

# Technical Description

## Ex Separation Module iXT0



## Revised Instruction Manual

Document Revision 03 / 15.04.2021

Original Instruction Manual: German / Rev. 03 as of 07.09.2020

starting with Firmware Version: 1.10

measure analyse optimise

**NIVUS AG**

Burgstrasse 28  
8750 Glarus, Switzerland  
Phone +41 55 6452066  
Fax +41 55 6452014  
swiss@nivus.com  
www.nivus.de

**NIVUS Austria**

Mühlbergstraße 33B  
3382 Loosdorf, Austria  
Phone +43 2754 5676321  
Fax +43 2754 5676320  
austria@nivus.com  
www.nivus.de

**NIVUS Sp. z o.o.**

ul. Hutnicza 3 / B-18  
81-212 Gdynia, Poland  
Phone +48 58 7602015  
Fax +48 58 7602014  
biuro@nivus.pl  
www.nivus.pl

**NIVUS France**

12 rue Principale  
67870 Bischoffsheim, France  
Phone +33 3 88999284  
info@nivus.fr  
www.nivus.fr

**NIVUS Ltd., United Kingdom**

Wedgewood Rugby Road  
Weston under Wetherley  
Royal Leamington Spa  
CV33 9BW, Warwickshire  
Phone +44 8445 332883  
nivusUK@nivus.com  
www.nivus.com

**NIVUS Middle East (FZE)**

Building Q 1-1 ap. 055  
P.O. Box: 9217  
Sharjah Airport International  
Free Zone  
Phone +971 6 5578224  
Fax +971 6 5578225  
middle-east@nivus.com  
www.nivus.com

**NIVUS Korea Co. Ltd.**

#2502 M Dong, Technopark  
IT Center,  
32 Song-do-gwa-hak-ro,  
Yeon-su-gu,  
INCHEON, Korea 21984  
Phone +82 32 2098588  
Fax +82 32 2098590  
korea@nivus.com  
www.nivus.com

**NIVUS Vietnam**

21 Pho Duc Chinh, Ba Dinh  
Hanoi, Vietnam  
Phone +84 12 04467724  
vietnam@nivus.com  
www.nivus.com

## Copyrights and Property Rights

The contents of this document including tables and drawings are proprietary to NIVUS GmbH and are not to be reproduced or copied without express written permission.

Violations oblige to compensation.



---

### **Important Note**

*This instruction manual - even in parts - may exclusively be copied or translated in any other way with the express written consent of NIVUS GmbH.*

---

### **Translation**

If the device is sold to a country in the European Economic Area this instruction manual must be translated into the language of the country in which the device is to be used.

Should the translated text be unclear, the original instruction manual (German) must be consulted or a member company of the NIVUS group must be contacted for clarification.

### **Copyright**

No part of this publication may be reproduced, transmitted, sold or disclosed without prior permission. Violations oblige to compensation.

All rights reserved.

### **Names**

The use of general descriptive names, trade names, trademarks and the like in this manual does not entitle the reader to assume they may be used freely by everyone. They are often protected registered trademarks even if not marked as such.

## Revision History

Rev.	Modifications	Responsible Editor	Date
03	Revision History and Index added; Chap. "22.1 Connection Cable": Telecommunication cable type corrected and Fig. 22-3 updated; overall structure changed/updated; NivuParQ transmitter and PKM particle concentration sensor added (in various chapters)	MoG	2021-04-15
02	Fig. 13-8: Ex zones added; Fig. 14-2: OFR added; wire identification, colour code according to IEC 757, Declaration of Conformity and product structure updated/supplemented	MoG	2017-08-22
01	NivuFlow 550/7550 added; OFR radar sensor added; warning symbols updated; various minor changes	MoG	2017-04-28
00	New Creation	DMR	2016-06-27

**Table 1      Change Overview**

## Table of Contents

<b><u>Copyrights and Property Rights</u></b>	<b><u>3</u></b>
<b><u>Revision History</u></b>	<b><u>4</u></b>
<b><u>Table of Contents</u></b>	<b><u>5</u></b>
<b><u>General</u></b>	<b><u>7</u></b>
1 About this Manual .....	7
1.1 Applicable Documentation .....	8
1.2 Signs and Definitions used .....	8
1.3 Colour code for wires and single conductors .....	8
<b><u>Safety and Danger Information</u></b>	<b><u>9</u></b>
2 Used Symbols and Signal Words.....	9
2.1 Information on the Valuation of Accident Levels .....	9
2.2 Warning Notices on the Device (optional).....	10
3 Special safety and Precautionary Measures.....	10
4 Warranty.....	12
5 Disclaimer.....	12
6 Intended Use .....	13
7 Ex Protection .....	13
8 Duties of the Operator .....	15
9 Requirements for the Personnel.....	16
<b><u>Delivery, Storage and Transport</u></b>	<b><u>17</u></b>
10 Scope of Delivery.....	17
11 Inspection upon Receipt.....	17
12 Storage.....	17
13 Transport.....	17
14 Return .....	17
<b><u>Product Description</u></b>	<b><u>18</u></b>
15 Overall View and Use.....	18
15.1 Overview .....	18
15.2 Enclosure Dimensions.....	19
16 Device ID.....	20
17 Specifications.....	21
18 Equipment/Device Versions.....	22
<b><u>Function Description</u></b>	<b><u>23</u></b>
19 Function.....	23

<b><u>Installation and Connection</u></b>		<b><u>24</u></b>
20	General Installation Instructions.....	24
20.1	Instructions for avoiding electrostatic discharge (ESD).....	24
20.2	Selecting the Mounting Place .....	24
20.3	Installation Requirements .....	24
21	Fastening the iXT0 .....	25
22	Electrical Installation.....	25
22.1	Connection Cable.....	26
22.2	Wiring Diagram .....	29
22.3	Connecting Sensors to the iXT0 Ex Separation Module.....	30
22.4	Connecting iXT0 to NivuFlow / NivuParQ Transmitters .....	33
23	Overvoltage Protection Measures .....	35
<b><u>Maintenance and Cleaning</u></b>		<b><u>38</u></b>
24	Maintenance .....	38
24.1	Maintenance Interval .....	38
24.2	Customer Service Information.....	39
25	Cleaning .....	39
26	Dismantling/Disposal.....	40
27	Installation of Spare Parts and Wearing Parts .....	40
<b><u>In Case of Emergency</u></b>		<b><u>41</u></b>
<b><u>Index</u></b>		<b><u>42</u></b>
<b><u>Certificates and Approvals</u></b>		<b><u>44</u></b>

---

## General

### 1 About this Manual



---

**Important**

*READ CAREFULLY BEFORE USE!*

*KEEP IN A SAFE PLACE FOR LATER REFERENCE!*

---

This manual is for the iXT0 Ex separation module and is intended for its installation and intended use (see Chap. "6 Intended Use"). This instruction manual is oriented exclusively to qualified expert personnel.

Read this instruction manual carefully and completely prior to starting work since it contains relevant information on this product. Observe the notes and particularly follow the warning notes and safety instructions.

Keep the instruction manual in a safe place and ensure that it is always available and can be consulted by the user of the product.

If you should have problems to understand information contained within this instruction manual either contact a member company of the NIVUS group or one of the distributors for further support. The member companies of the NIVUS group cannot be held responsible for damage to persons or material due to incorrectly understood information in this instruction.

The description on how to operate the entire measurement system is written in the instruction manuals of the respective transmitters, sensors etc.



---

**Designation**

*The iXT0 Ex Separation Module is referred to only as iXT0 in this technical description.*

---




### 1.1 Applicable Documentation

For the installation and operation of the complete system extra instruction manuals or technical descriptions may be required apart from this technical description.

- Instruction manual for the respective flow measurement transmitter NivuFlow 550/750/700/7550
- Technical Description Correlation Sensors and external Electronic Box
- Mounting Instruction Cross Correlation and Doppler Sensors
- Technical Description / Mounting Instruction for OFR Radar Sensors
- Instruction Manual for the NivuParQ 850 filterable solids concentration measurement transmitter
- Technical Description / Mounting Instruction PKM-Vx Particle Concentration Sensor

These manuals are provided with the respective (auxiliary) units or sensors and/or are available as download on the NIVUS homepage.

### 1.2 Signs and Definitions used

Representation	Meaning	Remarks
	(Action) Step	Execute action steps; should action steps be numbered observe the specified order of the steps
	Cross-Reference	Refers to further or more detailed information
>Text<	Parameter or menu	Indicates a parameter or a menu that is to be selected or is described
	Refers to a documentation	Refers to an accompanying documentation

**Table 2 Structural Elements of the Documentation**

### 1.3 Colour code for wires and single conductors

The abbreviations of colours for wire and single conductor labelling follow the international colour code according IEC 60757.

