



Universal display for  
4-20mA or 0-10V - transmitter

## GIA 010 N - ex GIA 0420 N - ex

as of version 1.0

Operating manual



WEEE-Reg.-Nr. DE93889386



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## 1 Designated Use

The GIA 0420 N - ex and GIA 010 N - ex are microprocessor controlled display devices.

The different design types of the device have an input for:

- standard signal 4 – 20 mA (GIA 0420 N - ex)
- standard signal 0 – 10 V (GIA 010 N - ex)

The measuring value is displayed on a 4-digit LCD display with max. display area ranging from -1999 to +9999 digits.

The device additional features a switching output (NPN-output) which can be configured as 2-point controller or min-/max alarm. The state of the output is displayed with an arrow at the LCD.

The GIA 0420 ... is designed for the connection of any measuring transducers (with a 4 to 20 mA output). This design type doesn't need an auxiliary supply as it is supplied by the measuring current.

The GIA 010 ... is designed for the connection of any measuring transducers (with a 0 - 10 V output).

The parameters and limit values can be input by buttons accessible at the rear side.

The operating range of the display device can be directly adjusted to the transmitter without any additional accessories by simply entering the maximum and minimum measuring range limits as well as the decimal point position. All programmable parameters of the device are saved in an EEPROM. In case of a current failure they will remain there for at least 10 years.

The device is equipped with a self-diagnosis system continuously monitoring the essential parts of the device for their perfect functioning. Both the self-diagnosis and the measuring sensor monitoring for values exceeding or falling below permissible limits ensure maximum operational reliability of the device.

Prior to delivery the device will be tested and completely calibrated.

**However, prior to you starting your operation make sure to configure the device for your application. Please also refer to chapter "Configuration".**

## 2 General Note

Read this document carefully and get used to the operation of the device before you use it. Keep this document within reach for consulting in case of doubt.

## 3 Safety Requirements

### 3.1 Ex protection

1. The device may be connected to approved intrinsically safe circuits with the following maximum values:

GIA 0420 ... - ex:

$$U_i \leq 28 \text{ V DC}$$

$$I_i \leq 100 \text{ mA}$$

$$P_i \leq 1.2 \text{ W}$$

$$C_i \leq 13 \text{ nF}$$

$$L_i = \sim 0 \text{ }\mu\text{H}$$

Additional for the switching output

$$C_i \leq 4.5 \text{ nF}$$

$$L_i = \sim 0 \text{ }\mu\text{H}$$

GIA 010 ... - ex:

$$U_i \leq 28 \text{ V DC}$$

$$I_i \leq 100 \text{ mA}$$

$$P_i \leq 0.95 \text{ W}$$

$$C_i \leq 26 \text{ nF}$$

$$L_i = \sim 0 \text{ }\mu\text{H}$$

$$C_i \leq 4.5 \text{ nF}$$

$$L_i = \sim 0 \text{ }\mu\text{H}$$

2. For units with optional output switch, the output switch and the switching device must be supplied from the same intrinsically safe circuit as the GIA ...!  
Only approved intrinsically safe switching devices may be used which correspond to the specified maximum values of the circuit. The total capacitance and inductance of the devices GIA ... (incl. switching output) and the switching devices, including the connection cable values, may not exceed the allowable for the intrinsically safe circuit totals. If concentrated inductances and capacitances exist, the manufacturer must be consulted for permission.
3. Modifications or repairs of the device may not be performed by the customer.  
For maintenance or repair the device must be sent to the manufacturer.
4. The device GIA ... N – ex meet the requirements of intrinsic safety only after it is built in an appropriate device, which conforms with the necessary IP protection degree.
5. The device must not be configured at Ex area!

### 3.1 General safety advices

This device has been designed and tested in accordance with the safety regulations for electronic devices. However, its trouble-free operation and reliability cannot be guaranteed unless the standard safety measures and special safety advices given in this manual will be adhered to when using the device.

