



AC 149

# J.S. Hamilton Poland Sp. z o.o.

## Notified Body No. 2057

ul. Wyzwolenia 14  
41-103 Siemianowice Śląskie



### (1) EU-TYPE EXAMINATION CERTIFICATE

(2) Equipment or Protective System Intended for use in Potentially Explosive Atmospheres  
Directive 2014/34/EU

(3) EU-Type Examination Certificate Number: **JSHP 24 ATEX 0005X** *issue 0*

(4) Product: **Temperature sensors type XI-.....-**

(5) Manufacturer: **Termoaparatura Wrocław**

(6) Address: **ul. Rzemieśnicza 4, 55-010 Święta Katarzyna, Zębice, Poland**

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

(8) J.S. Hamilton Poland Sp. z o.o., Notified Body no. 2057, in accordance with Article 17 of Directive 2014/34/EU of the European Parliament and of the Council, dated 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 confidential Report No. JSHP/RW/31/23/GP.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

**EN IEC 60079-0:2018**  
(PN-EN IEC 60079-0:2018-09)

**EN 60079-11:2012**  
(PN-EN 60079-11:2012)

**EN 50303:2000**  
(PN-EN 50303:2004)

(10) If the sign "X" is placed after the certificate number, it indicates that the product is subject to the specific conditions of 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 product. These are not covered by this certificate.

This certificate is valid in its entirety, schedule(s) included.

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

The product marking is listed in point (15) of the certificate.



*Damian Wójt*  
Kierownik  
Jednostki Certyfikującej

Siemianowice Śl., 16<sup>th</sup> January 2024



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(13)

### SCHEDULE

(14)

### CERTIFICATE No. JSHP 24 ATEX 0005X

(15)

Description of product:

Temperature sensors of type XI-.....- (resistance thermometers or thermocouples) are used for measuring the temperature of vapours, liquids, gases and ambient (sensors type XI-TOPZ, XI-APTOPZ). The sensors consist of a replaceable measuring insert, on one end of which a single or double measuring resistor, one or two thermocouples are placed. The other end of the measuring insert is equipped with a terminal block covered by a connection head of the types XE-DANA... (certificate FTZU 03ATEX0073U), XE-DAND... (certificate FTZU04ATEX0264U), XE-BE... (certificate FTZU 06ATEX024U) and XI-DSN, XI-DSNW (certificate FTZU 12ATEX0202U). Inside the connection head there may be a terminal block for the connection of external cables, or an electronic temperature transmitter. Temperature transmitters must be separately certified according to ATEX directive.

**Technical parameters (except for sensor types XI-TOPZ, XI-APTOPZ):**

Measuring range:

-200°C to 550°C                      for resistance sensors  
-40°C to 1200°C                      for thermocouples

Sensors without transmitters:

Ambient temperature:  $-40^{\circ}\text{C} \leq T_a \leq +75^{\circ}\text{C}$  (for temperature class T6, and medium temperature  $T_m \leq 75^{\circ}\text{C}$ )

Maximum input parameters:

$U_i = 30\text{V}$ ,  $I_i = 20\text{mA}$  for resistance sensors  
 $U_i = 10\text{V}$ ;  $I_i = 200\text{mA}$  for thermocouples

Sensors with transmitters:

Ambient temperatures, temperature classes, surface temperatures depend on the type of transducer used and the process temperature.

The series of sensors of type XI-.....- also includes sensors XI-TOPZ, XI-APTOPZ for the measurement of ambient temperature. The sensors consist of a metal enclosure with a measuring resistor at one end. Inside the enclosure, there is a DIN rail terminal block or a temperature transmitter. The sensor enclosure is equipped with a cable entry for power and signal cables. The entire enclosure provides IP65 protection.



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#### Technical parameters of sensors XI-TOPZ, XI-APTOPZ:

Measuring range:

-60°C ÷ +125°C for XI-TOPZ sensors

-40°C ÷ +85°C for XI-APTOPZ sensors

Ambient temperature for XI-TOPZ:

-60°C ≤ Tamb ≤ +75°C for T6

-60°C ≤ Tamb ≤ +90°C for T5

Maximum input parameters for the power supply of the resistance sensor: Ui=30 V; li= 20 mA

Ambient temperatures, temperature classes, surface temperatures depend on the type of transmitter used.

