



Dosing unit

EMIDos

Installation and Operation Instructions

Original instructions





Bühler Technologies GmbH, Harkortstr. 29, D-40880 Ratingen
Tel. +49 (0) 21 02 / 49 89-0, Fax: +49 (0) 21 02 / 49 89-20
Internet: www.buehler-technologies.com
E-Mail: analyse@buehler-technologies.com

Read this instruction carefully prior to installation and/or use. Pay attention particularly to all advises and safety instructions to prevent injuries. Bühler Technologies can not be held responsible for misusing the product or unreliable function due to unauthorised modifications.

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Document information

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1 Introduction

1.1 Intended use

This device is intended for use in industrial gas analysis systems. It is a component for conditioning the sample gas. To reduce the loss of highly water soluble gas components (e.g. SO₂) in sample gas coolers. The device is used to dose phosphoric acid in the gas path of gas analysis systems.

Please note the specifications in the data sheet on the specific intended use, existing material combinations, as well as pressure and temperature limits.

1.2 Scope of delivery

- Stainless steel container bracket for acid container with fastening strap,
- Acid container
- Modified container cover,
- Acid dosing pump with dosing line and connection adapter
- Acid connection kits,
- Capacitive sensor for level monitoring (optional),
- Collection pan (optional),
- Product documentation

1.3 Ordering Instructions

The item number is a code for the configuration of your unit. Please use the following model key:

45003	1	1	X	0	0	Product Characteristics
						Voltage
	1					115 - 230 VAC
						Dosing pump
		1				CPsingle 13 ml/h
						Liquid level monitoring
			0	0	0	without liquid level sensor
			1	0	0	with liquid level sensor

2 Safety instructions

2.1 Important advice

Operation of the device is only permitted if:

- the product is used under the conditions described in the installation- and operation instruction, the intended application according to the type plate and the intended use. In case of unauthorized modifications done by the user Bühler Technologies GmbH can not be held responsible for any damage,
- when complying with the specifications and markings on the nameplates.
- the performance limits given in the datasheets and in the installation- and operation instruction are obeyed,
- monitoring devices and safety devices are installed properly,
- service and repair is carried out by Bühler Technologies GmbH,
- only original spare parts are used.

This manual is part of the equipment. The manufacturer keeps the right to modify specifications without advanced notice. Keep this manual for later use.

Signal words for warnings

DANGER	Signal word for an imminent danger with high risk, resulting in severe injuries or death if not avoided.
WARNING	Signal word for a hazardous situation with medium risk, possibly resulting in severe injuries or death if not avoided.
CAUTION	Signal word for a hazardous situation with low risk, resulting in damaged to the device or the property or minor or medium injuries if not avoided.
NOTICE	Signal word for important information to the product.

Warning signs

These instructions use the following warning signs:

	Warns of a general hazard		General information
	Warns of voltage		Unplug from mains
	Warns not to inhale toxic gasses		Wear respiratory equipment
	Warns of corrosive liquids		Wear a safety mask
	Warns of explosive areas		Wear gloves

2.2 General hazard warnings

The equipment must be installed by a professional familiar with the safety requirements and risks.

Be sure to observe the safety regulations and generally applicable rules of technology relevant for the installation site. Prevent malfunctions and avoid personal injuries and property damage.

The operator of the system must ensure:

- Safety notices and operating instructions are available and observed,
- The respective national accident prevention regulations are observed,
- The permissible data and operational conditions are maintained,
- Safety guards are used and mandatory maintenance is performed,
- Legal regulations are observed during disposal,
- compliance with national installation regulations.
- The current and voltage supply for the aggregate has a (mains) separator with adequate switching capacity. National requirements must be observed.

Maintenance, Repair

Please note during maintenance and repairs:

- Repairs to the unit must be performed by Bühler authorised personnel.
- Only perform conversion-, maintenance or installation work described in these operating and installation instructions.
- Always use genuine spare parts.
- Do not install damaged or defective spare part. If necessary, visually inspect prior to installation to determine any obvious damage to the spare parts.

Always observe the applicable safety and operating regulations in the respective country of use when performing any type of maintenance.

DANGER



Potentially explosive atmosphere

Explosion hazard if used in hazardous areas.
The device is not suitable for operation in hazardous areas with potentially explosive atmospheres.
Do not expose the device to combustible or explosive gas mixtures.

DANGER



Electric voltage

Risk of electric shock

- a) Disconnect the device from the mains before performing maintenance and repairs.
- b) Secure the device from accidental restarting.
- c) The unit may only be opened by trained, competent personnel.
- d) Ensure the correct voltages supply.



DANGER



Toxic, corrosive phosphoric acid

Medium can be harmful.

- a) If necessary, ensure the medium is discharged safely.
- b) Always switch off the dosing pump to stop the medium flow before performing maintenance and repairs.
- c) Use protection when handling toxic/acidic mediums. Wear suitable protective equipment.
- d) Observe the safety notices in the safety data sheets of the acid manufacturers.
- e) Observe the relevant regulations on handling corrosive or toxic mediums.



3 Transport and storage

Only transport the product inside the original packaging or a suitable alternative.

The equipment must be protected from moisture and heat when not in use. It must be stored in a covered, dry, dust-free room at room temperature.

The container may only be transported or stored with the original cover tightly sealed.

4 Installation and connection

4.1 Installation site requirements

This device is solely intended for use in enclosed areas. Ensure accessibility during operation and maintenance.

Mount the container bracket so there is sufficient room for a collection pan below the dosing unit. This collection pan must be made from acid-resistant material and hold at least 10 L of liquid (please note the attached safety data sheet regarding storage). The operator must determine the need for a collection pan for discharged media as part of the risk assessment. We recommend using the collection pan offered by Bühler Technologies. Leave some room above the dosing unit for the dosing line.

The recommended temperature at the installation site should be 10 °C to 35 °C (50 °F to 95 °F). The acid container must be protected from heat and direct sunlight. We recommend a climate-controlled room to ensure the specified conditions are met.

When using in an enclosed cabinet, ensure adequate ventilation. The entire device must be protected from mechanical effects.

DANGER**Use in explosive areas**

The equipment is **not** suitable for use in explosive areas.

4.2 Installation

Please note, only the included installation materials may be used. Check all parts for visible damage prior to installation.

Required tools:

- Cross-tip screwdriver
- SW 24 spanner (hex nuts for capacitive sensors)
- SW 14 spanner (hex nut (PVDF) for modified canister cover)
- SW 7 spanner (all hex nuts DIN 934 M4)

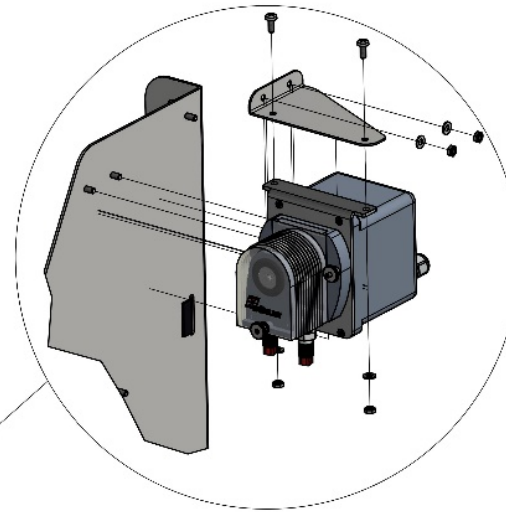
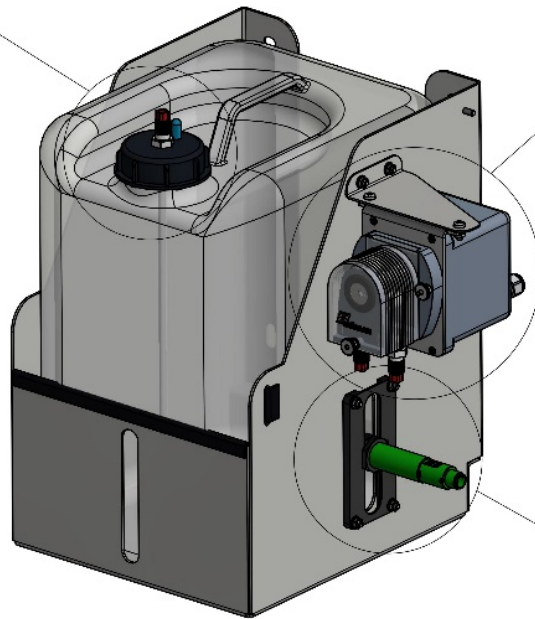
List of installation materials:

- Cross-tip fillister head screw DIN 7985 M4x10
- Hex nut DIN 934 M4
- Washer DIN 125 A4,3
- Lock washer M4 WS 9350

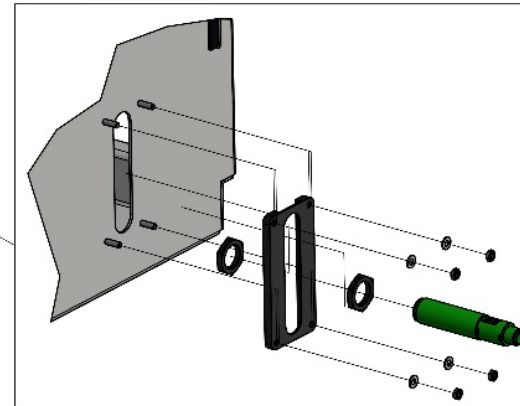
The installation materials are again detailed in the individual assembly steps.

