

The Art of Measuring.

**Knick** 

User Manual

## SensoGate WA 132

Retractable Fitting with PTFE Process Adaptation



Information: [www.knick-international.com](http://www.knick-international.com)

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SensoGate WA 132

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# Safety Instructions

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SensoGate WA 132

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## Process-Related Risks



Knick Elektronische Messgeräte GmbH & Co. KG assumes no liability for damages caused by process-related risks known to the operator, which would in fact not permit the use of the retractable fitting.

### **For your own safety, be sure to observe the following precautions:**

Work on the retractable fitting shall only be performed by personnel authorized by the operating company and specially trained for handling and operating the retractable fitting.

Be sure to take account of the influences of humidity, ambient temperature, chemicals, and corrosion on the safe operation of the retractable fitting.

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The SensoGate WA 132 retractable fitting has been developed and manufactured in compliance with the applicable European guidelines and standards. Compliance with the European Harmonized Standards for use in hazardous locations is confirmed by the EU Type Examination Certificate. Compliance with the European directives and standards is confirmed by the EU Declaration of Conformity and the CE marking.

## Registered Trademarks

The following trademarks are used in this manual without further marking: SensoGate®, SensoLock®, Unical®, Uniclean®, Protos® are registered trademarks of Knick Elektronische Messgeräte GmbH & Co. KG, Germany

## Return of Products/Return Form

Please contact our Service Team before returning a defective device. Ship the cleaned device to the address you have been given. If the device has been in contact with process fluids, it must be decontaminated/disinfected before shipment. In that case, please attach a corresponding return form (see page 43), for the health and safety of our service personnel.

# Safety Instructions

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SensoGate WA 132

## Operation in Explosive Atmospheres

The SensoGate WA132-X is certified for operation in explosive atmospheres.

- EU-Type Examination Certificate KEMA 04ATEX4035X

Exceeding the standard atmospheric conditions within the manufacturer's specifications, such as ambient temperature, process pressure and temperature, does not impair the durability of the retractable fittings.

Related certificates are included in the product's scope of delivery and are available at [www.knick.de](http://www.knick.de) 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)

## Possible Ignition Hazards During Installation and Maintenance

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

The metallic parts of the SensoGate WA132-X must be connected to the plant's equipotential bonding 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 given on the nameplate may deviate from the actual version of the SensoGate WA132-X. The operating company must assess and document this deviation.

## 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:

- Highly efficient charge generating mechanisms are excluded
- 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 only 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.

## 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 implement appropriate measures.

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

# Intended Use

SensoGate WA 132

## Intended Use

The SensoGate WA 132 is a pneumatically operated retractable fitting. It allows sensors to be immersed in and retracted from liquid media, e.g., for process analytics.

The SensoGate WA 132 retractable fitting allows:

- immersing and retracting the sensor under process pressure (retractable fitting)
- calibrating or adjusting the measuring system under process conditions (pressure and temperature)
- cleaning the sensor in the running process (optional)
- replacing the sensor in the running process (in Service position)
- variable process adaptation by the customer

The retractable fitting is suitable for sensors with a sensor diameter of 12 mm and a PG 13.5 thread. The following sensors can be installed:

- sensor with solid electrolyte, 225 mm long
- sensor with liquid electrolyte, 250 mm long

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## Safe Use



If you are not sure whether the retractable fitting can be safely used for your intended application, always contact Knick!

To ensure safe use of the equipment, you must observe the temperature and pressure ranges given in the Specifications of this user manual.

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## Symbols and Markings

Symbol	Meaning
	CE marking with number of the notified body for the EU Type Examination Certificate
	ATEX marking for the operation of equipment in hazardous locations with device classification (see page 36)
	Do not open the device! Read this user manual, observe the Specifications, and follow the safety instructions.
	Ingress protection of the housing against dust and humidity
	Outlet symbol
Tamb	Ambient temperature

# Intended Use

SensoGate WA 132

## CAUTION!

### Take caution when using water from drinking water pipes for the water connection!

Observe the general requirements of protection devices to prevent pollution of potable water (EN 1717).





We recommend installing a check valve on the water inlet, e.g., on the water valve provided by the customer or on the rinse connection of the retractable fitting (inlet to calibration chamber) to prevent backflow of rinse or process medium or compressed air into the water pipe.

Suitable check valves made from different materials are available from Knick.

## Rating Plates

SensoGate® WA 132-N

Drive





<b>Knick</b> >	<b>SensoGate®</b>
Retractable Fitting / Drive Unit	
Type	
No.	
 	Max. pressure Temperature range
14163 Berlin Made in Germany	
	




Process

<b>Knick</b> >	<b>SensoGate®</b>
14163 Berlin Made in Germany Process Unit	
Type	
No.	






SensoGate® WA 132-X

Drive

<b>Knick</b> >	<b>Sensogate®</b>
Retractable Fitting / Drive Unit	
Type	
No.	
 	Max. pressure Temperature range
14163 Berlin Made in Germany	
 0044	

<b>KEMA 04 ATEX 4035X</b>	
 II 1 G	Ex h IIC T6 ... T3 Ga
II 1 D	Ex h IIIC T80°C ... 140°C Da
Tamb -10 ... 70 °C	
 	No self-heating Special conditions
<b>WARNING - Potential electrostatic charging hazard</b> - see instruction	

Process

<b>Knick</b> >	<b>SensoGate®</b>	
14163 Berlin Made in Germany		0044
Process Unit		
Type	No.	
 	Max. pressure Temperature range	  See Drive Unit for Ex marking

## Package Contents

Check the shipment for transport damage and completeness.

### The package should contain:

- Retractable fitting
- Documentation
- Test certificates

# SensoGate WA 132 Product Coding

SensoGate WA 132

WA 132-

Explosion protection	For ATEX Zone 0 No	X N	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Sensor	Sensor, Ø 12 mm, with PG 13.5 pH sensor, Ø 12 mm, pressurized	0 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Gasket material	FKM EPDM EPDM - FDA FKM - FDA FFKM - FDA FFKM	A B E F H K	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Process-wetted materials*	PTFE	R	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Process adaptation	Loose flange, 1.457, PN10/16, DN 32 Loose flange, 1.457, PN10/16, DN 40 Loose flange, 1.457, PN10/16, DN 50 Loose flange, 1.457, PN10/16, DN 65 Loose flange, 1.457, PN10/16, DN 80 Loose flange, 1.457, PN10/16, DN 100 Loose flange, ANSI 316, 150 lbs, 2" Loose flange, ANSI 316, 150 lbs, 2 ½" Loose flange, ANSI 316, 150 lbs, 3"* Loose flange, ANSI 316, 150 lbs, 3 ½" Fitting, DIN 3237-2, PN16, DN 40 Fitting, DIN 3237-2, PN16, DN 50 Loose flange, 1.4571, DN 40, for plane flange made of glass Loose flange, 1.4571, DN 50, for plane flange made of glass	B B B B B B D D D D T T U U	0 A 1 2 3 4 1 2 3 4 A 1 A 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Immersion depth	Short Long	A B	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Connection	Media connection, PP Media connection, PEEK Media connection, PEEK, with integr. connection for additional medium	A B C	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Special version	Without Equipped with special grease (provided by customer) Customer-specific special datasheet		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	0	0	0	1	F

\* Material combinations: process-wetted part of calibration chamber / rinse-wetted part of calibration chamber / immersion tube

Example of a possible order code: WA 132-X0ARB1BA31-00F

X	Explosion protection, ATEX Zone 0
0	Suitable for sensors with a sensor diameter of 12 mm
A	Gasket material: FKM
R	Process-wetted materials made of PTFE
B1	Loose flange, PN 10 / 16, DN 50 made of stainless steel 1.4571
B	Long immersion depth
A	Without electrical limit signal
3	inlet with PFA hose coupling NW 4/6, outlet with PFA hose coupling NW 6/8, with (optional) outlet hose made of PTFE, 3 m
1	Housing made of stainless steel/PP
F	Customer-specific special datasheet

# Function Description

SensoGate WA 132

The retractable fitting can be moved to two positions using compressed air:

- **PROCESS position:** The sensor is located in the process medium.
- **SERVICE position:** The sensor is located in the calibration chamber.

In SERVICE position you can clean, maintain, calibrate or adjust the measuring system.

Using compressed air, a control unit such as the Unical 9000 moves the sensor between SERVICE position and PROCESS position and leads the different calibration or cleaning liquids to the sensor when it is located in the calibration chamber. These liquids leave the calibration chamber through an outlet hose, i.e., they are displaced from the calibration chamber by following liquids or by compressed air.

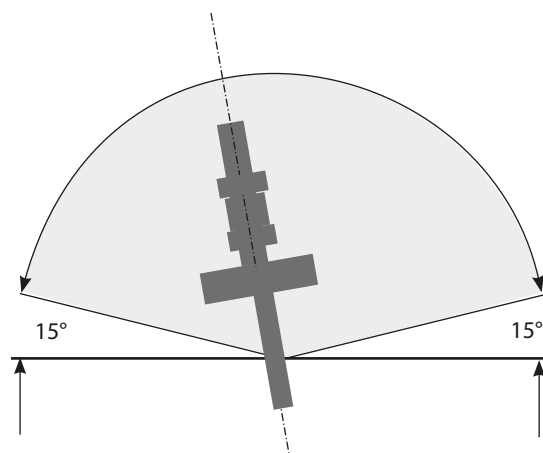
For operating the SensoGate, you must connect control air and rinsing or calibration media to the SensoGate. There are two possible ways to do so.

- When the SensoGate is operated with a Unical or Unclean electro-pneumatic controller and the Protos measuring system, the cables and tubings for air pressure and rinsing/calibration media are combined in a single hose with just one plug connection. This hose is referred to as media connection. This media connection is installed on the SensoGate together with the outlet hose.
- When you do not use an electro-pneumatic controller (Unical or Unclean and Protos measuring system), you can connect the supply lines for control air and rinsing/calibration media with a free hose connection via adapters ZU 0742 / ZU 0733 / ZU 0734 (see page 40).

To replace the sensor, you must move the retractable fitting to the SERVICE position (see page 13) and secure it using SensoLock (see page 11).

## Mounting

- Possible mounting angle 15° above horizontal:
- Mounting angle 360° (i.e. even upside down) for special sensors only containing thickened electrolytes which thus cannot flow.



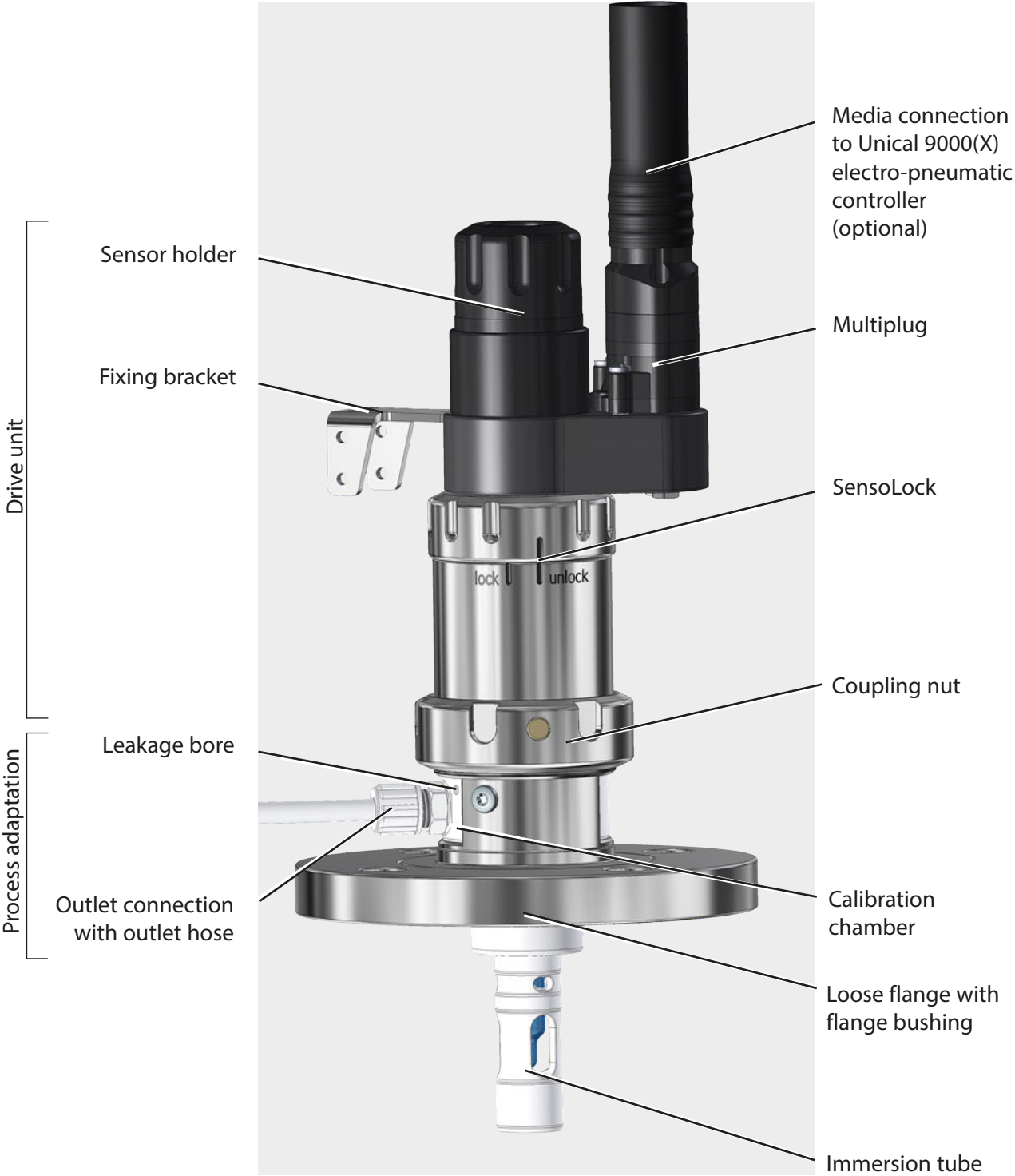


# Overview of Retractable Fitting

SensoGate WA 132

The SensoGate retractable fitting has a modular design. This allows the drive unit, immersion tube and process adaptation to be exchanged. The retractable fitting consists of two main units:

The **drive unit** performs the required movements to move the sensor into and out of the process. The **process adaptation** comprises the process-wetted part of the calibration chamber. Drive unit and process adaptation can be separated, see page 25.

