Gas Analysis

Sample gas probes

Denox-MB

Installation and Operation Instructions

Original instructions

BE460034
01/2021

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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.

Document information
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Contents

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.

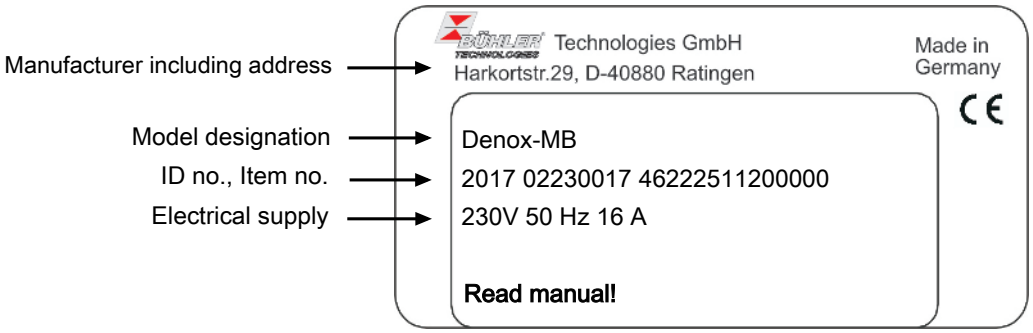
– Before installing the device, verify the listed technical data meet the application parameters.
– Further check if all contents are complete.

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 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:

4622251	X	X	X	0	0	0	0	Product Characteristics
								Flange
	1							DIN DN65 PN6
	3							ASME DN4"-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

1.5 Product Description

Probe	Description
DeNOx-MB	Probe with outlet filter, glass pearl receptacle built into a GFP housing, including air conditioner.
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 valid 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

In this manual, the following warning signs are used:

	Warning against hazardous situations		General notice
	Warning against electrical voltage		Disconnect from mains
	Warning against respiration of toxic gases		Wear respirator
	Warning against acid and corrosive substances		Wear eye/face protection
	Warning against potentially explosive atmospheres		Wear protection gloves
	Warning against hot surface		

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. The GFP protective housing should be secured by the fastening clips.

- 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 approved ambient temperature range (T_{amb}) of -20 °C to +50°C. The ambient temperature upper limit varies by inlet dew point and gas composition.
- Protect from shock and impact.

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

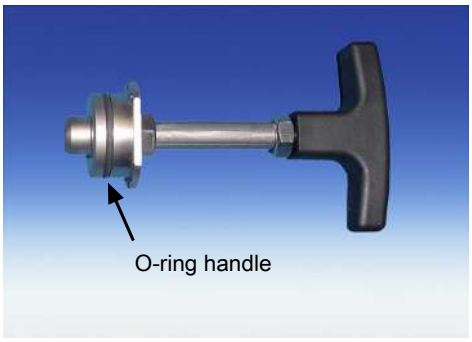
4.2 Installing the sampling tube (optional)

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 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.

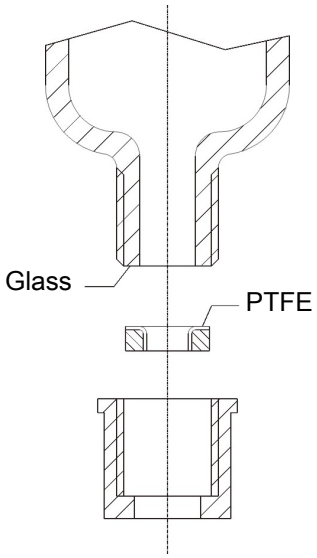
4.5 Connecting the gas line

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

Connecting flange:	DN65 PN6 oder ASME DN4"-150
Sample gas input:	G3/4
Sample gas outlet:	GL14 (6 mm) [1]
Test gas connection:	Tube ø6 mm or ø1/4”
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 hoses must be supported and secured by the cable gland.

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

Connect the DN 4/6 condensate line to the hose connection in the bottom.

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 15].

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.

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 (test voltage 1 kV or 1.5 kV depending on component).

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

– Disconnect / unplug all components (see pin assignment in the appendix).
– Now perform the electric strength test against earth.

The air conditioning is permanently connected to the probe.

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 GFP-housing provides a terminal block for connecting the mains supply and the alarm outputs of the air conditioning unit.

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; target temperature: 280 °C; working range: ±10 °C

5.2 Use of menu functions

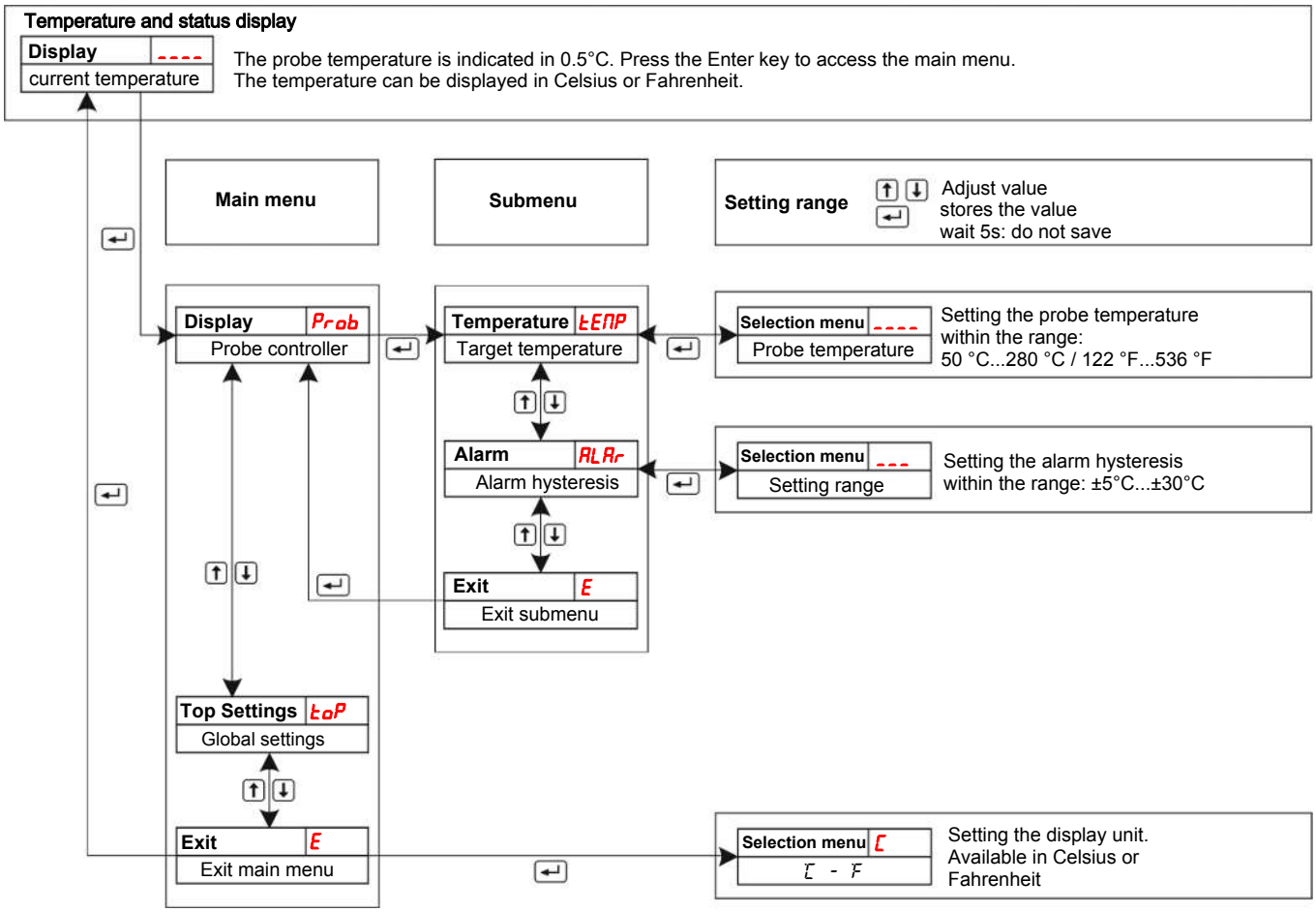
Overview of the operational principal:

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.

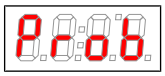
NOTICE! After saving values with the Enter key they will be applied to the control.

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

5.3 Description of menu functions

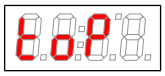
5.3.1 Main menu

Regulator (probe)



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

Globale settings (ToP Settings)

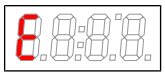


Selection of the global temperature unit, either degree Celsius (C) or degree Fahrenheit (F).

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.

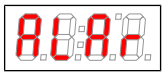
5.3.2 Submenu probe regulator [Display: Prob]

Regulator -> Target temperature (temperature)

This setting is for the device temperature target value. The value can be set in a range of 50 °C (122 °F) to 280 °C (536 °F).

Note:	The default value on delivery is 280 °C (536 °F).

Controller -> Alarm range

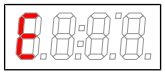


This item allows setting of the alarm range threshold for the optical alarm as well as for the alarm relay. The alarm threshold may be set in the range from ±5 °C (±9 °F) to ±30 °C (±54 °F) with respect to the nominal value.

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.

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.
– When performing maintenance of any type, observe the respective safety and operation regulations.

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".

A condensate connection is located at the underside of the probe. Ensure proper collection and professional disposal.

6.1 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 cover cap off to the back.
- 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 as necessary.

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 gas supply.
- Switch off and unplug the device.
- Open the housing cover.
- Disconnect the lines from the glass pearl receptacle.
- Loosen the joint clamp on the adapter and carefully remove the glass pearl receptacle
- Replacing/cleaning glass pearls and receptacle
- If necessary, replace the receptacle seal
- Reinstall the receptacle in the reverse order
- Reconnect the lines carefully and properly. Test for leaks!
- Close the housing cover.
- Reconnect to power.

6.3 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.

6.3.1 Replacing the downstream filter

- 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.

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

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

Tab. 1: Troubleshooting

7.2 Spare parts and accessories

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
46 222 024	O-ring kit for filter element and probe, material: Perfluorelastomer
46 222 026P	Filter element ceramic 3 µm perfluor
46 222 0671P	Filter element sintered VA 5 µm perfluor
46 222 500 040	Glass receptacle DeNox
44 100 4271	Glass beads
44 92 00 35 014	Peristaltic pump replacement hose
44 92 11 20 104	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.

