



## Safety instructions

**VEGABAR B8\*.AC/U/O/H/T**

**VEGABAR B8\*.VC**

TÜV 13 ATEX 131115 X

II 1G, 1/2G, 2G Ex ia IIC T6 ... T1 Ga,  
Ga/Gb, Gb



CE 0044



Document ID: 47679



**VEGA**

# Contents

<b>1</b>	<b>Area of applicability</b> .....	<b>5</b>
<b>2</b>	<b>General information</b> .....	<b>5</b>
<b>3</b>	<b>Technical data</b> .....	<b>6</b>
3.1	VEGABAR B8* with integrated electronics Z (4 ... 20 mA), H (4 ... 20 mA/HART) or A (4 ... 20 mA/HART with SIL qualification) .....	6
3.3	VEGABAR B8* with integrated electronics P (Profibus PA), F (Foundation Fieldbus).....	8
3.4	Intrinsically safe circuit for the display and adjustment module.....	10
3.5	VEGABAR B8* with integrated electronics S or T, only version with single chamber housing .....	11
3.6	VEGABAR B8* version with separate cable outlet.....	12
<b>4</b>	<b>Application conditions</b> .....	<b>12</b>
<b>5</b>	<b>Protection against static electricity</b> .....	<b>15</b>
<b>6</b>	<b>Use of an overvoltage arrester</b> .....	<b>15</b>
<b>7</b>	<b>Grounding</b> .....	<b>15</b>
<b>8</b>	<b>Impact and friction sparks</b> .....	<b>16</b>
<b>9</b>	<b>Material resistance</b> .....	<b>16</b>
<b>10</b>	<b>Mounting with external indicating unit VEGADIS 61/81</b> .....	<b>16</b>
<b>11</b>	<b>Installation/mounting</b> .....	<b>16</b>
<b>12</b>	<b>Installation of the with separate housing</b> .....	<b>16</b>

Please note:

These safety instructions are part of the documentation:

- VEGABAR 81
  - 45025 - 4 ... 20 mA, 45018 - 4 ... 20 mA/HART, 45020 - Profibus PA, 45021 - Foundation Fieldbus
- VEGABAR 82
  - 45027 - 4 ... 20 mA, 45028 - 4 ... 20 mA/HART, 45031 - Profibus PA, 45032 - Foundation Fieldbus
- VEGABAR 83
  - 45033 - 4 ... 20 mA, 45034 - 4 ... 20 mA/HART, 45037 - Profibus PA, 45038 - Foundation Fieldbus
- VEGABAR 86
  - 45506 - 4 ... 20 mA, 45039 - 4 ... 20 mA/HART, 45042 - Profibus PA, 45043 - Foundation Fieldbus
- VEGABAR 87
  - 45507 - 4 ... 20 mA, 45044 - 4 ... 20 mA/HART, 45047 - Profibus PA, 45048 - Foundation Fieldbus
- 47680 - EC type approval certificate TÜV 13 ATEX 131115 X
- 47246 - CE conformity declaration

