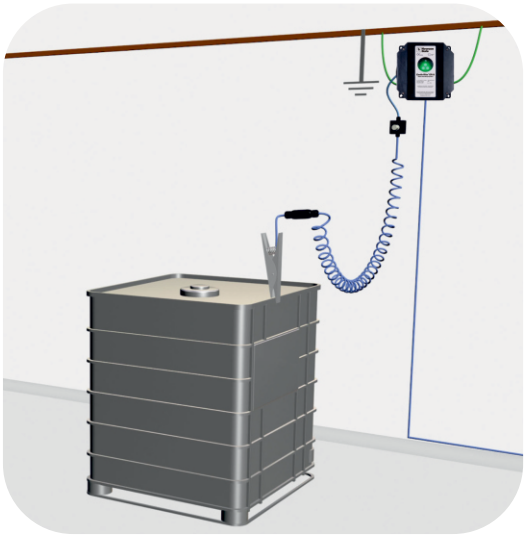
EN

Newson Gale
HOERBIGER Safety Solutions

READ MANUAL
BEFORE COMMENCING
WITH INSTALLATION

Earth-Rite® II PLUS
Static Earthing System

PLUS P1 - DC Version
Installation and Operating Instructions





ATEX UKCA SIL 2 CSA® C US IECEx KCs CCC

Model: ERII - August 12

The safety of any system incorporating the equipment referred to in this manual is the responsibility of the installer of the system.

If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

Any warranty is made void if the equipment is not installed, or used, in accordance with the manufacturers instructions.

Earth-Rite II PLUS P1

Installation Kits

If the installation kit has been supplied, the kit should contain the following glands. If the glands differ then please do not continue with the installation and contact Newson Gale.

ER2/KITC

6 x Ex e compression glands
(M20 Thread suitable for 4-13mm cable)



ER2/KITCS

7 x Ex e compression glands
(M20 Thread suitable for 4-13mm cable)



Earth-Rite II PLUS P1
Static Earth Monitoring System

Terminology used in this manual

Single Mode

The **Earth-Rite II PLUS** system operates using "Single Mode" technology which monitors the complete resistive loop from plant item to the designated site Static Earth Bar or Tape.

PLUS System: The Earth-Rite II has been supplied as a **Single-mode** system (resistive monitoring), it is intended for use with any conductive material item such as a drum, mixing vessel, rail tanker etc. It is set to show permissive only when the system detects that the connection to the plant item, and to earth, is less than 10 Ohms nominal resistance. Until this condition is achieved, the system remains non-permissive.

Installation

The installation shall be carried out by suitably trained personnel in accordance with the relevant sections of IEC 60079 and
EN 60079.

All cables entering the monitoring unit must be connected through approved cable glands in accordance with EN 60079-14 .
The glands should be fitted in such a way as to maintain the ingress protection rating of the enclosure.

The system should be connected as per the enclosed installation drawings.

The Earth-Rite II Monitoring Unit should be powered from a supply voltage of 12 to 24V DC.

The unit should be protected using a 2A fast blow fuse, or Miniature Circuit Breaker, mounted in the distribution board / fuse box.

The monitoring unit should be mounted, with the indicator window facing away from direct sunlight, at a convenient location, visible to the operator.

After installation of wiring, secure the cover to the body making sure it is fully tight.

Once the process is complete and any interconnecting pipework has been removed, to avoid damage/injury, the clamp should be carefully removed and placed on the appropriate stowage point.

Note: It is recommended that the transfer or mixing operation is interlocked with the contacts of the Earth-Rite II unit. This will ensure that the operation is stopped if the earth connection is inadvertently lost.

Maintenance: Periodically check exterior of enclosure for damage or deterioration.

IF YOU HAVE ANY QUERIES REGARDING THE ABOVE POINTS THEN PLEASE CONTACT NEWSON GALE, OR THEIR APPROVED DISTRIBUTOR, WITHOUT DELAY.

Customer Supplied Cable Specification

Recommended Specification

Cable from ERII Control Unit to ERII Junction Box
1.0mm^2 2 core Cable with blue sheath or identifier (IS Circuit).

Cable from ERII Control Unit Intrinsically Safe Relay Contact to External Intrinsically Safe Device
1.0mm^2 2 core cable with blue sheath or identifier (IS Circuit).

Cable from ERII Unit to Pump Starter
1.0mm^2 2 core cable + Protective Earth

Cable from Supply to the ERII Unit
1.0mm^2 2 core cable + Protective Earth

Cables from ERII Unit to Site Static Earth Bar or Tape
4mm^2 single core cable with green sheath.

Unused entries must be fitted with approved stopper plugs.

NOTE: Cables must be secured close to the enclosure in order to mitigate the risk of them being accidentally pulled out.

Optional Intrinsically Safe Switching PCB

The optional Intrinsically Safe Switching PCB is provided in order to switch the I.S. circuit of an external Intrinsically Safe device. The parameters of the device shall meet the requirements of the ERII Control Drawing. The relay operates in conjunction with the ERII Normally-Open interlock contact.

Other Approvals

Functional Safety

The Earth-Rite II has been given a SIL (Safety Integrity Level) rating of 2.

Electromagnetic Compatibility

The Earth-Rite II has been tested and shown conformity to European Directive 2004/108/EC, and FCC Part 15 Emissions.

Conformity has been proven to BS EN 61000-6-3 and BS EN 61000-6-2.

Troubleshooting at the time of Installation
Earth-Rite II PLUS - Single Mode System

Before contacting Newson Gale please check the following points:-

Symptom: Red and/or Green LEDs are NOT showing

Check that the system is installed in accordance with the supplied manual.

Check that there is power to the monitoring unit, and that it is the correct voltage.

Caution - **Ensure all Health & Safety precautions are taken during the above procedures.**

Symptom: System is NOT switching to permissive state when clamp is fitted to conductive plant items (RED LED continues to show).

Check that the system is installed in accordance with the supplied manual.

Check That the Earthing Clamp is in good condition: that the contacts are level with each other, sharp and not loose.

Caution - Ensure all Health & Safety precautions are taken during the above procedures.

