



Safety instructions

Overvoltage protection

B63-48, B63-32

Intrinsic safety

BASEEFA 06 ATEX 0034 X

Flameproof enclosures

BASEEFA 06 ATEX 0035 X



CE 0044



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VEGA

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Supplementary documentation:

- Operating instructions overvoltage arrester B63-48, B63-32
- EU-type approval certificate BASEEFA 06 ATEX 0034 X (Document ID: 55868)
- EU-type approval certificate BASEEFA 06 ATEX 0035 X (Document ID: 57312)
- EU declaration of conformity (Document ID: 52686)

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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 explosionsfarliga områden
DA	Sikkerhedsforskrifter til anvendelse i explosionsfarlig atmosfære
FI	Turvallisuusohjeet räjähdysvaarallisissa 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.
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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 Overvoltage arrester of type series:

- ÜSB63-48
- ÜSB63-32

with the versions

- 32 - Two-wire technology for Profibus PA, Foundation Fieldbus circuits
- 48 - Two-wire technology for 4 ... 20 mA/HART circuits
- G - Thread M20 x 1,5
- N - Thread ½ NPT

according to EU type approval certificate BASEEFA 06 ATEX 0034 X (certificate number on the type label) and for all instruments with safety instruction 55867.

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

- EN IEC 60079-0: 2018
- EN 60079-11: 2012

Type of protection marking:

- II 1G Ex ia IIC T4, T5, T6 Ga

And according to EU type approval certificate BASEEFA 06 ATEX 0035 X (certificate number on the type label) and for all instruments with safety instruction 55867.

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

- EN IEC 60079-0: 2018
- EN 60079-1: 2014

Type of protection marking:

- II 2G Ex db IIC T4, T5, T6 Gb

2 Different ignition protection types

The ÜSB63-48, ÜSB63-32 can be either used in intrinsically safe or non-intrinsically safe circuits. The operator must specify the selected ignition protection type before installation. The selected ignition protection type must be marked by scratching off on the identification mark of the type label.

When connecting ÜSB63-48, ÜSB63-32 to an non-intrinsically safe circuit, the instrument must be no longer used in intrinsically safe circuits.

3 Important specification in the type code

ÜSB63-aa.b

Position		Feature	Description
aa	Version	32	Two-wire technology for Profibus PA, Foundation Fieldbus circuits
		48	Two-wire technology for 4 ... 20 mA/HART circuits
b	Thread	M	M20 x 1.5
		N	½ NPT

4 General information

The ÜSB63-48, ÜSB63-32 are suitable for protection of certified intrinsically safe instruments in two-wire technology (e.g. 4 ... 20 mA) FISCO Fieldbus devices or certified instruments in two-wire

version (e.g. 4 ... 20 mA), Fieldbus devices.

The ÜSB63-48, ÜSB63-32 are suitable as overvoltage arrester in circuits of instruments in flame proofing Ex d for use in hazardous atmospheres of all combustible materials of explosion group IIA, IIB and IIC.

The ÜSB63-48, ÜSB63-32 are suitable as overvoltage arresters for intrinsically safe circuits for use in hazardous atmospheres of all combustible materials of explosion groups IIA, IIB and IIC.

The ÜSB63-48, ÜSB63-32 are suitable for applications in hazardous areas requiring category 1/2G (EPL Ga/Gb) or 2G (EPL Gb) instruments.

If the overvoltage arresters ÜSB63-48, ÜSB63-32 are used for protection of signal circuits, then the general installation regulations for explosion protection, EN 60079-14, as well as these safety instructions and the operating instructions manual must be observed.

5 Application area

Category 1/2G (EPL Ga/Gb instruments)

The ÜSB63-48, ÜSB63-32 are suitable for installation in instrument for installation in hazardous areas of zone 1, requiring an category 2(1)G instrument. The electronics housing is in the area (Zone 1) requiring category 2G instruments. The sensor circuit leads into an area (Zone 0) requiring category 1G instruments.

Category 2G (EPL Gb instruments)

The ÜSB63-48, ÜSB63-32 are suitable for installation in hazardous areas requiring a category 2G instrument.

6 Specific conditions of use ("X" identification)

The following overview is listing all special properties of ÜSB63-48, ÜSB63-32, which make a labeling with the symbol "X" behind the certificate number necessary.

