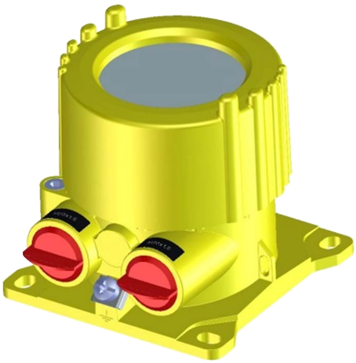
Safety instructions
VEGADIS 82

FM16US0057X

Explosionproof, flameproof protection



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Please note:

These safety instructions are part of the following documentation:

- 46591 - VEGADIS 82 - 4 … 20 mA
- 45300 - VEGADIS 82 - 4 … 20 mA/HART
- 52852 - Certificate FM16US0057X

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1 Area of applicability

These safety instructions are part of VEGADIS DIS82.FE*A/V/H***** with explosionproof, flameproof enclosure according to the Certificate FM16US0057X (certificate number on the type label) and for all instruments with the number of the safety instruction (51487) on the type label.

2 General information

The VEGADIS 82 in explosionproof, flameproof enclosure is used for spatially separated scaling, parameter adjustment and visualisation of measured values in conjunction with a explosionproof flameproof enclosure certified 4 … 20 mA and HART sensors.

The VEGADIS DIS82.FE*A/V/H***** are suitable for use in hazardous areas of all combustible materials of explosion group A, B, C or D for applications requiring Class I, Division 1 instruments (National Electrical Code ® (ANSI/NFPA 70) arcticle 500) or of explosion group IIC, IIB or IIA for applications requiring Class I, Zone 1 AEx d instruments (National Electrical Code ® (ANSI/NFPA 70) arcticle 510) .

If the VEGADIS DIS82.FE*A/V/H***** are installed and operated in hazardous areas, the National Electrical Code ® (ANSI/NFPA 70) as well as these safety instructions must be observed.

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

The installation of explosion-endangered systems must always be carried out by qualified personnel trained in explosion protection who is familiar with the national regulations.

The equipment has to be operated within the specified electrical, thermal and mechanical parameters. The equipment is not intended to be used as personal protective equipment. To prevent injury, read the manual before use.

Hazardous location designation:
ANSI/ISA 61010-1, FM3810

CL I , DIV 1, GP ABCD T6…T1: FM3600, FM3615

CL I Zn 1 AEx d IIC T6…T1: ANSI/ISA 60079-0, ANSI/ISA 60079-1

Invironment designation:
Type 6P, IP66/68

ANSI/NEMA 250, ANSI/IEC 60529

Operating temperature range
-40 … +60 °C (-40 … +140 °F)

3 Technical data

VEGADIS DIS82.FE*A/V/H***

Power supply and signal circuit: (terminals 1, 2, 3, 4)	U ≤ 35 V DC I = 3.5 … 22.5 mA with superimposed HART signal For connection to 4 … 20 mA(HART) sensors with explosionproof, flameproof enclosure.
Circuit of the display and adjustment module: (spring contacts in the connection compartment)	Only for connection to the display and adjustment module PLICSCOM or for service purposes the interface adapter VEGACONNECT, if it is ensured that no explosive atmospheres is present!

The supply and signal circuit is reliably galvanically separated from parts that can be grounded.

4 Application conditions

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

Class I, Division 1 applications; Class I, Zone 1 applications

Temperature class	Ambient temperature on the electronics
T6, T5, T4, T3, T2, T1	-40 … +60 °C (-40 … +140 °F)

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

5 Protection against static electricity

The VEGADIS DIS82.FE*A/V/H***** in the version with chargeable plastic parts, such as e.g. metal housing with inspection window, are provided with a caution label referring to the safety measures that must be taken in case electrostatic charging occurs during operation.

Caution: Plastic parts! Danger of electrostatic charging!

- Avoid friction
- No dry cleaning

- Construction/Installation: The VEGADIS DIS82.FE*A/V/H***** must be constructed/installed in such a way that
  - electrostatic charges are ruled out during operation, maintenance and cleaning.
  - process-related electrostatic charges, e.g. by measuring media flowing past, are ruled out

6 Grounding/Potential equalization

In order to avoid the danger of electrostatic charging of the metallic parts, the VEGADIS DIS82.FE*A/V/H***** must be electrostatically connected to the local potential equalisation (transfer resistance ≤ 1 MΩ), e.g. via the ground terminal.