If the system still does not switch to permissive state when clamp is fitted to the plant item please contact Newson Gale and confirm the following:-

Serial number _____

Company which ordered the system

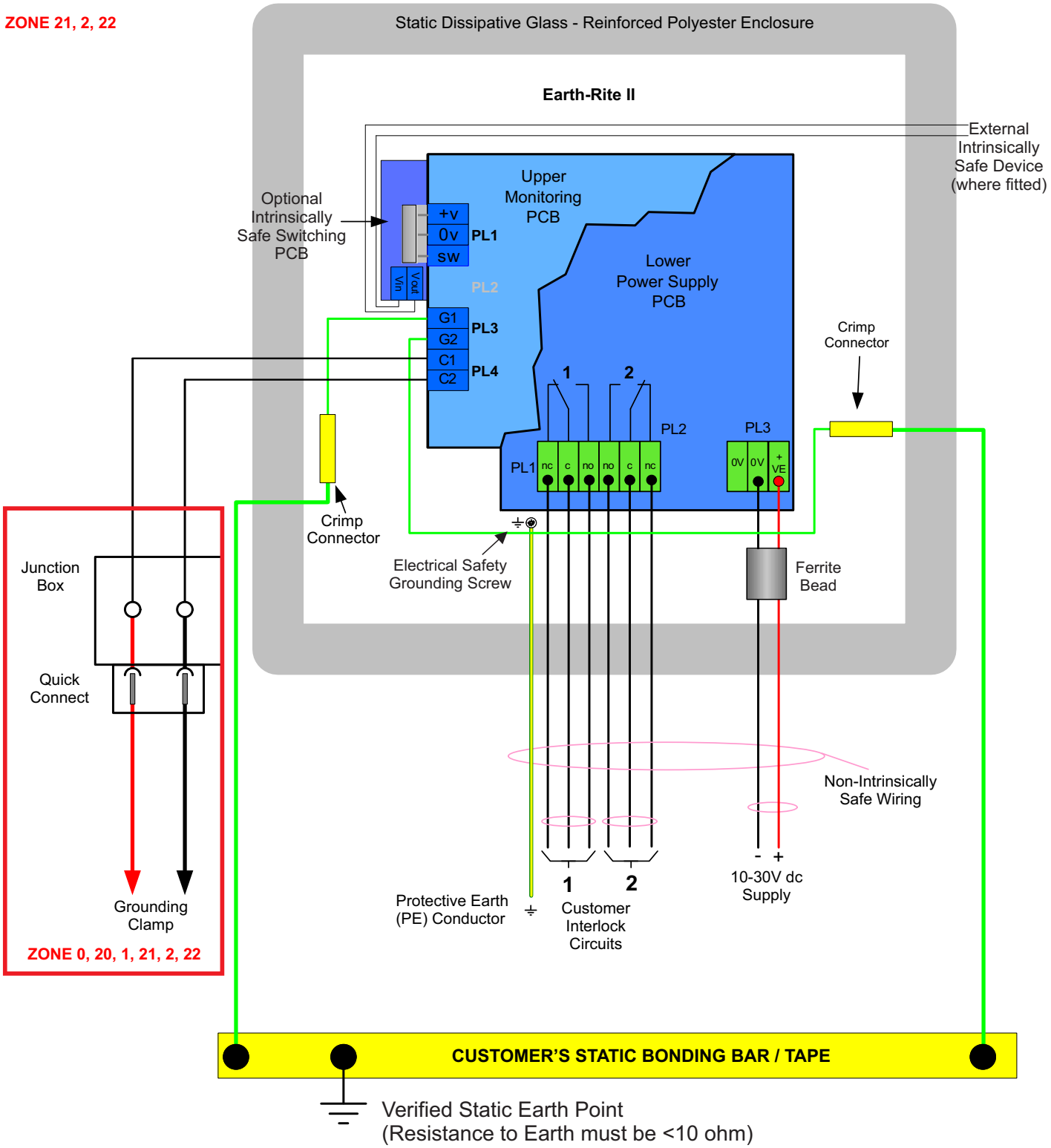
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Date of order _____

Any other information

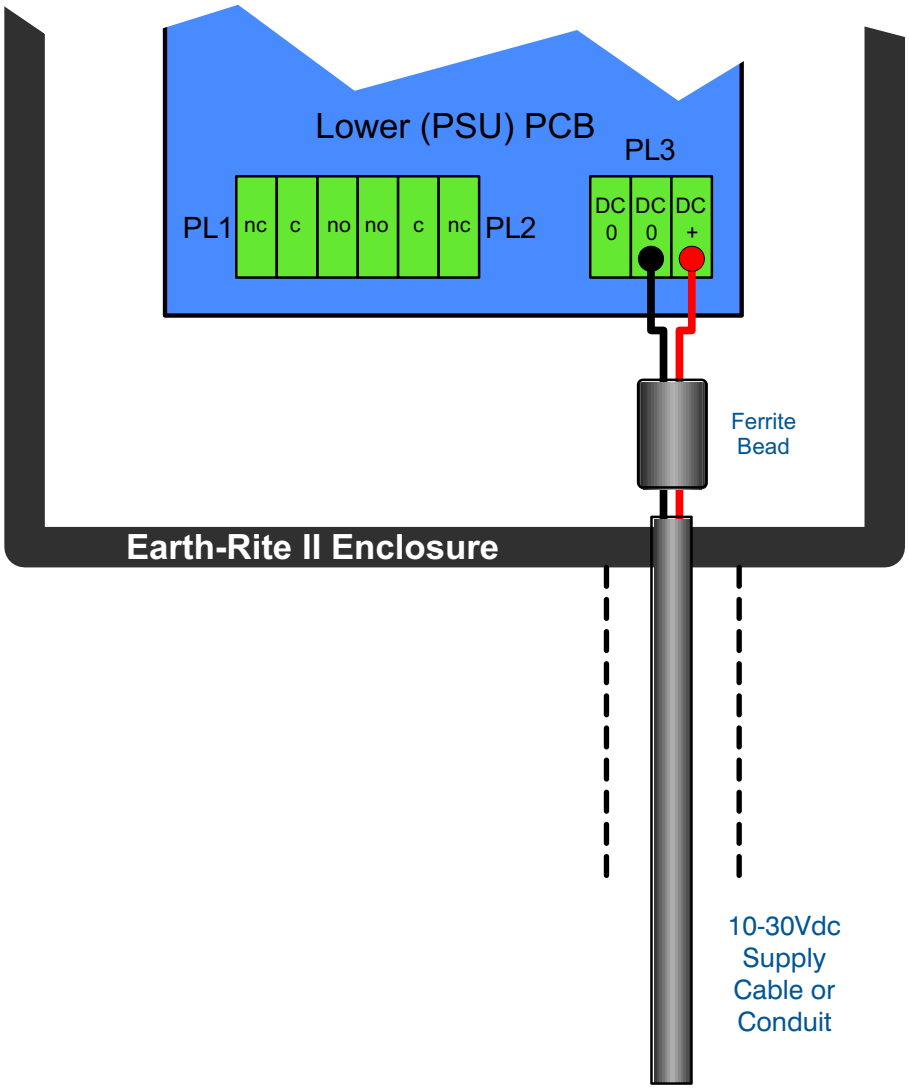
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Earth-Rite II PLUS
Cable Connections - P1 DC Version



