



1 **EC TYPE-EXAMINATION CERTIFICATE**

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

3 Certificate Number: **Sira 09ATEX2047** Issue: **6**

4 Equipment: **Earth-Rite II**

5 Applicant: **Newson Gale Limited**

6 Address: **Omega House
Private Road 8
Colwick
Nottingham NG4 2JX
UK**

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 60079-0:2006 EN 60079-0:2009 EN 60079-1:2004 EN 60079-11:2007 EN 60079-31:2009

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 2(1)GD
Ex d[ia] IIC T6 Gb(Ga)
Ex tb IIIC T80°C IP66 Db
Ta = -40°C to +55°C

Project Number 27745

D R Stubbings BA MIET
Certification Manager

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13 DESCRIPTION OF EQUIPMENT

The Earth-Rite ER II Earth Monitoring Unit is intrinsically safe associated apparatus that provides an isolated intrinsically safe output for connection to earth monitoring equipment in the hazardous area. There are four Earth-Rite ER II models:

- RTRMEA (a.c. supply, tri-mode version)
- PLUSMEA (a.c. supply, single-mode version)
- RTRMED (d.c. supply, tri-mode version)
- PLUSMED (d.c. supply, single-mode version)

The ER II consists of two printed circuit boards, mounted inside an IP66/NEMA Type 4X flameproof enclosure:

- power supply board: this converts a non-intrinsically safe supply into an isolated intrinsically safe output to the monitoring board and may be a.c. input (xxxxMEA models) for connection to a mains supply or d.c. input (xxxxMED models) for connection to a nominally 12-30 Vdc supply, which may be mains-derived or from a vehicle battery
- a monitoring unit board (either single mode or tri-mode), mounted above the power supply board – this receives an intrinsically safe input from the power supply board and provides an intrinsically safe output for connection to an earth bar and a clamp.

The tri-mode version provides capacitative and resistive monitoring. The single mode version provides resistive-only monitoring.

For all versions, $U_m = 250$ V ac or dc. The models have the following safety descriptions:

RTRMEx models		PLUSMEx models
Tri-mode IS output at PL3/PL4 combined	Tri-mode IS output at PL2	Single mode IS output at PL3/PL4 combined
$U_o = 8.61$ V $I_o = 60$ mA $P_o = 129$ mW $C_o = 1.0$ μ F $L_o = 9.8$ mH	Simple apparatus only	$U_o = 8.61$ V $I_o = 41$ mA $P_o = 88$ mW $C_o = 0.361$ μ F $L_o = 21$ mH

Note: for all models, intrinsic safety is maintained if the cable connected to any intrinsically safe output terminal does not exceed 100 m.

Variation 1 (dated 3 October 2010) - This variation introduced the following changes:

- Following appropriate re-assessment to demonstrate compliance with the requirements of the latest standards, IEC 61241-0:2004 and IEC 61241-1:2004 were replaced by EN 60079-31:2009. In addition, all the standards previously used to assess these products were reviewed, the list being amended to reflect current interpretations.
- A note was added to the safety descriptions to inform the user that intrinsic safety is maintained if the cable connected to any intrinsically safe output terminal does not exceed 100 m.



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- iii. The introduction of the following models that incorporate a new upper board (FIBC II board):
- FIBCMEA (a.c. P/S board with FIBC II monitoring unit board)
 - FIBCMED (d.c. P/S board with FIBC II monitoring unit board)

For all versions, $U_m = 250\text{ V ac or dc}$. The models have the following safety descriptions:

FIBCMEx models
IS output at PL3/PL4 combined
$U_o = 8.61\text{ V}$
$I_o = 0.87\text{ mA}$
$P_o = 8\text{ mW}$
$C_o = 5.9\text{ }\mu\text{F}$
$L_o = 46\text{ mH}$

Note: for all models, intrinsic safety is maintained if the cable connected to any intrinsically safe output terminal does not exceed 100 m.

Variation 2 (dated 7 June 2012) - This variation introduced the following changes:

- i. The introduction of a new model number "MGVMED" as the Mobile d.c. Tri-Mode Version with the following safety descriptions:

MGVMED models	
Tri-mode IS output at PL3/PL4 combined	Tri-mode IS output at PL2
$U_o = 8.61\text{ V}$	Simple apparatus only
$I_o = 60\text{ mA}$	
$P_o = 129\text{ mW}$	
$C_o = 1.0\text{ }\mu\text{F}$	
$L_o = 9.8\text{ mH}$	



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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	19 June 2009	R52A18849A	The release of the prime certificate.
1	11 August 2009	R52L20488A	The introduction of Variation 1 (NOTE: the report assessing this Variation includes assessments that are corrections of the previous report, therefore, report no. R52L20488B replaces report no. R52A18849A.)
2	7 September 2009	R52L20488B	The introduction of variation 2 (NOTE: report no. R52L20488B is a complete record of the latest assessment and replaces report no. R52A20488A.)
3	20 July 2010	R20778C/00	This Issue covers the following changes (NOTE: report no. R20778C/00 is a complete record of the latest assessment and replaces all previous reports.): <ul style="list-style-type: none">• The introduction of four, new models as detailed below:<ul style="list-style-type: none">• RTRMEA (a.c. P/S board with tri-mode monitoring unit board)• PLUSMEA (a.c. P/S board with single-mode monitoring unit board)• RTRMED (d.c. P/S board with tri-mode monitoring unit board)• PLUSMED (d.c. P/S board with single-mode monitoring unit board) These models replace the previous versions (MOBILE-M, RTR and PLUS models) and therefore all reference to these models and Variations 1 and 2 have been removed from Issue 3, for full descriptions of these versions, the reader is advised to refer to Issues 0, 1 and 2. <ul style="list-style-type: none">• Condition of certification clause 17.4 was amended.
4	6 October 2010	R25601A/00	The introduction of Variation 1.
5	7 June 2012	R27745A/00	The introduction of Variation 2.
6	22 August 2012	R27745A/01	Issued to allow Report R27745A/00 to be replaced by R27745A/01.

