

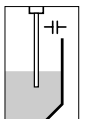
VEGA

Safety instructions

VEGACAP CP6*.CIZ****

IECEX TUN 04.0022X

Zone 0, 0/1, 1 Ex ia IIC T6



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Please note:

These safety instructions are part of the operating instructions:

- VEGACAP 62
 - 30007 - Z-electronics
- VEGACAP 63
 - 30011 - Z-electronics
- VEGACAP 64
 - 30015 - Z-electronics
- VEGACAP 65
 - 30019 - Z-electronics
- VEGACAP 66
 - 30023 - Z-electronics
- VEGACAP 69
 - 31177 - Z-electronics
- 33812 - Certificate IECEx TUN 04.0022X

1 Area of applicability

These safety instructions apply to the capacitive level switches of type series VEGACAP CP62/63/64/65/66/69.CI**Z** with integrated electronics module CP60Z according to the IECEx certificate IECEx TUN 04.0022X with the second supplement (certification number on the type label).

2 General information

The capacitive level switches VEGACAP CP62/63/64/65/66/69.CI**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.

The VEGACAP CP62/63/64/65/66/69.CI**Z** are suitable for applications in hazardous atmospheres of all combustible materials of explosion group IIA, IIB and IIC, for applications requiring instruments of zone 0, zone 0/1 or zone 1.

VEGACAP CP62/63/64/65/66/69.CI**Z** with integrated electronics module CP60Z are two-wire sensors with a 8/16 mA signal and are used in conjunction with a signal conditioning instrument for level detection.

VEGACAP CP62/63/64/65/66/69.CI**Z** consist of an electronics housing, a process fitting element and a capacitive sensor, the capacitive probe.

VEGACAP CP62/63/64/69.CI***Z*** are provided with a rod measuring probe as sensor, which is also called a capacitive rod electrode.

VEGACAP CP65/66.CI***Z*** are provided with a cable measuring probe as sensor, which is also called a capacitive cable electrode.

If the VEGACAP CP62/63/64/65/66/69.CI**Z** are installed and operated in hazardous areas, the general Ex installation regulations IEC 60079-14 as well as these safety instructions must be observed.

The operating instructions as well as the valid Ex mounting regulations and standards for electrical equipment must be observed.

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

2.1 Zone 0 instruments

The VEGACAP CP62/63/64/65/66/69.CI**Z** are installed in hazardous areas requiring instruments for use in Zone 0.

2.2 Zone 0/1 instruments

The electronics housing is installed in hazardous areas requiring instruments of zone 1. The process connection element is installed in the separating wall, which separates areas requiring instruments of zone 0 or 1. The sensor with the mechanical fixing element is installed in hazardous areas of zone 0.

2.3 Zone 1 instruments

The VEGACAP CP62/63/64/65/66/69.CI**Z** are installed in hazardous areas requiring instruments for use in Zone 1.

3 Technical data

3.1 Electrical data

Supply and signal circuit

The VEGACAP CP62/63/64/65/66/69.CI**Z** with integrated electronics module CP60Z have an intrinsically safe power supply and signal circuit. The intrinsically 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 ignition protection type intrinsic safety Ex ia IIC/IIB
Only for connection to a certified, intrinsically safe circuit.

Maximum values:

$U_i = 30 \text{ V}$

$I_i = 131 \text{ mA}$

$P_i = 983 \text{ mW}$

$C_i =$ negligibly small

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

$L_i =$ negligibly small

In the version with fix mounted connection cable, VEGACAP CP6*.CI*** $L_{i'}$ = 55 $\mu\text{H}/\text{m}$ must be taken into account.

The intrinsically safe circuits are galvanically separated from parts which can be grounded. The metallic parts of the sensor (electrode) are electrically connected with the ground terminal.

4 Application conditions

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

Zone 0 instruments

Temperature class	Ambient temperature on the sensor and electronics
T6	-20 ... +58 °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 application conditions in areas without explosive mixtures are mentioned in the manufacturer information.

Zone 0/1 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

Temperature class	Ambient temperature on the electronics	Ambient temperature on the sensor
T4, T3, T2, T1	-40 ... +80 °C	-20 ... +60 °C

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.

Zone 1 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 in 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 CP62/63/64/65/66/69.C1**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 static charge!

- Avoid friction
- No dry cleaning
- Do not mount in areas close to flowing, non-conductive media

6 Use of an overvoltage arrester

When used as zone 0 or zone 0/1 instrument, a suitable overvoltage arrester, e. g. type B62-36G of VEGA (IECEX TUN 07.0002) must be connected according to IEC 60079-14 chapter 12.3, for protection against surges.

7 Impact and friction sparks

The capacitive level switches VEGACAP CP62/63/64/65/66/69.CI**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 Grounding

The capacitive level switches VEGACAP CP62/63/64/65/66/69.CI**Z** must be electrostatically grounded.

9 Pendulum, vibration

The sensor of VEGACAP CP62/63/64/65/66/69.CI**Z** has to be effectively secured against swinging or resonating.

10 Shortening of the probe cable

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

11 Chemical resistance

The capacitive level switches VEGACAP CP62/63/64/65/66/69.CI**Z** must only be used in media against which the materials of the wetted parts are sufficiently resistant.



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