



Safety instructions

VEGADIS 81

Protection by enclosure "t", Dust ignitionproof
"DIP"



Document ID: 62523



VEGA

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Supplementary documentation:

- Operating Instructions VEGADIS 81
- Certificate of Conformity CSA14CA2662675 (Document ID: 48925)

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1 Area of applicability

These safety instructions apply to the VEGADIS 81 of type series:

- DIS81(*).CR*****

According to Certificate of Conformity CSA14CA2662675 (certificate number on the type label) and for all instruments with safety instruction 62523.

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

- Class II, Division 1, Groups E, F, G T... °C; Class III
- Zone 21 AEx tb IIIC T75 °C Db
- Ex tb IIIC T75 °C Db

2 Important specification in the type code

VEGADIS DIS81(*).abcdefghi

| Position | Feature | Description |
|----------|--|---|
| a | Scope | C CSA / Canada |
| b | Approval | R Class II, Div 1, Groups E, F, G; Class III Zone 21 Ex tb IIIC T75 °C Db |
| c | Electronics | I Digital (I ² C communication) |
| d | Housing | A Aluminium |
| | | V Stainless steel (precision casting) |
| | | H Special colour, Aluminium |
| e | Protection rating | N IP66/IP68 (0.2 bar); NEMA 6P |
| f | Cable entry / Connection | D M20 x 1.5 / Blind plug |
| | | N ½ NPT / Blind plug |
| | | M M20 x 1.5 / Cable gland PA black (ø5-9 mm), standard |
| | | * further cable glands, blind plugs, cable leadthroughs, plug connectors, Conduit system |
| g | Display and adjustment module PLICSCOM | X without |
| | | F without; lid with inspection window |
| | | A mounted |
| | | K mounted; with Bluetooth, magnetic pen operation |
| h | Mounting type | A for wall mounting with Aluminium or stainless steel housing |
| | | D for carrier rail with Aluminium or stainless steel housing |
| | | E for tube mounting (29 ... 60 mm) incl. mounting material |
| i | Certificates | X No |
| | | M Yes |

In the following, all above mentioned versions are called VEGADIS 81. If parts of these safety instructions refer only to certain versions, then these will be mentioned explicitly with their type code.

3 Different ignition protection types

The VEGADIS 81 can be either used in explosive dust atmospheres.

4 General information

The VEGADIS 81 in ignition protection type "Protection by enclosure Ex t, Dust ignitionproof DIP" is used for spatially separated scaling, parameter adjustment and visualisation of measured values in conjunction with ignition protection type "Protection by enclosure Ex t, Dust ignitionproof DIP" certified VEGA sensors.

The VEGADIS 81 and the VEGA sensors communicate via a bus signal.

The VEGADIS 81 are suitable for applications in hazardous atmospheres of all combustible materials of explosion groups IIIA, IIIB and IIIC.

The VEGADIS 81 are suitable for applications requiring EPL Db instruments.

The VEGADIS 81 are suitable for applications in hazardous atmospheres of all combustible materials of Class II Groups E, F, G and Class III.

The VEGADIS 81 are suitable for applications for Division 1, Division 2.

5 Application area

EPL Db instrument

The VEGADIS 81 with the mechanical fixing element are installed in hazardous areas of zone 21 requiring EPL Db instruments.

Division 1, 2 instruments

The VEGADIS 81 with the mechanical fixing element are installed in hazardous areas of Division 1 and Division 2.

6 Special operating conditions

The following overview lists all special features of VEGADIS 81.

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 81 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

