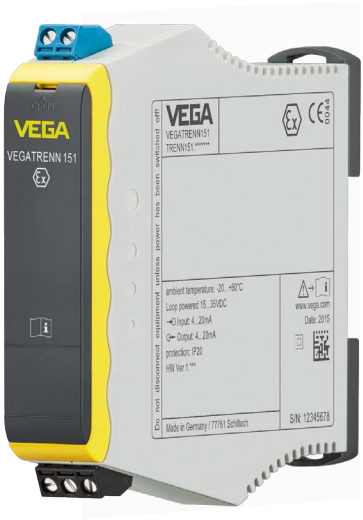
Safety instructions
VEGATRENN 151, 152

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



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Contents

Supplementary documentation:

- Operating Instructions VEGATRENN 151, 152
- EU-type approval certificate TÜV 15 ATEX 161797 X (Document ID: 50859)

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DE	Sicherheitshinweise für den Einsatz in explosionsgefährdeten Bereichen
EN	Safety instructions for the use in hazardous areas
FR	Consignes de sécurité pour une application en atmosphères explosibles
IT	Normative di sicurezza per l'impiego in luoghi con pericolo di esplosione
ES	Instrucciones de seguridad para el empleo en áreas con riesgo de explosión
PT	Normas de segurança para utilização em zonas sujeitas a explosão
NL	Veiligheidsaanwijzingen voor gebruik op plaatsen waar ontploffingsgevaar kan heersen
SV	Säkerhetsanvisningar för användning i explosiionsfarliga områden
DA	Sikkerhedsforskrifter til anvendelse i explosionsfarlig atmosfare
FI	Turvallisuusohjeet räjähdysvaarallisisssa tiloissa käyttöä varten
EL	Υποδείξεις ασΦαλείας για τη χρησιμοποίηση σε περιοχές που υπάρχει κίνδυνος έκρηξης

DE	Die vorliegenden Sicherheitshinweise sind im Download unter www.vega.com standardmäßig in den Sprachen deutsch, englisch, französisch und spanisch verfügbar. Weitere EU-Landessprachen stellt VEGA nach Anforderungen zur Verfügung.
EN	These safety instructions are available as a standard feature in the download area under www.vega.com in the languages German, English, French and Spanish. Further EU languages will be made available by VEGA upon request.
FR	Les présentes consignes de sécurité sont disponibles au téléchargement sous www.vega.com en standard en allemand, en anglais, en francais et en espagnol. VEGA met à disposition d'autres langues de l'Union Européenne selon les exigences.
ES	Las indicaciones de seguridad presentes están disponibles en la zona de descarga de www.vega.com de forma estándar en los idiomas inglés, francés y español. VEGA pone a disposición otros idiomas de la UE cuando son requeridos.

1 Area of applicability

These safety instructions apply to the single channel and double channel Ex-separators VEGATRENN 151, 152 according to EU type approval certificate TÜV 15 ATEX 161797 X (certificate number on the type label) and to all instruments with the number of the safety instruction (50858) on the type label.

The classification as well as the respective standards are stated in the EU type approval certificate.

Type of protection marking:

- II 3(1)G Ex ec [ia Ga] IIC T4 Gc
- II 3G (1)D Ex ec [ia IIIC Da] IIC T4 Gc
- II 3G (M1) Ex ec [ia I Ma] IIC T4 Gc
- II (1) G [Ex ia Ga] IIC
- II (1) D [Ex ia Da] IIIC
- I (M1) [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, detecting the intrinsically safe current of a sensor in Ex area and making it 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

Category 3G

The VEGATRENN 151, 152 may be installed and operated inside of hazardous areas as associated equipment for installation in zone 2.

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.

Zone 2 applications
The device must be installed in a protective housing or a switching cabinet with IP54 according to EN 60079-0.

The device may only be used in an area with a minimum pollution level of 2 or better, as defined in EN 60664-1.

6 Important information for mounting and maintenance

General instructions
The following requirements must be fulfilled for mounting, electrical installation, setup and maintenance of the instrument:

- The staff must be qualified according the respective tasks
- The staff must be trained in explosion protection
- The staff must be familiar with the respectively valid regulations, e.g. planning and installation acc. to EN 60079-14
- Make sure when working on the instrument (mounting, installation, maintenance) that there is no explosive atmosphere present, the supply circuits should be voltage-free, if possible.
- The instrument has to be mounted according to the manufacturer specifications, the EU type approval certificate and the valid regulations and standards
- Modifications on the instrument can influence the explosion protection and hence the safety, therefore repairs are not permitted to be conducted by the end user
- Modifications must only be carried out by employees authorized by VEGA company
- Use only approved spare parts
- Components for installation and connection not included in the approval documents are only permitted if these correspond technically to the latest standard mentioned on the cover sheet. They must be suitable for the application conditions and have a separate certificate. The special conditions of the components must be noted and if necessary, the components must be integrated in the type test. This applies also to the components already mentioned in the technical description.

Mounting
Keep in mind for instrument mounting

- Mechanical damage on the instrument must be avoided
- Mechanical friction must be avoided

Maintenance
To ensure the functionality of the device, periodic visual inspection is recommended for:

- Secure mounting
- No mechanical damages or corrosion
- Worn or otherwise damaged cables
- No loose connections of the line connections, equipotential bonding connections

- Correct and clearly marked cable connections

Intrinsic safety "i"
- Observe the valid regulations for the interconnection of intrinsically safe circuits.
- The instrument is only suitable for connection to certified, intrinsically safe instruments
- 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

7 Technical data

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

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

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

8 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.

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