the SERVICE/PROCESS limit positions, pressurized process medium can enter the calibration chamber and be compressed when the outlet is closed. This process medium may splash out during sensor replacement.

01. Tightly screw the outlet hose **(3)** to the outlet port **(1)** using the hose screw connection **(2)**.

Upside-Down Installation

If installing the SensoGate WA132 upside down, lay the outlet hose in an arc above the level of the calibration chamber. This prevents gravity from causing the calibration chamber to leak.



1	Calibration chamber	4	Hose arc
2	Sensor	5	Calibration chamber level
3	Outlet hose		

3.5 Media Connection

3.5.1 Media Connection: Installation Instructions

Media can be connected to the SensoGate WA132 in the following ways:

- "Media connection" of the electro-pneumatic controller (operation with process analysis system)
- Accessory ZU0733, ZU0734, or ZU0742 "Adapter for Free Hose Connection" (operation without process analysis system)

"Media Connection" for Operation With Process Analysis System

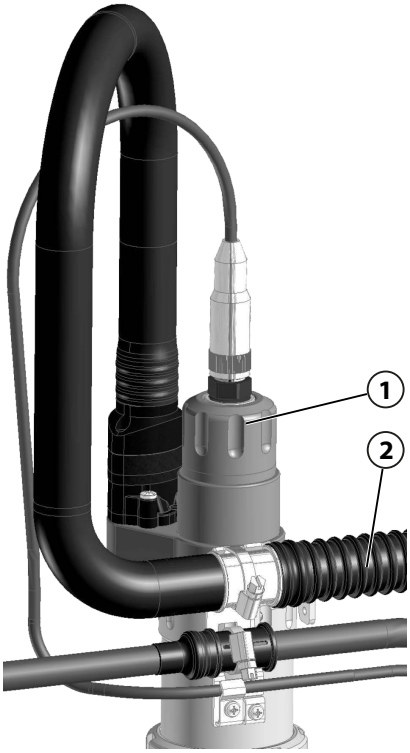
When using a Knick process analysis system, all media cables and the connecting cable for limit signals are combined in one hose, the media connection **(2)**. The media connection is connected to the SensoGate WA132 using a shared connector, the multiplug **(1)**.

The supply cables for the various media are connected to the process analysis system's electro-pneumatic controller. Further information is available in the documentation for the electro-pneumatic controller.

"Adapter for Free Hose Connection" for Operation Without Process Analysis System

To control the SensoGate WA132 without a process analysis system, the media are supplied to the retractable fitting via accessory ZU0733, ZU742, or ZU0734 "Adapter for Free Hose Connection". The accessory is plugged into the media adapter connection.

The supply cables for the various media are connected to accessory ZU0733, ZU0742, or ZU0734, "Adapter for Free Hose Connection" **(3)**. Further information can be found in the accessory documentation. → *Accessories, p. 47*



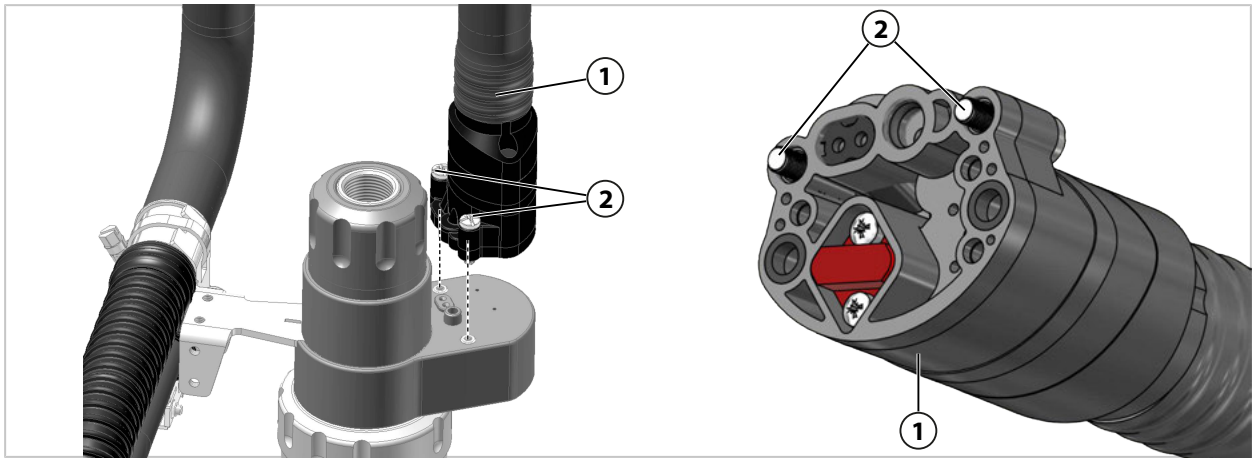
"Media connection" for operation with process analysis system

Accessory ZU0733, ZU0734, ZU0742 "Adapter for Free Hose Connection" for operation without process analysis system

See also

→ *Process Analysis System: Installation Example, p. 20*

3.5.2 Multiplug: Installation



01. Check the gaskets and O-rings of the multiplug **(1)** for correct positioning and damage, and replace them if necessary. → *Troubleshooting, p. 42*
02. Position and connect the multiplug **(1)** to the SensoGate WA132.
03. Fasten the multiplug **(1)** with two screws **(2)**.

4 Commissioning

⚠ WARNING! If the SensoGate WA132 fitting is damaged or improperly installed, process medium, potentially containing hazardous substances, may escape. Follow the safety instructions. → *Safety, p. 5*

Note: Upon request, Knick will provide safety briefings and product training during initial commissioning of the product. More information is available from the relevant local contacts.

01. Install the SensoGate WA132. → *Retractable Fitting: Installation, p. 21*
02. Install the outlet hose. → *Outlet Hose: Installation, p. 22*
03. Install the media connection or the accessory "Adapter for Free Hose Connection". → *Media Connection, p. 23*
04. Mount the sensor. → *Installing and Removing Sensors, p. 26*
05. Ensure that the process connection is securely fastened.
06. Optional: Ensure that installed safety accessories (e.g., ZU0818 retainer clamp) are securely fastened. → *Safety Accessories, p. 8*
07. If using the product in hazardous locations, check that the SensoGate WA132 is correctly connected to the plant's equipotential bonding system. → *Installing and Removing Sensors, p. 26*
08. Set the SensoLock[1)] to "unlock" by rotating the upper coupling nut.
09. Move the SensoGate WA132 into the process position (PROCESS limit position). → *Moving into the Process Position (PROCESS Limit Position), p. 26*
    ✓ Sensor head/service cap is not visible.
10. Move the SensoGate WA132 into the service position (SERVICE limit position). → *Moving into the Service Position (SERVICE Limit Position), p. 26*.
    ✓ Sensor head/service cap visible.
11. Check the SensoGate WA132 for leaks under process conditions.
    Note: Pressure and leak tests must be carried out in accordance with the relevant operating regulations or the operating company's instructions.
    ✓ There are no leaks in the SensoGate WA132 or its connections.

✓ SensoGate WA132 is ready for operation.

1) Availability dependent on the ordered version → *Product Code, p. 12*

5 Operation

5.1 Moving into the Process Position (PROCESS Limit Position)

⚠ WARNING! Process, rinse, or additional media, potentially containing hazardous substances, may escape from the SensoGate WA132. Only move the SensoGate WA132 into the process position (PROCESS limit position) if a sensor is installed. → *Installing and Removing Sensors, p. 26*

⚠ CAUTION! Risk of crushing injuries to hands and fingers. When moving to the limit positions, the SensoGate WA132 with liquid-electrolyte sensor performs a stroke movement (approx. 43 mm). Do not touch the SensoGate WA132 while it is moving to the limit positions.

Note: Depending on the installation of the SensoGate WA132, moving it into the limit positions is triggered differently: industrial transmitters, service switch of the electro-pneumatic controller, process control system (PCS) or ZU0604 "Pneumatic manual control valve".
→ *Process Analysis System: Installation Example, p. 20*

01. Install the sensor. → *Installing and Removing Sensors, p. 26*
02. Move the SensoGate WA132 into the process position (PROCESS limit position).
    ✓ Sensor head/service cap is not visible.

5.2 Moving into the Service Position (SERVICE Limit Position)

⚠ CAUTION! Risk of crushing injuries to hands and fingers. When moving to the limit positions, the SensoGate WA132 with liquid-electrolyte sensor performs a stroke movement (approx. 43 mm). Do not touch the SensoGate WA132 while it is moving to the limit positions.

Note: Depending on the installation of the SensoGate WA132, moving it into the limit positions is triggered differently: industrial transmitters, service switch of the electro-pneumatic controller, process control system (PCS) or ZU0604 "Pneumatic manual control valve".
→ *Process Analysis System: Installation Example, p. 20*

01. Move the SensoGate WA132 into the service position (SERVICE limit position).

✓ The sensor head is visible.

5.3 Installing and Removing Sensors

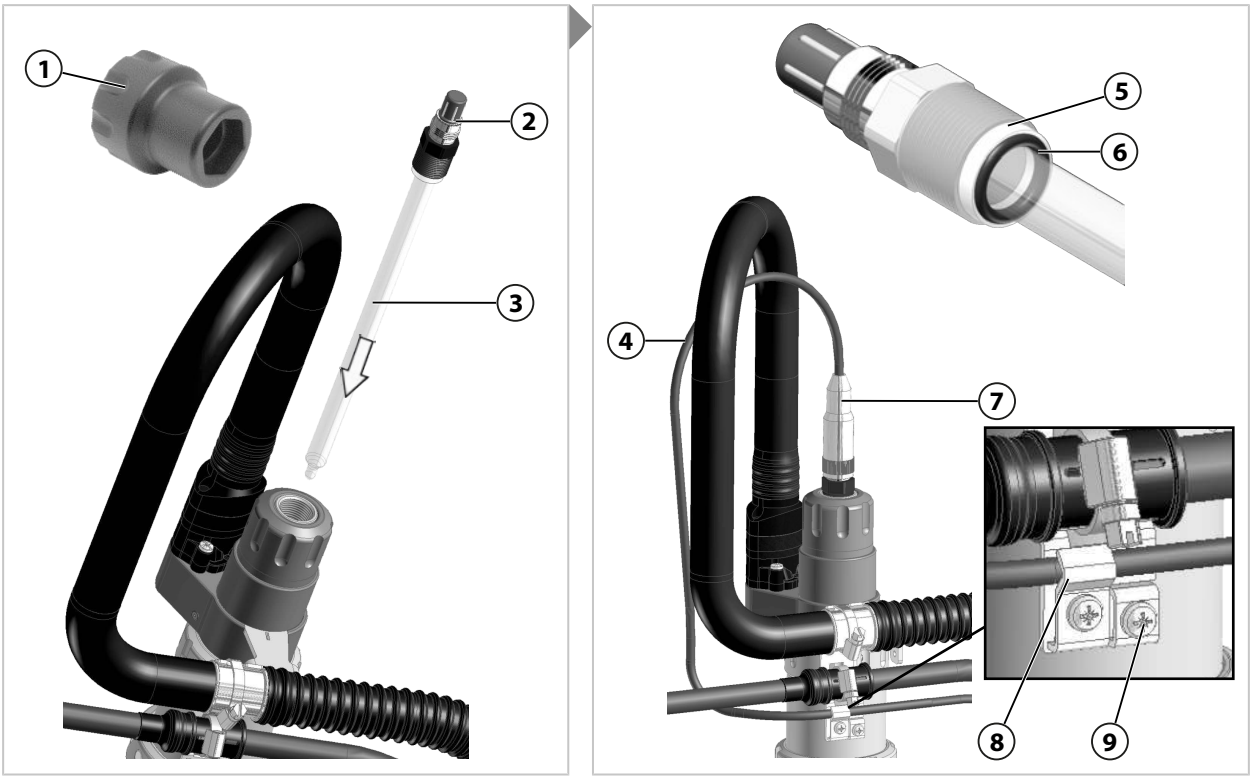
5.3.1 Safety Instructions on Installing and Removing Sensors

⚠ WARNING! Process medium, potentially containing hazardous substances, may escape from the SensoGate WA132. Follow the safety instructions. → *Safety, p. 5*

⚠ CAUTION! Risk of cutting injuries from broken sensor glass. Handle the sensor with care. Follow the safety instructions in the sensor manufacturer's documentation.

