Gas Analysis

Sample gas probes

GAS 222.20 Denox

Installation and Operation Instructions

Original instructions

BE460035
01/2025

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

Bühler Technologies GmbH, Harkortstr. 29, 40880 Ratingen
Tel. +49 (0) 21 02 / 49 89-0
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.

All rights reserved. Bühler Technologies GmbH 2025

Document information
Document No.....BE460035
Version..... 01/2025

Contents

1 Introduction ... 2
1.1 Intended Use ... 2
1.2 Type plate ... 2
1.3 Contents ... 2
1.4 Ordering Instructions ... 3
1.5 Product description ... 3

2 Safety instructions ... 4
2.1 Important advice ... 4
2.2 General hazard warnings ... 5

3 Transport and storage ... 6

4 Installation and connection ... 7
4.1 Installation site requirements ... 7
4.2 Installing the sampling tube (optional) ... 7
4.3 Installing the downstream filter ... 7
4.4 Insulation ... 7
4.5 Connecting the gas line ... 8
4.5.1 Connecting the calibrating gas line (optional) ... 8
4.5.2 Connecting the condensate line ... 8
4.6 The glass pearl receptacle ... 9
4.7 Electrical connections ... 9

5 Operation and controls ... 11
5.1 Basic function of the probe controller ... 11
5.1.1 Controller function ... 11
5.2 Use of menu functions ... 11
5.2.1 Menu navigation overview ... 12
5.2.2 Detailed description of the operational principle ... 13
5.3 Description of menu functions ... 13
5.3.1 Main menu ... 13
5.3.2 Submenu probe regulator [Display: Prob] ... 14
5.3.3 Submenu for controller for heated adapter [display: Adon] ... 14

6 Maintenance ... 15
6.1 Maintaining the filter element ... 15
6.1.1 Replacing the downstream filter ... 16
6.2 Replacing the glass pearl receptacle ... 16
6.3 Replacing the hose ... 16

7 Service and repair ... 17
7.1 Troubleshooting ... 17
7.2 Spare parts ... 18

8 Disposal ... 19

9 Appendices ... 20
9.1 DeNOx technical Data ... 20
9.2 Flow diagram ... 20
9.3 DeNOx Wiring diagram ... 21

10 Attached documents ... 22

1 Introduction

1.1 Intended Use

The sample gas probe is intended for installation into gas analysis systems in commercial applications. Sample gas probes are among the main components in a gas conditioning system.

The area of application for DeNOx probes particularly spans installation into DeNOx systems. The DeNOx probe allows for targeted washing out of ammonia and its salts and, thus allowing for low maintenance operation of downstream sample gas conditioning. Another area of application is washing out aerosols.

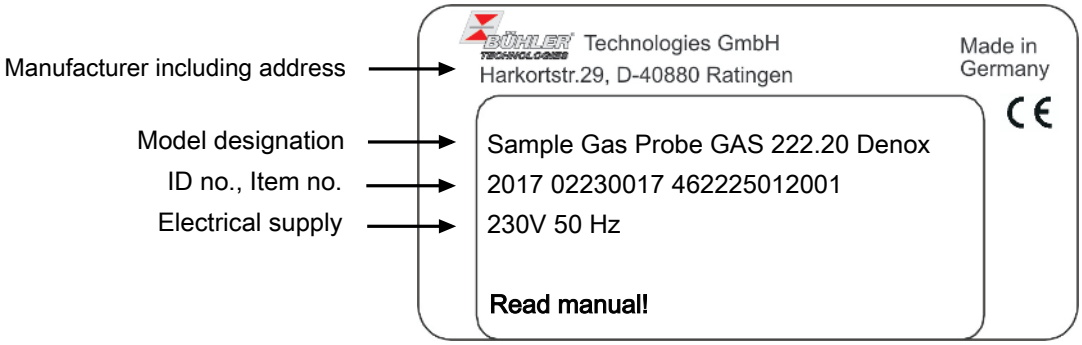
– Before installing the device, verify the listed technical data meet the application parameters.
– Further check if all contents are complete.

Please refer to the nameplate to identify your model. In addition to the job number it also contains the item number and model designation.

When connecting, please note the specific values of the device, and the correct version when ordering spare parts.

1.2 Type plate

Example:



1.3 Contents

– 1 x Sample gas probe
– 1 x Flange gasket, screws and nuts
– Product documentation
– Connection- and mounting accessories (only optional)

1.4 Ordering Instructions

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

4622250	X	X	X	X	X	0	0	Product Characteristics
								Flange
	1							DIN DN65 PN6
	2							ASME DN3"-150
								Voltage
		1						115 V
		2						230 V
								Calibrating gas connection
			0					no calibrating gas connection
			1					6 mm
			2					6 mm + check valve
			3					1/4"
			4					1/4" + check valve
								Anti-free heater
				0				without anti-freeze heater
				1				with anti-freeze heater
								Connections
					1			Left
					2			Right

1.5 Product description

Probe	Description
GAS 222.20 Denox	Probe with outlet filter, glass bead receptacle, optionally with anti-freeze heater and calibrating port.
Accessories	Sample gas probes can – depending on order – be delivered with accessories factory installed. This accessory, as well as separate accessories included, are listed as separate line items in the order.

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 include the following warnings:

	General warning sign		General mandatory sign
	Voltage warning		Unplug from mains
	Warning not to inhale toxic gases		Wear respiratory equipment
	Warning of corrosive substances		Wear a safety mask
	Warning of explosion hazard		Wear gloves
	Warning of hot surfaces		

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.

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

Electrical voltage

Electrocution hazard.

a) Disconnect the device from power supply.

b) Make sure that the equipment cannot be reconnected to mains unintentionally.

c) The device must be opened by trained staff only.

d) Regard correct mains voltage.

DANGER

Toxic, corrosive gases

The measuring gas led through the equipment can be hazardous when breathing or touching it.

a) Check tightness of the measuring system before putting it into operation.

b) Take care that harmful gases are exhausted to a save place.

c) Before maintenance turn off the gas supply and make sure that it cannot be turned on unintentionally.

d) Protect yourself during maintenance against toxic / corrosive gases. Use suitable protective equipment.

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.

3 Transport and storage

The device should be only transported in the original case or in appropriate packing.

CAUTION	**Transport**
	Transport the product in a way which is not damaging to health. Where necessary, use auxiliary means for transport and assembly. Avoid damage to the product. Treat the product with caution. Ensure that the product is fastened with wall brackets which comply with DIN EN 61010-1.

If the device is not used for some time, protect it against heat and humidity. Store the device in a roofed, dry, and dust free room. Temperature should be between -20 °C and 60 °C (-4 °F and 140 °F).

4 Installation and connection

4.1 Installation site requirements

Sample gas probes are intended for flange mounting.

- Installation site and installation position are determined based on requirements specific to the application.
- If necessary, the connection piece should be slightly tilted toward the centre of the channel.
- Installation site must be protected from the elements and should provide protection against sun and rain.
- In addition, adequate and safe access for installation and future maintenance work should be provided. Particularly follow the uninstalled size of the probe tube!
- Never over-or underrun the permissible ambient temperature range (T_{amb}) of -5 °C to +50 °C (without anti-freeze heater) or -20 °C to +50 °C (with anti-freeze heater). The ambient temperature upper limit varies by inlet dew point and gas composition.
- The dew point must always be at least 5 K above the ambient temperature.
- The device must be protected from shock and impact.

If the probe is transported to the installation site in pieces, it will first need to be assembled.

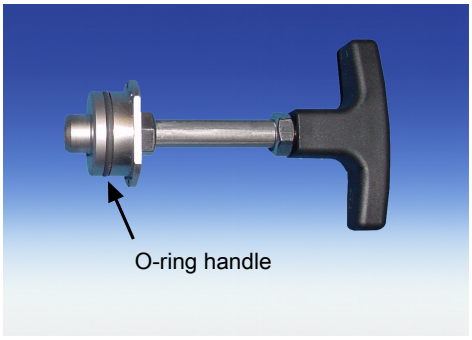
4.2 Installing the sampling tube (optional)

The sampling tube, if necessary with the fitting extension, must be screwed in. The probe is then attached to the mating flange using the included seal, screws and nuts.

4.3 Installing the downstream filter

NOTICE

The downstream filter and the O-ring for the handle must be inserted prior to first start-up.
Operating without downstream filter prohibited!



