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The Art of Measuring.



User Manual

SensoGate WA 133 M Retractable Fitting with PTFE Process Adaptation



Information: www.knick-international.com

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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.



NOTICE! Observe the following when actuating the emergency release:

The emergency release disables the sensor monitoring, i.e. the retractable fitting could be moved without a sensor (see page 11).



NOTICE! Please note when process fluids are leaking:

Process fluids leaking from the outlet or at the leakage holes indicate that the calibration chamber is not tight (see page 12).

Operation in Explosive Atmospheres

The SensoGate WA133M-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 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 WA133M-X with care and apply suitable measures, e.g., use covers and pads.

The metallic parts of the SensoGate WA133M-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 WA133M-X. The operating company must assess and document this deviation.

Electrostatic charging

The drive unit of specific versions of the SensoGate WA133M-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 WA133M-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 WA133M-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.

SensoGate WA 133 M

Intended Use

The SensoGate WA 133 M is a manually operated retractable fitting. It allows sensors to be immersed in and retracted from liquid media, e.g., for process analytics.

The SensoGate WA 133 M 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












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.

The retractable fitting has been developed and manufactured in compliance with the applicable European directives and standards. Compliance with the European directives and standards for the use in hazardous locations is confirmed by the EU Declaration of Conformity and the CE marking.

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
	Inlet symbol
	Symbol for rotating the retractable fitting to SERVICE position
	Symbol for rotating the retractable fitting to PROCESS position
	Unlock button with the imprint "PRESS", allows the retractable fitting to be moved to another position
Tamb	Ambient temperature

Registered Trademarks

The following trademarks are used in this manual without further marking:
 SensoGate®, 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, for the health and safety of our service personnel (see page 41).

SensoGate WA 133 M

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).

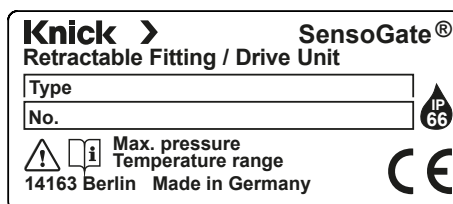
We recommend installing a check valve on the water inlet, e.g., on the water valve provided by the customer or on the rinse connection of the retractable fitting (inlet to calibration chamber) to prevent backflow of rinse or process medium or compressed air into the water pipe.

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

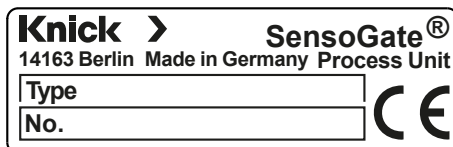
Rating Plates

SensoGate® WA 133M-N

Drive

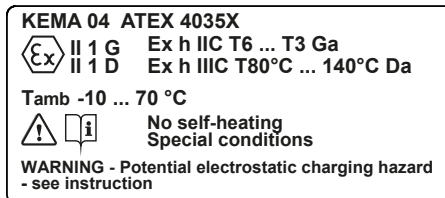
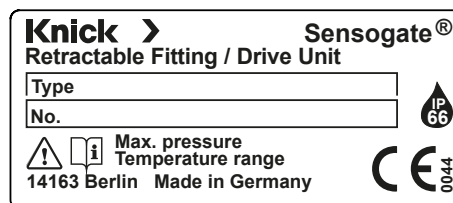


Process

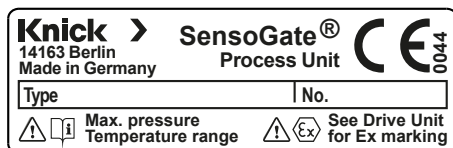


SensoGate® WA 133M-X

Drive



Process



Package Contents

Check the shipment for transport damage and completeness.

The package should contain:

- Retractable fitting
- Outlet hose
- Documentation
- EU Declaration of Conformity for intended use in hazardous locations

WA 133 M-

Explosion protection	For ATEX Zone 0	X																
	No	N																
Sensor	Sensor, Ø 12 mm, with PG 13.5	0																
	pH sensor, Ø 12 mm, pressurized	1																
Gasket material	FKM	A																
	EPDM	B																
	EPDM - FDA	E																
	FKM - FDA	F																
	FFKM - FDA	H																
	FFKM	K																
Process-wetted materials	PTFE		R															
Process adaptation	Loose flange, 1.457, PN10/16, DN 32	B	0															
	Loose flange, 1.457, PN10/16, DN 40	B	A															
	Loose flange, 1.457, PN10/16, DN 50	B	1															
	Loose flange, 1.457, PN10/16, DN 65	B	2															
	Loose flange, 1.457, PN10/16, DN 80	B	3															
	Loose flange, 1.457, PN10/16, DN 100	B	4															
	Loose flange, ANSI 316, 150 lbs, 2"	D	1															
	Loose flange, ANSI 316, 150 lbs, 2 ½"	D	2															
	Loose flange, ANSI 316, 150 lbs, 3"	D	3															
	Loose flange, ANSI 316, 150 lbs, 3 ½"	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 plane flange, glass	U	A															
	Loose flange, 1.4571, DN 50, for plane flange, glass	U	1															
Immersion depth	Short								A									
	Long								B									
Electrical limit signal	Without									A								
	With									B								
Rinse media connection	Inlet with PFA hose coupling NW 4/6, outlet with PFA hose coupling NW 6/8, with outlet hose made of PTFE, 3 m										3							
Housing material	Stainless steel / PP (< 6 bar operating pressure)											1						
	Stainless steel / PEEK (< 10 bar operating pressure)											2						
Special version	Without												0	0	0			
	Equipped with special grease (provided by customer)															1		
	Customer-specific special datasheet																F	

Example of a possible order code:

WA 133 M-

X 0 A R B 1 B A 3 1 0 0 F

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

SensoGate WA 133 M

The manually operated retractable fitting can be moved to two positions:

- **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.

To replace the sensor, you must move the retractable fitting to the **SERVICE** position (see page 15).



NOTICE! Safety Function!

When using sensors with solid electrolyte, the retractable fitting can only be moved with the sensor installed. Without sensor, the retractable fitting is locked (safety function), i.e., you cannot press the red unlock button. You must completely screw in the sensor until the stop is reached.



Sensor in Service Position

The red unlock button (X) is not depressed. In this position you can remove the sensor under process pressure and replace or clean it.



Moving to PROCESS Position

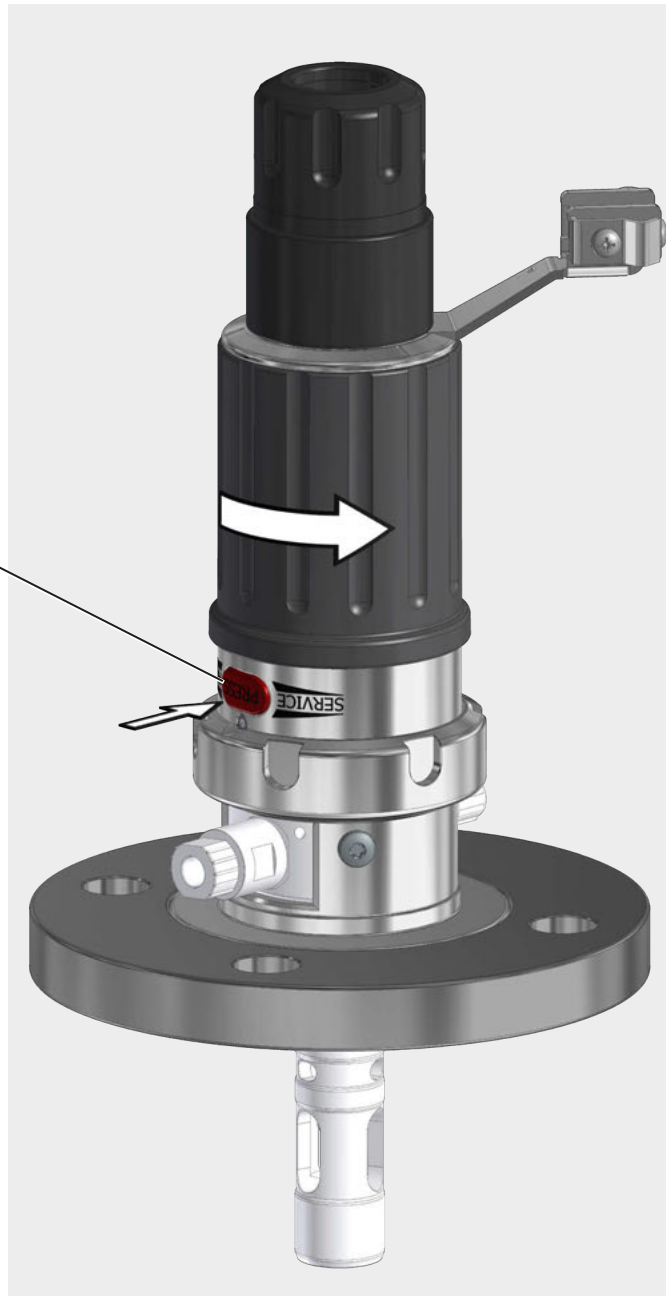
Press the red unlock button (X) and rotate the turning handle as shown in the figure. During the rotary movement the unlock button is automatically depressed. When the **PROCESS** position is reached, the unlock button pops out and mechanically locks the retractable fitting.

Sensor in PROCESS Position

The red unlock button (X) is not depressed (measuring position).

**Moving to SERVICE Position**

Press the red unlock button (X) and rotate the turning handle as shown in the figure. During the rotary movement the unlock button is automatically depressed. When the SERVICE position is reached, the unlock button pops out and mechanically locks the retractable fitting.



In SERVICE position the measuring system can be calibrated or adjusted or the sensor can be cleaned. Through the rinse connection, different calibration or cleaning liquids can be transferred to the sensor 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.