4.2.1 Meter Exploded Drawing

Detail canister cover
Components required:
• Package 3



Detail metering pump
Components required:
• Metering pump
• Package 1
• Package 2
• Package 4
• Package 6



Sensor detail
Components required:
• Package 7

4.3 Container Bracket Installation



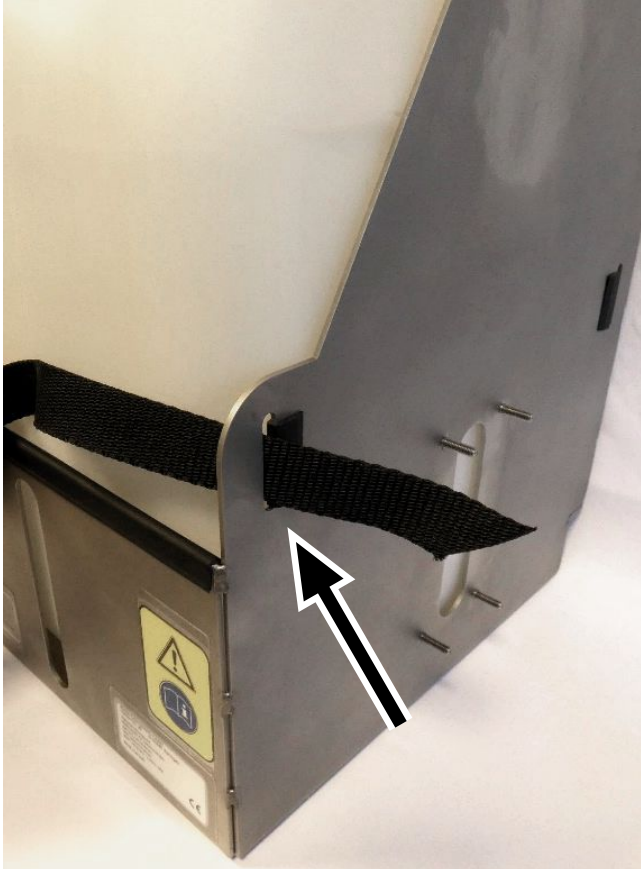
Secure the container bracket to the designated mounting holes. Be sure to use the correct size fasteners.

4.4 Installing the Container



Place the container in the container bracket. Please note the location of the cover (see figure/to the front). Always use the included, sealed original cover when changing, installing and disposing of the container (see figure).

4.5 Installing the Fastening Strap



Feed the included fastening strap through the front slot from the inside to the outside.

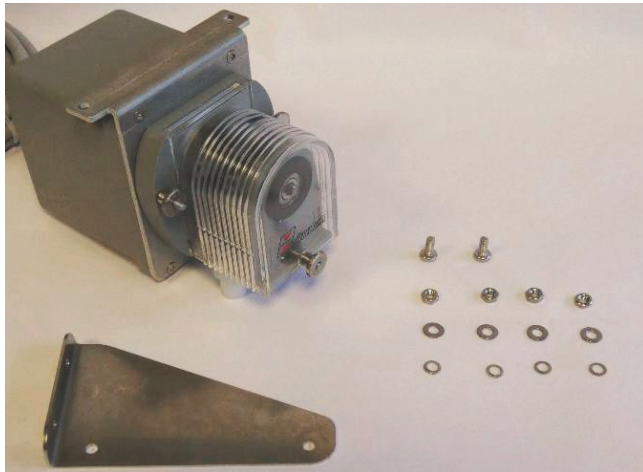


Feed the fastening strap through the back slot from the outside to the inside.



Then feed the fastening strap around the container and lash around the front of the container in the opposite direction (see figures).

4.6 Metering Pump Pre-Assembly

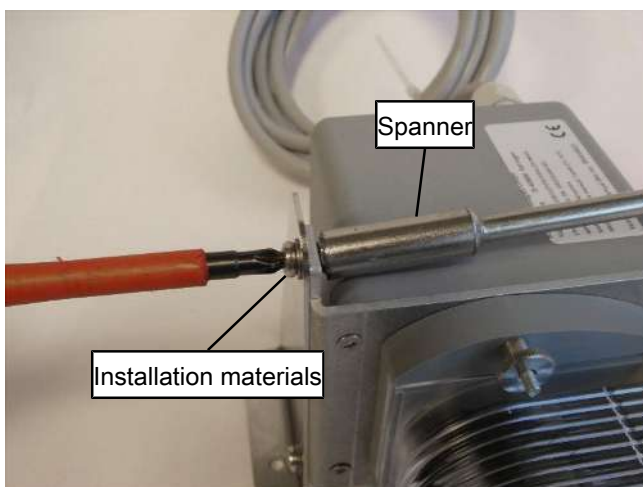


Please remove the following components included in delivery:

- Acid dosing pump
- Resealable bag labelled package 6

Package 6: Pump bracket (1x), nut M4 (4x), gasket (4x), lock washer (4x), screws M4x10 (2x)

Then start the individual assembly steps.



Mount the pump to the pump bracket before securing it to the container bracket. This will make the pump easier to install.

To do so, mount the pump to the pump bracket using the designated fastening points. Use the installation materials from the resealable bag (package 6: nut M4 (4x), gasket (4x), lock washer (4x), screws M4x10 (2x)).

Secure the installation material with a torque of 2.9 Nm.

4.7 Mounting the Metering Pump to the Housing



Attach the pump bracket to the designated threaded bolt on the container bracket. Again use the included installation materials in the resealable bag (package 6).

Secure the installation materials with a torque of 2.9 Nm.

4.8 Installing the Metering Tube (Connecting Metering Pump and Container)

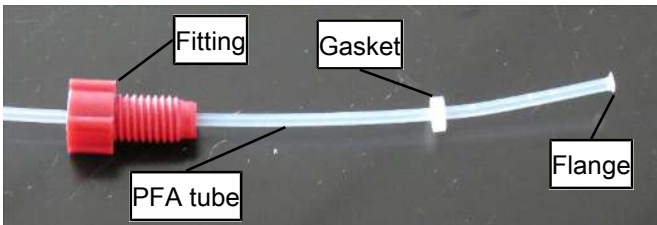
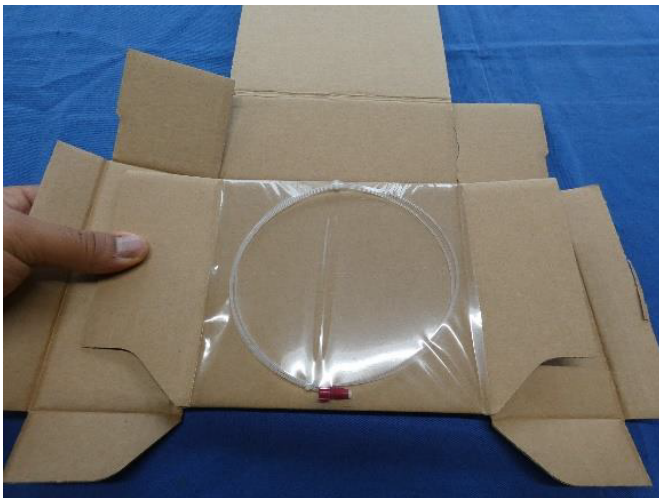


Please remove the following components included in delivery:

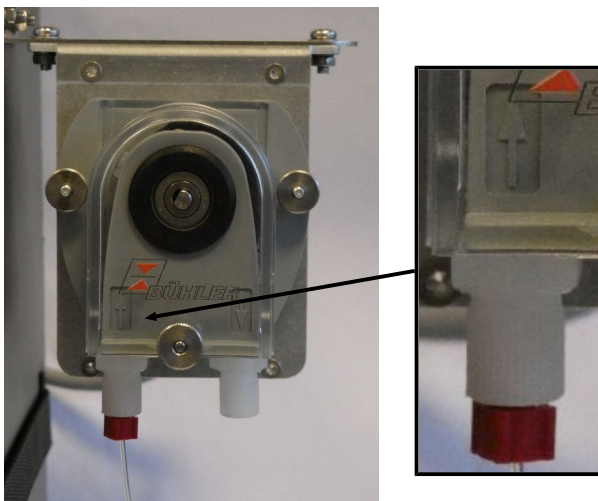
- Carton labelled package 1

Package 1: PFA tube 1.6 mm (1 m), fitting (1x), gasket (1x)

Then start the individual assembly steps.



Remove the PFA tube from the resealable bag (package 1) and attach the gasket and fitting.



