



Certificate of Compliance

Certificate: 70025164

Master Contract: 153857

Project: 80057078

Date Issued: 2021-01-19

Issued To: Vega Grieshaber KG
Am Hohenstein 113
Schiltach, Baden-Württemberg, 77761
Germany

Attention: Klaus Mayer

The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US' for Canada and US or with adjacent indicator 'US' for US only or without either indicator for Canada only.



Issued by: Hossein Saleh
Hossein Saleh

PRODUCTS

CLASS 2258 02 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations

CLASS 2258 82 - PROCESS CONTROL EQUIPMENT - For Hazardous Locations - Certified to US Standards

Class II, Division 1, Groups E, F and G, T*°C; Class III

Ex ta, ta/tb IIIC T*°C Da, Da/Db

Zone 20, 20/21 AEx ta, ta/tb IIIC T*°C Da, Da/Db

T* See Safety Instructions 57952

VEGAPULS PS64, Ex t / DIP Version

The radar sensor type VEGAPULS PS64 series Radar Sensor for Continuous Level Measurement of distance between the surface of combustible dust generating bulk solids and the sensor. Enclosures are Type 6P*, IP66/68*, Dual Seal*.

* See Enclosure Rating



Nomenclature:

Model Code VEGAPULS PS64Z()*.a-R-c-de-f-g-h-i-j-k-l-m-(*)

Z = blank, or "SI"

a = scope: C, V

b = approval:

R = Class II, Division 1, Groups E, F and G, T*°C; Class III

Ex ta, ta/tb IIIC T*°C Da, Da/Db

Zone 20, 20/21 AEx ta, ta/tb IIIC T*°C Da, Da/Db

c = antenna / Material: B, D, U, G, I

de = ** TRI- CLAMP, DN or ASME industry type flange with pressure ratings and any type which comply with an international or national standard.

f = seal / process temperature: A, B, G, H, F, R, S, T, U, V, I, J, K, L, P, Q, C, D, E or any other comparable seal suitable for the application including the given process temperature

g = electronics: H

h = additional electronics: X

i = housing / protection: A, D, H, S, V, W

j = cable entry / connection: D, N, Q, I or any other certified connection or cable gland suitable for the application

k = display / adjustment module PLICSCOM: A, B, F, K, L, X

l = additional equipment: X, V, 2

m = certificates: M, X

Electrical Data:

The maximum power used to power up the VEGAPULS PS64Z(*)*.R****H*****(*)* installed in zone 20 must be smaller than 2W.

Supply and signal circuit:

Terminals 1 [+], 2[-] for 1-chamber housing in the electronics compartment U = 12 ... 35V DC
 terminals 1 [+], 2[-] for 2-chamber housing in the connection compartment P_{max} < 2W (Only for Zone 20)

Thermal Data:

Permitted Process Temperature at the Probe / Antenna

VEGAPULS	X:	A = PEEK / FKM (SHS FPM 70C3 GLT) / -40 ... +130 °C
PS64Z(*) <i>.R***X*****(*)</i>		B = PEEK / FKM (SHS FPM 70C3 GLT) / -40 ... +200 °C
		G = PEEK / FKM (Kalrez 6375) / -20 ... +130 °C
		H = PEEK / FKM (Kalrez 6375) / -20 ... +200 °C
		F = PEEK / EPDM (A+P 75.5/KW75F) / -40 ... +130 °C
		R = PEEK / FFKM (Kalrez 6230) / -15...130°C
		S = PEEK / FFKM (Kalrez 6230) / -15...200°C
		T = PTFE / FFKM (Kalrez 6230) / -15...+130°C
		U = PTFE / FKM (75,5/VA75F) / -20...+130°C



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V = PTFE / EPDM (75,5/KW75F) / -20...+130°C
 I = PTFE / PTFE / -40 ... +130 °C
 J = PTFE / PTFE / -40 ... +200 °C
 K = PTFE (8 mm) / PTFE / -40 ... +130 °C
 L = PTFE (8 mm) / PTFE / -40 ... +200 °C
 P = PFA (8 mm) / PFA / -40 ... +130 °C
 Q = PFA (8 mm) / PFA / -40 ... +200 °C
 C = PP / PP / -40 ... +80 °C
 D = PP / FKM (SHS FPM 70C3 GLT) / -40 ... +80 °C
 E = PP / EPDM (COG AP310) / -40 ... +80 °C

Permitted Ambient Temperature at the Electronics Enclosure:

VEGAPULS PS64Z(*).*R****H*****(*)(*) -40 °C...+60 °C

Maximum Surface Temperature T

The maximum surface temperature is the higher one of the following:

- a. Maximum Surface Temperature at the Probe / Antenna: Process temperature + 2 K
- b. Maximum Surface Temperature at the Electronics Enclosure
 - When installed in Zone 20: Ambient temperature + 86 K
 VEGAPULS PS64Z(*).*R****H*****(*)(*)
 - When installed in Zone 20/21, 20/22, 21, Division 1, or Division 2: Ambient temperature + 36 K
 VEGAPULS PS64Z(*).*R****H*****(*)(*)

Enclosure Rating - IP - Type - Dual Seal Data:

Model	Housing	Electronic	IP ¹	Type ¹	Dual Seal
A	Aluminum / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
H	Special color Aluminum / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
D	Aluminum double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes
S	Special color Aluminum double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes
V	SS (precision casting) 316L / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
W	SS (precision casting) double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes

Explanation:

1. Refer to 'Conditions of Acceptability' for installation requirements related to selection of cable glands.

Notes:

1. The above model is fixed connection, Pollution Degree 4, Overvoltage Category II.
2. Mode of operation: Continuous.
3. Environmental Conditions: Extended, Indoor and outdoor use, Ambient temperature and RH range depending on the model see manual, altitude up to 5000 m.



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Conditions of Acceptability:

1. To be supplied by a Class 2 or Limited Energy Source in accordance with CSA 61010-1-12 or ISA 61010-1, Third Edition.
2. Variants of the radar sensor type VEGAPULS PS64Z(*).*****(*)(*) for which aluminum is used shall be installed in such a way that sparking as a result of impact or friction between aluminum and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded.
3. The level measuring devices in the version with swiveling holder shall be installed in such a way that if used as an EPL Da/Db equipment the degree of protection IP67 is kept.
4. When installing in Zone 20 a safety device such as fuse, barrier or series resistance limiting the maximum input power to 2 W has to be installed.
5. Electrostatic charging especially by the process has to be avoided.
6. 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.
7. When cable glands or plugging connections are used their IP and Type rating must meet the installation requirements of CEC, Section 18, and NEC, Section 500 for installation in Zone and Division for methods of protection 'Ex t' and 'Class II / Class III'.
8. End-user shall ensure the device is properly connected to Earth upon installation.

Class II, Division 1, Groups E, F and G, T*°C; Class III

Ex ta, ta/tb IIIC T*°C Da, Da/Db

Zone 20, 20/21 AEx ta, ta/tb IIIC T*°C Da, Da/Db

T* See Safety Instructions 51032

VEGAPULS PS69, Ex t / DIP Version

VEGAPULS PS69 series Radar Sensor for Continuous Level Measurement of distance between the surface of combustible dust generating material and the sensor. Enclosures are Type 4X/6P*; IP66/67/68*; Dual Seal*.

* See Enclosure Rating

Nomenclature:

Model Code VEGAPULS PS69Z().a-R-c-de-f-g-h-i-j-k-l-m-(*)(*)*

Z = blank, or "SI"

a = scope: C, V

b = approval:

R = Class II, Division 1, Groups E, F and G, T*°C; Class III

Ex ta, ta/tb IIIC T*°C Da, Da/Db

Zone 20, 20/21 AEx ta, ta/tb IIIC T*°C Da, Da/Db

c = antenna / Material: B, C, U

de = ** TRI- CLAMP, DN or ASME industry type flange with pressure ratings and any type which comply with an international or national standard.

f = seal / process temperature: A, B, C, D, E, F or any other comparable seal suitable for the application including the given process temperature
g = electronics: H, B, I, P, F, U
h = additional electronics: X, Z
i = housing / protection: A, D, H, S, V, W
j = cable entry / connection: D, N, Q, I or any other certified connection or cable gland suitable for the application
k = display / adjustment module PLICSCOM: A, B, F, K, L, X
l = additional equipment: X, R, V
m = certificates: M, X

Electrical Data:

VEGAPULS PS69Z(*).*R****H*****(*) (*)

Supply and signal circuit:

Terminals 1 [+], 2 [-] for 1-chamber housing in the electronics compartment or terminals 1 [+], 2 [-] for 2-chamber housing in the connection compartment

U = 12 ... 35 VDC

P_{max} < 2W (Only for Zone 20)

VEGAPULS PS69Z(*).*R****HZ*****(*) (*)

Supply and signal circuit 1:

Terminals 1 [+], 2 [-] for 1-chamber housing in the electronics compartment or terminals 1 [+], 2 [-] for 2-chamber housing in the connection compartment

U = 12 ... 35 VDC

P_{max} < 2W (Only for Zone 20)

Supply and signal circuit 2:

Terminals 7 [+], 8 [-] for 1-chamber housing in the electronics compartment or terminals 7 [+], 8 [-] for 2-chamber housing in the connection compartment

U = 12 ... 35 VDC

P_{max} < 2W (Only for Zone 20)

VEGAPULS PS69Z(*).*R****P/F*****(*) (*)

Supply and signal circuit:

Terminals 1 [+], 2 [-] for 1-chamber housing in the electronics compartment or terminals 1 [+], 2 [-] for 2-chamber housing in the connection compartment

U = 9 ... 32 VDC

P_{max} < 2W (Only for Zone 20)

VEGAPULS PS69Z(*).*R****B*****(*) (*)

Supply and signal circuit:

Terminals 1, 2 in the connection compartment

U = 90 ... 250 VAC, 50/60 Hz

Output:

Terminals 5 [+], 7 [-] in the connection compartment

4 ... 20 mA with superimposed

Passive signal current, input:

Terminals 6 [+], 7 [-] in the connection compartment

HART signal

4 ... 20 mA with superimposed

HART signal

VEGAPULS PS69Z(*).*R****I*****(*) (*)

Supply circuit:

Terminals 1 [+], 2 [-] in the connection compartment

U = 20 ... 42 VAC, 50/60 Hz or

U = 9.6 ... 48 VDC

Output:

Terminals 5 [+], 7 [-] in the connection compartment

4 ... 20 mA with superimposed

Passive signal current, input:

Terminals 6 [+], 7 [-] in the connection compartment

HART signal

4 ... 20 mA with superimposed

HART signal



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VEGAPULS PS69Z(*).*R****U*****(*) (*)

Supply circuit:

Terminals 1 [+], 2 [-] in the connection compartment

Signal circuit:

Terminals 3 [D0+], 4 [D1-] in the connection compartment

IS GND: terminal 5 in the connection compartment

USB interface in the connection compartment

U = 8 V...30 VDC

Pmax < 2 W

Umax = 5 V with Modbus signal

Umax = 5 V USB signal

VEGAPULS PS69Z(*).*R****H/P/F*****(*) (*)

Adjustment and indication circuit

Terminals 5, 6, 7, 8 in the connection compartment

Only for connection to the associated VEGA adjustment and indication unit VEGADIS81

VEGAPULS PS69Z(*).*R****H/P/F/B/I/U*****(*) (*)

Adjustment and indication circuit

Only for connection to the certified adjustment and indication unit PLICSCOM

Thermal Data:

Permitted Process Temperature at the Probe / Antenna

VEGAPULS PS69Z(*).*R***X*****(*) (*)

- X:
- A = FKM (SHS FPM 70C3 GLT) und PEEK / - 40...130°C with short temperature reduction piece
 - B = FKM (SHS FPM 70C3 GLT) und PEEK / - 40...200°C with long temperature reduction piece
 - C = PP/-40...+80°C
 - D = FKM (SHS FPM 70C3 GLT) und PP/-40...+80°C
 - E = EPDM (COG AP310) und PP/-40...+80°C
 - F = EPDM (COG AP302) und PEEK (FDA) / - 40...130°C with short temperature reduction piece

Permitted Ambient Temperature at the Electronics Enclosure:

VEGAPULS PS69Z(*).*R****H*****(*) (*)

-40 °C...+60 °C

Maximum Surface Temperature T

The maximum surface temperature is the higher one of the following:

- a. Maximum Surface Temperature at the Probe / Antenna:
- b. Maximum Surface Temperature at the Electronics Enclosure

Process temperature + 2 K

- When installed in Zone 20:

VEGAPULS PS69Z(*).*R****H*****(*) (*)

Ambient temperature + 86 K

VEGAPULS PS69Z(*).*R****HZ*****(*) (*)

Ambient temperature + 86 K

VEGAPULS PS69Z(*).*R****P/F*****(*) (*)

Ambient temperature + 86 K

VEGAPULS PS69Z(*).*R****U*****(*) (*)

Ambient temperature + 86 K



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VEGAPULS PS69Z(*).*R****B/I*****(*)(*)	With thermo fuse limited to 102 °C
- When installed in Zone 20/21, 20/22, 21, Division 1 or Division 2:	
VEGAPULS PS69Z(*).*R****H*****(*)(*)	Ambient temperature + 36 K
VEGAPULS PS69Z(*).*R****HZ*****(*)(*)	Ambient temperature + 36 K
VEGAPULS PS69Z(*).*R****P/F*****(*)(*)	Ambient temperature + 36 K
VEGAPULS PS69Z(*).*R****U*****(*)(*)	Ambient temperature + 36 K
VEGAPULS PS69Z(*).*R****B/I*****(*)(*)	With thermo fuse limited to 102 °C

Enclosure Rating – IP - Type - Dual Seal Data:

Model	Housing	Electronic	IP ¹	Type ¹	Dual Seal
A	Aluminum / IP66/IP68 (0.2bar)	H, P, F	IP66/68 (0.2 bar)	6P	No
H	Special color Aluminum / IP66/IP68 (0.2bar)	H, P, F	IP66/68 (0.2 bar)	6P	No
D	Aluminum double chamber / IP66/IP68 (0.2bar)	H, P, F, U	IP66/68 (0.2 bar)	6P	Yes
D	Aluminum double chamber / IP66/IP67	B ² , I ²	IP66/67	4X	Yes
S	Special color Aluminum double chamber / IP66/IP68 (0.2bar)	H, P, F, U	IP66/68 (0.2 bar)	6P	Yes
S	Special color Aluminum double chamber / IP66/IP67	B ² , I ²	IP66/67	4X	Yes
V	StSt (precision casting) 316L / IP66/IP68 (0.2bar)	H, P, F	IP66/68 (0.2 bar)	6P	No
W	StSt (precision casting) double chamber / IP66/IP68 (0.2bar)	H, P, F, U	IP66/68 (0.2 bar)	6P	Yes
W	StSt (precision casting) double chamber / IP66/IP67	B ² , I ²	IP66/67	4X	Yes

Explanation:

1. Refer to ‘Condition of Acceptability’ for installation requirements related to selection of cable glands.
2. Electronic B, I have voltage levels deemed to be HAZARDOUS LIVE.

Notes:

1. The above model is fixed connection, Pollution Degree 4, Overvoltage Category II.
2. Mode of operation: Continuous.
3. Environmental Conditions: Extended, Indoor and outdoor use, Ambient temperature and RH range depending on the model see manual, altitude up to 5000 m.

Conditions of Acceptability:

1. Models VEGAPULS PS69Z(*).*R****H/P/F/U*****(*)(*) and PS69(*).*R****HZ*****(*)(*) to be supplied by a Class 2 or Limited Energy Source in accordance with CSA 61010-1-12 or ISA 61010-1, Third Edition.
2. Variants of the radar sensor type VEGAPULS PS69Z(*).*****(*)(*) for which aluminum is used shall be installed in such a way that sparking as a result of impact or friction between aluminum and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded.
3. The level measuring devices in the version with swiveling holder shall be installed in such a way that if used as an EPL Da/Db equipment the degree of protection IP67 is kept.
4. When installing VEGAPULS PS69 with electronics H, P, or F in Zone 20 a safety device such as fuse, barrier or series resistance limiting the maximum input power to 2 W has to be installed.
5. Electrostatic charging especially by the process has to be avoided.



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6. 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.
7. When cable glands or plugging connections are used their IP and Type rating must meet the installation requirements of CEC, Section 18, and NEC, Section 500 for installation in Zone and Division for methods of protection 'Ex t' and 'Class II / Class III'.
8. End-user shall ensure the device is properly connected to Earth upon installation.

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

Class I See Safety Instructions 53838
Class II, III T* See Safety Instructions 57952

VEGAPULS PS64, Ex db / XP+DIP Version

VEGAPULS PS64 series Radar Sensor for Continuous Level Measurement of distance between the surface of liquids and the sensor. Enclosures are Type 6P*; IP66/68*.
* See Enclosure Rating

Nomenclature:

Model Code VEGAPULS64Z().a-E/Q-c-de-f-g-h-i-j-k-l-m-(*)(*)*

Z = blank, or "SI"

a = certification: C, V

b = approval: E, Q

E = Class I, Division 1, Groups B, C and D, T6...T1
Class II, Division 1, Groups E, F, and G T*°C; Class III
Ex db IIC T6...T1 Ga/Gb, Gb
Class I, Zone 0/1, 1 AEx db IIC T6...T1 Ga/Gb, Gb

Q = E + Ship

c = antenna / Material: D, U, G, I

de = process fitting / material: two-digit alphanumeric code for industry recognized type connection with suitable pressure ratings and any type which complies with appropriate international or national standards

f = seal / process temperature: A, B, C, D, E, F, G, H, I, J, K, L, P, Q, R, S, T, U, V, W, Y, * or one letter code for seal suitable for application including the given process temperature

g = electronics: H

h = additional electronics: X

i = housing / protection: A, D, H, S, V, W

j = cable entry / connection: D, 1, N, Q, * or single digit representing connection or cable gland suitable for the application

k = display / adjustment module PLICSCOM: A, B, F, K, L, X

l = additional equipment: V, X, 1, 2



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m = certificates: M, X

Electrical Data:

Model	Electronic	Voltage Range
PS64(*)C/VE/Q****H*****(*)(*)	PS64HW	12 ... 35V DC
PS64(*)C/VE/Q****H***B**(*)(*)	PS64HW+PLICSZEKX	12 ... 35V DC

Thermal Data:

Temperature Code - VEGAPULS PS64 for Process Temperature up to +80°C

The following listed temperature derating tables are valid for:
PS64Z(*)**D**C/D/EH*****(*)(*)

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 1 (EPL Gb) or in Class I, Division 1
T6...T1	-40°C...+80°C	-40°C...+60°C

Temperature Code - VEGAPULS PS64 for Process Temperature up to +130°C

The following listed temperature derating tables are valid for:
VEGAPULS PS64Z(*)**U**A/G/F/RH*****(*)(*)
VEGAPULS PS64Z(*)**G**I/K/PH*****(*)(*)
VEGAPULS PS64Z(*)**I**T/U/VH*****(*)(*)
VEGAPULS PS64Z(*)**I**IH*****(*)(*)

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 1 (EPL Gb) or in Class I, Division 1
T6	X°C...+80°C <small>Note 2</small>	-50°C...+60°C
T5	X°C...+95°C <small>Note 2</small>	-50°C...+60°C
T4...T1	X°C...+130°C <small>Note 2</small>	-50°C...+47°C <small>Note 1</small>

Note 1 - For process temperatures lower than the given maximum values in the above table, higher ambient temperatures at the enclosure can be permitted. For details consult VEGA.

