



IECEX Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.: issue No.: Certificate history:

Status:

Date of Issue: **2013-12-18** Page 1 of 3

Applicant: **Grünewald GmbH**
Oberallener Weg 7
D-59069 Hamm
Germany

Electrical Apparatus: **Measuring Gauge type SMALL * / ** / ** / *** ** / ** / *** / *** / ** / *** / ** / ** / ***
Optional accessory:

Type of Protection: **Intrinsic safety 'ia'**

Marking: Grünewald GmbH
Measuring Gauge type SMALL * / ** / ** / *** ** / ** / *** / *** / ** / *** / ** / ** / *
Ex ia IIC T4 / T6 Ga/Gb or
Ex ia IIC T4 / T6 Gb or
Ex ia / ib I Ma / Mb or
Ex ia I Ma
IECEX TSA 13.0023X

Approved for issue on behalf of the IECEx Certification Body: Debbie Wouters

Position: Acting Quality & Certification Manager

Signature:
(for printed version)

Date:

18 DECEMBER 2013

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 Official IECEx Website.

Certificate issued by:

TestSafe Australia
919 Londonderry Road
Londonderry NSW 2753
Australia





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Manufacturer: **Grünewald GmbH**
Oberallener Weg 7
D-59069 Hamm
Germany

Additional Manufacturing location
(s):

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.

STANDARDS:

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"
IEC 60079-26 : 2006 Edition: 2	Explosive atmospheres - Part 26: Equipment with equipment protection level (EPL) Ga

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

Test Report:
DE/BVS/ExTR09.0055/01

Quality Assessment Report:
DE/BVS/QAR08.0004/02



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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The measuring gauge is an intrinsically safe supplied apparatus providing different electronic design for Group I and Group II application with regard to signal output interface. The type SMALL measuring instruments are used for measuring pressure, temperature or the level height of liquid or gaseous mediums. Details refer to Annexe of the certificate.

CONDITIONS OF CERTIFICATION: YES as shown below:

Please refer to Annexe of the certificate.



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Description:

The Measuring Gauge of type series SMALL * / ** / ** / ** / ** / ** / ** / ** / ** / ** / ** / ** / ** / ** / ** / ** is an intrinsically safe supplied apparatus providing different electronic design for Group I and Group II application with regard to signal output interface. The type SMALL measuring instruments are used for measuring pressure, temperature or the level height of liquid- or gaseous media in areas requiring EPL Ga/Gb, Gb, Ma and/or Mb equipment.

With reference to the mechanical model of the measuring gauge, PCB fitted with electronic components are located in a metal or plastics enclosure (surface resistance less than 1 GΩ) of round size or 'in-line' size.

Type SMALL * / RG / ** / ** / ** / ** / ** / ** / ** / ** / ** / ** / ** / ** / ** / **

Optional features for the models fitted in round size enclosure:

- cover fitted with inspection glass above the display
- integrated or external pressure- level- , temperature- or pulse sensor
- cable glands and/or connectors for the IS circuits (power supply, voltage- / current outputs, opto-isolator
- outputs, and/or external sensors.
- permanently connected cable (length up to 200 m) between main electronics and external sensor
- removable cable (length up to 200 m) between main electronics and external sensor
- electronic assembly for more than one measured physical unit.

The round size enclosure is designated for installation in areas requiring EPL Gb or EPL Ma, EPL Mb.

The sensor compartment of the models in round size enclosure or the external sensors respectively are designated for mounting in the boundary wall, separating areas requiring EPL Ga or EPL Gb equipment.

The round size enclosure may be fitted with one or more of the following PCB and associated assemblies:

1.) for Group I and Group II application:

- type GWR_101-1; 2-wire 4 - 20 mA current loop; rated supply voltage DC 24 V; with or without display-pcb type Display GWR_101/1, optionally extended with:
- type GWR_101-1-HART; (HART assembly for PCB type GWR_101-1)

2.) for Group I application:

- type GWR_100-1; 3-wire supply- and (5-15 Hz, current or voltage) signal circuit; rated supply voltage DC 12 V or DC 16 V with or without display-pcb type Display GWR_100/1, optionally extended with
- type GWR_IMP*; (pulse counter pickup assembly for PCB type GWR_100-1) and/or
- type GWR_100-1-CAN; (CAN-bus assembly for PCB type GWR_100-1) exclusive-or
- type GWR_100-1-RS485; (RS485 assembly for PCB type GWR_100-1).

