



Safety instructions

VEGATOR 141, 142

Intrinsically Safe
Zone 2/DIV2



Document ID: 51456



VEGA

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Supplementary documentation:

- Operating Instructions VEGATOR 141, 142
- Certificate of Compliance CSA 70015644, (Document ID: 52169)

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1 Area of applicability

These safety instructions apply to the signal conditioning instruments VEGATOR TOR141**S/X****, TOR 142 according to the Certificate of Conformity CSA 70015644 (certificate number on the type label) and to all instruments with the number of the safety instruction (51456) on the type label.

2 General information

The signal conditioning instruments VEGATOR TOR141**S/X****, TOR 142 are used for intrinsically safe power supply of two-wire transmitters, the reliable galvanic separation of this circuits from all other circuits and the processing of the measured data transmitted analogously. The VEGATOR TOR141**S/X****, TOR 142 is a signal conditioning instrument for level detection for continuously measuring 4 ... 20 mA sensors.

It processes the measured values of a sensor and delivers a switching signal according to the adjusted switching threshold. Hence simple control tasks can be solved.

Typical applications are monitoring functions such as overflow and dry run protections or gauge monitoring tasks. The 4 ... 20 mA input signals and relay outputs are used for control and monitoring of levels. The single channel signal conditioning instruments VEGATOR TOR141.**X****, VEGATOR TOR141.**S**** (with additional fail safe relay in the output) are for connection of a 4 ... 20 mA sensor and the double channel signal conditioning instrument VEGATOR TOR142 for connection of two 4 ... 20 mA sensors.

The current is adjusted with the potentiometer on which the output status changes. The switching point can be changed with the potentiometer in the range between 4 and 20 mA, in mid position, the output switches at approx. 12 mA. With VEGATOR TOR142, one potentiometer is available for each channel.

Signal conditioning instruments VEGATOR TOR141**S/X****, TOR 142 must be mounted and operated outside hazardous areas and inside hazardous areas zone 2 and Class I, Division 2.

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-protected systems must always be carried out by qualified personnel.

Ignition protection label:

Class I, Division 2, Groups A, B, C, D T4 provides IS outputs to Class I/II, Division 1, Groups ABCD/ EFG [Ex ia]

Ex nA nC ic [ia Ga] [ia IIIC Da] IIC T4 Gc

Class I, Zone 2, AEx nA nC ic [ia Ga] [ia IIIC Da] IIC T4 Gc

[Ex ia Ga] IIC [Ex ia Da] IIIC

3 Technical data

The VEGATOR TOR141**S/X****, TOR 142 include non-intrinsically safe circuits and one intrinsically safe circuit.

Non-intrinsically safe circuits

Voltage supply: (connections KL16/17)	U = 24 ... 230 V a.c. (-15 ... +10 %)
	U = 24 ... 65 V d.c. (-15 ... +10 %)
	U _m = 253 V
Relay outputs: (KL10/11/12, 13/14/15)	Maximum values:
	253 V AC, 3 A
	50 V DC, 1 A

Intrinsically safe circuit

Signal circuit: (connections KL1/2, 4/5) Ignition protection type intrinsic safety Ex ia IIC, IIB

Maximum values:

$U_o \leq 22.4 \text{ V}$

$I_o \leq 113.5 \text{ mA}$

$P_o \leq 636 \text{ mW}$

Characteristics: linear

The max. values of the table can also be used as concentrated capacitances and concentrated inductances.

The values for IIC and IIB are also permitted for explosive dust atmospheres.

Ex ia	IIC	IIB
Max. permissible external inductance L_o	0.5 mH	10 mH
Max. permissible external capacitance C_o	0.095 μF	0.55 μF

Application conditions

Permissible ambient temperatures

Permissible ambient temperature at the installation location of an instrument -20 ... +60 °C (-4 ... +140 °F)

4 Installation

Signal conditioning instruments VEGATOR TOR141**S/X****, TOR 142 must be mounted and operated outside hazardous areas and inside hazardous areas zone 2. The protection rating of VEGATOR TOR141**S/X****, TOR 142 corresponds to IP 20.

If the signal conditioning instruments VEGATOR TOR141**S/X****, TOR 142 are not set up in dry and clean environments, they must be mounted in a housing with the required protection rating.

The apparatus shall be installed in an area of not more than Pollution Degree 2 as defined in IEC 60664-1.

For Zone 2 application, according to CSA/UL 60079-15, section 6.3.1, the following is valid for this apparatus:

- The apparatus has to be mounted in a housing tested according to CSA/UL/IEC 60079-0 that meets the requirements of degree of protection IP 54.

or

- The apparatus has to be mounted in a housing tested according to CSA/UL/IEC 60079-0 that meets the requirements of degree of protection IP 4X. Then, the apparatus may exclusively be mounted in locations providing adequate protection against the entry of solid foreign objects or liquids.

