



## General Information

*Dear Customer,*

The flow control device purchased, is a product of **Grünewald GmbH, 59069 Hamm** and is manufactured as a SIMPL-Ex<sup>®</sup>- device for Pressure or Temperature measuring for the use for liquid media in closed and filled systems.

To ensure long term and safe operation of the control device, read the operating manual attentively.

If further information is required please do not hesitate to contact our technical support via Grünewald GmbH, Oberallener Weg 7, 59069 Hamm, Tel. +49 (0)2385 922670, Fax +49 (0)2385 922672.

Internet: [www.gruenewald.eu](http://www.gruenewald.eu)

E-Mail: [info@gruenewald.eu](mailto:info@gruenewald.eu)

## SUMMARY

1.	INTRODUCTION .....	3
2.	GENERAL .....	3
	2.1 GENERAL INFORMATION TO THE OPERATING MANUAL .....	3
	2.2 GENERAL SAFETY INSTRUCTIONS .....	4
3.	OBLIGATIONS OF THE OPERATOR .....	5
4.	OBLIGATIONS OF USER PERSONNEL .....	5
	4.1 QUALIFIED PERSONNEL .....	6
5.	WARRANTY AND LIABILITY .....	6
6.	WARNINGS AND SAFETY RELEVANT STANDARDS .....	7
7.	OBSERVING OF ENVIRONMENTAL RULES AND REGULATIONS .....	7
8.	INTENDED PURPOSE OF USE .....	8
	8.1 RANGE OF APPLICATION .....	8
9.	INSTALLATION / COMMISSIONING / ASSEMBLY INSTRUCTIONS .....	8
10.	CONNECTIONS .....	9
11.	OPERATION, MAINTENANCE AND REPAIR .....	10
12.	TRANSPORTATION / STORAGE .....	10
13.	DESCRIPTION OF THE DEVICE .....	11
14.	FUNCTIONING OF THE SIMP-EX <sup>®</sup> -INSTRUMENT .....	11
15.	HAZARDS .....	11
16.	TECHNICAL ASSISTANCE .....	12
17.	SCOPE OF DELIVERY .....	12
18.	MODEL KEY .....	13
19.	NAMEPLATE .....	14
20.	TECHNICAL DATA .....	15
21.	21.1 EG-MODEL TEST CERTIFICATE .....	16
	21.2 IECEX - CERTIFICATE .....	18
22.	EU-DECLARATION OF CONFORMITY .....	22

## 1. Introduction

This operating manual will assist to operate SIMPL-Ex<sup>®</sup>-Device for Pressure or Temperature measuring in a safe, proper and economical manner.

Observing the instructions of this manual will:

- Increase reliability and lifespan of the control facility.
- Prevent possible danger.
- Avoid down times caused by failures and repairs.

This manual must:

- be present whilst any installation, maintenance and repair work is performed.
- be read, acknowledged and applied by any person performing tasks to and at the SIMPL-Ex<sup>®</sup>-Device for Pressure, Level and Temperature measuring.

Grünewald monitoring and measuring devices are delivered ready for installation. No other preparations of the device are necessary.

The general installation and operating manuals as well as the product information's do therefore refer to the mechanical and electrical data of the individual device or assembly.

The SIMPL-Ex<sup>®</sup>-Device for Pressure or Temperature measuring is manufactured to latest technical and safety relevant standards, rules and regulations. However, abuse and operation of the device within incorrect applications may result in serious injury or death of the user and/or a third party, as well as it may endanger equipment and other property.



## 2. General

### 2.1 General information to the operating manual

This operating manual contains all necessary information required, to ensure correct and safe installation as well as operation of the device. The manufacturer or distributor must be contacted for further information and assistance, if arising difficulties and problems can not be solved within the operating manual provided information. Changes to specification and design as well as improvements to the device are subject to change with out notice and are fully to the discretion of the manufacturer. Users of this operating manual must fulfil required qualification standards. Operating personnel must be trained in accordance to the operating manual.

### 2.2 General safety instructions

**Read the operating manual of the SIMPL-Ex<sup>®</sup>-Device for Pressure and Temperature measuring prior commencement of any work and acknowledge instructions during execution and operation.**



The correct condition and operation of the device as well as the compliance with safety rules and regulations is to the full responsibility of the operator. The SIMPL-Ex<sup>®</sup>- Device is manufactured to latest technical and safety relevant standards, rules and regulations. However, abuse and operation of the device within incorrect applications may result in serious injury or death of the user and/or a third party, as well as it may endanger equipment and other property.