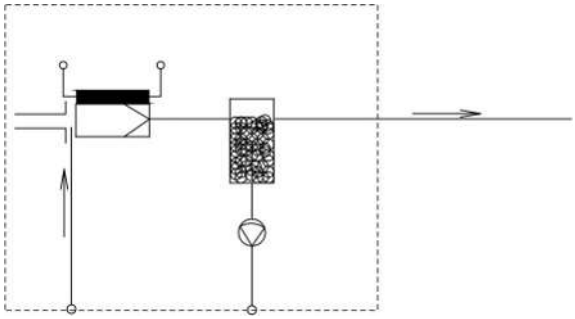
9 Appendices

9.1 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:	-20 °C to +50 °C
Electrical data:	230 V 50 Hz 650 W / 115 V 60 Hz 650 W
IP rating:	IP34
Parts in contact with media:	1.4571, glass, PVDF, Norprene, Viton, PTFE

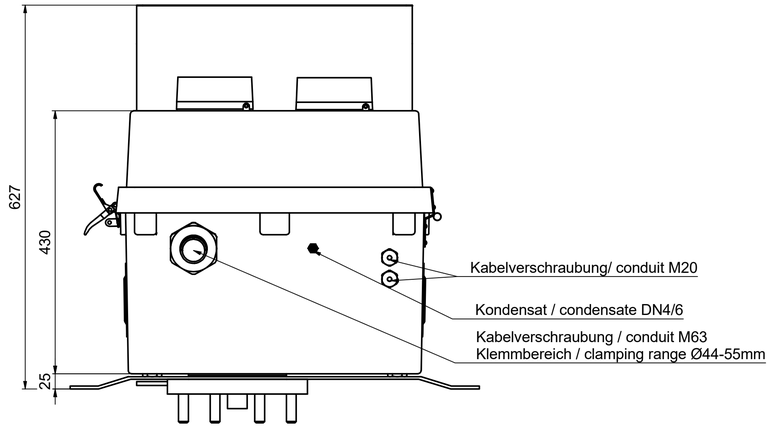
* the ambient temperature upper limit varies by inlet dew point and gas composition.

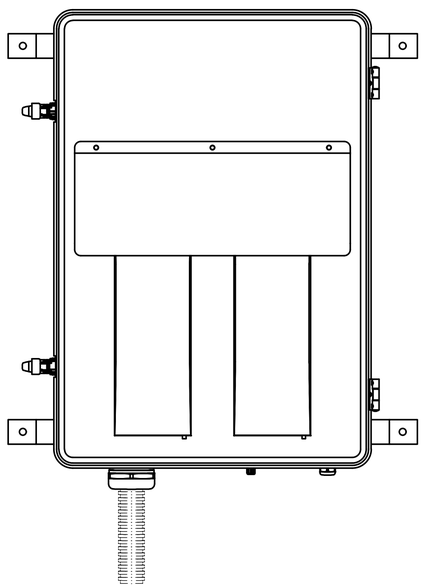
9.2 Flow diagram

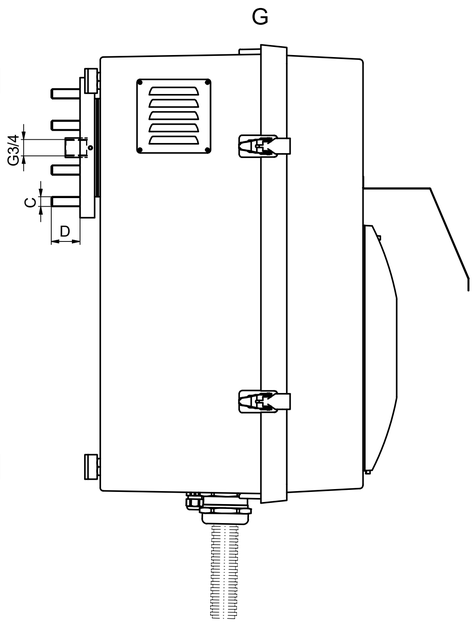


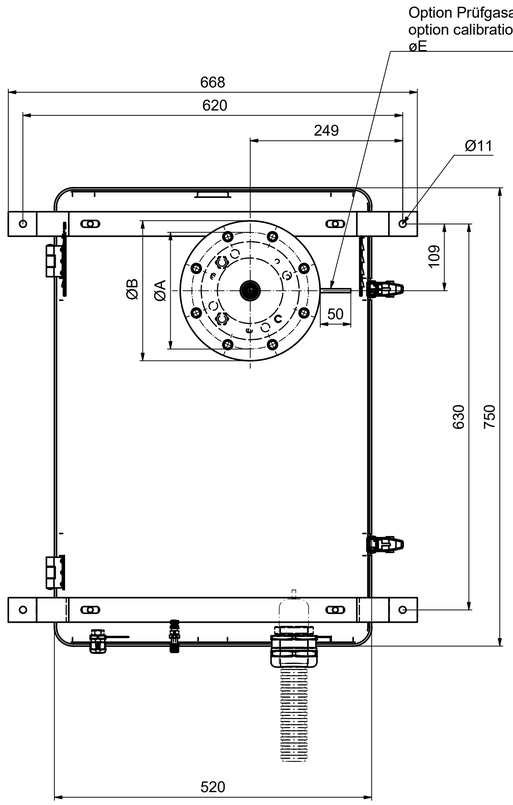
10 Attached documents

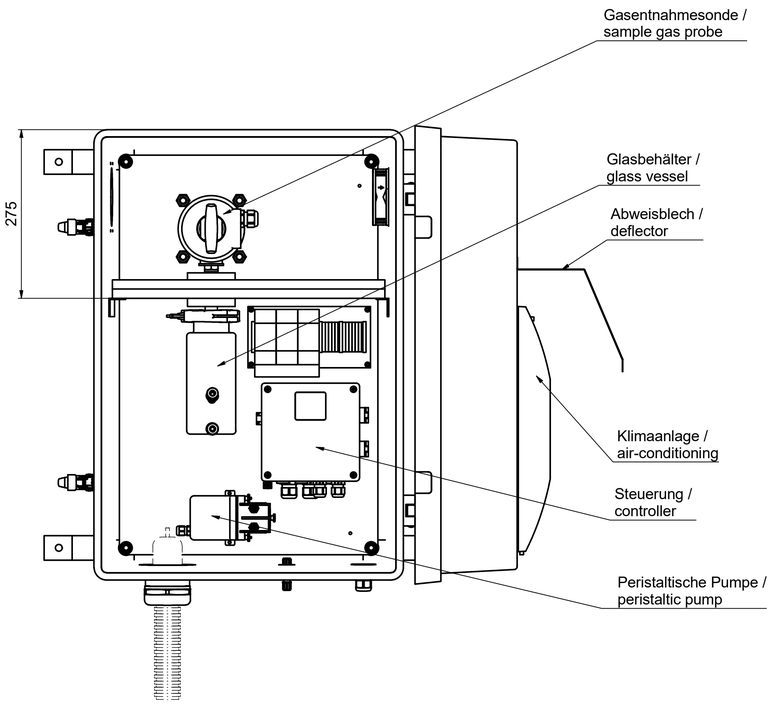
- Drawing: 46/132-Z02-30-1
- Current/terminal diagram: 51/R1406
- Operating Instructions Switch Cabinet Air Conditioner
- Declaration of Conformity
- RMA decontamination statement

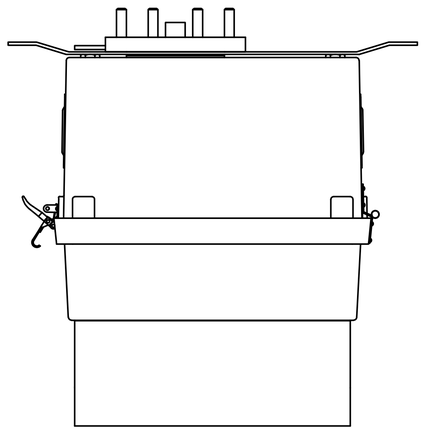












Flansch / flange	A	B	C	D	E
DN65 PN6	ø160	ø130	4x12	38	ø6
DN4"-150	ø228,6	ø190,5	8xM16	47	ø1/4

Alle Kanten gratfrei	Alle Rechte vorbehalten	Maße ohne Toleranzangabe nach ISO 2768-mK	Maßstab: 1:5	Masse:
			Werkstoff:	
		Datum: Name: Bearb. 10.11.2020 Brinkmann Gepr.	Benennung: Denox-MB	
		BÜHLER Technologies GmbH 40880 Ratingen	ZeichnungsNr.: 46/132-Z02-30-1	
			Art.Nr.:	
		Ers.für:	Arbeitsanweisung:	

Rzh = Rz 63 = Rz 16 = Rz 4

Zust. | Änd. | Datum | Name

Bühler Technologies GmbH

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40880 Ratingen
Tel.: +49 (0)2102 4989-0
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Kunde	: -
Anlagenbezeichnung	: Denox-MB

Ex-Kennzeichnung	: Nicht-Ex Bereich
Installationsort	: Außenaufstellung
Hersteller (Firma)	: Bühler Technologies GmbH
Projektverantwortlicher	: O. Brinkmann
Projektnummer	: 51_R1406
Zeichnungsnummer	: -
Auftragsnummer	: -

Erstellt am:	01.12.2020	von:	schlecht		Prüfer:	O. Brinkmann	
Bearbeitet am:	01.12.2020	von:	schlecht		Geprüft am:	01.12.2020	

Näheres siehe Revisionsübersicht		Geprüft von	O. Brinkmann	Projektbeschreibung: Denox-MB		Seitenbeschreibung: Deckblatt / Cover	Zeichnungsnummer: -	Maßstab: 1 : 1
		Bearbeiter	schlecht					= / +
0	0	Bearb. Datum	01.12.2020				Auftragsnummer: -	Kunde: -
Revision	Rev. Datum	Projektnr.	**51_R1406**					Bl. 1 / Bl. 4