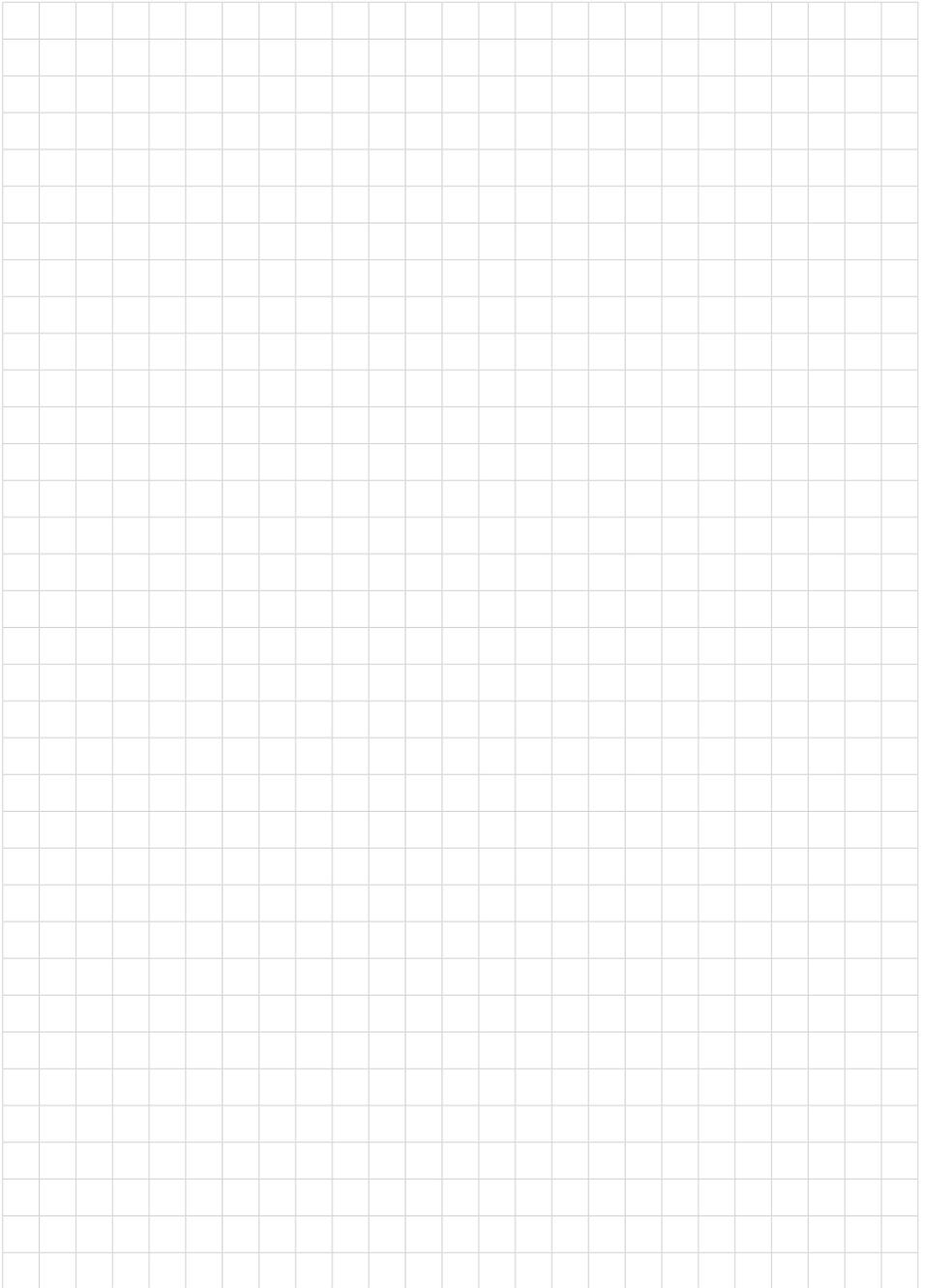
For Division 2 outdoor application, this device shall be installed within a fixed end-use enclosure that provides a degree of protection Type 4. The suitability of the enclosure is subject to acceptance by the local authorities having jurisdiction at the time of installation.

The final end-use enclosure must bear the following warning marking both in French and English: "Do not connect or disconnect when an explosive atmosphere is present".

The degree of pollution of the area where the instrument is used must not exceed 2.

With zone 2 applications, the torque of the terminals should be between 0.4 Nm and 0.5 Nm.

If the intrinsically safe circuit is led into dust-explosive areas of zone 20 or 21, please make sure that the instruments connected to these circuits meet the requirements of zones 20 and 21 and are certified respectively.



Printing date:

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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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