SensoGate WA 133 M

Emergency Release

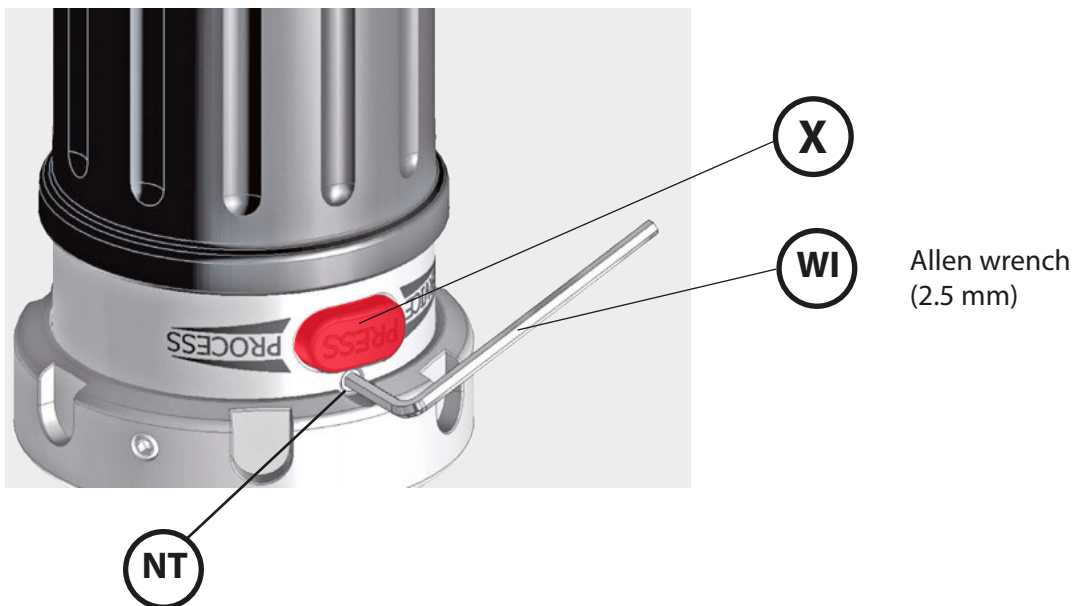
If the red unlock button (**X**) cannot be moved in any position although the sensor is properly installed, you should first check the sensor gasket and reposition it if required. If that does not help, you can perform an emergency release.



NOTICE! Observe the following when actuating the emergency release:

The emergency release (**NT**) disables the sensor monitoring, i.e., the retractable fitting could be moved without a sensor. It remains locked in SERVICE and PROCESS position.

Retractable fittings with solid-electrolyte sensors do not allow pressing the unlock button when no sensor is installed. This is not a fault but a safety measure.



Unlocking the Retractable Fitting

Screw in the set screw (**NT**) using an Allen wrench (**WI**) as far as possible. After that, the unlock button can be pressed again.

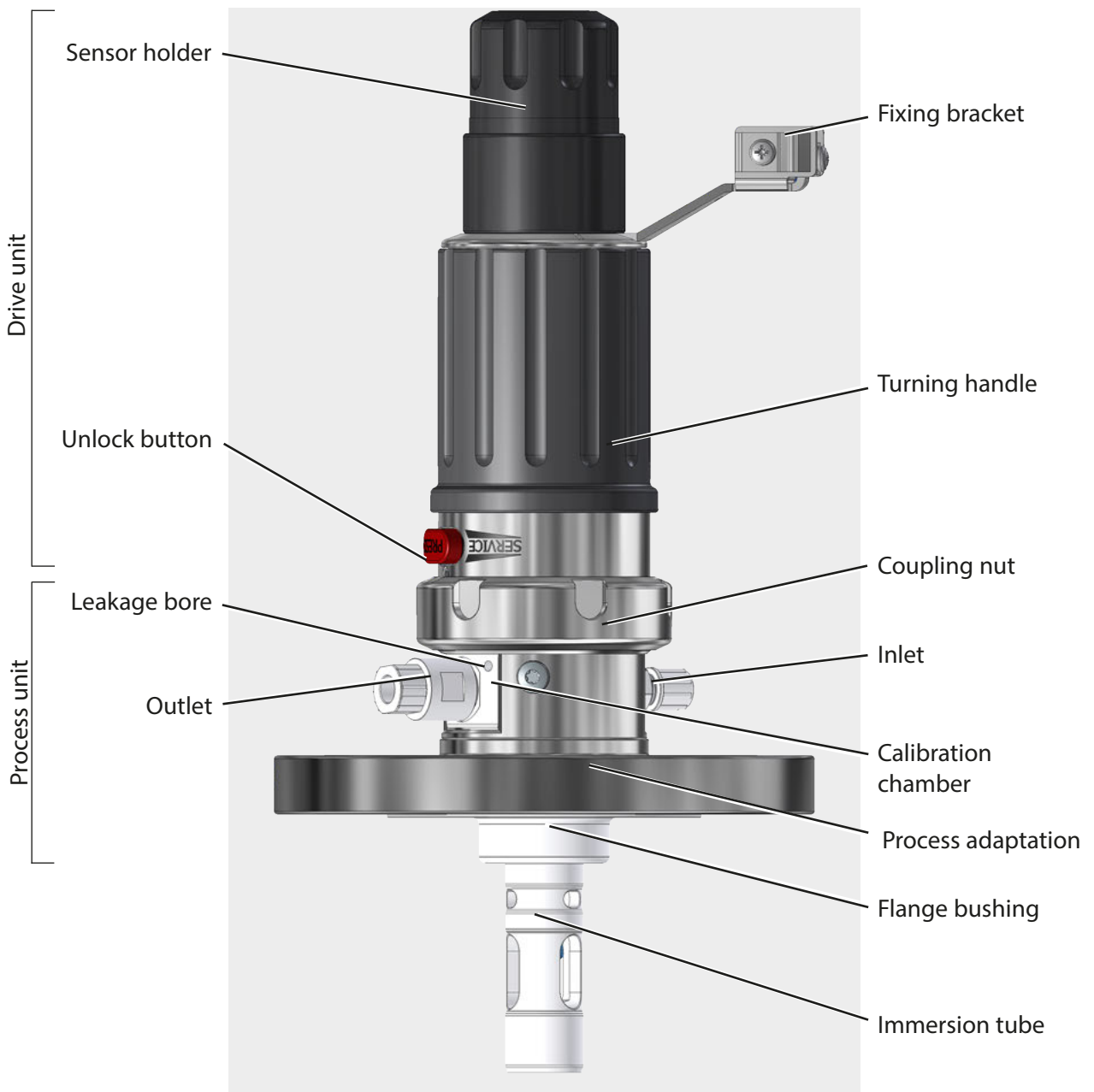
Reactivating the Sensor Monitoring Function of the Retractable Fitting

To ensure proper functioning of the sensor monitoring after the fault has been removed (maintenance, repair), you must screw back the set screw (**NT**) until it fits flush with the outer surface of the retractable fitting.

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 unit** comprises the process-wetted part of the calibration chamber as the process adaptation.

Drive unit and process adaptation can be separated, see page 24.



SensoGate WA 133 M

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

Manual Drive Units



Short immersion depth
Sensors with
solid electrolyte



Long immersion depth
Sensors with
solid electrolyte



Short immersion depth
Sensors with
liquid electrolyte

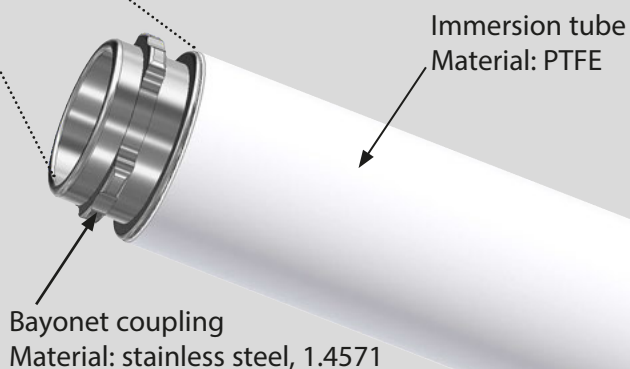
Immersion Tubes



Short



Long



Process Adaptation

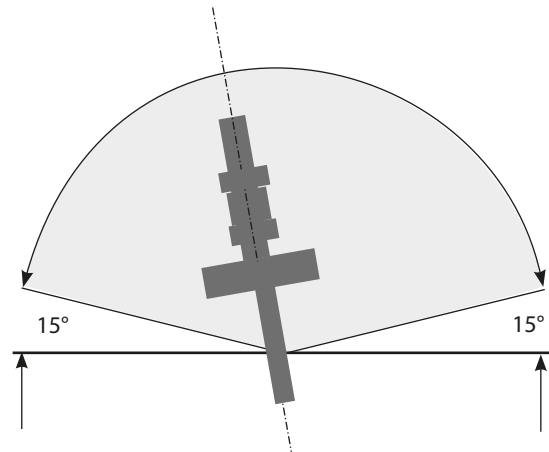


Process adaptation

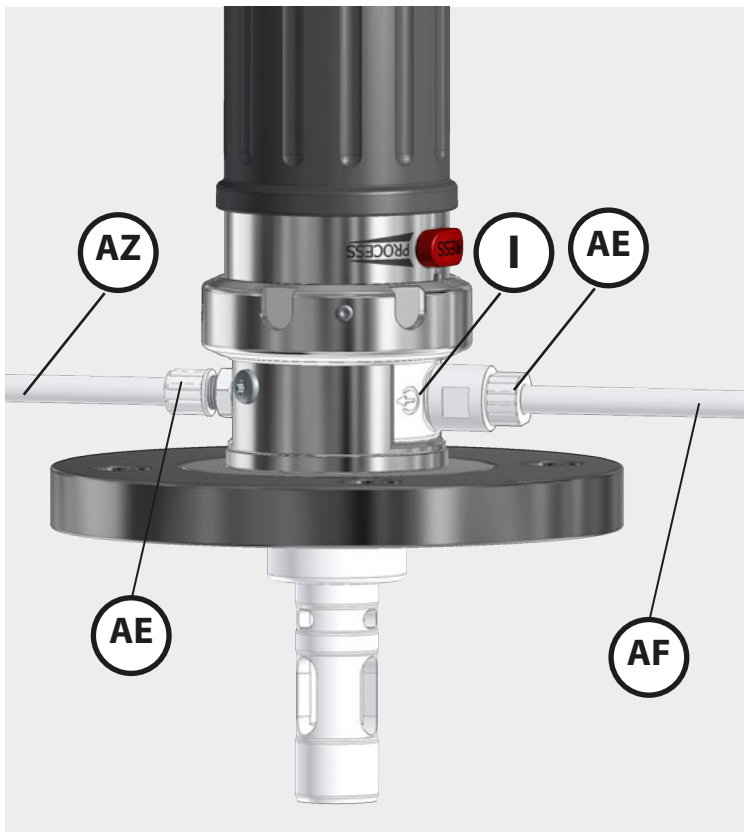
- DIN and ANSI loose flanges

Mounting the Retractable Fitting

- 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.



Installing the Outlet and Inlet Hoses



- 1) Connect the outlet hose (**AF**) using the hose coupling (**AE**). The outlet is marked with the following symbol (**I**).



- 2) Connect the inlet hose (**AZ**) using the hose coupling (**AE**). The inlet is marked with the following symbol.



