



Pressure transmitter

Pressotronik 700, 702

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

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Contents

1	Introduction.....	2
1.1	Intended Use.....	2
1.2	Ordering instructions Pressotronik 700.....	2
1.3	Ordering instructions Pressotronik 702.....	2
1.4	Contents.....	2
2	Safety instructions.....	3
2.1	Important advice.....	3
2.2	General hazard warnings.....	3
3	Transport and storage.....	5
4	Setup and connection.....	6
4.1	Installation.....	6
5	Operation and control.....	7
6	Cleaning and Maintenance.....	8
7	Service and repair.....	9
7.1	Accessories.....	9
8	Disposal.....	10
9	Appendices.....	11
9.1	Technical Data Pressotronik 700.....	11
9.2	Technical Data Pressotronik 702.....	13
9.3	Standard Pin Assignment Pressotronik 700.....	14
9.4	Standard pin assignment Pressotronik 702.....	14
10	Attached documents.....	15

1 Introduction

1.1 Intended Use

The Pressotronik 700/702 is a pressure transmitter for monitoring the pressure in a fluid system. The transmitter can be installed some distance from the analysis unit. The components are connected using a connection cable with M12 connectors. Model 702 is optionally available with M3 plug connection (with plug top).

The Pressotronik 700/702 has a 4 - 20 mA analog signal output.

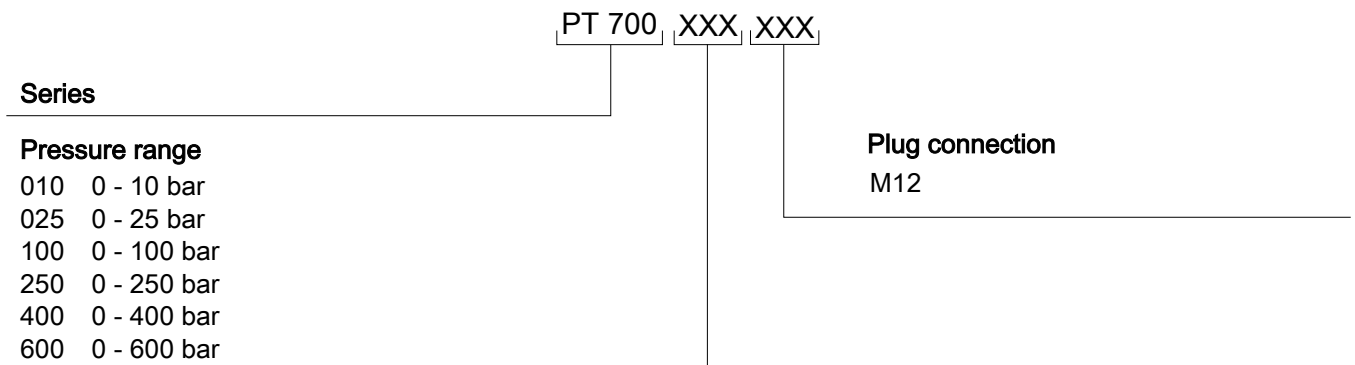
Please note the technical data in the appendix for the specific intended use, existing material combinations, as well as pressure and temperature limits.