Now insert the fitting with the thrust ring and flange in the connection on the dosing pump (see figure/connection with arrow up). Secure the fitting by tightening the screwed connection all the way.

4.9 Installing the Canister Cover with Connection Kit



First remove the original cover from the container and keep for disassembly, transport and disposal purposes.



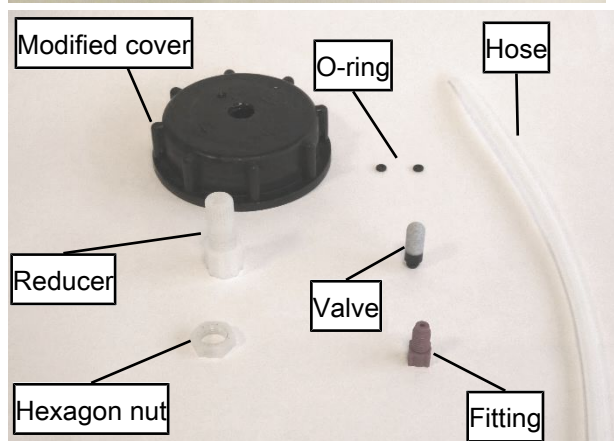
Please remove the following components included in delivery:

- Resealable bag labelled package 3
- Resealable bag labelled package 3.1 (in package 3)

Package 3: Modified cover (1x), components for modified canister cover P3.1 (1x) PTFE tube (0.25 m)

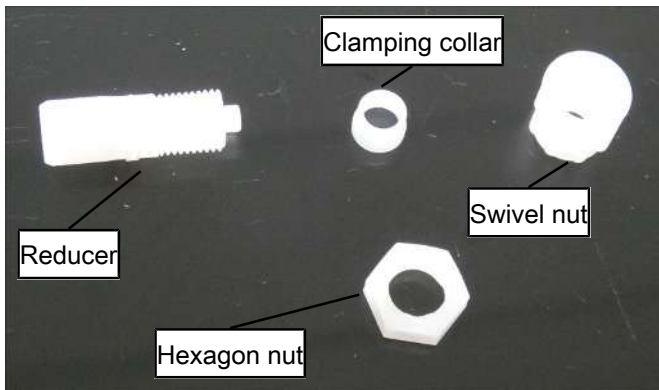
Package 3.1: Fitting (1x), O-ring (2x), valve (1x), reducer DN 4/6 – 1.6 mm (1x), hex nut PVDF M10 (1x)

Then start the individual assembly steps.





Screw the bleeder valve (package 3.1) into the designated threaded hole in the modified cover (package 3).

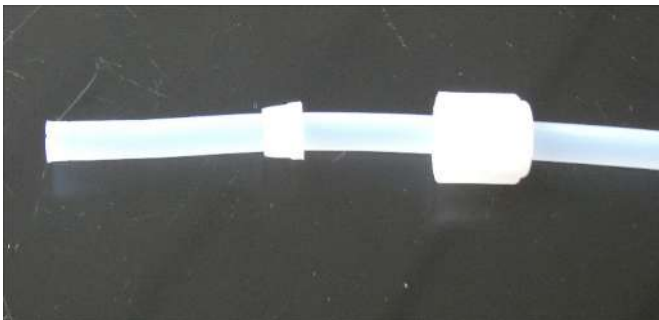


First unscrew the swivel nut and the clamping collar from the reducer (package 3.1) (see figure).

Then screw the hex nut (package 3.1) onto the external thread of the reducer.



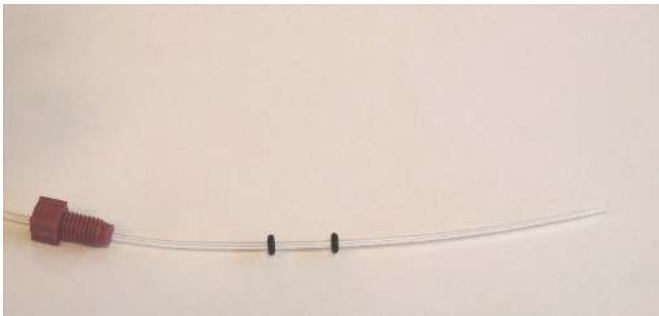
Then insert the reducer with the hex nut in the designated hole on the modified cover.



Then first attach the swivel nut and the clamping collar of the reducer to the PTFE guide tube (package 3) (see figure).

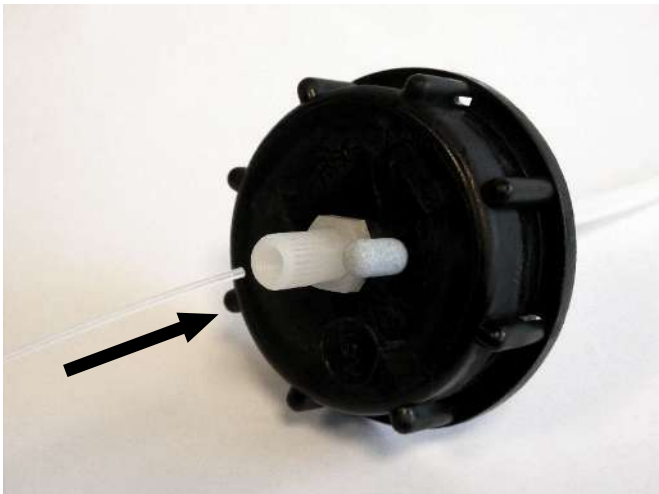
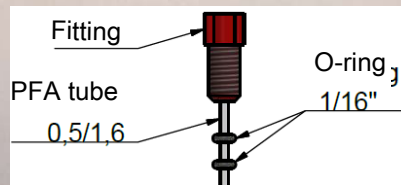


Now attach the PFE tube to the hose nipple of the reducer and tighten the swivel nut to secure the reducer.

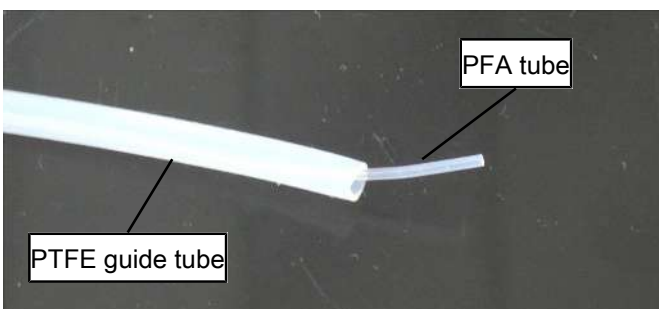


Attach the fitting and the two O-rings (package 3.1) a bit onto the PFA tube (tube from dosing pump inlet).

Attach the components far enough onto the tube so they will not fall off when lifted (see figure).



Now insert the open tube end in the reducer opening.

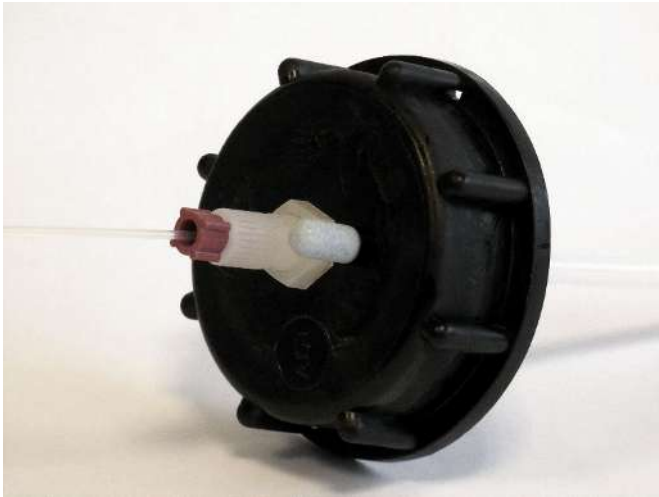


Feed the PFA tube through the PTFE tube and allow to protrude approx. 1-2 cm.

Avoid kinking the PTFE guide tube and keep both as straight as possible.

Screw the fitting with the two O-rings into the thread on the reducer.

Now add your phosphoric acid mixture to the container.

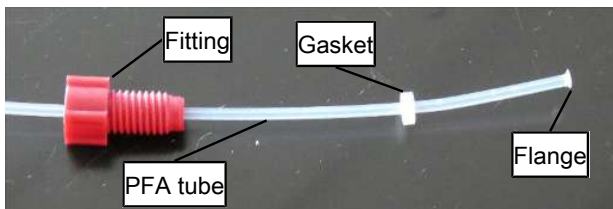


Now insert the modified cover with PTFE tube in the canister opening and secure. Be sure the tubes are as straight as possible in the container. This ensures the container can be emptied the best.

This concludes the base unit assembly.