1. Trouble-free operation and reliability of the device can only be guaranteed if the device is not subjected to any other climatic conditions than those stated under "Specification".
2. Standard regulations for operation and safety for electrical, light and heavy current equipment have to be observed, with particular attention having to be paid to national safety regulations (e.g. VDE 0100).
3. When connecting the device to other devices (e.g. PC) the interconnection has to be designed most thoroughly as internal connections in third-party devices (e.g. connection GND with protective earth) may lead to undesired voltage potentials.
4. If there is a risk whatsoever involved in running it, the device has to be switched off immediately and to be marked accordingly to avoid re-starting.  
Operator safety may be a risk if:
  - there is visible damage to the device.
  - the device is not working as specified.
  - the device has been stored under unsuitable conditions for a longer time.
 In case of doubt, please return device to manufacturer for repair or maintenance.
5. The buttons at the rear side are necessary for the configuration of the device.  
The device is ESD sensitive at this area!!  
The configuration must be done considering adequate ESD safety measures!

6. **Warning:** Do not use these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury or material damage.  
Failure to comply with these instructions could result in death or serious injury and material damage.

### 3.2 Skilled Personnel

Are persons familiar with installation, commissioning and operation of the product and have professional qualification relating to their job.

For example:

- Training or instruction resp. Qualification to switch on or off, isolate, ground and mark electric circuits and devices or systems.
- Training or instruction according to the state.
- First-aid training.

## 4 Disposal Notes



The device must not be disposed in the unsorted municipal waste!  
Send the device directly to us (sufficiently stamped), if it should be disposed.).  
We will dispose the device appropriate and environmentally sound.

## 5 Electric connection

The GIA ... N – ex is connected via screw-type/plug-in terminals on the rear side.

*General Note:* Screw-type/plug-in terminals have to be mounted while they are still loose and plug them in only afterwards. Soldering lands may be damaged in case of improper assembly of already plugged terminals.

*Please use applicable screwdriver and do not forcibly tighten the screws.*

**Supply voltage:** GIA 0420 N - ex device takes power from measuring current  
GIA 010 N - ex 12 ... 28 V or according device declaration

*Electric connection and commissioning of the device must be carried out by trained and skilled personnel.*

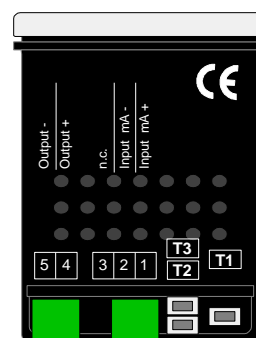
*Wrong connection may lead to the destruction of the display device, in which case we cannot assume any warranty!*

***! Mind for the GIA 0420 ... - ex the maximum input current rating of 40mA under any circumstances !***

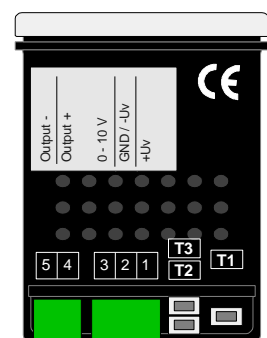
### 5.1 Terminal assignment

connection number	GIA 0420 N - ex	GIA 010 N - ex
1	signal +	supply +
2	signal -	supply -, GND
3	--- (inexistent)	signal +
4	switching output +	switching output +
5	switching output -	switching output -

GIA 0420 N - ex



GIA 010 N - ex



### 5.1.1 Connection example for optionally switching output

Please note: The max. permitted voltage and switching current of the switching output must not be exceeded (even not for a short time).

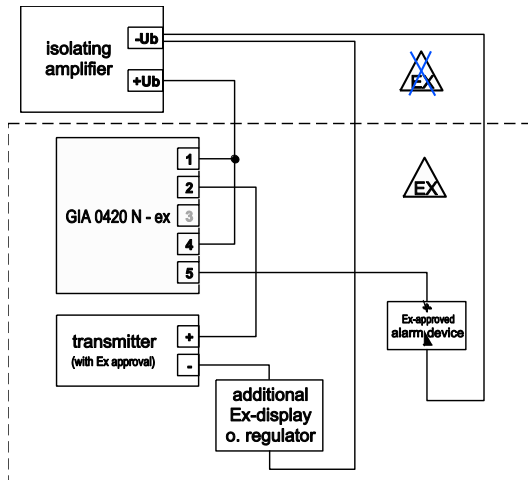
**Attention:** The measuring and switching branches have to be supplied by the same intrinsically safe current circuit. The total capacity and inductivity of GIA..., intrinsically safe transducer, intrinsically safe switching device and cabling have to meet the limit values of the supply device!

