

Translation

(1) **EC-Type-Examination Certificate**

(2) Equipment and protective systems intended for use in potentially explosive atmospheres, **Directive 94/9/EC**



(3) **Certificate Number** TÜV 14 ATEX 142076

(4) for the equipment: Ex-Separator-Module type iXT0-xxx

(5) of the manufacturer: NIVUS GmbH

(6) Address: Im Täle 2
75031 Eppingen
Germany

Order number: 8000434847

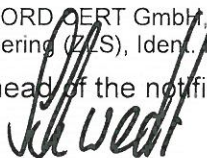
Date of issue: 2014-09-24

- (7) The design of this equipment or protective system and any acceptable variation thereto are specified in the schedule to this EC-Type-Examination Certificate and the documents therein referred to.
- (8) The TÜV NORD CERT GmbH, notified body No. 0044 in accordance with Article 9 of the Council Directive of the EC of March 23, 1994 (94/9/EC), certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive. The examination and test results are recorded in the confidential report No. 14 203 142076.
- (9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:
EN 60079-0:2012 EN 60079-11:2012
- (10) If the sign "X" is placed after the certificate number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.
- (11) This EC-type-examination certificate relates only to the design, examination and tests of the specified equipment in accordance to the Directive 94/9/EC. 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 equipment or protective system must include the following:

 II (2) G [Ex ib Gb] IIB

TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen, notified by the central office of the countries for safety engineering (CES), Ident. Nr. 0044, legal successor of the TÜV NORD CERT GmbH & Co. KG Ident. Nr. 0032

The head of the notified body



Karl-Heinz Schwedt

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(13) **SCHEDULE**

(14) **EC-Type-Examination Certificate No. TÜV 14 ATEX 142076**

(15) Description of equipment

The Ex-Separator-Module type iXT0-xxx is used for supply of sensors and for communication of sensors with measuring transmitters.

The following executions of the Ex-Separator-Module type iXT0-xxx are available:

- iXT0-420: Ex-Separator-Module for connection to 4 x RS485 and 2 x 2 wire sensors
- iXT0-421: Ex-Separator-Module for connection to 4 x RS485 and 2 x 2 wire sensors with 1 x HART function
- iXT0-210: Ex-Separator-Module for connection to 2 x RS485 and 1 x 2 wire sensors
- iXT0-211: Ex-Separator-Module for connection to 2 x RS485 and 1 x 2 wire sensors with 1 x HART function

The permissible ambient temperature range is -20 °C ... +40 °C.

Electrical data

Supply circuit $U_n = 12 \text{ V d. c. (11...13 V d. c.)}$
 (Terminals X2, 4 [+], X2, 3 [GND]; $U_m = 253 \text{ V a. c.}$
 X2, 5 [shield connection], X2, 6 [PE]) $P \text{ ca. } 9 \text{ W}$

RS485 circuit $U_n = 5 \text{ V d. c.}$
 (Terminals $U_m = 253 \text{ V a. c.}$
 X2, 1 [RxTx+], X2, 2 [RxTx-])

2 wire analogous sensor circuit in type of protection Intrinsic Safety Ex ib IIB
 (Terminals X4, 6/7 [optional with HART]; Maximum values per circuit:
 X6, 6/7) $U_o = 25.4 \text{ V}$
 $I_o = 89.2 \text{ mA}$
 $P_o = 567 \text{ mW}$
 characteristic line: linear

max. permissible external inductance	10 mH	1 mH	0.5 mH	0.1 mH
max. permissible external capacitance	370 nF	420 nF	510 nF	810 nF

Schedule EC-Type Examination Certificate No. TÜV 14 ATEX 142076

Sensor communication interface

RS485 in type of protection Intrinsic Safety Ex ib IIB
(Terminals
X3, 1/2; X4, 1/2; X5, 1/2; X6, 1/2)

maximum values per circuit:

$$U_o = 4.1 \text{ V}$$

$$I_o = 105 \text{ mA}$$

$$P_o = 108 \text{ mW}$$

characteristic line: linear

The effective internal inductance and capacitance are negligibly small.

max. permissible external inductance	10 mH	2 mH	1 mH	0.5 mH
max. permissible external capacitance	14 μ F	24 μ F	29 μ F	36 μ F

At connection of the sensor communication interface RS485 interface to active intrinsically safe circuits, the rules for the interconnection of intrinsically safe circuits have to be observed.

Permissible values for the connected circuit:

$$U_i = 11 \text{ V}$$

$$I_i = 176 \text{ mA}$$

$$P_i = 482 \text{ mW}$$

Sensor supply in type of protection Intrinsic Safety Ex ib IIB
(Terminals X3, 3/4; X4, 3/4; X5, 3/4; X6, 3/4)

Maximum values per circuit:

$$U_o = 10.5 \text{ V}$$

$$I_o = 640 \text{ mA}$$

$$P_o = 6.72 \text{ W}$$

characteristic line: rectangular

max. permissible external inductance	119 μ H	100 μ H	50 μ H	10 μ H
max. permissible external capacitance	4.2 μ F	4.9 μ F	8 μ F	14.8 μ F

The specified external reactances L_o and C_o are valid for simultaneous occurrence. Permissible combinations of the external reactances L_o and C_o have to be taken from the tables of the individual, intrinsically safe circuits.

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

(16) The test documents are listed in the test report no. 14 203 142076

(17) Special conditions for safe use

None

(18) Essential Health and Safety Requirements

no additional ones

Translation
1. SUPPLEMENT

to Certificate No.	TÜV 14 ATEX 142076
Equipment:	Ex-Separator-Module type iXT0-xxx and type iXT0 xxx
Manufacturer:	NIVUS GmbH
Address:	Im Täle 2 75031 Eppingen
Order number:	8000444554
Date of issue:	2015-09-17

In the future, the Ex-Separator-Module type iXT0-xxx (type designation with new transformer: iXT0 xxx) may also be manufactured according to the documents listed in the Test Report.

The following changes relevant for the explosion protection were performed:

- New transformer for safe galvanic separation inclusive of input/output circuitries
- Change of optoelectric couplers with component for power limitation
- Additional "low cost" variant of the apparatus
- Change at some further components
- Change at the circuitry for HART data transmission and change of electrical data for the 2 wire analogous sensor circuit:

Electrical data

2 wire analogous sensor circuit in type of protection Intrinsic Safety Ex ib IIB
(Terminals X4, 6/7 [optional with HART]; X6, 6/7) Maximum values per circuit:
 $U_o = 25.4 \text{ V}$
 $I_{o, \text{stat.}} = 89.2 \text{ mA}$
 $I_{o, \text{dyn.}} = 273 \text{ mA}$
 $P_o = 567 \text{ mW}$
 characteristic line: linear

max. permissible external inductance	0.51 mH	0.2 mH	0.1 mH	0.05 mH
max. permissible external capacitance	400 nF	580 nF	740 nF	810 nF

All other details remain unchanged.

The equipment incl. of this supplement meets the requirements of these standards:

EN 60079-0:2012 EN 60079-11:2012

(16) The test documents are listed in the test report No. 15 203 156295.

1. Supplement to Certificate No. TÜV 14 ATEX 142076

(17) Special conditions for safe use

none

(18) Essential Health and Safety Requirements

no additional ones

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The head of the notified body



Meyer

The signature is a blue ink scribble consisting of several overlapping, diagonal strokes. The name "Meyer" is printed in a black, sans-serif font directly below the signature.

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