4.10 Connecting the Dosing Line to the Metering Pump



Please remove the following components included in delivery:

- Carton labelled package 2

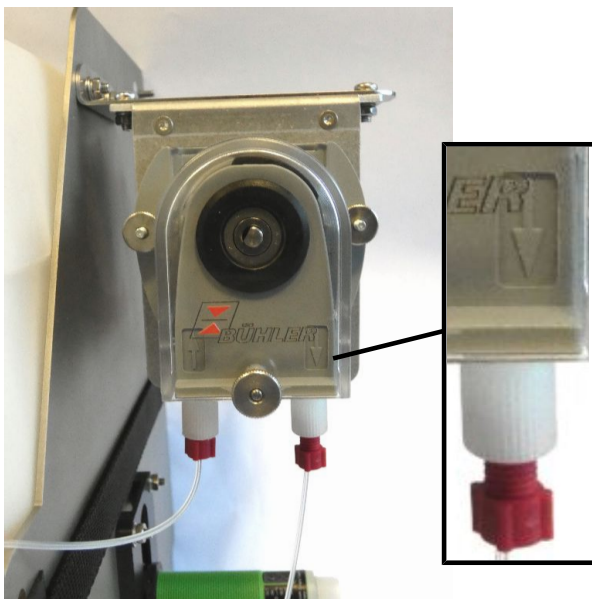
Package 2: PFA tube 1.6 mm (3 m), fitting (1x), thrust ring (1x)

The PFA tube length can be trimmed as necessary.

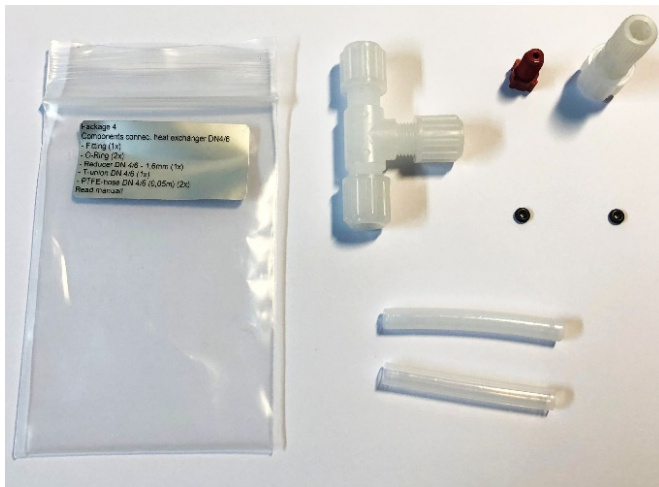
Then start the individual assembly steps.

Remove the PFA tube (3 m) from the resealable bag (package 2) and attach the gasket and fitting.

Now insert the fitting with the thrust ring and flange in the connection of the dosing pump (see figure/connection with arrow down). Secure the fitting by screwing it into the screed connection.



4.11 Connecting the Metering Pump and Type 1 Heat Exchanger with DN 4/6 Gas Inlet



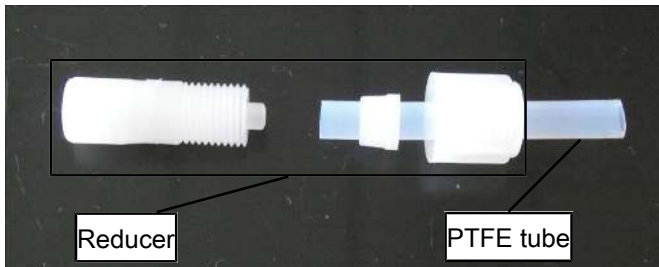
Please remove the following components included in delivery:

- Resealable bag labelled package 4
- Resealable bag labelled package 4.1 (in package 4)

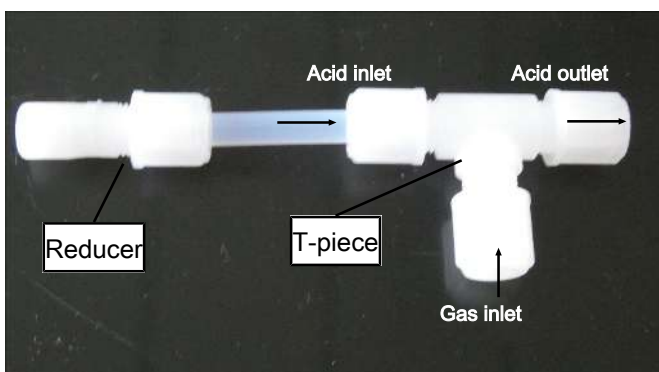
Package 4: Fitting (1x), O-ring (2x), reducer DN 4/6 – 1.6 mm (1x), T-adapter DN 4/6 (1x), PTFE tube DN 4/6 (0.05 m) (2x)

Please note, on the optional US version the resealable bag is labelled package 5! The connections are then 1/6"-1/4" instead of DN 4/6!

Then start the individual assembly steps.



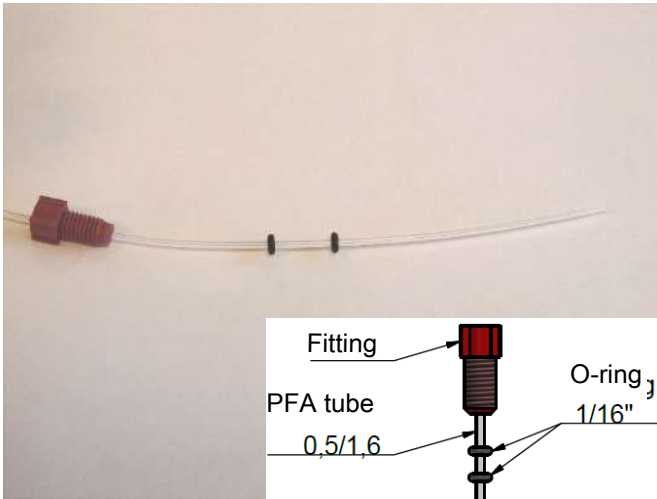
Connect the first PTFE tube (package 4) to the hose nipple DN 4/6 of the reducer (package 4).



Then connect the first PTFE tube to the T-piece DN 4/6 (package 4).

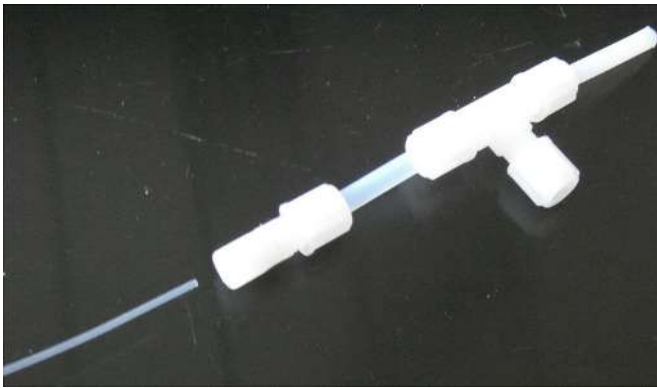


Next, connect the second PTFE tube DN 4/6 (package 4) to the T-piece DN 4/6.

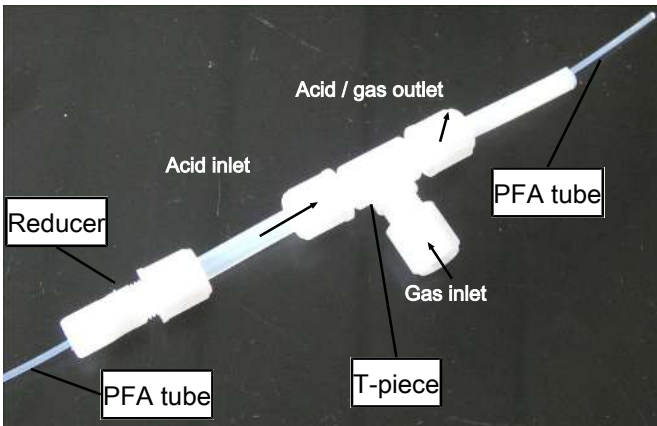


Now first attach the fitting, then the two O-rings (package 4) over the open end of the tube coming from the dosing pump outlet.

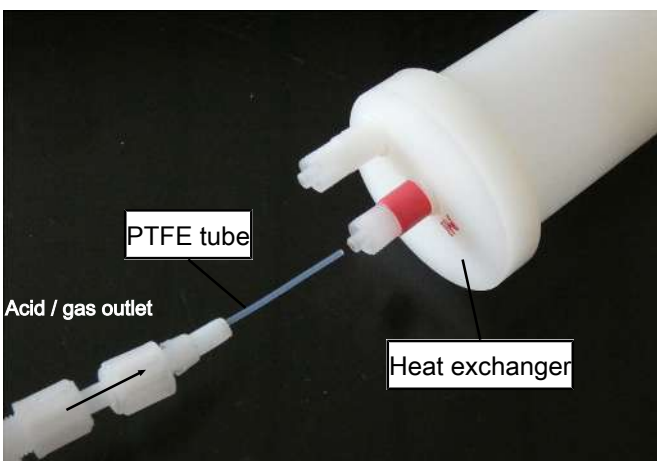
Attach the components far enough onto the tube so they will not fall off when lifted (see figure).