Use and operation of the control device is only permitted when:

- **the compliance with the intended purpose of use is granted.**
- **the condition of the device complies with safety relevant rules.**

Take note of the technical data of the SIMPL-Ex<sup>®</sup> Device for Pressure or Temperature measuring. The intended purpose of use of SIMPL-Ex<sup>®</sup> -Device for Pressure or Temperature measuring is described with in chapter 8 of this Documentation and must be acknowledged. Awareness of the basic safety instructions and rules is the minimal requirement for the safe use and trouble free operation of SIMPL-Ex<sup>®</sup> -Device for Pressure, Temperature measuring additionally, all site specific rules and regulations, such as, but not limited to, occupational health and safety rules, rules and standards for erecting and using of electric and mechanical facilities, as well as radio noise suppression rules and standards, must be complied with.

Pay attention and care to tidiness of workspace during performance of repair and maintenance tasks. Do not eat or smoke during work. Unauthorized altering or modifying the equipment will cause loss of any warranty and liability provided by the manufacturer.

Take note of the operating manual and pay special attention to safety symbols and safety instructions on the device and the documentation. Please store the operating manual carefully.

### 3. Obligations of the Operator

It is the full responsibility of the operator that only persons complying with below out lined regulations are authorized to work on and with the devices.

Persons authorised must,

- be confident and trained with rules of occupational health and safety und the handling and operation of the equipment.
- has read, understood and acknowledged the safety instructions and warnings of this operating manual and all other, with the device associated documentations.
- is examined for compliance and consciousness of work place safety rules on regular bases.

Installation, maintenance and repair work must be performed by trained and qualified personnel only. Faults, which may influence safety, must be rectified immediately.

### 4. Obligations of User Personnel

Personnel authorized to fulfil tasks at the SIMPL-Ex<sup>®</sup> Device for Pressure Temperature measuring must be familiar with the operating manual.

Persons authorized to work on the device must permanently commit them self's to:

- Acknowledge the basic occupational health and safety rules at all times.
- Read and acknowledge safety instructions and warnings of this operating manual.

#### 4.1 Qualified personnel

These are persons, familiar with the installation, assembly, commissioning and operation of the product. Furthermore these persons must be qualified and trained for tasks; these persons are authorized to perform. (E.g. training and obligation to maintain required operating conditions in accordance to regional and site-specific rules and regulations).

Education or training for care and use of safety and protective equipment, according relevant standards of safety techniques.

### 5. Warranty and Liability

Our standard terms and conditions of sale and delivery apply, unless other conditions for warranty and liability were explicitly mutually agreed upon. Claims of warranty or liability leading back to any of the below described causes is not legitimate.

- Using the SIMPL-Ex<sup>®</sup> Device for Pressure, Level and Temperature measuring not in compliance with the intended purpose of use of this item.
- Incorrect installation, commissioning, operation and maintenance of the SIMPL-Ex<sup>®</sup> Device for Pressure or Temperature measuring
- Operation of the SIMPL-Ex<sup>®</sup> Device for Pressure or Temperature measuring in conjunction with defective safety devices or in correctly installed safety and protective devices.
- Neglecting of instructions regarding transportation, storing, installation, commissioning, operation and maintenance of the SIMPL-Ex<sup>®</sup> Device for Pressure or Temperature measuring
- Unauthorized modification or adjustments of the SIMPL-Ex<sup>®</sup> Device for Pressure or Temperature measuring.
- Inappropriate condition monitoring of parts subject to wear.
- Incorrect repairs, inspections and maintenance.
- Catastrophic failures caused by external forces and force majeure.

Any liability for damages caused by in correct operation of the SIMPL-Ex<sup>®</sup> Device for Pressure or Temperature measuring will be rejected.

## 6. Warnings and Safety relevant Standards

For references to special hazards and uncommon information's signal the terms **DANGER**, **WARNING**, **ATTENTION** and **REMARK** are used within this operating manual.

**DANGER** neglecting may cause danger to life and/or serious damage to property.



**WARNING** neglecting may cause, serious injury and/or damage to property.



**ATTENTION** neglecting may cause, injury and/or damage to property.



**REMARK** indicates that special attention to technical correlations is required.



To prevent injury and damage of property due to failure of the device, the acknowledgement of the not specially marked instructions for transportation, installation, product range and maintenance is an absolute necessity.

## 7. Observing of Environmental Rules and Regulations

Rules and regulations for waste prevention and disposal must be followed at all times when working with or at the SIMPL-Ex<sup>®</sup> for Pressure or Temperature measuring Materials that may endanger and pollute water such as:



- Grease, oil and Lubricants
- Hydraulic fluids
- Coolants
- Cleaning fluids containing solvents

must not be emitted to surrounding soil, waters and drains. Such materials must be stored, transported and caught, in suitable containers. For safe and environmentally friendly disposal of hydraulic fluids and with such fluids contaminated materials, national and international laws, rules and regulations must be acknowledged.



