



1 **TYPE EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres 2014/34/EU

3 Certificate Number: **Sira 15ATEX4356X** Issue: **4**

4 Equipment: **CSI 2140 Machinery Health Analyzer**

5 Applicant: **Computational Systems Inc.** A business unit of Emerson

6 Address: 835 Innovation Drive
Knoxville
Tennessee 37932
U.S.A.

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

8 Sira Certification Service certifies that this equipment has been found to comply with the Essential Health and Safety Requirements that relate to the design of Category 3 equipment, which is intended for use in potentially explosive atmospheres. These Essential Health and Safety Requirements are given in Annex II to European Union Directive 2014/34/EU of the European Parliament and of the Council, 26 February 2014.

The examination and test results are recorded in the confidential reports listed in Section 14.2.

9 Compliance with the Essential Health and Safety Requirements, with the exception of those listed in the schedule of this certificate, has been assessed by reference to:

EN 60079-0:2012/A11:2013 EN 60079-11:2012

The above list of documents may detail standards that do not appear on the UKAS Scope of Accreditation, but have been added through Sira's flexible scope of accreditation, which is available on request.

10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to Specific Conditions of Use specified in the schedule to this certificate.

11 This Type Examination Certificate relates only to the design of the specified equipment, and not to specific items of equipment subsequently manufactured.

12 The marking of the equipment shall include the following:



II 3G
Ex ic [ic] IIC T4 Gc
Ta = -20°C to +50°C

Project Number 70162561

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C Ellaby
Deputy Certification Manager

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SCHEDULE

TYPE EXAMINATION CERTIFICATE

**Sira 15ATEX4356X
Issue 4**

13 DESCRIPTION OF EQUIPMENT

The CSI 2140 Machinery Health Analyzer is a portable, battery operated, vibration analyzer used to collect data from rotating equipment in process plants, perform on-site analysis of the machine and export results for storage and further analysis. It supports up to four channels to collect data from vibration sensors and other sensors for displaying, processing and analyzing of the collected data for preventative purposes.

The overall size of the CSI 2140 is approximately 248 mm x 226 mm x 40 mm and the enclosure provides an ingress protection level of IP 54. The IP65 marking on the product label is based on testing conducted to EN 60529 only, whereas, IP 54 was achieved after thermal conditioning and mechanical testing to EN 60079-0. The power is supplied by an integral 7.2 Vdc, 11.6 Ah Lithium battery pack.

The equipment has the following entity parameters:

Voltage Input	Tachometer Connection		Accelerometer Output
	Scenario 1	Scenario 2	
Ui = ±30 Vdc	Ui = ±30 Vdc	Uo = +26.7 Vdc	Uo = +25.2 Vdc
Ii = 100 mA	Ii = 100 mA	Io = 135 uA	Io = 146 mA
Pi = 665 mW	Pi = 665 mW	Po = 1.52 mW	Po = 920 mW
Ci = 105 pF	Ci = 105 pF	Co = 321 nF	Co = 390 nF
Li = 1032 nH	Li = 1032 nH	Lo = 100 mH	Lo = 3.75 mH

Variation 1 - This variation introduced the following changes:

- i. Minor changes to the front panel descriptor text were approved.
- ii. The cable part numbers were updated.
- iii. The SD memory card and associated components were removed.
- iv. The applicants name was changed from Computational Systems Inc. A Division of Emerson Process Management to "Computational Systems Inc. A business unit of Emerson".

Variation 2 - This variation introduced the following changes:

- i. Minor drawing changes to add an alternative light sensor in the keypad.
- ii. The addition of a note about maximum RF power on the installation drawing.
- iii. The introduction of an alternative Wi-Fi/Bluetooth board due to obsolescence of the existing board.

Variation 3 - This variation introduced the following change:

- i. The coiled cable, D25482, and connector were replaced by cable D25782 and a 5 pin M12 connector.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report number	Comment
0	16 December 2015	R70036077A	The release of prime certificate.

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SCHEDULE

TYPE EXAMINATION CERTIFICATE

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Issue	Date	Report number	Comment
1	08 January 2016	R70058660A	Report R70058660A replaced R70036077A to correct a typographical error in the Applicant's name.
2	18 April 2017	R70122634A	This Issue covers the following changes: <ul style="list-style-type: none">Type Examination Certificate in accordance with 94/9/EC updated to Type Examination Certificate in accordance with Directive 2014/34/EU. <i>(In accordance with Article 41 of Directive 2014/34/EU, Type Examination Certificates referring to 94/9/EC that were in existence prior to the date of application of 2014/34/EU (20 April 2016) may be referenced as if they were issued in accordance with Directive 2014/34/EU. Variations to such Type Examination Certificates may continue to bear the original certificate number issued prior to 20 April 2016.)</i>The introduction of Variation 1.
3	31 October 2017	R70158764A	The introduction of Variation 2.
4	20 November 2017	R70162561A	The introduction of Variation 3.