BK	Black	BN	Brown	RD	Red
OG	Orange	YE	Yellow	GN	Green
BU	Blue	VT	Violet	GY	Grey
WH	White	PK	Pink	TQ	Turquoise
GNYE	Green/Yellow	GD	Gold	SR	Silver



## Safety and Danger Information

### 2 Used Symbols and Signal Words

#### 2.1 Information on the Valuation of Accident Levels



*The general warning symbol indicates the risk of personal injuries or death. In the text section the general warning symbol is used in combination with the signal words described below.*

---

**DANGER**

***Warning in high degree of risk***



*Indicates a high-risk, **imminently** hazardous situation which will result in death or serious injury if not avoided.*

---

**WARNING**

***Warning in medium degree of risk and personal injury***



*Indicates a **possible** danger with medium risk which may result in a life-threatening situation or (severe) bodily injury if not avoided.*

---

**CAUTION**

***Warning in personal injury or property damage***



*Indicates a possible danger with moderate risk which may result in minor or moderate personal injury or property damage if not avoided.*

---

**WARNING**

***Danger by electric voltage***



*Indicates a medium-risk, **imminently** hazardous situation caused by electric shock which will result in death or (serious) injury if not avoided.*

---



---

### **Important Note**

*Contains information that needs to be highlighted.  
Indicates a potentially harmful situation that may damage the product or something in its environment if not avoided.*

---



---

### **Note**

*Contains tips or information.*

---

## **2.2 Warning Notices on the Device (optional)**



---

### **General Warning Notice**

*This symbol refers the operator or user to content in this manual. Consideration of the information contained herein is necessary to maintain the protection provided by the unit for installation and in operation.*

---



---

### **Protective earth connection**

*This symbol refers to the protective conductor terminal of the device.  
Depending on the type of installation, the unit may only be operated with a suitable protective earth connection in accordance with applicable laws and regulations.*

---

## **3 Special safety and Precautionary Measures**

**When working with the NIVUS equipment, the following safety and precautionary measures must be observed and followed generally and at all times. These warnings and notes are not repeated for each description within the document.**

---

### **WARNING**



---

### **Germ Contamination**

*Due to the frequent use of the sensors in the waste water sector, parts can be contaminated with dangerous germs. Therefore, appropriate precautions must be taken when coming into contact with cables and sensors.*

*Wear protective clothing.*

---

**WARNING****Observe Occupational Safety Regulations**

*Before and during mounting works, compliance with all work safety regulations must always be ensured.*

*Disregarding may lead to personal injury.*

---

**WARNING****Do not disable Safety Devices!**

*It is strictly forbidden to disable the safety devices or to change their mode of operation.*

*Disregarding may result in personal injury or damage to the system.*

---

**WARNING****Check danger due to explosive gases**

*Before starting assembly, installation and maintenance work, be sure to check that all regulations on safety at work have been observed and that there is no possible risk of explosive gases. Use a gas warner for the check.*

*When working in the sewer system, make sure that no electrostatic charge can occur:*

- Avoid unnecessary movements to reduce the building-up of static charges.*
- Discharge any static electricity present on your body before you start installing.*

*Disregarding may result in personal injury or damage to the system.*

---

**Commissioning only by qualified Personnel**

*The entire measuring system may only be installed and commissioned by qualified personnel.*

---

## 4 Warranty

The device was functionally tested prior to shipping. When used for the intended purpose (see Chap. "6 Intended Use") and in compliance with the instructions, the applicable (see Chap. "1.1 Applicable Documentation") and the safety information and instructions contained therein, no functional restrictions are to be expected and flawless operation should be possible.



Please also refer to the following chapter "5 Disclaimer".



---

### **Limitation of Warranty**

*In case of disregarding the safety notes and instructions in this document, the companies of the NIVUS-Group reserve the right to limit the warranty.*

---

## 5 Disclaimer

### **The companies of the NIVUS-Group assume no liability**

- for consequential damages resulting from a **change** in this document. The companies of the NIVUS-Group reserve the right to change the contents of the document including this disclaimer without prior notice.
- for personal injury or damage to property resulting from **failure to comply** with the **applicable regulations**. For connection, commissioning and operation of the devices, all information and higher-level legal regulations of the country (in Germany e.g. the VDE regulations), such as valid Ex regulations as well as the safety and accident prevention regulations applicable to the respective individual case shall be observed.
- for personal injury or damage to property resulting from **improper handling**. For safety and warranty reasons, all work on the equipment that goes beyond the installation and connection measures may only be carried out by NIVUS personnel or by persons or companies authorised by NIVUS.
- for personal injury or damage to property resulting from the operation of the equipment in a **technically faulty** condition.
- for personal injury or damage to property resulting from **improper use**.
- for personal injury or damage to property resulting from failure to observe the **safety instructions** in this instruction manual.
- for missing or incorrect readings due to **improper installation** and for any consequential damage resulting therefrom.

## 6 Intended Use



### **Important Note**

*The iXT0 Ex Separation Module is intended exclusively for the purpose mentioned below. Any other use beyond this, any conversion or modification of the sensor without written agreement with the companies of the NIVUS-Group is considered improper use.*

*The companies of the NIVUS-Group are not liable for any damage resulting from this.*

*The operator alone bears the risk.*

The iXT0 is used to connect NIVUS sensors (see chapter "19 Function") located in Ex zone 1 (the iXT0 itself must be installed in the non-Ex area).

The iXT0 is designed and produced according to the current state of the art and the recognised safety rules at the time of publication of this document. Nevertheless, risks of personal injury or damage to property cannot be completely ruled out.

The permissible maximum limit values in Chapter "17 Specifications" must be observed. All cases of use deviating from these limit values, which have not been approved by NIVUS GmbH in writing, are excluded from the liability of the NIVUS-Group.

## 7 Ex Protection

The connection from the iXT0 to the NIVUS sensors is designed for use in Zone 1 explosive atmosphere areas (the iXT0 itself must be installed in the non-Ex area). The following conditions and (safety) instructions must be observed.

### **Approval of the iXT0**



See Chap. "17 Specifications".

### **CAUTION**



### ***The Ex protection expires due to damage***

*Damage may invalidate the explosion protection.*

*The iXT0 may then no longer be used.*

*Protect the iXT0 from shocks, falls or other damage.*



---

### **Important Note**

*Install the iXT0 out of the Ex zone!*

---



---

### **Validity of the Ex Approval**

*The Ex approval is only valid in conjunction with the corresponding marking on the nameplate of the iXT0 enclosure.*

*The Ex-version of the iXT0 is matched to the NIVUS sensors regarding the assessment of intrinsically safe electrical systems according to EN 60079-25.*

*The technical data required here for the Ex version of the sensors can be found in the according EU type examination certificate.*

---



---

### **Note**

*For installation and commissioning observe the following points:*

- Declaration of Conformity*
  - Test certificates of the respective authorities*
  - Applicable national regulations*
-

## 8 Duties of the Operator

---



### **Important Note**

*In the EEA (European Economic Area), the national transposition of the Framework Directive (89/391/EEC) as well as the associated individual directives and, in particular, the Directive (2009/104/EC) concerning the minimum safety and health requirements for the use of work equipment by workers at work, as amended, must be observed and complied with.*

*In Germany, the Ordinance on Industrial Safety and Health must be complied with.*

---

Obtain the local operating licence and observe the associated conditions. In addition, you must comply with the following local legal requirements:

- Safety of personnel (accident prevention regulations)
- Safety of work equipment (protective equipment and maintenance)
- Product Disposal (Waste Management Act)
- Materials Disposal (Waste Management Act)
- Cleaning (Cleaning Agents and Disposal)
- Environmental protection requirements

### **Connections**

As the operator, before activating the iXT0, make sure that the local regulations (e.g. for the electrical connection) are observed during installation and commissioning.

### **Keep the Instruction Manual for future Reference**

Keep the instruction manual in a safe place and ensure that it is always available and can be consulted by the user of the product.

### **Hand over the Instruction Manual**

When selling the device, this instruction manual must be handed over with it. The manual is part of the standard delivery.

## 9 Requirements for the Personnel

Installation, commissioning and maintenance may only be carried out by personnel who fulfil the following conditions:

- Qualified personnel with appropriate training
- Authorisation by plant operator



---

### **Qualified Personnel**

*in the sense of these instructions or the warnings on the product itself are persons who are familiar with the installation, assembly, commissioning and operation of the product and who have the qualifications appropriate to their job, such as*

- I. training and instruction or authorisation to switch circuits and devices/systems on and off, to earth and to label them in accordance with the standards of safety technology.*
  - II. Training or instruction in accordance with safety technology standards in maintenance and use of appropriate safety equipment.*
  - III. First Aid Training*
-



## Delivery, Storage and Transport

### 10 Scope of Delivery

The standard delivery of the iXT0 comprises:

- iXT0 Ex Separation Module (according to delivery documents)
- Technical description (with EU Declarations of Conformity) including all information required for connection, installation and operation of the iXT0

Check additional accessories according to the order against the delivery note.

### 11 Inspection upon Receipt

Check the delivery for completeness and apparent intactness immediately after receipt. Report any transport damage immediately to the delivering carrier. Also send a written report to NIVUS GmbH in Eppingen.

Incomplete deliveries must be addressed in writing within two weeks to your responsible representative or directly to the head office in Eppingen.



---

#### ***Important Note***

*Complaints received later will not be recognised.*

---

### 12 Storage

Observe the minimum and maximum values for external conditions such as temperature and humidity according to Chapter "17 Specifications".

Protect the iXT0 from corrosive or organic solvent vapours, radioactive radiation and strong electromagnetic radiation.

### 13 Transport

Protect the iXT0 from strong impacts, shocks, jolts or vibrations.

Transport must be carried out in the original packaging.

Otherwise, the same rules apply with regard to external influences as for storage (see Chap. "12 Storage").