Example for permitted connection values of switching devices/cabling if the universal isolating amplifier **ST 500 Ex - 10 - ..** and the 4-20mA transducer **IS-20 S** or **GITT 01 - ex** is used:

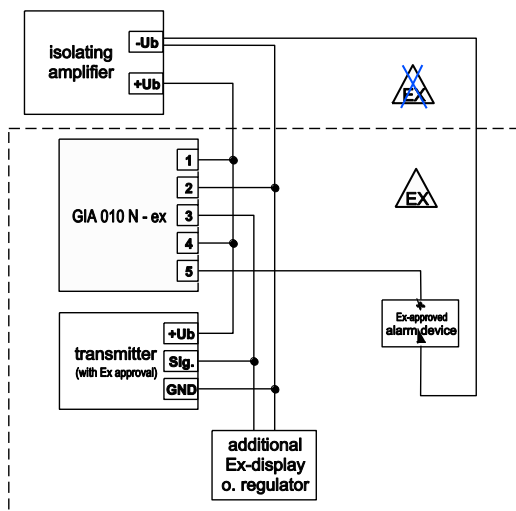
Connection values of the ST 500 for ia/IIC:  $C_o = 47 \text{ nF}$ ,  $L_o = 2 \text{ mH}$   
 for ia/IIB:  $C_o = 370 \text{ nF}$ ,  $L_o = 15 \text{ mH}$

	Pressure transmitter IS-20 S	Temperature transmitter GITT 01 - ex
Connection values transmitter:	$C_i < 22 \text{ nF}$ , $L_i = 0 \text{ mH}$	$C_i = 0 \text{ nF}$ , $L_i = 0 \text{ mH}$
Remaining values for switching device/cabling if <b>GIA 0420</b> is used:	for ia/IIC: $C_i < 7.5 \text{ nF}$ ( $47 \text{ nF} - (13 + 4.5 + 22) \text{ nF}$ ) $L_i < 2 \text{ mH}$ ( $2 \text{ mH} - (0 + 0) \text{ mH}$ ) for ia/IIB: $C_i < 330 \text{ nF}$ ( $370 \text{ nF} - (13 + 4.5 + 22) \text{ nF}$ ) $L_i < 15 \text{ mH}$ ( $15 \text{ mH} - (0 + 0) \text{ mH}$ )	for ia/IIC: $C_i < 29.5 \text{ nF}$ ( $47 \text{ nF} - (13 + 4.5 + 0) \text{ nF}$ ) $L_i < 2 \text{ mH}$ ( $2 \text{ mH} - (0 + 0) \text{ mH}$ ) for ia/IIB: $C_i < 352 \text{ nF}$ ( $370 \text{ nF} - (13 + 4.5 + 0) \text{ nF}$ ) $L_i < 15 \text{ mH}$ ( $15 \text{ mH} - (0 + 0) \text{ mH}$ )
Remaining values for switching device/cabling if <b>GIA 010</b> is used:	for ia/IIC: connection is not allowed!! ( $C_o = 47 \text{ nF} < (26 + 4.5 + 22) \text{ nF}$ ) for ia/IIB: $C_i < 317 \text{ nF}$ ( $370 \text{ nF} - (26 + 4.5 + 22) \text{ nF}$ ) $L_i < 15 \text{ mH}$ ( $15 \text{ mH} - (0 + 0) \text{ mH}$ )	

### 5.1.2 GIA 0420 N - ex: Switching of a alarm device



### 5.1.3 GIA 010 N - ex: Switching of a alarm device



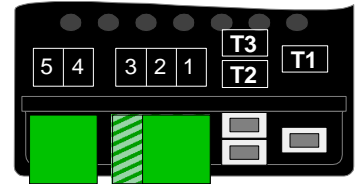
## 6 Configuration

**Note:** The device can be ESD sensitive at the area of the buttons.  
 The configuration must be done considering adequate ESD safety measures!  
**!!! Keep in mind: The device must not be configured at Ex area !!!**

**Please note:** measuring current should be at least 4mA during configuration of a GIA 0420 N - ex!

Follow these instructions to configure the device:

- Press **button 2** for 2 seconds during actual value display, „dP“ is displayed.
- Set parameter value with **button 2** and **button 3**.
- Save the set with **button 1**, the parameter name is displayed again.
- Proceed to the next parameter with **button 1**, the name of that parameter is displayed.



