



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.: **IECEX SEV 14.0025X**

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Certificate history:

Status: **Current**

Issue No: 4

Issue 3 (2018-02-21)

Issue 2 (2017-05-15)

Issue 1 (2016-02-04)

Issue 0 (2015-02-16)

Date of Issue: 2020-12-10

Applicant: **Mettler-Toledo GmbH**  
Im Hackacker 15  
8902 Urdorf  
Switzerland

Equipment: **pH-Sensor Type InPro 2XXX, InPro 3XXX, InPro 4XXX, InPro X1 \*\*\*\_\*\*\*\*\_\*\*\*\***

Optional accessory:

Type of Protection: **Intrinsic safety "ia"**

Marking: **Ex ia IIC T6/T5/T4/T3 Ga/Gb**

Approved for issue on behalf of the IECEx  
Certification Body:

**Martin Plüss**

Position:

**Manager Product Certification**

Signature:  
(for printed version)

Date:

2020-12-10

1. This certificate and schedule may only be reproduced in full.
2. This certificate is not transferable and remains the property of the issuing body.
3. The Status and authenticity of this certificate may be verified by visiting [www.iecex.com](http://www.iecex.com) or use of this QR Code.



Certificate issued by:

**Eurofins Electric & Electronic Product Testing AG**  
Luppenstrasse 3  
CH-8320 FEHRALTORF  
Switzerland



E&E



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Manufacturer: **Mettler-Toledo GmbH**  
Im Hackacker 15  
8902 Urdorf  
Switzerland

Additional  
manufacturing  
locations:

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

## STANDARDS :

The equipment 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

**IEC 60079-0:2017** Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

**IEC 60079-11:2011** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

**IEC 60079-26:2014-10** Explosive atmospheres – Part 26: Equipment with Equipment Protection Level (EPL) Ga  
Edition:3.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

## TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Report:

[CH/SEV/ExTR14.0026/03](#)

Quality Assessment Report:

[CH/SEV/QAR12.0004/07](#)



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## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

Intrinsically safe pH sensors types InPro2XXX, InPro3XXX, InPro4XXX and InPro X1 \*\*\*.\*\*\*\*.\*\*\* are used for simultaneous measurement of pH and temperature, in industrial processes.

They are connected with a rugged connector to the intrinsically safe circuits of a separately certified measuring system. The mechanical protection of the equipment is ensured by an independent fitting from METTLER TOLEDO type InFitType 76\*-\*\*\* or InTractype 77\*-\*\*\*, or other appropriate fitting.

pH ISM qualification Kit is a set of 5 different sensor plug-in heads, than can be used for the simulation of pH sensors, quick checks and loop trouble shooting.

This CoC replaces IECEx SEV 14.0025X Issue 3

## **SPECIFIC CONDITIONS OF USE: YES as shown below:**

Specific conditions see Annexe



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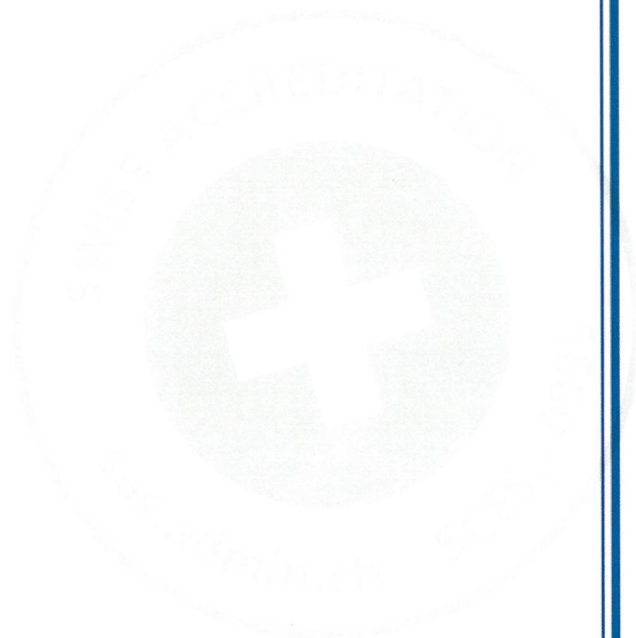
Date of issue: 2020-12-10

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**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

A new sensor board for the pH sensor InPro X1 is invented.

