



Safety instructions

VEGAPULS 69

Intrinsic safety "i"

4 ... 20 mA/HART - two-wire



Document ID: 51031



VEGA

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Supplementary documentation:

- Operating Instructions VEGAPULS 69
- Quick setup guide VEGAPULS 69
- Certificate of Conformity CSA 15CA70025164 (Document ID: 51033)

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1 Area of applicability

These safety instructions apply to the VEGAPULS 69 of type series:

- VEGAPULS PS69(*).CC****HX****(*) (*)
- VEGAPULS PS69(*).CC****HZ****(*) (*)
- VEGAPULS PS69(*).VC****HX****(*) (*)
- VEGAPULS PS69(*).VC****HZ****(*) (*)

With the electronics versions:

- H - Two-wire 4 ... 20 mA/HART

According to Certificate of Conformity CSA 15CA70025164 (certificate number on the type label) and for all instruments with safety instruction 51031

The classification as well as the respective standards are stated in the Certificate of Conformity.

Ignition protection label:

Intrinsic safe for

- Class I, DIV 1, Groups A, B, C, D, T6 ... T1; Class II, DIV 1, Groups E, F, G, T* °C; Class III
- Ex ia IIC T6 ... T1 Ga, Ga/Gb, Gb
- Class I, Zone 0, 0/1, 1 AEx ia IIC T6 ... T1 Ga, Ga/Gb, Gb

T*: for Class II Groups E, F, G and Class III see "*Thermal data*" document 51032

T6 ... T1: for Class I see "*Thermal data*" within this document

2 Important specification in the type code

VEGAPULS 69(*).abcdefghijklm(*) (*)

Position		Feature	Description
a	Scope	C	CSA / Canada
		V	Combination (ATEX, IECEx, FM, CSA)
b	Approval	C	Class I, DIV 1, Groups A, B, C, D, T6 ... T1; Class II, DIV 1, Groups E, F, G, T* °C; Class III Ex ia IIC T6...T1 Ga, Ga/Gb, Gb Class I, Zone 0, 0/1, 1 AEx ia IIC T6 ... T1 Ga, Ga/Gb, Gb
c	Version / Material	B	Plastic horn antenna / PP
		C	Metal-jacketed lens antenna with rinsing connection / PEEK
		T	Thread with integrated horn antenna / PEEK
		U	Thread with integrated horn antenna / PEEK
de	Process fitting / Material	*	One or two-digit alphanumeric code for gas-tight threaded connections, pipe connections and industrial flanges acc. to ASME, BS, DIN, EN, GOST, HG/T, JIS, other international, national or industrial standards, regulations or standards with pressure specifications

Position		Feature	Description
f	Seal / Process temperature	A	FKM (SHS FPM 70C3 GLT) and PEEK / -40 ... +130 °C
		B	FKM (SHS FPM 70C3 GLT) and PEEK / -40 ... +200 °C
		C	PP / -40 ... +80 °C
		D	FKM (SHS FPM 70C3 GLT) and PP / -40 ... +80 °C
		E	EPDM (COG AP310) and PP / -40 ... +80 °C
		F	EPDM (COG AP302) and PEEK / -40 ... +130 °C
		*	Other comparable seal suitable for the application including the process temperature to be taken into account
g	Electronics	H	Two-wire, 4 ... 20 mA/HART
h	Supplementary electronics	X	without
		Z	Additional current output 4 ... 20 mA
i	Housing / Protection	A	Aluminium single chamber / IP 66/IP 68 (0.2 bar)
		H	Special colour Aluminium single chamber / IP 66/IP 68 (0.2 bar)
		3	Aluminium single chamber / IP 66/IP 68 (1 bar)
		D	Aluminium double chamber / IP 66/IP 68 (0.2 bar)
		S	Special colour Aluminium double chamber / IP 66/IP 68 (0.2 bar)
		4	Aluminium double chamber / IP 66/IP 68 (1 bar)
		Y	Aluminium double chamber / IP 66/IP 67 with M12 x 1 for VEGADIS 61/81
		V	Stainless steel single chamber (precision casting) / IP 66/IP 68 (0.2 bar)
		5	Stainless steel single chamber (precision casting) / IP 66/IP 68 (1 bar)
		8	Stainless steel single chamber (electropolished) / IP 66/IP 68 (0.2 bar)
		W	Stainless steel double chamber / IP 66/IP 68 (0.2 bar)
		Q	Stainless steel double chamber / IP 66/IP 67 with M12 x 1 for VEGADIS 61/81
j	Connection/cable entry or screw plug	D	M20 x 1.5 / Blind plug
		1	M20 x 1.5 / without
		N	1½ NPT / Blind plug
		Q	1½ NPT / without
		*	One-digit alphanumerical code for further suitable fittings, cable entries and closing screws.
k	Display and adjustment module PLICSCOM	X	without
		A	mounted
		F	without; lid with inspection window
		B	Laterally mounted
		K	mounted; with Bluetooth, magnetic pen operation
		L	laterally mounted; with Bluetooth, magnetic pen operation

