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 03 ATEX 2262 X** **Issue:** 00

(4) for the product: Sensors type POA, OCL and CS2
"See type code for details"

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

(6) Address: Im Täle 2
75031 Eppingen
Germany

Order number: 8003063712
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. 23 203 358711.

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

(14) **EU-Type Examination Certificate No. TÜV 03 ATEX 2262 X Issue 00**

(15) **Description of product:**
The sensors type POA, OCL and CS2 according to the type code are intended for measurement of the flow speed and the flow level in partly or fully filled pipes and channels via ultrasonic technology.

Type code:
POA-x2xx xx E xx x x, OCL-L1 xx xx E xx K and CS2-x2xx xx E xx x x resp.
POA-x3xx xx E xx x x, OCL-L3 xx xx E xx K and CS2-x3xx xx E xx x x

POA-	Type	Sensor with location-resolved flow velocity over (up to) 16 scan layers				
	V200 V300	without level measurement				
		KT	Wedge sensor made of PPO with PEEK insert; base plate 1.4571			
		Kx	Wedge sensor special version			
		RT	PPO tube sensor with PEEK insert; tube material 1.4571			
		Rx	Tube sensor special version			
	V2H1 V3H1	With ultrasound from below for level measurement				
		KT	Wedge sensor made of PPO with PEEK insert; base plate 1.4571			
		Kx	Wedge sensor special version			
		RT	PPO tube sensor with PEEK insert; tube material 1.4571			
		Rx	Tube sensor special version			
	V2D0 V3D0	with pressure cell for level measurement				
		KT	Wedge sensor made of PPO with PEEK insert; base plate 1.4571			
		Kx	Wedge sensor special version			
	V2U1 V3U1	with pressure cell and ultrasound from below for level measurement				
		KT	Wedge sensor made of PPO with PEEK insert; base plate 1.4571			
		Kx	Wedge sensor special version			
			ATEX approval			
			0	without		
			E	Zone 1		
				Cable length (max. 150m / with pressure cell up to 30m possible)		
				xx		
					Sensor connection	
					x	
						Tube length (0 for wedge sensor)
						x

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OCL-L1 OCL-L3	Type + design	Air ultrasonic sensor
	KS	Wedge sensor standard version PPO; cable: PUR
	xx	Special version
		Transmission frequency
		12 120 kHz
		xx Special version
		ATEX approval
		0 without
		E Zone 1
		Cable length (max. 150m)
		xx
		Sensor connection
		K Cable end prefabricated

CS2-	Type	Correlation sensor for large geometries
	V200 V300	without level measurement
		KT Wedge sensor made of PPO with PEEK insert; base plate 1.4571
		Kx Wedge sensor special version
		RP Tube sensor made of highly resistive solid PEEK; tube material 1.4571
		Rx Tube sensor special version
	V2H1 V3H1	With ultrasound from below for level measurement
		KT Wedge sensor made of PPO with PEEK insert; base plate 1.4571
		Kx Wedge sensor special version
	V2D0 V3D0	with pressure cell for level measurement
		KT Wedge sensor made of PPO with PEEK insert; base plate 1.4571
		Kx Wedge sensor special version
	V2U1 V3U1	with pressure cell and ultrasound from below for level measurement
		KT Wedge sensor made of PPO with PEEK insert; base plate 1.4571
		Kx Wedge sensor special version
		ATEX approval
		0 without
		E Zone 1
		Cable length (max. 150m / with pressure cell up to 30m possible)
		xx
		Sensor connection
		x
		Tube length (0 for wedge sensor)
		x

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Electrical data:

POA-x2xx xx E xx x x, OCL-L1 xx xx E xx K and CS2-x2xx xx E xx x x:

Signal- and supply circuit (Cabel 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 C_c C_c = 90 pF/m x L*
Effective internal inductance L_i	Inductance of the permanently connected cable L_c L_c = 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 (Cabel 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

RS485 interface (Cabel 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.

POA-x3xx xx E xx x x, OCL-L3 xx xx E xx K and CS2-x3xx xx E xx x x:

Signal- and supply circuit (Cabel 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	Capacitance of the permanently connected cable C_c C_c = 90 pF/m x L*
Effective internal inductance L_i	Inductance of the permanently connected cable L_c L_c = 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 (Cabel 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

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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.

Or

RS485 interface (Cabel 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	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 (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.

Thermal data:
Permissible ambient temperature range during operation: -20 °C ≤ Ta ≤ +40 °C

(16) Drawings and documents are listed in the ATEX Assessment Report No. 23 203 358711

(17) **Specific Conditions for Use:**
The reactances of the used cable of the variant POA-x2xx xx E xx x x, OCL-L1 xx xx E xx xx K and CS2-x2xx xx E xx x x are considered for this issue 00 of TÜV 03 ATEX 2262 X. Consequently, these data in the EC type-examination certificate and these associated supplements are no longer valid and are to be replaced by the values in this issue 00 of the EU type-examination certificate.

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

- End of EU-Type Examination Certificate -