



Blowback Controller

RSS24, RSS230

Installation and Operation Instructions

Original instructions





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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.

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Document information

Document No.....BE460001
Version.....12/2019

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1 Introduction

1.1 Intended Use

This device is intended for industrial use.

The RSS24/RSS230 blowback control allows scheduled or manual probe filter cleaning. The cleaning time as well as the time period between cleaning intervals can be set within large ranges.

Please note the specifications in the data sheets on the specific intended use as well as applicable limits.

1.2 Design types

These operating instructions apply to the following device models:

Blowback control	Power supply
RSS24	24 V, direct current
RSS230	115 -230 V, alternating current

The blowback controls include all equipment and controls required for control inside an IP65 housing.

The description of the control functions applies to the built-in software version 1.004 and the built-in SPS LOGO! type OBA4.

1.3 Ordering Instructions

Item no.	Type
46 22 2199	Blowback control RSS 24, supply voltage 24 VDC
46 22 2299	Blowback control RSS 230, supply voltage 115/230 VAC

1.4 Scope of Delivery

- 1 x blowback control
- Product documentation

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

These instructions use the following warning signs:

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

2.2 General hazard warnings

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

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

The operator of the system must ensure:

- Safety notices and operating instructions are available and observed,
- The respective national accident prevention regulations are observed,
- The permissible data and operational conditions are maintained,
- Safety guards are used and mandatory maintenance is performed,
- Legal regulations are observed during disposal,
- compliance with national installation regulations.

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

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

The equipment must be protected from moisture and heat when not in use. They must be stored in a covered, dry and dust-free room at a temperature between -20 °C to 50 °C (-4 °F to 122 °F).

4 Installation and connection

4.1 Installation

The RSS24/RSS230 blowback control is designed for wall-mounting. At the back of the housing are 4 M6 threaded bushings for mounting.

4.2 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.

The leads are run through the PG screw connection at the bottom of the housing.

Wiring and terminal diagrams are included in the appendix.

External solenoid valves must be equipped with **contact protective circuit**. On blowback controls complete with sample gas probe, this protective circuit is already included in the supplied plug-in connectors for the solenoid valves.

5 Operation and controls

NOTICE



The device must not be operated beyond its specifications.

5.1 Basic operation

Once connected, the blowback control is ready for operation. The "Power" (Q0) main switch in the front panel switches on the blowback control. The selector switch (S2) is used to switch the blowback control from auto mode to manual mode. In manual mode, the sample gas valve is always on and there is no automatic blowback. However, the "Manual Purging/Manual Blowback" (S1) can be used to manually activate blowback. Blowback can also be manually activated in auto mode, for example to clean unexpected contamination of the filter.

A green light indicates when the unit is in auto mode and a red light indicates manual mode. Both lights are switched internally by the controller, hence simultaneously serving as operation display for the blowback control.

Note: After switching on the blowback control and when switching to manual mode, the purging gas valve is activated first. This forces a cleaning cycle when blowback control is switched back on following a power failure or accidental shut-off.

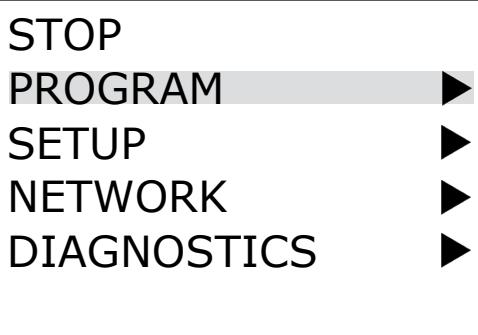
5.2 Setting the time period and blowback

To change the times for the blowback cycle (see timing diagram in the appendix) and the blowback duration, first open the door to the control box. The blowback control must be switched on. The times are configured using the buttons on the control module.