Attach an O-ring suitable for the expected ambient temperature to the handle.

Attach the downstream filter to the handle. Then carefully insert the handle with filter in the gas probe and turn 90° to secure.

Verify the handle is seated correctly. When seated correctly it locks onto the filter housing.

4.4 Insulation

On heated probes completely insulate any exposed flange areas and, if applicable, the connection piece to absolutely prevent thermal bridges. The insulating material must meet the application requirements and be weatherproof.

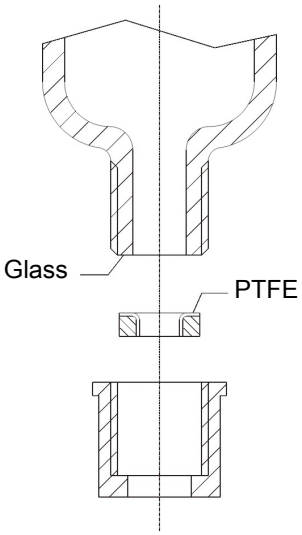
4.5 Connecting the gas line

This table provides an overview of the sample gas probe connections:

Connecting flange	DN65 PN6 oder ASME DN3"-150
Sample gas input:	G3/4
Sample gas outlet:	GL14 (6 mm) 1)
Test gas connection (option):	Pipe Ø6 mm or 1/4”
Condensate outlet:	DN4/6

[1)] Gasket inside diameter

Carefully and properly connect the sample gas line to the gas outlet of the glass pearl receptacle. Please see the drawing below for the fundamental layout of the gas connection:



CAUTION

Fragile

The glass pearl receptacle can break. Handle with care, do not drop.

Please note the correct position of the seal when connecting the gas lines. The seal consists of a silicone ring with a PTFE sleeve. The PTFE side must face the glass thread.

The sample gas line must be braced and secured with the clamp.

Long sample gas lines may require additional support clamps along the way to the analysis system! Once all lines have been connected and checked for leaks, carefully reinstall and secure the insulation.

WARNING

Gas emanation

Sample gas can be harmful to the health!
Check the lines for leaks.

4.5.1 Connecting the calibrating gas line (optional)

Connecting the calibrating gas line requires a ø6 mm or ø1/4” pipe fitting.

If the calibrating gas connection was ordered with check valve, a ø6 mm or ø1/4” pipe can be connected directly to the check valve.

4.5.2 Connecting the condensate line

Carefully and properly connect the condensate line DN4/6 to the outlet of the condensate pump. Check the line for leaks. Avoid contact with the anti-freeze heating.

4.6 The glass pearl receptacle

The glass pearl receptacle must be filled with glass pearls before use. Follow the steps under Replacing the glass pearl receptacle [> page 16].

The condensate output is located at the lower position of the glass pearl receptacle. It features a factory installed peristaltic pump for removing condensate. The upper GL connection is for the core of the heated line. Avoid contact with the anti-freeze heating.

The glass pearls can be cleaned and replaced if necessary.

4.7 Electrical connections

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.

WARNING

High voltage

Damage to the device in case of insulation testing
Do not proceed insulation tests with high voltage to the device as a whole!

CAUTION

Maximum power input

The power adapter must be suitable for the maximum power input of the device. It must be made of heat-resistant material and may not come into contact with hot surfaces.
The power adapter must comply with IEC60227 or IEC60245 or be approved by another recognised testing body.

Electric strength test

This unit is equipped with extensive EMC protection. Testing the electric strength will damage electronic filter components. The necessary tests of all assemblies required to be tested were carried out at the factory.

To check the electric strength again yourself, only do so on the respective individual components.

– Disconnect the individual components (see appendix for pin assignment).
– Now perform the electric strength test against earth at max. 1.25 kV.

These probes have controllable, adjustable heating. The controller is included. The probe is already wired to the controller.

Inside the controller housing is a terminal block for connecting the alarm output. It is connected according to the terminal diagram (see attached) with the included plug connectors. For this purpose the plugs can be removed from their sockets and reinserted once wired. The pin assignment is also printed onto the board.

The supply line and earthing cross-sections must be aligned with the power input of the device or of the entire system, respectively. External mains circuits must at a minimum have basic insulation the connection is specified for.

If the heat dissipation is very high near the probe due to the application, install an appropriate shield provided by the customer for protection.

The device must be incorporated into the protective conductor system of the operator.

The following separation facilities are to be provided for the current and voltage supply of the components:

RCD, main switch and circuit breaker or fuses

The following conditions must be met for use:

- The automatic disconnecting device must switch off the load within the prescribed time.
- It must be designed for the highest working voltage and, if applicable, for the highest operating current. Air and creepage distances between the terminals of the power or voltage-limiting device must meet the requirements for reinforced insulation.
- The device switches or circuit breakers used as a disconnecting device must comply with the applicable requirements of IEC60947-1 and IEC60947-3 and be suitable for the application. These may not be installed in the mains connection cable or interrupt the protective conductor and must disconnect all current-carrying conductors. It must be installed in the vicinity of the system, be easily accessible, and be marked as the disconnecting device.
- An overcurrent protection device must be fitted as a disconnecting device in all supply lines but must not interrupt the protective conductor. If fuses are used, all must have the same rated value and the same tripping characteristics and must be installed side by side. They are preferably to be placed before the power switch. Radio interference control equipment between the AC input and overcurrent protection device is allowed. Fuses and single-pole circuit breakers are not built into the neutral conductor of multi-phase devices.

If the above-cited isolating devices are already in the system, these no longer need to be provided by the operator for the system.

Please see the chapter ‘Technical Data’ for the applicable values of the isolating devices.

5 Operation and controls

NOTICE

The device must not be operated beyond its specifications.

5.1 Basic function of the probe controller

5.1.1 Controller function

After switching on the combination the probe is heated up. The display with the current temperature will light up on the regulator. As long as the set operating range is has not yet been reached, the display will flash and the status contact is in Alarm position. Once the working range has been reached, the status contact switches and the display is steady.

The target temperature, the working range of the probe and the temperature unit (°C/°F) are set using the three control buttons on the controller. This is described in chapter “Operation and use”.

The factory settings are:

Unit °C

Sample probe temperature 280 °C, operating range ±10 °C

Heated adapter 160 °C, operating range ±10 °C

5.2 Use of menu functions

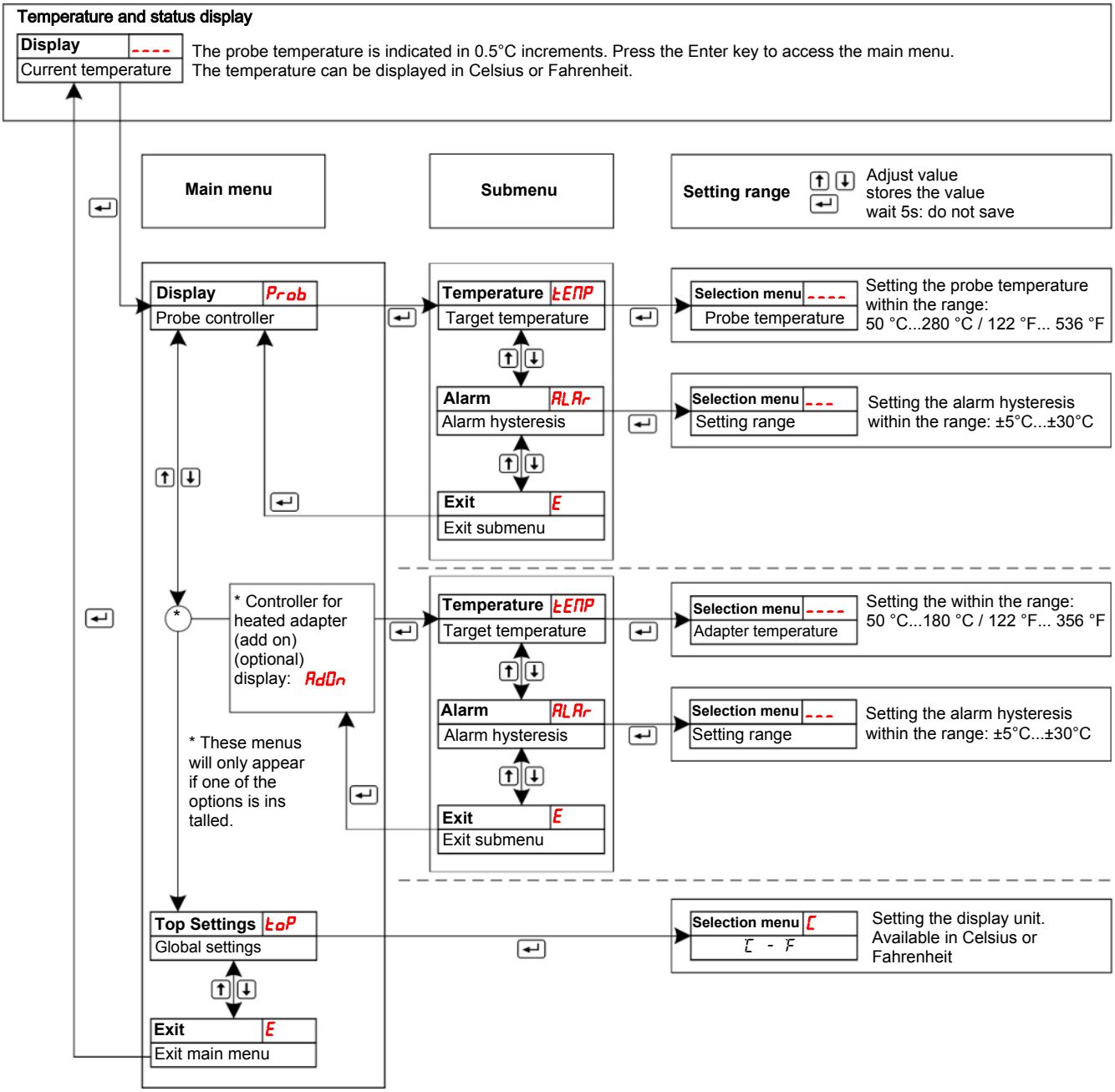
Overview of the operational principal:

Use this short description if you have experience with the device.

Operation is carried out by only the keys with the following functions:

Key	Function
↵	– Switch from measurement display to main menu – Selection of the display menu item – Accepting the changed value or selection
↑	– Switch to the upper menu item – Increase of the value of switching the selection – Temporary display of the alternative measurement display (if option is installed)
↓	– Switch to lower menu item – Decrease of the value of switching the selection – Temporary display of the alternative measurement display (if option is installed)

5.2.1 Menu navigation overview



5.2.2 Detailed description of the operational principle

The detailed description will guide you through the menu step by step.

Connect the unit to the power supply and wait for the startup procedure to complete. At first the software version implemented on the unit will be displayed for a brief period. The unit will then switch directly into measured value display.

↵ Pressing the button will take you from display mode to the main menu. (The control will continue running whilst in menu mode.)

↑↓ Use these buttons to navigate the main menu.

↵ After confirming a main menu item the associated submenu will open

Here you can configure operating parameters:

↑↓ Cycle through the submenu to configure the parameters,

↵ then confirm the menu item to be changed.

↑↓ You can now set values within specific limits.

↵ After confirming the value the system will save it. This will automatically return you to the submenu.

If no button is pushed for approx. 5 s, the unit will automatically return to the submenu. Changes to values will not be saved.

The same applies to the sub- and main menu. The system will automatically return to display mode without saving the (last) value changed. Parameters which were previously changed and saved will be retained and not reset.

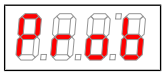
NOTICE! After saving values with the Enter key they will be applied to the control.

E To exit the main or submenu, select menu item E (Exit).

5.3 Description of menu functions

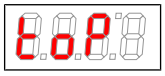
5.3.1 Main menu

Regulator (probe)



From here you will be able to access all relevant temperature controller settings. The related submenu allows you to select the target temperature and alarm thresholds.

Globale settings (ToP Settings)

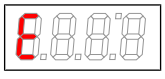


Selection of the global temperature unit, either degree Celsius (C) or degree Fahrenheit (F).

Note: This menu item has no sub-item. The temperature unit is directly selected.

Exit main menu

Display → *E*



Selecting this will return you to display mode.

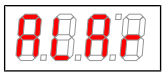
5.3.2 Submenu probe regulator [Display: Prob]

Controller -> Nominal temperature (Temperature)

This item allows setting of the nominal temperature of the device. The value can be set within a range from 50 °C (122 °F) to 280 °C (536 °F).

Note:	Default value at delivery is 280 °C (536 °F).

Controller -> Alarm range

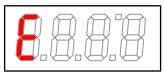


This item allows setting of the alarm range threshold for the optical alarm as well as for the alarm relay. The alarm threshold may be set in the range from ±5 °C (±9 °F) to ±30 °C (±54 °F) with respect to the nominal value.

Note:	Default value at delivery is ±10 °C (±18 °F).

Exit submenu 1

Display → Submenu → *E*



Selecting this will return you to the main menu.

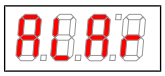
5.3.3 Submenu for controller for heated adapter [display: Adon]

Controller -> Nominal temperature (Temperature)

This item allows setting of the nominal temperature of the device. The value can be set within a range from 50 °C (122 °F) to 180 °C (356 °F).

Note:	Default value at delivery is 160 °C (320 °F).

Controller -> Alarm range

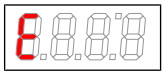


This item allows setting of the alarm range threshold for the optical alarm as well as for the alarm relay. The alarm threshold may be set in the range from ±5 °C (±9 °F) to ±30 °C (±54 °F) with respect to the nominal value.

Note:	Default value at delivery is ±10 °C (±18 °F).

Exit submenu 1

Display → Submenu → *E*



Selecting this will return you to the main menu.

6 Maintenance

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.

DANGER

Electrical voltage

Electrocution hazard.

a) Disconnect the device from power supply.

b) Make sure that the equipment cannot be reconnected to mains unintentionally.

c) The device must be opened by trained staff only.

d) Regard correct mains voltage.

DANGER

The gas inside the filter, condensate and used filter elements may be caustic or corrosive.

Sample gas can be harmful.

a) Before maintenance turn off the gas supply and surge with air if necessary.

b) Exhaust sample gas to a safe place.

c) Protect yourself against toxic / corrosive gas during maintenance. Wear appropriate personal protection equipment.

CAUTION

Hot surface

Risk of burns
Depending on the operating parameters, the housing temperature may reach over 100 °C during operation.
Allow the unit to cool down before performing maintenance.

CAUTION

Excess pressure

The unit mustn't be pressurised or energised when opened.
If necessary, close the gas supply and ensure a safe pressure on the process end before opening.

The hose inside the pumps is a wear item and must regularly be checked for leaks. Replace as described in chapter "Replacing the hose".

The maintenance cover can be removed by loosening the four screws.

6.1 Maintaining the filter element

The probes feature a particle filter which needs to be changed as it becomes dirty.

To do so, disconnect the voltage supply and if applicable close the shut-off valve to the process or switch off the process.

CAUTION! Do not damage the rear filter seat.

NOTICE

Ceramic filter elements are very brittle by nature. Handle them with care, don't let them fall.
Filter elements made out of sintered stainless steel can be cleaned in an ultrasonic bath and be used several times as long as both seals are still in proper conditions.

6.1.1 Replacing the downstream filter

- Unlock and lift up the weather hood.
- Turn the handle at the back end of the probe by 90° (handle must then be horizontal), pushing in slightly, and remove.
- Remove the dirty filter element and check the sealing surfaces.
- Before installing the new filter element, replace the seal on the handle plug (seal included with the filter element).
- Then carefully insert the handle with new filter, push in slightly and turn 90° (handle must then be vertical). Pull on the handle to verify the filter element is firmly seated.
- With the filter removed, if necessary also need clean the inside of the sampling tube by blowing it out or using a cleaning wand.

NOTICE

The weather hood can only be closed again when the handle is completely vertical. In order to do so, loosen the hood from the locking supports by lifting slightly and then fold down. Ensure that the hood lock clicks into place correctly.

6.2 Replacing the glass pearl receptacle

CAUTION

Hot surface

Risk of burns on the anti-freeze protection heating
Allow the heating to cool down before performing maintenance.

- Close the gas supply.
- Switch off and unplug the device.
- Loosen the 4 screws at the maintenance cover and remove the cover.
- Remove the lines from the glass pearl receptacle.
- Loosen hinged clamp at the adapter and carefully revome the glas vessel.
- Replace / clean glass perls and/or glas vessel.
- If necessary, replace the gasket.
- Re-mount the glas vessel in reverse order.
- Reconnect the lines carefully and properly. Check that there are no leaks!
- Secure the maintenance cover with 4 screws.
- Reconnect to power.