Note: The outlet is used to discharge trapped rinse medium and must not be closed. By moving the SensoGate WA132 to the limit positions, pressurized process medium may enter the calibration chamber. When the outlet is closed, this process medium may be compressed and splash out during a sensor replacement. → *Design and Function, p. 15*

5.3.2 Solid-Electrolyte Sensor, Short Immersion Depth: Installation



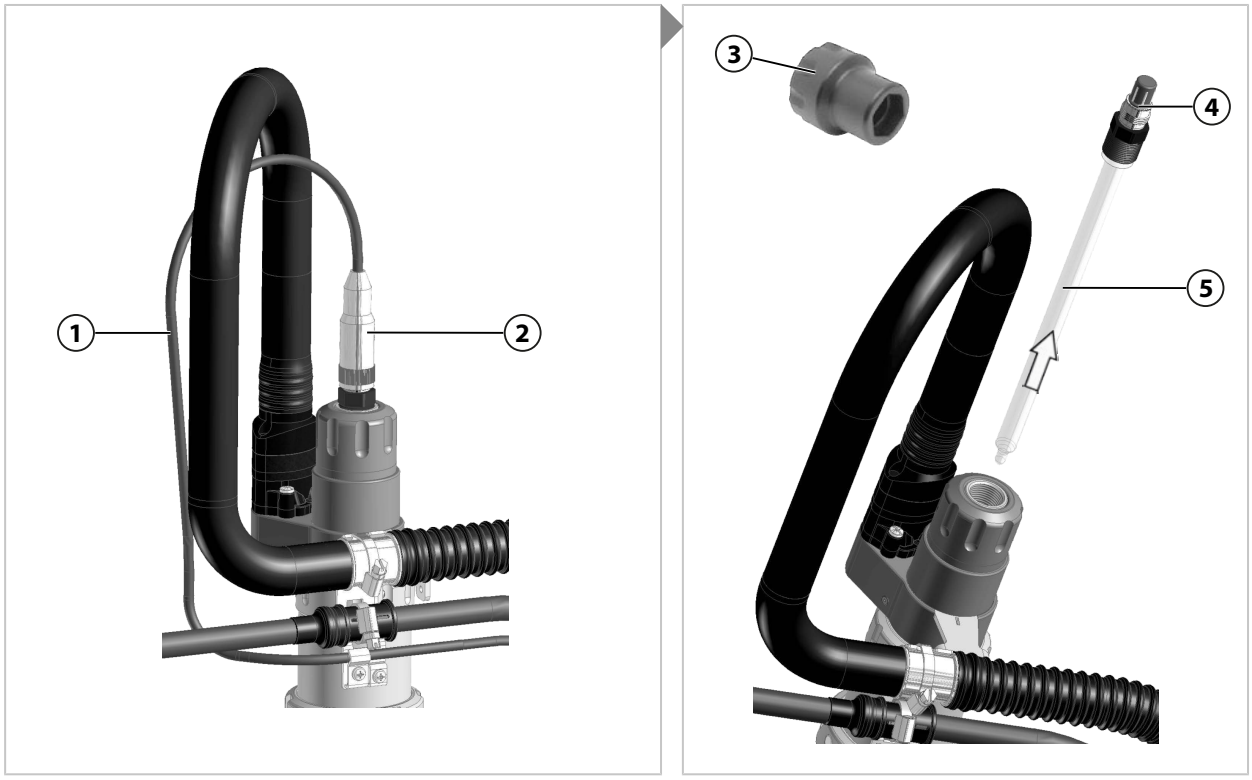
01. Move the SensoGate WA132 into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 26*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 42*
03. Set the SensoLock [1] to "lock" by rotating the upper coupling nut.
04. Check the compression ring **(5)** and the O-ring **(6)** of the sensor **(3)** for correct position and damage; replace if necessary.
05. Insert the sensor **(3)** into the SensoGate WA132.
06. Tighten the sensor **(3)** using a spanning wrench **(1)** to max. 3 Nm (A/F 19). Recommended tool: ZU0647 sensor spanning wrench → *Tools, p. 48*
Note: When tightening the sensor, the spring force of the "Immersion Lock Without a Mounted Solid-Electrolyte Sensor" safeguard must be overcome.
07. Connect the cable socket **(7)** to the sensor head **(2)**.
08. When installing for the first time: Route the sensor cable **(4)** in an arch and fasten it with the clip **(8)**. While doing so, ensure that the sensor cable has sufficient arch length to prevent the SensoGate WA132's lifting movement from being obstructed by the sensor cable.
09. When installing for the first time: Connect the equipotential bonding cable to the clip **(9)**.
10. Optional: Install the ZU0759/1 protective cap. → *Accessories, p. 47*
11. Set the SensoLock[1] to "unlock" by rotating the upper coupling nut.

✓ The sensor is installed.

[1] Availability dependent on the ordered version → *Product Code, p. 12*

5.3.3 Solid-Electrolyte Sensor, Short Immersion Depth: Removal

Note: Rinse the sensor prior to removal in order to prevent entrainment of chemically aggressive process medium in the area of the sensor holders.

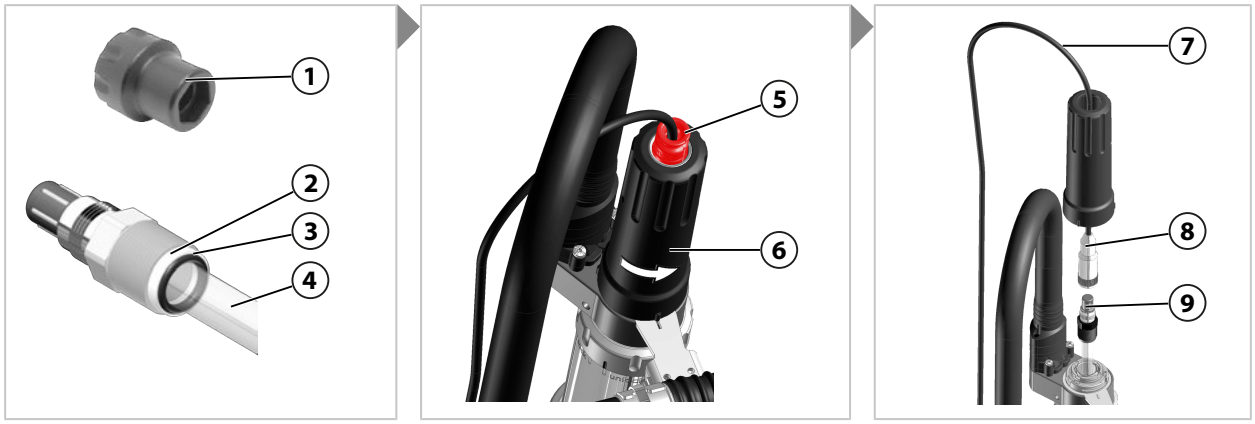


01. Move the SensoGate WA132 into the service position (SERVICE limit position).
    → *Moving into the Service Position (SERVICE Limit Position), p. 26*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 42*
03. Set the SensoLock [1] to "lock" by rotating the upper coupling nut.
04. Optional: Remove the ZU0759 protective cap.
05. Disconnect the cable socket **(2)** of the sensor cable **(1)** from the sensor head **(4)**.
06. Loosen the sensor **(5)** using the spanning wrench **(3)** (A/F 19). Recommended tool: ZU0647 sensor spanning wrench. → *Tools, p. 48*
07. Pull out the sensor **(5)**.

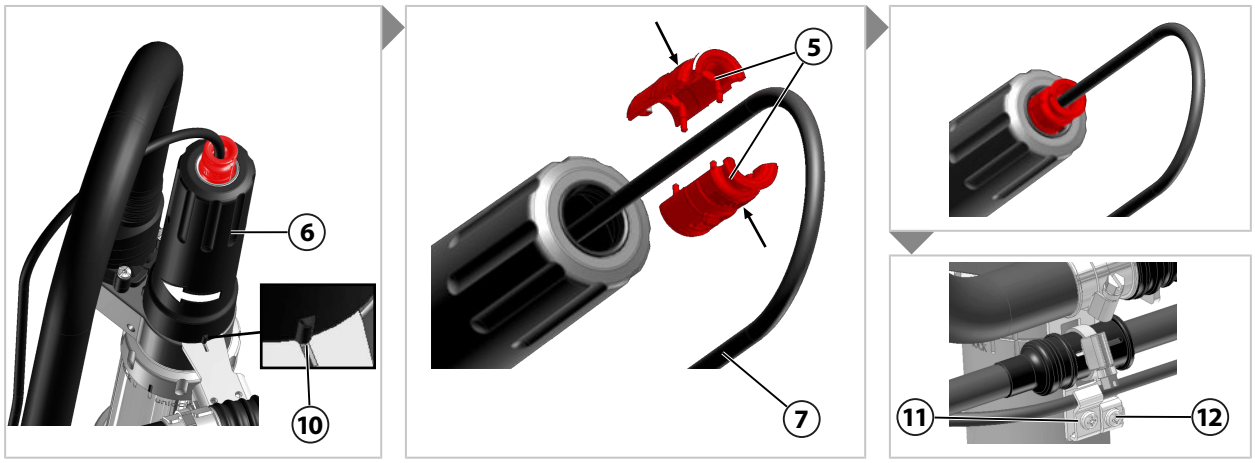
✓ The sensor has been removed.

[1] Availability dependent on the ordered version → *Product Code, p. 12*

5.3.4 Solid-Electrolyte Sensor, Long Immersion Depth: Installation



01. Move the SensoGate WA132 into the service position (SERVICE limit position).
    → *Moving into the Service Position (SERVICE Limit Position), p. 26*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 42*
03. Set the SensoLock [1] to "lock" by rotating the upper coupling nut.
04. Check the compression ring **(2)** and the O-ring **(3)** of the sensor **(4)** for correct position and damage; replace if necessary.
05. Turn the extension **(6)** counterclockwise until the bayonet coupling opens.
06. Remove the extension **(6)**.
07. Insert the sensor **(4)**.
08. Tighten the sensor **(4)** using a spanning wrench **(1)** to max. 3 Nm (A/F 19). Recommended tool: ZU0647 sensor spanning wrench → *Tools, p. 48*
    Note: When tightening the sensor, the spring force of the "Immersion Lock Without a Mounted Solid-Electrolyte Sensor" safeguard must be overcome.
09. When installing for the first time: Remove the two-piece red service cap **(5)** from the extension **(6)**. Retain the service cap **(5)** for later use.
10. When installing for the first time: Guide the cable socket **(8)** through the extension **(6)**.
11. Connect the cable socket **(8)** with the sensor head **(9)**.



12. Attach the extension **(6)**, and turn it clockwise until the bayonet coupling snaps in.
    ✓ The extension **(6)** is aligned with the marking **(10)**.