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Type SMALL * / IL / ** / *** ** / ** / *** / *** / ** / *** / ** / * / *

The tubular enclosure of 'in-line' size may be fitted with one of the following PCB and associated assemblies:

1.) for Group I and Group II application:

- type GWR_121-1; 2-wire 4 - 20 mA current loop; rated supply voltage DC 24 V, optionally extended with:
- type GWR_121-1-HART; (HART assembly for PCB type GWR_121-1)

2.) for Group I application:

- type GWR_120-1; 3-wire supply- and (5-15 Hz, current or voltage) signal circuit; rated supply voltage DC 12 V or DC 16 V optionally extended with
- type GWR_IMP*; (pulse counter pickup assembly for PCB type GWR_120-1) and / or
- type GWR_120-1-CAN; (CAN-bus assembly for PCB type GWR_120-1) exclusive-or
- type GWR_120-1-RS485; (RS485 assembly for PCB type GWR_120-1)

Front end and rear end are fitted with process connection of the integrated sensor or respectively with a connector / cable gland for the permanently connected cable.

The process connection of the 'in-line' enclosure is designated for mounting in the boundary wall, separating areas requiring EPL Ga or EPL Gb equipment.

Type SMALL * / RG / E12 / *** ** / ** / *** / *** / F*)¹ / *

Type SMALL * / RG / E16 / *** ** / ** / *** / *** / F*)¹ / *

Type SMALL * / IL / E12 / *** ** / ** / *** / *** / F*)¹ / *

Type SMALL * / IL / E16 / *** ** / ** / *** / *** / F*)¹ / *

Refers to all versions of round size / 'in line' size enclosures type SMALL * / ** / E1* / *** ** / ** / *** / *** F*)¹ / *;

intrinsically safe Opto-isolator outputs providing safe galvanic separation from IS power supply and other circuits are allocated to:

- connectors, suitable to carry two different IS circuits, or
- special interconnection cable, suitable to carry two different IS circuits.

)¹ type FA, F*A excluded

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General product information:

Allocation of Ex marking to model		
Main unit	External sensor	
	Permanently connected	Removable
Ex ia IIC T4 / T6 Ga/Gb or	None	N/A
Ex ia IIC T4 / T6 Gb or	N/A	Ex ia IIC T4 / T6 Ga/Gb
Ex [ia Ma] ib I Mb or	None	Ex ia I Ma
Ex ia I Ma	None	Ex ia I Ma

Subject and type:

In the subsequent extended type code tables, the Asterisk are replaced as following:

SMALL * / ** / ** / *** ** / ** / *** / ** / ** / ** / ** / ** / ** / *

a b c d e f g h i j k l m

a	b	c	d	e	f	g	h to m
Physical unit	Size	Rated voltage	Measuring range	Unit	Mechanical connection	Feature	
P Pressure	RG (enclosure round size)	12 [12V DC] E12 [12V DC external]	*** [*_***]	mb [mbar] b [bar] * [***]	G1 [R ¼" AG] G2 [R ½" AG] G3 [R ¾" AG] ** [special] O [plug-O DN20] F [flange]	-- [none]	See subsequent table
	IL (enclosure size 'in-line')	16 [16V DC] E16 [16V DC external] 24 [24V DC 2-wire version only]	*** [*_***]		-- [none]		

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a	b	c to g	h	i	j	k	l	m
Physical unit ¹	Size	See table above	Electrical connection	Display	Sensor arrangement	Interface		
						1	2	3
P Pressure	RG (enclosure round size)	See table above	B [PROMOS BN 41 ... AT] H [HARTING] J [JOWO] S [SOURIAU] K [KROTT] ** [Special **] L...m [cable with length in m]	A [display provided] KA [no display]	KG [compact device] AS ... m [external sensor; cable length in m]	SI0 [0-20mA] SI4 [4-20mA] SI... [*...mA]	F* ² [5-15Hz]	C [can] H [HART] 2-wire version only P [PROFIBUS]
	IL (enclosure size 'in-line')		-- [no external sensor with 'in-line' size]	-- [no display with 'in-line' size]	U... [*...V]			

