



IECEx Certificate of Conformity

INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

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

Certificate No.: **IECEx TUN 05.0001X**

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Certificate history:

Status: **Current**

Issue No: 2

Issue 1 (2009-01-20)

Issue 0 (2005-01-31)

Date of Issue: 2023-09-22

Applicant: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

Equipment: **Signal conditioning instrument VEGAMET 381**

Optional accessory: --

Type of Protection: **Intrinsic Safety**

Marking: **[Ex ia Ma] I or**

[Ex ia Ga] IIC or

[Ex ia Da] IIIC

Approved for issue on behalf of the IECEx
Certification Body:

Andreas Meyer

Position:

Deputy Head of the IECEx Certification Body

Signature:
(for printed version)

TÜV NORD

Digital unterschrieben
von Meyer Andreas
Datum: 2023.09.22
16:14:48 +02'00'

Date:
(for printed version)

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iny





IECEx Certificate of Conformity

Certificate No.: **IECEx TUN 05.0001X**

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Date of issue: 2023-09-22

Issue No: 2

Manufacturer: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

Manufacturing
locations: **India VEGA India Level and
Pressure Measurement Pvt. Ltd.**
Plot No. 1, Gat No. 181
Village - Phulgaon, Tal. Haveli
Pune 412216
India

VEGA Americas, Inc.
3877 Mason Research Parkway
Ohio
Mason 45036
United States of America

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 equipment 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 60079-0:2017 Explosive atmospheres - Part 0: Equipment - General requirements
Edition:7.0

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

This Certificate **does not** indicate compliance with 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/ExTR09.0002/01](#)

Quality Assessment Report:

[DE/TUN/QAR06.0002/12](#)

IECEx ATR:
DE/TUN/09.0002/00

File reference:
09 204 554744



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Certificate No.: **IECEx TUN 05.0001X**

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Date of issue: **2023-09-22**

Issue No: 2

EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

Description:

The signal conditioning instrument VEGAMET 381 is used for the safe galvanic separation of the intrinsically safe circuit from all non-intrinsically safe circuits.

The apparatus supplies passive, intrinsically safe 4-20 mA two wire measuring value transducers or processes 4-20 mA signal currents of active intrinsically safe sensors or apparatus. The measuring values are represented on a LCD display digitally or approx. analogously. The setting of limit values and the formation of binary output signals is possible at potential-free relay contacts.

Electrical and thermal data:

Refers to the Attachment to IECEx 05.0001X issue No.2

SPECIFIC CONDITIONS OF USE: YES as shown below:

The supply voltage and the electrical output data of the intrinsically safe signal circuit are incorrectly given in the previous issues No.0 and 1 of the certificate of conformity IECEx TUN 05.0001, therefore these data are no longer valid and are to be replaced by the values in this issue No.2 of the certificate of conformity IECEx TUN 05.0001X.



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Certificate No.: **IECEx TUN 05.0001X**

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Date of issue: 2023-09-22

Issue No: 2

DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)

- Proof of conformity of the signal conditioning instrument VEGAMET 381 to IEC 60079-0:2017 and IEC 60079-11:2011.
- Additional manufacturing location added.
- The supply voltage and the electrical output data of the intrinsically safe signal circuit are incorrectly given in the previous issues No.0 and 1 of the certificate of conformity IECEx TUN 05.0001, therefore these data are no longer valid and are to be replaced by the values in this issue No.2 of the certificate of conformity IECEx TUN 05.0001X.
- The external inductance L_o and the external capacitance C_o are determined only by using the program ispark, version 7.1 from 2015-07-03 copyright @ PTB 2002

This results that the certificate is marked with the sign "X" after the certificate number.

The signal conditioning instrument VEGAMET MET381.CI* is named in this issue No.2 as VEGAMET 381

Annex:

[Attachment to IECEx TUN 05.0001X issue No.2.pdf](#)

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Attachment to IECEx TUN 05.0001X issue No.: 2

General product information:

Description:

The signal conditioning instrument VEGAMET 381 is used for the safe galvanic separation of the intrinsically safe circuit from all non-intrinsically safe circuits.

The apparatus supplies passive, intrinsically safe 4-20 mA two wire measuring value transducers or processes 4-20 mA signal currents of active intrinsically safe sensors or apparatus. The measuring values are represented on a LCD display digitally or approx. analogously. The setting of limit values and the formation of binary output signals is possible at potential-free relay contacts.

