

Installation Guide

Uniclean 900(X) Probe Controller

**Electro-Pneumatic Controller
for Retractable Fittings**
for Fully Automated
pH Measurement and Cleaning



Read before installation.
Keep for future use.



1 Basics

Return of Products Under Warranty

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 certificate, for the health and safety of our service personnel.

Disposal

Please observe the applicable local or national regulations concerning the disposal of "waste electrical and electronic equipment".

Trademarks

The following trademarks are used in this manual without further marking:

CalCheck®, Calimatic®, Ceramat®, Protos®, Sensocheck®, Sensoface®, SensoGate®, Unical®, Unclean®, VariPower® are registered trademarks of Knick Elektronische Messgeräte GmbH & Co. KG, Germany

InTrac® is a registered trademark of Mettler-Toledo AG

NOTICE

This installation Guide does NOT describe

- how to operate the retractable fitting
- how to control the programs via the Protos 3400(X) process analysis system.

The user manuals for retractable fittings and the Protos 3400(X) modular process analysis system are available for free download at www.knick.de.

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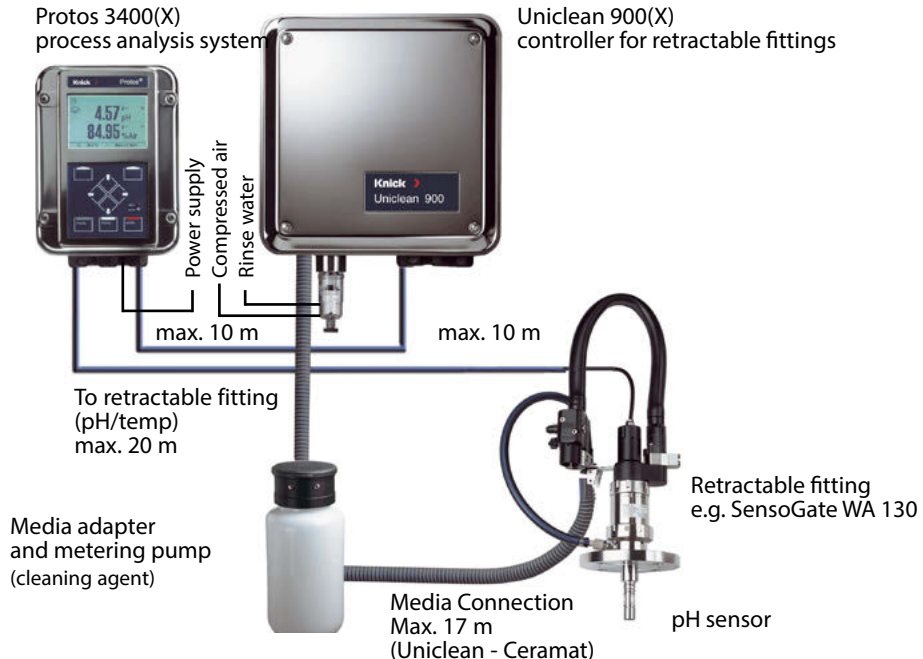
2 Short Description

The Uniclean 900(X) is an electro-pneumatic controller for fully automated pH measurement and cleaning.

The device is modular and functionally structured. The enclosure contains the electronic controller, filters, and valves. An external media adapter is provided for the cleaning solution.

The manufacturer offers the following components which form an optimally matched, fully automated process analysis system:

- Protos 3400(X) Modular process analysis system
- Uniclean 900(X) Controller for retractable fittings (retractable probes)
- Ceramat WA 15.../16... Retractable fitting with ceramic sealing to the process
- SensoGate WA 13... Universal, pneumatically operated retractable fitting with modular design



2 Short Description

Metering pump with container for cleaning solution

The maintenance-free metering pump is located in the “head” of a 3.5 liter bottle. The integrated funnel allows easy refilling of cleaning solution, without removing the pump.



Media Adapter

A cleaner pump can be connected to the port of the media adapter (e.g. for dilute acids, dilute alkalis, or solvents, see table on page 70).

Media Connection

The media connection (corrugated hose) connects probe controller, media adapter and retractable fitting (probe). Each fluid is fed to the retractable fitting through a separate tube of the media connection. A multiplug provided with check valves is connected at the retractable fitting to prevent contamination or mixing of the different fluids.

2 Short Description

NOTICE

Be sure to take account of the chemical resistance of the process-wetted materials of the media adapter, media connection and pump.
When hot vapor or aggressive cleaning agents are to be used, an adapter for additional media (ZU 0654, ZU0655) is available for the retractable fittings of the Ceramat Series. The SensoGate WA 130(H) provides a suitable option (PEEK media connection with integrated connection for additional medium).

Monitoring Functions

- Leak detection (alerts you to a water leak in the Uniclean)
- Compressed-air monitoring (with pressure switch)
- Sensor dismount guard (by monitoring the air flow) – with Ceramat only
- Media monitoring
allows monitoring the process value or temperature of each medium in the calibration chamber of the retractable fitting.
False media or a faulty pumping function are recognized.
- A level monitoring system
generates the NAMUR* messages “maintenance request” and “failure”.
- A “wear counter” monitors the number of probe movements and generates a message when a critical value is reached.

Measurement Procedures

- **Continuous measurement**
With continuous measurement the pH sensor is located in the process medium and is retracted for cleaning.
- **Short-time measurement**
(interval measurement, sampling, sample mode ...)
The pH sensor is only momentarily moved into the process medium.
This method is applied when measuring aggressive or thermally demanding process media which require short measurement times with long rest periods.

Connection to process control / process evaluation

The Uniclean 900(X) probe controller can be connected to a superordinated control system, a PLC or DCS (Digital Control System).

* international user association of automation technology in process industries

3 Intended Use

The Uniclean 900(X) probe controller allows fully automated pH measurement including rinsing and cleaning.

The Uniclean 900X is approved for operation in hazardous locations.

The sturdy enclosure (IP 65) can be wall or pipe mounted.

The version with hygienic, polished stainless steel enclosure allows application in the field of biotechnology, food processing, and in the pharmaceutical industry.

The version with coated steel enclosure – extremely corrosion resistant – has been developed for application in the chemical industry, environmental engineering, water and wastewater treatment, and for application in power plants.

The Uniclean 900(X) evaluates pneumatic and electric check-back signals from retractable fittings. Inductive limit position switches are not supported.

A wear-resistant and maintenance-free metering pump with a very long service life is used for the cleaning agent. Each fluid is fed to the retractable fitting through a separate tube. A multiplug provided with check valves is connected at the retractable fitting to prevent contamination or mixing of the different fluids.

We recommend using the Uniclean 900(X) in combination with the Protos 3400(X) process analysis system and a Ceramat or SensoGate retractable fitting.

This combination ensures optimal media monitoring (pH value and temperature) as well as traceability according to FDA 21 CFR Part 11 (AuditTrail).

The Protos 3400(X) process analysis system allows easy adaptation of the calibration and cleaning programs to the process.

NOTICE
<p>Frost-Free Operation</p> <p>Uniclean 900(X) is designed for operation in frost-free environments. If required, protective cabinets and heatable media connections are available as accessory.</p>

3 Intended Use

NOTICE
<p>Drinking water pipes</p> <p>Observe the general requirements of protection devices to prevent pollution of potable water (EN 1717) when drawing water from drinking water pipes. We recommend installing a suitable check valve on the water supply to the Uniclean to protect the drinking water from pollution.</p>

4 Safety Information

NOTICE

This installation guide does NOT describe

- how to operate the retractable fitting
- how to control the programs via the Protos 3400(X) process analysis system.

The user manuals for retractable fittings and the Protos 3400(X) modular process analysis system are available for free download at www.knick.de.

CAUTION

Power Supply

The Uniclean 900(X) should preferably be supplied through the Protos 3400(X). Be sure to observe the safety information in the user manual for the Protos 3400(X) basic unit.

Application in Hazardous Locations

The Uniclean 900X probe controller is intended for operation in ambient conditions and applications as specified in this manual. (see "Intended Use", page 8 and "Specifications", page 60).

The Uniclean 900X may be opened during operation.

4 Safety Information

WARNING

Application in Hazardous Locations

- Observe all applicable local codes and standards for the installation of electrical equipment in hazardous locations. For orientation, please refer to IEC 60079-14, EU directives 2014/34/EU and 1999/92/EC (ATEX), NFPA 70 (NEC), ANSI/ISA-RP12.06.01.
- Take account of the influences of humidity, ambient temperature, chemicals and corrosion. If the specifications in the manual are not sufficient for assessing the safety of operation, e.g., because your specific applications are not described, please contact the manufacturer to make sure that the application is possible and safe. You must observe the specified ambient conditions and the ranges for temperature and pressure to ensure safe operation of the device.
- In a dust explosion hazardous area you must install the bottle for cleaning liquids in a way that there is no explosion risk due to electrostatic discharge. For example, the bottle must be mounted within a grounded, electrostatically conductive container / cabinet or be sheathed with grounded, electrostatically conductive material.
- You must install the media connection in an electrostatically protected area or sheath it with grounded, electrostatically conductive material.
- Clean the surfaces of media connection and media adapter including the bottle for cleaning solutions only with a damp cloth to prevent electrostatic charging.

For further information, refer to the CENELEC PD CLC/TR 60079-32-1 guidance for avoiding ignition hazards due to electrostatic charges and EN 60079-14, Explosive Atmospheres - Part 14: "Electrical installations design, selection and erection".

5 Package Contents

Checking the Package Contents

Use the following table to check the package contents:

(Listed here: maximum configuration)

Uniclean 900(X)	Basic unit incl. wall mounting brackets (mounted)
	Media connection (corrugated hose) incl. slotted securing nut and suitable hook wrench
	Media adapter (for metering pump)
	Metering pump
	Cable set, consisting of: <ul style="list-style-type: none">• 1 connecting cable for basic Protos unit• 1 connecting cable for basic unit – media adapter (with plug)
	1 Uniclean 900 (X) installation uide Uniclean 900X: EU Declaration of Conformity, Control Drawings

6 Product Range

Order No.

Basic unit	Uniclean 900 /	-	-	-	-	-	-	-	-	-
Explosion protection	for hazardous area Zone 1 Without	X								
Housing	Steel, coated Stainless steel, polished	C	S							
Media Connection (rinse function only)	5 m (gasket material: FKM) 10 m (gasket material: FKM) 15 m (gasket material: FKM)	1		0	0					
Media Connection (water rinsing and cleaner)	5 m (gasket material: FKM) 10 m (gasket material: FKM) 14 m (gasket material: FKM) 17 m (gasket material: FKM)	3		4						
	5 m (gasket material: EPDM) 10 m (gasket material: EPDM) 14 m (gasket material: EPDM) 17 m (gasket material: EPDM)	C	D	G	F					
Media interface	With (for standard probes) Without (for WA 130, WA 150, WA 154, WA 160)	1		0						
Media adapter with port	With (gasket material: FKM) With (gasket material: EPDM) Without	1	A	0						
Media port	Metering pump with empty 3.5-L bottle (EPDM) Metering pump with empty 3.5-L bottle (FKM) Without	2	B	0						
Supplementary air purging kit	With Without				C	N				
Supplementary ext. valve kit	external valve Without				E	N				
Special variant	Without							0	0	0
Protective cabinet	Various models, heated or unheated, also for application in hazardous locations. Please contact us.									

6 Product Range

Accessories, Spare Parts

Accessories for Uniclean 900(X)

Order No.

Pipe-mount kit for Uniclean 900(X)	ZU 0601
Pipe-mount kit for media adapter	ZU 0606
Connection kit for Uniclean 900(X) (water and air)	ZU 0656
Commissioning Uniclean 900(X)	ZU 0649
Commissioning comprises the following steps. – Connection of hoses and cables and commissioning of the Uniclean 900(X) system – Operator training Prior to arrival of our engineer, the customer must prepare the following: – Assembling the Protos 3400(X), Uniclean 900(X) and retractable fitting. (Observe maximum length of connecting hose between Uniclean 900(X) and retractable fitting.) – Electric supply: Cable ducts/rails must be present. Auxiliary power supply for Protos 3400(X) must be pre-installed in 2 x 1.5 mm wires. – Air supply: Hose with connection nipple for G 1/4" female thread, nominal hose width > d = 6 mm. Water supply: Hose with connection nipple for G 1/4" female thread or G 3/4" male thread, nominal hose width > d = 6 mm.	
Chemical pump (supplementary ext. valve kit required)	ZU 0741
Check valve	RV01

Spare Parts and Retrofit Parts for Uniclean 900(X)

Order No.