SMALL * / ** / ** / *** ** / ** / *** / ** / ** / ** / ** / ** / *

a b c d e f g h i j k l m

a	b	c	d	e	f	g	h to m
Physical unit	Size	Rated voltage	Measuring range	Unit	Mechanical connection	Feature	See subsequent table
N Level	RG (enclosure round size)	12 [12V DC] E12 [12V DC external] 16 [16V DC]	*** [*...]	mm [mmWs] * [***]	G1 [R ¼" AG] G2 [R ½" AG] G3 [R ¾" AG] ** [special] O [plug-O DN20] F [flange]	-- [none]	
	IL (enclosure size 'in-line')	E16 [16V DC external] 24 [24V DC 2-wire version only]	*** [*...]		-- [none]		

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a	b	c to g	h	i	j	k	l	m
Physical unit ¹	Size	See table above	Electrical connection	Display	Sensor arrangement	Interface		
						1	2	3
N Level	RG (enclosure round size)	See table above	B [PROMOS BN 41 ... AT] H [HARTING] J [JOWO] S [SOURIAU] K [KROTT] ** [Special **] L...m [cable with length in m]	A [display provided] KA [no display]	KG [compact device] AS ... m [external sensor; cable length in m]	SI0 [0-20mA] SI4 [4-20mA] SI... [*...mA]	F* 2 [5-15Hz]	C [can] H [HART] 2-wire version only P [PROFIBUS]
	IL (enclosure size 'in-line')		-- [no external sensor with 'in-line' size]	U... [*...V]				

SMALL * / ** / ** / *** ** / ** / *** / *** / ** / *** / ** / * / *

a b c d e f g h i j k l m

a	b	c	d	e	f	g	h to m
Physical unit	Size	Rated voltage	Measuring range	Unit	Mechanical connection	Feature	See subsequent table
T Temperature	RG (enclosure round size)	12 [12V DC] E12 [12V DC external]	*** [*...]	C [°C]	G1 [R ¼" AG] G2 [R ½" AG] G3 [R ¾" AG] ** [special] O [plug-O DN20] F [flange]	Probe length *** [***m] Max. 1000mm	
TS Temperature [special mechanical design]	IL (enclosure size 'in-line')	16 [16V DC] E16 [16V DC external] 24 [24V DC 2-wire version only]	*** [*...]	* [***]			

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a	b	c to g	h	i	j	k	l	m
Physical unit ¹	Size	See table above	Electrical connection	Display	Sensor arrangement	Interface		
						1	2	3
T Temperature	RG (enclosure round size)	See table above	B [PROMOS BN 41 ... AT]	A [display provided]	KG [compact device]	SIO [0-20mA]	F* ² [5-15Hz]	C [can]
TS Temperature [special mechanical design]	IL (enclosure size 'in-line')		H [HARTING] J [JOWO] S [SOURIAU] K [KROTT] ** [Special **] L...m [cable with length in m]	KA [no display]	AS ... m [external sensor; cable length in m]	SI4 [4-20mA]		H [HART] 2-wire version only
				-- [no display with 'in-line' size]	-- [no external sensor with 'in-line' size]	SI... [* **mA]		P [PROFIBUS]
						U... [* **V]		

SMALL * / ** / ** / *** ** / ** / *** / *** / ** / *** / ** / * / *

a b c d e f g h i j k l m

a	b	c	d	e	f	g	h to m
Physical unit	Size	Rated voltage	Measuring range	Unit	Mechanical connection	Feature	See subsequent table
V Volume	RG (enclosure round size)	12 [12V DC] E12 [12V DC external] 16 [16V DC] E16 [16V DC external] 24 [24V DC 2-wire version only]	*** [*-***]	L [l/min]	G1 [R ¼" AG] G2 [R ½" AG] G3 [R ¾" AG] ** [special] O [plug-O DN20] F [flange]	-- [none]	
	IL (enclosure size 'in-line')		*** [*-***]	* [***]		-- [none]	