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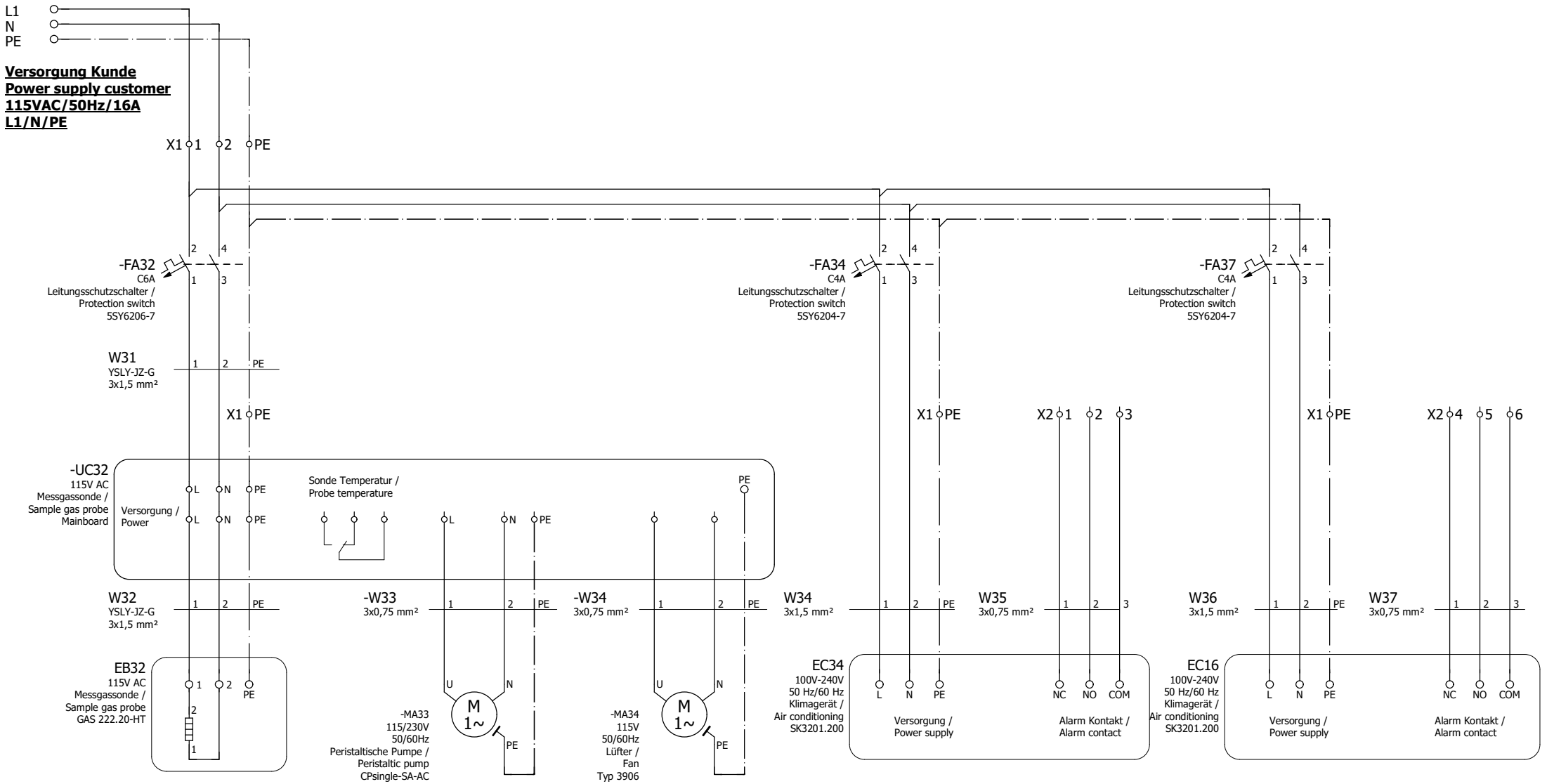
		Bearbeiter	schlecht						
0	0	Bearb. Datum	01.12.2020				Auftragsnummer: -	Kunde: -	Bl. 2
Revision	Rev. Datum	Projektnr.	**51_R1406**						Bl. 4



Messgassonde / Sample probe

Kontakt Sonde / Contact probe

Peristaltische Pumpe / Peristaltic pump

Lüfter / Fan

Klimagerät 1 / Air conditioning 1

Alarm Klimagerät 1 / Alarm air conditioning 1

Klimagerät 2 / Air conditioning 2

Alarm Klimagerät 2 / Alarm air conditioning 2

Näheres siehe Revisionsübersicht		Geprüft von	O. Brinkmann	Projektbeschreibung: Denox-MB	BÜHLER TECHNOLOGIES	Seitenbeschreibung: Versorgung 115V AC / Supply 115V AC	Zeichnungsnummer: -	Maßstab: 1 : 1 = +
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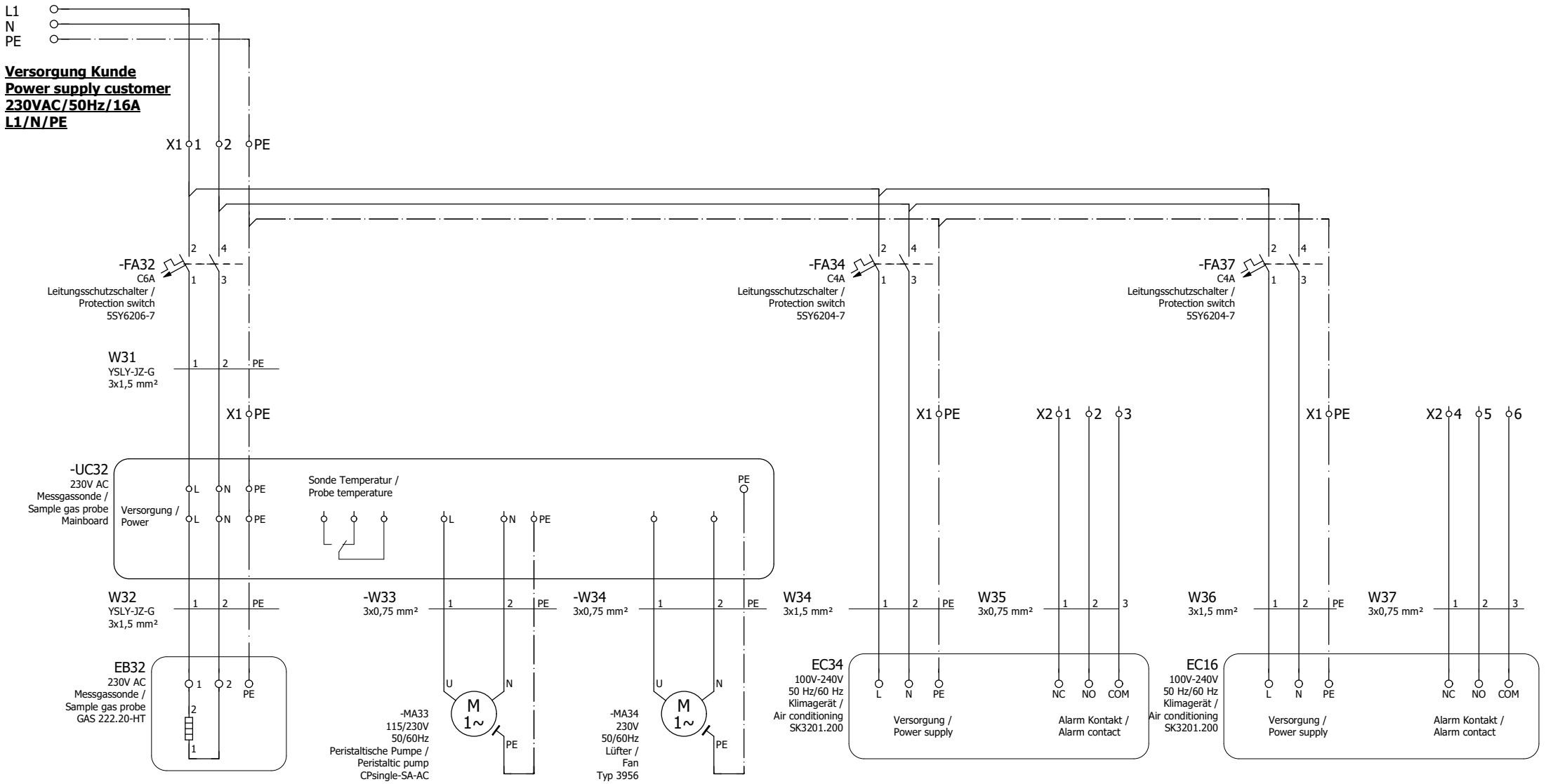
0	0	Bearb. Datum	01.12.2020				Auftragsnummer: -	Kunde: - Bl. 3
Revision	Rev. Datum	Projektnr.	**51_R1406**					Bl. 4



Messgassonde / Sample probe	Kontakt Sonde / Contact probe	Peristaltische Pumpe / Peristaltic pump	Lüfter / Fan	Klimagerät 1 / Air conditioning 1	Alarm Klimagerät 1 / Alarm air conditioning 1	Klimagerät 2 / Air conditioning 2	Alarm Klimagerät 2 / Alarm air conditioning 2

3

Näheres siehe Revisionsübersicht		Geprüft von	O. Brinkmann	Projektbeschreibung: Denox-MB		Seitenbeschreibung: Versorgung 230V AC / Supply 230V AC	Zeichnungsnummer: -	Maßstab: 1 : 1	= +
		Bearbeiter	schlecht						
0	0	Bearb. Datum	01.12.2020				Auftragsnummer: -	Kunde: -	Bl. 4
Revision	Rev. Datum	Projektnr.	**51_R1406**						Bl. 4

RITTAL
TOP
THERM

Schaltschrank-Klimagerät

Climate control unit

Climatiseur

Klimaat unit

Kylaggregat

Condizionatore per armadi

Refrigerador para armarios

エンクロージャー用温度管理ユニット

RITTAL **SK 3201.200**
Thermoelectric Cooler **SK 3201.300**

Montage-, Installations- und Bedienungsanleitung

Assembly and operating instructions

Manuel d'installation et de maintenance

Montage- en bedieningshandleiding

Montage- och hanteringsanvisning

Istruzioni di montaggio e funzionamento

Instrucciones de montaje

取扱説明書

FRIEDHELM LOH GROUP

RITTAL

EN

Before installation of the climate control unit, please read this manual completely and carefully.

The manual is a permanent part of the supplied system and must be retained until the device is decommissioned.

We thank you for deciding to purchase a RITTAL product!

The RITTAL Thermoelectric Cooler is a high-performance thermoelectric light-weight climate control unit with the highest efficiency (COP > 1) of its class!

The climate control unit is particularly suitable for the climate control of operating housings and small enclosures!

Before using the climate control unit, read this manual carefully in order to make full use of the excellent performance characteristics of the product.

RITTAL GmbH & Co. KG products are continually adapted to the requirements and needs of our customers. This means the information concerning the product characteristics and functions contained in this manual can be changed without notice in the case of product improvements.

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Contents

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1 Unpacking and checking

The RITTAL Thermoelectric Cooler is delivered in transport packaging.