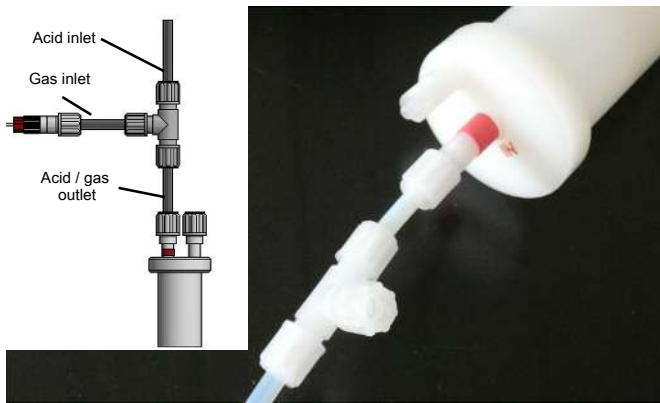
Now insert the open tube end in the reducer opening.



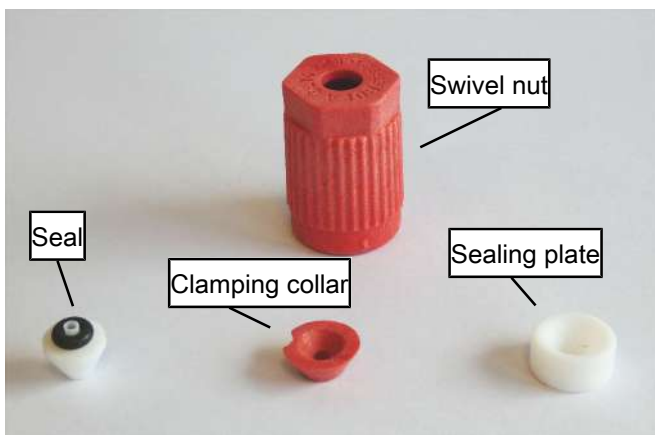
Feed the open end of the tube straight through the T-piece. The protruding tube length may vary by heat exchanger. Now screw the fitting with O-rings into the thread on the reducer. Be sure not to insert the tube further when screwing in the tube.



Now connect the PTFE tube DN 4/6 to the DN 4/6 gas inlet of the respective heat exchanger. The open connection of the T-piece DN 4/6 now serves as a new DN 4/6 gas inlet for the heat exchanger.



4.12 Connecting the Metering Pump and Heat Exchanger of the PC1 Precooler (Optional)



The following parts are sold separately and not included:

- Laboratory fitting for connecting to the PC1 precooler (GL 14)

Then start the individual assembly steps.



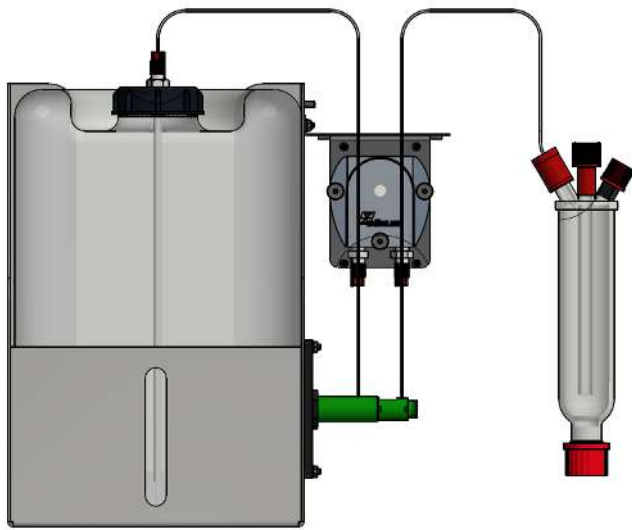
Attach the parts over the open end of the tube coming from the outlet of the dosing pump as shown.



Now insert the open end of the tube into the connection on the PC1 heat exchanger. When doing so, insert the open end of the tube into the glass beads of the heat exchanger.



Now secure the laboratory fitting to the acid dosing inlet of the PC1 heat exchanger.



Overview of the dosing unit connections to PC 1 pre-cooler

4.13 Installing the Liquid Level Sensor (Optional)



Please remove the following components included in delivery:

– Resealable bag labelled package 7

Package 7: Sensor bracket (1x), sensor (1x), nut M4 (4x), gasket (4x), lock washer M4 (4x)

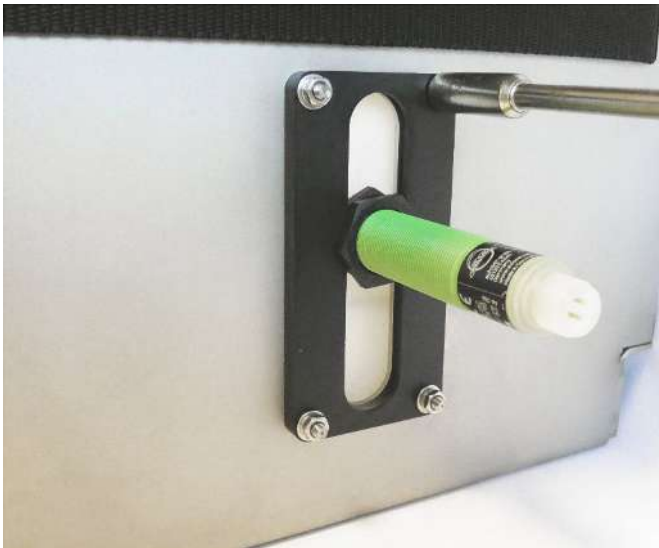
Then start the individual assembly steps.



Attach a nut (package 7) to the capacitive sensor (package 7) (see figure).



Now feed the sensor through the sensor bracket (package 7). When doing so, position the first nut on the smooth end of the sensor bracket (without groove). Now attach the second nut to the sensor end with the groove and insert it in the groove (see figure).



Now position the sensor bracket with sensor on the designated four set screws on the container bracket and secure. Use the installation materials from package 7.



If necessary, adjust the height of the sensor by loosening the external hex nut. The sensor depth can be adjusted by screwing the sensor in or out. Tighten the external hex nut to secure the selected position. Please note the necessary empty calibration of the sensor in chapter "Operation and control".

4.14 Electrical connections

The operator must install an external separator for the device which is clearly assigned to this device.

This separator

- must be located near the device,
- must be easy for the operator to reach,
- must comply with IEC 60947-1 and IEC 60947-3,
- must separate all live conductors and the status output, and
- must not be attached to the power feed.

An additional, or integrated in the separator, overcurrent device is required. All feeders except the ELCB must have overcurrent devices, e.g. circuit breakers or fuses. This should be next to each other, have the same rating, and not be integrated in the neutral wire of multi-phase equipment.

WARNING

Hazardous electrical voltage



The device must be installed by trained staff only.

CAUTION

Wrong mains voltage



Wrong mains voltage may damage the device. Regard the correct mains voltage as given on the type plate.

CAUTION

Equipment damage



Cables damaged
Do not damage the cable during installation. Install a strain relief for the cable connection. Secure the cable against twisting and loosening. Please note the temperature resistance of the cables (> 100 °C/212 °F).

We recommend equipping the power and voltage supply with ELCB.


The ELCB (tripping current 30 mA) must shut off the load within the prescribed period (200 ms at 115 VAC, 40 ms at 230 VAC). It must be suitable for the maximum load.

4.14.1 Connecting the Metering Pump

Make sure that mains voltage and frequency meet the specifications of the motor (voltage tolerance $\pm 5\%$ and frequency tolerance $\pm 2\%$.)

Peristaltic pumps of housing version type SA-AC (230/115 V) are delivered as standard with a 2 m connecting cable.

The fixed connection cable for the housing version has three numbered braids and one PE connection.

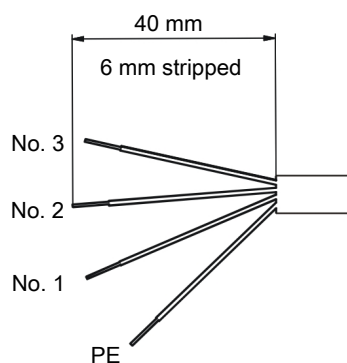
 The protective earth has to be connected to the green/yellow of the connection cable.

Select mains and protection earth cross section according to the rated current.

For the electrical connections especially for the protective conductor use a cable cross-section from minimum $0,5\text{ mm}^2$.

Obey differing specifications on the type plate. The conditions at the installation site must meet all specifications on the type plate.

When connecting to a 115 V or 230 V supply, connect the following braids:

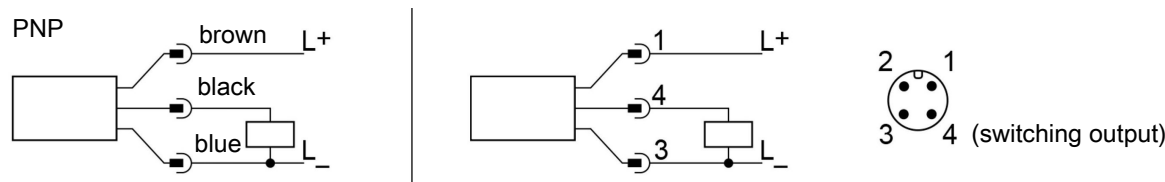


Power supply	Connection		Remark
115 V	Braid 2; 3 and PE	DANGER	Braid 1 is live and must be professionally insulated!
230 V	Braids 1; 3 and PE	DANGER	Braid 2 is live and must be professionally insulated!