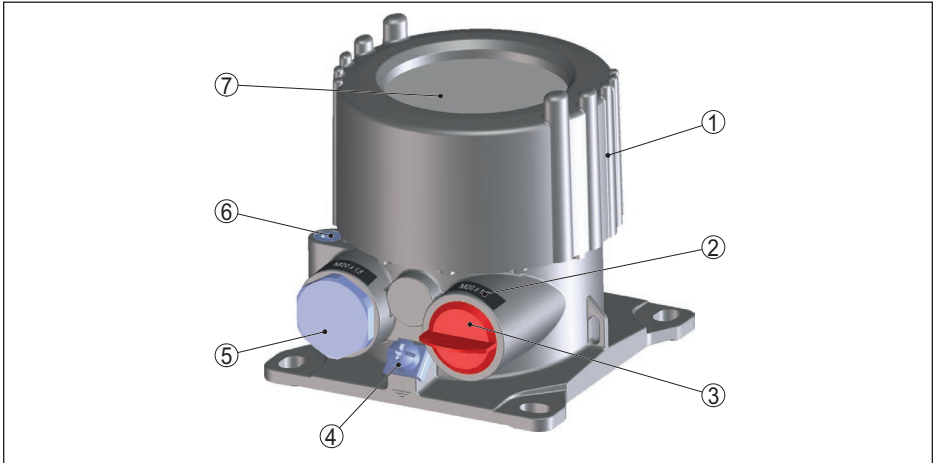
The following requirements must be fulfilled for mounting, electrical installation, setup and maintenance of the instrument:

- 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 CEC or NEC
- Make sure when working on the instrument (mounting, installation, maintenance) that there is no explosive atmosphere present, the supply circuits should be voltage-free, if possible.
- The instrument has to be mounted according to the manufacturer specifications, the 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 81 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. When connecting VEGADIS 81 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 > 60 °C, the cables must be suitable for the higher application conditions (≥ 90 °C)
- The connection cable of VEGADIS 81 has to be wired fix and in such a way that damages can be excluded.
- SEAL REQUIRED WITHIN 18 INCHES - JOINT REQUIS À MOINS DE 18 POUNCES

Aluminium/Stainless steel housing



- 1 Connection compartment with electronics module
- 2 Type of thread
- 3 Red threaded or dust protection cap
- 4 External ground terminal
- 5 Blind plug, part of the housing
- 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
- 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.

Dust ignition protection by enclosure

- The terminals for connecting the operating voltage or signal circuits are integrated in the connection compartment with type of protection dust explosion protection by housing "t"
- Cable, wire entries and the closing screws must be certified acc. to ignition protection type dust ignition protection by enclosure "t"
- Cable, wire entries resp. the closing screws in simple construction 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 connection compartment
- Unused openings must be sealed according to ignition protection type dust ignition protection by enclosure "t"
- Only one threaded adapter is allowed per thread, when using a closing screw, threaded adapters are not allowed
- The screwed in closing screw is certified as part of the housing

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 81 being in contact with flammable media during operation must be included in the periodic overpressure test of the plant.

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 81
- 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

AVERTISSEMENT -- NE PAS OUVRIR SI UNE
ATMOSPHÈRE EXPLOSIVE PEUT ÊTRE PRÉSENTE

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

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
- 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:

- in the case of extremely flammable dusts with a minimum ignition energy (MIE) of less than 3 mJ, the device must not be used in areas where intensive electrostatic charging processes can be expected
- electrostatic charges during operation, maintenance and cleaning.
- process-related electrostatic charges, e.g. by measuring media flowing past

The warning on the type label indicates danger:

- WARNING - POTENTIAL ELECTROSTATIC CHARGING HAZARD – SEE INSTRUCTIONS
- AVERTISSEMENT – DANGER POTENTIEL DE CHARGES ELECTROSTATIQUES – VOIR INSTRUCTION

11 Electrical data

VEGADIS DIS81(*).CR

| | |
|-----------------------------------|--|
| Supply and signal circuit: | |
| Terminals 5, 6, 7, 8 | $U \leq 6,4 \text{ V DC}$ $P \leq 332 \text{ mW}$ |
| | For connection to the indicating and adjustment circuit, terminal 5, 6, 7, 8 of the certified VEGA sensors with separate certifications. |

| | |
|---|--|
| Display and adjustment circuit: | |
| Spring contacts in the connection compartment | Only for connection to the display and adjustment module PLICSCOM. |

- The power to this equipment must be supplied by a source that is categorized as “CLASS 2” and “SELV” as specified in the Canadian Electrical Code, C22.1 and the National Electrical Code NFPA 70.
- Environmental conditions: pollution degree 2; overvoltage category: II; altitude: 2000 m above sea level.

