



1 **EU-TYPE EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 16ATEX2148X** Issue: **3**

4 Equipment: **Model CSI 9420 Vibration Monitor**

5 Applicant: **Computational Systems, Incorporated**  
A Wholly Owned Subsidiary of Emerson Process Management

6 Address: 835 Innovation Drive  
Knoxville  
TN 37932  
USA

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

8 Sira Certification Service, notified body number 0518 in accordance with Articles 17 and 21 of Directive 2014/34/EU of the European Parliament and of the Council, dated 26 February 2014, certifies that this equipment has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment intended for use in potentially explosive atmospheres given in Annex II to the Directive.

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 to this certificate, has been assured by compliance with the following documents:

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 identified in the schedule to this certificate.

11 This EU-Type Examination Certificate relates only to the design and construction of the specified equipment. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment.

12 The marking of the equipment shall include the following:



II 1G  
Ex ia IIB T4 Ga  
-40°C to +85°C without LCD or -20°C to +80°C with LCD

Project Number 70167576

This certificate and its schedules may only be reproduced in its entirety and without change.

C Ellaby  
Deputy Certification Manager

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## SCHEDULE

### EU-TYPE EXAMINATION CERTIFICATE

**Sira 16ATEX2148X**  
**Issue 3**

#### 13 DESCRIPTION OF EQUIPMENT

The CSI 9420 Vibration Monitor is used to monitor vibration of equipment in Zone 0 explosive atmospheres. It is powered by a user-replaceable primary battery pack Model 701PBKKF (Part number MHM-89002) or A0701PBU (Part number MHM-89004) or Power Module Model A9000Px and installed per Control Drawing No. D25418. It communicates the data via an RF link. Field mounted accelerometers (certified) may be connected to the CSI 9420 directly or via A9000Px module per control drawing D25790. The Monitor consists of various circuit board assemblies mounted in a rugged aluminum alloy or stainless-steel enclosure. May be used with Emerson Hart Communicator Model 375 or 475 or Trex Device Communicator. Antenna options used in the device construction are 00735-2035-0051 and 00735-2035-0054 only (drawing 00735-2035).

The equipment has the following entity parameters:

#### **Hart Connector:**

Uo = 7.8 V

Io = 155 mA

Po = 303 mW

Co = 2  $\mu$ F

Lo = 3 mH

Ui = 7.8 V

Ii = 5 mA

Pi = 9.75 mW

Ci = 54  $\mu$ F

Li = 3.1 mH

#### **Accelerometer Connector:**

Uo = 7.8 V

Io = 158 mA

Po = 309 mW

Co = 2  $\mu$ F

Lo = 3 mH

**Variation 1** - This variation introduced the following changes:

- i. It was confirmed that the following, alternative materials can used to make the extended life battery pack cover:
  - cast aluminium
  - cast stainless steel
  - machined stainless steel
- ii. Additional manufacturing notes for threaded entries and alternative paint were accepted.
- iii. Manufacturing notes were changed to recognise an alternative, antenna construction.

**Variation 2** - This variation introduced the following changes:

- i. The introduction of an alternate plug in communication device, "Trex Device Communicator" was recognised.
- ii. Drawings modifications including:
  - changes to address Restriction of Hazardous Substances (RoHS) compliance
  - material changes
  - update of process notes
  - change of the Notified Body number from 1725 to 0518

**Variation 3** - This variation introduced the following changes:

- i. The addition of an alternative Power Module Model A9000Px, as a consequence the description and conditions were changed.
- ii. Drawings modification to address minor changes.



## SCHEDULE

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#### 14 DESCRIPTIVE DOCUMENTS

##### 14.1 Drawings

Refer to Certificate Annexe.

##### 14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	11 May 2016	R70041106A	The release of the prime certificate.
1	15 July 2016	R70082099A	The introduction of Variation 1.
2	10 May 2017	R70130441A	The introduction of Variation 2.
3	25 January 2018	R70167576A	The introduction of Variation 3.

#### SPECIFIC CONDITIONS OF USE (denoted by X after the certificate number)

- 15.1 The antenna may present a potential electrostatic ignition hazard and must not be rubbed or cleaned with a dry cloth.
- 15.2 The apparatus may be equipped with an aluminium alloy or stainless-steel enclosure. The aluminium alloy enclosure is given a protective polyurethane paint finish; however, care should be taken to protect it from impact or abrasion.
- 15.3 The Monitor shall only be used with either Emerson Battery Pack 701PBKKF or A0701PBU or Power Module A9000Px.
- 15.4 Intrinsically Safe when installed per drawing D25418.
- 15.5 The battery pack may present a potential electrostatic ignition hazard. Use Caution when replacing battery pack.