Media connection, rinse, 5 m (FKM gaskets)	ZU 0572/1
Media connection, rinse 5 m (EPDM gaskets)	ZU 0572/2
Media connection, rinse, 10 m (FKM gaskets)	ZU 0573/1
Media connection, rinse 10 m (EPDM gaskets)	ZU 0573/2
Media connection, rinse, 15 m (FKM gaskets)	ZU 0652/1
Media connection, rinse 15 m (EPDM gaskets)	ZU 0652/2
Media connection, rinse + clean, 5 m (FKM gaskets)	ZU 0574/1
Media connection, rinse + clean, 5 m (FKM gaskets), steel balls instead of glass balls*	ZU 0574/1S
Media connection, rinse + clean, 5 m (EPDM gaskets)	ZU 0574/2
Media connection, rinse + clean, 10 m (FKM gaskets)	ZU 0575/1
Media connection, rinse + clean, 10 m (EPDM gaskets)	ZU 0575/2
Media connection, rinse + clean, 14 m (FKM gaskets)	ZU 0932/1
Media connection, rinse + clean, 14 m (EPDM gaskets)	ZU 0932/2
Media connection, rinse + clean, 17 m (FKM gaskets)	ZU 0653/1
Media connection, rinse + clean, 17 m (EPDM gaskets)	ZU 0653/2
Media interface for standard probes	ZU 0576
Metering pump (PP, FKM) with empty 3.5-L bottle	ZU 0580/1
Metering pump (PP, EPDM) with empty 3.5-L bottle	ZU 0580/2
Metering pump (PP, EPDM) with empty 3.5-L bottle, steel balls instead of glass balls*	ZU 0580/2S
Metering pump (PP, FKM) with empty 3.5-L bottle, Ex	ZU 0580 X/1
Metering pump (PP, EPDM) with empty 3.5-L bottle, Ex	ZU 0580 X/2

* included with special version -001

6 Product Range

Spare Parts, Service Parts

Spare Parts and Retrofit Parts for Uniclean 900(X) (continued)	Order No.
Supplementary air purging kit	ZU 0587
Supplementary Aux2 kit	ZU 0588
Media adapter (FKM gaskets)	ZU 0715/1
Media adapter (EPDM gaskets)	ZU 0715/2
Media adapter, Ex (FKM gaskets)	ZU 0715 X/1
Media adapter, Ex (EPDM gaskets)	ZU 0715 X/2

Service Parts for Uniclean 900(X)	Order No.
Air pressure switch	ZU 0632
Water pressure switch	ZU 0633
Probe valve, complete	ZU 0634
Water valve	ZU 0714
Sensor dismount guard, complete	ZU 0644
Air purge valve, complete	ZU 0636
Aux 2 valve, complete	ZU 0637
Piezo valve for valve block	ZU 0638
Gasket for port at media adapter (EPDM)	ZU 0639
Filter insert (5 ... 10 µm)	ZU 0640
Replacement filter housing	ZU 0641
Electronics module, tested, encapsulated	ZU 0716
Electronics module, tested, encapsulated, Ex	ZU 0716 X
Small parts set (various screws, springs etc.)	ZU 0643
Multiplug service set, FKM gaskets	ZU 0812/1
Multiplug service set, EPDM gaskets	ZU 0812/2
Reed switch, short (service part for multiplug)	ZU 0813/1

7 Checklist for Installation

Protos 3400(X) • Uniclean 900(X) • Retractable Fitting

Protos 3400(X)

Correct power supply?

Protos 3400(X) - Uniclean 900(X)

- Mounting surface / pipe (incl. drilling plan) for Protos 3400(X) (see Protos manual)
- Mounting surface (incl. drilling plan) for Uniclean 900(X) (see page 18 and following)
- Mounting surface (incl. drilling plan) for media adapter (see page 21)
- Permissible mounting clearances corresponding to specifications (see page 17)

Uniclean 900(X)

- Flexible compressed air connection for G 1/4" female thread (e.g. accessory ZU 0656)
- Compressed air 0.4 ... 1.0 MPa, oil- and condensate-free
- Flexible rinse water connection G 1/4" female thread or 3/4" coupling (e.g. accessory ZU 0656)
- Rinse water 0.2 ... 0.6 MPa, 5 ... 65°C, 100 µm filtered

Retractable Fittings

SensoGate or Ceramat

- Check if the process adaptation corresponds to your order acknowledgement (compare product coding)
- Installation position and clearance above connecting flange according to documentation for retractable fitting

⚠ CAUTION
Only operate the retractable fitting when a sensor is installed! When the sensor has been removed, it must always be replaced by a dummy!
SensoGate WA 130(X) Turn the SensoLock ring to "lock" position to prevent that the retractable fitting is accidentally moved into the process. This is only possible with the retractable fitting in "Service" position (see SensoGate manual).

8 Assembly

Arrangement of Components Without Protective Cabinet (Accessory): Permissible Distances and Lifting Heights

⚠ CAUTION

Mounting site

The mounting site must have sufficient mechanical strength and be free of vibrations.

Ambient temperature

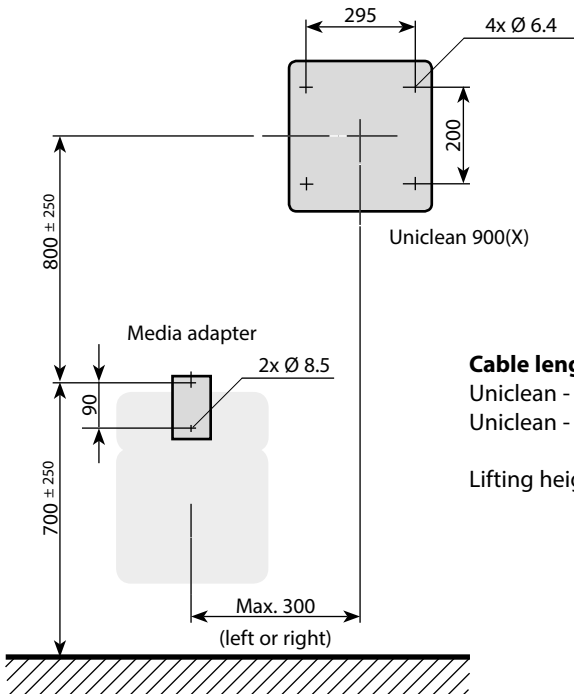
Be sure to observe the permissible ambient temperature (see Specifications in the respective user manual). It should never sink below +5 °C.

Direct sunlight

Special measures must be taken for outdoor installation:
Direct sunlight can cause an impermissible temperature increase.

Mounting distances

The cables are pre-assembled and cut to length.
Be sure to observe the appropriate mounting distances.
You can use the media adapter (corrugated hose) to check the mounting distances.



Cable lengths:

Uniclean - Protos 3400(X): 10 m

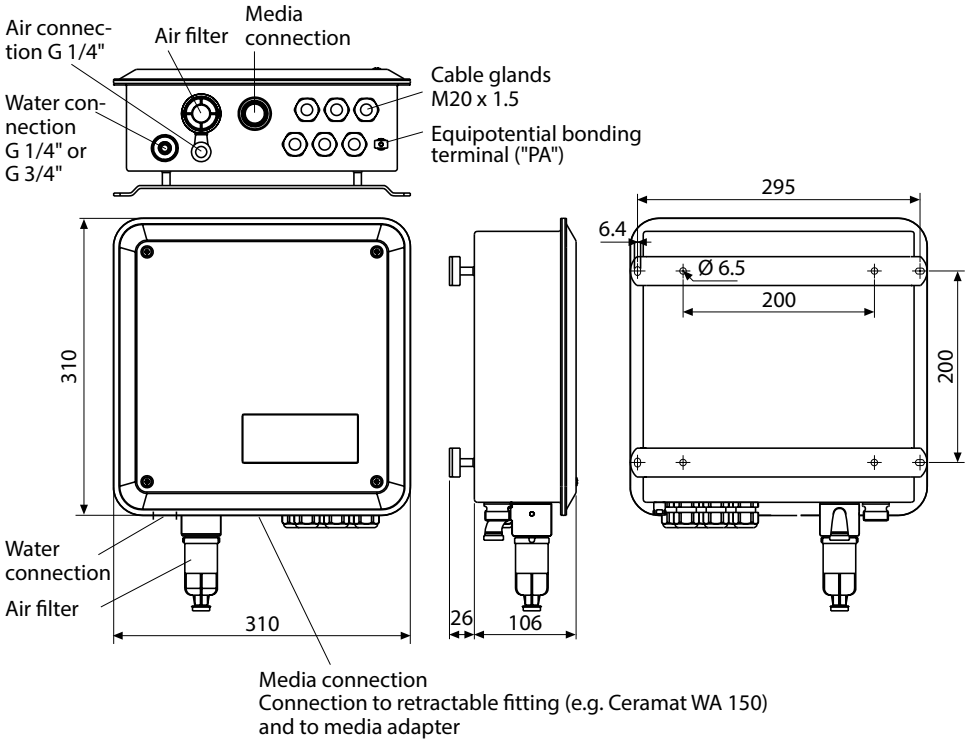
Uniclean - Retractable fitting: 5, 10, 14, 15 or 17 m

Lifting height of pump: max. 10 m

Dimensions in mm

8 Assembly

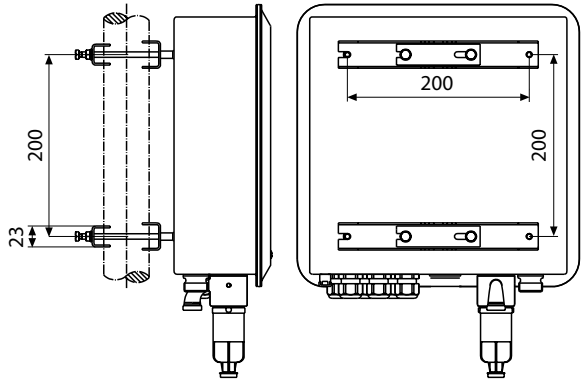
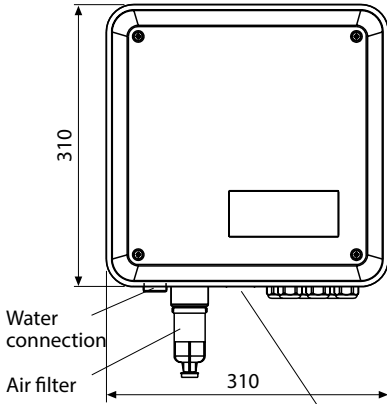
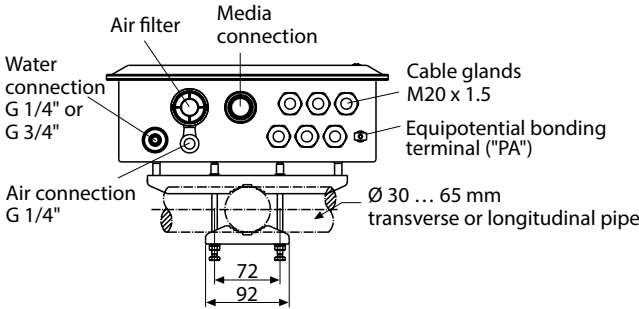
Wall Mounting



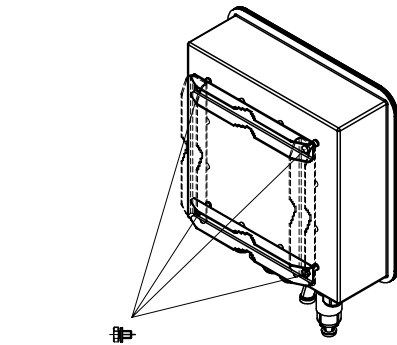
Dimensions in mm

8 Assembly

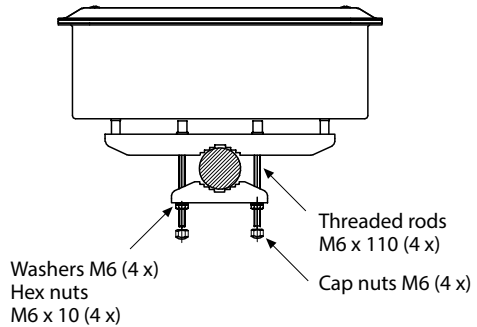
Pipe Mounting



Media connection
Connection to retractable fitting (e.g. Ceramat WA 150) and to media adapter



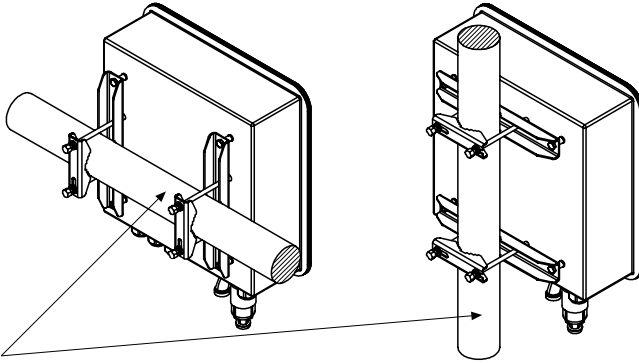
Hex bolts
M6 x 10 (4 x)
Washers M6 (4 x)