DE	Sicherheitshinweise für den Einsatz in explosionsgefährdeten Bereichen, verfügbar in den Sprachen deutsch, englisch, französisch und spanisch.
EN	Safety instructions for the use in hazardous areas are available in German, English, French and Spanish language.
FR	Consignes de sécurité pour l'utilisation en atmosphère explosible, disponibles dans les langues allemande, anglaise, française et espagnole.
ES	Instrucciones de seguridad para el empleo en áreas con riesgo de explosión, disponible en los siguientes idiomas alemán, inglés, francés y español.
CZ	Pokud nastanou potíže při čtení bezpečnostních upozornění v otištěných jazycích, poskytneme. Vám na základě žádosti k dispozici kopii v jazyce Vaší země.
DA	Hvis De har svært ved at forstå sikkerhedsforskrifterne på de trykte sprog, kan De få en kopi på Deres sprog, hvis De ønsker det.
EL	Εάν δυσκολεύεστε να διαβάσετε τις υποδείξεις ασφαλείας στις γλώσσες που ήδη έχουν τυπωθεί, τότε σε περίπτωση ζήτησης μπορούμε να θέσουμε στη διάθεσή σας ένα αντίγραφο αυτών στη γλώσσα της χώρας σας.
ET	Kui teil on raskusi trükitud keeltes ohutusnõuete lugemisega, siis saadame me teie järelpärimise peale nende koopia teie riigi keeles.
FI	Laitteen mukana on erikielisiä turvallisuusohjeita. Voit tilata meiltä äidinkielistet turvallisuusohjeet, jos et selviä mukana olevilla kielillä.
HU	Ha a biztonság elõírásokat a kinyomtatott nyelveken nem tudja megfelelően elolvasni, akkor lépjen velünk kapcsolatba: azonnal a rendelkezésére bocsátunk egy példányt az Ön országában használt nyelven.
IT	Se le Normative di sicurezza sono stampate in una lingua di difficile comprensione, potete richiederne una copia nella lingua del vostro paese.
LT	Jei Jums sunku suprasti saugos nuorodų tekstą pateiktomis kalbomis, kreipkitės į mus ir mes Jums duosime kopiją Jūsų šalies kalba.
LV	Ja Jums ir problēmas drošības noteikumus lasīt nodrukātajās valodās, tad mēs Jums sniegsim pēc pieprasījuma kopiju Jūsu valsts valodā.
MT	F'kaz li jkollok xi diffikulta' biex tifhem llistruzzjonijiet ta' sigurta' kif ipprovduti, infurmana u ah-na nibghatulek kopja billingwa tieghek.
NL	Als u moeite heeft met het lezen van de veiligheidsinstructies in de afgedrukte talen, sturen wij u op aanvraag graag een kopie toe in uw eigen taal.
PL	W przypadku trudności odczytania przepisów bezpieczeństwa pracy w wydrukowanych językach, chętnie udostępnimy Państwu kopię w języku obowiązującym w danym kraju.
PT	Caso tenha dificuldade de ler as instruções de segurança no idioma, no elas foram impressas, poderá solicitar junto a nós uma cópia em seu idioma.
SK	Pokiaľ nastanú problémy pri čítaní bezpečnostných pokynov vo vydaných jazykoch, poskytneme Vám na základe žiadosti k dispozícii kópiu v jazyku Vašej krajiny.
SL	Kadar se pojavijo težave pri branju varnostnih navodil v izdanih jezikih, vam bomo na osnovi zahtevka dali na razpolago kopijo v jeziku vaše države.
SV	Om du har problem att läsa säkerhetsanvisningarna på de här tryckta språken, ställer vi gärna på begäran en kopia på ditt språk till förfogande.

## **1 Area of applicability**

These safety instructions apply to the pressurer transmitters VEGABAR B81/82/83/86/87.AC/U/O/H/T and VEGABAR B81/82/83/86/87.VC with integrated electronics Z (4 ... 20 mA), H (4 ... 20 mA/HART), A (4 ... 20 mA/HART with SIL qualification), P (Profibus PA), F (Foundation Fieldbus), S, T (differential pressure measurement) without supplementary electronics (X) according to EC type approval certificate TÜV 13 ATEX 131115 X with 2nd supplement (certificate number on the type label) and for all instruments with the number of the safety instruction (47679) on the type label.

## **2 General information**

The pressure-based measuring instruments VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC are also used for pressure and level measurement in hazardous areas.

The measured products can also be combustible liquids, gases, mist or vapour.

The VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC consist of an electronics housing with integrated electronics module, a process connection element and a sensor, the pressure measuring cell with optionally connected chemical seal. As an option, the display and adjustment module can also be mounted.

The VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC are suitable for use in hazardous atmospheres of all combustible materials of explosion group IIA, IIB and IIC for applications requiring instruments of category 1G, category 1/2G or category 2G.

If the VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC are installed and operated in hazardous areas, the general Ex installation regulations EN 60079-14 as well as these safety instructions must be observed.

The operating instructions as well as the installation regulations and standards that apply for explosion protection of electrical systems must always be observed.

The installation of explosion-endangered systems must always be carried out by qualified personnel.

### **Category 1G instrument (EPL-Ga instrument)**

The VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC are installed in hazardous areas requiring instruments of category 1G.

### **Category 1/2G instrument (EPL-Ga/Gb instrument)**

The process connection element is installed in the separating wall, which separates areas in which instruments of category 2G or 1G are required. The electronics housing is installed in hazardous areas requiring instruments of category 2G. The sensor is installed in hazardous areas requiring instruments of category 1G.

### **Category 2G instrument (EPL-Gb instrument)**

The VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC are installed in hazardous areas requiring instruments of category 2G.

