



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

(2) Equipment or protective system intended for use in potentially explosive atmospheres - **Directive 94/9/EC**

(3) Examination certificate number: **SEV 14 ATEX 0169 X**

(4) Equipment: O2 Oxygen sensor
Type InPro 6XXX

(5) Manufacturer: Mettler-Toledo GmbH, Process Analytics

(6) Address: Im Hackacker 15, 8902 Urdorf, SWITZERLAND

(7) The equipment and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) Electrosuisse SEV, notified body No. 1258 in accordance with article 9 of the Council Directive of the European Communities of 23 March 1994 (94/9/EC), certifies that this equipment has been found to comply with the essential health and safety requirements relating to the design and construction of equipment or protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The results of the examination are recorded in confidential report no 14-Ex-0105.02 + .02 E1

(9) Compliance with the essential health and safety requirements has been assured by compliance with:

EN 60079-0:12 + A11:13

EN 60079-11:12

EN 60079-26:15

(10) If the sign «X» is placed after the certificate number, it indicates that the equipment or protective system is subjected to special conditions for safe use specified in the schedule to this certificate.

(11) This examination certificate relates only to design and construction of the specified equipment in accordance with the directive 94/9/EC. Further requirements of this directive apply to the manufacturing process and the placing on the market of the equipment.

(12) The marking of the equipment shall include the following:



II 1/2 G Ex ia IIC T6/T5/T4/T3 Ga/Gb

II 1/2 D Ex ia IIIC T69°C/T81°C/T109°C/T161°C Da/Db

**Electrosuisse
Notified Body ATEX**

Martin Plüss
Product Certification



(13)

Appendix

(14)

EC-Type Examination Certificate

(15) Description of the equipment

General product information:

Intrinsically safe O₂ Oxygen sensors type InPro6XXX are used for simultaneous measurement of O₂ value 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.

Notes:

The O₂ Oxygen sensor type InPro 6XXX was previously evaluated for category 1/2G protection intrinsic safety " Ex ia IIC" according to EN 60079:2006, EN 60079-11:2007, EN 60079-26:2007, and category 1/2D protection intrinsic safety " Ex iaD" according to EN 61241-0:2006 and 61241-11:2004, test report No. 01-IK-0267.01, extension 3, certificate SNCH 01 ATEX 3277X.

The digital version of O₂ oxygen sensor consists of digital sensors (type DsO₂Mini4) which is integrated and encapsulated in connector K8S.

The digital sensors (type DsO₂Mini4) was previously evaluated as Ex-Component for category 2G protection intrinsic safety " Ex ia IIC" according to EN 60079:2006, and EN 60079-11:2007, and category 2D protection intrinsic safety " Ex iaD" according to EN 61241-0:2006 and 61241-11:2006, test report No. 05-IK-0032.02.

The digital sensors (type DsO₂Mini4) are integrated and encapsulated in connector K8S. Extremely small Ex-Component without marking as it is always only used together with devices of the manufacturer Mettler-Toledo.

The digital sensors type DsO₂Mini4 have the following functions: Conditioning of analogue signal, digitization of measuring signals, diagnostic routines for determination of the remaining lifetime, maintenance and calibration intervals, communication with an evaluator, storage of relevant sensor data.

O₂ ISM qualification Kit is a set of 5 different sensor plug-in heads, than can be used for the simulation of O₂ Oxygen sensors, quick checks and loop trouble shooting.

Ratings

Analog O2 Oxygen sensor
O2 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:

$$U_i \leq 16 \text{ V}$$

$$I_i \leq 190 \text{ mA}$$

$$P_i \leq 200 \text{ mW}$$

$$L_i = 0 \quad (\text{effective internal inductance})$$

$$C_i = 900 \text{ pF} \quad (\text{effective internal capacitance})$$

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

Digital O2 Oxygen sensor
Two-wire current circuit

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

$$U_i \leq 16 \text{ V}$$

$$I_i \leq 30 \text{ mA}$$

$$P_i \leq 50 \text{ mW}$$

$$L_i = \text{negligible}$$

$$C_i = \text{negligible}$$

Notes

1. According to Directive 94/9/EC (ATEX 95) Appendix I, the O₂ Oxygen sensors type InPro6XXX is a devices of equipment group II, category 1/2G which, according to Directive 99/92/EC (ATEX 137) can be used in zones 0/1 or 1/2 or 1 or 2 as well as gas groups IIA, IIB and IIC, which are potentially explosive due to combustible substances in the temperature classes T3 to T6.

The requirements specified in EN 60079-14 must be observed during use / installation.

2. According to Directive 94/9/EC (ATEX 95) Appendix I, the O₂ Oxygen sensors type InPro6XXX is a devices of equipment group II, category 1/2D which, according to Directive 99/92/EC (ATEX 137) can be used in zones 20/21 or 21/22 or 21 or 22, which are potentially explosive due to combustible dust.

The requirements specified in EN 60079-14 must be observed during use / installation.

3. For the analog version of the O₂ Oxygen electrode, the O₂ measurement circuit, temperature measurement circuit and data chip circuit are part of a common intrinsically safe system and are jointly connected to and operated by a separately certified transmitter.
4. The digital version of the O₂ Oxygen sensor is connected to and operated by a two-wire cable to the certified transmitter.
5. The intrinsically safe circuits are galvanically isolated from the non-intrinsically safe circuits up to a nominal voltage peak value of 375 V and from the earthed parts up to up to a nominal voltage peak value of 30 V.

(16) Test Report

14-Ex-0105.02 + .02 E1

(17) Special conditions for safe use

1. The relationship between the maximum permissible ambient or media temperature and temperature class, for category 1G applications, zone 0, is shown in the following table:

temperature class	maximum ambient or media temperature
T6	68 °C
T5	80 °C
T4	108 °C
T3	160 °C

2. The relationship between the maximum permissible ambient or media temperature and temperature class, for category 1D applications, zone 20, is shown in the following table:

temperature class	maximum ambient or media temperature
T69°C	68 °C
T81°C	80 °C
T109°C	108 °C
T161°C	160 °C

3. The capacitance and inductance of the connecting cable has to be considered.
4. The O₂ Oxygen sensor type InPro 6XXX can be used in/with the fittings InFit 76*-*** or InTrac 7**-***, or in/with other suitable fittings in potentially explosive areas.
5. The metal body of the O₂ Oxygen sensors, or the fitting InFit76 * - *** or InTrac7 ** - *** , or other appropriate fitting is optionally included in the routine pressure test of the system.
6. The independent fitting used for installation of O₂ Oxygen sensor must be conductively connected to the equipotential bonding system.

(18) Fundamental essential health and safety requirements

Fulfilled by the standards applied