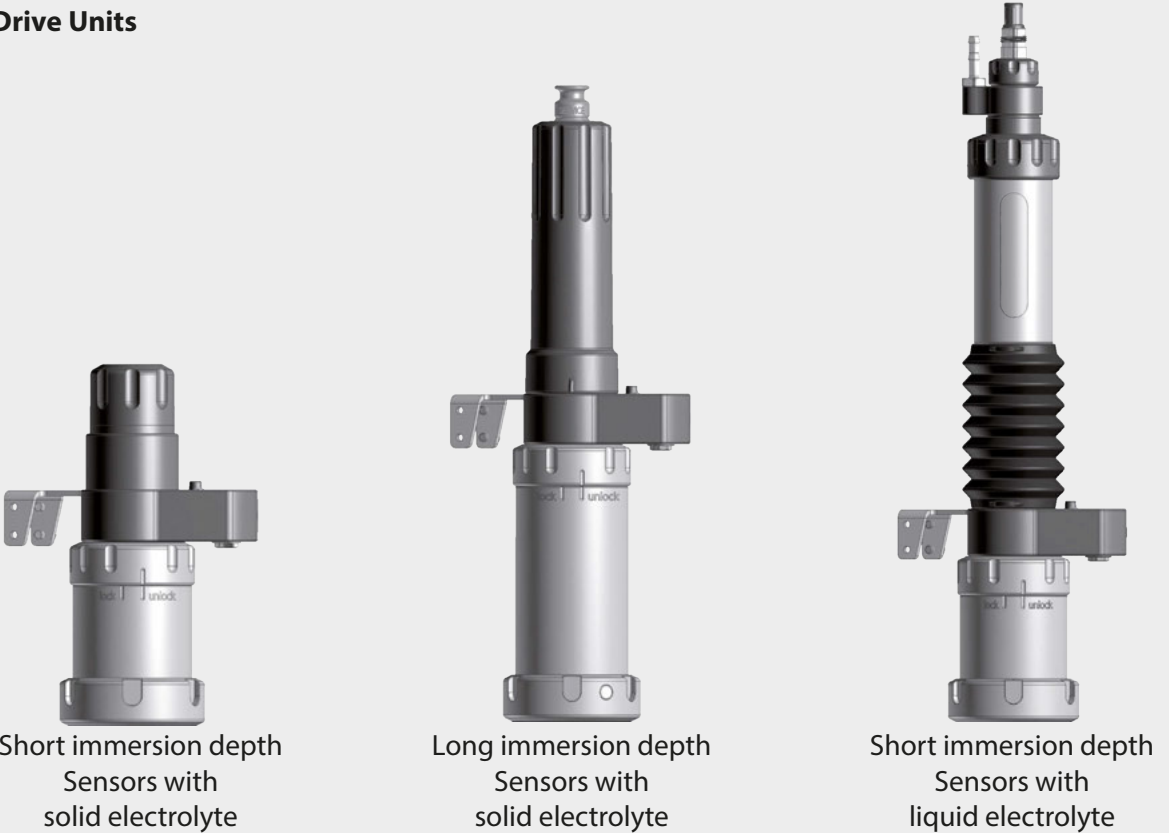


# Overview of Retractable Fitting

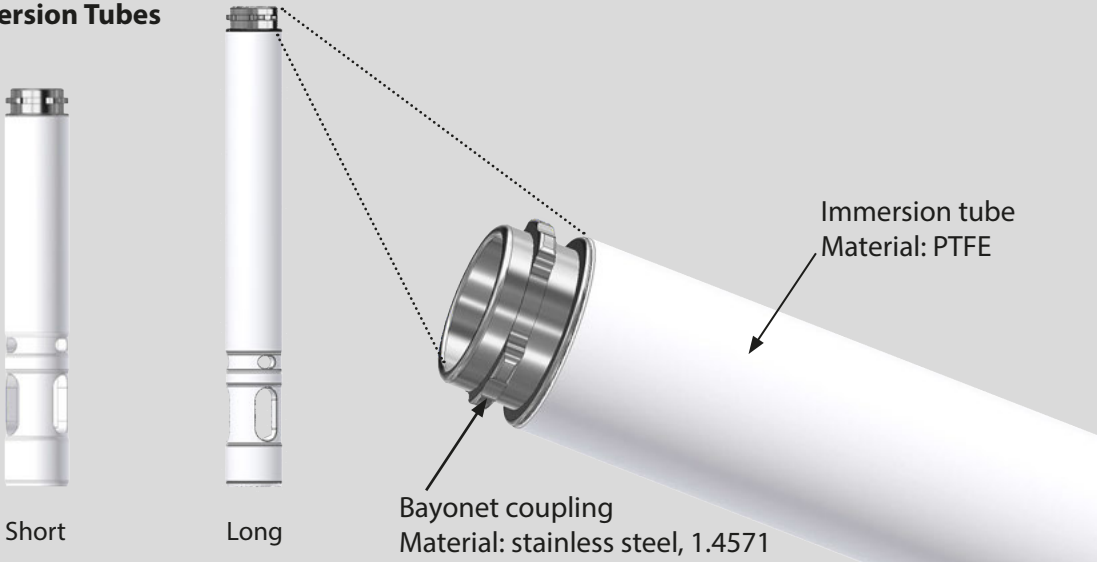
SensoGate WA 132

## Modular Design: Drive Unit, Immersion Tube, Process Adaptation

### Drive Units



### Immersion Tubes



### Process Adaptation



Process adaptation

- DIN and ANSI loose flanges

# SensoLock

SensoGate WA 132

The SensoLock ring securely blocks the retractable fitting in SERVICE position. Twisting the SensoLock ring to the “lock” position mechanically locks the internal lift piston and thus prevents the retractable fitting from moving to PROCESS position. The SensoLock ring can only be rotated when in SERVICE position. In PROCESS position and all intermediate positions the SensoLock ring is blocked.

Before starting maintenance work or replacing a sensor,

- move the retractable fitting to the SERVICE position.
- twist the SensoLock ring to the “lock” position.



Twisting the SensoLock ring to the “lock” position prevents the immersion in the process when the sensor has been removed (locking the travel movement, safety function).



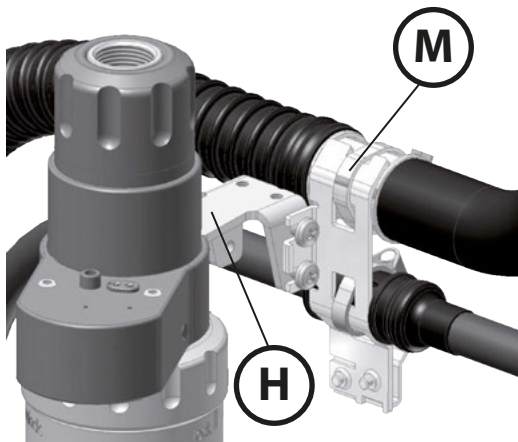
After the sensor has been installed, you can unlock the travel movement by twisting the SensoLock ring to “unlock”.

# Media Connection

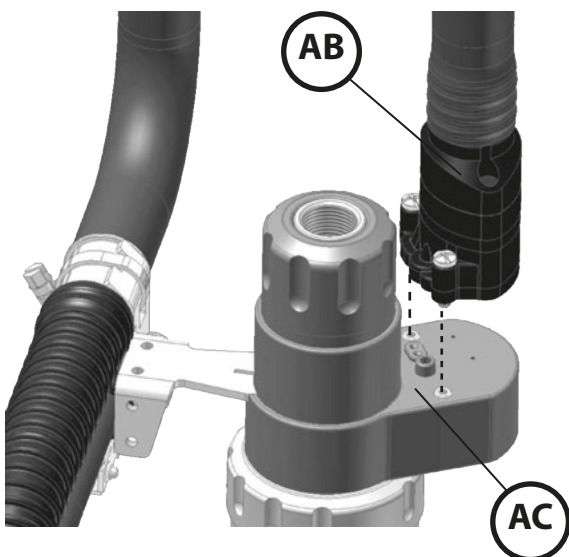
SensoGate WA 132

## Installing the Media Connection

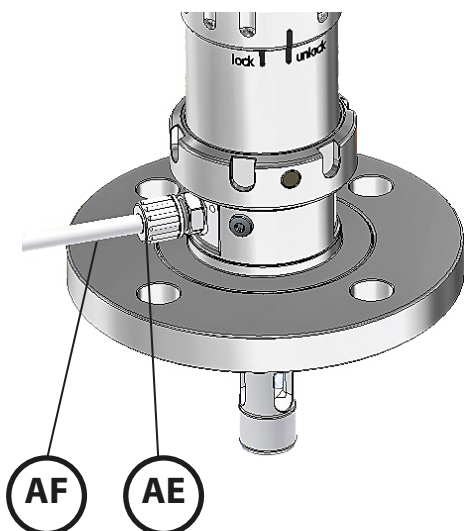
Installing the media connection with multiplug and Unical 9000(X) electro-pneumatic controller



- 1) Screw the hose bracket (**M**) of the media connection to the fixing bracket (**H**) of the retractable fitting (illustration: The  $3 \times 2$  threaded holes on the fixing bracket allow different arrangements).



- 2) Screw the multiplug (**AB**) of the media connection to the connection (**AC**) of the retractable fitting.



- 3) Connect the outlet hose (**AF**) using the hose coupling (**AE**).