### 3 Technical data

#### 3.1 VEGABAR B8\* with integrated electronics Z (4 ... 20 mA), H (4 ... 20 mA/HART) or A (4 ... 20 mA/HART with SIL qualification)

VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VCwith integrated electronics Z (4 ... 20 mA), H (4 ... 20 mA/HART) or A (4 ... 20 mA/HART with SIL qualification), version with single chamber housing A, K, V or 8

Supply and signal circuit: (terminals 1[+], 2[-] in the "Ex-i" electronics compartment or plug connection)	<p>In ignition protection type intrinsic safety Ex ia IIC/IIB</p> <p>Only for connection to a certified, intrinsically safe circuit.</p> <p>Maximum values:</p> <ul style="list-style-type: none"> <li>• <math>U_i = 30 \text{ V}</math></li> <li>• <math>I_i = 131 \text{ mA}</math></li> <li>• <math>P_i = 983 \text{ mW}</math></li> </ul> <p>The effective internal capacitance <math>C_i</math> is negligibly small.</p> <p>In the version with permanently mounted connection cable, <math>C_{i \text{ wire/wire}} = 150 \text{ pF/m}</math> and <math>C_{i \text{ wire/screen}} = 270 \text{ pF/m}</math> must be taken into account.</p> <p>The effective inner inductance <math>L_i</math> is <math>L_i \leq 5 \text{ } \mu\text{H}</math>. In the version with permanently mounted connection cable, <math>L_i = 0.62 \text{ } \mu\text{H/m}</math> must also be taken into account.</p>
--	--

#### VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VCwith integrated electronics Z (4 ... 20 mA), H (4 ... 20 mA/HART) or A (4 ... 20 mA/HART with SIL qualification), version with double chamber housing D, W or R

Power supply and signal circuit: (terminal 1[+], 2[-] in the "Ex-i" connection compartment)	<p>In ignition protection type intrinsic safety Ex ia IIC/IIB</p> <p>Only for connection to a certified, intrinsically safe circuit.</p> <p>Maximum values:</p> <ul style="list-style-type: none"> <li>• <math>U_i = 30 \text{ V}</math></li> <li>• <math>I_i = 131 \text{ mA}</math></li> <li>• <math>P_i = 983 \text{ mW}</math></li> </ul> <p>The effective internal capacitance <math>C_i</math> is negligibly small.</p> <p>In the version with permanently mounted connection cable, <math>C_{i \text{ wire/wire}} = 150 \text{ pF/m}</math> and <math>C_{i \text{ wire/screen}} = 270 \text{ pF/m}</math> must be taken into account.</p> <p>The effective inner inductance <math>L_i</math> with the double chamber version is <math>L_i \leq 10 \text{ } \mu\text{H}</math>. In the version with permanently mounted connection cable, <math>L_i = 0.62 \text{ } \mu\text{H/m}</math> must also be taken into account.</p>
---	---

## VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VCwith integrated electronics Z (4 ... 20 mA), H (4 ... 20 mA/HART) or A (4 ... 20 mA/HART with SIL qualification)

Indicating and adjustment circuit: (terminals 5, 6, 7, 8)<sup>1)2)3)</sup>

In ignition protection type intrinsic safety Ex ia IIC

For connection to the intrinsically safe circuit of the corresponding external display unit VEGADIS 61/81 (PTB 02 ATEX 2136 X) or for connection of a VEGABAR B80 with integrated electronics S or T for differential pressure measurement.

The rules for the interconnection of intrinsically safe circuits between VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC and the external indicating unit VEGADIS 61/81 or VEGABAR B8\* with electronics S or T are fulfilled, provided that the total inductance and total capacitance of the connection cable between VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC and the external indicating unit VEGADIS 61/81 or VEGABAR B8\* with electronics S or T  $L_{\text{cable}} = 330 \mu\text{H}$  and  $C_{\text{cable}} = 1.98 \mu\text{F}$  are not exceeded.

When using the delivered VEGA connection cable between VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC and the external indicating unit VEGADIS 61/81 or VEGABAR B8\* with electronics S or T, the following listed cable inductances  $L_i$  and cable capacitances  $C_i$  must be taken into account with a cable length  $\geq 50 \text{ m}$ .