### 14 Return

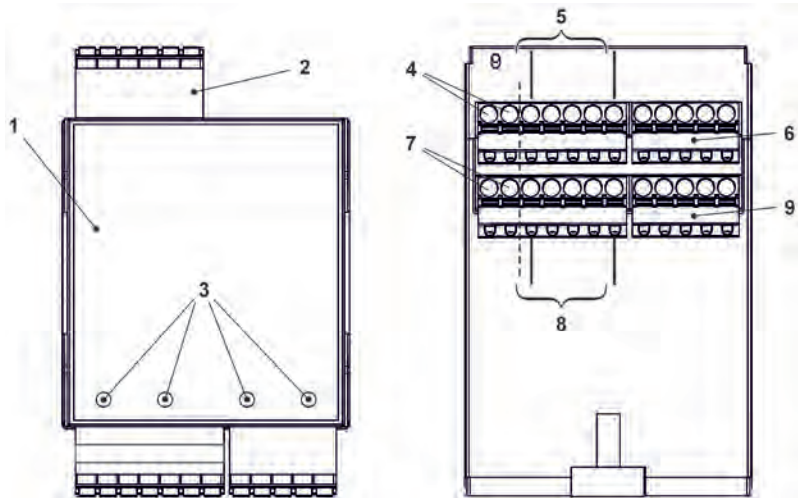
In the event of a return, send the unit to NIVUS GmbH in Eppingen carriage paid and in the original packaging.

Items that have not been sufficiently franked will not be accepted!

## Product Description

### 15 Overall View and Use

#### 15.1 Overview



- 1 Enclosure
- 2 Connection to NivuFlow / NivuParQ transmitter
- 3 LEDs Sensors (optical voltage signal)
- 4 Connection 2-wire sensor 1 (Types 211/421: HART)
- 5 Connection OCL air-ultrasonic sensor
- 6 Connection v-/c-sensor 1 (cross correlation, OFR surface radar or PKM particle concentration)
- 7 Connection 2-wire sensor 2 (only with iXT04xx) (only for NivuFlow)
- 8 Connection v-sensor 2 (only with iXT04xx) (only for NivuFlow)
- 9 Connection v-sensor 3 (only with iXT04xx) (only for NivuFlow)

**Fig. 15-1 Overview Ex Separation Module iXT0**

15.2 Enclosure Dimensions

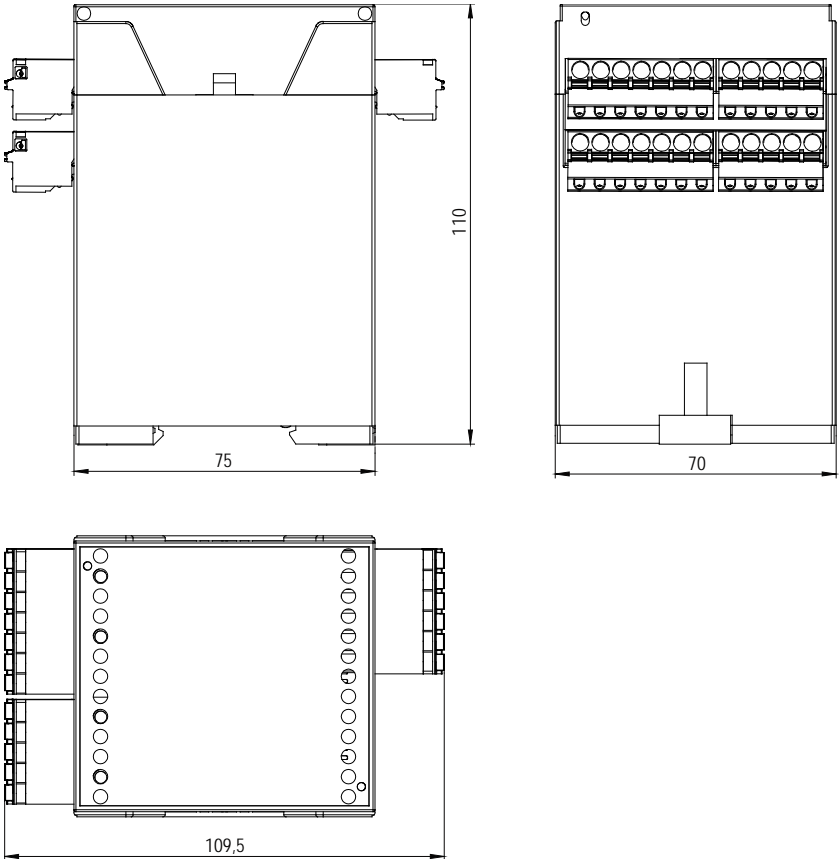


Fig. 15-2 Dimensions of the DIN Rail Enclosure

### 16 Device ID

The information in this technical description only applies to the device type indicated on the title page.

The nameplate is attached to the enclosure and contains the following information:

- Name and address NIVUS GmbH
- CE label
- Marking of the series and type with article number and serial number
- Year of manufacture: the first four digits of the serial number refer to the year of manufacture and the week number (2034.....)
- Ex labelling, as mentioned in Chap. "6 Intended Use"

It is important for all queries and spare parts orders that the article number and serial number of the respective device are specified correctly. This is the only way to ensure proper and fast processing.

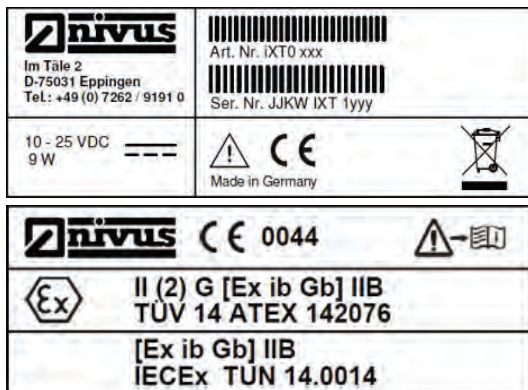


Fig. 16-1 Nameplate iXT0 Ex Separation Module



#### Note


Check by means of the nameplates whether the supplied device corresponds with your order.

Check that the correct voltage supply is indicated on the nameplate.



The EU Declaration(s) of Conformity and the EU Type Examination Certificate can be found at the end of this instruction manual.

## 17 Specifications

<b>Supply Voltage</b>	12 V DC (from NivuFlow / NivuParQ transmitter); For use in connection with equipment on mains up to overvoltage category II or on SELV Ex-technical: $U_m = 253 \text{ V AC}$
<b>Power Consumption (total)</b>	Max. 9 W
<b>Intrinsic Power Consumption</b>	Max. 1.5 W (typ. 1.2 W)
<b>Protection</b>	IP20, for installation in areas up to max. pollution degree 2
<b>Ex Approvals (option) / other Approvals (option)</b>	ATEX: TÜV14ATEX142076 IECEX: TUN14.0014  II (2)G [Ex ib Gb] IIB
<b>Operation Temperature</b>	-20...+40 °C
<b>Storage Temperature</b>	-20...+85 °C
<b>Max. Humidity</b>	95 %, non-condensing
<b>Inputs (incl. options)</b>	2x analogue 4-20 mA loop-powered sensor connection Ex ib Gb IIB, one of them with HART capability Maximum values per circuit: $U_o = 25.4 \text{ V} / I_o = 89.2 \text{ mA} / P_o = 566.5 \text{ mW}$  4x sensor connection Ex ib Gb IIB with RS485 interface Maximum values per circuit: Supply: $U_o = 10.5 \text{ V} / I_o = 640 \text{ mA} / P_o = 6.72 \text{ W}$  RS485: $U_o = 4.1 \text{ V} / I_o = 105 \text{ mA} / P_o = 108 \text{ mW}$ $U_i = 11 \text{ V} / I_i = 176 \text{ mA} / P_i = 482 \text{ mW}$  Isolation Voltage $U_m = 253 \text{ V AC}$
<b>Outputs</b>	1x Transmitter connection RS485 interface

**Table 3 Specifications**

### 18 Equipment/Device Versions

The iXT0 is manufactured in different versions and varies mainly in the number of connectable sensors.

The article number can be found on the nameplate attached to the side of the enclosure.

Device Type	Sensors
iXT0210	2x RS485 sensor + 1x 2-wire sensor
iXT0211	2x RS485 sensor + 1x 2-wire sensor with HART
iXT0420 (for NivuFlow)	4x RS485 sensor + 2x 2-wire sensor
iXT0421 (for NivuFlow)	4x RS485 sensor + 1x 2-wire sensor with HART + 1x 2-wire sensor

**Table 4**      **Type Key iXT0 Ex Separation Module**

## Function Description

### 19 Function

The iXT0 is a separation module between the Ex area Zone 1 and non-Ex areas. The iXT0 is designed for the correct Ex-technical separation of the following sensors:

- **NIVUS Flow Velocity Sensors:**
  - POA-V2
  - CS2
  - EBM-Box (Electronic Box Mini)
  - OFR-EV
- **NIVUS Particle Concentration Sensors:**
  - PKM
- **NIVUS Level Sensors:**
  - OCL-L1
  - i-Sensor
  - NivuCompact
  - NivuBar

The iXT0 provides intrinsically safe power to the above sensors. Within the scope of its technical data, it ensures secure data transmission between the sensors and the NivuFlow / NivuParQ transmitter.

The iXT0 draws its required energy from the transmitter.

## Installation and Connection

### 20 General Installation Instructions

- Ensure proper installation.
- Follow applicable legal or company guidelines.

Improper handling may result in injury and/or damage to the devices.

#### 20.1 Instructions for avoiding electrostatic discharge (ESD)

##### CAUTION

##### *ESD Risks*



*Maintenance procedures that do not require power to the unit must only be carried out after disconnection from the mains to minimise hazards and ESD risks.*

*Disconnect the iXT0 from the mains!*

The sensitive electronic components inside the unit can be damaged by static electricity. The manufacturer recommends the following steps to prevent damage to the device due to electrostatic discharge.

- Discharge any static electricity present on your body before you touch electronic components of the device.
- Avoid unnecessary movements to reduce the building-up of static charges.