Position		Feature	Description
l	Additional equipment	X	without
		R	Reflux valve for rinsing connection
		V	Purging connection with reflux valve (only for antenna type B)
m	Certificates	X	No
		M	Yes

In the following, all above mentioned versions are called VEGAPULS 69. If parts of these safety instructions refer only to certain versions, then these will be mentioned explicitly with their type code.

3 General information

The VEGAPULS 69 in ignition protection type intrinsic safety "i" are used for detection of the distance between product surface and sensor by means of high frequency, electromagnetic waves in the GHz range.

The electronics uses the running time of the signals reflected by the product surface to calculate the distance to the product surface.

The VEGAPULS 69 consist of an electronics housing, a process connection element and a sensor or an antenna.

The VEGAPULS 69 are suitable for applications in hazardous atmospheres of all combustible materials of explosion groups IIA, IIB and IIC.

The VEGAPULS 69 are suitable for applications requiring EPL Ga, EPL Ga/Gb or EPL Gb instruments.

The VEGAPULS 69 are suitable for applications in hazardous atmospheres of all combustible materials of Class I Groups A, B, C, D, Class II Groups E, F, G and Class III.

The VEGAPULS 69 are suitable for applications requiring Division 1 or Division 2 instruments.

4 Application area

EPL Ga or division 1 instrument






The VEGAPULS 69 with the mechanical fixing element are installed in hazardous areas of zone 0 or division 1.

EPL Ga/Gb or division 1/2 instrument

The VEGAPULS 69 with mechanical fixing element are installed in hazardous areas of zone 1/ DIV2. The mechanical fixing element, process connection element is installed in the separating wall, which separates areas requiring EPL Gb/DIV2 or EPL Ga/DIV1 instruments. The sensor measuring system is installed in hazardous areas of zone 0 requiring EPL Ga/DIV1 instruments.

EPL Gb or division 2 instrument

The VEGAPULS 69 with the mechanical fixing element are installed in hazardous areas of zone 1 requiring EPL Gb instruments.

VEGA Instrument	EPL Gb, DIV2	EPL Ga/Gb, DIV1/2	EPL Ga, DIV1
Ex Zone 1 or Division 2 			
Ex Zone 0 or Division 1 			

5 Specific conditions of use

The following overview is listing the specific conditions of use.

Electrostatic charging (ESD)

You can find the details in chapter "*Electrostatic charging (ESD)*" of these safety instructions.

Ambient temperature

The ambient temperature range can be limited.

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

Impact and friction sparks

The VEGAPULS 69 in light metal versions (e.g. aluminium, titanium, zircon) must be mounted in such a way that sparks from impact and friction between light metals and steel (except stainless steel, if the presence of rust particles can be excluded) cannot occur.

Non-grounded, metallic parts

Resistance between aluminium housing to metal measurement loop labels is $> 10^9$ Ohm.

The capacitance of the metal measurement loop label was measured with 15 pF.

See chapter "*Electrostatic charging (ESD)*" for precaution.

6 Additional instructions for safe operation

- The 3/8" NPT threaded port of the Dual-Chamber housing shall not be used as a field wiring conduit entry and has to be closed at all times with a suitable plug.
- 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.
- The operator must ensure that the medium temperature in the EPL Ga range within the process vessel is not higher than 80 % of the self-ignition temperature of the concerned medium (in °C) and does not exceed the max. permissible flange temperature depending on the temperature class. The parts of the level measuring instrument which during operation are in contact with flammable products, must be integrated in the periodic overpressure test of the plant.
- If parts of the VEGAPULS 69 within the EPL Ga area are in contact with the medium and made of a material with an electrical conductivity of less than 10-8 S/m, a min. conductivity of the measured substance of at least 10-8 S/m must be ensured to avoid danger caused by electrostatic charge. If this is not possible, the level measuring instrument must not be used if there

are strong charge-generating processes exist, such as e.g. automatic friction and separating processing, sparking electrons etc. Particularly the antenna of the level measuring instrument must not be mounted in the pneumatic flow rate.