## 8. Intended Purpose of Use

The SIMPL-Ex® for Pressure or Temperature measuring is exclusively designed to monitor liquid mediums within closed and filled systems.

Any adaptation as well as modification or extension of the device, not complying with the intended purpose of use is prohibited and requires the explicit and exclusive approval of the manufacturer.

Acknowledgement of the operating manual and instructions for inspection and maintenance as well as the observance of inspection and maintenance intervals are subject of the intended purpose of use.

Any damage that may arise out of the incorrect use will not be at the responsibility of the manufacturer. The sole risk devolves at the user.

### 8.1 Range of Application

The usage of the SIMPL-Ex® for Pressure or Temperature measuring is only allowed in pipelines which are suitable in diameter and pressure, and are only for water or water like mediums without a great deal of pollution.

Changes to specifications are only permitted prior to consent from Grünewald GmbH, 59069 Hamm.

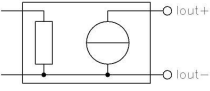
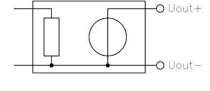


## 9. Installation / Commissioning / Assembly Instructions

- **DANGER**
  - Take notice of operating pressure and pressure level
  - Use device with fluids specified only
  - Bleed system prior start up
- **WARNING**
  - Do not install directly after a pump
  - **Do not weld with built-in unit!**  
**The device will be destroyed**
- **ATTENTION**
  - Seal during installation
  - Use circuit diagram when wiring
  - Check circuit to prevent overloading
- **NOTE**
  - If required take notice of mounting position
  - Notice the specifications of the switch and gauge tolerances
  - The System pressure must exceed the pressure drop caused by the device
  - Overhead assembly only for clean medium



## 10. Connections

		Leitungs- anschluß <small>[Leitung Typ A, DIN EN 50394-1]</small>	Leitungs- anschluß	Steckverbinder System PROMOS	Steckverbinder System HARTING	Steckverbinder System SOURIAU
Versorgungsspannung $V_{cc}$ 12V DC 16V DC		Weiß	Ader 1	PIN 7	PIN 1	PIN 1
Versorgungsspannung GND 0V		Braun = $I_{out^-}$ = $U_{out^-}$	Ader 2 = $I_{out^-}$ = $U_{out^-}$	PIN 5	PIN 2	PIN 2
SIMPLEx ... S* SIMPLEx ... SI*		Grün = $I_{out^+}$ Gelb = $I_{out^-}$	Ader 2 = $I_{out^-}$ Ader 3 = $I_{out^+}$	PIN 4 = $I_{out^+}$ PIN 5 = $I_{out^-}$	PIN 4 = $I_{out^+}$ PIN 5 = $I_{out^-}$	PIN 3 = $I_{out^+}$ PIN 2 = $I_{out^-}$
SIMPLEx ... U*		Grün = $U_{out^+}$ Gelb = $U_{out^-}$	Ader 3 = $U_{out^+}$	PIN 4 = $U_{out^+}$ PIN 5 = $U_{out^-}$	PIN 4 = $U_{out^+}$ PIN 5 = $U_{out^-}$	PIN 3 = $U_{out^+}$ PIN 2 = $U_{out^-}$

If not otherwise stated, the supply voltage and the exit signal are not galvanically separated.

Devices with 2 combined measuring systems (for example level and temperature measuring), the power supply must be used corporately by one power supply unit exclusively.

When connecting the power supply cable, the earthing from the supply unit must be connected.



## 11. Operation, Maintenance and Repair

Rules and regulations for workplace safety and occupational health and safety apply for the operation of the device.

Modifications, add-ons and / or changes to the SIMPL-Ex<sup>®</sup> for Pressure or Temperature measuring may influence safety and must not be performed unless approved by the manufacturer.

The devices are maintenance-free apart from periodically cleaning which depends on the amount of contamination in the medium and the surrounding environment.

- Appropriate workshop equipment is absolutely necessary for the execution of maintenance measures.
- Regulations for electrical equipment must be observed.
- Incorrect use, operation or repair may result in severe injury or death.
- Prior any repair or maintenance task commences local rules and regulations must be acknowledged.

### Special note for the explosion-protection:

- The devices may be installed inside the
  - group 1, category M1
  - group 2, category 1/2

The construction of the installation of the intrinsically safe electric circuit is to conduct accordingly of the effective mounting-appointment (by specialists).

