

METTLER TOLEDO

Installation Instructions  
English

## EasyClean 400(X) Probe Controller

**Electro-Pneumatic Controller  
for Retractable Housings**  
for Fully Automated pH Measurement,  
Cleaning and Calibration



Latest Product Information: [www.mt.com/pro](http://www.mt.com/pro)

# 1 Basics

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## 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.

## Environmental protection

Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check with your Local Authority or retailer for recycling advice.



## Trademarks

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

InTrac®

is a registered trademark of Mettler-Toledo AG

### NOTICE

These installation instructions do NOT describe

- how to operate the retractable housing
- how to control the programs via the M 700(X) process analysis system.

The user manuals for retractable housings and the M 700(X) modular process analysis system are available for free download at [www.mt.com/pro](http://www.mt.com/pro).

# Table of Contents

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<b>1</b>	<b>Basics</b> .....	<b>2</b>
	Return of Products Under Warranty .....	2
	Environmental protection.....	2
	Trademarks .....	2
<b>2</b>	<b>Short Description</b> .....	<b>5</b>
<b>3</b>	<b>Intended Use</b> .....	<b>8</b>
<b>4</b>	<b>Safety Information</b> .....	<b>10</b>
<b>5</b>	<b>Package Contents</b> .....	<b>12</b>
<b>6</b>	<b>Order Information</b> .....	<b>12</b>
	Configurator .....	13
	Accessories, Spare Parts.....	14
<b>7</b>	<b>Checklist for Installation</b> .....	<b>15</b>
<b>8</b>	<b>Assembly</b> .....	<b>16</b>
	Wall Mounting.....	17
	Pipe Mounting.....	18
	Media Adapter with Metering Pumps.....	20
	Attaching the Media Connection to the Media Adapter .....	21
<b>8.1</b>	<b>Media Adapter and Metering Pumps</b> .....	<b>22</b>
	Connections .....	22
	Function Description of Metering Pump.....	24
	Bills of Materials .....	25
<b>8.2</b>	<b>Media Connection</b> .....	<b>26</b>
	Assembly, Connections.....	26
	Bill of Material.....	27
<b>8.3</b>	<b>Media Supply: EasyClean 400(X)</b> .....	<b>28</b>
	Compressed Air, Water, Purge Air, Auxiliary Media.....	28
	Arrangement of Functional Elements .....	29
	Pilot Valves, Control Valves .....	30
	Pressure Gauges and Valve Block.....	31
	Connecting the Media Tubes (Media Connection).....	32
	Connecting the Tubes .....	33

# Table of Contents

---

<b>8.4</b>	<b>Connecting the Retractable Housing .....</b>	<b>36</b>
<b>9</b>	<b>Electrical Installation.....</b>	<b>42</b>
	Connecting the Cables to the EasyClean 400(X) .....	42
	Terminal Assignments EasyClean 400(X).....	45
<b>10</b>	<b>Process Control System.....</b>	<b>48</b>
<b>11</b>	<b>Control Programs and Measurement Procedures .....</b>	<b>51</b>
<b>12</b>	<b>Service and Maintenance.....</b>	<b>52</b>
	SERVICE Position .....	52
	Manual Control via M 700(X) .....	53
<b>13</b>	<b>Commissioning .....</b>	<b>55</b>
	Start-Up on the M 700: Automatic Hardware Recognition .....	56
	EasyClean 400(X) Parameter Setting on the M 700(X) .....	57
	Start-Up Program .....	58
<b>14</b>	<b>Specifications.....</b>	<b>59</b>
<b>15</b>	<b>Appendix.....</b>	<b>65</b>
	Pneumatic Diagram of EasyClean 400.....	66
	Pneumatic Diagram of Media Connection .....	67
	Selected Cleaning Agents for EC 400 and their Applications.....	68
<b>16</b>	<b>Index.....</b>	<b>70</b>

## 2 Short Description

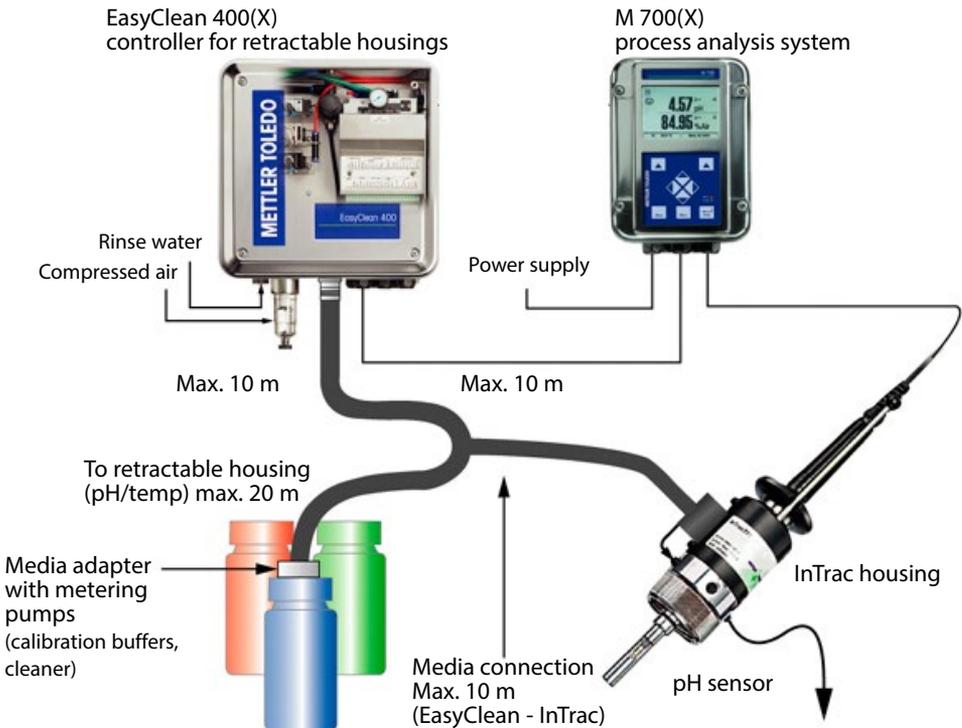
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The EasyClean 400(X) is an electro-pneumatic controller for fully automated pH measurement, cleaning, and calibration.

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

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

- M 700(X) Modular process analysis system
- EasyClean 400(X) Controller for retractable housings ("probes")
- Retractable housings, cable, and pH sensor

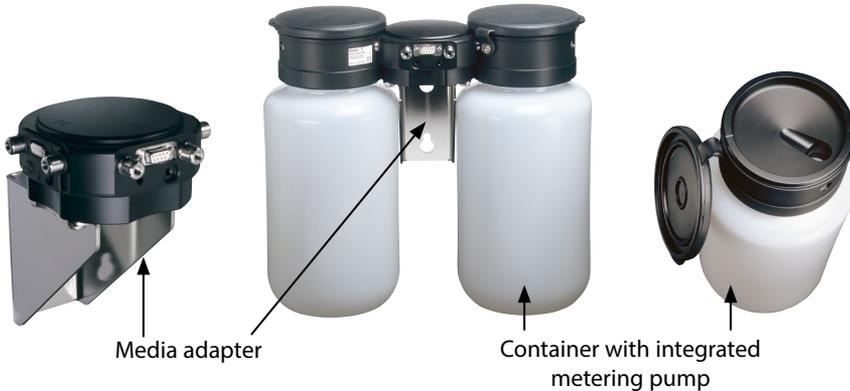


## 2 Short Description

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### **Metering Pump with Container for Buffer or Cleaning Solution**

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



### **Media Adapter**

The media adapter allows connecting up to 3 metering pumps for calibration buffers and cleaning agent. The pumps are automatically recognized by the system.

A cleaner pump can be connected to port III of the media adapter (eg, for dilute acids, dilute alkalis, or solvents, see table on page 68).

### **Media Connection**

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

## 2 Short Description

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NOTICE
Be sure to take account of the chemical resistance of the process-wetted materials of the media adapter, media connection and pump.

### Monitoring Functions

- Leak detection (alerts you to a water leak in the EasyClean)
- Compressed-air monitoring (with pressure switch)
- Media monitoring  
allows monitoring the process value or temperature of each medium in the calibration chamber of the retractable housing.  
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 calibration or 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 EasyClean 400(X) probe controller can be connected to a superordinated control system, such as a PLC or DCS (Digital Control System).

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\* international user association of automation technology in process industries

## 3 Intended Use

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The EasyClean 400(X) probe controller allows fully automated pH measurement including rinsing, calibration, and cleaning.

The EasyClean 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 EasyClean 400(X) evaluates pneumatic and electric check-back signals from retractable housings. Inductive limit position switches are not supported. Separate wear-resistant and maintenance-free metering pumps with a very long service life are used for calibration buffers and cleaner. Each fluid is fed to the retractable housing through a separate tube. A multiplug provided with check valves is connected at the retractable housing to prevent contamination or mixing of the different fluids.

Buffer consumption is extremely low.

The manufacturer recommends to use the EasyClean 400(X) in combination with the M 700(X) process analysis system and an InTrac 77x/InTrac 79x retractable housing. This combination ensures optimal media monitoring (pH value and temperature) as well as traceability according to FDA 21 CFR Part 11 (AuditTrail). The M 700(X) process analysis system allows easy adaptation of the calibration and cleaning programs to the process.

NOTICE
<p><b>Frost-Free Operation</b></p> <p>EasyClean 400(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

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NOTICE
<p><b>Drinking Water Pipes</b></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 EasyClean to protect the drinking water from pollution.</p>

## 4 Safety Information

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### NOTICE

These installation instructions do NOT describe

- how to operate the retractable housing
- how to control the programs via the M 700(X) process analysis system.

The user manuals for retractable housings and the M 700(X) modular process analysis system are available for free download at [www.mt.com/pro](http://www.mt.com/pro).

### CAUTION

#### **Power Supply**

The EasyClean 400(X) should preferably be supplied through the M 700(X).

Be sure to observe the safety information in the user manual for the M 700(X) basic unit.

#### **Application in Hazardous Locations**

The EasyClean 400X probe controller is intended for operation in ambient conditions and applications as specified in this manual (see “Intended Use”, page 8 and “Specifications”, page 59).

The EasyClean 400X may be opened during operation.

## 4 Safety Information

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### 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 bottles for buffer solutions and cleaning liquids in a way that there is no explosion risk due to electrostatic discharge. For example, the bottles 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 bottles for buffer solutions and cleaning liquids 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

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## Checking the Package Contents

Use the following table to check the package contents:  
(Listed here: maximum configuration)

EasyClean 400(X)	Basic unit incl. wall mounting brackets (mounted)
	Media connection (corrugated hose) incl. slotted securing nut and suitable hook wrench
	Media adapter (for metering pumps)
	3 metering pumps
	1 Standard Media Interface
	Cable set, consisting of: <ul style="list-style-type: none"><li>• 1 connecting cable for basic unit – M 700(X)</li><li>• 1 connecting cable for basic unit – media adapter (with plug)</li></ul>
	1 EasyClean 400(X) installation manual

# 6 Order Information

EasyClean 400 standard devices	Description	Order no.
EasyClean 400, coated	EC 400 C	52 403 596
EasyClean 400, coated, Ex	EC 400 XC	52 403 597
EasyClean 400, stainless steel	EC 400 S	52 403 598
EasyClean 400, stainless steel, Ex	EC 400 XS	52 403 599
Transmitter M 700 modules	Description	Order no.
pH and EC 400 module	EC 700	52 121 259
pH and EC 400 module, Ex	EC 700 X	52 121 260

# 6 Order Information

## Configurator

### EasyClean 400 Configurator

In addition to the standard devices, you can also configure a device with the options listed below.

#### Basic unit\*

#### Explosion protection

- N** Without
- X** With

#### Housing

- C** Steel, coated
- S** Stainless steel, polished

#### Media connection

- 3** 5 m hose (gasket material: FKM)
- 4** 10 m hose (gasket material: FKM)
- 6** 17 m hose (gasket material: FKM)
- C** 5 m hose (gasket material: EPDM)
- D** 10 m hose (gasket material: EPDM)
- F** 17 m hose (gasket material: EPDM)

#### Media adapter with port I - III

- 1** With gasket material: FKM
- A** With gasket material: EPDM

#### Equipment for port 3

- 2** Pump with empty 3.5 L bottle (EPDM)
- B** Pump with empty 3.5 L bottle (FKM)
- 0** Without pump

#### Ext. valve actuation (Aux 2)

- E** With
- N** Without

<b>E</b>	<b>C</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>-</b>						
1	2	3	4	5	6	7	8	9	10	11	12

#### Basic unit\* consisting of:

Equipment for port 1: Pump and empty 3.5 L bottle

Equipment for port 2: Pump and empty 3.5 L bottle

# 6 Order Information

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## Accessories, Spare Parts

### Accessories for EasyClean 400(X)

Order No.

Additional external valve, Aux 2	<b>52 403 751</b>
Pipe-mount kit EasyClean 400	<b>52 403 747</b>
Pipe mount kit for media adapter EasyClean 400	<b>52 403 750</b>

### Spare Parts and Retrofit Parts for EasyClean 400(X)

Order No.

Media connection 5 m	<b>52 403 724</b>
Media connection 10 m	<b>52 403 726</b>
Media connection 10 m, Ex	<b>52 403 727</b>
Interface for InTrac	<b>52 403 728</b>
Interface for InTrac, Ex	<b>52 403 729</b>
Pump	<b>52 403 730</b>
Pump, Ex	<b>52 403 731</b>
Media adapter	<b>52 403 732</b>
Media adapter, Ex	<b>52 403 733</b>

# 7 Checklist for Installation

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M 700(X) • EasyClean 400(X) • Retractable Housing

## M 700(X)

Correct power supply?

