



# 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.:	<b>IECEX LCIE 12.0026X</b>	Page 1 of 4	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 4	Issue 3 (2017-02-21)
Date of Issue:	2023-01-11		Issue 2 (2015-11-09)
			Issue 1 (2015-08-04)
			Issue 0 (2012-10-25)
Applicant:	<b>PCB Piezotronics Inc.</b> 3425 Walden Avenue Depew, New York 14043 <b>United States of America</b>		
Equipment:	<b>High temperature pressure transducers - Type: 176XYY/MZZZ-AA series</b>		
Optional accessory:			
Type of Protection:	<b>Ex ec</b>		
Marking:	Ex ec IIC T6...T770 °C Gc <i>(refer to Annex for full marking)</i>		

Approved for issue on behalf of the IECEx  
Certification Body:

**Julien GAUTHIER**

Position:

**Certification Officer**

Signature:  
(for printed version)



Date:  
(for printed version)

2023-01-11



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Certificate issued by:

**Laboratoire Central des Industries Electriques (LCIE)**  
**33 Avenue du General Leclerc**  
**FR-92260 Fontenay-aux-Roses**  
**France**





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Manufacturer: **PCB Piezotronics Inc.**  
3425 Walden Avenue  
Depew, New York 14043  
**United States of America**

Manufacturing locations: **PCB Piezotronics Inc.**  
3425 Walden Avenue  
Depew, New York 14043  
**United States of America**

**PCB Piezotronics of North Carolina Inc.**  
10869 Hwy 903  
Halifax, NC 27839  
**United States of America**

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 60079-7:2017](#) Explosive atmospheres - Part 7: Equipment protection by increased safety "e"  
Edition:5.1

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 Reports:

[FR/LCIE/ExTR12.0029/00](#)  
[FR/LCIE/ExTR23.0002/00](#)

[FR/LCIE/ExTR15.0070/00](#)

[FR/LCIE/ExTR16.0088/00](#)

Quality Assessment Report:

[NL/DEK/QAR14.0004/06](#)



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**EQUIPMENT:**

Equipment and systems covered by this Certificate are as follows:

The pressure transducer consists of a metallic hermetically sealed housing, containing only a piezoelectric sensing element assembly, with an integral cable fitted with a connector at its end.

The transducer can also be manufactured with an integral connector (without cable) welded on the transducer's housing.

Instructions for Use: document No. 35030.

**Range details:** Refer to the Annex

**Ratings:** Refer to the Annex

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

Refer to the Annex for full Specific Conditions of Use.



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

### **Issue 1:**

- Modification of the piezoelectric element.
- Modification of the marking for the temperature classification.
- Modification of the temperature classification in the Specific Conditions of Use.

### **Issue 2:**

- Addition of a manufacturing location.

### **Issue 3:**

- Update of the lower ambient temperature from 0 °C to -70 °C.

### **Issue 4:**

- Normative update according to IEC 60079-0 Ed. 7.0 and IEC 60079-7 Ed. 5.1.
- Expansion of the ambient operating temperature range up to  $T_{amb} \leq +760$  °C.
- Adding of a variant with integral connector (instead of the cable).
- Update of Specific Conditions of Use.

### **Annex:**

[Annex 01 to Certificate IECEx LCIE 12.0026X issue 4\\_1.pdf](#)



# Annex 01 to Certificate IECEX LCIE 12.0026X issue 4



## MARKING

**Complete marking:**

PCB Piezotronics Inc. or IMI Sensors or IMI

Address: ...

Type: 176XYY/MZZZ-AA <sup>(1)</sup>

Serial number: ...

Year of construction: ...

Ex ec IIC T6...T770 °C Gc <sup>(2)</sup>

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-70 °C ≤ T<sub>amb</sub> ≤ +... °C <sup>(2)</sup>

**WARNING – DO NOT CONNECT OR DISCONNECT WHEN ENERGIZED**

**Reduced marking:**

PCB Piezotronics Inc. or IMI Sensors or IMI

Type: 176XYY/MZZZ-AA <sup>(1)</sup>

Serial number: ...

Year of construction: ...