WARNING

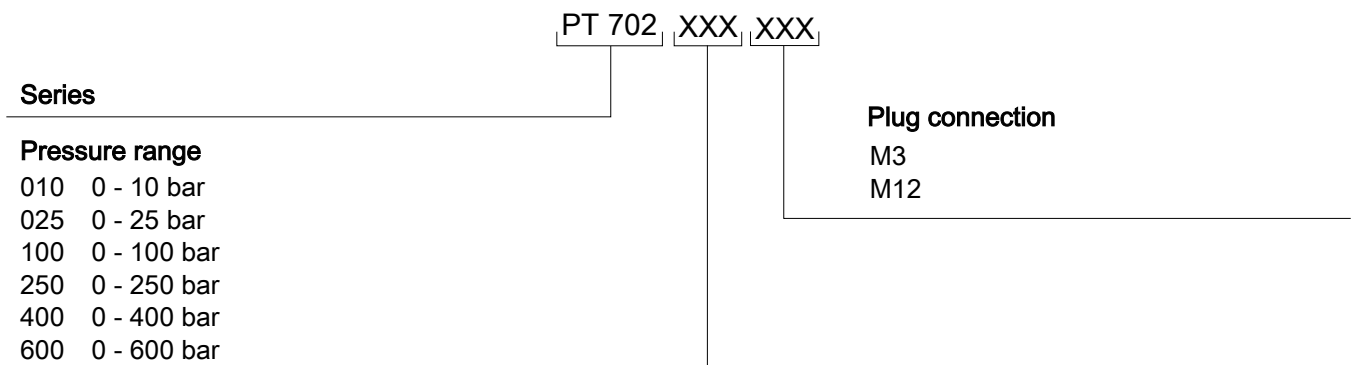


All device models are solely intended for industrial applications. They are **not safety components**. The devices must not be used if failure or malfunction thereof jeopardises the safety and health of persons. Use in explosive areas is **prohibited**.

1.2 Ordering instructions Pressotronik 700



1.3 Ordering instructions Pressotronik 702



1.4 Contents

- Pressotronik
- Product documentation
- Connection/mounting accessories (optional)

2 Safety instructions

2.1 Important advice

Operation of the device is only permitted if:

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






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

Signal words for warnings

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

Warning signs

These instructions use the following warning signs:

	Warns of a general hazard		General information
	Voltage warning		Unplug from mains
	High pressure warning		

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.

The method for cleaning the devices must be adapted to the IP protection class of the devices. Do not use cleaners which could damage the device materials.

3 Transport and storage

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

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

4 Setup and connection

DANGER

Electric voltage



Risk of electric shock

- a) Always disconnect the unit from the mains before performing work.
- b) Secure the equipment from accidental restarting.
- c) The equipment may only be installed, maintained and put into operation by instructed, competent personnel.
- d) Always observe the applicable safety regulations for the operating site.



DANGER

Toxic, acidic gases/liquids



Protect yourself from toxic, corrosive gasses/liquids when performing any type of work. Wear appropriate protective equipment.



4.1 Installation

WARNING

Gases or liquids discharged under pressure



Depressurise the system before installing or removing the transmitter.

Disconnect from power all over!

The hydraulic connection of the transmitter uses an G1/4 external thread, DIN 3852 shape E. The Pressotronik connects to the analysis unit via cable.

Please refer to the appendix for the pin assignment.

5 Operation and control

NOTICE



The device must not be operated beyond its specifications.

6 Cleaning and Maintenance

This device is maintenance-free.

The method for cleaning the devices must be adapted to the IP protection class of the devices. Do not use cleaners which could damage the device materials.

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 Accessories

Item no.	Description	
9144 05 0010	Connecting cable	M12x1, 1.5 m, angled coupler and straight plug
9144 05 0046	Connecting cable	M12x1, 3.0 m, angled coupler and straight plug
9144 05 0047	Connecting cable	M12x1, 5.0 m, angled coupler and strands

8 Disposal

In EU member states, as per Directive 2012/19/EU, device with electrical components must be recycled separately.

Dispose of parts so as not to endanger the health or environment. Follow the laws in the country of use for disposing of electronic components and devices as well as hazardous materials during disposal.

As an EU member state you have the option to return Bühler Technologies GmbH products to us. When returning the product, the completed and signed RMA decontamination declaration must be attached to the packaging. You will find the form in the appendix of these instructions, or simply request it by e-mail: service@buehler-technologies.com.

9 Appendices

9.1 Technical Data Pressotronik 700

Pressure transmitter

	Pressure range	Dimensions Pressotronik 700	
	0 - 10 bar 0 - 25 bar 0 - 100 bar 0 - 250 bar 0 - 400 bar 0 - 600 bar		
	Other pressure ranges available upon request		
Pressure connection	G1/4 external thread, DIN 3852 Form E; peak pressure aperture standard for 100 bar and higher		
Overload higher values available upon request	2.5 x full range at 10 to 600 bar (but max. 900 bar)		
Burst pressure Higher burst pressure available upon request	2.5 x full range at 6 to 600 bar (but max. 900 bar) Patented medium stop system to prevent medium leaks when exceeding the bursting pressure range (>40 bar rated pressure)		
Material / version			
Housing	1.4305		
Material in contact with media	Ceramic, 1.4305, PPS, FPM		
Weight	approx. 95 g		
Temperature			
Medium	-15 °C to + 125 °C		
Ambient temperature	max. 85 °C		
Temperature influences	Within - 40 to +125 °C temperature range		
	Calibration in bar	Calibration in psi	
TCO - Temperature zero error	< ±0.15 % FS/10 K	< ±0.25 % FS/10 K	
TCE - Temperature full range error	< ±0.15 % FS/10 K	< ±0.15 % FS/10 K	
Response time	< 2 ms / typically 1 ms		
Electrical data		Standard pin assignment Pressotronik 700	
Supply voltage (U _B)	10 – 30 V DC (nominal voltage 24 V DC)	Plug: 1xM12x1	
Degree of protection	IP67	Pin	
Burden Ω	= (U _B -8 V) / 0.02 A	1	+24 V DC
Dielectric strength	500 V DC	3	4-20 mA