### M 700(X) - EasyClean 400(X)

- Mounting surface / pipe (incl. drilling plan) for M 700(X)  
(see M 700(X) manual)
- Mounting surface (incl. drilling plan) for EasyClean 400(X)  
(see page 17 and following)
- Mounting surface (incl. drilling plan) for media adapter (see page 20)
- Permissible mounting clearances corresponding to specifications  
(see page 16)

### EasyClean 400(X)

- Flexible pressure connection, G 1/4" internal
- Compressed air 0.4 ... 1.0 MPa, oil- and condensate-free
- Flexible rinse water connection G 1/4" internal or 3/4" coupling
- Rinse water 0.2 ... 0.6 MPa, 5 ... 65°C, 100 µm filtered

## Retractable Housings

### InTrac 7xx

- 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 housing

<b> CAUTION</b>
--

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

# 8 Assembly

Arrangement of Components:  
Permissible Distances and Lifting Heights

**⚠ CAUTION**

**Mounting Site**

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

**Ambient Temperature**

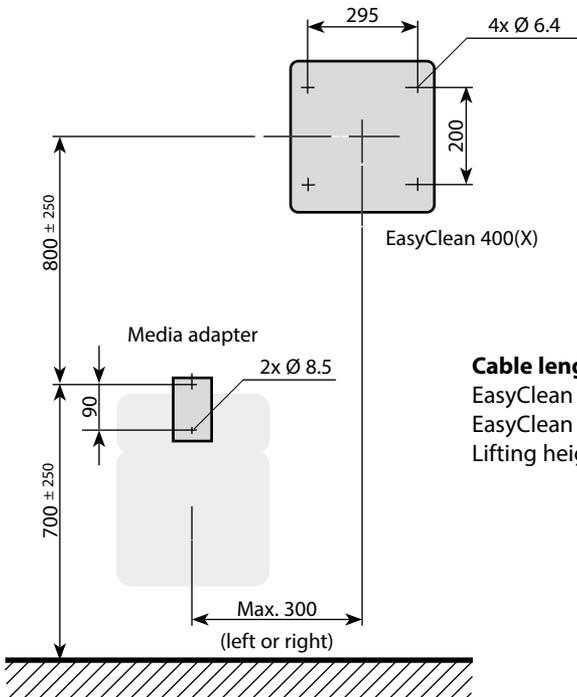
Be sure to observe the permissible ambient temperature (see Specifications in the respective user manual). It should never sink below +5 °C.

**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.



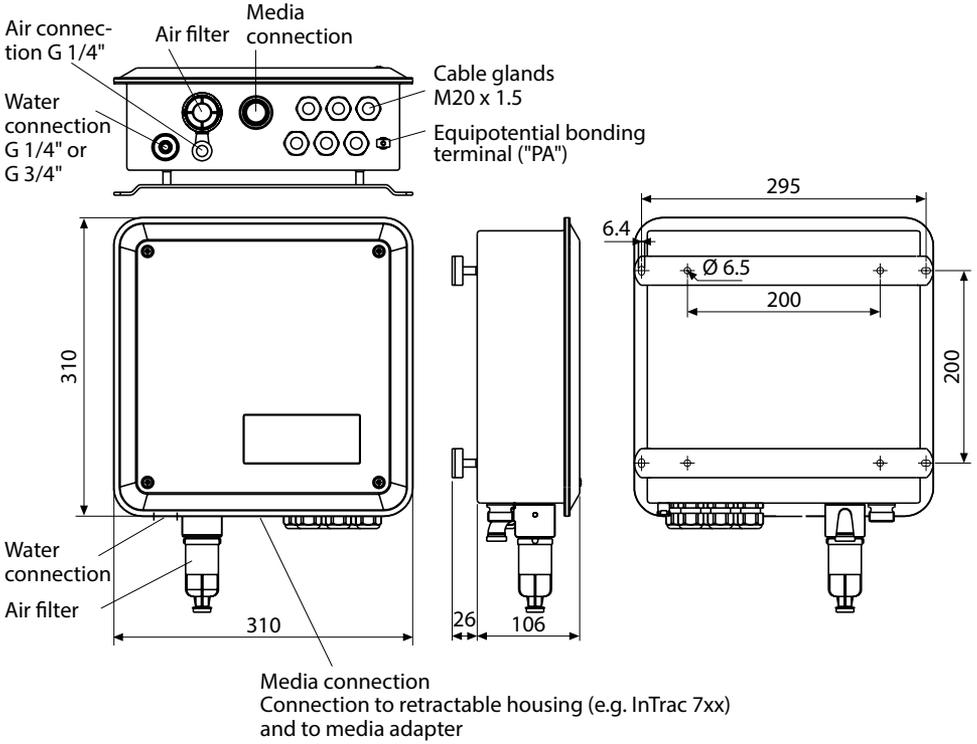
**Cable lengths:**

EasyClean - M 700(X):	10 m
EasyClean - Retractable housing:	5 m, 10 m
Lifting height of pumps:	max. 10 m

Dimensions in mm

# 8 Assembly

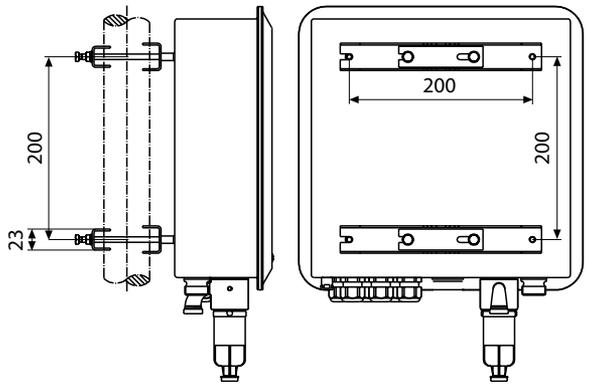
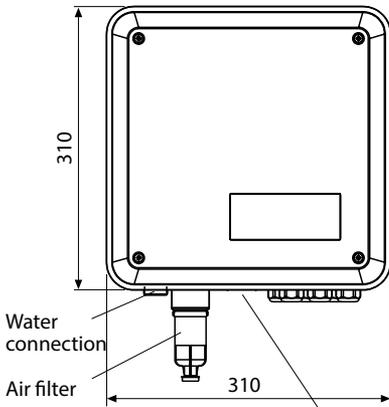
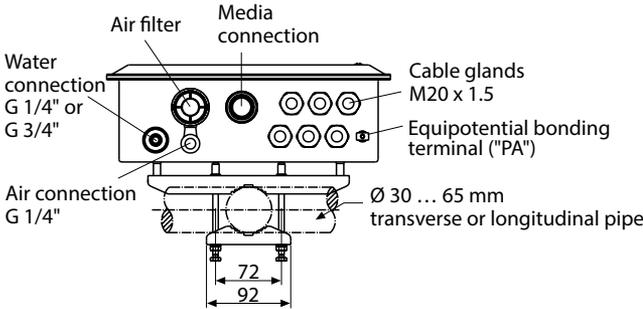
## Wall Mounting



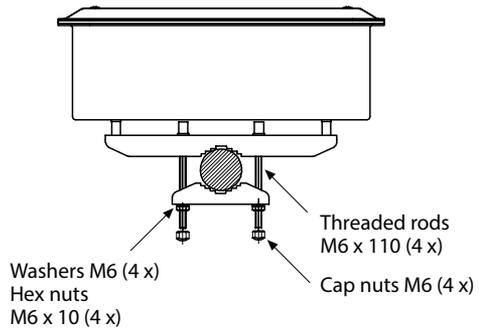
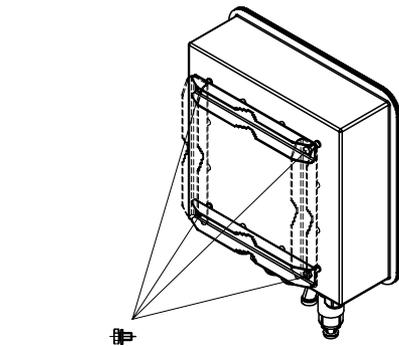
Dimensions in mm

# 8 Assembly

## Pipe Mounting



Media connection  
Connection to retractable housing (e.g. InTrac 7xx) and to media adapter

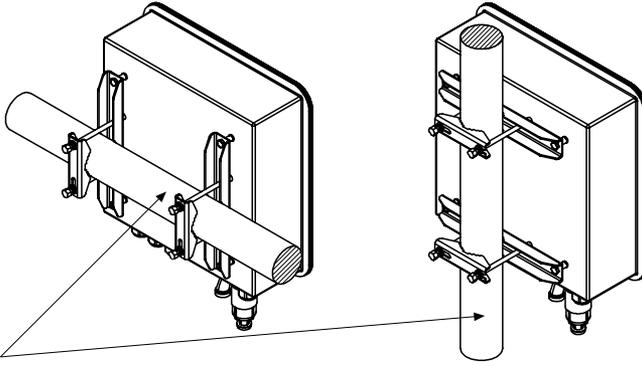


Dimensions in mm

# 8 Assembly

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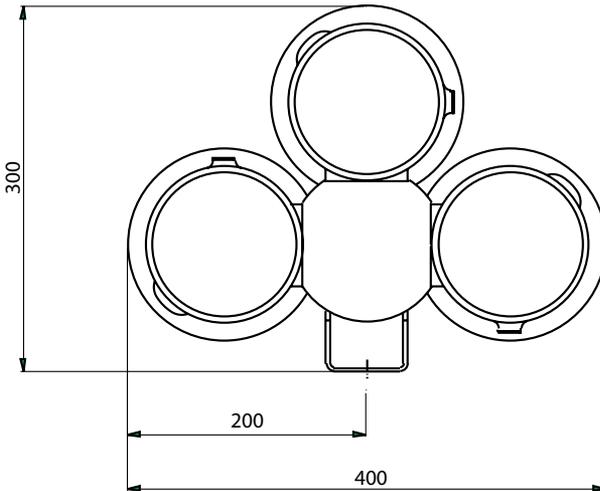
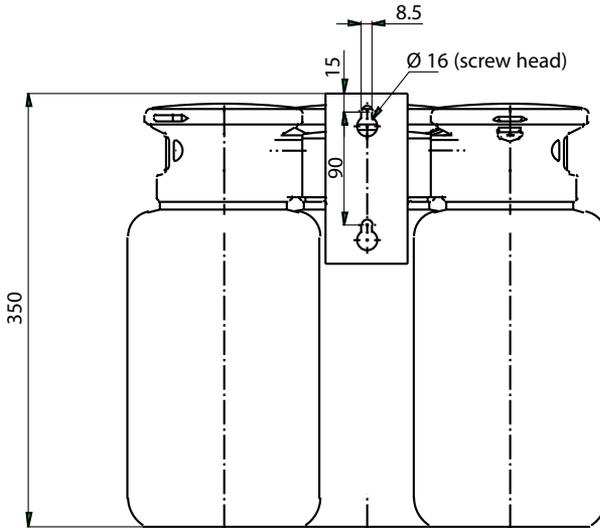
## Pipe Mounting



Pipe diameter: 30 ... 65 mm

# 8 Assembly

## Media Adapter with Metering Pumps



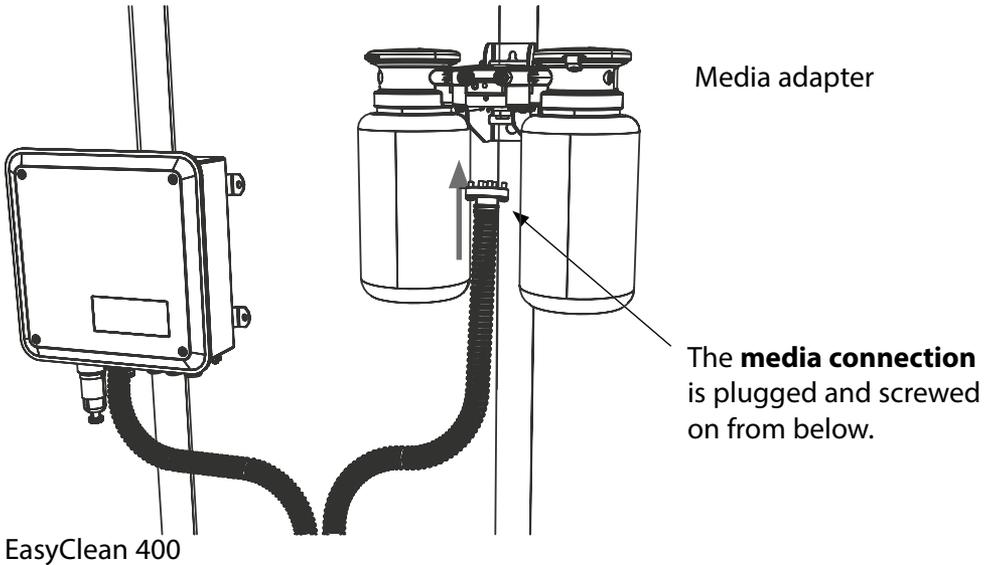
Dimensions in mm

## 8 Assembly

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### 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 23.)