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a	b	c to g	h	i	j	k	l	m
Physical unit ¹	Size	See table above	Electrical connection	Display	Sensor arrangement	Interface		
						1	2	3
V Volume	RG (enclosure round size)	See table above	B [PROMOS BN 41 ... AT]	A [display provided]	KG [compact device]	SI0 [0-20mA]	F* ² [5-15Hz]	C [can]
	IL (enclosure size 'in-line')		H [HARTING]	KA [no display]	AS ... m [external sensor; cable length in m]			SI4 [4-20mA]
			J [JOWO]			SI... [*...mA]		
			S [SOURIAU]			U... [*...V]		
			K [KROTT] ** [Special **]	-- [no display with 'in-line' size]	-- [no external sensor with 'in-line' size]			P [PROFIBUS]
			L...m [cable with length in m]					

Remarks:

1. In case of Measuring Gauge type SMALL * / RG / ** / Providing electronic assembly for more than one measured physical unit, the physical unit code letters are listed subsequently.

Empty sections of above type code are closed up by moving the other elements to the left.

2. Optional variations of interface 2 (frequency signal output):

- F, F1, F2 specify different resistor / diode shunt circuitry of the opto-isolator output.
- F* (other than F1, F2) specify different frequency range.
- FA, F1A, F2A, F*A: same as F, F1, F2, F*, but active output, Collector of opto-isolator transistor connected to supply voltage U_i.

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Ratings:

1. Models designed to be connected to a Group I or Group II IS 2-wire 4 - 20 mA current loop

- Device marking: Ex ia I Ma, Ex ia IIC T4 Ga/Gb or Ex ia IIC T4 Gb
- Circuit marking: Ex ia I and/or Ex ia IIC

Measuring Gauge	
type SMALL * / RG / 24 / *** ** / ** / *** / *** / ** / ***	
type SMALL * / RG / 24 / *** ** / ** / *** / *** / ** / *** / H	
type SMALL * / IL / 24 / *** ** / ** / *** / ***	
type SMALL * / IL / 24 / *** ** / ** / *** / *** / H	
	a b c d e f g h i j m
Parameter	Supply-and signal circuit
	h = B, H, J, D, K, **) ¹ h = L***m
Input voltage U _i	DC 26.6 V
Input current I _i	100 mA
Input power P _i	750 mW
Effective internal capacitance C _i	Negligible N/A
Effective internal inductance L _i	Negligible N/A
Effective internal capacitance C _i (permanently connected cable)	N/A 185 pF/m
Effective internal inductance L _i (permanently connected cable)	N/A 0.8 µH/m
Ambient temperature range	-50 °C ≤ T _a ≤ +80 °C (T4); -50 °C ≤ T _a ≤ +60 °C (T6)
Remarks:	
<ul style="list-style-type: none"> - Interfaces 1 and 2 ('k', 'l') not provide. - Integrated interface 3: 'm'=H for HART (option). -)¹ optional other suitable connectors as specified in manufacturer's documents. - N/A = not applicable. 	

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2. Models designed to be connected to a Group I 3-wire supply- and signal circuit providing (exclusive-or) current-, voltage- or frequency-signal output.
The models may be extended optionally with CAN bus- or RS485- interface providing galvanic separating from all other circuits (see 'Ratings 4' for details)