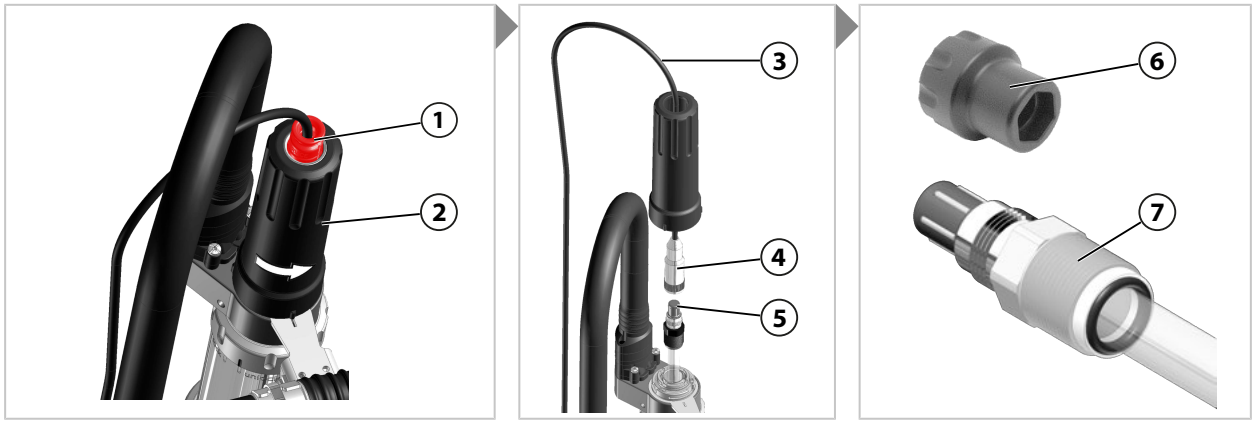
[1] Availability dependent on the ordered version → *Product Code, p. 12*

13. When installing for the first time: Mount the two-piece red service cap **(5)** above the extension **(6)** on the sensor cable **(7)**.
14. When installing for the first time: Push the service cap **(5)** in the direction of the extension **(6)** until the service cap **(5)** clearly snaps in.
15. When installing for the first time: Route the sensor cable **(7)** in an arch and fasten it with the clip **(11)**. While doing so, ensure that the sensor cable has sufficient arch length to prevent the SensoGate WA132's lifting movement from being obstructed by the sensor cable.
16. When installing for the first time: Connect the equipotential bonding cable to the terminal **(12)**.
17. Optional: Install the ZU0759/1 protective cap. → *Accessories, p. 47*
18. Set the SensoLock[1)] to "unlock" by rotating the upper coupling nut.

✓ The sensor is installed.

5.3.5 Solid-Electrolyte Sensor, Long Immersion Depth: Removal

01. Move the SensoGate WA132 into the service position (SERVICE limit position). → *Moving into the Service Position (SERVICE Limit Position), p. 26*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 42*
03. Optional: Remove the ZU0759 protective cap.
04. Set the SensoLock [2)] to "lock" by rotating the upper coupling nut.



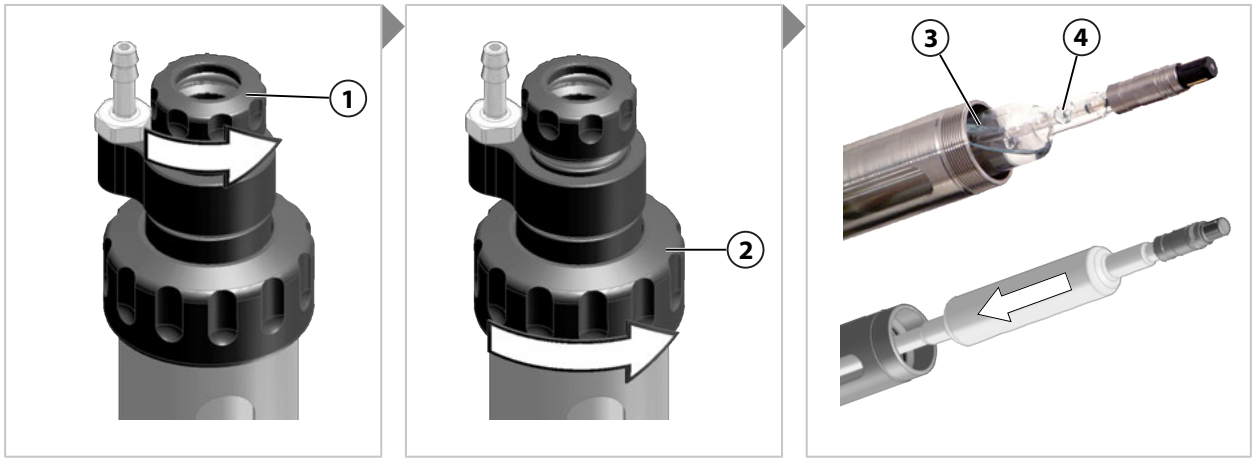
05. Turn the extension **(2)** counterclockwise until the bayonet coupling opens.
06. Pull away the extension **(2)** until the cable socket **(4)** is accessible.
07. Disconnect the cable socket **(4)** of the sensor cable **(3)** from the sensor head **(5)**.
08. Loosen the sensor **(7)** using the spanning wrench **(6)** (A/F 19). Recommended tool: Sensor spanning wrench ZU0647 → *Tools, p. 48*
09. Pull out the sensor **(7)**.

✓ The sensor has been removed.

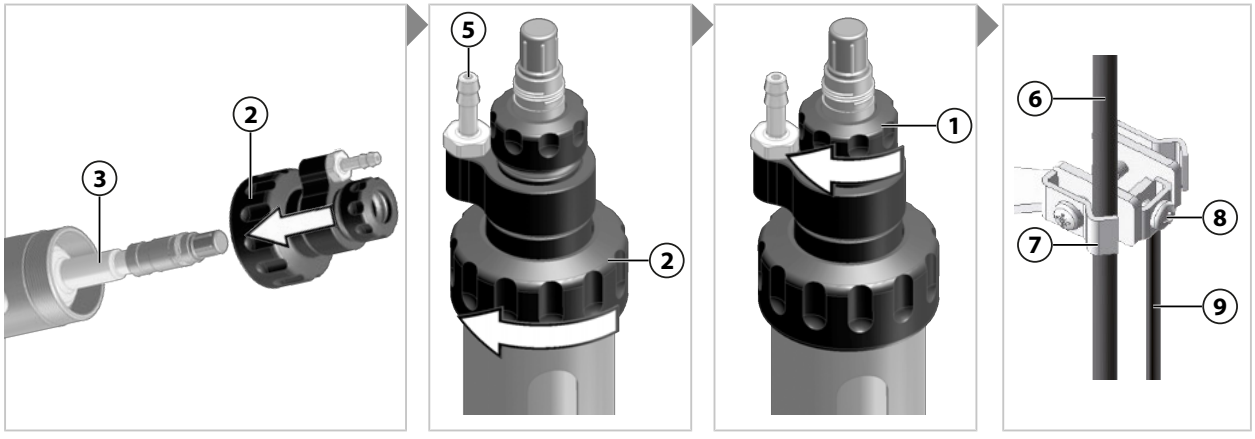
1) Availability dependent on the ordered version → *Product Code, p. 12*
2) Availability dependent on the ordered version → *Product Code, p. 12*

5.3.6 Liquid-Electrolyte Sensor: Installation

Note: To ensure that the electrolyte flows from the reference electrode to the process medium, the air pressure in the pressure chamber must be 0.5 to 1 bar above that of the process medium.



01. Move the SensoGate WA132 into the service position (SERVICE limit position).
    → *Moving into the Service Position (SERVICE Limit Position), p. 26*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 42*
03. Set the SensoLock [1] to "lock" by rotating the upper coupling nut.
04. Loosen the small coupling nut **(1)** by a few rotations, but do not remove it completely.
05. Completely unscrew the large coupling nut **(2)** and remove the entire unit.
06. Remove the watering cap from the sensor tip and rinse the sensor **(3)** with water.
07. Remove the rod lock of the sensor's **(3)** filling hole **(4)**.
08. Insert the sensor **(3)**.
    Note: In the case of inclined installation, turn the electrolyte filling hole towards the top to prevent electrolyte from flowing out during operation of the SensoGate WA132. Observe any deviating direction of installation specified by the sensor manufacturer.



09. Attach the large coupling nut **(2)** and tighten it by hand.
10. Tighten the small coupling nut **(1)** by hand.
11. Connect the sensor cable **(6)**.
12. When installing for the first time: Route the sensor cable **(6)** in an arch and fasten it with the clip **(7)**. While doing so, ensure that the sensor cable has sufficient arch length to prevent the SensoGate WA132's lifting movement from being obstructed by the sensor cable.

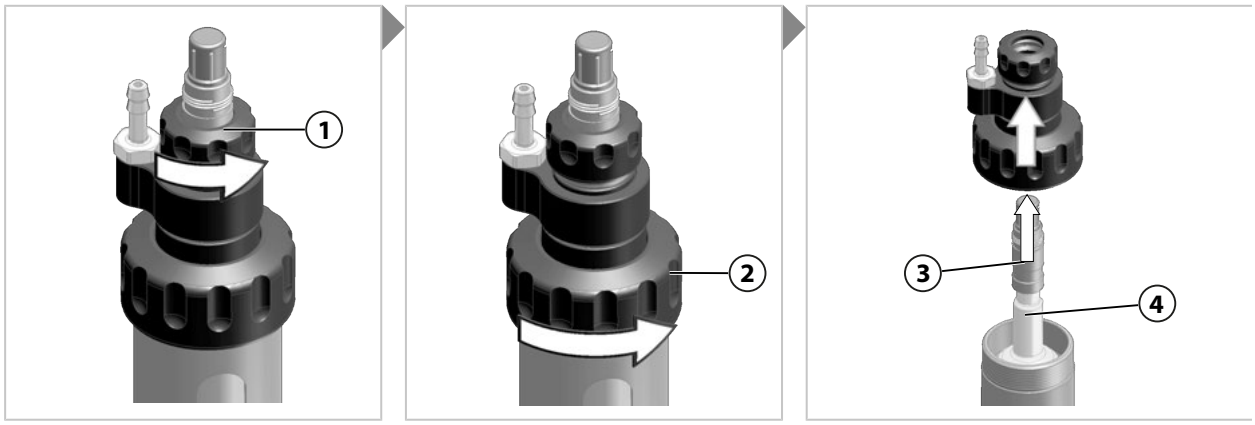
[1] Availability dependent on the ordered version → *Product Code, p. 12*

13. When installing for the first time: Connect the air pressure intake for the pressure chamber to the hose insert **(5)**.
14. When installing for the first time: Connect the equipotential bonding cable **(9)** to the terminal **(8)**.
15. Set the SensoLock[1)] to "unlock" by rotating the upper coupling nut.

✓ The sensor is installed.

5.3.7 Liquid-Electrolyte Sensor: Removal

Note: Rinse the sensor prior to removal in order to prevent entrainment of chemically aggressive process medium in the area of the sensor holders.



01. Move the SensoGate WA132 into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 26*.
02. Check outlet and leakage bores for escaping process medium. If process medium escapes: Stop the process (depressurize if necessary) and perform troubleshooting. → *Troubleshooting, p. 42*
03. Set the SensoLock [1)] to "lock" by rotating the upper coupling nut.
04. Disconnect the sensor cable.
05. Loosen the small coupling nut **(1)** by a few rotations; do not loosen completely.
06. Fully loosen the large coupling nut **(2)** and pull off the entire unit.
07. Pull out the sensor **(3)**.
Note: Hold the sensor's filling hole **(4)** upward at an inclined angle during removal to prevent electrolyte from escaping. Follow the instructions in the sensor manufacturer's documentation. During transport and storage, close the sensor's filling hole with the cap.
08. If the sensor glass is broken, check the immersion tube seal for damage and replace it if necessary.

✓ The sensor is now removed.

1) Availability dependent on the ordered version → *Product Code, p. 12*

6 Maintenance

6.1 Inspection

6.1.1 Inspection and Maintenance Intervals

NOTICE! Different process conditions (e.g., pressure, temperature, chemically aggressive media) impact the inspection and maintenance intervals. Analyze the specific application and its process conditions. Determine qualified experiences from comparable applications and derive suitable intervals.

Interval[1)]	Work Required
First inspection after a few days/weeks	Move the SensoGate WA132 into the service position (SERVICE limit position). If the product is not tight, process medium will escape from the outlet hose. → *Moving into the Service Position (SERVICE Limit Position), p. 26* As necessary, replace process-wetted (dynamically loaded) O-rings. → *Seal Kits, p. 45*
	Check leakage bores for process deposits. → *Safeguards, p. 6* As necessary, replace process-wetted (dynamically loaded) O-rings. → *Seal Kits, p. 45*
After 6 ... 12 months[2)]	Repeat the measures implemented during the first inspection.
After 10,000 ... 20,000 strokes	As necessary, replace process-wetted (dynamically loaded) O-rings. → *Seal Kits, p. 45*
After approx. 2 years	In particular if using chemically aggressive cleaning agents, check the rinse-wetted seals and replace them if necessary. → *Seal Kits, p. 45*
After approx. 5 years	Service the drive, replace O-rings, and re-grease. → *Corrective Maintenance, p. 36*

6.1.2 Immersion Lock Without a Mounted Solid-Electrolyte Sensor: Functional Test

Note: The functional test is possible only on a SensoGate WA132 with the corresponding safeguard.
→ *Safeguards, p. 6*

01. Move the SensoGate WA132 into the service position (SERVICE limit position).
    → *Moving into the Service Position (SERVICE Limit Position), p. 26*.
02. Set the SensoLock[3)] to "unlock" by rotating the upper coupling nut.
03. Loosen the sensor by a maximum of 1.5 rotations.