#### 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.

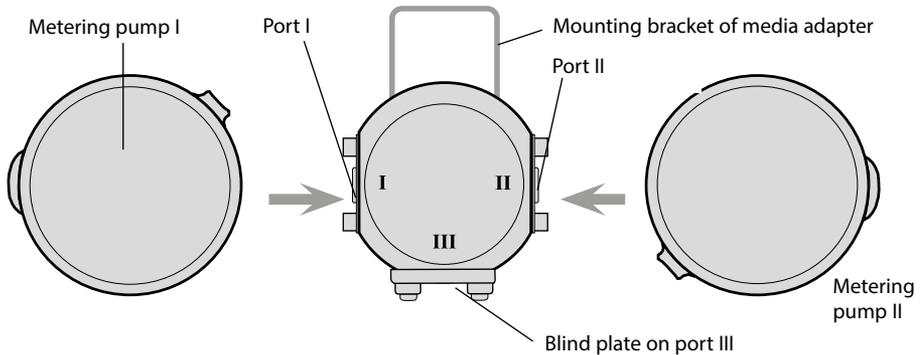
# 8.1 Media Adapter and Metering Pumps

## Connections

The media adapter provides 3 ports for connection of metering pumps. The M 700(X) automatically recognizes and monitors the port equipment of the media adapter.

### NOTICE

Ports which are not used must be closed with a blind plate! As delivered, the ports of the media adapter are closed with blind plates. To store blind plates which are not used, both sides of the mounting bracket are provided with fixing pins.



Top view of media adapter. The metering pumps are simply plugged on and fixed with two captive screws.

### Port I and Port II

These ports are designed for connection of metering pumps. Here, the calibration buffers should be connected to the media adapter. Be sure to take account of the chemical and thermal resistance of the process-wetted materials (see bills of materials for media adapter and media connection on pages 25 and 27). The software for EasyClean 400(X) supports one- and two-point calibrations. As default, port I is assigned to buffer I (pH 7.00) and port II to buffer II (pH 4.01).

### Port III

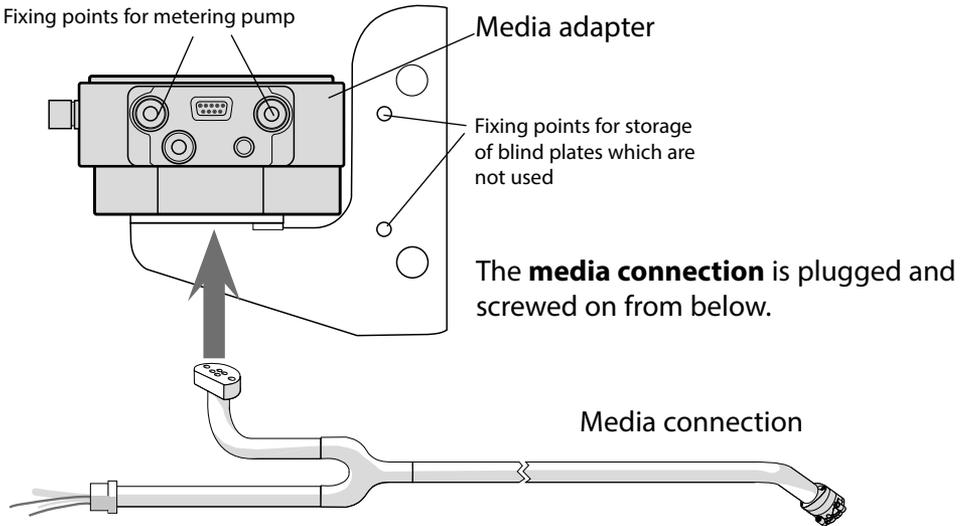
This port allows connection of a further metering pump for rinsing or cleaning agent. It is designed for the use of aggressive media (dilute acids, dilute alkalis, solvents – cf table on page 68).

# 8.1 Media Adapter and Metering Pumps

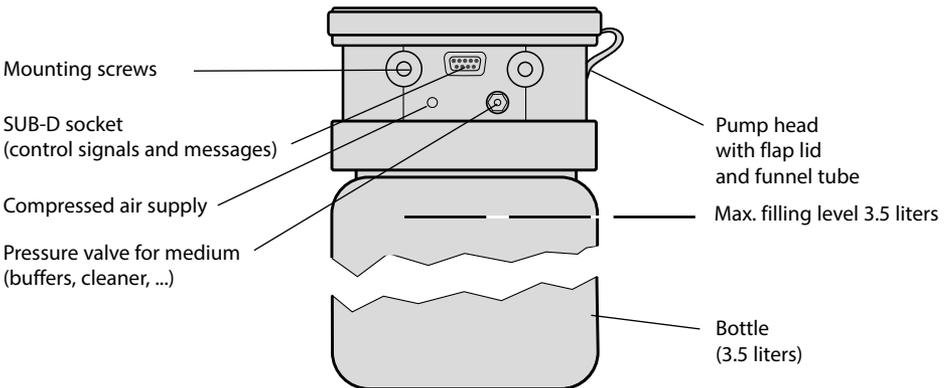
## Connections

### 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

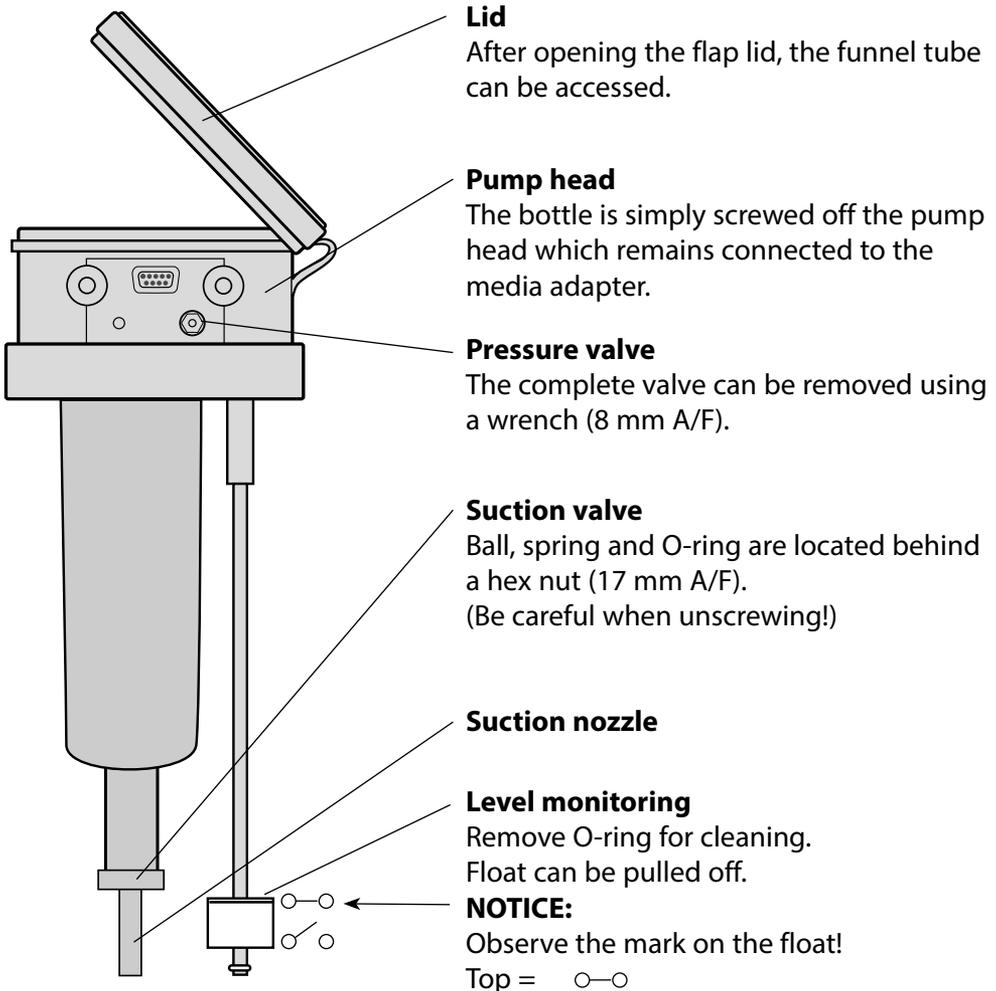


# 8.1 Media Adapter and Metering Pumps

## 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.



# 8.1 Media Adapter and Metering Pumps

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## 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

\*\* Option possible

## 8.2 Media Connection

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### Assembly, Connections

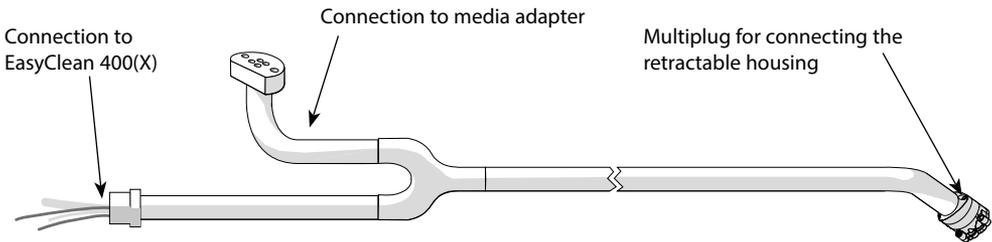
The media connection is available in 5 or 10 m length. It consists of a dia. 30 mm corrugated hose with a metal coil. You can also order special lengths (also heated or with wall ducts).

#### Connections

The connections for media adapter and retractable housing are of a plug-in design. They are mechanically fixed by screwing.

Each fluid is fed to the retractable housing through a separate tube of the media connection.

Check valves in the multiplug minimize contamination and prevent mixing of the calibration fluids.



#### Connection to EasyClean 400(X)

Screw the corrugated hose to the joining piece of the EasyClean 400(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 27 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 Housing

Plug this connector to the retractable housing and screw it tight (PZ-2), see manual of retractable housing. 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

Media connection	Tubes	Outer dia.	Material	Color
Probe compressed-air	2	6.8 mm	PA	Green
Rinse water, purge air	2	6 mm	FEP	Transparent
Buffer solution (port I and II)	2	6 mm	PE-LD	Black
Cleaning agent (port III)	1	6 mm	FEP	Transparent
Air supply to media adapter	1	6 mm	FEP	Transparent, red marking

EasyClean 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	Glass**
Spring	5	Hastelloy (2.4610)
Gaskets		FKM / EPDM*

\* Depending on model version

\*\* Option possible

## 8.3 Media Supply: EasyClean 400(X)

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Compressed Air, Water, Purge Air, Auxiliary Media

### Connecting the Compressed-Air Supply

The EasyClean4400(X) is operated with an external air pressure of (4)\* ... 10 bar. Adjust the pressure regulator so that the operating pressure for the retractable housing 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).

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

<b>⚠ CAUTION</b>
------------------

<b>Pneumatic</b>
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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 EasyClean 400(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 an optional connection kit to protect against water hammer. We also recommend using a check valve.

<b>NOTICE</b>
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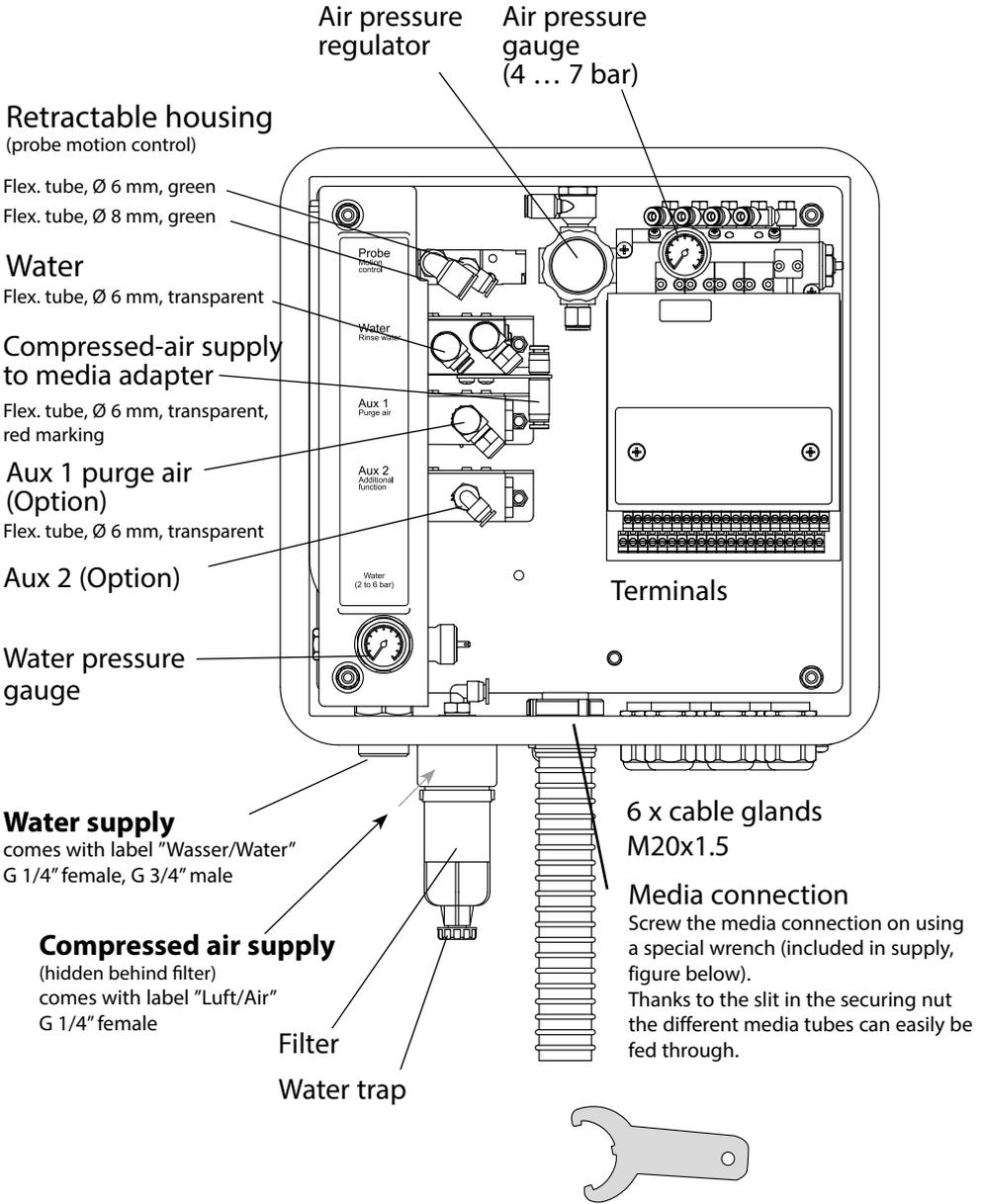
<b>Drinking Water Pipes</b>
-----------------------------