6.3 Replacing the hose

- Close gas supply.
- Switch off device and disconnect all plugs (e.g. connector plug alarm output, supply input, etc.).
- Disconnect supply and discharge tube on peristaltic pump (**observe safety notes!**).
- Loosen but do not remove centre knurled nut on the hammer-head screw. Flip down screw.
- Pull the cap off to the side.
- Unplug external connections and remove hose.
- Replace hose (Bühler spare part) and install peristaltic pump in reverse order.
- Restore 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 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

CAUTION

Risk due to defective device

Personal injury or damage to property

a) Switch off the device and disconnect it from the mains.

b) Repair the fault immediately. The device should not be turned on again before elimination of the failure.

Problem / malfunction	Possible cause	Action
No or reduced gas flow	– Filter element plugged	– Clean or replace filter element, clean sampling tube
Temperature alarm	– Heat-up not yet completed	– Wait for heat-up to complete
	– Pt100 defective	– Send in probe for repair
	– Heater / controller defective	– Send in probe for repair
No heat output / no display	– No / incorrect voltage	– Power supply
	– Controller defective	– Send in probe for repair
Condensate or salt collecting inside the probe	– Heater defective	– Send in probe for repair
	– Thermal bridges at the sampling point	– Insulate to eliminate thermal bridges
Error messages on the display		
Error 01	– Probe temperature too high, line Pt100 disconnected	– Check Pt100 connection inside the controller or send probe in for repair
Error 02	– Probe temperature too low, Pt100 short-circuit	– Send in probe for repair
Error 03	– Heated adapter temperature too high, line Pt100 disconnected	– Check Pt100 connection inside the controller or send probe in for repair
Error 04	– Heated adapter temperature too low, Pt100 short-circuit	– Send in probe for repair

Tab. 1: Troubleshooting

7.2 Spare parts

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

Upgrade and expansion parts can be found in our catalog.

Available spare parts:

Item no.	Description
46222024	O-ring kit for filter element and probe, material: Perfluorelastomer
46222026P	Filter element ceramic 3 µm perfluor
46222010P	Filter element sintered VA 5 µm perfluor
46222500040	Glass receptacle DeNox
441004271	Glass beads
44920035014	Peristaltic pump replacement hose
44921120104	Peristaltic pump

8 Disposal

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

The crossed out wheelie 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

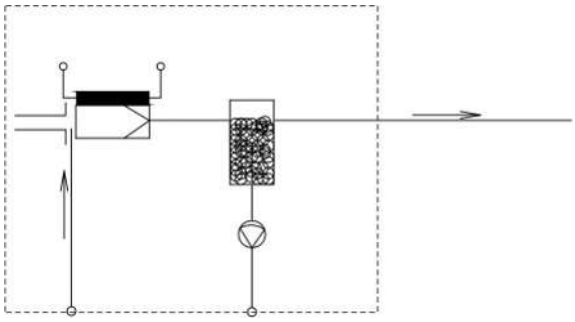
9.1 DeNOx technical Data

Gas Probe Technical Data	
Operating temperature:	max. 280 °C
Operating pressure:	90 kPa...100 kPa
Controller temperature range:	+50 °C to +280 °C
Ambient temperature:	+5 °C to +50 °C* without anti-freeze heater -20 °C to +50 °C* with optional anti-freeze heater
Electrical data:	230 V 50 Hz 650 W 3 A / 115 V 60 Hz 650 W 6 A
IP rating:	IP44
Parts in contact with media:	1.4571, glass, PVDF, Norprene, Viton, PTFE

* the ambient temperature upper limit varies by inlet dew point and gas composition.

Additional ambient conditions	
relative humidity:	10 % ... 90 %
Height above sea level:	2000 m
Storage temperature:	-20 °C ... 60 °C
Rel. storage humidity (not condensed)	20 % ... 80%

9.2 Flow diagram



9.3 DeNOx Wiring diagram

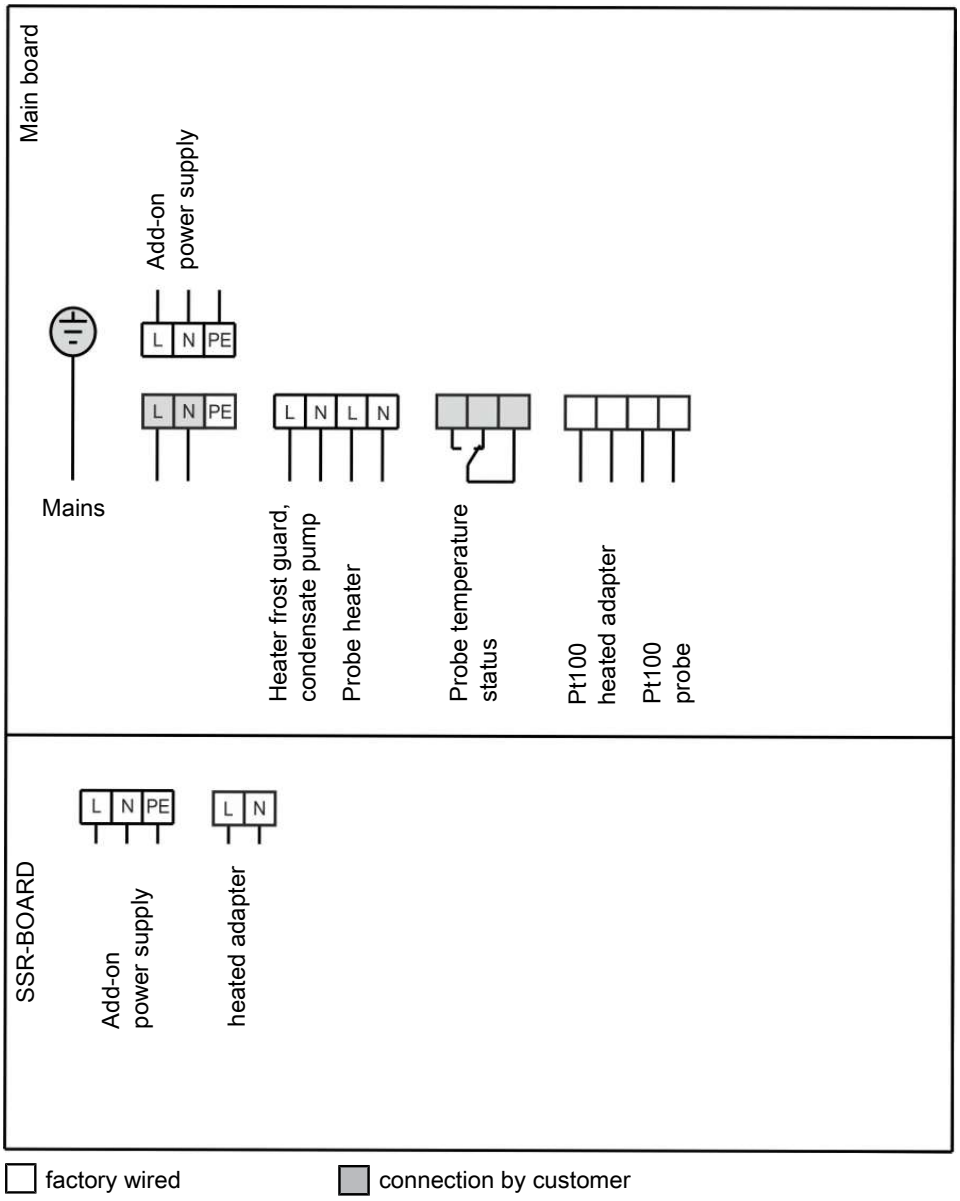
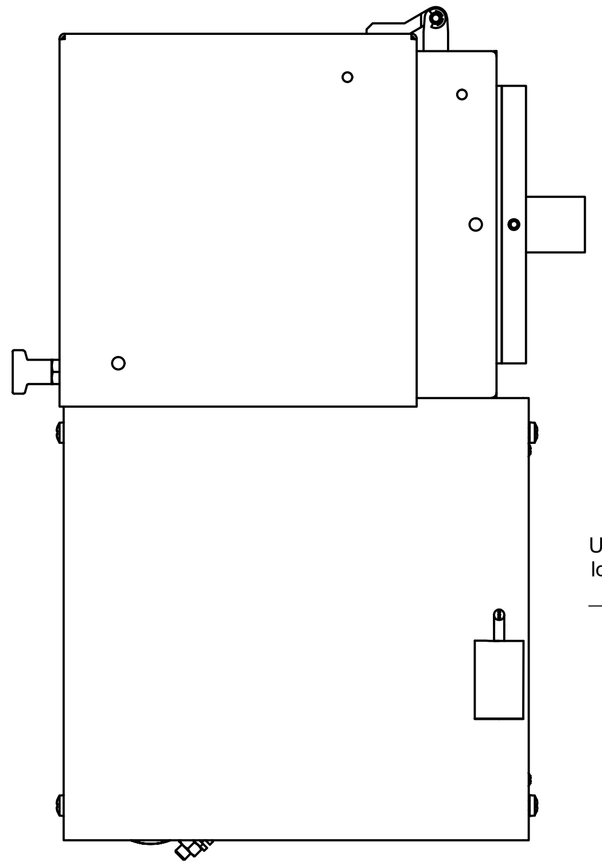
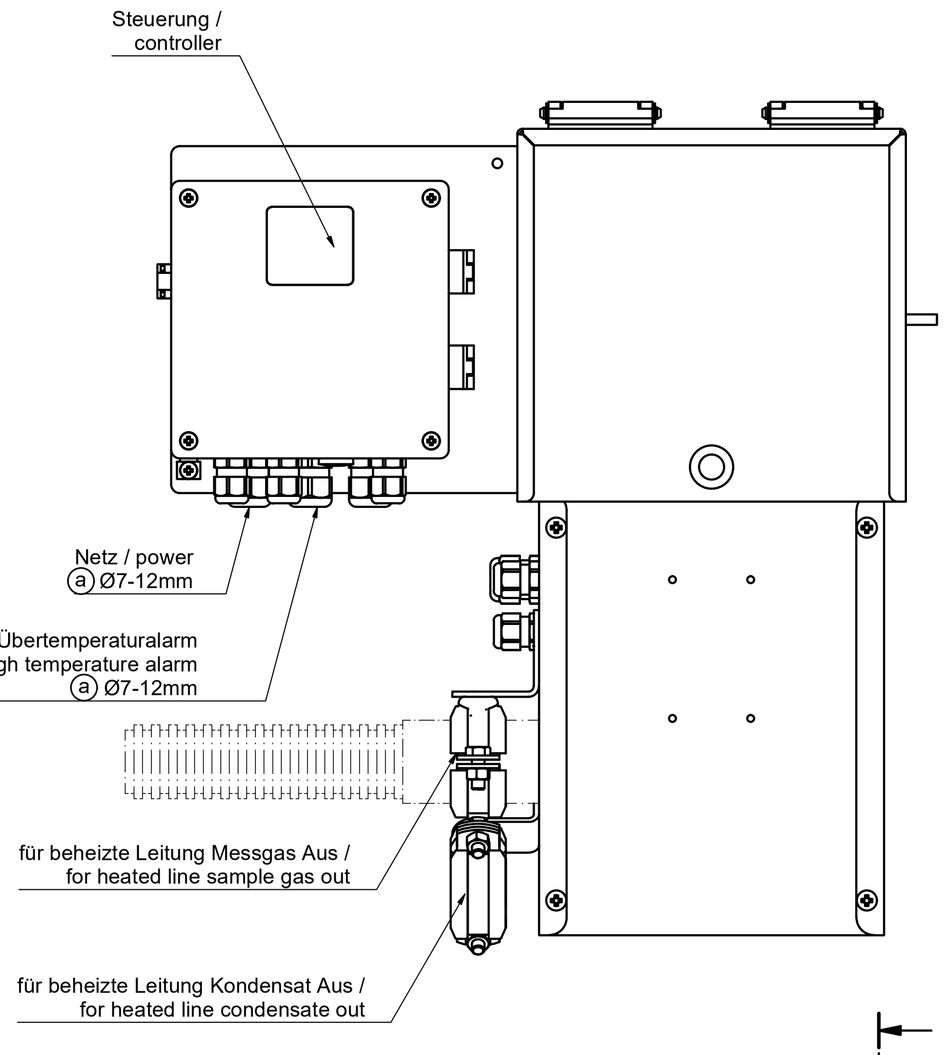


