

# VEGA

## Safety instructions

**MINITRAC MT31.TX\*B\*\*\*\***

**MINITRAC MT32.TX\*B\*\*\*\***

BVS 10 ATEX E 096

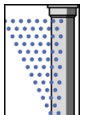
⊕ I M2 (M1) Ex d [ia Ma] I Mb



0044



40378



## Contents

<b>1</b>	<b>Area of applicability</b> . . . . .	<b>4</b>
<b>2</b>	<b>General information</b> . . . . .	<b>4</b>
2.1	Category M2 instruments . . . . .	4
<b>3</b>	<b>Technical data</b> . . . . .	<b>4</b>
3.1	Electrical data . . . . .	4
<b>4</b>	<b>Application conditions</b> . . . . .	<b>6</b>
<b>5</b>	<b>Protection against static electricity</b> . . . . .	<b>6</b>
<b>6</b>	<b>Grounding</b> . . . . .	<b>6</b>
<b>7</b>	<b>Material resistance</b> . . . . .	<b>6</b>
<b>8</b>	<b>Mounting with external indicating unit VEGADIS 61</b> . . . . .	<b>6</b>
<b>9</b>	<b>Ignition protection type flameproof enclosure Ex "d"</b> . . . . .	<b>6</b>
<b>10</b>	<b>Type and size of the threads for the "Ex-d" cable entries</b> . . . . .	<b>8</b>

Please note:

These safety instructions are part of the documentation:

- 40447 - MINITRAC 31 - 4 ... 20 mA/HART - four-wire
- 43389 - MINITRAC 31 - 4 ... 20 mA/HART - four-wire with SIL qualification
- 37430 - MINITRAC 32 - 4 ... 20 mA/HART - four-wire
- 43908 - MINITRAC 32 - 4 ... 20 mA/HART - four-wire with SIL qualification
- 40346 - EC type approval certificate BVS 10 ATEX E 096

<b>DE</b>	Sicherheitshinweise für den Einsatz in explosionsgefährdeten Bereichen, verfügbar in den Sprachen deutsch, englisch, französisch und spanisch.
<b>EN</b>	Safety instructions for the use in hazardous areas are available in German, English, French and Spanish language.
<b>FR</b>	Consignes de sécurité pour l'utilisation en atmosphère explosible, disponibles dans les langues allemande, anglaise, française et espagnole.
<b>ES</b>	Instrucciones de seguridad para el empleo en áreas con riesgo de explosión, disponible en los siguientes idiomas alemán, inglés, francés y español.
<b>CZ</b>	Pokud nastanou potíže při čtení bezpečnostních upozornění v otisknutých jazycích, poskytneme. Vám na základě žádosti k dispozici kopii v jazyce Vaší země.
<b>DA</b>	Hvis De har svært ved at forstå sikkerhedsforskrifterne på de trykte sprog, kan De få en kopi på Deres sprog, hvis De ønsker det.
<b>EL</b>	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.
<b>ET</b>	Kui teil on raskusi trükitud keeltes ohutusnõuete lugemisega, siis saadame me teie järelpärimise peale nende koopia teie riigi keeles.
<b>FI</b>	Laitteen mukana on erikielisiä turvallisuusohjeita. Voit tilata meiltä äidinkielistet turvallisuusohjeet, jos et selviä mukana olevilla kielillä.
<b>HU</b>	Ha a biztonági előírásokat a kinyomtatott nyelveken nem tudja megfelelően elolvasni, akkor lépjen velünk kapcsolatba: azonnal a rendelkezésére bocsátunk egy példányt az Ön országában használt nyelven.
<b>IT</b>	Se le Normative di sicurezza sono stampate in una lingua di difficile comprensione, potete richiederne una copia nella lingua del vostro paese.
<b>LT</b>	Jei Jums sunku suprasti saugos nuorodų tekstą pateiktomis kalbomis, kreipkitės į mus ir mes Jums duosime kopiją Jūsų šalies kalba.
<b>LV</b>	Ja Jums ir problēmas drošības noteikumos lasīt nodrukātajās valodās, tad mēs Jums sniegsim pēc pieprasījuma kopiju Jūsu valsts valodā.
<b>MT</b>	F'kaz li jkollok xi diffikulta` biex tifhem listruzzjonijiet ta` sigurta` kif ipprovduti, infurmana u ahna nibghatulek kopja billingwa tieghek.
<b>NL</b>	Als u moeite hebt met het lezen van de veiligheidsinstructies in de afgedrukte talen, sturen wij u op aanvraag graag een kopie toe in uw eigen taal.
<b>PL</b>	W przypadku trudności odczytania przepisów bezpieczeństwa pracy w wydrukowanych językach, chętnie udostępnimy Państwu kopię w języku obowiązującym w danym kraju.
<b>PT</b>	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.
<b>SK</b>	Pokiaľ nastanú problémy pri čítaní bezpečnostných pokynov vo vydaných jazykoch, poskytneme Vám na základe žiadosti k dispozícii kópiu v jazyku Vašej krajiny.
<b>SL</b>	Kadar se pojavijo težave pri branju varnostnih navodil v izdanih jeziki, vam bomo na osnovi zahtevka dali na razpolago kopijo v jeziku vaše države.
<b>SV</b>	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 radiation-based sensors MINITRAC MT31.TX\*B\*\*\*\*, MINITRAC MT32.TX\*B\*\*\*\* according to EG type approval certificate BVS 10 ATEX E 096 with the 1. Supplement (certificate number on the type label) and to all instruments with the number of the safety instruction (40378) on the type label.