Dimensions in mm

8 Assembly

Pipe Mounting

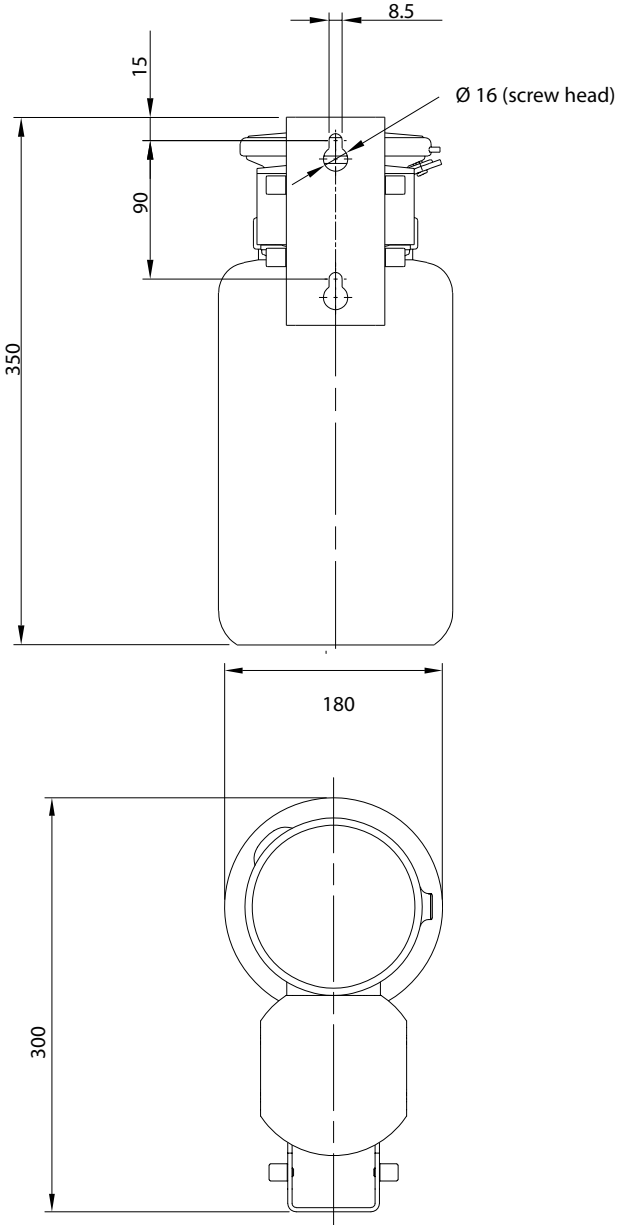


Pipe diameter: 30 ... 65 mm

Dimensions in mm

8 Assembly

Media Adapter with Metering Pump

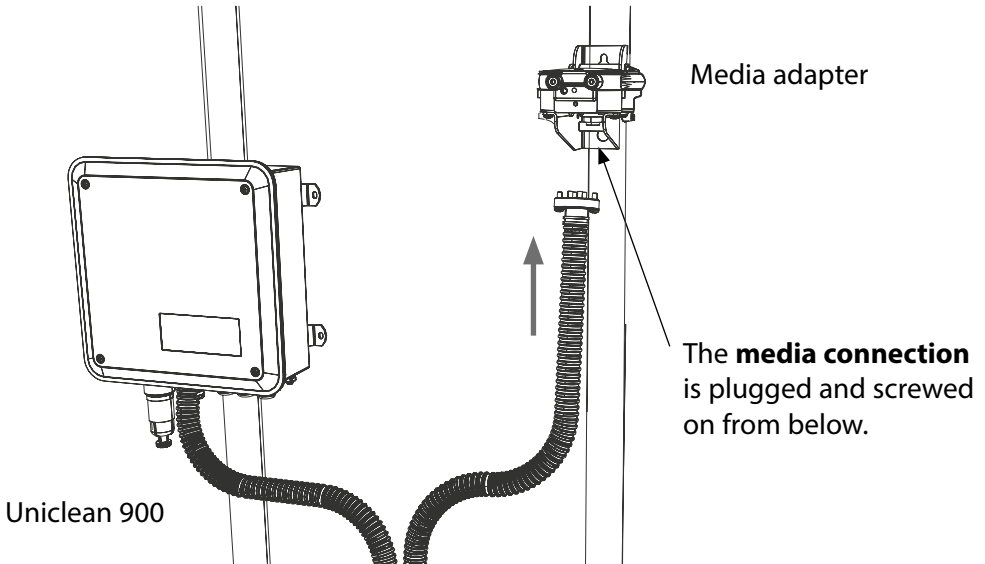


Dimensions in mm

8 Assembly

Attaching the Media Connection to the Media Adapter

1. Carefully plug the connector of the media connection into the media adapter with the flat side facing the wall (or pipe).
2. Then tighten the 2 fixing screws (PZ-3). (See also page 24.)



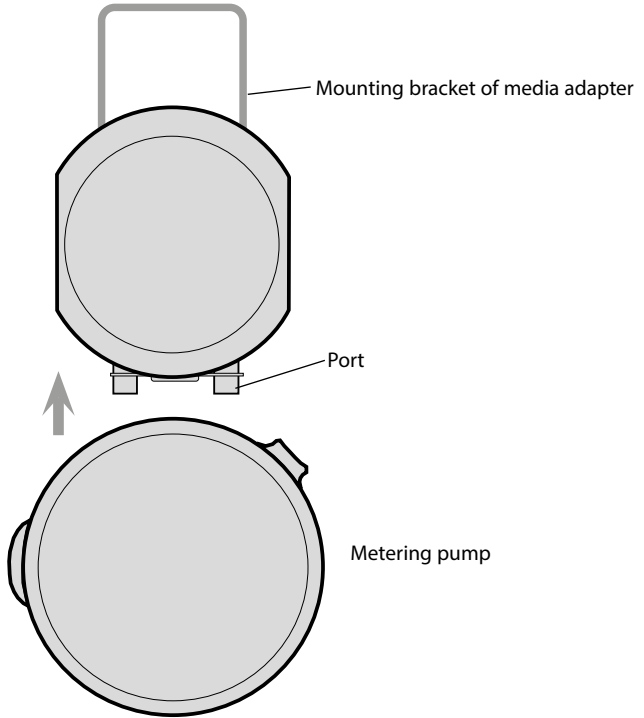
NOTICE

- If the media connection hose is strongly twisted, you must loosen the connection at the basic unit and refasten it with proper orientation using the included special wrench.
- Be sure to take account of the chemical resistance of the process-wetted materials of the media adapter, media connection and pump. When hot vapor or aggressive cleaning agents are to be used, an adapter for additional media (ZU 0654, ZU 0655) is available for the retractable fittings of the Ceramat Series. The SensoGate WA 130(H) provides a suitable option (PEEK media connection with integrated connection for additional medium).

8.1 Media Adapter and Metering Pump

The Protos automatically recognizes and monitors the port equipment of the media adapter.

NOTICE
As delivered, the port of the media adapter is closed with a blind plate. When the cleaner pump has been mounted, you can store the blind plate on the fixing pins at the side of the media adapter.



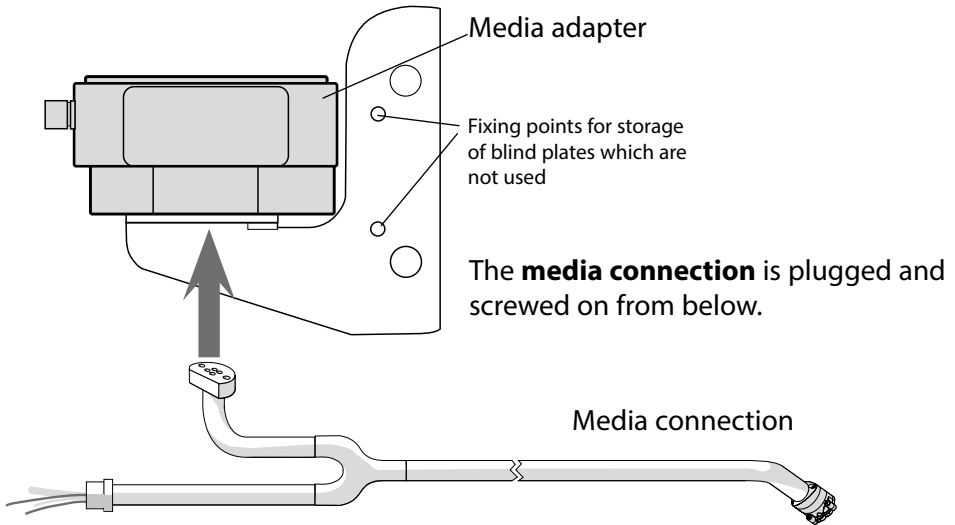
Top view of media adapter. The metering pump is simply plugged on and fixed with two screws.

This port allows connecting a pump for rinsing or cleaning agent. It is designed for the use of aggressive media (dilute acids, dilute alkalis, solvents – see table on page 70).

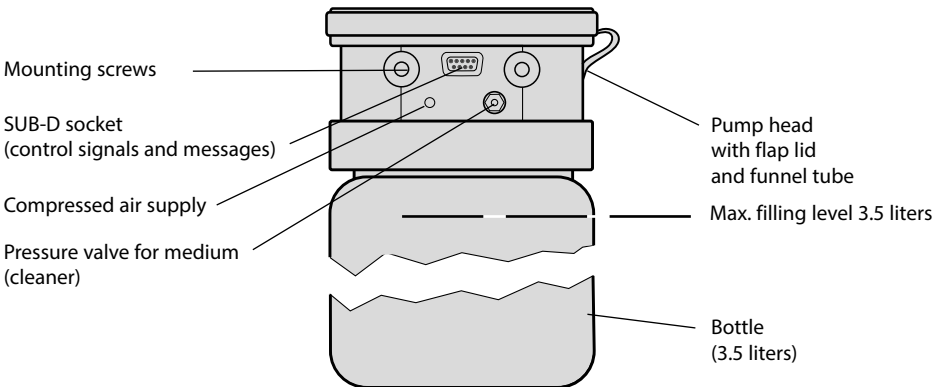
8.1 Media Adapter and Metering Pump

Attaching the Media Connection to the Media Adapter

1. Carefully plug the connector of the media connection into the media adapter with the flat side facing the wall (or pipe).
2. Then tighten the 2 fixing screws (PZ-3).



Metering Pump: Plug-in Connection for Media and Control Signals

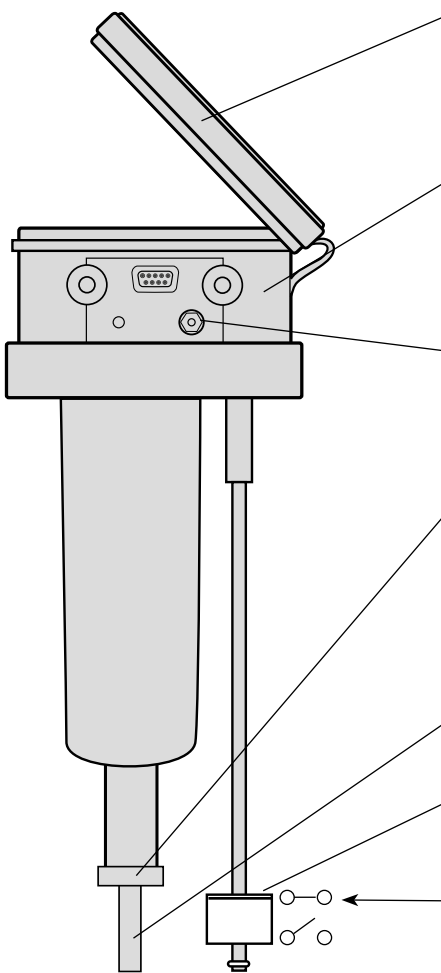


8.1 Media Adapter and Metering Pump

Function Description of Metering Pump

The metering pump is a wear-resistant and maintenance-free bellows-type pump without dynamic seals. It provides an integrated pneumatic valve and a level monitoring device.

If required, the bottle can be screwed off the pump head for cleaning. Also the check valves can be easily removed and cleaned.



Lid

After opening the flap lid, the funnel tube can be accessed.

Pump head

The bottle is simply screwed off the pump head which remains connected to the media adapter.

Pressure valve

The complete valve can be removed using a wrench (8 mm A/F).

Suction valve

Ball, spring and O-ring are located behind a hex nut (17 mm A/F).
(Be careful when unscrewing!)

Suction nozzle

Level monitoring

Remove O-ring for cleaning.
Float can be pulled off.

NOTICE:

Observe the mark on the float!

Top = ○—○

8.1 Media Adapter and Metering Pump

Bills of Materials

Bill of Material for Media Adapter

Component	Material
Blind plate	PP-GF (not wetted)
Molded seal	EPDM (FKM gasket supplied with FKM pump)
Housing	PP-H
Gasket for media connection	FKM / EPDM *

Bill of Material for Metering Pump

Component	Material
Pump lid	FKM / EPDM *
Pump membrane	FKM / EPDM *
Pump housing	PP-GF
Pump head	PP-GF
Float	PP
Float tube	PVDF
Bottle	PE-HD
Check valves	
Ball	Glass
Spring	Hastelloy
Gasket	FKM / EPDM *

* Depending on model version:

Model ... /1: FKM

Model ... /2: EPDM

8.2 Media Connection

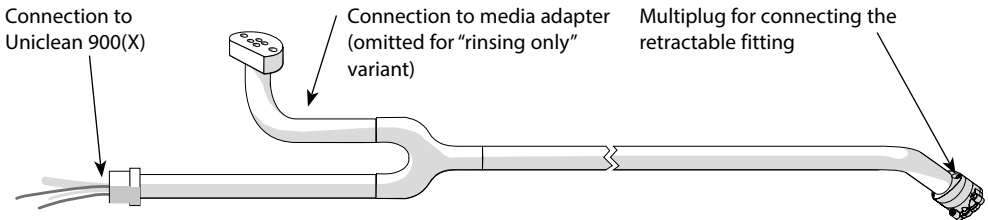
Variants, Assembly

The media connection is available in 5, 10, 14, 15 or 17 m length. It consists of a dia. 30 mm corrugated hose with a metal coil. You can also order special lengths (also heated or with wall ducts). 2 basic variants are available:

- for rinsing only (without branch outlet to media adapter)
- for cleaning function with branch outlet to media adapter

Connections

The connections for media adapter and retractable fitting are of a plug-in design. They are mechanically fixed by screwing. Each fluid is fed to the retractable fitting through a separate tube of the media connection. Check valves in the multiplug minimize contamination and prevent mixing of the calibration fluids.



Connection to Uniclean 900(X)

Screw the corrugated hose to the joining piece of the Uniclean 900(X). You can easily feed the different media tubes through the slit in the securing nut. The different tube lengths and diameters provide for a clear assignment to the different connection points. See page 28 for color codes.

Connection to Media Adapter

Plug this connection to the media adapter and screw it tight. The media adapter provides 3 connections for media and one connection for compressed air.

Multiplug for Connecting the Retractable Fitting

Plug this connector to the retractable fitting and screw it tight (PZ-2), see manual of retractable fitting. The multiplug includes media tubes (5x, all with check valves), limit position control and compressed air supply.