- The VEGAPULS 69 must be installed in such a way that sensor (antenna) does not touch the vessel wall. Especially the inner tank structure, the flow conditions in the tank and the antenna length must be taken into account.
- The installation of the antenna of VEGAPULS PS69(*).*C****H*****(*)(*) with EPL Ga must be only carried out with process pressures between 0.8 and 1.1 bar.

For device with EPL Gb the following process pressures are applicable depending on the antenna version:

VEGAPULS PS69	Version	Process pressure
Plastic horn antenna	PS69(*).*CB**C/D/EHX/Z*****(*)(*)	-1 ... +2 bar
Thread with integrated horn antenna	PS69(*).*CT/U**A/FHX/Z*****(*)(*) PS69(*).*CT/U**BHX/Z*****(*)(*)	-1 ... +20 bar
Metal-jacketed lens antenna with rinsing connection	PS69(*).*CC**A/FHX/Z*****(*)(*) PS69(*).*CC**BHX/Z*****(*)(*)	-1 ... +3 bar

- For process pressures outside the standard atmospheric conditions of 80 kPa (0.8 bar) to 110 kPa (1.1 bar) additional requirements can be valid.
- In the constructive version of the rinsing connection it must be ensured that when using in the EPL Ga/Gb area, protection IP 67 is ensured at the connection to the reflux valve. After removal of the reflux valve, the opening must be closed with a suitable plug screw in order to maintain protection IP 67.
- In the version with ball valve it must be ensured that before separating the flange connection, the valve must be closed.
- For level measuring instruments in the version with swivelling holder keep in mind that when operating as EPL Ga/Gb instruments after the antenna has been aligned (by means of the swivelling holder) and the mounting flange screwed on, protection rating IP 67 is maintained.

Connection conditions

- Unused openings must be covered. The red thread or/dust covers screwed in when the instruments are shipped (depending on the version) must be removed before setup and replaced by cable entries or closing screws suitable for the respective ignition protection type and IP protection.
- The connection cable of VEGAPULS 69 has to be wired fix and in such a way that damages can be excluded
- If the temperature at the inlet components exceeds 60 °C, temperature-resistant connection cables must be used
- The VEGAPULS 69 must be integrated in the local potential equalization of the hazardous areas (contact resistor $\leq 1 \text{ M}\Omega$)
- Use the instrument only in media against which the wetted parts are sufficiently resistant
- If necessary, a suitable overvoltage arrester can be connected in front of the VEGAPULS 69

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 CEC or NEC
- 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 approval certificate 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

Mounting

Keep in mind for instrument mounting

- Mechanical damage on the instrument must be avoided
- Mechanical friction must be avoided
- Process connections separating two areas of different Ex-zones must comply to valid regulations and standards
- Close the housing lid (s) up to the stop before starting operating, to ensure the IP protection rating specified on the type label

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
- The potential equalization terminal must be secured against loosening
- Correct and clearly marked cable connections

The parts of the VEGAPULS 69 being in contact with flammable media during operation must be included in the periodic overpressure test of the plant.

8 Potential equalization/Grounding

- Integrate the instruments into the local potential equalisation, e.g. via the internal or external earth terminal
- The potential equalization terminal must be secured against loosening and twisting
- If grounding of the cable screening is necessary, this must be carried out acc. to the valid standards and regulations

9 Electrostatic charging (ESD)

In case of instrument versions with electrostatically chargeable plastic parts, the danger of electrostatic charging and discharging must be taken into account!

The following parts can charge and discharge:

- Lacquered housing version
- Metal housing with inspection window
- Plastic process fittings
- Plastic-coated process fittings and/or plastic-coated sensors
- Connection cable for separate versions
- Type label
- Isolated metallic labels (measurement loop identification label)

Take note in case of danger of electrostatic charges:

- Avoid friction on the surfaces
- Do not dry clean the surfaces

The instruments must be mounted/installed in such a way that the following can be ruled out:

- electrostatic charges during operation, maintenance and cleaning.
- process-related electrostatic charges, e.g. by measuring media flowing past

The warning label indicates danger:

WARNING -- Potential electrostatic charging hazard -- See instructions

AVERTISSEMENT -- Danger potentiel de charges électrostatiques -- Voir instructions

10 Electrical data

The electrical data listed in the following are valid for:

VEGAPULS PS69(*) .CC**HX/Z*****(*) (*)**

VEGAPULS PS69(*) .VC**HX/Z*****(*) (*)**

If then the VEGAPULS 69 is mentioned, it is valid for the above listed versions of VEGAPULS 69.