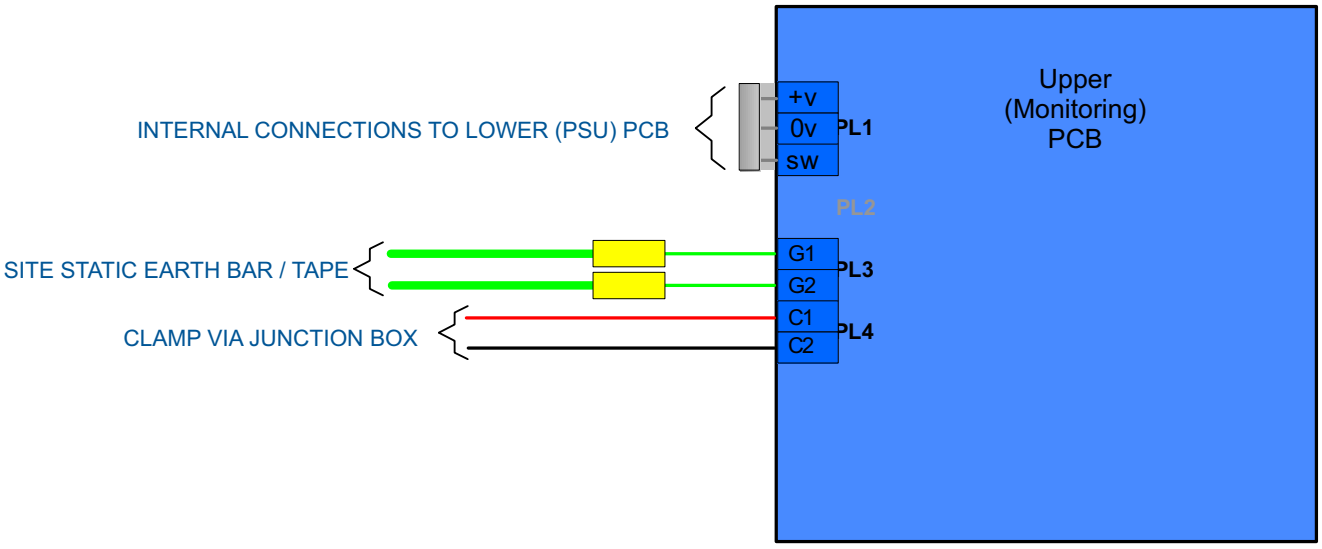
Verification of the Static Earth Point
The system monitors the static dissipation path, from the object to which the Static Earthing Clamp or lead is connected to, as far as the Static Earthing Point. This Earthing Point should be close to the working area. It is the responsibility of the end user to provide the Static Earthing Point and ensure that it is suitable for dissipating electrostatic charges. Reference to ATEX 2014/34/EU. ATEX 137, EN 60079-14, IEC TS 60079-32-1, CLC/TR: 60079-32-1, or other applicable international standard, will give guidance on the installation of a suitable Static Earthing Point.