8.2 Media Connection

Bill of Material

Bill of Material for Media Connection, Cleaning and Rinse Function

(gray: omitted for media connection with "rinse function")

Media connection	Tubes	Outer dia.	Material	Color
Probe compressed-air	2	6.8 mm	PA	Green
Rinse water, Purge air (with rinse function)	2	6 mm	FEP	Transparent
Cleaning agent	1	6 mm	FEP	Transparent
Air supply to media adapter	1	6 mm	FEP	Transparent, red marking

Uniclean joining piece	1.4571
Corrugated hose, dia. 30 mm	PVC and metal coil
Hose termination at probe, dia. 28 mm	EPDM
Hose manifold	PP-H
Media adapter joining piece	PP-H
Multiplug	PEEK

Check valve of multiplug		Material
Ball	5 (with rinse function: 2)	Glass**
Spring	5 (with rinse function: 2)	Hastelloy (2.4610)
Gaskets		FKM / EPDM*

* Depending on model version:

Model ... /1: FKM

Model ... /2: EPDM

** Other material possible (optional)

8.3 Media Supply: Unclean 900(X)

Compressed Air, Water, Purge Air, Auxiliary Media

Connecting the Compressed-Air Supply

The Unclean 900(X) is operated with an external air pressure of (4)* ... 10 bar. Adjust the pressure regulator so that the operating pressure for the retractable fitting is kept within 4 and 7 bar. The air must be condensate- and oil-free.

Maximum air consumption during probe activation is 300 liter/min.

The connector for the compressed air supply is located behind the filter / water trap. It has a G 1/4" female thread and accepts tubes with an inside diameter of 6 mm (preferably flexible). We recommend using the ZU 0656 connection kit.

- * Increased minimum pressure required in the case of high process pressure or difficult process media

⚠ CAUTION

Pneumatic

If water has entered the pneumatic system, you must immediately take the device out of service.

Please contact the technical service department.
--

Connecting the Water Supply

The Unclean 900(X) is operated with a water pressure of 2 ... 6 bar.

Water: filtered 100 µm, temperature 5 ... 65 °C.

The connector for the water supply has a 1/4" female thread and 3/4" male thread (with coupling nut) for preferably flexible tube, 1/2".

As delivered, the connector is labeled "Wasser/Water".

We recommend using the ZU 0656 connection kit to protect against water hammer. We also recommend using the RV01 check valve.

NOTICE

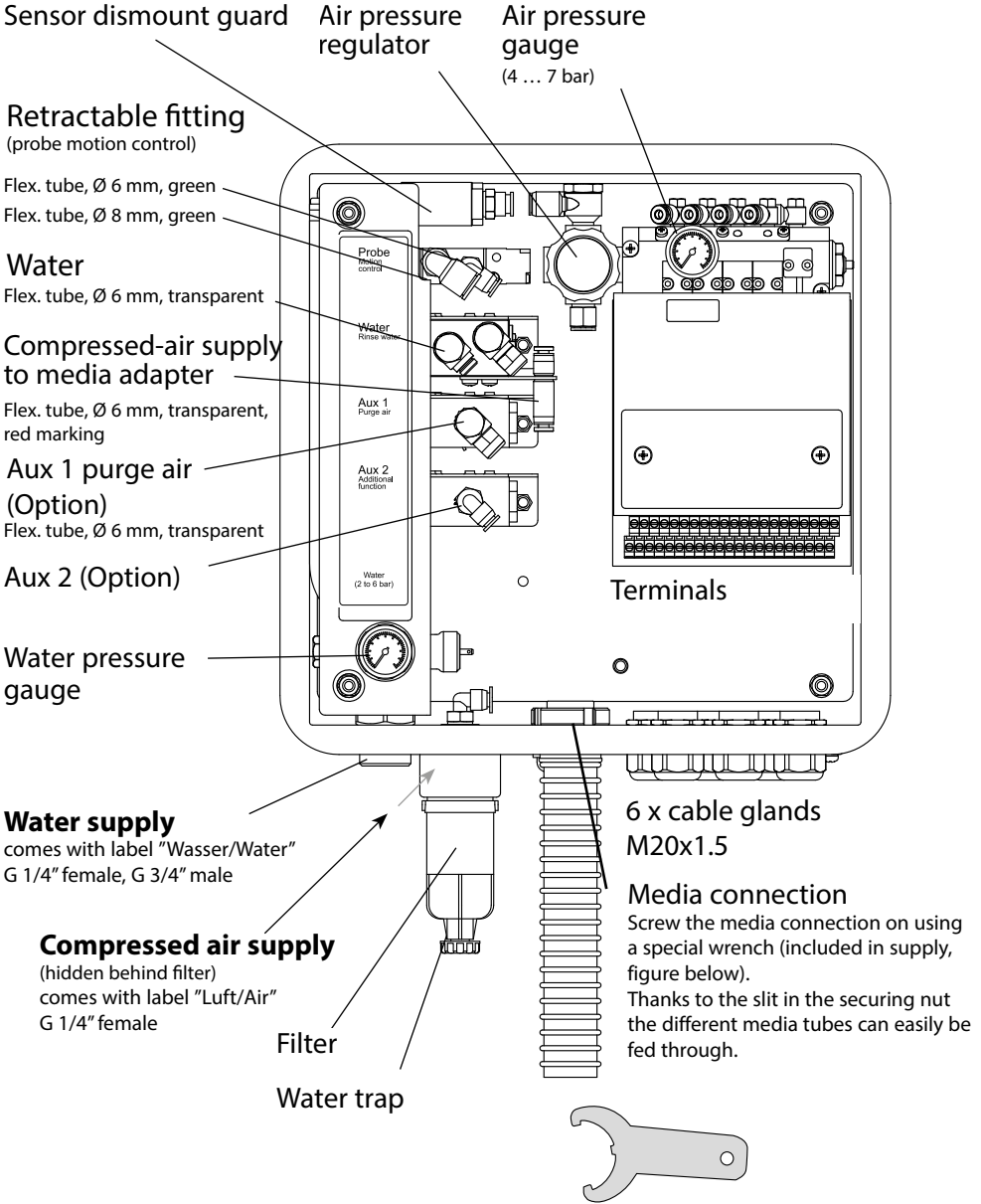
Drinking Water Pipes

Observe the general requirements of protection devices to prevent pollution of potable water (EN 1717) when drawing water from drinking water pipes.
--

We recommend installing a suitable check valve on the water supply to the Unclean to protect the drinking water from pollution.

8.3 Media Supply to Uniclean 900(X)

Arrangement of Functional Elements



8.3 Media Supply to Uniclean 900(X)

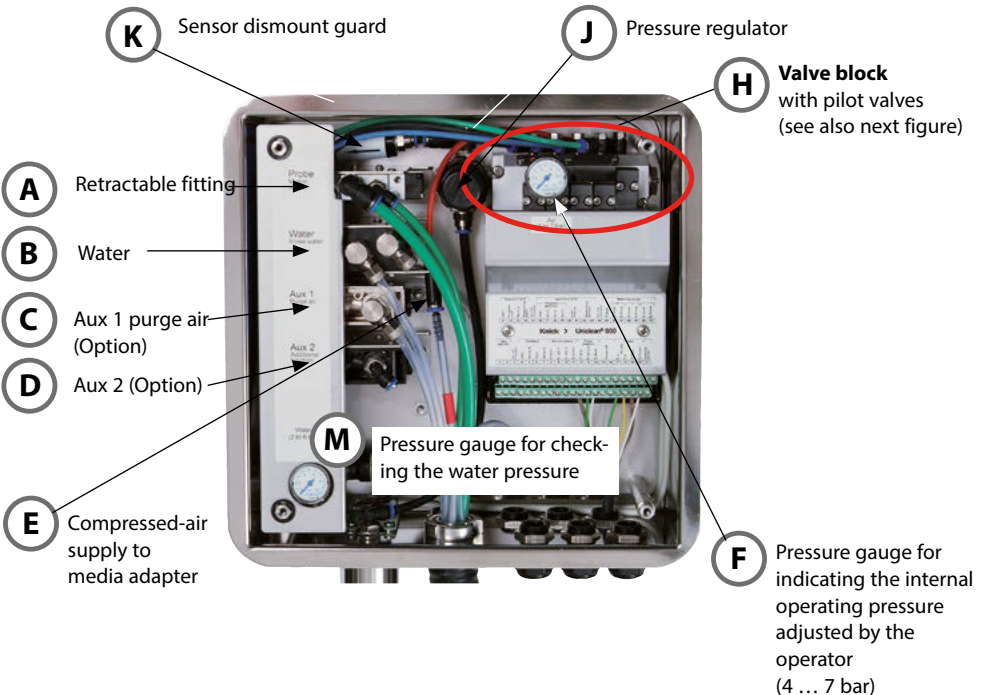
Pilot Valves, Control Valves

Connections Between Pilot Valves at the Valve Block (H) and Control Valves

To ensure low power consumption, the control valves are operated via pilot valves. As delivered, the tubes between the pilot valves at the valve block and the control valves are already connected. For orientation:

- Pilot valve "Probe" **(a)** to probe control valve **(A)**: green
- Pilot valve "Water" **(b)** to water control valve **(B)**: blue
- Pilot valve "Aux 1" **(c)** to Aux 1 purge air control valve **(C)**: black (optional)
- Pilot valve "Aux 2" **(d)** to Aux 2 control valve **(D)**: black (optional)
- Compressed air supply to media adapter **(E)**: red

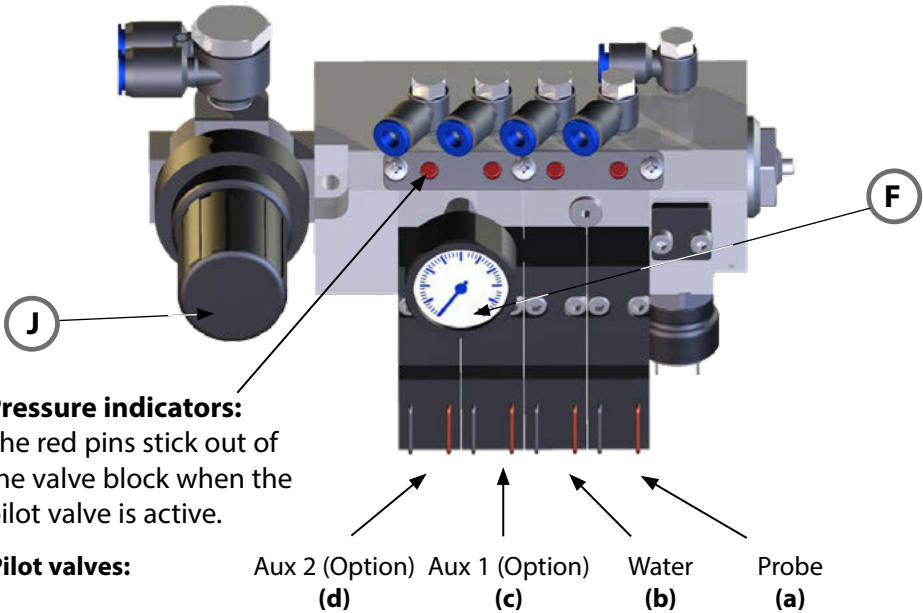
Pilot valves



8.3 Media Supply to Uniclean 900(X)

Pressure Gauge and Valve Block

Pilot Valves and Pressure Gauges at the Valve Block (H)



Pressure indicators:

The red pins stick out of the valve block when the pilot valve is active.

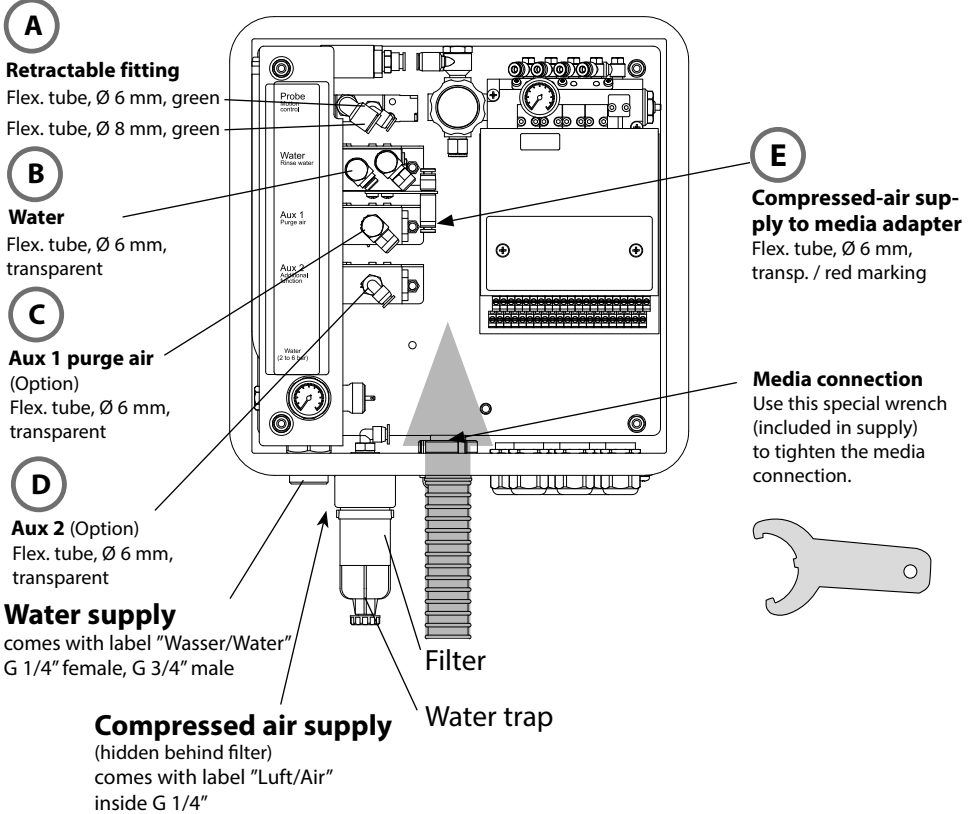
Pilot valves:

- (F) Pressure gauge for indicating the pressure adjusted by the operator via the pressure regulator (J) (internal operating pressure 4 ... 7 bar)
- (J) Pressure regulator for adjusting the operating pressure for the retractable fitting
- (K) See illustration on previous side:
Sensor dismount guard, checks if the sensor has been dismounted when the retractable fitting is in Service position. In that case the retractable fitting cannot be moved to "Process" position (for Ceramat only)

8.3 Media Supply to Uniclean 900(X)

Connecting the Media Tubes (Media Connection)

Overview



1. Remove the securing nut and insert the media connection hose including the tubes and the check-back cable through the opening in the Uniclean.
2. Push the securing nut over the tubes and pull it tight using the included special wrench. The tubes are clearly identifiable.