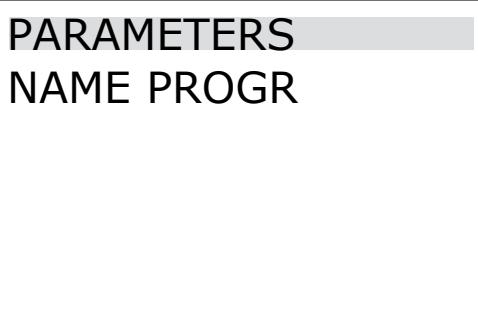


Fig. 1: Control module

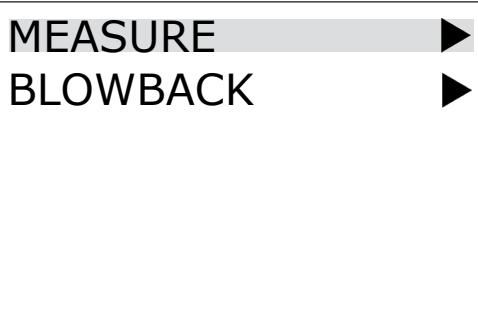
To access setup mode, successively press the buttons **<▼> + <▼> + <ESC>**. In the screen, use the arrow keys (**▲;▼**) to select **PROGRAM** mode and click **<OK>**.



In the screen, use the arrow keys (\blacktriangle ; \blacktriangledown) to select **PARAMETERS** mode and click **<OK>**.



In the screen, use the arrow keys (\blacktriangle ; \blacktriangledown) to select **MEASURE** or **BLOWBACK** mode and click **<OK>**.



The display will show a parameter screen **MEASURE** or **BLOWBACK**.

MEASURE is the time period for the cleaning intervals.

The time period can be set to a value from 0 min and 99 h 59 min.

Important: **BOTH** times (TH+TL) must be set to the same value.

The display Ta shows the current time elapsed.

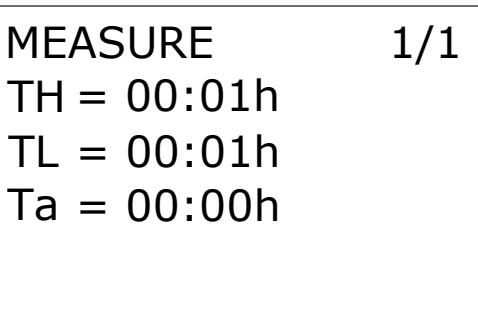


Fig. 2: Parameter screen: Cleaning interval

BLOWBACK is the parameter screen for the blowback time. The blowback time can be set to a value from 0 to 99.59 seconds.

Important: **BOTH** times (TH+TL) must be set to the same value.

The display Ta shows the current time elapsed.

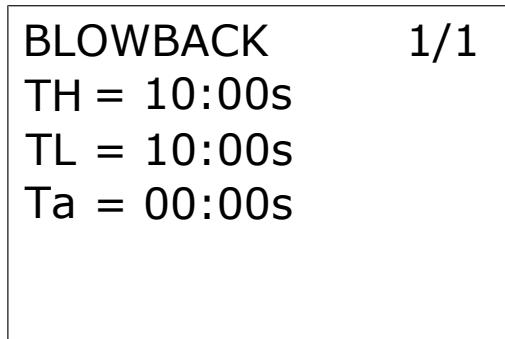
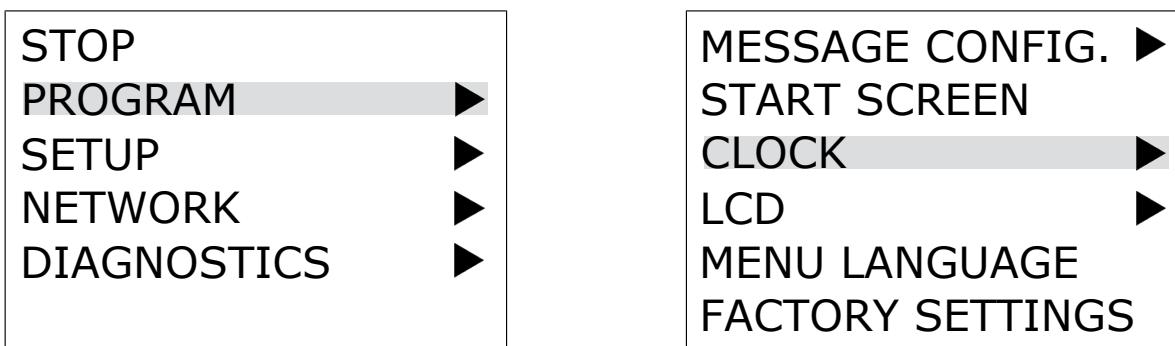


Fig. 3: Parameter screen: Blowback time

To change the time in the respective mask, click the **<OK>** button. Use the arrow keys (**<**; **>**) to move the cursor (flashing black box) to the number you wish to change. Now use the arrow keys (**▲**; **▼**) to change the number. Once the numbers have been changed as necessary, click **<OK>** to confirm. Use the **<ESC>** key to exit edit mode and cancel the entries. Once all times have been changed as necessary, press the **<ESC>** key several times to return to normal operating mode (also see Fig. 1).