Ferrite Bead Fitting Instructions for **Earth-Rite II** P1 DC Systems

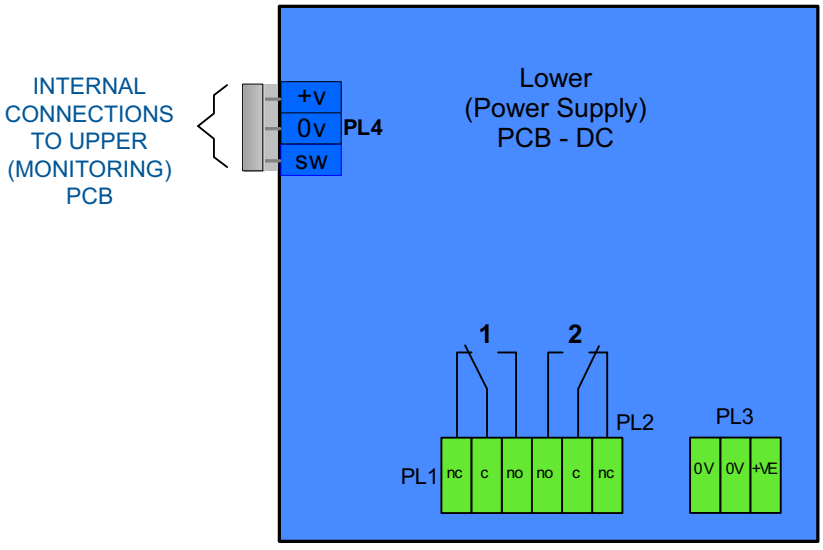


Intrinsically Safe PCB Connections

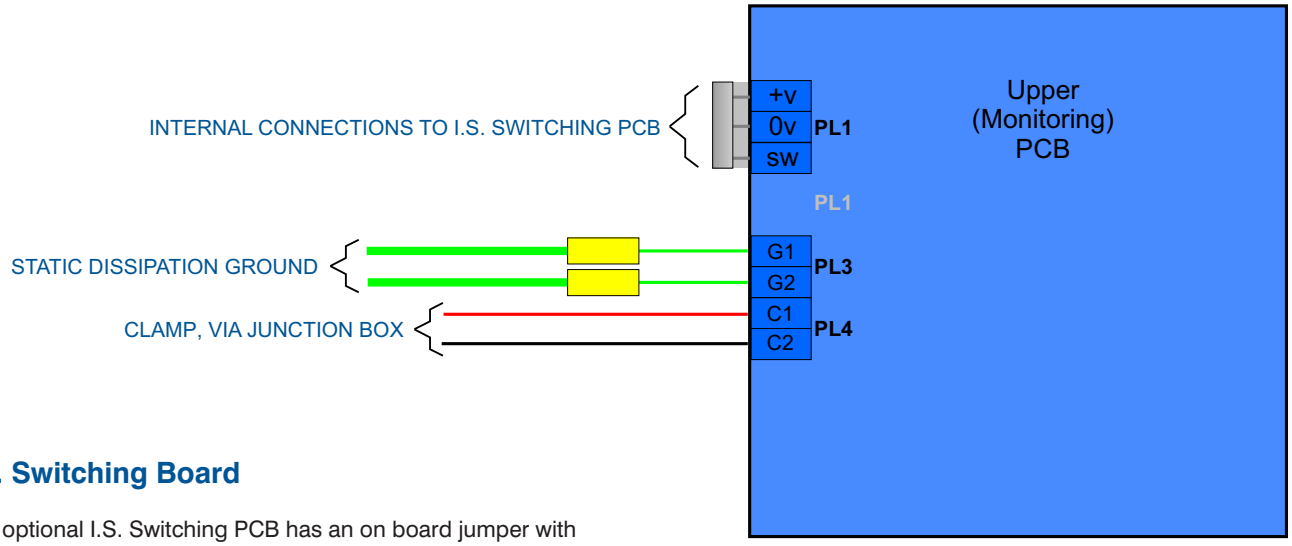
Monitoring PCB



Power Supply PCB

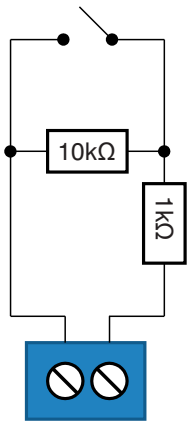


Optional Intrinsically Safe Switching PCB Connections



I.S. Switching Board

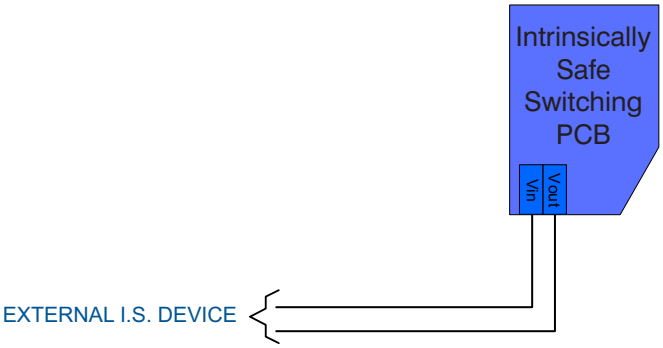
The optional I.S. Switching PCB has an on board jumper with a header that selects between two modes of operation.



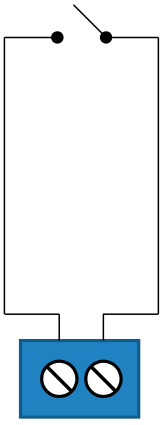
Jumper Position

NAMUR





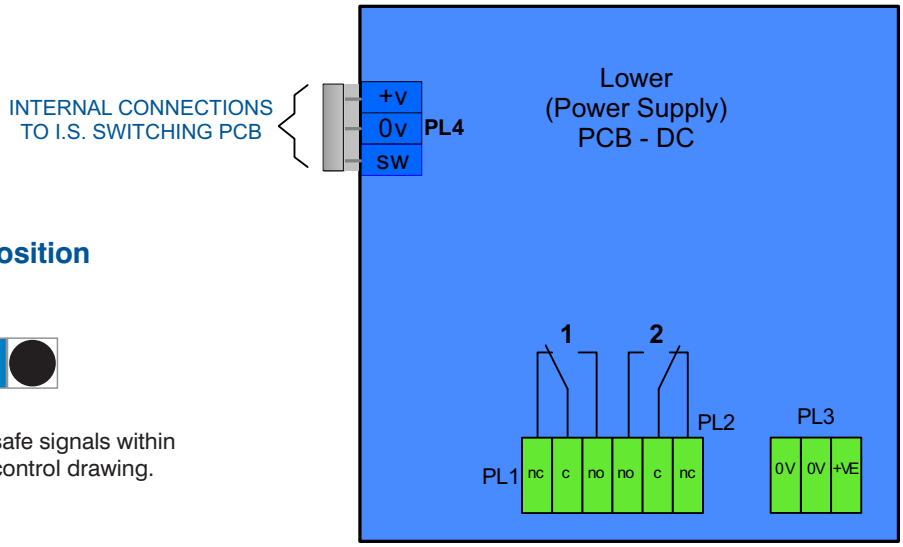
NAMUR – A NAMUR compliant input that switches between two load resistances.



Jumper Position

I.S.





I.S. Switch – An interlock for intrinsically safe signals within the defined parameters as shown on the control drawing.

This I.S. Switching PCB is an optional extra.
Should this be required, order Part No.: **ER2/IS/KIT**

Earth-Rite II System

Component Identification

MONITORING PCB



OPTIONAL I.S. SWITCHING PCB



VAC - FORM INSULATING COVER



DC POWER SUPPLY



Internal Component Assembly

Avoiding Electrostatic Discharge (ESD) damage to the ERII monitoring PCB / Card

Always take precautions to ensure that you are not electrostatically charged whilst handling the monitoring PCB / Card.

Always handle the PCB / Card by the edges, or terminal block, and avoid touching the components.

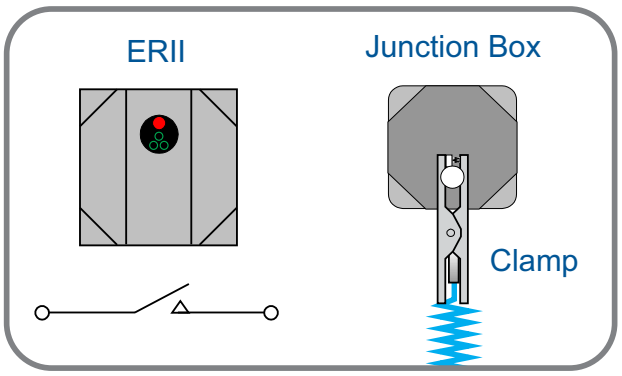
When not fitted inside the ERII enclosure, precaution should be taken to avoid damage to the PCB.

Always observe precautions against damage to the PCB's from electrostatic discharge.

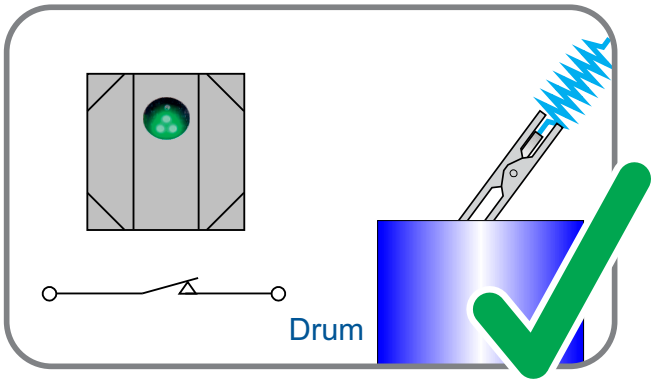
1. Remove the lid of the enclosure.
2. Disconnect the three wires of the ribbon cable from the terminal block.
   Remove the monitoring PCB by unscrewing the three hexagonal metal pillars.
3. Unscrew the pillar holding the Intrinsically Safe Switching PCB.
4. Swing the Intrinsically Safe Switching PCB to the left of the vacuum formed cover.
5. Remove the vac-form insulating cover.
6. Install the various cables into the enclosure using suitable glands and/or conduit. Make the connections to the Power Supply PCB.
7. Replace the vac-form insulating cover.
8. Replace the Intrinsically Safe Switching PCB onto the pillar and in front of the vacuum formed cover.
9. Replace and secure the pillar to hold the Intrinsically Safe Switching PCB.
10. Make the external I.S. wiring connections to the Intrinsically Safe Switching PCB terminals, taking care to support the PCB whilst tightening the terminal screws.
11. Replace the monitoring PCB and secure using the three hexagonal metal pillars. Reconnect the ribbon cable and make the external I.S. wiring connections into the Terminal block.
12. Replace the lid of the enclosure securely.