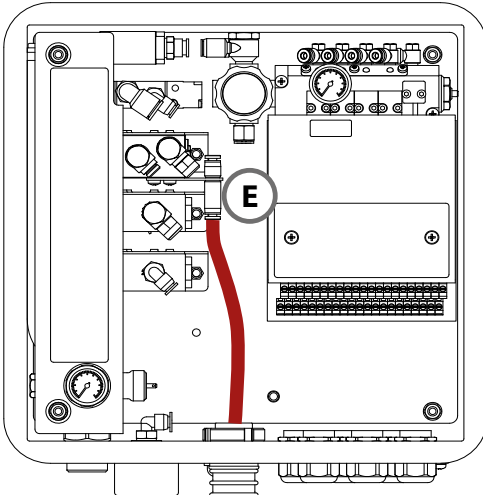
Pneumatic Push-In Connections

- **To fasten a tube:** Push it into the connector until it hits the stop (you have to overcome an initial resistance).
- **To loosen a tube:** Press the blue ring against the fitting using two fingers. At the same time, slightly push the tube into the fitting and then pull it out.

8.3 Media Supply to Uniclean 900(X)

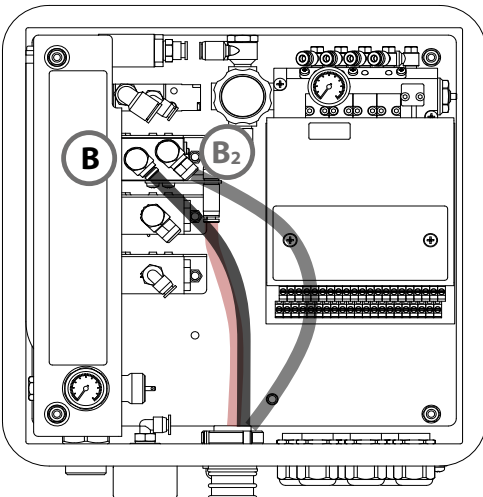
Connecting the Tubes

Compressed-air supply to media adapter



1. Connect the tube with the red marking to the compressed-air supply to media adapter (**E**) (located to the right of the control valves). This tube has a reduced connection diameter of 4 mm.

Water

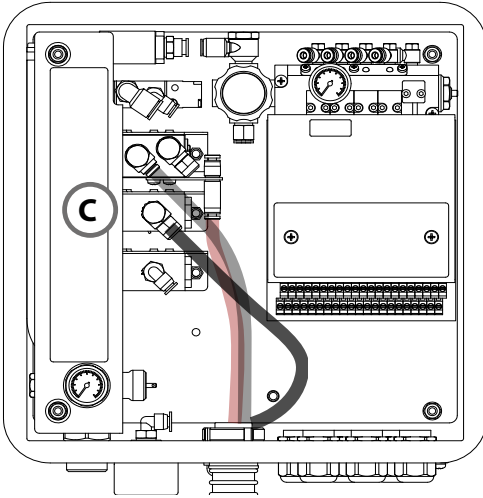


2. The tubes for water and purge air are identical. Connect one of the transparent tubes to the water control valve (**B**). Tighten the coupling nut hand tight. When you do not use air purging, connect the second transparent tube to the water control valve (**B₂**). To do so, unscrew the sealing cap from the right outlet of the water valve.

8.3 Media Supply to Uniclean 900(X)

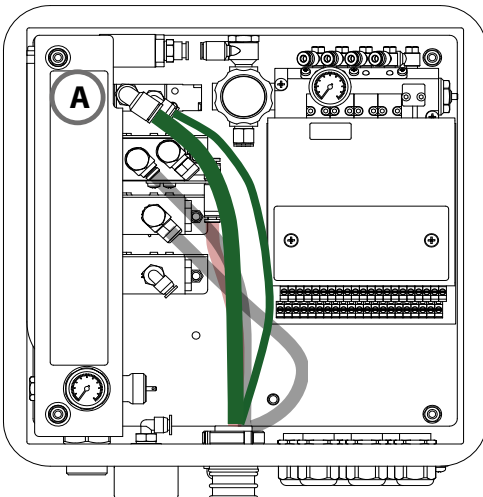
Connecting the Tubes

Aux 1 Purge Air (Option)



- When the Aux 1 purge air control valve (**C**) is connected, unscrew the sealing cap and connect the second transparent tube here. Tighten the coupling nut hand tight. You can use purge air to remove residues (process medium, cleaning agent) from the calibration chamber of the retractable fitting.

Retractable Fitting (Probe)



- Connect the green tubes to the control valve of the retractable fitting (**A**).

Left:

PROCESS position

Tube with large diameter
(Ø 8 mm)

Right:

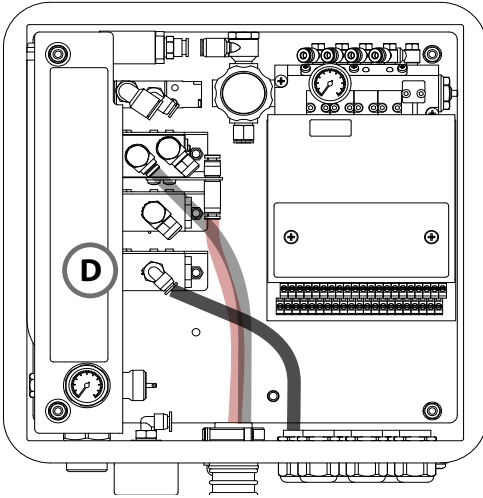
SERVICE position

Tube with small diameter
(Ø 6 mm)

8.3 Media Supply to Uniclean 900(X)

Connecting the Tubes

Aux 2 (Option)



The tube for the optional Aux 2 control valve is not included in the media connection.

The valve has a push-in connector for 6 mm tube.

5. Insert the tube through a cable gland into the enclosure and connect it to the push-in connector (D).

The valve can be operated as 3/2-way valve (default) or as 2/2-way valve, depending on your application.

For operation as 2/2-way valve, you must close the vent on the bottom side of the valve: G1/8" female

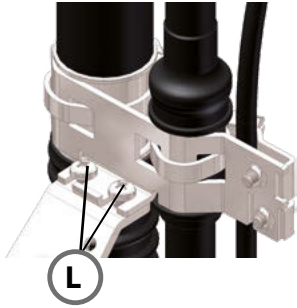
Typical Applications:

- Controlling the condensate drain (Ceramit WA 160)
- Controlling the pressurization of pH sensors with liquid electrolyte
- Controlling an external pump (e.g. ZU 0741 / ZU 0741/1)
- Controlling an external valve (from customer).

8.4 Connecting the Retractable Fitting

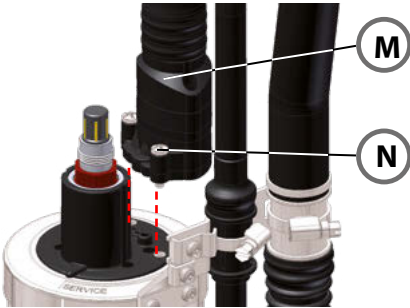
Media Connection to Ceramat

Attaching the Hose to the Fixing Bracket of the Ceramat



1. Attach the hose clamp of the media connection to the fixing bracket of the Ceramat with mounting screws (**L**) (PZ-2).

Connecting the Multiplug



2. Connect multiplug (**M**) with 2 screws (**N**) as shown (PZ-2).

Connecting the Outlet Hose



3. Turn the outflow nipple so that the outlet hose points outwards (see figure on the left).
4. Align and insert the outflow nipple.
5. Tighten the coupling nut hand tight.

NOTICE

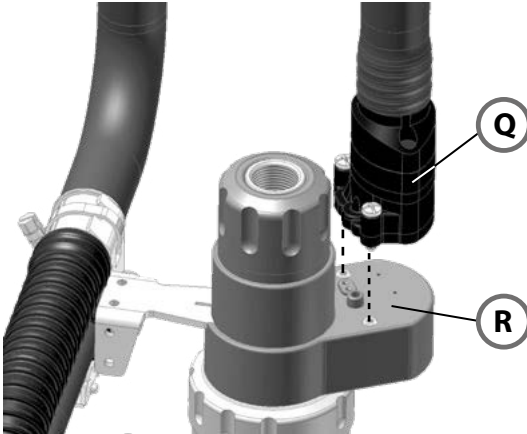
Check positioning of coding recesses and coding bars to lock the connection.

8.4 Connecting the Retractable Fitting

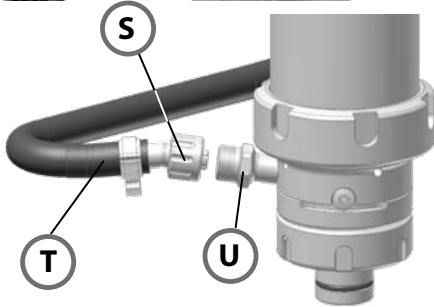
Media Connection to SensoGate WA 130(X)



1. Attach the hose clamp (**O**) of the media connection to the fixing bracket (**P**) of the retractable fitting with screws. One possible arrangement is shown here. (3 x 2 threaded holes on the fixing bracket (**P**) allow 3 different arrangements of the hose.)



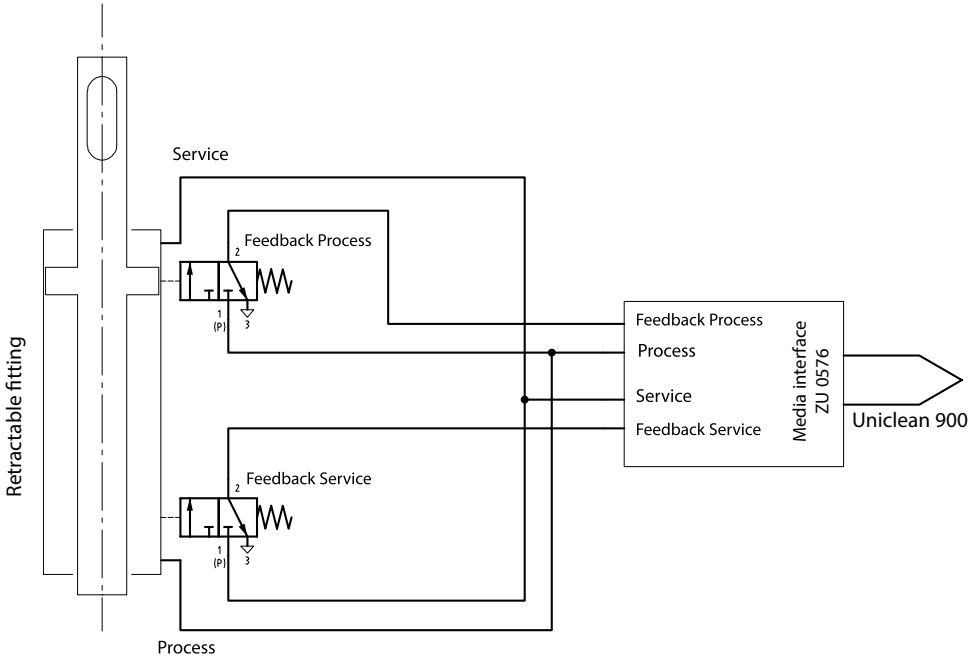
2. Screw the multiplug (**Q**) of the media connection to the connector (**R**) of the retractable fitting (PZ-2).



3. Screw the coupling nut (**S**) of the outlet hose (**T**) to the outlet port (**U**) of the retractable fitting (hand tight).

8.4 Connecting the Retractable Fitting

Recommended Connection of Retractable Fittings from Other Manufacturers, e.g. InTrac 7xx (Mettler-Toledo)



Explanation

The compressed air used for the probe motion (e.g. Process) is also used to provide the air pressure for the next expected feedback valve (i.e., Feedback Process) to generate the feedback signal for the Uniclean 900(X).

8.4 Connecting the Retractable Fitting

Standard Media Interface (ZU 0576)

Connecting an InTrac 7xx Retractable Fitting

The retractable fittings of the InTrac 7xx series provide pneumatic limit switches. The media interface shown here converts these pneumatic check-back signals into electric signals for the Uniclean 900(X) probe controller. The interface is screwed directly to the media connection. Then the corresponding tubes and hoses are connected to the InTrac 7xx retractable fitting.