Supply and signal circuit I:	
<p>VEGAPULS PS69(*) .C****HX/Z*****(*) (*)</p> <p>Terminals 1[+], 2[-] in electronics compartment of the single chamber housing</p> <p>or</p> <p>Terminals 1[+], 2[-] in terminal compartment of the double chamber housing</p>	<p>In ignition protection type intrinsic safety Ex ia IIC</p> <p>For connection to a certified, intrinsically safe circuit with linear characteristics:</p> <ul style="list-style-type: none"> ● $U_i = 30\text{ V}$ ● $I_i = 131\text{ mA}$ ● $P_i = 983\text{ mW}$ <p>The effective internal capacitance C_i is negligibly small.</p> <p>The effective internal inductance is $L_i \leq 10\text{ }\mu\text{H}$.</p> <p>In the version with permanently connected connection cable, the values for $C_{i\text{cable/cable}} = 159\text{ pF/m}$ and $C_{i\text{cable/screen}} = 270\text{ pF/m}$ must be taken into account.</p>
Supply and signal circuit II:	
<p>VEGAPULS PS69(*) .C****HZ*****(*) (*)</p> <p>Terminals 7[+], 8[-] in terminal compartment of the double chamber housing</p>	<p>In ignition protection type intrinsic safety Ex ia IIC</p> <p>For connection to a certified, intrinsically safe circuit with linear characteristics:</p> <ul style="list-style-type: none"> ● $U_i = 30\text{ V}$ ● $I_i = 131\text{ mA}$ ● $P_i = 901\text{ mW}$ <p>The effective internal capacitance C_i is negligibly small.</p> <p>The effective internal inductance is $L_i \leq 5\text{ }\mu\text{H}$.</p>

Intrinsically safe display and adjustment circuit:	
Terminals 5, 6, 7, 8 in electronics compartment or plug connection	<p>In ignition protection type intrinsic safety Ex ia IIC</p> <p>For connection to the intrinsically safe circuit of the corresponding external display unit VEGADIS 81.</p> <p>The rules for the interconnection of intrinsically safe circuits between VEGAPULS 69 and the external indicating unit VEGADIS 81 are fulfilled, provided that the total inductance and total capacitance of the connection cable between VEGAPULS 69 and the external indicating unit VEGADIS 81 ($L_{\text{cable}} = 212 \mu\text{H}$ and $C_{\text{cable}} = 1.98 \mu\text{F}$) are not exceeded.</p> <p>When using the supplied VEGA connection cable between VEGAPULS 69 and the external display unit VEGADIS 81, the values for cable inductance L_c and cable capacitance C_c, listed in the following, must be taken into account.</p> <ul style="list-style-type: none"> ● $L_c = 0.62 \mu\text{H/m}$ ● $C_{\text{wire/wire}} = 132 \text{ pF/m}$ ● $C_{\text{wire/screen}} = 208 \text{ pF/m}$

Intrinsically safe circuit of the display and adjustment module:	
Spring contacts in electronics or connection compartment	<p>In ignition protection type intrinsic safety Ex ia IIC</p> <p>Only for connection to the corresponding display and adjustment module PLICSCOM</p>

- The intrinsically safe supply and signal circuits are galvanically separated from parts that can be grounded.
- For applications requiring instruments of EPL Gb, 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 Gb.
- For applications requiring equipment of type EPL Ga or EPL Ga/Gb, the intrinsically safe power supply and signal circuit must correspond to protection class ia.
- For applications requiring EPL Ga resp. EPL Ga/Gb instruments the VEGAPULS 69 is preferably connected to appropriate instruments with electrically isolated, intrinsically safe circuits.

11 Thermal data

The permissible operating temperatures without explosion-endangered atmosphere are mentioned in the respective manufacturer instructions, e.g. operating instructions manuals.

The division of the temperature classes of the different VEGAPULS 69 versions is specified in form of tables.

Furthermore it must be observed that the tables for instruments with a permissible process temperature of up to +195 °C with an isolation (heat conductance of 0.05 W/(m*K) with 2 cm thick insulation) were determined. Two layers of insulation material with a thickness of 2 cm each were attached from the tank surface with the mentioned heat conductance.