Ambient temperature

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

7 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 IEC/EN 60079-14
- Make sure when working on the instrument (mounting, installation, maintenance) that there is no explosive atmosphere present
- Make sure when working on the instrument (mounting, installation, maintenance) that the circuit to be connected is voltage-free.
- The instrument has to be mounted according to the manufacturer specifications and the valid regulations and standards
- Modifications on the instrument can influence the explosion protection and hence the safety
- Modifications must only be carried out by employees authorized by VEGA company
- Use only approved spare parts

Cable and wire entries

- Note type and size of the thread: A label with the respective thread name is in the area of the respective thread
- Threads must have no damages
- The thread on the overvoltage arrester must correspond to the thread on the sensor housing

Mounting

Keep in mind for instrument mounting

- Mechanical damage on the instrument must be avoided
- Mechanical friction must be avoided
- Close the overvoltage arrester, cable entry up to the stop before starting operating, to ensure the IP protection rating specified on the type label
- The instruments must not be mounted/installed in an area where they are subjected to aggressive substances

Maintenance

To ensure the function of ÜSB63-48, ÜSB63-32, we recommend a regular visual check at intervals of max. 1 year for:

- Secure mounting
- Mechanical damage or corrosion
- Worn or otherwise damaged cables
- Correct and clearly marked cable connections

Intrinsic safety "i"

- When connecting an intrinsically safe instrument to a non-intrinsically safe circuit, the instrument must be no longer used in intrinsically safe circuits

Flameproof enclosures "d"

- The terminals for connecting the operating voltage or signal circuits are integrated in the connection compartment with type of protection "Flameproof enclosure Ex db".
- It is not allowed to repair the flameproof joints.
- Cable, wire entries and closing screws must be certified acc. to ignition protection type "Flameproof enclosures Ex db". Cable, wire entries and closing screws of simple design must not be used.
- Separately certified cable and wire entries can determine the permissible ambient temperature range or the temperature classes
- For connection to a "Conduit" system the corresponding sealing facility must be attached directly to the "Ex db" connection compartment
- Unused openings must be sealed according to ignition protection type "Flameproof enclosures Ex db"

8 Safe operating mode**General operating conditions**

- Do not operate the instrument outside the electrical, thermal and mechanical specifications of the manufacturer
- Use the instrument only in media against which the wetted parts are sufficiently resistant

9 Potential equalization/Grounding

- To ensure the function of the overvoltage arrester, it is absolutely necessary to connect the ÜSB63-48, ÜSB63-32 with the local potential equalization.

- The stainless steel housing of ÜSB63-48, ÜSB63-32 is for local potential equalization and therefore provides no internal or external connection to ground or potential equalization. The plant operator is responsible for ensuring an adequate connection, for example within the context of protective grounding, depending on the installation and protection rating
- The outer ground terminal of the VEGA instrument must be connected acc. to EN 60079-14 chapter 16.3 (edition 2014) to the local potential equalization

10 Insulation voltage against earth

- The intrinsically safe input and output circuits are ground-free
- The ÜSB63-48, ÜSB63-32 exhibit a voltage resistance of 0.5 kV for one minute in the signal circuit with respect to the stainless steel housing, but not with respect to the green/yellow cable in the sensor circuit.
- With a metrological test of the absence of ground of intrinsically safe circuits against ground acc. to EN 60079-25, the overvoltage arrester must be removed

11 Electrical data

Supply and signal circuit: Terminals [+], [-] Grounding, screen on terminal E	Type of protection intrinsic safety Ex ia IIC $U_i \leq 30 \text{ V DC}$ $I_i \leq 380 \text{ mA}$ $P_i \leq 1.2 \text{ W}$ or for use in intrinsically safe FISCO fieldbus instruments: $U_i \leq 17.5 \text{ V DC}$ $I_i \leq 380 \text{ mA}$ $P_i \leq 5.32 \text{ W}$ $C_i = \text{negligibly small}$ $L_i = \text{negligibly small}$
Supply and signal circuit: Cable: red [+], black [-] Cable green/yellow to ground connection	For connection to an intrinsically safe circuit. <ul style="list-style-type: none"> • $U_o = U_o$ of the certified, intrinsically safe voltage supply • $I_o = I_o$ of the certified, intrinsically safe voltage supply • $P_o = P_o$ of the certified, intrinsically safe voltage supply • $C_o = C_o$ of the certified, intrinsically safe voltage supply • $L_o = L_o$ of the certified, intrinsically safe voltage supply

The supply voltage U_i of the overvoltage arrester ÜSB63-48, ÜSB63-32 must not exceed 30 V DC so that the intrinsic safety is still ensured after assembly with a VEGA sensor (VEGAPULS, VEGABAR, VEGAFLEX, VEGADIF 85) or with the VEGA display (VEGADIS 82).

12 Thermal data

The following temperature tables are valid for all housing and electronics versions.

The overvoltage arrester can only be operated in conjunction with a VEGA sensor or a VEGA display. The permissible ambient temperature (depending on the temperature classes T6 ... T1) of the assembly sensor/display with overvoltage arrester ÜSB63-48, ÜSB63-32 is determined by the permissible ambient temperatures of the VEGA sensor or VEGA display (VEGAPULS, VEGABAR, VEGAFLEX, VEGADIF 85, VEGADIS 82).