#### 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 in the 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 EU-Type Examination Certificates are required to comply with the conformity to type requirements defined in Article 13 of Directive 2014/34/EU.
- 17.3 When an epoxy-polyester or polyurethane top coat is applied to external surfaces, it must be in accordance with FED. STD. 595. MANUFACTURER: SHERWIN WILLIAMS DESCRIPTION: Polane HS Series (V66V29 Catalyst) or Polane S Plus Series (V66V55 Catalyst) THICKNESS: 1.2-2.2 Mils.
- 17.4 Only antenna option numbers 00735-2035-0051 and 00735-2035-0054, as defined on drawing number 00735-2035, shall be used in the construction of these devices.

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# Certificate Annexe



**Certificate Number:** Sira 16ATEX2148X

**Equipment:** Model CSI 9420 Vibration Monitor

**Applicant:** Computational Systems, Incorporated

## Issue 0

Drawing no.	Sheets	Rev.	Date (Sira stamp)	Description
D25692	1 of 1	0	09 May 16	ATEX Approval Z0 Nameplate
D25693	1 of 1	0	09 May 16	A0701PBU Update Label
D25418	1 to 3	4	09 May 16	CSI 9420 Installation Drawing
D25412	1 to 2	1	09 May 16	CSI 9420 Overall Assembly
D25643	1 to 2	1	09 May 16	Extended life power module cover
00753-2351	1 to 3	AH	09 May 16	Housing Sub-Assembly
00753-2304	1 to 6	AF	09 May 16	Enclosure Main Body Aluminum
03151-2301	1 to 4	AN	09 May 16	Enclosure Standard Cover Aluminum
03151-4501	1 to 3	AN	09 May 16	Enclosure Window Cover Aluminum
00753-2020	1 to 4	AH	09 May 16	Enclosure Battery Compartment Cover Aluminum
00753-2306	1 to 5	AH	09 May 16	Enclosure Main Body SST
03151-2343	1 of 1	AE	09 May 16	Enclosure Standard Cover SST
03151-4521	1 to 2	AE	09 May 16	Enclosure Window Cover SST
00753-2024	1 of 1	AB	09 May 16	Enclosure Battery Compartment Cover SST
00753-2118	1 to 3	AD	09 May 16	Antenna Adapter SST
00753-2108	1 to 3	AG	09 May 16	Antenna Adapter Aluminum
03151-2325	1 to 4	AL	09 May 16	Mounting Bracket Assy
00701-1000	1 to 9	AB	09 May 16	Battery Pack Docs – All
MHM-89004	1 to 4	5	09 May 16	Extended life power module
D25394SC	1 to 2	1A	09 May 16	Battery Terminal Board Schematic
D25394AS	1 of 1	1	09 May 16	Battery Terminal Board Comp Layout
D25394FB	1 to 2	1	09 May 16	Battery Terminal Board Trace Layout
D25394BOM	1 of 1	1A	09 May 16	Battery Terminal Board BOM
03151-2320	1 to 3	AM	09 May 16	Feed-Thru Filter Details
D25393SC	1 to 5	0A	09 May 16	Power-Hart Board Schematic
D25393AS	1 of 1	0A	09 May 16	Power-Hart Board Comp Layout
D25393FB	1 to 2	0000	09 May 16	Power-Hart Board Trace Layout
D25393BOM	1 to 5	0A	09 May 16	Power-Hart Board BOM
D25392SC	1 to 10	2	09 May 16	DSP Board Schematic
D25392SC	1 to 10	2A_A LT	09 May 16	DSP Board Schematic ALT
D25392AS	1 of 1	2A	09 May 16	DSP Board Comp Layout
D25392FB	1 to 2	2	09 May 16	DSP Board Trace Layout
D25392BOM	1 to 3	2	09 May 16	DSP Board BOM
D25392BOM	1 to 4	2A_A LT	09 May 16	DSP Board BOM
00753-3006	1 of 1	AD	09 May 16	Radio PCB Schematic
00753-3008	1 to 1	AM	09 May 16	Radio PCB Comp Layout
00753-3007	1 to 3	AE	09 May 16	Radio PCB Trace Layout & Dimensions
00753-3008-0007	1 of 1	AA	09 May 16	Radio PCB BOM
03151-4515	1 of 1	AU	09 May 16	LCD Overall Assy
00753-3025	1 of 1	AC	09 May 16	LCD PCB Schematic
00753-3027	1 of 1	AD	09 May 16	LCD Comp Layout
00753-3026	1 to 3	AC	09 May 16	LCD PCB Trace Layout & Dimensions
00753-3027-0001	1 of 1	0	09 May 16	LCD PCB BOM
00753-2035	1 of 11	BC	09 May 16	Antenna Details

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# Certificate Annexe



**Certificate Number:** Sira 16ATEX2148X  
**Equipment:** Model CSI 9420 Vibration Monitor  
**Applicant:** Computational Systems, Incorporated

