



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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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

PT 700		XXX	XXX
Series		Plug connection	
Pressure range		M12	
010			
025			
100			
250			
400			
600			

1.3 Ordering instructions Pressotronik 702

PT 702		XXX	XXX
Series		Plug connection	
Pressure range		M3	
010		M12	
025			
100			
250			
400			
600			

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 include the following warnings:

	General warning sign		General mandatory sign
	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

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

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

Bühler Technologies GmbH

- Reparatur/Service -

Harkortstraße 29

40880 Ratingen

Germany

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

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

service@buehler-technologies.com.

7.1 Accessories

Item no.	Description	
9144050010	Connecting cable	M12x1, 1.5 m, angled coupler and straight plug
9144050046	Connecting cable	M12x1, 3.0 m, angled coupler and straight plug
9144050047	Connecting cable	M12x1, 5.0 m, angled coupler and strands

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:

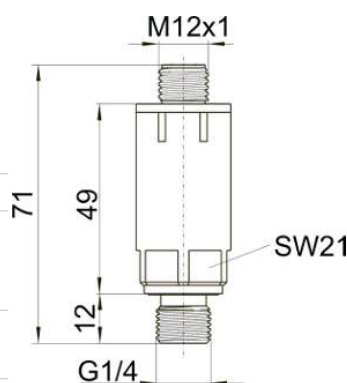
Bühler Technologies GmbH
WEEE
Harkortstr. 29
40880 Ratingen
Germany

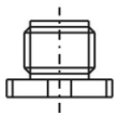
Please also observe data protection regulations and remember you are personally responsible for the returned waste equipment not bearing any personal data. Therefore please be sure to delete your personal data before returning your waste equipment.

9 Appendices

9.1 Technical Data Pressotronik 700

Pressure transmitter

Pressure range		Dimensions Presstronik 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	2.5 x full range at 6 to 600 bar (but max. 900 bar)		
Higher burst pressure available upon request	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	
TC0 - 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. $\pm 0.3\%$ FS
Tolerance full range	max. $\pm 0.3\%$ FS
Resolution	0.1 % FS
Sum of linearity, hysteresis and reproducibility	max. $\pm 0.3\%$ FS/10K
Long-term stability per DIN EN 60770	$\pm 1\%$ FS
TC zero	max. $\pm 0.15\%$ FS/10K
TC sensitivity	max. $\pm 0.15\%$ 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
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)
Mounting position	any
Weight	approx. 90 g

Material

Housing	1.4305
Connector holder	Polyarylamide 50 % GF VO

Materials in contact with media

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

Temperature

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

Electrical data

Response time	<= 2 ms / typical 1 ms
Load cycle	<= 100 Hz
Supply voltage (U _b)	7 - 33 V DC
Power input	<= 23 mA
Output signal	4 - 20 mA, 2 wire
Load Ω	= (U _b - 7 V) / 0.02 A
Reverse polarity safety	Short circuit and reverse polarity safety (each connection to each with max. voltage)
Connection	M3 (IP 65)
<i>other versions on request</i>	M12 (IP 67) / Delivered without connector head

Accuracy (test conditions: 25 °C, 45 % RH, supply 24 VDC)

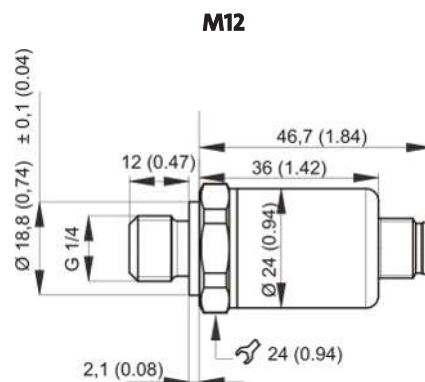
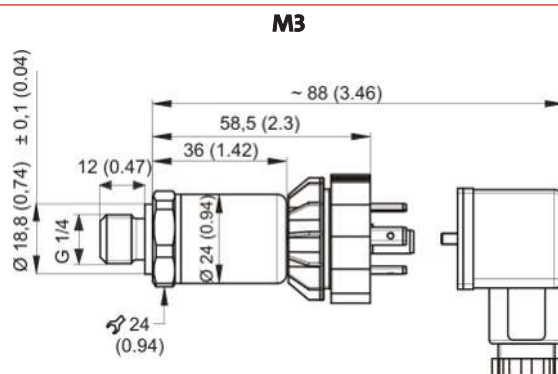
Characteristic*	± 0.3 % FS
Resolution	0.1 % FS
Thermal behaviour**	± 0.2 % FS/10K
Long-term stability (1 year) per IEC 61298-2	± 0.25 % FS

*Typical; max. 0.5 % FS, ** -15 °C to +85 °C

Certificates/Approvals

Electromagnetic compatibility	CE compliant per EN 61326-2-3
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
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

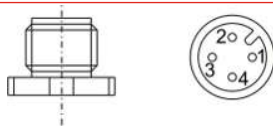
Dimensions



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

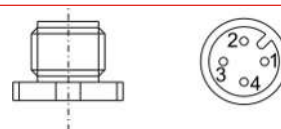
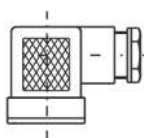
1 +24V DC
3 4-20mA out

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

1 +24 V DC
2 4-20 mA out
3
PE*

1 +24 V DC
2
3 4-20 mA out
4

* 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

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:

Electromagnetic Compatibility Regulations 2016

Product: Pressure transmitters
Types: Pressotronik 700/702

The equipment is a pressure transmitter used for monitoring pressure in fluid control systems.

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

EN 61326-1:2013

Ratingen in Germany, 01.11.2022

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

Stefan Eschweiler
Managing Director

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

Frank Pospiech
Managing Director

RMA-Formular und Erklärung über Dekontaminierung

RMA-Form and explanation for decontamination



RMA-Nr./ RMA-No.

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

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

Firma/ Company

Firma/ Company

Straße/ Street

PLZ, Ort/ Zip, City

Land/ Country

Gerät/ Device

Anzahl/ Quantity

Auftragsnr./ Order No.

Ansprechpartner/ Person in charge

Name/ Name

Abt./ Dept.

Tel./ Phone

E-Mail

Serien-Nr./ Serial No.

Artikel-Nr./ Item No.

Grund der Rücksendung/ Reason for return

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

bitte spezifizieren/ please specify

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

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



☐
explosiv/
explosive



☐
entzündlich/
flammable



☐
brandfördernd/
oxidizing



☐
komprimierte
Gase/
compressed
gases



☐
ätzend/
caustic



☐
giftig,
Lebensgefahr/
poisonous, risk
of death



☐
gesundheitsge-
fährdend/
harmful to
health



☐
gesund-
heitsschädlich/
health hazard



☐
umweltge-
fährdend/
environmental
hazard

Bitte Sicherheitsdatenblatt beilegen!/ Please enclose safety data sheet!

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

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

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

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

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

Firmenstempel/ Company Sign

Datum/ Date

rechtsverbindliche Unterschrift/ Legally binding signature



Vermeiden von Veränderung und Beschädigung der einzusendenden Baugruppe

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

Umgang mit elektrostatisch sensiblen Baugruppen

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

Einbau von Ersatzteilen

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

Einsenden von Elektroaltgeräten zur Entsorgung

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

Avoiding alterations and damage to the components to be returned

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

Handling electrostatically conductive components

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

Fitting of spare parts

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

Returning old electrical appliances for disposal

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

