



Safety instructions

VEGADIF 85

CSA 18CA70191118X

Intrinsically Safe CL I, Div 1, GP ABCD

Class I, Zone 0, (A)Ex ia IIC T6...T1 Ga

Class I, Zone 1, (A)Ex ia IIC T6...T1 Gb

Class I, Zone 0/1, (A)Ex ia IIC T6...T1 Ga/Gb

4 ... 20 mA two-wire

4 ... 20 mA/HART two-wire

4 ... 20 mA/HART two-wire with SIL-qualification

Profibus PA two-wire

Foundation Fieldbus two-wire

Modbus four-wire



Document ID: 56979



VEGA

Contents

1	Area of applicability.....	3
2	General information.....	3
3	Technical data	3
4	Application conditions	5
5	Protection against static electricity	5
6	Use of an overvoltage arrester	6
7	Grounding.....	6
8	Impact and friction sparks	6
9	Material resistance	6
10	Mounting with external indicating unit VEGADIS 81	6
11	Installation/mounting	6

Supplementary documentation:

- Operating Instructions VEGADIF 85
- Certificate of Conformity CSA 18CA70191118X (Document ID: 56980)

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1 Area of applicability

These safety instructions apply to the differential pressure transmitters VEGADIF DF85.CC/U/O/H and VEGADIF DF85.VC according to Certificate of Conformity CSA 18CA70191118X (certificate number on the type label) and for all instruments with the number of the safety instruction (56979) on the type label.

2 General information

VEGADIF 85 is a differential pressure transmitter for measurement of differential pressure, flow, level, density and interface.

It consists of a differential pressure measuring cell and an electronics housing which is optionally also executed as external housing.

The display and adjustment module PLICSCOM can be mounted optionally.

The VEGADIF 85 are suitable for applications in hazardous atmospheres of all combustible materials of explosion groups IIA, IIB and IIC.

The VEGADIF 85 are suitable for use in hazardous atmospheres of all combustible materials of explosion group A, B, C, D for applications requiring Class I, Div 1 instruments or of explosion groups IIA, IIB, IIC for applications requiring Class I, Zone 0, 0/1, 1, (A)Ex ia IIC T6 ... T1 Ga, Ga/Gb, Gb instruments.

If the VEGADIF 85 are installed and operated in hazardous areas, the general Ex installation regulations in the Canadian Electrical Code/National Electrical Code, IEC 60079-14 as well as these safety instructions must be observed.

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

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

Hazardous locations designation

Intrinsically safe

Class I, Zone 0, (A)Ex ia IIC T6...T1 Ga

Class I, Zone 1, (A)Ex ia IIC T6...T1 Gb

Class I, Zone 0/1, (A)Ex ia IIC T6...T1 Ga/Gb

Class I, Division 1, Group A, B, C, D, T6...T1

3 Technical data

Electrical data

The intrinsically safe circuits for external connections are electrically separated from parts which can be grounded.

The intrinsically safe circuits to the sensor are galvanically connected to ground potential.

The metallic parts of VEGADIF 85 are electrically connected with the earth terminals.

VEGADIF 85 is preferably connected to appropriate instruments with electrically isolated, intrinsically safe circuits.

VEGADIF DF85.CC/CU/CO****H****	
Supply and signal circuit: VEGADIF DF85.*****XK/A/V/8**** Terminals 1[+], 2[-] in the electronics compartment of the single chamber housing VEGADIF DF85.*****XD/W/R**** Terminals 1[+], 2[-] in the terminal compartment of the double chamber housing	In ignition protection type intrinsic safety Ex ia IIC For connection to a certified, intrinsically safe circuit.
	$U_i = 30\text{ V}$ $I_i = 131\text{ mA}$ $P_i = 983\text{ mW}$
	C_i negligibly small $L_i = 10\text{ }\mu\text{H}$ (only in combination with double chamber housing and additional electronics PLICSZEKX, otherwise $5\text{ }\mu\text{H}$) Characteristics: linear

VEGADIF DF85.CC/CU/CO****P/F****	
Supply and signal circuit: VEGADIF DF85.*****XK/A/V/8**** Terminals 1[+], 2[-] in the electronics compartment of the single chamber housing VEGADIF DF85.*****XD/W/R**** Terminals 1[+], 2[-] in the terminal compartment of the double chamber housing	In ignition protection type intrinsic safety Ex ia IIC For connection to a certified, intrinsically safe circuit.
	FISCO-model: $U_i = 17,5\text{ V DC}$ $I_i = 500\text{ mA}$ $P_i = 5,5\text{ W}$
	Entity-model: $U_i = 17,5\text{ V DC}$ $I_i = 500\text{ mA}$ $P_i = 5,5\text{ W}$ C_i negligibly small $L_i = 5\text{ }\mu\text{H}$ (only in combination with double chamber housing and additional electronics PLICSZEKX, otherwise negligibly small) Characteristics: linear