SensoGate WA 133 M

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



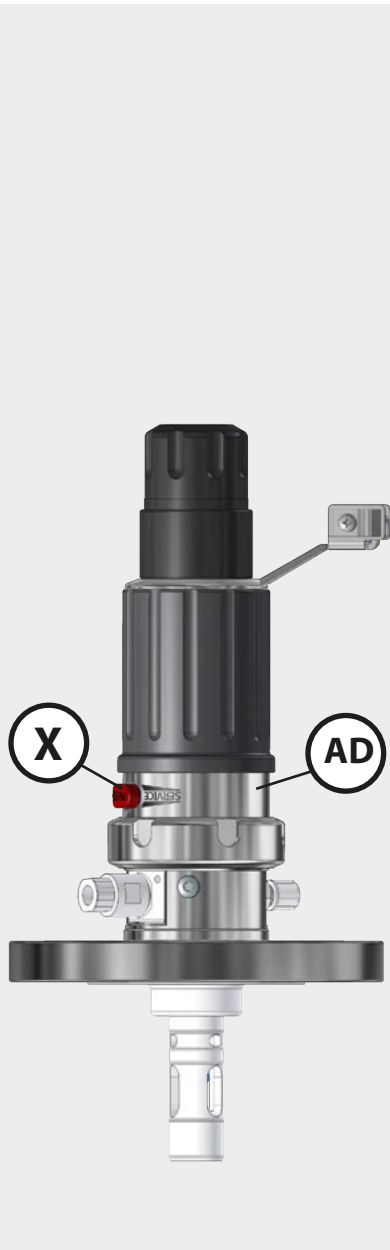
The SERVICE position is indicated by the sensor head (**J**) protruding out of the drive unit (**AD**). The unlock button (**X**) is locked (not depressed).

The SERVICE position is indicated by the rubber bellows (**B**) being expanded. The unlock button (**X**) is locked (not depressed).

The SERVICE position is indicated by the service cap (**L**) protruding out of the extension. The unlock button (**X**) is locked (not depressed).

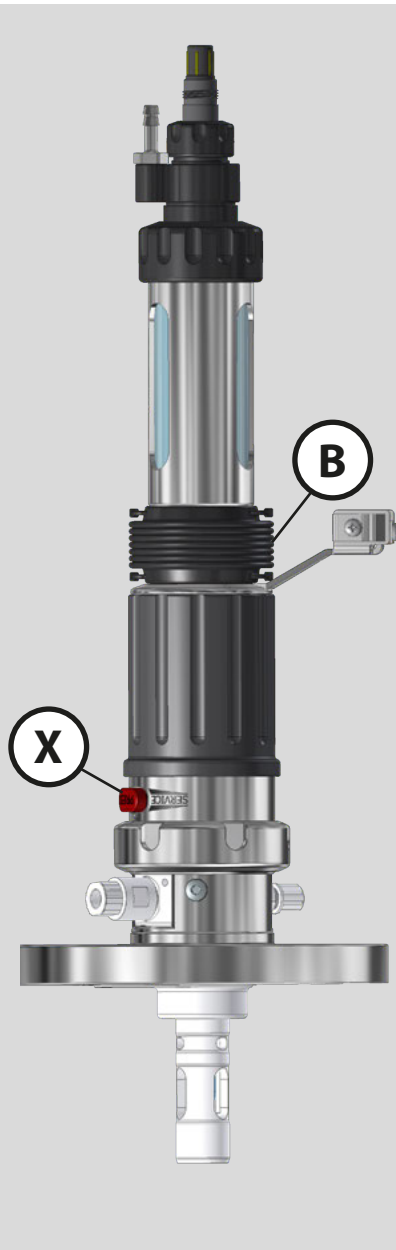
The following illustrations clearly show the **PROCESS** position:

Short immersion depth
Solid-electrolyte sensor



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

Short immersion depth
Liquid-electrolyte sensor



The PROCESS position is indicated by the rubber bellows (**B**) being compressed. The unlock button (**X**) is locked (not depressed).

Long immersion depth
Solid-electrolyte sensor



The PROCESS position is indicated by the sensor cap not protruding out of the extension (**V**). The unlock button (**X**) is locked (not depressed).

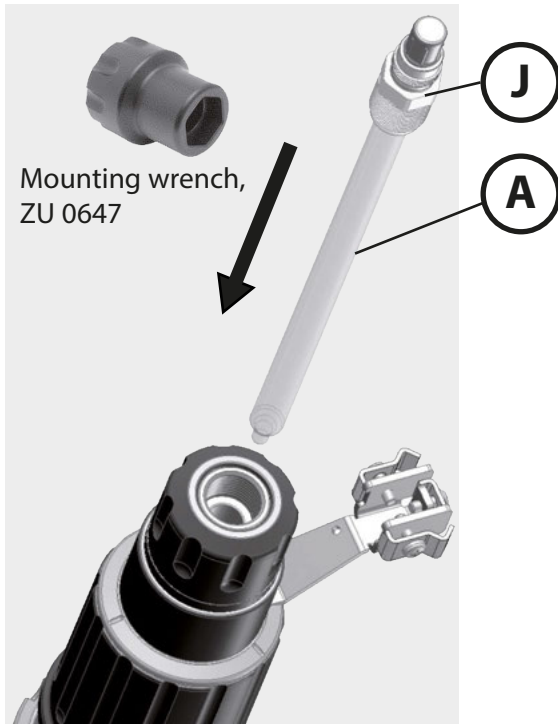


Sensors shall only be installed or removed by personnel authorized by the operating company and trained in the handling of the retractable fitting. To replace the sensor, you must move the retractable fitting to the SERVICE position (see page 15).

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 the slide washer or O-ring on the sensor are damaged and replace if required.
- Remove the watering cap from the sensor tip and rinse the sensor with water.
- Sensors might have a silicone seal on the diaphragm (as transport protection).
Remove this seal using a knife.



Short Immersion Depth

Installing the Sensor

Before installing the sensor, make sure that the retractable fitting is in **SERVICE position**.

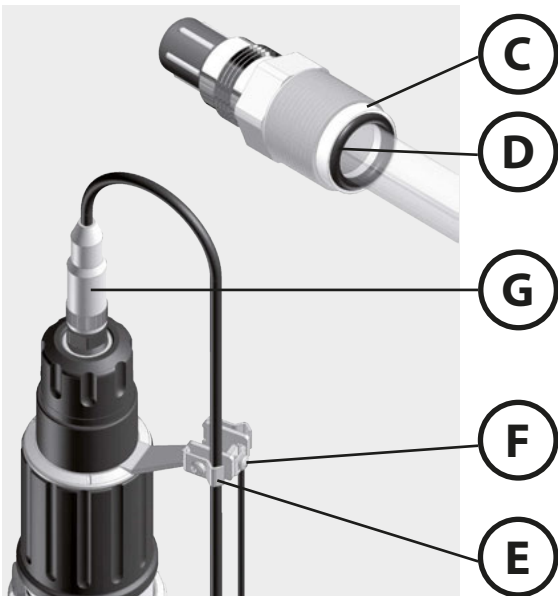
- 1) Use appropriate sensors (**A**) only:
Diameter: 12 mm Length: 225 mm
Observe the pressure resistance of the sensor.
- 2) Make sure that the slide washer (**C**) and the O-ring (**D**) are correctly positioned and not damaged.
- 3) Insert the sensor and screw in the sensor head (**J**) (19 mm A/F, PG 13.5 thread) with a max. torque of 3 Nm (recommended tool: 19 mm mounting wrench, e.g., Knick ZU 0647).

Note: When tightening the sensor, you must overcome the elastic force of the internal sensor monitoring.

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

Note: The cable loop must be long enough so that the cable does not impede the stroke movement of the retractable fitting.

- 5) Connect the equipotential bonding cable to terminal (**F**) (if required).
- 6) Mount the protective cap (ZU 0759) if required (see user manual of protective cap).



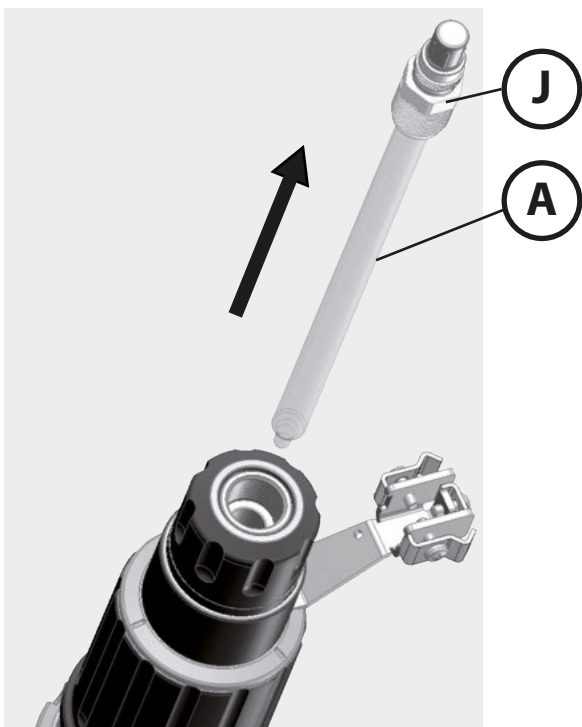
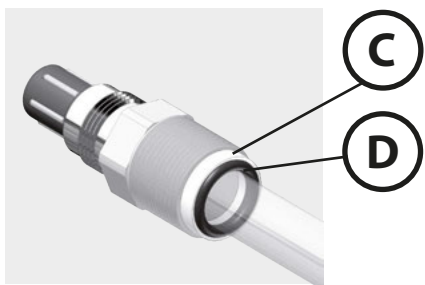
Short Immersion Depth



Removing the Sensor

Only remove the sensor when the retractable fitting is in **SERVICE position** (see page 15).

- 1) Remove the protective cap (ZU 0759) if required (see user manual of protective cap).
- 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 for glass breakage!

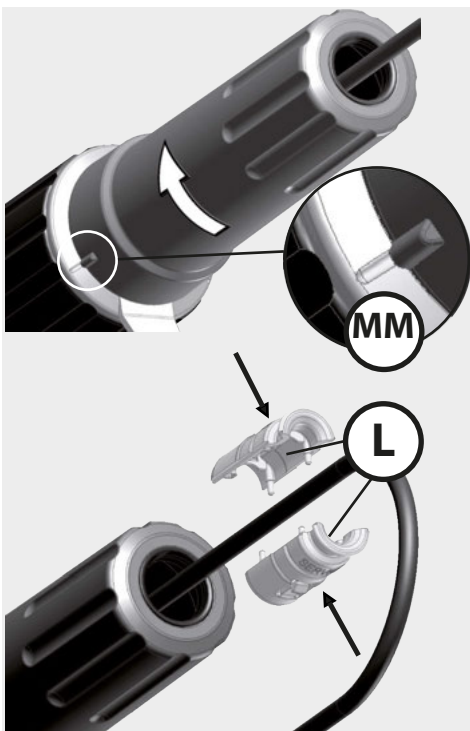
When replacing damaged sensors (glass breakage), be sure to check the sensor gasket in the immersion tube and replace it if required (see page 28).