(Competence of assembler verified, protected transferring of the intrinsically safe electric circuit, etc.)

- The devices are constructed in the protection category IP67
- The device must only be used according to construction regulations.
- The connection to the power supply must be checked and tested.
- **Fluid technical connection:** before connection to the pipeline, **check pipeline for pollution and contamination.**
- Only after **correct fitting and examination** are the medium supply to be opened.

The electrical connections are to use the connection clamps and/or plug. A professional and secure installation and a continual maintenance of the IP protection is required.

## 12. Transportation / Storage

- Transport temperatures shall not exceed the range of -10°C to 60°C within a dry and clean environment.
- Protect against external forces.
- Storage temperatures shall not exceed the range of -20°C to 60°C within a dry and clean environment.
- To prevent any condensation of water when stored in rooms with a high degree of humidity, measures such as heating of the room or application of drying agents is required.

### 13. Description of the device

The universal measuring device type SIMPL-Ex<sup>®</sup> is an uniformed standardised device for Pressure, or Temperature measuring. The devices are made to withstand very hard and difficult areas of deployment. Because of their very solid construction they are able to withstand very high levels of burden.

The round device version are fitted with or without a digital display optionally. The In-Line version are categorically not fitted with a digital display.

The mechanical fitting can be optionally be fitted with a thread selectively, flange or a coupling system. The electrical fitting can be optionally fitted with a coupling plug in any chosen form, a PROMOS connector or wire connection in various lengths.

For the subsequent measuring value transmission there are various output signals available which are currency and voltage in different ranges.

### 14. Functioning of the SMALL-Device

The SMALL-Device for Pressure or Temperature measuring transforms the physical quantities of the medium (pressure, temperature) into an electrical signal. These measurable quantities are available and stand behind the following superior systems (control system).

The measuring signals can be:

- Current: 0/4-20mA
- Voltage: 0-10V (1-4V, 0-5V, 1-6V,.....)

### 15. Hazards

To avoid risk of damage or injury, the safety instructions of this operating manual must be applied and carried out!

When fitting or dismantling the device, the safety regulations of the country regarded must be applied by. Especially when working on electrical components, are the work safety rules to be followed. In Germany the ZH 1/94 "Safety handbook for qualified craftsmen" is to be applied.

It is not known that the device concerning the guidelines 89/336/EWG is not affected against electromagnetic disturbance that occur during normal operating procedures.

Special terms, that are given from the EMV-environment are to be applied and the manufacturer is to be notified.

**Dangers that arise whilst fitting and connecting the device are to be considered and the corresponding actions are to be taken and a hazard analysis is to be rendered**





## 16. Technical assistance

For assistance in an event of malfunctioning or failure of the device please contact

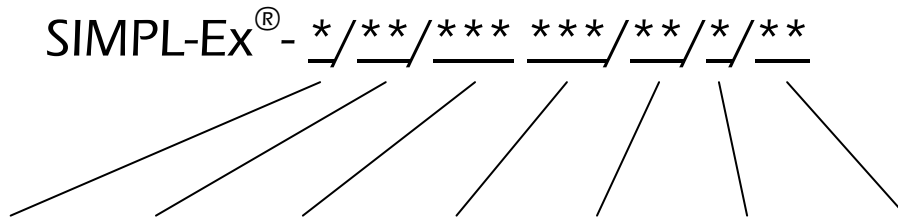
**Grünewald GmbH, Oberallener Weg 7, D-59069 Hamm**

**Tel. +49 02385 922670, Fax +49 02385 922672 or mail: [info@gruenewald.eu](mailto:info@gruenewald.eu)**

## 17. Scope of delivery

- SIMPL-Ex<sup>®</sup> device for Pressure, Level and Temperature measuring
- Operating manual

## 18. Model Key



Measure mode	Nominal voltage	Range	Unit	Mechanical connection	Electr. connection	Port
<b>P</b> Pressure  <b>T</b> Temperature	<b>12</b> [12V DC]  <b>16</b> [16V DC]	<b>***</b> [0-***]	<b>mb</b> [mbar]	<b>G1</b> [G¼ A]  <b>G2</b> [G½ A]  <b>G3</b> [G¾ A]  <b>O</b> [Steck- O]  <b>**</b> [Special]	<b>S24</b> [SKK24-connector]  <b>M12</b> [M12 Sensor-connector]  <b>B</b> [PROMOS BN 41...AT]  <b>H</b> [HARTING]  <b>S</b> [SOURIAU]  <b>L...m</b> [wiring with lengthin m]  <b>V</b> [Ventilstecker]  <b>**</b> [Sonder **]	<b>SIO</b> [0-20 mA]  <b>SI4</b> [4-20 mA]  <b>S...</b> [*..** mA]  <b>U...</b> [*..**V max. 10V]
			<b>b</b> [bar]  <b>M</b> [MPa]  <b>P</b> [Psi]  <b>C</b> [°C]  <b>**</b> [Special]			

\*\* [special] indicates more features and freely selectable options and features taking into account technical and certified parameters.