Process

Control air for "Process" position and supply for "Process" position feedback unit

Media supply (to rinsing chamber)

Feedback Service

Feedback "Service" position

Service

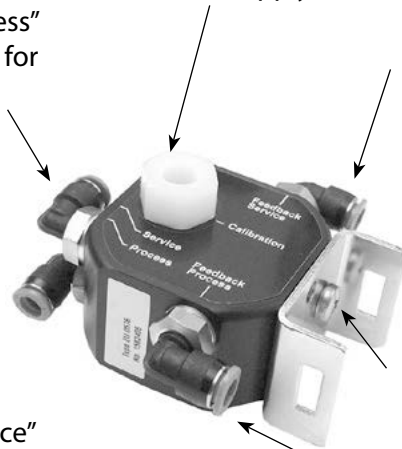
Control air for "Service" position and supply for "Service" position feedback unit

Fixing screw

(PZ-2)

Feedback Process

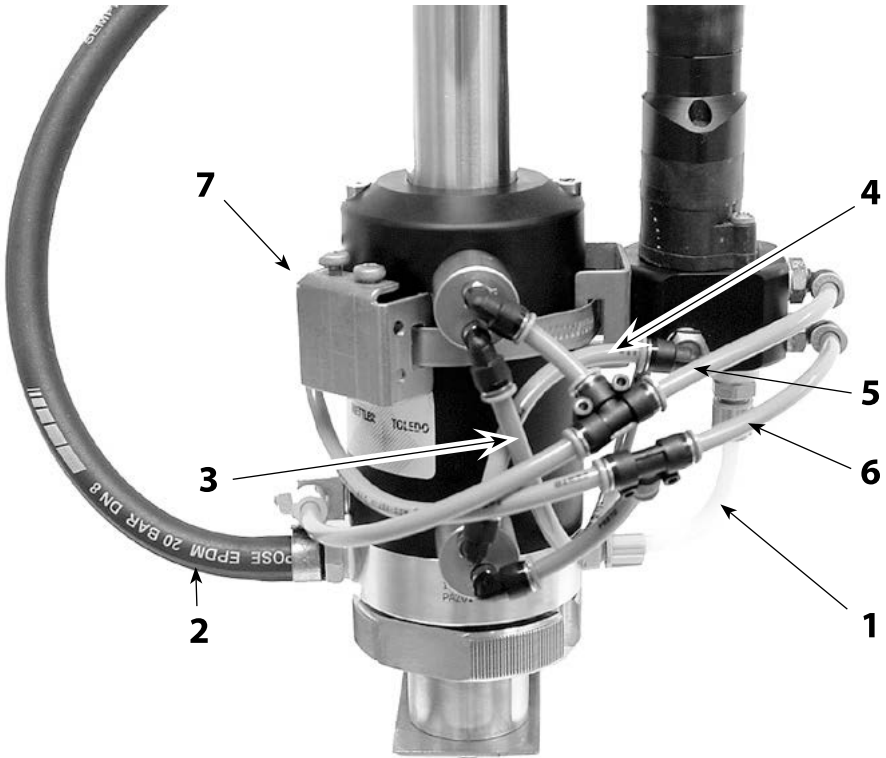
Feedback "Process" position



The interface is mounted to the retractable fitting using the included hose clamp. To turn the interface into the required position, you can loosen the fixing screws. The fixing bracket providing strain relief for the media connection can be fastened with the same or a separate hose clamp – as required. Use the included connection kit for connecting the tubes and hoses to the InTrac 7xx retractable fitting. All connections to the Uniclean 900 are made by screwing on the multiplug. To finish the installation, hang the media connection into the fixing bracket (strain relief) and secure it by tightening the screws.

8.4 Connecting the Retractable Fitting

Recommended Connection of an InTrac 7xx Retractable Fitting

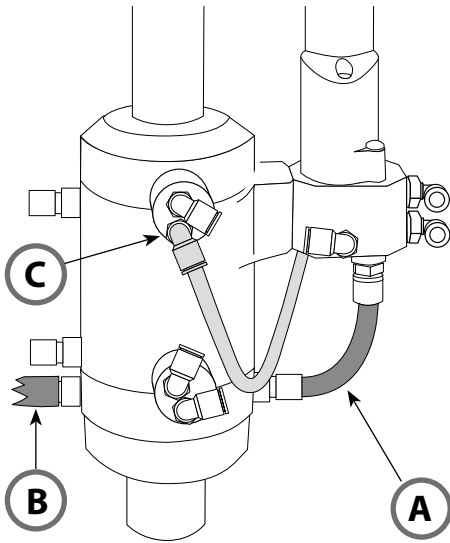


- 1 Media supply to rinsing chamber
- 2 Rinsing chamber outlet
- 3 Feedback of "Service" position
- 4 Feedback of "Process" position
- 5 Control air for "Service" position and supply for "Service" feedback unit
- 6 Control air for "Process" position and supply for "Process" feedback unit
- 7 Fixing bracket for strain relief of media connection

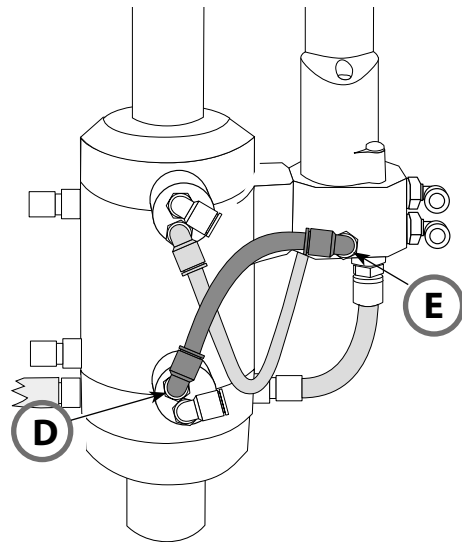
See next pages for installation instructions.

8.4 Connecting the Retractable Fitting

Connecting an InTrac 7xx Retractable Fitting



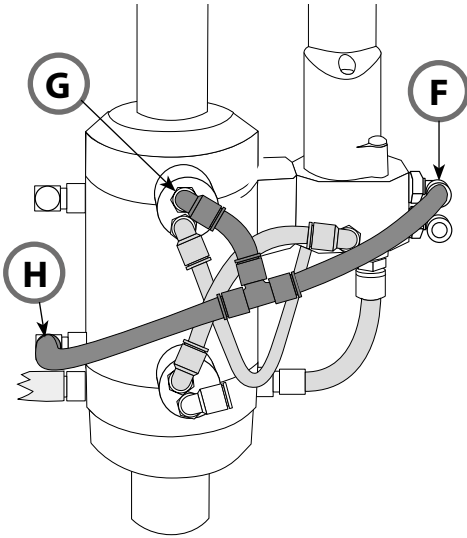
1. Connect the media supply (A) to the rinsing chamber.
2. Connect the outlet hose (B) to the outlet port of the rinsing chamber.
3. **Feedback of "Service" position:** Connect the "Service" feedback unit (C) of the probe – unlabeled connecting port – with the "Feedback Service" port on the adapter by a flexible tube (on back of adapter, not visible in the figure).



4. **Feedback of "Process" position:** Connect the "Process" feedback unit (D) of the probe – unlabeled connecting port – with the "Feedback Process" port (E) on the adapter by a flexible tube.

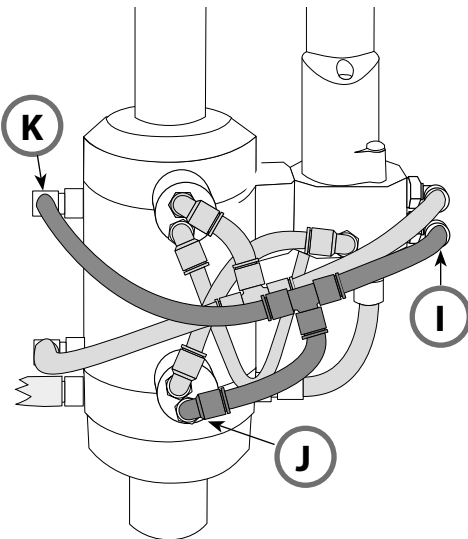
8.4 Connecting the Retractable Fitting

Connecting an InTrac 7xx Retractable Fitting



5. Control air for "Service" position and supply for "Service" feedback unit:

Connect a flexible tube from "Service" adapter (F) (control air), to "Service" position feedback supply (G) – connecting port labeled "p / 1" – and "Service" port (H) at the probe.



6. Control air for "Process" position and supply for "Process" feedback unit:

Connect a flexible tube from "Process" adapter (I) (control air), to "Process" position feedback supply (J) – connecting port labeled "p / 1" – and "Process" port (K) at the probe.

9 Electrical Installation

Assembly of Components

⚠ CAUTION

Mounting Distances

The cables are pre-assembled and cut to length. Be sure to observe the appropriate mounting distances (see page 17, "Arrangement of Components").

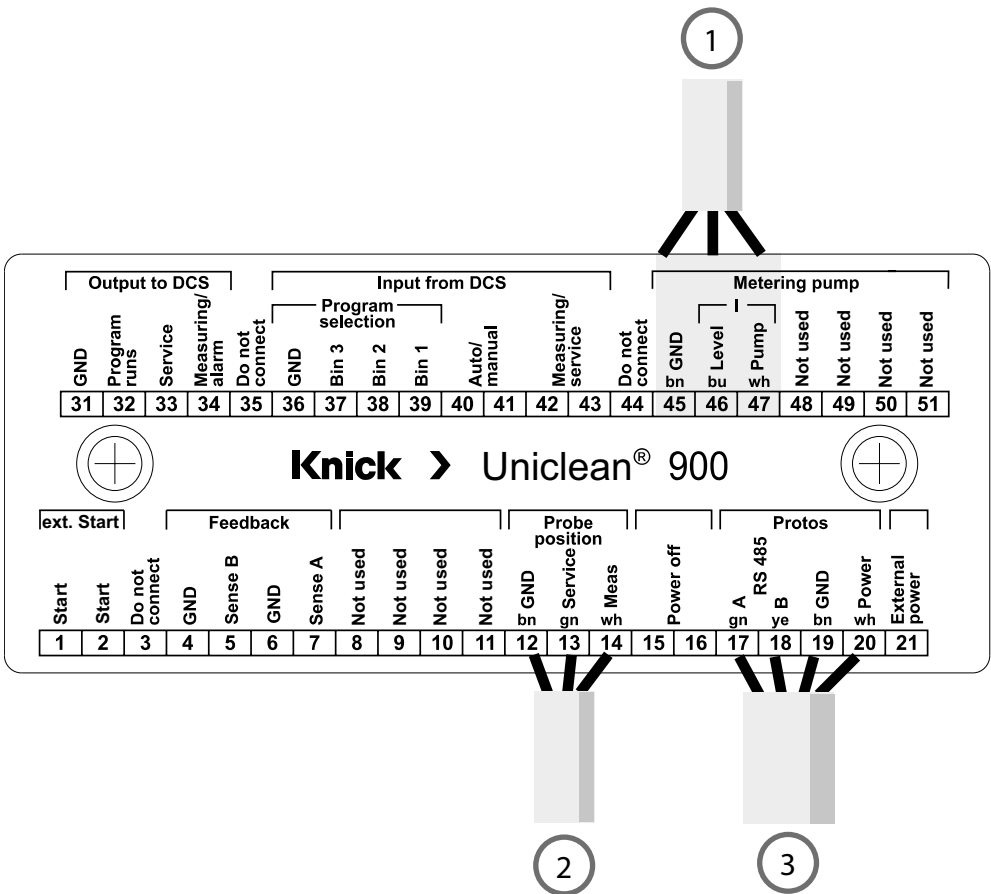
Connecting the Cables to the Uniclean 900(X)

1. Screw off the cover of the Uniclean 900(X), pull off ground connection.
2. Connect preassembled cables (see pages 45 and 46):
 - Cable no. 1: Uniclean 900(X) to media adapter (with plug)
Tighten the coupling nut to secure the electrical connection at the bottom side of the media adapter.
 - Cable no. 2 (check-back of probe position) from media connection (corrugated hose) to Uniclean 900(X).
 - Cable no. 3: Uniclean 900(X) to Protos module

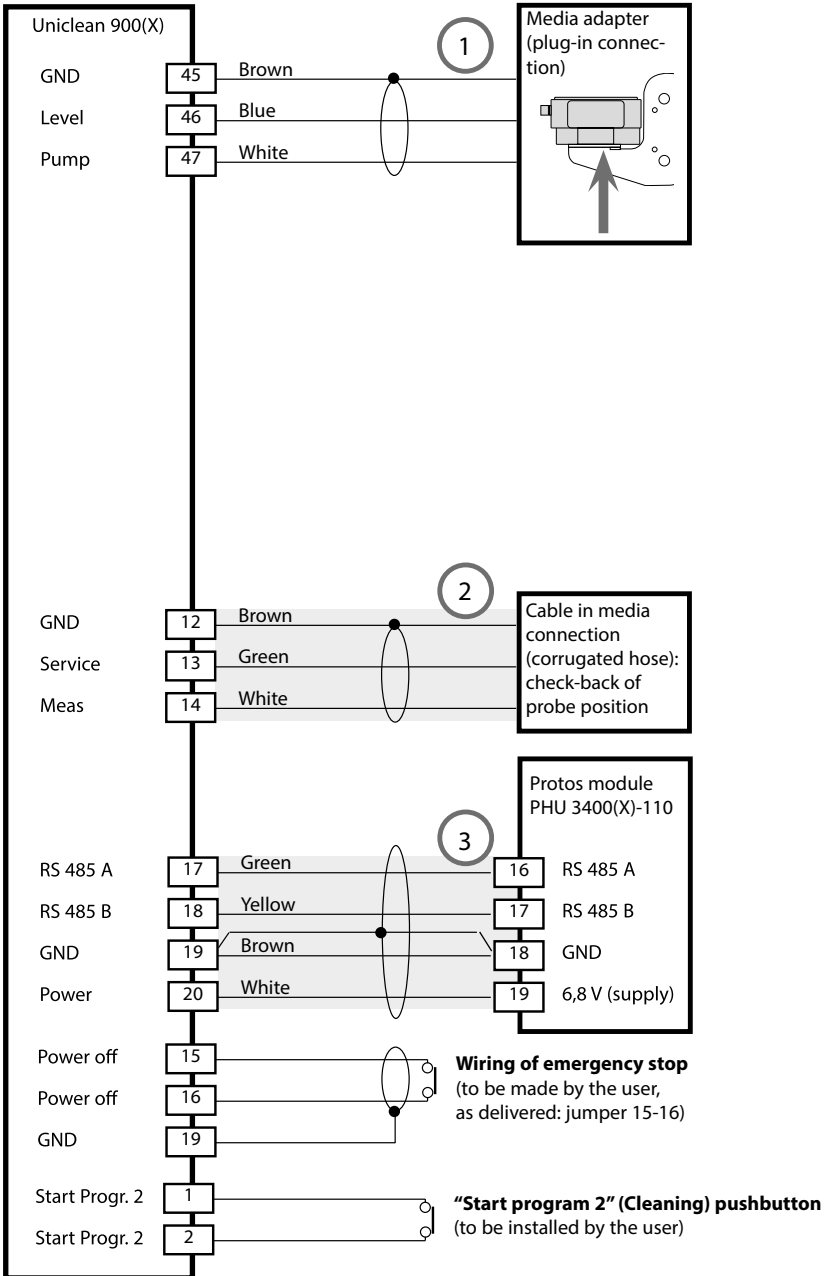
9 Electrical Installation

Electrical Connections to Uniclean 900(X)