Long Immersion Depth

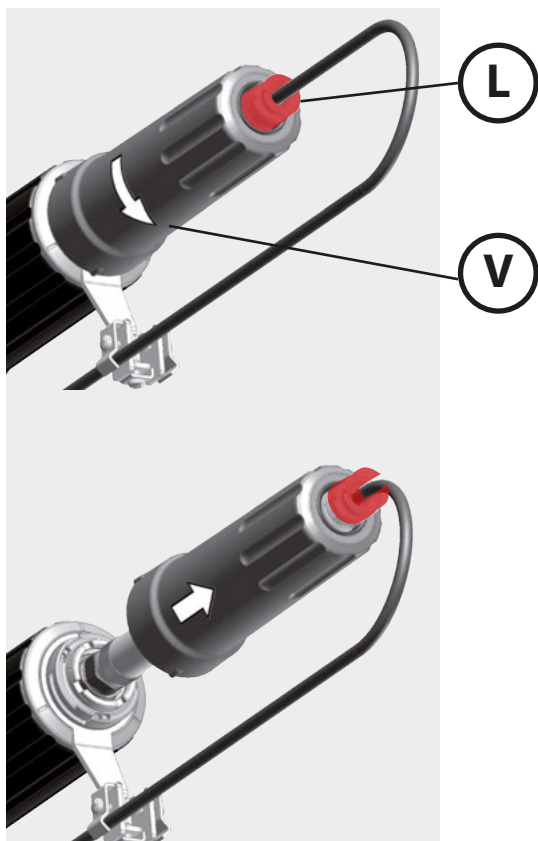
Installing the Sensor

Before installing the sensor, make sure that the retractable fitting is in **SERVICE position** (see page 15).

- 1) Use appropriate sensors (**A**) only:
Diameter: 12 mm Length: 225 mm
Observe the pressure resistance of the sensor.
- 2) Make sure that the slide washer (**C**) and the O-ring (**D**) are correctly positioned and not damaged.
- 3) 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). **Note:** When tightening the sensor, you must overcome the elastic force of the internal sensor monitoring.
- 4) Thread the cable jack (**G**) through the extension (**V**). **Note:** The cable loop must be long enough so that the cable does not impede the stroke movement of the retractable fitting. When the cable is installed for the first time, you must first pull off the split red service cap (**L**).
- 5) Connect the cable jack (**G**) with the sensor plug (connection with coupling nut).
- 6) Attach the extension (**V**) and turn it clockwise until it noticeably snaps in. The contour on the extension (**V**) matches the marking (**MM**).
- 7) Put the split (red) service cap (**L**) on the cable as shown. Then push it into the extension (**V**) until it noticeably snaps in.
- 8) Hold the sensor cable in a loop and fix it using clamp (**E**).
- 9) Connect the equipotential bonding cable to terminal (**F**) (if required).
- 10) Mount the protective cap (ZU 0759) if required (see user manual of protective cap).



SensoGate WA 133 M



Long Immersion Depth

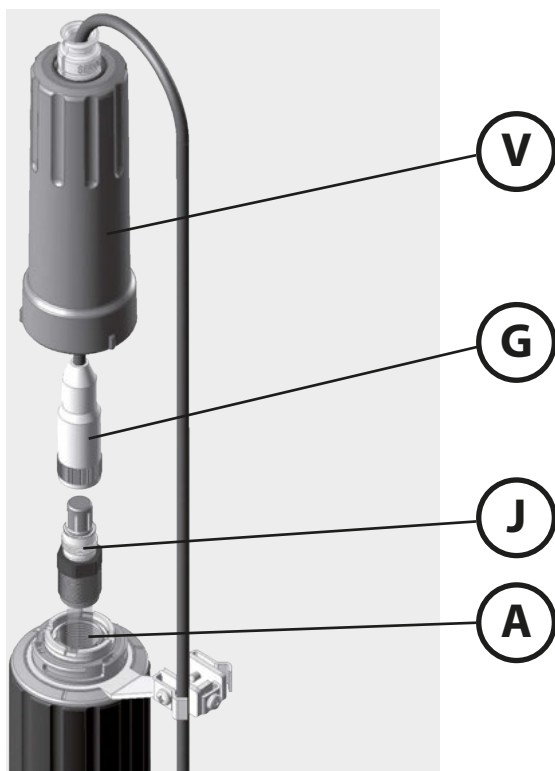
Removing the Sensor

Only remove the sensor when the retractable fitting is in **SERVICE position** (see page 15).

- 1) Before removing the sensor, check that there is no liquid leaking from the outlet (process sealing might be defective).
- 2) Remove the protective cap (ZU 0759) if required (see user manual of protective cap).
- 3) Rotate the extension (V) counterclockwise. This unlocks the bayonet coupling.

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

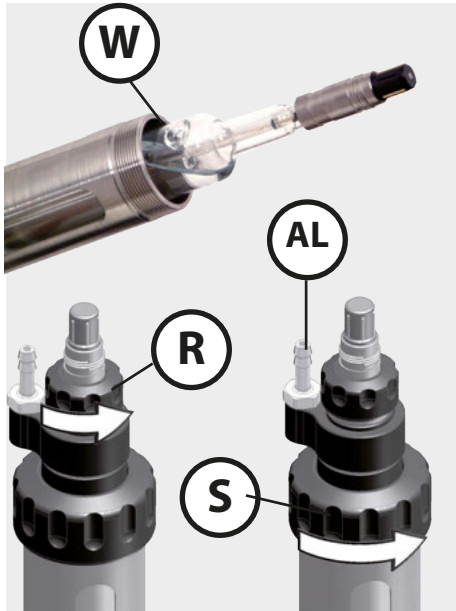
- 4) Pull off the extension (V) in direction of the arrow. Now you can see the cable jack (G).
- 5) Disconnect the cable jack (G) from the sensor.
- 6) Screw off the sensor head (J) (19 mm, PG 13.5) and pull out the sensor (recommended tool: 19 mm mounting wrench, e.g., Knick ZU 0647).



NOTICE for glass breakage!

When replacing damaged sensors (glass breakage), be sure to check the sensor gasket in the immersion tube and replace it if required (see page 28).

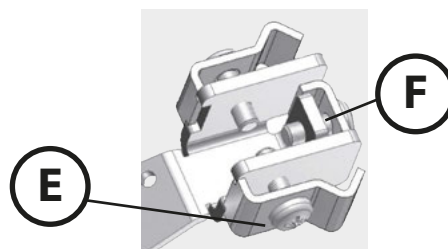
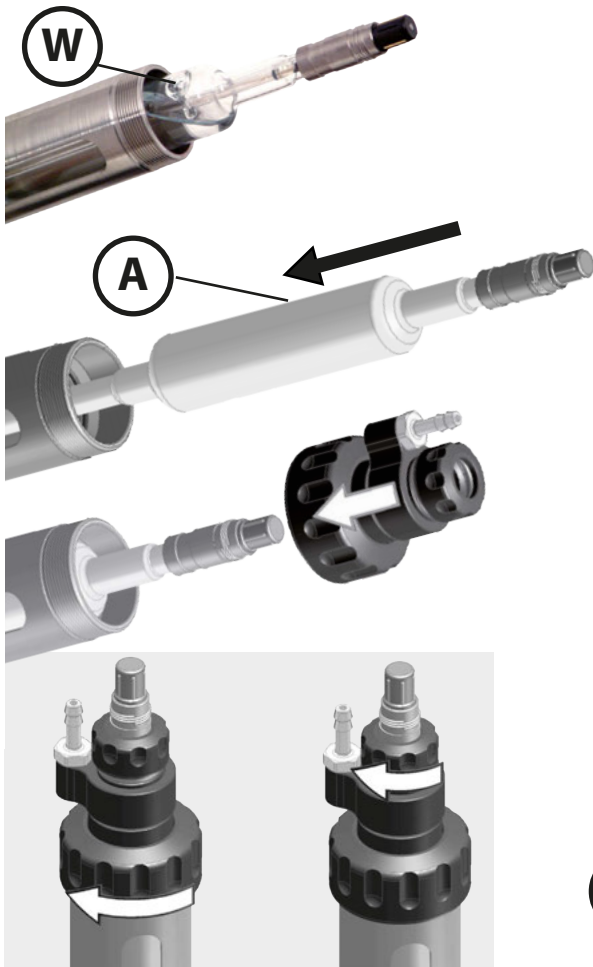
Conditions: You can use sensors with a length of 250 mm and an electrode diameter of 12 mm, e.g., Knick SE 551. To ensure that the electrolyte flows from the reference electrode to the process medium, the air pressure in the sensor pressure chamber must be 0.5 to 1 bar above that of the process medium. 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.

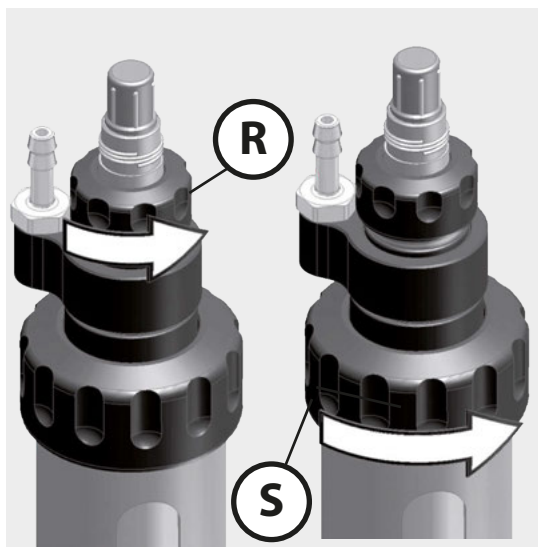


Note: In the case of inclined installation, the sensor must be installed as described below to prevent electrolyte from flowing out during operation of the retractable fitting. First, move the retractable fitting into **SERVICE** position. Remove the plug and turn the electrolyte filling hole (**W**) towards the top to prevent electrolyte from flowing out when the sensor is inclined. Observe the user manual of the sensor.

Installing the Sensor

- 1) Before installing the sensor, make sure that the retractable fitting is in **SERVICE** position (see page 15).
- 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**).
Note: The cable loop must be long enough so that the cable does not impede the stroke movement of the retractable fitting.
- 7) Connect the equipotential bonding cable to terminal (**F**) (if required).