The same procedure can also be used to set the **controller clock**. In the settings screen you can now use the arrow keys (**▲**; **▼**) to select **SETUP** and click **<OK>**.

Then select **Clock**. Then use the arrow keys to change the values as described for the parameter screens.



The clock has a power reserve of approx. 80 h at 25 °C in the event of a power failure, after which time it will need to be set. The clock does not affect proper controller function and can therefore also be skipped.

Note: You can also change the menu language or backlight settings in the parameter menu using the same procedure described for setting the clock.

5.3 Blowback time configuration

When configuring the blowback time, remember the compressed air blowback vessel should ideally be completely empty during blowback. Depending on the vessel size, pressure and contamination of the filter this can take between 5 and 20 seconds. The blowback time must be set accordingly. Further note, the controller uses a 0.5 second delay when switching the sample gas and blowback valves to prevent both valves simultaneously being open during switch-over.

Note: After configuring the blowback control, close the housing cover tight!

5.4 Status messages in the display

By default, the display shows status messages immediately after switching on the blowback control.

BACK FLUSHING
CONTROL UNIT
V 1.008

This message appears when starting the blowback control or after pauses switching over the sample gas or blowback valves.

MEASURING
VALVE ON

00:05h

Sample gas valve open.
Current time period displayed.

BLOWBACK
VALVE ON

01:45s

Blowback valve open.
Current time period displayed.

AUTOMATIC MODE
OFF

Auto mode off.
Device in manual mode.

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

Toxic, acidic gasses

Sample gas can be harmful.



- a) Switch off the gas supply before performing maintenance and, if necessary, flush the gas lines with air.
- b) If necessary, ensure a safe gas discharge.
- c) Protect yourself from toxic / acidic gasses when performing maintenance. Wear appropriate protective equipment.



This device requires no special maintenance.

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
	<p>Personal injury or damage to property</p> <p>a) Switch off the device and disconnect it from the mains.</p> <p>b) Repair the fault immediately. The device should not be turned on again before elimination of the failure.</p>



In the event of an operating error, first check all input line connections and parameter settings.

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:

Device model	Description	Voltage	Item no.
RSS24	Microfuse 5 x 20 mm, 5 A delayed action	24 VDC	90 100 000 31
RSS230	Microfuse 5 x 20 mm, 1 A delayed action	115 V / 230 V:	90 100 000 02