Instruments for process temperatures of max. +80 °C or +130 °C were not isolated for determination of the tables.

T-class - VEGAPULS 69 for process temperatures up to +80 °C

The following temperature tables are valid for:

VEGAPULS PS69(*)B**C/D/EH*****(*)****

Aluminium enclosure, models: A, H, 3, D, S, 4, Y

T-Class	Process temperature range permitted at the antenna in Zone 0 (EPL Ga) or in Division 1	Ambient temperature range permitted at the electronics enclosure in Zone 0 (EPL Ga) or in Division 1
T6	-40 ... +80 °C	-40 ... +40 °C
T5	-40 ... +80 °C	-40 ... +58 °C
T4 ... T1	-40 ... +80 °C	-40 ... +80 °C

Stainless steel precision casting enclosure, models: V, 5, W, Q

T-Class	Process temperature range permitted at the antenna in Zone 0 (EPL Ga) or in Division 1	Ambient temperature range permitted at the electronics enclosure in Zone 0 (EPL Ga) or in Division 1
T6	-40 ... +80 °C	-40 ... +39 °C
T5	-40 ... +80 °C	-40 ... +57 °C
T4 ... T1	-40 ... +80 °C	-40 ... +80 °C

Stainless steel electropolished enclosure, model: 8

T-Class	Process temperature range permitted at the antenna in Zone 0 (EPL Ga) or in Division 1	Ambient temperature range permitted at the electronics enclosure in Zone 0 (EPL Ga) or in Division 1
T6	-40 ... +80 °C	-40 ... +38 °C
T5	-40 ... +80 °C	-40 ... +56 °C
T4 ... T1	-40 ... +80 °C	-40 ... +80 °C

For process temperatures lower than the given maximum in above tables, higher ambient temperatures at the enclosure can be permitted. For details consult VEGA.

T-class - VEGAPULS 69 for process temperatures up to +130 °C

The following temperature tables are valid for:

VEGAPULS PS69(*)T/U**A/F/HX/Z*****(*)(*)**

VEGAPULS PS69(*)C**A/F/HX/Z*****(*)(*)**

Aluminium enclosure, models: A, H, 3, D, S, 4, Y

T-Class	Process temperature range permitted at the antenna in Zone 0 (EPL Ga) or in Division 1	Ambient temperature range permitted at the electronics enclosure in Zone 0 (EPL Ga) or in Division 1
T6	-40 ... +80 °C	-40 ... +36 °C
T5	-40 ... +95 °C	-40 ... +51 °C
T4 ... T1	-40 ... +130 °C	-40 ... +65 °C

Stainless steel precision casting enclosure, models: V, 5, W, Q

T-Class	Process temperature range permitted at the antenna in Zone 0 (EPL Ga) or in Division 1	Ambient temperature range permitted at the electronics enclosure in Zone 0 (EPL Ga) or in Division 1
T6	-40 ... +80 °C	-40 ... +35 °C
T5	-40 ... +95 °C	-40 ... +50 °C
T4 ... T1	-40 ... +130 °C	-40 ... +57 °C

Stainless steel electropolished enclosure, model: 8

T-Class	Process temperature range permitted at the antenna in Zone 0 (EPL Ga) or in Division 1	Ambient temperature range permitted at the electronics enclosure in Zone 0 (EPL Ga) or in Division 1
T6	-40 ... +80 °C	-40 ... +32 °C
T5	-40 ... +95 °C	-40 ... +47 °C
T4 ... T1	-40 ... +130 °C	-40 ... +46 °C

For process temperatures lower than the given maximum in above tables, higher ambient temperatures at the enclosure can be permitted. For details consult VEGA.

T-class - VEGAPULS 69 for process temperatures up to +195 °C

The following temperature tables are valid for:

VEGAPULS PS69(*)T/U**B/H/SH*****(*)**(*)

VEGAPULS PS69(*)C**B/H*****(*)**(*)

Aluminium enclosure, models: A, H, 3, D, S, 4, Y

T-Class	Process temperature range permitted at the antenna in Zone 0 (EPL Ga) or in Division 1	Ambient temperature range permitted at the electronics enclosure in Zone 0 (EPL Ga) or in Division 1
T6	-40 ... +80 °C	-40 ... +41 °C
T5	-40 ... +95 °C	-40 ... +56 °C
T4	-40 ... +130 °C	-40 ... +72 °C
T3 ... T1	-40 ... +195 °C	-40 ... +63 °C