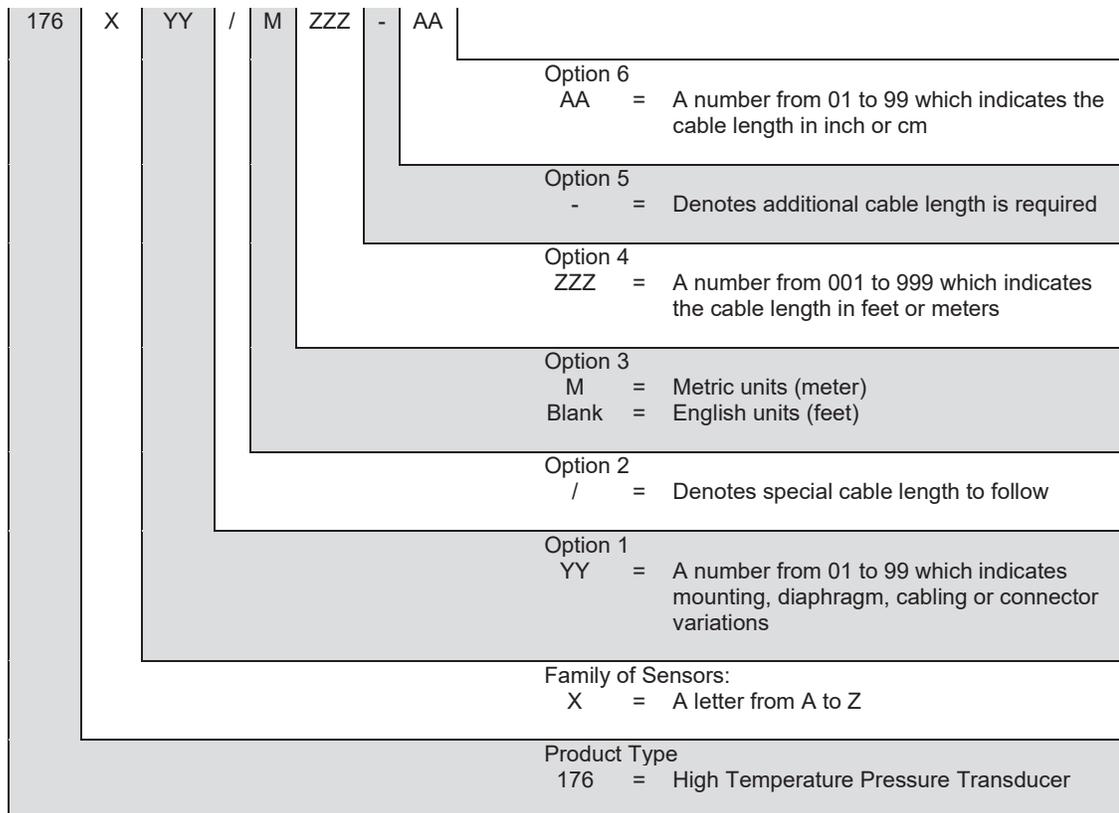
Ex ec IIC T6...T770 °C Gc <sup>(2)</sup>

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<sup>(1)</sup> Completed as per the type

<sup>(2)</sup> See the Specific Conditions of Use (the temperature class depends on T<sub>amb</sub> max.)

## RANGE DETAILS





## Annex 01 to Certificate IECEX LCIE 12.0026X issue 4



### FULL CONDITIONS OF CERTIFICATION

- a. Ambient operating temperature range & Temperature classification:

Ambient operating temperature range	Temperature classification
$-70\text{ °C} \leq T_{\text{amb}} \leq +80\text{ °C}$	T6
$-70\text{ °C} \leq T_{\text{amb}} \leq +95\text{ °C}$	T5
$-70\text{ °C} \leq T_{\text{amb}} \leq +130\text{ °C}$	T4
$-70\text{ °C} \leq T_{\text{amb}} \leq +195\text{ °C}$	T3
$-70\text{ °C} \leq T_{\text{amb}} \leq +290\text{ °C}$	T2
$-70\text{ °C} \leq T_{\text{amb}} \leq +440\text{ °C}$	T1
$-70\text{ °C} \leq T_{\text{amb}} \leq +520\text{ °C}$	T530 °C
$-70\text{ °C} \leq T_{\text{amb}} \leq +650\text{ °C}$	T660 °C
$-70\text{ °C} \leq T_{\text{amb}} \leq +760\text{ °C}$	T770 °C

- b. The mounting of the transducer into an installation must be carried out in such a way that transducer metallic body and cable shield are reliably connected to the system earth.
- c. The transducer shall be connected to an external power supply delivering a maximum of 30 V and 300 mA.
- d. The mating connector provided by the end user shall be in accordance with all applicable clauses of IEC 60079-0 and IEC 60079-7 for a zone 2 application. A minimum degree of protection IP54 according to IEC 60079-0 shall be ensured. The mating connector shall not be connected or disconnected when energized.
- e. WARNING – DO NOT CONNECT OR DISCONNECT WHEN ENERGIZED

### RATINGS

Ambient operating temperature range:  $-70\text{ °C} \leq T_{\text{amb}} \leq +760\text{ °C}$   
Maximum input voltage  $U_{\text{max}}$  : 30 V d.c.  
Maximum input current  $I_{\text{max}}$  : 300 mA

### ROUTINE TESTS

In accordance with clause 7.1 of standard IEC 60079-7, each product manufactured shall be subjected to a dielectric strength test at 500 V a.c. for 1 minute. Alternatively the test may be carried out at 600 V a.c. for 100 ms. No breakdown shall occur.