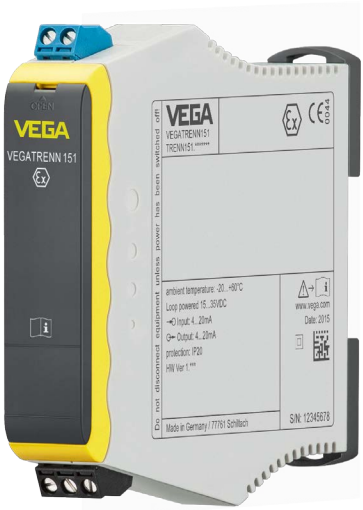
# Safety instructions
# VEGATRENN 151, 152

Intrinsic safety
Installation in Zone 2
with output intrinsic safety "i"




Document ID: 50861

## Contents



Supplementary documentation:

- Operating Instructions VEGATRENN 151, 152
- Certificate of Conformity IECEx TUN 15.0030 X (Document ID: 50862)

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## 1 Area of applicability

These safety instructions apply to the single channel and double channel Ex-separators VEGATRENN 151, 152 according to the Certificate of Conformity IECEx TUN 15.0030 X (certificate number on the type label) and to all instruments with the number of the safety instruction (50861) on the type label.

The classification as well as the respective standards are stated in the Certificate of Conformity.

Type of protection marking:

- Ex ec [ia Ga] IIC T4 Gc
- Ex ec [ia IIIC Da] IIC T4 Gc
- Ex ec [ia I Ma] IIC T4 Gc
- [Ex ia Ga] IIC
- [Ex ia Da] IIIC
- [Ex ia Ma] I

## 2 Device configuration/-properties

The detailed device configurations can be retrieved using the serial number search on our homepage.

Move to " www.vega.com" and enter in the search field the serial number of your instrument.

Alternatively, you can find all via your smartphone:

- Download the VEGA Tools app from the " *Apple App Store*", " *Google Play Store*" or " *Baidu Store*"
- Scan the DataMatrix code on the type label of the instrument or
- Enter the serial number manually in the app

## 3 General information

The single channel separators VEGATRENN 151 and the double channel separators VEGATRENN 152 are used for galvanic separation, intrinsically safe power supply as well as signal transmission of Ex approved 4 … 20 mA sensors in hazardous areas.

The sreparator is ideal in conjunction with signal conditioning instruments, having no own Ex-approval and have to allow bidirectional HART transmission.

The instruments are used for separation of intrinsically safe and non-intrinsically safe circuits.

The VEGATRENN 151, 152 is a passive safety barrier, the intrinsically safe current of a sensor in Ex area must be detected and made available to a non-intrinsically safe, passive output.

Since the VEGATRENN 151, 152 has no internal voltage supply, only voltage limitations are required. Possible undervoltages on the sensor side must be monitored by the sensor.

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

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

## 4 Application area, use in gas and dust atmospheres

**Associated apparatus**

The VEGATRENN 151, 152 may be installed and operated outside of hazardous areas as associated equipment.

## 5 Special operating conditions

The following overview is listing all special properties of VEGATRENN 151, 152, which make a labelling with the symbol "X" behind the certificate number necessary.

**Ambient temperature**

You can find the details in chapter " *Thermal data*" of these safety instructions.

The installer must ensure that the rated ambient temperature range of the device is not exceeded when it is installed in a housing together with other devices and that adequate separation is provided around the device.

## 6 Technical data

The VEGATRENN 151, 152 include non-intrinsically safe circuits and one intrinsically safe circuit.

| **Current outputs:** | |
|---|---|
| Terminals<br>Channel 1: 10, 11, 12<br>Channel 2: 13, 14, 15 | For connection to non-instrinsically safe circuits with following maximum values:<br>U = 15 … 35 V DC, 4 … 20 mA<br>$U_m$ = 253 V AC |

| **Current inputs:** | |
|---|---|
| Terminals<br>Channel 1: 1, 2<br>Channel 2: 4, 5 | In Ignition protection type Intrinsic safety Ex ia I/IIC/IIB (IIIC) with following maximum values each circuit:<br>$U_o$=18 V<br>$I_o$ = 31.6 mA<br>$P_o$ = 569 mW<br>Characteristics: rectangular<br>Effective internal capacitance $C_i$ = negligibly small<br>Effective internal inductance $L_i$ = negligibly small |

| | | | | | | |
|---|---|---|---|---|---|---|
| Ex ia I | $L_o$ [mH] | 100 | 20 | 10 | 0.5 | 0.05 |
| | $C_o$ [µF] | 2.5 | 4.1 | 4.8 | 6.7 | 9 |
| Ex ia IIC | $L_o$ [mH] | 7.7 | 1 | 0.5 | 0.2 | 0.02 |
| | $C_o$ [µF] | 0.11 | 0.13 | 0.16 | 0.2 | 0.309 |
| Ex ia IIB (IIIC) | $L_o$ [mH] | 100 | 20 | 10 | 0.5 | 0.1 |
| | $C_o$ [µF] | 0.35 | 0.9 | 1.1 | 1.5 | 1.78 |

The intrinsically safe signal circuit and power supply is separated from the non-intrinsically safe circuits up to a peak value of the nominal voltage of 375 V.

**Application conditions**

**Permissible ambient temperatures**

| | |
|---|---|
| Permissible ambient temperature at the installation location of an instrument | -20 … +60 °C (-4 … +140 °F) |

## 7 Installation

The VEGATRENN 151, 152 as associated equipment for installation in zone 2 can be mounted and

operated within hazardous areas of zone 2.

With zone 2 applications, the following special conditions must be noted:

- For EPL Gc applications, the Ex separators VEGATRENN 151.*C/O/U*****, VEGATRENN 152.*C/O/U*****, VEGATRENN 151.*A***** and VEGATRENN 152.*A***** must be mounted in a suitable housing acc. to EN 60079-7 so that a protection of at least IP54 acc. to EN 60529 is reached.
- For EPL Gc applications, the Ex separators VEGATRENN 151.*C/O/U*****, VEGATRENN 152.*C/O/U*****, VEGATRENN 151.*A***** and VEGATRENN 152.*A***** must be mounted in such a way that a degree of pollution of 2 or less is reached acc. to EN 60664-1.
- For EPL Gc applications, measures must be taken outside the Ex separators VEGATRENN 151.*C/O/U*****, VEGATRENN 152.*C/O/U*****, VEGATRENN 151.*A***** and VEGATRENN 152.*A***** to ensure that the transient protection does not exceed the nominal voltage, connected to the supply terminals, by more than 40 %.
- For EPL Gc applications, connection and separating of non-intrinsically safe circuits is not permitted if there is no explosive atmosphere.

With zone 2 applications, the torque of the terminals should be between 0.5 Nm and 0.6 Nm.

The wire cross-section can be used between 0.25 $mm^2$ and 2.5 $mm^2$.

The housing used must be labelled with the following warning:

WARNING – DO NOT SEPARATE WHEN ENERGIZED

WARNING – SEPARATE ONLY IN A NON-HAZARDOUS AREA

If the intrinsically safe circuit is led into dust-explosive areas of zone 20 or 21, please make sure that the instruments connected to these circuits meet the requirements of category 1D (EPL Da instruments) or 2D (EPL Db instruments) and are certified respectively.

If the intrinsically safe circuit is led into firedamp endangered areas of group I category M1 (EPL Ma instruments) or M2 (EPL Mb instruments), please make sure that the instruments connected to these circuits meet the requirements of category M1 (EPL Ma instruments) or M2 (EPL Mb instruments) and are certified respectively.

Printing date:

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



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