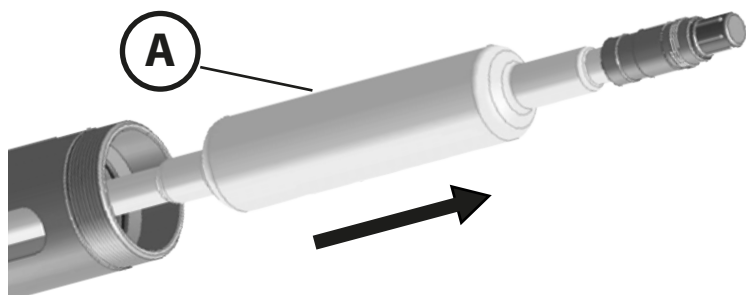




Removing the Sensor

Only remove the sensor when the retractable fitting is in **SERVICE position** (see page 15).

- 1) Remove the cable jack.
- 2) Before removing the sensor, check that there is no liquid leaking from the outlet (process sealing might be defective).
- 3) Loosen the small coupling nut **(R)** – do not remove it.
- 4) Unscrew and remove the large coupling nut **(S)** and pull the detached unit upwards.
- 5) Remove the sensor **(A)**.

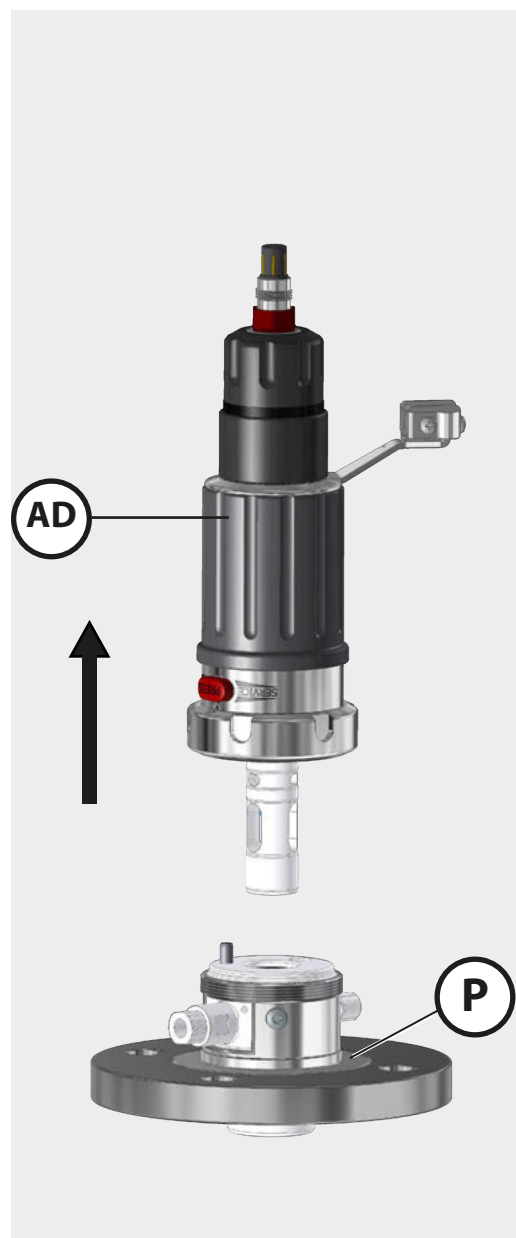
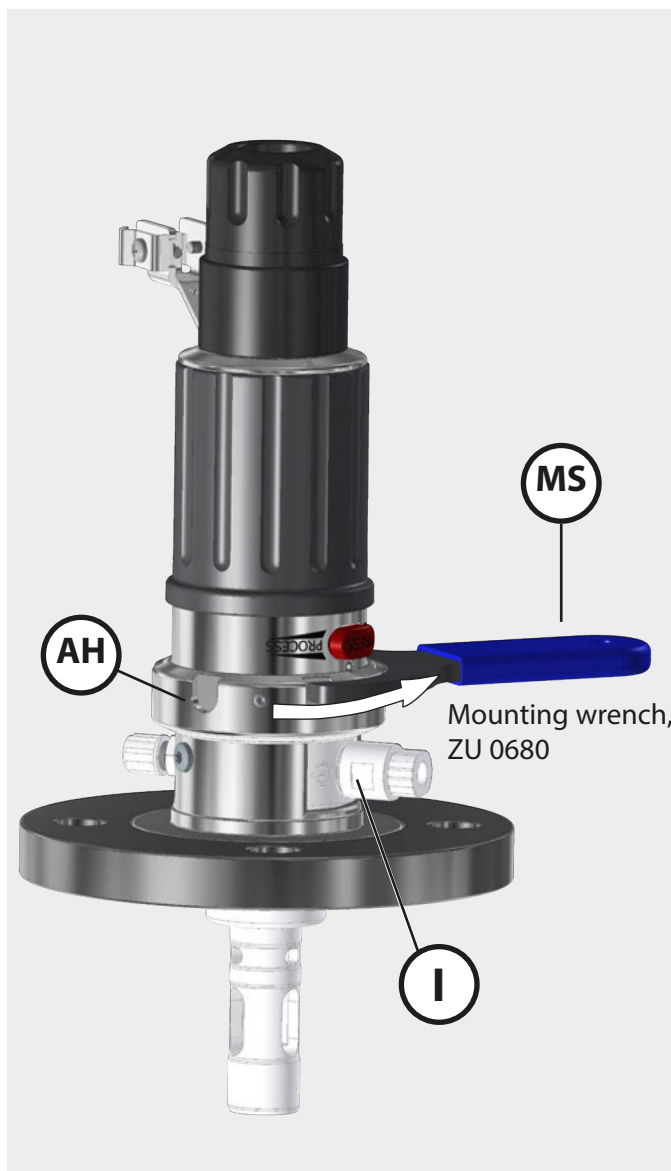


Removing the Drive Unit

NOTICE – Take safety precautions!

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!

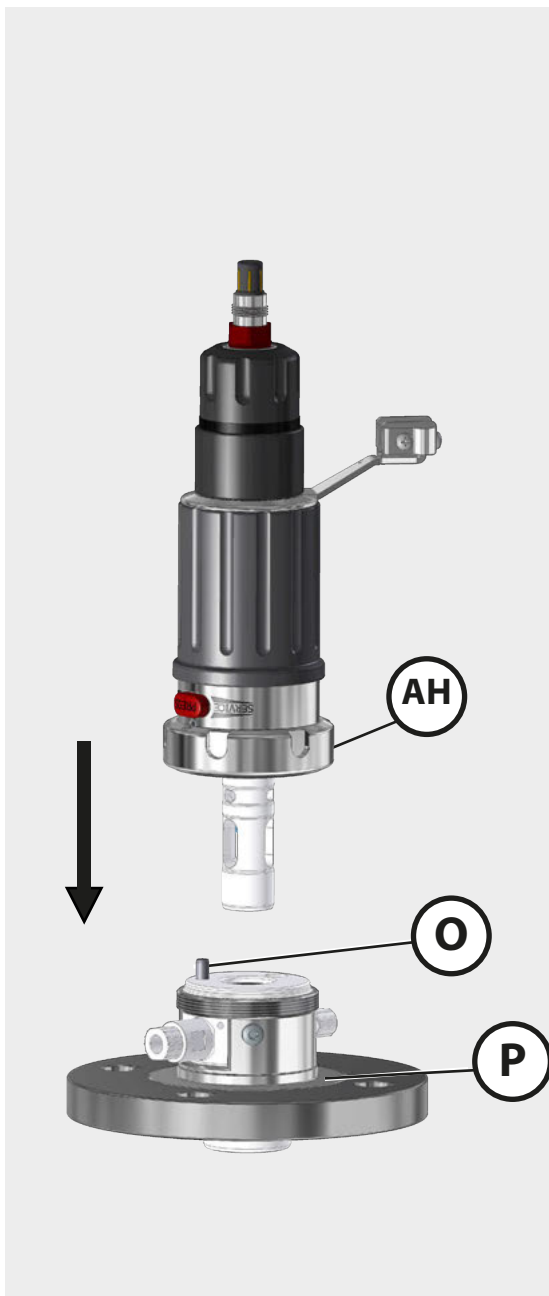
- 1) Move the retractable fitting to the SERVICE position.
- 2) Make sure that no process fluid is leaking from the outlet (**I**).
- 3) If required, remove the sensor as described from page 17.
- 4) Separate the outlet and rinse connection if required.
- 5) Carefully turn the coupling nut (**AH**) counterclockwise (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 to separate it from the process adaptation (**P**).



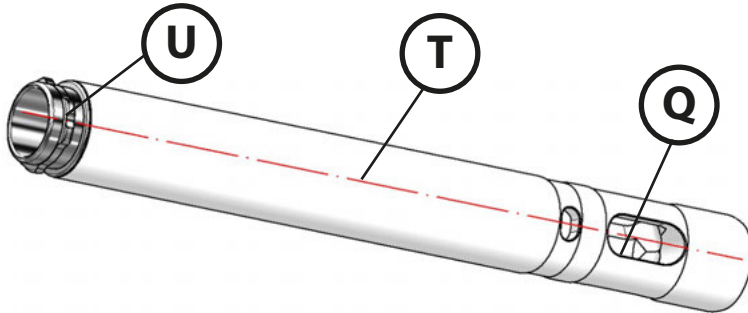
Installing the Drive Unit

Note: Be sure to follow the steps below in the correct order.

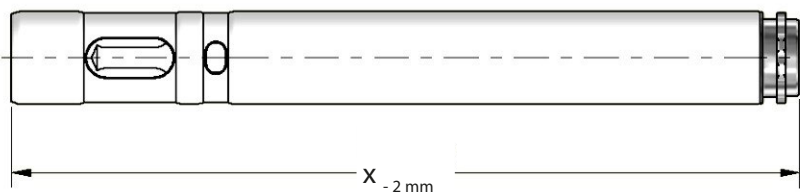
- 1) Insert the drive unit into the process adaptation (**P**) (in SERVICE position).
The radial position of the drive unit is determined by a coding pin (**O**) in the calibration chamber and an opening (**AJ**) in the drive unit. The coupling nut can only be tightened when the drive unit is in the 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) If required, install the sensor as described from page 17.



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 windows (**Q**) in the immersion tube and is non-rotatably connected to the tube body (see the centerline in the figure below). This fixed alignment is imperative to ensure that the retractable fitting can be easily installed and the sensor can be properly rinsed.



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



Short	Long
x = 149 mm	x = 204 mm

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

Removing the Immersion Tube

⚠ WARNING!

Warning! No process medium and no process pressure!