## Issue 1

Drawing no.	Sheets	Rev.	Date (Sira stamp)	Description
D25418	1 to 3	5	07 Jun 16	CSI 9420 Installation Drawing
00753-2304	1 to 6	AG	07 Jun 16	Enclosure Main Body Aluminum
03151-2301	1 to 4	AP	07 Jun 16	Enclosure Standard Cover Aluminum
03151-4501	1 to 3	AP	07 Jun 16	Enclosure Window Cover Aluminum
00753-2306	1 to 5	AJ	07 Jun 16	Enclosure Main Body SST
D25393FB	1 to 2	0A	07 Jun 16	Power-Hart Board Trace Layout
00753-2035	1 to 12	BF	07 Jun 16	Antenna Details
D25644	1 to 2	3	07 Jun 16	Cover, 9420 Extended Life Pwr. Module, SST, Machined
D25641	1 to 3	1	07 Jun 16	Cover, 9420 Extended Life Pwr. Module, SST, Cast
D25640	1 to 2	1	07 Jun 16	Cover, 9420 Extended Life Pwr. Module, Alum, Cast
00753-2108	1 to 3	AG	07 Jun 16	Antenna Adapter Aluminum

## Issue 2

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
00753-2351	1 to 3	AJ	03 May 17	Housing Sub-Assembly
00753-2020	1 to 4	AJ	03 May 17	Enclosure Battery Compartment Cover Aluminum
D25643	1 to 2	2	03 May 17	Cover, 9420 extended life power module, aluminium, machined
00753-2306	1 to 5	AK	03 May 17	Enclosure Main Body SST
00753-2108	1 to 3	AH	03 May 17	Antenna Adapter Aluminum
D25394SC	1 to 2	2	03 May 17	Battery Terminal Board Schematic
D25394AS	1 of 1	2	03 May 17	Battery Terminal Board Comp Layout
D25394FB	1 to 2	2	03 May 17	Battery Terminal Board Trace Layout
D25393SC	1 to 5	1	03 May 17	Power-Hart Board Schematic
D25393FB	1 to 2	1A	03 May 17	Power-Hart Board Trace Layout
D25392SC	1 to 10	3	03 May 17	DSP Board Schematic ALT
D25392AS	1 of 1	3	03 May 17	DSP Board Comp Layout
D25392FB	1 to 2	3A	03 May 17	DSP Board Trace Layout
00753-3027	1 of 1	AE	03 May 17	LCD Comp Layout
00753-2035	1 to 7	BG	03 May 17	Antenna Details
D25784	1 of 1	00	03 May 17	Safety Critical Component BOM
D25692	1 of 1	1	03 May 17	Nameplate, CSI 9420 ATEX

The following drawings are removed from the controlled documents list:

Drawing	Title	Reason
D25394BOM	Battery Terminal Board BOM	Replaced with drawing D25784
D25393BOM	Power-Hart Board BOM	
D25392BOM Rev. 2A_ALT	DSP Board BOM ALT	
D25392SC Rev. 2	DSP Board Schematic	Obsolete
D25392BOM Rev. 2	DSP Board BOM	

## Issue 3

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
D25415	1 of 1	6	03 Jan 18	Approval nameplate
D25418	1 to 3	6	03 Jan 18	CSI 9420 Installation Drawing
00753-2351	1 to 4	AK	03 Jan 18	Housing Sub-Assembly

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**Equipment:** Model CSI 9420 Vibration Monitor  
**Applicant:** Computational Systems, Incorporated

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
00753-2020	1 to 4	AK	03 Jan 18	Enclosure Battery Compartment Cover Aluminum
03151-2325	1 to 4	AM	03 Jan 18	Mounting Bracket Assembly
D25394SC	1 to 2	3	03 Jan 18	Battery Terminal Board Schematic
D25394AS	1 of 1	3	03 Jan 18	Battery Terminal Board Comp Layout
D25394FB	1 to 2	3	03 Jan 18	Battery Terminal Board Trace Layout
03151-2320	1 to 3	AN	03 Jan 18	Feed-Thru Filter Details
D25392SC	1 to 10	4	03 Jan 18	DSP Board Schematic ALT
D25392AS	1 of 1	4	03 Jan 18	DSP Board Comp Layout
D25392FB	1 to 2	4	03 Jan 18	DSP Board Trace Layout
00753-3025	1 of 1	AE AC	03 Jan 18	LCD PCB Schematic
00753-3027	1 of 1	AG AE	03 Jan 18	LCD Comp Layout
00753-2035	1 to 9	BK BG	03 Jan 18	Antenna Details
D25643	1 of 1	3	03 Jan 18	Cover, 9420 Extended Life Pwr. Module, Alum, Machined
D25693	1 of 1	1	03 Jan 18	A0701PBU Update Label
D25658	1 of 1	1 NEW	03 Jan 18	CSI 9420 CSA Z2 Approval Label

The following drawing was removed from the controlled documents list:

Drawing	Title	Reason
D25692	ATEX Approval nameplate Z0	Replaced with drawing D25415

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