Note 2 - The minimal permitted process temperature, in the table above indicated by "X°C", is depending on the sealing material used. The applicable minimum process temperature can be taken from below model code:

VEGAPULS PS64Z(*)**U**A/FH*****(*)(*)	X = -40°C
VEGAPULS PS64Z(*)**U**GH*****(*)(*)	X = -20°C
VEGAPULS PS64Z(*)**U**RH*****(*)(*)	X = -15°C
VEGAPULS PS64Z(*)**G**I/K/PH*****(*)(*)	X = -60°C
VEGAPULS PS64Z(*)**I**TH*****(*)(*)	X = -15°C
VEGAPULS PS64Z(*)**I**U/VH*****(*)(*)	X = -20°C
VEGAPULS PS64Z(*)**I**IH*****(*)(*)	X = -60°C



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Temperature Code - VEGAPULS PS64 for Process Temperature up to +195°C

The following listed temperature derating tables are valid for:

VEGAPULS PS64Z(*).**U**B/H/SH*****(*)

VEGAPULS PS64Z(*).**G**J/L/QH*****(*)

VEGAPULS PS64Z(*).**I**JH*****(*)

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 1 (EPL Gb) or in Class I, Division 1
T6	X°C...+80°C ^{Note 1}	-50°C ...+60°C
T5	X°C...+95°C ^{Note 1}	-50°C ...+60°C
T4	X°C...+130°C ^{Note 1}	-50°C ...+60°C
T3...T1	X°C...+195°C ^{Note 1}	-50°C ...+57°C

Note 1 - The minimal permitted process temperature, in the table above indicated by "X°C", is depending on the sealing material used. The applicable minimum process temperature can be taken from below model code:

VEGAPULS PS64Z(*).**U**BH*****(*) X = -40°C

VEGAPULS PS64Z(*).**U**HH*****(*) X = -20°C

VEGAPULS PS64Z(*).**U**SH*****(*) X = -15°C

VEGAPULS PS64Z(*).**G**J/L/QH*****(*) X = -60°C

VEGAPULS PS64Z(*).**I**JH*****(*) X = -60°C

Temperature Code - VEGAPULS PS64 for Process Temperature down to -196°C

The following listed temperature derating tables are valid for:

VEGAPULS PS64Z(*).**G**W/YH*****(*)

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 1 (EPL Gb) or in Class I, Division 1
T6	-196°C...+80°C	-20°C ...+60°C
T5	-196°C ...+95°C	-20°C ...+60°C
T4	-196°C ...+130°C	-20°C ...+60°C
T3...T1	-196°C ...+195°C	-20°C ...+57°C

Enclosure Rating - IP - Type - Dual Seal Data:

Model	Housing	Electronic	IP ¹	Type ¹
A	Aluminum / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P
H	Special color Aluminum / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P
D	Aluminum double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P
S	Special color Aluminum double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P
V	SiSt (precision casting) 316L / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P
W	SiSt (precision casting) double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P

Explanation:



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1. Refer to 'Conditions of Acceptability' for installation requirements related to selection of cable glands.

Notes:

1. The above model is fixed connection, Pollution Degree 4, Overvoltage Category II.
2. Mode of operation: Continuous.
3. Environmental Conditions: Extended, Indoor and outdoor use, Ambient temperature and RH range depending on the model see manual, altitude up to 5000m.

Conditions of Acceptability:

1. To be supplied by a Class 2 or Limited Energy Source in accordance with CSA 61010-1-12 or ISA 61010-1, Third Edition.
2. An itemization of the different thermal ranges can be found in the applicable Safety Instructions or in this certificate under "Thermal Data".
3. Flameproof joints are not intended for repair.
4. Installation of radar sensors shall be such that the following is prevented:
 - a. Electrostatic charging at operation, maintenance, and cleaning.
 - b. Electrostatic charging as consequence of process.
5. Components attached or installed (e.g. bushings, cable glands, blanking elements, connectors) shall be of a technical standard that complies with the applicable requirements in the certificate. They shall be suited for the operating conditions and have a separate examination certificate. The special conditions specified for the components shall be complied with, and the components shall be included in the type test, if necessary. This equally applies to the components mentioned in the technical description.
6. The end user has to assure, that the media temperature, when used in Zone 0, does not exceed 80% of the auto ignition temperature of the respective media (in °C) inside of the process vessel and does not exceed the maximum permissible flange temperature in dependence of the Temperature Code. When used with flammable media, the parts of the level gauge in contact with the media have to be included into the periodic overpressure test of the facility.
7. If parts of the level gauge inside the EPL Ga-area with contact to the medium are made of materials with an electrical conductivity of less than 10^{-8} S/m, the medium must have an electrical conductivity of at least 10^{-8} S/m, in order to avoid an electrostatic charging. If this is not possible to maintain, the level gauge must not be used, when heavy charging processes, such as mechanical friction or cutting processes, electron emission, etc., are present. Especially the antenna of the level gauge must not be mounted into a pneumatic conveying stream.
8. If aluminum and/or titanium are used in the EPL Ga-area, it has to be ensured, that sparking as a result of impact or friction between aluminum/titanium and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded.
9. The radar sensor type VEGAPULS PS64 shall be installed in such a way, that contact between the measuring sensor (antenna) and the tank wall will be excluded considering the installations and the flow conditions inside the tank and the length of the antenna.
10. For the operation of the VEGAPULS PS69Z(*).CE/Q****H*****(*)(*) with the antenna in EPL Ga-area, a process pressure range between 0.8 and 1.1 bar has to be maintained.
11. For devices with EPL Gb the following process pressures are applicable depending on the antenna version.



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Type PS64	Model	Process pressure
Plastic horn antenna	PS64Z(*).CE/QD***H*****(*)(*)	-1...+2 bar
Thread with integrated horn antenna	PS64Z(*).CE/QU***H*****(*)(*)	-1...+20 bar
Flange with encapsulated antenna system	PS64Z(*).CE/QG***H*****(*)(*)	-1...+25 bar
Aseptic/hygienic antenna	PS64Z(*).CE/QI***H*****(*)(*)	-1...+16 bar

12. For process pressures outside the standard atmospheric conditions of 80 kPa (0.8 bar) to 110 kPa (1.1 bar) additional requirements may be applied.
13. With the level measuring devices in the version with flushing connector it is to be made certain that using the level measuring devices as an equipment of EPL Ga/Gb the degree of protection IP67 at the connection to the return valve is guaranteed. After removing the check valve or the flushing system at the check valve, the opening is to be locked with a suitable plug in such a way, that the degree of protection IP67 is kept.
14. The level measuring devices in the version with swiveling holder shall be installed in such a way that using the level measuring devices as an equipment of EPL Ga/Gb after the alignment of the antenna by means of the swiveling holder and after screw connection of the clamp flange the degree of protection IP67 is kept.
15. With the radar sensors in the version with ball valve it is to be made certain that the ball valve is locked before the separation of the flange connection.
16. The VEGAPULS PS64 shall be connected with suitable cable glands or conduit systems that meet the requirements set forth in CSA/UL 60079-1, sections 13.1 and 13.2, and for which a separate test certificate has been issued. If the VEGAPULS PS64 is connected to conduit systems, the required sealing device shall be provided immediately at the enclosure.
17. Openings that are not used shall be sealed in compliance with the specifications in CSA/UL 60079-1, section 11.9.
18. 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.
19. If connection is made in the potentially explosive area, the connecting wire of the VEGAPULS PS64 shall be connected in an enclosure that meets the requirements of an approved type of protection in accordance with CSA/UL 60079-0, section 1.
20. The connecting wire of the VEGAPULS PS64 shall be fixed and routed so that it will be adequately protected against mechanical damage.
21. If the temperature at entry fittings exceeds 70 °C, temperature-resistant connecting cables shall be used.
22. The VEGAPULS PS64 shall be included in the local equipotential bonding solution (contact resistance ≤ 1MΩ) of the potentially explosive location.
23. Covers shall not be opened when an explosive gas atmosphere is present. Covers shall be marked with "WARNING – DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT".
24. Radar sensors shall only be used for process media against which the materials in contact with the media are sufficiently resistant.
25. If necessary a suitable overvoltage protector shall be mounted prior to the radar sensor.
26. End-user shall ensure the device is properly connected to Earth upon installation.

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



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Class I See Safety Instructions 53837
 Class II, III T* See Safety Instructions 51032

VEGAPULS PS69, Ex db / XP+DIP Version

VEGAPULS PS69 series Radar Sensor for Continuous Level Measurement of distance between the surface of bulk solid and the sensor. Enclosures are Type 4X/6P*; IP66/67/68*.

* See Enclosure Rating

Nomenclature:

Model Code VEGAPULS69Z().a-E-c-de-f-g-h-i-j-k-l-m-(*)*(*)

Z = blank, or "SI"

a = scope: C, V

b = approval:

E = Class I Division 1, Groups B, C and D T6...T1

Class II Division 1, Groups E, F, and G T*°C; Class III

Ex db IIC T6...T1 Ga/Gb, Gb

Class I, Zone 0/1 AEx db IIC T6...T1 Ga/Gb; Class I, Zone 1 AEx db IIC T6...T1 Gb

c = antenna / Material: B, C, U

de = ** TRI- CLAMP, DN or ASME industry type flange with pressure ratings and any type which comply with an international or national standard.

f = seal / process temperature: A, B, C, D, E, F, * or any other comparable seal suitable for the application including the given process temperature

g = electronics: H, B, I, P, F, U

h = additional electronics: X, Z

i = housing / protection: A, D, H, S, V, W

j = cable entry / connection: D, N, Q, 1, * or any other certified connection or cable gland suitable for the application

k = display / adjustment module PLICSCOM: A, B, F, K, L, X

l = additional equipment: X, R, V

m = certificates: M, X

Electrical Data:

Model	Electronic	Voltage Range
PS69Z(*).C/VE****H*****(*)	PS60HW	12...35VDC
PS69Z(*).C/VE****P*****(*)	PS60PAW	9...32VDC
PS69Z(*).C/VE****F*****(*)	PS60FFW	9...32VDC
PS69Z(*).C/VE****H***B**(*)	PS60HW+PLICSZEKX	12...35VDC
PS69Z(*).C/VE****P***B**(*)	PS60PAW+PLICSZEKX	9...32VDC
PS69Z(*).C/VE****F***B**(*)	PS60FFW+PLICSZEKX	9...32VDC
PS69Z(*).C/VE****HZ*****(*)	PS60HW+PLICSZEZSA	12...35VDC



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Model	Electronic	Voltage Range
PS69Z(*).C/VE****B*****(*)(*)	PS60HW+PLICSZEBVH	90...250VAC
PS69Z(*).C/VE****I*****(*)(*)	PS60HW+PLICSZEBVL	9.6...48VDC, 20...42VAC
PS69Z(*).C/VE****U*****(*)(*)	PS60HW+PLICSZEMB	8...30VDC

Thermal Data:

Temperature Code - VEGAPULS PS69 for Process Temperature up to +80°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS69Z(*).**B**C/D/EH*****(*)(*)

