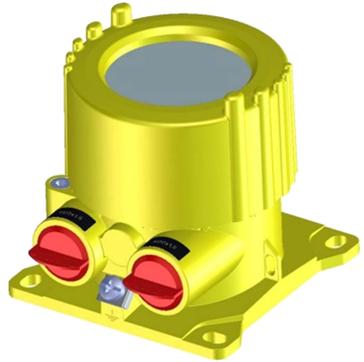


Safety instructions

VEGADIS 82

Flameproof enclosures



Document ID: 49324



VEGA

Contents

1	Area of applicability.....	3
2	Different ignition protection types	3
3	Important specification in the type code.....	4
4	General information.....	4
5	Application area.....	5
6	Specific conditions of use ("X" identification)	5
7	Important information for mounting and maintenance.....	6
8	Safe operating mode	9
9	Potential equalization/Grounding	9
10	Electrostatic charging (ESD)	10
11	Electrical data.....	10
12	Thermal data	11

Supplementary documentation:

- Betriebsanleitungen VEGADIS 82
- Certificate of Conformity IECEx DEK 14.0075 X (Document ID: 49325)

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1 Area of applicability

These safety instructions apply to the display and adjustment unit VEGADIS 82 of type series:

- DIS82(*)..IE*****
- DIS82(*)..IJ*****

with the electronics versions

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

According to Certificate of Conformity IECEx DEK 14.0075 X (certificate number on the type label) and for all instruments with safety instruction 49324.

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

- IEC 60079-0: 2017
- IEC 60079-1: 2014

Type of protection marking:

- Ex db IIC T6 ... T1 Gb

The above mentioned versions have different approval areas and probably further approvals to ignition protection type "Flameproof enclosures Ex db".

VEGADIS 82	Approval area			Approvals		
DIS82(*)..	ATEX	IECEX	Combination ¹⁾	Ex db	+ Ex ia	+ Ex t
IE		x		x		
IJ		x		x		x

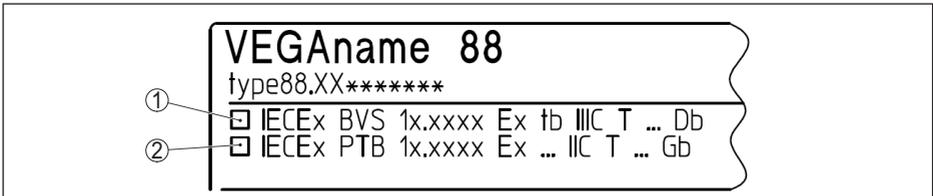
The ignition protection type "Dust ignition protection by enclosure Ex t", the certification for different regions and special use (e.g. ships) are **not** subject of the assessment and evaluation acc. to the Certificate of Conformity IECEx DEK 14.0075 X.

In the following, all above mentioned versions are called VEGADIS 82. If parts of these safety instructions refer only to certain versions, then these will be mentioned explicitly with their type code.

2 Different ignition protection types

The VEGADIS 82 can be either used in explosive dust atmospheres or in explosive gas atmospheres.

The operator must specify the selected ignition protection type before installation. The selected ignition protection must be determined by marking it firmly on the identification label of the type plate.



- 1 Identification label: Ignition protection type "Protection by enclosure Ex t"
- 2 Identification label: Ignition protection type "Flameproof enclosure Ex db"

¹⁾ Approval area "Combination": Combination of approval Ex ia acc. to ATEX, IECEx, FM and CSA.

3 Important specification in the type code

VEGADIS 82 model DIS82(*).abcdefghi

Position		Feature	Description
a	Scope	I	IECEX / world-wide
b	Approval	E	IEC Ex db IIC T6 ... T1 Gb
		J	IEC Ex db IIC T6 ... T1 Gb or IEC Ex tb IIIC T... Db IP66
c	Electronics	X	4 ... 20 mA
		H	4 ... 20 mA/HART
d	Housing	A	Aluminium
		H	Special colour, Aluminium
		V	Stainless steel (precision casting)
e	Protection rating	N	IP66/IP68 (0.2 bar); NEMA 6P
f	Cable entry	X	without
		M	M20 x 1.5 (the approval feature "M" for M20 x 1.5 will then be replaced in the type key by the respective feature of the connection possibility)
		N	½ - 14 NPT (the approval feature "N" for ½ - 14 NPT will then be replaced in the type key by the respective feature of the connection possibility)
g	Display and adjustment module PLICSCOM	X	without
		A	mounted
		K	mounted; with Bluetooth, magnetic pen operation
		F	without; lid with inspection window
h	Mounting type	A	Wall mounting with Aluminium or stainless steel housing
		D	Carrier rail with Aluminium or stainless steel housing
		E	Tube mounting (26 ... 60 mm)
i	Certificates	X	without
		M	with