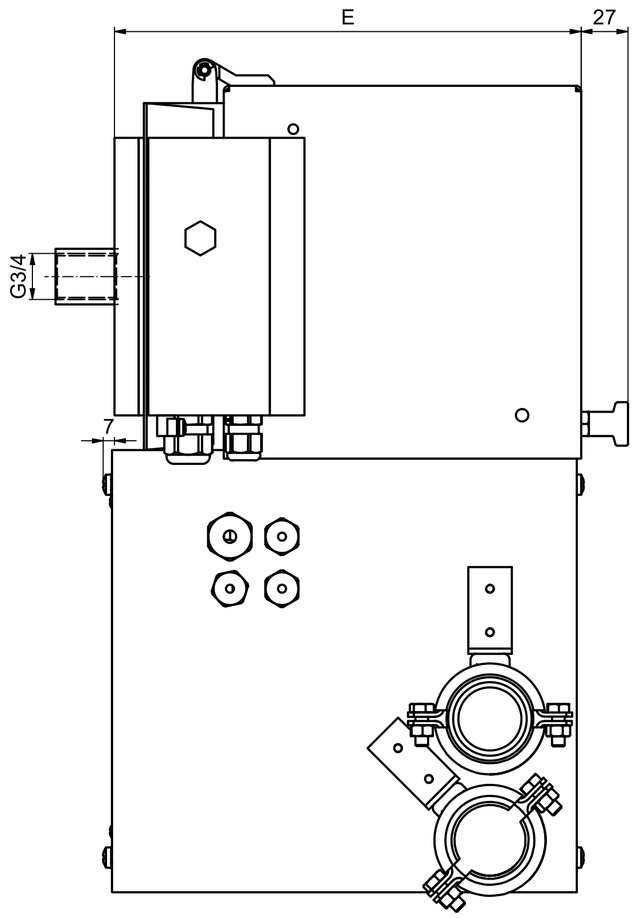
Fig. 1: DeNOx wiring diagram

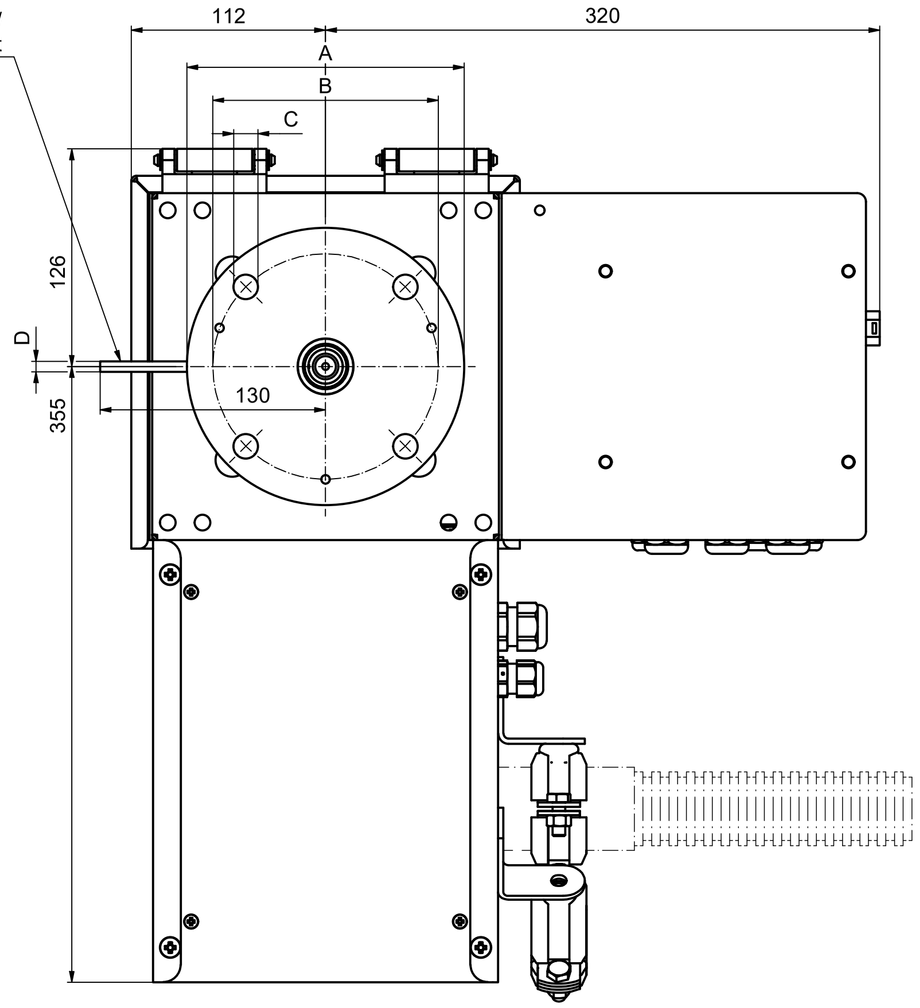
10 Attached documents

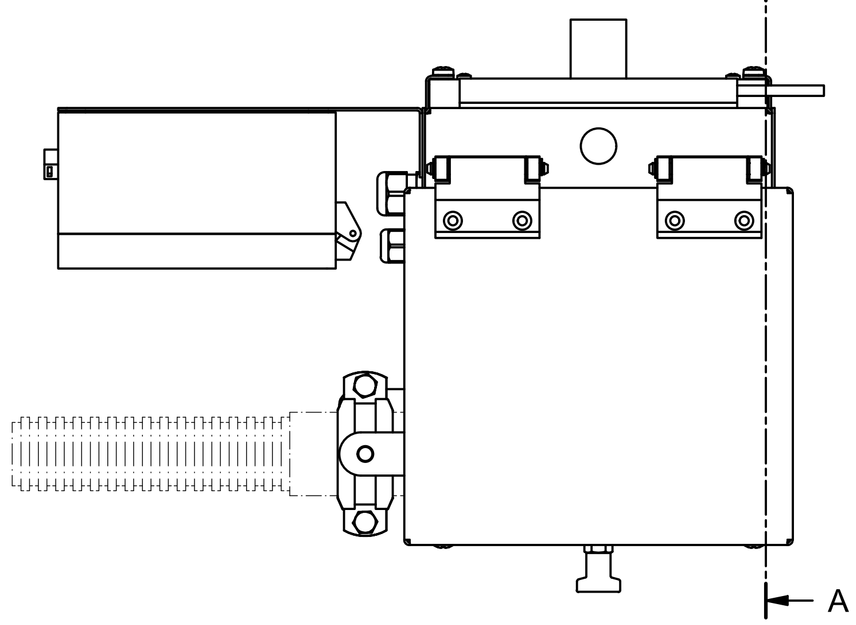
- Drawings: 46/135-Z01-02-1, 46/135-Z01-01-1
- Declaration of Conformity KX460023
- RMA – Decontamination Statement