If there is no key pressed within 60 seconds the configuration is cancelled.  
 The settings already entered are lost.

Parameter	Value	Description
Button 1	Button 2 and 3	
dP	<b>Position of decimal point</b>	
	----	Max. display range: -1999 ... 9999
	---.-	Max. display range: -199,9 ... 999,9
	--.---	Max. display range: -19,99 ... 99,99
	-.---	Max. display range: -1,999 ... 9,999
d <sub>l</sub> Lo	<b>Lower display range limit (display low)</b>	
	-1999 ... 9999	This value is displayed for input signal = 4mA.
d <sub>h</sub> Hi	<b>Upper display range limit (display high)</b>	
	-1999 ... 9999	This value is displayed for input signal = 20mA.
L	<b>(Measuring range) limit</b>	
	oFF	<b>deactivated:</b> Exceeding of the measuring range limit is tolerable as long as value is within measuring range (p.r.t. note).
	on.Er	<b>active, (display error):</b> The measuring range limit is exactly bounded by the input signal. When exceeding or short falling the input signal the device will display an error message.
	on.rG	<b>active, (display measuring range limit):</b> The measuring range limit is exactly bounded by the input signal. When exceeding or short-falling the input signal the device will display the selected lower/upper display value. <i>e.g. humidity: when shortfalling or exceeding, the device will display 0% or 100%.</i>
<i>Note:</i> When exceeding the measuring range, the device will always display an error message (.Err.1. or .Err.2.) independent of the current limit settings. The measuring range is from approx 3,7 and 20,8 mA respective 10.5 V (a falling below 0V will not detected).		
FILT	<b>Filter</b>	
	oFF	Filter deactivated
	0.1 ... 2.0	Filter active: Prevents "jumping" of the last digit and filters short noise pulses. Higher numbers imply stronger filtering <i>Attention: this causes higher response times of the switching functions!</i>

<b>outP</b>	<b>Output function</b>	
	<i>no</i>	No output, device used as display
	<i>2P</i>	2-point-controller
	<i>ALF1</i>	Min- / max- alarm, together

Depending on the selected output function further parameters have to be adjusted. The configuration menu automatically skips parameters not needed for the selected output function. The following diagram shows which parameters are successively displayed for each output function.

A description of the single parameters follows afterwards.

Parameter	Value	Description
Button 1	Button 2 and 3	
<b><i>1.on</i></b> only at outP = 2P	<b>Switch-on point of output 1</b>	
	<i>d1.Lo ... d1.H1</i>	Value at which output 1 should be switched on. Value has to be between upper and lower measuring range limit set at the beginning of the configuration menu.
<b><i>1.off</i></b> only at outP = 2P	<b>Switch-off point of output 1</b>	
	<i>d1.Lo ... d1.H1</i>	Value at which output 1 should be switched off. Value has to be between upper and lower measuring range limit set at the beginning of the configuration menu.
<b><i>1.dEL</i></b> only at outP = 2P	<b>Delay of switching function of output 1</b>	
	<i>0.0 ... 999.9</i>	The set value is the time [in seconds] the device waits at least after switching-off output 1 to switch it on again.
<b><i>1.Err</i></b> only at outP = 2P	<b>Preferred position of output 1</b>	
	<i>on, off</i>	If an error occurs, the device switches output 1 to "active" (on) or "inactive" (off)
<b><i>AL.H1</i></b> only at outP = ALF1	<b>Max-alarm point</b>	
	<i>AL.Lo ... d1.H1</i>	Value, at which max-alarm should be triggered. Value has to be between upper and lower measuring range limit set at the beginning of the configuration menu.
<b><i>AL.Lo</i></b> only at outP = ALF1	<b>Min-alarm point</b>	
	<i>d1.Lo ... AL.H1</i>	Value, at which min-alarm should be triggered. Value has to be between upper and lower measuring range limit set at the beginning of the configuration menu.
<b><i>A.dEL</i></b> only at outP = ALF1	<b>Alarm delay</b>	
	<i>0 ... 9999</i>	The set value is the alarm delay in seconds. The alarm case has to last for the set time to trigger the alarm.

After having set and confirmed the last point (depending on the selected output function) the configuration is done.

Press **button 1** one more time after the input of the last parameter to close the configuration menu.

The devices restarts (segment test).