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 EasyClean to protect the drinking water from pollution.
---

# 8.3 Media Supply: EasyClean 400(X)

## Arrangement of Functional Elements



# 8.3 Media Supply: EasyClean 400(X)

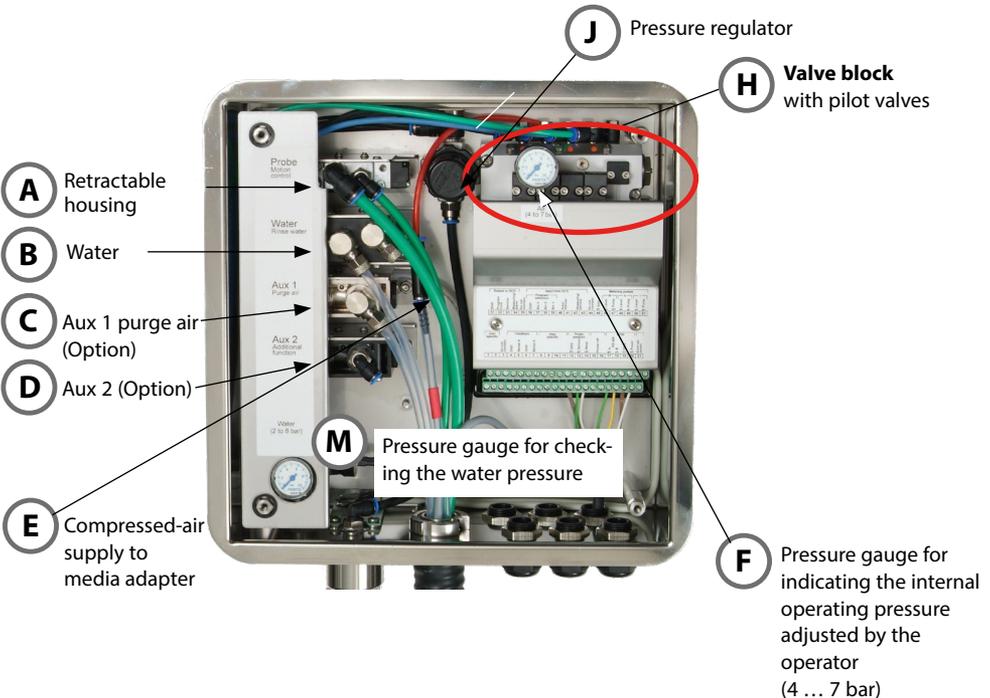
## Pilot Valves, Control Valves

### 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

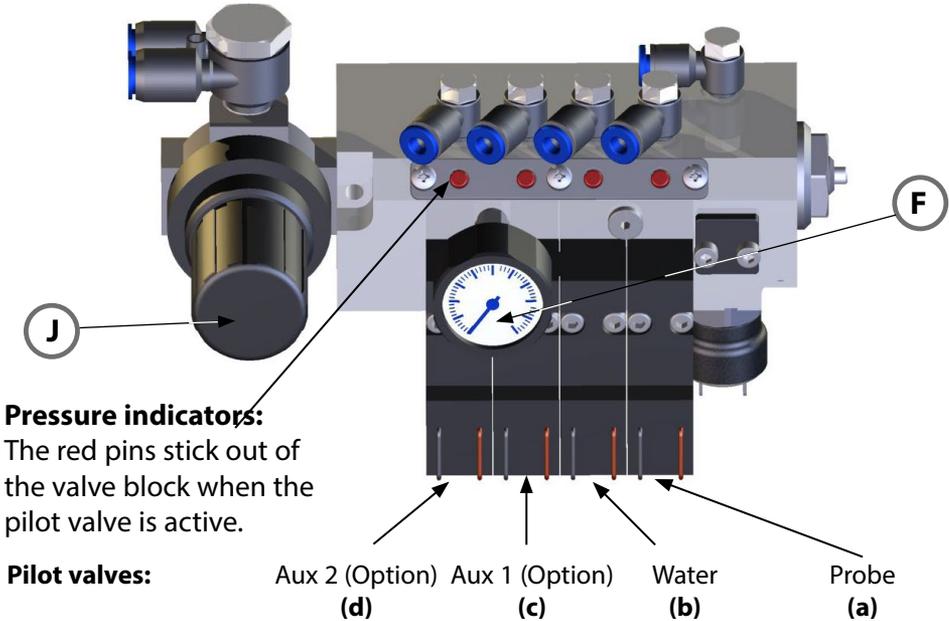
### Pilot Valves



## 8.3 Media Supply: EasyClean 400(X)

### Pressure Gauges and Valve Block

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

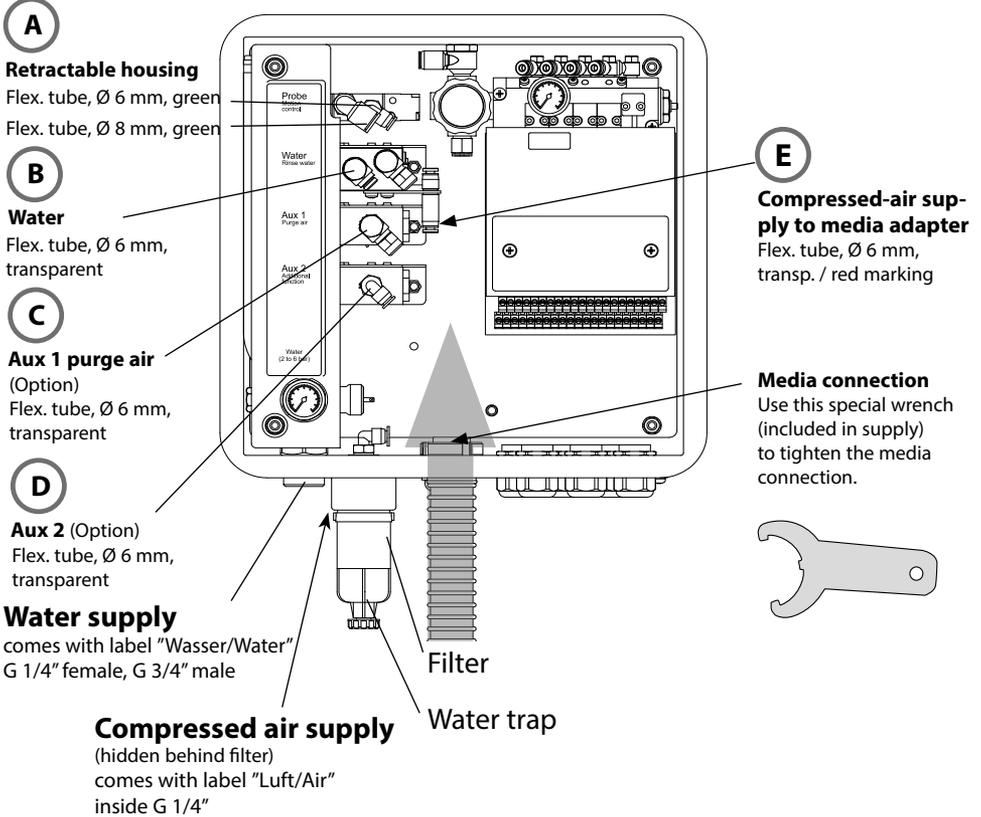


- (F) Pressure gauge for indicating the pressure adjusted by the operator via the pressure regulator (J) (internal operating pressure 4 ... 7 bar)
- (J) Pressure regulator for adjusting the operating pressure for the retractable housing

# 8.3 Media Supply: EasyClean 400(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 EasyClean.
2. Push the securing nut over the tubes and pull it tight using the included special wrench. The tubes are clearly identifiable.

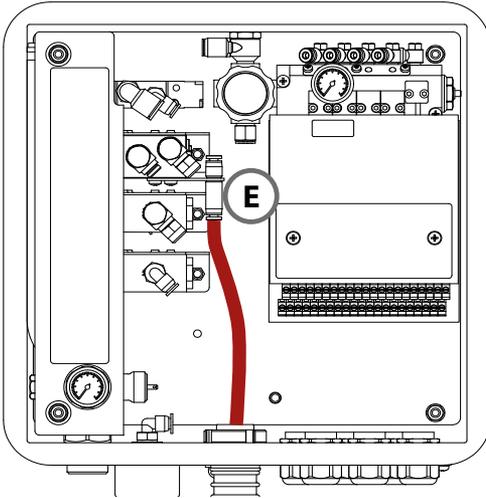
### Pneumatic Push-In Connections

- **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: EasyClean 400(X)

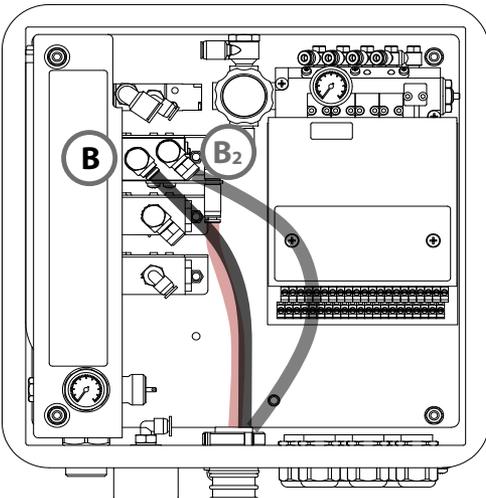
### Connecting the Tubes

#### 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

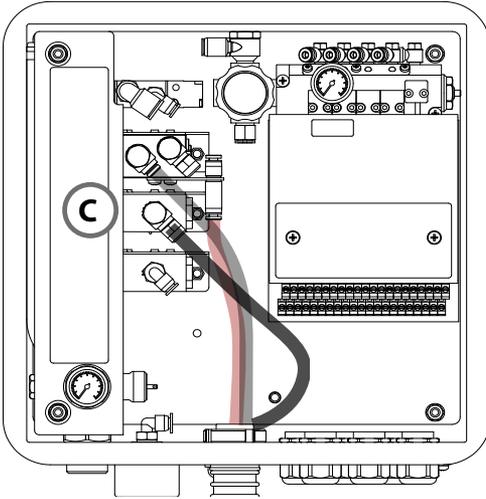


2. The tubes for water and purge air are identical. Connect one of the transparent tubes to the water control valve (**B**). Tighten the coupling nut hand tight. When you do not use air purging, connect the second transparent tube to the water control valve (**B<sub>2</sub>**). To do so, unscrew the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

## 8.3 Media Supply: EasyClean 400(X)

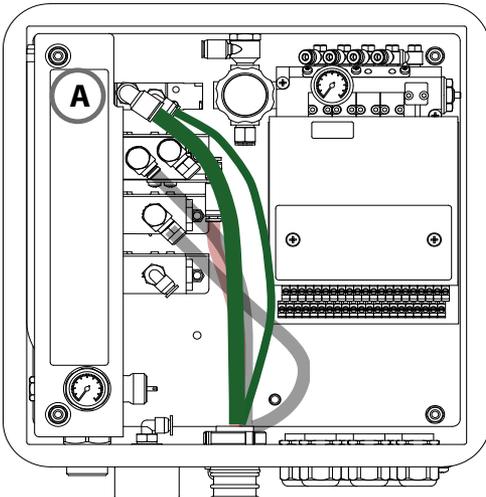
### Connecting the Tubes

#### 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, buffer, cleaning agent) from the calibration chamber of the retractable housing.