4.14.2 Connecting the Capacitive Sensor

The capacitive sensor is supplied with a voltage of 10 to 36 VDC.

Pin assignment:



Electric lock/unlock

The capacitive sensor can be locked to prevent accidentally changing the switching points. To do so, after setting the switching points, simultaneously hold both buttons for 10 seconds until an LED signal is emitted briefly. Repeat this process to unlock. To set the switching points, see chapter [Operation and control](#) [> page 24].

The capacitive sensor is equipped with IO-Link communication interface. The IO-Link necessary to configure the sensor is available at www.autosen.com.

5 Operation and control

NOTICE



The device must not be operated beyond its specifications.

Check the entire gas system for leaks before switching on.

Dosing pump:

The dosing pump does not have a separate switch and starts immediately when the supply voltage is switched on.

The device has a constant flow rate of 13 ml/h. Due to the low flow rate a feed time, which varies by dosing line length (the path from the acid container to the heat exchanger), is required. The feed time is 5 min/m.

Capacitive sensor:

The operating voltage of the capacitive sensor is 10 to 36 V. The capacitive sensor is controlled with two buttons. The sensor must be calibrated on first use. Proceed as follows:

Empty calibration (always required)

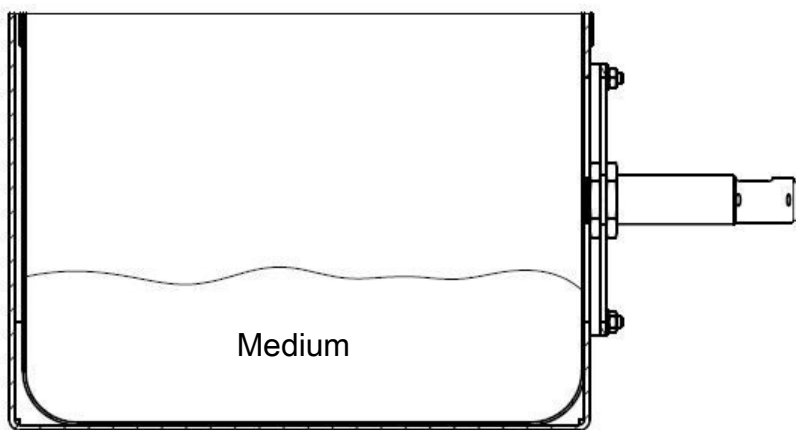
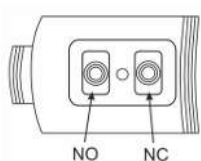


Fig. 1: Schematics of the liquid level for empty calibration

The liquid level must be below the sensor for calibration.

Press the switch on the capacitive sensor as follows:



Hold the desired button for 2 to 6 seconds.

The LED will flash slowly whilst holding the button. Once released, the LED will extinguish.

NO = normally open contact/NC = normally closed contact (when liquid level drops)

The device hides the installation environment and restarts. Prior calibrations will be erased.

6 Maintenance

- **Acid level:** The capacity (10 L) of the full acid container will suffice to operate the dosing unit for approx. 30 days. The container must then be refilled. Replace as described in chapter [Filling the Acid Container](#) [> page 27].
- **Dosing pump:** The tube inside the pumps is a wear item and must regularly be checked for leaks. Replace as described in chapter [Replacing the Metering Pump Tube](#) [> page 27].
- **Capacitive sensor:** Checking the sensor functionality. Please keep the active surface or head spaces of the sensor clean. Clean any dirt, deposits or foreign objects as necessary. Recalibration is required after uninstalling the sensor, see chapter [Operation and control](#) [> page 24].
- **Dosing connection system:** Check for visible damage. Visually inspect for damage to the tube collar of the connecting tube (1.6 mm) of the peristaltic pump.

During maintenance, remember:

- The equipment must be maintained by a professional familiar with the safety requirements and risks.
- Only perform maintenance work described in these operating and installation instructions.
- Observe the respective safety regulations and operating specifications when performing any type of maintenance.
- Always use genuine spare parts.
- Disconnect all pins of the device from the mains and secure against restarting before working on it.

DANGER

Toxic, corrosive medium

Medium can be harmful.



- If necessary, ensure the medium is discharged safely.
- Always switch off the dosing pump to stop the medium flow before performing maintenance and repairs.
- Use protection when handling toxic/acidic mediums. Wear suitable protective equipment.
- Observe the safety notices in the safety data sheets of the acid manufacturers.
- Observe the relevant regulations on handling corrosive or toxic mediums.



DANGER

Electric voltage

Risk of electric shock



- Disconnect the device from the mains before performing maintenance and repairs.
- Secure the device from accidental restarting.
- The unit may only be opened by trained, competent personnel.
- Ensure the correct voltages supply.



6.1 Service schedule

The service schedule is only a guide for the required service intervals and work. The owner is responsible for defining the service intervals considering the application conditions.

NOTICE

Leaks when using toxic, corrosive mediums



When using corrosive mediums, regularly visually inspect the device for damage. The intervals vary by the gases used, their concentration and their corrosiveness.

Further observe the official or company regulations for your application and the failure and service messages output by the unit.

Service	Service interval
Visual inspection	1 – 2 days
Check gas paths for leaks, check built-in dosing pump	Determined by the owner, at least every 6 months
Check dosing pump tube for leaks	30 days
Check tube is clear	30 days

7 Service and repair

This chapter contains information on troubleshooting and correction should an error occur during operation.

Repairs to the unit must be performed by Bühler authorised personnel.

Please contact our Service Department with any questions:

Tel.: +49-(0)2102-498955 or your agent

For further information about our services and customised maintenance visit <http://www.buehler-technologies.com/service>.

If the equipment is not functioning properly after correcting any malfunctions and switching on the power, it must be inspected by the manufacturer. Please send the equipment inside suitable packaging to:

Bühler Technologies GmbH

- Reparatur/Service -

Harkortstraße 29

40880 Ratingen

Germany

Please also attach the completed and signed RMA decontamination statement to the packaging. We will otherwise be unable to process your repair order.

You will find the form in the appendix of these instructions, or simply request it by e-mail:

service@buehler-technologies.com.

7.1 Troubleshooting

Problem / Malfunction	Possible cause	Action
Capacitive sensor not responding	– Power supply disconnected	– Connect to power
	– Acid container outside the sensor range	– Optimise the distance between container and sensor
	– M12 cable transmission error	– Replace M12 cable
Dosing pump doesn't start	– Mains power disconnected	– Connect to mains
No acid flowing	– Acid feed time not observed	– Observe the acid feed time
	– Dosing tube damaged (flange damaged)	– Replace dosing tube
	– Dosing tube clogged	– Replace tube
	– PTFE connection of the dosing pump clogged	– Replace PTFE connection
Dosing pump leaking	– Flange of dosing tubes damaged	– Replace tube
	– Hose inside dosing pump damaged	– Replace tube
		– To replace, also see chapter Installing the Metering Tube (Connecting Metering Pump and Container) [> page 11] & Connecting the Dosing Line to the Metering Pump [> page 16]

7.2 Safety instructions

- The device must be operated within its specifications.
- All repairs must be carried out by Bühler authorised personnel only.
- Only perform modifications, servicing or mounting described in this manual.
- Only use original spare parts.
- In the case of potential hazards due to leaks in the acid container and the dosing line, a collection device must be installed.
- Use suitable protective equipment when filling the acid container.
- Take precautions to prevent the corrosive acid when filling the acid container.
- Ensure the parts in contact with mediums are resistant.

DANGER**Electrical voltage**

Electrocution hazard.

- Disconnect the device from power supply.
- Make sure that the equipment cannot be reconnected to mains unintentionally.
- The device must be opened by trained staff only.
- Regard correct mains voltage.

**DANGER****Toxic, corrosive phosphoric acid**

Medium can be harmful.

- If necessary, ensure the medium is discharged safely.
- Always switch off the dosing pump to stop the medium flow before performing maintenance and repairs.
- Use protection when handling toxic/acidic mediums. Wear suitable protective equipment.
- Observe the safety notices in the safety data sheets of the acid manufacturers.
- Observe the relevant regulations on handling corrosive or toxic mediums.



7.3 Replacing the Metering Pump Tube

- Close gas supply.
- Switch off the device and disconnect all plugs (e.g. connection plug, supply input, etc.).
- Disconnect supply and discharge tube on peristaltic pump (**observe safety notes!**).
- Loosen but do not remove centre knurled nut. Flip down screw.
- Pull cover up and off.
- Unplug external connections and remove tube.
- Replace tube (Bühler spare part) and install the dosing pump in the reverse order.
- Reconnect the power and gas supply.