2.1 Current signal

2.1.1 Output, marked with S0, S4, S...-

- Device marking: Ex ia I Ma
- Circuit marking: Ex ia I

Measuring Gauge				
type SMALL * / RG / 1x / **** ** / ** / ** / ** / ** / ** / S0 / * type SMALL * / IL / 1x / **** ** / ** / ** / ** / ** / ** / S0 / * type SMALL * / RG / 1x / **** ** / ** / ** / ** / ** / ** / S4 / * type SMALL * / IL / 1x / **** ** / ** / ** / ** / ** / ** / S4 / * type SMALL * / RG / 1x / **** ** / ** / ** / ** / ** / ** / S... / * type SMALL * / IL / 1x / **** ** / ** / ** / ** / ** / ** / S... / * a b c d e f g h i j k m				
Parameter	Supply circuit		Signal circuit	
	h=B, H, J, S, K, **)¹ h=L***m		h=B, H, J, S, K, **)¹ h = L***m	
Input voltage Ui	DC 14 V / DC 16.1 V		DC 14 V / DC 16.1 V	
Input current Ii	3 A		10 mA	
Input power Pi	--)²		100 mW	
Output voltage Uo	N/A		DC 14 V	
Output current Io	N/A		≤ 110 mA	
Output power Po	N/A		400 mW	
Effective internal capacitance Ci	Negligible		Negligible	
Effective internal inductance Li	Negligible		Negligible	
Effective internal capacitance Ci (permanently connected cable)	N/A	185 pF/m	N/A	185 pF/m
Effective internal inductance Li (permanently connected cable)	N/A	0.8 µH/m	N/A	0.8 µH/m
Ambient temperature range	-50 °C ≤ Ta ≤ +100 °C			
Remarks:				
<ul style="list-style-type: none"> - x = 2: 12 V version. - x = 6: 16 V version. - Interface 2 ('l') not provide. - Interface 3 ('m'): optional extension. - Interface 'm' = C for CAN bus, exclusive or - interface 'm' = P for RS485 (Profibus). -)¹ optional other suitable connectors as specified in manufacturer's documents. -)² any value or equal to the applied IS power supply. - N/A = not applicable. 				

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2.1.2 Output, marked with SI0, SI4, SI...-

- Device marking: Ex ia I Ma
- Circuit marking: Ex ia I

Measuring Gauge				
type SMALL	*/RG/1x	*** **	**/**	**/**
type SMALL	*/IL/1x	*** **	**/**	**/**
type SMALL	*/RG/1x	*** **	**/**	**/**
type SMALL	*/IL/1x	*** **	**/**	**/**
type SMALL	*/RG/1x	*** **	**/**	**/**
type SMALL	*/IL/1x	*** **	**/**	**/**
	a	b	c	d
Parameter	Supply circuit		Signal circuit	
	h=B, H, J, S, K, **) ¹		h=L***m	
Input voltage U _i	DC 14 V / DC 16.1 V		DC 14 V / DC 16.1 V	
Input current I _i	3 A		N/A	
Input power P _i	--) ²		N/A	
Output voltage U _o	N/A		DC 14 V	
Output current I _o	N/A		110 mA	
Output power P _o	N/A		400 mW	
Effective internal capacitance C _i	Negligible		Negligible	
Effective internal inductance L _i	Negligible		Negligible	
Effective internal capacitance C _i (permanently connected cable)	N/A	185 pF/m	N/A	185 pF/m
Effective internal inductance L _i (permanently connected cable)	N/A	0.8 μH/m	N/A	0.8 μH/m
Ambient temperature range	-50 °C ≤ T _a ≤ +100 °C			
Remarks:				
<ul style="list-style-type: none"> - x = 2: 12 V version. - x = 6: 16 V version. - Interface 2 ('l') not provide. - Interface 3 ('m'): optional extension. - Interface 'm' = C for CAN bus, exclusive or - interface 'm' = P for RS485 (Profibus). -)¹ optional other suitable connectors as specified in manufacturer's documents. -)² any value or equal to the applied IS power supply. - N/A = not applicable. 				

