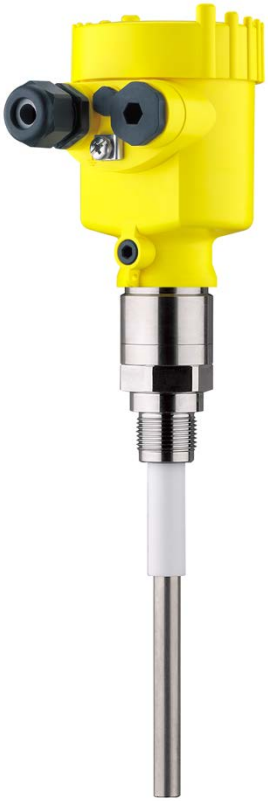
Safety instructions

VEGACAP 62, 63, 64, 65, 66, 69

Intrinsic safety

TÜV 04 ATEX 2611 X



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VEGA

Contents

Supplementary documentation:

- Operating Instructions VEGACAP 62, 63, 64, 65, 66, 69
- EG-type approval certificate TÜV 04 ATEX 2611 X (Document ID: 35481)
- EU declaration of conformity (Document ID: 44388)

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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, ingles, 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 järelepärimise peale nende koopia teie riigi keeles.
FI	Laitteen mukana on erikielisiä turvallisuusohjeita. Voit tilata meiltä äidinkieliset turvallisuusohjeet, jos et selviä mukana olevilla kielillä.
HU	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.
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 listruzzjonijiet ta' sigurta`kif ipprovduti, infurmana u ahna nibghatulek kopja billingwa tieghek.
NL	Als u moeilijkheden mocht hebben 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.

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1 Area of applicability

These safety instructions apply to the capacitive level switches of type series VEGACAP CP6*.C****Z*** with integrated electronics module CP60Z according to the EC type approval certificate TÜV 04 ATEX 2611 X (certification number on the type label).

2 General information

The capacitive level switches VEGACAP CP6*.C****Z*** with integrated electronics module CP60Z are used for level detection, monitoring or control of levels in hazardous areas, also with combustible liquids, gases, mist or vapours.

VEGACAP CP6*.C****Z*** consist of an electronics housing, a process fitting element and a capacitive sensor, the electrode.

The VEGACAP CP6*.C****Z*** are suitable for applications in hazardous atmospheres of all combustible materials of explosion group IIA, IIB and IIC, for applications requiring instruments of category 1G, 1/2G or 2G.

If the VEGACAP CP6*.C****Z*** 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 or standards that apply for explosion protection of electrical systems must generally be observed.

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

Category 1G instruments
The VEGACAP CP6*.C****Z*** are installed in hazardous areas of category 1G.

Category 1/2G instruments
The electronics housing is installed in hazardous areas requiring instruments of category 2G. The process connection element is installed in the separating wall, which separates areas requiring instruments of category 2G or 1G. The sensor with the mechanical fixing element is installed in hazardous areas requiring instruments of category 1G.

Category 2G instruments
The electronics housing and the sensor with the mechanical fixing element are installed in explosion-endangered areas, in areas requiring instruments of category 2G.

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
- EN 60079-26: 2015

Type of protection marking:

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

3 Technical data

Electrical data
Supply and signal circuit

The capacitive level switches CP60Z with integrated oscillator VEGACAP CP6*.C****Z*** have an intrinsically safe power supply and signal circuit. The intriniscally safe power supply and signal circuit is connected to terminals which are located in an Ex-"i" connection compartment.

Power supply and signal circuit: (terminals 1[+], 2[-] in "Ex i" connection compartment; with double chamber housing version in connection compartment)

In type of protection intrinsic safety Ex ia IIC/IIB

Only for connection to a certified, intrinsically safe circuit.

Maximum values:

- U_i = 30 V
- I_i = 131 mA
- P_i = 983 mW

C_i = negligibly small

In the version with fix mounted connection cable, VEGACAP CP6*.C****Z3/4/5/9** $C_{i' \text{ wire/wire}}$ = 58 pF/m and $C_{i' \text{ wires/screen}}$ = 270 pF/m must be taken into account.