Category 1/2G*, 2G (EPL Ga/Gb, EPL Gb instruments): $P_i = 1.2 \text{ W}$

Temperature class	Permissible ambient temperature on the electronics
T6	-40 ... +60 °C
T5, T4	-40 ... +80 °C

Category 1/2G*, 2G (EPL Ga/Gb-, EPL Gb instruments): $P_i = 5.32 \text{ W}$

Temperature class	Permissible ambient temperature on the electronics
T4	-40 ... +60 °C

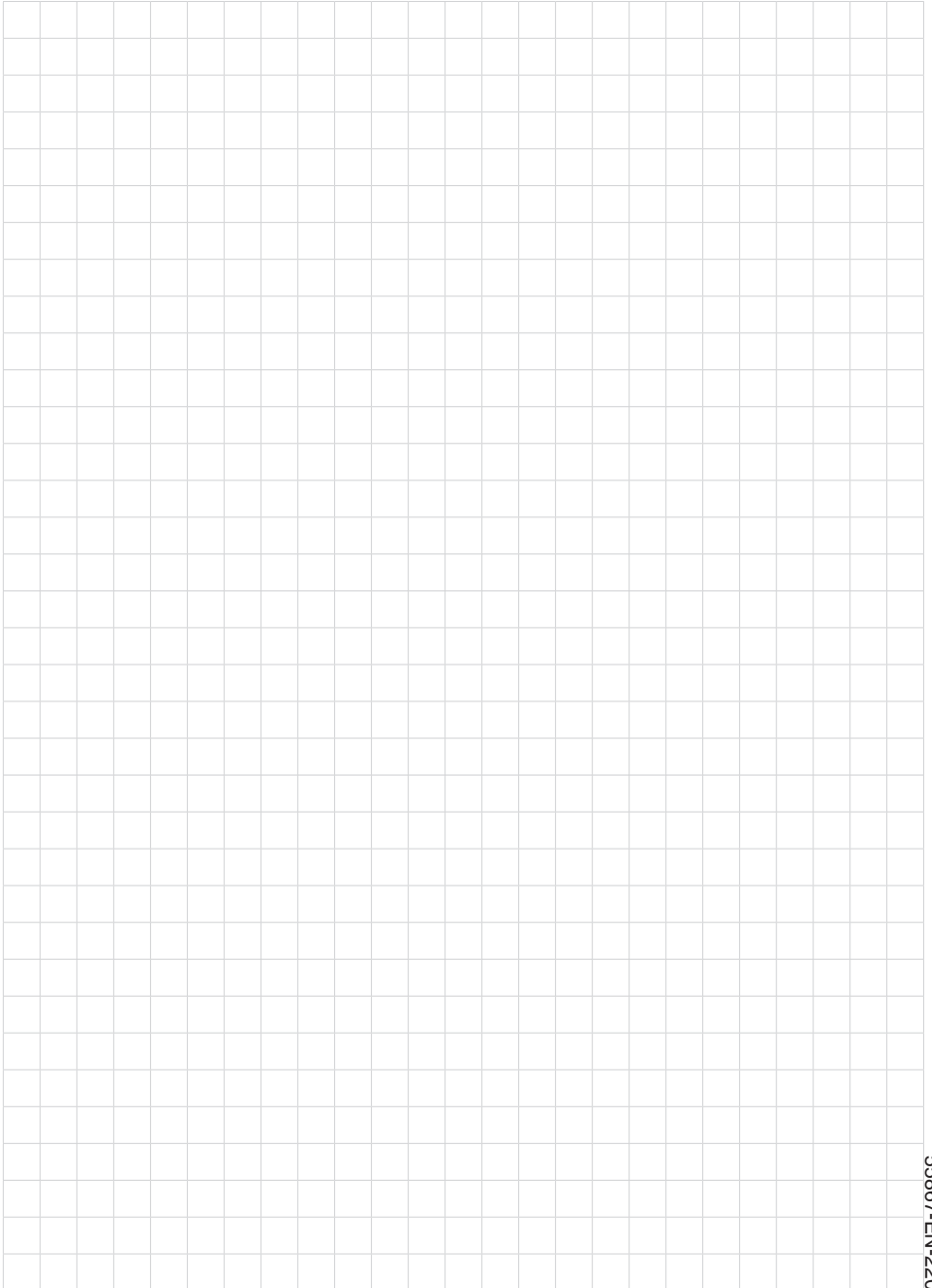
* Mounted in category 2G (EPL Gb) area

13 Mechanical data

The following mechanical data are valid for all housing and electronics versions.

Mechanical data	
Housing protection rating, assembled	At least IP54 Sealing with PTFE tape or other sealing material
Torque	hand screw + ½ turn with spanner SW27







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.

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