The external/internal ground connection terminal on the housing of the VEGADIS DIS82.FE*A/V/H***** must have a low impedance connection to the potential equalization.

7 Impact and friction sparks

When used in hazardous locations, the VEGADIS DIS82.FE*A/V/H***** 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.

8 Ignition explosionproof, flameproof enclosure

The terminals for connecting the operating voltage or signal circuits are integrated in the terminal compartment with explosionproof, flameproof Enclosure (XP).

The gaps between housing and cover as well as between threaded fitting and container are flameproof gaps. The flame path joints must not be repaired.

The explosionproof, flameproof housing is provided with a M20 x 1.5 or ½-14 NPT thread for connection to a certified "Conduit" system.

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The factory-installed sealing plug (depending on the type ordered) is part of the explosionproof, flameproof enclosure. When using certified or suitable sealing plugs, it is obligatory to observe the appropriate certificates/documents.

The explosionproof, flameproof sealing plug must be tightly screwed into the housing.

The separately certified plugs or the conduits sealing facilities must be suitable for the lowest ambient temperature and the max. permissible ambient temperature on the housing or the temperature classes on the electronics.

The explosionproof, flameproof connection compartment of this equipment must be provided with sealing plugs resp. conduits which are certified according to ANSI/ISA-60079-0 and ANSI/ISA-60079-1.

When connecting to a "Conduit" system, the associated sealing facility must be located directly on the explosionproof, flameproof connection compartment.

When the VEGADIS DIS82.FE*A/V/H***** are delivered, depending on the version, the red threaded or dust protection caps must be removed before installing the device and the openings must be sealed according to the requirements of the ignition explosionproof, and the IP protection type specified on the type label.

When wiring the connection line to the explosionproof, flameproof connection compartment , it must be sufficiently secured against damage.

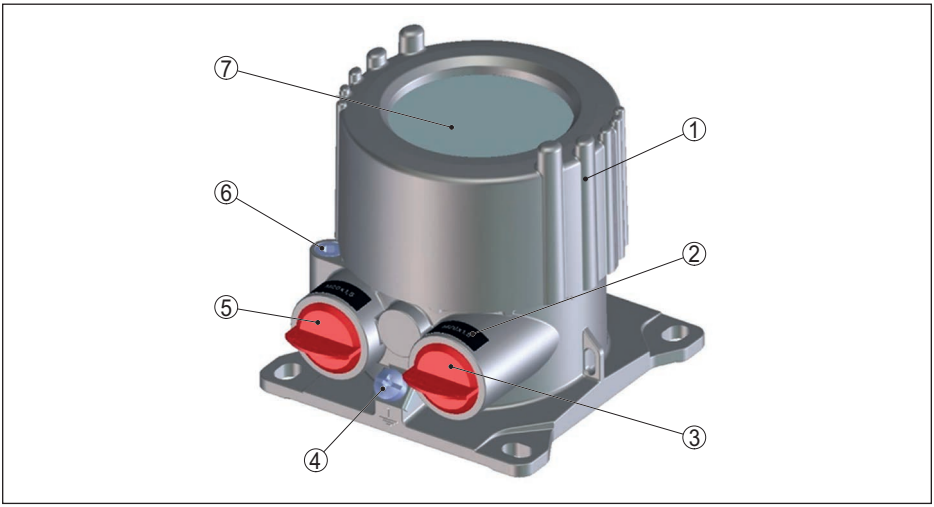
Before opening the lid of the explosionproof, flameproof connection compartment or in case it is already open (e. g. during connection or service work), make sure that either the supply cable is completely voltage free or no explosive atmosphere is present.

The cover of the explosionproof, flameproof connection compartment must be screwed in completely before commissioning and secured by screwing out the lid locking screw all the way to the stop.

Warning:
Do not open when an explosive atmosphere is present. Seal all conduits within 18 inches

Unused openings must be sealed accordingly.