Type code and Marking:

| | |
|-------------|-----------------|
| VEGAMET 381 | [Ex ia Ma] I |
| | [Ex ia Ga] IIC |
| | [Ex ia Da] IIIC |

Electrical data:

Supply voltage
(Connections K15 and K16)

For connection to non-intrinsically safe circuits with following maximum values:

$U = 24 \dots 230 \text{ V a.c. } (-15 \dots +10\%)$
 $U_m = 253 \text{ V a.c.}$

Signal circuit
(Connections K11[+] and K12[-])

In type of protection Intrinsic Safety Ex ia I/IIC/IIB(IIIC)
Sliding switch position Ia: 4 ... 20 mA active:
For connection to passive, intrinsically safe circuits;
max. values of the active signal circuit:

$U_o = 22.5 \text{ V}$
 $I_o = 104 \text{ mA}$
 $P_o = 585 \text{ mW}$
Characteristic line: linear
Negligibly small
Negligibly small

Effective internal capacitance C_i
Effective internal inductance L_i

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] | 70 | 50 | 10 | 0.2 | 0.1 |
| | C_o [μ F] | 1.9 | 2.4 | 3.1 | 4.8 | 5.4 |

| | | | | | | |
|-----------|------------------|-------|-------|-------|------|-------|
| Ex ia IIC | L_o [mH] | 2.5 | 2 | 0.5 | 0.2 | 0.1 |
| | C_o [μ F] | 0.058 | 0.063 | 0.099 | 0.13 | 0.154 |

| | | | | | | |
|------------------|------------------|------|-----|-------|------|------|
| Ex ia IIB (IIIC) | L_o [mH] | 20 | 10 | 1 | 0.5 | 0.2 |
| | C_o [μ F] | 0.64 | 0.7 | 0.750 | 0.86 | 1.08 |

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Attachment to IECEx TUN 05.0001X issue No.: 2

Sliding switch position Ip 4 ... 20 mA passive:

For connection to external certified active intrinsically safe circuits with linear characteristic line;
max. values of the active intrinsically safe circuit to be connected to the terminals KI1 and KI2:

| IIC | IIB | I |
|-------------------------|-------------------------|-------------------------|
| U _o = 22.5 V | U _o = 22.5 V | U _o = 22.5 V |
| I _o = 70 mA | I _o = 200 mA | I _o = 200 mA |

The effective internal capacitances and inductances are negligibly small.

The maximum permissible values for the external inductance L_o and the external capacitance C_o of the active intrinsically safe circuit can be taken from the following tables:

| | | | | | | |
|---------|---------------------|-----|-----|-----|-----|-----|
| Ex ia I | L _o [mH] | 16 | 10 | 1 | 0.2 | 0.1 |
| | C _o [µF] | 2.7 | 2.9 | 3.1 | 4.6 | 5.4 |

| | | | | | | |
|-----------|---------------------|-------|------|------|------|-------|
| Ex ia IIC | L _o [mH] | 7.1 | 1 | 0.5 | 0.2 | 0.1 |
| | C _o [µF] | 0.077 | 0.09 | 0.11 | 0.14 | 0.154 |

| | | | | | | |
|------------------|---------------------|------|------|------|-----|------|
| Ex ia IIB (IIIC) | L _o [mH] | 4.1 | 1 | 0.5 | 0.2 | 0.1 |
| | C _o [µF] | 0.58 | 0.65 | 0.78 | 1 | 1.08 |

Relay circuits
(Relay output 1:
connections KI8, KI9 and KI10
Relay output 2:
connections KI11, KI12 and KI13
Relay output 3:
connections KI14, KI15 and KI16
Relay output 4:
connections KI17 and KI18)

For connection to non-intrinsically safe circuits with following maximum values per relay:

- a. c. current: 253 V; 3 A; 500 VA
- d. c. current: 253 V; 1 A; 54 W

Current output
(Connections KI3 and KI4)

For connection to non-intrinsically safe circuits with following maximum values:
0/4 ... 20 mA
U_m = 253 V a.c.

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

Thermal data:

Permissible ambient temperature range during operation: -20 °C ≤ Ta ≤ +60 °C

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Attachment to IECEx TUN 05.0001X issue No.: 2

Details of change:

- Proof of conformity of the signal conditioning instrument VEGAMET 381 to IEC 60079-0:2017 and IEC 60079-11:2011.
- Additional manufacturing location added.
- The supply voltage and the electrical output data of the intrinsically safe signal circuit are incorrectly given in the previous issues No.0 and 1 of the certificate of conformity IECEx TUN 05.0001, therefore these data are no longer valid and are to be replaced by the values in this issue No.2 of the certificate of conformity IECEx TUN 05.0001X.
- The external inductance L_o and the external capacitance C_o are determined only by using the program ispark, version 7.1 from 2015-07-03 copyright @ PTB 2002

This results that the certificate is marked with the sign "X" after the certificate number.

Note that the signal conditioning instrument VEGAMET MET381.C1* is named in this issue No.2 as VEGAMET 381

Specific Conditions of Use:

The supply voltage and the electrical output data of the intrinsically safe signal circuit are incorrectly given in the previous issues No.0 and 1 of the certificate of conformity IECEx TUN 05.0001, therefore these data are no longer valid and are to be replaced by the values in this issue No.2 of the certificate of conformity IECEx TUN 05.0001X.