NOTICE! In the event of a malfunction, pressurized process medium, potentially containing hazardous substances, may escape from the SensoGate WA132. Loosen the sensor no more than a maximum of 1.5 turns to ensure that pressure resistance is still available in the event of a malfunction.

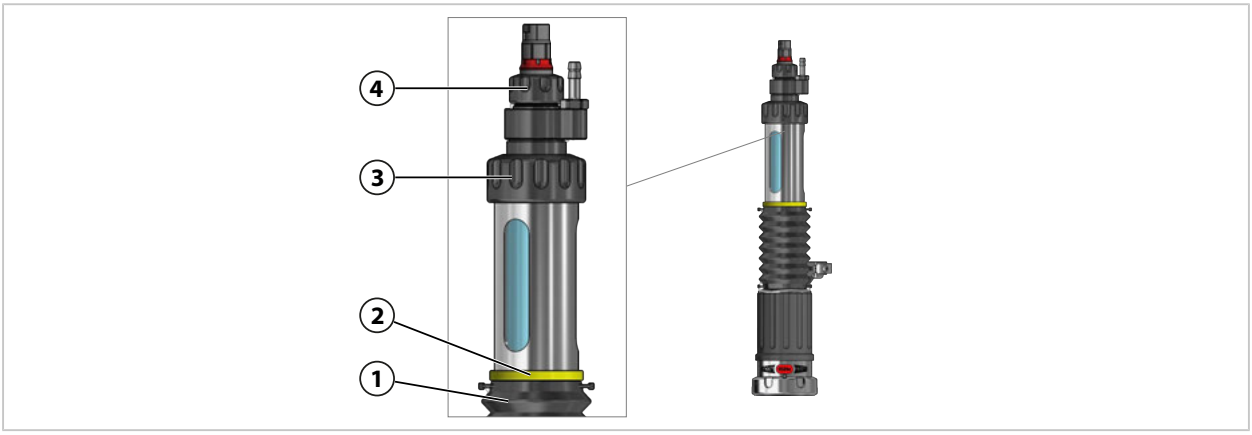
04. Check the function of the "immersion lock without a mounted solid-electrolyte sensor".
05. Move the SensoGate WA132 into the process position (PROCESS limit position).
    → *Moving into the Process Position (PROCESS Limit Position), p. 26*
    ✓ The process position (PROCESS limit position) of the SensoGate WA132 is locked.
06. Tightly screw in the sensor. Tightening torque 1 ... 3 Nm:
07. Repeat the functional test every 12 months. As applicable, adjust the interval to match the specific application for which the SensoGate WA132 is used.

1) The intervals listed are approximate recommendations based on the experience of Knick. The actual intervals depend on the specific application.
2) Following successful first inspection and confirmation of the suitability of all materials used, the interval may be lengthened.
3) Availability dependent on the ordered version → *Product Code, p. 12*

6.1.3 Immersion Lock Without a Mounted Liquid-Electrolyte Sensor: Functional Test

To check the function of the immersion lock, the situation of a missing sensor is simulated.

Note: The functional test is only available for a SensoGate WA132 with the safeguard "Immersion Lock Without a Mounted Liquid-Electrolyte Sensor". The safeguard can be seen at the yellow indicator ring **(2)** above the bellows **(1)**. → *Safeguards, p. 6*



01. Move the SensoGate WA132 into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 26*.
02. Set the SensoLock[1)] to "unlock" by rotating the upper coupling nut.
03. Loosen but do not remove the small coupling nut **(4)**.
04. Loosen the large coupling nut **(3)** by around 1.5 turns.

⚠ WARNING! In the event of a malfunction, pressurized process medium may escape from the SensoGate WA132. Do not completely loosen the large coupling nut **(3)** to ensure that pressure resistance is still available in the event of a malfunction.

05. Move the SensoGate WA132 into the process position (PROCESS limit position).
→ *Moving into the Process Position (PROCESS Limit Position), p. 26*
✓ The process position (PROCESS limit position) of the SensoGate WA132 is locked.
06. Tighten the coupling nuts **(3)** and **(4)**.
07. Repeat the functional test every 12 months. As applicable, adjust the interval to match the specific application for which the SensoGate WA132 is used.

1) Availability dependent on the ordered version → *Product Code, p. 12*

6.2 Preventive Maintenance

6.2.1 Approved Lubricants

Application	Pharma and Food		Chemicals and Wastewater
Lubricant	Beruglide L[1] (silicone-free)	Paraliq GTE 703[2] (containing silicone)	Syntheso Glep 1 (silicone-free)
Elastomer seal materials			
FKM	-	-	+
FFKM	-	-	+
EPDM	-	-	+
FKM – FDA	+	+	-
FFKM – FDA	+	+	-
EPDM – FDA	+	+	-

Note: Lubricant Paraliq GTE 703 contains silicone and has good lubricating properties even at elevated temperatures and with numerous travel movements. Paraliq GTE 703 is used as a special version at the customer's express request.

6.2.2 Characteristics of Process-Wetted Materials

Note: The stated values are reference values and provide general information. Concentrations of acids or alkalis, temperatures, mechanical effects, and the duration of the effect impact the materials to a greater or lesser degree. Therefore, no guarantee is given for the stated values. A pretest is recommended for cases where there has been no prior experience using the material in the process. Mixtures of substances constitute a prime example.

	Mechanical strength	Temperature resistance	Resistance to acids	Resistance to alkalis	Resistance to salt solutions	Resistance to cleaning agents or solvents
Stainless steel material no. 1.4571	1	1	3 [3]	2	3	2
Hastelloy C-22 material no. 2.4602	1	1	2	1	1	1
PEEK (carbon fiber-reinforced)	1	1	2 [4]	1	1	2
PVDF (carbon fiber-reinforced)	2	2	2 [5]	2	1	2
PP (carbon fiber-reinforced)	3	4 [6]	3 [7]	3	2	2
Titanium Grade 2 material no. 3.7035	1	1	2	1	1	1
			1 = very well suited			*5 = unsuitable*

See also
→ *Product Code, p. 12*

1) FDA-compliant, registered in accordance with NSF-H1.
2) FDA-compliant, registered in accordance with USDA-H1.
3) Not resistant to saline or sulphuric acids.
4) Not resistant to highly oxidizing media (concentrated sulphuric acids, nitric acids, or hydrogen fluoride).
5) Not resistant to ketones, aminos, smoking sulphuric acids, and nitric acids.
6) Max. 80 °C (176 °F)
7) Not resistant to highly oxidizing media (e.g., nitric acid, chromic acid, or halogens)

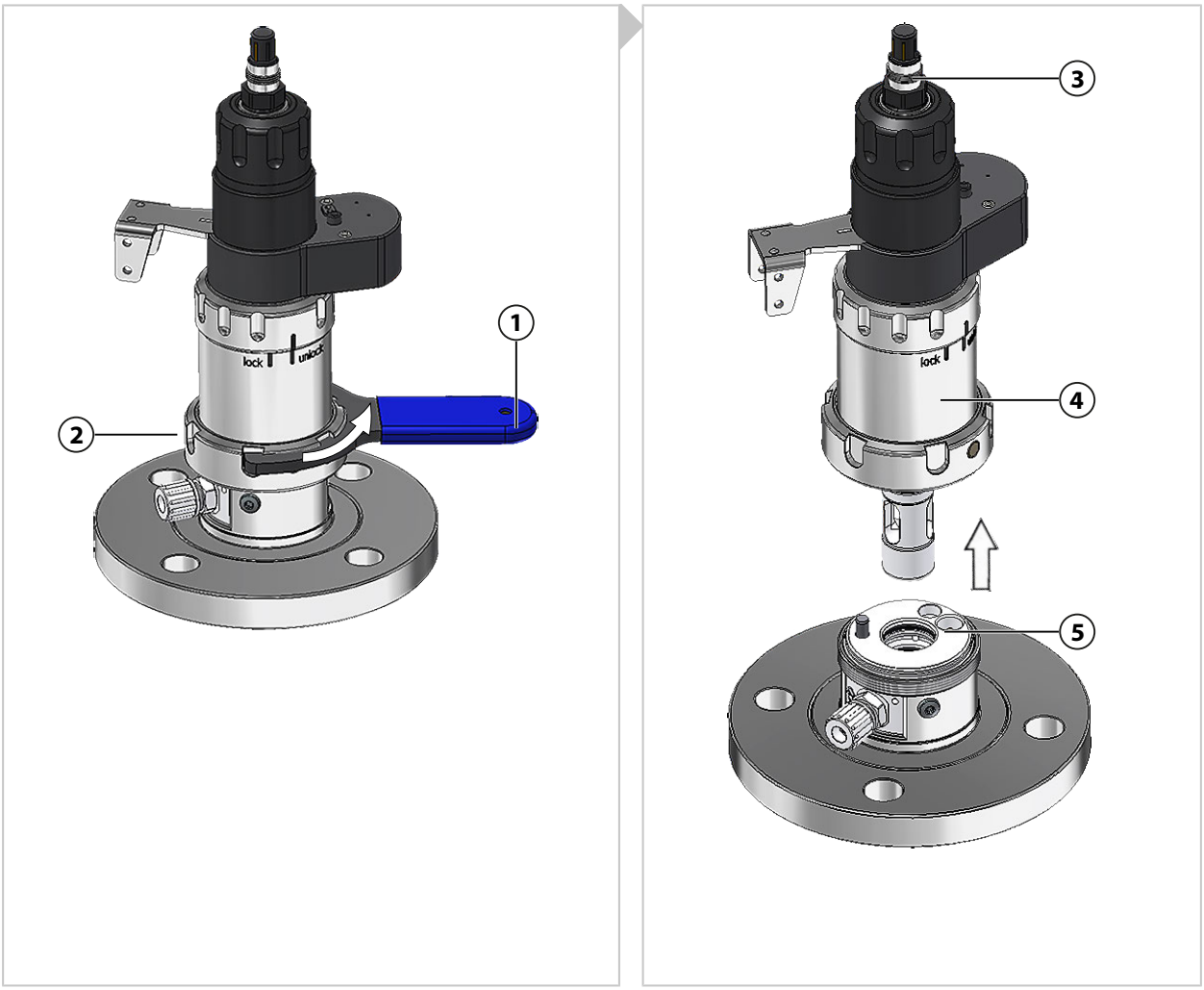
6.3 Corrective Maintenance

6.3.1 Corrective Maintenance Safety Instructions

⚠ WARNING! Process medium, potentially containing hazardous substances, may escape from the SensoGate WA132. Follow the safety instructions. → *Safety, p. 5*

⚠ CAUTION! Risk of cutting injuries from broken sensor glass. Handle the sensor with care. Follow the safety instructions in the sensor manufacturer's documentation.