Operation

Important Note: The Clamp/s should be fitted prior to any other operation as per the recommendations of ATEX 2014/34/EU, ATEX 137, EN 60079-14, IEC TS 60079-32-1 and CLC/TR: 60079-32-1.



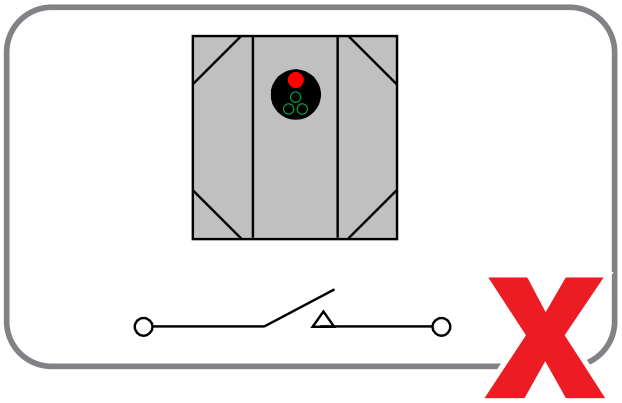
A. In the normal "rest" state, with the Earthing Clamp stowed on the insulated pin, the **Red** *Negative Earth Condition* LED will be showing.



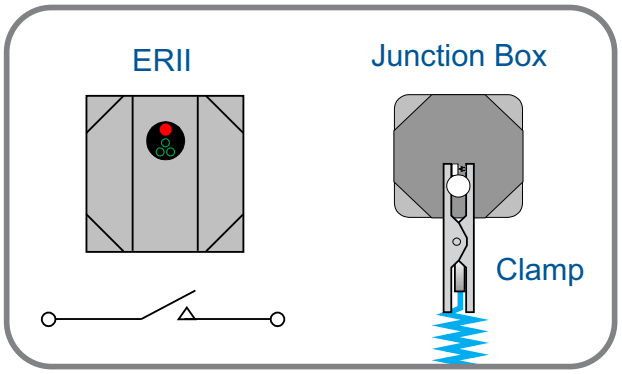
B. Attach the Earthing Clamp onto the conductive plant item at a suitable point and ensure that the pointed contacts are positively located.

If the connection to the plant item and Earth is good, the **Green** *Positive Earth Condition* LEDs will flash and the interlock contacts will close.

The product transfer / mixing operation can now take place.



C. If the connection between the plant item and Earth is broken during the transfer / mixing operation, the **Red** *Negative Earth Condition* LED will show and the interlock contacts will open.

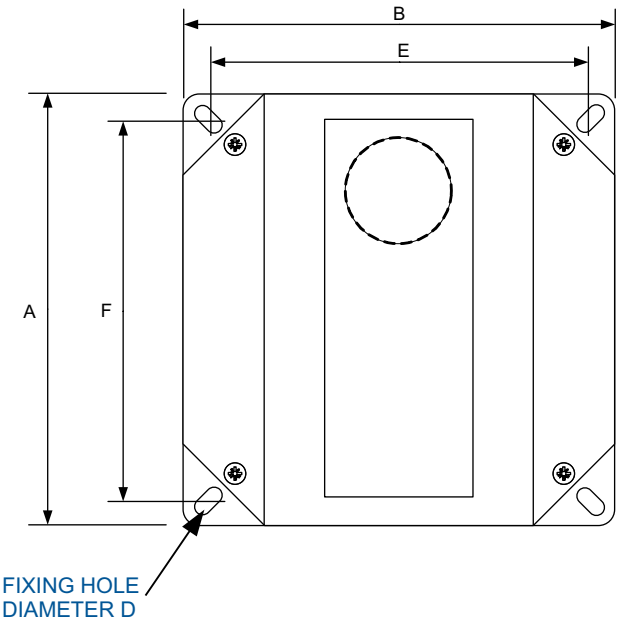


D. On completion the Earthing Clamp should be removed from the plant item and stowed on the insulated pin on the front of the junction box. The **Red** *Negative Earth Condition* LED will show.

