



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification Scheme for Explosive Atmospheres

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

Certificate No.: IECEx INE 12.0033X Issue No: 2 Certificate history:  
Status: **Current** Issue No. 2 (2017-07-06)  
Date of Issue: **2017-07-06** Page 1 of 4 Issue No. 1 (2016-03-08)  
Applicant: **THERMO ENGINEERING S.r.l**  
Via Giuseppina, 19  
I - 26030 Malagnino (CR)  
**Italy**  
Equipment: **Temperature probes type 215TE\_/\_/Exia - ExnA/Extc**  
*Optional accessory:*  
Type of Protection: **ia, nA and tc**  
Marking:  
Ex ia IIC T6, T5, T4 Ga  
Ex nA IIC T6, T5, T4 Gc  
Ex ia IIIC T85°C, T100°C, T135°C Da  
Ex tc IIIC T85°C, T100°C, T135°C Dc IP65

Approved for issue on behalf of the IECEx  
Certification Body:

Thierry HOUEIX

Position:

Ex Certification Officer

Signature:  
(for printed version)

*Thierry Houeix*

Date:

2017-07-06

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 the [Official IECEx Website](http://www.iecex.com).

Certificate issued by:

**INERIS**  
Institut National de l'Environnement Industriel  
et des Risques, BP n2  
Parc Technologique ALATA  
France



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Manufacturer: **THERMO ENGINEERING S.r.l**  
Via Giuseppina, 19  
I - 23030 Malagnino (CR)  
**Italy**

Additional Manufacturing location(s):

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 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"
<b>IEC 60079-15 : 2010</b> Edition:4	Explosive atmospheres - Part 15: Equipment protection by type of protection "n"
<b>IEC 60079-31 : 2013</b> Edition:2	Explosive atmospheres - Part 31: Equipment dust ignition protection by enclosure "t"

*This Certificate **does not** indicate compliance with electrical 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:

[FR/INE/ExTR12.0032/00](#)

[FR/INE/ExTR12.0032/01](#)

[FR/INE/ExTR12.0032/02](#)

Quality Assessment Report:

[FR/INE/QAR11.0009/05](#)



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## Schedule

### EQUIPMENT:

*Equipment and systems covered by this certificate are as follows:*

These temperature probes are thermocouple or RTD ( Resistance Temperature Detector) sensors.

There are 10 probes versions which get the reference from 215TE02/Exia - ExnA/Extc to 215TE11/Exia - ExnA/Extc.

The enclosure materials of all sensors are metallic except for the type 215TE06/Exia - ExnA/Extc which is in Teflon or fiber glass and epoxy resin.

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

In Ex i and Ex nA versions:

- The alternative type 215TE06/Exia - ExnA/Extc must be only settled inside an Ex protective metallic enclosure (stator of the engine for example).

In Ex nA version:

- For the equipment with a permanently connected cable, the user will have to connect the free extremity of cable either in a non-explosive atmosphere, or in an enclosure protected by a recognised type of protection suitable for the zone.



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## DETAILS OF CERTIFICATE CHANGES (for issues 1 and above):

### Change of issue 1:

- Possibility to use dual probe.
- Updating for the IEC 60079-31 standard : IEC 60079-31 : 2014 Edition 2 is used.

### Change of issue 2:

- IEC 60079-26 standard is withdrawn (not required when the equipment is "ia" or "ma").
- Modification of the parameters relating to the safety for probes type Ex nA and Ex tc.

### **Annex:**

[IECEX INE 12.0033X-02\\_Annex.pdf](#)



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## PARAMETERS RELATING TO THE SAFETY

### Electrical characteristics for Exi version :

Intrinsic safety parameters without transmitter (Group IIC/III, class T6/T85°C):

Ui (V)	Ii (mA)	Pi (mW)	Ci (nF)	Li (µF)
30	100	135	5 *	30 *

\* considering 30 m of cable

When there are 2 Ex i (dual probe) circuits in the same probe and the separation distance through the solid insulation is < 0.5 mm and/or < 0,7 mm through the compound/resin (see 6.3.5 of EN/IEC 60079-11), the parameters for each Ex i circuit (i.e. for each probe) are (Group IIC/III, class T6/T85°C) :

Ui (V)	Ii (mA)	Pi (mW)	Ci (nF)	Li (µF)
20	50	67	5 *	30 *

\* considering 30 m of cable

Further details as per tables below.

For single probe, maximum input characteristics :

Maximum Input per Group:

Group	Ui (V)	Ii (mA)	Ci (nF)	Li (µF)
IIC or III	30	100	5 *	30 *
IIB or III	30	250	5 *	30 *
IIA	30	340	5 *	30 *

\* Maximum 30m of cable is considered.

Maximum Power input (Pi) with Class of Temperature and Ambient Temperature.