#### 20.2 Selecting the Mounting Place

The iXT0 with DIN rail fastening is designed for installation in control cabinets.

- Ensure sufficient ventilation at the mounting place, for example by means of fans or heat exchangers.

#### 20.3 Installation Requirements

The following precautions must be taken for safe installation:

- Do not expose the iXT0 to strong vibrations or shocks.
- Do not install the iXT0 directly on walkways or driveways.
- Observe the maximum permissible ambient temperature.

Make sure to avoid:

- Corrosive chemicals or gases
- Radioactive radiation



## 21 Fastening the iXT0

---



### **Note**

*Mounting material and tools are **not** included in the scope of delivery.*

---

- For mounting use a DIN rail TS35 according to DIN EN 60715 with a minimum length of 70 mm.
- Fasten the DIN rail horizontally in the enclosure/switch cabinet provided using at least two screws.
- Hook the iXT0 into the DIN rail from below. The device locks into place by pressing lightly in the direction of the DIN rail.

## 22 Electrical Installation

---

### **WARNING**



### **Switch off the power supply to the unit**

*Work on the electrical connections may only be carried out when the power supply is switched off.*

*Observe the electrical data given on the nameplate.*

---



### **Note**

*Observe the national installation instructions.*

---

- For the electrical installation, comply with the legal regulations of the country (such as VDE 0100 in Germany).
- For installation in wet environments or in areas where there is a risk of flooding, additional protection, e.g. by means of a residual current device (RCD), may be required.
- Check whether the power supply of the units must be integrated into the emergency stop concept of the plant.
- Complete the installation of transmitters and sensors before applying the operating voltage.
- Make sure the installation has been carried out properly.
- Please note that installation may only be carried out by qualified personnel.
- Follow further (country-specific) legal standards, regulations and technical codes.

### 22.1 Connection Cable

#### Between Sensor and Transmitter

If possible, use the cable specified by NIVUS for the total distance between the NIVUS sensors and the NivuFlow transmitter / NivuParQ:

- LiYC11Y 2x1.5 mm<sup>2</sup> + 1x2x0.34 mm<sup>2</sup> + PA

#### Between Sensor and iXT0

Maximum cable length between sensors and the iXT0 when using the NIVUS standard cable LiYC11Y 2x1.5 mm<sup>2</sup> + 1x2x0.34 mm<sup>2</sup> + PA:

- 150 metres (see Fig. 22-1)
- When using Overvoltage Protection Elements:
  - One-sided: 135 metres
  - Two-sided: 120 metres

#### Between iXT0 and Transmitter

When installing the iXT0 directly in the control cabinet or on-site enclosure and connecting it to the NivuFlow / NivuParQ by means of single wires (wiring in the cable duct or similar), the following points must be observed:

- Make sure that power cables and signal cables carrying frequencies are laid separately.
- Use a 2-wire, commonly twisted and shielded telecommunication line with at least 0.34 mm<sup>2</sup> for the RxTx connection.
- Use single wires with a minimum cross-section of 0.75 mm<sup>2</sup> for the power supply.

The maximum cable length in this case is 5 metres (see Fig. 22-1).

Use the NIVUS cable LiYC11Y 2x1.5 mm<sup>2</sup> + 1x2x0.34 mm<sup>2</sup> + PA

- for distances >5 m in the control cabinet/on-site enclosure
- in the event of expected signal interference

Maximum cable length between iXT0 and the transmitter when using the NIVUS standard cable LiYC11Y 2x1.5 mm<sup>2</sup> + 1x2x0.34 mm<sup>2</sup> + PA:

- 100 metres (see Fig. 22-2)
- When using Overvoltage Protection Elements:
  - No Change

For distances >100 m between iXT0 and the NivuFlow / NivuParQ transmitter a telecommunication cable Type A2Y(L)2Y 10x2x0.8 (or higher number of wires) or technically adequate types should be used (see Fig. 22-3).

In this case, note that the two RxTx signal cables must be extended with a common twisted pair of wires.

For the power supply of iXT0 and sensors, several wires must be connected in parallel. The number of wires required depends on the distance between iXT0 and the NivuFlow / NivuParQ transmitter.

Please note the following table:

Cable length [m]	Required minimum number of wires for power supply and ground	Required total number of wires for extension (without reserve)
0...75	2 each	6
76...100	3 each	8
101...125	4 each	10
126...150	5 each	12
151...200	6 each	14
201...250	8 each	18
250...300	10 each	22

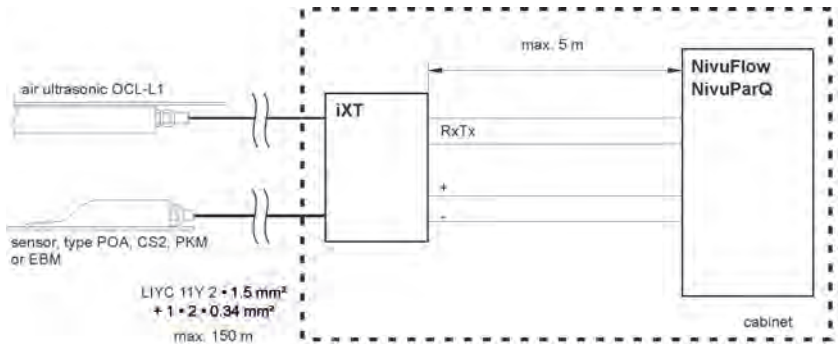
**Table 5** Number of wires when using A2Y(L)2Y XX • 2 • 0.8

A larger number of individual wires must be electrically combined at a short distance in front of the iXT0 and the NivuFlow / NivuParQ and transferred into a single wire of maximum 2.5 mm<sup>2</sup> (clamp or solder connection).

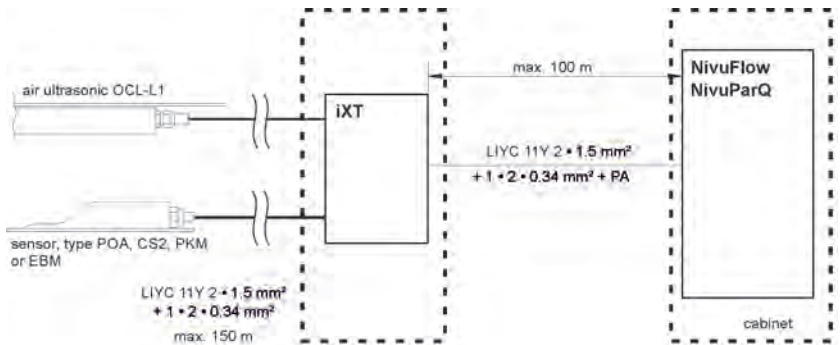


**Note**

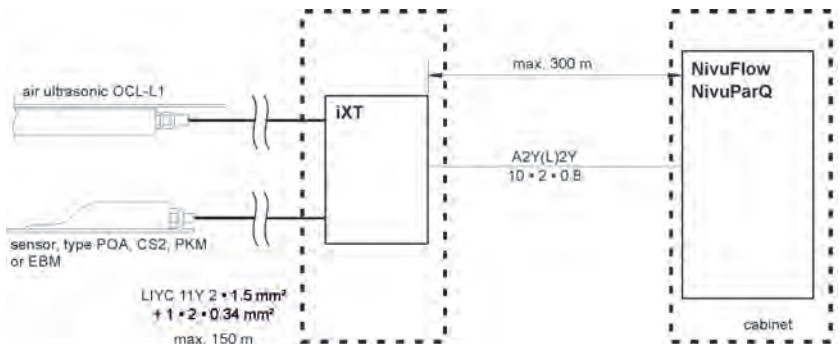
*Only one wire or stranded wire may be connected in the cage clamp terminals of iXT0 and NivuFlow / NivuParQ at a time.*



**Fig. 22-1 Connection sensor(s) – iXT0 in control cabinet**

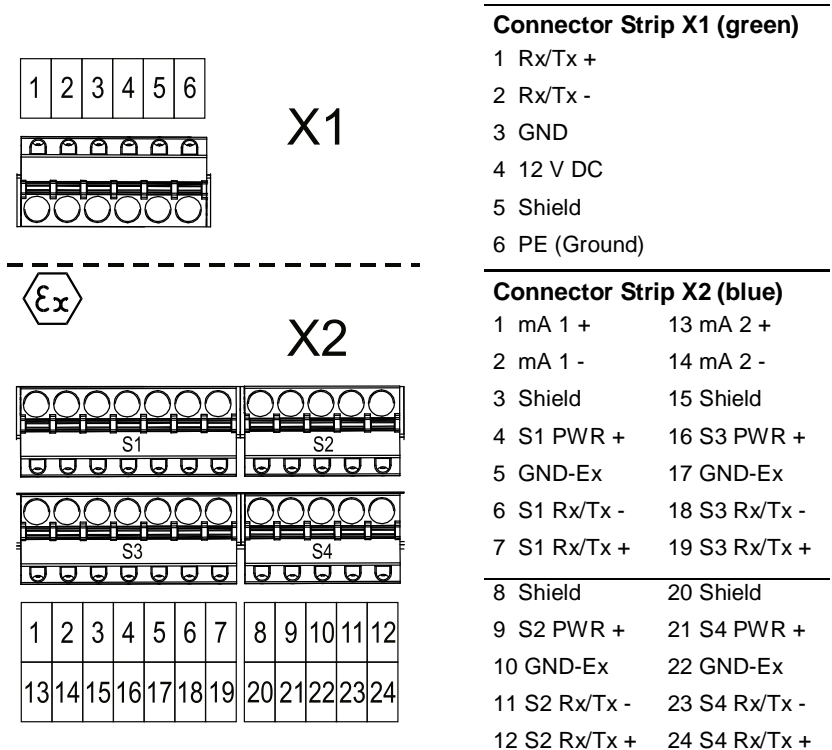


**Fig. 22-2 Connection iXT0 – NivuFlow / NivuParQ with NIVUS signal cable**



**Fig. 22-3 Connection iXT0 – NivuFlow / NivuParQ with telecommunication cable**

## 22.2 Wiring Diagram



**Fig. 22-4 Terminals Wiring Diagram iXT0420/421**

The area of the connector strip X1 is intended for connection to a NIVUS transmitter. The connections for the sensors are described in the section "Connector Strip X2".