Tab. 1: Spare Parts and Accessories

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

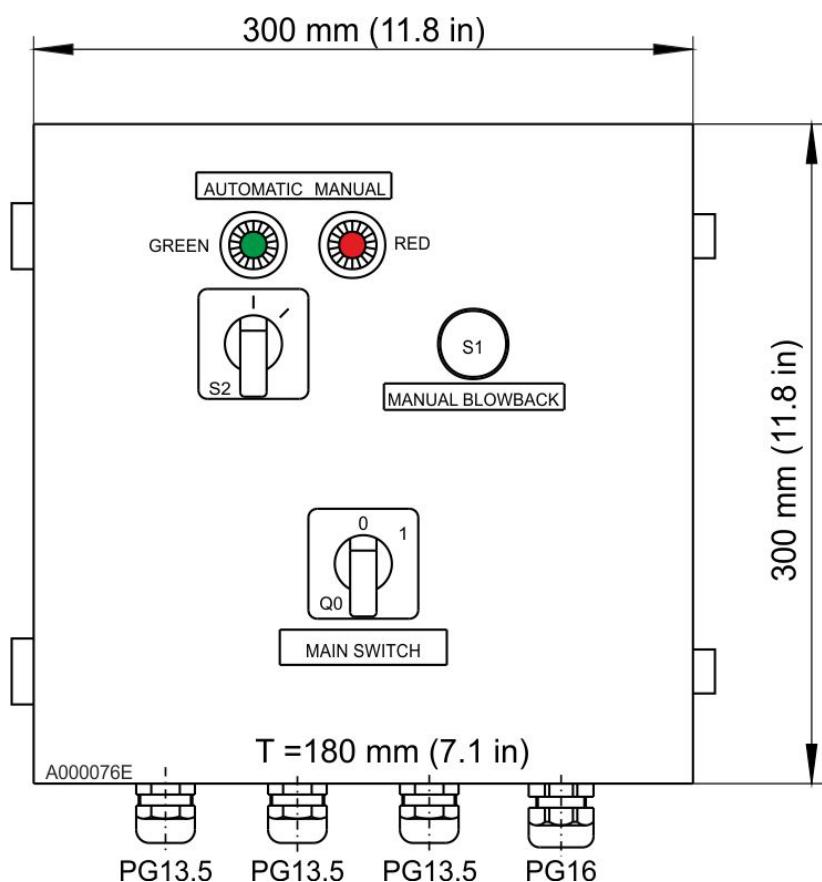
Please also observe data protection regulations and remember you are personally responsible for the returned waste equipment not bearing any personal data. Therefore please be sure to delete your personal data before returning your waste equipment.

9 Appendix

9.1 Technical Data

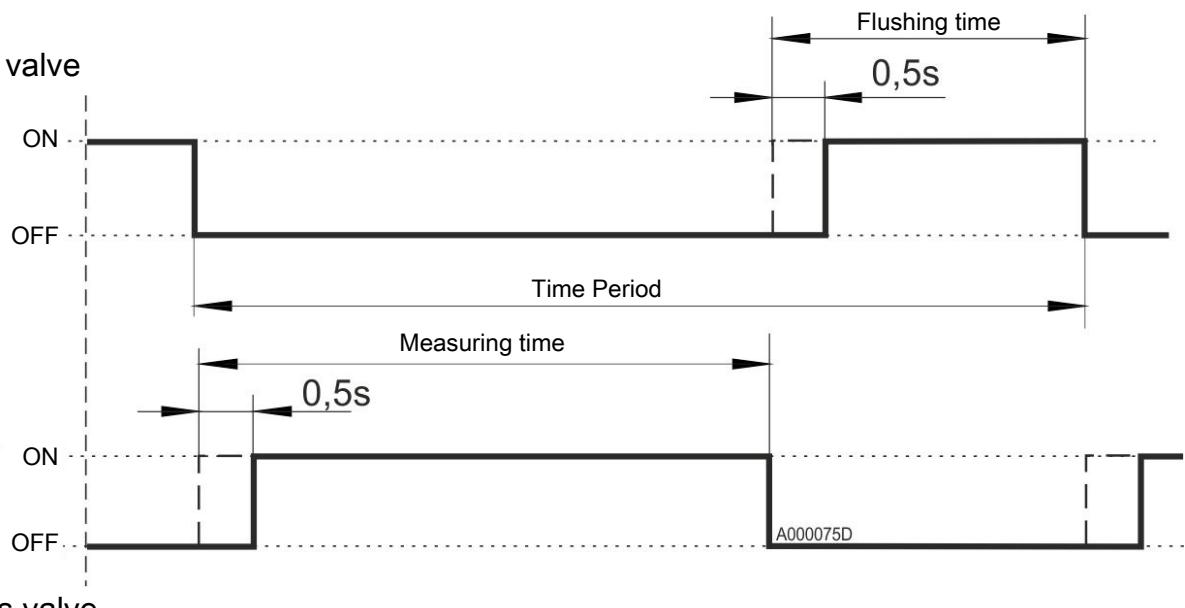
Type	RSS 24	RSS 230
Supply voltage:	24 VDC ± 10%	85 – 265 VAC 50/60 Hz
Protection:	5 A (delayed action)	1 A, delayed action
Relay switching capacity:	max. 10 A / 24 VDC / 75 W	max. 10 A / 230 VAC / 690 VA
Temperature range:	0 – 55 °C	0 – 55 °C
Blowback time	0 – 60 s	0 – 60 s
Test time	1 min – 99:59 h	1 min – 99:59 h
IP rating:	IP65	IP65
Weight:	approx. 3 kg	approx. 3 kg
Dimensions (H x W x D)	300 x 300 x 180	300 x 300 x 180