Stainless steel precision casting enclosure, models: V, 5, W, Q

T-Class	Process temperature range permitted at the antenna in Zone 0 (EPL Ga) or in Division 1	Ambient temperature range permitted at the electronics enclosure in Zone 0 (EPL Ga) or in Division 1
T6	-40 ... +80 °C	-40 ... +41 °C
T5	-40 ... +95 °C	-40 ... +56 °C
T4	-40 ... +130 °C	-40 ... +69 °C
T3 ... T1	-40 ... +195 °C	-40 ... +56 °C

Stainless steel electropolished enclosure, model: 8

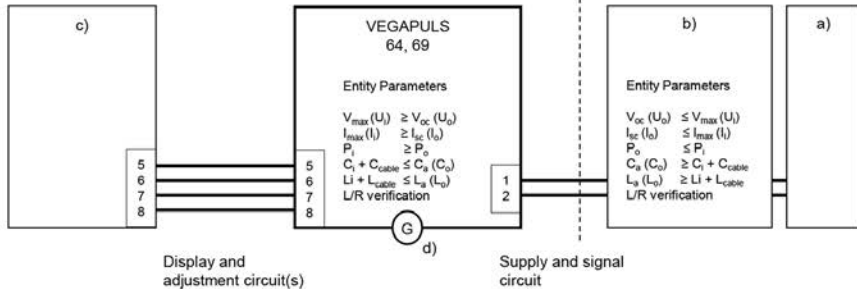
T-Class	Process temperature range permitted at the antenna in Zone 0 (EPL Ga) or in Division 1	Ambient temperature range permitted at the electronics enclosure in Zone 0 (EPL Ga) or in Division 1
T6	-40 ... +80 °C	-40 ... +40 °C
T5	-40 ... +95 °C	-40 ... +55 °C
T4	-40 ... +130 °C	-40 ... +66 °C
T3 ... T1	-40 ... +195 °C	-40 ... +49 °C

For process temperatures lower than the given maximum in above tables, higher ambient temperatures at the enclosure can be permitted. For details consult VEGA.

Installation diagramm

Class I, Division 1, Groups A, B, C, D
 Class II, Division 1, Groups E, F and G
 Class III or
 Class I, Zone 0, Group IIC
 Class I, Zone 1, Group IIC

Unclassified / Ordinary Location or
 Class I, Division 2, Groups A, B, C, D or
 Class I, Zone 2, Group IIC



- a) Control Room ($U_m \leq 250$ V)
 b) Associated Apparatus
 c) VEGA DISPLAY e.g. VEGADIS
 d) Ground Connection

NOTES:

- The Entity Concept allows the interconnection of suitable approved Intrinsically safe devices with entity parameters not specifically examined in combination as a system when:
 - U_o or V_{oc} or $V_i \leq U_i$ or V_{max}
 - I_o or I_{sc} or $I_i \leq I_i$ or I_{max}
 - $P_o \leq P_i$
 - C_a or $C_o \geq C_i + C_{cable}$
 - L_a or $L_o \geq L_i + L_{cable}$
- Control equipment connected to the Associated Apparatus shall not use or generate more than $250 V_{rms}$ or V_{dc} .
- Installation should be in accordance with ANSI/ISA-RP12.06.01 "Intrinsic Safety Wiring Methods for Hazardous (Classified) Locations Instrumentation" and the Canadian Electrical Code
- The configuration of associated Apparatus shall be approved under Entity Concept.
- Associated Apparatus manufacturer's installation control drawing shall be followed when installing this equipment.
- The VEGAPULS 64/69 are approved for Class I, Zone 0 and Division 1 applications.
 If connecting [Ex ib]/[AEx ib] Associated Apparatus to the VEGAPULS 64/69, the above system is only suitable for Class 1, Zone 1, or Division 2 hazardous (classified) locations, and is not suitable for Class I, Zone 0, or Division 1 hazardous (classified) locations.
- When cable parameters are unknown, the following may be used: Capacitance = 200 pF/m (60 pF/ft); Inductance = 0.66 μ H/m (0.20 μ H/ft)
- Resistance between intrinsically safe ground and earth ground must be less than one Ohm.
- No revision to drawing without prior Agency Approval.
- Warning: Substitution of components may impair suitability for intrinsic safety and hazardous locations.



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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