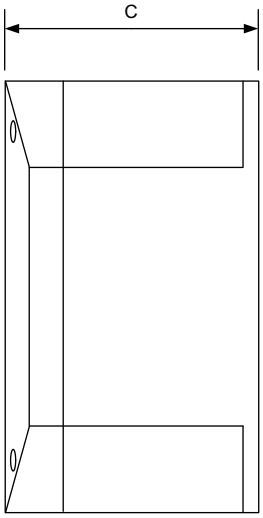
Earth-Rite II Dimensions

Monitoring Unit

FRONT VIEW WITH LID IN PLACE

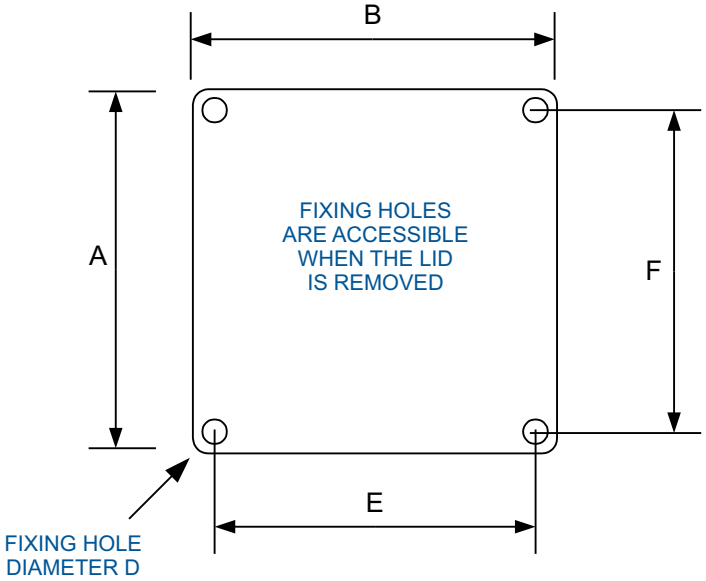


SIDE VIEW WITH LID IN PLACE

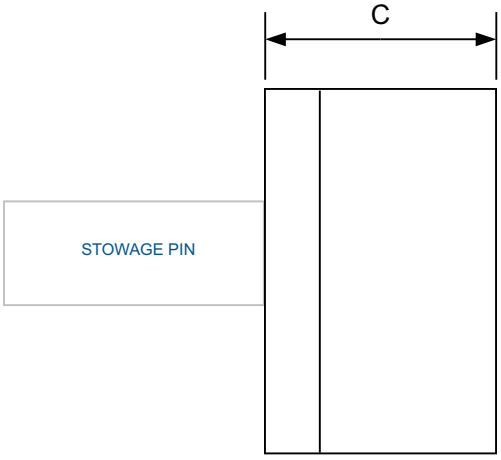


Junction Box

FRONT VIEW WITH LID IN PLACE



SIDE VIEW WITH LID IN PLACE



PRODUCT DESCRIPTION	MAIN DIMENSIONS			FIXING DIMENSIONS		
	A mm	B mm	C mm	D mm	E mm	F mm
Earth-Rite II P1 Monitoring Unit	160	160	94	12 X 7	140	140
Junction Box with Stowage Pin	75	80	57	4.5	68	45

Earth-Rite II PLUS - P1 DC Technical Specification

Monitoring Unit

Power supply	12/24V dc (Supply voltage range: 10V to 30V dc)
Power rating	10 watt
Ambient temperature range	-40°C to +55°C
Ingress protection	IP66
Weight	2 kgs (nett)
Construction	Static Dissipative Glass-Reinforced Polyester
ATEX & UKEX certification	II 3(1)G II 2(1)D Ex ec nC [ia Ga] IIC T4 Gc Ex tb [ia Da] IIIC T70°C Db Ta = -40°C to +55°C
Certification No.	ExVeritas 19ATEX0545X & ExVeritas 21UKEX0833X
IECEx certification	Ex ec nC [ia Ga] IIC T4 Gc Ex tb [ia Da] IIIC T70°C Db Ta = -40°C to +55°C
Certification No.	IECEx EXV 19.0059X
CCC certification	Ex ec [ia Ga] nC IIC T4 Gc Ex tb [ia Da] IIIC T70°C Db
Certification No.	CCC 2021312304001041
KCs certification	Ex ec nC [ia Ga] IIC T4 Gc(Ga) Ex tb IIIC T70°C Db Ta = -40°C to +55°C
Certification No.	KCs (Gas) 22-AV4BO-0315X & KCs (Dust) 22-AV4BO-0316X
Monitoring circuit	Intrinsically safe
Operational series ground resistance	≤10 Ohm
Non I.S. Output Relay contact rating	2 off voltage free change-over switch contacts, 250Vac, 5A, 500VA max resistive 30Vdc, 2A, 60W max resistive
I.S. switch rating	1 off contact Switching I.S. circuit only in accordance with the ERII control drawing
I.S. PCB terminal torque	0.5 Nm
Cable entries	7 x M20 (2 x plugged)

Junction box/stowage point

Enclosure	GRP with carbon loading
Terminals	2 x 2.5mm^2 conductor capacity
Stowage device	Insulated pin
Cable entries	1 x M20
Clamp Cable Connection	Quick Connect

Earthing clamp

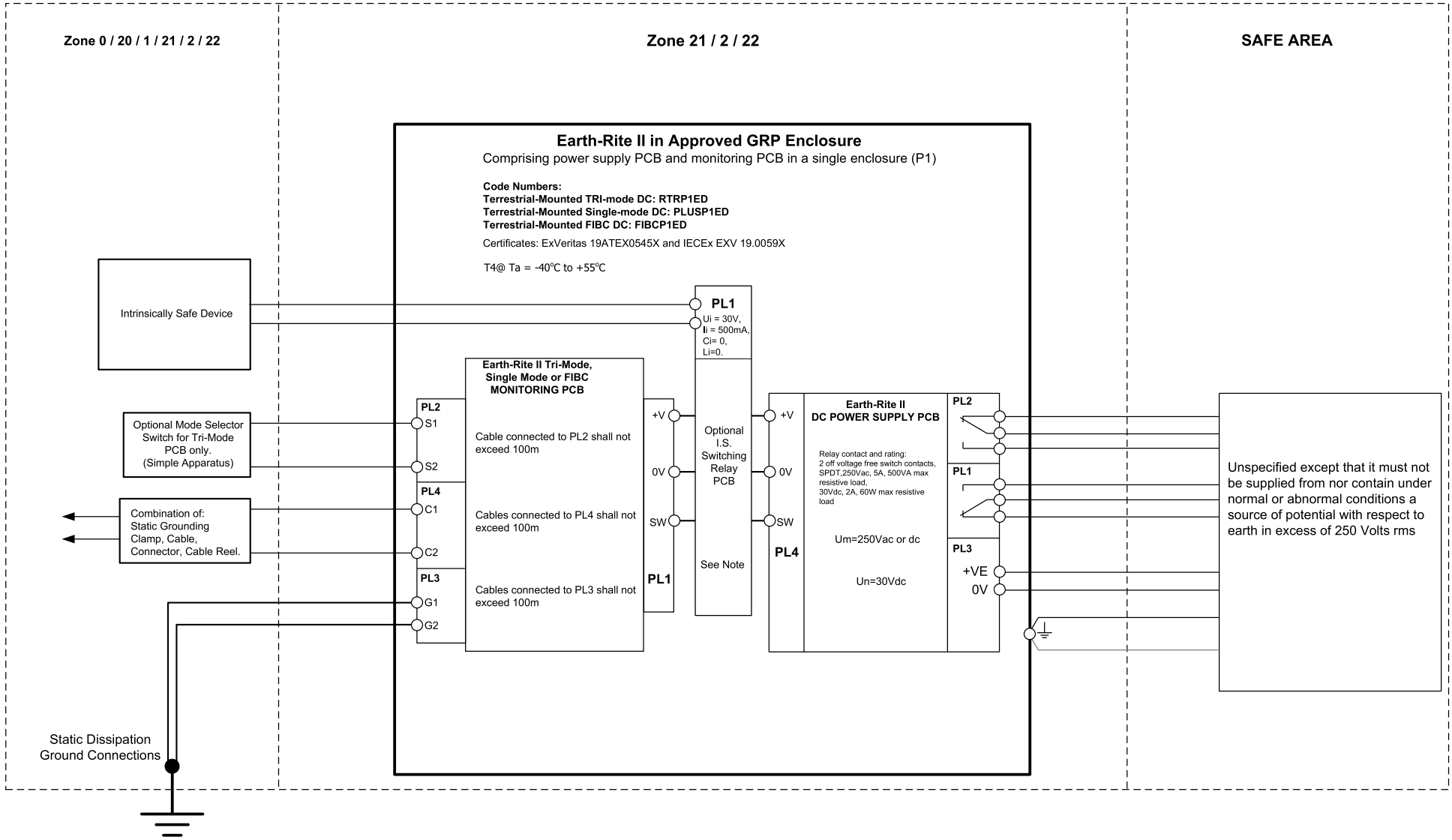
Clamp design	2 pole with tungsten carbide contacts
Body	Stainless steel

Spiral Cable

Cover	Blue Cen-Stat Hytrel sheath (Static dissipative, chemical & abrasion resistant)
Conductors	2 x 1.00mm^2 copper
Length	10 metres extended, 1 metre unextended (other options available)

NB: In line with our policy of continual product development, we reserve the right to alter specifications at any time.