Aluminium/Stainless steel explosionproof, flameproof housing



1 *Explosionproof, flameproof connection compartment with electronics module*
2 *Type of thread*
3 *Threaded mounting socket*
4 *External ground terminal*
5 *Threaded mounting socket*
6 *Locking screw of the lid*
7 *Inspection window of glass*

9 Type and size of the threads of the field wiring entries

The explosionproof, flameproof housing is provided with a M20 x 1.5 or ½-14 NPT thread for connection to a certified "Conduit" system or for mounting of a certified explosionproof, flameproof cable entry (only for zones applications).

Housing openings with the corresponding thread are closed with red thread/dust cover at delivery.

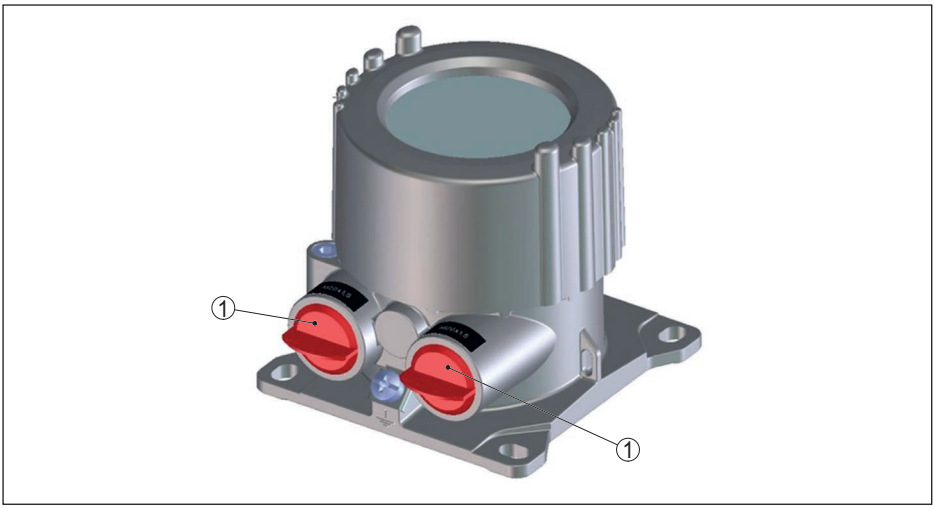
A label near the thread with the appropriate thread designation is suitable on the housing.

10 Removing and replacing the red threaded/dust cover

When the VEGADIS DIS82.FE*A/V/H***** are delivered, depending on the version, the red threaded or dust protection caps must be removed before installing the device and the openings must be sealed according to the requirements of the ignition protection type and the IP protection type specified on the type label.

When using certified or suitable cable glands, sealing plugs or plug connections, the appropriate certificates/documents must be observed.

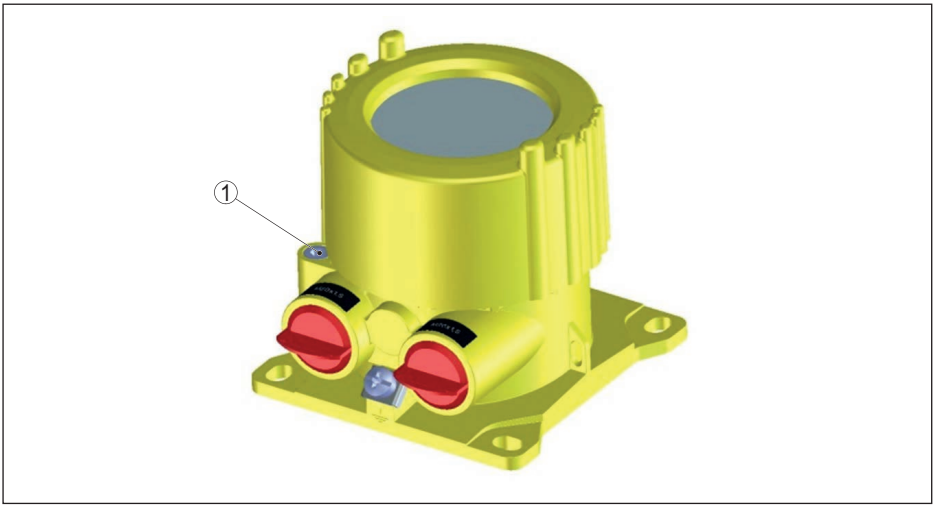
The sealing plugs included in the delivery by VEGA meet the necessary requirements.



