1 **EC TYPE-EXAMINATION CERTIFICATE**

2 Equipment intended for use in Potentially Explosive Atmospheres Directive 94/9/EC

3 Certificate Number: **Sira 06ATEX2033X** Issue: **2**

4 Equipment: **Flow Instrument RT11/RT12 Rate Totalisers**

5 Applicant: **Trimec Industries Pty Ltd**

6 Address: 1/16 Atkinson Road
Taren Point
NSW 2229
Australia

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 Article 9 of 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 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 50014:1997 + Amds 1 & 2 EN 50020:2002

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 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 2G
EEx ia IIB T4 ($-20°C \leq T_a \leq +60°C$)

Project Number 24342

C Ellaby
Deputy Certification Manager

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13 **DESCRIPTION OF EQUIPMENT**

The Flow Instrument RT11/RT12 Rate Totalisers are designed to compute, display/transmit totals (re-settable and accumulated), flow-rates and process control information. Flow measurement transducers with pulse or frequency outputs are connected to the flow instrument to provide the necessary data. It can be directly mounted on a variety of flow measurement transducers or as a stand-alone instrument. The RT11 is identical to the RT12 but does not have a 4-20 mA output or a flow alarm output nor does it accept dual flow inputs.

The instrument can be self-powered or may be powered by a single external intrinsically safe dc supply or two wire loop powered. Different types of certified flow measurement transducers can be connected to terminals (1 to 14) as appropriate, however, only a single supply loop shall be connected at one time.

The enclosure is made of plastic and polycarbonate material, and measures 110 mm diameter and 60 mm height. It contains two electronic circuit boards. A number of terminals are accessible during installation by removing the screws retaining the electronics including the front display panel to the enclosure. Puncturing out the required plastic blank and fitting a cable gland at any of the three available cable entry positions provides suitable cable entry.

The equipment contains a single lithium battery that has been provided with diode protection against reverse charging.

Connections 1 to 14

Ui = 28 V
Ii = 100 mA
Pi = 0.7 W
Ci = 0.335 µF
Li = 0

Depending on the flowmeter type to be used, one of the following arrangements are used:

i. Reed Switch flowsensors: Connected at terminals 1, 3, 5
ii. Pulse wire flowsensors: Connected at terminals 1, 3, 5
iii. Coil type sensors (turbine and paddle style): Connected at terminals 1, 2, 3, 4, 5
iv. Hall effect sensors: Connected at terminals 1, 3, 5, 6
v. Namur inductive proximity switch sensors: Connected at terminals 1, 3, 5, 6
vi. Current modulated pulse sensors: Connected at terminals 1, 3, 5, 6 (with 100 Ω between 3, 5 and/or 1, 5)

Depending on the type of external supply loop, one of the following arrangements are used:

i. DC supply Um 28 V d.c.: Connected at terminals 5, 6, 8 (5 & 8 are common)
ii. 4 – 20 mA loop Um 28 V d.c.: Connected at terminals 11, 12

The connection to a pulse output is available on terminal 7 and connections to external alarms are available on terminals 13, 14. These may be connected to the same supply loop as described in the paragraph above. No separate external supply shall be available at these connections.

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Variation 1 - This variation introduced the following change:

i. The recognition of a change in the applicant's address from Northumberland Road Caringbah to Atkinson Road Taren Point.

Variation 2 - This variation introduced the following changes:

i. The recognition of an alternative enclosure.
ii. The enclosure was allowed to be made from aluminium as an alternative to plastic.
iii. The layout of the battery protection PCB was changed.

14 DESCRIPTIVE DOCUMENTS

14.1 Drawings

Refer to Certificate Annexe.

14.2 Associated Sira Reports and Certificate History

Issue	Date	Report no.	Comment
0	12 April 2006	R52A13397A	The release of prime certificate.
1	8 September 2010	R22339A/00	This Issue covers the following changes: • All previously issued certification was rationalised into a single certificate, Issue 1, Issue 0 referenced above is only intended to reflect the history of the previous certification and has not been issued as a document in this format. • The introduction of Variation 1.
2	12 August 2011	R24342A/00	The introduction of Variation 2.