**Fig. 22-4 shows a separation module for connecting up to 3 flow velocity sensors. For Type 210/211 the connector strips S3 and S4 are not available.**



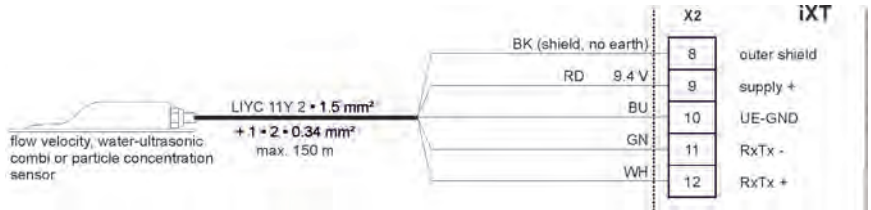
**Note**

Observe the device configuration for the electrical connection. One copper wire/strand with max. 2.5 mm<sup>2</sup> cross-section can be connected per terminal.

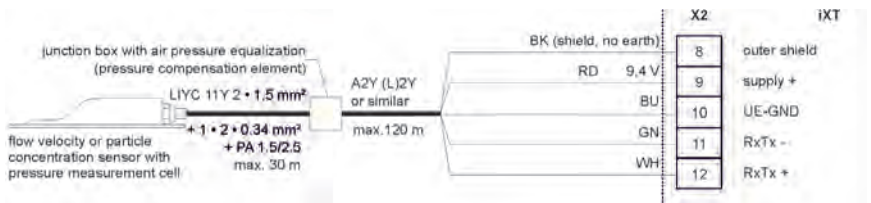
The connection is made by means of spring-loaded plug-in terminals.

### 22.3 Connecting Sensors to the iXT0 Ex Separation Module

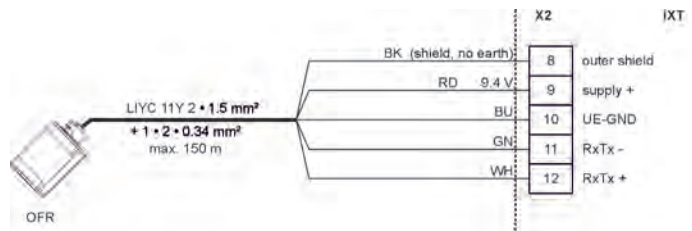
The sensor cables are connected to the iXT0 in the "Connector strip X2" area.



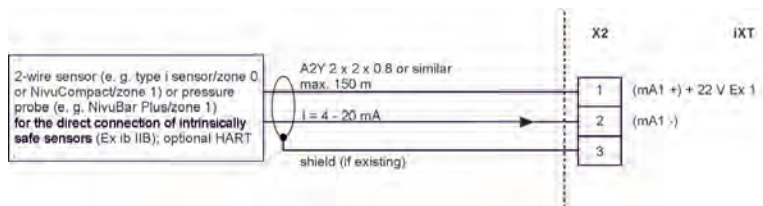
**Fig. 22-5** Flow velocity, water-ultrasonic combi- or particle concentration sensor on iXT02xx/4xx



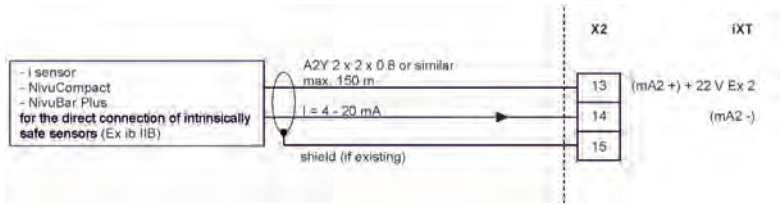
**Fig. 22-6** Flow velocity or particle concentration sensor with pressure measurement cell on iXT02xx/4xx



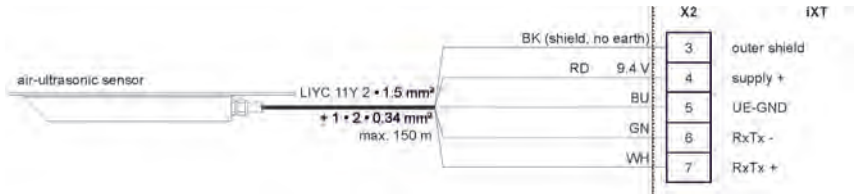
**Fig. 22-7** Radar sensor OFR on iXT02xx/4xx



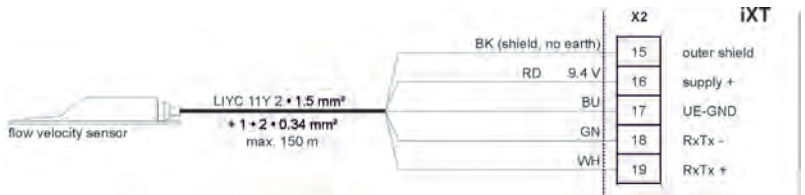
**Fig. 22-8** First 2-wire probe for level measurement on iXT02xx/4xx Ex



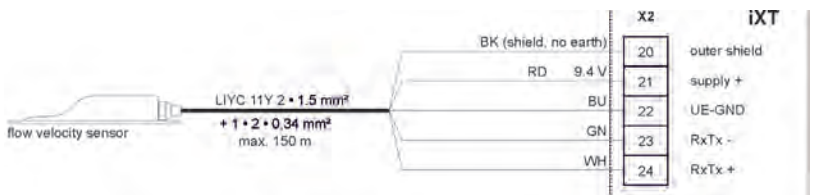
**Fig. 22-9** Second 2-wire probe for level measurement on iXT04xx (only with NivuFlow)



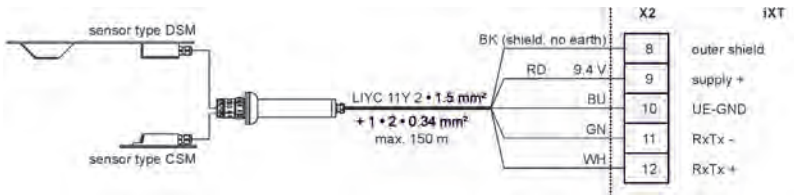
**Fig. 22-10** OCL air-ultrasonic sensor on iXT02xx/4xx



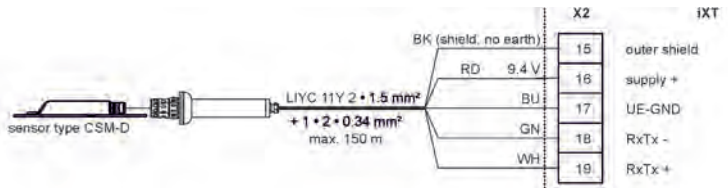
**Fig. 22-11** Second flow velocity sensor on iXT04xx (only with NivuFlow)



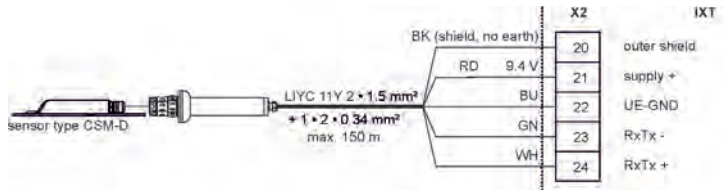
**Fig. 22-12** Third flow velocity sensor on iXT04xx (only with NivuFlow)



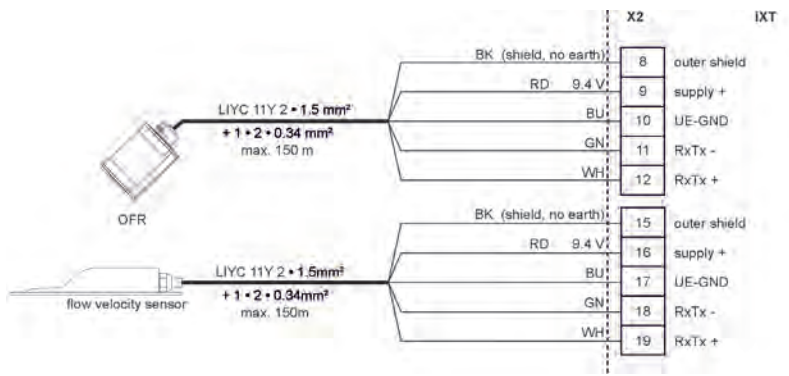
**Fig. 22-13 EBM Electronic Box with water-ultrasonic sensor CSM and DSM air-ultrasonic on iXT02xx/4xx (only with NivuFlow)**