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 1 (EPL Gb) or in Class I, Division 1
T6...T1	-40°C...+80°C	-40°C...+60°C

Temperature Code - VEGAPULS PS69 for Process Temperature up to +130°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS69Z(*).**U**A/F H/B/I/U/P/F*****(*)(*)

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 1 (EPL Gb) or in Class I, Division 1
T6	-40°C...+80°C	-50°C...+60°C
T5	-40°C...+95°C	-50°C...+60°C
T4...T1	-40°C...+130°C	-50°C...+57°C

Temperature Code - VEGAPULS PS64 for Process Temperature up to +195°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS69Z(*).**U**B H/B/I/U/P/F*****(*)(*)
 VEGAPULS PS69Z(*).**C**B H/B/I/U/P/F*****(*)(*)

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 1 (EPL Gb) or in Class I, Division 1
T6	-40°C ...+80°C	-50°C ...+60°C
T5	-40°C ...+95°C	-50°C ...+60°C
T4	-40°C ...+130°C	-50°C ...+60°C
T3...T1	-40°C ...+195°C	-50°C ...+56°C

Enclosure Rating - IP - Type - Dual Seal Data:

Model	Housing	Electronic	IP ¹	Type ¹	Dual Seal
A	Aluminum / IP66/IP68 (0.2bar)	H, P, F	IP66/68 (0.2 bar)	6P	No
H	Special color Aluminum / IP66/IP68 (0.2bar)	H, P, F	IP66/68 (0.2 bar)	6P	No
D	Aluminum double chamber / IP66/IP68 (0.2bar)	H, P, F, U	IP66/68 (0.2 bar)	6P	Yes
S	Special color Aluminum double chamber / IP66/IP68 (0.2bar)	H, P, F, U	IP66/68 (0.2 bar)	6P	Yes



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Model	Housing	Electronic	IP ¹	Type ¹	Dual Seal
D	Aluminum double chamber / IP66/IP67	B ² , I ²	IP66/67	4X	Yes
S	Special color Aluminum double chamber / IP66/IP67	B ² , I ²	IP66/67	4X	Yes
V	SiSt (precision casting) 316L / IP66/IP68 (0.2bar)	H, P, F	IP66/68 (0.2 bar)	6P	No
W	SiSt (precision casting) double chamber / IP66/IP68 (0.2bar)	H, P, F, U	IP66/68 (0.2 bar)	6P	Yes
W	SiSt (precision casting) double chamber / IP66/IP67	B ² , I ²	IP66/67	4X	Yes

Explanation:

1. Refer to ‘Condition of Acceptability’ for installation requirements related to selection of cable glands.
2. Electronic B, I have voltage levels deemed to be HAZARDOUS LIVE.

Notes:

1. The above model is fixed connection, Pollution Degree 4, Overvoltage Category II.
2. Mode of operation: Continuous.
3. Environmental Conditions: Extended, Indoor and outdoor use, Ambient temperature and RH range depending on the model see manual, altitude up to 5000 m.

Conditions of Acceptability:

1. Models VEGAPULS PS69Z(*),*E****H/P/F/U*****(*) and PS69Z(*),*E****HZ*****(*) to be supplied by a Class 2 or Limited Energy Source in accordance with CSA 61010-1-12 or ISA 61010-1, Third Edition.
2. An itemization of the different thermal ranges can be found in the applicable Safety Instructions or in this certificate under “Thermal Data”.
3. Flameproof joints are not intended for repair.
4. Installation of radar sensors shall be such that the following is prevented:
 - a. Electrostatic charging at operation, maintenance, and cleaning.
 - b. Electrostatic charging as consequence of process.
5. Components attached or installed (e.g. bushings, cable glands, blanking elements, connectors) shall be of a technical standard that complies with the applicable requirements in the certificate. They shall be suited for the operating conditions and have a separate examination certificate. The special conditions specified for the components shall be complied with, and the components shall be included in the type test, if necessary. This equally applies to the components mentioned in the technical description.
6. The end user has to assure, that the media temperature, when used in Zone 0, does not exceed 80% of the auto ignition temperature of the respective media (in °C) inside of the process vessel and does not exceed the maximum permissible flange temperature in dependence of the Temperature Class. When used with flammable media, the parts of the level gauge in contact with the media have to be included into the periodic overpressure test of the facility.
7. If parts of the level gauge inside the EPL Ga-area with contact to the medium are made of materials with an electrical conductivity of less than 10⁻⁸ S/m, the medium must have an electrical conductivity of at least 10⁻⁸ S/m, in order to avoid an electrostatic charging. If this is not possible to maintain, the level gauge must not be used, when heavy charging processes, such as mechanical friction or cutting processes, electron emission,

etc., are present. Especially the antenna of the level gauge must not be mounted into a pneumatic conveying stream.

8. If aluminum and/or titanium are used in the EPL Ga-area, it has to be ensured, that sparking as a result of impact or friction between aluminum/titanium and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded.
9. The radar sensor type VEGAPULS PS69 shall be installed in such a way, that contact between the measuring sensor (antenna) and the tank wall will be excluded considering the installations and the flow conditions inside the tank and the length of the antenna.
10. For the operation of the VEGAPULS PS69Z(*).CE****H/B/I/P/F/U*****(*)(*) with the antenna in EPL Ga-area, a process pressure range between 0.8 and 1.1 bar has to be maintained.
11. For devices with EPL Gb the following process pressures are applicable depending on the antenna version.

Type PS69	Model	Process pressure
Plastic horn antenna	PS69Z(*).CEB****H/B/I/P/F/U*****(*)(*)	-1 ... +2 bar
Thread with integrated horn antenna	PS69Z(*).CEU****H/B/I/P/F/U*****(*)(*)	-1 ... +20 bar
Metal-jacketed lens antenna with rinsing connection	PS69Z(*).CEC****H/B/I/P/F/U*****(*)(*)	-1 ... +3 bar

12. For process pressures outside the standard atmospheric conditions of 80 kPa (0.8 bar) to 110 kPa (1.1 bar) additional requirements may be applied.
13. With the level measuring devices in the version with flushing connector it is to be made certain that using the level measuring devices as an equipment of EPL Ga/Gb the degree of protection IP67 at the connection to the return valve is guaranteed. After removing the check valve or the flushing system at the check valve, the opening is to be locked with a suitable plug in such a way, that the degree of protection IP67 is kept.
14. The level measuring devices in the version with swiveling holder shall be installed in such a way that using the level measuring devices as an equipment of EPL Ga/Gb after the alignment of the antenna by means of the swiveling holder and after screw connection of the clamp flange the degree of protection IP 67 is kept.
15. With the radar sensors in the version with ball valve it is to be made certain that the ball valve is locked before the separation of the flange connection.
16. The VEGAPULS PS69 shall be connected with suitable cable glands or conduit systems that meet the requirements set forth in CSA/UL 60079-1, sections 13.1 and 13.2, and for which a separate test certificate has been issued. If the VEGAPULS PS69 is connected to conduit systems, the required sealing device shall be provided immediately at the enclosure.
17. Openings that are not used shall be sealed in compliance with the specifications in CSA/UL 60079-1, section 11.9.
18. 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.
19. If connection is made in the potentially explosive area, the connecting wire of the VEGAPULS PS69 shall be connected in an enclosure that meets the requirements of an approved type of protection in accordance with CSA/UL 60079-0, section 1.
20. The connecting wire of the VEGAPULS PS69 shall be fixed and routed so that it will be adequately protected against mechanical damage.
21. If the temperature at entry fittings exceeds 70 °C, temperature-resistant connecting cables shall be used.
22. The VEGAPULS PS69 shall be included in the local equipotential bonding solution (contact resistance ≤ 1MΩ) of the potentially explosive location.



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23. Covers shall not be opened when an explosive gas atmosphere is present. Covers shall be marked with “WARNING – DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT”.
24. Radar sensors shall only be used for process media against which the materials in contact with the media are sufficiently resistant.
25. If necessary a suitable overvoltage protector shall be mounted prior to the radar sensor.
26. End-user shall ensure the device is properly connected to Earth upon installation.

Class I, Division 2, Groups A, B, C, and D, T6...T1
Class II, Division 2, Groups F, G, T*°C; Class III

Class I See Safety Instructions 54966
Class II, III T* See Safety Instruction 57952

VEGAPULS PS64, Non-Incendive (Non-Arcing/Non-Sparking) Version

VEGAPULS PS64 series Radar Sensor for Continuous Level Measurement of distance between the surface of liquids and the sensor. Enclosures are Type 6P*; IP66/68*, Dual Seal*.

* See Enclosure Rating

Nomenclature:

Model Code VEGAPULS64Z().a-A-c-de-f-g-h-i-j-k-l-m-(*)(*)*

Z = blank, or “SI”

a = certification: C

b = approval:

A = Class I, Division 2, Groups A, B, C, D T6...T1; Class II, Division 2, Groups F, G, T*°C; Class III

c = antenna / Material: B, D, U, G, I

de = process fitting / material: two-digit alphanumeric code for industry recognized type connection with suitable pressure ratings and any type which complies with appropriate international or national standards

f = seal / process temperature: A, B, C, D, E, F, G, H, I, J, K, L, P, Q, R, S, T, U, V, W, Y, * or one letter code for seal suitable for application including the given process temperature

g = electronics: H

h = additional electronics: X

i = housing / protection: A, D, H, S, V, W

j = cable entry / connection: D, I, N, Q, * or single digit representing connection or cable gland suitable for the application

k = display / adjustment module PLICSCOM: A, B, F, K, L, X

l = additional equipment: V, X, 1, 2

m = certificates: M, X

Electrical Data:

Supply and signal circuit:



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Terminals 1 [+], 2[-] for 1-chamber housing in the electronics compartment or terminals 1 [+], 2[-] for 2-chamber housing in the connection compartment

U = 12 ... 35VDC

Thermal Data:

Temperature Code - VEGAPULS PS64 for Process Temperature up to +80°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS64Z(*).**B/D**C/D/EH*****(*)

Aluminum Enclosure - Models: A, H, D, S

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C...+40 °C
T5	-40°C...+80°C	-40°C...+58 °C
T4 ... T1	-40°C...+80°C	-40°C...+80 °C