#### Retractable Housing (Probe)



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

#### Left:

#### **PROCESS** position

Tube with large diameter  
(Ø 8 mm)

#### Right:

#### **SERVICE** position

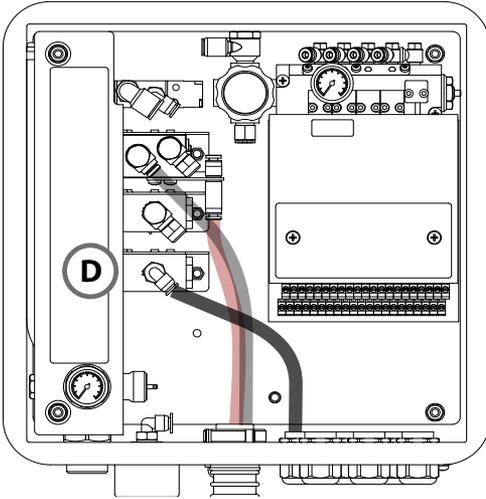
Tube with small diameter  
(Ø 6 mm)

## 8.3 Media Supply: EasyClean 400(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.

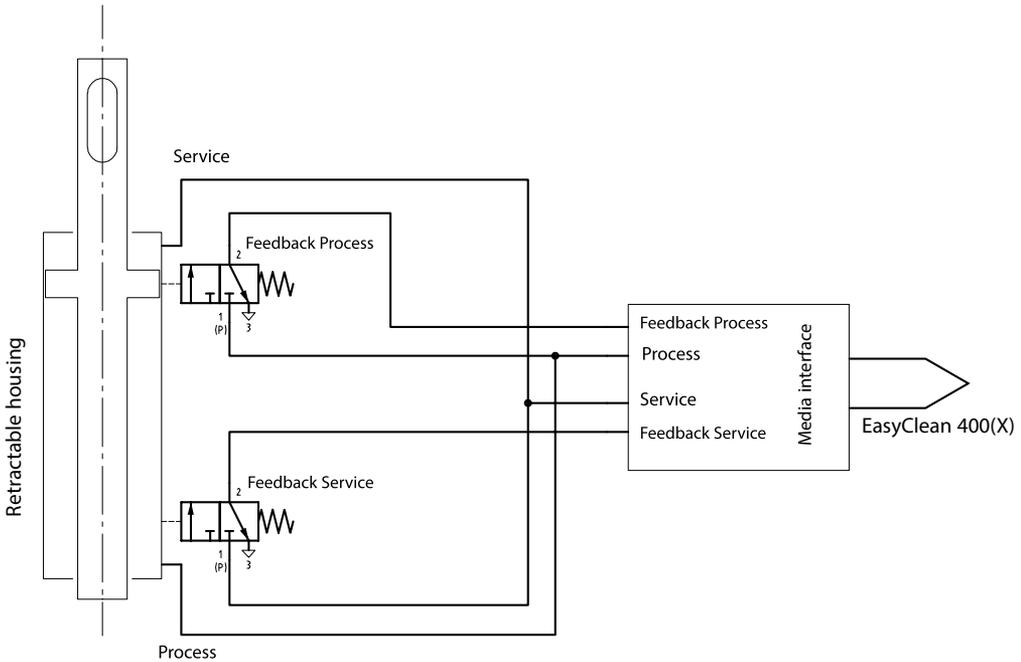
For operation as 2/2-way valve, you must close the vent on the bottom side of the valve: G1/8" female

#### Typical Applications:

- Controlling the pressurization of pH sensors with liquid electrolyte
- Controlling an external pump
- Controlling an external valve (from customer)

# 8.4 Connecting the Retractable Housing

## Recommended Connection of Retractable Housings



### 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 EasyClean 400(X).

# 8.4 Connecting the Retractable Housing

## Standard Media Interface

### Connecting an InTrac 7xx Retractable Housing

The retractable housings 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 EasyClean 400(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 housing.

#### Process

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

Media supply (to rinsing chamber)

#### Feedback Service

Feedback "Service" position

#### Service

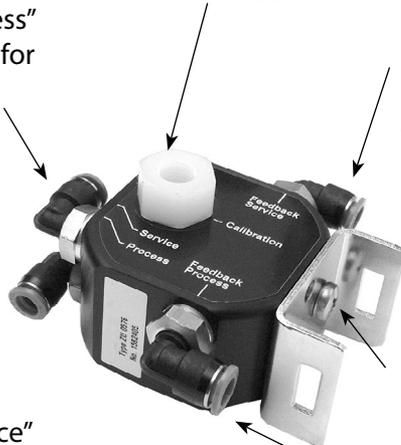
Control air for "Service" position and supply for "Service" position feedback unit

#### Fixing screw

(PZ-2)

#### Feedback Process

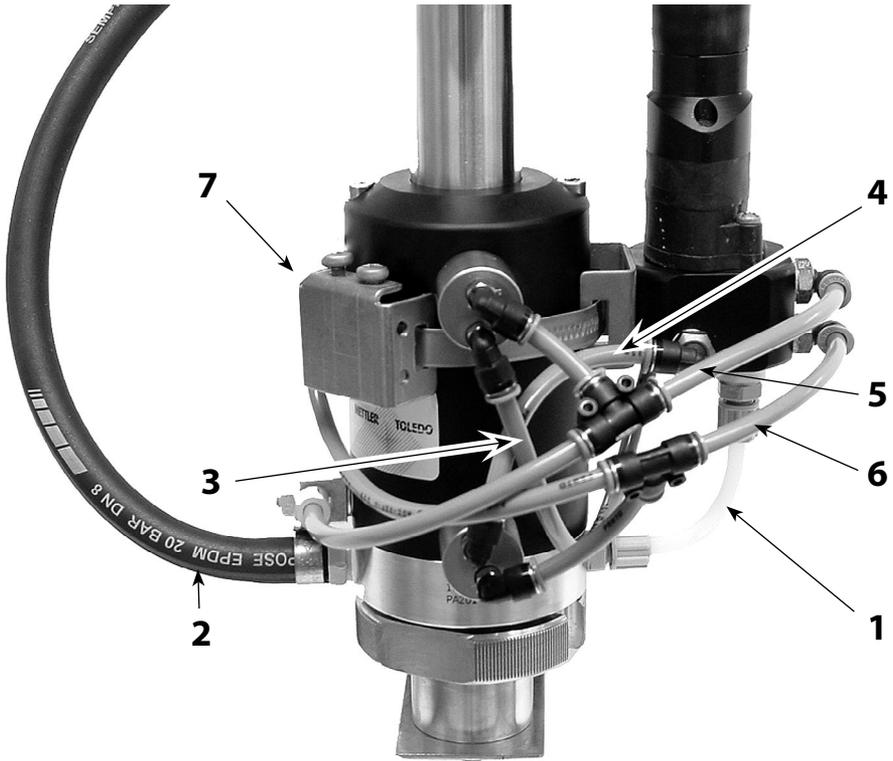
Feedback "Process" position



The interface is mounted to the retractable housing 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 housing. All connections to the EasyClean 400(X) 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 Housing

### Recommended Connection of an InTrac 7xx Retractable Housing

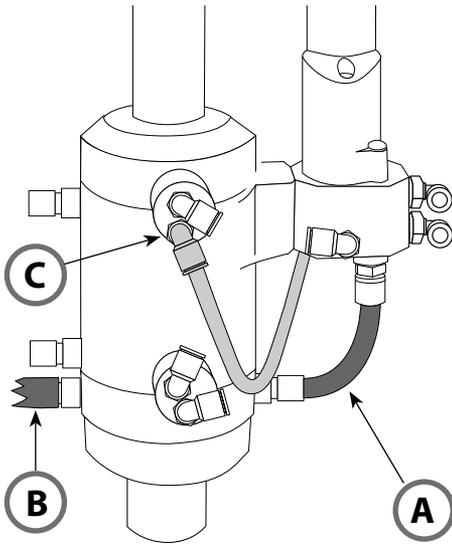


- 1 Media supply to rinsing chamber
- 2 Rinsing chamber outlet
- 3 Feedback of "Service" position
- 4 Feedback of "Process" position
- 5 Control air for "Service" position and supply for "Service" feedback unit
- 6 Control air for "Process" position and supply for "Process" feedback unit
- 7 Fixing bracket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

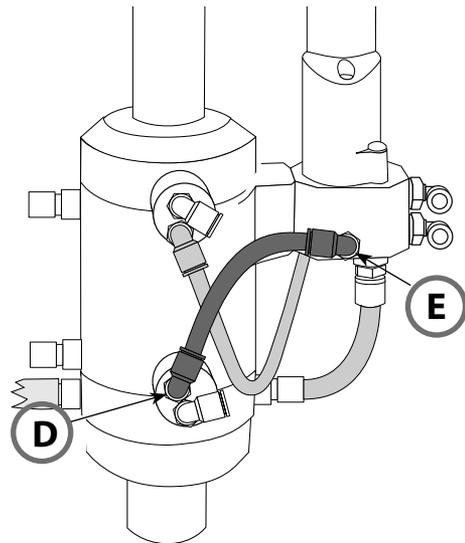
See next pages for installation instructions.

## 8.4 Connecting the Retractable Housing

### Connecting an InTrac 7xx Retractable Housing



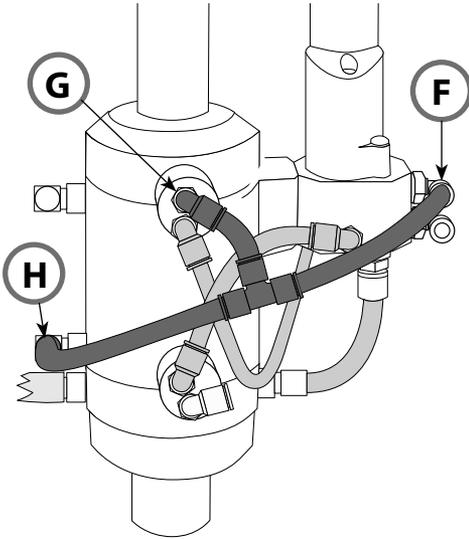
1. Connect the media supply (A) to the rinsing chamber.
2. Connect the outlet hose (B) to the outlet port of the rinsing chamber.
3. **Feedback of "Service" position:** Connect the "Service" feedback unit (C) of the probe – unlabeled connecting port – with the "Feedback Service" port on the adapter by 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.

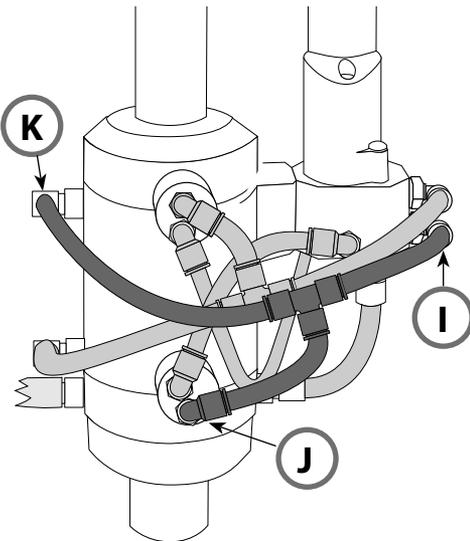
## 8.4 Connecting the Retractable Housing

### Connecting an InTrac 7xx Retractable Housing



**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.

## 8.4 Connecting the Retractable Housing

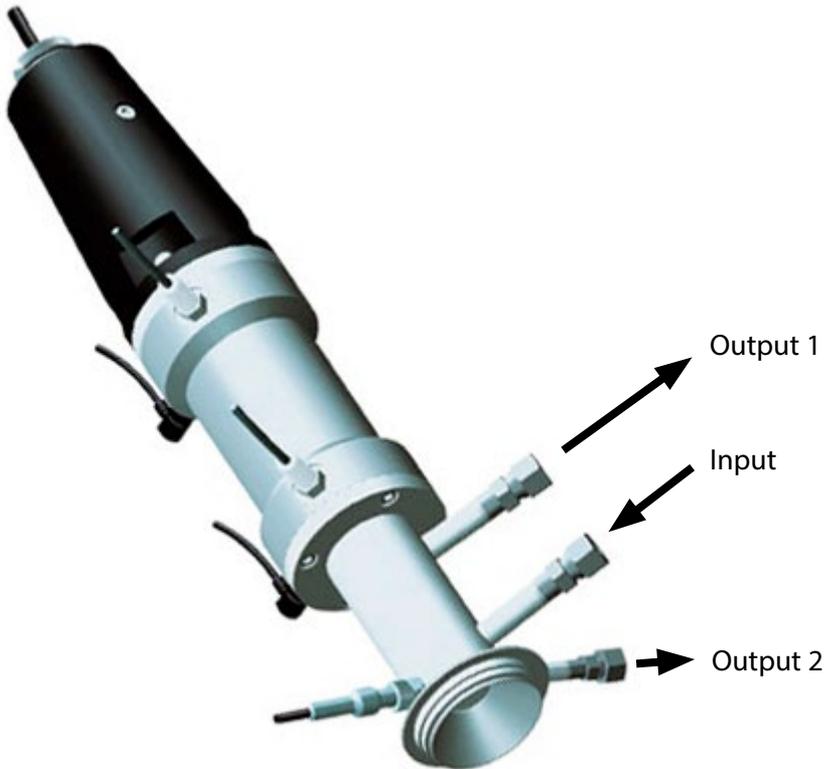
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### Connecting an InTrac 7xx Retractable Housing

#### Please note for InTrac 798e housing:

Connect the rinsing chamber as follows:

- Be sure to insert output 1 and output 2 separately into the outlet (do not use a T-piece).
- Connect the pneumatic couplings and feedback units as described above.



