# Resistance thermometer with Pt100

GA25xx in type of ex-protection nA

# EX-instructions

## Amendment to operating instructions for these type series

| Type | Description | Instructions |
|---|---|---|
| GA25xx | Resistance thermometer | BA_015 |

## Marking

II 3G Ex nA IIC T1...T6 Gc X

BG: Ако не разбирате указанията за безопасност, можете да изискате превод на вашия език.
CZ: Pokud těmto bezpečnostním pokynům nerozumíte, můžete si vyžádat jejich překlad do vašeho jazyka.
DA: Hvis du ikke forstår sikkerhedshenvisningerne, kan du forespørge en oversættelse i dit sprog.
DE: Wenn Sie diese Sicherheitshinweise nicht verstehen, können Sie eine Übersetzung in Ihrer Landessprache anfordern.
EL: Εάν δεν καταλαβαίνετε αυτές τις υποδείξεις ασφαλείας, μπορείτε να ζητήσετε μια μετάφραση στη μητρική σας γλώσσα
ES: Si no entiende estas indicaciones de seguridad, puede solicitar una traducción en su idioma.
ET: Kui need ohutusnõuded ei ole teile arusaadavad, võite tellida meilt tõlke oma keelde.
FI: Jos et ymmärrä näitä turvaohjeita, voi pyytää ne lähetettäväksi omalle kielellesi käännettynä.
FR: Si vous ne comprenez pas les consignes de sécurité, vous pouvez faire la demande d'une traduction dans votre langue.
HU: Amennyiben nem érti ezeket a biztonsági utasításokat, akkor kérheti ezeknek az Ön nyelvére lefordított változatát.
IT: Nel caso non capite queste avvertenze di sicurezza, ne potete richiedere una traduzione nella vs. lingua.
LT: Jei nesuprantate šių saugos reikalavimų, galite užsisakyti jų vertimą į Jūsų kalbą.
LV: Ja jūs nesaprotat šos drošības norādījumus, jūs varat pieprasīt tulkojumu jūsu valodā.
NL: Indien u deze veiligheidsinstructies niet begrijpt, kunt u een vertaling in uw eigen taal aanvragen.
PL: Jeżeli niniejsze przepisy bezpieczeństwa są niezrozumiałe, można poprosić o tłumaczenie we własnym języku.
PT: Se não compreender os avisos de segurança, pode solicitar uma tradução no seu idioma.
RO: Dacă nu înţelegeţi aceste instrucţiuni de siguranţă puteţi cere traducerea acestora în limba dvs.
SK: Ak ste nepochopili bezpečnostné pokyny, môžete si vyžiadať preklad do svojho jazyka.
SL: Če teh navodil ne razumete, lahko zahtevate prevod v Vaš jezik.
SV: Om du inte förstår den här säkerhetsanvisningen kan du begära att få en översättning till ditt språk.

## 1 General safety notes

The installation, set up, service or disassembly of this device must only be done by trained, qualified personnel using suitable equipment and authorized to do so.

**Warning**

Media can escape if unsuitable devices are used or if the installation is not correct.

Danger of severe injury or damage

- Ensure that the device is suitable for the process and undamaged.

Measuring devices in explosive environments must be installed and commissioned by competent personnel that are familiar with the specialties of explosion protection. Modifications or damage of devices or electrical connections might negatively influence the operating safety or the ex-proofing.

Observe the regulations and standards for erection and operation of electrical installations in explosive atmospheres as well as the installation and safety notes in the corresponding operation instructions.

## 2 Installation

### Tightening torque on the terminal block

Please note the torque of 1 Nm for the cable connection on the terminal block. Cables with the following sizes can be connected:

max. cable size: 2,5 $mm^2$

min. cable size: 0,22 $mm^2$

### Cable gland

Refer to the order text for the permissible minimum and maximum cable diameters. Guide the connection cable of the Pt100 measuring insert through the connecting piece of the cable gland and then tighten the cable gland with a spanner. The torque should not drop below 5 Nm. Use only cables that are laid flexibly. Make sure that the cable is routed with a strain relief.

### IP degree of protection of the measuring device

The Ex-protection of the measuring device depends on the IP degree of protection - min. IP54 - of the measuring device. Therefore, always use a thermowell and ensure that the IP degree of protection is permanently maintained by the installation. This is ensured by the correct tightening torques and through the use of gaskets suitable for the application.

Use dummy plugs with ATEX approval according to Ex II 3G Ex ec IIC Tx Gc or higher for bore holes that are not used, taking the operating temperature into account.

Make sure that the housing is properly closed again after it has been opened for installation or maintenance purposes. Pay particular attention to the correct seating of the gasket after the housing has been opened and closed.

## 3 Requirements for intrinsically safe supply

For safety reasons, the following Pt100 measuring inserts need to be connected to the system's potential equalisation system along the entire power circuit.

