



**Newson
Gale®**

Leading the way in hazardous area static control

READ MANUAL
BEFORE COMMENCING
WITH INSTALLATION

Earth-Rite® II FIBC

Static Grounding System

For Flexible Intermediate Bulk Containers (Type "C" Bags)

P1 FIBC - AC Supply

For use on 110-120 Volt and 220-240 Volt AC Supplies

Installation & Operating Instructions



www.newson-gale.com

Earth-Rite II

P1 FIBC AC

Static Earth Monitoring System

Terminology used in this manual

Single Mode

The **Earth-Rite II FIBC** system operates using “Single Mode” technology which monitors the complete resistive loop from the Type “C” FIBC bag to the designated site Static Earth Point.

FIBC System: The **Earth-Rite II FIBC** has been supplied as a **Single-mode** system (resistive monitoring), it is intended for use with Type “C” FIBC Bags. It is set to show permissive only when the system detects that the connection to the Type “C” FIBC Bag, and to earth, is less than 10^8 Ohms nominal resistance (10^7 Ohms systems are also available). 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 system can be powered from a range of supply voltages dependent upon the model.

The unit should be protected using a 2A fast blow fuse 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.

Note: It is recommended that the transfer 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
1.0mm² 2 core Cable with blue sheath or identifier (IS Circuit).

Cable from ERII Unit to customer's control circuit
1.0mm² 2 core cable + Earth

Cable from Supply to the ERII Unit
1.0mm² 2 core cable + Earth

Cables from ERII Unit to Site Static Earthing Point
4mm² 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 prevent them being accidentally pulled out.

Earth-Rite II FIBC Operation

SYSTEM USING MONITORING CLAMP AND SUPPLEMENTARY EARTHING CLAMP

In the normal rest state, with clamp stowed on the insulated pin, the *Red Negative Ground Connection* LED will show.

Attach the earthing clamp onto the FIBC (bag) on the top seam.

Attach the Monitoring clamp onto the FIBC bottom earth tag.

If the connection is healthy (Loop Resistance < 10⁸ Ohms*) the *Green Positive Ground Connection* LEDs will flash and the interlock contacts will close. (This may take a few seconds).

Product transfer can now take place.

If the earth monitoring loop circuit is broken during the transfer operation then the *Red Negative Ground Connection* LED will show and the interlock contacts will open.

On completion the monitoring clamp should be removed from the FIBC (bag) and stowed on the insulated pin on the front of the Junction Box. The *Red Negative Ground Connection* LED will show and the interlock contacts will open.

The earthing clamp should then be disconnected from the FIBC (bag).

Important Note - The earthing clamp should be fitted prior to any other operation as per the recommendations of CLC/TR: 50404, NFPA 77 and API RP 2003.

SYSTEM USING MONITORING CLAMP AND LIFTING GEAR WITH EARTHED HOOKS

In the normal rest state, with monitoring clamp stowed on the insulated pin, the *Red Negative Ground Connection* LED will show.

Attach the FIBC (bag) to the lifting hooks and check that the lifting loops are in good contact with the lifting hooks.

Attach the Monitoring clamp onto the FIBC bottom earth tag.

If the connection is healthy (Loop Resistance < 10⁸ Ohms*) the *Green Positive Ground Connection* LEDs will flash and the interlock contacts will close. (This may take a few seconds).

Product transfer can now take place.

If the earth monitoring loop circuit is broken during the transfer operation then the *Red Negative Ground Connection* LED will show and the interlock contacts will open.

On completion the monitoring clamp should be removed from the FIBC (bag) and stowed on the insulated pin on the front of the Junction Box. The *Red Negative Ground Connection* LED will show and the interlock contacts will open.

Note -

The clamp/s should be fitted prior to any other operation.

* For systems using FIBC's manufactured to the 10⁷ ohm standard, the healthy Loop Resistance needs to be < 10⁷ ohms.

Troubleshooting at the time of Installation – Earth-Rite II FIBC 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 FIBC (RED LED continues to show).

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

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

If the system still does not switch to permissive state confirm the basic operation of the system by clamping the Monitoring Clamp to the Earthing Clamp. The green lights should show.