The supplied system consists of:
1 x climate control unit
1 x assembly and operating instructions
1 x accessories bag

Dispatch bag content:
1 x assembly and operating instructions
1 x self-adhesive sealing tape
1 x filter mat
1 x drilling template
1 x connector plug
(power supply and alarm output)
Assembly parts
1 x USB cable
1 x CD-ROM

Check that the delivered system is complete and undamaged. Any obvious transport damage must be reported without delay to the responsible transport company.
The latest version of the “General conditions for deliveries and services” of the ZVEI (Central Association of the German Electrotechnical Industry) applies.

Prior to disposal, check the packaging material for any loose function parts!

2 Notes on documentation

Assembly and operating instructions are available in printed form (provided with the supplied system) and as a PDF file on CD-ROM for the **RITTAL Thermoelectric Cooler.**
A PDF file is available as free download from www.rittal.com. ACROBAT READER® is required to view the file.
The accompanying documentation must be observed for the assembly, installation and operation of the climate control unit. RITTAL cannot accept any liability for damage associated with the failure to observe these instructions.
The information and safety notes in this manual follow the following structure:

Safety and other instructions:

Danger!
Warning of a potential danger source.
Danger to life and health in case of non-observance!

Danger!
Warning of a dangerous electrical voltage.
Danger to life and health in case of non-observance!

Danger!
Warning of slippery surface.
Danger to life and health in case of non-observance!

Note:
Useful information and special features.

2.1 Retention of the manual

The operating company is responsible for retaining the manual.

No part of the manual may be reproduced or processed, copied or distributed using electronic systems in any form (printed, microfilm or any other form) without the written approval of RITTAL GmbH & Co. KG. No liability can be assumed for any damage resulting from the non-observance of the information contained in this manual.

EN

3 Safety notes

The following general safety notes must be observed for the assembly, installation and operation of the climate control unit:

– The assembly, installation and servicing of the climate control unit may only be performed by properly trained specialists.
– The mains connector of the climate control unit must only be connected and disconnected with the system de-energised. The device must be protected with a pre-fuse.
– No changes may be made to the climate control unit.
– Only the customer service or authorised personnel may open the device. The opening of the device by the user or unauthorised persons is not permitted and will void any warranty claim.
– The climate control unit is intended only for the climate control of enclosures and housings. Any other use shall be deemed improper. The manufacturer is not liable for any resulting damage! Proper usage also includes the observance of all valid documents and compliance with the inspection and servicing conditions.
– The air inlet and outlet openings on the climate control unit must not be covered.
– Use only original spare parts and accessories expressly approved for the RITTAL Thermoelectric Cooler. Otherwise malfunctions or damage can occur. Warranty claims cannot be accepted for such damage.

3.1 Proper usage

The RITTAL Thermoelectric Cooler conforms to the current state-of-the-art.

The climate control unit is intended only for cooling/heating enclosures and operating housings.

Any other use shall be deemed improper.

Proper usage is possible only when all associated documents, and the device-specific assembly and operating instructions are observed.

The manufacturer is not liable for any damage resulting from improper use.

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4 How it works

The RITTAL Thermoelectric Cooler uses the Peltier effect for cooling/heating. This effect is based on the principle that an electric direct-current flowing through a circuit consisting of two different metals causes the cooling of one contact point and the heating of the other contact point. An appropriate layout for the cooling/heating production is designated as Peltier element.

When the Peltier effect is used for enclosure climate control, an air flow is fed over the upper and lower connection point. The heat energy is released or accepted from the air flow to the Peltier element. The air flow that releases the heat energy to the element is introduced as cooling air flow in the enclosure or the operating housing.

After the heating of the cooling air flow by the active installed equipment, it is returned to the climate control unit and fed for renewed cooling over the “cold” side of the Peltier element. This produces an air circulation that causes the cooling of the enclosure or the operating housing.

The air flow that accepts the heat energy from the “warm” side of the Peltier element is released as warm air flow to the external air circuit of the climate control unit. This means the heat produced by the components in the enclosure is dissipated to the ambient air surrounding the climate control unit.

By reversing the polarity with the controller, depending on the unit's setpoints, operation is switched to heating. This will reverse the process described above.

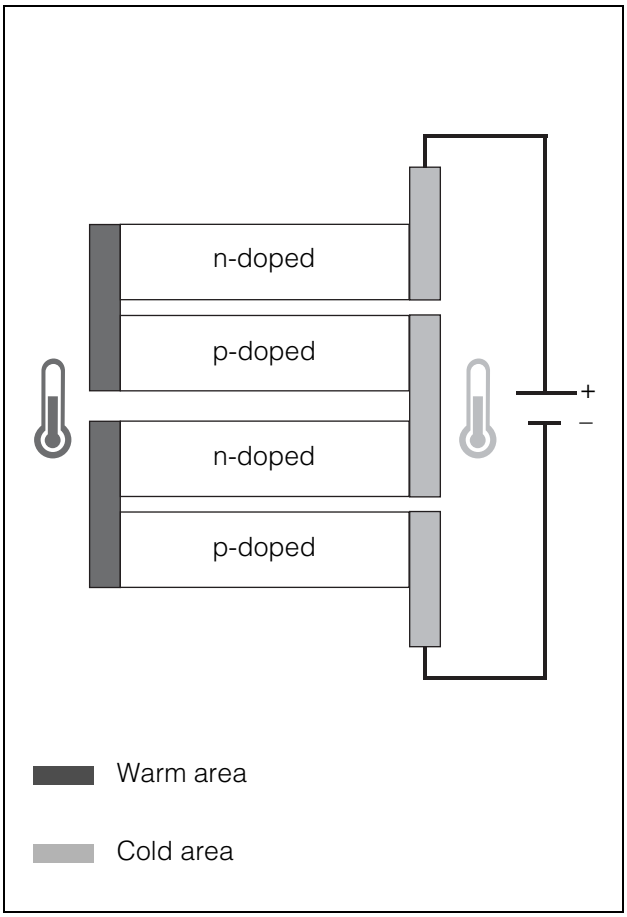

Fig. 1: Peltier element

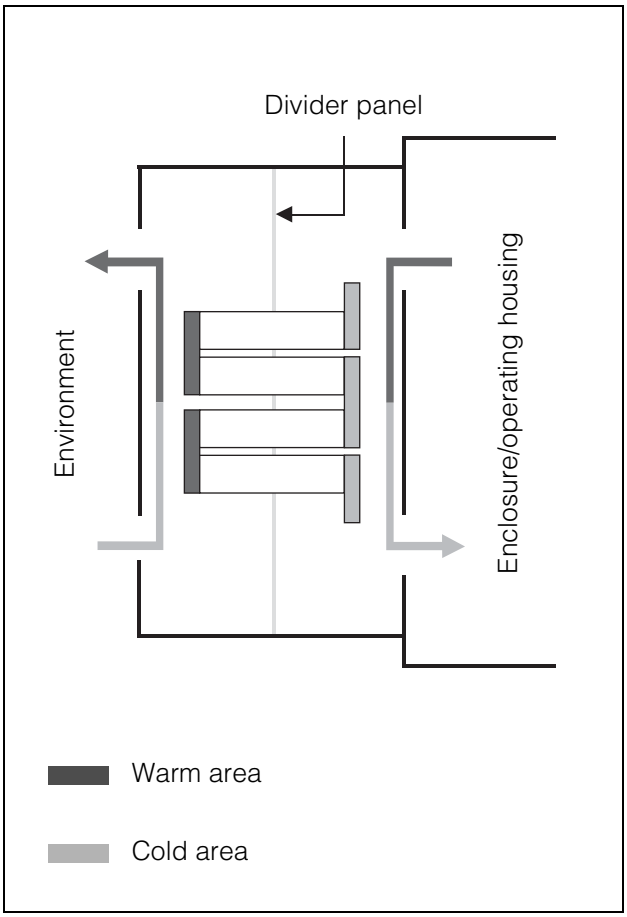

Fig. 2: Peltier climate control unit (cooling operation)

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5 Control

The RITTAL Thermoelectric Cooler controls the cooling/heating capacity of the Peltier elements and the air throughput of the integrated fans so that the required internal temperature of the enclosure or the operating housing is set with high accuracy. For this purpose, the device permanently monitors the air entry temperature at the warm air entry (internal circulation). If this temperature exceeds or falls below a parameterised temperature value (factory setting: cooling 35°C/heating 5°C), the device starts cooling/heating operation. To do this, the trigger voltages of the Peltier elements and fans are corrected by a PID control so that the cooling/heating capacity required for the cooling/heating is always available and the cooling/heating operation is provided with the least possible power. The redundant fans in the external air circuit of the RITTAL Thermoelectric Cooler have variable air delivery rates (and consequently variable speeds) appropriate for the required cooling/heating capacity. If only limited or indeed no cooling/heating capacity is required, this control behaviour can lead to a temporary inactivity of the fans in the external air circuit. This does not constitute a malfunction of the device, but rather an extreme power-saving operating state that also increases the service life of the used fans.

Note:
The fan speed in the external air circuit of the climate control unit is matched to the current cooling/heating capacity requirement.
Consequently, a stoppage of the fans – interrupted by periodic, short-term fan starts – is not a malfunction of the device, but rather represents an extreme power-saving operating state!