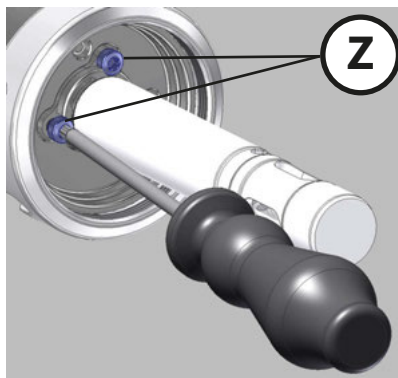
To separate the retractable fitting safely from the process, make sure that it is disconnected from all process media and process pressure.



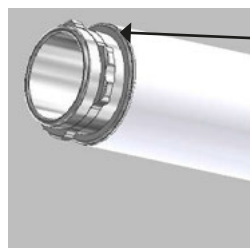
NOTICE! Before working on the drive unit, make sure that the retractable fitting is in SERVICE position (see page 15).

Conditions:

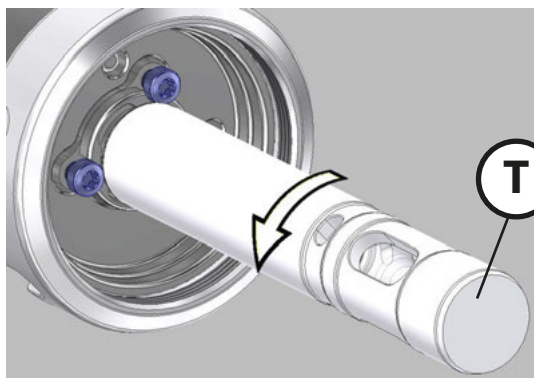
First, separate the drive unit from the process adaptation (see page 24).



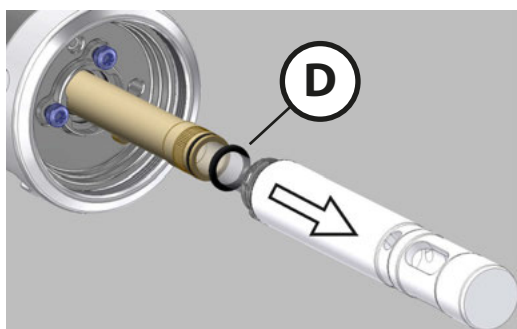
- 1) Move the drive unit to PROCESS position until the two screws (**Z**) become visible. Loosen the two screws (**Z**) using a screwdriver (TX25) until they contact the stop at the immersion tube (see illustration).



Stop for the screws



- 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, the O-ring (**D**) (sensor gasket) is visible. Check and replace if required (O-ring dimensions: 11.9x2.6 mm).

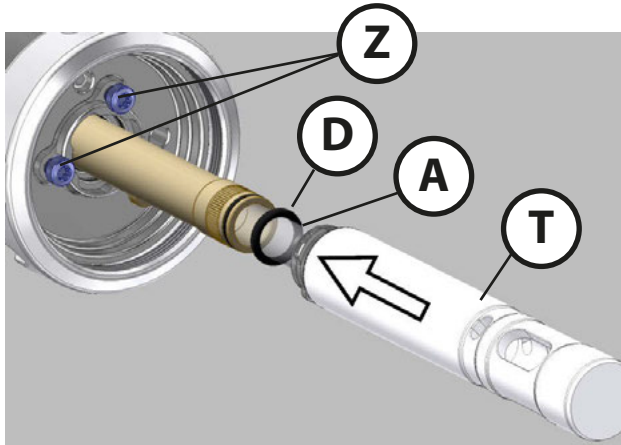
Note:

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

Installing the Immersion Tube

Conditions:

The retractable fitting must be in PROCESS position (see page 16).



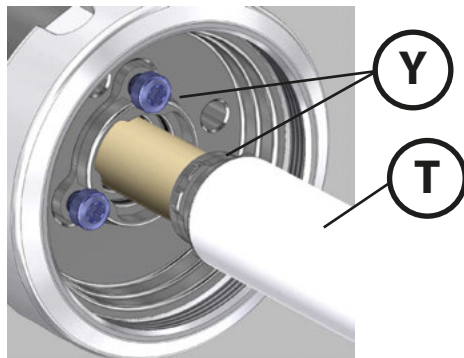
- 1) Push the O-ring (**D**) (sensor gasket) onto the sensor (**A**) as shown.

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

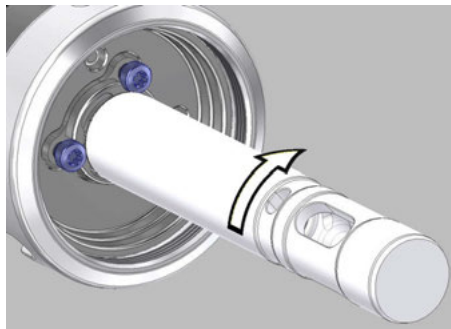
- 2) Loosen the two screws (**Z**) by approx. 4 turns (do not detach them) if you have not done that when removing the immersion tube.

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

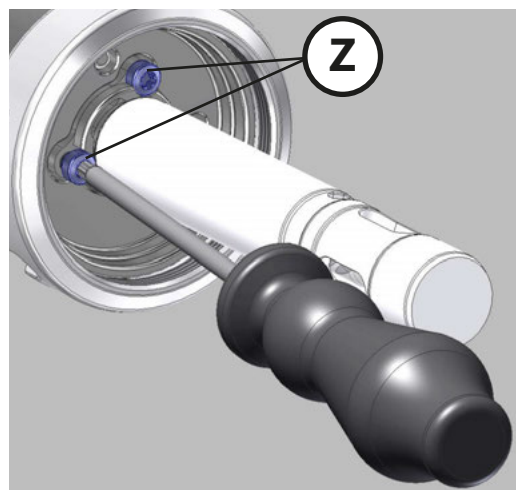
- 3) Push the immersion tube (**T**) in direction of the arrow and insert it in the bayonet coupling (**Y**).



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

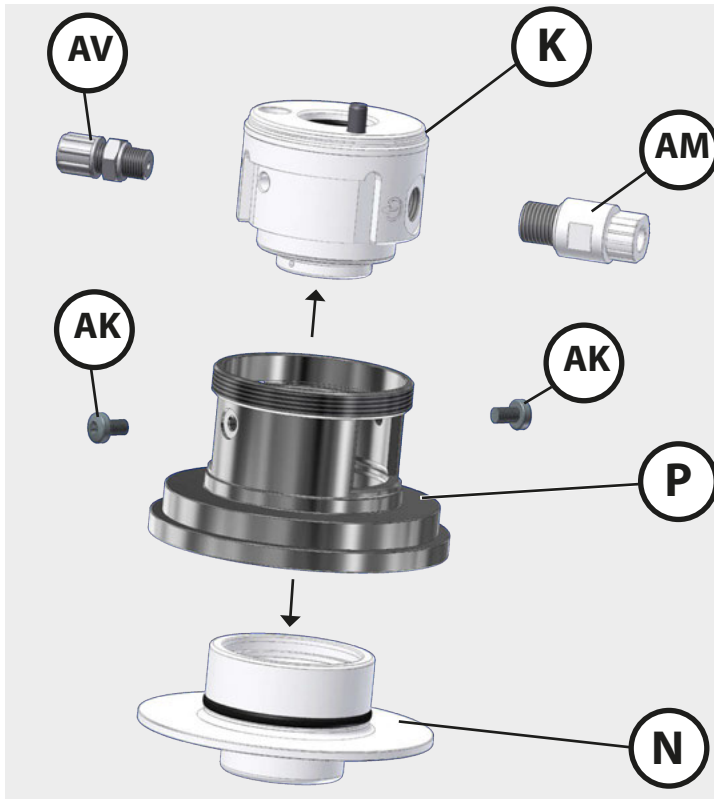


- 5) Fasten the two screws (**Z**) using a screwdriver (TX 25).



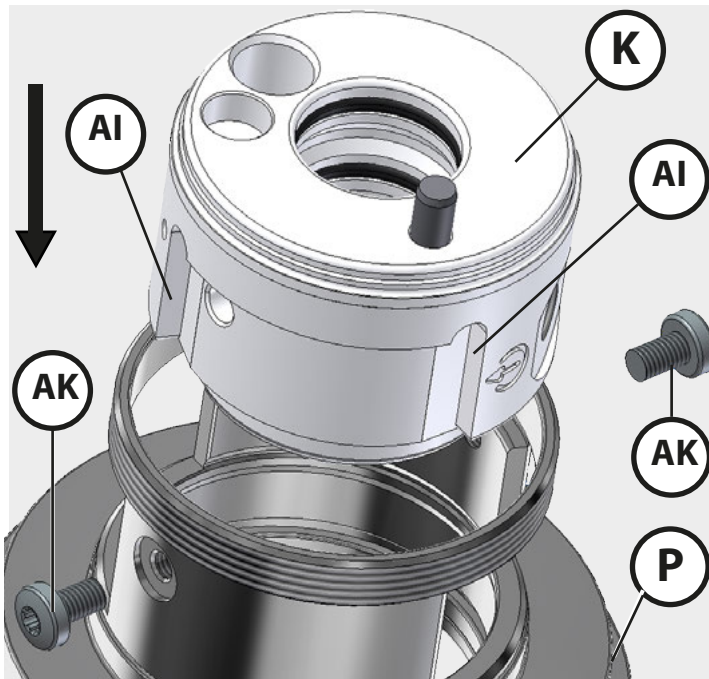
Note: The bayonet coupling is locked by the form-fit screw heads. The immersion tube, however, remains movable to compensate for tolerances.

Removing the Calibration Chamber

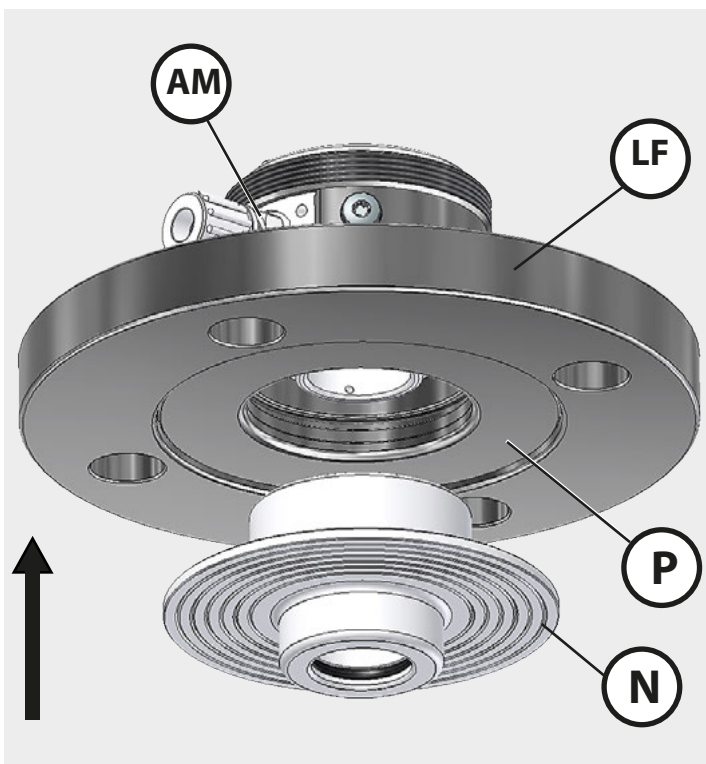


- 1) Screw off the outlet (**AM**) and inlet connectors (**AV**). Take off the loose flange if required.
- 2) Loosen and remove the two screws (**AK**) from the calibration chamber (using screwdriver TX25).
- 3) Pull the calibration chamber (**K**) vertically out of the process adaptation (**P**).
- 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.