9.2 Dimensions



9.3 Time flowchart

Blowback valve

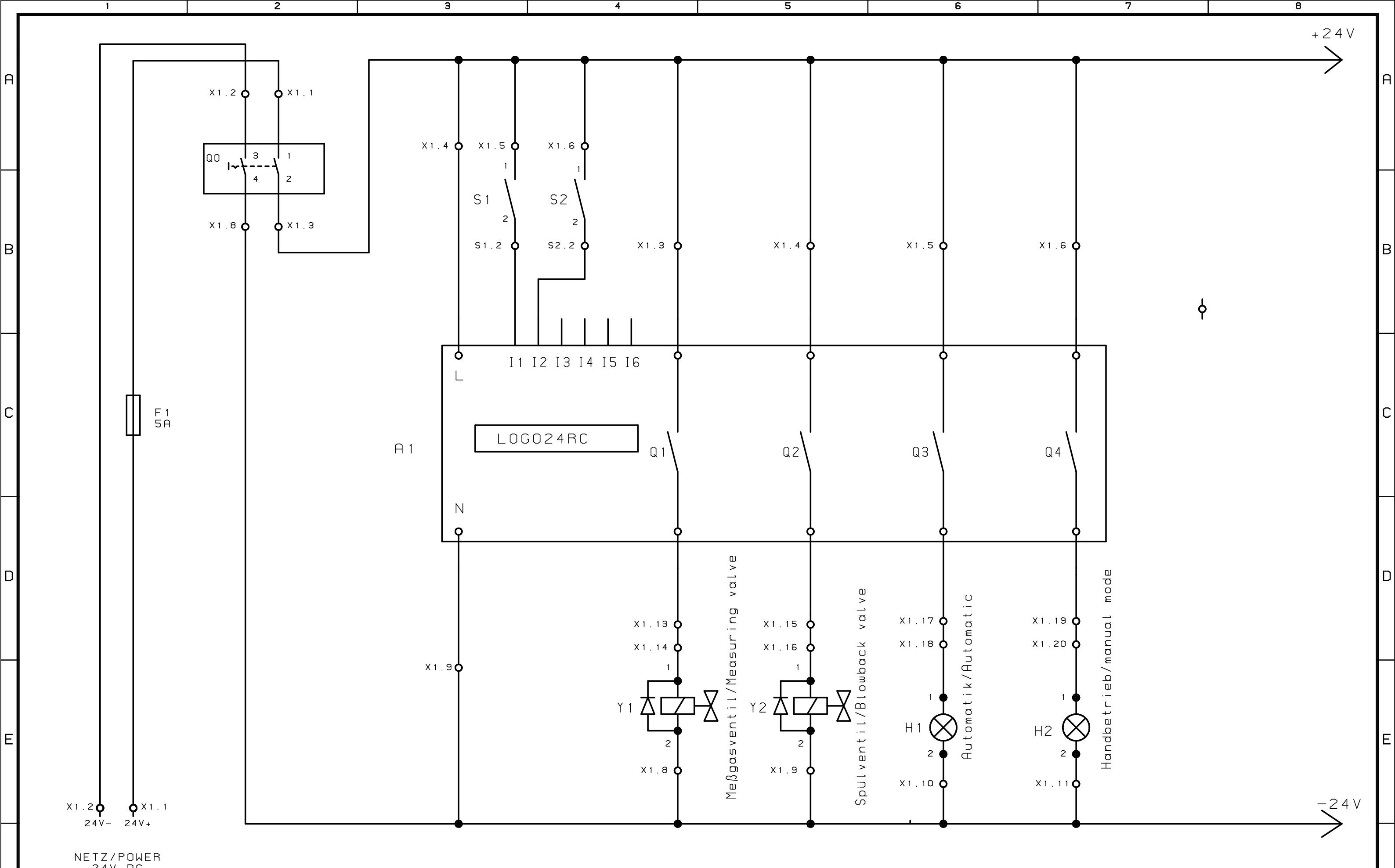


Sample gas valve

10 Attached Documents

- Terminal diagram for RSS24: 46/077-05-3
- Wiring diagram for RSS24: 46/077-04-3
- Terminal diagram for RSS230: 46/078-04-3
- Wiring diagram for RSS230: 46/078-03-3
- Declaration of Conformity KX460004
- RMA - Decontamination Statement

KLEMMLEISTE/Terminal strip X 1



NETZ/POWER
24V DC



Rückspulsteuerung/Blowback Controller
RSS24

Kunde:

46222199

Kom. Nr.