## 7 Selection of switching and alarm points

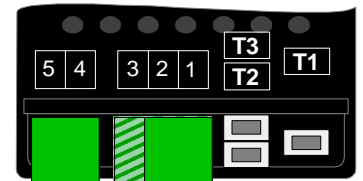
**Note:** *The device can be ESD sensitive at the area of the buttons.  
The configuration must be done considering adequate ESD safety measures!  
!!! Keep in mind: The device must not be configured at Ex area !!!*

**Note:** All relevant switching and alarm points can be set at this menu.  
(Preferred output position and delay of the output can only be set at configuration menu)  
Depending on the selected output function different parameters have to be adjusted.  
The configuration menu automatically skips parameters not needed for the selected output function.

**Note:** *The menu cannot be called if output function is set off.*

Follow these instructions to adjust switching and alarm points:

- Press **button 1** for 2 seconds during actual value display, „1.on“ or „AL.Hi“ is displayed.
- Set parameter value with **button 2** and **button 3**.
- Save the set with **button 1**, the parameter name is displayed again.
- Proceed to the next parameter with **button 1**, the name of that parameter is displayed.



*If there is no key pressed within 60 seconds the configuration is cancelled.  
The settings already entered are lost.*

Parameter	Value	Description
Button 1	Button 2 and 3	
<b>1.on</b> only at outP = 2P	<b>Switch-on point of output 1</b>	
	$d_{i.Lo} \dots d_{i.Hi}$	Value at which output 1 should be switched on. Value has to be between upper and lower measuring range limit set at the beginning of the configuration menu.
<b>1.off</b> only at outP = 2P	<b>Switch-off point of output 1</b>	
	$d_{i.Lo} \dots d_{i.Hi}$	Value at which output 1 should be switched off. Value has to be between upper and lower measuring range limit set at the beginning of the configuration menu.
<b>AL.Hi</b> only at outP = AL.F I	<b>Max-alarm point</b>	
	$AL.Lo \dots d_{i.Hi}$	Value, at which max-alarm should be triggered. Value has to be between upper and lower measuring range limit set at the beginning of the configuration menu.
<b>AL.Lo</b> only at outP = AL.F I	<b>Min-alarm point</b>	
	$d_{i.Lo} \dots AL.Hi$	Value, at which min-alarm should be triggered. Value has to be between upper and lower measuring range limit set at the beginning of the configuration menu.
<b>A.del</b> only at outP = AL.F I	<b>Alarm delay</b>	
	$0 \dots 9999$	The set value is the alarm delay in seconds. The alarm case has to last for the set time to trigger the alarm.

After having set and confirmed the last point (depending on the selected output function) the configuration is done.

Press **button 1** one more time after the input of the last parameter to close the configuration menu. The devices re-starts (segment test).



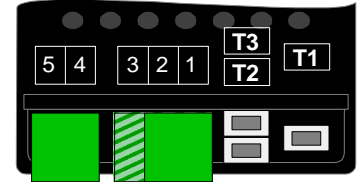
## 8 Offset and slope adjustment

**Note:** *The device can be ESD sensitive at the area of the buttons.  
The configuration must be done considering adequate ESD safety measures!  
!!! Keep in mind: The device must not be configured at Ex area !!!*

The offset and slope-adjustment function can be used for compensating the tolerance of the used sensor, resp. for vernier adjustment of the used transducer / transmitter.

Follow these instructions to run the offset and slope adjustment of the device:

- Press **button 3** for 2 seconds during actual value display, „OFFS“ is displayed.
- Set parameter value with **button 2** and **button 3**.
- Save the set with **button 1**, the parameter name is displayed again.
- Proceed to the next parameter with **button 1**, the name of that parameter is displayed.



Parameter	Value	Description
Button 1	Button 2 and 3	
OFFS	Offset	
	-5.00 ... 5.00	The offset in digit The set offset value is subtracted from measured value.
ScAL	Scale	
	-5.00 ... 5.00	The scale in %. The displayed value is calculated according to the following formula: Display = (measured value - offset - di.Lo) * (1 + slope adjustment [% / 100]) + di.Lo

Example for offset and slope adjustment:

Connection of pressure transmitter.