The indication of the registration "SMALL-EX<sup>®</sup>" is a non-binding option.

## 19. Nameplate

<b>SIMPL-Ex<sup>®</sup></b> <b>SIMPL-Ex<sup>®</sup></b>		<b>Grünewald GmbH</b>	
<b>Typ:</b>	SIMPLEx-*/**/**	<b>Oberallener Weg 7</b>	
<b>Type:</b>	***/**/**	<b>D-59069 Hamm</b>	
<b>Artikel-Nr.:</b>	*_*_*_*_*_*_*_*_*_*	<b>Tel.: +49 (0) 2385 922670</b>	
<b>Article-No.:</b>		<b>Fax: +49 (0) 2385 922672</b>	
<b>Serien-Nr.:</b>	*****	<b>Mail: info@gruenewald.eu</b>	
<b>Serial-No.:</b>		<b>CE 0158</b>	
<b>Datum:</b>	**.*.*.****	<b>Ex I MI Ex ia I Ma</b>	
<b>Date:</b>		<b>Ex II 1/2 G Ex ia IIC T4/T6 Ga/Gb</b>	
<b>Messbereich:</b>	* - ***bar	<b>Ta = -50 - +100 °C</b>	
<b>Measuring range:</b>		<b>IBExU ** ATEX * **</b>	
		<b>IECEx IBExU ** ****</b>	

The nameplate may contain more and additional supplementary information.





## 20. Technical Details

<b>Nominal voltage:</b>	12VDC +15% / -20% $U_i = 14Vdc$ 16VDC +0% / -30% $U_i = 16,1Vdc$
<b>Nominal current pro measuring system:</b>	34mA (incl. 20mA output) 14mA (without 20mA output)
<b>Output Signal:</b>	0 – 10 V active output (floating) 0/4 – 20mA active output (floating)
<b>Signal Range:</b>	0 – 10,75V 0/4 – 21,5mA
<b>Dimensions:</b> (Without sensor and electrical connector)	housing (depending on version) $\varnothing =$ approx. 35mm length: approx. 135mm
<b>Weight:</b>	depending on type
<b>Environmental Temperature:</b>	-50 to +100°C at group I
<b>Media Temperature:</b>	-100 to +200°C
<b>Measuring ranges:</b>	Pressure: different ranges Temperature: different ranges
<b>Gauging accuracy:</b>	$\pm 3 \% FS$
<b>EG- verification- certificate:</b>	IBExU 13 ATEX 1110
<b>IECEX- verification- certificate:</b>	IECEX IBE 13.0039
<b>Marking:</b>	 I MI Ex ia I Ma

We reserve the right to make changes to our equipment that are due to technical progress.



## 21. EG-Model test certificate

<b>IBExU Institut für Sicherheitstechnik GmbH</b> An-Institut der TU Bergakademie Freiberg	
[1] <b>EC-TYPE EXAMINATION CERTIFICATE</b> according to Directive 94/9/EC, Annex III (Translation)	
[2] Equipment and Protective Systems intended for use in Potentially Explosive Atmospheres, Directive 94/9/EC	
[3] EC-Type Examination Certificate Number: <b>IBExU13ATEX1110</b>	
[4] Equipment:	<b>Pressure and temperature measurement device type SIMPL-Ex®</b>
[5] Manufacturer:	Grünwald GmbH
[6] Address:	Oberallener Weg 7 59069 Hamm Germany
[7] The design of the equipment mentioned in [4] and any acceptable variations thereto are specified in the schedule to this EC-Type Examination Certificate.	
[8] IBExU Institut für Sicherheitstechnik GmbH, NOTIFIED BODY number 0637 in accordance with article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that the in [4] mentioned equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive. The test results are recorded in the test report IB-13-3-114 of 7 May 2014.	
[9] Compliance with the Essential Health and Safety Requirements has been assured by compliance with EN 60079-0:2012, EN 60079-11:2012 and EN 50303:2000.	
[10] If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified under [17] in the schedule to this EC-Type Examination Certificate.	
[11] This EC-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this directive apply to the manufacture and supply of this equipment.	
[12] The marking of the equipment mentioned in [4] shall include the following:	
	