Ex scheduled drawing: DO NOT modify without approval from the notified body



NOTES:

1. The installation must comply with the relevant code of practice: e.g. IEC/EN 60079-14.
   In addition, the installation must be in accordance with the manufacturer's guidelines.
2. End-User terminals are identified thus: O
3. WARNING - Substitution of components may impair Intrinsic Safety.
4. Optional I.S. Switching Relay PCB: The PCB connects to the Power Supply PCB and the Monitoring PCB using two 3-way ribbon cables. If the PCB is not used, a 3-way ribbon cable is fitted which connects the Monitoring PCB directly to the Power Supply PCB.

Rev 3 raised to add option of I.S. switching relay.
Rev 4 raised to add "X" to certificate numbers.
Rev 5 raised to add ExVeritas certificate numbers.

Newson Gale Ltd.	Title:	**Earth-Rite II P1 RTR, PLUS & FIBC – Control Drawing – DC Terrestrial**	
	DRAWN:	IW	**DATE:** 03/12/2018
	APPROVED:	GC	**DATE:** 10/10/2019
Sheet No. 3 of 3	**Drg. No.**	**ERII-Q-10174 AI Rev 5.vsd**	

Ex scheduled drawing: DO NOT modify without approval from the notified body

www.newson-gale.co.uk

User instructions in compliance with

IEC 60079-0 clause 30

The following instructions apply to the **Earth-Rite II Earth Monitoring Unit**, covered by certificate numbers **IECEx EXV 19.0059X, ExVeritas 19ATEX0545X** and **ExVeritas 21UKEX0833X.**

Instructions for **safe selection, installation, use, maintenance and repair**

The equipment may be used in zones 2, 21 and 22 with flammable gases and dusts.

The equipment may be used in the presence of flammable gases and vapours with apparatus groups IIC or IIB or IIA and with temperature classes T1 or T2 or T3 or T4.

The equipment may be used in the presence of flammable dusts, powders and flyings, conductive or non-conductive, the only limitation being the maximum external surface temperature of 70°C.

The equipment is certified for use in ambient temperatures in the range of –40°C to +55°C and should not be used outside this range.

The equipment is to be installed by suitably trained personnel in accordance with the applicable code of practice (typically IEC/EN 60079-14)

No user adjustment is required.

Regular periodic inspection of the equipment should be performed by suitably trained personnel in accordance with the applicable code of practice (typically IEC/EN 60079-17) to ensure it is maintained in a satisfactory condition.

The equipment is not intended to be repaired by the user. Repair of the equipment is to be carried out by the manufacturer, or their approved agents, in accordance with the applicable code of practice.

The equipment contains no user-replaceable parts.

Specific Conditions of Use
(denoted by X after the certificate number)

In locations where high external humidity and internal temperature variations (e.g. frequent on-off cycles) may cause condensation inside the equipment, the interior shall be periodically inspected.

Label Detail



Earth-Rite ER II
Product Code = CCC
Serial Number: YY/xxxxx
Supply Voltage. VVV

NOTE:
CCC = PLUSP1ED
YY = Year of Manufacture
XXXXX = Specific Serial Number
vvvvv = 12-24Vdc

Verification of the Static Earthing Point

The system monitors the static dissipation path, from the object to which the Static Earth Monitoring Clamp is connected, as far as the Site Static Earth Bar or Tape. The Static Earth Bar/Tape, and Static Earth Point, should be close to the working area.

It is the responsibility of the end user to provide the Static Earth Point and ensure that it is suitable for dissipating electrostatic charges. Reference to ATEX 2014/34/EU, ATEX 137, EN 60079-14, IEC TS 60079-32-1, PD CLC/TR: 60079-32-1, or other equivalent international standard, will give guidance on the installation of a suitable Static Earth Point.

The above does not apply to any system used to monitor a bond connection only.

IF YOU HAVE ANY QUERIES REGARDING THE ABOVE POINTS THEN PLEASE CONTACT NEWSON GALE WITHOUT DELAY.