- $L_i = 0.62 \mu\text{H/m}$
- $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$
- $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$

### Intrinsically safe circuit for the display and adjustment module

## VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VCwith integrated electronics Z (4 ... 20 mA), H (4 ... 20 mA/HART) or A (4 ... 20 mA/HART with SIL qualification), version with single chamber housing A, K, V or 8

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" electronics compartment)

In ignition protection type intrinsic safety Ex ia IIC

For connection to the display and adjustment module PLICSCOM or VEGACONNECT (PTB 07 ATEX 2013 X).

## VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VCwith integrated electronics Z (4 ... 20 mA), H (4 ... 20 mA/HART) or A (4 ... 20 mA/HART with SIL qualification), version with double chamber housing D, W or R

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" connection compartment)

In ignition protection type intrinsic safety Ex ia IIC

For connection to the display and adjustment module PLICSCOM or VEGACONNECT (PTB 07 ATEX 2013 X).

or

- 1) In the "Ex-i" electronics compartment with VEGABAR in version with single chamber housing A, K, V or 8.
- 2) In the "Ex-i" connection compartment with VEGABAR in version with double chamber housing D, W or R.
- 3) Additional plug connection with VEGABAR in version with double chamber housing D, W, R and housing version/protection P (with M12 x 1 for VEGADIS).

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" electronics compartment)

In ignition protection type intrinsic safety Ex ia IIC

For connection to the display and adjustment module PLICSCOM or VEGACONNECT (PTB 07 ATEX 2013 X).

In the double chamber version, the display and adjustment module PLICSCOM or VEGACONNECT must only be equipped in the connection compartment, if there is no external VEGA display unit VEGADIS 61/81 or VEGADIS B80 with electronics S, T connected.

---

**VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC with integrated electronics Z (4 ... 20 mA), H (4 ... 20 mA/HART) or A (4 ... 20 mA/HART with SIL qualification), version with double chamber housing D, W or R with housing version/protection P (with M12 x 1 for VEGADIS)**

---

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" connection compartment)

In ignition protection type intrinsic safety Ex ia IIC

For connection to the display and adjustment module PLICSCOM or VEGACONNECT (PTB 07 ATEX 2013 X).

In the double chamber version, the display and adjustment module PLICSCOM or VEGACONNECT must only be equipped in the connection compartment, if there is no external VEGA display unit VEGADIS 61/81 or VEGADIS B80 with electronics S, T connected.

### 3.3 VEGABAR B8\* with integrated electronics P (Profibus PA), F (Foundation Fieldbus)

---

**VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC with integrated electronics P (Profibus PA), F (Foundation Fieldbus), version with single chamber housing A, K, V or 8**

---

Supply and signal circuit: (terminals 1[+], 2[-] in the "Ex-i" electronics compartment or plug connection)

In ignition protection type intrinsic safety Ex ia IIC/IIB

Only for connection to a certified, intrinsically safe circuit.

Maximum values:

- $U_i = 17.5 \text{ V}$
- $I_i = 500 \text{ mA}$
- $P_i = 5.5 \text{ W}$

The instrument is suitable for connection to a Fieldbus system according to the FISCO model (EN 60079-11), e.g. Profibus PA.

or

- $U_i = 24 \text{ V}$
- $I_i = 250 \text{ mA}$
- $P_i = 1.2 \text{ W}$

The effective internal capacitance  $C_i$  is negligibly small.

In the version with permanently mounted connection cable,  $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$  and  $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$  must be taken into account.

The effective internal inductance  $L_i$  is negligibly small.

In the version with fix mounted connection cable,  $L_i = 0.62 \text{ } \mu\text{H/m}$  must be taken into consideration.



## VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC with integrated electronics P (Profibus PA), F (Foundation Fieldbus), version with double chamber housing D, W or R

Power supply and signal circuit: (terminal 1[+], 2[-] in the "Ex-i" connection compartment)

In ignition protection type intrinsic safety Ex ia IIC/IIB for instruments of category 1G or 1/2G and Ex ia IIC/IIB resp. Ex ib IIC/IIB for instruments of category 2G.

Only for connection to a certified, intrinsically safe circuit.

Maximum values:

- $U_i = 17.5 \text{ V}$
- $I_i = 500 \text{ mA}$
- $P_i = 5.5 \text{ W}$

The instrument is suitable for connection to a Fieldbus system according to the FISCO model (EN 60079-11), e.g. Profibus PA.

or

- $U_i = 24 \text{ V}$
- $I_i = 250 \text{ mA}$
- $P_i = 1.2 \text{ W}$

The effective internal capacitance  $C_i$  is negligibly small.

