



# 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 CSA 05.0001X issue No.:2

Status: **Current**

Date of Issue: **2011-09-29**

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Certificate history:

Issue No. 2 (2011-9-29)  
Issue No. 1 (2008-5-5)  
Issue No. 0 (2005-1-18)

Applicant: **Crystal Engineering Corp.**  
720 Aerovista Place Suite B  
San Luis Obispo, CA 93401  
**United States of America**

Electrical Apparatus: **Series XP2i and XP2i-DD Digital Test Gauges**  
*Optional accessory:*

Type of Protection: **Ex ia**

Marking: **IECEx CSA 05.0001X**  
**Ex ia IIC T4**

*Approved for issue on behalf of the IECEx  
Certification Body:*

Dorin Stochitoiu

*Position:*

Technical Advisor

*Signature:  
(for printed version)*

*Date:*

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:

**CSA International**  
**178 Rexdale Boulevard**  
**Toronto, Ontario M9W 1R3**  
**Canada**  
**and**  
**1707 - 94th Street**  
**Edmonton, AB T6N 1E6**  
**Canada**





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Manufacturer: **Crystal Engineering Corp.**  
720 Aerovista Place Suite B  
San Luis Obispo, CA 93401  
**United States of America**

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:

**IEC 60079-0 : 2004** Electrical apparatus for explosive gas atmospheres - Part 0: General requirements  
Edition: 4.0

**IEC 60079-11 : 2006** Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition: 5

*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*

IECEx ATR:  
**CA/CSA/ExTR05.0001/02**  
**CA/CSA/ExTR08.0004/00**  
**CA/CSA/ExTR08.0004/01**

File Reference:  
**187869-1596849**  
**187869-2032167**  
**187869-2448716**



# IECEx Certificate of Conformity

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## Schedule

### EQUIPMENT:

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

Series XP2i and XP2i-DD digital test gauges; Temperature Code T4; Intrinsically Safe when powered by one of the following batteries (3-cells, AA, max 4.95V);

- Rayovac Maximum Plus
- Eveready (Energizer) E91
- Eveready (Energizer) EN91
- Duracell MN1500.

Note: Prefixes and Suffixes are added to denote pressure range and options.

### CONDITIONS OF CERTIFICATION: YES as shown below:

- Only the batteries listed above may be used.
- Batteries must be changed in an area known to be non-hazardous.
- Serial interface must not be operated within a hazardous atmosphere.



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

CA/CSA/ExTR05.0001/02 - CSA Project Number CA/CSA/05/TR187869-1596849 - IECEx Test Report for Digital Test Guages for Models XP2i and XP2i-DD.

CA/CSA/ExTR08.0004/00 - CSA Project Number CA/CSA/08/TR187869-2032167 (1596849) - Update to include new enclosure details and modified electronics assembly. No changes to the IS protection of the equipment.

CA/CSA/ExTR08.0004/01 - CSA Project Number CA/CSA/08/TR187869-2448716 (1596849) - Removed reference to a maximum working pressure. None of the listed standards reference any testing based on the maximum working pressure so at the request of the client it was removed.

QAR Reference Number: CA/CSA/QA07.0004/02

(1) **EC-TYPE EXAMINATION CERTIFICATE**

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

(3) EC-Type Examination Certificate Number: **KEMA 04ATEX1053 X** Issue Number: **3**

(4) Equipment: **Digital Test Gauge Model Series XP2i and XP2i-DD**

(5) Manufacturer: **Crystal Engineering Corporation**

(6) Address: **708 Fiero Lane, Suite 9, San Luis Obispo, CA 93401, USA**

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

(8) KEMA Quality B.V., notified body number 0344 in accordance with Article 9 of the Council Directive 94/9/EC of 23 March 1994, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the directive.

The examination and test results are recorded in confidential test report number 211603900.

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

**EN 60079-0 : 2006**

**EN 60079-11 : 2007**

**EN 60079-26 : 2007**

(10) If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-Type Examination Certificate relates only to the design, examination and tests of the specified equipment according to the Directive 94/9/EC. Further requirements of the directive apply to the manufacturing process and supply of this equipment. These are not covered by this certificate.

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



**II 1 G Ex ia IIC T4**

This certificate is issued on July 16, 2008 and, as far as applicable, shall be revised before the date of cessation of presumption of conformity of (one of) the standards mentioned above as communicated in the Official Journal of the European Union.

KEMA Quality B.V.



P.T. van Nijen  
Certification Manager





(13) **SCHEDULE**

(14) **to EC-Type Examination Certificate KEMA 04ATEX1053 X** Issue No. 3

(15) **Description**

The Digital Test Gauges Model Series XP2i and XP2,-DD are battery powered devices for measuring gauge pressures up to 70000kPa, 700 bar or 10000 psi. The Test Gauges are provided With a display and buttons for control.