4 General information

The VEGADIS 82 in ignition protection type "Flameproof enclosure Ex db" is used for spatially separated scaling, parameter adjustment and visualisation of measured values in conjunction with a "Flameproof enclosure Ex db" certified 4 ... 20 mA and 4 ... 20 mA/HART sensors.

The VEGADIS 82 are suitable for use in hazardous atmospheres of all combustible substances of explosion group IIA, IIB and IIC. The VEGADIS 82 are suitable for applications requiring instruments of type EPL Gb.

5 Application area

EPL Gb instrument

The VEGADIS 82 with the mechanical fixing element are installed in hazardous areas of zone 1 requiring EPL Gb instruments.

VEGA Instrument	3G, EPL Gc	2G, EPL Gb
		
Ex Zone 2 		
Ex Zone 1 		
Ex Zone 0 		

6 Specific conditions of use ("X" identification)

The following overview is listing all special properties of VEGADIS 82, which make a labelling with the symbol "X" behind the certificate number necessary.

Electrostatic charging (ESD)

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

Ambient temperature

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

Impact and friction sparks

The VEGADIS 82 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

The resistance between aluminium housing to metal measuring point identification plate is $> 10^9$ Ohm.

The capacitance of the metal measuring point identification plate was measured as follows:

Measurement loop identification label	Capacitance
45 x 23 mm (standard)	21 pF
100 x 30 mm	52 pF
73 x 47 mm	61 pF

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:

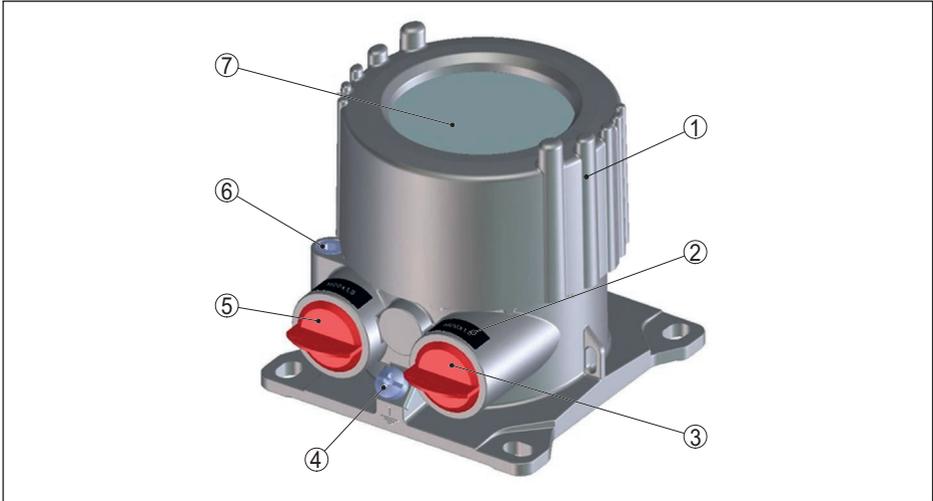
- The staff must be qualified according the respective tasks
- The staff must be trained in explosion protection
- The staff must be familiar with the respectively valid regulations, e.g. planning and installation acc. to IEC 60079-14
- Make sure when working on the instrument (mounting, installation, 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 Certificate of Conformity and the valid regulations and standards
- Modifications on the instrument can influence the explosion protection and hence the safety, therefore repairs are not permitted to be conducted by the end user
- Modifications must only be carried out by employees authorized by VEGA company
- Use only approved spare parts
- 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.
- Vessel installations and probable flow must be taken into account

