

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 20 ATEX 268840 X **issue:** 00
- (4) for the product: Particle Concentration Measuring Sensor type PKM-xxxxxx
- (5) of the manufacturer: **NIVUS GmbH**
- (6) Address: Im Täle 2
75031 Eppingen
Germany

Order number: 8003018344
Date of issue: 2020-07-09

- (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. 20 203 268840.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
- EN IEC 60079-0:2018** **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, Langemarckstraße 20, 45141 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

Deputy head of the notified body

Heinen 

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(13) **SCHEDULE**

(14) **EU-Type Examination Certificate No. TÜV 20 ATEX 268840 X** **issue 00**

(15) **Description of product:**

The particle concentration measuring sensor type PKM-xxxxxxx permits the determination of the particle size distribution, particle concentration and optionally the spatially resolved flow velocity in 16 scan layers of liquid media, especially in the wastewater sector, by means of ultrasonic measuring technology.

In addition, the level of the medium can be measured via an integrated hydrostatic pressure measuring cell.

Type code:

PKM-	Type	Particle Concentration Measuring Sensor
	V100	without level and flow velocity measurement
	KT	Wedge sensor made of PPO with PEEK adapter; base plate 1.4571
	RT	PPO tube sensor with PEEK adapter; base plate 1.4571
	ST	Rod sensor made of 1.4571
	V1V1	with flow velocity measurement
	KT	Wedge sensor made of PPO with PEEK adapter; base plate 1.4571
	V1VD	with flow velocity measurement and pressure measuring cell for level measurement
	KT	Wedge sensor made of PPO with PEEK adapter; base plate 1.4571
	V10D	without flow velocity and with pressure measuring cell for level measurement
	KT	Wedge sensor made of PPO with PEEK adapter; base plate 1.4571
		ATEX- Approval
	0	without
	E	Zone 1
		Cable length
		xx
		Sensor connection
	x	Pipe length
		0

Electrical data:

Signal and supply circuit
(Connection wires (cable tail):
Red (X1): [+]
Blue (X2): [GND])

In type of protection intrinsic safety Ex ib IIB
Only for connection to certified intrinsically safe circuits.
Maximum values:

$U_i = 10.5 \text{ V}$
 $I_i = 640 \text{ mA}$
 $P_i = 6.72 \text{ W}$

Effective internal capacitance C_i
Effective internal inductance L_i

Capacitance of the permanently connected cable C_c
Inductance of the permanently connected cable L_c

The following applies to the permanently connected cable

Capacitance per unit length $C_c = 90 \text{ pF/m}$
Inductance per unit length unit $L_c = 0.76 \text{ } \mu\text{H/m}$

The connection of the signal and supply circuit to the Ex isolation module type iXT0-xxx and iXT0 xxx according to TÜV 14 ATEX 142076 is permitted.

Schedule to EU-Type Examination Certificate No. TÜV 20 ATEX 268840 X

issue 00

Connection wire X3

Shield

Interface RS485

(Wires (cable tail):

White (X5): [RxTx+]

Green (X4): [RxTx-]

Blue (X2): [GND]

In type of protection intrinsic safety Ex ib IIB
with following maximum values:

$$U_o = 5.4 \text{ V}$$

$$I_o = 125 \text{ mA}$$

$$P_o = 168.75 \text{ mW}$$

Characteristic line: linear

Effective internal capacitance C_i

Negligibly small

Effective internal inductance L_i

Negligibly small

The maximum permissible values for the external inductance L_o and the external capacitance C_o have to be taken from the following table:

Ex ib IIB	L_o [mH]	10	5	0.5	0.2	0.001
	C_o [μ F]	12	15	28	37	1000

At connection of the RS485 ([RxTx+] und [RxTx-]) interface to belonging measuring transducers with active intrinsically safe circuits, the rules for the interconnection of intrinsically safe circuits have to be observed.

Maximum values:

$$U_i = 10.74 \text{ V}$$

$$I_i = 263.3 \text{ mA}$$

$$P_i = 634.4 \text{ mW}$$

Thermal data:

Permissible range of the ambient temperature

$$-20 \text{ }^\circ\text{C} \leq T_a \leq +50 \text{ }^\circ\text{C}$$

- (16) Drawings and documents are listed in the ATEX Assessment Report No. 20 203 268840
- (17) Specific Conditions for Use
The particle Concentration Measuring Sensor type PKM-xxxxxx has to be installed and used in such a way that electrostatic charging from operation, maintenance or cleaning is excluded.
- (18) Essential Health and Safety Requirements
No additional ones

- End of Certificate -