- Cable no. 1: Uniclean 900(X) – Media adapter
- Cable no. 2: Uniclean 900(X) – Retractable fitting (probe) (in media connection)
- Cable no. 3: Uniclean 900(X) – Protos module (PHU or FIU)

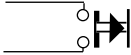


9 Electrical Installation



9 Electrical Installation

Terminal Assignments of Unclean 900(X)

No.	Wire color	Terminal	Function
1			Manual start of program 2 (Cleaning) via external pushbutton
2			
3		Do not connect	Do not connect!
4		GND	GND
5		Sense B	Special function
6		GND	GND
7		Sense A	Special function
8			Do not connect!
9			Do not connect!
10			Do not connect!
11			Do not connect!
12	Brown	GND	Probe: Sense GND
13	Green	Service	Probe: Sense service (SERVICE)
14	White	Meas	Probe: Sense measurement (PROCESS)
15		Power Off	Power Off (emergency stop)
16		Power Off	Power Off (emergency stop)
17	Green	A RS 485	RS 485 interface
18	Yellow	B RS 485	RS 485 interface
19	Brown	GND	Power supply GND
20	White	Power	Power supply from Protos
21		Ext. power	External power supply

9 Electrical Installation

Terminal Assignments of Unclean 900(X)

No.	Wire color	Terminal	Function
31		GND	DCS message GND
32		Program runs (DCS out)	Unclean program running
33		Service (DCS out)	Probe in SERVICE position
34		Measuring / alarm	Probe in PROCESS position (or alarm output)
35		Do not connect	Do not connect!
36		GND	DCS program GND
37		Bin 3 (DCS in)	Start programs 1 ... 3
38		Bin 2 (DCS in)	
39		Bin 1 (DCS in)	
40		Auto/man. (DCS in)	Enable / lock automatic program start
41		Auto/man. (DCS in)	
42		M/S (DCS in)	DCS Measuring/Service
43		M/S (DCS in)	DCS Measuring/Service
44		Do not connect	(6 mm clearance)
45	brown	GND	Pump GND
46	blue	Level	Pump level monitoring
47	white	Pump	Pump control valve
48			Do not connect!
49			Do not connect!
50			Do not connect!
51			Do not connect!

9 Electrical Installation

Terminal Assignments of Unclean 900(X) - Beneath Terminal Cover -
These contacts are factory prewired.

Valves												Monitoring									
GND	Reserve	GND	Auxiliary 2	GND	Auxiliary 1	GND	Water	GND	Probe	Not used	Not used	GND	Sense pressure (air)	Sense reserve	GND	Sense water	GND	Sense electrode	GND	Sense water stop	
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	

No.	Wire color	Terminal	Function
61		GND	Do not connect!
62		Reserve	Do not connect!
63		GND	Pilot valve Aux 2 GND
64		Auxiliary 2	Pilot valve Aux 2
65		GND	Pilot valve Aux 1 GND
66		Auxiliary 1	Pilot valve Aux 1
67		GND	Pilot valve Water GND
68		Water	Pilot valve Water
69		GND	Pilot valve Probe GND
70		Probe	Pilot valve Probe
71			Do not connect!
72			Do not connect!
73		GND	Compressed-air monitoring GND
74		Sense pressure (air)	Compressed-air monitoring
75		Sense reserve	Reserve liquid monitoring
76		Sense water	Water monitoring GND
77		Sense water	Water monitoring
78		GND	Dismount guard GND
79		Sense electrode	Dismount guard
80		GND	Leakage monitoring GND
81		Sense water stop	Leakage monitoring

10 Process Control System

Inputs/Outputs of Unclean 900(X)

No.	Designation	I / O	Level	Function
42	Measuring/ Service	I	0	Probe moves to "Process" position *
43			1	Probe moves to "Service" position
40	Auto/manual	I	0	Automatic interval control from Protos *
41			1	Automatic intervals locked
37	Bin 3	I		Program selection and start, manual/DCS * **
38	Bin 2			(Program 1 ... 3 – see page 52)
39	Bin 1			
34	Measuring / alarm	O	0	
			1	Probe in "Process" position (or alarm) *
33	Service	O	0	
			1	Probe in "Service" position *
32	Program runs	O	0	
			1	Program running *

NOTICE

Risk of product damage caused by excessive load on the DCS outputs. Make sure that the maximum load of $U_i = 30\text{ V}$, $I_i = 100\text{ mA}$ at terminals 31-34 is not exceeded. This can be achieved by connecting a 10 k Ω pull-up resistor. Terminal 31 must be connected to signal ground (GND).

* Passive contacts,
24 V must be supplied externally or via DCS, see Specifications on page 63

** Signal duration at least 2 sec (passing contacts)

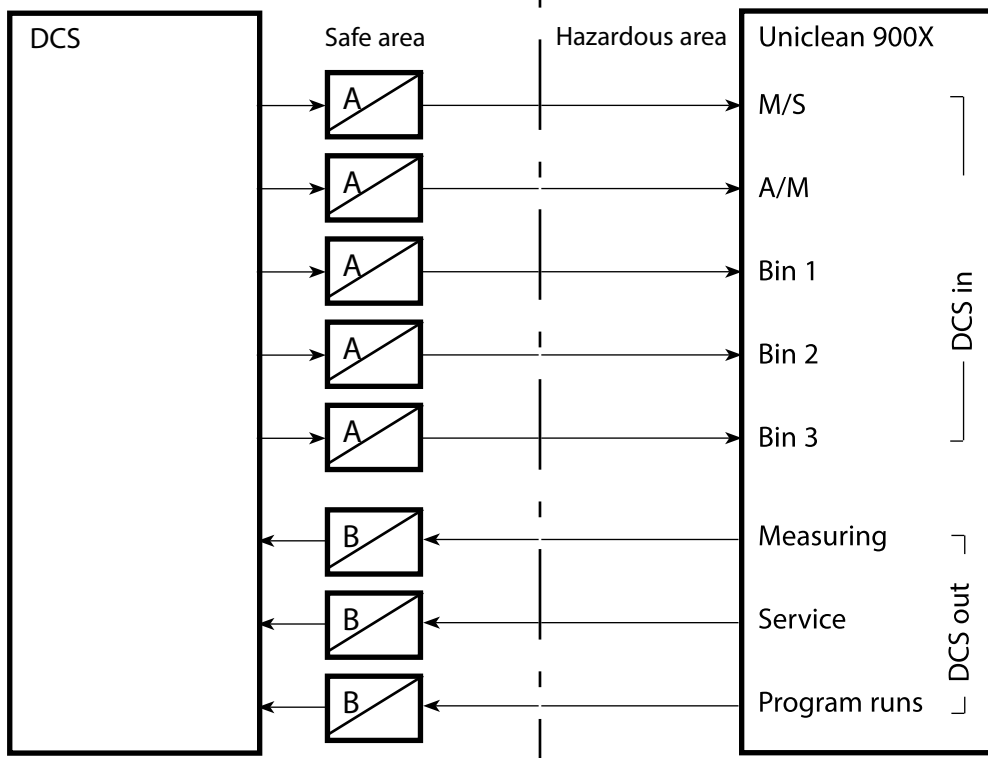
10 Process Control System

⚠ WARNING – Observe the safety information given on page 11!

Ex Connection to DCS (Digital Control System)

With the valve control modules / switch amplifiers listed below, a process control system installed in the safe area can be used for communication with a Uniclean 900X installed in the hazardous area.

Hazardous-Area Control Modules (Examples)



A/B	Designation	Model	Manufacturer
A	Valve control module	KFD2-SL2-Ex1.B	Pepperl + Fuchs
B	Switch amplifier	KF**-SR2-Ex1.W.**	Pepperl + Fuchs

11 Control Programs and Measurement Procedures

Control Programs of Uniclean 900(X)

Six programs and one service program can be called.

Four program flows are preset.

The programs are called via:

- Protos 3400(X)
- passive inputs Bin 1, Bin 2, Bin 3 (for DCS or switch, 24 V must be externally supplied, see specifications)

Program	Description	Bin 3	Bin 2	Bin 1
1	Rinse	0	0	1
2	Clean	0	1	0
3	Parking	1	0	0
4	Service program			

The service program (4) stops all other running programs (1 - 3) immediately and erases stored requests. For programs 1 - 3, the following applies:

When you start a new program, the remaining steps of a currently running program are executed first. Further requests are stored and executed subsequently. When you control the Uniclean via Protos 3400(X), you can block the Bin 1, Bin 2, Bin 3 signal lines as well as M/S and A/M to prevent conflicts (Parameter setting / Uniclean 900 / Installation / Ext. control (DCS): Off)

Measurement Procedures

• **Continuous measurement**

After the cleaning cycle the pH sensor moves into the process for measurement.

- **Short-time measurement** (interval measurement, sampling, sample mode ...)

After the cleaning cycle the pH sensor remains in the calibration chamber and only moves into the process for measurement upon request.

12 Service and Maintenance

Service Program: Request and End

After a service request the retractable fitting executes the service program steps. The retractable fitting moves into "Service" position. A currently running program is immediately stopped. All other accesses are blocked. The service program defines steps for moving the retractable fitting as well as rinsing and cleaning procedures (see user manual of Protos module PHU 3400(X)-110 or FIU 3400(X)-14x).

The user can edit the program. The "Service" position is held pneumatically and is electrically monitored. It is used for maintenance work on the retractable fitting.

Termination of Service

The service mode is only exited after all service requests have been executed (Protos 3400(X) or DCS).

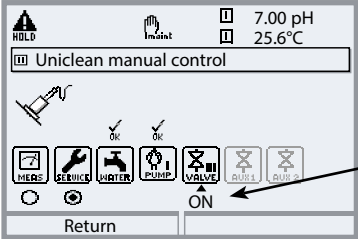
12 Service and Maintenance

Manual Control via Protos 3400(X)

“Maintenance / Uniclean 900” Menu

Manual control via Protos 3400(X) allows actuating the Uniclean 900(X) probe controller for servicing.

Rinse water, media supply and valve functions can be tested individually.

Menu	Display	Maintenance
		<p>Manual control (requires access code: to enter in the “Parameter setting / Installation” menu) Select function using arrow keys. Icon blinks, activate with enter – “ON” appears below the icon. Pump cycles are terminated automat- ically. For all other functions, you must press enter to exit (“ON” disappears again).</p>

⚠ CAUTION

Using the Manual Control

When you have removed the sensor, you must always replace it by a dummy. During manual control the sensor dismount guard does not prevent insertion into the process!

12 Service and Maintenance

WARNING



Potential Electrostatic Charging Hazard!

To prevent electrostatic charging in a hazardous location, clean the surfaces of the media connection and the media adapter including the bottle for cleaning agent only with a damp cloth.

13 Commissioning

⚠ CAUTION

Only operate the retractable fitting when a sensor is installed! When the sensor has been removed, it must always be replaced by a dummy!
--

SensoGate WA 130(X)

Turn the SensoLock ring to "lock" position to prevent that the retractable fitting is accidentally moved into the process. This is only possible with the retractable fitting in "Service" position (see SensoGate manual).

Commissioning

1. Check air and water connection

⚠ CAUTION

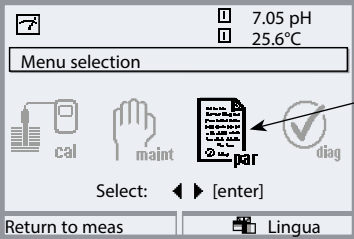
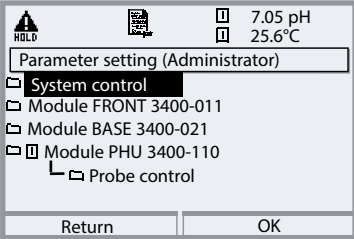
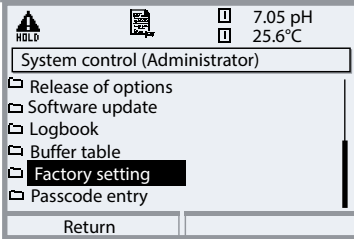
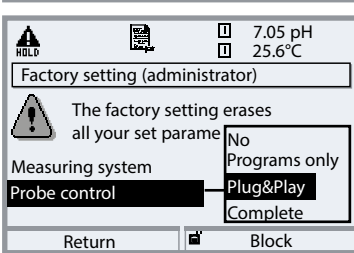
Make sure that air and water have not been interchanged.

2. Check media connection.
3. Check electrical connections.
4. Switch on compressed air.
5. Adjust pressure according to the air pressure gauge using the pressure regulator.
6. Check tightness: When the compressed air is shut off directly at the Unclean, pressure may decrease by max. 10 % within 30 sec.
7. Turn water supply on.
8. Check pressure at water pressure gauge, check tightness.
9. Switch on power supply for Protos.

13 Commissioning

Start-Up on the Protos: Automatic Hardware Recognition
 (Parameter setting/System control/Factory setting/Probe control...

First select "Plug and Play" in the Parameter Setting menu of the Protos:
 The Unclean 900(X) probe controller automatically recognizes the hardware installed and sets the corresponding installation parameters.