Cable and wire entries

- The VEGADIS 82 must be connected via suitable cable gland or conduit systems that are in conformity with the requirements of the flame proofing and the IP protection and provided with a separate type approval certificate. When connecting VEGADIS 82 to conduit systems, the corresponding sealing facility must be connected directly to the housing.
- 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.
- Note type and size of the thread: A label with the respective thread name is in the area of the respective thread
- Threads must have no damages
- Cable entries and closing screws should be mounted correctly and according to the safety instructions of the manufacturer to ensure the specified ignition protection type and IP protection rating. When using certified or suitable cable glands, closing screws or plug connections, it is absolutely necessary to note the corresponding certificates/documents. Supplied cable entries or closing screws meet these requirements.
- Unused openings must be closed with plugs suitable for the ignition protection type and IP protection. Supplied plugs meet these requirements.
- Cable or wire entries resp. the closing screws must be tightly screwed into the housing
- The connection cables resp. pipeline sealing facilities must be suitable for the application conditions (e.g. temperature range) of the application

- With surface temperatures > 70 °C, the cables must be suitable for the higher application conditions
- The connection cable of VEGADIS 82 has to be wired fix and in such a way that damages can be excluded.

Aluminium/Stainless steel "Ex d" housing



- 1 "Ex d" connection compartment with electronics module
- 2 Type of thread
- 3 Red threaded or dust protection cap
- 4 External ground terminal
- 5 Red threaded or dust protection cap
- 6 Locking screw of the lid
- 7 Inspection window of glass

Mounting

Keep in mind for instrument mounting

- Mechanical damage on the instrument must be avoided
- Mechanical friction must be avoided
- Vessel installations and probable flow must be taken into account
- Process connections separating two areas of different Ex-zones must comply to valid regulations and standards and the protection rating must be in conformity to IEC/EN 60529
- Close the housing lid (s) up to the stop before starting operating, to ensure the IP protection rating specified on the type label
- Protect the lid against unauthorized opening by unscrewing the locking screw up to the stop. With double chamber housing, you have to protect both lids.

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
- No loose connections of the line connections, equipotential bonding connections

- Correct and clearly marked cable connections

The parts of the VEGADIS 82 being in contact with flammable media during operation must be included in the periodic overpressure test of the plant.

Flameproof enclosures

- The terminals for connecting the operating voltage or signal circuits are integrated in the connection compartment with type of protection "Flameproof enclosure Ex db".
- The thread gaps between housing and cover as well as between threaded fitting and container are flameproof joints
- It is not allowed to repair the flameproof joints.
- The DIS82(*).**** M*** are performed with an M20 x 1.5 thread for cable gland(s), screw plug(s) or plug connection(s)
- The DIS82(*).**** N*** are performed with a ½-14 NPT thread for cable gland(s), screw plug(s), plug connection(s) or conduit system
- The approval feature " M/N" will be replaced the type key by the respective feature of the connection possibility
- Cable, wire entries and closing screws must be certified acc. to ignition protection type "Flameproof enclosures Ex db". Cable, wire entries and closing screws of simple design must not be used.
- Separately certified cable and wire entries can determine the permissible ambient temperature range or the temperature classes
- For connection to a "Conduit" system the corresponding sealing facility must be attached directly to the "Ex d" connection compartment
- Unused openings must be sealed according to ignition protection type "Flameproof enclosures Ex db"
- Only one threaded adapter is allowed per thread, when using a closing screw, threaded adapters are not allowed

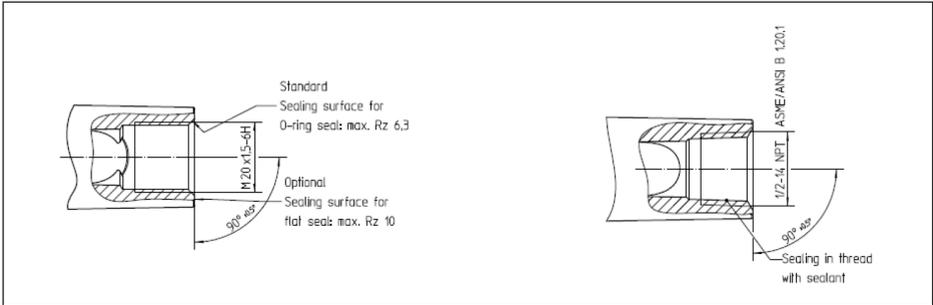
Cable glands, threaded openings

Type	Thread	Cable diameter [mm]	Torques [Nm]
Hummel EXIOS A2F 1.608.2003.50	M20 x 1.5	6 ... 12 mm	8
Hummel EXIOS A2F 1.608.1203.70	½ NPT	6 ... 12 mm	8
Hummel EXIOS MZ 1.6Z5.2000.51	M20 x 1.5	9 ... 13 mm	8
Hummel EXIOS MZ 1.6Z5.1200.70	½ NPT	9 ... 13 mm	8

