

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: **EESF 21 ATEX 043X Issue 1**
4. Product: **RTD (resistance temperature sensors) and TC (Thermocouple temperature sensors)**  
Certified types: **EPIC® SENSORS**
5. Manufacturer: **Lapp Automaatio Oy**
6. Address: **Martinkyläntie 52, FI-01720 Vantaa, Finland**  
Additional manufacturing locations:  
**Lapp Automaatio Oy**  
**Varastokatu 10, FI-05800 Hyvinkää, Finland**
7. This product and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.
8. Eurofins Electric & Electronics Finland Oy, Notified Body number 0537, 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. EUFI29-22004074-T1.
9. Compliance with the Essential Health and Safety Requirements has been assured by compliance with:  
**EN IEC 60079-0:2018                      EN 60079-11:2012                      IEC 60079-26:2021**
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.
12. The marking of the product shall include the following:



<b>II 1G</b>	<b>Ex ia IIC T6...T3 Ga</b>
<b>II 1/2G</b>	<b>Ex ib IIC T6...T3 Ga/Gb</b>
<b>II 1D</b>	<b>Ex ia IIIC T135 °C Da</b>
<b>II 1/2D</b>	<b>Ex ib IIIC T135 °C Da/Db</b>

Espoo, 22.09.2022

**Eurofins Electric & Electronics Finland Oy**Jenni Hirvelä  
Senior ExpertKari Koskela  
Senior Expert

This document is digitally signed.

13. **Schedule**
14. **EU-Type Examination Certificate EESF 21 ATEX 043X Issue 1**

15. **Description of Product**

EPIC® SENSORS are series of TC or RTD temperature sensors for measuring process, surface or ambient temperatures with various process connection options. The sensor elements are located in tube or thermowell and they are insulated from conductive parts in direct contact with process medium or surfaces.

See ANNEX to EESF 21 ATEX 043X Issue 1 for maximum interface values and technical details.

16. **Report Number**

EUF129-22004074-T1

17. **Specific Conditions of Use**

Listed in ANNEX to EESF 21 ATEX 043X Issue 1

18. **Essential Health and Safety Requirements**

The Essential Health and Safety Requirements are covered by the standards listed at item 9.

19. **Drawings and Documents**

Drawings and documents are listed in the confidential report.

20. **Certificate History**

Issue	Date	Report No.	Change
EESF 21 ATEX 043X	05.04.2022	EUF129-21003243-T1	Original release
EESF 21 ATEX 043X Issue 1	22.09.2022	EUF129-22004074-T1	Editorial change in cable types.

## ANNEX TO EESF 21 ATEX 043X Issue 1

### Maximum interface values:

Electrical values for Group IIC:	Electrical values for Group IIIC:
U <sub>i</sub> = 30 V I <sub>i</sub> = 100 mA P <sub>i</sub> = 750 mW C <sub>i</sub> = Negligible L <sub>i</sub> = Negligible	U <sub>i</sub> = 30 V I <sub>i</sub> = 100 mA P <sub>i</sub> = 550 mW @T <sub>a</sub> +100 °C P <sub>i</sub> = 650 mW @T <sub>a</sub> +70 °C P <sub>i</sub> = 750 mW @T <sub>a</sub> +40 °C C <sub>i</sub> = Negligible L <sub>i</sub> = Negligible

Table 1.

### Allowed ambient temperature ranges for Gas Group IIC:

Marking, Gas Group IIC	Temperature Class	Ambient temperature
II 1G Ex ia IIC T6 Ga II 1/2G Ex ib IIC T6-T3 Ga/Gb	T6	-40...+80 °C
II 1G Ex ia IIC T5 Ga II 1/2G Ex ib IIC T6-T3 Ga/Gb	T5	-40...+95 °C
II 1G Ex ia IIC T4-T3 Ga II 1/2G Ex ib IIC T6-T3 Ga/Gb	T4-T3	-40...+100 °C

Table 2.

### Allowed ambient temperature ranges for Dust Group IIIC:

Marking, Dust Group IIIC	Power P <sub>i</sub>	Ambient temperature
II 1D Ex ia IIIC T135 °C Da II 1/2D Ex ib IIIC T135 °C Da/Db	750 mW	-40...+40 °C
II 1D Ex ia IIIC T135 °C Da II 1/2D Ex ib IIIC T135 °C Da/Db	650 mW	-40...+70 °C
II 1D Ex ia IIIC T135 °C Da II 1/2D Ex ib IIIC T135 °C Da/Db	550 mW	-40...+100 °C

Table 3.