# SERVICE Position

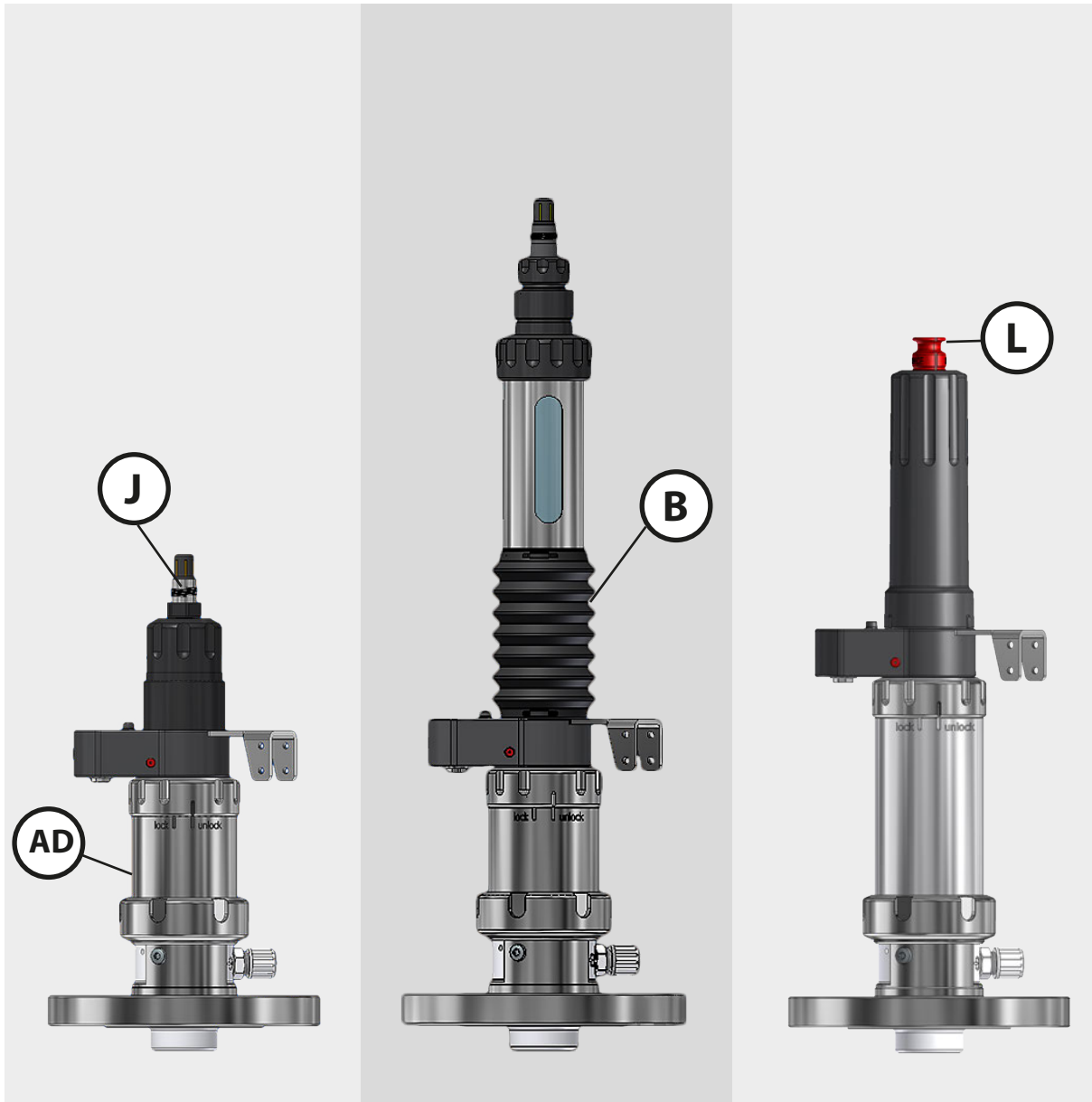
SensoGate WA 132

The following illustrations clearly show the SERVICE position:

Short immersion depth  
Solid-electrolyte sensor

Short immersion depth  
Liquid-electrolyte sensor

Long immersion depth  
Solid-electrolyte sensor



The SERVICE position is indicated by the sensor head (**J**) protruding out of the drive unit (**AD**).

The SERVICE position is indicated by the rubber bellows (**B**) being expanded.

The SERVICE position is indicated by the service cap (**L**) protruding out of the extension.

# PROCESS Position

SensoGate WA 132

The following illustrations clearly show the PROCESS position:

Short immersion depth  
Solid-electrolyte sensor

Short immersion depth  
Liquid-electrolyte sensor

Long immersion depth  
Solid-electrolyte sensor



The PROCESS position is indicated by the sensor connector not protruding out of the drive unit (**AD**).

The PROCESS position is indicated by the rubber bellows (**B**) being compressed.

The PROCESS position is indicated by the sensor cap not protruding out of the extension (**V**).

# Installing and Removing a Sensor

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SensoGate WA 132

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**NOTICE!** Sensors shall only be installed or removed by personnel authorized by the operating company and trained in the handling of the retractable fitting. To replace the sensor, you must move the retractable fitting to the SERVICE position (see page 13) and secure it using SensoLock (see page 11).

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Be sure to follow the assembly instructions step by step.

## **Preparations:**

- Check whether the sensor is damaged (e.g., glass broken).  
Never install a damaged sensor.
- Check whether slide washer or O-ring on the sensor are damaged and replace if required.
- Remove the watering cap from the sensor tip and rinse sensor with water.
- Internally pressurized sensors might have a silicone seal on the diaphragm (as transport protection). Remove this seal using the knife shipped with the sensor.

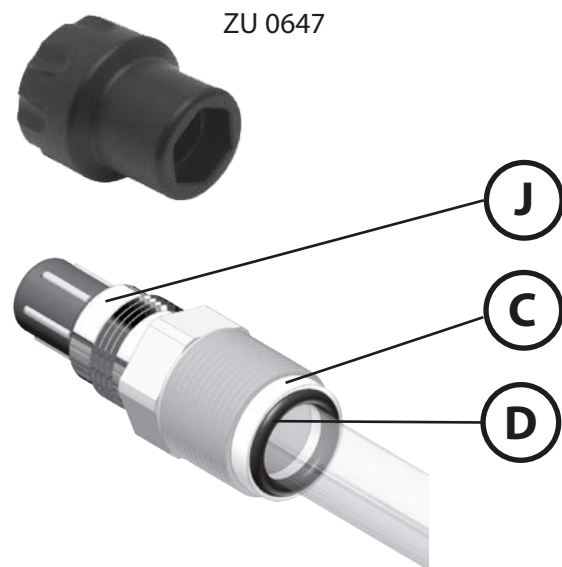
# Sensors with Solid Electrolyte

SensoGate WA 132

## Short Immersion Depth

### Installing the Sensor

- 1) Before installing the sensor, make sure that the retractable fitting is in **SERVICE position**.
- 2) Use appropriate sensors (**A**) only:  
Diameter: 12 mm  
Length: 225 mm  
Observe the pressure resistance of the sensor.
- 3) Make sure that the slide washer (**C**) and the O-ring (**D**) are correctly positioned and not damaged.



- 4) Screw in the sensor head (**J**) (19 mm A/F, PG 13.5 thread) with a max. torque of 3 Nm (recommended tool: 19 mm mounting wrench, e.g., Knick ZU 0647).  
The sensor connector protrudes out of the drive unit.



# Sensors with Solid Electrolyte

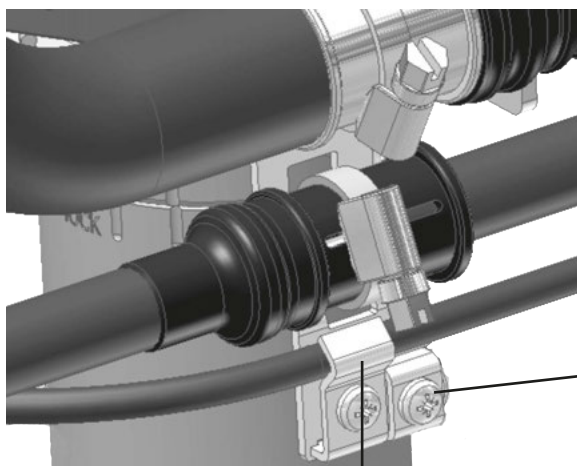
SensoGate WA 132

## Short Immersion Depth



- 5) Connect the cable jack (**G**).  
Hold the cable in a loop and fix it using clamp (**E**).

**NOTICE!** The cable loop must be long enough so that the cable does not impede the stroke movement of the fitting.



- 6) Connect the equipotential bonding cable to terminal (**F**) (if required).

# Sensors with Solid Electrolyte

SensoGate WA 132



## Short Immersion Depth

### Removing the Sensor

- 1) Only remove the sensor when the retractable fitting is in **SERVICE position**:  
Move the SensoGate retractable fitting to SERVICE position and secure it with SensoLock (the sensor connector protrudes out of the drive unit).
- 2) Remove the cable jack (**G**).
- 3) Before removing the sensor, check that there is no liquid leaking from the outlet (process sealing might be defective).
- 4) Remove the sensor (recommended tool: 19 mm mounting wrench, e.g., Knick ZU 0647).
- 5) Check whether the slide washer (**C**) or the O-ring (**D**) are damaged.

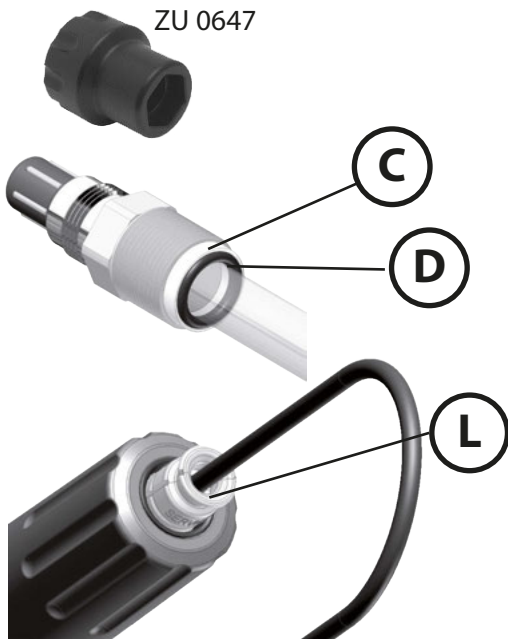
### NOTICE!

When replacing damaged sensors (glass breakage), be sure to check the sensor seal in the immersion tube and replace it if required. (See page 29.)



# Sensors with Solid Electrolyte

SensoGate WA 132



## Long Immersion Depth

### Installing the Sensor

- 1) Before installing the sensor, make sure that the retractable fitting is in **SERVICE position** (red service cap **(L)** is visible).
- 2) Use appropriate sensors **(A)** only:  
Diameter: 12 mm  
Length: 225 mm  
Observe the pressure resistance of the sensor.
- 3) Make sure that the slide washer **(C)** and the O-ring **(D)** are correctly positioned and not damaged.



- 4) Insert the sensor and screw in the sensor head **(J)** (19 mm A/F, PG 13.5 thread) with a max. torque of 3 Nm (recommended tool: 19 mm mounting wrench, e.g., Knick ZU 0647).
- 5) Thread the cable jack **(G)** through the extension **(V)**.
- 6) Connect the cable jack **(G)** with the sensor plug **(J)** (connection with coupling nut).

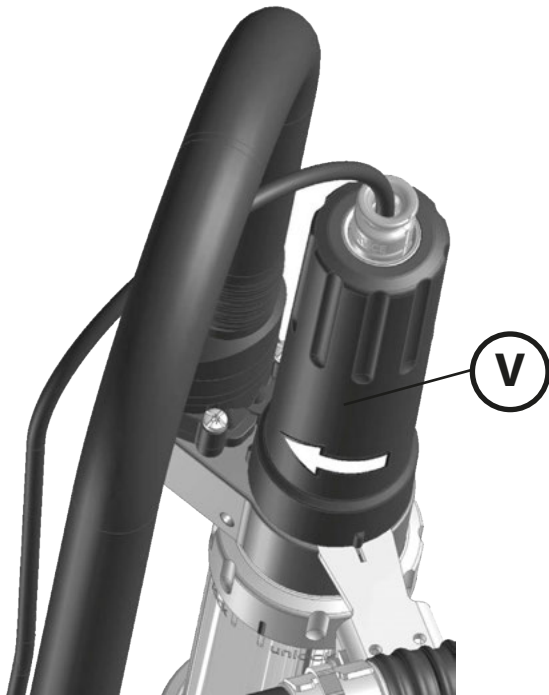
# Sensors with Solid Electrolyte

SensoGate WA 132

## Long Immersion Depth

### Installing the Sensor (continued)

**NOTICE!** The cable loop must be long enough so that the cable does not impede the stroke movement of the fitting. When the cable is installed for the first time, you must first pull off the split red service cap (**L**).



7) Attach the extension (**V**) and turn it clockwise until it noticeably snaps in.

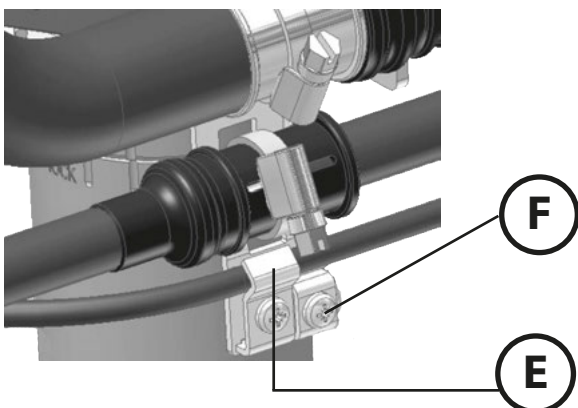


8) Put the split (red) service cap (**L**) on the cable as shown. Then push it into the extension (**V**) until it noticeably snaps in.



9) Hold the sensor cable in a loop and fix it using clamp (**E**).

10) Connect the equipotential bonding cable to terminal (**F**) (if required).



