Translation

(1) # EU-Type Examination Certificate

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 2014/34/EU**

(3) **Certificate Number** **TÜV 12 ATEX 087812** **Issue:** 02

(4) for the product: System “Sensor Family Mini” consisting of the components according to schedule

(5) of the manufacturer: **NIVUS GmbH**

(6) Address: Im Täle 2
75031 Eppingen
Germany

Order number: 8003076150
Date of issue: See date of signature

(7) The design of this product and any acceptable variation thereto are specified in the schedule to this EU-Type Examination Certificate and the documents therein referred to.

(8) The TÜV NORD CERT GmbH, Notified Body No. 0044, in accordance with Article 17 of the Directive 2014/34/EU of the European Parliament and the Council of 26 February 2014, certifies that this product has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of products intended for use in potentially explosive atmospheres given in Annex II to the Directive.
The examination and test results are recorded in the confidential ATEX Assessment Report No. 24 203 381521.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN IEC 60079-0:2018/AC:2020-02 **EN 60079-11:2012**
except in respect of those requirements listed at item 18 of the schedule.

(10) If the sign ”X” is placed after the certificate number, it indicates that the product is subject to the Specific Conditions for Use specified in the schedule to this certificate.

(11) This EU-Type Examination Certificate relates only to the design, and construction of the specified product. Further requirements of the Directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

(12) The marking of the product shall include the following:

II 2 G Ex ib IIB T4 Gb

TÜV NORD CERT GmbH, Am TÜV 1, 45307 Essen, notified by the central office of the countries for safety engineering (ZLS), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The deputy head of the notified body

TÜVNORD Digital unterschrieben von Meyer Andreas
Datum: 2025.07.16 08:01:03 +02'00'

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(13) **S C H E D U L E**

(14) **EU-Type Examination Certificate No. TÜV 12 ATEX 087812 Issue 02**

(15) **Description of 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 EBM type V1L1 or type V3L1
- 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

Type code:

Electronic-Box-Mini EBM	**Sensors**	
Type V1L1 or Type V3L1	Correlation sensor	Type CSM-V100, CSM-V1D0, CSM-V100Rx, CSP-V2xx
	Distance sensor	Type DSM-L0 und Füllstandsensor OCL-LM
	Clamp-on sensor	Type NIC-CO
	Transit time sensor	Type NIS0 V200, TSP0 V200, NIS-V200 und NIS-V280

EBM	Type						Electronic-Box-Mini for connecting for connecting 1 x CSM and 1 x DSM sensor
	V1L1 **V3L1**						Internal construction with POA-V2 sensor generation **Internal construction with POA-V3 sensor generation**
		Design					
		RD					Standard design
		xx					Special design
			ATEX- Approval				
			0				Without
			E				ATEX-Approval Zone 1
				Cable length (max. 150 m)			
				03			3 m
				10			10 m
				99			100 m
				xx			Special length
					K		Cable end pre-assembled for connection to the NivuFlow 750 and NivuFlow 7550 transmitters via the Ex-Separator-Module iXT0

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Schedule to EU-Type Examination Certificate No. TÜV 12 ATEX 087812 Issue 02

Electrical data:

System "Sensor Family Mini" with the Elektronik-Box-Mini EBM type V**1**L1:

Signal- and supply circuit (Cable tail; Connection wires: Red (X6): + Blue (X8): GND)	In type of protection intrinsic safety Ex ib IIB Only for connection to certified intrinsically safe circuits. Maximum values: U_i = 10.5 V I_i = 640 mA P_i = 6.72 W Effective internal capacitance C_i = Capacitance of the permanently connected Cable = 90 pF/m x L* Effective internal inductance L_i = Inductance of the permanently connected Cable = 0.76 µH/m x L*

L*: Length of the connected Cable has to not exceed 150 m.

The connection to the following measuring transducers of the manufacturer NIVUS is permissible:
Type OCP-... according to TÜV 00 ATEX 1572 or
Type PCP-... according to TÜV 03 ATEX 2268 or
Type IXT0-... according to TÜV 14 ATEX 142076

Connection wire black (X10)	Shield
RS485 interface (Cable tail; Connection wires: White (X14): RxTx+ Green (X13): RxTx- Blue (X8): GND)	In type of protection intrinsic safety Ex ib IIB with maximum values: U_o = 6 V I_o = 81.9 mA (long time; for calculation of P_o) I_o = 154 mA (short time; for calculation of L_o, C_o) P_o = 123 mW Characteristic line: Linear Effective internal capacitance C_i = 10.5 nF Effective internal inductance L_i = 117 µH

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be found in the following table:

Ex ib IIB	L_o [mH]	12.88	9.88	0.38	0.083
	C_o [µF]	7.08	8.38	21.98	29.98

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

Or

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Schedule to EU-Type Examination Certificate No. TÜV 12 ATEX 087812 Issue 02

RS485 interface (Cable tail; Connection wires: White (X14): RxTx+ Green (X13): RxTx- Blue (X8): GND)	Maximum values: U_i = 12.06 V I_i = 176 mA P_i = 531 mW Effective internal capacitance C_i = Capacitance of the permanently connected Cable C_c C_c = 70 pF/m x L* Effective internal inductance L_i = Inductance of the permanently connected Cable L_c L_c = 0.78 µH/m x L*

L*: Length of the connected Cable has to not exceed 150 m.