Earth-Rite II

Important

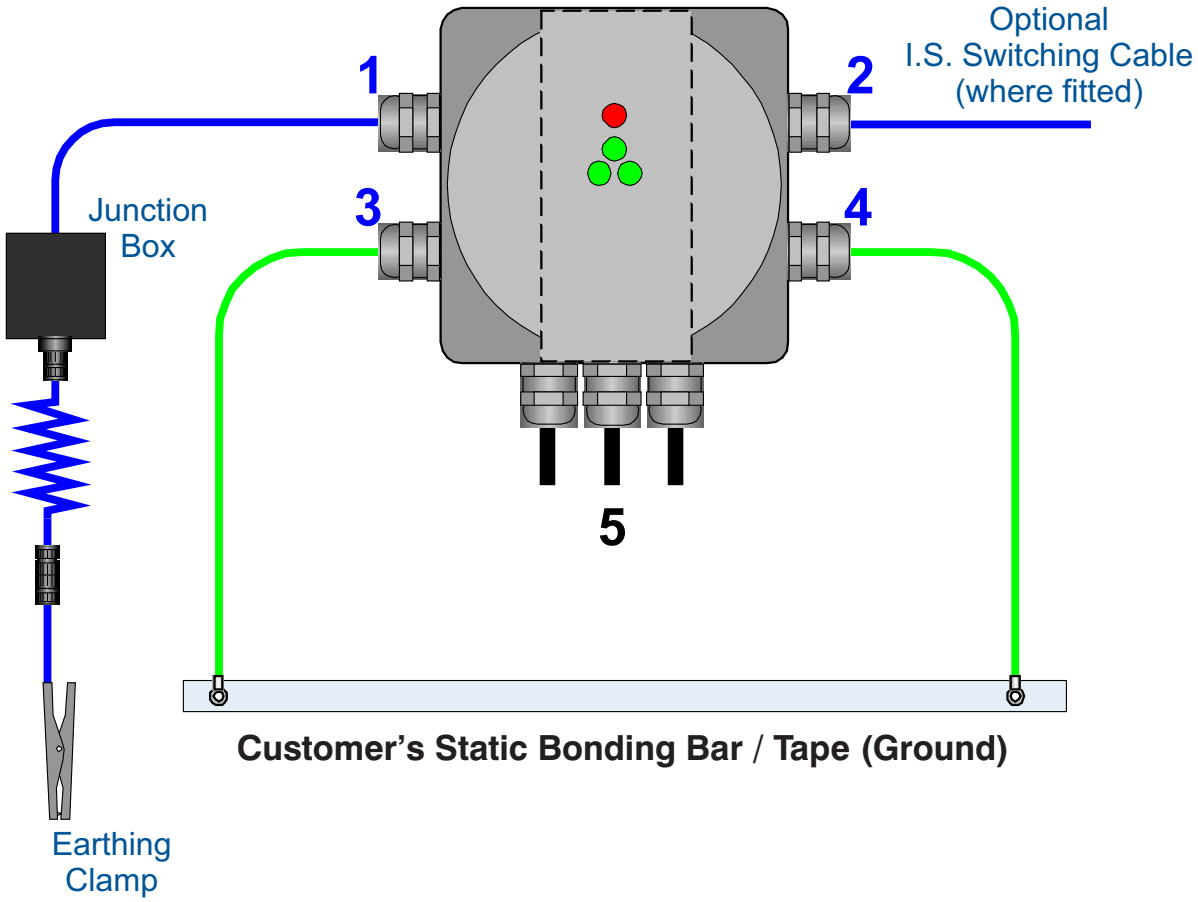
The cables must enter the enclosure through the entries as shown to ensure certification is maintained.

Always use correctly specified and certified cable glands or conduit fittings.

Please refer to the main manual for conduit installations.

You will invalidate the certification if you do not install as per the instructions

1. CABLE ENTRY FOR CLAMP CIRCUIT CABLE (FROM MONITORING PCB TERMINALS C1 AND C2).
2. CABLE ENTRY FOR EXTERNAL I.S. DEVICE CABLE CONNECTION (FROM OPTIONAL I.S. SWITCHING PCB TERMINAL PL1).
3. CABLE ENTRY FOR GROUND CABLE (FROM MONITORING PCB TERMINAL G1).
4. CABLE ENTRY FOR GROUND CABLE (FROM MONITORING PCB TERMINAL G2).
5. CABLE ENTRIES FOR NON-INTRINSICALLY SAFE CABLES (FROM POWER SUPPLY PCB TERMINAL BLOCKS PL1, PL2, PL3 AND PROTECTIVE EARTH TERMINAL).



Avoiding Electrostatic Discharge (ESD) damage to the ERII monitoring PCB / Card

- Always take precautions to ensure that you are not electrostatically charged whilst handling the monitoring PCB / Card.
- Always handle the PCB / Card by the edges, or terminal block, and avoid touching the components.
- When not fitted inside the ERII enclosure, precaution should be taken to avoid damage to the PCB.

Newson Gale Ltd
Omega House
Private Road 8
Colwick, Nottingham
NG4 2JX, England

Tel: +44 (0)115 940 7500
www.newson-gale.co.uk
groundit@newson-gale.co.uk

EU Declaration of Conformity

In accordance with ISO/IEC 17050-1

This declaration of conformity is issued under the sole responsibility of Newson Gale Ltd of Omega House, Private Road 8, Colwick, Nottingham

Declare that:

The Newson Gale Earth-Rite II P1 PLUS, RTR. MGV and FIBC Static Grounding Systems (Certificates ExVeritas 19ATEX0545X and IECEx EXV 19.0059X – ExVeritas Certification Service 2804)

- Are in accordance with the following directives:

2014/30/EU Electromagnetic Compatibility Directive & its amending directives
ATEX Directive and its amending directives: 2014/34/EU of 26/02/2014.

- Have been designed and manufactured to the following specifications:

EN IEC 60079-0: 2018	EN IEC 60079-7: 2015+A1:2018	EN 60079-11: 2012
EN 60079-15: 2010	EN 60079-31: 2014	
IEC 60079-0: 2017	IEC 60079-11: 2011	IEC 60079-15: 2017
IEC 60079-31: 2013	IEC 60079-7: 2017	

Note: These have been checked against the latest standards (Technical Knowledge) and the requirements have been found to be no more onerous.

I hereby declare that the equipment named above, on the date the equipment accompanied by this declaration is manufactured and despatched, have been designed to comply with the relevant sections of the above referenced specifications. The equipment complies with the essential requirements of the Directives.

Signed by:

Name: I. Whitehouse

Position: Global Ex Certification Manager

Location: Colwick, Nottingham

Date: 28th July 2025

If you require a translation of this document please contact Newson Gale

Si vous avez besoin d'une traduction de cette page alors demandez Newson Gale

Bitten Sie Newson Gale um eine Übersetzung dieses Dokuments

Per una traduzione di questo documento, contatto Newson Gale

Para una traducción de este documento, contacto Newson Gale

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NG4 2JX, England

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www.newson-gale.co.uk
groundit@newson-gale.co.uk

UK Declaration of Conformity

This declaration of conformity is issued under the sole responsibility of Newson Gale Ltd of Omega House, Private Road 8, Colwick, Nottingham

Declare that:

The Newson Gale Earth-Rite II P1 PLUS, RTR. MGV and FIBC Static Grounding Systems (Certificate: ExVeritas 21UKEX0833X – ExVeritas Certification Service 2585)

- Are in accordance with the following regulations:

  The UK Electromagnetic Compatibility Regulations 2016, UKSI 2016:1091 & it's amending regulations.

  Equipment and Protective Systems Intended for use in Potentially Explosive Atmospheres Regulations 2016, UKSI 2016:1107 (as amended by UKSI 2019:696)

- Have been designed and manufactured to the following specifications:

EN IEC 60079-0: 2018	EN IEC 60079-7: 2015+A1 :2018	
EN 60079-11: 2012	EN 60079-15: 2010	EN 60079-31: 2014

Note: These have been checked against the latest standards (Technical Knowledge) and the requirements have been found to be no more onerous.

I hereby declare that the equipment named above, on the date the equipment accompanied by this declaration is manufactured and despatched, have been designed to comply with the relevant sections of the above referenced specifications. The equipment complies with the essential requirements of the Regulations.

Signed by:

Name: I. Whitehouse

Position: Global Ex Certification Manager

Location: Colwick, Nottingham

Date: 1st August 2025

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