# Sensors with Solid Electrolyte

SensoGate WA 132

## Long Immersion Depth

### Removing the Sensor

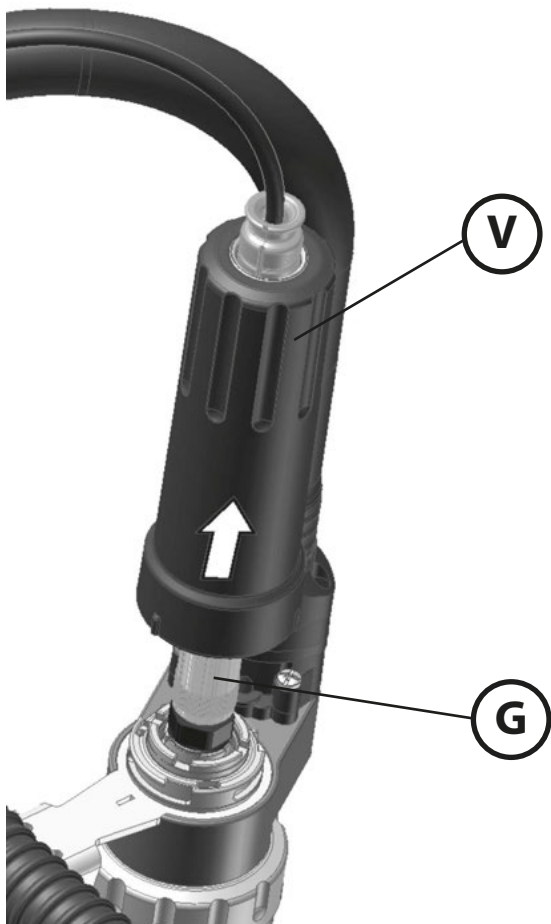
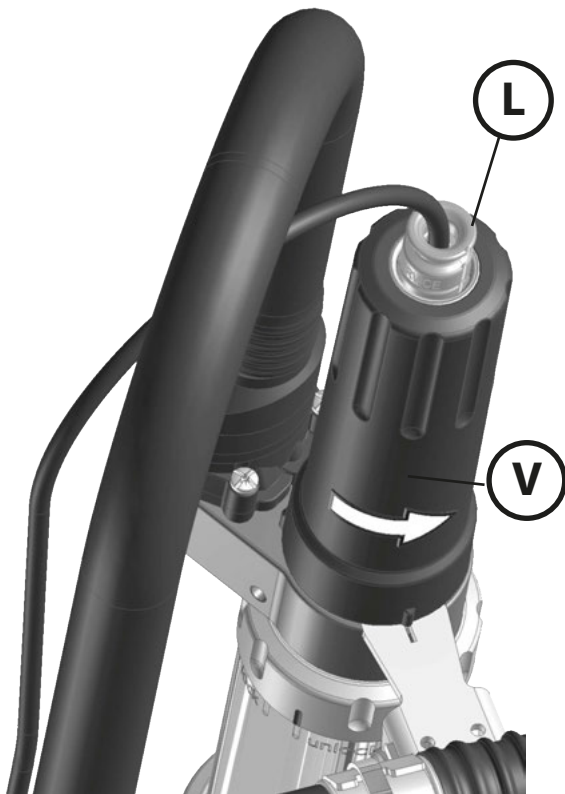
Only remove the sensor when the retractable fitting is in **SERVICE position**: Move the SensoGate retractable fitting to SERVICE position and secure it with SensoLock (red service cap **(L)** is visible).

1) Before removing the sensor, check that there is no liquid leaking from the outlet (process sealing might be defective).

2) Rotate the extension **(V)** counterclockwise. This unlocks the bayonet coupling.

**Note:** The extension **(V)** can only be unlocked in SERVICE position (safety function).

3) Pull off the extension **(V)** in direction of the arrow. Now you can see the cable jack **(G)**.



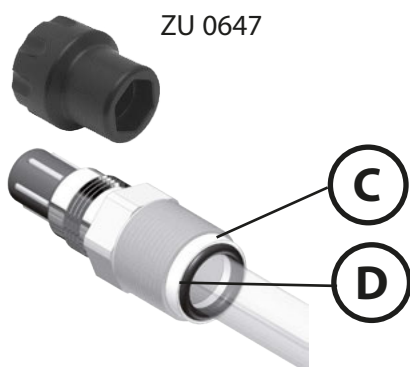
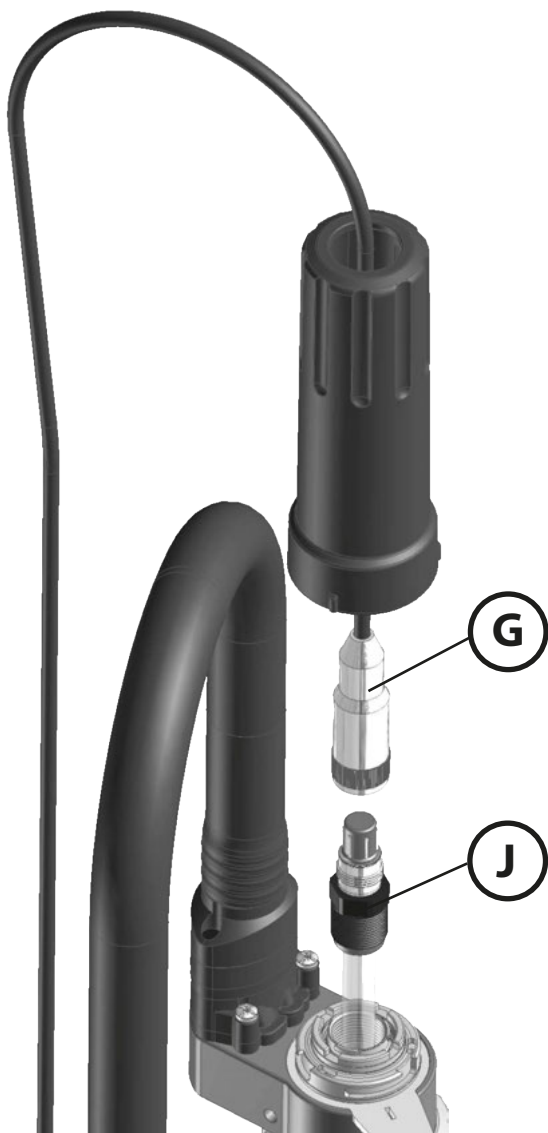
# Removing a Solid-Electrolyte Sensor

SensoGate WA 132

## Long Immersion Depth

### Removing the Sensor (Continued)

- 4) Disconnect the cable jack (G) from the sensor.
- 5) Screw off the sensor head (J) (19 mm, PG 13.5), (recommended tool: 19 mm mounting wrench, e.g., Knick ZU 0647) and pull out the sensor.



- 6) Check whether slide washer (C) or O-ring (D) on the sensor are damaged.

**NOTICE!** When replacing damaged sensors (glass breakage), be sure to check the sensor gasket in the immersion tube and replace it if required (see page 29).



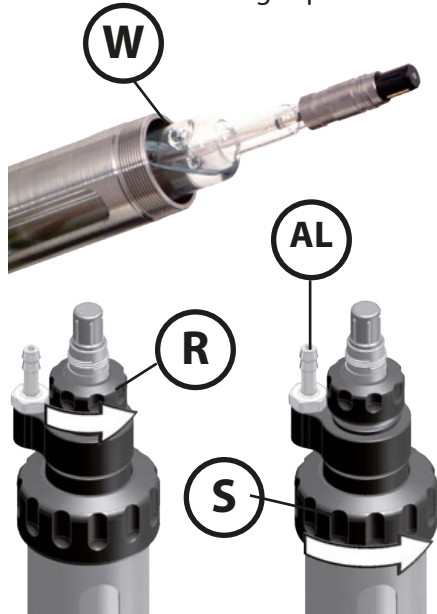
# Sensors with Liquid Electrolyte

SensoGate WA 132

You can use sensors with a length of 250 mm and an electrode diameter of 12 mm, e.g., Knick SE 551.

To ensure that the electrolyte flows from the reference electrode to the process medium, the air pressure in the sensor pressure chamber must be 0.5 to 1 bar above that of the process medium. The compressed-air connection (**AL**) for the sensor pressure chamber is made via connection nipple NW6 mm. Check whether the sensor is damaged (e.g., glass broken).

Remove the watering cap from the sensor tip and rinse the sensor with water.



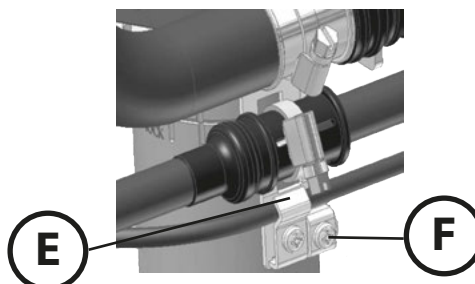
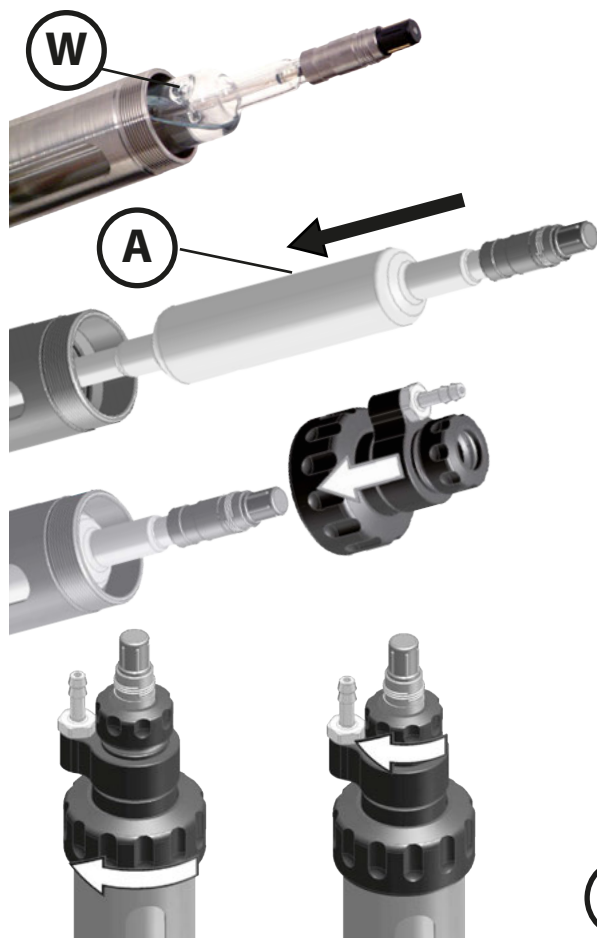
**NOTICE!** In the case of inclined installation, the sensor must be installed as described below to prevent electrolyte from flowing out during operation of the retractable fitting. First, move the fitting into SERVICE position.

Remove the plug and turn the electrolyte filling hole (**W**) towards the top to prevent electrolyte from flowing out when the sensor is inclined.

Observe the installation instructions of the sensor manufacturer.

## Installing the Sensor

- 1) Before installing the sensor, make sure that the retractable fitting is in **SERVICE position** (the rubber bellows is expanded).
- 2) Loosen the small coupling nut (**R**) – do not remove it.
- 3) Unscrew and remove the large coupling nut (**S**) and pull the detached unit upwards.
- 4) Install the sensor (**A**).
- 5) Replace the unit you have detached in step 3. First hand-tighten the large coupling nut (**S**) and then the small coupling nut (**R**).
- 6) Connect the cable jack, hold the cable in a loop and fix it using clamp (**E**).  
**NOTICE!** The cable loop must be long enough so that the cable does not impede the stroke movement of the fitting.
- 7) Connect the equipotential bonding cable to terminal (**F**) (if required).

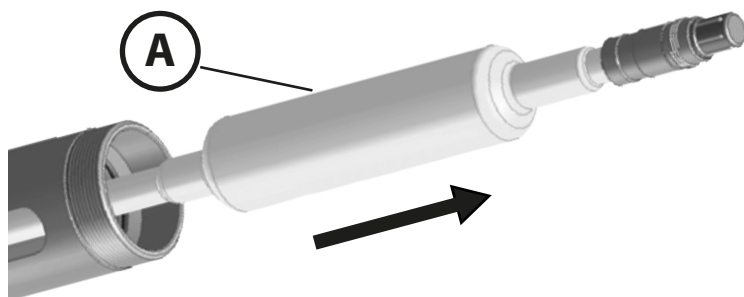
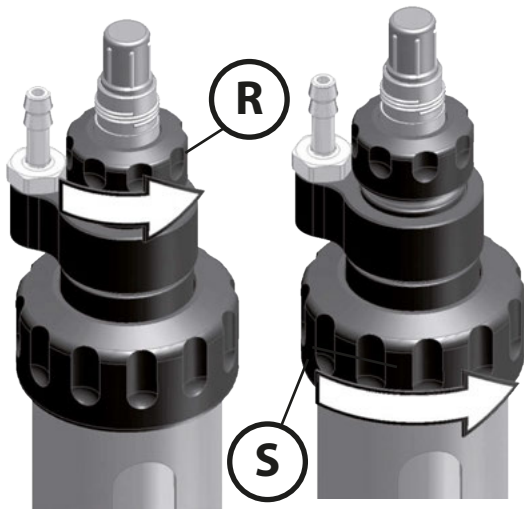


# Sensors with Liquid Electrolyte

SensoGate WA 132

## Removing the Sensor

- 1) Before removing the sensor, make sure that the retractable fitting is in **SERVICE position** and secured with SensoLock (the rubber bellows is expanded).
- 2) Remove the cable jack.
- 3) Before removing the sensor, check that there is no liquid leaking from the outlet (process sealing might be defective).
- 4) Loosen the small coupling nut **(R)** – do not remove it.
- 5) Unscrew and remove the large coupling nut **(S)** and pull the detached unit upwards.
- 6) Remove the sensor **(A)**.