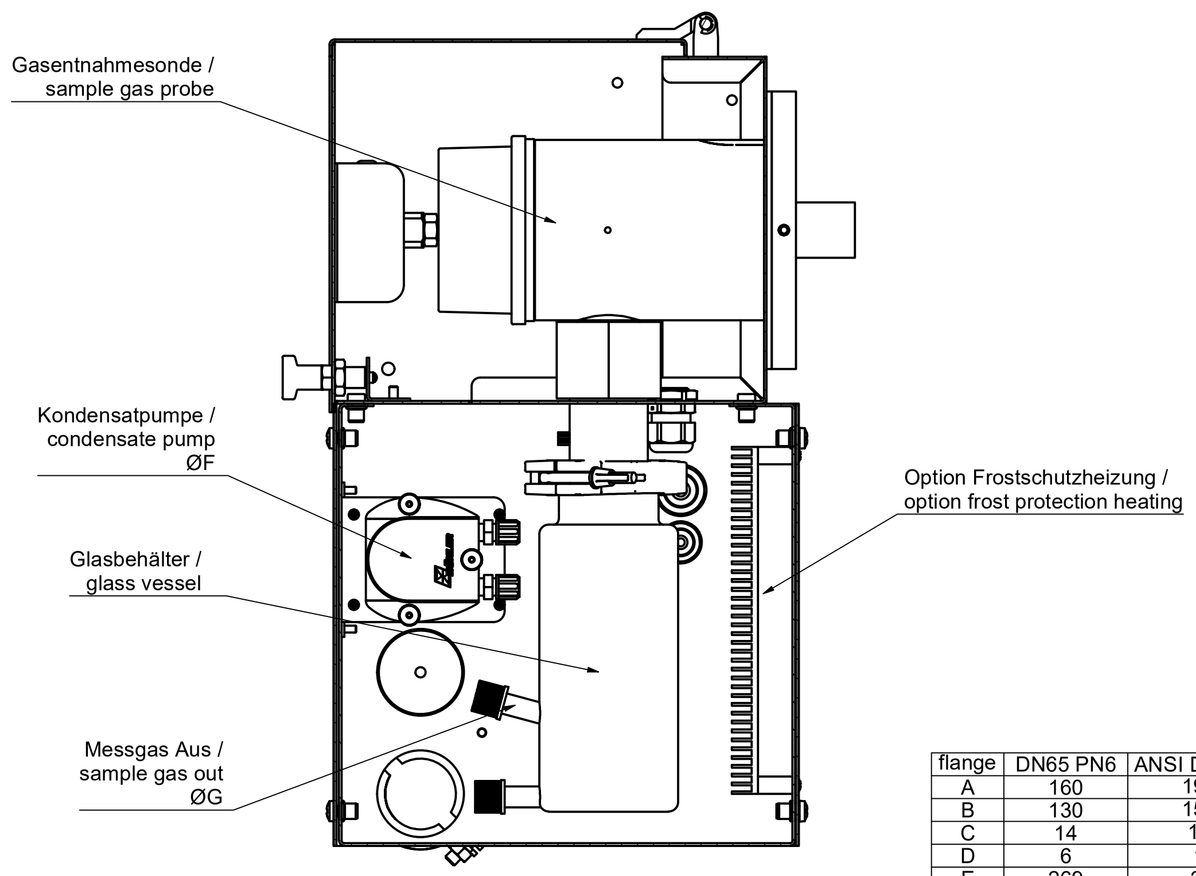






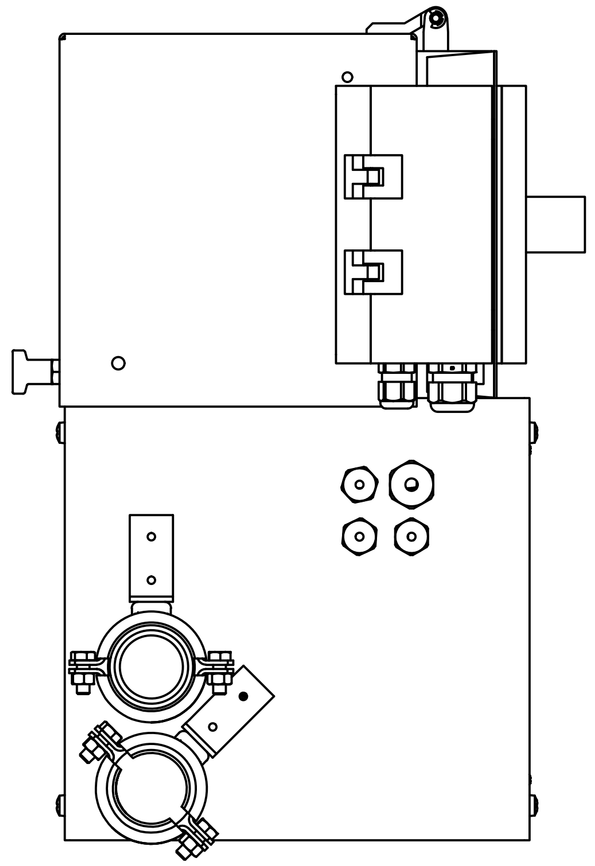


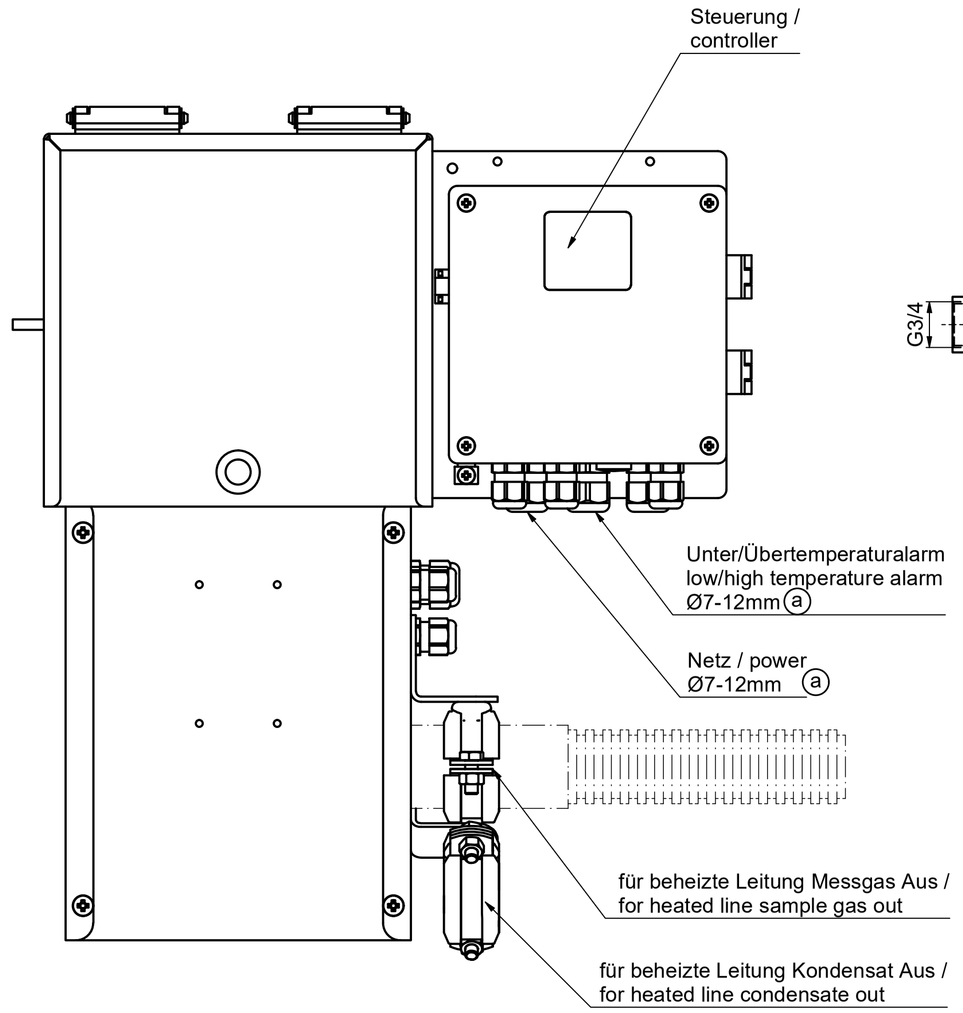
A-A

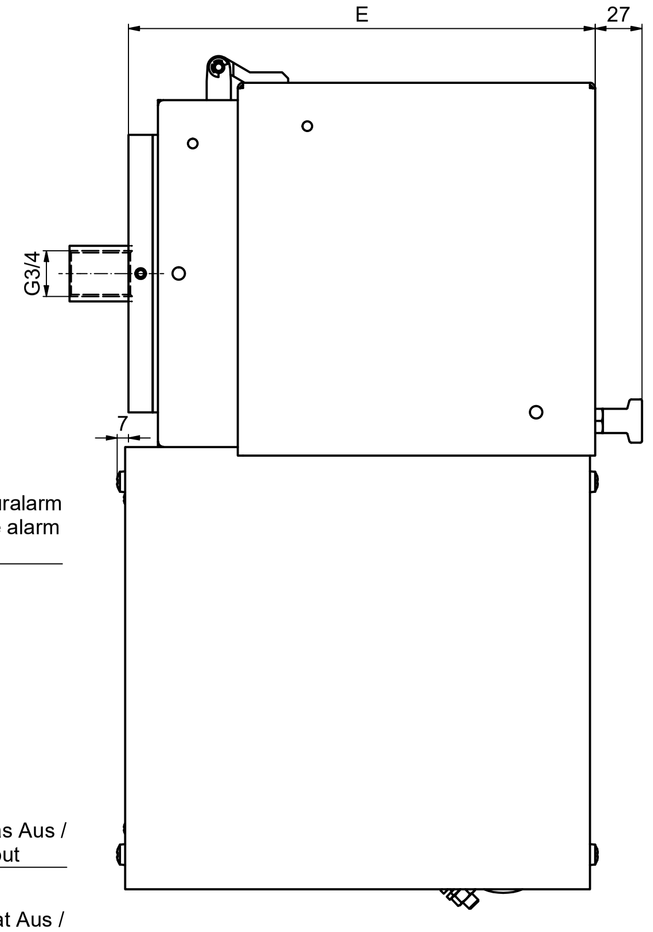