The device displays without offset and slope adjustment: at 0 bar = 0.08, at 20 bar = 20.02

From this calculated:

offset:	0.08
slope:	$20.02 - 0.08 = 19.94$
difference:	0.06 (= ideal slope – actual slope = 20.00 - 19.94)

Therefore this values should be set:

offset =	0.08
scale =	0.30 (= difference / actual slope = 0.06 / 19.94 = 0.0030 = 0.30%)

## 9 Min-/max- value memory

The device features a minimum/maximum-value storage. In this storage the highest and lowest performance data is saved.

### Calling of the minimum value:

Press button 3 shortly: the device will display “Lo” briefly, after that the min-value is displayed for about 2 sec.

### Calling of the maximum value:

Press button 2 shortly: the device will display “Hi” briefly, after that the max-value is displayed for about 2 sec.

### Erasing of the min/max values:

Press button 2 and 3 for 2 sec.: The device will display “CLr” briefly, after that the min/max-values are set to the current displayed value.

## 10 Error Codes

When detecting an operating state which is not permissible, the device will display an error code. The following error codes are defined:

### Err.1: Exceeding of measuring range

Indicates that the valid measuring range of the device has been exceeded.

Possible causes:

- Input signal to high
- Sensor shorted (at 0(4)-20mA)

Remedies:

- The error-message will be reset if the input signal is within the limits.
- Check transmitter and device configuration (e.g. input signal).

### Err.2: Values below measuring range

Indicates that the values are below the valid measuring range of the device.

Possible causes:

- Input signal is to low or negative
- Current below 4mA
- Sensor broken (at 4-20mA)

Remedies:

- The error-message will be reset if the input signal is within the limits.
- Check transmitter and device configuration (e.g. input signal).

### Err.3: Display range has been exceeded

Indicates that the valid display range (9999 digit) of the device has been exceeded.

Possible causes:

- Incorrect scale

Remedies:

- The error-message will be reset if the display value is below 9999.

### Err.4: Values below display range

Indicates that display value is below the valid display range of the device (-1999 digit).

Possible causes:

- Incorrect scale

Remedies:

- The error-message will be reset if the display value is above -1999.

### Err.7: System error

The device features an integrated self-diagnostic-function which checks essential parts of the device permanently. When detecting a failure, error-message Err.7 will be displayed.

Possible causes:

- Actual temperature is below / above the valid temperature range
- Device defective

Remedies:

- Stay within valid temperature range
- Exchange the defective device.

### Er.11: Value could not be calculated

Indicates a measuring value, needed for calculation of the display value, is faulty or out of range.

Possible causes:

- Incorrect scale

Remedies:

- Check settings and input signal

# 11 Specifications

	<b>GIA 0420 ... - ex</b>	<b>GIA 010 ... - ex</b>
<b>Input signal:</b>	4 ... 20 mA (2-wire)	0 ... 10V (3-wire)
<b>Voltage load:</b>	3.0 – 3.5 V (typ.)	
<b>Input resistance:</b>		approx. 100 kOhm
<b>max. permissible input:</b>	25 mA (40mA short time)	15 V
<b>Supply voltage:</b>		12 - 28 V
<b>Supply current:</b>	from current loop	< 10 mA
<b>Display:</b>	approx. 10 mm high LCD-display	
<b>Display range:</b>	limits freely adjustable	
<b>Max. display value:</b>	9999 digit	
<b>Min. display value:</b>	-1999 digit	
<b>Recommended range:</b>	≤ 2000 digit	
<b>Decimal point:</b>	any position	
<b>Accuracy:</b> (at 25°C)	< 0.2% ±1 digit	
<b>Temperature drift:</b>	< 100 ppm / K	
<b>Measuring range:</b>	approx. 5 measurements / second	
<b>Filter:</b>	adjustable	
<b>Operation:</b>	via 3 buttons	
<b>Min-/max-value memory:</b>	callable via buttons	
<b>Switching output:</b>	1 electrically isolated open collector output, Test voltage: 50 V	
<b>Switching point, hysteresis:</b>	freely adjustable	
<b>Switching voltage:</b>	max. 28 V	
<b>Switching current:</b>	max. 50 mA <i>Please note: the switching output is not short-circuits protected</i>	
<b>Reaction time:</b>	≤ 250 ms	
<b>Nominal temperature:</b>	25 °C	
<b>Working conditions:</b>	-20 ... 50 °C, 0 ... 80 % (non condensing)	
<b>Connection:</b>	via 2- or 3-pin screw-type/plug-in terminal max. wire cross selection: 1.5 mm <sup>2</sup>	
<b>Housing:</b>	glass fibre reinforced noryl, front panel PC 24 x 48 x approx. 65 mm (H x W x D)	
<b>Panel cut-out:</b>	21.7 <sup>+0.5</sup> x 45 <sup>+0.5</sup> mm (H x W)	
<b>IP rating:</b>	IP20 by front-flush mounting: front side IP54 (IP65 by means of additional silicone o-rings)	
<b>EMC:</b>	The device corresponds to the essential protection ratings established in the Regulations of the Council for the Approximation of Legislation for the member countries regarding electromagnetic compatibility (2004/108/EG). In accordance with EN61326-1 (table 2, class B), additional fault: < 1% FS When connecting long leads adequate measures against voltage surges have to be taken. The device is ESD sensitive at the area of the buttons at the rear side.	
<b>Ex protection:</b>	<b>⊕ II 2 G Ex ia IIC T4</b> EC-Type Examination Certificate: BVS 11 ATEX 1 333 X Connection data: U <sub>max</sub> : 28 V I <sub>max</sub> : 100 mA P <sub>max</sub> : 1.2 W (for GIA 0420 N - ex) or 0.95 W (for GIA 010 N - ex) Max. effective internal capacitance: C <sub>i</sub> = 13 nF (for GIA 0420 ...) of 26 nF (for GIA 010 ...) additional for the switching output: C <sub>i</sub> = 4.5 nF Maximum effective internal inductance of the device are negligibly small <i>When making connections to the switching output the connections must be within the same intrinsically safe circuit like the measuring signal!</i>	