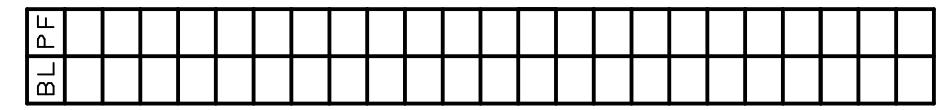
Zchg.
Nr.

46/077-04-3

Bl.
1

Nr.

1 Bl



KLEMMLEISTE: Terminal strip X1

ZIEL / Target



Bühler Technologies GmbH

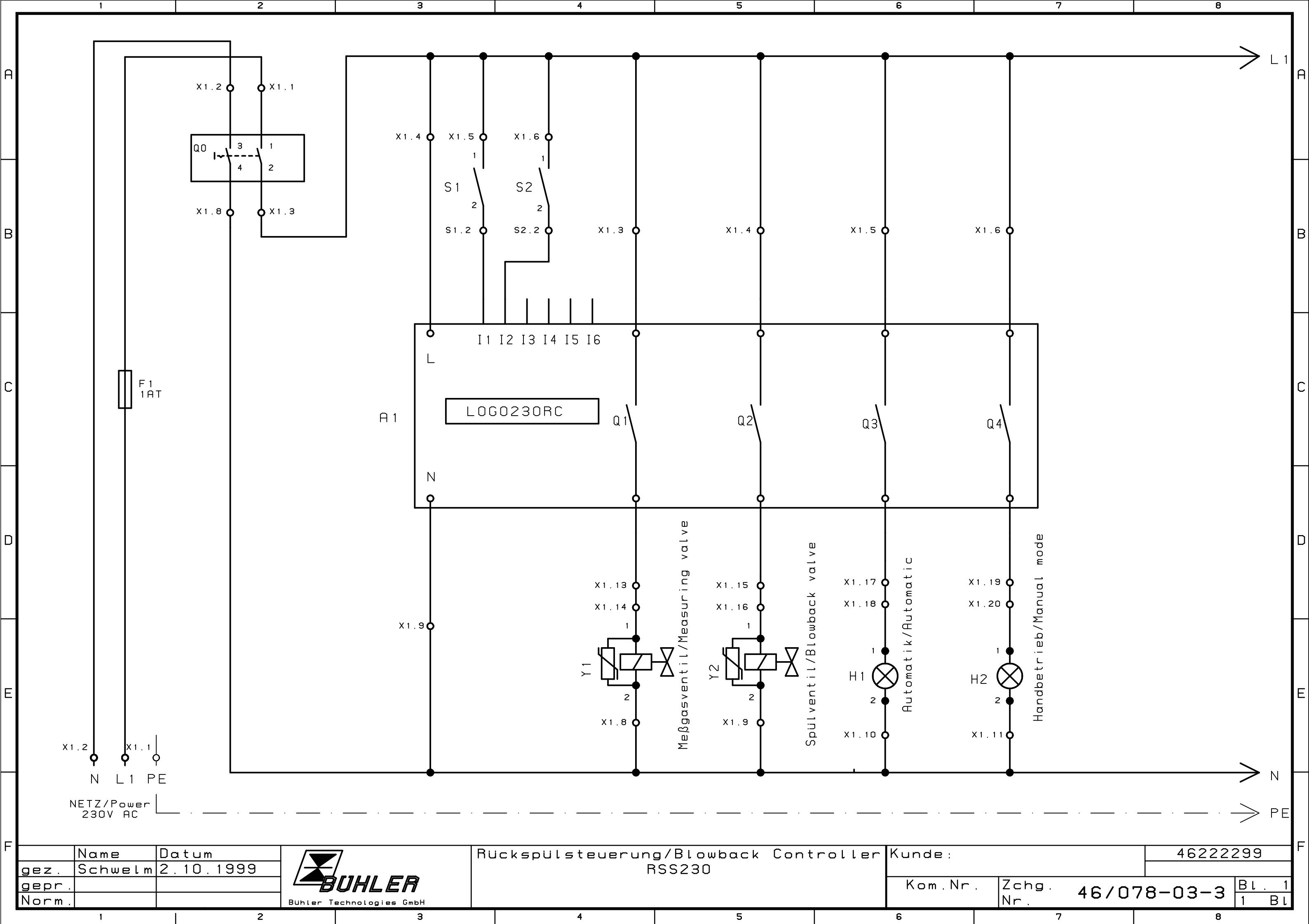
RSS230 Klemmenplan/Terminal diagram

Kunde :

46222299

1

Kom. Nr. Zchg. 46/078-04-3B Bl. 1
Nr. 1 Bl.



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: Rückspülsteuerung/ *Blowback controller*
Typ / type: RSS 24, RSS 230

Das Betriebsmittel ermöglicht es, zeitgesteuert oder manuell eine Abreinigung des Sondenfilters
vorzunehmen.

This equipment is built to control manual or automatic blowback of a sample probe filter.

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 61000-6-3:2007/A1:2011

EN 61000-6-2:2005/AC:2005

EN 60204-1:2018

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 01.11.2022

A handwritten signature in black ink, appearing to read "Stefan Eschweiler".

Stefan Eschweiler
Geschäftsführer – *Managing Director*

A handwritten signature in blue ink, appearing to read "Frank Pospiech".

Frank Pospiech
Geschäftsführer – *Managing Director*

UK Declaration of Conformity



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

Electrical Equipment Safety Regulations 2016

The following legislation were regarded:

Electromagnetic Compatibility Regulations 2016

Product: Blowback controller

Types: RSS 24

RSS 230

This equipment is built to control manual or automatic blowback of a sample probe filter.

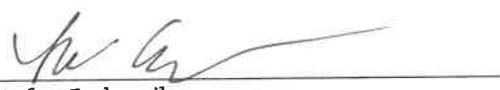
The object of the declaration described above is in conformity with the relevant designated standards:

EN 61000-6-3:2007/A1:2011

EN 61000-6-2:2005/AC:2005

EN 60204-1:2018

Ratingen in Germany, 01.11.2022


Stefan Eschweiler
Managing Director


Frank Pospiech
Managing Director

RMA-Formular und Erklärung über Dekontaminierung

RMA-Form and explanation for decontamination

RMA-Nr./ RMA-No.



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

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

Firma/ Company

Firma/ Company

Straße/ Street

PLZ, Ort/ Zip, City

Land/ Country

Gerät/ Device