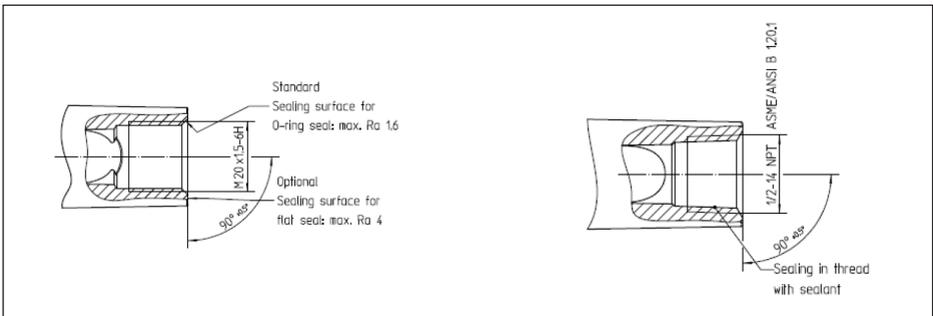
The specified torques are test torques and can only be regarded as reference values. The manufacturer's mounting instructions provided must be observed.

If suitable cable glands or cable insertion possibilities not included in the scope of supply are used, these must be compatible with the threaded openings.

Aluminium housing with M20 x 1.5 thread, 1/2 NPT thread



Stainless-steel housing (fine cast) with M20 x 1.5 thread, 1/2 NPT thread



8 Safe operating mode

General operating conditions

- Do not operate the instrument outside the electrical, thermal and mechanical specifications of the manufacturer
- Use the instrument only in media against which the wetted parts are sufficiently resistant
- Note the relation between process temperature on the sensor/antenna and the permissible ambient temperature on the electronics housing. For permissible temperatures, see the respective temperature tables. See chapter " *Thermal data*".
- If necessary, a suitable overvoltage arrester can be connected in front of the VEGADIS 82
- For assessment and reduction of the explosion risk, valid standards such as for example ISO/EN 1127-1 must be taken into account
- Lids must not be opened if there is a hazardous atmosphere. The housing lids are marked with the warning label:

WARNING - DO NOT OPEN WHEN AN EXPLOSIVE ATMOSPHERE IS PRESENT

9 Potential equalization/Grounding

- Integrate the instruments into the local potential equalisation, e.g. via the internal or external earth terminal

- If grounding of the cable screening is necessary, this must be carried out acc. to the valid standards and regulations, e.g. acc. to IEC/EN 60079-14
- The potential equalization terminal must be secured against loosening and twisting.
- Make sure that you connect a ground cable. For external grounding, use M5 Crimp connections ($\geq 4 \text{ mm}^2$) with spring, lock washer and clamp bracket to avoid loosening and twisting. The ground cable ($\geq 1.5 \text{ mm}^2$, $\leq \text{AWG } 16$) should be dismantled at the end over a length of 10 mm and fastened to the M5 Crimp connection (with a suitable Crimp tool).

10 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 or alternative special lacquering
- Plastic housing, plastic housing parts
- 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 (measuring point identification plate)

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

11 Electrical data

<p>Supply and signal circuit: Terminals 3[+], 4[-]</p> <p>Terminals 1[+], 2[-]</p>	<p>U = 35 V DC I = 3.5 ... 22.5 mA with superimposed HART signal</p> <p>For connection to 4 ... 20 mA and 4 ... 20 mA/HART sensors with ignition protection type "Flameproof enclosure Ex db".</p>
<p>Display and adjustment circuit: Spring contacts in the connection compartment</p>	<p>Only for connection to the display and adjustment module PLICSCOM.</p>

The circuits of VEGADIS 82 are galvanically separated from ground.

12 Thermal data

The following temperature tables are valid for all housing and electronics versions.

EPL-Gb instrument

Temperature class	Ambient temperature (Ta)
T6, T5, T4, T3, T2, T1	-40 ... +60 °C

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

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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