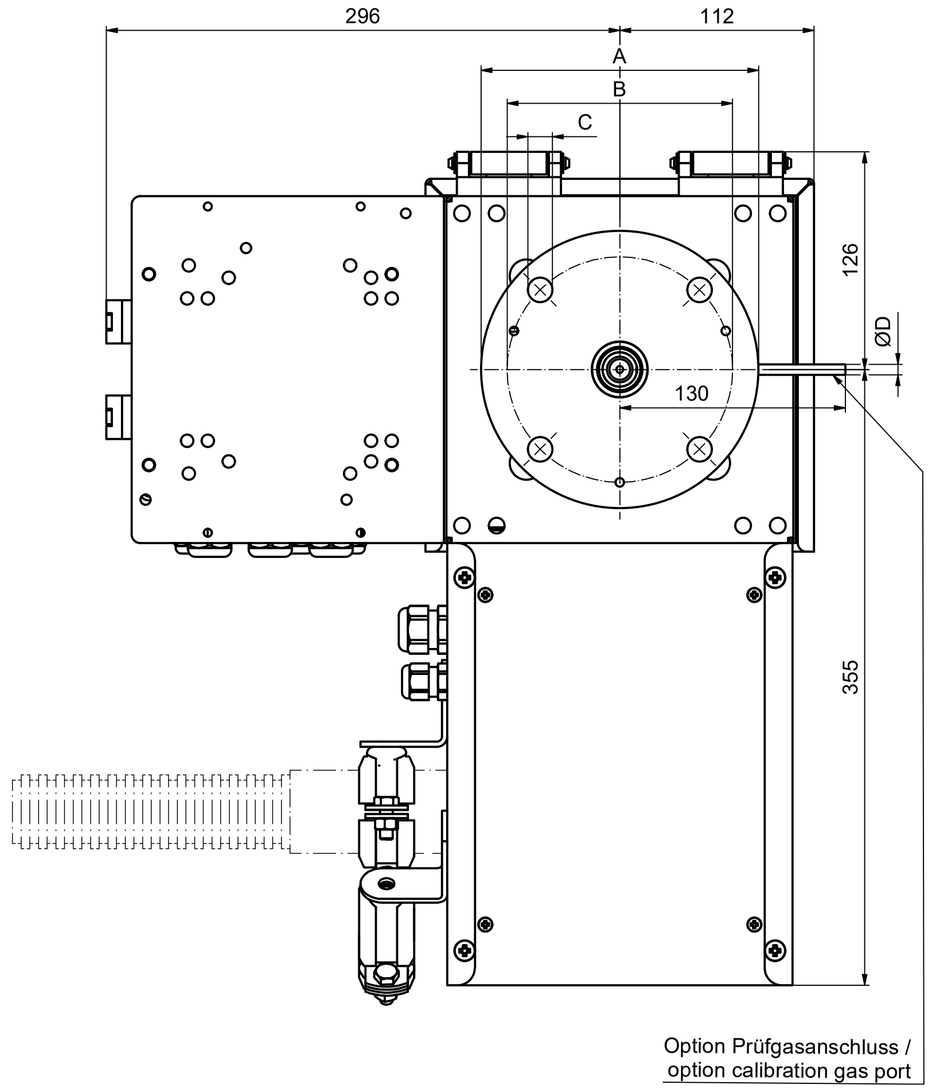
flange	DN65 PN6	ANSI DN3"-150
A	160	190,5
B	130	152,4
C	14	19,1
D	6	1/4
E	269	279
F	DN 4/6	DN 1/6 - 1/4
G	6	1/4