Anzahl/ Quantity

Auftragsnr./ Order No.

Ansprechpartner/ Person in charge

Name/ Name

Abt./ Dept.

Tel./ Phone

E-Mail

Serien-Nr./ Serial No.

Artikel-Nr./ Item No.

Grund der Rücksendung/ Reason for return

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

bitte spezifizieren/ please specify

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

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



explosiv/
explosive



entzündlich/
flammable



brandfördernd/
oxidizing



komprimierte
Gase/
compressed
gases



ätzend/
caustic



giftig,
Lebensgefahr/
poisonous, risk
of death



gesundheitsge-
fährdend/
harmful to
health



gesund-
heitsschädlich/
health hazard



umweltge-
fährdend/
environmental
hazard

Bitte Sicherheitsdatenblatt beilegen!/ Please enclose safety data sheet!

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

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

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.

Firmenstempel/ Company Sign

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.

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

Datum/ Date

rechtsverbindliche Unterschrift/ Legally binding signature

DE000011
12/2022

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



Dekontaminierungserklärung

Vermeiden von Veränderung und Beschädigung der einzusendenden Baugruppe

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

Umgang mit elektrostatisch sensiblen Baugruppen

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

Einbau von Ersatzteilen

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

Einsenden von Elektroaltgeräten zur Entsorgung

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

Avoiding alterations and damage to the components to be returned

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

Handling electrostatically conductive components

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

Fitting of spare parts

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

Returning old electrical appliances for disposal

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

