



# 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](http://www.iecex.com)

Certificate No.: IECEx TUN 08.0007X issue No.: 4

Status: **Current**

Date of Issue: **2016-05-25** Page 1 of 4

Certificate history:

Issue No. 4 (2016-5-25)  
Issue No. 3 (2014-1-16)  
Issue No. 2 (2013-7-16)  
Issue No. 1 (2012-3-13)  
Issue No. 0 (2008-7-7)

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

Equipment: **VAPORIX-Control ...**  
Optional accessory:

Type of Protection: **Intrinsic safety "i"**

Marking: [Ex ia Ga] IIB

Approved for issue on behalf of the IECEx  
Certification Body:

Karl-Heinz Schwedt

Position:

Head of the IECEx certification body

Signature:  
(for printed version)

Date:

2016 - 05 - 25

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](http://www.iecex.com).

Certificate issued by:





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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** Explosive atmospheres - Part 0: General requirements  
Edition: 6.0

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

*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*

Test Report:  
[DE/TUN/ExTR08.0016/04](#)

Quality Assessment Report:  
[DE/TUN/QAR06.0013/04](#)



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## Schedule

### EQUIPMENT:

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

The evaluation unit is a part of an automatic monitoring device to check the function of the vapour recovery systems at petrol stations. Two intrinsic safety sensors as maximum can be connected to every evaluation unit.

### CONDITIONS OF CERTIFICATION: YES as shown below:

1. The evaluation unit type VAPORIX-Control II must be installed in an enclosure with a degree of protection provided by the enclosure according to IEC 60529 of at least IP20.
2. The potential equalization terminal (PA) on the evaluation unit type VAPORIX-Control II must be bonded to the potential equalization system of the potential explosive area.



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

The amendments concern the adding of the new type VAPORIX-Control II. Also the equipment was assessed according to the latest standards. Further the instruction manual was revised. All other data apply unchanged for this Supplement.

## Electrical data

### **VAPORIX-Control**

Supply circuit "230V~" (terminals L, N, PE)	$U = 115/230 \text{ V a.c. } \pm 10 \%, 50 \dots 60 \text{ Hz, about } 18 \text{ VA}$ $U_m = 130 \text{ V at } 115 \text{ V a.c.}$ $U_m = 253 \text{ V at } 230 \text{ V a.c.}$
Clock input "Pulse" (terminals -B+, -A+)	$U = 5 \text{ V } \dots 30 \text{ V}$ $U_m = 134 \text{ V}$
Control outputs "Out B" and "Out A" (terminals -2+, -1+)	$U \leq 30 \text{ V}$ $I \leq 200 \text{ mA}$ $U_m = 134 \text{ V}$
Voltage output "5V" (terminals -, +)	$U = 5 \text{ V}$ $I \leq 50 \text{ mA}$
RS-485 two-wire "RS485" (terminals G, B, A)	$U < 12 \text{ V}$ $U_m = 134 \text{ V}$
RS-485 four-wire "RS485-4" (plug connector)	$U < 12 \text{ V}$ $U_m = 134 \text{ V}$
RS-232 interface "Service" (Sub D socket)	$U \leq 12 \text{ V}$ $U_m = 134 \text{ V}$
Sensor circuits "B" and "A" (terminals 1 to 8)	in type of protection intrinsic safety Ex ia IIB Maximum values per circuit: $U_o = 23.9 \text{ V}$ $I_o = 325 \text{ mA}$ $P_o = 1.9 \text{ W}$ $R = 76 \text{ } \Omega$ Characteristic line: linear $L_o = 380 \text{ } \mu\text{H}$ $C_o = 480 \text{ nF}$ Aforementioned maximum values are valid at coincidental appearance of concentrated capacitance and inductance.

**VAPORIX-Control Basic**

Supply circuit "230V~"  
(terminals L, N, PE)

$U = 115/230 \text{ V a.c. } \pm 10 \%, 50 \dots 60 \text{ Hz, about } 18 \text{ VA}$   
 $U_m = 130 \text{ V at } 115 \text{ V a.c.}$   
 $U_m = 253 \text{ V at } 230 \text{ V a.c.}$

Clock input "Pulse"  
(terminals -B+, -A+)

$U = 5 \text{ V } \dots 30 \text{ V}$   
 $U_m = 134 \text{ V}$

Control outputs "Out B" and "Out A"  
(terminals -2+, -1+)

$U \leq 30 \text{ V}$   
 $I \leq 200 \text{ mA}$   
 $U_m = 134 \text{ V}$

Voltage output "5V"  
(terminals -, +)

$U = 5 \text{ V}$   
 $I \leq 50 \text{ mA}$

RS-232 interface "Service"  
(Sub D socket)

$U \leq 12 \text{ V}$   
 $U_m = 134 \text{ V}$

Sensor circuits "B" and "A"  
(terminals 1 to 8)

in type of protection intrinsic safety Ex ia IIB  
Maximum values per circuit:

$U_o = 23.9 \text{ V}$   
 $I_o = 325 \text{ mA}$   
 $P_o = 1.9 \text{ W}$   
 $R = 76 \Omega$

Characteristic line: linear

$L_o = 380 \mu\text{H}$   
 $C_o = 480 \text{ nF}$

Aforementioned maximum values are valid at coincidental appearance of concentrated capacitance and inductance.

**VAPORIX-Control II**

Supply circuit "24V="  
(terminals -, +)

$U = 24 \text{ V d.c. } \pm 5 \%$ , about 9 W  
 $U_m = 253 \text{ V}$

RS-422 communication "RS422"  
(plug connector)

$U < 12 \text{ V}$   
 $U_m = 134 \text{ V}$

RS-485 communication "RS485"  
(terminals A, B, G)

$U < 12 \text{ V}$   
 $U_m = 134 \text{ V}$

Sensor circuits "A" and "B"  
(terminals 1 to 8)

in type of protection intrinsic safety Ex ia IIB

Maximum values per circuit:

$U_o = 22.2 \text{ V}$

$I_o = 371 \text{ mA}$

$P_o = 2.1 \text{ W}$

$R = 60 \text{ } \Omega$

Characteristic line: linear

$L_i = 10 \text{ } \mu\text{H}$

$C_i = 200 \text{ nF}$

$L_o = 440 \text{ } \mu\text{H}$

$C_o = 510 \text{ nF}$

Aforementioned maximum values are valid at coincidental appearance of concentrated capacitance and inductance.