Ambient temperature range -20 °C ... +40°C

**Electrical data**

- |                  |   |
|------------------|---|
| Supply           | 3 non-rechargeable AA type batteries:<br>Rayovac type Max Plus<br>Eveready (Energizer) type E91<br>Eveready (Energizer) type EN91<br>Duracell type MN1500 |
| RS 232 interface | may not be used within the hazardous area   |

**Installation instructions**

The manual provided with the equipment shall be followed in detail to assure safe operation.

(16) **Test Report**

KEMA No. 211603900.

(17) **Special conditions for safe use**

Because the enclosure of the Digital Test Gauge Model Series XP2i and XP2i-DD is made of aluminium, if it is mounted in an area where the use of category 1 G apparatus is required, it must be installed such, that, even in the event of rare incidents, ignition sources due to impact and friction sparks are excluded.

(18) **Essential Health and Safety Requirements**

Covered by the standards listed at (9).

(19) **Test documentation**

As listed in Test Report No. 211603900.




## EC Declaration of Conformity

Issued in accordance with the ATEX Directive 94/9/EC

Manufacturer: Crystal Engineering Corporation  
708 Fiero Lane, Suite 9  
San Luis Obispo, CA, 93401  
USA

Products: Digital Test Gauge Model Series  
XP2I Series and XP2I-DD Series

*is in conformity with the provisions of the Directive 94/9/EC for use in  
potentially explosive atmospheres*

Marking:  II 1 G Ex ia IIC T4

Harmonized Standards: EN 60079-0: 2006  
EN 60079-11: 2007  
EN 60079-26: 2007

EC-Type Examination Certificate: KEMA 04ATEX1053 X  
KEMA Quality B.V., Notified Body 0344  
Utrechtseweg 310, 6812 AR Arnhem  
The Netherlands

EC Directives: 94/9/EC ATEX Directive  
2004/108/EC EMC Directive  
97/23/EC PED Directive

A handwritten signature in black ink, appearing to read 'D. Porter'.

Name: David K. Porter, P.E.  
Title: Director of Engineering  
Date: 02 March 2012

# EC Declaration of Conformity



I/We

**Crystal Engineering Corporation**

of

708 Fiero Lane, Suite 9  
San Luis Obispo, CA, 93401  
USA

declare that

**Digital Pressure Gauge  
XP2I Series and XP2I-DD Series  
(Battery or DC Power Supply Accessory)**

In accordance with the following directives

**2004/108/EC**

**The Electromagnetic Compatibility Directive per:**

EN 55011: 2006

EN 61326: 2006

has been designed and manufactured to the following specifications

EN 55011: 2006	Conducted Emissions	Class A	Pass
EN 55011: 2006	Radiated Emissions	Class A	Pass
EN 61000-3-2	Current Harmonic Emissions		Pass
EN 61000-3-3	Voltage Variations & Flicker		Pass
EN 61326-1-2006 / EN 61000-4	Electrostatic Discharge		Pass
EN 61326-1-2006 / EN 61000-4-3	Radiated EM Field		Pass
EN 61326-1-2006 / EN 61000-4-4	Electrical Fast Transient / Burst		Pass
EN 61326-1-2006 / EN 61000-4-5	Surge Immunity		Pass
EN 61326-1-2006 / EN 61000-4-6	RF Conducted Disturbances		Pass
EN 61326-1-2006 / EN 61000-4-8	Magnetic Field Immunity		Pass
EN 61326-1-2006 / EN 61000-4-11	Voltage Dips and Interruptions		Pass

I hereby declare that the equipment named above has been designed to comply with the relevant sections of the above referenced specifications. The unit complies with all essential requirements of the Directives

David K. Porter, P.E.  
(NAME OF AUTHORIZED PERSON)

Director of Engineering  
(TITLE OF AUTHORIZED PERSON)

  
(SIGNATURE OF THE AUTHORIZED PERSON)

28 October 2008  
(DATE OF ISSUE)



CSA INTERNATIONAL

# Certificate of Compliance

**Certificate:** 1450352 (LR 110579)

**Master Contract:** 187869

**Project:** 2032169

**Date Issued:** 2008/04/28

**Issued to:** Crystal Engineering Corp.  
708 Fiero Lane, Suite 9  
San Luis Obispo, CA 93401  
USA  
Attention: Bill Ehrgott

*The products listed below are eligible to bear the CSA Mark shown with adjacent indicators 'C' and 'US'*



**Issued by:** Wesley Van Hill, C.E.T.

**Authorized by:** Patricia Pasemko, Operations Manager

## PRODUCTS

**CLASS 2258 03** - PROCESS CONTROL EQUIPMENT - Intrinsically Safe and Non - Incendive Systems - For Hazardous Locations

**CLASS 2258 83** - PROCESS CONTROL EQUIPMENT-Intrinsically Safe and Non-Incendive - Systems-For Hazardous Locations-Certified to U.S. Standards

### **Class I, Division 1, Groups A, B, C and D**

Series XP2i and XP2i-DD digital test gauges; Temperature Code T4; Maximum Working Pressure 10,000 PSI; Intrinsically Safe when powered by one of the following batteries (3-cells, AA, max 4.95V); Rayovac

The 'C' and 'US' indicators adjacent to the CSA Mark signify that the product has been evaluated to the applicable CSA and ANSI/UL Standards, for use in Canada and the U.S., respectively. This 'US' indicator includes products eligible to bear the 'NRTL' indicator. NRTL, i.e. National Recognized Testing Laboratory, is a designation granted by the U.S. Occupational Safety and Health Administration (OSHA) to laboratories which have been recognized to perform certification to U.S. Standards.