<b>IBExU Institut für Sicherheitstechnik GmbH</b> Fuchsmühlenweg 7 - 09599 Freiberg, Germany ☎ +49 (0) 3731 3805-0 - ☎ +49 (0) 3731 23650	
Authorised for certifications Explosion protection By order  (Dr. Wagner)	Freiberg, 7 May 2014 <div style="border: 1px solid black; padding: 5px; width: fit-content;">                         Certificates without signature and                          seal are not valid.                          Certificates may only be duplicated                          completely and unchanged. In                          case of dispute, the German text                          shall prevail.                     </div>
	
<b>Schedule</b>	
Page 1 of 2 IBExU13ATEX1110	

**IBExU Institut für Sicherheitstechnik GmbH**  
An-Institut der TU Bergakademie Freiberg

- [13] **Schedule**
- [14] to the EC-TYPE EXAMINATION CERTIFICATE IBExU13ATEX1110
- [15] **Description of the equipment**  
The universal measuring device type SIMPL-Ex ® provides pressure transmitters and temperature measuring equipment is composed of a pressure-measuring cell or PT1000 and evaluation electronics arranged on several boards in a high-grade steel enclosure with process tap. The device can be used in potentially explosive atmospheres as a Group I device. It is supplied with an intrinsically safe power source.
- Technical Data**
- Ambient temperature range: -50 °C to +100 °C  
Degree of protection: IP64 / IP68
- Electrical Data**
- Supply electric circuit:** in type of protection Intrinsic safety Ex ia I  
 $U_i$  14 V or 16.1 V  
 $C_i$  negligible  
 $L_i$  negligible
- Signal circuit (current output)** in type of protection Intrinsic safety Ex ia I  
 $U_o \leq U_i$   
 $I_o$  120 mA  
 $C_o$  1.6 µF  
 $L_o$  26 mH
- Linear characteristic:  $R_i = 96 \Omega$
- Signal circuit (voltage output)** in type of protection Intrinsic safety Ex ia I  
 $U_o$  12.7 V  
 $I_o$  12 mA  
 $C_o$  3 µF  
 $L_o$  100 mH
- Linear characteristic:  $R_i = 1102 \Omega$
- The intrinsically safe circuits are galvanically connected.
- [16] **Test report**  
The test results are recorded in the test report IB-13-3-114. The test documents are part of the test report.
- Summary of the test results:  
The Pressure and temperature measurement device type SIMPL-Ex ® fulfils the requirements of type of protection Intrinsic safety on an electrical apparatus of the Equipment Group I and Category M1.
- [17] **Special conditions**  
none
- [18] **Essential Health and Safety Requirements**  
Confirmed by compliance with standards (see [9]).

By order  
*Wagner*  
(Dr. Wagner)

Freiberg, 7 May 2014


Page 2 of 2  
IBExU13ATEX1110



## 21.2 IECEX - Certificate

		<h3>IECEX Certificate of Conformity</h3>	
<p><b>INTERNATIONAL ELECTROTECHNICAL COMMISSION</b>  <b>IEC Certification Scheme for Explosive Atmospheres</b>  <small>for rules and details of the IECEX Scheme visit <a href="http://www.iecex.com">www.iecex.com</a></small></p>			
Certificate No.:	IECEX IBE 13.0039	Issue No: 0	<u>Certificate history:</u> Issue No. 0 (2014-04-29)
Status:	Current	Page 1 of 3	
Date of Issue:	2014-04-29		
Applicant:	Grünewald GmbH Oberallener Weg 7 59069 Hamm Germany		
Electrical Apparatus:	Universal measuring instrument for pressure or temperature type SIMPL-Ex		
Optional accessory:			
Type of Protection:	Intrinsic safety 'ia'		
Marking:	Ex ia I Ma		
Approved for issue on behalf of the IECEX Certification Body:	Prof. Dr. Tammo Redeker		
Position:	Head of Certification Body		
Signature: (for printed version)			
Date:			
<p>1. This certificate and schedule may only be reproduced in full.                  2. This certificate is not transferable and remains the property of the issuing body.                  3. The Status and authenticity of this certificate may be verified by visiting the <a href="http://www.iecex.com">Official IECEX Website</a>.</p>			
Certificate issued by:			
IBExU Institut für Sicherheitstechnik GmbH Certification Body Fuchsmühlenweg 7 09599 Freiberg Germany			