Marking of equipment:



I M1 Ex ia I Ma



II 1/2G Ex ia IIC T6...T1 Ga/Gb

for Tm ≤ 435°C



II 1/2G Ex ia IIC 435°C...1200°C Ga/Gb

for Tm ≥ 435°C



II 1/2D Ex ia IIIC T...°C Da/Db

for Tm ≤ 1200°C

\* Tm - temperature of the medium



II 2G Ex ia IIC T\*Gb

XI-TOPZ and XI-APTOPZ



II 2D Ex ia IIIC T\*Db

XI-TOPZ and XI-APTOPZ

T\* - The maximum surface temperature and/or temperature class of the sensor is determined at the place where the sensor is installed.



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The dependence between process temperature and temperature class or maximum operating temperature is as follows:

Table 1

Maximum medium temperature Tm (°C)	Temperature class
75°C	T6
90°C	T5
125°C	T4
190°C	T3
285°C	T2
435°C	T1
>435°C For gas atmosphere	Tm+15°C
≤ 1200°C For dust atmosphere	Tm+5°C

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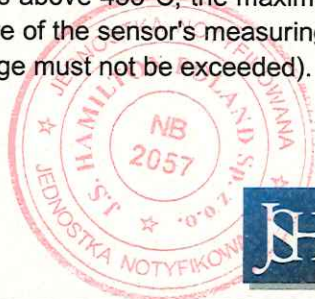
Report number:

– JSHP/RW/56/22/GP

(17)

Specific conditions of use:

- For a sensor without a transducer, or a sensor with a transducer without galvanic circuit isolation, it is necessary to equalize the potential between the sensor and the Zener barrier ground.
- For sensors with a transmitter with galvanic circuit isolation, there is no need to equalize the potential between the sensor and the Zener barrier ground.
- The measuring part of the sensor has a surface temperature equal to the process temperature, which determines the temperature class of the sensor (from T6 to T1), or the maximum surface temperature Ts.
- For process temperatures above 435°C, the maximum surface temperature corresponding to the maximum temperature of the sensor's measuring range must be determined (the sensor's maximum measuring range must not be exceeded).



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- The surface temperature of the connection head depends on the type of sensor, the way it is installed, the process temperature, the ambient temperature and the dissipated power of the transducer installed. It must be determined individually after installation on site during operation and must not exceed the permissible operating temperature: of the connection head, of the transmitter, or the auto-ignition temperature of the explosive gas atmosphere, or be lower than  $2/3$  of  $T_{cl}$  - ignition temperature of the dust cloud using the relation given in Table 1.
- The temperature of other surfaces of the sensor in contact with the explosive atmosphere must be determined individually after installation on site during operation and must not be higher than the temperature class of the explosive atmosphere or lower than  $2/3T_{cl}$  - the ignition temperature of the dust cloud.
  - For Group I sensors, the maximum surface temperature should not exceed:
    - $145^{\circ}\text{C}$  on any surface where a layer of dust may accumulate,
    - $445^{\circ}\text{C}$  where the accumulation of a layer of dust is excluded.
- The surface temperature of a sensor covered with a layer of dust must be lower than the auto-ignition temperature of dust in accordance with Annex B of EN 61241-10, using the dependence given in Table 1.

(18) Essential Health and Safety Requirements:

These requirements (EHSRs) are covered by the standards listed at item 9.

(19) Drawings and documents:

- Application manual. Safety instruction. „Temperature sensors for Hazardous Areas”. M-0801.

Detailed list of documents required for certified type identification is included in Report mentioned in Clause (16).

(20) Document history:

- EU type examination certificate No. JSHP 23 ATEX 0005X of 16 January 2024 - issue 0



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Dzierownik  
Jednostki Certyfikującej

Siemianowice Śl., 16<sup>th</sup> January 2024