Accuracy

Parameter	Unit
Tolerance zero	max. ± 0.3 % FS
Tolerance full range	max. ± 0.3 % FS
Resolution	0.1 % FS
Sum of linearity, hysteresis and reproducibility	max. ± 0.3 % FS/10K
Long-term stability per DIN EN 60770	± 1 % FS
TC zero	max. ± 0.15 % FS/10K
TC sensitivity	max. ± 0.15 % FS/10K

Test conditions: 25 °C, 45 % rF, supply 24 V DC, K0/TCE -40 °C... +125 °C

9.2 Technical Data Pressotronik 702

Pressure Transmitter Pressotronik 702

Pressure ranges	0 - 10 bar
	0 - 25 bar
	0 - 100 bar
	0 - 250 bar
	0 - 400 bar
	0 - 600 bar

Medium	Liquids, gasses and refrigerants, incl. ammonia
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Pressure connection	G1/4 male thread, DIN 3852 Form E with profile gasket FPM
---------------------	-----------------------------------------------------------

Overload	3 x limit at 10 to 600 bar (but max. 1500 bar)
	<i>higher values upon request</i>

Burst pressure	6 x terminal value (max. 2500 bar)
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Mounting position	any
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Weight	approx. 90 g
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Material

Housing	1.4305
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Connector holder	Polyarylamide 50 % GF VO
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Materials in contact with media

Pressure connection	Stainless steel 1.4404 / AISI 316L
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Measuring element	Stainless steel
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Temperature

Medium	-30 °C to +135 °C
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Ambient temperature	-30 °C to +85 °C
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Storage	-50 °C to +100 °C
---------	-------------------

Electrical data

Response time	≤ 2 ms / typical 1 ms
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Load cycle	≤ 100 Hz
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Supply voltage (U_b)	7 - 33 V DC
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Power input	≤ 23 mA
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Output signal	4 - 20 mA, 2 wire
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Load Ω	$= (U_b - 7 \text{ V}) / 0.02 \text{ A}$
---------------	------------------------------------------

Reverse polarity safety	Short circuit and reverse polarity safety (each connection to each with max. voltage)
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Connection	M3 (IP 65)
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<i>other versions on request</i>	M12 (IP 67) / Delivered without connector head
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Accuracy (test conditions: 25 °C, 45 % RH, supply 24 VDC)

Characteristic*	± 0.3 % FS
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Resolution	0.1 % FS
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Thermal behaviour**	± 0.2 % FS/10K
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Long-term stability per DIN EN 60770-1	± 0.25 % FS
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*Typical; max. 0.5 % FS, ** -15 °C to +85 °C

Certificates/Approvals

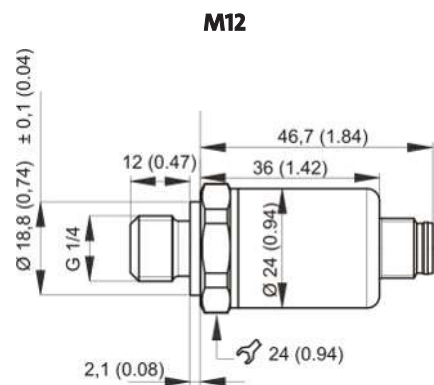
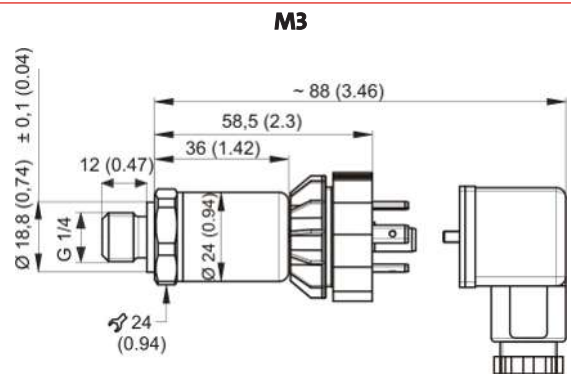
Electromagnetic compatibility	CE compliant per EN 61326-2-3
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Shock per IEC 60068-2-27	100 g, 11 ms, half-sine curve, all 6 directions, free fall from 1 m onto concrete (6x)
--------------------------	----------------------------------------------------------------------------------------