- Ø of measuring insert < 3 mm
- Ø of measuring insert = 3 mm and more than 4 cable conductors
- Ø of measuring insert > 3 mm and more than 6 cable conductors

The measuring device housing must be connected to the system's potential equalisation system. In accordance with EN 60079-14, Section 6.4.1, metallic housings, which have a permanent and secured metallic contact with construction components or pipes, which in turn are connected to the potential equalisation system, do not need to be separately connected to the potential equalisation system.

## 4 Requirements for the Pt100-power curcuit

**Permissible media- and ambient temperatures**

The permissible media temperatures per temperature class depend solely on the electrical power supplied to the Pt100. Please note the following table:

| **Temperature class** | **Permissible media temperature ($T_m$ in °C) depending on the applied electrical power of the Pt100** | | | | | | | **$T_u$ in °C** |
|---|---|---|---|---|---|---|---|---|
| | 700 mW | 500 mW | 300 mW | 200 mW | 100 mW | 50 mW | 20 mW | |
| T1 | 311 | 348 | 385 | 403 | 421 | 430 | 436 | -20...80 |
| T2 | 161 | 198 | 235 | 253 | 271 | 280 | 286 | |
| T3 | 66 | 103 | 140 | 158 | 176 | 185 | 191 | |
| T4 | - | 38 | 75 | 93 | 111 | 120 | 126 | |
| T5 | - | - | 40 | 58 | 76 | 85 | 91 | |
| T6 | - | - | 25 | 43 | 61 | 70 | 76 | |

The maximum permissible media and ambient temperatures for the specific application depend on the device type and its configuration as documented in the data sheet, as well as on the temperature limits specified above and, if applicable, supplementary information in our order confirmation. Please pay attention to all mentioned aspects!

The permissible range lies between the lowest value of the upper limit and the highest value of the lower limit.

**Inner capacity and inductance of the Pt100-power circuit**

The inner capacity $C_i$ and inductance $L_i$ are negligible small.

## 5 Safety notes

Ensure that the measuring point and the connection head are thermally decoupled by the choice of a sufficiently long neck tube.

## 6 Resistance thermometer with transmitter

Combining a transmitter and a digital indicator with a resistance thermometer is an installation per ATEX-guideline. Adhere to the limits and safety instructions of the transmitter when using this combination in an explosion protected environment.

# EU-Konformitätserklärung
## *EU Declaration of Conformity*

Hersteller / *Manufacturer*: **LABOM Mess- und Regeltechnik GmbH**
**Im Gewerbepark 13, 27798 Hude, Germany**

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
*This declaration of conformity is issued under the sole responsibility of the manufacturer.*

Gegenstand der Erklärung / *Object of the declaration*: Typenreihen / *type series*
**GA25xx, GA221x, GA213x, GA214x, GA310x**

Der oben beschriebene Gegenstand der Erklärung erfüllt die einschlägigen Harmonisierungsrechtsvorschriften der Europäischen Union:
*The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:*

| **für Messgeräte …** ***for devices …*** | **EU-Richtlinie** ***EU directive*** | **Harmonisierte Norm** ***harmonised standard*** |
|---|---|---|
| in allen Ausführungen<br>*in all versions* | RoHS 2011/65/EU<br>2015/863/EU | EN IEC 63000:2018 |
| mit Messumformer<br>*with transmitter* | EMV 2014/30/EU<br>*EMC* | EN 61326-1:2013 |
| der Typenreihe **GA221x** > DN 25<br>*of type series **GA221x** > DN 25* | PED 2014/68/EU<br>Modul H<br>*module H* | AD 2000 |
| mit EG-Baumusterprüfbescheinigung<br>*with EC-type examination certificate*<br>**BVS 04 ATEX E 144 X**<br>der Messeinsatz-Typen<br>of *measuring insert types*<br>WMX-O**-*, WMX-R**-*<br>ausgestellt von / *issued by*<br>0158 EXAM BBG Prüf- und Zertifizier GmbH | ATEX 2014/34/EU | EN IEC 60079-0:2018<br>EN 60079-11:2012 |
| mit EG-Baumusterprüfbescheinigung<br>*with EC-type examination certificate*<br>**IBExU 13 ATEX 1017 X**<br>ausgestellt von / *issued by*<br>0637 Institut für Sicherheitstechnik GmbH | ATEX 2014/34/EU | EN IEC 60079-0:2018<br>EN 60079-11:2012 |
| mit EX-Kennzeichnung / *with EX-marking*<br>Ex II 3G Ex nA IIC T1…T6 Gc X | ATEX 2014/34/EU | EN IEC 60079-0:2018<br>EN 60079-15:2010 |

LABOM Mess- und Regeltechnik GmbH
Hude, 08.03.2022

T Köster

ppa. Dr. T. Köster
Leiter Bereich Entwicklung / *R & D Director*

notifizierte Stellen für Auditierung des QS-Systems nach
*notified bodies for auditing the QS-system according to*
ATEX **0044 TÜV NORD CERT**
Zertifikat / *certificate* **TÜV 00 ATEX 1582 Q**
DGRL / *PED* **0045 TÜV NORD Systems & Co. KG**
Große Bahnstr. 31
D-22525 Hamburg
Zertifikat / *certificate* **0045/202/1201/Z/00497/21/D/001(00)**