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2.2 Voltage signal

- Device marking: Ex ia I Ma
- Circuit marking: Ex ia I

Measuring Gauge				
type SMALL * / RG / 1x / *** ** / ** / *** / *** / ** / *** / U...-.. / *				
type SMALL * / IL / 1x / *** ** / ** / *** / *** / ** / *** / U...-.. / *				
a b c d e f g h i j k m				
Parameter	Supply circuit		Signal circuit	
	h=B, H, J, S, K, **) ¹ h=L***m		h=B, H, J, S, K, **) ¹ h = L***m	
Input voltage U _i	DC 14 V / DC 16.1 V		DC 14 V / DC 16.1 V	
Input current I _i	3 A		10 mA	
Input power P _i	--) ²		100 mW	
Output voltage U _o	N/A		DC 5V ≤ U ≤ +12.7 V	
Output current I _o	N/A		-5 mA ≤ I ≤ +12.7 mA	
Output power P _o	N/A		60 mW	
Effective internal capacitance C _i	Negligible		N/A	
Effective internal inductance L _i	Negligible		N/A	
Effective internal capacitance C _i (permanently connected cable)	N/A	185 pF/m	N/A	185 pF/m
Effective internal inductance L _i (permanently connected cable)	N/A	0.8 μH/m	N/A	0.8 μH/m
Ambient temperature range	-50 °C ≤ T _a ≤ +100 °C			
Remarks:				
<ul style="list-style-type: none"> - x = 2: 12 V version. - x = 6: 16 V version. - Interface 2 ('l') not provide. - Interface 3 ('m'): optional extension. - Interface 'm' = C for CAN bus, exclusive or - interface 'm' = P for RS485 (Profibus). -)¹ optional other suitable connectors as specified in manufacturer's documents. -)² any value or equal to the applied IS power supply. - N/A = not applicable. 				

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2.3 5 - 15 Hz frequency signal

- Device marking: Ex ia I Ma
- Circuit marking: Ex ia I

Measuring Gauge				
type SMALL * / RG / 1x / *** ** / ** / *** / *** / ** / *** / F* / * type SMALL * / IL / 1x / *** ** / ** / *** / *** / ** / *** / F* / * type SMALL * / RG / 1x / *** ** / ** / *** / *** / ** / *** / F*A / * type SMALL * / IL / 1x / *** ** / ** / *** / *** / ** / *** / F*A / * a b c d e f g h i j k m				
Parameter	Supply circuit		Signal circuit	
	h=B, H, J, S, K, **) ¹ h=L***m		h=B, H, J, S, K, **) ¹ h=L***m	
Input voltage Ui	DC 14 V / DC 16.1 V		DC 14 V / DC 16.1 V	
Input current Ii	3 A		--) ²	
Input power Pi	--) ²		--) ²	
Output voltage Uo	N/A		N/A	
Output current Io	N/A		N/A	
Output power Po	N/A		N/A	
Effective internal capacitance Ci	Negligible		Negligible	
Effective internal inductance Li	Negligible		Negligible	
Effective internal capacitance Ci (permanently connected cable)	N/A	185 pF/m	N/A	185 pF/m
Effective internal inductance Li (permanently connected cable)	N/A	0.8 μH/m	N/A	0.8 μH/m
Ambient temperature range	-50 °C ≤ Ta ≤ +100 °C			
Remarks: - x = 2: 12 V version. - x = 6: 16 V version. - Interface 2 ('l') not provide. - Interface 3 ('m'): optional extension. - Interface 'm' = C for CAN bus, exclusive or - interface 'm' = P for RS485 (Profibus). -) ¹ optional other suitable connectors as specified in manufacturer's documents. -) ² any value or equal to the applied IS power supply. - N/A = not applicable.				

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**3. Models designed to be connected to two independent IS circuits
(2-wire supply circuit, 2-wire 5 - 15 Hz frequency signal circuit)**

- Device marking: Ex ia I Ma
- Circuit marking: Ex ia I

Parameter	Supply circuit		Signal circuit	
	h=B, H, J, S, K, **) ⁴ h=L***m		h=B, H, J, S, K, **) ⁴ h = L***m	
Input voltage U _i	DC 14 V / DC 16.1 V		DC 14 V	
Input current I _i	3 A		--) ²	
Input power P _i	--) ¹		--) ²	
Output voltage U _o	N/A		N/A	
Output current I _o	N/A		N/A	
Output power P _o	N/A		N/A	
Effective internal capacitance C _i	Negligible		Negligible	
Effective internal inductance L _i	Negligible		Negligible	
Effective internal capacitance C _i (permanently connected cable)	N/A	185 pF/m	N/A	185 pF/m
Effective internal inductance L _i (permanently connected cable)	N/A	0.8 μH/m	N/A	0.8 μH/m
Ambient temperature range	-50 °C ≤ T _a ≤ +100 °C			
Remarks: - x = 2: 12 V version. - x = 6: 16 V version. - Interface 1 ('k') not provide. - Interface 3 ('m'): optional extension. - Interface 'm' = C for CAN bus, exclusive or - interface 'm' = P for RS485 (Profibus). -) ¹ any value or equal to the applied IS power supply. -) ² opto-isolator protected by series resistor; I _i , P _i any value or equal to the applied IS circuit not exceed U _o = DC 14 V. -) ³ opto-isolator configuration FA, F1A, F*A excluded. -) ⁴ optional other suitable connectors as specified in manufacturer's documents. - N/A = not applicable.				