Stainless Steel Precision Casted Enclosure - Models: V, W

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C...+39 °C
T5	-40°C...+80°C	-40°C...+57 °C
T4 ... T1	-40°C...+80°C	-40°C...+80 °C

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

Temperature Code - VEGAPULS PS64 for Process Temperature up to +130°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS64Z(*).**U**A/G/F/RH*****(*)
 VEGAPULS PS64Z(*).**C**I/K/PH*****(*)
 VEGAPULS PS64Z(*).**I**T/U/VH*****(*)
 VEGAPULS PS64Z(*).**I**IH*****(*)

Aluminum Enclosure - Models: A, H, D, S

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C...+32 °C
T5	-40°C...+95°C	-40°C...+47 °C
T4 ... T1	-40°C...+130°C	-40°C...+57 °C



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Stainless Steel Precision Casted Enclosure - Models: V, W

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C...+30 °C
T5	-40°C...+95°C	-40°C...+45 °C
T4...T1	-40°C...+130°C	-40°C...+47 °C

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

Temperature Code - VEGAPULS PS64 for Process Temperature up to +195°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS64Z(*).**U**B/H/SH*****(*)
 VEGAPULS PS64Z(*).**G**J/W/L/Y/QH*****(*)
 VEGAPULS PS64Z(*).**I**JH*****(*)

Aluminum Enclosure - Models: A, H, D, S

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C ...+42°C
T5	-40°C...+95°C	-40°C ...+57°C
T4	-40°C...+130°C	-40°C ...+73°C
T3...T1	-40°C...+195°C	-40°C ...+65°C

Stainless Steel Precision Casted Enclosure - Models: V, W

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C ...+41°C
T5	-40°C...+95°C	-40°C ...+56°C
T4	-40°C...+130°C	-40°C ...+70°C
T3...T1	-40°C...+195°C	-40°C ...+57°C

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

Temperature Code - VEGAPULS PS64 for Process Temperature down to -196°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS64Z(*).**F/G**W/YH*****(*)



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Aluminum Enclosure - Models: A, H, D, S

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-196°C...+80°C	-10°C...+42°C
T5	-196°C...+95°C	-10°C...+57°C
T4	-196°C...+130°C	-10°C...+74°C
T3...T1	-196°C...+195°C	-10°C...+67°C

Stainless Steel Precision Casted Enclosure - Models: V, W

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-196°C...+80°C	-10°C...+42°C
T5	-196°C...+95°C	-10°C...+57°C
T4	-196°C...+130°C	-10°C...+71°C
T3...T1	-196°C...+195°C	-10°C...+60°C

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

Enclosure Rating - IP - Type - Dual Seal Data:

Model	Housing	Electronic	IP ¹	Type ¹	Dual Seal
A	Aluminum / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
H	Special colour Aluminum / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
D	Aluminum double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes
S	Special colour Aluminum double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes
V	StSt (precision casting) 316L / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
W	StSt (precision casting) double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes

Explanation:

1. Refer to 'Conditions of Acceptability' for installation requirements related to selection of cable glands.

Notes:

1. The above model is fixed connection, Pollution Degree 4, Overvoltage Category II.
2. Mode of operation: Continuous.
3. Environmental Conditions: Extended, Indoor and outdoor use, Ambient temperature and RH range depending on the model see manual, altitude up to 5000 m.

Conditions of Acceptability:

1. To be supplied by a Class 2 or Limited Energy Source in accordance with CSA 61010-1-12 or ISA 61010-1, Third Edition.



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2. When cable glands or plugging connections are used their IP and Type rating must meet the installation requirements of CEC, Section 18, and NEC, Section 500 for installation in Division for 'Class II / Class III'.
3. 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.
4. The final installation of the device shall meet the requirements of CEC (for Canada) and NEC (for USA) for wiring method in Division 2 and is subject to acceptance of local authority having jurisdiction.
5. End-user shall ensure the device is properly connected to Earth upon installation.

Class I, Division 2, Groups A, B, C, and D, T6...T1
Class II, Division 2, Groups F, G, T*°C; Class III

Class I See Safety Instructions 57979

Class II, III T* See Safety Instruction 51032

VEGAPULS PS69, Non-Incendive (Non-Arcing/Non-Sparking) Version

VEGAPULS PS69 series Radar Sensor for Continuous Level Measurement of distance between the surface of bulk solids and the sensor. Enclosures are Type 4X/6P*; IP66/67/68*, Dual Seal*.

* See Enclosure Rating

Nomenclature:

Model Code VEGAPULS69Z().a-A-c-de-f-g-h-i-j-k-l-m-(*)*

Z = blank, or "SI"

a = certification: C

b = approval:

A = Class I, Division 2, Groups A, B, C, D T6...T1; Class II, Division 2, Groups F, G, Class III

c = antenna / Material: B, C, U

de = ** TRI- CLAMP, DN or ASME industry type flange with pressure ratings and any type which comply with an international or national standard.

f = seal / process temperature: A, B, C, D, E, F, * or any other comparable seal suitable for the application including the given process temperature

g = electronics: H, B, I, U, P, F

h = additional electronics: X, Z

i = housing / protection: A, D, H, S, V, W

j = cable entry / connection: D, N, Q, I, * or any other certified connection or cable gland suitable for the application

k = display / adjustment module PLICSCOM: A, B, F, K, L, X

l = additional equipment: X, R, V

m = certificates: M, X

Electrical Data:



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VEGAPULS PS69Z(*).*A****H*****(*)(*) Supply and signal circuit: Terminals 1 [+], 2 [-] for 1-chamber housing in the electronics compartment or terminals 1 [+], 2 [-] for 2-chamber housing in the connection compartment	U = 12 ... 35 VDC
VEGAPULS PS69Z(*).*A****HZ*****(*)(*) Supply and signal circuit 1: Terminals 1 [+], 2 [-] for 1-chamber housing in the electronics compartment or terminals 1 [+], 2 [-] for 2-chamber housing in the connection compartment Supply and signal circuit 2: Terminals 7 [+], 8 [-] for 1-chamber housing in the electronics compartment or terminals 7 [+], 8 [-] for 2-chamber housing in the connection compartment	U = 12 ... 35 VDC U = 12 ... 35 VDC
VEGAPULS PS69Z(*).*A****P/F*****(*)(*) Supply and signal circuit: Terminals 1 [+], 2 [-] for 1-chamber housing in the electronics compartment or terminals 1 [+], 2 [-] for 2-chamber housing in the connection compartment	U = 9 ... 32 VDC
VEGAPULS PS69Z(*).*A****B*****(*)(*) Supply and signal circuit: Terminals 1, 2 in the connection compartment Output: Terminals 5 [+], 7 [-] in the connection compartment Passive signal current, input: Terminals 6 [+], 7 [-] in the connection compartment	U = 90 ... 253 VAC, 50/60 Hz 4 ... 20 mA with superimposed HART signal 4 ... 20 mA with superimposed HART signal
VEGAPULS PS69Z(*).*A****I*****(*)(*) Supply circuit: Terminals 1 [+], 2 [-] in the connection compartment Output: Terminals 5 [+], 7 [-] in the connection compartment Passive signal current, input: Terminals 6 [+], 7 [-] in the connection compartment	U = 20 ... 42 VAC, 50/60 Hz or U = 9,6 ... 48 VDC 4 ... 20 mA with superimposed HART signal 4 ... 20 mA with superimposed HART signal
VEGAPULS PS69Z(*).*A****U*****(*)(*) Supply circuit: Terminals 1 [+], 2 [-] in the connection compartment Signal circuit: Terminals 3 [D0+], 4 [D1-] in the connection compartment IS GND: terminal 5 in the connection compartment USB interface in the connection compartment	U = 8 V...30 VDC U _{max} = 5 V with Modbus signal U _{max} = 5 V USB signal
VEGAPULS PS69Z(*).*A****H/P/F*****(*)(*) Adjustment and indication circuit Terminals 5, 6, 7, 8 in the connection compartment	Only for connection to the associated VEGA adjustment



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VEGAPULS PS69Z(*).*A****H/P/F/B/I/U*****(*)(*)
 Adjustment and indication circuit

and indication unit
 VEGADIS81

Only for connection to the
 certified adjustment and
 indication unit PLICSCOM

Thermal Data:

Temperature Code - VEGAPULS PS69 for Process Temperature up to +80°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS69Z(*).**B**C/D/EH/U/P/FX/Z*****(*)(*)

Aluminum Enclosure – Models: A, H, D, S

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C...+40 °C
T5	-40°C...+80°C	-40°C...+58 °C
T4 ... T1	-40°C...+80°C	-40°C...+80 °C

Stainless Steel Precision Casted Enclosure - Models: V, W

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C...+39 °C
T5	-40°C...+80°C	-40°C...+57 °C
T4 ... T1	-40°C...+80°C	-40°C...+80 °C

The following listed temperature derating tables are valid for:
 VEGAPULS PS69Z(*).**B**C/D/EB/IX*****(*)(*)

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T4 ... T1	-40°C...+80°C	-40°C...+80 °C

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

Temperature Code - VEGAPULS PS69 for Process Temperature up to +130°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS69Z(*).**U**A/F/H/U/PFX/Z*****(*)(*)



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VEGAPULS PS69Z(*).**C**A/FH/U/P/FX/Z*****(*)(*
 Aluminum Enclosure - Models: A, H, D, S

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C...+36 °C
T5	-40°C...+95°C	-40°C...+51 °C
T4 ... T1	-40°C...+130°C	-40°C...+65 °C

Stainless Steel Precision Casted Enclosure - Models: V, W

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C...+35 °C
T5	-40°C...+95°C	-40°C...+50 °C
T4 ... T1	-40°C...+130°C	-40°C...+57 °C

The following listed temperature derating tables are valid for:
 VEGAPULS PS69Z(*).**U**A/F/B/IX*****(*)(*
 VEGAPULS PS69Z(*).**C**A/FB/IX*****(*)(*

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T4 ... T1	-40°C...+130°C	-40°C...+57 °C

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

Temperature Code - VEGAPULS PS69 for Process Temperature up to +195°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS69Z(*).**U**B/H/SH/U/P/FX/Z*****(*)(*
 VEGAPULS PS69Z(*).**C**BH/U/P/FX/Z*****(*)(*