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

None

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.

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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.
- 17.3 The Earth-Rite II incorporates previously certified devices. It is therefore the responsibility of the manufacturer to continually monitor the status of the certification associated with these devices, and the manufacturer shall inform Sira of any modifications of the devices that may impinge upon the explosion safety design of the product.
- 17.4 The following test shall be performed on 100% of transformers. Each transformer shall be dielectric strength tested in accordance with EN 60079-11:2006 clause 11.2 as follows: 1500 Vac shall be applied between the primary and secondary windings for a minimum of 60 s. The maximum current shall not exceed 5 mA and there shall be no evidence of insulation breakdown. Alternatively, the test may be performed at 1800 Vac for a minimum of 1 s.
- 17.5 The manufacturer shall ensure that the relevant control drawing is supplied with each unit or batch of units.

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Certificate Annexe

Certificate Number: Sira 09ATEX2047
Equipment: Earth-Rite II
Applicant: Newson Gale Limited



Issue 0, 1 and 2 (The models introduced by Issue 3 do not rely on any of the previously certified documents and therefore these drawings have been removed from this Issue; the reader is advised to refer to Issues 0, 1 and 2 to access information about the previously certified documents.)

Issue 3

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
ER II GA 003	1 to 4	6	08 Jun 10	General assembly
ER II LAB 003	1 of 1	8	08 Jun 10	Nameplate
ERII-Q-09239-2 AI	1 of 1	5	08 Jun 10	Control drawing – mobile
ERII-Q-09246-2 AI	1 of 1	2	08 Jun 10	Control drawing – terrestrial
AA0190R3A-CERT	1 of 1	A	08 Jun 10	Schematic
AA0190R3ACB-CERT	1 of 1	A	08 Jun 10	Bottom copper
AA0190R3ACT-CERT	1 of 1	A	08 Jun 10	Top copper
AA0190R3ASS-CERT	1 of 1	A	08 Jun 10	Silkscreen
AA0190R3A-PLC	1 to 2	A	08 Jun 10	Parts list
BE008-0-01 R3	1 of 1	B	08 Jun 10	A.C. transformer
AA0189R1D-CERT	1 of 1	D	08 Jun 10	Schematic – d.c. P/S
AA0189R1D-CB-CERT	1 of 1	D	08 Jun 10	Bottom copper – d.c. P/S
AA0189R1D--CT-CERT	1 of 1	D	08 Jun 10	Top copper – d.c. P/S
AA0189R1D-SS-CERT	1 of 1	D	08 Jun 10	Silkscreen – d.c. P/S
AA0189R1D-PLC	1 to 2	D	08 Jun 10	Parts list – d.c. P/S
BE010-0-01 R1C	1 of 1	C	08 Jun 10	D.c. transformer
AA0195R1B-CERT	1 of 1	B	08 Jun 10	Schematic – tri mode
AA0195R1BCB-CERT	1 of 1	A	08 Jun 10	Bottom copper – tri mode
AA0195R1BCT-CERT	1 of 1	A	08 Jun 10	Top copper – tri mode
AA0195R1BSS-CERT	1 of 1	A	08 Jun 10	Silkscreen – tri mode
AA0195R1B-PLC	1 to 2	B	08 Jun 10	Parts list – tri mode
AA0194R1B-CERT	1 of 1	B	08 Jun 10	Schematic – single mode
AA0194R1BCB-CERT	1 of 1	B	08 Jun 10	Bottom copper – single mode
AA0194R1BCT-CERT	1 of 1	B	08 Jun 10	Top copper – single mode
AA0194R1BSS-CERT	1 of 1	B	08 Jun 10	Silkscreen – single mode
AA0194R1B-PLC	1 to 2	B	08 Jun 10	Parts list – single mode

Issue 4

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
ER II LAB 003	1 of 1	10	05 Oct 11	Nameplate
ERII-Q-09239-2 AI	1 of 1	7	05 Oct 11	Control drawing – mobile
ERII-Q-09246-2 AI	1 of 1	3	05 Oct 11	Control drawing – terrestrial
ER FIBC II GA 003	1 to 4	0	26 Aug 11	General assembly
AA0206R3A-CERT	1 of 1	A	01 Aug 11	Schematic
AA0206R3A-CB-CERT	1 of 1	A	31 Aug 11	Bottom copper
AA0206R3A-CT-CERT	1 of 1	A	31 Aug 11	Top copper
AA0206R3A-SS-CERT	1 of 1	A	31 Aug 11	Silkscreen
AA0206R3A-PLC	1 to 2	A	07 Sep 11	Parts list

Issue 5

Drawing	Sheets	Rev.	Date (Sira stamp)	Title
ER II LAB 003	1 of 1	11	29 May 12	Nameplate
ERII-Q-09239-2 AI	1 of 1	8	29 May 12	Control drawing, d.c.

Issue 6 No new drawings were introduced.

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Sira Certification Service

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