### Specific Conditions of Use:

1. Allowed ambient temperature range of sensor head or process connection for Group IIC with temperature class T6 is  $-40\text{ °C} \leq T_{\text{amb}} \leq 80\text{ °C}$
2. Allowed ambient temperature range of sensor head or process connection for Group IIC with temperature class T5 is  $-40\text{ °C} \leq T_{\text{amb}} \leq +95\text{ °C}$
3. Allowed ambient temperature range of sensor head or process connection for Group IIC with temperature class T4-T3 is  $-40\text{ °C} \leq T_{\text{amb}} \leq +100\text{ °C}$
4. Allowed ambient temperature range of sensor head or process connection for Group IIIC with temperature classification T135 °C is  $-40\text{ °C} \leq T_{\text{amb}} \leq +40\text{ °C} \dots +100\text{ °C}$ . The maximum input power P<sub>i</sub> shall be observed.
5. Self-heating of the sensor tip shall be considered in respect with Temperature Classification and associated ambient temperature range. The manufacturer's instructions for calculating tip surface temperature according to thermal resistances stated in the instructions shall be observed.
6. The process temperature shall not adversely affect ambient temperature range assigned for Temperature Classification
7. For sensors with long connection cables, the cable parameters L<sub>cable</sub> and C<sub>cable</sub> shall be considered in accordance with EN 60079-14

### Assessing Self-heating of the sensor or the thermowell tip:

For safe operation at hazardous locations with Temperature Classifications T6...T3 (Gas) or T135 °C (Dust) the self-heating of the sensor tip shall be considered. Self-heating is of particular significance when measuring low temperatures.

The self-heating at the sensor tip or thermowell tip depends on the sensor type (RTD/TC), the diameter of sensor and structure of sensor. For self-heating the maximum input power  $P_i$  shall be observed.

Table 3. Manufacturer's  $R_{th}$  Data for different types of sensors.

Sensor type	Thermal resistance $R_{th}$ [°C / W]					
	Resistance thermometer (RTD)			Thermocouple (TC)		
Measuring insert diameter	< 3 mm	3...<6 mm	6...8 mm	< 3 mm	3...<6 mm	6...8 mm
Without thermowell	350	250	100	100	25	10
With Thermowell made from tube material (e.g. B-6k, B-9K, B-6, B-9, A-15, A-22, F-11, etc)	185	140	55	50	13	5
With thermowell – solid material	65	50	20	20	5	1

If the measuring device for RTD-measuring is using measuring current  $> 1$  mA, the maximum surface temperature of the temperature sensor tip should be calculated and taken to account in accordance with following equation:

$$T = P_o R_{th} + T_{amb}$$

Where:

- $T$  is the surface temperature
- $P_o$  is the power marked on the associated apparatus
- $R_{th}$  is the surface temperature rise (K/W) per manufacturer's specification
- $T_{amb}$  is the ambient temperature at the point of installation i.e. process temperature

For sensors with multiple RTD's embedded, the maximum power values  $P_i$  shall not be exceeded (Not applicable for Multi-point temperature sensor types T-MP / W-MP or T-MPT / W-MPT with segregated Exi circuits).

**PRODUCT NOMENCLATURE:**
**MINERAL INSULATED SENSORS:**

	<b>DESCRIPTION</b>
T-B-ØK / W-B-ØK	Threaded temperature sensor without neck pipe
T-B-Ø / W-B-Ø	Threaded temperature sensor with neck pipe and thermowell
T-F / W-F	Flanged temperature sensor
T-D / W-D	Weldable temperature sensor
T-A-Ø / W-A-Ø or T-A-Ø-U / W-A-Ø-U	Immersible temperature sensor
T-H-12 / W-H-12	Threaded temperature sensor with neck pipe and sensing element
T-M-Ø / W-M-Ø	Mineral insulated element
W-E-Ø-HST-S / W-E-Ø-HST-CLAMP	Acid proof temperature sensor for hygienic installation
T-MP / W-MP or T-MPT / W-MPT	Multi-point temperature sensor
T-M-303 / W-M-303 or T-M-302 / W-M-302	Mineral insulated thermocouple or resistance sensor with cable
T-M-313 or T-M-314	Mineral insulated thermocouple insert with connector
T-M-N / W-M-N	Mineral insulated insert with connection head