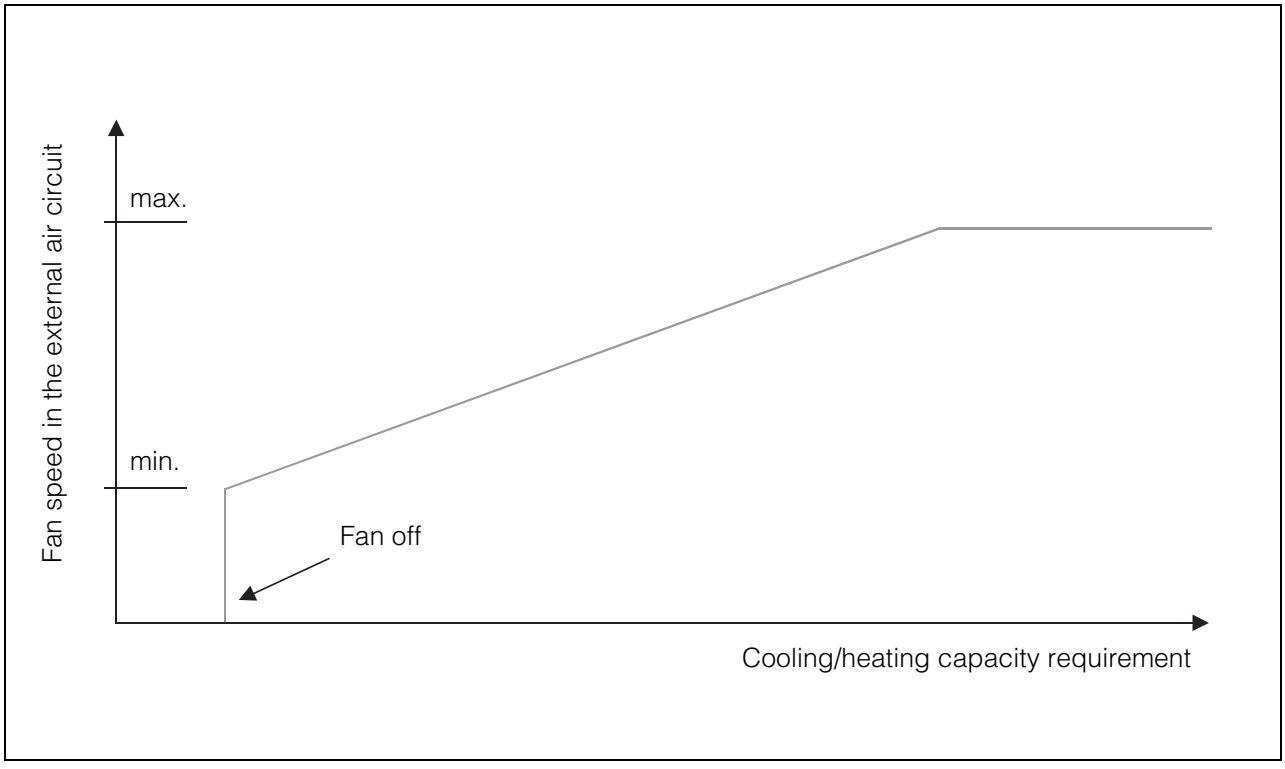

Fig. 3: Control behaviour of the fans in the external air circuit

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6 Device description

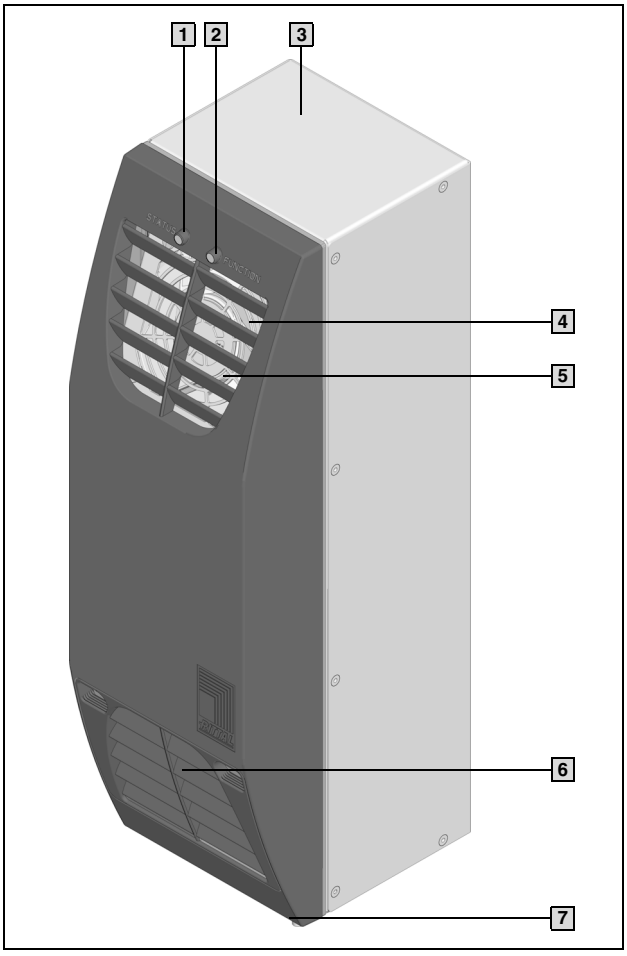

Fig. 4: Device front

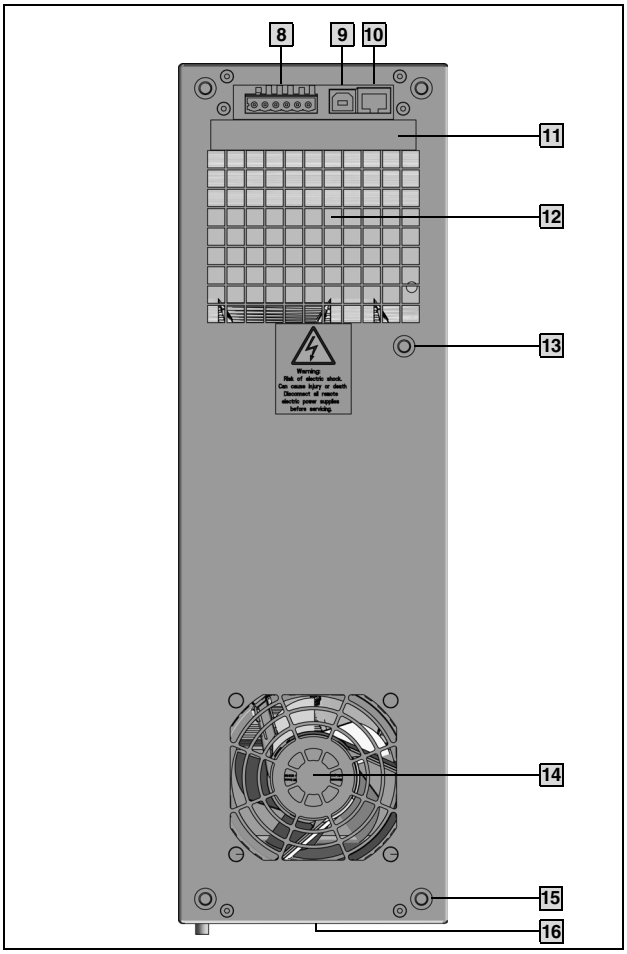

Fig. 5: Device rear

Legend

1 Status display
2 Function display
3 Housing
4 Louvred grille
5 Air outlet opening – external air circuit
6 Air inlet opening with filter element (optional) – external air circuit
7 Condensate discharge
8 Interface X1: supply voltage and alarm output
9 Interface X2: USB 2.0, type B
10 Interface X3: RJ 45
11 Connection diagram
12 Air inlet opening – internal air circuit
13 Potential equalisation
14 Air outlet opening – internal air circuit
15 Blind nut
16 Rating plate (on the device lower side)

EN

7 Device mounting

The following principles must be observed for determining the mounting position on the enclosure or operating housing:

The direct incidence of cold/warm air on temperature-sensitive components must be avoided!

Components with integrated fans determine the air routing in the enclosure or operating housing.

The mounting position of the climate control unit must be chosen so that the air flow supports the cooling/heating of these components.

A free space of at least 100 mm is required in front of the air inlet and outlet openings of the climate control unit in the internal and external circuit.

The climate control unit must be positioned on the enclosure so that the condensate discharge opening is located at the lowest point of the climate control unit.

The RITTAL Thermoelectric Cooler is mounted as external or full internal mounting.
The supplied drilling template must be used to fasten the climate control unit on the enclosure or the operating housing.
The drilling template provides dimension lines for the various installation options of the climate control unit.
Identify appropriate lines and dimensions on the drilling template for the required mounting type (external or full internal mounting) using figures 6 and 7.

Drill the required holes for fastening the climate control unit and then cut the required cut-out, including the line width, in accordance with the drilling template.

Risk of injury!
Wear protective gear (safety glasses, protective gloves) when cutting the mounting cut-out and drilling the fastening holes.
Carefully deburr all drilled holes and cut-outs to prevent injuries caused by sharp edges.

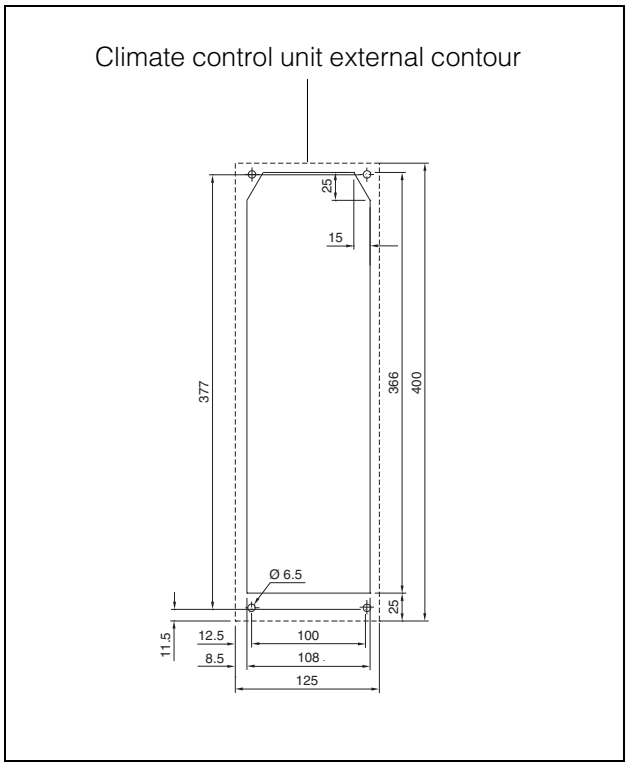

Fig. 6: Mounting cut-out and hole sizes for external mounting

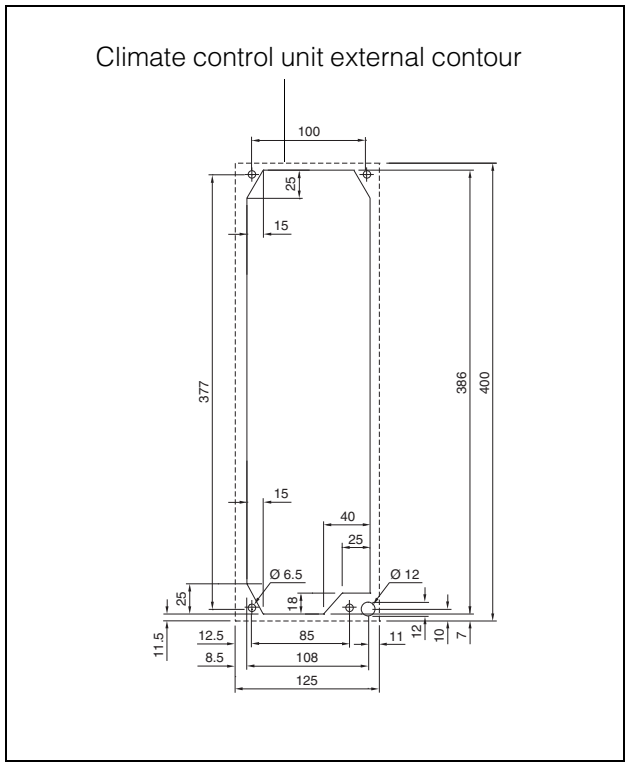

Fig. 7: Mounting cut-out and hole sizes for internal mounting (full internal mounting)

7 Device mounting

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7.1 External mounting

When the climate control unit is mounted as externally-mounted variant, the supplied self-adhesive sealing tape must be fastened on the device rear wall of the climate control unit so that no gaps result at the joint edges. Secure the climate control unit using the supplied washers and cheese-head screws.