In the version with permanently mounted connection cable,  $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$  and  $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$  must be taken into account.

The effective internal inductance is  $L_i \leq 5 \text{ }\mu\text{H}$ .

In the version with fix mounted connection cable, also  $L_i = 0.62 \text{ }\mu\text{H/m}$  must be taken into consideration.

**VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC with integrated electronics P (Profibus PA), F (Foundation Fieldbus)**

Indicating and adjustment circuit: (terminals 5, 6, 7, 8) <sup>4)5)6)</sup>	<p>In ignition protection type intrinsic safety Ex ia IIC</p> <p>For connection to the intrinsically safe circuit of the corresponding external display unit VEGADIS 61/81 (PTB 02 ATEX 2136 X) or for connection of a VEGABAR B80 with integrated electronics S or T for differential pressure measurement.</p> <p>The rules for the interconnection of intrinsically safe circuits between VEGABAR B8*.AC/U/O/H/T, VEGABAR B8*.VC and the external indicating unit VEGADIS 61/81 or VEGABAR B8* with electronics S or T are fulfilled, provided that the total inductance and total capacitance of the connection cable between VEGABAR B8*.AC/U/O/H/T, VEGABAR B8*.VC and the external indicating unit VEGADIS 61/81 or VEGABAR B8* with electronics S or T <math>L_{\text{cable}} = 212 \mu\text{H}</math> and <math>C_{\text{cable}} = 1.98 \mu\text{F}</math> are not exceeded.</p> <p>When using the delivered VEGA connection cable between VEGABAR B8*.AC/U/O/H/T, VEGABAR B8*.VC and the external indicating unit VEGADIS 61/81 or VEGABAR B8* with electronics S or T, the following listed cable inductances <math>L_i</math> and cable capacitances <math>C_i</math> must be taken into account with a cable length <math>\geq 50 \text{ m}</math>.</p> <ul style="list-style-type: none"> <li>• <math>L_i = 0.62 \mu\text{H/m}</math></li> <li>• <math>C_{i \text{ wire/wire}} = 150 \text{ pF/m}</math></li> <li>• <math>C_{i \text{ wire/screen}} = 270 \text{ pF/m}</math></li> </ul>
---	--

### 3.4 Intrinsically safe circuit for the display and adjustment module

**VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC with integrated electronics P (Profibus PA), F (Foundation Fieldbus), version with single chamber housing A, K, V or 8**

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" electronics compartment)	<p>In ignition protection type intrinsic safety Ex ia IIC</p> <p>For connection to the display and adjustment module PLICSCOM or VEGACONNECT (PTB 07 ATEX 2013 X).</p>
--	--

**VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC with integrated electronics P (Profibus PA), F (Foundation Fieldbus), version with double chamber housing D, W or R**

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" connection compartment)	<p>In ignition protection type intrinsic safety Ex ia IIC</p> <p>For connection to the display and adjustment module PLICSCOM or VEGACONNECT (PTB 07 ATEX 2013 X).</p>
---	--

or

- 4) In the "Ex-i" electronics compartment with VEGABAR in version with single chamber housing A, K, V or 8.
- 5) In the "Ex-i" connection compartment with VEGABAR in version with double chamber housing D, W or R.
- 6) Additional plug connection with VEGABAR in version with double chamber housing D, W, R and housing version/protection P (with M12 x 1 for VEGADIS).

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" electronics compartment)

In ignition protection type intrinsic safety Ex ia IIC

For connection to the display and adjustment module PLICSCOM or VEGACONNECT (PTB 07 ATEX 2013 X).

In the double chamber version, the display and adjustment module PLICSCOM or VEGACONNECT must only be equipped in the connection compartment, if there is no external VEGA display unit VEGADIS 61/81 or VEGADIS B80 with electronics S, T connected.

---

**VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC with integrated electronics Z (4 ... 20 mA), H (4 ... 20 mA/HART) or A (4 ... 20 mA/HART with SIL qualification), version with double chamber housing D, W or R with housing version/protection P (with M12 x 1 for VEGADIS)**

---

Circuit for the display and adjustment module: (spring contacts in the "Ex-i" connection compartment)

In ignition protection type intrinsic safety Ex ia IIC

For connection to the display and adjustment module PLICSCOM or VEGACONNECT (PTB 07 ATEX 2013 X).