6.3.2 Drive Unit: Removal



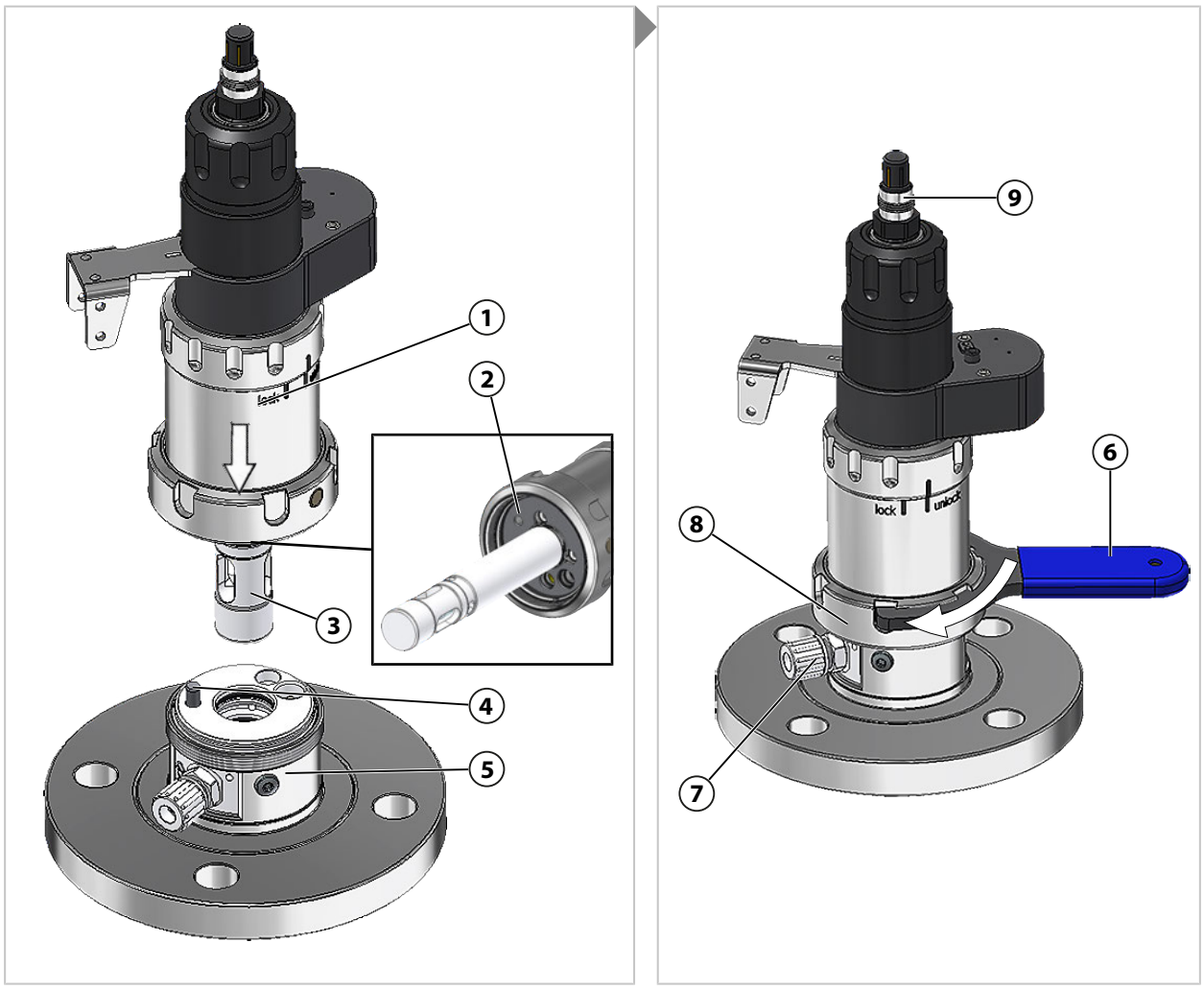
01. Safely disconnect the SensoGate WA132 from the process. → *Retractable Fitting: Removal, p. 44*
02. If necessary, disconnect the outlet and inlet hose[1)].
03. Move the SensoGate WA132 into the service position (SERVICE limit position).
04. Set the SensoLock [2)] to "lock" by rotating the upper coupling nut.
05. If necessary, remove sensor 3. → *Installing and Removing Sensors, p. 26*
06. Loosen the coupling nut **(2)** by turning the spanning wrench **(1)** counterclockwise.
    Note: Do not tilt the coupling nut. Use a suitable spanning wrench (e.g., the one contained in ZU0680 service set or ZU0740 service set). → *Tools, p. 48*
07. Pull the drive unit **(4)** out of the process unit **(5)**.

✓ The drive unit is now removed.

1) Dependent on the ordered version → *Product Code, p. 12*
2) Availability dependent on the ordered version → *Product Code, p. 12*

6.3.3 Drive Unit: Installation

Note: The radial installation position of the drive unit is determined by a coding pin in the calibration chamber and a hole in the drive unit. The coupling nut can be tightened only if the drive unit is correctly inserted into the process unit.

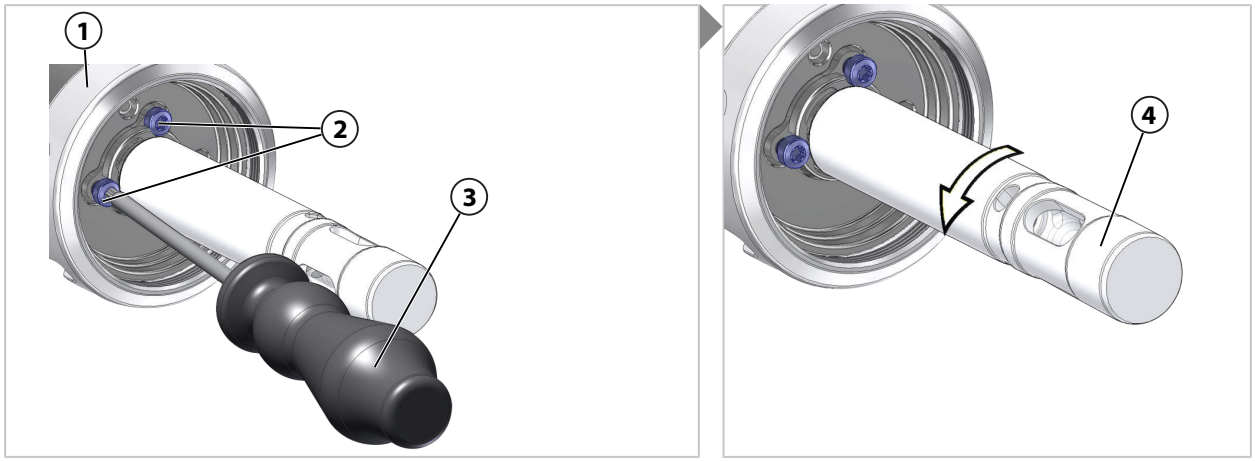


01. Move the drive unit into the service position (SERVICE limit position).
→ *Moving into the Service Position (SERVICE Limit Position), p. 26*
02. Insert the drive unit **(1)** with the immersion tube **(3)** into the process unit **(5)** while positioning the coding pin **(4)** into the drill hole **(2)**.
03. Use a spanning wrench **(6)** to attach the coupling nut **(8)** and hand-tighten it clockwise or tighten it with a force of approx. 10 Nm.
Note: Do not tilt the coupling nut. Use a suitable spanning wrench (e.g., the one contained in ZU0680 service set or ZU0740 service set). → *Tools, p. 48*
04. If necessary, install the outlet hose at the outlet **(7)**. → *Outlet Hose: Installation, p. 22*
05. Install the inlet hose if necessary.[1)]
06. If necessary, install the sensor **(9)**. → *Installing and Removing Sensors, p. 26*
07. Set the SensoLock[2)] to "unlock" by rotating the upper coupling nut.

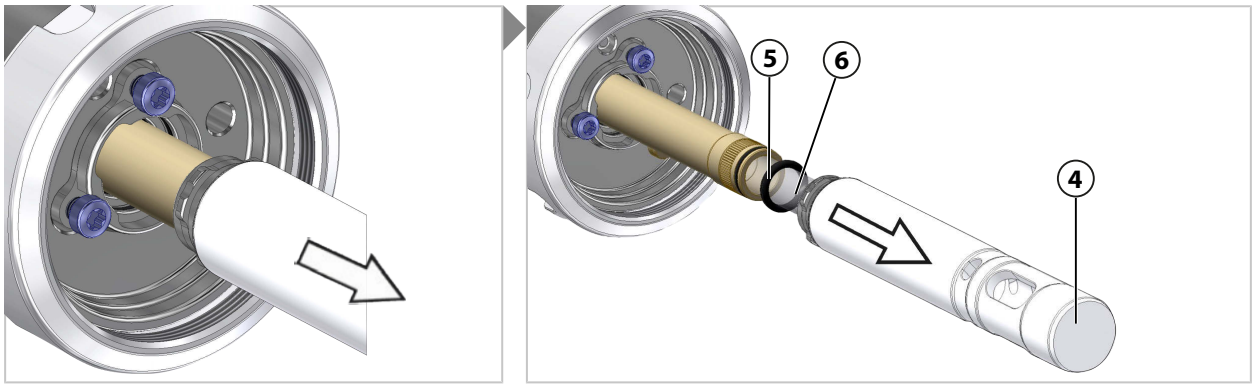
✓ The drive unit is now installed.

1) Dependent on the ordered version → *Product Code, p. 12*
2) Availability dependent on the ordered version → *Product Code, p. 12*

6.3.4 Immersion Tube: Removal



01. Disassemble the drive unit **(1)**. → *Drive Unit: Removal, p. 36*
02. Set the SensoLock[1)] to "unlock" by rotating the upper coupling nut.
03. Move the drive unit **(1)** into the process position (PROCESS limit position). The sensor has to be mounted for this purpose. → *Moving into the Process Position (PROCESS Limit Position), p. 26*
04. Use the type TX25 screw driver **(3)** to loosen the screws **(2)** by approximately 4 rotations (do not completely unscrew them).
05. Rotate the immersion tube **(4)** counterclockwise by about 60° until the bayonet coupling of the immersion tube **(4)** is opened.

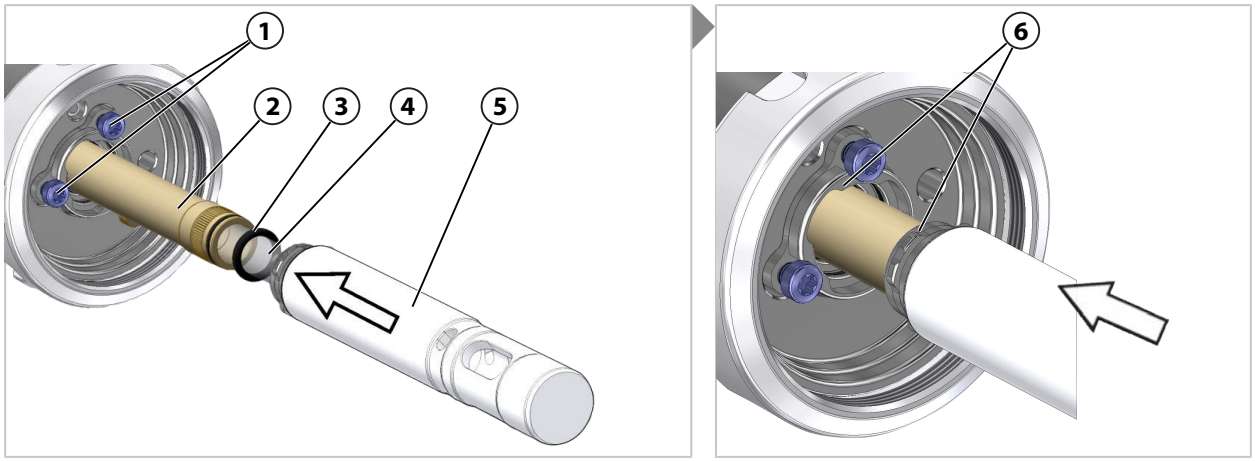


06. Remove the immersion tube **(4)** from the sensor **(6)**.
    ✓ The O-ring **(5)** will become visible or the O-ring **(5)** may be in the removed immersion tube **(4)**.
07. Check the O-ring **(5)** for damage; if necessary, replace the O-ring **(5)**. → *Seal Kits, p. 45*

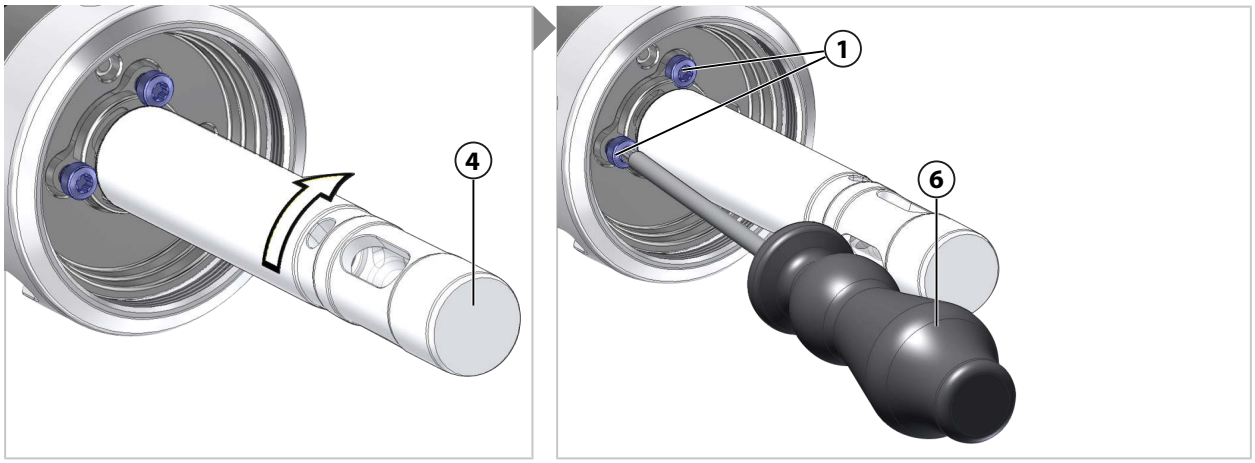
✓ The immersion tube is now removed.