Aluminum Enclosure - Models: A, H, D, S

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C ...+41°C
T5	-40°C...+95°C	-40°C ...+56°C
T4	-40°C...+130°C	-40°C ...+72°C
T3...T1	-40°C...+195°C	-40°C ...+63°C



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Stainless Steel Precision Casted Enclosure - Models: V, W, Q

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T6	-40°C...+80°C	-40°C ...+41°C
T5	-40°C...+95°C	-40°C ...+56°C
T4	-40°C...+130°C	-40°C ...+69°C
T3...T1	-40°C...+195°C	-40°C ...+56°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS69Z(*).**U**B/H/SB/IX*****(*)
 VEGAPULS PS69Z(*).**C**BB/IX*****(*)

T-Code	Permitted process temperature range at the antenna in Division 2	Permitted ambient temperature range at the electronics enclosure in Division 2
T4	-40°C...+130°C	-40°C ...+69°C
T3...T1	-40°C...+195°C	-40°C ...+56°C

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

Enclosure Rating - IP - Type - Dual Seal Data:

Model	Housing	Electronic	IP ¹	Type ¹	Dual Seal
A	Aluminum / IP66/IP68 (0.2bar)	H, P, F	IP66/68 (0.2 bar)	6P	No
H	Special colour Aluminum / IP66/IP68 (0.2bar)	H, P, F	IP66/68 (0.2 bar)	6P	No
D	Aluminum double chamber / IP66/IP68 (0.2bar)	H, P, F, U	IP66/68 (0.2 bar)	6P	Yes
D	Aluminum double chamber / IP66/IP67	B ² , I ²	IP66/67	4X	Yes
S	Special colour Aluminum double chamber / IP66/IP67	H, P, F, U	IP66/68 (0.2 bar)	6P	Yes
S	Special colour Aluminum double chamber / IP66/IP67	B ² , I ²	IP66/67	4X	Yes
V	StSt (precision casting) 316L / IP66/IP68 (0.2bar)	H, P, F	IP66/68 (0.2 bar)	6P	No
W	StSt (precision casting) double chamber / IP66/IP68 (0.2bar)	H, P, F, U	IP66/68 (0.2 bar)	6P	Yes
W	StSt (precision casting) double chamber / IP66/IP67	B ² , I ²	IP66/67	4X	Yes

Explanation:

1. Refer to 'Condition of Acceptability' for installation requirements related to selection of cable glands.
2. Electronic B, I have voltage levels deemed to be HAZARDOUS LIVE; VEGA does not declare/apply IP68.

Notes:

1. The above model is fixed connection, Pollution Degree 4, Overvoltage Category II.
2. Mode of operation: Continuous.
3. Environmental Conditions: Extended, Indoor and outdoor use, Ambient temperature and RH range depending on the model see manual, altitude up to 5000 m.



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Conditions of Acceptability:

1. Models VEGAPULS PS69Z(*).*A****H/P/F/U*****(*) (*) and PS69Z(*).*A****HZ*****(*) (*) To be supplied by a Class 2 or Limited Energy Source in accordance with CSA 61010-1-12 or ISA 61010-1, Third Edition.
2. When cable glands or plugging connections are used their IP and Type rating must meet the installation requirements of CEC, Section 18, and NEC, Section 500 for installation in Division for 'Class II / Class III'.
3. 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.
4. The final installation of the device shall meet the requirements of CEC (for Canada) and NEC (for USA) for wiring method in Division 2 and is subject to acceptance of local authority having jurisdiction.
5. End-user shall ensure the device is properly connected to Earth upon installation.

CLASS 2258 04 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations
CLASS 2258 84 - PROCESS CONTROL EQUIPMENT - Intrinsically Safe Entity - For Hazardous Locations - Certified to US Standards

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

Class I See Safety Instructions 54965
Class II, III T* See Safety Instructions 57952

VEGAPULS PS64. Ex ia / IS version

VEGAPULS PS64 series Radar Sensor for Continuous Level Measurement of distance between the surface of liquids and the sensor. Enclosures are Type 6P*; IP66/68*, Dual Seal*.

* See Enclosure Rating

Nomenclature:

Model Code VEGAPULS64Z().a-b-c-de-f-g-h-i-j-k-l-m-(*) (*)*

Z = blank, or "SI"

a = certification: C, V

b = approval:

C = Class I, Division 1, Groups A, B, C, D T6...T1; Class II, Division 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

O = C + Ship

c = antenna / Material: B, D, T, U, F, G, H, I



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de = process fitting / material: two-digit alphanumeric code for industry recognized type connection with suitable pressure ratings and any type which complies with appropriate international or national standards
f = seal / process temperature: A, B, C, D, E, F, G, H, I, J, K, L, P, Q, R, S, T, U, V, W, Y, * or one letter code for seal suitable for application including the given process temperature
g = electronics: H
h = additional electronics: X
i = housing / protection: 3, 4, 5, 8, A, D, H, S, V, W
j = cable entry / connection: D, I, N, Q, Y * or single digit representing connection or cable gland suitable for the application
k = display / adjustment module PLICSCOM: A, B, F, K, L, X
l = additional equipment: V, X, 1, 2
m = certificates: M, X

Electrical Data:

Supply and signal circuit I:
(Terminals 1[+], 2[-] in the connection compartment of the 2-chamber housing)
PS64Z(*).CC****HX*****(*)(*).

In type of protection Intrinsic Safety Ex ia IIC. For connection to a certified intrinsically safe circuit with linear characteristics.
Maximum values:

$$U_i/V_{\max} = 30 \text{ V}$$

$$I_i/I_{\max} = 131 \text{ mA}$$

$$P_i = 983 \text{ mW}$$

The effective inner inductance is $L_i \leq 10 \mu\text{H}$. In the version with permanently mounted connection cable, $C_{i\text{-wire/wire}} = 159 \text{ pF/m}$, and $C_{i\text{-wire/screen}} = 270 \text{ pF/m}$ must be taken into account.

In the version with permanently mounted connection cable, $L_i = 0.55 \mu\text{H/m}$ must be taken into account.

Display and adjustment circuit:
Terminals 5, 6, 7, 8 in electronic compartment or plug connection.
PS64Z(*).CC****HX*****(*)(*).

In protection type Intrinsic Safety Ex ia IIC. For connection to the intrinsically safe circuit of the associated external indicating unit VEGADIS81.

The rules for the interconnection of intrinsically safe circuits between the level measuring devices type VEGAPULS PS64 and the external display and adjustment unit VEGADIS81 are fulfilled, provided that the total inductance and total capacitance of the connection cable between the level measuring devices VEGAPULS PS64 and the external display unit VEGADIS81, $L_{\text{cable}} = 212 \mu\text{H}$, and $C_{\text{cable}} = 1.98 \mu\text{F}$ is not exceeded. When using the VEGA provided connection



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cable between the level measuring devices VEGAPULS PS64 and the external indicating unit VEGADIS81, the following listed cable inductances L_i and cable capacitances C_i must be taken into account:

$$L_i = 0.62 \mu\text{H/m}$$

$$C_{i\text{-wire/wire}} = 132 \text{ pF/m}$$

$$C_{i\text{-wire/screen}} = 208 \text{ pF/m}$$

Display and adjustment circuit:
spring contacts in electronic compartment or connection compartment
PS64Z(*).CC****HX*****(*)(*).

In protection type intrinsic safety Ex ia IIC. For connection to the indicating and adjustment module PLICSCOM.

The metal elements of the level measuring devices based on microwave technology type series VEGAPULS PS64 are electrically connected to the earth terminals. The intrinsically safe signal and supply circuit is safely electrically isolated from elements that may be earthed. The intrinsically safe signal and supply circuits are safely galvanic isolated from each other.

Thermal Data:

Temperature Code - VEGAPULS PS64 for Process Temperature up to +80°C

The following listed temperature derating tables are valid for:
VEGAPULS PS64Z(*).**B/D**C/D/EH*****(*)(*)

Aluminum Enclosure - Models: A, H, 3, D, S, 4

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+40 °C
T5	-40°C...+80°C	-40°C...+58 °C
T4 ... T1	-40°C...+80°C	-40°C...+80 °C

Stainless Steel Precision Casted Enclosure - Models: V, 5, W

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+39 °C
T5	-40°C...+80°C	-40°C...+57 °C
T4 ... T1	-40°C...+80°C	-40°C...+80 °C



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Stainless Steel Electro-Polished Enclosure - Models: 8

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+38 °C
T5	-40°C...+80°C	-40°C...+56 °C
T4 ... T1	-40°C...+80°C	-40°C...+80 °C

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

Temperature Code - VEGAPULS PS64 for Process Temperature up to +130°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS64Z(*,**T/U**A/G/F/RH*****)(*^{*})(*)
 VEGAPULS PS64Z(*,**F/G**I/K/PH*****)(*^{*})(*)
 VEGAPULS PS64Z(*,**H/I**T/U/VH*****)(*^{*})(*)
 VEGAPULS PS64Z(*,**H/I**IH*****)(*^{*})(*)

Aluminum Enclosure – Models: A, H, 3, D, S, 4

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+32°C
T5	-40°C...+95°C	-40°C...+47°C
T4 ... T1	-40°C...+130°C	-40°C...+57°C

Stainless Steel Precision Casted Enclosure - Models: V, 5, W

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+30°C
T5	-40°C...+95°C	-40°C...+45°C
T4 ... T1	-40°C...+130°C	-40°C...+47°C

Stainless Steel Electro-Polished Enclosure - Models: 8

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+29°C
T5	-40°C...+95°C	-40°C...+44°C
T4 ... T1	-40°C...+130°C	-40°C...+36°C



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

Temperature Code - VEGAPULS PS64 for Process Temperature up to +195°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS64Z(*).**T/U**B/H/SH*****(*)(*)
 VEGAPULS PS64Z(*).**F/G**J/W/L/Y/QH*****(*)(*)
 VEGAPULS PS64Z(*).**H/I**JH*****(*)(*)

Aluminum Enclosure - Models: A, H, 3, D, S, 4

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C ...+42°C
T5	-40°C...+95°C	-40°C ...+57°C
T4	-40°C...+130°C	-40°C ...+73°C
T3...T1	-40°C...+195°C	-40°C ...+65°C