## Addendum A: EC – Declaration of Conformity



### EC – Declaration of Conformity

For the following identified products

### GIA 0420 N - ex, GIA 010 N - ex

will certified herewith, that the device corresponds to the essential protection ratings established in the Regulations of the Council for the Approximation of Legislation for the member countries regarding electromagnetic compatibility (2004/108/EG), the low voltage directives (2006/95/EG) and the Ex directive (RL 94/9/EG).

The conformity to EMC and Ex are verified under observance of following standards:

EMC: **EN 61326-1 : 2006** (table 2, class B)

Ex: **EN 60079-0**  
**EN 60079-11**

This declaration is responsible for the manufacturer

**GREISINGER electronic GmbH**

Hans-Sachs-Straße 26

D - 93128 Regenstauf

released by

Hinreiner, Alois  
Director BU

Regenstauf  
place

14.07.2011  
date

  
signature

## Addendum B: EC-Type Examination Certificate



**BUREAU  
VERITAS**



(1) **EC Type Examination Certificate**

(2) Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres  
– Directive 94/9/EC

(3) EC Type Examination Certificate Number

**EPS 11 ATEX 1 333 X**

(4) Equipment: GIA 0420 WK - ex, GIA 0420 WKT - ex, GIA 0420 VO - ex, GIA 0420 VOT - ex,  
GIA 010 WK - ex, GIA 010 WKT - ex, GIA 010 VO - ex, GIA 010 VOT - ex,  
GIA 0420 N - ex, GIA 010 N - ex

(5) Manufacturer: Greisinger electronic GmbH

(6) Address: Hans-Sachs-Straße 26, 93128 Regenstauf, GERMANY

(7) This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.

(8) Bureau Veritas Consumer Products Services Germany GmbH, Notified Body No. 2004 in accordance with Article 9 of the Council Directive 94/9/EC of March 23<sup>rd</sup> 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres, given in Annex II of the Directive. The examination and test results are recorded in the confidential report 09TH0409

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 60079-0:2009

EN 60079-11:2007

(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 in the schedule to this certificate.

(11) This EC Type Examination Certificate relates only to the design and the construction of the specified equipment in accordance with Directive 94/9/EC. Further requirements of this Directive apply to the manufacture and supply of this equipment.