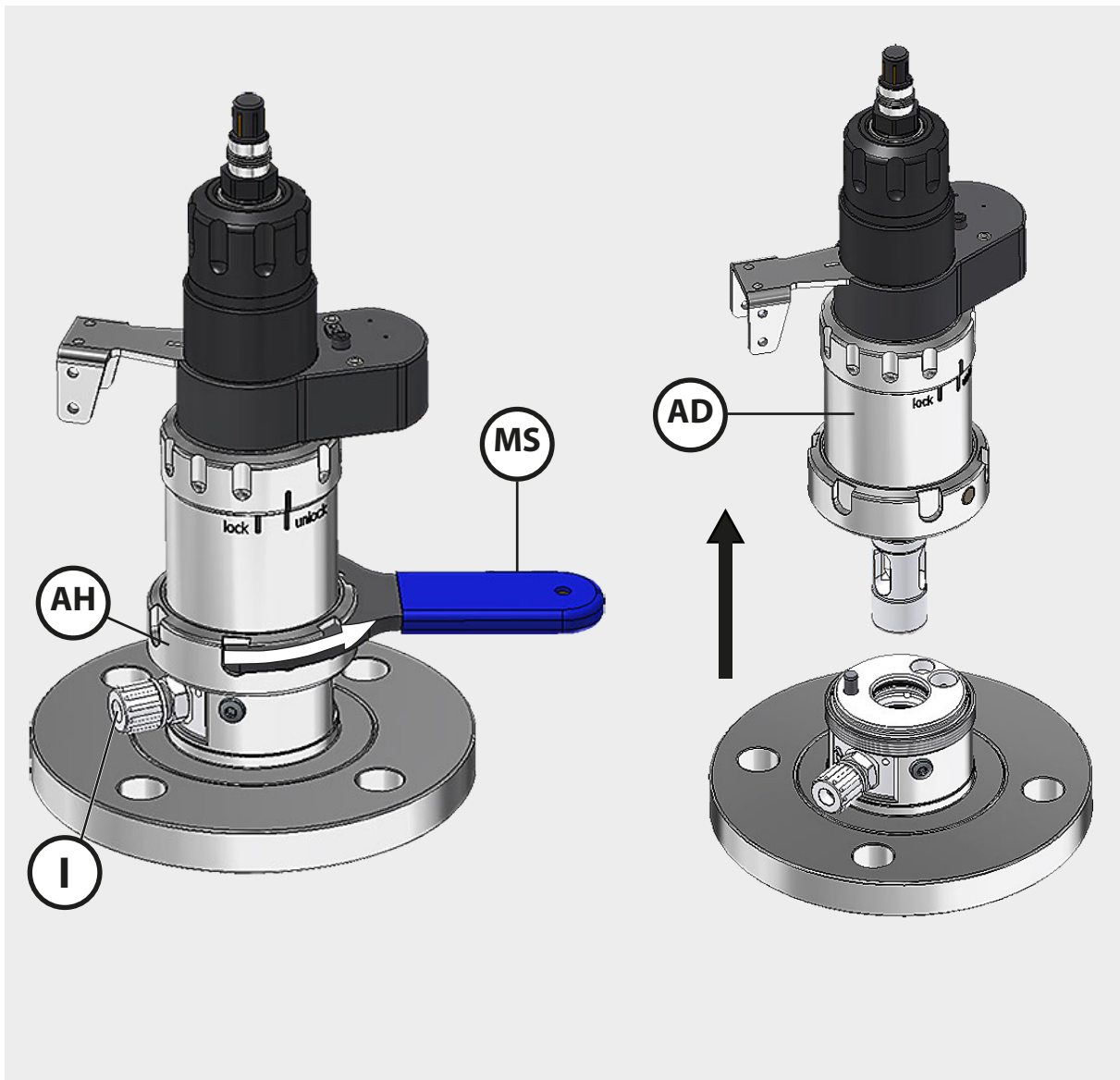
# Drive Unit

SensoGate WA 132

## Removing the Drive Unit

**NOTICE!** Be sure to follow the steps below in the correct order. Take appropriate safety precautions against escaping process fluids. Disconnect all process media and process pressure!

- 1) Move the retractable fitting to the SERVICE position.
- 2) Make sure that no process fluid is leaking from the outlet **(I)**.
- 3) If required, remove the sensor as described on page 15.
- 4) Separate the outlet and rinse connection if required.
- 5) Carefully turn the coupling nut **(AH)** counterclockwise (using the ZU 0680 accessory wrench **(MS)** if required – see figure). Take care to not cant the unit!
- 6) Pull off the drive unit **(AD)** upwards.



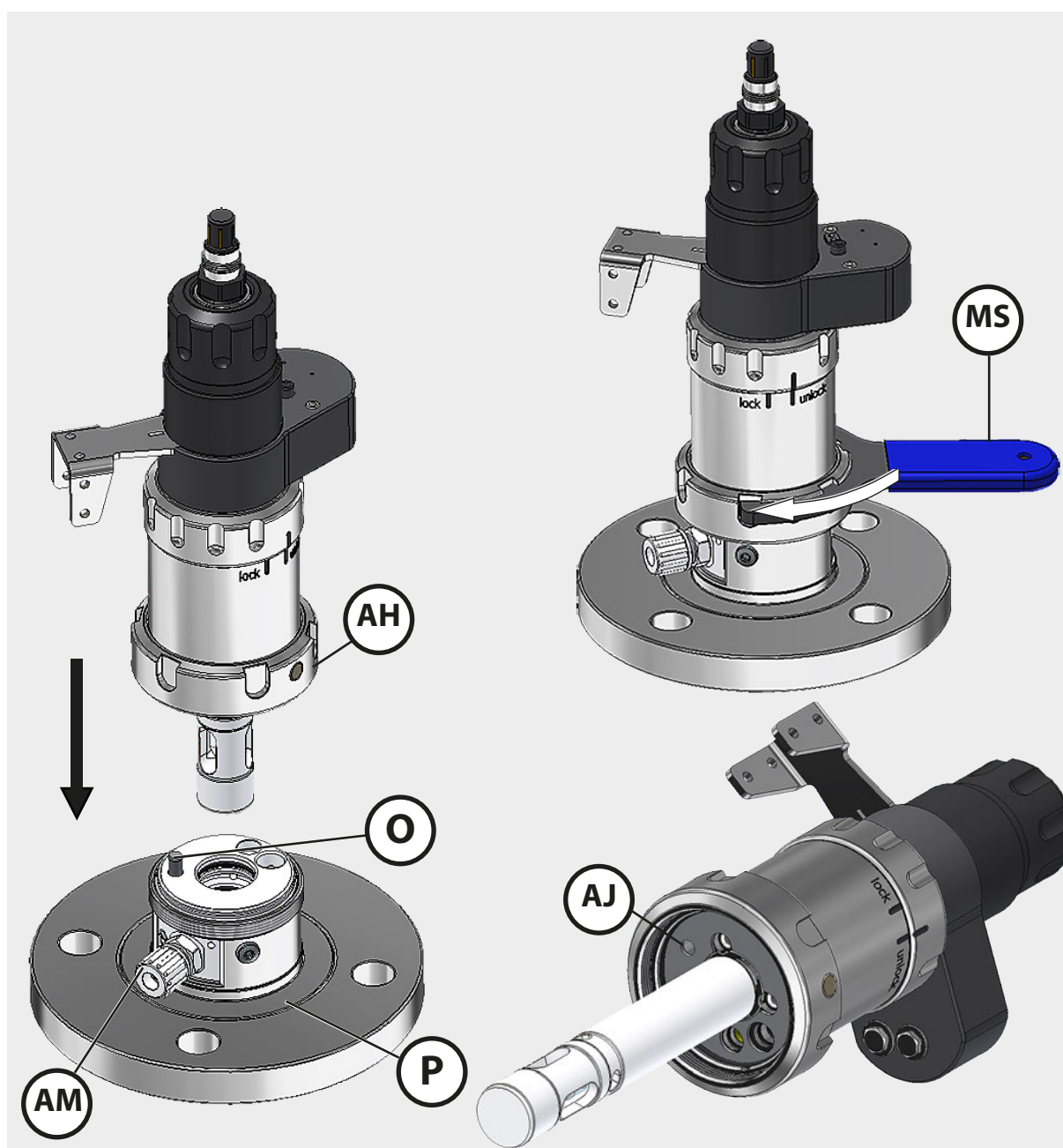
# Drive Unit

SensoGate WA 132

## Installing the Drive Unit

**NOTICE!** Be sure to follow the steps below in the correct order.

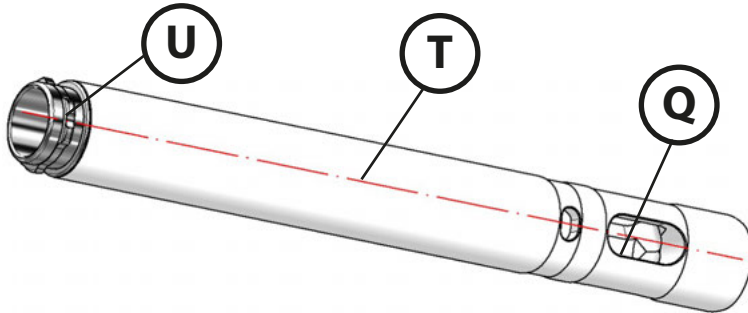
- 1) Insert the drive unit (in SERVICE position) into the process adaptation (**P**).  
The radial position of the drive unit is determined by a coding pin (**O**) in the calibration chamber and an opening (**AJ**) in the drive unit. The coupling nut can only be tightened when the drive unit is in the correct position.
- 2) Now tighten the coupling nut (**AH**) (turn clockwise – hand-tight or 10 Nm – using the ZU 0680 accessory wrench (**MS**) if required).
- 3) Attach the outlet connector (**AM**).
- 4) If required, install the sensor as described on page 15.



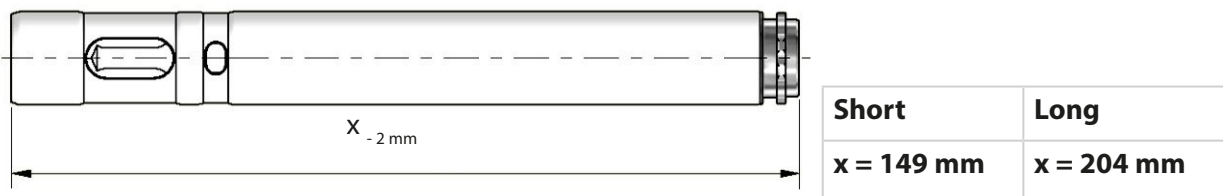
# Immersion Tube

SensoGate WA 132

The wetted part of the immersion tube is made of PTFE. The upper part of the immersion tube (**T**) is provided with a stainless steel endpiece with bayonet contour (**U**). This endpiece serves for connecting the immersion tube to the drive unit of the retractable fitting. The endpiece is aligned with the three windows (**Q**) in the immersion tube and non-rotatably connected to the tube body (see the centerline in the figure below). This fixed alignment is imperative to ensure an easy connection and an optimal rinsing result for the retractable fitting.



If the endpiece is not properly aligned or can be twisted, the tube is defective. In this case, you must replace the immersion tube.



High process pressures and high process temperatures can cause the immersion tube to shrink (known creep tendency of PTFE).

Before installing the immersion tube, always check its total length as shown above. If the total length  $X$  is more than 2 mm shorter than specified (see figure and table), you must replace the immersion tube.