In the double chamber version, the display and adjustment module PLICSCOM or VEGACONNECT must only be equipped in the connection compartment, if there is no external VEGA display unit VEGADIS 61/81 or VEGADIS B80 with electronics S, T connected.

### 3.5 VEGABAR B8\* with integrated electronics S or T, only version with single chamber housing

**VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC with integrated electronics S or T, only version with single chamber housing**

---

Power supply and signal circuit: (terminals 5, 6, 7, 8 in the electronics compartment)

In ignition protection type intrinsic safety Ex ia IIC

For connection to the intrinsically safe circuit of a VEGABAR B8\*.C\* with integrated electronics H, A, P, F for differential pressure measurement.

The rules for the interconnection of intrinsically safe circuits between VEGABAR B80 with electronics S or T and VEGABAR B8\*.C\* with electronics H, A, P or F are fulfilled, provided that the total inductance and total capacitance of the connection cable between VEGABAR B8\*.C\* and VEGABAR B8\* with electronics S or T,  $L_{\text{cable}} = 330 \mu\text{H}$  and  $C_{\text{cable}} = 2.00 \mu\text{F}$ , is not exceeded.

When using the delivered VEGA connection cable between VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC and the external indicating unit VEGADIS 61/81 or VEGABAR B8\* with electronics S or T, the following listed cable inductances  $L_i$  and cable capacitances  $C_i$  must be taken into account with a cable length  $\geq 50 \text{ m}$ .

- $L_i = 0.62 \mu\text{H/m}$
- $C_{i \text{ wire/wire}} = 150 \text{ pF/m}$
- $C_{i \text{ wire/screen}} = 270 \text{ pF/m}$

### 3.6 VEGABAR B8\* version with separate cable outlet

#### VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC Version with separate cable outlet (all electronics)

Circuit between sensor unit and external electronics (terminal 1- yellow, terminal 2 - white, terminal 3 - red, terminal 4 - black)

In ignition protection type intrinsic safety Ex ia IIC  
With VEGABAR B8\*.AC in the version with fix mounted cable on the sensor unit and external electronics, the supplied cable between the external housing and the sensor unit must not exceed a length of 180 m.

The intrinsically safe circuits are electrically separated from parts which can be grounded.

The metallic parts of VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC are electrically connected with the earth terminals.

For applications requiring instruments of category 1G or 1/2G, the intrinsically safe power supply and signal circuit must correspond to protection class ia.

For applications requiring instruments of category 1G or 1/2G the VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC is preferably connected to appropriate equipment with galvanically isolated, intrinsically safe circuits.

## 4 Application conditions

**VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC with integrated electronics Z (4 ... 20 mA), H (4 ... 20 mA/HART) or A (4 ... 20 mA/HART with SIL qualification), S, T (electronic differential pressure measurement), P (Profibus PA), F (Foundation Fieldbus)**

The max. permissible ambient temperatures depending on the temperature classes are specified in the following tables.

#### Category 1G instrument (EPL-Ga instrument)

Temperature class	Ambient temperature on the sensor and electronics
T6	-20 ... +23 °C
T5, T4, T3, T2, T1	-20 ... +60 °C

For applications requiring instruments of category 1G (EPL-Ga instruments), the process pressure of the media must be between 0.8 ... 1.1 bar. With the stated permissible ambient temperatures, the 80 % consideration of section 6.4.2/EN 1127-1 is taken into account. The application conditions during operation in areas with no explosive mixtures are stated in the manufacturer information (operating instructions).

#### Category 1/2G instrument (EPL-Ga/Gb instrument)

Temperature class	Ambient temperature on the electronics (Zone 1)	Product temperature range (sensor, zone 0)
T6	-50 ... +39 °C	-20 ... +23 °C
T5, T4, T3, T2, T1	-50 ... +70 °C	-20 ... +60 °C

For applications requiring instruments of category 1/2G (EPL-Ga/Gb instrument) the process pressure of the media must be between 0.8 ... 1.1 bar. The 80 % consideration of Sect. 6.4.2/EN 1127-1 is taken into account with the permissible ambient temperatures. If the VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC are operated at temperatures higher than those specified in the above table, please make sure by means of appropriate measures that there is no danger of ignition from the hot surfaces. The maximum temperature on the electronics/housing should not exceed the values

stated in the above table. The application conditions in areas without hazardous mixtures are specified in the manufacturer information (operating instructions).