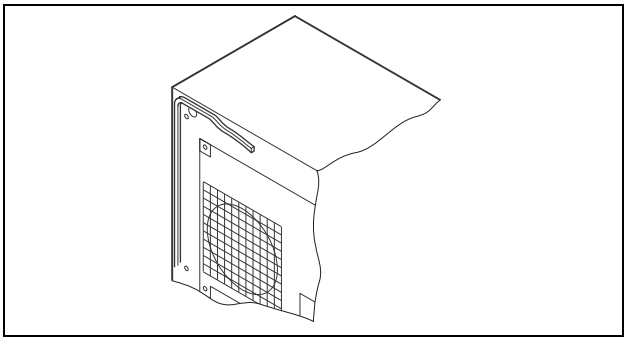

Fig. 8: Position of the sealing tape

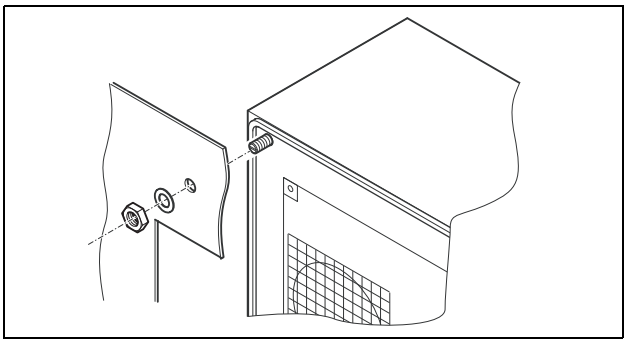

Fig. 9: Fastening the climate control unit

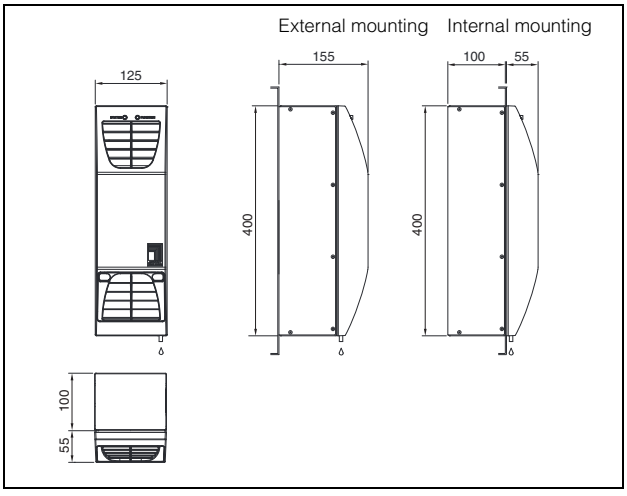

Fig. 10: External and internal mounting

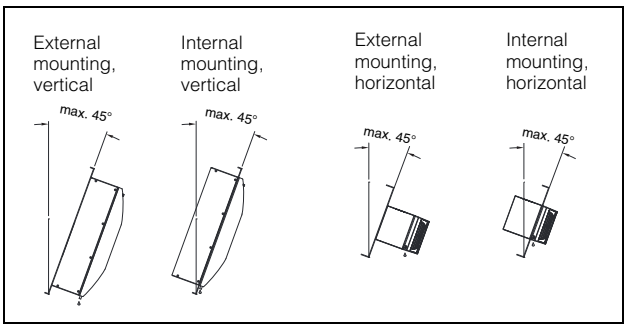

Fig. 11: Permissible mounting positions

7.2 Internal mounting

For the full internal mounting of the climate control unit, the louvred grille must be carefully removed from the device. The self-adhesive sealing tape supplied must be placed on the front of the climate control unit (the device face from which the louvred grille has been removed) so that no gaps result at the joints. Secure the climate control unit using the supplied washers and cheese-head screws. To complete the mounting, the louvred grille must be re-attached.

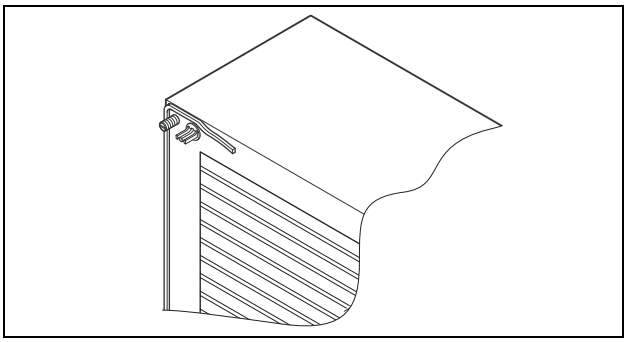

Fig. 12: Position of the sealing tape

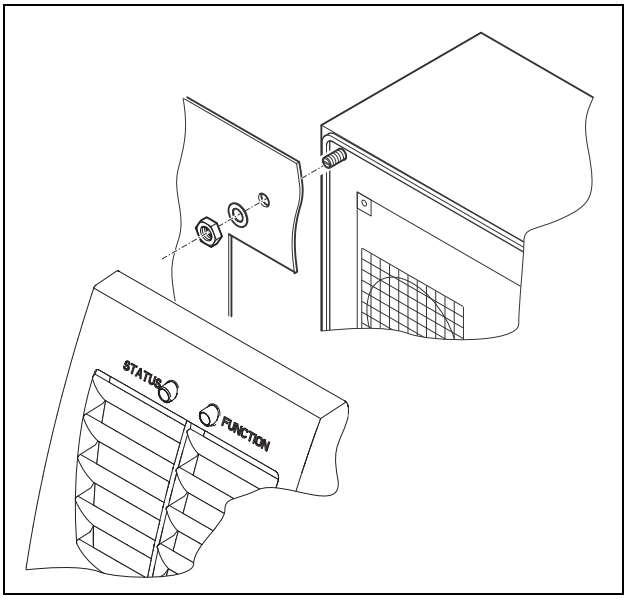

Fig. 13: Fastening the climate control unit

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8 Filter mounting

The RITTAL Thermoelectric Cooler can be equipped with a device filter (supplied).
An appropriate filter unit is recommended when the climate control unit is used in ambient air subject to dust.

Note:
When a filter unit is used, it must be cleaned regularly or, if necessary, replaced.

When a filter is installed, the lower louvred grille in the air inlet of the climate control unit must be removed. To do this, raise the louvred grille with a light tug at the marked position (see Figure 14) and withdraw it at the front. Then place the filter mat in the filter holder of the device. The colour-marked side of the filter mat must face the device. Then re-mount the louvred grille and snap it into position by applying light pressure.

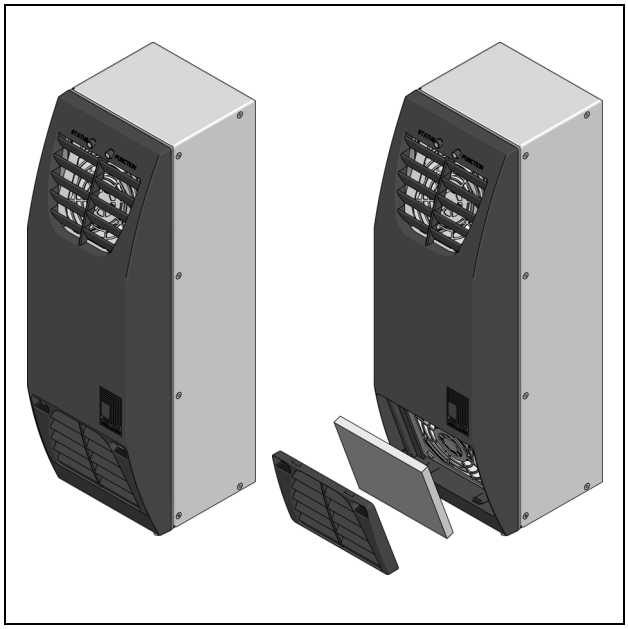


Fig. 14: Removable louvred grille

9 Mounting of the condensate discharge

The RITTAL Thermoelectric Cooler is equipped with a condensate discharge.

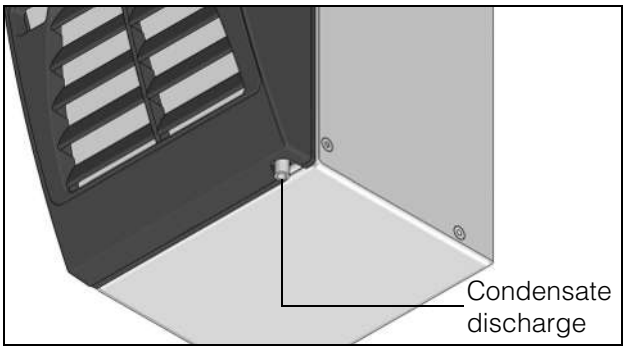


Fig. 15: Condensate discharge

The controlled condensate discharge requires a condensate discharge hose be connected to the climate control unit's condensate discharge supports. The condensate hose is available as accessory.

The installation of the condensate hose requires that it
– is laid with a gradient (no siphon formation),
– does not have any kinks,
– must not have a reduced cross-section if extended.

Risk of injury!
The operation of the climate control unit without controlled condensate discharge can cause liquid to accumulate below the device.

EN

10 Electrical connection

Danger!
Warning of a dangerous electrical voltage.
Danger to life and health in case of non-observance!

10.1 Connection data

- The mains voltage and frequency must correspond to the values stated on the rating plate.
- An all-range fuse specified on the rating plate must be connected upstream as line and device protection.
- No additional temperature control is allowed to be connected upstream of the climate control unit on the supply side.
- An isolating device that ensures a contact opening of at least 3 mm in switched-off state must be connected upstream of the climate control unit.
- The mains connection must ensure low-noise potential equalisation.

Fig. 16: Rating plate

The RITTAL Thermoelectric Cooler is available with integrated multi-range power pack (100 – 240 V/AC) and as 24 V/DC variant (without integrated power pack).