VEGADIF DF85.CC/CU/CO****H/AZD/W/R****	
Supply and signal circuit I: Terminals 1[+], 2[-] in the electronics compartment of the double chamber housing	In ignition protection type intrinsic safety Ex ia IIC For connection to a certified, intrinsically safe circuit.
	$U_i = 30\text{ V}$ $I_i = 131\text{ mA}$ $P_i = 983\text{ mW}$ C_i negligibly small $L_i = 5\text{ }\mu\text{H}$ Characteristics: linear
Supply and signal circuit II: Terminals 7[+], 8[-] in the terminal compartment of the double chamber housing	$U_i = 30\text{ V}$ $I_i = 131\text{ mA}$ $P_i = 983\text{ mW}$ C_i negligibly small $L_i = 5\text{ }\mu\text{H}$ Characteristics: linear

VEGADIF DF85.CC/CU/CO*****Z/H/A/P/F*****	
Display and adjustment circuit: Terminals 5, 6, 7, 8 in the electronics compartment of the single chamber housing Terminals 5, 6, 7, 8 in the terminal compartment of the double chamber housing	In ignition protection type intrinsic safety Ex ia IIC Only for connection to the associated VEGA display unit VAGADIS61/81 according to the certificate 2662675.
	Electronics Z/H/A: $L_o = 330 \mu\text{H}$ $C_o = 1,98 \mu\text{F}$
	Electronics P/F: $L_o = 212 \mu\text{H}$ $C_o = 1,98 \mu\text{F}$
Display and adjustment circuit: Spring contacts in the electronics compartment of the single chamber housing Spring contacts in the terminal compartment of the double chamber housing	In ignition protection type intrinsic safety Ex ia IIC. Only for connection to the display and adjustment module PLICSCOM or DISADAPT or VEGACONNECT.
When using cables supplied by VEGA, the following values must be also taken into consideration:	$L_l = 0,62 \mu\text{H/m}$ $C_{l\text{wire/wire}} = 150 \text{ pF/m}$ $C_{l\text{wire/screen}} = 270 \text{ pF/m}$

4 Application conditions

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

The following table is suitable for all specified housings and electronics and for use in Class I, Zone 0, Zone 0/1, Zone 1 and Class I, Division 1.

Temperature class	Product temperature range T_p	Ambient temperature range T_a
T6 (+85 °C)	-40 ... +46 °C	-40 ... +46 °C
T5 (+100 °C)		
T4 (+135 °C)	-40 ... +85 °C	-40 ... +80 °C
T3 (+200 °C)		
T2 (+300 °C)		
T1 (+450 °C)		

For applications requiring instruments of Class I, Zone 0 the process pressure of the media must be between 0.8 ... 1.1 bar. The application conditions when operating in the absence of explosive mixtures can be found in the manufacturer information.

5 Protection against static electricity

The VEGADIF 85 in versions with electrostatically chargeable plastic parts, such as e.g. plastic housing, metal housing with inspection window, with plastic coated sensors, suspension cable or suspension hose, distance tube or connection cable with the separated version, a caution label points out the safety measures that must be taken with regard to electrostatic charges during operation.



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

If necessary, a suitable overvoltage arrester can be connected in front of the VEGADIF 85.

When used as Class I, Zone 0, 0/1, instrument, as far as necessary analogue, a suitable overvoltage arrester must be connected in front as protection against voltage surges.

7 Grounding

In order to avoid the danger of electrostatic charging of the metallic parts, the VEGADIF 85 must be electrostatically connected to the local potential equalisation (transfer resistance $\leq 1 \text{ M}\Omega$), e.g. via the ground terminal.

8 Impact and friction sparks

VEGADIF 85 in aluminium/titanium versions must be mounted in such a way that sparks from impact and friction between aluminium/titanium and steel (except stainless steel, if the presence of rust particles can be excluded) cannot occur.

9 Material resistance

VEGADIF 85 must only be used in products against which the wetted materials are sufficiently resistant.

10 Mounting with external indicating unit VEGADIS 81

The intrinsically safe signal circuit between VEGADIF 85 and the external indicating unit VEGADIS 81 should be set up without grounding. The required insulation voltage is $> 500 \text{ V AC}$. When using the VEGA connection cable included with the delivery, this requirement is fulfilled. If grounding of the cable screen is required, it must be carried out accordingly.

11 Installation/mounting

The VEGADIF 85 have to be mounted such that the sensor is effectively secured against touching the vessel wall, under consideration of other vessel installations and flow conditions in the vessel. This applies especially to suspension pressure transmitters and versions with distance tube lengths over 3 m.

If the temperature at the inlet components exceeds $60 \text{ }^\circ\text{C}$, temperature-resistant connection cables must be used.

For use as Ga/Gb instruments:

For functional reasons, the partition wall (membrane) to the wetted area has a wall thickness $< 1 \text{ mm}$. In the application, it has to be ensured, that an impairment of the separation wall e.g. by aggressive media or mechanical hazards is excluded.

For variants with standard recess connections:

The installation of the meter bodies shall provide as a minimum degree of protection IP 67 accord-

ing to IEC 60529 for the process connections and vents.

For variants with capillary connections:

The capillary connections are designed to be connected to a capillary with diaphragm seal. The filling holes are intended to bring in a fill fluid. To prevent a zone entrainment from Zone 20, the diaphragm seal resp. the diaphragm seal and capillary have to be suitably designed. The pressure transfer system has to be technically tight. The filling hole has to be tightly sealed.

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.

Subject to change without prior notice

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VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany

Phone +49 7836 50-0
Fax +49 7836 50-201
E-mail: info.de@vega.com
www.vega.com