## Category 2G instrument (EPL-Gb instrument), VEGABAR 82, VEGABAR 83 with METEC measuring cell

Temperature class	Ambient temperature on the electronics (Zone 1)	Product temperature range (sensor, zone 1)
T6	-50 ... +39 °C	-50 ... +39 °C
T5	-50 ... +70 °C	-50 ... +100 °C
T4	-50 ... +50 °C	-50 ... +135 °C
T3, T2, T1	-50 ... +50 °C	-50 ... +200 °C

## Category 2G instrument (EPL-Gb instrument), VEGABAR 83 version with piezoresistive/strain gauge measuring cell, version without cooling element

Temperature class	Ambient temperature on the electronics (Zone 1)	Product temperature range (sensor, zone 1)
T6	-50 ... +39 °C	-50 ... +39 °C
T5	-50 ... +70 °C	-50 ... +85 °C
T4	-50 ... +40 °C	-50 ... +105 °C
T4, T3, T2, T1	-50 ... +30 °C	-50 ... +120 °C

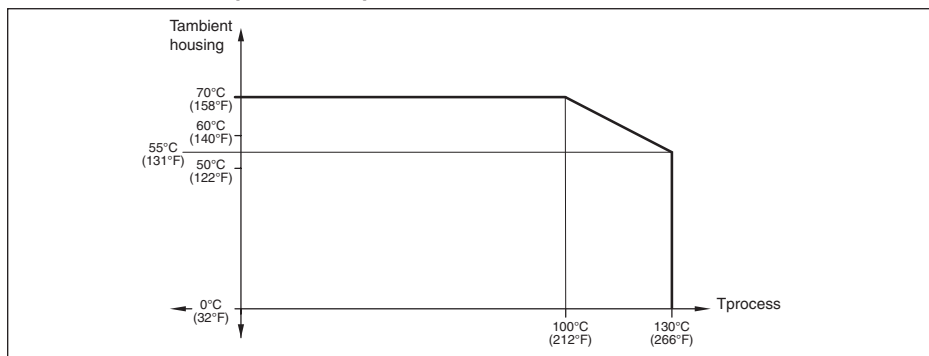
## Category 2G instrument (EPL-Gb instrument), VEGABAR 81, VEGABAR 83 version with piezoresistive/strain gauge measuring cell, version with cooling element

Temperature class	Ambient temperature on the electronics (Zone 1)	Product temperature range (sensor, zone 1)
T6	-50 ... +39 °C	-50 ... +39 °C
T5	-50 ... +70 °C	-50 ... +85 °C
T4	-50 ... +50 °C	-50 ... +120 °C
T3, T2, T1	-50 ... +40 °C	-50 ... +150 °C

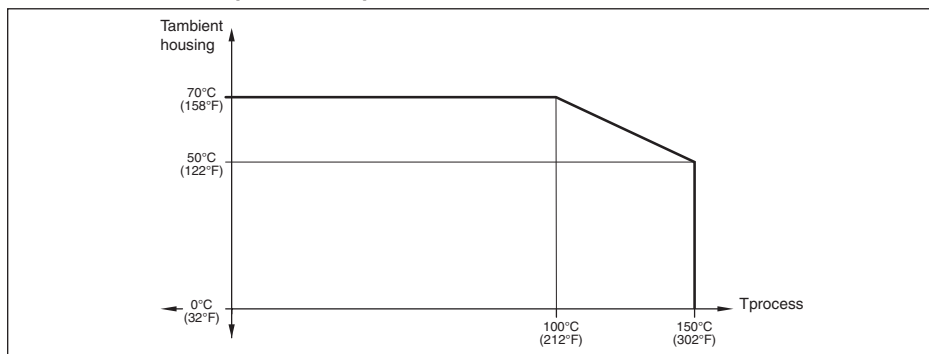
If the VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC are operated at temperatures higher than those specified in the above table, please make sure through appropriate measures that there is no danger of ignition from the hot surfaces. The max. permissible temperature on the electronics/housing should not exceed the values specified in the above table. The application conditions during operation with no explosive mixtures present are stated in the manufacturer information (operating instructions).

