

Safety instructions

VEGAMET 624, 625

VEGASCAN 693

Intrinsic safety



Document ID: 33582



VEGA

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Supplementary documentation:

- Operating Instructions VEGAMET 624, 625
- Operating Instructions VEGASCAN 693
- Certificate of Conformity IECEx TUN 04.0013 (Document ID: 29651)

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1 Area of applicability

These safety instructions apply to the controllers VEGAMET 624, 625 and VEGASCAN 693 according to the Certificate of Conformity IECEx TUN 04.0013 (certificate number on the type label) and to all instruments with the safety instruction 33582.

Type of protection marking:

- [Ex ia Ma] I
- [Ex ia Ga] IIC
- [Ex ia Da] IIIC

2 General information

The controllers VEGAMET 624, 625 and VEGASCAN 693 are accessory electrical devices used to process intrinsically safe 4 ... 20 mA/HART signals as well as to supply intrinsically safe sensors with power. They are also used to galvanically isolate intrinsically safe circuits from non-intrinsically safe circuits.

If the controllers VEGAMET 624, 625 and VEGASCAN 693 are used for powering intrinsically safe sensors that are installed and operated in hazardous areas, the general Ex mounting instructions IEC 60079-14 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-protected systems must always be carried out by qualified personnel.

3 Technical data

The VEGAMET 624, 625 and VEGASCAN 693 includes non-intrinsically safe circuits and an intrinsically safe circuit.

Electrical data

Operating voltage:	
Connections KI17, KI18	For connection to non-intrinsically safe circuits with following maximum values: $U = 24 \dots 230 \text{ V AC } (-15 \dots +10 \%)$ $U = 24 \dots 65 \text{ V DC } (-15 \dots +10 \%)$ $U_m = 253 \text{ V AC, } 125 \text{ V DC}$

Signal circuit:	
Connections KI1, KI2	Ignition protection type intrinsic safety Ex ia I, IIC, IIB (IIIC)
	Maximum values: $U_o = 23.9 \text{ V}$ $I_o = 108 \text{ mA}$ $P_o = 645 \text{ mW}$
	Characteristics: Linear
	Effective internal inductance $L_i =$ negligibly small Effective internal capacitance $C_i =$ negligibly small

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be taken from the following tables.

Ex ia I	L_o [mH]	63	10	0.5	0.2	0.1
	C_o [μ F]	1.8	2.6	3.4	4.3	4.7
Ex ia IIC	L_o [mH]	1.8	1	0.5	0.2	0.1
	C_o [μ F]	0.051	0.068	0.088	0.12	0.126
Ex ia IIB (IIIC)	L_o [mH]	18	1	0.5	0.2	-
	C_o [μ F]	0.58	0.65	0.77	0.94	-

Relay circuit:		
Relay output 1: Connections KI20, KI21, KI22	For connection to non-intrinsically safe circuits with following maximum values per relay: Alternating current: 253 V, 2 A, 125 VA Direct current: 60 V, 1 A, 54 W	
Relay output 2: Connections KI23, KI24, KI25		
Relay output 3: Connections KI26, KI27, KI28		
Fail safe relay output 4: Connections KI6, KI7, KI8		

Current output:		
Current output 1: Connections KI11, KI12	For connection to non-intrinsically safe circuits with following maximum values: 0/4 ... 20 mA $U_m = 253$ V AC	
Current output 2: Connections KI13, KI14		
Current output 3: Connections KI15, KI16		

Digital output:		
RS232 connection: Bushing at lower part of housing	For connection to an RS232 interface: $U_m = 50$ V	
Ethernet connection: Bushing at lower part of housing	For connection to an Ethernet interface: $U_m = 50$ V	
I ² C bus connection: Bushing on the front plate	For connection of the VEGACONNECT3 according to Certificate of Conformity IECEx PTB 20.2007 X.	

The intrinsically safe signal circuit is separated from the non-intrinsically safe circuits up to a peak value of the voltage of 375 V.

Thermal data

Ambient conditions

Permissible ambient temperature range during operation:	$-20\text{ °C} \leq Ta \leq +60\text{ °C}$ (-4 ... +140 °F)
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Electrical protective measures

	Protection rating
Instrument	IP30
Terminal socket	IP20

4 Installation

The controllers VEGAMET 624, 625 and VEGASCAN 693 must be operated outside the hazardous area. The separating wall included in the shipment should be mounted prior to setup and the instrument coding should be carried out. Please observe the notes in the operating instructions.

The controllers VEGAMET 624, 625 and VEGASCAN 693 must only be operated in areas that allow protection class IP20. Otherwise, they must be mounted in a housing with the required protection class.

If the intrinsically safe circuit is lead into dust-explosive areas of zone 20 or 21, please make sure that the instruments which are connected to these circuits meet the requirements of zone 20 or 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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