Continuous shock per IEC 60068-2-29	40 g over 6 ms, 1000x all 3 directions
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Vibration per IEC 60068-2-6	20 g, 15...2000 Hz, 15...25 Hz with amplitude ± 15 mm, 1 octave/minute all 3 directions, 50 continuous loads
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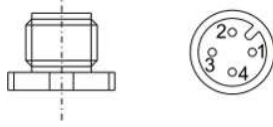
Dimensions



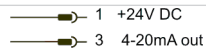
9.3 Standard Pin Assignment Pressotronik 700

M12 plug A coded
4-pin
DIN EN 61076-2-101
IP67

Plug connection



Pin assignment
2 lead

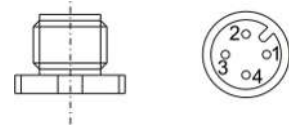
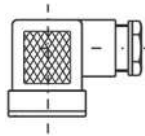


9.4 Standard pin assignment Pressotronik 702

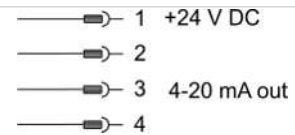
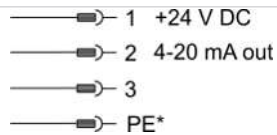
M3 valve connector
3-pin + PE
DIN EN 175301-803-A
IP65

M12 plug A coded
4-pin
DIN EN 61076-2-101
IP67

Plug connection



Pin assignment
2 lead



* not connected to transmitter housing.

10 Attached documents

- Declaration of Conformity: KX130021
- RMA - Decontamination Statement

EU-Konformitätserklärung
EU-declaration of conformity



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

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

2014/30/EU
(Elektromagnetische Verträglichkeit / *electromagnetic compatibility*)

in ihrer aktuellen Fassung entsprechen.

in its actual version.

Produkt / products: Drucksensoren / *Pressure transmitters*
Typ / type: Pressotronik 700 / 702

Die Betriebsmittel sind Drucktransmitter, die den Druck in einem Fluidsystem überwachen.
The equipment is a pressure transmitter used for monitoring pressure in fluid control systems.

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 61326-2-3:2013

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

Ratingen, den 20.04.2016

Handwritten signature of Stefan Eschweiler in blue ink.

Stefan Eschweiler
Geschäftsführer – *Managing Director*

Handwritten signature of Frank Pospiech in blue ink.

Frank Pospiech
Geschäftsführer – *Managing Director*

RMA-Formular und Erklärung über Dekontaminierung

RMA-Form and explanation for decontamination



RMA-Nr./ RMA-No.

Die RMA-Nummer bekommen Sie von Ihrem Ansprechpartner im Vertrieb oder Service./ You may obtain the RMA number from your sales or service representative.

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
Serien-Nr./ Serial No.
Artikel-Nr./ Item No.

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

Grund der Rücksendung/ Reason for return

- Kalibrierung/ Calibration Modifikation/ Modification
 Reklamation/ Claim Reparatur/ Repair
 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-
heitschädlich/
health hazard



umweltge-
fährdend/
environmental
hazard

Bitte Sicherheitsdatenblatt beilegen!/ Please enclose safety data sheet!

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

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

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

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

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

Firmenstempel/ Company Sign

Datum/ Date

rechtsverbindliche Unterschrift/ Legally binding signature



Die Analyse defekter Baugruppen ist ein wesentlicher Bestandteil der Qualitätssicherung der Firma Bühler Technologies.

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.

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.

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.

Analysing defective assemblies is an essential part of quality assurance at Bühler Technologies.

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.

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.

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.