For Class of Temperature T4 (T135°C)

Maximum ambient temperature °C	Maximum Power Input (Pi) W
40	1.216
50	1.081
60	0.945
70	0.810
85	0.608
120	0.135

For Class of Temperature T5 (T100°C)

Maximum ambient temperature °C	Maximum Power Input (Pi) W
40	0.743
50	0.608
60	0.472
70	0.337
85	0.135



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For Class of Temperature T6 (T85 °C)

Maximum ambient temperature °C	Maximum Power Input (Pi) W
40	0.540
50	0.405
60	0.270
70	0.135

For dual probe, maximum input characteristics (for each probe) :  
Maximum Input per Group:

Group	Ui (V)	Ii (mA)	Ci (nF)	Li (µF)
IIC or III	20	50	5 *	30 *
IIB or III	20	130	5 *	30 *
IIA	20	190	5 *	30 *

\* Maximum 30m of cable is considered.

Maximum Power input (Pi) with Class of temperature and Ambient Temperature.

For Class of Temperature T4 (T135 °C).

Maximum ambient temperature °C	Maximum Power Input (Pi) W
40	0.608
50	0.540
60	0.472
70	0.405
85	0.304
120	0.067

For Class of Temperature T5 (T100 °C).

Maximum ambient temperature °C	Maximum Power Input (Pi) W
40	0.371
50	0.304
60	0.236
70	0.168
85	0.067

For Class of Temperature T6 (T85 °C).

Maximum ambient temperature °C	Maximum Power Input (Pi) W
40	0.270
50	0.202
60	0.135
70	0.067

**NOTE** for double probe used as a single probe: In Exia equipment with two elements (double RTD or double TC), end user can connect one alone element applying the one probe characteristics and parameters.

**WARNING 1:** End user must assure (condemn) the not connected probe: this second probe (Exia circuit) has not and never to be used.

**WARNING 2:** End user need to apply a procedure to forbids the connection of the second probe (i.e. cut of wires).



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## Electrical characteristics for ExnA and Extc versions:

For Single sensor, maximum input characteristics .

Group	U <sub>max</sub> (V)	I <sub>max</sub> (mA)
IIC ou /or III	30	100
IIB ou /or III	30	250
IIA	30	340

Maximum Power input (P<sub>max</sub>) with Class of Temperature and Ambient Temperature:

For Class of Temperature T4 (T135°C) :

Maximum ambient temperature °C	Maximum Power Input (P <sub>max</sub> ) W
40	1.216
50	1.081
60	0.945
70	0.810
85	0.608
120	0.135

For class of Temperature T5 (T100°C).

Maximum ambient temperature °C	Maximum Power Input (P <sub>max</sub> ) W
40	0.743
50	0.608
60	0.472
70	0.337
85	0.135

For class of Temperature T6 (T85°C).

Maximum ambient temperature °C	Maximum Power Input (P <sub>max</sub> ) W
40	0.540
50	0.405
60	0.270
70	0.135

For Dual probe, maximum input characteristics (for each probe).

Maximum input per Group :

Group	U <sub>max</sub> (V)	I <sub>max</sub> (mA)
IIC ou / or III	20	50
IIB ou / or III	20	130
IIA	20	190



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Maximum Power input (Pmax) on each sensor with Class of Temperature and Ambient Temperature:

For Class of Temperature T4 (T135°C).

Maximum Ambient Temperature °C	Maximum Power Input (Pmax) W
40	0.608
50	0.540
60	0.472
70	0.405
85	0.304
120	0.067

For Class of Temperature T5 (T100°C).

Maximum Ambient Temperature °C	Maximum Power input (Pmax) W
40	0.371
50	0.304
60	0.236
70	0.168
85	0.067

For the Class of Temperature T6 (T85°C).

Maximum Ambient Temperature °C	Maximum Power input (Pmax) W
40	0.270
50	0.202
60	0.135
70	0.067





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## **MARKING**

Marking has to be readable and indelible; it has to include the following indications:

### A - With the type of protection intrinsic safety "ia":

- THERMO ENGINEERING S.r.l
- I - 26030 Malagnino (CR)
- 215TE\_\_ /Exia \*
- (Serial number)
- Ex ia IIC T (1) Ga
- Ex ia IIIC T (2) Da
- Tamb. = -50°C to + (3)

### B - With the types of protection "nA" and "tc":

- THERMO ENGINEERING S.r.l
- I - 26030 Malagnino (CR)
- 215TE\_\_ /ExnA/Extc \*
- (Serial number)
- Ex nA IIC T (1) Gc
- Ex tc IIIC T (2) Dc IP65
- Tamb. = -50°C to + (3)

\* Underscore may be replaced by figure according to the alternative.

(1) - (2) - (3) Temperature class depends of maximal ambient temperature, see table below

Ambient temperature (3)	T (1)	T (2)
120°C	T4	T135°C
85°C	T5	T100°C
70°C	T6	T85°C

## **ROUTINE EXAMINATIONS AND TESTS**

For the types of protection "nA" and "tc" and only when RTD sensors are used, each temperature probes has to have successfully passed the following routine test before delivery:

- In accordance with clause 23.2.1 of the EN 60079-15 standard, a test of dielectric strength on each of the different circuits, performed according to the relevant standards.