Change to new standard edition IEC 60079-0:2017.





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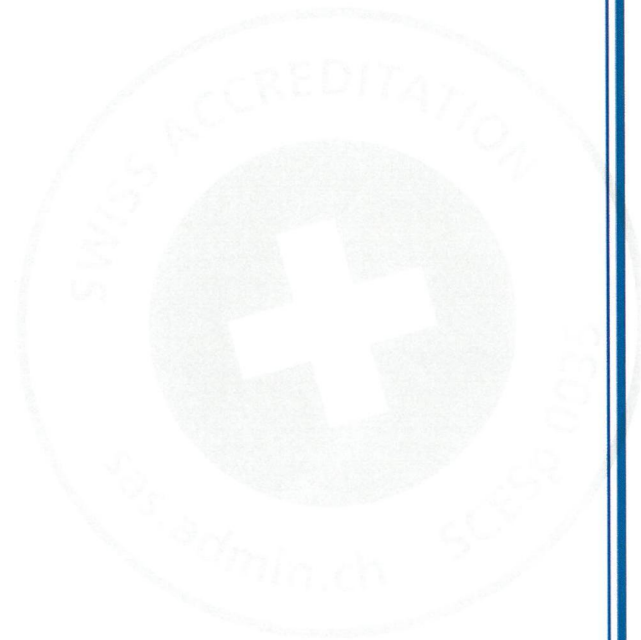
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**Additional information:**  
Additional information see Annexe

**Annex:**

IECEX SEV 14.0025X app i4.pdf



**Annexe to: IECEx SEV 14.0025X**
**Issue No.: 4**

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**Applicant Name: Mettler-Toledo GmbH  
 Im Hackacker 15, 8902 Urdorf, SWITZERLAND**
**Electrical Apparatus: pH sensors**
**General product information:**

Intrinsically safe pH sensors types InPro2XXX, InPro3XXX, InPro4XXX and InPro X1 are used for simultaneous measurement of pH and temperature, in industrial processes. They are connected with a rugged connector to the intrinsically safe circuits of a separately certified measuring system. The mechanical protection of the equipment is ensured by an independent fitting from METTLER TOLEDO type InFit Type 76 \* - \*\*\* or InTrac type 77 \* - \*\*\*, or other appropriate fitting.

pH ISM qualification Kit is a set of 5 different sensor plug-in heads, than can be used for the simulation of pH sensors, quick checks and loop trouble shooting.

Ratings:  $U_i \leq 16 \text{ V}$ ,  $I_i \leq 30 \text{ mA}$ ,  $P_i \leq 50 \text{ mW}$ , or  
 $U_i \leq 16 \text{ V}$ ,  $I_i \leq 190 \text{ mA}$ ,  $P_i \leq 200 \text{ mW}$ ,  $C_i = 900 \text{ pF}$ ,  $L_i = 0$

Classification of installation and use: stationary  
 Ingress protection: IP20  
 Rated ambient temperature range (°C): refer to "conditions of use"  
 Rated ambient temperature range (°C) for Ex Components N/A

**Eurofins Electric & Electronic Product Testing AG  
 Swiss Certification Body**

Annexe to:

IECEx SEV 14.0025X

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**Ratings**

Analogue pH sensor  
pH measurement circuit, temperature  
measurement circuit and  
data chip circuits

With type of protection intrinsic safety Ex ia IIC.  
Only for connection to certified intrinsically safe  
circuits. Maximum values:

$$\begin{aligned} U_i &\leq 16 \text{ V} \\ I_i &\leq 30 \text{ mA} \\ P_i &\leq 50 \text{ mW} \end{aligned}$$

or

$$\begin{aligned} U_i &\leq 16 \text{ V} \\ I_i &\leq 190 \text{ mA} \\ P_i &\leq 200 \text{ mW} \end{aligned}$$

$$\begin{aligned} L_i &= 0 && \text{(effective internal inductance)} \\ C_i &= 900 \text{ pF} && \text{(effective internal capacitance)} \end{aligned}$$

The values above apply, each as the sum of all the individual circuits of the associated intrinsically safe supply and evaluation unit (transmitter).