**TUBE SENSORS:**

T-CABLE or W-CABLE	Temperature sensor with cable
T-MAGN / W-MAGN	Magnetic temperature sensor
T-BTD / W-BTD	Bearing temperature sensor
T-SCREW / W-SCREW	Threaded temperature sensor with cable
W-M-F	Indoor/outdoor resistance temperature sensor with metal enclosure

**MINERAL INSULATED or TUBE SENSORS:**

T-M-P / W-M-P or T-P / W-P	Surface temperature sensor
T-RO-M / W-RO-M or T-RO / W-RO	Pipe surface temperature sensor
T-M-BAJO / W-M-BAJO or T-BAJO / W-BAJO	Bayonet temperature sensor

**CERAMIC TUBE SENSORS:**

T-K / T-AK / T-AKK	Immersible thermocouple sensor with ceramic well
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(Letter T (TC): Thermocouple sensor elements are e.g. Type J, Type K or Type N Type L, Type R or Type S.; 2xT: Dual thermocouple sensor versions.)

Letter W (RTD): Platinum thermometer sensor elements are e.g. 1 x Pt100/Pt1000 (3-wire); 1 x Pt100/Pt1000 (4-wire), 2 x Pt100/Pt1000 (4-wire); 2xW: Dual resistance sensor versions)

Sensors with permanent cable can be manufactured with following cable types. Temperature values are maximum values for cable sheath operating temperatures, not for process temperature to be measured.

SIL = silicone, max. +180 °C

FEP = fluoropolymer, max. +205 °C

GGD = glass silk cable/metal braid jacket, max. +350 °C

FDF = FEP wire insulation/braid shield/FEP jacket, max. +205 °C

SDS = silicone wire insulation/braid shield/silicone jacket, only available as 2 wire cable, max. +180 °C

DDT = fluoropolymer wire insulation/braid shield/ fluoropolymer jacket, max. +205 °C

FDS = FEP wire insulation/braid shield/silicone jacket, max. +180 °C

FS = FEP wire insulation/silicone jacket, max. +180 °C



# 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 EESF 21.0027X** Page 1 of 7 Certificate history:  
Status: **Current** Issue No: 1 [Issue 0 \(2022-04-05\)](#)  
Date of Issue: 2022-09-22  
Applicant: **Lapp Automaatio Oy**  
Martinkyläntie 52  
FI-01720 Vantaa  
Finland  
Equipment: **RTD (resistance) temperature sensors and TC (Thermocouple) temperature sensors**  
Optional accessory: N/A  
Type of Protection: **Intrinsically Safe**  
Marking: Ex ia IIC T6... T3 Ga  
Ex ib IIC T6... T3 Ga/Gb  
Ex ia IIIC T135 °C Da  
Ex ib IIIC T135 °C Da/Db

Approved for issue on behalf of the IECEx  
Certification Body:

**Jenni Hirvelä**

Position:

**Senior Expert**

Signature:  
(for printed version)

Date:  
(for printed version)

2022-09-22

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 & Electronics Finland Oy**  
Kivimiehentie 4  
Espoo FI-02150  
Finland





# IECEX Certificate of Conformity

Certificate No.: **IECEX EESF 21.0027X**

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Date of issue: 2022-09-22

Issue No: 1

Manufacturer: **Lapp Automaatio Oy**  
Martinkyläntie 52  
FI-01720 Vantaa  
**Finland**

Manufacturing  
locations: **Lapp Automaatio Oy**  
Varastokatu 10  
Hyvinkää FI-05800  
**Finland**

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 60079-26:2021-02](#) Explosive atmospheres - Part 26: Equipment with Separation Elements or combined Levels of Protection  
Edition:4.0

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:

[FI/EESF/ExTR21.0029/01](#)

Quality Assessment Report:

[FI/EESF/QAR18.0004/02](#)



# IECEx Certificate of Conformity

Certificate No.: **IECEx EESF 21.0027X**

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Date of issue: 2022-09-22

Issue No: 1

## **EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

EPIC<sup>®</sup> SENSORS are series of TC or RTD temperature sensors for measuring process, surface or ambient temperatures with various process connection options. The sensor elements are located in tube or thermowell and they are insulated from conductive parts in direct contact with process medium or surfaces.