The internal pressure circuit (X1..X4) and temperature circuit (X12;X5;X7) are designed in type of protection intrinsic safety Ex ib IIB and are not accessible to the user.

The interconnection of the Electronic-Box-Mini 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 (Connector Pins A/B or C/D)	In type of protection Intrinsic Safety Ex ib IIB 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 (Connector Pins E, F and J)	In type of protection Intrinsic Safety Ex ib IIB Only for connection to certified intrinsically safe circuits. Maximum values: U_i = 6 V I_i = 188 mA P_i = 282 mW Effective internal capacitance C_i = 120 nF Effective internal inductance is negligibly small.
Pressure cell (Connector Pins E, G, H and J)	In type of protection Intrinsic Safety Ex ib IIB Only for connection to certified intrinsically safe circuits. Maximum values: U_i = 6 V I_i = 264 mA P_i = 396 mW Effective internal capacitance C_i = 6.484 µF Effective internal inductance is negligibly small.

All intrinsically safe circuits are galvanically interconnected with each other via GND potential and safely galvanically separated from earth potential.

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Schedule to EU-Type Examination Certificate No. TÜV 12 ATEX 087812 Issue 02

System “Sensor Family Mini” with the Elektronik-Box-Mini EBM type V**3**L1:

Signal- and supply circuit (Cable tail; Connection wires: Red (X1): + Blue (X2): GND)	In type of protection intrinsic safety Ex ib IIB Only for connection to certified intrinsically safe circuits. Maximum values: U_i = 10.5 V I_i = 640 mA P_i = 6.72 W Effective internal capacitance C_i = 2.2 µF + Capacitance of the permanently connected Cable = 2.2 µF + 90 pF/m x L* Effective internal inductance L_i = 4.7 µH + Inductance of the permanently connected Cable = 4.7 µH + 0.76 µH/m x L*

L*: Length of the connected Cable has to not exceed 150 m.

The connection to the following measuring transducers of the manufacturer NIVUS is permissible:
Type OCP-... according to TÜV 00 ATEX 1572 or
Type PCP-... according to TÜV 03 ATEX 2268 or
Type IXT0-... according to TÜV 14 ATEX 142076

Connection wire black (X3)	Shield

RS485 interface (Cable tail; Connection wires: White (X5): RxTx+ Green (X4): RxTx- Blue (X2): GND)	In type of protection intrinsic safety Ex ib IIB with maximum values: U_o = 5.4 V I_o = 76 mA (long time; for calculation of P_o) I_o = 124.93 mA (short time; for calculation of L_o, C_o) P_o = 102.6 mW Characteristic line: Linear Effective internal capacitance C_i = 10.5 nF Effective internal inductance L_i = 117 µH

The maximum permissible values for the external inductance L_o and the external capacitance C_o can be found in the following table:

Ex ib IIB	L_o [mH]	19.88	9.88	0.38	0.08
	C_o [µF]	7.98	11.98	27.98	36.98

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

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RS485 interface (Cable tail; Connection wires: White (X5): RxTx+ Green (X4): RxTx- Blue (X2): GND)	Maximum values: U_i = 10.7 V I_i = 236.3 mA P_i = 634.4 mW Effective internal capacitance C_i = Capacitance of the permanently connected Cable C_c C_c= 70 pF/m x L* Effective internal inductance L_i = 1.5 mH + Inductance of the permanently connected Cable L_c L_c = 1.5 mH + 0.78 µH/m x L*

L*: Length of the connected Cable has to not exceed 150 m.

The internal pressure circuit (X6..X9) and temperature circuit (X10;X11;X12) are designed in type of protection intrinsic safety Ex ib IIB and are not accessible to the user.

The interconnection of the Electronic-Box-Mini 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 (Connector Pins A/B or C/D)	In type of protection Intrinsic Safety Ex ib IIB 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 (Connector Pins E, F and J)	In type of protection Intrinsic Safety Ex ib IIB Only for connection to certified intrinsically safe circuits. Maximum values: U_i = 6 V I_i = 188 mA P_i = 282 mW Effective internal capacitance C_i = 120 nF Effective internal inductance is negligibly small.
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Schedule to EU-Type Examination Certificate No. TÜV 12 ATEX 087812 Issue 02

Thermal data:
Permissible ambient temperature range during operation:

- Electronic-Box-Mini EBM: -20 °C … +40 °C
- For all Sensors: -40 °C … +80 °C

(16) Drawings and documents are listed in the ATEX Assessment Report No. 24 203 381521

(17) **Specific Conditions for Use:**
None.

(18) **Essential Health and Safety Requirements:**
No additional ones.

- End of EU-Type Examination Certificate -

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