Digital pH sensor  
Two-wire current circuit

With type of protection intrinsic safety Ex ia IIC. Only  
for connection to certified intrinsically safe circuits.  
Maximum values:

$$\begin{aligned} U_i &\leq 16 \text{ V} \\ I_i &\leq 30 \text{ mA} \\ P_i &\leq 50 \text{ mW} \end{aligned}$$

$$\begin{aligned} L_i &= \text{negligible} \\ C_i &= \text{negligible} \end{aligned}$$

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Part number code:

InPro X1 \*\*\*-\*\*\*\*-\*\*\*

Example of type designation H L S – N 1 0 0 – K 120  
(1)(2)(3) (4)(5)(6)(7) (8) (9) (10)

**(1) Certifications**

- H Hygienic and hazardous areas certifications
- X Hazardous areas certifications
- G General applications

**(2)\* Reference system**

- L Liquid Electrolyte Pre-Pressurized Friscoylt
- P Polymer Electrolyte Xerolyte Extra
- D Double-gel-electrolyte chamber

**(3) Tip design**

- S Standard design with HA pH glass
- L Standard design with LoT pH glass
- F Standard design with HF pH glass

**(4)\* Redox measurement**

- N No
- R Redox

**(5) Tip material**

- 1 Stainless steel
- 2 Titanium
- 3 PEEK

**(6) Shaft material**

- 0 PEEK
- 1 Stainless steel
- 2 Titanium

**(7) O-ring material**

- 0 PFA
- 1 FPM
- 2 Silicon
- 3 EPDM

**(8) Connector**

- K K8SD
- V VP

**(9)\* length**

xxx length in mm

**(10)\* Special features**

Empty -> standard

\*) The numerical type keys can be extended with values not named here in the sense of the basic test. These extensions have no effect on the explosion protection and general safety.



**“Specific Conditions of Use” / “Schedule of Limitations”:**

1. The relationship between the maximum permissible ambient or media temperature and temperature class is shown in the following table:

With analog pH sensor:

For  $U_i \leq 16\text{ V}$ ,  $I_i \leq 30\text{ mA}$ ,  $P_i \leq 50\text{ mW}$ ;

pH measuring circuit, temperature measurement circuit, and data chip circuit:

temperature class	maximum ambient or media temperature
T6	62 °C
T5	74 °C
T4	102 °C
T3	154 °C

or

For  $U_i \leq 16\text{ V}$ ,  $I_i \leq 190\text{ mA}$ ,  $P_i \leq 200\text{ mW}$ ;

pH measuring circuit, temperature measurement circuit, and data chip circuit:

temperature class	maximum ambient or media temperature
T6	51 °C
T5	63 °C
T4	91 °C
T3	143 °C

or

With digital pH sensor:

For  $U_i \leq 16\text{ V}$ ,  $I_i \leq 30\text{ mA}$ ,  $P_i \leq 50\text{ mW}$ ;

two-wire current circuit:

temperature class	maximum ambient or media temperature
T6	62 °C
T5	74 °C
T4	102 °C
T3	131 °C

2. The pH sensor Types InPro® 327x, InPro® 427x, and InPro® 487x are constructed from plastic. To prevent the risk of electrostatic sparking, the plastic surface should only clean with a damp cloth.
3. The enclosures of pH sensor types InPro® 328x, InPro® 428x, and InPro® 488x containing titanium constitute a potential risk of ignition by impact or friction. Care must be taken into account during installation and use to prevent impact and friction.
4. For safe working and to prevent explosion, the minimum conductivity of media must be higher than 1 nS/cm when the pH sensor types of InPro® 327x, InPro® 427x, and InPro® 487x are used.
5. The capacitance and inductance of the connecting cable has to be considered.
6. The pH sensors types InPro 2XXX, InPro 3XXX, InPro 4XXX and InPro X1 can be used in/with the fittings InFit 76\*-\*\*\* or InTrac 7\*\*-\*\*\*, or in/with other suitable fittings in potentially explosive areas.

The metal body of the pH sensors, or the fitting InFit76 \* - \*\*\* or InTrac7 \*\* - \*\*\*, or other appropriate fitting is optionally included in the routine pressure test of the system.

The independent fitting used for installation of pH electrodes must be conductively connected to the equipotential bonding system.