## Temperature derating

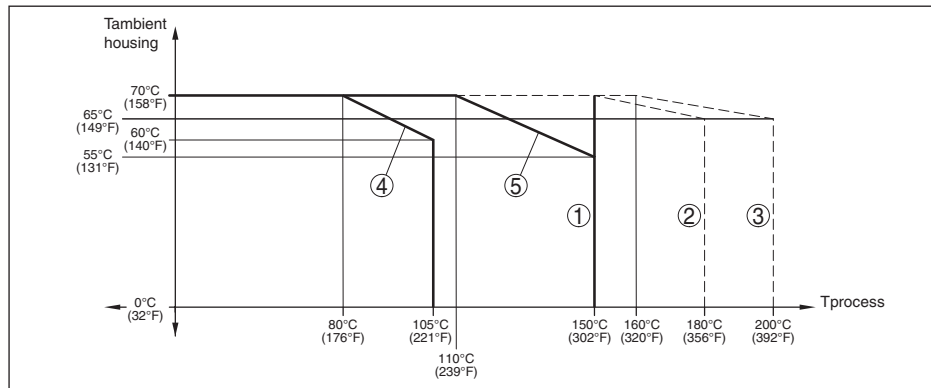
### VEGABAR 82, version process temperature +130 °C



### VEGABAR 82, version process temperature +150 °C



## VEGABAR 81, VEGABAR 83



- 1 Version: METEC measuring cell, process temperature max. 150 °C
- 2 Version: METEC measuring cell, process temperature max. 180 °C
- 3 Version: METEC measuring cell, process temperature max. 200 °C
- 4 Version: Piezoresistive/strain gauge measuring cell, without cooling element
- 5 Version: Piezoresistive/strain gauge measuring cell, with cooling element

The temperature ranges for operation specified in the operating instruction must not be exceeded.

## 5 Protection against static electricity

The VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC in versions with electrostatically chargeable plastic parts, such as e.g. plastic housing, metal housing with inspection window, with plastic coated sensors, suspension cable or suspension hose, distance tube or connection cable with the separated version, a caution label points out the safety measures that must be taken with regard to electrostatic charges during operation.



Caution: Plastic parts! Danger of electrostatic charging!

- Avoid friction
- No dry cleaning
- Do not mount in areas with flowing, non-conductive products

## 6 Use of an overvoltage arrester

If necessary, a suitable overvoltage arrester can be connected in front of the VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC.

When used as category 1G or 1/2G instrument, as far as necessary analogue, a suitable overvoltage arrester must be connected in front as protection against voltage surges according to EN 60079-14 chapter 12.3.

## 7 Grounding

In order to avoid the danger of electrostatic charging of the metallic parts, the VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC must be electrostatically connected to the local potential equalisation (transfer resistance  $\leq 1 \text{ M}\Omega$ ), e.g. via the ground terminal, when used as category 1G or 1/2G

instruments.

## 8 Impact and friction sparks

When used as category 1G or 1/2G instruments, the VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC in aluminium/titanium versions must be mounted in such a way that sparks from impact and friction between aluminium/titanium and steel (except stainless steel, if the presence of rust particles can be excluded) cannot occur.

## 9 Material resistance

For applications requiring instruments of category 1G or category 1/2G the VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC must only be used in products against which the wetted materials are sufficiently resistant.

## 10 Mounting with external indicating unit VEGADIS 61/81

The intrinsically safe signal circuit between VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC and the external indicating unit VEGADIS 61/81 should be set up without grounding. The required insulation voltage is > 500 V AC. When using the VEGA connection cable included with the delivery, this requirement is fulfilled. If grounding of the cable screen is required, it must be carried out according to EN 60079-14 paragr. 12.2.2.3.

## 11 Installation/mounting

The VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC have to be mounted such that the sensor is effectively secured against touching the vessel wall, under consideration of other vessel installations and flow conditions in the vessel. This applies especially to suspension pressure transmitters and versions with distance tube lengths over 3 m.

## 12 Installation of the VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC with separate housing

With the version with separate housing of the pressure transmitter VEGABAR B8\*.AC/U/O/H/T, VEGABAR B8\*.VC, the potential equalization must be provided in the complete range of the connection cable between electronics housing and transmitter housing.









Printing date:

# VEGA

All statements concerning scope of delivery, application, practical use and operating conditions of the sensors and processing systems correspond to the information available at the time of printing.

Subject to change without prior notice

© VEGA Grieshaber KG, Schiltach/Germany 2014



47679-EN-141212

VEGA Grieshaber KG  
Am Hohenstein 113  
77761 Schiltach  
Germany

Phone +49 7836 50-0  
Fax +49 7836 50-201  
E-mail: [info.de@vega.com](mailto:info.de@vega.com)  
[www.vega.com](http://www.vega.com)