# 9 Electrical Installation

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## Assembly of Components

<b>⚠ CAUTION</b>
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<b>Mounting Distances</b>
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The cables are pre-assembled and cut to length. Be sure to observe the appropriate mounting distances (see page 16, "Arrangement of Components").
---

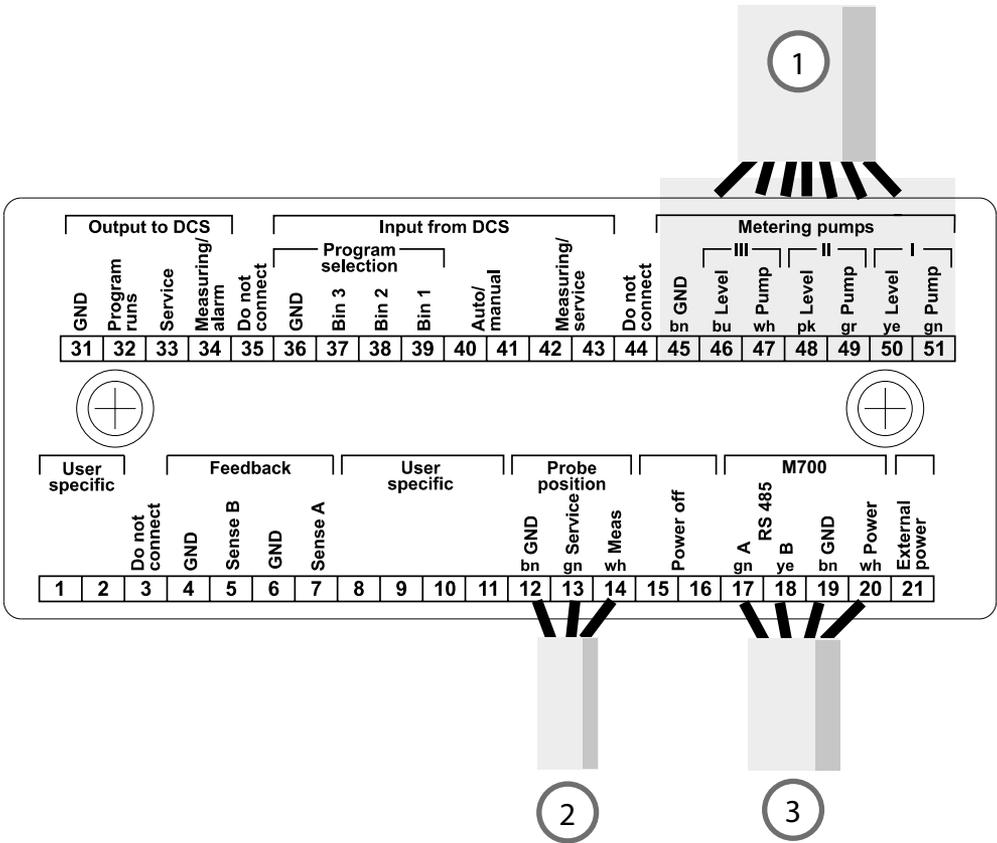
### Connecting the Cables to the EasyClean 400(X)

1. Screw off the cover of the EasyClean 400(X), pull off ground connection.
2. Connect preassembled cables (see pages 43 and 44):
  - Cable no. 1: EasyClean 400(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 EasyClean 400(X).
  - Cable no. 3: EasyClean 400(X) to M 700 module

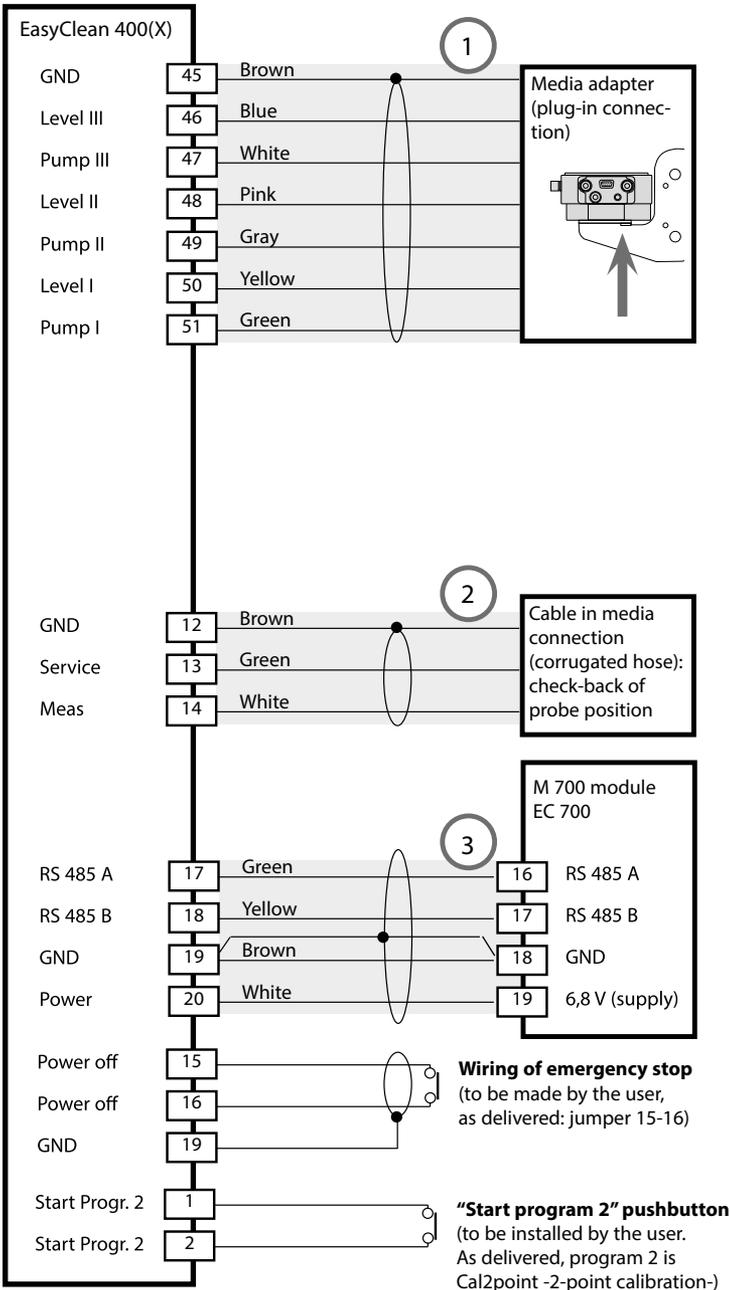
# 9 Electrical Installation

## Electrical Connections to EasyClean 400(X)

- Cable no. 1: EasyClean 400(X) – Media adapter
- Cable no. 2: EasyClean 400(X) – Retractable housing (probe) (in media connection)
- Cable no. 3: EasyClean 400(X) – M 700 module



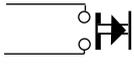
# 9 Electrical Installation



## 9 Electrical installation

---

### Terminal Assignments EasyClean 400(X)

No.	Wire color	Terminal	Function
1			Manual start of program 2 (default: 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			
9			
10			
11			
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 M 700
21		Ext. power	External power supply

## 9 Electrical Installation

---

### Terminal Assignments EasyClean 400(X)

No.	Wire color	Terminal	Function
31		GND	DCS message GND
32		Program runs (DCS out)	EasyClean 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 ... 6
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 1-3 GND
46	Blue	Level III	Pump 3 level monitoring
47	White	Pump III	Pump 3 control valve
48	Pink	Level II	Pump 2 level monitoring
49	Gray	Pump II	Pump 2 control valve
50	Yellow	Level I	Pump 1 level monitoring
51	Green	Pump I	Pump 1 control valve

## 9 Electrical Installation

Terminal Assignments of EasyClean 400(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 EasyClean 400(X)

No.	Designation	I / O	Level	Function
42	Measuring/ Service	I	0	Probe moves to "Measure" position (PROCESS) *
43			1	Probe moves to "Service" position
40	Auto/manual	I	0	Automatic interval control from M 700 *
41			1	Automatic intervals locked
37	Bin 3	I		Program selection and start, manual/DCS * **
38	Bin 2			(Program 1 ... 6 – see page 51)
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 $\Omega$  pull-up resistor. Terminal 31 must be connected to signal ground (GND).

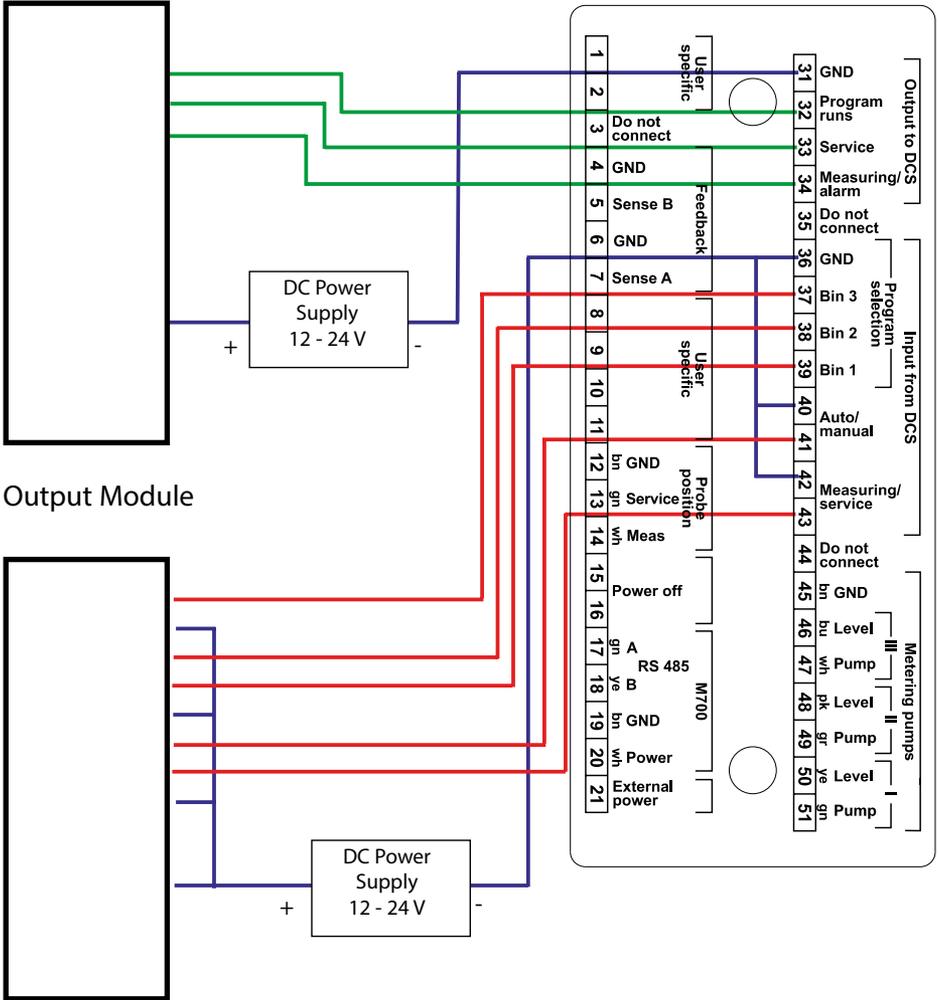
\* Passive contacts,  
24 V must be supplied externally or via DCS, see Specifications on page 62

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

# 10 Process Control System

## EasyClean 400(X) to DCS Wiring

### Input Module



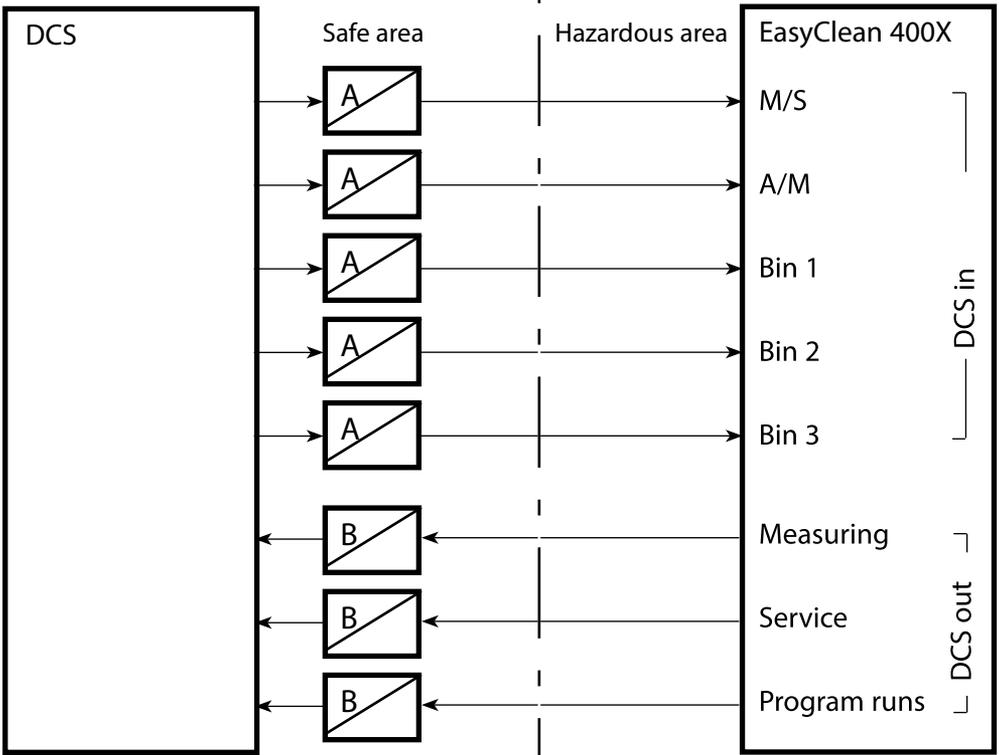
# 10 Process Control System

**⚠ 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 can be used for communication with an EasyClean 400X in a hazardous location.

### Hazardous-Area Control Modules (Examples)



A/B	Designation	Model	Manufacturer
A	Valve control module	KFD2-SL-Ex 1.48****	Pepperl + Fuchs
	Valve control module	MK 72-S17-Ex0/24VDC	TURCK
B	Switch amplifier	KF**-SR2-Ex1.W.**	Pepperl + Fuchs
	Switch amplifier	MK1-22Ex0-R/**	TURCK

# 11 Control Programs and Measurement Procedures

---

## Control Programs of EasyClean 400(X)

Six programs and one service program can be called.