**Fig. 22-14 Second EBM Electronic Box with water-ultrasonic sensor CSM-D on iXT04xx (only with NivuFlow)**



**Fig. 22-15 Third EBM Electronic Box with water-ultrasonic sensor CSM-D on iXT04xx (only with NivuFlow)**



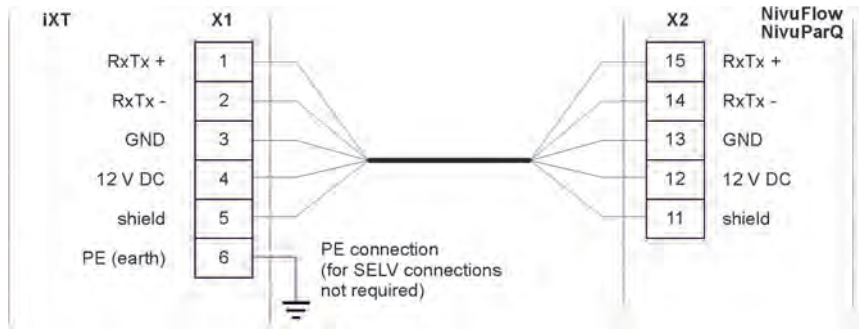
**Fig. 22-16 Radar and cross correlation flow velocity sensor on iXT04xx (only with NivuFlow 7550)**



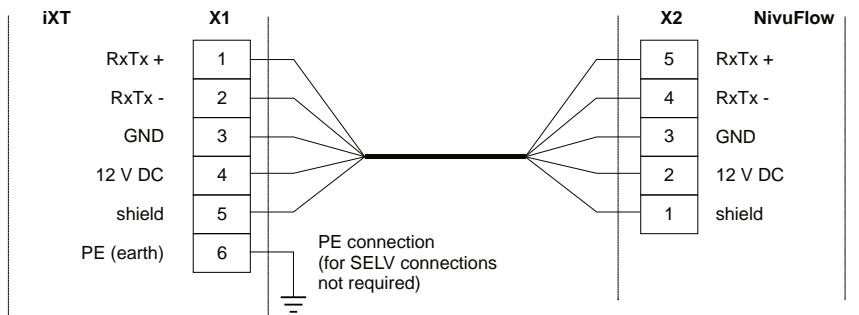
## 22.4 Connecting iXT0 to NivuFlow / NivuParQ Transmitters

For the transmitter type refer to the designation on the device.

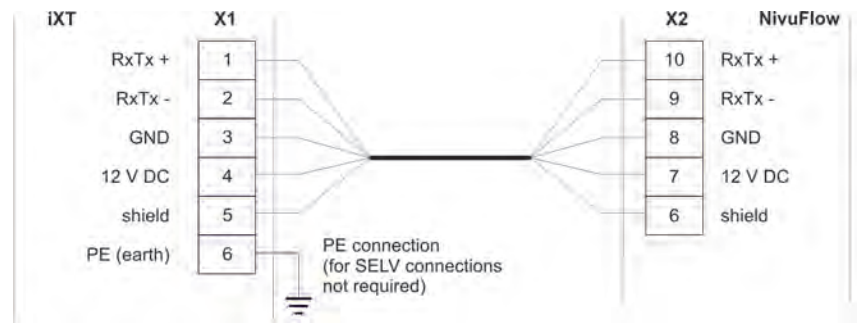
Observe the notes for the cable connection in chapter "22.1 Connection Cable" and Fig. 22-1 to Fig. 22-3.



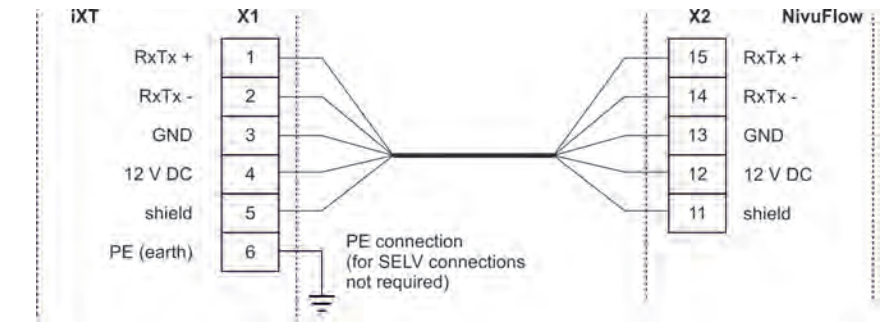
**Fig. 22-17** iXT0 on NivuFlow 750-S1/SR / NivuParQ-S2



**Fig. 22-18** iXT0 on NivuFlow 750-M3, NivuFlow 7550 or first iXT0 on NivuFlow 750-M9



**Fig. 22-19** Second iXT0 on NivuFlow 750-M9



**Fig. 22-20 Third iXT0 on NivuFlow 750-M9**

## 23 Overvoltage Protection Measures

For effective protection of the iXT0 Ex separation module, it is necessary to protect the power supply and mA input and output by means of overvoltage protection devices. NIVUS recommend:

- 2-wire connection:  
DataPro 2x1 24/24
- RS485 sensors (POA, CS2, OCL, PKM and OFR):  
DataPro 2x1 12/12  
SonicPro 3x1 24/24

Flow velocity sensors, particle concentration sensors, OCL air-ultrasonic sensors and OFR radar sensor are internally protected against EMC-standard overvoltage. Protect the sensors with the following combination if the hazard potential is expected to be higher:

- DataPro 2x1 12/12 in connection with SonicPro 3x1 24/24



### Note

*When using the sensors in hazardous areas, take the electrical connection values of the overvoltage protection elements into account.*

*Also pay attention to the capacitances and inductances of the NIVUS sensor cable (POA, CS2, OCL, PKM, OFR and EBM).*

*The following cable lengths are permissible in Ex areas*

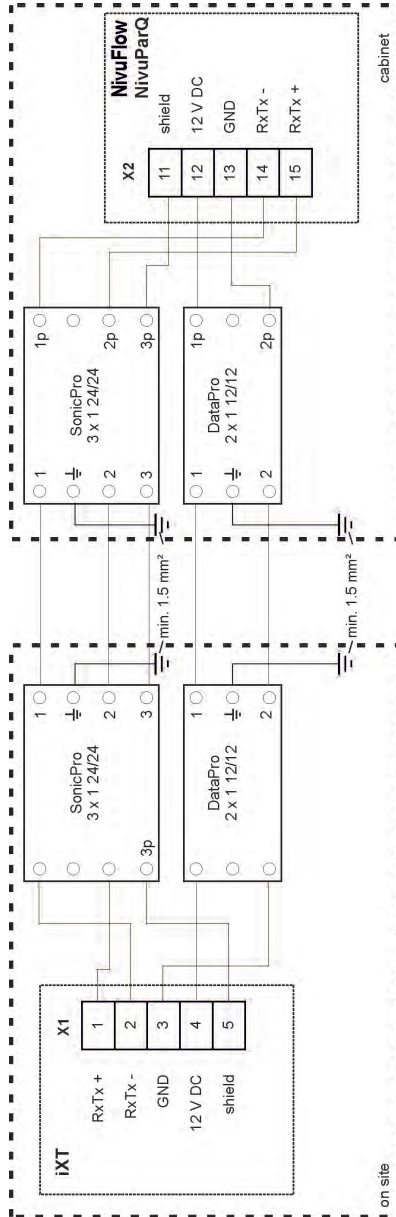
- *One-sided overvoltage protection: 135 m*
  - *Two-sided overvoltage protection: 120 m*
- 



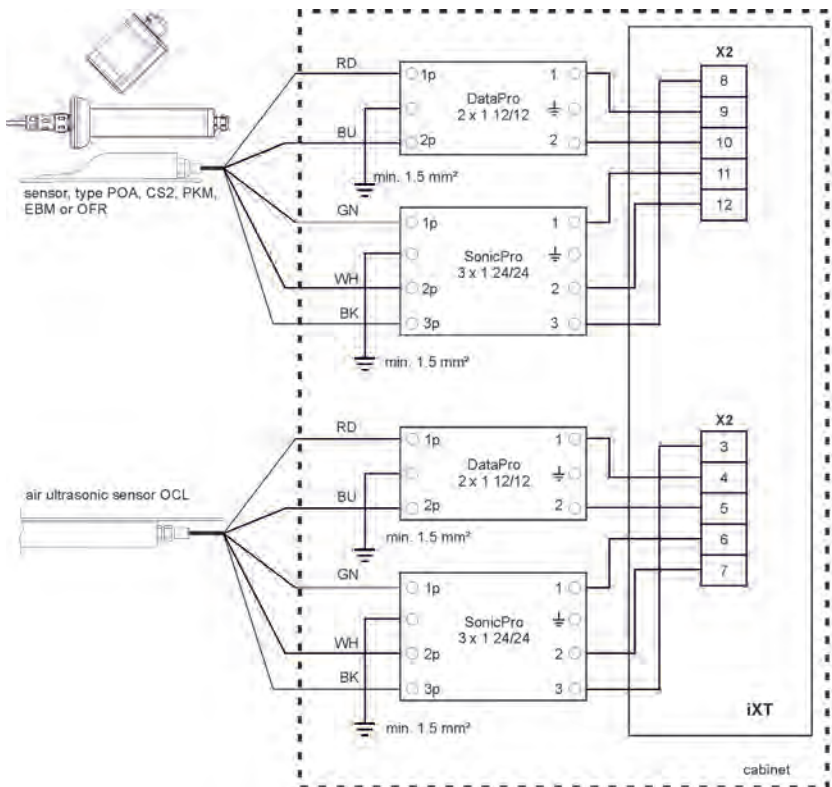
### Note

*Ensure that the connection is correct (p-side towards the transmitter) and that the cable feed is correct and straight. Route the down conductor (earth) in the direction of the unprotected side.*

