

# Safety instructions

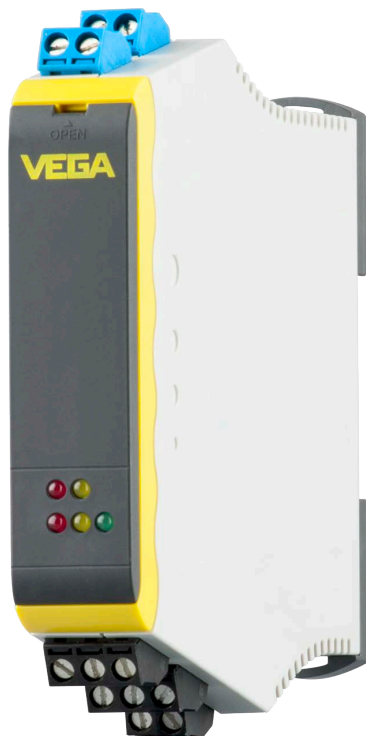
## VEGATOR 111, 112

Appropriate instruments

Zone 2

Intrinsic safety

IECEX TUN 14.0004X



Document ID: 47467



# VEGA

## Contents

<b>1</b>	<b>Area of applicability.....</b>	<b>3</b>
<b>2</b>	<b>Important specification in the type code.....</b>	<b>3</b>
<b>3</b>	<b>General information.....</b>	<b>4</b>
<b>4</b>	<b>Technical data .....</b>	<b>4</b>
<b>5</b>	<b>Installation.....</b>	<b>5</b>

Supplementary documentation:

- Operating Instructions VEGATOR 111, 112
- Certificate of Conformity IECEx TUN 14.0004X, Issue No. 1 (Document ID: 47468)

Editing status: 2018-06-21

## 1 Area of applicability

These safety instructions apply to the signal conditioning instruments VEGATOR 111\*\*S/X\*\*\*\*, VEGATOR 112 according to the Certificate of Conformity IECEx TUN 14.0004X, Issue No. 1 (certificate number on the type label) and to all instruments with the number of the safety instruction (47467) on the type label.

## 2 Important specification in the type code

### VEGATOR 111.abcdefg

Position		Feature	Description
a	Scope	I	Worldwide
b	Approval	A	Ex nA nC ic [ia Ga] [ia IIIC Da] [ia I Ma] IIC T4 Gc
		C	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
		O	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I + Schiffzulassung (DNV GL, ABS, BV, RINA, LR)
c	Version	X	Single channel according to NAMUR (IEC 60947-5-6)
		S	Single channel according to (IEC 60947-5-6), with fail safe relay
d	SIL qualification	X	without
		S	with, incl. Safety Manual
e	Housing / Protection	K	Plastic /IP 20
f	Terminal blocks / Connection	B	detachable 2,5 mm <sup>2</sup> / Ex sensor: 1 x blue; output and operating voltage: 2 x black
g	Certificates	X	No
		M	Yes

### VEGATOR 112.abcdefg

Position		Feature	Description
a	Scope	I	Worldwide
b	Approval	A	Ex nA nC ic [ia Ga] [ia IIIC Da] [ia I Ma] IIC T4 Gc
		C	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I
		O	[Ex ia Ga] IIC, [Ex ia Da] IIIC, [Ex ia Ma] I + Schiffzulassung (DNV GL, ABS, BV, RINA, LR)
c	Version	X	Double channel according to NAMUR (IEC 60947-5-6)
d	SIL qualification	X	without
		S	with, incl. Safety Manual
e	Housing / Protection	K	Plastic /IP 20
f	Terminal blocks / Connection	B	detachable 2,5 mm <sup>2</sup> / Ex sensor: 1 x blue; output and operating voltage: 2 x black
g	Certificates	X	No
		M	Yes

### 3 General information

The signal conditioning instruments VEGATOR 111\*\*S/X\*\*\*\*, VEGATOR 112 are used for intrinsically safe power supply of two-wire transmitters, the reliable galvanic separation from all other circuits and the processing of analogously transmitted measured data. The signal conditioning instruments VEGATOR 111\*\*S/X\*\*\*\*, VEGATOR 112 depending on limit values are used for generation of binary output signals on the floating, non-contact relay output.