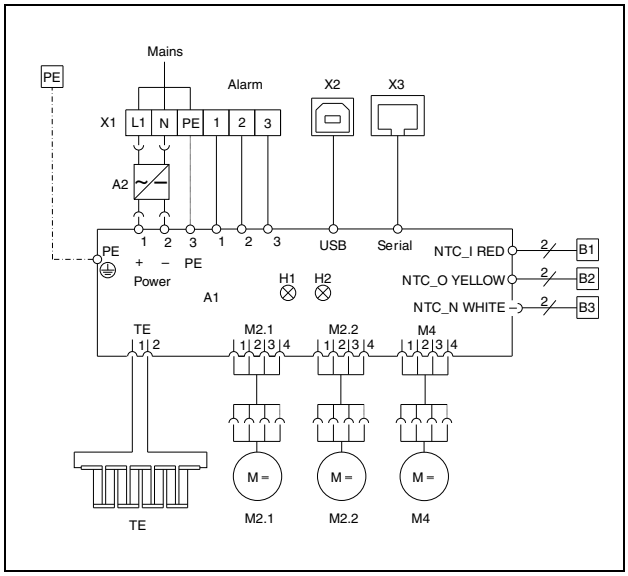


Fig. 17: SK 3201.200 connection diagram, integrated power pack

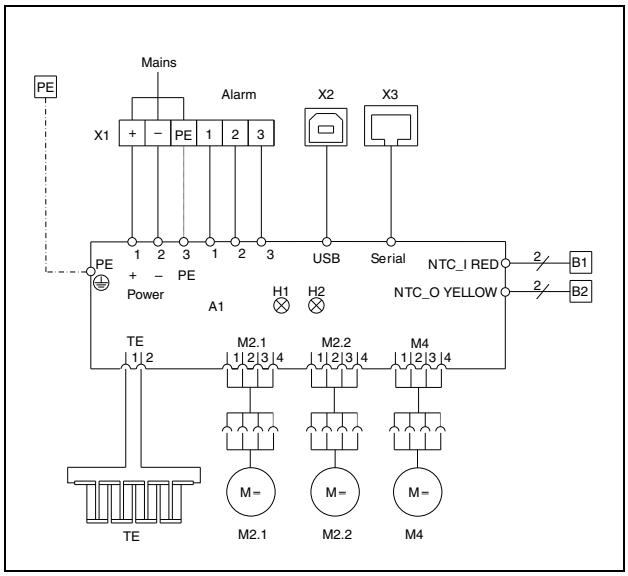


Fig. 18: SK 3201.300 connection diagram, without integrated power pack

Legend

A1	Power PCB
A2	Power pack
B1	Temperature sensor, internal temperature
B2	Ambient temperature sensor
B3	Temperature sensor, power pack
H1/H2	Status and function display
M2.1	External fan 1
M2.2	External fan 2
M4	Internal fan
TE	Thermoelectric elements
X1	Terminal strip
X2	USB connection
X3	Interface (master-slave)

EN

11 Interfaces

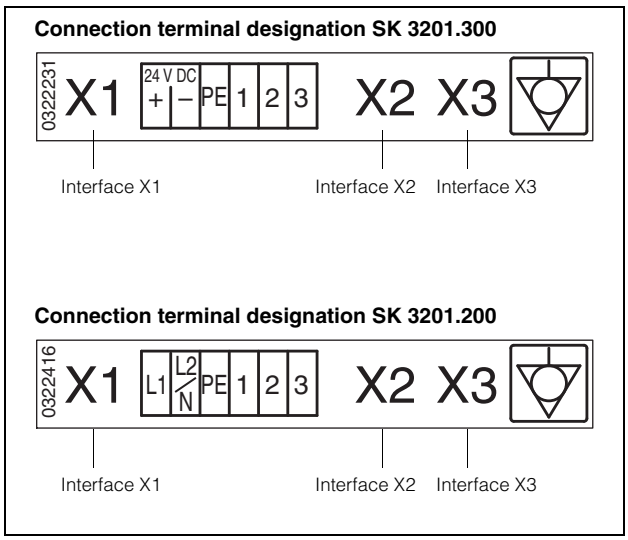


Fig. 19: Designations of the device interfaces

11.1 Interface X1 – power supply and alarm output

- Power supply
  SK 3201.200: AC: 100 – 240 V, 50/60 Hz
  SK 3201.300: DC: 24 V (SELV)

- Change-over contact/alarm output (floating connection)
  Switching load: AC: 250 V/2 A, DC: 6...30 V/2 A
  The signal relay releases for overtemperature, low temperature, sensor break and fan failures.

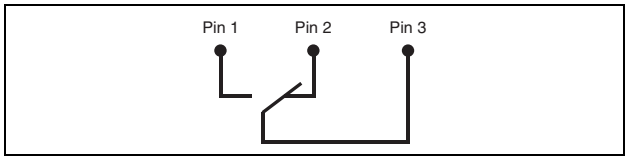


Fig. 20: Change-over contact assignment

11.2 Interface X2 – device programming

- USB 2.0 interface for RTC PC software
- The software can be found on the CD-ROM of these assembly instructions

11.3 Interface X3 – integration in a higher-level monitoring system (optional)

- RJ 45 for master-slave operation; bus cable available as accessory (Model No. SK 3201.070)
- Connect the units via X3
- Activating the units is done via the RTC PC software

The interface X3 permits the connection of the climate control unit in higher-level monitoring systems.

Note:
The electrical signals at the interface X3 are extra-low voltages (not extra-low safety voltages in accordance with EN 60 335).

12 Earth connection

The RITTAL Thermoelectric Cooler is equipped with a potential equalisation connection point. A conductor with a nominal cross-section of at least 6 mm^2 must be connected to this connection point and included in the provided potential equalisation.

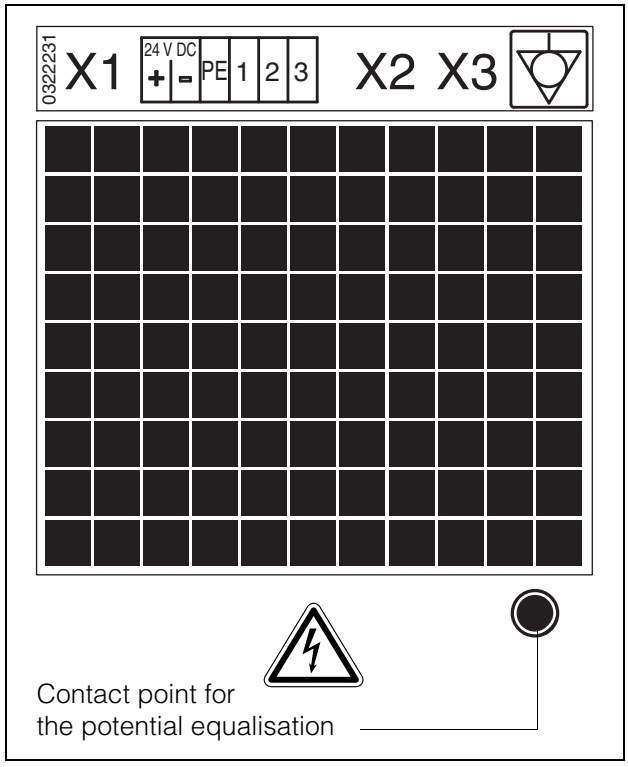


Fig. 21: Contact point for potential equalisation

Note:
According to the standard, the PE conductor in the mains connection cable is not classified as an equipotential bonding conductor.

EN

13 Commissioning

The RITTAL Thermoelectric Cooler is operational immediately after connection of the power supply. If the factory setting is unchanged, the temperature control of the enclosure or operating housing uses the following parameters:

Set enclosure interior temperature: +35°C
Start temperature for cooling operation: +35°C
High temperature alarm message: +45°C
Start temperature for heating operation: +5°C
Low temperature alarm message: –5°C

Under normal operating conditions, device operation with unchanged factory setting should ensure a problem-free enclosure climate control. If it would appear to be useful to change the predefined parameters for special climate control requirements, this can be realised with programming software.
The RTC PC software can be found on the CD-ROM supplied.

Optional:
Master-slave operation (available on request).

14 Status and function displays

The RITTAL Thermoelectric Cooler is equipped with a status and function display. Two coloured LEDs show the status, alarm and error messages that indicate the operating state of the climate control unit.

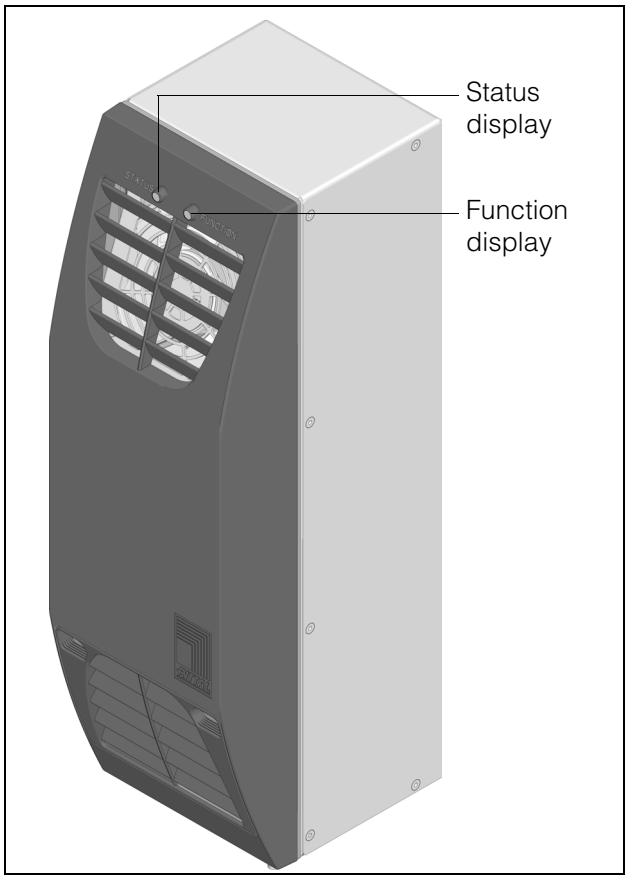


Fig. 22: Status and function displays on the climate control unit

Function LED	Description
Off	Unit in standby mode
Green	Cooling operation ON
Red	Error – unit
Orange	Heating operation ON

Tab. 1: Function displays

Status LED	Description
Off	Unit OFF
Green	Unit OK
Orange	Warning (temperature alarm, temperature above or below alarm value)
Red	Error (sensor defective, fan defective, thermoelectric module defective)
Red	Internal temperature too high (max. 55°C/131°F)

Tab. 2: Status displays

15 Technical specifications

EN

Model No. SK		3201.200	3201.300
Dimensions in mm	W H D	125 400 155	
Operating voltage in volts, Hz		100 – 240 V AC, 50/60 Hz	24 V DC
Useful cooling output $\dot{Q}_k$ to DIN 3168	L 35 L 35	100 W (heating output 200 W [min. 100 W])	
Power consumption P_{el} to DIN 3168	L 35 L 35	Max. 100 W	
Refrigeration factor (max.)/COP	L 35 L 35	1.0	1.2

Power pack		integral	–
Housing colour		RAL 7024/anodised aluminium	
Protection category according to EN 60 529	Internal circuit External circuit	IP 54 IP 34	
Weight		3.0 kg	2.4 kg
Noise level		Max. 63 dB(A)	
Operating temperature		–30°C to +55°C	–30°C to +60°C
Storage temperature		–30°C to +70°C	
Installation position		Horizontal or vertical	
Air throughput, unimpeded air flow	Internal circuit External circuit	132 m^3/h 132 m^3/h	
Temperature setting range – cooling/heating		+5°C to +55°C/–10°C to +20°C	
Cooling/heating activation temperature		+35°C (factory setting)/+5°C	
Type of connection		Plug-in terminal strip	
Pre-fuse gG		4 A	10 A
Floating change-over contact; contact loading		DC: 6...30 V/0.1...2 A AC: 250 V/2 A	

Tab. 3: Technical specifications

Technical modifications reserved.