Four program flows are preset.

Three further programs can be entered by the user.

The programs are called via:

- M 700(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	Cleaning	0	0	1
2	Two-point calibration (Cal 2point)	0	1	0
3	One-point calibration (Cal 1point)	0	1	1
4	Park position (user-programmable)	1	0	0
5	User-programmable (User 1)	1	0	1
6	User-programmable (User 2)	1	1	0
7	Service program			

The service program (7) stops all other running programs (1 - 6) immediately and erases stored requests. For programs 1 - 6, 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 EasyClean via M 700(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 / EasyClean 400 / Installation / Ext. control (DCS): Off).

## Measurement Procedures

### • Continuous measurement

After cleaning / calibration the pH sensor moves into the process for measurement.

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

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

# 12 Service and Maintenance

---

## SERVICE Position

### CAUTION

Make sure that the retractable housing is in SERVICE position before starting maintenance work on the EasyClean 400(X), the retractable housing, or the sensor.

### **Service Program: Request and End**

After a service request the retractable housing executes the service program steps. The retractable housing moves into SERVICE position.

A currently running program (e.g. calibration) is immediately stopped.

All other accesses are blocked.

The service program defines steps for moving the retractable housing as well as rinsing and cleaning procedures (see user manual of EC 700(X) module).

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 housing.

### **Termination of Service**

The service mode is only exited after all service requests have been executed (M 700(X) or DCS).

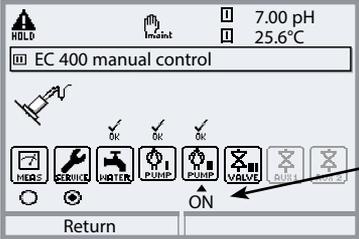
# 12 Service and Maintenance

## Manual Control via M 700(X)

### “Maintenance / EasyClean 400” Menu

With manual control via M 700(X) the EasyClean 400(X) probe controller can be actuated for servicing.

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

Menu	Display	Maintenance
		<p><b>Manual control</b> (requires access code: to enter in the “Parameter setting / Installation” menu) Select function using arrow keys. Icon blinks, activate with <b>enter</b> – “ON” appears below the icon. Pump cycles are terminated automat- ically. For all other functions, you must press <b>enter</b> 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 media connection and media adapter including the bottles for buffer solutions and cleaning liquids only with a damp cloth.

# 13 Commissioning

---

<b>⚠ CAUTION</b>
------------------

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

## Commissioning

1. Check air and water connection

**⚠ CAUTION**

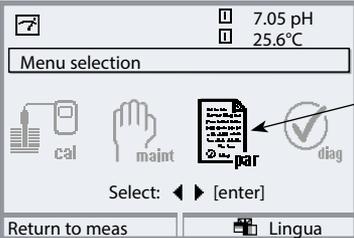
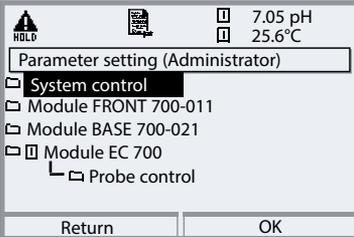
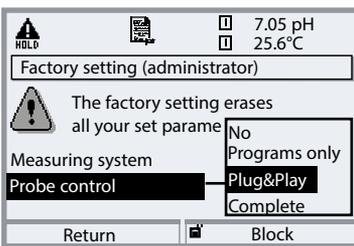
Make sure that air and water have not been interchanged.

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 EasyClean, pressure may decrease by max. 10 % within 30 sec.
7. Turn on water supply.
8. Check pressure at water pressure gauge, check tightness.
9. Switch on power supply for M 700.

# 13 Commissioning

Start-Up on the M 700: Automatic Hardware Recognition  
 (Parameter setting/System control/Factory setting/Probe control...

First select "Plug and Play" in the Parameter Setting menu of the M 700:  
 The EasyClean 400(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><b>Opening the parameter setting menu</b></p> <p>From the measuring mode:          Press <b>menu</b> key to select menu.          Select parameter setting using arrow keys, press <b>enter</b> to confirm.</p>
	 <p>7.05 pH 25.6°C</p> <p>Parameter setting (Administrator)</p> <p>System control</p> <p>Module FRONT 700-011</p> <p>Module BASE 700-021</p> <p>Module EC 700</p> <p>Probe control</p> <p>Return    OK</p>	<p>Parameter setting:          Select "System control".</p>
	 <p>7.05 pH 25.6°C</p> <p>System control (Administrator)</p> <p>Release of options</p> <p>Software update</p> <p>Logbook</p> <p>Buffer table</p> <p>Factory setting</p> <p>Passcode entry</p> <p>Return</p>	<p>Select "Factory setting".</p>
	<p>7.05 pH 25.6°C</p> <p>Factory setting (administrator)</p> <p>The factory setting erases all your set parameters</p> <p>Measuring system</p> <p>Probe control</p> <p>No Programs only</p> <p>Plug&amp;Play</p> <p>Complete</p> <p>Return    Block</p>	<p>First select "Probe control", then select "Plug &amp; Play".          The hardware installed is automatically recognized.</p>

# 13 Commissioning

## EasyClean 400(X) Parameter Setting on the M 700(X)

Parameter setting	Adjustable parameters
<b>Controller*</b>	<b>EasyClean 400</b> / Off
<b>Cal mode</b>	Check / Adjustment
<b>Time control</b>	<b>Fixed interval</b> / Week program
<b>Program flow</b>	Clean 2-point calibration 1-point calibration Service program: User programs (3) Parking
<b>Installation</b>	
- Measurement procedures	<b>Continuous</b> / Short-time
- External control (DCS)	<b>On</b> / Off DCS inputs (36...39): <b>active 10...30 V</b> / active < 2 V M/S input (42/43): <b>active 10...30 V</b> / active < 2 V A/M input (40/41): <b>active 10...30 V</b> / active < 2 V DCS output (34): <b>Measuring</b> / Alarm DCS outputs (31...34): N/O, <b>N/C</b>
- Access manual control	
- Probe	Probe type InTrac Move time max. ( <b>0015 s</b> ) Sealing water (On / <b>Off</b> ) Max. wear counter (Entry)
- Media adapter	Metering pump On / Off Medium Displaced volume ( 25 ml / <b>50 ml</b> / 75 ml / 100 ml) Residual volume (0 ml / <b>250 ml</b> / 500 ml)
- Additional media (2)	Additional medium 1 ( <b>On</b> / Off; editable designation) Additional medium 2 ( <b>On</b> / Off; editable designation)
<b>- Start-up</b>	<b>Page 58</b>

\* "Select module" is displayed when further pH modules are installed in addition to the EC 700(X) module and the sensor installed in the probe is operated with 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 pumps perform the number of stroke movements required for filling the media tubes completely.

The necessary rinsing cycles are automatically started.

The buffer pumps require approx. 1 stroke to fill the pump and approx.

9 strokes to fill the tubing.

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

<b> CAUTION</b>
Only operate the retractable housing when a sensor is installed! When the sensor has been removed, it must always be replaced by a dummy!

# 14 Specifications

---

<b>Compressed air</b>	Compressed air quality to ISO 8573-1:2001 Quality class 5.3.3
Solid contaminants	Class 5 (max. 40 µm, max. 10 mg/m <sup>3</sup> )
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 <sup>3</sup> )
Permitted pressure range	4*) ... 10 bar
Operating pressure for retractable housing	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
<b>Rinse water</b>	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
<b>Media adapter</b>	Three ports for metering pump
• Port I and II:	Calibration buffer
• Port III:	Cleaning agent
Material	See bill of material
Ingress protection	IP 65
Mounting	Wall or pipe mounting (Option)

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

# 14 Specifications

---

<b>Metering pump</b>	For buffer solution or cleaner
Bottle	3.5 L
Max. lifting height	10 m
Displaced volume	Approx. 25 cm <sup>3</sup> /stroke
Level monitoring	EasyClean 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

---

<b>Power</b> (Ex ia IIC)	Supplied via M 700 module or external power supply source 15 ... 30 V / 20 mA (see EU-Type-Examination Certificate for hazardous-area application!) EC 700(X): 6.8 V ( $\pm 10\%$ ) / 15 mA
Connection	Terminals, conductor cross section max 2.5 mm <sup>2</sup> (preassembled connecting cable to M 700, length 10 m)
<b>RS 485</b> (Ex ia)	Communication with M 700 module EC 700(X) or external host computer (e.g. DCS) (see EU-Type-Examination Certificate for hazardous-area application!)
Transmission	1200 bauds / 8 data bits / 1 stop bit / parity odd
Protocol	HART Rev. 5
Connection	Terminals, conductor cross section max 2.5 mm <sup>2</sup> (preassembled connecting cable to M 700, length 10 m)
<b>DCS input (passive)</b>	
<b>Measuring / Service</b> (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 <sup>2</sup>
<b>DCS input (passive)</b>	
<b>Auto / Manual</b> (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 <sup>2</sup>

# 14 Specifications

---

## **DCS inputs (passive)**

### **Bin 1 ... 3**

(Ex ia IIC)

Switching voltage

Connection

## **DCS outputs (passive)**

### **(Program runs, Service, Measuring/Alarm)**

Maximum load

(Ex ia IIC)

Voltage drop

Connection

## **Explosion protection**

EasyClean 400X

## **EMC**

## **Lightning protection**

## **Protection against electric shock**

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 mm<sup>2</sup>

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 mm<sup>2</sup>

See "Certificates" booklet

(shipped with M700X basic device)

EN 61326

EN 61000-4-5, Installation Class 2

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	<ul style="list-style-type: none"><li>• Wall mounting</li><li>• Pipe mounting (Option)</li></ul>
Dimensions	W x H x D approx. 310 mm x 410 mm x 135 mm
<b>Ingress protection</b>	IP 65/NEMA 4X
Cable glands	6 cable glands M20 x 1.5
Weight	Approx. 8.5 kg

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



# 15 Appendix

---

## Rating plates

### Detail drawings

- Pneumatic diagram of EasyClean 400(X)
- Pneumatic diagram of media connection

### Table for selecting a cleaning agent

For enlarged printouts of the drawings, these installation instructions can be downloaded from: [www.mt.com/pro](http://www.mt.com/pro).

## Rating Plates

### EasyClean 400:

<b>METTLER TOLEDO</b>		EasyClean		
Type EC 400C	Art. No.	No.1234567		
Tamb +5 ≤ Ta ≤ +55°C		No. 12345 /1234567 / JJWW		
Made in Germany				

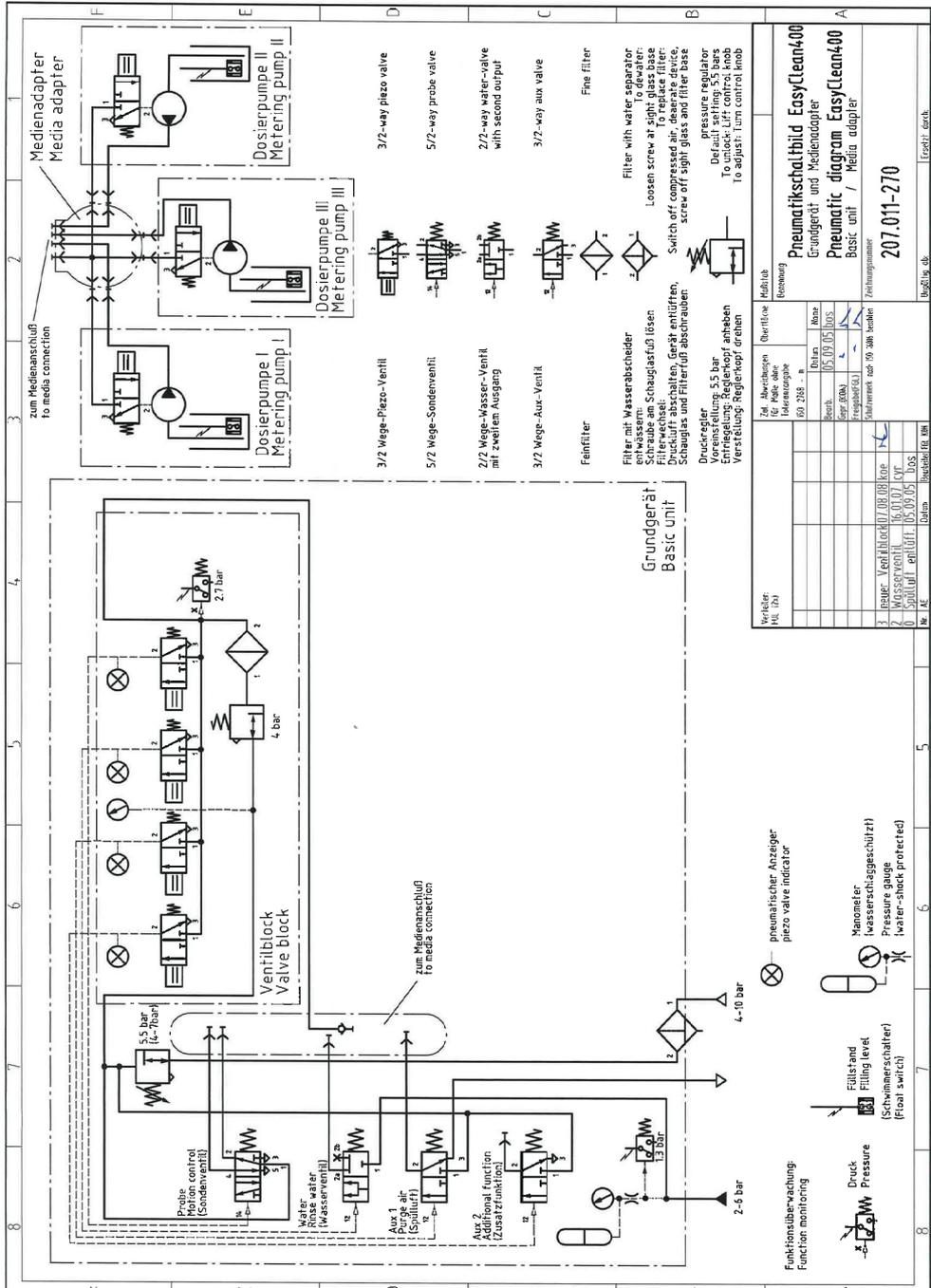
### Media Adapter:

<b>METTLER TOLEDO</b>	
Media Adapter	
Type ZU 0577	
No. 0000000	
Art.No. xx xxx xxx	
For connection to EasyClean 400 ***	
Made in Germany	

### Metering Pump:

<b>METTLER TOLEDO</b>	
Metering Pump	
Type ZU 0580	
No. 0000000	
Art.No. xx xxx xxx	
For connection to EasyClean 400 ***	
Made in Germany	

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- Druck Pressure
- pneumatischer Anzeiger piezo valve indicator
- Füllstand Filling level (Schwimmerschalter) (float switch)
- Manometer (wasserschlaggeschützt) Pressure gauge (water-shock protected)

Zahl, Abweichungen für Maße, ohne Toleranzangabe		Über/Toleranz		Kleinstmaß	
Größe	Größe	Größe	Größe	Größe	Größe
01	205	01	205	01	205
02	205	02	205	02	205
03	205	03	205	03	205
04	205	04	205	04	205
05	205	05	205	05	205
06	205	06	205	06	205
07	205	07	205	07	205
08	205	08	205	08	205
09	205	09	205	09	205
10	205	10	205	10	205
11	205	11	205	11	205
12	205	12	205	12	205
13	205	13	205	13	205
14	205	14	205	14	205
15	205	15	205	15	205
16	205	16	205	16	205
17	205	17	205	17	205
18	205	18	205	18	205
19	205	19	205	19	205
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26	205	26	205	26	205
27	205	27	205	27	205
28	205	28	205	28	205
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30	205	30	205	30	205
31	205	31	205	31	205
32	205	32	205	32	205
33	205	33	205	33	205
34	205	34	205	34	205
35	205	35	205	35	205
36	205	36	205	36	205
37	205	37	205	37	205
38	205	38	205	38	205
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40	205	40	205	40	205
41	205	41	205	41	205
42	205	42	205	42	205
43	205	43	205	43	205
44	205	44	205	44	205
45	205	45	205	45	205
46	205	46	205	46	205
47	205	47	205	47	205
48	205	48	205	48	205
49	205	49	205	49	205
50	205	50	205	50	205

**Pneumatikschaltbild EasyClean400**  
 Grundgerät und Medienadapter  
**Pneumatic diagram EasyClean400**  
 Basic unit / Media adapter

207.011-270

Druckregler  
 Voreinstellung: 5,5 bar  
 To unlock: LIFT control knob  
 to adjust: turn control knob

Filter mit Wasserabscheider  
 Lösen schraubbar  
 To dewater:  
 Loosen screw at sight glass base  
 Switch off compressed air, degrease device,  
 screw off sight glass and filter base

Druckregler  
 Voreinstellung: 5,5 bar  
 To unlock: LIFT control knob  
 to adjust: turn control knob

Feinfilter  
 Filter with water separator  
 To dewater:  
 Loosen screw at sight glass base  
 Switch off compressed air, degrease device,  
 screw off sight glass and filter base

3/2-Wege-Piezo-Ventil  
 3/2-way piezo valve

5/2-Wege-Sondenventil  
 5/2-way probe valve

2/2-Wege-Wasser-Ventil mit zweitem Ausgang  
 2/2-way water-valve with second output

3/2-Wege-Aux-Ventil  
 3/2-way aux valve

Grundgerät  
 Basic unit

3 neue Ventile 07.08.08 (neu)  
 2 Wasserventil 16.01.07 (neu)  
 0 Spaltventil 05.09.05 (alt)

Verfasser: H.L. (20)

Zahl, Abweichungen für Maße, ohne Toleranzangabe

01 205 01 205 01 205

02 205 02 205 02 205

03 205 03 205 03 205

04 205 04 205 04 205

05 205 05 205 05 205

06 205 06 205 06 205

07 205 07 205 07 205

08 205 08 205 08 205

09 205 09 205 09 205

10 205 10 205 10 205

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46 205 46 205 46 205

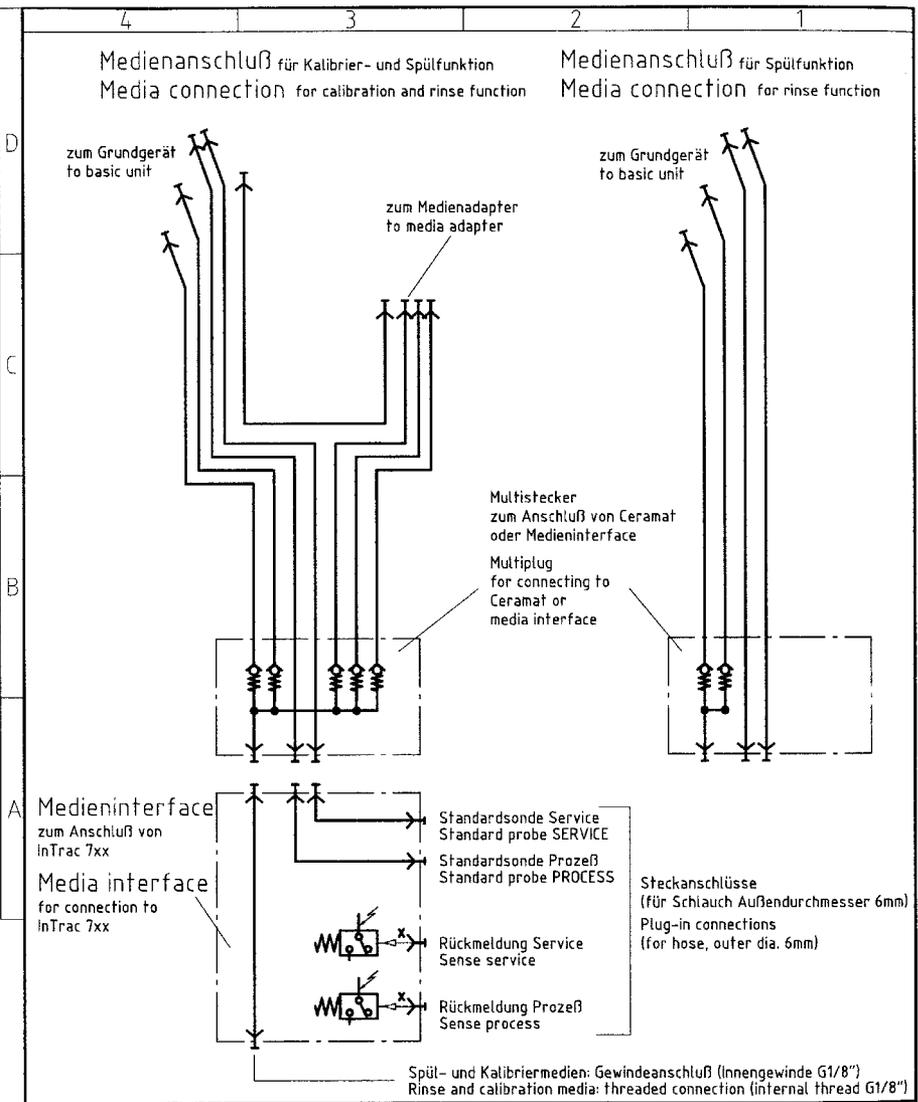
47 205 47 205 47 205

48 205 48 205 48 205

49 205 49 205 49 205

50 205 50 205 50 205

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Verteiler: FUL (2x)	Zul. Abweichungen für Maße ohne Toleranzangabe ISO 2768 - m	Oberfläche		Maßstab	Benennung
		Datum	Name		
		Bearb.	05.09.05	bos	<b>Pneumatikschaltbild EasyClean400</b> Medienanschluß und Medieninterface <b>Pneumatic diagram EasyClean400</b> Media connection / Media interface
		Gepr. (KON)			
		Freigabe(FGL)			
		Schutzvermerk nach DIN 34 beachten			Zeichnungsnummer
		<b>Knick</b> >			207.011-280
Nr. AE	Datum	Bearbeiter	FGL KON	Elektronische Messgeräte GmbH & Co. KG	Ungültig ab:
					Ersetzt durch:

Weitergabe sowie Vervielfältigung dieses Unterlagen, Verwendung und Mitführung dieses Inhalts nicht gestattet, soweit nicht ausdrücklich angegeben.

## Selected Cleaning Agents for EC 400 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.

Cleaning agent	Chemical formula	Concentration	Application	Possible accessories (gasket material)	
				FKM	EPDM
<b>Dilute acids:</b>			eg, against limy deposits		
Hydrochloric acid	HCl	max. 5 %		+ <sup>1)</sup>	+ <sup>1)</sup>
Sulfamic acid	H <sub>3</sub> NO <sub>3</sub> S		Food industry	+	+
Acetic acid	CH <sub>3</sub> COOH				+
Nitric acid	HNO <sub>3</sub>	max. 5 %		+	+

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

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

# 16 Index

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## A

- Accessories 13, 14
- Air connection 17
- Air consumption during probe activation 28
- Air filter 18
- Air purge valve, connecting the tube 34
- Ambient conditions 63
- Appendix 65
- Application in hazardous locations 10
- Arrangement of components 16
- Arrangement of functional elements 29
- Assembling the media adapter 20
- Assembly 16
- Attaching the media connection 32
- Aux 1, connecting the tube 34
- Aux 1, figure 30
- Aux 2, applications 35
- Aux 2, connecting the tube 35
- Aux 2, figure 30
- Aux 2, order no. 14

## B

- Bill of material for media adapter 25
- Bill of material for media connection 27
- Bill of material for metering pump 25

## C

- Cable connection 42
- Cable glands 17
- Cable lengths 16
- Checklist for installation 15
- Check valve of multiplug, material 27
- Cleaning agents, selection 68
- Commissioning of hardware 55
- Compressed air, specifications 59
- Compressed air supply, connection 28
- Compressed-air supply to media adapter 32, 33
- Connecting the cables 42

# 16 Index

---

Control programs of EasyClean 400(X) 51

Control via process control system 48

## D

Drinking water pipes 28

Drinking water protection 9

## E

EasyClean 400 configurator 13

Electrical connections to EasyClean 400(X) 43

Electrical installation 42

Electrostatic charging 54

Electrostatic charging, installation precautions 11

Emergency stop 44

Energy supply 10

Equipotential bonding terminal ("PA") 17

Ex connection to DCS 50

External valve, Aux 2, connection 35

External valve, Aux 2, order no. 14

## F

Frost protection 8

## I

Installation, checklist 15

Intended use 8

Interface for InTrac (Ex), order no. 14

InTrac 798e, connection 41

## L

Level monitoring of pump 24

Lifting height of pumps 16

## M

M 700 parameter setting 56

Maintenance 52

Manual control 53

Materials, media adapter and metering pumps 25

# 16 Index

---

- Materials, media connection 27
- Measurement procedures 7
- Media adapter, bill of material 25
- Media adapter, connecting the media connection hose 23
- Media adapter, connecting the metering pumps 22
- Media adapter (Ex), order no. 14
- Media adapter, mounting 20
- Media connection, bill of material 27
- Media connection, description 26
- Media connection, order no. 14
- Media connection to media adapter, connection 21, 23
- Metering pump, bill of material 25
- Metering pump, connection for media and control signals 23
- Metering pump, connection to media adapter 22
- Metering pump, description 24
- Monitoring functions 7
- Multiplug 26
- O**
- Operating pressure (adjustable via pressure regulator) 28
- Order information 12
- Overview 5
- P**
- Package contents 12
- Pilot valves 30, 31
- Pipe mounting 18, 19
- Pipe-mount kit, order no. 14
- Pneumatic connection, plugging/detaching 32
- Pneumatic diagram of EasyClean 66
- Pneumatic diagram of media connection 67
- Port for metering pump 22
- Power supply 10
- Pressure gauges 31
- Pressure indicators 31
- Probe control valve 34
- Pump, description 24
- Pump (Ex), order no. 14

# 16 Index

---

Purge air, connection 34

## **R**

Rating plates 65

Retractable housing, control valve 34

Retrofit parts 14

Return of products under warranty 2

Rinsing chamber, connection 41

## **S**

Safety information 10

Service 52

SERVICE position 52

Service program, description 51

Service program, request and end 52

Short description 5

Spare parts 14

Specifications EasyClean 400(X) 59

Standard media interface 12, 37

“Start program 2” pushbutton 44

Start-up, checklist 55

Start-up on the M 700 56

Start-up program 58

## **T**

Table of contents 3

Technical data EasyClean 400(X) 59

Terminal assignments EasyClean 400(X) 45

Trademarks 2

Tube connections 33

Tube, green 34

Tube, red 33

Tube, transparent 33

## **W**

Wall mounting 17

Water connection, internal 32, 33

Water pressure 28

Water supply, connection 28





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