**Certificate:** 1450352 (LR 110579)

**Master Contract:** 187869

**Project:** 2032169

**Date Issued:** 2008/04/28

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Maximum Plus, Eveready (Energizer) E91, Eveready (Energizer) EN91, Duracell MN1500.

**Note:** Prefixes and Suffixes are added to denote pressure range and options.

**APPLICABLE REQUIREMENTS**

CSA Standard C22.2 No. 0-M1991 - General Requirements - Canadian Electrical Code Part II

CSA Standard C22.2 No. 157-M1992 - Intrinsically Safe and Non-Incendive Equipment for Use in Hazardous Locations

UL Standard 913, Seventh Edition - Intrinsically Safe Apparatus and Associated Apparatus for use in Class I, II, III, Division 1, Hazardous (Classified) Locations



## *Supplement to Certificate of Compliance*

**Certificate:** 1450352

**Master Contract:** 187869

*The products listed, including the latest revision described below, are eligible to be marked in accordance with the referenced Certificate.*

### **Product Certification History**

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<b>Project</b>	<b>Date</b>	<b>Description</b>
2032169	2008/04/28	Revision of 1450352 to include changes to IS Pressure Guages
1585088	2004/08/10	Update to 1450352 to include Revision F drawings.
1450352	2003/10/31	Evaluation for Certification as I.S for Class I Div 1 Groups A,B,C & D

February 9, 2009

Certification No: CTC 8930A

Attention: Bill Ehrgott  
Crystal Engineering  
708 Fiero Lane, Suite 9  
San Luis Obispo, CA 93401, USA



Cascade Technical Sciences  
5245-A NE Elam Young Pkwy  
Hillsboro OR, 97124  
Phone: (503) 648-1818  
Fax: (503) 648-1798  
www.cascadetek.com

Reference: a. per CEI/IEC 60529: 2001  
b. PO# 009611-00  
c. Quote CTQ 7028  
d. Cascade TEK Job No. 8930



### CERTIFICATION

Cascade Technical Sciences hereby certifies that Two (2) Crystal Engineering XP2i Series and XP2i-DD Series Digital Pressure Gauges, M/N and S/N listed below, were subjected to the following tests:

1. Dust Test per Reference (a) (IP-6X), Category 2, Paragraph 13.4 and (c) Item 1, sample was exposed to 8 hours of dust exposure using talcum powder as dust with a concentration level of 2kg/m<sup>3</sup>. M/N 10,000 PSI, S/N 488842. No dust intrusion was noted.
2. Temporary Immersion Test per Reference (a) (ip-X7), Paragraph 14.2.7 and (c) Item 2, sample was immersed in 1 meter of water for a period of 30 minutes. No water intrusion was found in the electrical device. M/N 500 PSI, S/N 960519.

Testing was done in accordance with the above references as evidenced and reported in the accompanying data. The test samples were returned to the customer's facility for evaluation.

The original of this report is on file at Cascade Technical Sciences, Inc. under the above referenced certification number for review by authorized personnel. The results of the testing reported herein relate only to the actual items tested.

Respectfully submitted,

David Bowles  
Quality Manager  
Cascade Technical Sciences, Inc.

This test certification shall not be reproduced, except in full, without written authorization from Cascade Technical Sciences.  
Total number of pages in this document is 14.

The objective of this test program was to subject customer provided test hardware to environmental simulation in compliance with customer stated specification, including any authorized modification, deviations or concessions to the original requirements. The hardware consisted of items identified in the appropriate sections of this report. In addition to test hardware identification, each section contains information that describes the associated test setup and performance and the resulting data. CascadeTEK, Inc measuring instruments used in testing were calibrated according to the requirements of ANSI/NCSL Z540-1-1944, ISO/IEC 17025-2005 and are NIST traceable. Calibration records are on file and available for inspection by request. Because the test methods are well established and are qualitative or semi-quantitative in nature, CascadeTEK, Inc does not apply measurement uncertainty unless obligated by contract. Measured value related to the corresponding tolerance requirement is used to decide whether a test meets the requirements of the specification. Any test hardware operational setups and resulting evaluations or inspections performed by the customer are not included in this report, unless they were explicitly requested. While observations and/or specification compliance statements may be reported, no interpretations or opinions regarding customer product performance are intended. Unless otherwise indicated in the appropriate report section, all contract obligations were met and the test objective achieved.