Stainless Steel Precision Casted Enclosure - Models: V, 5, W

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C ...+41°C
T5	-40°C...+95°C	-40°C ...+56°C
T4	-40°C...+130°C	-40°C ...+70°C
T3...T1	-40°C...+195°C	-40°C ...+57°C

Stainless Steel Electro-Polished Enclosure - Models: 8

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C ...+40°C
T5	-40°C...+95°C	-40°C ...+55°C
T4	-40°C...+130°C	-40°C ...+66°C
T3...T1	-40°C...+195°C	-40°C ...+49°C

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

Temperature Code - VEGAPULS PS64 for Process Temperature down to -196°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS64Z(*).**F/G**W/YH*****(*)(*)



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Aluminum Enclosure - Models: A, H, 3, D, S, 4

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-196°C...+80°C	-10°C ...+42°C
T5	-196°C...+95°C	-10°C ...+57°C
T4	-196°C...+130°C	-10°C ...+74°C
T3...T1	-196°C...+195°C	-10°C ...+67°C

Stainless Steel Precision Casted Enclosure - Models: V, 5, W

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-196°C...+80°C	-10°C ...+42°C
T5	-196°C...+95°C	-10°C ...+57°C
T4	-196°C...+130°C	-10°C ...+71°C
T3...T1	-196°C...+195°C	-10°C ...+60°C

Stainless Steel Electro-Polished Enclosure - Models: 8

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-196°C...+80°C	-10°C ...+41°C
T5	-196°C...+95°C	-10°C ...+56°C
T4	-196°C...+130°C	-10°C ...+68°C
T3...T1	-196°C...+195°C	-10°C ...+53°C

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

Enclosure Rating - IP - Type - Dual Seal Data:

Model	Housing	Electronic	IP ¹	Type ¹	Dual Seal
A	Aluminum / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
H	Special colour Aluminum / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
3	Aluminum / IP66/IP68 (1 bar)	H	IP66/68 (1 bar)	6P	No
D	Aluminum double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes
S	Special colour Aluminum double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes
4	Aluminum double chamber / IP66/IP68 (1bar)	H	IP66/68 (1 bar)	6P	No
V	StSt (precision casting) 316L / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
5	StSt (precision casting) 316L / IP66/IP68 (1 bar)	H	IP66/68 (1 bar)	6P	No
W	StSt (precision casting) double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes
8	StSt (electropolished) 316L / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No

Explanation:

1. Refer to 'Conditions of Acceptability' for installation requirements related to selection of cable glands.



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Notes:

1. The above model is fixed connection, Pollution Degree 4, Overvoltage Category II.
2. Mode of operation: Continuous.
3. Environmental Conditions: Extended, Indoor and outdoor use, Ambient temperature and RH range depending on the model see manual, altitude up to 5000 m

Conditions of Acceptability:

1. If used as an EPL Ga-equipment the level measuring devices based on microwave technology type series VEGAPULS PS64 with integrated electronic assembly which include the material aluminum/titanium, shall be installed in such a way that sparking as a result of impact or friction between aluminum/titanium and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded.
2. The level measuring devices with metal enclosure with inspection window as well as components of the antennas out of plastic include surfaces that can become charged electrostatically (note warning label).
3. When used as an EPL Ga- or EPL Ga/Gb-equipment, the level measuring devices shall be connected to the equipotential bonding conductor (contact resistance $\leq 1\text{M}\Omega$) (e.g. using the earth terminal) in order to prevent metal elements from being charged electrostatically.
4. In applications requiring EPL Ga- or EPL Ga/Gb-equipment, all parts of the level measuring devices that come in contact with media, shall only be used in such media against which the materials are sufficiently resistant.
5. With the level measuring devices in the version with flushing connector it is to be made certain that using the level measuring devices as an equipment of EPL Ga/Gb the degree of protection IP66 at the connection to the return valve is guaranteed.
6. After removing the check valve or the flushing system at the check valve, the opening is to be locked with a suitable plug in such a way, that the degree of protection IP67 is kept.
7. The level measuring devices with swiveling holder used as an EPL Ga/Gb equipment shall be installed in such a way that the degree of protection IP67 is kept after alignment of the antenna by means of the swiveling holder and after fastening the screw connection of the clamp flange.
8. 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.
9. When cable glands or plugging connections are used their IP and Type rating must meet the installation requirements of CEC, Section 18, and NEC, Section 500 for installation in Division for 'Class II / Class III'.
10. End-user shall ensure the device is properly connected to Earth upon installation.

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

Class II, Division 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

Class I See Safety Instructions 51031

Class II, III T* See Safety Instructions 51032

VEGAPULS PS69, Ex ia / IS version



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VEGAPULS PS69 series Radar Sensor for Continuous Level Measurement of distance between the surface of liquids and the sensor. Enclosures are Type 6P*; IP66/68*, Dual Seal*.

* See Enclosure Rating

Nomenclature:

Model Code VEGAPULS69Z().a-b-c-de-f-g-h-i-j-k-l-m-(*)*(*)

Z = blank, or "SI"

a = certification: C, V

b = approval: C

C = Class I, Division 1, Groups A, B, C, D T6...T1; Class II, Division 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 = antenna / Material: B, C, T, U

de = ** TRI- CLAMP, DN or ASME industry type flange with pressure ratings and any type which comply with an international or national standard.

f = seal / process temperature: A, B, C, D, E, F, * or any other comparable seal suitable for the application including the given process temperature

g = electronics: H

h = additional electronics: X, Z

i = housing / protection: 3, 4, 5, 8, A, D, H, S, V, W

j = cable entry / connection: D, N, Q, 1, * or any other certified connection or cable gland suitable for the application

k = display / adjustment module PLICSCOM: A, B, F, K, L, X

l = additional equipment: X, R, V

m = certificates: M, X

Electrical Data:

Supply and signal circuit I:

(Terminals 1[+], 2[-] in the connection compartment of the 2-chamber housing)

VEGAPULS PS69Z(*).CC****HX****(*)

In type of protection type Intrinsic Safety Ex ia IIC. For connection to a certified intrinsically safe circuit with linear characteristics.

Maximum values:

$U_i/V_{max} = 30 \text{ V}$

$I_i/I_{max} = 131 \text{ mA}$

$P_i = 983 \text{ mW}$

The effective inner inductance is $L_i \leq 10 \mu\text{H}$. In the version with permanently mounted connection cable,

$C_{i-wire/wire} = 159 \text{ pF/m}$, $C_{i-wire/screen} = 270 \text{ pF/m}$ must be taken into account.

Supply and signal circuit II:
 (Terminals 7[+], 8[-] in the connection
 compartment of the 2-chamber housing)
 VEGAPULS PS69Z(*).CC****HZ****(*)(*)

Display and adjustment circuit:
 Terminals 5, 6, 7, 8 in electronic compartment or
 plug connection.
 VEGAPULS PS69Z(*).CC****HX/Z****(*)(*)

Display and adjustment circuit:
 spring contacts in electronic compartment or
 connection compartment
 VEGAPULS PS69Z(*).CC****HX/Z****(*)(*)

The metal elements of the level measuring devices based on microwave technology type series VEGAPULS PS69 are electrically connected to the earth terminals. The intrinsically safe signal and supply circuit is safely

In the version with permanently mounted connection cable, $L_i = 0.55 \mu\text{H}/\text{m}$ must be taken into account.

In protection type Intrinsic Safety Ex ia IIC. For connection to a certified intrinsically safe circuit with linear characteristics.

Maximum values:

$$U_i/V_{\max} = 30 \text{ V}$$

$$I_i/I_{\max} = 131 \text{ mA}$$

$$P_i = 901 \text{ mW}$$

$C_i =$ negligibly small.

The effective inner inductance is $L_i \leq 5 \mu\text{H}$

In protection type Intrinsic Safety Ex ia IIC. For connection to the intrinsically safe circuit of the associated external indicating unit VEGADIS81.

The rules for the interconnection of intrinsically safe circuits between the level measuring devices type VEGAPULS PS69 and the external display and adjustment unit VEGADIS81 are fulfilled, provided that the total inductance and total capacitance of the connection cable between the level measuring devices VEGAPULS PS69 and the external display unit VEGADIS81, $L_{\text{cable}} = 212 \mu\text{H}$ and $C_{\text{cable}} = 1.98 \mu\text{F}$, is not exceeded. When using the VEGA provided connection cable between the level measuring devices VEGAPULS PS69 and the external indicating unit VEGADIS81, the following listed cable inductances L_i and cable capacitances C_i must be taken into account:

$$L_i = 0.62 \mu\text{H}/\text{m}$$

$$C_{i\text{-wire/wire}} = 132 \text{ pF}/\text{m}$$

$$C_{i\text{-wire/screen}} = 208 \text{ pF}/\text{m}$$

In protection type intrinsic safety Ex ia IIC. For connection to the indicating and adjustment module PLICSCOM.



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electrically isolated from elements that may be earthed. The intrinsically safe signal and supply circuits are safely galvanic isolated from each other.