## 2 General information

The radiation-based sensors MINITRAC MT31.TX\*B\*\*\*\*, MINITRAC MT32.TX\*B\*\*\*\* are suitable for use in hazardous atmospheres in which there is a danger due to firedamp and/or combustible, dust-generating bulk solids, for applications requiring instruments of category M2 (M1).

If the MINITRAC MT31.TX\*B\*\*\*\*, MINITRAC MT32.TX\*B\*\*\*\* 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.

### 2.1 Category M2 instruments

The MINITRAC MT31.TX\*B\*\*\*\*, MINITRAC MT32.TX\*B\*\*\*\* is installed in hazardous areas in areas requiring instruments of category M2.

## 3 Technical data

### 3.1 Electrical data

#### Non-intrinsically safe circuits (in the "Ex-d" connection compartment)

##### **MINITRAC MT31.TX\*B\*\*\*\*, MINITRAC MT32.TX\*B\*\*\*\***

Voltage supply: (terminals 1[L1], 2[N])	U = 20 ... 253 V AC U = 20 ... 72 V DC U <sub>m</sub> = 253 V
Relay circuit: (terminals 4[NC], 5[Common], 4[NO])	Maximum values: 253 V AC, 3 A, 500 VA 253 V AC, 1 A, 41 W
Current input: (terminals 12[In+], 13[In-])	I = 4 ... 20 mA
Digital input: (terminals 14[+100 mA], 15[+10 mA], 16[Common])	
Digital output: (terminals 17[Out+], 18[Out-])	
– Max. load current: floating transistor output	400 mA, 55 V DC

Multigauge Communication: (terminals 19[Serial out-], 20[Serial out+], 21[Serial in-], 22[Serial in+])

Communication circuit, only for communication with additional PROTRAC instruments

**Intrinsically safe circuits (in the "Ex-i" connection compartment)**

**MINITRAC MT31.TX\*B\*\*\*\*, MINITRAC MT32.TX\*B\*\*\*\***

Display and adjustment circuit: (terminals 5, 6, 7, 8 in the lateral chamber)

In ignition protection type intrinsic safety Ex ia I  
For connection to the intrinsically safe circuit of the associated external indicating unit VEGADIS 61 (BVS 05 ATEX E 023).

Maximum values:

- $U_o = 6 \text{ V}$
- $I_o = 259 \text{ mA}$
- $P_o = 414.5 \text{ mW}$

Characteristics: linear

The effective internal capacitance  $C_i$  is negligibly small.

The effective internal inductance  $L_i$  is negligibly small.

	Ex ia I
Permissible inductance $L_o$	1 mH
Permissible capacitance $C_o$	1.40 $\mu\text{F}$

Circuit of the display and adjustment module: (spring contacts in the lateral chamber)

In ignition protection type intrinsic safety Ex ia I  
Only for connection to the display and adjustment module PLICSCOM.

Intrinsically safe current output: (terminals 1[+], 2[-] in the lateral chamber)

$I = 4 \dots 20 \text{ mA}$  with superimposed HART signal

Maximum values:

- $U_o = 22.16 \text{ V}$
- $I_o = 111.90 \text{ mA}$
- $P_o = 620.03 \text{ mW}$

Characteristics: linear

The effective internal capacitance  $C_i$  is negligibly small.

The effective internal inductance  $L_i$  is negligibly small.

	Ex ia I
Permissible inductance $L_o$	5 mH
Permissible capacitance $C_o$	1.3 $\mu\text{F}$

The interconnection of the intrinsically safe circuits must be tested and certified separately.

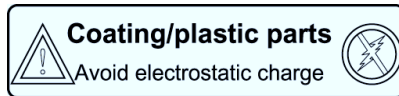
## 4 Application conditions

### Category M2 instruments

The permissible ambient temperature for category M2 is -40 ... +60 °C.