Menu	Display	Plug and Play
	 <p>7.05 pH 25.6°C</p> <p>Menu selection</p> <p>cal maint par diag</p> <p>Select: ◀ ▶ [enter]</p> <p>Return to meas Lingua</p>	<p>Opening the parameter setting menu</p> <p>From the measuring mode: Press menu key to select menu. Select parameter setting using arrow keys, press enter to confirm.</p>
	 <p>7.05 pH 25.6°C</p> <p>Parameter setting (Administrator)</p> <p>System control</p> <ul style="list-style-type: none"> Module FRONT 3400-011 Module BASE 3400-021 Module PHU 3400-110 <ul style="list-style-type: none"> Probe control <p>Return OK</p>  <p>7.05 pH 25.6°C</p> <p>System control (Administrator)</p> <ul style="list-style-type: none"> Release of options Software update Logbook Buffer table Factory setting Passcode entry <p>Return</p>  <p>7.05 pH 25.6°C</p> <p>Factory setting (administrator)</p> <p> The factory setting erases all your set parameters</p> <ul style="list-style-type: none"> No Programs only Plug&Play Complete <p>Return Block</p>	<p>Parameter setting: Select "System control".</p> <p>Select "Factory setting".</p> <p>First select "Probe control", then select "Plug & Play". The hardware installed is automatically recognized.</p>

13 Commissioning

Uniclean 900(X) Parameter Setting on the Protos

Parameter setting	Adjustable parameters
Controller*	Unical 9000 / Uniclean 900 / Off
Time control	Fixed interval / Week program
Program flow	Clean Service program: User programs (3) Parking
Installation	
- Measurement procedures	Continuous / Short-time
- External control (DCS)	On / Off DCS inputs (36...39): active 10...30 V / active < 2 V M/S input (42/43): active 10...30 V / active < 2 V A/M input (40/41): active 10...30 V / active < 2 V DCS output (34): Measuring / Alarm DCS outputs (31...34): N/O, N/C
- Access manual control	
- Probe	Type (SensoGate / Ceramat / Other) Move time max. (0015 s) Sealing water (On / Off) Cavity rinsing (Ceramat) Interval (Ceramat) Rinse duration (Ceramat) Max. wear counter (SensoGate: 900)
- Media adapter	Metering pump On / Off Medium Displaced volume (25 ml / 50 ml / 75 ml / 100 ml) Residual volume (0 ml / 250 ml / 500 ml)
- Start-up	Page 59

*"Select module" is displayed when further pH modules are installed in addition to the PHU 3400(X)-110 or FIU 3400(X)-14x and the sensor installed in the probe is operated by one of these modules.

13 Commissioning

Start-Up Program

Parameter Setting: The Start-Up Program

At the end of the parameter-setting procedure, a "Start-up" line appears in the "Installation" menu.

When you are sure to have set all parameters, select "Yes" to confirm.

Now the pump performs the number of stroke movements required for filling the media tubes completely.

The necessary rinsing cycles are automatically started.

The pump requires approx. 1 stroke to fill the pump and approx. 9 strokes to fill the tubing.

NOTICE
When the media connection is longer than 10 m, three further pump strokes are required to fill the tubes.

Sensor dismount guard

To check the sensor dismount guard (only in conjunction with Ceramat), loosen the sensor (hissing sound at the retractable fitting). The dismount guard has a response time of approx. 2 sec until an error message is released.

 CAUTION
Only operate the retractable fitting when a sensor is installed! When the sensor has been removed, it must always be replaced by a dummy!
SensoGate WA 130(X) Turn the SensoLock ring to "lock" position to prevent that the retractable fitting is accidentally moved into the process. This is only possible with the retractable fitting in "Service" position (see SensoGate manual).

14 Specifications

Compressed air	Compressed air quality to ISO 8573-1:2001 Quality class 5.3.3
Solid contaminants	Class 5 (max. 40 µm, max. 10 mg/m ³)
Water content	
... for temperatures ≥ 15 °C:	Class 4 With operating temperatures > 15 °C a pressure dew point of max 3 °C is permitted
... for temperatures 5 ... 15 °C:	Class 3 Pressure dew point -20 °C (or below)
Oil content	Class 3 (max. 1 mg/m ³)
Permitted pressure range	4* ... 10 bar
Operating pressure for sensor lock gate	4* ... 7 bar
Pressure monitoring	Automatic monitoring, message
Connection	G 1/4" female thread
Air consumption	Max. 300 L/min during probe movement
Min. air temperature	5 °C
Rinse water	Filtered 100 µm
Permitted pressure range	2 ... 6 bar
Temperature range	5 ... 65 °C
Pressure monitoring	Automatic monitoring, message
Connection	G 1/4" female thread / G 3/4" male thread
Media adapter	Port for metering pump
Material	See bill of material
Ingress protection	IP 65
Mounting	Wall or pipe mounting (Option)

* Increased minimum pressure of 5 bar required for retractable fitting
in the case of high process pressure or difficult process media

14 Specifications

Metering pump	For cleaning agent
Bottle	3.5 L
Max. lifting height	10 m
Displaced volume	Approx. 25 cm ³ /stroke
Level monitoring	Unclean network diagram as well as NAMUR messages: Maintenance request and failure
Material	See bill of material
Ingress protection	IP 65
Dimensions	See dimension drawing

14 Specifications

Power (Ex ia IIC)	Supplied via Protos module or external power supply source 15 ... 30 V / 20 mA (see EC-Type-Examination Certificate for hazardous-area application!)
Connection	PHU 3400(X)-110 6.8 V ($\pm 10\%$) / 15 mA Terminals, conductor cross section max 2.5 mm ² (preassembled connecting cable to Protos, length 10 m)
RS 485 (Ex ia)	Communication with Protos PHU 3400(X)-110 module or external host computer (e.g. DCS) (see EC-Type-Examination Certificate for hazardous-area application!)
Transmission Protocol	1200 bauds / 8 data bits / 1 stop bit / parity odd HART Rev. 5
Connection	Terminals, conductor cross section max 2.5 mm ² (preassembled connecting cable to Protos, length 10 m)
DCS input (passive)	
Measuring / Service (Ex ia IIC)	Measuring / Service Vi = 30 V, floating, galvanic isolation up to 60 V
Switching voltage	0 ... 2 V AC/DC inactive (measuring) 10 ... 30 V AC/DC active (service)
Connection	Terminals, conductor cross section max. 2.5 mm ²
DCS input (passive)	
Auto / Manual (Ex ia IIC)	Automatic function blocked Vi = 30 V, floating, galvanic isolation up to 60 V
Switching voltage	0 ... 2 V AC/DC inactive (automatic intervals enabled) 10 ... 30 V AC/DC active (automatic intervals blocked)
Connection	Terminals, conductor cross section max. 2.5 mm ²

14 Specifications

DCS inputs (passive)

Bin1 ... 3

(Ex ia IIC)

Switching voltage

Connection

Program start 1 ... 6

$V_i = 30\text{ V}$, floating, inter-connected,
galvanic isolation up to 60 V

0 ... 2 V AC/DC inactive
10 ... 30 V AC/DC active

Terminals, conductor cross section max. 2.5 mm²

DCS outputs (passive)

(Program runs, Service, Measuring/Alarm)

Maximum load

(Ex ia IIC)

Voltage drop

Connection

Check-back signals

Program running, service, measuring
Electronic relay contacts,
floating, inter-connected

$V_i = 30\text{ V}$ $I_i = 100\text{ mA}$

$V_i = 30\text{ V}$ $I_i = 100\text{ mA}$ $P_i = 800\text{ mW}$,
galvanic isolation up to 60 V

< 1.2 V

Terminals, conductor cross section max. 2.5 mm²

Explosion protection

Uniclean 900X

See EU Type Examination Certificate and EU Declaration of
Conformity or www.knick.de

EMC

EN 61326

Lightning protection

EN 61000-4-5, Installation Class 2

Protection against electric shock

according to EN 61010

14 Specifications

Ambient conditions

Ambient temperature	+2 ... +55 °C (Ex: +2 ... +50 °C) * (different temperature range on request)
Transport/Storage temperature	-20 ... +70 °C
Relative humidity	10 ... 95 %, not condensing

Housing

Enclosure surface S	Stainless steel A2, polished
Enclosure surface C	Stainless steel A2, coated Color: pigeon blue
Mounting	• Wall mounting • Pipe mounting (Option)
Dimensions	W x H x D approx. 310 mm x 410 mm x 135 mm

Ingress protection

	IP 65/NEMA 4X
Cable glands	6 M20x1.5 cable glands
Weight	Approx. 8.5 kg

Protective cabinet

Various models, heated or unheated,
also for application in hazardous locations.
Please contact us.

* To ensure safe and frost-free operation, the ambient temperature should not fall below +5 °C.

15 Appendix

Nameplates

Detail drawings

- Pneumatic diagram of Uniclean 900(X)
- Pneumatic diagram of media connection

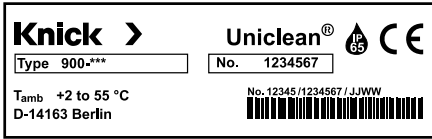
Table for selecting a cleaning agent

For enlarged printouts of the drawings, this installation guide can be downloaded from: www.knick.de.

15 Appendix

Nameplates

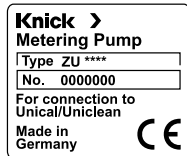
Uniclean 900

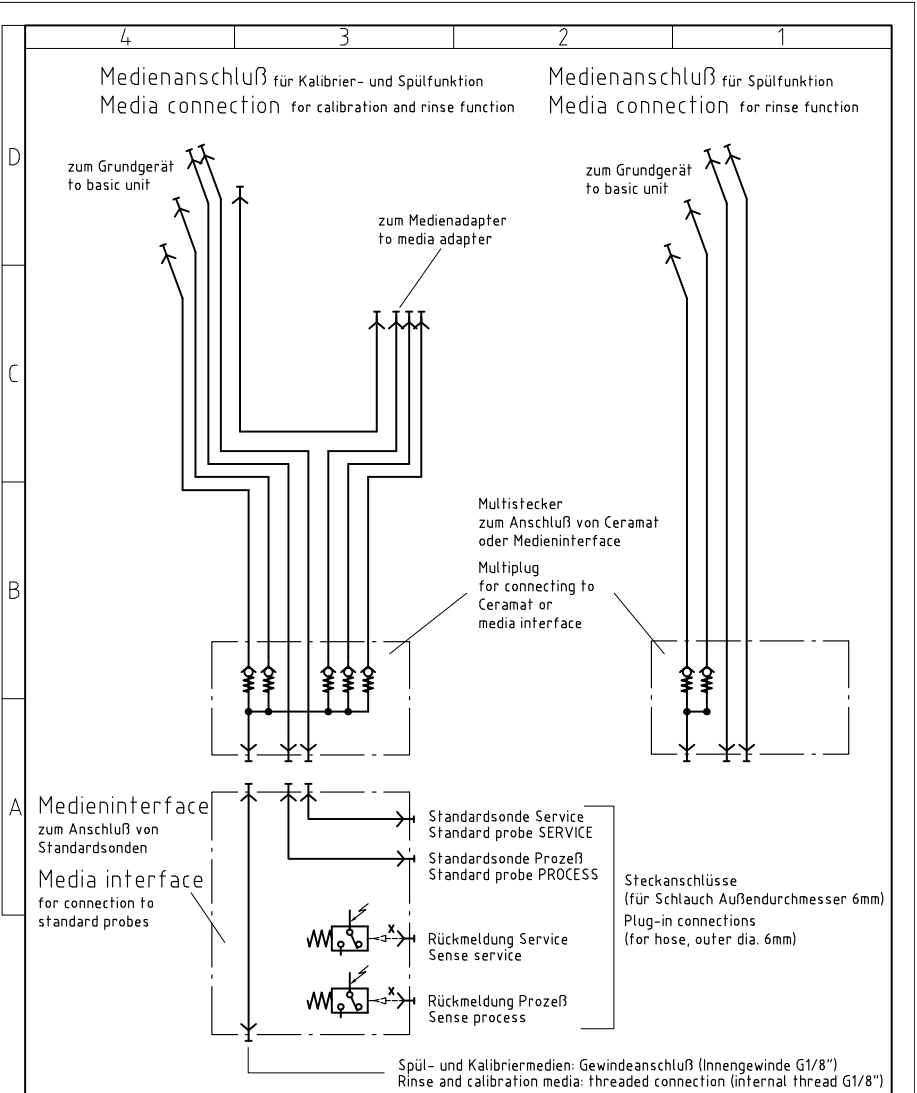


Media Adapter / Media Connection:



Metering Pump:





Pneumatic Diagram for Media Connection to Uniclean 900

Selected Cleaning Agents for Uniclean 900 and their Applications

Take account of the material resistances of the pump seals, the media adapter and the media connection when selecting a cleaning agent (see product code on page 13).

The gasket material of the accessories is identified by a suffix to the order number.

Suffix / 1 stands for FKM, suffix / 2 for EPDM.

Example:

Metering pump, gasket material FKM: Order number ZU 0580 / 1

Metering pump, gasket material EPDM: Order number ZU 0580 / 2

Cleaning agent	Chemical formula	Concentration	Application	Possible accessories (gasket material) Suffix /1 Suffix /2
Dilute acids:				FKM EPDM
Hydrochloric acid	HCl	max. 5 %	e.g. against limy deposits	+ ¹⁾
Sulfamic acid	H ₃ NO ₃ S		Food industry	+
Acetic acid	CH ₃ COOH			+
Nitric acid	HNO ₃	max. 5 %		+

Cleaning agent	Chemical formula	Concentration	Application	Possible accessories (gasket material) Suffix /1 Suffix /2
Dilute alkalis:				FKM EPDM
Sodium hydroxide solution	NaOH	max. 5 %	Proteins, starch, fat, CIP	+
Organic solvents:			Organic deposits, e.g. fats, oils	
Ethyl alcohol	C ₂ H ₅ OH		Food industry	+
Isopropyl alcohol	C ₃ H ₈ OH			+
Other cleaning agents:				
Pepsine solution			Starch	+

- 1) Take account of the limited resistance of the stainless steel retractable fitting when using diluted hydrochloric acid.

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