15 SPECIAL CONDITIONS FOR SAFE USE (denoted by X after the certificate number)

15.1 The Flow Instrument RT11/RT12 Rate Totalisers may be attached to different types of flow measurement transducers: should any of these be supplied from an external source, this must be a single supply loop and shall be connected to terminals 1 to 14 as appropriate.

Connections 1 to 14

Ui = 28 V
Ii = 100 mA
Pi = 0.7 W
Ci = 0.335 µF
Li = 0

15.2 The enclosure of the equipment may be made of plastic or aluminium.

When made from plastic, by virtue of its shape, design and position of use, it is assessed that the equipment is not considered to be an electrostatic risk; however, the equipment must not be installed in a position where it may be subjected to an excessive air/fluid flow or be subjected to rubbing that may cause an electrostatic build-up. In addition the instrument shall only be cleaned with a damp cloth.

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When the enclosure is made from aluminium, the following restrictions apply:

- In rare cases, ignition sources due to impact and friction sparks could occur. This shall be considered during installation.
- The equipment is not capable of withstanding the 500 V insulation test required by Clause 6.4.12 of EN 50020:2002. This shall be taken into account when installing the equipment.

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 CERTIFICATION**

17.1 The use of this certificate is subject to the Regulations Applicable to Holders of Sira Certificates.

17.2 Holders of EC type-examination certificates are required to comply with the production control requirements defined in Article 8 of directive 94/9/EC.

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Certificate Annexe

Certificate Number: **Sira 06ATEX2033X**

Equipment: **Flow Instrument RT11/RT12 Rate Totalisers**

Applicant: **Trimec Industries PTY Ltd**

Issue 0

Drawing No.	Sheet	Rev.	Date (Sira stamp)	Description
1412028-EX	1 to 3	03	14 Mar 06	EX ia Battery Assembly
BATT01	1 of 1	-	14 Mar 06	Trimec Battery Diode Board
TI07MC04b	1 of 1	-	14 Mar 06	Main Board (1st Design)
TI07MC04	1 to 4	-	14 Mar 06	Main Board (1st Design)
BOM294 V17	1 to 13	17	14 Mar 06	TI07 BOM (1st Design)
TI07MC05a	1 of 1	-	14 Mar 06	Main Board (2nd Design)
TI07MC05.pcb	1 to 4	05	14 Mar 06	Main Board Top Layer (2nd Design)
BOM294 V18	1 to 13	18	14 Mar 06	TI07 BOM (2nd Design)
TI07IF04b	1 of 1	-	14 Mar 06	RT12 Interface PCB
TI07IF04.pcb	1 to 4	4	14 Mar 06	RT12 Interface PCB
BOM294 V16	1 to 13	16	14 Mar 06	TI07 BOM
0004011001	1 of 1	02	14 Mar 06	RT Series Register
1315033-EX	1 of 1	04	14 Mar 06	RT11/RT12 Certification Label
1315001-EX	1 of 1	02	28 Mar 06	Customer Label
1302022	1 of 1	03	14 Mar 06	RT M20 Conduit Entry Base
1302023	1 of 1	02	14 Mar 06	RT ½" NPT Conduit Base
1302024	1 of 1	01	14 Mar 06	RT Meter Mount M20 Conduit Entry
1302025	1 of 1	02	14 Mar 06	RT Meter Mount ½" NPT Conduit Entry
1306013	1 of 1	02	14 Mar 06	RT Face Plate
1306014	1 of 1	01	14 Mar 06	RT Cover
1315009	1 of 1	02	14 Mar 06	RT Round Facia Label
0004011002	1 of 1	03	14 Mar 06	RT Series Register Assembly

Issue 1

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
1315033-EX	1 of 1	05	08 Sep 10	TRIMEC RT Ex- ia Label

Issue 2

Drawing No.	Sheets	Rev.	Date (Sira stamp)	Title
1402-155-EX	1 of 1	01	03 Mar 11	RT12 EXia - Aluminium Housing
1412028-Ex	1 to 3	06	08 Apr 11	ia battery assembly
1315033-Ex	1 of 1	06	22 Jun 11	Trimec RT Ex-ia label
Batt01	1 of 1	2	07 Apr 11	Trimec battery diode board

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