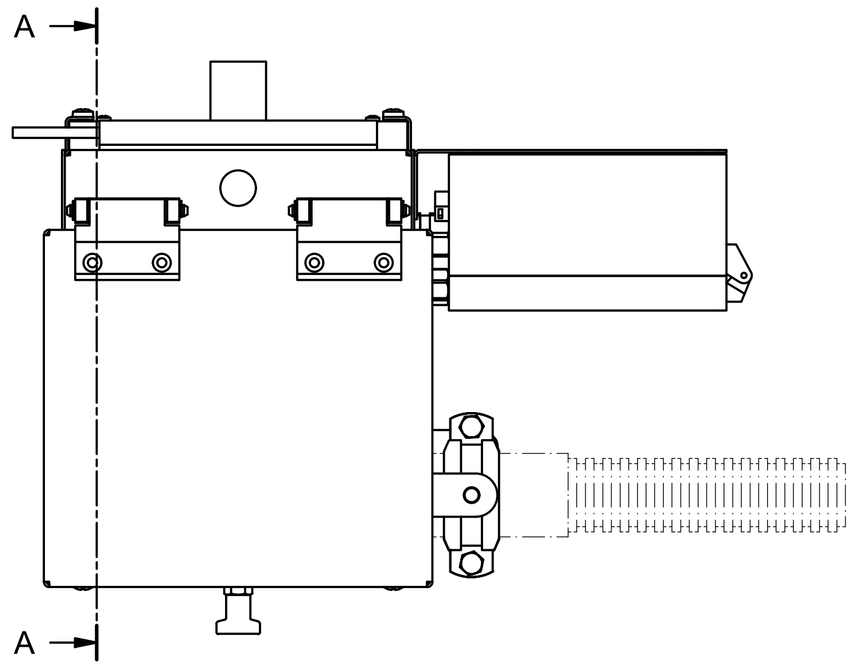
Alle Kanten gratfrei	Alle Rechte vorbehalten			Maße ohne Toleranzangabe nach ISO 2768-mK		Maßstab: 1:2,5	Masse:
						Werkstoff:	
= Rzh					Datum: Name:	Benennung: GAS 222.20 Denox-L	
= Rz 63					Bearb. 19.11.2020 Brinkmann		
= Rz 16					Gepr. 06.12.23		
= Rz 4				BÜHLER Technologies GmbH 40880 Ratingen		ZeichnungsNr.: 46/135-Z01-02-1A	
	a	2x	05.12.23	Br		Art.Nr.: 4622250xxxx100	
	Zust.	Änd.	Datum	Name	Ers.für:	Arbeitsanweisung:	



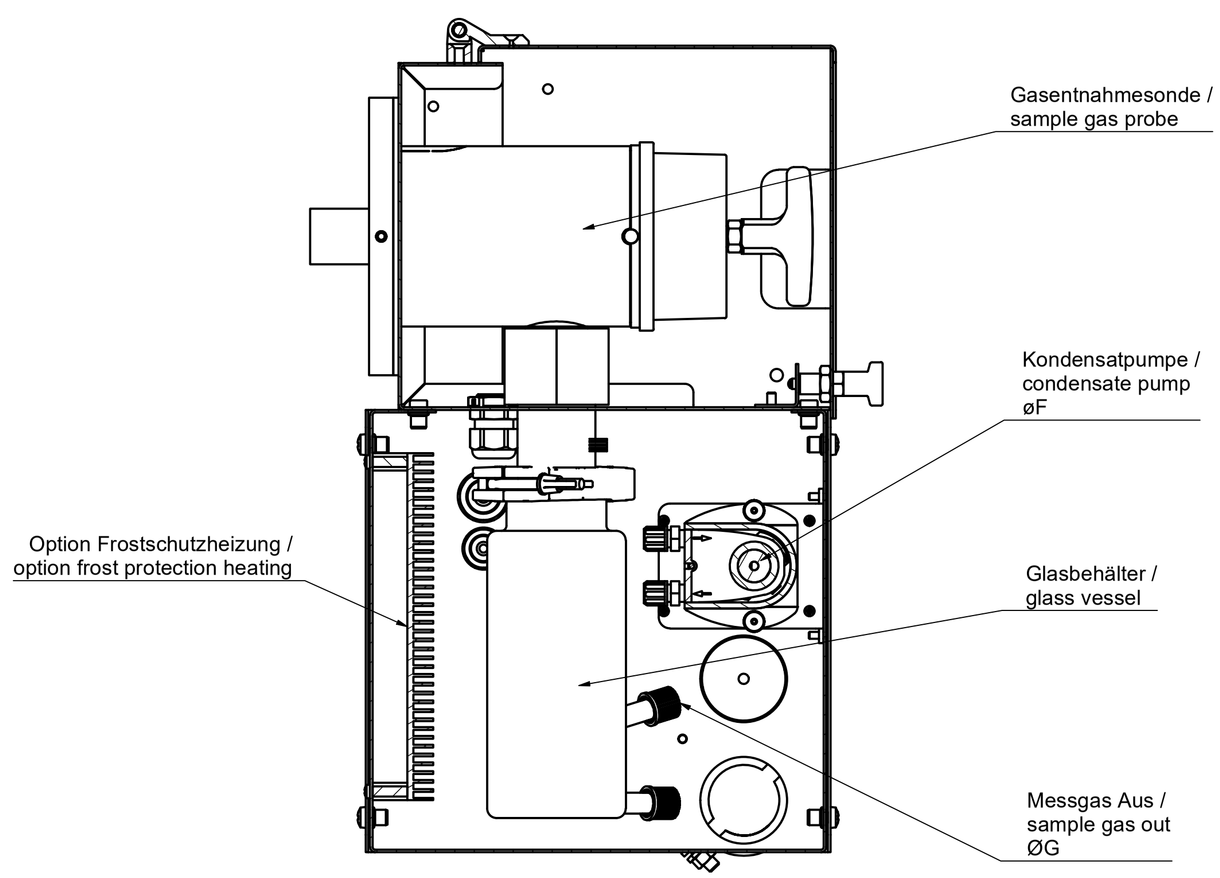








A-A



flange	DN65 PN6	ANSI DN3"-150
A	160	190,5
B	130	152,4
C	14	19,1
D	6	1/4
E	269	279
F	DN 4/6	DN 1/6 - 1/4
G	6	1/4

Alle Kanten gratfrei	Alle Rechte vorbehalten				Maße ohne Toleranzangabe nach ISO 2768-mK	Maßstab: 1:2,5	Masse:
						Werkstoff:	
√ = √ Roh					Datum: Name:	Benennung: GAS 222.20 Denox-R	
√X = √ Rz 63					Bearb. 19.11.2020 Brinkmann		
√Y = √ Rz 16					Gepr. 06.12.23		
√Z = √ Rz 4	a	2x	05.12.23	Br	BÜHLER Technologies GmbH 40880 Ratingen	ZeichnungsNr.: 46/135-Z01-01-1A	
	Zust.	Änd.	Datum	Name	Ers.für:	Art.Nr.: 4622250xxxx200	
						Arbeitsanweisung:	

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.

Folgende Richtlinie wurde berücksichtigt:

The following directive was regarded:

2014/30/EU (EMV/EMC)

Produkt / products: *Gasentnahmesonde / Sample gas probe*
Typ / type: DeNOx

Das Betriebsmittel dient zur Gasentnahme und ermöglicht ein gezieltes Auswaschen von Aerosolen oder von Ammoniak und deren Salzen.
The equipment is used for gas withdrawal and allows targeted washing out of aerosols or from ammonia and its salts.

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 61326-1:2013 **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*

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

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

The following legislation were regarded:

Electromagnetic Compatibility Regulations 2016

Product: Sample gas probe
Type: DeNOx

The equipment is used for gas withdrawal and allows targeted washing out of aerosols or from ammonia and its salts.

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 61326-1:2013

Ratingen in Germany, 17.02.2023

Stefan Eschweiler
Managing Director

Frank Pospiech
Managing Director

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

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	

Ansprechpartner/ Person in charge

Name/ Name	
Abt./ Dept.	
Tel./ Phone	
E-Mail	

Gerät/ Device	
Anzahl/ Quantity	
Auftragsnr./ Order No.	

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	☐ gesundheitsgefährdend/ harmful to health	☐ gesundheitsschädlich/ health hazard	☐ umweltgefährdend/ 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 comission an external service provider to clean the goods and invoice it to your account.

Firmenstempel/ Company Sign

Datum/ Date

rechtsverbindliche Unterschrift/ Legally binding signature

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

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 assembles 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.

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