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

1. Allowed ambient temperature range of sensor head or process connection for Group IIC with temperature class T6 is  $-40\text{ °C} \leq T_{\text{amb}} \leq 80\text{ °C}$
2. Allowed ambient temperature range of sensor head or process connection for Group IIC with temperature class T5 is  $-40\text{ °C} \leq T_{\text{amb}} \leq +95\text{ °C}$
3. Allowed ambient temperature range of sensor head or process connection for Group IIC with temperature class T4-T3 is  $-40\text{ °C} \leq T_{\text{amb}} \leq +100\text{ °C}$
4. Allowed ambient temperature range of sensor head or process connection for Group IIIC with temperature classification T135 °C is  $-40\text{ °C} \leq T_{\text{amb}} \leq +40\text{ °C} \dots +100\text{ °C}$ . The maximum input power  $P_i$  shall be observed.
5. Self-heating of the sensor tip shall be considered in respect with Temperature Classification and associated ambient temperature range. The manufacturer's instructions for calculating tip surface temperature according to thermal resistances stated in the instructions shall be observed.
6. The process temperature shall not adversely affect ambient temperature range assigned for Temperature Classification
7. For sensors with long connection cables, the cable parameters  $L_{\text{cable}}$  and  $C_{\text{cable}}$  shall be considered in accordance with EN 60079-14.



# IECEX Certificate of Conformity

Certificate No.: **IECEX EESF 21.0027X**

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Date of issue: 2022-09-22

Issue No: 1

## Equipment (continued):

### Maximum interface values:

#### Electrical values for Group IIC:

U<sub>i</sub> = 30 V  
I<sub>i</sub> = 100 mA  
P<sub>i</sub> = 750 mW  
C<sub>i</sub> = Negligible  
L<sub>i</sub> = Negligible

#### Electrical values for Group IIIC:

U<sub>i</sub> = 30 V  
I<sub>i</sub> = 100 mA  
P<sub>i</sub> = 550 mW @T<sub>a</sub> +100 °C  
P<sub>i</sub> = 650 mW @T<sub>a</sub> +70 °C  
P<sub>i</sub> = 750 mW @T<sub>a</sub> +40 °C  
C<sub>i</sub> = Negligible  
L<sub>i</sub> = Negligible

Table 1.

### Allowed ambient temperature ranges for Gas Group IIC:

Marking, Gas Group IIC	Temperature Class	Ambient temperature
II 1G Ex ia IIC T6 Ga II 1/2G Ex ib IIC T6-T3 Ga/Gb	T6	-40...+80 °C
II 1G Ex ia IIC T5 Ga II 1/2G Ex ib IIC T6-T3 Ga/Gb	T5	-40...+95 °C
II 1G Ex ia IIC T4-T3 Ga II 1/2G Ex ib IIC T6-T3 Ga/Gb	T4-T3	-40...+100 °C

Table 2.

### Allowed ambient temperature ranges for Dust Group IIIC:

Marking, Dust Group IIIC	Power P <sub>i</sub>	Ambient temperature
II 1D Ex ia IIIC T135 °C Da II 1/2D Ex ib IIIC T135 °C Da/Db	750 mW	-40...+40 °C
II 1D Ex ia IIIC T135 °C Da II 1/2D Ex ib IIIC T135 °C Da/Db	650 mW	-40...+70 °C
II 1D Ex ia IIIC T135 °C Da II 1/2D Ex ib IIIC T135 °C Da/Db	550 mW	-40...+100 °C

Table 3.

### Assessing Self-heating of the sensor or the thermowell tip:

For safe operation at hazardous locations with Temperature Classifications T6...T3 (Gas) or T135 °C (Dust) the self-heating of the sensor tip shall be considered. Self-heating is of particular significance when measuring low temperatures.

The self-heating at the sensor tip or thermowell tip depends on the sensor type (RTD/TC), the diameter of sensor and structure of sensor. For self-heating the maximum input power P<sub>i</sub> shall be observed.

Table 3. Manufacturer's R<sub>th</sub> Data for different types of sensors.