Installing the Calibration Chamber

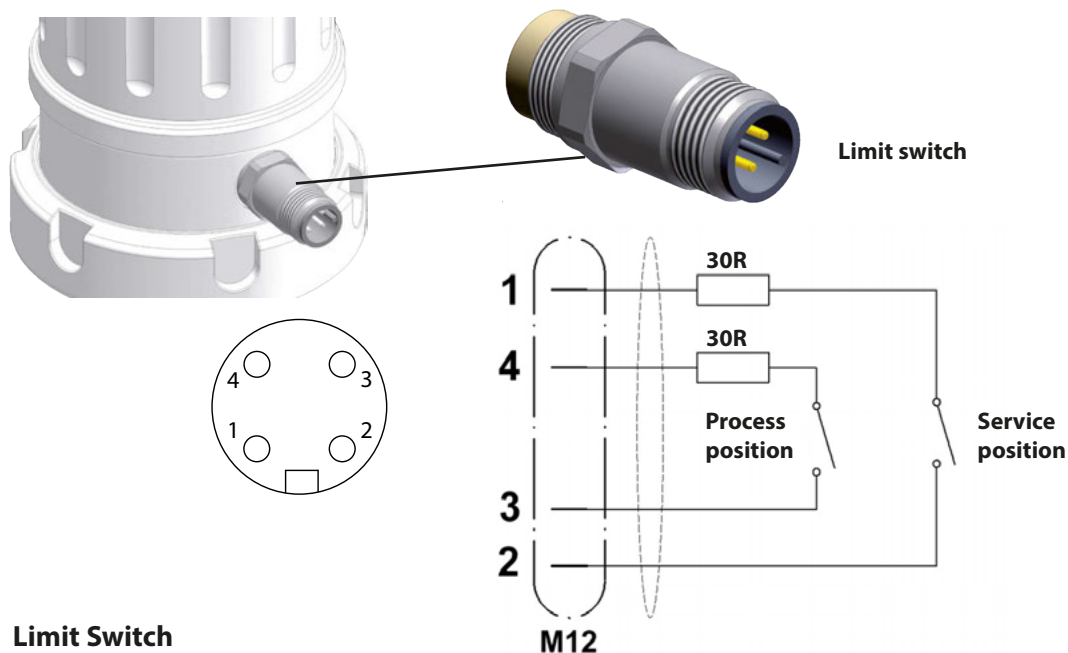


- 1) Align the guiding edges (AI) of the calibration chamber (K) and insert it in the process adaptation (P).
- 2) Always secure the calibration chamber with both screws (AK).



- 3) Install the loose flange (LF) if required. Screw in the inlet and outlet (AM) connectors.
- 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.

SensoGate WA 133 M



Limit Switch

The limit switch is a “simple apparatus” as defined in EN 60079-11 for use in hazardous locations up to Zone 0. The limit switch includes two reed switches (normally-open contacts), each of which is protected by a 30Ω series resistor. The limit switch has the following characteristics:

- No own potential source of ignition
- Need not be marked according to EN 60079
- For connection to intrinsically safe circuits only
- Connection and ambient conditions:
 $U_i = 30 \text{ V} / I_i = 100 \text{ mA} / P_i = 750 \text{ mW} / C_i = \text{negligibly small} / L_i = \text{negligibly small}$

Temperature class	T6		T5	
Equipment protection level	Ga	Gb	Ga	Gb
Ambient temperature range	-10 °C ... +45 °C	-10 °C ... +60 °C	-10 °C ... +57 °C	-10 °C ... +70 °C

- Isolation voltage: 500 VAC to ground
- When installed, its stainless steel housing is grounded via the retractable fitting.
- Verify the intrinsic safety before connecting the limit switch to an intrinsically safe circuit.

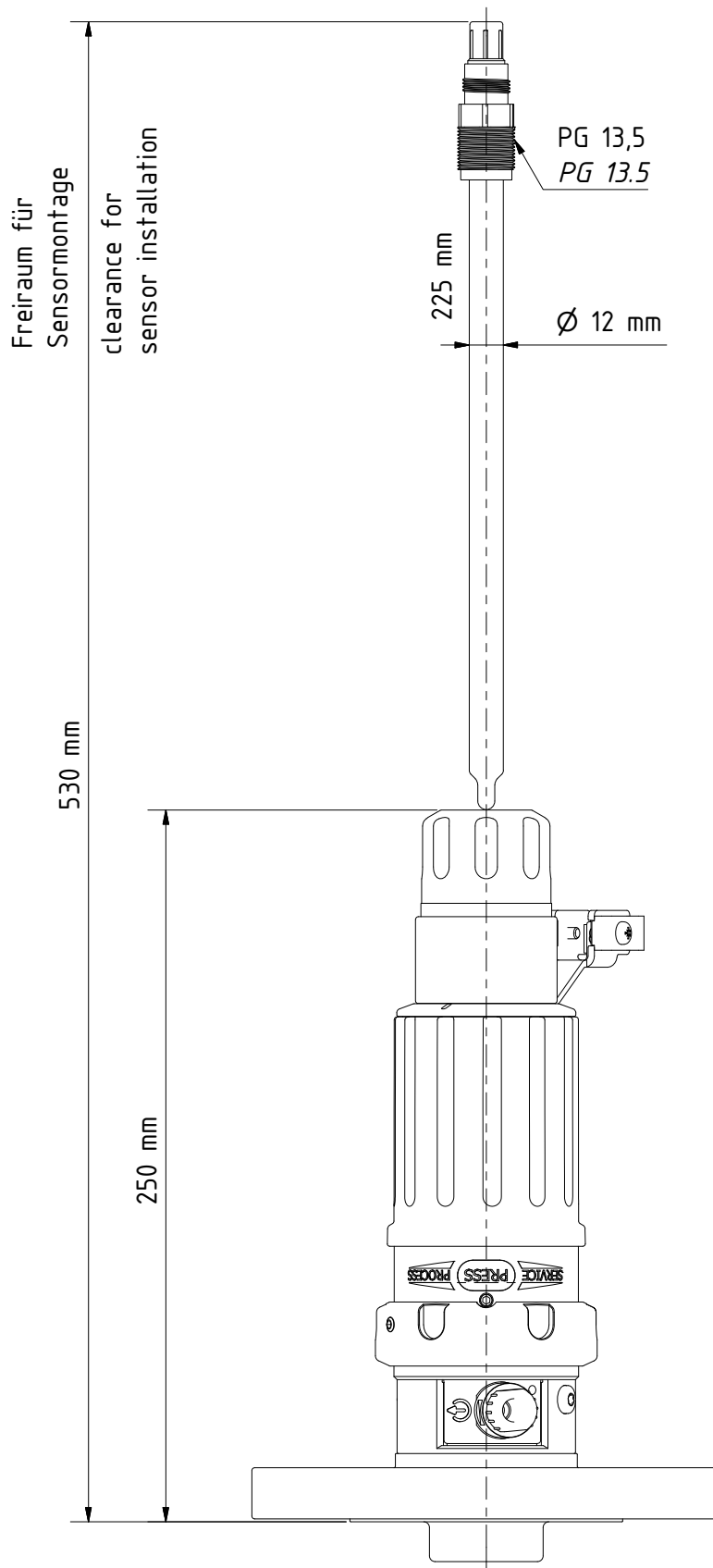
Note:

Reed switches are sensitive to overrange conditions, even if momentary (e.g., due to cable capacitance or inductance)!