The signal conditioning instruments VEGATOR 111\*\*S/X\*\*\*\*, VEGATOR 112 work in conjunction with 1.2 mA/2.1 mA (NAMUR) limit switches and are mainly used for level detection or pump control for VEGASWING, VEGAVIB and VEGAWAVE vibrating level switches with electronics version "Two-wire". Hence simple control tasks can be solved.

Typical applications are monitoring functions such as overflow and dry run protections. The 1.2 mA/2.1 mA input signals and relay outputs are used for control and monitoring of levels. The single channel signal conditioning instruments VEGATOR 111.\*\*X\*\*\*\*, VEGATOR 111.\*\*S\*\*\*\* (with additional fail safe relay in the output) are for connection of a 1.2 mA/2.1 mA sensor and the double channel signal conditioning instrument VEGATOR 112 for connection of two 1.2 mA/2.1 mA sensors.

Signal conditioning instruments VEGATOR 111\*\*S/X\*\*\*\*, VEGATOR 112 must be mounted and operated outside hazardous areas and inside hazardous areas zone 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

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

or

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

### 4 Technical data

The VEGATOR 111\*\*S/X\*\*\*\*, VEGATOR 112 include non-intrinsically safe circuits and one intrinsically safe circuit.

#### Non-intrinsically safe circuits

Voltage supply: (connections 16/17)	U = 24 ... 230 V AC (-15 ... +10 %)
	U = 24 ... 65 V DC (-15 ... +10 %)
	U <sub>m</sub> = 253 V
Relay outputs: (10/11/12, 13/14/15)	Maximum values:
	253 V AC, 3 A
	50 V DC, 1 A

## Intrinsically safe circuit

Signal circuit: (connections 1/2, 4/5)

In type of protection intrinsic safety Ex ia IIC, I

Max. values per circuit:

$$U_o \leq 10.8 \text{ V}$$

$$I_o \leq 19.6 \text{ mA}$$

$$P_o \leq 52.8 \text{ mW}$$

Characteristics: linear

The effective internal inductance  $L_i$  and capacity  $C_i$  are negligibly small.

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

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

Ex ia	IIC	I
Max. permissible external inductance $L_o$	5 mH	10 mH
Max. permissible external capacitance $C_o$	0.65 $\mu$ F	5.5 $\mu$ F

## Application conditions

### Permissible ambient temperatures

The permissible ambient temperature range at the installation location of an instrument

-20 ... +60 °C (-4 ... +140 °F)

## 5 Installation

Signal conditioning instruments VEGATOR 111\*\*S/X\*\*\*\*, VEGATOR 112 must be mounted and operated outside hazardous areas and inside hazardous areas zone 2. The protection rating of VEGATOR 111\*\*S/X\*\*\*\*, VEGATOR 112 corresponds to IP 20.

If the signal conditioning instruments VEGATOR 111\*\*S/X\*\*\*\*, VEGATOR 112 are not set up in dry and clean environments, they must be mounted in a housing with the required protection rating.

With zone 2 applications, the following special conditions must be noted:

According to EN/IEC 60079-15, paragraph 6.3.1 the following applies for this instrument:

- The instrument must be installed in a housing tested according to IEC 60079-0 meeting the requirements of protection rating IP 54.

