IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION
IEC Certification Scheme for Explosive Atmospheres

for rules and details of the IECEx Scheme visit www.iecex.com

Certificate No.:	IECEx TUN 05.0006X issue No.:1
Status:	**Current**
Date of Issue:	**2017-09-15** Page 1 of 4

Certificate history:
Issue No. 1 (2017-9-15)
Issue No. 0 (2006-9-21)

Applicant: **FAFNIR GmbH**
Schnackenburgallee 149 c
22525 Hamburg
Germany

Equipment: **Isolating amplifier type VP-1, VP-2 resp. VP-4**
Optional accessory:

Type of Protection: **Intrinsic Safety "ia"**

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

Approved for issue on behalf of the IECEx Certification Body: Andreas Meyer

Position: Head of IECExCB

Signature:
(for printed version)

Date: 2017-09-15

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.

Certificate issued by:

TÜV NORD CERT GmbH
Hanover Office
Am TÜV 1, 30519 Hannover
Germany

TÜV NORD

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Date of Issue: **2017-09-15** Issue No.: **1**

Manufacturer: **FAFNIR GmbH**
Schnackenburgallee 149 c
22525 Hamburg
Germany

Additional Manufacturing location(s):

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEx Quality system requirements. This certificate is granted subject to the conditions as set out in IECEx Scheme Rules, IECEx 02 and Operational Documents as amended.

STANDARDS:
The electrical apparatus and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards:

IEC 60079-0 : 2011 Edition: 6.0	Explosive atmospheres - Part 0: General requirements
IEC 60079-11 : 2011 Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"

*This Certificate **does not** indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.*

TEST & ASSESSMENT REPORTS:
A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in

IECEx ATR:
DE/TUN/ExTR06.0036/01
IECEx QAR:
DE/TUN/QAR06.0013/05

File Reference:
17 217 191841
File Reference:
16 216 181481

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Schedule

EQUIPMENT:
Equipment and systems covered by this certificate are as follows:

The isolating amplifier type VP-... is an associated apparatus which is used for the transmission of electrical signals from the hazardous explosive area to the non-hazardous explosive area resp. preferably for powering of electronic filling level sensors and forwarding of measuring values to a superordinate evaluation system. It is designed as a module of a tank level measuring system. The types vary in the number of IS sensor circuit. The isolating amplifier shall be only used outside the hazardous area and must be installed inside an IP20 enclosure according to IEC 60529.

For further details and technical data refer to the Attachment.

SPECIFIC CONDITIONS OF USE: YES as shown below:

The isolating amplifier has to be installed in a housing in such a way, that a degree of protection of at least IP20 according to IEC 60529 is reached.

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DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

Introduction of Dust Ex (Group IIIC)
Ex marking changed
Modification of Electrical Data
Change of maximum permissible ambient temperature range
Change of Equipment designation
Consideration of new address of manufacturer
Consideration of latest standards
Introduction of Special Conditions for Safe Use

Annex: Attachment to IECEx TUN 05.0006X ISS1.pdf

TÜV NORD CERT GmbH
Hanover Office
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30519 Hannover
Germany

Type Code

VP-1: Eight intrinsically safe sensor circuits
VP-2: Two intrinsically safe sensor circuits
VP-4: Four intrinsically safe sensor circuits

Technical data

Supply circuit "Power" (terminals L, N, PE)

U_n = 230 VAC ± 10%; approx. 2 VA, U_m = 253 V resp.
U_n = 115 VAC ± 10%; approx. 2 VA, U_m = 138 V resp.
U_n = 24 VAC ± 10%; approx. 2 VA, U_m = 36 V

Sensor circuits "1" to "8" (terminals +, A, B, -)

in Type of Protection "Intrinsic Safety" Ex ia IIC/IIB/IIIC
Maximum values per circuit:
U_o = 14.3 V
I_o = 27.5 mA
P_o = 98.1 mW

Characteristic line: linear

C_i negligibly small
L_i negligibly small

The maximum permissible values for the external inductance (L_o) and capacitance (C_o) shall be taken from the following table:

	Ex ia IIC		Ex ia IIB/IIIC	
L_o	5 mH	2 mH	20 mH	10 mH
C_o	380 nF	480 nF	1.5 µF	1.8 µF

The aforementioned maximum values for L_o and C_o consider the coincidental appearance of concentrated capacitance and inductance.

Communication circuit (plug connector)

U_n = 5 V
U_m = 134 V

The intrinsically safe sensor circuits are safely galvanically separated from the supply circuit (terminals L, N, PE) up to a peak crest value of the voltage of 375 V and from the communication circuit (plug connector) up to a peak crest value of the voltage of 190 V.

Permissible range of ambient temperature: -20 °C to +55 °C.