1) Availability dependent on the ordered version → *Product Code, p. 12*

6.3.5 Immersion Tube: Installation



01. Install the sensor. → *Installing and Removing Sensors, p. 26*
02. If the drive unit is not in the process position (PROCESS limit position): Slide the immersion tube **(5)** onto the sensor protection tube **(2)**; firmly press the tube into the bayonet coupling **(6)** while rotating it approx. 60° clockwise until there's a hard stop. Pull on the immersion tube **(5)** until the process position (PROCESS limit position) has been reached.
03. Check the O-ring **(3)** for damage; if necessary, replace the O-ring **(3)**. → *Seal Kits, p. 45*
04. Completely slide the O-ring **(3)** onto the sensor **(4)**.
05. If the screws **(1)** have not already been loosened during the disassembly, loosen them by approx. 4 rotations using a type TX25 screwdriver **(7)** (do not completely unscrew them).
06. Carefully slide the immersion tube **(4)** onto the sensor **(3)** and insert it into the bayonet coupling **(5)**.
    Note: There may be an O-ring in the immersion tube left over from the removal process. Remove this O-ring before installing the immersion tube.



07. Firmly press the immersion tube **(5)** into the bayonet coupling **(6)** while rotating it approx. 60° clockwise until there's a hard stop.
08. Tighten the screws **(1)** using a type TX25 screwdriver **(6)**.

Note: The bayonet coupling is locked by the form-fit screw heads. The immersion tube, however, remains movable to compensate for tolerances.

✓ The immersion tube is now installed.

6.3.6 Calibration Chamber: Removal

Note: Service sets ZU0754 or ZU0740 are required to remove the calibration chamber. → *Tools, p. 48*

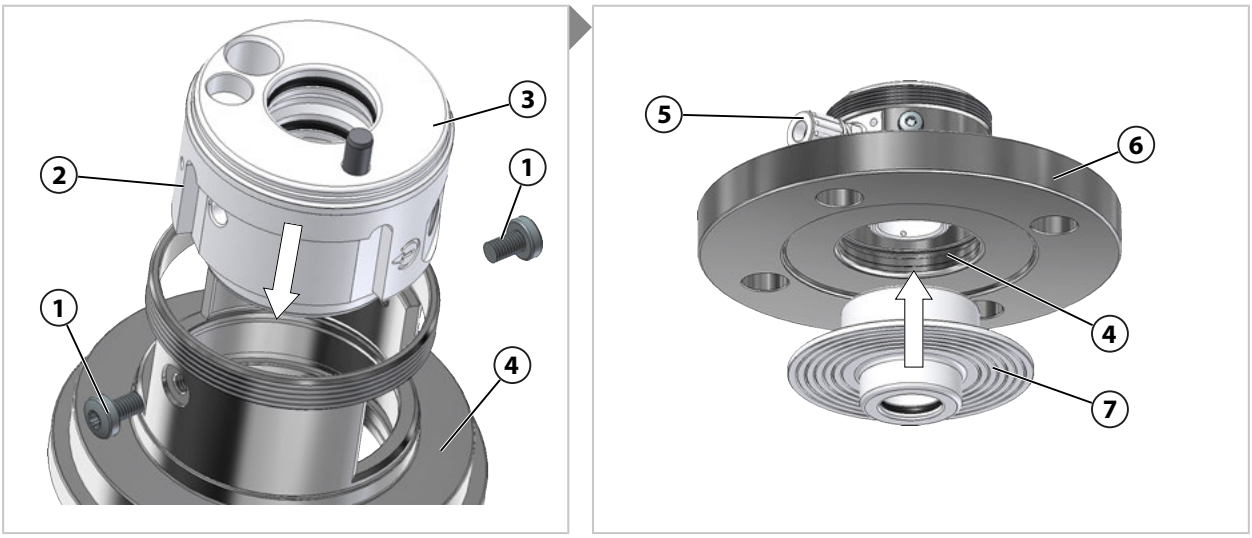
01. Remove the process unit from the drive unit. → *Drive Unit: Removal, p. 36*
02. Remove the outlet screw connection **(3)**. If necessary, detach the loose flange.
03. Unscrew the screws **(1)** using a type TX25 screwdriver. Retain the screws **(1)** for later assembly.
04. Pull the calibration chamber **(2)** vertically out of the process connection **(4)**.
05. Press the flange bushing **(5)** downwards to push it out of the process connection **(4)**.

✓ The calibration chamber is now removed.

6.3.7 Calibration Chamber: Installation

Note: Service sets ZU0754 or ZU0740 are required to install the calibration chamber. → *Tools, p. 48*

Note: To ensure correct assembly of the O-rings and the scraper ring, use the accessory tools ZU0746 and ZU0747. The procedure for handling the accessory tools is described in the relevant documentation. → *Tools, p. 48*



01. Check the O-rings and scraper ring for damage; if necessary, replace the O-rings and scraper rings. → *Seal Kits, p. 45*
02. Connect the top **(1)** of the calibration chamber to the bottom **(2)** and screw them tightly together by hand.
03. Apply the pliers **(4)** and use the face pin spanner wrench **(3)** to screw the calibration chamber tight.
    Note: Securing the calibration chamber with the two screws is not possible until the top and bottom parts have been firmly screwed together (to the hard stop).
04. Tighten the screws **(5)** using a type TX25 screwdriver.

6.3.8 Knick Repair Service

The Knick Repair Service offers professional corrective maintenance for the product to the original quality. Upon request, a replacement unit can be obtained for the period of the repair.

Further information can be found at www.knick-international.com.

7 Troubleshooting

Fault status	Possible cause	Remedy
Process medium escaping from leakage bore.	Leakage due to damaged O-rings.	Replace damaged O-rings.[1)] → *Seal Kits, p. 45*
Sensor glass shattered.	Mechanical impact on the sensor glass (e.g., by process medium).	Replace faulty sensor. → *Installing and Removing Sensors, p. 26*
		Remove any glass splinters from the SensoGate WA132. Check immersion tube seal and replace if necessary. → *Seal Kits, p. 45*
Medium escapes from the connection point of the multiplug.	Multiplug installed incorrectly.	Install the multiplug correctly. → *Multiplug: Installation, p. 24*
	Seals or O-rings of the multiplug damaged or missing.	Check seals and O-rings of the multiplug for correct position and damage; replace if necessary.
	Connection point soiled.	Clean the connection point and multiplug.
	Foreign body between connection point and multiplug.	Remove any foreign bodies (e.g., old O-rings).
	Multiplug defective.	Send the media connection to the responsible local representative for repair. → *knick-international.com*
SensoGate WA132 is not moving.	Multiplug installed incorrectly.	Install the multiplug correctly. → *Multiplug: Installation, p. 24*
	Sensor installed incorrectly.	Install the sensor correctly. → *Installing and Removing Sensors, p. 26*
	Compression ring or O-ring of the sensor damaged or missing.	Check the compression ring and O-ring of the sensor for correct position and damage; replace if necessary.
	Foreign body in the sensor holder.	Remove any foreign bodies (e.g., old compression ring or old O-ring).
	Seals or O-rings of the drive unit damaged.	Replace the seals or O-rings of the drive unit and the calibration chamber.
	Drive unit defective.	Send the SensoGate WA132 to the responsible local representative for repair. → *knick-international.com*
	Compressed air supply interrupted.	Install the multiplug correctly. → *Multiplug: Installation, p. 24*
		Check the compressed air system for proper functioning.
		Check the electro-pneumatic controller for proper functioning.
		Check the industrial transmitter for error messages.
No or wrong measured value displayed.	Faulty sensor.	Replace the sensor. → *Installing and Removing Sensors, p. 26*
	Defective plug connection or damaged sensor cable.	Fasten plug connection or replace damaged sensor cable. → *Installing and Removing Sensors, p. 26*

1) After replacing the damaged O-rings, clean the leakage bores so that any further escape of process medium can be detected.

Fault status	Possible cause	Remedy
Safeguard "Immersion Lock Without a Mounted Sensor" not working.	Corrosion or clogging by penetrated process medium.[1)]	Send the SensoGate WA132 to your local contact for repair. → *knick.de*

See also

→ *Corrective Maintenance, p. 36*
→ *Knick Repair Service, p. 41*
→ *Return, p. 44*

7.1 Malfunction State: Retractable Fitting Does Not Fully Move to the SERVICE or PROCESS Limit Position

01. Increase the drive control pressure up to the maximum permissible value to move fully to the service position (SERVICE limit position) or the process position (PROCESS limit position).
    → *Specifications, p. 53*
    ✓ Sensor head or service cap is visible in service position (SERVICE limit position). In process position (PROCESS limit position), the sensor head or service cap is not visible.
02. Troubleshooting successful: Check the cause of the malfunction. If required, remove the drive unit. Perform maintenance on the drive unit or check the functionality of the process unit using a replacement drive.
03. Troubleshooting unsuccessful: Stop process, depressurize or discharge process medium if necessary. Remove SensoGate WA132 and send to the local representative responsible for repairs.
    → *knick-international.com*

See also

→ *Drive Unit: Removal, p. 36*
→ *Retractable Fitting: Removal, p. 44*

[1)] To protect against the penetration of media from outside into the sensor holder, we recommend using the ZU0759 protective cap. We recommend rinsing the sensor before removing it in order to prevent entrainment of the process medium in the area of the sensor holders.

8 Decommissioning

8.1 Retractable Fitting: Removal

⚠ WARNING! Risk of explosion from mechanically generated sparks when used in explosive atmospheres. Take appropriate action to prevent mechanically generated sparks. Follow the safety instructions. --- FEHLENDER LINK ---

⚠ WARNING! Process or rinse medium, potentially containing hazardous substances, may escape from the SensoGate WA132 or the process port. Follow the safety instructions.
→ *Safety, p. 5*

01. Stop the process; depressurize or drain off the process medium if necessary.
02. Move the SensoGate WA132 into the service position (SERVICE limit position).
    → *Moving into the Service Position (SERVICE Limit Position), p. 26*.
03. Switch off the compressed air supply and vent the compressed air system.
04. Remove the sensor. → *Installing and Removing Sensors, p. 26*
05. Remove the outlet hose.
06. Optional: Remove installed safety accessories (e.g., ZU0818 retainer clamp).
07. Loosen the process connection.
08. Remove the SensoGate WA132 from the customer's process port.
09. Seal off the process port appropriately.

✓ The retractable fitting is now removed.

See also
→ *Operation in Explosive Atmospheres, p. 8*

8.2 Return

If a product must be returned, send it to the responsible local representative in a clean condition and securely packaged. → *knick-international.com*

Upon contact with hazardous substances, decontaminate or disinfect the product before shipping. Always include the relevant return form (Declaration of Decontamination) with shipments, in order to avoid hazards to our Service employees. → *knick-international.com*

8.3 Disposal

To dispose of the product properly, follow the local regulations and laws.

The SensoGate WA132 can contain various materials, depending on the version concerned.
→ *Product Code, p. 12*

9 Spare Parts, Accessories, and Tools

9.1 Seal Kits

The seal kits are available in different materials.