Sensor type	Thermal resistance R <sub>th</sub> [°C / W]					
	Resistance thermometer (RTD)			Thermocouple (TC)		
Measuring insert diameter	< 3 mm	3...<6 mm	6...8 mm	< 3 mm	3...<6 mm	6...8 mm
Without thermowell	350	250	100	100	25	10
With Thermowell made from tube material (e.g. B-6k, B-9K, B-6, B-9, A-15, A-22, F-11, etc)	185	140	55	50	13	5
With thermowell – solid material	65	50	20	20	5	1



# IECEX Certificate of Conformity

Certificate No.: **IECEX EESF 21.0027X**

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Date of issue: 2022-09-22

Issue No: 1

If the measuring device for RTD-measuring is using measuring current > 1 mA, the maximum surface temperature of the temperature sensor tip should be calculated and taken to account in accordance with following equation:

$$T = P_o R_{th} + T_{amb}$$

Where:

- $T$  is the surface temperature  
 $P_o$  is the power marked on the associated apparatus  
 $R_{th}$  is the surface temperature rise (K/W) per manufacturer's specification  
 $T_{amb}$  is the ambient temperature at the point of installation i.e. process temperature

For sensors with multiple RTD's embedded, the maximum power values  $P_i$  shall not be exceeded (Not applicable for Multi-point temperature sensor types T-MP / W-MP or T-MPT / W-MPT with segregated Exi circuits).

## PRODUCT NOMENCLATURE:

### MINERAL INSULATED SENSORS:

	DESCRIPTION
T-B-ØK / W-B-ØK	Threaded temperature sensor without neck pipe
T-B-Ø / W-B-Ø	Threaded temperature sensor with neck pipe and thermowell
T-F / W-F	Flanged temperature sensor
T-D / W-D	Weldable temperature sensor
T-A-Ø / W-A-Ø or T-A-Ø-U / W-A-Ø-U	Immersion temperature sensor
T-H-12 / W-H-12	Threaded temperature sensor with neck pipe and sensing element
T-M-Ø / W-M-Ø	Mineral insulated element
W-E-Ø-HST-S / W-E-Ø-HST-CLAMP	Acid proof temperature sensor for hygienic installation
T-MP / W-MP or T-MPT / W-MPT	Multi-point temperature sensor
T-M-303 / W-M-303 or T-M-302 / W-M-302	Mineral insulated thermocouple or resistance sensor with cable
T-M-313 or T-M-314	Mineral insulated thermocouple insert with connector
T-M-N / W-M-N	Mineral insulated insert with connection head

### TUBE SENSORS:

T-CABLE or W-CABLE	Temperature sensor with cable
T-MAGN / W-MAGN	Magnetic temperature sensor
T-BTD / W-BTD	Bearing temperature sensor
T-SCREW / W-SCREW	Threaded temperature sensor with cable
W-M-F	Indoor/outdoor resistance temperature sensor with metal enclosure

### MINERAL INSULATED or TUBE SENSORS:

T-M-P / W-M-P or T-P / W-P	Surface temperature sensor
T-RO-M / W-RO-M or T-RO / W-RO	Pipe surface temperature sensor
T-M-BAJO / W-M-BAJO or T-BAJO / W-BAJO	Bayonet temperature sensor



# IECEX Certificate of Conformity

Certificate No.: **IECEX EESF 21.0027X**

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Date of issue: 2022-09-22

Issue No: 1

## CERAMIC TUBE SENSORS:

T-K / T-AK / T-AKK

Immersible thermocouple sensor with ceramic well

Letter T (TC): Thermocouple sensor elements are e.g. Type J, Type K or Type N Type L, Type R or Type S.; 2xT: Dual thermocouple sensor versions.)

Letter W (RTD): Platinum thermometer sensor elements are e.g. 1 x Pt100/Pt1000 (3-wire); 1 x Pt100/Pt1000 (4-wire), 2 x Pt100/Pt1000 (4-wire); 2xW: Dual resistance sensor versions)

Sensors with permanent cable can be manufactured with following cable types. Temperature values are maximum values for cable sheath operating temperatures, not for process temperature to be measured.