## Replacing the Immersion Tube

The immersion tube must be removed or replaced:

- for general maintenance
- for cleaning the immersion tube, e.g., after the sensor is broken
- for replacing the sensor gasket (O-ring)
- in the event of a technical fault of the drive unit

# Immersion Tube

SensoGate WA 132

## Removing the Immersion Tube

### **⚠ WARNING!**

**Warning! No process medium and no process pressure!**

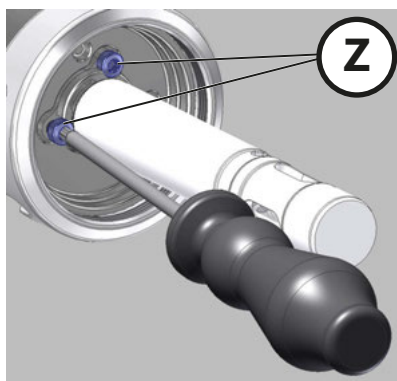
To separate the retractable fitting safely from the process, make sure that it is disconnected from all process media and process pressure.



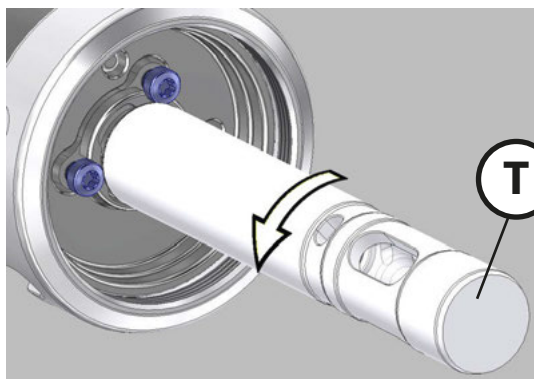
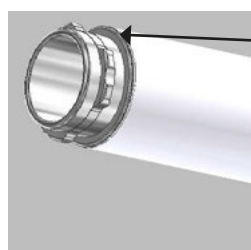
**NOTICE!** Before working on the drive unit, make sure that the retractable fitting is in SERVICE position (see page 13).

### Conditions:

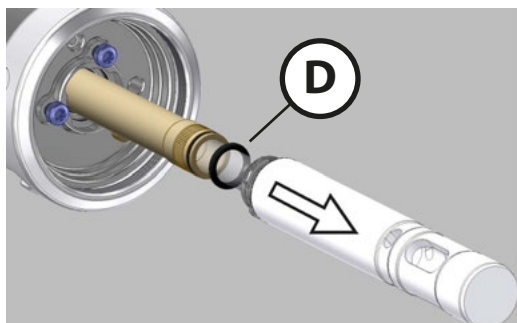
First, separate the drive unit from the process adaptation (see page 25).



- 1) Pull out the immersion tube by hand until you see the two screws **(Z)**. Loosen the two screws **(Z)** using a screwdriver (TX25) until they contact the stop at the immersion tube (see illustration).



- 2) Turn the immersion tube **(T)** counterclockwise by approx. 60°.



- 3) The bayonet coupling opens so you can pull out the immersion tube **(T)** in direction of the arrow.
- 4) Now, O-ring **(D)** (sensor gasket) is visible. Check and replace if required (O-ring dimensions: 11.9x2.6 mm).

### Note:

Contrary to the figure, the O-ring may still be in the immersion tube.

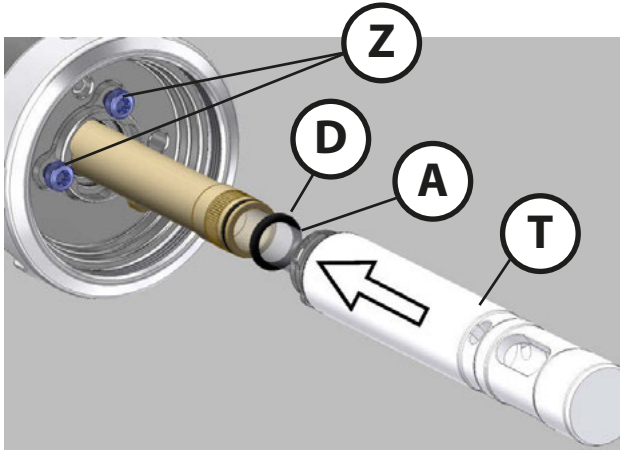
# Immersion Tube

SensoGate WA 132

## Installing the Immersion Tube

### Conditions:

The retractable fitting must be in PROCESS position (see page 14).

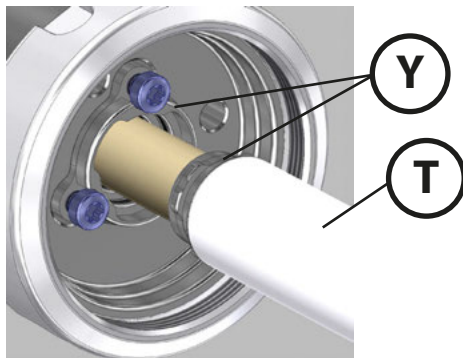


1) Push the O-ring (**D**) (sensor gasket) onto the sensor (**A**) as shown.

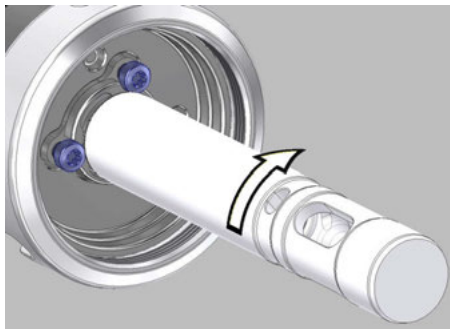
**NOTICE!** Make sure that there is no further O-ring in the immersion tube (**T**) (installed by mistake).

2) Loosen the two screws (**Z**) by approx. 4 turns (do not detach them) if you have not done that when removing the immersion tube.

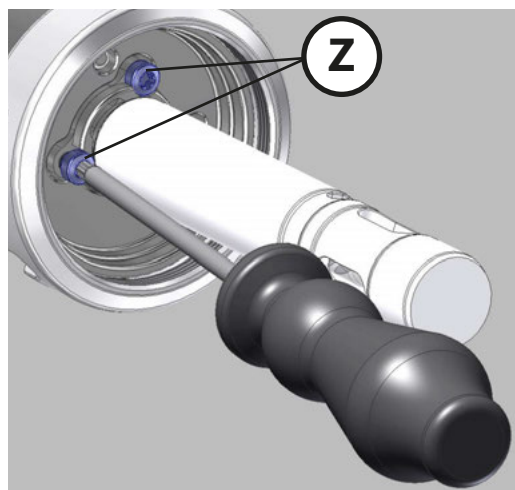
**NOTICE!** If the screws have been screwed out too far, the immersion tube cannot be installed (correct if required).



3) Push the immersion tube (**T**) in direction of the arrow and insert it in the bayonet coupling (**Y**).



4) Press the tube in place and turn it clockwise until the stop (approx. 60°).



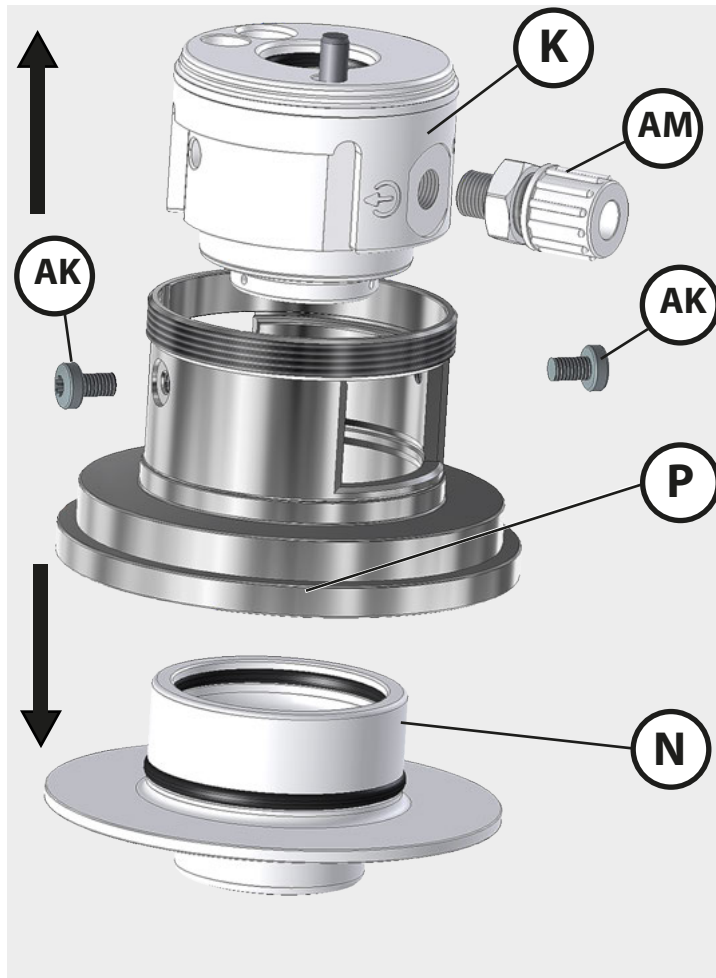
5) Fasten the two screws (**Z**) using a screwdriver (TX 25).

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

# Calibration Chamber

SensoGate WA 132

## Removing the Calibration Chamber



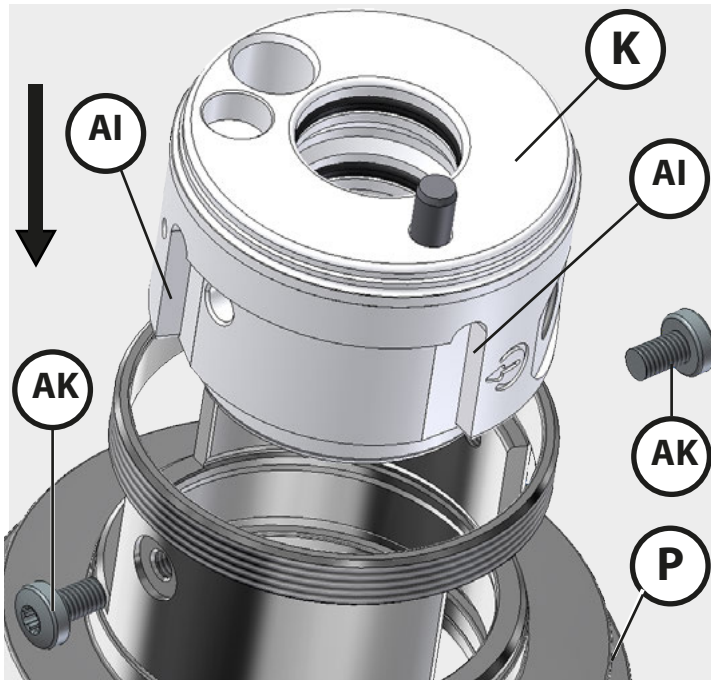
- 1) Remove the outlet connector (**AM**). Take off the loose flange if required.
- 2) Loosen and remove the two screws (**AK**) from the calibration chamber (using screwdriver TX 25).
- 3) Pull the calibration chamber (**K**) vertically out of the process adaptation (**P**).
- 4) Push the flange bushing (**N**) downwards out of the process adaptation. Now, the gaskets are accessible and can be checked and replaced if required.



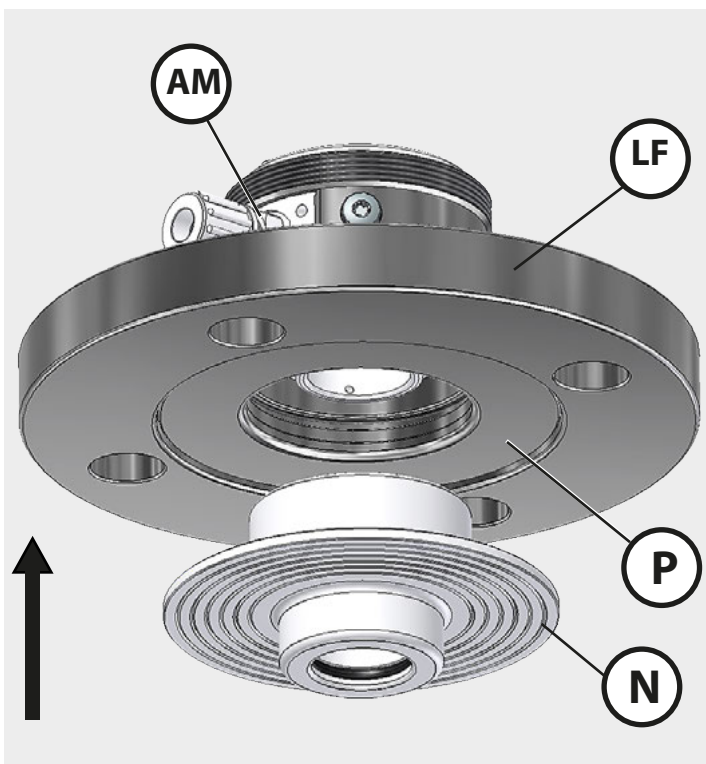
# Calibration Chamber

SensoGate WA 132

## Installing the Calibration Chamber



- 1) Align the guiding edges (**AI**) of the calibration chamber (**K**) and insert it in the process adaptation (**P**).
- 2) Always secure the calibration chamber with both screws (**AK**).