L_i = negligibly small

In the version with fix mounted connection cable, VEGACAP CP6*.C****Z3/4/5/9** $L_{i'}$ = 55 µH/m must be taken into account.

The intrinsically safe circuit is electrically isolated from parts which can be grounded. The metallic parts of the sensor are electrically connected with the internal and external earth terminal.

For applications requiring instruments of category 2G, the intrinsically safe power supply and signal circuit can correspond to protection class ia or ib. For connection to a circuit with protection class ib, the ignition protection type identification is Ex ib IIC T6.

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 VEGACAP CP6*.C****Z*** is preferably connected to appropriate equipment with galvanically isolated, intrinsically safe circuits.

4 Application conditions

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

Category 1G instruments

Temperature class	Ambient temperature on the sensor and electronics
T6	-20 … +42 °C
T5, T4, T3, T2, T1	-20 … +60 °C

For temperatures on the sensor and electronics according to temperature classes T6 … T1, only pressures under atmospheric conditions of 0.8 … 1.1 bar are permitted. The 80 % consideration of sect. 6.4.2/EN 1127-1 is taken into account with the permissible ambient temperatures. The application conditions in areas without explosive mixtures are mentioned in the manufacturer information.

Category 1/2G instruments

Temperature class	Ambient temperature on the electronics	Ambient temperature on the sensor
T6	-40 … +58 °C	-20 … +60 °C
T5	-40 … +73 °C	-20 … +60 °C
T4, T3, T2, T1	-40 … +80 °C	-20 … +60 °C

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For temperatures on the sensor and electronics according to the temperature classes T6 … T1 only pressures under atmospheric conditions of 0.8 … 1.1 bar are permitted. If the sensors of the capacitive probes 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 max. permissible temperature on the electronics/housing should not exceed the values specified in the above table. The application conditions during operation without explosive mixtures can be found in the manufacturer information.

Category 2G instruments

Temperature class	Ambient temperature on the electronics	Ambient temperature on the sensor with PE/PA insulation	Ambient temperature on the sensor without temperature adapter	Ambient temperature on the sensor with temperature adapter
T6	-40 … +58 °C	-40 … +80 °C	-50 … +85 °C	-50 … +85 °C
T5	-40 … +73 °C	-40 … +80 °C	-50 … +100 °C	-50 … +100 °C
T4	-40 … +80 °C	-40 … +80 °C	-50 … +135 °C	-50 … +135 °C
T3, T2, T1	-40 … +80 °C	-40 … +80 °C	-50 … +150 °C	-50 … +200 °C

If the sensors of the capacitive probes 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 specified in the above table. The permissible operating temperatures and pressures can be found in the manufacturer information.

5 Protection against static electricity

The capacitive level switches VEGACAP CP6*.C****Z*** with electrostatically chargeable plastic parts are provided with a warning label referring to the measures to be taken during operation to avoid dangers due to electrostatic discharges.

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

When used as category 1G or 1/2G instrument, a suitable overvoltage arrester, e.g. type B62-36G from VEGA (TÜV 07 ATEX 553276), must be connected according to EN 60079-14, for protection against surges.

7 Impact and friction sparks

The capacitive level switches VEGACAP CP6*.C****Z*** in aluminium versions must be mounted in such a way that sparks from impact and friction between aluminium and steel (except stainless steel, if the presence of rust particles can be excluded) cannot occur.

8 Non-grounded, metallic parts

The VEGACAP have non-grounded, metal parts the capacitance of which exceed the value acc. to IEC/EN 60079-0 table 9:

- VEGACAP CP62/3/4/5/6 with plastic housing and metal NPT threaded insert: C (threaded insert) = 3.2 pF
- VEGACAP CP66 with metal gravity weight: C (gravity weight) = 29 pF

9 Grounding

The capacitive level switches VEGACAP CP6*.C****Z*** must be electrostatically grounded.

10 Pendulum, vibration

The sensor of VEGACAP CP6*.C****Z*** has to be effectively secured against swinging or resonating.

11 Shortening of the probe cable

After shortening the probe cable, make sure that the weight is sufficiently secured by means of threaded pins.

12 Chemical resistance

The capacitive level siwtches VEGACAP CP6*.C****Z*** must only be used in media against which the materials of the wetted parts are sufficiently resistant.

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