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 05.0001

issue No.:1

Certificate history:

Issue No. 1 (2009-1-20)

Issue No. 0 (2005-1-31)

Status:

Current

Date of Issue:

2009-01-20

Page 1 of 6

Applicant:

VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany

Electrical Apparatus:

VEGAMET MET381.CI*

Optional accessory:

--

Type of Protection:

Intrinsic Safety

Marking:

[Zone 0] [Ex ia] IIC
[Zone 20] [Ex iaD]

Approved for issue on behalf of the IECEx
Certification Body:


Karl-Heinz Schwedt

Position:

Head of IECExCB

Signature:
(for printed version)

Date:


2009-01-20

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Certificate issued by:

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Hanover Office
Am TÜV 1
30519 Hannover
Germany





IECEx Certificate of Conformity

Certificate No.: IECEx TUN 05.0001

Date of Issue: 2009-01-20

Issue No.: 1

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Manufacturer: **VEGA Grieshaber KG**
Am Hohenstein 113
77761 Schiltach
Germany

Manufacturing location(s):
VEGA Grieshaber KG
Am Hohenstein 113
77761 Schiltach
Germany

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 : 2004 Edition: 4.0 | Electrical apparatus for explosive gas atmospheres - Part 0: General requirements |
| IEC 60079-11 : 2006 Edition: 5 | Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "I" |
| IEC 60079-26 : 2004 Edition: 1 | Electrical apparatus for explosive gas atmospheres - Part 26: Construction, test and marking of Group II Zone 0 electrical apparatus |
| IEC 61241-11 : 2005 Edition: 1 | Electrical apparatus for use in the presence of combustible dusts - Part 11: Protection by intrinsic safety 'ID' |

*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/09.0002/00

File Reference:
09 204 554744



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Date of Issue: 2009-01-20

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Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

The signal conditioning instrument type VEGAMET MET381.C_ is an associated electrical apparatus and is used for the safe galvanic separation of the intrinsically safe circuit from all non-intrinsically safe circuits. The apparatus supplies passive, intrinsically safe 4-20 mA two wire measuring value transducers or processes 4-20 signal currents of active intrinsically safe sensors or apparatus. The measuring values are represented on a LCD display digitally or approx. analogously. The setting of limit values and the generation of binary output signals is possible at potential-free relay contacts. The maximum permissible ambient temperature is 60°C.

Electrical data

Supply voltage
(Connections KI5 and KI6)

$U = 20 \dots 253 \text{ V a. c.}$

$U_m = 253 \text{ V a. c.}$

CONDITIONS OF CERTIFICATION: NO



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EQUIPMENT(continued):

Signal circuit
(Connections KI1[+] and KI2[-])

in type of protection „Intrinsic Safety“ Ex ia IIC/IIB

Sliding switch position Ia: 4 ... 20 mA active:

For connection to passive, intrinsically safe circuits;
max. values of the active signal circuit:

$$U_o = 22.5 \text{ V}$$

$$I_o = 104 \text{ mA}$$

$$P_o = 580 \text{ mW}$$

characteristic line: linear

| Ex ia | IIC | | IIB | |
|-----------------------------------|--------|--------|--------|--------|
| max. permissible ext. inductance | 0.2 mH | 0.5 mH | 0.5 mH | 1.0 mH |
| max. permissible ext. capacitance | 130 nF | 97 nF | 640 nF | 560 nF |

Sliding switch position Ip 4 ... 20 mA passive:

For connection to active, intrinsically safe circuits with linear characteristic line;
max. values of the active intrinsically safe circuit to be connected to the terminals KI1 and KI2:

IIC

$$U_o = 22.5 \text{ V}$$

$$I_o = 70 \text{ mA}$$

IIB

$$U_o = 22.5 \text{ V}$$

$$I_o = 200 \text{ mA}$$

| Ex ia | IIC | IIB |
|-----------------------------------|--------|--------|
| max. permissible ext. inductance | 110 nF | 420 nF |
| max. permissible ext. capacitance | 0.2 mH | 0.9 mH |

The effective internal capacitances and inductances are negligibly small.

The maximum values of the tables are also allowed to be used up to the permissible limits as concentrated capacitances and as concentrated inductances.



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

see annexe



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Certificate No.: IECEx TUN 05.0001

Date of Issue: 2009-01-20

Issue No.: 1

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Additional information:

| | |
|----------------------------------|----------------------------------|
| Relay circuits | maximum values per relay: |
| (Relay output 1: | a. c. current: 250 V, 3A, 500 VA |
| connections KI8, KI9 and KI10; | d. c. current: 250 V, 1A, 54 W |
| relay output 2: | |
| connections KI11, KI12 and KI13; | |
| relay output 3: | |
| connections KI14, KI15 and KI16; | |
| relay output 4 | |
| connections KI17 and KI18) | |

| | |
|---------------------------|-----------------------------|
| Current output | 0/4 ... 20 mA |
| (Connections KI3 and KI4) | $U_m = 250 \text{ V a. c.}$ |

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