## 5 Protection against static electricity

The MINITRAC MT31.TX\*B\*\*\*\*, MINITRAC MT32.TX\*B\*\*\*\* in the version with chargeable plastic parts, as e.g. metal housing with inspection window or plastic detectors, is provided with a caution label referring to the safety measures that must be taken with regard to electrostatic charges during operation.



Caution: Plastic parts! Danger of static charge!

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

## 6 Grounding

For safety reasons, the radiation-based sensors type MINITRAC MT31.TX\*B\*\*\*\*, MINITRAC MT32.TX\*B\*\*\*\* must be grounded. The external or internal ground connection terminal on the housing is used for this purpose.

## 7 Material resistance

The MINITRAC MT31.TX\*B\*\*\*\*, MINITRAC MT32.TX\*B\*\*\*\* must only be used in media against which the materials of the wetted parts are sufficiently resistant.

## 8 Mounting with external indicating unit VEGADIS 61

The intrinsically safe signal circuit between MINITRAC MT31.TX\*B\*\*\*\*, MINITRAC MT32.TX\*B\*\*\*\* and the external indicating unit VEGADIS 61 should be set up without grounding. The required insulation voltage is > 500 V AC. When using VEGA connection cable, 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.

## 9 Ignition protection type flameproof enclosure Ex "d"

The terminals for connecting to the operating voltage, i.e. signal circuits, are integrated in the connection compartment according to protection type flame-proof enclosure "d".

The thread gap between housing and cover is a flameproof gap.

The "Ex-d" connection compartment is provided with a M20 x 1.5 or 1/2-14 NPT thread for connecting to a certified "Conduit" system or for mounting an "Ex-d" cable gland certified according to EN 60079-1. Cable glands of simple construction may not be used. Please take note of section 13.1 and 13.2 of EN 60079-1. When connecting to a "Conduit" system, the corresponding seal must be located directly on the "Ex-d" connection compartment.

Unused openings must be sealed according to EN 60079-1.

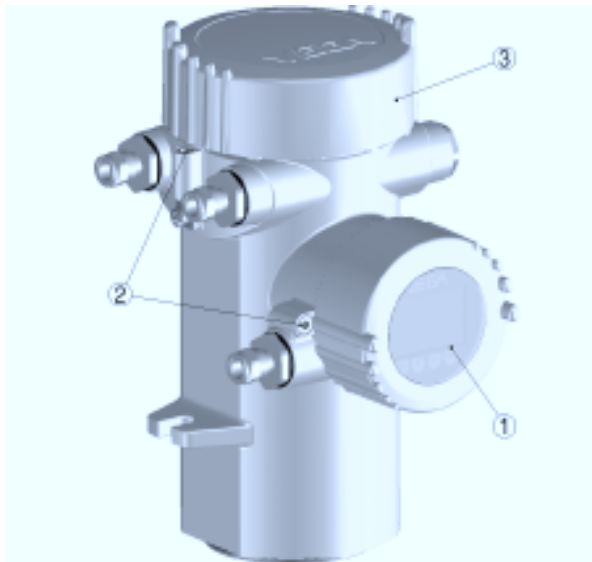
A certified "Ex-d" cable gland is automatically supplied with the delivery. It is suitable for insertion of armoured or unarmoured cables depending on the ordered version. The instructions in the document accompanying the respective cable gland must be observed. The "Ex-d" cable gland must be screwed tightly into the housing. The supplied cable gland is suitable for the housing temperature range mentioned in the MINITRAC MT31.TX\*B\*\*\*\*, MINITRAC MT32.TX\*B\*\*\*\* specification. If a different cable gland is used, the separately certified cable gland or the temperature classes on the electronics determines the maximum permissible ambient temperature on the housing.

Before opening or in case the lid of the "Ex-d" connection compartment is open (e. g. during connection or service work), make sure that either the supply line is completely voltage free or no explosive atmosphere is present.

The connection cable to the "Ex-d" connection compartment must be sufficiently secured against damage and laid in conformity with EN 60079-14.

The cover of the "Ex-d" connection compartment must be screwed in completely before commissioning and secured by screwing out the lid locking screw all the way to the stop.

### Double chamber housing with "Ex-d" connection compartment



- 1 "Ex-i" connection compartment
- 2 Locking screws of the cover
- 3 "Ex-d" connection compartment

Unused openings must be sealed according to EN 60079-1 section 11.9.

## **10 Type and size of the threads for the "Ex-d" cable entries**

The threads for mounting the "Ex-d" cable entries are of type M20 x 1.5 with MINITRAC MT31.TX\*B\*M\*\*, MINITRAC MT32.TX\*B\*M\*\*.

The threads for mounting the "Ex-d" cable entries are of type ½-14 NPT with MINITRAC MT31.TX\*B\*N\*\*, MINITRAC MT32.TX\*B\*N\*\*.











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)



© VEGA Grieshaber KG, Schiltach/Germany 2013