The smaller seal kits (“Set X/1”) only contain O-rings for direct contact with the process medium.

The extended seal kits (“Set X/2”) also include O-rings for contact with the rinse medium.

Each seal kit comes with an accompanying slip that provides information about the package contents, where the O-rings are to be installed, and where the lubrication points are. Replacement O-rings must be greased with the lubricant that is supplied.

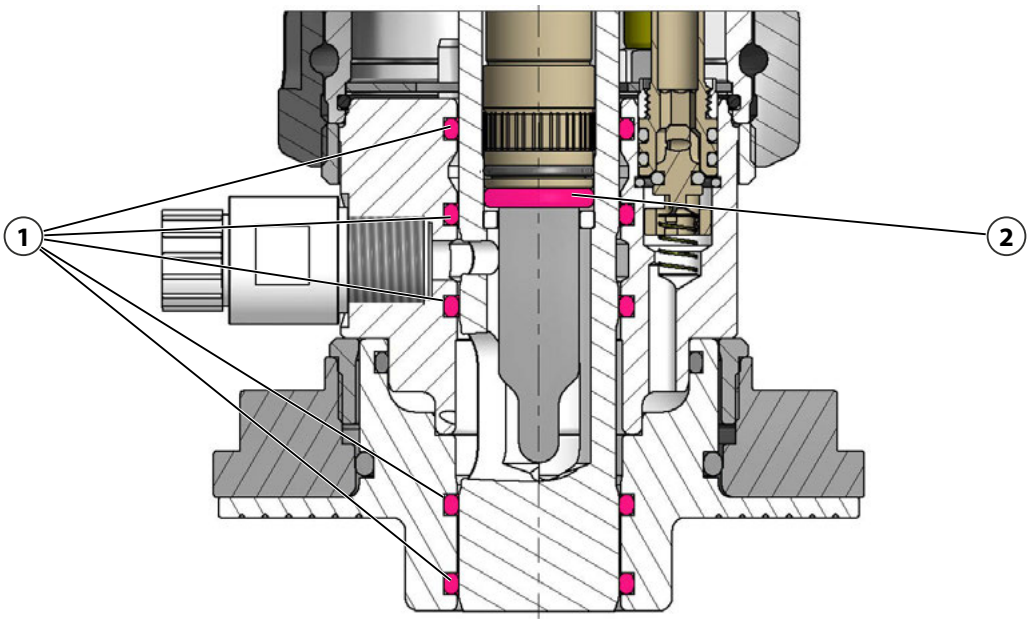
To ensure correct installation of the O-rings and the scraper ring, we recommend using the accessory tools ZU0746 and ZU0747. The procedure for handling the accessory tools is described in the relevant product documentation. → *Tools, p. 48*

Seal Kits			Order No.
Flange process connection	Set A/1	Process-wetted seal material: FKM	ZU1016/1
	Set A/2	Process-wetted seal material: FKM, Wetted by rinse medium: FKM	ZU1016/2
	Set B/1	Process-wetted seal material: EPDM	ZU1017/1
	Set B/2	Process-wetted seal material: EPDM, Wetted by rinse medium: EPDM	ZU1017/2
	Set E/1	Process-wetted seal material: EPDM FDA	ZU1018/1
	Set E/2	Process-wetted seal material: EPDM FDA, Wetted by rinse medium: EPDM FDA	ZU1018/2
	Set F/1	Process-wetted seal material: FKM FDA	ZU1019/1
	Set F/2	Process-wetted seal material: FKM FDA Wetted by rinse medium: FKM FDA	ZU1019/2
	Set H/1	Process-wetted seal material: FFKM FDA	ZU1020/1
	Set H/2	Process-wetted seal material: FFKM FDA Wetted by rinse medium: FFKM FDA	ZU1020/2
	Set K/1	Process-wetted seal material: FFKM	ZU1021/1
	Set K/2	Process-wetted seal material: FFKM, Wetted by rinse medium: FFKM	ZU1021/2

Note: Further seal kits are available on request.

Seal Kit (Process-Wetted) for a Flange Process Connection

process-wetted

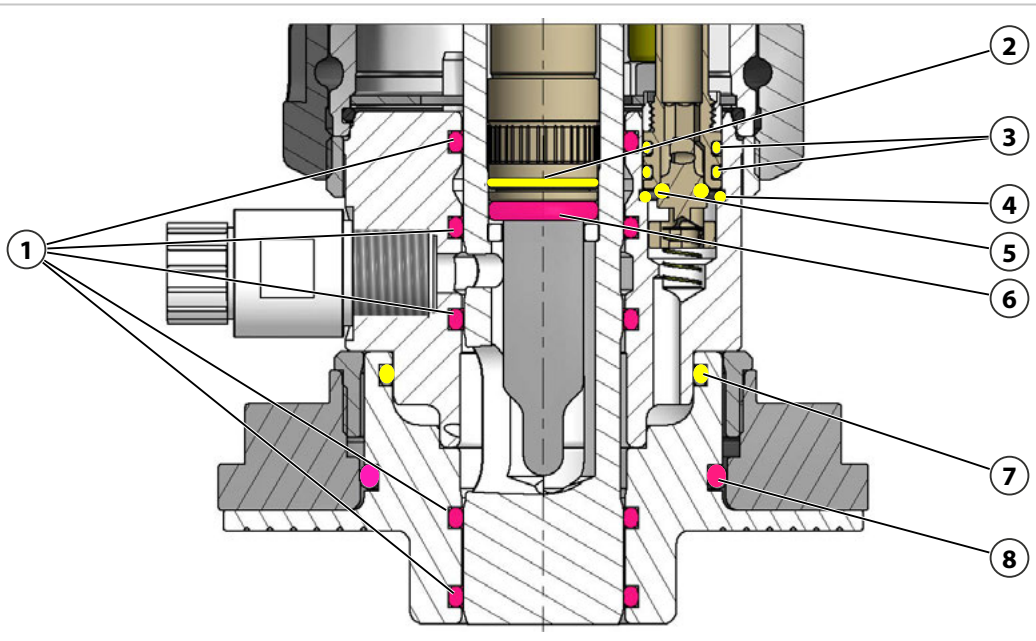


1 O-ring 24 × 2.5 mm	2 O-ring 11.9 × 2.6 mm

Seal Kits (Process- and Rinse-Wetted) for a Flange Process Connection

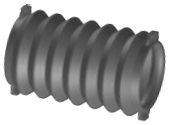
process-wetted

wetted by rinse medium



1 O-ring 24 × 2.5 mm	5 O-ring 4 × 2 mm
2 O-ring 13 × 1.5 mm	6 O-ring 11.9 × 2.6 mm
3 O-ring 8 × 2 mm	7 O-ring 45 × 2.5 mm
4 O-ring 10 × 1.5 mm	8 O-ring 48 × 3 mm

9.2 Spare Parts



ZU0739 Bellows

The bellows (only used on versions with liquid-electrolyte sensors) protect the fitting beneath the pressure chamber against external contamination and wear.

F-ZU 1032 immersion tube, short

Material: PTFE

F-ZU 1033 immersion tube, long

Material: PTFE

9.3 Accessories

ZU0759 and ZU0759/1 Protective Cap

The protective cap protects against the effects of weather exposure and prevents the ingress of external liquids or particles into the area of the sensor connections.

ZU0759: suitable for versions with solid-electrolyte sensors
ZU0759/1: suitable for versions with liquid-electrolyte sensors

ZU0670/1 Air Supply for Pressurized Sensors 0.5 ... 4 bar
ZU0670/2 Air Supply for Pressurized Sensors 1 ... 7 bar
ZU0713 Hose, 20 m (Extension for ZU0670)

This assembly group maintains the defined gauge pressure in the pressure chamber in versions of the SensoGate WA132 for liquid-electrolyte sensors.

ZU0742 Adapter for Free Hose Connection With Electric Limit Switches, Housing PEEK

This adapter is used to operate the SensoGate WA130 without Unical 9000 and the associated media connection via multiplugs.

ZU0733 Adapter for Free Hose Connection With Electric Limit Switches, Housing PP

This adapter is used to operate the SensoGate WA130 without Unical 9000 and the associated media connection via multiplugs.

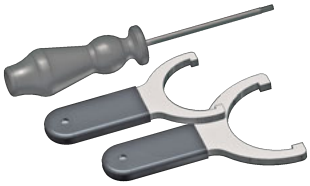
ZU0734 Adapter for Free Hose Connection Without Electric Limit Switches, Housing PP

This adapter is used to operate the SensoGate WA130 without Unical 9000 and the associated media connection via multiplugs.

9.4 Tools

ZU0647 Sensor Spanning Wrench

ZU0647 sensor spanning wrench is used to properly tighten sensors. It prevents damage to the PG 13.5 plastic thread of the sensor head caused by applying an excessive tightening torque (e.g., when using an open-end wrench).



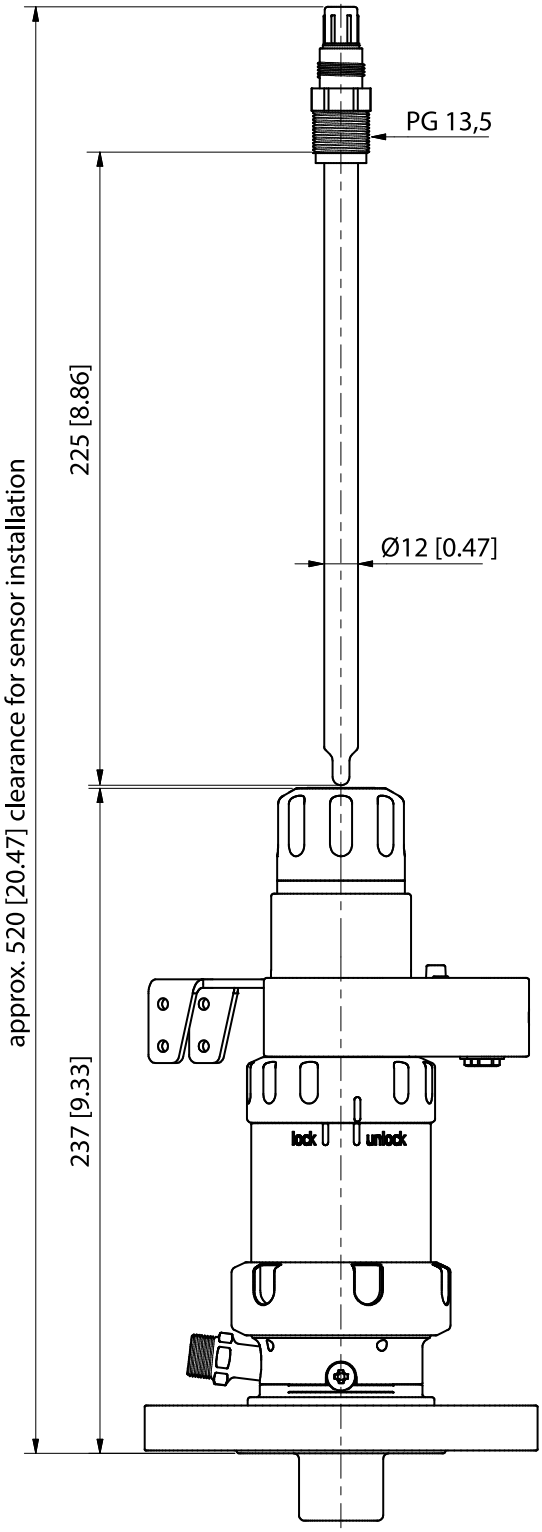
ZU0680 SensoGate Service Set, Basic Equipment

This tool set is suitable for minor maintenance work. It allows easy separation of the drive unit from the process unit, mounting of an Ingold socket, and replacement of the immersion tube, including O-ring maintenance.