Variable	Range	Default value	EEPROM
Cooling setpoint	+5°C to +55°C	+35°C	Yes
Alarm message – overtemperature	(0)2...15 K (0 = off)	5 K	Yes
Setpoint heating	–10°C to +20°C	+5°C	Yes
Alarm message – temperature too low	(0)2...15 K (0 = off)	5 K	Yes

Tab. 4: Setting ranges

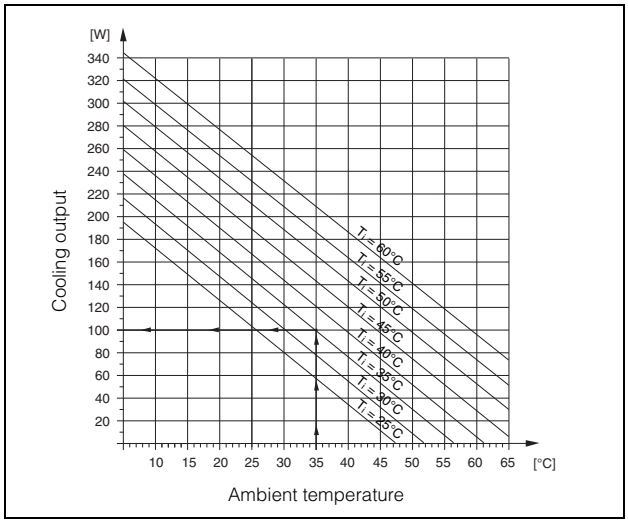


Fig. 23: Cooling output characteristic curve for full internal mounting and an enclosure internal temperature T_i of 35°C

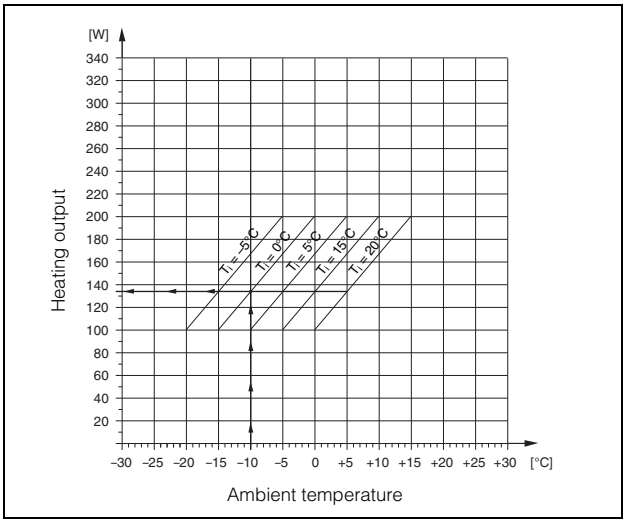


Fig. 24: Heating output characteristic curve for full internal mounting and an enclosure internal temperature T_i of –10°C

EN

16 Maintenance and cleaning

Danger!
Prior to any cleaning or maintenance work, the power to the climate control unit must be disconnected!

16.1 Maintenance

The RITTAL Thermoelectric Cooler is low-maintenance.

16.2 Cleaning

If the RITTAL Thermoelectric Cooler is used in ambient air subject to dust, dust can accumulate in the area of the air inlet and outlet openings and on the heat transferring surfaces of the Peltier element. This can cause a reduction of the air flow in the device and thus a gradually reducing cooling/heating capacity.
To remove the dust, withdraw the louvred grille at the device front. Blow compressed air through the air inlet and outlet openings of the climate control unit.

If the Peltier climate control unit is equipped with a device filter, it must be cleaned or replaced regularly. The filter mat can be cleaned by washing, dusting or blowing with compressed air. The high-quality filter material used for the mat means the cleaning does not impair the filter-technical properties and the form stability. The fire class remains unchanged!

Note:
When the filter is replaced, use only filter materials approved for the RITTAL Thermoelectric Cooler.
The dust collecting efficiency and dust storage capacity of the chosen filter equipment is matched to the rated flow speed of the climate control unit in the external air circuit and so guarantees an excellent dust filtering for a high useful cooling output.

17 Fault correction

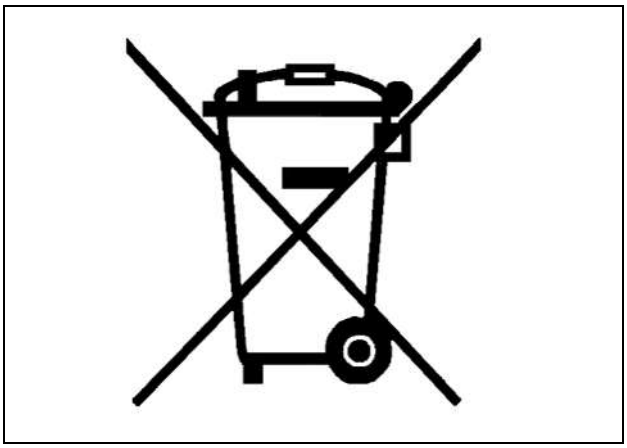
Fault description	Possible cause	Correction
The unit does not switch on.	No power supply.	Check the mains connection and the pre-fuse.
The unit does not cool/heat adequately.	The air circulation inside the enclosure is impaired.	Check the air circulation inside the enclosure. Check, in particular, those components equipped with a fan. Check the free spaces above and below the main heat dissipation sources.
	Ambient temperature too high/low.	Reduce the ambient temperature. Protect the unit from radiation heat caused by direct sunshine and hot surfaces.
	Filter equipment contaminated.	Check the filter and, if necessary, clean or replace.
	Internal fan defective.	Replace unit.
	External fan defective.	Replace unit.
	The heat produced in the enclosure exceeds the cooling capacity of the Peltier climate control unit.	Reduce the heat loss.
Condensation.	Enclosure leakages.	Check the enclosure for leaks (IP 54). Check, in particular, the cable entry points for leaks.
	Internal temperature of enclosure set too low.	Check the set enclosure internal temperature (factory setting: +35°C).

Tab. 5: Fault correction

EN

18 Disposal

To ensure the material reuse of the recyclable packaging materials, they must be delivered to the local collection sites.
The climate control unit must be delivered to a waste management service provider that ensures the correct reuse of the recyclable parts and the proper disposal of the rest.



19 Guarantee

Provided the unit is used correctly (refer to the operating instructions), RITTAL gives its customers a 24-month "RITTAL manufacturer's guarantee" starting with date of manufacture.

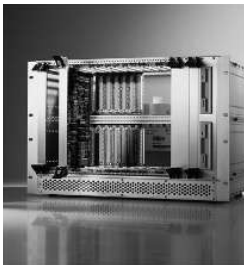
If, within the guarantee period, during the 24 months after manufacture, a malfunction occurs on the product that substantially adversely affects its functionality, RITTAL will, within a reasonable period of time, rectify the malfunction by telephone service or, if necessary, by replacement, repair or other measures, at its option. If this is inappropriate for the customer, RITTAL also has the possibility to provide the customer with the replacement parts required to correct the malfunction.
Within the scope of its guarantee, RITTAL will bear all costs concerning the dispatching, deployment and accommodation of its staff and with replacing or repairing any parts, provided the malfunction occurred during the proper usage of the products and provided the costs are not increased by the movement of the products to a place other than that where they were originally delivered. In addition, RITTAL will bear the necessary costs for procuring and delivering the replacement parts to the place where the products were originally delivered.
Any parts delivered for or in replacement will be new or in mint condition and in a fully functional state free of faults; the replaced parts will become RITTAL's property; the customer warrants that no rights of any third parties will obstruct that exchange and transfer of title.
Any claims based on this guarantee are to be submitted to RITTAL in writing within one month after the occurrence of the malfunction.
Any further claims, in particular claims for damages, are not covered by the guarantee. The statutory liability for defects is not affected by the guarantee.

20 Accessories

Optional accessories:
- Filter mat
  (Model No. SK 3201.050)
- Power pack 240 W for top-hat rail 35 mm
  for SK 3201.200
  (Model No. SK 3201.040)
- Condensate hose Ø = 6 mm
  (Model No. SK 3301.606)
- Master-slave adaptor RJ 45
  (Model No. SK 3201.070)

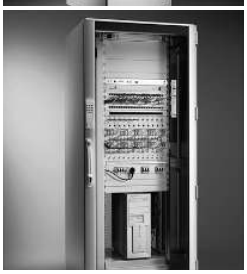
Schaltschrank-Systeme
Industrial Enclosures
Coffrets et armoires électriques
Kastsystemen
Apparatskåpssystem
Armadi per quadri di comando
Sistemas de armarios

Stromverteilung
Power Distribution
Distribution de courant
Stroomverdeling
Strömfördelning
Distribuzione di corrente
Distribución de corriente



Elektronik-Aufbau-Systeme
Electronic Packaging
Electronique
Electronic Packaging Systems
Electronic Packaging
Contenitori per elettronica
Sistemas para la electrónica

System-Klimatisierung
System Climate Control
Climatisation
Systeemklimatisering
Systemklimatisering
Soluzioni di climatizzazione
Climatización de sistemas



IT-Solutions
IT Solutions
Solutions IT
IT-Solutions
IT-lösningar
Soluzioni per IT
Soluciones TI

Communication Systems
Communication Systems
Armoires outdoor
Outdoor-behuizingen
Communication Systems
Soluzioni outdoor
Sistemas de comunicación
コミュニケーションシステム

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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-MB
Artikelnummer / Partc. No.:	46 222 5010

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-MB
Part-No.: 46 222 5010

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.

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