1 Red threaded or dust protection cap

11 Locking mechanism of housing cover

With VEGADIS DIS82.FE*A/V/H***** the lid must be tightly screwed in to the stop before setup and use in hazardous atmosphere. It must be secured by unscrewing the cover locking screw to the stop.



1 Locking screw of the lid

12 Installation, maintenance and inspection

Refer to manufacturer's written instructions before working on associated apparatus.

Inspection should be performed periodically to ensure that protection type explosionproof has not

been compromised. Inspections should include reviewing for unauthorized modifications, corrosion, accidental damage, change of flammable materials, and the effects of aging.

Maintenance work must not be performed on energized apparatus in hazardous areas.

The location classification and the suitability of the explosionproof system for that classification should be verified. This includes verifying that the class, group, and temperature ratings agree with the actual classification of the location.

Prior to energizing, explosionproof system should be inspected to ensure the following:

- Installation is in compliance with the documentation;
- Cable shields are grounded in accordance with the installation documentation;
- Modifications have been authorized;
- Cables and wiring are not damaged;
- Bonding and grounding connections are tight;
- Bonding and grounding hardware is not corroded;
- Resistance of any grounding conductor to the grounding electrode does not exceed one ohm;
- Check for signs of corrosion on the equipment and connections.

All deficiencies should be corrected.

General
The configuration of Field Device must be FM Approved.

The Field Device manufacturer's installation drawing shall be followed when installing this equipment.

The installation must be in accordance with the National Electrical Code® (ANSI/NFPA 70 (NEC®)), Articles 500 through article 510.

Substitution of components may impair suitability for hazardous locations.

Barriers and instruments incorporated into the system are required to carry same Agency Approval.

Explosionproof, flameproof enclosure
The metallic parts of the VEGADIS DIS82.FE*A/V/H***** are electrically connected with the internal and external earth terminals.

The VEGADIS DIS82.FE*A/V/H***** are FM Approved for Class I, Zone 1 and Division 1 applications.

13 Cautionary notes, warnings and markings

Hazardous location notes
Installations in the US shall comply with the relevant requirements of the National Electrical Code® (ANSI/NFPA 70 (NEC®)).

Wiring methods must conform to all local and national codes governing the installation, and wiring must be rated for at least +10 ºC above the highest expected ambient temperature.

Where the protection type allows and depends on wiring glands, the glands must be certified for the type of protection required and area classification identified on the equipment or system nameplate.

The internal grounding terminal shall be used as the primary equipment grounding means and the external grounding terminal is only for a supplemental (secondary) bonding connection where local authorities permit or require such a connection.

Approved seals against ingress of water or dust are required and the NPT or metric thread fittings must be sealed with tape or thread sealant in order to meet the highest level of ingress protection.

When the equipment is supplied with plastic dust plugs in the conduit/cable gland entries; it is the end-user's responsibility to provide cable glands, adaptors and/or blanking plugs suitable for the environment in which the equipment is installed. When installed in a hazardous (classified) location,

the cable glands, adaptors and/or blanking plugs shall additionally be suitable for the hazardous (classified) location, the product certification, and acceptable to the local authority having jurisdiction for the installation.

The end-user must consult the manufacturer for repair disclaimers, and only certified parts, such as entry plugs, mounting and cover lock screws and o-rings, supplied by the manufacturer are permitted. No substitutions with nonmanufacturer supplied parts are permitted.

Tighten cover screws to 5.6 Nm (50 lb·in.). Overtorquing may cause enclosure breakage.

The minimum tightening torque for M4 (No. 6) binding screw protective conductor terminals is 1.13 N·m (10 lb·in.) or greater as specified.

Care must be taken during installation to avoid impacts or friction that could create an ignition source.

Use copper, copper-clad aluminum or aluminum conductors only.

Tampering and replacement with non-factory components may adversely affect the safe use of the system.

Insertion or withdrawal of removable electrical connectors is to be accomplished only when the area is known to be free of flammable vapors.

Do not open when an explosive atmosphere is present.

Do not disconnect while circuit is live unless area is known to be non-hazardous.

For Group A & B applications, seal all conduits within 18 inches.

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