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 18.0023

Issue No: 1

Certificate history:
Issue No. 1 (2019-05-10)
Issue No. 0 (2018-11-20)

Status: **Current**

Date of Issue: **2019-05-10**

Applicant: **NIVUS GmbH**
Im Täle 2
75031 Eppingen
Germany

Equipment: **System "Sensor Family Mini"; see schedule for details**

Optional accessory:

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

Marking:
Ex ib IIB T4 Gb

Approved for issue on behalf of the IECEx Certification Body: Christian Roder

Position: Head of IECEx Certification Body

Signature:
(for printed version)

Date:

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

IECEx Certificate of Conformity

Certificate No: IECEx TUN 18.0023 Issue No: 1

Date of Issue: **2019-05-10** Page 2 of 4

Manufacturer: **NIVUS GmbH**
Im Täle 2
75031 Eppingen
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 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/ExTR18.0026/01

Quality Assessment Report:

DE/TUN/QAR13.0011/05

IECEx Certificate of Conformity

Certificate No: IECEx TUN 18.0023 Issue No: 1

Date of Issue: 2019-05-10 Page 3 of 4

Schedule

EQUIPMENT:

Equipment and systems covered by this certificate are as follows:

In conjunction with the belonging measuring transducers resp. Ex-Separator-Module, the system “Sensor Family Mini” is used for measurement of the flow speed and the flow level in partly or fully filled pipes and channels via supersonic technology.

The system “Sensor Family Mini” consists of the following components:

Electronic Box Mini type EBM

Sensors type

correlation sensor CSM-V100, CSM-V1D0,

CSM-V100Rx, CSP-V2xx,

distance sensor DSM-L0 and level sensor OCL-LM,

clamp-on sensor NIC-CO,

transit time sensor NIS0 V200, TSP0 V200, NIS-V200 and NIS-V280

The permissible ambient temperature range is:

For EBM: -20 °C … 40 °C

For all sensors: -40 °C … 80 °C

For further details see attachment.

SPECIFIC CONDITIONS OF USE: NO

IECEx Certificate of Conformity

Certificate No: IECEx TUN 18.0023 Issue No: 1

Date of Issue: **2019-05-10** Page 4 of 4

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

The type designations for some sensors were changed. No technical changes were performed.

Annex:

_Attachment _Sensorfamily Mini_01.pdf

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

Product:

In conjunction with the belonging measuring transducers resp. Ex-Separator-Module, the system "Sensor Family Mini" is used for measurement of the flow speed and the flow level in partly or fully filled pipes and channels via supersonic technology.

The system "Sensor Family Mini" consists of the following components:
Electronic Box Mini type EBM
Sensors type correlation sensor CSM-V100, CSM-V1D0,
CSM-V100Rx, CSP-V2xx,
distance sensor DSM-L0 and level sensor OCL-LM,
clamp-on sensor NIC-CO,
transit time sensor NIS0 V200, TSP0 V200, NIS-V200 and NIS-V280

The permissible ambient temperature range is:
For EBM: -20 °C … 40 °C
For all sensors: -40 °C … 80 °C

Electrical data

Signal and supply circuit (of EBM) …… (Connection wires (pig tail): red [+], blue [GND]	in type of protection Intrinsic Safety Ex ib IIB only for connection to a certified intrinsically safe circuit Maximum values: U_i = 10.5 V I_i = 640 mA P_i = 6.72 W The connection to the following measuring transducers of the manufacturer is permissible: type OCP-... type PCP-E... The connection to the following Ex-Separator-Module is permissible: type iXT0 xxx The effective internal capacitance and inductance of the electronics are negligibly small. The capacitances and inductances of the connected cable have to be taken into account.
Interface RS485 (of EBM) …….…… (Connection wires (pig tail): white [RxTx+] green [RxTx-] blue: GND)	in type of protection Intrinsic Safety Ex ib IIB Maximum values: U_o = 6 V I_o = 81.9 mA Angle current: 50 mA Angle voltage: 4 V P_o = 200 mW Characteristic line: angular The effective internal capacitance and inductance of the electronics are negligibly small.

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

Ex ib	IIB	
max. permissible external inductance	10 mH	1 mH
max. permissible external capacitance	3.8 µF	11.2 µF

At connection of the interface RS485 to belonging measuring transducers with active intrinsically safe circuits, the rules for interconnection of intrinsically safe circuits have to be taken into account.

Maximum values:
U_i = 12.06 V
I_i = 176 mA
P_i = 531 mW

The interconnection of the electronic box Mini type EBM with the sensors

- Correlation sensor Mini type CSM-V100 or CSM-V1D0 or CSM-V100Rx or CSP-V2xx and
- Distance sensor Mini type DSM (or filling level sensor type OCL-LM)

via a cable of the manufacturer with a length of 20 m is permissible.

Piezo connections ……..... in type of protection Intrinsic Safety Ex ib IIB
(Connector Pins A/B or C/D) Only for connection to the intrinsically safe circuits of the devices “Electronic Box Mini” EBM or the “NivuFlow Mobile” NFM of the manufacturer with safe energy limitation
C_i = 11 nF
L_i = 12 µH

1-Wire temperature sensor,
1-Wire EEPROM ……..... in type of protection Intrinsic Safety Ex ib IIB
(Connector Pins E, F and J) Only for connection to an intrinsically safe circuit
U_i = 6 V
I_i = 188 mA
P_i = 282 mW
C_i = 120 nF
The effective internal inductance is negligibly small.

Pressure cell ……..…….….... in type of protection Intrinsic Safety Ex ib IIB
(Connector Pins E, G, H and J) Only for connection to an intrinsically safe circuit
U_i = 6 V
I_i = 264 mA
P_i = 396 mW
C_i = 20.15 µF
The effective internal inductance is negligibly small.

Details of Change:

The type designations for some sensors were changed. No technical changes were performed.

Special Conditions for Safe Use / Notes for Erection:

-none-