12 Thermal data

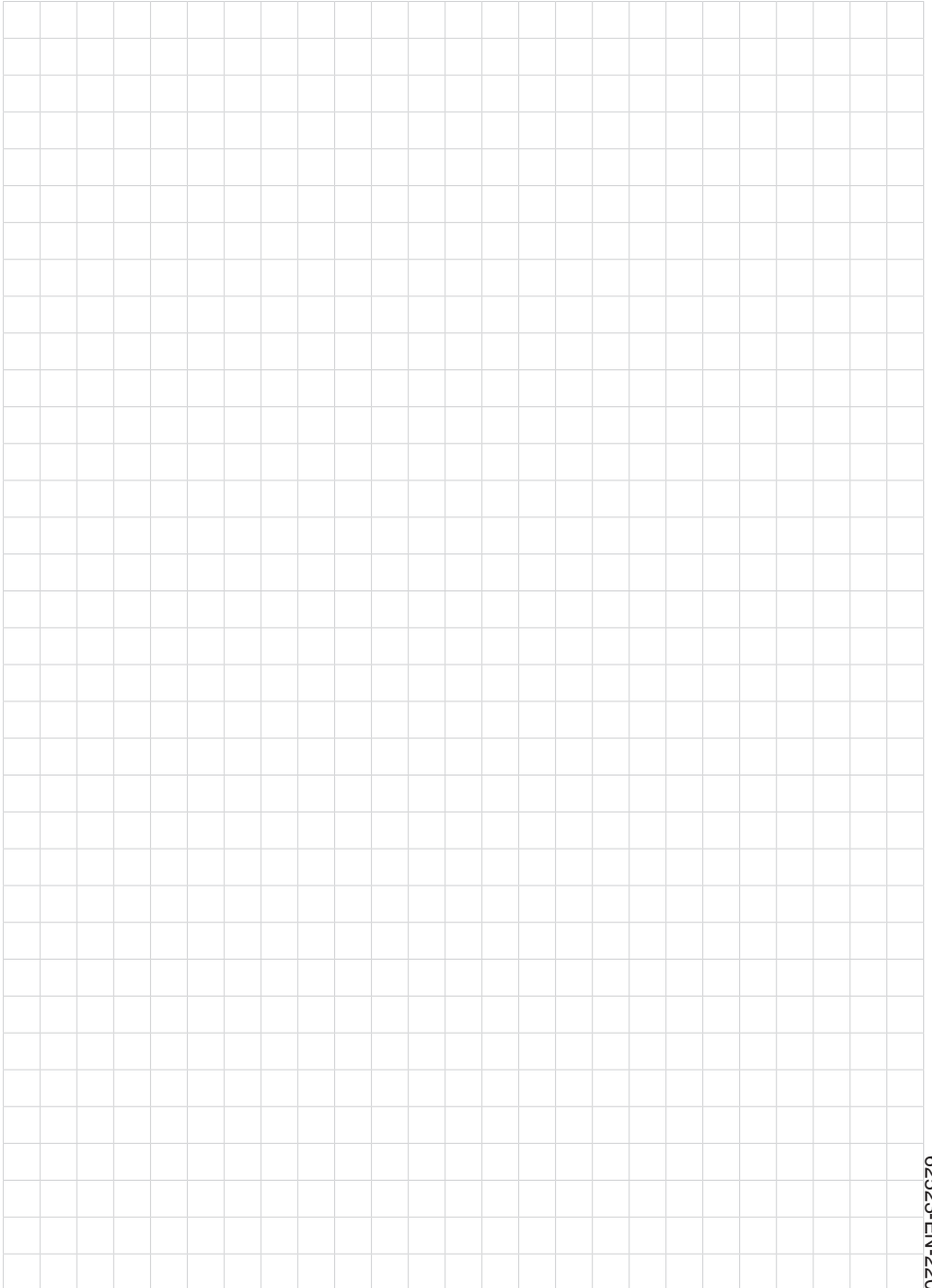
The thermal data specified in the following chapters are only valid for use of VEGADIS 81 in explosive dust atmospheres.

| | |
|--|---------------------------|
| VEGADIS 81 | |
| Permissible ambient temperature on the electronics housing | -40 ... +60 °C |
| Max. surface temperature on the electronic housing | Ambient temperature +12 K |

13 Mechanical data

The mechanical data specified in the following chapters are only valid for use of VEGADIS 81 in explosive dust atmospheres.

| | |
|---------------------------|-------|
| VEGADIS 81 | |
| Housing protection rating | IP 66 |



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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