Connection

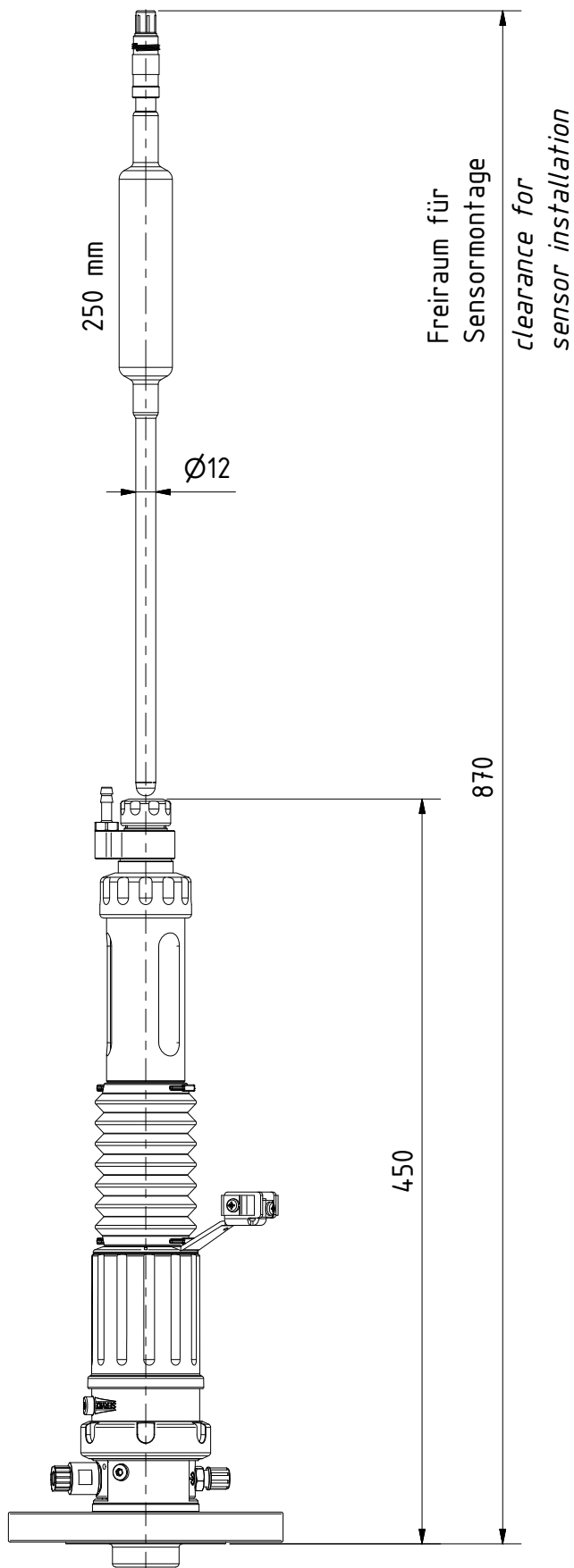
M12 connector
to IEC 60947, 4 pins

WA 133 M, Short Immersion Depth for Sensors with Solid Electrolyte

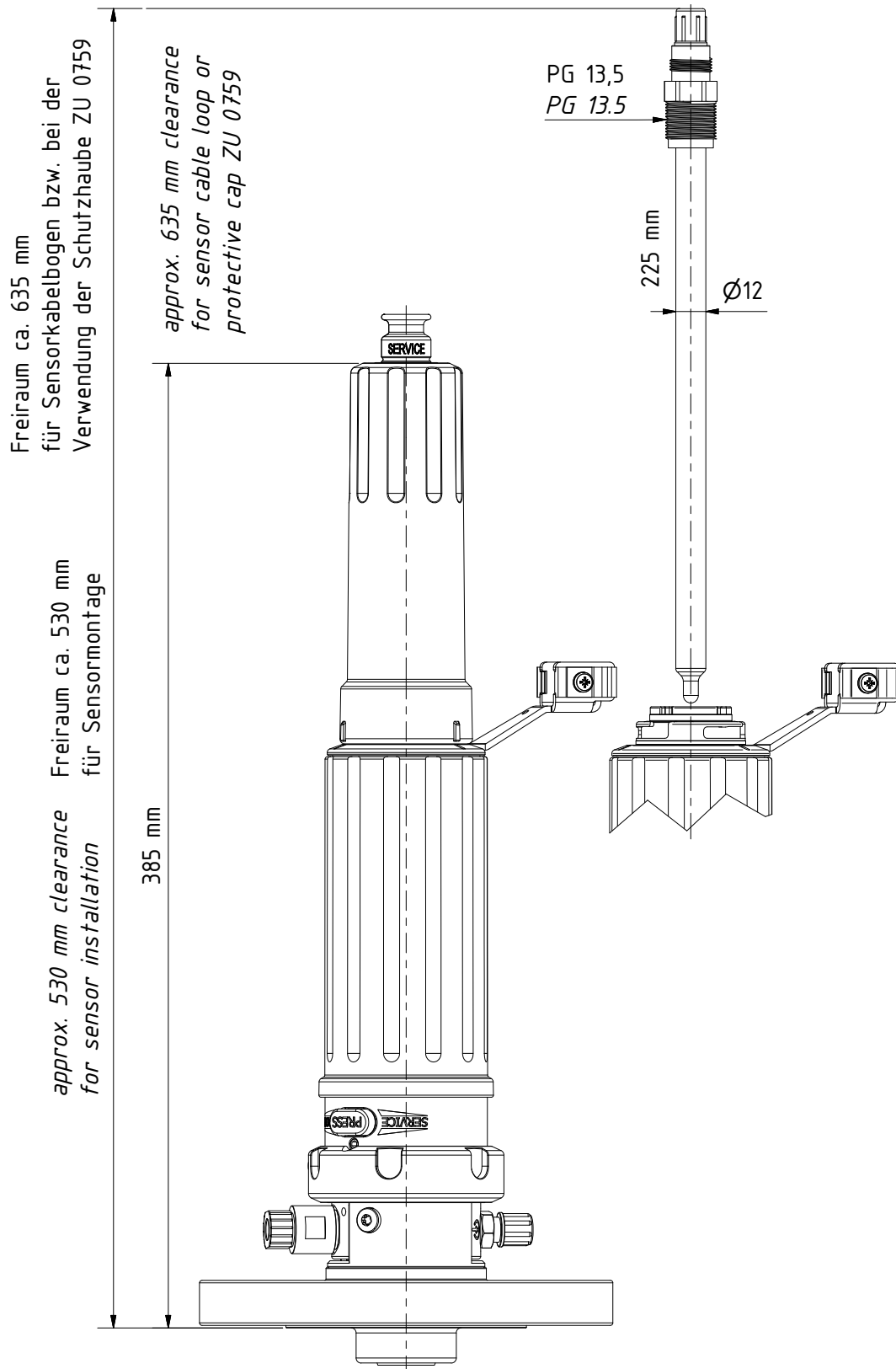


SensoGate WA 133 M

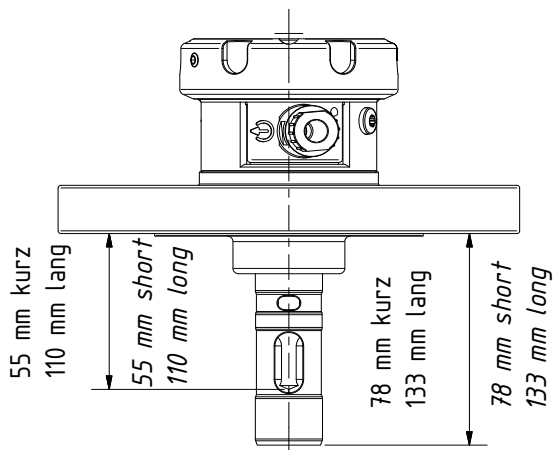
WA 133 M for Sensors with Liquid Electrolyte



WA 133 M, Long Immersion Depth for Sensors with Solid Electrolyte




SensoGate WA 133 M



Process Adaptation

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

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
Permissible flushing pressure and temperature	6 bar (at 5 ... 90 °C)
Ambient temperature	-10 ... +70 °C
Ingress protection	IP 66
Housing material	Stainless steel / PP or PEEK
Sensors	See product code
Process adaptations	See product code
Connections	
Inlet	Female thread, G 1/8" with PFA hose coupling for hose with 6 mm outer dia., 4 mm inner dia.
Outlet	Female thread, G 1/4" with PFA hose coupling for hose with 8 mm outer dia., 6 mm inner dia.
For pressurized sensors	Hose connection NW 6 mm, pressure in calibration chamber 0.5 ... 1 bar above process pressure (max. 7 bar)
Immersion depths / Dimensions	See product code
Process-wetted materials	See product code
Specifications for application in hazardous locations	
Number 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
Process temperature (Ex) ¹⁾	0 to 120 °C (plastic)
Special conditions (Ex)	None

¹⁾ 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 Intervals

Due to the differing process conditions (pressure, temperature, chemically aggressive media etc.), we can only give recommendations for maintenance intervals.

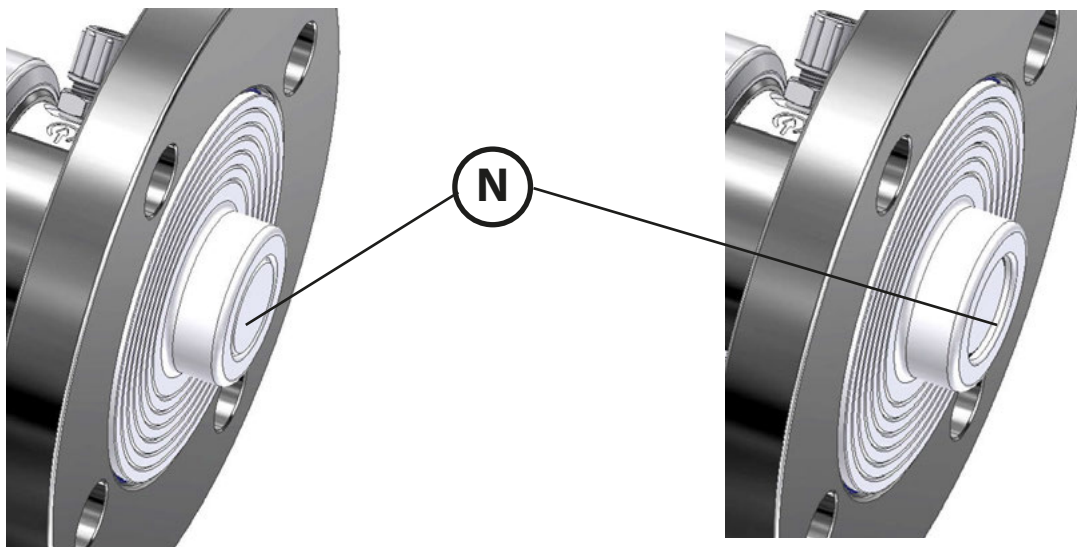
The following maintenance intervals are generally recommended:

Maintenance interval ¹⁾	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 (see page 12). When there are deposits on the leakage bore or compressed air is escaping, replace the process-wetted or 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 or dynamically stressed gaskets.

¹⁾These maintenance intervals are rough recommendations.

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 retractable fitting from the process to see if the immersion tube has shrunk (figures 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 (see page 26).

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 retractable fittings used in the chemical industry, the lubricant Syntheso Glep1 (silicone-free) is applied. For retractable 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.

Application	Pharma / Food		Chemistry / Wastewater
Lubricant	Beruglide L (silicone-free) FDA compliant 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	-

SensoGate WA 133 M

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 adaptation.

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:

Gaskets		Order number	
Loose flange process connection	Set A/1	Process-wetted gasket material: FKM	F-ZU1022/1
	Set A/2	Process-wetted/rinse-wetted gasket material: FKM	F-ZU1022/2
	Set B/1	Process-wetted gasket material: EPDM	F-ZU1023/1
	Set B/2	Process-wetted/rinse-wetted gasket material: EPDM	F-ZU1023/2
	Set E/1	Process-wetted gasket material: EPDM - FDA	F-ZU1024/1
	Set E/2	Process-wetted/rinse-wetted gasket material: EPDM - FDA	F-ZU1024/2
	Set F/1	Process-wetted gasket material: FKM - FDA	F-ZU1025/1
	Set F/2	Process-wetted/rinse-wetted gasket material: FKM - FDA	F-ZU1025/2
	Set H/1	Process-wetted gasket material: FFKM - FDA	F-ZU1026/1
	Set H/2	Process-wetted/rinse-wetted gasket material: FFKM - FDA	F-ZU1026/2
	Set K/1	Process-wetted gasket material: FFKM	F-ZU1027/1
	Set K/2	Process-wetted/rinse-wetted gasket material: FFKM	F-ZU1027/2

For ordering, use the part numbers beginning with **ZU**, e.g., ZU0680.



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 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 retractable fittings for solid-electrolyte sensors.



ZU 0739 Bellows

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



Immersion Tubes

ZU 1032 Immersion tube, short

Material: PTFE

ZU 1033 Immersion tube, long

Material: PTFE

SensoGate WA 133 M



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:

								
<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"/>

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.

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Date: Signature:

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