15 SPECIFIC CONDITIONS OF USE

- 15.1 The equipment is only capable of withstanding impact levels of 2 J on the light transmitting parts and 4 J on the remainder of the enclosure. Therefore, additional protection shall be provided to ensure that the equipment is not subjected to higher levels of mechanical impact.
- 15.2 The equipment shall be used such that it is always substantially protected from daylight and protected during storage and transit.
- 15.3 The equipment shall be implemented in accordance with control drawing D25671.
- 15.4 No precautions against electrostatic discharge are necessary for portable equipment that has an enclosure made of plastic, metal or a combination of the two, except where a significant static-generating mechanism has been identified. Activities such as placing the item in a pocket or on a belt, operating a keypad or cleaning with a damp cloth, do not present a significant electrostatic risk. However, where a static-generating mechanism is identified, such as repeated brushing against clothing, then suitable precautions shall be taken, e.g. the use of anti-static footwear.
- 15.5 The micro USB and Ethernet connections shall only be used in a non-hazardous area.

16 ESSENTIAL HEALTH AND SAFETY REQUIREMENTS OF ANNEX II (EHSRs)

The relevant EHSRs that are not addressed by the standards listed in this certificate have been identified and individually assessed reports listed in Section 14.2.

17 CONDITIONS OF MANUFACTURE

- 17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.
- 17.2 Holders of Type Examination Certificates are required to comply with the production control requirements defined in Article 13 of Directive 2014/34/EU.

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Certificate Annexe



Certificate Number: Sira 15ATEX4356X
Equipment: CSI 2140 Machinery Health Analyzer
Applicant: Computational Systems Inc.

Issue 0

Drawing no.	Sheets	Rev	Date (Sira stamp)	Title
D25669	1 of 1	0	09 Dec 15	CSI 2140 Label Drawing (ATEX/IECEx)
D25671	1 of 1	0	09 Dec 15	CSI 2140 Installation Drawing
D25523	1 of 1	0	09 Dec 15	2140 Assembly drawing
D25322SC	1 to 4	0	09 Dec 15	Battery Pack schematic
D25322FB	1 to 2	0	09 Dec 15	Battery pack artwork
D25322AS	1 of 1	0	09 Dec 15	Battery pack assembly
D25632SC	1 to 18	1	09 Dec 15	Analog board schematics ATEX Zone 2
D25632FB	1 to 2	1B	09 Dec 15	Analog board artwork
D25632AS	1 to 2	1C	09 Dec 15	Analog board assembly
D25633SC	1 to 2	R0	09 Dec 15	Analog connector board schematics
D25633FB	1 to 2	0	09 Dec 15	Analog connector board artwork
D25633AS	1 of 1	R00	09 Dec 15	Analog connector board assembly
D25346SC	1 to 7	0C	09 Dec 15	LCD schematic
D25346FB	1 to 2	0	09 Dec 15	LCD artwork
D25346AS	1 of 1	0A	09 Dec 15	LCD assembly
D25347SC	1 to 14	R00	09 Dec 15	Digital Board schematic
D25347FB	1 to 3	0	09 Dec 15	Digital Board artwork
D25347AS	1 to 2	0	09 Dec 15	Digital Board assembly
D25277SC	1 to 2	0	09 Dec 15	Wifi/Blue tooth schematic
D25277FB	1 to 2	0	09 Dec 15	Wifi/Blue tooth artwork
D25277AS	1 of 1	0	09 Dec 15	Wifi/Blue tooth board assembly
D25366	1 to 4	1	09 Dec 15	Keypad
D25368	1 of 1	13	09 Dec 15	Enclosure top
D25369	1 to 3	5	09 Dec 15	Enclosure bottom
D25613	1 of 1	1	09 Dec 15	Battery pack door cover
D25665	1 of 1	0	09 Dec 15	Main Gasket

Issue 1 – no new drawings were introduced.

Issue 2

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D25669	1 of 1	1	06 Apr 17	2140 ATEX/IEC Ex version Label – Model B214002
D25626SC	1 to 14	ROC	06 Apr 17	Digital Board schematic
D25626FB	1 to 3	0	06 Apr 17	Digital Board artwork
D25626AS	1 to 2	OC	06 Apr 17	Digital Board assembly
D25366	1 to 4	2	06 Apr 17	Keypad
D25671	1 of 1	2	06 Apr 17	2140 Installation (control) drawing - Model B214002

Issue 3

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D25366	1 to 4	3	16 Oct 17	2140 Keypad
D25671	1 of 1	3	16 Oct 17	2140 Installation (control) drawing - Model B214002
D25636SC	1 to 2	R0	16 Oct 17	WiFi/BT PCB 2 nd Gen
D25636FB	1 to 2	R0	16 Oct 17	WiFi/BT PCB Gen 2 PCB fabrication detail
D25636AS	1 of 1	R0	16 Oct 17	WiFi/BT PCB Gen 2 component placement detail

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Certificate Annexe

Certificate Number: Sira 15ATEX4356X
Equipment: CSI 2140 Machinery Health Analyzer
Applicant: Computational Systems Inc.



Issue 4

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D25671	1 of 1	4	15 Nov 17	2140 Installation (control) drawing - Model B214002

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