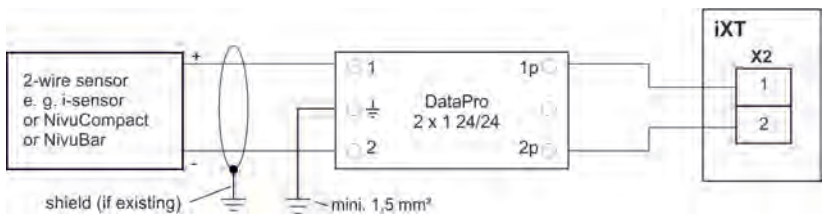
- *Incorrect connections disable the function of the overvoltage protection!*
-



**Fig. 23-1 2-sided Overvoltage Protection iXT0 – NivuFlow 750-S1/SR or NivuParQ 850-S2**



**Fig. 23-2 Overvoltage Protection Sensors - iXT0**



**Fig. 23-3 Overvoltage protection 2-wire Sensor - iXT0**

## Maintenance and Cleaning

### WARNING



#### ***Disconnect the System from Mains Power***

*Disconnect the unit from the mains and secure the higher system against being switched on again before starting maintenance, cleaning and/or repair work (only by qualified personnel).*

*Disregarding may lead to electric shock.*

### WARNING



#### ***Check danger due to explosive gases***

*Before starting assembly, installation and maintenance work, be sure to check that all regulations on safety at work have been observed and that there is no possible risk of explosive gases. Use a gas warner for the check.*

*When working in the sewer system, make sure that no electrostatic charge can occur:*

- Avoid unnecessary movements to reduce the building-up of static charges.*
- Discharge any static electricity present on your body before you start installing.*

*Disregarding may result in personal injury or damage to the system.*

### WARNING



#### ***Germ Contamination***

*Due to the frequent use of the sensors in the waste water sector, parts can be contaminated with dangerous germs. Therefore, appropriate precautions must be taken when coming into contact with cables and sensors.*

*Wear protective clothing.*

## 24 Maintenance

### 24.1 Maintenance Interval

The iXT0 Ex Separation Module is virtually calibration-, maintenance- and wear-free by design.

Nevertheless, NIVUS recommend an **annual check** of the entire measuring system by the NIVUS customer service.

Depending on the area of application of the measuring system, the maintenance interval may vary. The scope of maintenance and its intervals depend on the following factors:

- Measurement principle of the sensors
- Material wear
- Measurement medium and channel hydraulics
- General regulations for the operator of the measurement system
- Environmental conditions

In addition to the annual maintenance, NIVUS recommend a complete maintenance of the measuring system by the NIVUS customer service after **ten years at the latest**.

In general, the inspection of measurement devices/sensors are basic measures that contribute to improving operational safety and increasing service life.

## 24.2 Customer Service Information

For the recommended annual inspection of the entire measuring system or complete maintenance after ten years at the latest, contact our customer service:

### **NIVUS GmbH - Customer Centre**

Phone +49 7262 9191-922

[customercenter@nivus.com](mailto:customercenter@nivus.com)

## 25 Cleaning

---

### **WARNING**



***Disconnect the System from Mains Power***

*Make sure that the device is disconnected from mains power.*

*Disregarding may lead to electric shock.*

---

If necessary, clean the enclosure only with a dry antistatic cloth.  
Do not use abrasive or scratching cleaning agents.

## 26 Dismantling/Disposal

Improper disposal may cause danger to the environments.

- Dispose of the device in accordance with the applicable local environmental regulations for electrical products:
  1. Disconnect the device from mains power.
  2. Disconnect connected cables on the front of the device with a suitable tool.
  3. Remove the iXT0 Ex Separation Module from the DIN rail.



---

### **EU WEEE Directive**

*This symbol indicates that the requirements of Directive 2012/19/EU on waste electrical and electronic equipment must be observed when disposing of the device. Die NIVUS GmbH support and promote the recycling or environmentally sound, separate collection/disposal of waste electrical and electronic equipment to protect the environments and human health. Observe the local laws and regulations on disposal.*

*NIVUS GmbH are registered with the EAR, therefore public collection and return points in Germany can be used for disposal.*

---

## 27 Installation of Spare Parts and Wearing Parts

We expressly draw your attention to the fact that spare parts and accessories which have not been supplied by us have also not been tested and approved by us. The installation and/or use of such products may therefore negatively alter or invalidate the design properties of your measurement system.

NIVUS are not liable for damage caused by the use of non-original parts and non-original accessories.



## In Case of Emergency

In case of an emergency, press the **emergency stop button** for the higher system.

## Index

### A

Accident Levels ..... 9

### C

Certificates ..... 44

Colour Code

    Single Conductors ..... 8

    Wires ..... 8

Complaint

    Inspection upon Receipt ..... 17

Connecting Sensors ..... 30

Connection Cable ..... 26

Copyright ..... 3

Customer Centre ..... 39

Customer Service ..... 39

### D

Damage

    Ex Protection ..... 13

Device Versions ..... 22

Dimensions

    Enclosure ..... 19

Dismantling ..... 40

Disposal ..... 40

### E

EMC-standard Overvoltages ..... 35

Emergency Stop Button ..... 41

Emergency Stop Concept ..... 25

ESD

    Avoiding ..... 24

EU WEEE Directive ..... 40

Ex Approval ..... 21

Ex Protection ..... 13

Ex zone 1 ..... 13

### F

Fastening ..... 25

Flow Velocity Sensors ..... 23

Function ..... 23

### H

Humidity, max. .... 21

### I

Instruction Manual

    hand over when selling ..... 15

    Keep for future Reference ..... 15

Intrinsic Power Consumption ..... 21

### L

Level Sensors ..... 23

Liability ..... 12

Limit Values, max.

    Disclaimer ..... 13

### M

Maintenance ..... 38

Minimum Number of Wires ..... 27

Mounting Place ..... 24

### N

Nameplate ..... 20

### O

Operating Licence ..... 15

Operation Temperature ..... 21

Operator's Duties ..... 15

Original Instruction Manual ..... 7

Overvoltage Protection Elements . 26, 27

Overvoltage Protection Measures ..... 35

## P

Particle Concentration Sensors.....	23
Pollution Degree.....	21
Power Consumption.....	21
Product Overview.....	18
Protection.....	21

## Q

Qualified Personnel.....	16
--------------------------	----

## R

Recycling.....	40
Residual Current Device.....	25
Return.....	17
Revision History.....	4

## S

Scope of Delivery.....	17
Selling	
Instruction Manual.....	15
Sensors	
Flow Velocity.....	23
Level.....	23
Particle Concentration.....	23
Sensors, connectable.....	22
Spare Parts.....	40
Spare Parts Orders.....	20
Storage.....	17
Storage Temperature.....	21
Supply Voltage.....	21

## T

Terminals.....	29
Total Number of Wires	
Extension.....	27
Translation.....	3
Transmitter Connection.....	33
Transport.....	17
Type Key.....	22

## V

Variants.....	22
---------------	----

## W

Warranty.....	12
Limitation.....	12
Wearing Parts.....	40
Wiring Diagram.....	29

## Certificates and Approvals

In this technical description, the designations X1 (to the transmitter) or X2 (to the sensors) are used for the connection terminals according to chapter "22.2 Wiring Diagram".

The internal electronic circuit diagrams of the iXT0 assembly were submitted for the EU type examination. In these plans, the references X2, X3, X4, X5 and X6 are used for the externally accessible terminal strips.

In the EU-Type Examination Certificate **these** reference designations are quoted, **not** the designations from this Technical Description.

### Assignment of Connections

- First line - name of function according to chap. 22.2
- Second line (TB) - respective clamp number on iXT0
- Third line - the designation used in the following EU type examination certificate

### Transmitter Connection (non-Ex area):

	Rx/Tx +	Rx/Tx -	GND	12 V DC	Shield	PE (Ground)
TB:	X1. 1	X1. 2	X1. 3	X1. 4	X1. 5	X1. 6
BMP:	X2, 1	X2, 2	X2, 3	X2, 4	X2, 5	X2, 6

### Sensor connections of plugs S1, S2, S3 and S4 (Ex area Zone 1):

<b>S1</b>	mA 1 +	mA 1 -	Shield	S1 PWR +	GND-Ex	S1 Rx/Tx -	S1 Rx/Tx +
TB:	X2.1	X2.2	X2.3	X2.4	X2.5	X2.6	X2.7
BMP:	X4, 7	X4, 6	X4, 5	X4, 4	X4, 3	X4, 2	X4, 1

<b>S2</b>	Shield	S2 PWR +	GND-Ex	S2 Rx/Tx -	S2 RX/TX +
TB:	X2.8	X2.9	X2.10	X2.11	X2.12
BMP:	X3, 5	X3, 4	X3, 3	X3, 2	X3, 1

<b>S3</b>	mA 2 +	mA 2 -	Shield	S3 PWR +	GND-Ex	S3 Rx/Tx -	S3 Rx/Tx +
TB:	X2.13	X2.14	X2.15	X2.16	X2.17	X2.18	X2.19
BMP:	X6, 7	X6, 6	X6, 5	X6, 4	X6, 3	X6, 2	X6, 1

<b>S4</b>	Shield	S4 PWR +	GND-Ex	S4 Rx/Tx -	S4 Rx/Tx +
TB:	X2.20	X2.21	X2.22	X2.23	X2.24
BMP:	X5, 5	X5, 4	X5, 3	X5, 2	X5, 1