10 Dimension Drawings

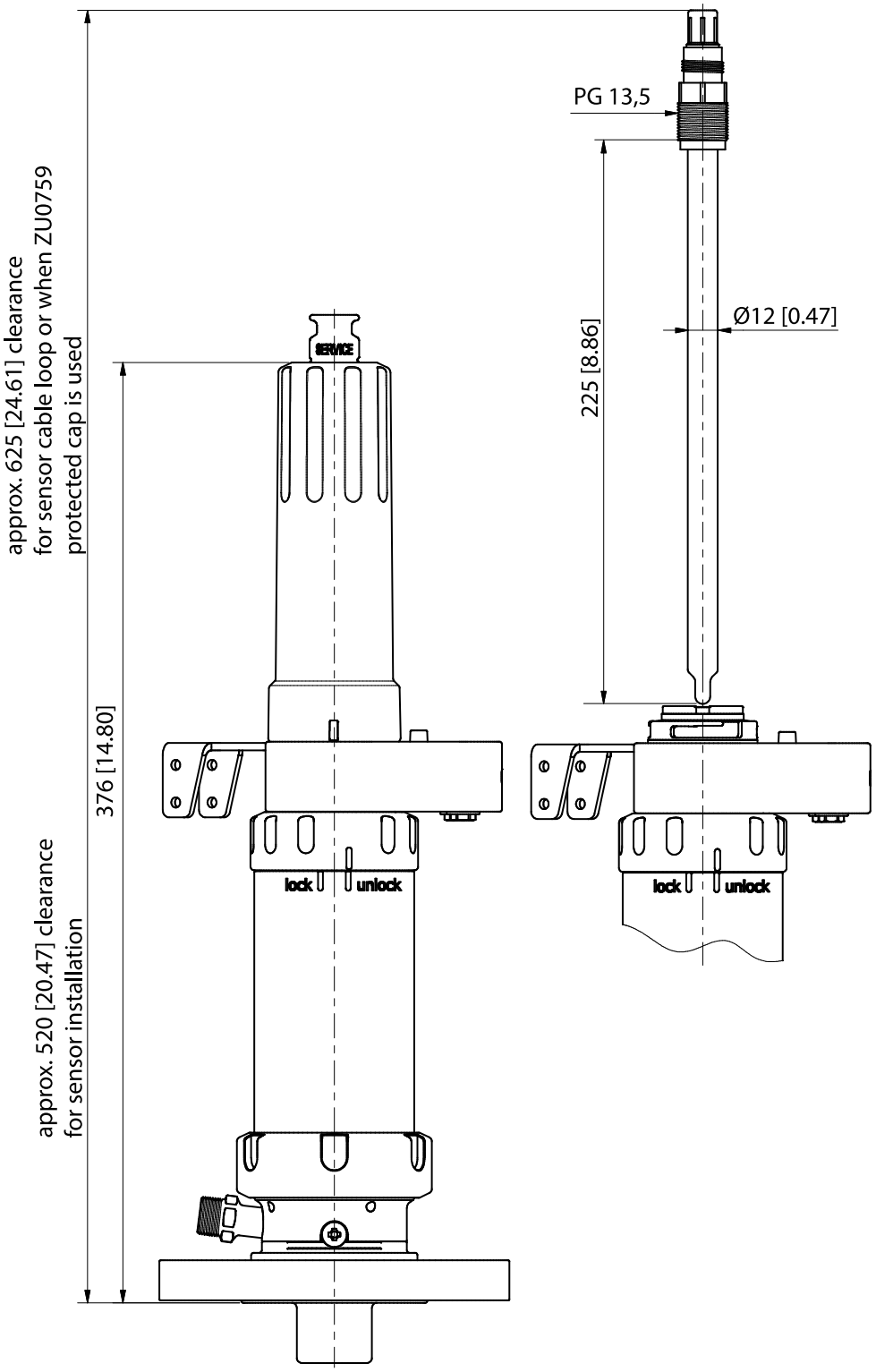
Retractable Fitting for Solid-Electrolyte Sensor, Short Immersion Depth

Note: All dimensions are listed in millimeters [inches].



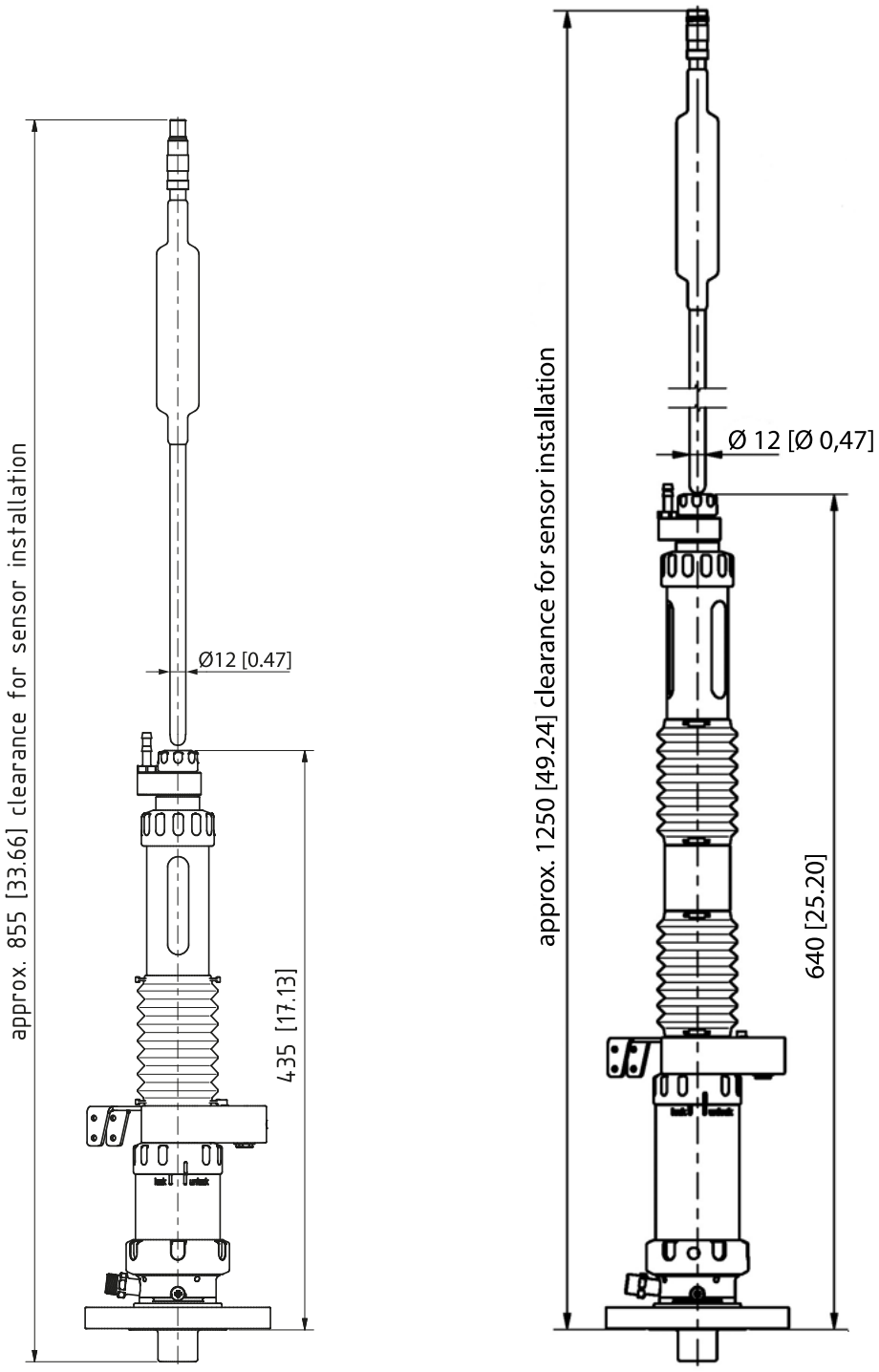
Retractable Fitting for Solid-Electrolyte Sensor, Long Immersion Depth

Note: All dimensions are listed in millimeters [inches].

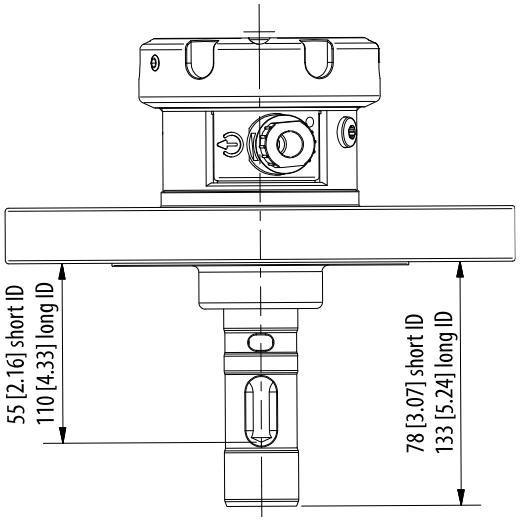


Retractable Fitting for Liquid-Electrolyte Sensor, Short and Long Immersion Depths

Note: All dimensions are listed in millimeters [inches].



Process Connections



Loose flange, PN10/16, DN 32 ... DN 100
Loose flange, ANSI 316, 150 lbs, 2″ ... 3″
short and long immersion depths (ID = immersion depth)

11 Specifications

Permitted process pressure and temperature	
0 … 40 °C (32 … 104 °F)	6 bar (87 psi)
40 … 100 °C (104 … 212 °F)	6 bar (87 psi) decreasing linearly down to 3 bar (43.5 psi)
135 °C (275 °F)	3 bar (43.5 psi) (max. 1 hour)
Ambient temperature	-10 … 70 °C (14 … 158 °F)
Housing material	Stainless steel/PP or PEEK
Permitted pressure for fitting controller	4 … 7 bar (58 … 101.5 psi)
Compressed air quality	
Standard	In accordance with ISO 8573-1:2001
Quality class	3.3.3 or 3.4.3
Solid contaminants	3 (max. 5 µm, max. 5 mg/m^3)
Water content for temperatures > 15 °C (59 °F)	Class 4, pressure dew point 3 °C (37.4 °F) or lower
Water content for temperatures 5 … 15 °C (41 … 59 °F)	Class 3, pressure dew point -20 °C (-4 °F) or lower
Oil content	Class 3 (max. 1 mg/m^3)
Sensors	→ *Product Code, p. 12*
Process connection	→ *Product Code, p. 12*
Connections	
Inlet	Unical 9000 multiplug
Outlet	PFA hose screw connection for DN 8 hose
For pressurized sensors	Hose connection DN 6, pressure in calibration chamber 0.5 … 1 bar (7.25 … 14.5 psi) via process pressure max. 7 bar(101.5 psi)
For compressed air (control air retractable fitting)	Unical 9000 multiplug
Immersion depths / installation dimensions	→ *Dimension Drawings, p. 49*
Wetted materials	→ *Product Code, p. 12*

Glossary

CE Marking

Manufacturer's declaration, in accordance with EU Regulation 765/2008, that the product is in conformity with the applicable requirements set out in the European Union harmonization legislation providing for its affixing.

Corrective Maintenance

Measures taken to return an item under review to an operational condition, with the exception of improvements.

Hazard

A hazard is defined as a potential source of damage. The term "hazard" can be specified to indicate the origin or nature of the expected damage. (Source: EN ISO 12100)

Highly Efficient Charge Generating Mechanism

A highly efficient charge generating mechanism is [...] any charging mechanism stronger than manual rubbing of surfaces. (Source: EN ISO 80079-36)

Inspection

Measures for determining and assessing the actual condition of an item under review, including determining the causes of wear and deriving the necessary steps for future use.

Maintenance

Combination of all technical, administrative and managerial actions during the life cycle of an item intended to retain it in, or restore it to, a state in which it can perform the required function. (Source: EN 13306 Maintenance – Maintenance terminology)

Preventive Maintenance

Measures for maintaining the target condition […] and delaying the reduction of the available wear margin of an item under review.

Risk

Combination of the probability of occurrence of harm and the severity of that harm (source: EN ISO 12100)

Risk Assessment

Overall process of risk analysis and risk evaluation (source: EN ISO 12100)

Zone 0

Area in which an explosive gas atmosphere is present continuously or for long periods or frequently. (Source: IEC 60079-10-1)

Zone 1

A place in which an explosive atmosphere consisting of a mixture with air or flammable substances in the form of gas, vapor, or mist is likely to occur in normal operation occasionally. (Source: EC Directive 1999/92/EC, Annex I)

Notes

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