		<b>IECEX Certificate of Conformity</b>	
Certificate No:	IECEX IBE 13.0039	Issue No:	0
Date of Issue:	2014-04-29	Page 2 of 3	
Manufacturer:	Grünewald GmbH Oberallener Weg 7 59069 Hamm Germany		
Additional Manufacturing location(s):			
<p>This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended.</p>			
<b>STANDARDS:</b>			
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:			
IEC 60079-0 : 2011 Edition:6.0	Explosive atmospheres - Part 0: General requirements		
IEC 60079-11 : 2011 Edition:6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I"		
<p><i>This Certificate does not indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.</i></p>			
<b>TEST &amp; ASSESSMENT REPORTS:</b>			
<i>A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in</i>			
<b>Test Report:</b>			
<a href="#">DE/IBE/ExTR13.0036/00</a>			
<b>Quality Assessment Report:</b>			
<a href="#">DE/BVS/QAR08.0004/02</a>			



		<h2 style="margin: 0;">IECEX Certificate of Conformity</h2>	
Certificate No:	IECEX IBE 13.0039	Issue No:	0
Date of Issue:	2014-04-29	Page 3 of 3	
Schedule			
<b>EQUIPMENT:</b>			
<i>Equipment and systems covered by this certificate are as follows:</i>			
<p>The universal measuring device type SIMPL-Ex is an uniformed standardised device for pressure or temperature measuring. The devices are made to withstand very hard and rough environmental conditions. Because of their very solid construction they are able to withstand very high mechanical load.</p>			
<p>The mechanical fitting can be optionally be fitted with a thread, flange or a coupling connector or wire connection in various length.</p>			
<p>For the subsequent measuring value transmission there are two different output signals - current and voltage in different ranges.</p>			
<u>Technical data:</u>			
Nominal voltage	12 VDC +15%/-20% U=14 VDC 16 VDC +0%/-30% U <sub>I</sub> =16.1 VDC		
Nominal current	34 mA (incl. 20 mA output) 14 mA (without 20 mA output)		
output signal	0-10 V active output 0/4-20 mA active output		
Ambient temperature range	-50 °C up to +100 °C		
Media temperature	-100 °C up to +200 °C		
degree of protection (acc. IEC 60529)	IP64 / IP68		
<b>CONDITIONS OF CERTIFICATION: NO</b>			

	<p>IECEX CERTIFICATE OF CONFORMITY</p>	
<p>ANNEX TO CERTIFICATE NO.:</p>	<p>IECEX IBE 13.0039 / ISSUE No.: 0</p>	<p>PAGE 1/1</p>
<p><b>Technical Data</b></p>		
<p>Ambient temperature range: Degree of protection:</p>	<p>-50 °C to +100 °C IP64 / IP68</p>	
<p><u>Electrical Data</u></p>		
<p><b>Supply electric circuit:</b></p>	<p>in type of protection Intrinsic safety Ex ia I  <math>U_i</math> 14 V or 16.1 V  <math>C_i</math> negligible  <math>L_i</math> negligible</p>	
<p><b>Signal circuit (current output)</b></p>	<p>in type of protection Intrinsic safety Ex ia I  <math>U_o \leq U_i</math>  <math>I_o</math> 120 mA  <math>C_o</math> 1.6 <math>\mu</math>F  <math>L_o</math> 26 mH</p>	
<p>Linear characteristic:</p>	<p><math>R_i = 96 \Omega</math></p>	
<p><b>Signal circuit (voltage output)</b></p>	<p>in type of protection Intrinsic safety Ex ia I  <math>U_o</math> 12.7 V  <math>I_o</math> 12 mA  <math>C_o</math> 3 <math>\mu</math>F  <math>L_o</math> 100 mH</p>	
<p>Linear characteristic:</p>	<p><math>R_i = 1102 \Omega</math></p>	
<p>The intrinsically safe circuits are galvanically connected.</p>		
<p>FB 10 7 009 Certificate of Conformity (CoC) – Anhang <span style="float: right;">Revision 0, Seite 1 von 1</span></p>		



## 22. EU-Declaration of Conformity

# EU-Konformitätserklärung *EU Declaration of Conformity*

**Im Sinne der: *In the legal scene of:***


- EU- Richtlinie Explosionsschutz 2014/34/EU  
*EU direction 2014/34/EU for equipment and protective systems intended for use in potentially explosive atmospheres explosion prevention*
- EU- Richtlinie über die elektromagnetische Verträglichkeit EMV- Richtlinie 2014/30/EU  
*EU- guidelines over the electromagnetic sociability EMV- guidelines 2014/30/EU*

**Für das: *For:***

Bezeichnung / *description*

**SIMPLEX®- \*/\*\*/\* \*\*\*/\*\*/\*/\*\***

Kennzeichnung / *marking*

 I M1 Ex ia I Ma

Zulassung / *certification*

IBExU 13 ATEX 1110  
IECEX IBE 13.0039

Seriennummer / *serial number*

Lt. Lieferpapieren / *according to delivery documets*

Notifizierte Stelle / *Notified body*

 0637 **IBExU Institut für Sicherheitstechnik GmbH**  
**Fuchsmühlenweg 7, D- 09599 Freiberg**  
IBExU 13 ATEX 1110