NIVUS GmbH  
Im Tale 2  
75031 Eppingen

Telefon: +49 07262 9191-0  
Telefax: +49 07262 9191-999  
E-Mail: info@nivus.com  
Internet: www.nivus.de

DE / EN / FR

## EU Konformitätserklärung

*EU Declaration of Conformity*

*Déclaration de conformité UE*

Für das folgend bezeichnete Erzeugnis:

*For the following product:*

*Le produit désigné ci-dessous:*

<b>Bezeichnung:</b>	<b>"Ex" intelligentes "Ex" Trennmodul iXT0</b>
<i>Description:</i>	<i>"Ex" intelligent "Ex" Separation Interface iXT0</i>
<i>Désignation:</i>	<i>"Ex" modul isolateur intelligent, type iXT0</i>
<b>Typ / Type:</b>	<b>iXT0-xxx / iXT0xxx</b>

erklären wir in alleiniger Verantwortung, dass die auf dem Unionsmarkt ab dem Zeitpunkt der Unterzeichnung bereitgestellten Geräte die folgenden einschlägigen Harmonisierungsvorschriften der Union erfüllen:

*we declare under our sole responsibility that the equipment made available on the Union market as of the date of signature of this document meets the standards of the following applicable Union harmonisation legislation:*

*nous déclarons, sous notre seule responsabilité, à la date de la présente signature, la conformité du produit pour le marché de l'Union, aux directives d'harmonisation de la législation au sein de l'Union:*

- 2014/30/EU
- 2014/34/EU
- 2011/65/EU

Bei der Bewertung wurden folgende einschlägige harmonisierte Normen zugrunde gelegt bzw. wird die Konformität erklärt in Bezug die nachfolgend genannten anderen technischen Spezifikationen:

*The evaluation assessed the following applicable harmonised standards or the conformity is declared in relation to other technical specifications listed below:*

*L'évaluation est effectuée à partir des normes harmonisées applicables ou la conformité est déclarée en relation aux autres spécifications techniques désignées ci-dessous:*

- EN 61326-1:2013
- EN IEC 60079-0:2018
- 60079-11:2012

Ex-Kennzeichnung / *Ex-designation* / *Marquage Ex* :

II (2) G [Ex ib Gb] IIB

EU-Baumusterprüfbescheinigung / *EU-Type Examination Certificate* / *Attestation d'examen «UE» de type:*

TÜV 14 ATEX 142076 (1. Ergänzung)

Notifizierte Stelle (Kennnummer) / *Notified Body (Identif. No.)* / *Organisme notifié (N° d'identification)*

TÜV Nord CERT GmbH, Am TÜV 1, 45307 Essen, Germany

(0044)

Diese Erklärung wird verantwortlich für den Hersteller:

*This declaration is submitted on behalf of the manufacturer:*

*Le fabricant assume la responsabilité de cette déclaration:*

**NIVUS GmbH**  
**Im Tale 2**  
**75031 Eppingen**  
**Allemagne**

abgegeben durch / *represented by* / *fait par:*

**Marcus Fischer** (Geschäftsführer / *Managing Director* / *Directeur général*)

Eppingen, den 18.02.2022

Gez. *Marcus Fischer*

# UK Declaration of Conformity

NIVUS GmbH  
Im Täle 2  
75031 Eppingen

Telefon: +49 07262 9191-0  
Telefax: +49 07262 9191-999  
E-Mail: info@nivus.com  
Internet: www.nivus.de

For the following product:

<b>Description:</b>	<b>"Ex" Intelligent Ex Separation Interface iXT0</b>
<b>Type:</b>	<b>iXT0-xxx / iXT0xxx...</b>

we declare under our sole responsibility that the equipment made available on the UK market as of the date of signature of this document meets the standards of the following applicable UK harmonisation legislation:

- SI 2016 / 1091 The Electromagnetic Compatibility Regulations 2016
- SI 2016 / 1107 The Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016
- SI 2012 / 3032 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

The evaluation assessed the following applicable harmonised standards or the conformity is declared in relation to other technical specifications listed below:

- BS EN 61326-1:2013
- BS EN IEC 60079-0:2018
- BS EN 60079-11:2012

Ex-designation:



II (2) G [Ex ib Gb] IIB

EU-Type Examination Certificate:

TÜV 14 ATEX 142076 (1. Supplement)

Notified Body (Identif. No.):

TÜV Nord CERT GmbH, Am TÜV 1, 45307 Essen, Germany

(0044)

Quality Assurance Ex:

TÜV Nord CERT GmbH, Am TÜV 1, 45307 Essen, Germany

(0044)

This declaration is submitted on behalf of the manufacturer:

**NIVUS GmbH**  
**Im Taele 2**  
**75031 Eppingen**  
**Germany**

represented by:

**Ingrid Steppe** (Managing Director)

Eppingen, 20/10/2022

Signed by *Ingrid Steppe*

Translation  
**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 Tale 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 (ZS), 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

Hanover office: Am TÜV 1, 30519 Hanover, Fon +49 (0)511 986 1455, Fax +49 (0)511 986 1690

This certificate may only be reproduced without any change, schedule included.  
Excerpts or changes shall be allowed by the TÜV NORD CERT GmbH



## (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 $\mu\text{F}$	24 $\mu\text{F}$	29 $\mu\text{F}$	36 $\mu\text{F}$

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 $\mu\text{H}$	100 $\mu\text{H}$	50 $\mu\text{H}$	10 $\mu\text{H}$
max. permissible external capacitance	4.2 $\mu\text{F}$	4.9 $\mu\text{F}$	8 $\mu\text{F}$	14.8 $\mu\text{F}$

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**

<b>to Certificate No.</b>	<b>TÜV 14 ATEX 142076</b>
<b>Equipment:</b>	Ex-Separator-Module type iXT0-xxx and type iXT0 xxx
<b>Manufacturer:</b>	NIVUS GmbH
<b>Address:</b>	Im Tale 2 75031 Eppingen
<b>Order number:</b>	8000444554
<b>Date of issue:</b>	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:
$U_0 = 25.4 \text{ V}$
$I_{0, \text{stat}} = 89.2 \text{ mA}$
$I_{0, \text{dyn}} = 273 \text{ mA}$
$P_0 = 567 \text{ mW}$
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

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



The head of the notified body



Meyer

Hanover office, Am TÜV 1, 30519 Hannover, Tel.: +49 (0) 511 986-1455, Fax: +49 (0) 511 986-1590

		<b>IECEX Certificate of Conformity</b>	
<b>INTERNATIONAL ELECTROTECHNICAL COMMISSION</b> <b>IEC Certification Scheme for Explosive Atmospheres</b> <small>for rules and details of the IECEx Scheme visit <a href="http://www.iecex.com">www.iecex.com</a></small>			
Certificate No.:	IECEX TUN 14.0014	issue No.:	1
Status:	Current	Certificate history: Issue No. 1 (2015-9-25) Issue No. 0 (2014-9-25)	
Date of Issue:	2015-09-25	Page 1 of 4	
Applicant:	NIVUS GmbH Im Tale 2 75031 Eppingen Germany		
Electrical Apparatus: Optional accessory:	Ex-Separator-Module iXT0-xxx and iXT0 xxx		
Type of Protection:	Intrinsic Safety		
Marking:	[Ex ib Gb] IIB		
Approved for issue on behalf of the IECEx Certification Body:	Andreas Meyer		
Position:	Head of IECEx Certification Body		
Signature: (for printed version)			
Date:	<u>2015-09-25</u>		
<ol style="list-style-type: none"><li>1. This certificate and schedule may only be reproduced in full.</li><li>2. This certificate is not transferable and remains the property of the issuing body.</li><li>3. The Status and authenticity of this certificate may be verified by visiting the Official IECEx Website.</li></ol>			
Certificate issued by:			
TUV NORD CERT GmbH Hanover Office Am TÜV 1 30519 Hannover Germany			

 		<b>IECEx Certificate of Conformity</b>	
Certificate No.:	IECEx TUN 14.0014	Issue No.:	1
Date of Issue:	2015-09-25	Page 2 of 4	
Manufacturer:	<b>NIVUS GmbH</b> Im Tale 2 75031 Eppingen Germany		
Additional Manufacturing location (s):			
<p>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.</p>			
<b>STANDARDS:</b> The electrical 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:			
<b>IEC 60079-0 : 2011</b> Edition: 6.0	Explosive atmospheres - Part 0: General requirements		
<b>IEC 60079-11 : 2011</b> Edition: 6.0	Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"		
<p><i>This Certificate <b>does not</b> indicate compliance with electrical safety and performance requirements other than those expressly included in the Standards listed above.</i></p>			
<b>TEST &amp; ASSESSMENT REPORTS:</b> A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in			
<u>Test Report:</u> DE/TUN/EXTR14.0027/D1			
<u>Quality Assessment Report:</u> DE/TUN/QAR13.0011/02			

		<b>IECEx Certificate of Conformity</b>	
Certificate No.:	IECEX TUN 14.0014	Issue No.:	1
Date of Issue:	2015-09-25	Page	3 of 4
<b>Schedule</b>			
<b>EQUIPMENT:</b> <i>Equipment and systems covered by this certificate are as follows:</i>			
See annexe			
<b>CONDITIONS OF CERTIFICATION: NO</b>			

		<b>IECEX Certificate of Conformity</b>	
Certificate No.:	IECEX TUN 14.0014	Issue No.:	1
Date of Issue:	2015-09-25	Page	4 of 4
<b>DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):</b>			
See annex			

Annex: \_Annexe\_issue 1 COC\_iXT0xxx\_TUN14.0014.pdf