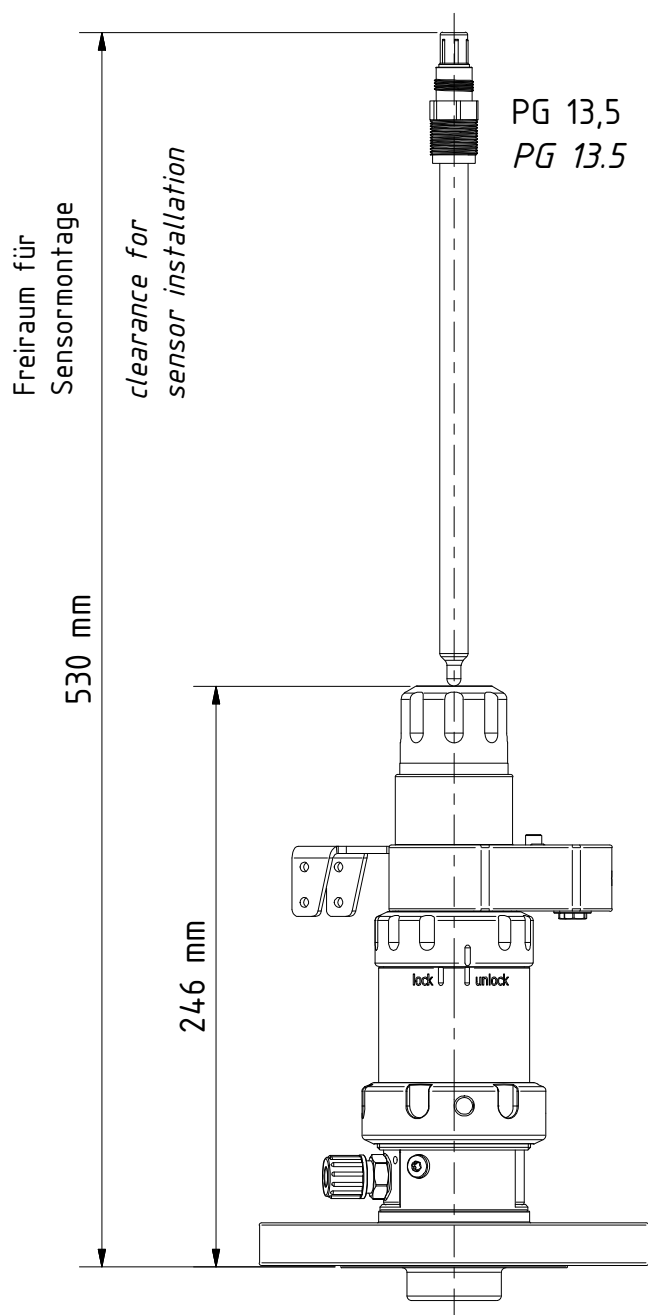


- 3) Install the loose flange (**LF**) if required. Screw in the outlet connector (**AM**).
- 4) Insert the flange bushing (**N**) in the process adaptation (**P**) in direction of the arrow.
- 5) When you push the flange bushing (**N**) in the process adaptation (**P**), you can hear how the sealing strip snaps in.

# Installation Dimensions

SensoGate WA 132

WA 132, Short Immersion Depth for Sensors with Solid Electrolyte

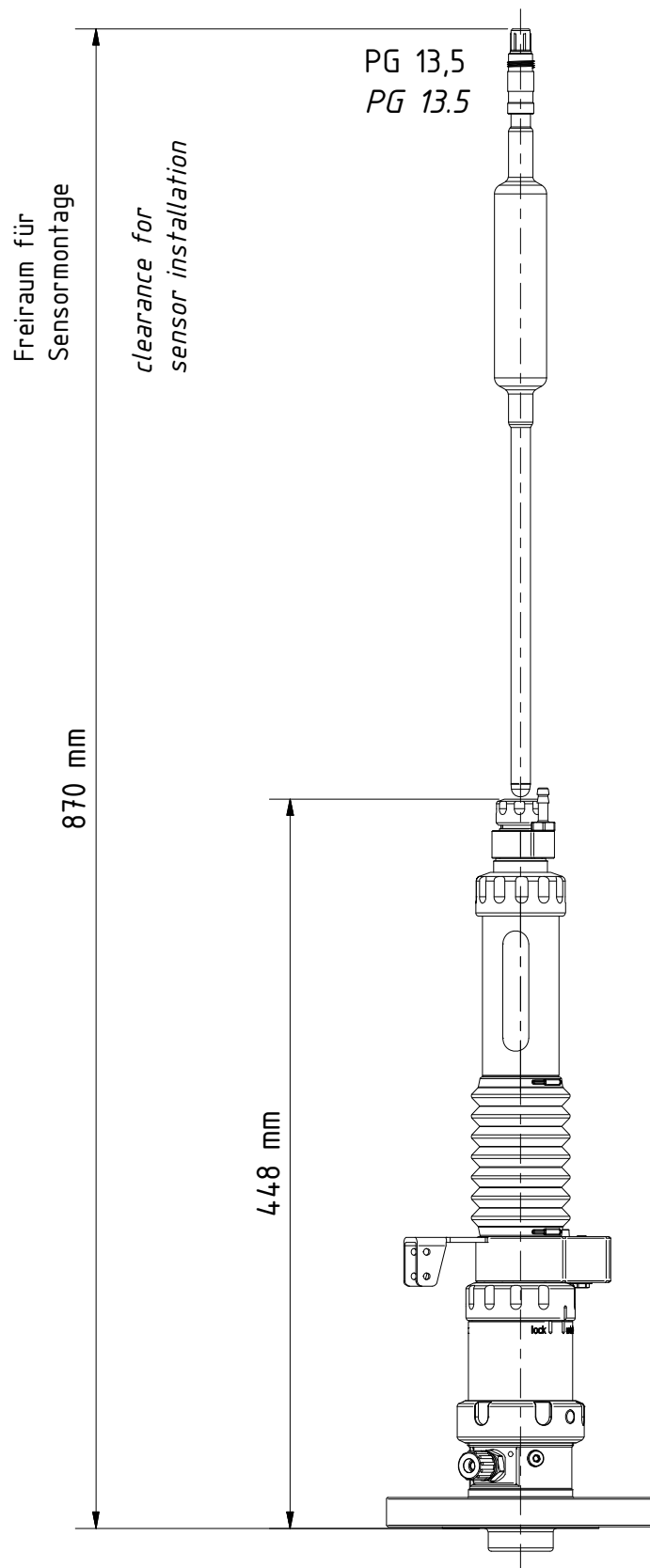




# Installation Dimensions

SensoGate WA 132

## WA 132 for Sensors with Liquid Electrolyte



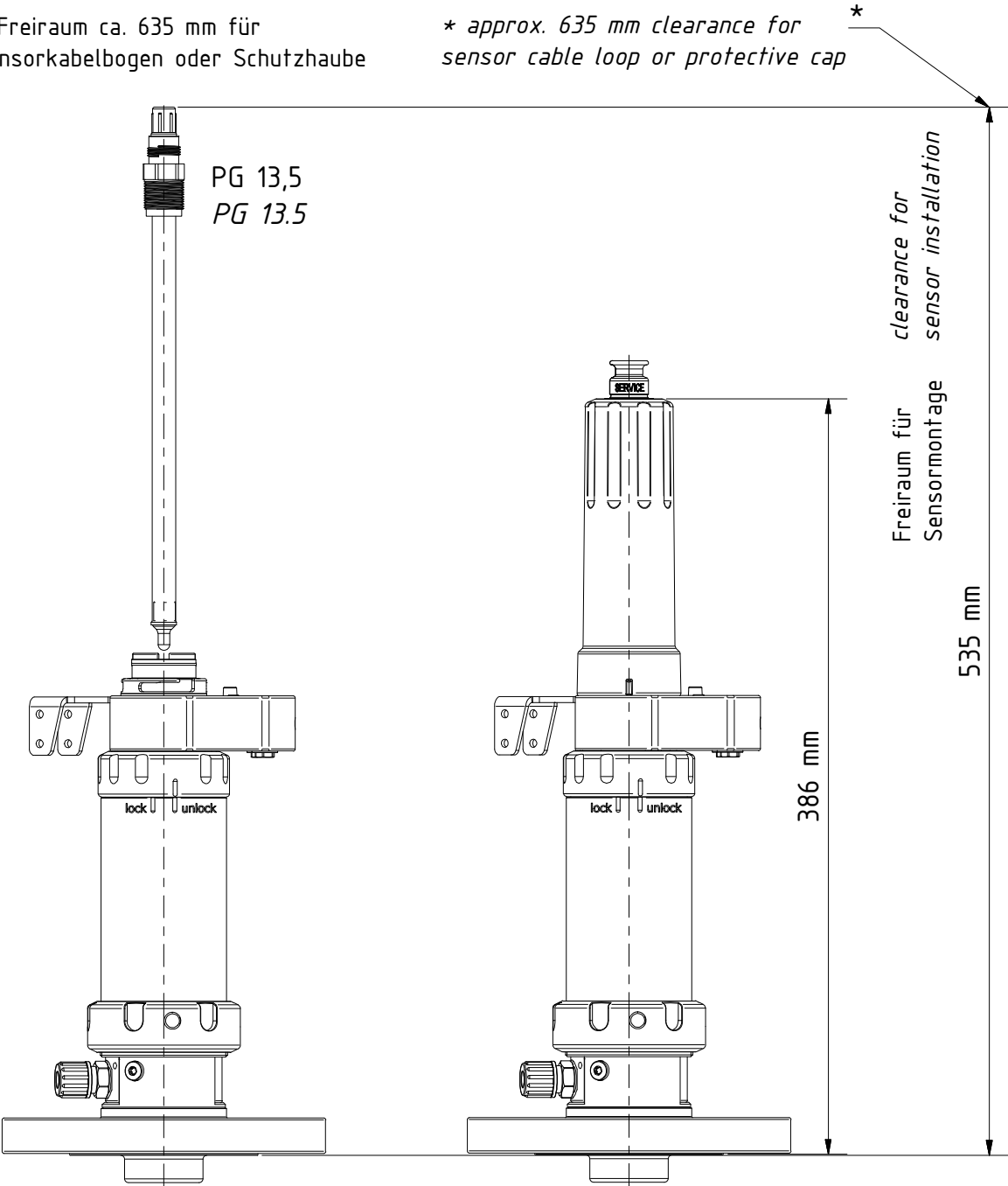
# Installation Dimensions

SensoGate WA 132

## WA 132, Long Immersion Depth for Sensors with Solid Electrolyte

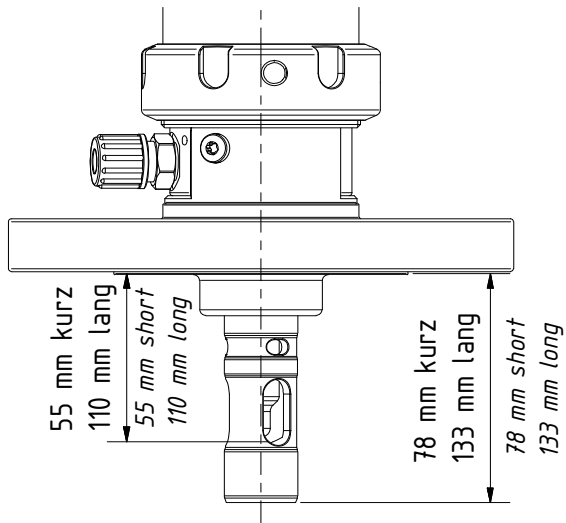
\* Freiraum ca. 635 mm für  
Sensorkabelbogen oder Schutzhaube

\* approx. 635 mm clearance for  
sensor cable loop or protective cap



# Installation Dimensions

SensoGate WA 132




## Process Adaptation

Loose flange, DIN DN32 ... DN100  
ANSI 316, 1½" ... 3"  
short and long immersion depth