SIL = silicone, max. +180 °C

FEP = fluoropolymer, max. +205 °C

GGD = glass silk cable/metal braid jacket, max. +350 °C

DFD = FEP wire insulation/braid shield/FEP jacket, max. +205 °C

SDS = silicone wire insulation/braid shield/silicone jacket, only available as 2 wire cable, max. +180 °C

TDT = fluoropolymer wire insulation/braid shield/ fluoropolymer jacket, max. +205 °C

FDS = FEP wire insulation/braid shield/silicone jacket, max. +180 °C

FS = FEP wire insulation/silicone jacket, max. +180 °C



# IECEX Certificate of Conformity

Certificate No.: **IECEX EESF 21.0027X**

Page 7 of 7

Date of issue: 2022-09-22

Issue No: 1

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

Editorial change in cable types.

## EU Declaration of Conformity

We, the manufacturer Lapp Automaatio Oy  
Martinkyläntie 52  
FI-01720 Vantaa, Finland

declare that the following product

Temperature sensor types

### MINERAL INSULATED SENSORS:

T-B-ØK / W-B-ØK  
T-B-Ø / W-B-Ø  
T-F / W-F  
T-D / W-D  
T-A-Ø / W-A-Ø or T-A-Ø-U / W-A-Ø-U  
T-H-12 / W-H-12  
T-M-Ø / W-M-Ø  
W-E-Ø-HST-S / W-E-Ø-HST-CLAMP  
T-MP / W-MP or T-MPT / W-MPT  
T-M-303 / W-M-303 or T-M-302 / W-M-302  
T-M-313 or T-M-314  
T-M-N / W-M-N

### TUBE SENSORS:

T-CABLE or W-CABLE  
T-MAGN / W-MAGN  
T-BTD / W-BTD  
T-SCREW / W-SCREW  
W-M-F

### MINERAL INSULATED or TUBE SENSORS:

T-M-P / W-M-P or T-P / W-P  
T-RO-M / W-RO-M or T-RO / W-RO  
T-M-BAJO / W-M-BAJO or T-BAJO / W-BAJO

### CERAMIC TUBE SENSORS:

T-K / T-AK / T-AKK

### DESCRIPTION

Threaded temperature sensor without neck pipe  
Threaded temperature sensor with neck pipe and thermowell  
Flanged temperature sensor  
Weldable temperature sensor  
Immersible temperature sensor  
Threaded temperature sensor with neck pipe and sensing element  
Mineral insulated element  
Acid proof temperature sensor for hygienic installation  
Multi-point temperature sensor  
Mineral insulated thermocouple or resistance sensor with cable  
Mineral insulated thermocouple insert with connector  
Mineral insulated insert with connection head  
  
Temperature sensor with cable  
Magnetic temperature sensor  
Bearing temperature sensor  
Threaded temperature sensor with cable  
Indoor/outdoor resistance temperature sensor with metal enclosure  
  
Surface temperature sensor  
Pipe surface temperature sensor  
Bayonet temperature sensor  
  
Immersible thermocouple sensor with ceramic well

Letter T (TC): Thermocouple sensor elements are e.g. Type J, Type K or Type N Type L, Type R or Type S.; 2xT: Dual thermocouple sensor versions.

Letter W (RTD): Platinum thermometer sensor elements are e.g. 1 x Pt100/Pt1000 (3-wire); 1 x Pt100/Pt1000 (4-wire),  
2 x Pt100/Pt1000 (4-wire); 2xW: Dual resistance sensor versions)

are in conformity with the Directive 2014/34/EU.

The declaration is based on the EU-type Examination Certificate  
EESF 21 ATEX 043X

and the Production Quality Assessment Notification EESF 18 ATEX Q 006

issued by Eurofins Electric and Electronics Finland Oy (Notified Body number 0537),  
address: Kivimiehentie 4, P.O. Box 47, FI-02151 Espoo, Finland.

The marking of the equipment or protective system include the following:

	II 1G	Ex ia IIC T6...T3 Ga
	II 1/2G	Ex ib IIC T6...T3 Ga/Gb
	II 1 D	Ex ia IIIC T135 °C Da
	II 1/2D	Ex ib IIIC T135 °C Da/Db

The compliance with the Essential Health and Safety Requirements of the Directive is met by the compliance with the following standards:

EN IEC 60079-0:2018

EN 60079-11:2012

IEC 60079-26:2021

“The revised (now harmonized) standards have been compared to the standards used for certification purposes and that no changes in the “state of the art” apply to the equipment.”

Vantaa 30.09.2022



Vesa Tepponen

Business Line Manager of Lapp Automaatio Oy

**Lapp Automaatio Oy**  
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