EU- Baumusterprüfbescheinigung / *EU- Type Examination Certificate:*

IBExU 13 ATEX 1110

Der Hersteller / *the manufacturer*

**Grünewald GmbH** **Tel.: +49 (0) 2385 / 922670**  
**Oberallener Weg 7** **Fax: +49 (0) 2385 / 922672**  
**D- 59069 Hamm** **Mail: info@gruenewald.eu**

Hiermit bestätigen wir, dass die vorgenannten **SIMPLEX® der Grünewald GmbH, Mess- u. Regeltechnik** den wesentlichen Anforderungen entsprechen, die in den Richtlinien des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten für Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen (2014/34/EU, 2014/30/EU) in der aktuellen Fassung festgelegt ist. Die Erklärung gilt für alle Exemplare, die nach den beim Hersteller hinterlegten Fertigungsunterlagen - die Bestandteil dieser Erklärung sind - hergestellt wurden.

*We herewith declare conformity of the above mentioned **SIMPLEX® of Grünewald GmbH, Mess- u. Regeltechnik**, with the general directives outlined in the actual edition of the guidelines (2014/34/EU, 2014/30/EU) for equipment and protective systems with the intended purpose of use within explosive environment / atmospheres, of the council for approximation of laws of the member states. This declaration is valid for all issues produced in accordance to the manufacturing documents of the manufacturer, which also form part of this declaration.*

Zur Beurteilung der Erzeugnisse wurden folgende Normen herangezogen:

*Following standards were used for the assessment of the products:*

EN 60079-0:2015	Explosionsgefährdete Bereiche – Teil 0: Allgemeine Anforderungen <i>Explosive atmospheres - Part 0: Equipment - General requirements</i>
EN 60079-11:2012	Explosionsgefährdete Bereiche – Teil 11: Geräteschutz durch Eigensicherheit „i“ <i>Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"</i>
IEC 60079-0 : 2011	Explosive atmospheres - Part 0: Equipment - General requirements
IEC 60079-11 : 2011	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

EN 50303 : 2001	Gruppe I, Kategorie-M1-Geräte für den Einsatz in Atmosphären die durch Grubengas und / oder brennbare Stäube gefährdet sind <i>Group I, category M1 equipment intended to remain functional in atmospheres endangered by firedamp and/or coal dust</i>
EN 61000-4-2	Elektromagnetische Verträglichkeit (EMV) - Teil 4-2: Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen die Entladung statischer Elektrizität <i>Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test</i>
EN 61000-4-4	Elektromagnetische Verträglichkeit (EMV) - Teil 4-4: Prüf- und Messverfahren - Prüfung der Störfestigkeit gegen schnelle transiente elektrische Störgrößen/Burst <i>Electromagnetic compatibility (EMC) – Part 4-4: Testing and measurement techniques – Electrical fast transient/burst immunity test</i>
EN 61326-1	Elektrische Mess-, Steuer-, Regel- und Laborgeräte- EMV- Anforderungen- Teil 1: Allgemeine Anforderungen <i>Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements</i>

Im Sinne der EG- Richtlinie Maschinen 2006/42/EG handelt es sich hier um eine auswechselbare Ausrüstung für eine übergeordnete Maschine. Die Gefährdungsanalyse der übergeordneten Maschine muss alle wesentlichen Risiken, die durch den Zusammenbau entstehen oder dem Hersteller nicht bekanntes EMV- Umfeld, überprüfen und in eine Risikokategorie einteilen. Entsprechende Maßnahmen sind durch die Gesamtmaschine zu gewährleisten.

*For the purposes of the EC Machinery Directive 2006/42/EG, these are interchangeable equipment for a superordinated machine. The hazard analysis of the superordinated machine has substantially all the risks incurred by the assembly or producer check-known EMC environment, and classified into a risk category. Appropriate measures have to be guaranteed by the entire machine.*

Ausgefertigt in / done at

Am / on

Name des Unterzeichners / name of signatory

Unterschrift / Signature

Hamm

March, 16<sup>th</sup> 2016

Michael Wolf, Geschäftsführer oder Vertretung /  
General manager or representative

(Maschinelle Unterschrift / machine- signature)



Oberallener Weg 7  
59069 Hamm / Germany  
Phone +49 (0) 23 85 92 26 70  
Fax +49 (0) 23 85 92 26 72  
info@gruenewald.eu  
www.gruenewald.eu