Temperature Code - VEGAPULS PS69 for Process Temperature up to +80°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS69Z(*).**B**C/D/EH*****(*)

Aluminum Enclosure - Models: A, H, 3, D, S, 4

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+40 °C
T5	-40°C...+80°C	-40°C...+58 °C
T4 ... T1	-40°C...+80°C	-40°C...+80 °C

Stainless Steel Precision Casted Enclosure - Models: V, 5, W

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+39 °C
T5	-40°C...+80°C	-40°C...+57 °C
T4 ... T1	-40°C...+80°C	-40°C...+80 °C

Stainless Steel Electro-Polished Enclosure - Models: 8

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+38 °C
T5	-40°C...+80°C	-40°C...+56 °C
T4 ... T1	-40°C...+80°C	-40°C...+80 °C

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

Temperature Code - VEGAPULS PS69 for Process Temperature up to +130°C

The following listed temperature derating tables are valid for:
 VEGAPULS PS69Z(*).**T/U**A/F/HX/Z*****(*)
 VEGAPULS PS69Z(*).**C**A/FHX/Z*****(*)



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Aluminum Enclosure - Models: A, H, 3, D, S, 4

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+36 °C
T5	-40°C...+95°C	-40°C...+51 °C
T4 ... T1	-40°C...+130°C	-40°C...+65 °C

Stainless Steel Precision Casted Enclosure – Models: V, 5, W

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+35 °C
T5	-40°C...+95°C	-40°C...+50 °C
T4 ... T1	-40°C...+130°C	-40°C...+57 °C

Stainless Steel Electro-Polished Enclosure - Models: 8

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C...+32 °C
T5	-40°C...+95°C	-40°C...+47°C
T4 ... T1	-40°C...+130°C	-40°C...+46 °C

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

Temperature Code - VEGAPULS PS69 for Process Temperature up to +195°C

The following listed temperature derating tables are valid for:

VEGAPULS PS69Z(*).**T/U**B/H/SH*****(*)

VEGAPULS PS69Z(*).**C**BH*****(*)

Aluminum Enclosure - Models: A, H, 3, D, S, 4

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C ...+41°C
T5	-40°C...+95°C	-40°C ...+56°C
T4	-40°C...+130°C	-40°C ...+72°C
T3...T1	-40°C...+195°C	-40°C ...+63°C



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Stainless Steel Precision Casted Enclosure - Models: V, 5, W

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C ...+41°C
T5	-40°C...+95°C	-40°C ...+56°C
T4	-40°C...+130°C	-40°C ...+69°C
T3...T1	-40°C...+195°C	-40°C ...+56°C

Stainless Steel Electro-Polished Enclosure - Models: 8

T-Code	Permitted process temperature range at the antenna in Zone 0 (EPL Ga) or in Class I, Division 1	Permitted ambient temperature range at the electronics in Zone 0 (EPL Ga) or in Class I, Division 1
T6	-40°C...+80°C	-40°C ...+40°C
T5	-40°C...+95°C	-40°C ...+55°C
T4	-40°C...+130°C	-40°C ...+66°C
T3...T1	-40°C...+195°C	-40°C ...+49°C

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

Enclosure Rating - IP - Type - Dual Seal Data:

Model	Housing	Electronic	IP ¹	Type ¹	Dual Seal
A	Aluminum / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
H	Special colour Aluminum / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
3	Aluminum / IP66/IP68 (1 bar)	H	IP66/68 (1 bar)	6P	No
D	Aluminum double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes
S	Special colour Aluminum double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes
4	Aluminum double chamber / IP66/IP68 (1bar)	H	IP66/68 (1 bar)	6P	No
V	StSt (precision casting) 316L / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No
5	StSt (precision casting) 316L / IP66/IP68 (1 bar)	H	IP66/68 (1 bar)	6P	No
W	StSt (precision casting) double chamber / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	Yes
8	StSt (electropolished) 316L / IP66/IP68 (0.2bar)	H	IP66/68 (0.2 bar)	6P	No

Explanation:

1. Refer to 'Condition of Acceptability' for installation requirements related to selection of cable glands.

Notes:

1. The above model is fixed connection, Pollution Degree 4, Overvoltage Category II.
2. Mode of operation: Continuous.
3. Environmental Conditions: Extended, Indoor and outdoor use, Ambient temperature and RH range depending on the model see manual, altitude up to 5000 m.



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Conditions of Acceptability:

1. If used as an EPL Ga-equipment the level measuring devices based on microwave technology type series VEGAPULS PS69 with integrated electronic assembly which include the material aluminum/titanium, shall be installed in such a way that sparking as a result of impact or friction between aluminum/titanium and steel (with the exception of stainless steel if the presence of rust particles can be excluded) is excluded.
2. The level measuring devices with metal enclosure with inspection window as well as components of the antennas out of plastic include surfaces that can become charged electrostatically (note warning label).
3. When used as an EPL Ga- or EPL Ga/Gb-equipment, the level measuring devices shall be connected to the equipotential bonding conductor (contact resistance $\leq 1M\Omega$) (e.g. using the earth terminal) in order to prevent metal elements from being charged electrostatically.
4. In applications requiring EPL Ga- or EPL Ga/Gb-equipment, all parts of the level measuring devices that come in contact with media, shall only be used in such media against which the materials are sufficiently resistant.
5. With the level measuring devices in the version with flushing connector it is to be made certain that using the level measuring devices as an equipment of EPL Ga/Gb the degree of protection IP66 at the connection to the return valve is guaranteed.
6. After removing the check valve or the flushing system at the check valve, the opening is to be locked with a suitable plug in such a way, that the degree of protection IP67 is kept.
7. The level measuring devices with swiveling holder used as an EPL Ga/Gb equipment shall be installed in such a way that the degree of protection IP67 is kept after alignment of the antenna by means of the swiveling holder and after fastening the screw connection of the clamp flange.
8. 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.
9. When cable glands or plugging connections are used their IP and Type rating must meet the installation requirements of CEC, Section 18, and NEC, Section 500 for installation in Division for 'Class II / Class III'.
10. End-user shall ensure the device is properly connected to Earth upon installation.

APPLICABLE REQUIREMENTS

Standard Number	Issue Date / Edition	Title
CAN/CSA C22.2 No. 0-10	R2015*	General Requirements - Canadian Electrical Code, Part II
CAN/CSA C22.2 No. 61010-1-12	2012	Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use, Part 1 General Requirements
CAN/CSA C22.2 No. 94.2-15	2015 / 2 nd Edition	Enclosures for Electrical Equipment, Environmental Considerations
CAN/CSA C22.2 No. 60529:16	2016 / 2 nd Edition	Degrees of protection provided by enclosures (IP Code)
CAN/CSA C22.2 No 25-17	2017 / 4 th Edition	Enclosures for Use in Class II, Division 1, Groups E, F and G Hazardous Locations
CAN/CSA C22.2 No 30-M1986	R2016 / 3 rd Edition	Explosion-Proof Enclosures for Use in Class I Hazardous Locations
CAN/CSA C22.2 No 213-16	2016 / 2 nd Edition	Non-Incendive Electrical Equipment for Use in Class I, Division 2 Hazardous Locations
CAN/CSA C22.2 No. 60079-0:15	2015 / (Ed. 6.0)**	Explosive Atmospheres - Part 0: Equipment - General Requirements



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Standard Number	Issue Date / Edition	Title
CAN/CSA C22.2 No. 60079-1:16	2016 / (Ed. 7.0)	Explosive Atmospheres - Part 1: Equipment Protection by Flameproof Enclosures "d"
CAN/CSA C22.2 No. 60079-11:14	2014 / (Ed. 6.0)	Electrical apparatus for explosive gas atmospheres - Part 11: intrinsic safety "i"
CAN/CSA C22.2 No. 60079-26	2016 / (Ed. 3.0)	Explosive atmospheres - Part 26: Equipment with Equipment Protection Level (EPL) Ga
CAN/CSA C22.2 No. 60079-31	2015 / (Ed. 2.0)	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"
ANSI/ISA 61010-1	2015 / 3 rd Edition	Standard for Safety - Electrical Equipment for Measurement, Control, and Laboratory use; Part 1: General requirements
ANSI/UL 50E	2015 / 2 nd Edition	Enclosures for Electrical Equipment, Environmental Considerations
ANSI/IEC 60529	2004	Degrees of protection provided by enclosures (IP Code)
ANSI/UL 913	2015 / 8 th Edition	Intrinsically Safe and Associated Apparatus For Use In Class I, II, and III, Division 1, Hazardous (Classified) Locations
ANSI/ISA 12.12.01-2015	2015 / 7 th Edition	Nonincendive Electrical Equipment for Use in Class I and II, Division 2 and Class III, Division 1 and 2 Hazardous (Classified) Locations
ANSI/UL 60079-0	2013 / (Ed. 6.0)	Explosive Atmospheres - Part 0: Equipment - General Requirements
ANSI/UL 60079-1	2015 / (Ed. 7.0)	Explosive Atmospheres - Part 1: Equipment Protection by Flameproof Enclosures "d"
ANSI/UL 60079-11	2013 / (Ed. 6.0)	Explosive Atmospheres - Part 11: Equipment Protection by Intrinsic Safety "i"
ANSI/UL 60079-26	2017 / (Ed. 3.0)	Explosive Atmospheres - Part 26: Equipment with Equipment Protection Level (EPL) Ga
ANSI/UL 60079-31	2015 / (Ed. 2.0)	Equipment dust ignition protection by enclosure "t"
ANSI/ISA 12.27.01	2011	Requirements for Process Sealing Between Electrical Systems and Flammable or Combustible Process Fluids
FM Class 3600	2018	Electrical Equipment for Use in Hazardous (Classified) Locations - General Requirements
FM Class 3615	2018	Explosionproof Electrical Equipment - General requirements
FM Class 3616	2011	Dust-Ignitionproof Electrical Equipment - General Requirements

* 'R' = 'Reaffirmed'

** '(Ed. n.n)' refers to Edition No. of IEC standard for the mention national standard



Supplement to Certificate of Compliance

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The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.

Product Certification History

Project	Date	Description
80057078	2021-01-19	Update cCSAus report # 70025164 to cover the addition of two new models, PULS PS64SI and PULS PS69SI similar in construction to previously certified models with some modified enclosure features.
80023001	2019-12-19	Update of CSA certificate 70025164 and report 70025164 to cover minor specification clarifications to five descriptive documents.
000070179953	2018-08-08	Update to C-US certificate and report 70025164 for addition of further options to nomenclature of VEGAPULS64 and VEGAPULS69 Level Sensors based on acceptance of ExTR from IECEx Notified Bodies for Zone and Division marking. Methods of protection include IS/Ex ia, DIP/Ex ta, XP+DIP/Ex db, and NI for Division 2. In addition, an update to the marking, an update to the applicable standards, and an evaluation of the equipment for IP66/67/68, Type 4X/6P, and Dual Seal Rating are included.
000070056447	2016-06-06	1. add the PULS64 with Class I Division 1, Groups B, C and D; Ex d IIC Gb; Class I Zone 0/1, 1 AEx d IIC Gb. 2. For Protection type DIP/Ex t: Permitted process temperature at the sensor/antenna to reduce to 165°C from 200°C. 3. Revise VEGAPULS 69 to add Ex d listing and reduce operating ambient temperature range from -40°C to +80°C to -40°C to +60°C. 4. Update instruction manual for all series.
000070044313	2015-10-22	VEGAPULS69- REPORT 70025164 EX IA ADDITION
000070025164	2015-08-13	New Product Certification-New VEGA gauge # VEGAPULS 69