NOTICE**Never grease the pump hose!**

Check all parts for contamination prior to assembly and clean with a damp cloth as necessary.

7.4 Filling the Acid Container

CAUTION**Acid and corrosive substances**

Phosphoric acid can harm skin and eyes.
Wear protection gloves and face protection.



- Close gas supply.
- Switch off the device and disconnect all plugs (e.g. connection plug, supply input, etc.).
- Unscrew the modified cover from the acid container and carefully remove the inner PTFE tube guide (**Attention: The tube guide may have residual acid!**).
- Fill the acid container with 10 % phosphoric acid using an acid-resistant funnel (max. 10 L).
- Screw on the modified canister cover and ensure the dosing tube is submersed.
- Reconnect the power and gas supply.

7.5 Replacing the Metering Hoses (1.6 mm)

- Close gas supply.
- Empty residual acid in the dosing line.
- Switch off the following devices and dosing pump and disconnect all plugs (e.g. supply input connection plug, etc.).
- Remove the dosing hoses (**observe safety notes!**).
- Connect new dosing tubes (Bühler spare part) to the inlet of the dosing pump.
- Reconnect the power and gas supply.

7.6 Spare parts and accessories

Please also specify the model and serial number when ordering parts.

Upgrade and expansion parts can be found in our catalogue.

Item no.	Description
45002012	Reducer DN 4/6 – D1.6mm
45002013	Dosing line 1 m (1.6 mm tube)
45002017	Dosing line 3 m (1.6 mm tube)
45003007	Venting baffle
45003013	Fastening straps
4382006	PC1 precooler (GL14) connection kit
45003015	Heat exchanger connection kit
45003004	Acid container
45003002	Metal bracket
44921120123001	Metering pump
44920035218	Metering pump tube

7.6.1 Spare Parts and Accessories

Item no.	Description
9144050018	M12 plug incl. 5 m cable
45003017	Capacitive sensor (connection kit)
45003014	Modified cover
45003008	Collection pan
4382006	Laboratory screw connection GL 14 DN 1.6
45003011	Connection kit for heat exchanger with DN 4/6 input
45003011I	Connection kit for heat exchanger with 1/4"-1/6" input

7.6.2 Parts in Contact with Mediums

NOTE: Ensure chemical resistance

Item no.	Description
44 9211 2012 3001	Dosing pump (note dosing pump type plate and manual)
9014004	PTFE guide tube
9014310	PFA dosing tubes

8 Disposal

Use the original cover to seal and dispose of the acid container.

The applicable national laws must be observed when disposing of the products. Disposal must not result in a danger to health and environment.

The crossed out wheelee bin symbol on Bühler Technologies GmbH electrical and electronic products indicates special disposal notices within the European Union (EU).



The crossed out wheelee bin symbol indicates the electric and electronic products bearing the symbol must be disposed of separate from household waste. They must be properly disposed of as waste electrical and electronic equipment.

Bühler Technologies GmbH will gladly dispose of your device bearing this mark. Please send your device to the address below for this purpose.

We are obligated by law to protect our employees from hazards posed by contaminated devices. Therefore please understand that we can only dispose of your waste equipment if the device is free from any aggressive, corrosive or other operating fluids dangerous to health or environment. **Please complete the "RMA Form and Decontamination Statement", available on our website, for every waste electrical and electronic equipment. The form must be applied to the packaging so it is visible from the outside.**

Please return waste electrical and electronic equipment to the following address:

Bühler Technologies GmbH
WEEE
Harkortstr. 29
40880 Ratingen
Germany

Please also observe data protection regulations and remember you are personally responsible for the returned waste equipment not bearing any personal data. Therefore please be sure to delete your personal data before returning your waste equipment.

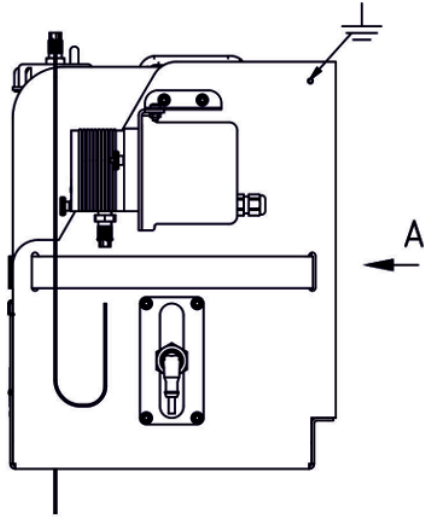
9 Appendices

9.1 Technical Data

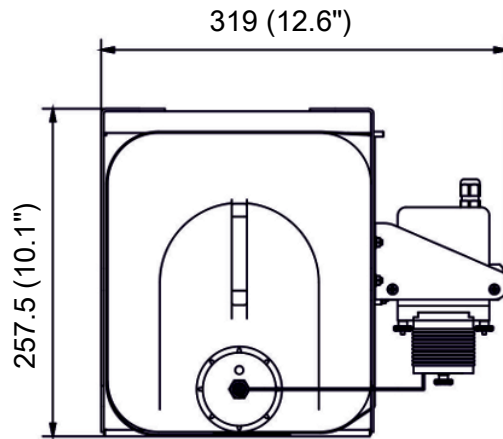
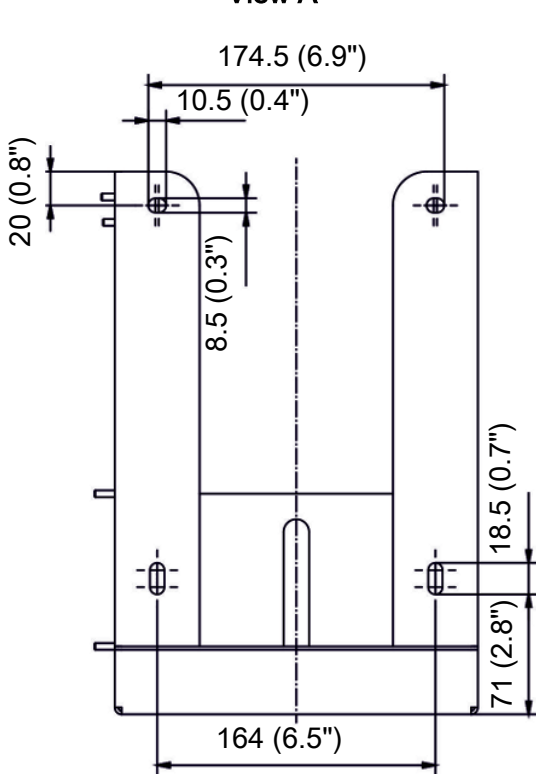
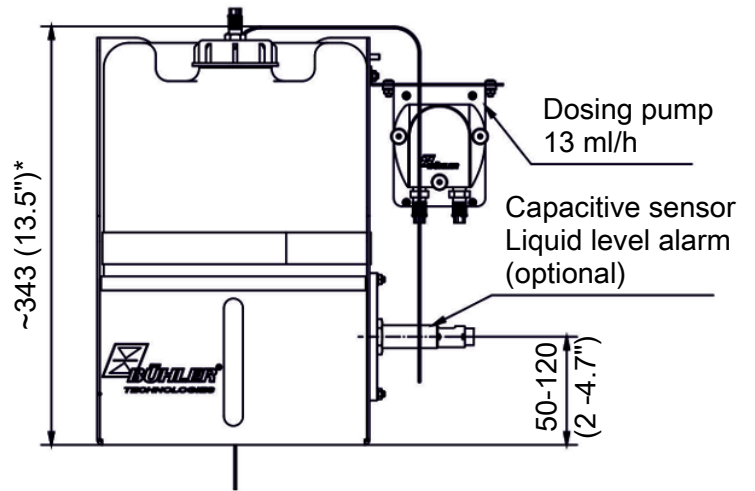
Meter Technical Data

Operational readiness:	Ready for use immediately after switching on
Ambient temperature:	5 °C to 50 °C
IP rating:	IP20
Bracket:	Stainless steel, brushed
Weight without acid:	approx. 5 kg
Acid canister volume:	10 L
Outlet pressure:	1 bar
Capacitive sensor operating voltage:	10...36 V DC
Metering pump operating voltage:	115/230 V AC
Flow rate:	approx. 13 ml/h
Acid feed time:	5 min/m
Sensor electrical connections:	M12x1.5-pin (option)
Parts in contact with media	
Acid container:	HDPE
Dosing line:	PFA
Modified cover:	HDPE/PVDF

9.2 Dimensions



View A



*Dimensions apply to top edge of connection. Hose not included.

10 Attached documents

- Declaration of Conformity KX450020
- RMA - Decontamination Statement

EU-Konformitätserklärung
EU Declaration of Conformity



Hiermit erklärt Bühler Technologies GmbH,
dass die nachfolgenden Produkte den
wesentlichen Anforderungen der Richtlinie

*Herewith declares Bühler Technologies GmbH
that the following products correspond to the
essential requirements of Directive*

2014/35/EU
(Niederspannungsrichtlinie / low voltage directive)

in ihrer aktuellen Fassung entsprechen.

in its actual version.