# Specifications

SensoGate WA 132

Permissible process pressure and temperature	6 bar (at 0 ... 40 °C)
	6 bar (40 °C), falling linearly to 3 bar (100 °C)
	3 bar (max. 1 hour) at 135 °C
Ambient temperature	-10 ... +70 °C
Ingress protection	IP 66
Housing material	Stainless steel / PP or PEEK
Permissible pressure for probe control	4 ... 7 bar
<b>Quality of compressed air</b>	
Standard	According to ISO 8573-1:2001
Quality class	3.3.3 or 3.4.3
Solid contaminants	3 (max. 5 µm, max. 5 mg/m <sup>3</sup> )
Water content for temperatures > 15 °C	Class 4, pressure dew point 3 °C or below
Water content for temperatures 5 ... 15 °C	Class 3, pressure dew point -20 °C or below
Oil content	Class 3 (max. 1 mg/m <sup>3</sup> )
<b>Sensors</b>	
with solid electrolyte	Ø 12 mm, length 225 mm, PG 13.5 thread
with liquid electrolyte	Ø 12 mm, length 250 mm
<b>Process adaptations</b>	
Flanges, EN 1092-1	DN 32 to DN 100
Flanges, ANSI B 16.5	1½" to 3"
Flange bushings, suitable for sight glass fittings acc. to DIN 3237 Part 2	from DN 40
<b>Connections</b>	
Inlet	Via Unical multiplug
Outlet	PFA hose coupling for hose, Ø 8 × 1 mm
for pressurized sensors	Hose connection NW 6 mm, pressure in calibration chamber 0.5...1 bar above process pressure (max. 7 bar)
for compressed air	Via Unical multiplug (control air for retractable fitting)
Immersion depths / Dimensions	See dimension drawings
Process-wetted materials	PEEK (natural)
<b>Specifications for application in hazardous locations</b>	
N° of EU Type Examination Certificate	KEMA 04 ATEX 4035X
Device	SensoGate WA 13** - X ... retractable fitting
ATEX marking of the equipment	 II 1 G Ex h IIC T6 ... T3 Ga II 1 D Ex h IIIC T80°C ... 140°C Da
Ambient temperature (Ex)	-10 ... +70 °C
Process pressure (Ex)	Max. 6 bar
Compressed-air supply (Ex)	4 to 7 bar, momentarily approx. 100l / min
Process temperature (Ex) <sup>1)</sup>	0 to 120 °C (plastic) or 0 to 140 °C (steel)
Special conditions (Ex)	None

<sup>1)</sup> Explosive atmospheres caused by gases, vapors, mists:

The maximum surface temperature only depends on the process temperature at the SensoGate housing and the flange.

# Maintenance

SensoGate WA 132

## Maintenance Intervals

As the process conditions (pressure, temperature, chemically aggressive media etc.) depend on the specific application, we can only give recommendations for maintenance intervals.

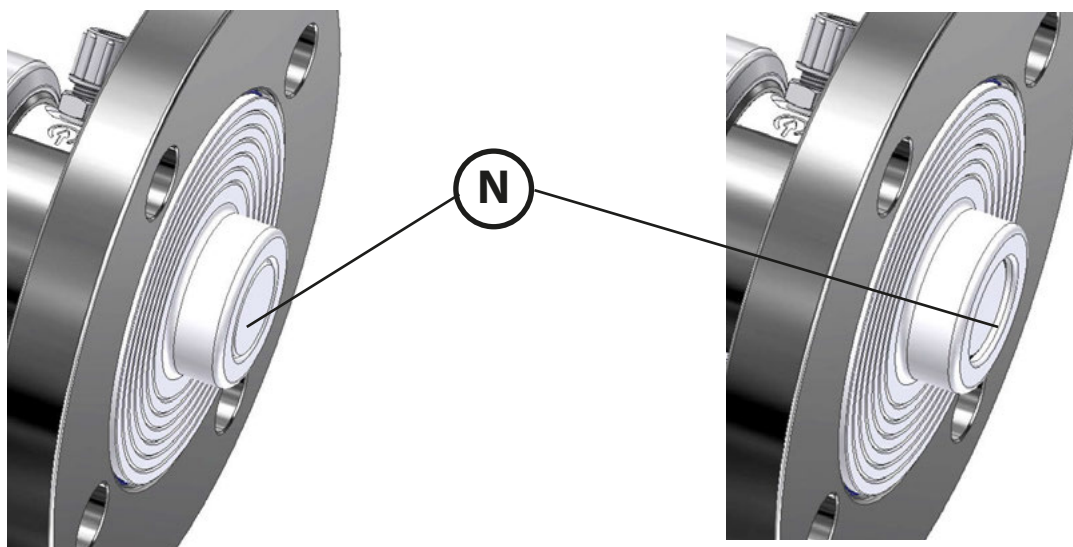
The following maintenance intervals are generally recommended:

Maintenance interval <sup>1)</sup>	Operations required
First inspection after a few days/weeks	Move the retractable fitting to the SERVICE position and observe the outlet. If the retractable fitting is not tight, process fluid will leak from the outlet hose. Observe the leakage bore (located directly below the coupling nut, see page 9). When there are deposits on the leakage bore or compressed air is escaping, replace the process-wetted (dynamically stressed) gaskets.
After 6 – 12 months	Repeat the operations of the first inspection. When there are deposits on the leakage bore or compressed air is escaping, replace the process-wetted (dynamically stressed) gaskets.

<sup>1)</sup> These maintenance intervals are rough recommendations. The actual intervals depend on the application of the retractable fitting.

## Servicing the Immersion Tube

High process pressures and high process temperatures can cause the immersion tube to shrink (known creep tendency of PTFE). Remove the fitting from the process to see if the immersion tube shrunk. (Illustrations show SERVICE position)



As delivered, the immersion tube fits flush with the flange bushing (N).

The immersion tube may shrink by maximal 2 mm. If it has shrunk by more than 2 mm, you must replace the immersion tube.

# Maintenance

SensoGate WA 132

## Servicing the Drive Unit

The drive unit must be removed, for example:

- for general maintenance or inspection
- to clean the calibration chamber, e.g., after a sensor has broken
- to change the sensor / calibration-chamber gaskets
- in the event of a technical fault of the drive unit

### **WARNING!**

#### **Warning! No process medium and no process pressure!**

To separate the retractable fitting safely from the process, make sure that it is disconnected from all process media and process pressure.

## Lubricants, O-Rings

For fittings used in the chemical industry, the lubricant Syntheso Glep1 (silicone-free) is applied. For fittings used in the pharmaceutical / food industry (when FDA conformity is required), the lubricant Beruglide L (silicone-free) is applied (registered according to NSF-H1).

On request, the lubricant Paraliq GTE 703 can be applied (good lubricating properties also at increased temperatures and for a large number of stroke movements).

This lubricant contains silicone and is only used as special application on specific request.

<b>Application</b>	<b>Pharma / Food</b>		<b>Chemistry / Wastewater</b>
Lubricant	Beruglide L (silicone-free) FDA-conforming NSF-H1-registered	Paraliq GTE 703 (containing silicone) FDA-conforming (USDA H1)	Syntheso Glep 1 (silicone-free)
Materials of elastomeric gaskets			
FKM	-	-	X
FFKM	-	-	X
EPDM	-	-	X
FKM - FDA	X	X	-
FFKM - FDA	X	X	-
EPDM - FDA	X	X	-

# Maintenance

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SensoGate WA 132

## Sealing Kits for Maintenance and Servicing

The sealing kits are available in different materials. The smaller sealing kits ("Set X/1") only contain gaskets for direct contact with the process.

The extended sealing kits ("Set X/2") also include gaskets for contact with the rinse medium.

**NOTICE!** Take account of the process adaptations. The sealing kits come with detailed illustrations for installation. The new O-rings must be lubricated with the included lubricant.

The following sealing kits are available:

<b>Gaskets</b>		<b>Order number</b>	
Loose flange process connection	Set A/1	Process-wetted gasket material: FKM	On request
	Set B/1	Process-wetted gasket material: EPDM	On request
	Set E/1	Process-wetted gasket material: EPDM - FDA	On request
	Set F/1	Process-wetted gasket material: FKM - FDA	On request
	Set H/1	Process-wetted gasket material: FFKM - FDA	On request
	Set K/1	Process-wetted gasket material: FFKM	On request
	Set A/2	Process-wetted/rinse-wetted gasket material: FKM	On request
	Set B/2	Process-wetted/rinse-wetted gasket material: EPDM	On request
	Set E/2	Process-wetted/rinse-wetted gasket material: EPDM - FDA	On request
	Set F/2	Process-wetted/rinse-wetted gasket material: FKM - FDA	On request
	Set H/2	Process-wetted/rinse-wetted gasket material: FFKM - FDA	On request
	Set K/2	Process-wetted/rinse-wetted gasket material: FFKM	On request

# Accessories / Spare Parts

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SensoGate WA 132

For ordering, use the part numbers beginning with **ZU**, e.g., ZU 0680.



## **ZU 0680** **SensoGate Service Set, Basic**

These tools are suitable for minor maintenance operations. They help separating the drive unit from the process adaptation and replacing the immersion tube including sensor gasket maintenance.



## **ZU 0647** **Sensor Mounting Wrench**

Required for safely screwing in the sensor without overloading the PG 13.5 plastic thread of the sensor head by an excessive torque (as caused by an open-end wrench).



## **ZU 0670/1,** **Air Supply for Pressurized Sensors**

0.5 – 4 bar

## **ZU 0670/2,** **Air Supply for Pressurized Sensors**

1 – 7 bar

This module maintains the defined overpressure in the pressure chamber of the sensor.

## **ZU 0713** **Hose, 20 m (extension for ZU 0670)**



## **ZU 0759** **Protective Cap**

The ZU 0759 protective cap protects against intrusion of liquids or particles into the area of the electrical connector of a sensor (e.g., due to weather exposure during outdoor use).

**Note:** Can only be used with fittings for solid-electrolyte sensors.



## **ZU 0742** **Adapter for Free Hose Connection,** **with electrical limit switches, PEEK housing**

This adapter is used for operating the SensoGate WA 132 via multi-plug without the Unical 9000 (X) controller and the corresponding media connection.



# Accessories / Spare Parts

SensoGate WA 132



## ZU0733 Adapter for Free Hose Connection, with electrical limit switches, PP housing

This adapter is used for operating the SensoGate WA 132 via multi-plug without the Unical 9000 (X) controller and the corresponding media connection.



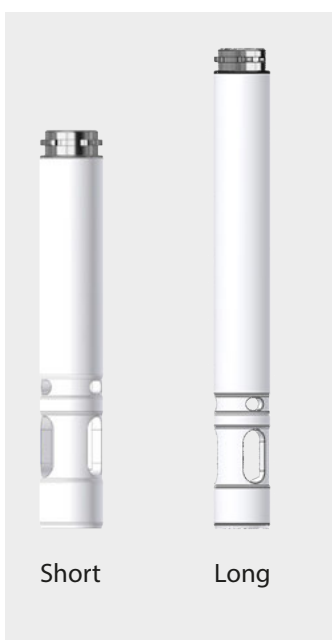
## ZU0734 Adapter for Free Hose Connection, without electrical limit switches, PP housing

This adapter is used for operating the SensoGate WA 132 via multi-plug without the Unical 9000 (X) controller and the corresponding media connection.



## ZU0739 Bellows

The bellows (for liquid-electrolyte sensors only) protects the fitting beneath the sensor pressure chamber against pollution and wear.



Short

Long

## Immersion Tubes

### Immersion Tube, Short

Material: PTFE, on request

### Immersion Tube, Long

Material: PTFE, on request

# Declaration of Contamination

SensoGate WA 132



## Return Form

### Declaration of potential hazards in the enclosed products from exposure to chemicals

We can only accept and carry out the service order if this declaration is filled out completely. Please include it with the shipping documents.

If you have any questions, please contact our repairs department in Berlin.

RMA number (can be obtained by calling +49 30 80 191-233): .....

### Customer information (must be completed if no RMA no. available):

Company: .....

Address: .....

Contact: ..... Tel./E-mail: .....

### Information on the product:

Product name: .....

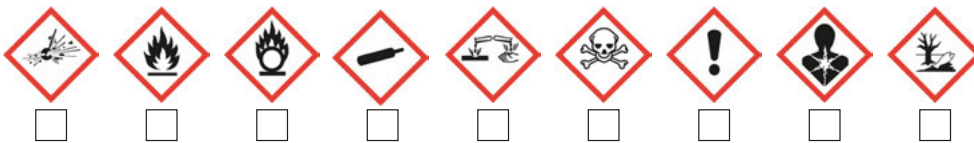
Serial number: .....

Included accessories: .....

The product being returned is new/unused or has not been exposed to hazardous substances.

The product has been exposed to hazardous substances.

Please preferably state the classification of the hazardous substance, as applicable together with the H-phrases (or R-phrases), or at minimum provide the relevant hazard pictograms:



The product has been exposed to infectious substances.

The product was subjected to suitable cleaning procedures to prevent exposure to hazards prior to return.

The product was not freed of hazardous substances prior to return.

I have answered the above questions to the best of my knowledge.

Name: ..... Company: .....

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## Notes

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