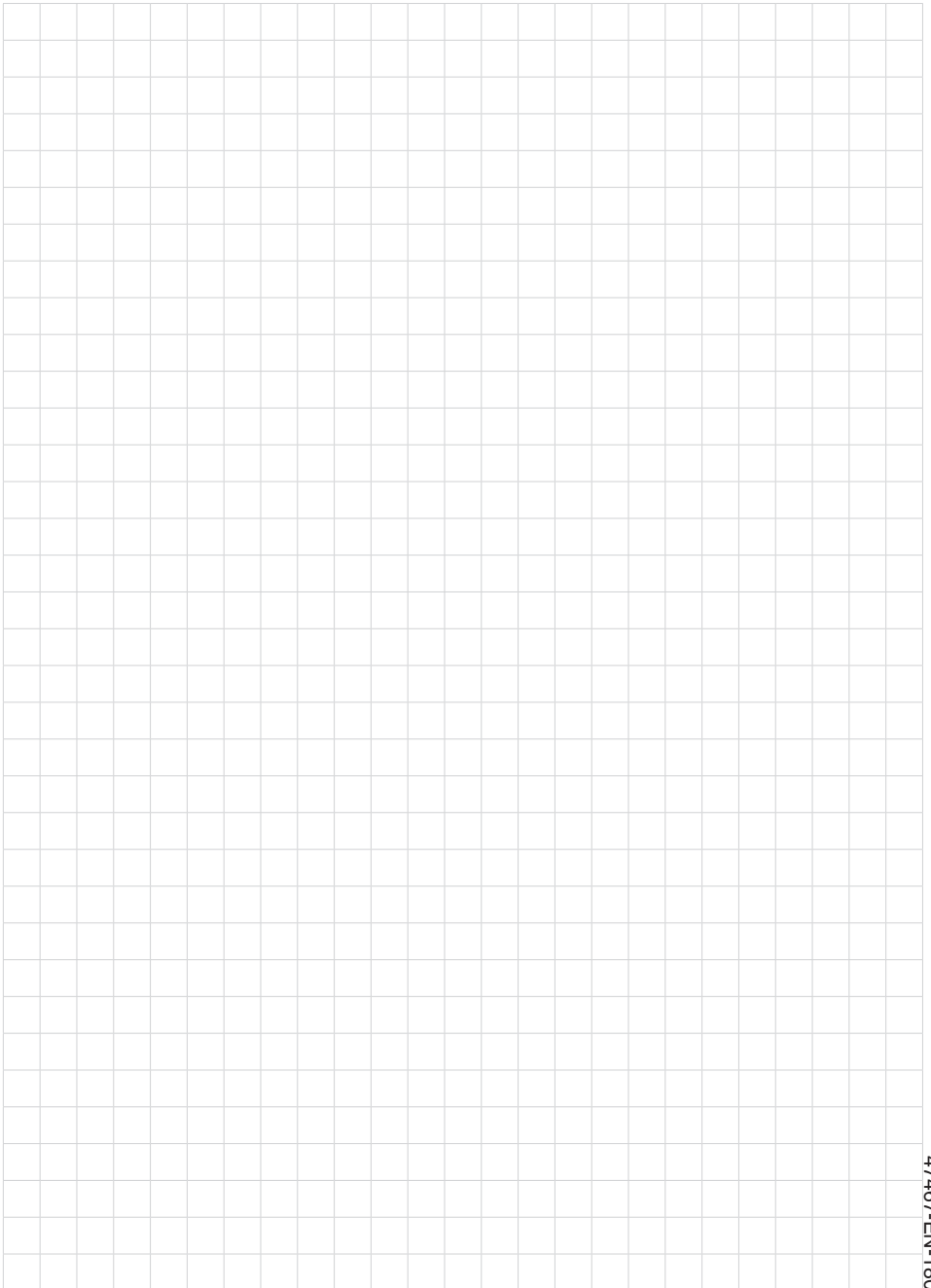
or

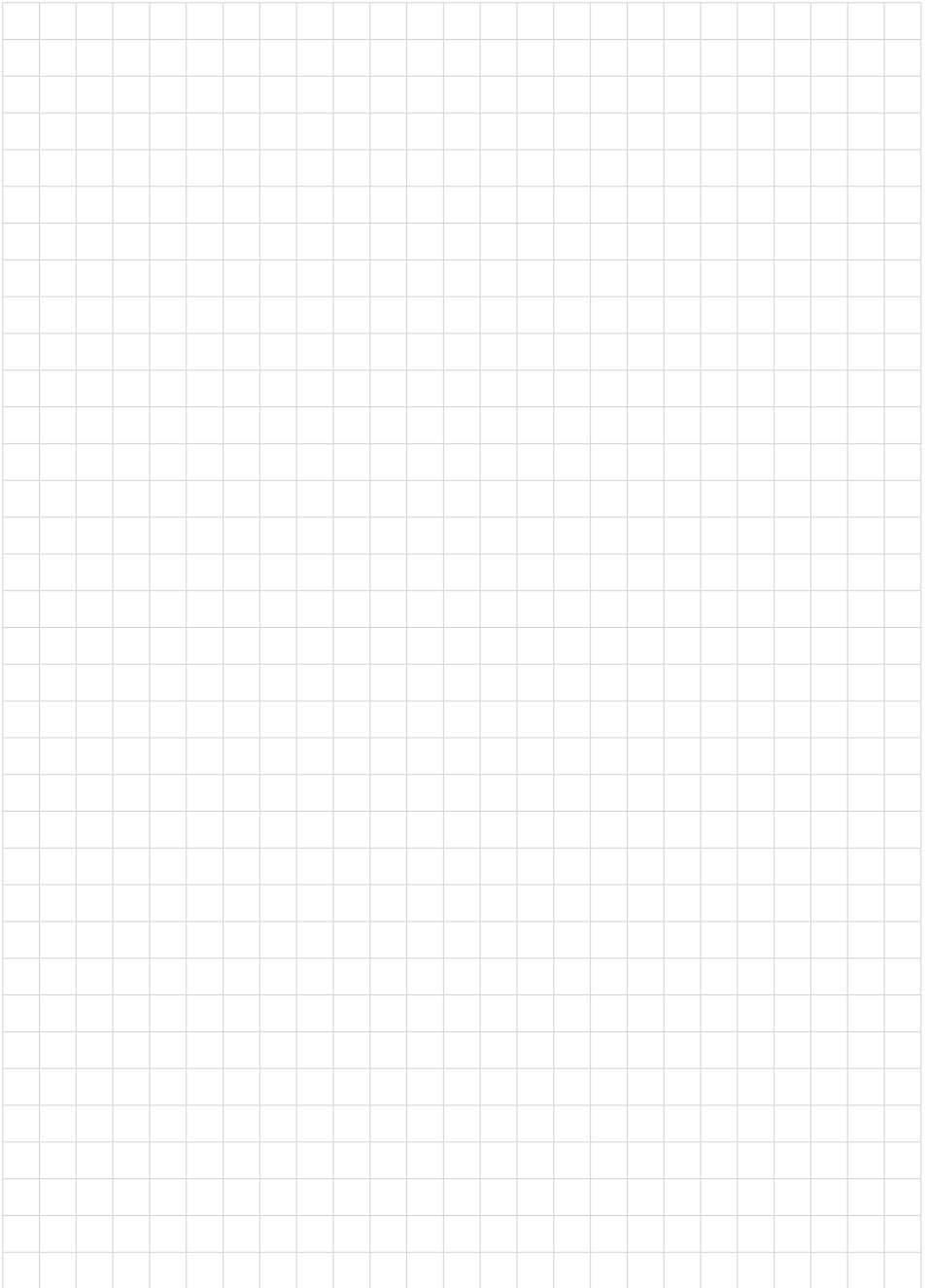
- The instrument must be installed in a housing tested according to IEC 60079-0 meeting the requirements of protection rating IP 4X. The instrument must then be exclusively installed in areas offering also a suitable protection against penetration of impurities or liquids.

The pollution degree 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 category 1D or 2D and are certified respectively.





47467-EN-180912

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

© VEGA Grieshaber KG, Schiltach/Germany 2018

47467-EN-180912

VEGA Grieshaber KG  
Am Hohenstein 113  
77761 Schiltach  
Germany

Phone +49 7836 50-0  
Fax +49 7836 50-201  
E-mail: [info.de@vega.com](mailto:info.de@vega.com)  
[www.vega.com](http://www.vega.com)