Produkt / products: Stationäre Dosiereinheit EMIDos / *Dosing unit EMIDos*

Das Betriebsmittel dient als Komponente zur Aufbereitung des Messgases, um den Verlust der
wasserlöslichen Gaskomponente zu reduzieren.
*The equipment serves as a component for conditioning sample gas to reduce the loss of water-soluble
gas components.*

Das oben beschriebene Produkt der Erklärung erfüllt die einschlägigen
Harmonisierungsrechtsvorschriften der Union:
*The object of the declaration described above is in conformity with the relevant Union harmonisation
legislation:*

EN ISO 12100:2010

EN 61010-1:2010/A1:2019/AC:2019-04

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
This declaration of conformity is issued under the sole responsibility of the manufacturer.

Dokumentationsverantwortlicher für diese Konformitätserklärung ist Herr Stefan Eschweiler mit
Anschrift am Firmensitz.

*The person authorized to compile the technical file is Mr. Stefan Eschweiler located at the company's
address.*

Ratingen, den 17.02.2023

Stefan Eschweiler
Geschäftsführer – *Managing Director*

Frank Pospiech
Geschäftsführer – *Managing Director*

UK Declaration of Conformity



The manufacturer Bühler Technologies GmbH declares, under the sole responsibility, that the product complies with the requirements of the following UK legislation:

Electrical Equipment Safety Regulations 2016

Product: Dosing unit EMIDos

The equipment serves as a component for conditioning sample gas to reduce the loss of water-soluble gas components.

The object of the declaration described above is in conformity with the relevant designated standards:

EN 61010-1:2010/A1:2019/AC:2019-04

EN ISO 12100:2010

Ratingen in Germany, 17.02.2023

A handwritten signature in blue ink, appearing to read 'Stefan Eschweiler', written above a horizontal line.

Stefan Eschweiler
Managing Director

A handwritten signature in blue ink, appearing to read 'Frank Pospiech', written above a horizontal line.

Frank Pospiech
Managing Director

RMA-Formular und Erklärung über Dekontaminierung

RMA-Form and explanation for decontamination



RMA-Nr./ RMA-No.

Die RMA-Nr. bekommen Sie von Ihrem Ansprechpartner im Vertrieb oder Service. Bei Rücksendung eines Altgeräts zur Entsorgung tragen Sie bitte in das Feld der RMA-Nr. "WEEE" ein./ You may obtain the RMA number from your sales or service representative. When returning an old appliance for disposal, please enter "WEEE" in the RMA number box.

Zu diesem Rücksendeschein gehört eine Dekontaminierungserklärung. Die gesetzlichen Vorschriften schreiben vor, dass Sie uns diese Dekontaminierungserklärung ausgefüllt und unterschrieben zurücksenden müssen. Bitte füllen Sie auch diese im Sinne der Gesundheit unserer Mitarbeiter vollständig aus./ This return form includes a decontamination statement. The law requires you to submit this completed and signed decontamination statement to us. Please complete the entire form, also in the interest of our employee health.

Firma/ Company

Firma/ Company

Straße/ Street

PLZ, Ort/ Zip, City

Land/ Country

Gerät/ Device

Anzahl/ Quantity

Auftragsnr./ Order No.

Ansprechpartner/ Person in charge

Name/ Name

Abt./ Dept.

Tel./ Phone

E-Mail

Serien-Nr./ Serial No.

Artikel-Nr./ Item No.

Grund der Rücksendung/ Reason for return

- Kalibrierung/ Calibration Modifikation/ Modification
 Reklamation/ Claim Reparatur/ Repair
 Elektroaltgerät/ Waste Electrical & Electronic Equipment (WEEE)
 andere/ other

bitte spezifizieren/ please specify

Ist das Gerät möglicherweise kontaminiert?/ Could the equipment be contaminated?

- Nein, da das Gerät nicht mit gesundheitsgefährdenden Stoffen betrieben wurde./ No, because the device was not operated with hazardous substances.
 Nein, da das Gerät ordnungsgemäß gereinigt und dekontaminiert wurde./ No, because the device has been properly cleaned and decontaminated.
 Ja, kontaminiert mit:/ Yes, contaminated with:



explosiv/
explosive



entzündlich/
flammable



brandfördernd/
oxidizing



komprimierte
Gase/
compressed
gases



ätzend/
caustic



giftig,
Lebensgefahr/
poisonous, risk
of death



gesundheitsge-
fährdend/
harmful to
health



gesund-
heitsschädlich/
health hazard



umweltge-
fährdend/
environmental
hazard

Bitte Sicherheitsdatenblatt beilegen!/ Please enclose safety data sheet!

Das Gerät wurde gespült mit:/ The equipment was purged with:

Diese Erklärung wurde korrekt und vollständig ausgefüllt und von einer dazu befugten Person unterschrieben. Der Versand der (dekontaminierten) Geräte und Komponenten erfolgt gemäß den gesetzlichen Bestimmungen.

This declaration has been filled out correctly and completely, and signed by an authorized person. The dispatch of the (decontaminated) devices and components takes place according to the legal regulations.

Falls die Ware nicht gereinigt, also kontaminiert bei uns eintrifft, muss die Firma Bühler sich vorbehalten, diese durch einen externen Dienstleister reinigen zu lassen und Ihnen dies in Rechnung zu stellen.

Should the goods not arrive clean, but contaminated, Bühler reserves the right, to commission an external service provider to clean the goods and invoice it to your account.

Firmenstempel/ Company Sign

Datum/ Date

rechtsverbindliche Unterschrift/ Legally binding signature



Vermeiden von Veränderung und Beschädigung der einzusendenden Baugruppe

Die Analyse defekter Baugruppen ist ein wesentlicher Bestandteil der Qualitätssicherung der Firma Bühler Technologies GmbH. Um eine aussagekräftige Analyse zu gewährleisten muss die Ware möglichst unverändert untersucht werden. Es dürfen keine Veränderungen oder weitere Beschädigungen auftreten, die Ursachen verdecken oder eine Analyse unmöglich machen.

Umgang mit elektrostatisch sensiblen Baugruppen

Bei elektronischen Baugruppen kann es sich um elektrostatisch sensible Baugruppen handeln. Es ist darauf zu achten, diese Baugruppen ESD-gerecht zu behandeln. Nach Möglichkeit sollten die Baugruppen an einem ESD-gerechten Arbeitsplatz getauscht werden. Ist dies nicht möglich sollten ESD-gerechte Maßnahmen beim Austausch getroffen werden. Der Transport darf nur in ESD-gerechten Behältnissen durchgeführt werden. Die Verpackung der Baugruppen muss ESD-konform sein. Verwenden Sie nach Möglichkeit die Verpackung des Ersatzteils oder wählen Sie selber eine ESD-gerechte Verpackung.

Einbau von Ersatzteilen

Beachten Sie beim Einbau des Ersatzteils die gleichen Vorgaben wie oben beschrieben. Achten Sie auf die ordnungsgemäße Montage des Bauteils und aller Komponenten. Versetzen Sie vor der Inbetriebnahme die Verkabelung wieder in den ursprünglichen Zustand. Fragen Sie im Zweifel beim Hersteller nach weiteren Informationen.

Einsenden von Elektroaltgeräten zur Entsorgung

Wollen Sie ein von Bühler Technologies GmbH stammendes Elektroprodukt zur fachgerechten Entsorgung einsenden, dann tragen Sie bitte in das Feld der RMA-Nr. „WEEE“ ein. Legen Sie dem Altgerät die vollständig ausgefüllte Dekontaminierungserklärung für den Transport von außen sichtbar bei. Weitere Informationen zur Entsorgung von Elektroaltgeräten finden Sie auf der Webseite unseres Unternehmens.

Avoiding alterations and damage to the components to be returned

Analysing defective assemblies is an essential part of quality assurance at Bühler Technologies GmbH. To ensure conclusive analysis the goods must be inspected unaltered, if possible. Modifications or other damages which may hide the cause or render it impossible to analyse are prohibited.

Handling electrostatically conductive components

Electronic assemblies may be sensitive to static electricity. Be sure to handle these assemblies in an ESD-safe manner. Where possible, the assemblies should be replaced in an ESD-safe location. If unable to do so, take ESD-safe precautions when replacing these. Must be transported in ESD-safe containers. The packaging of the assemblies must be ESD-safe. If possible, use the packaging of the spare part or use ESD-safe packaging.

Fitting of spare parts

Observe the above specifications when installing the spare part. Ensure the part and all components are properly installed. Return the cables to the original state before putting into service. When in doubt, contact the manufacturer for additional information.

Returning old electrical appliances for disposal

If you wish to return an electrical product from Bühler Technologies GmbH for proper disposal, please enter "WEEE" in the RMA number box. Please attach the fully completed decontamination declaration form for transport to the old appliance so that it is visible from the outside. You can find more information on the disposal of old electrical appliances on our company's website.