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4. Optional extension: interface 3 ('m')

- Device marking: Ex [ia Ma] ib I Mb
- Circuit marking: Ex ib I

Measuring Gauge					
type SMALL * / RG / 1x / *** ** / ** / *** / *** / ** / *** / ** / ** / *					
type SMALL * / IL / 1x / *** ** / ** / *** / *** / ** / *** / ** / ** / *					
a b c d e f g h i j k l m					
Parameter	Interface 3				
	m = C CAN bus		m = P RS485 (Profibus)		
	h=B, H, J, S, K, **) ⁴		h=L***m	h=B, H, J, S, K, **) ⁴	h = L***m
Input voltage U _i	equal to U _o		equal to U _o		
Input current I _i	equal to I _o		equal to I _o		
Input power P _i	equal to P _o		equal to P _o		
Output voltage U _o	6 V		6 V		
Output current I _o	100 mA		100 mA		
Output power P _o	600 mW		600 mW		
Effective internal capacitance C _i	3 μF		3 μF		
Effective internal inductance L _i	Negligible		Negligible		
Effective internal capacitance C _i (permanently connected cable)	N/A	185 pF/m	N/A	185 pF/m	
Effective internal inductance L _i (permanently connected cable)	N/A	0.8 μH/m	N/A	0.8 μH/m	
Characteristic	rectangular				
Remarks:					
- x = 2: 12 V version.					
- x = 6: 16 V version.					
-) ⁴ optional other suitable connectors as specified in manufacturer's documents.					
- N/A = not applicable.					

Conditions of Certification pertaining to Issue 0 of this Certificate:

1. The installation of the sensor / the process connection of the Measuring Gauge in the wall to areas requiring EPL Ga equipment shall provide a degree of protection IP67 according to IEC 60529.
2. The installation of the sensor of the Measuring Gauge in the wall to areas requiring EPL Ga equipment shall be carried out in such a way, that the metallic sensor enclosure / the process connection is included in the local equipotential bonding / grounding.
3. Manufacturer's technical information related to use of the Measuring Gauge in contact with aggressive / corrosive media and to avoid any risk of mechanical impact shall be observed.

Certificate issued by:

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IECEX Certificate of Conformity Annexe

Annexe for Certificate No.:	IECEX TSA 13.0023X	Issue No.:	0
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Drawing list pertaining to Issue 0 of this Certificate:

Document No.	Sheets	Document Title	Issue	Date (yyyy/mm/dd)
GWR100-1	2 of 4	Measurement Amplifier (<i>Schematic</i>)	1.30	2012-05-04
GWR100-1	3 of 4	IO and Power Supply (<i>Schematic</i>)	1.30	2012-05-04
GWR100-1	4 of 4	Voltage Out 0...10V (<i>Schematic</i>)	1.30	2012-05-04
GWR100-1	5	PCB-Latout	1.30	2012-04-23
GWR100-1	5	Partlist GWR 100/1	1.30	2012-04-23
GWR120-1	1 of 4	Processor and AD-DA-Converter (<i>Schematic</i>)	1.30	2012-05-03
GWR120-1	2 of 4	Measurement Amplifier (<i>Schematic</i>)	1.30	2012-05-03
GWR120-1	3 of 4	IO and Power Supply (<i>Schematic</i>)	1.30	2012-05-03
GWR120-1	4 of 4	Voltage Out 0...10V (<i>Schematic</i>)	1.30	2012-05-03
GWR120-1	5	PCB-Latout	1.30	2012-04-23
GWR120-1	6	Partlist GWR 120/1	1.30	2012-04-23
1-0-0-20	1	Layout Label SMALL-Series	V0.0	2013-10-18

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