(12) The marking of the equipment shall include the following:

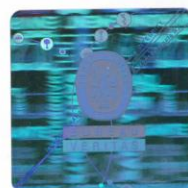
 II 2G Ex ia/ib IIC/IIB T4

Certification department of explosion protection

Türkheim, June 17, 2011



A. Hänchen



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Certificates without signature are void. This certificate is allowed to be distributed only if not modified.  
Extracts or modifications must be authorized by Bureau Veritas Consumer Products Services Germany GmbH.  
This certificate is internally administrated under the following number: 11-110

ACCOUNTABILITY





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- (13) **Annexe**
- (14) **EC Type Examination Certificate EPS 11 ATEX 1 333 x**
- (15) Description of equipment:

The device GIA 0420 ... - ex is an indicator for the electrical standard current signal 4 – 20 mA without auxiliary power supply. The device GIA 010... - ex is an electric indicator for the electrical standard voltage signal 0 – 10 V. Both variants have an optional switching output for the connection of suitable relays or signalling devices. The device is manufactured in various versions:

VOT	GIA 0420 VOT - ex	Two-wire circuit 4-20 mA, case with adapter for an angle plug for easy connection in between. Push-button accessible from outside
	GIA 010 VOT - ex	Three-wire circuit 0-10 V, case and push-button as GIA 0420 VOT - ex.
VO	GIA 0420 VO - ex	Two-wire circuit 4-20 mA, case as GIA 0420 VOT – ex, push-button inside
	GIA 010 VO - ex	Three-wire circuit 0-10 V, case as GIA 0420 VOT - ex, push-button inside
WKT	GIA 0420 WKT - ex	Two-wire circuit 4-20 mA, case with cable tail, push-button accessible from outside
	GIA 010 WKT - ex	Three-wire circuit 0-10 V. case and push-button as GIA 0420 WKT - ex
WK	GIA 0420 WK - ex	Two-wire circuit 4-20 mA, case as GIA 0420 WKT - ex, push-button inside
	GIA 010 WK - ex	Three-wire circuit 0-10 V, case as GIA 0420 WKT - ex, push-button inside
N	GIA 0420 N - ex	Two-wire circuit 4-20 mA, case for installation in switching cabinets, connection via screw and plug terminals
	GIA 010 N - ex	Three-wire circuit 0-10 V, case and connection as GIA 0420 N - ex



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Electrical data:

The device may be connected to approved intrinsically safe circuits with the following maximum values:

GIA 0420 ... - ex	GIA 010 ... - ex
$U_i = 28 \text{ V DC}$	$U_i = 28 \text{ VDC}$
$I_i = 100 \text{ mA}$	$I_i = 100 \text{ mA}$
$P_i = 1,2 \text{ W}$	$P_i = 0,95 \text{ W}$
Inner Kap.: $C_i < 13 \text{ nF}$	Inner Kap.: $C_i < 26 \text{ nF}$
Inner Ind.: $L_i \sim 0 \mu\text{H}$	Inner Ind.: $L_i \sim 0 \mu\text{H}$
$U_i, I_i, P_i$ also apply to the circuit output with $C_i < 4,5 \text{ nF}, L_i \sim 0 \mu\text{H}$	

(16) Test report: 09TH0409

(17) Special conditions for safe use:

For all variants:

1. For units with optional output switch, the output switch and the switching device must be supplied from the same intrinsically safe circuit as the indicator GIA.
2. Only approved intrinsically safe switching devices may be used which correspond to the specified maximum values of the circuit. The total capacitance and inductance of the devices GIA ... and the switching devices, including the values, may not exceed the allowable for the intrinsically safe circuit totals. If concentrated inductances and capacitances exist, the manufacturer must be consulted for permission.
3. Modifications or repairs of the device may not be performed by the customer. For maintenance or repair the device must be sent to the manufacturer.

Especially for the variants VO, VOT and WK, WKT:

1. The opening of the device is only permitted outside the hazardous area.
2. The setting of the inner keys (VO, WK) may be performed only by trained personnel.
3. The devices VO, VOT meet the requirements of intrinsic safety only after angle plugs, which are appropriate to the required IP protection degree, are connected. The devices shall be installed in places that are protected against external damage.
4. The devices back side (VO, VOT, WK, WKT) may not be cleaned with a cloth or other means, which can generate an electrostatic charge.

Especially for the variant N:

1. The device GIA... N – ex meet the requirements of intrinsic safety only after it is built in an appropriate device, which conforms with the necessary IP protection degree.





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(18) Essential health and safety requirements:

Met by standards.

Certification department of explosion protection

Türkheim, June 17, 2011