Please contact Newson Gale and confirm the following:

Serial number _____

Company which ordered the system

Date of order _____

Any other information

Internal Component Assembly

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. Place the PCB in the anti-static bag provided and keep it safe.
3. Remove the vac-form insulating cover.
4. Install the various cables into the enclosure using suitable glands and/or conduit. Make the connections to the Power Supply PCB.
5. Replace the vac-form insulating cover.
6. Replace the monitoring PCB and secure using the three hexagonal metal pillars. Re-connect the ribbon cable and make the external I.S. wiring connections into the Terminal block.
7. Replace the lid of the enclosure securely.

Component Identification

Earth-Rite FIBC MONITORING PCB



AC POWER SUPPLY PCB



VAC - FORM INSULATING COVER

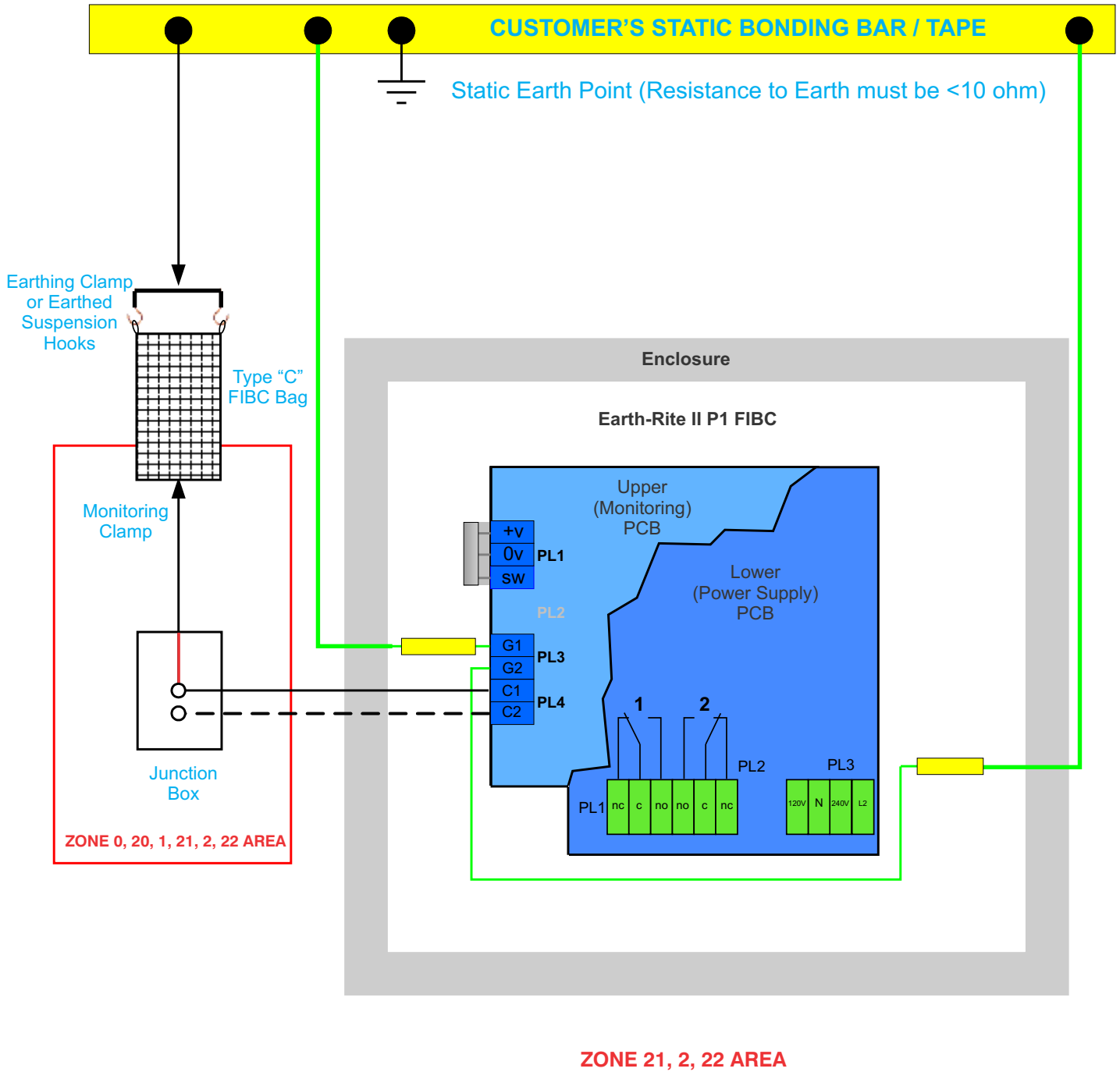


Earth-Rite II P1 FIBC AC

I.S. Cable Connections

Verification of the Static Earth Point

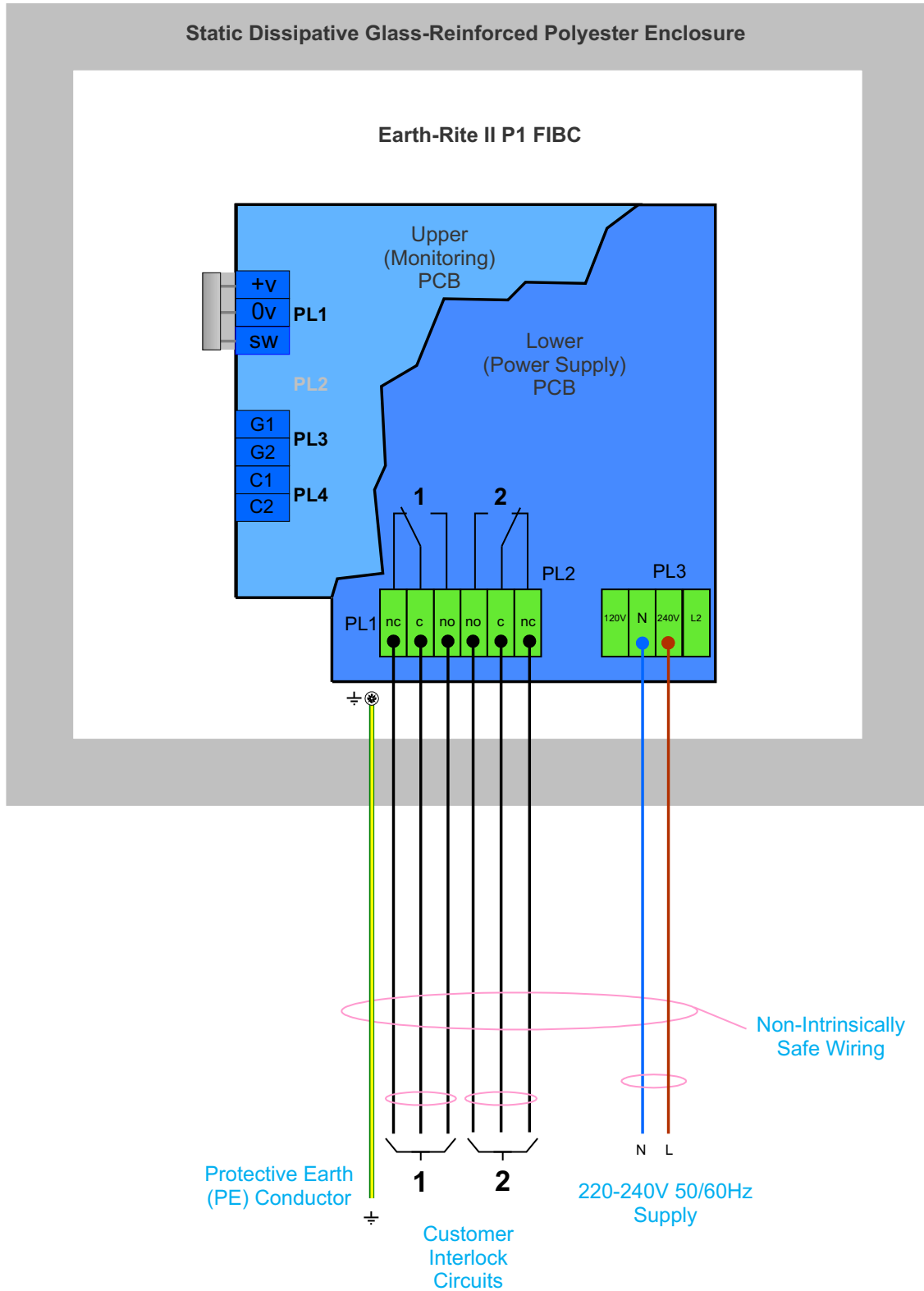
The system monitors the static dissipation path, from the object to which the Static Earthing Clamp or lead is connected to, as far as the Static Earthing Point. It is the responsibility of the end user to provide the Static Earthing Point and ensure that it is suitable for dissipating electrostatic charges.



Earth-Rite II P1 FIBC AC - Terrestrial Version

Non I.S. Cable Connections

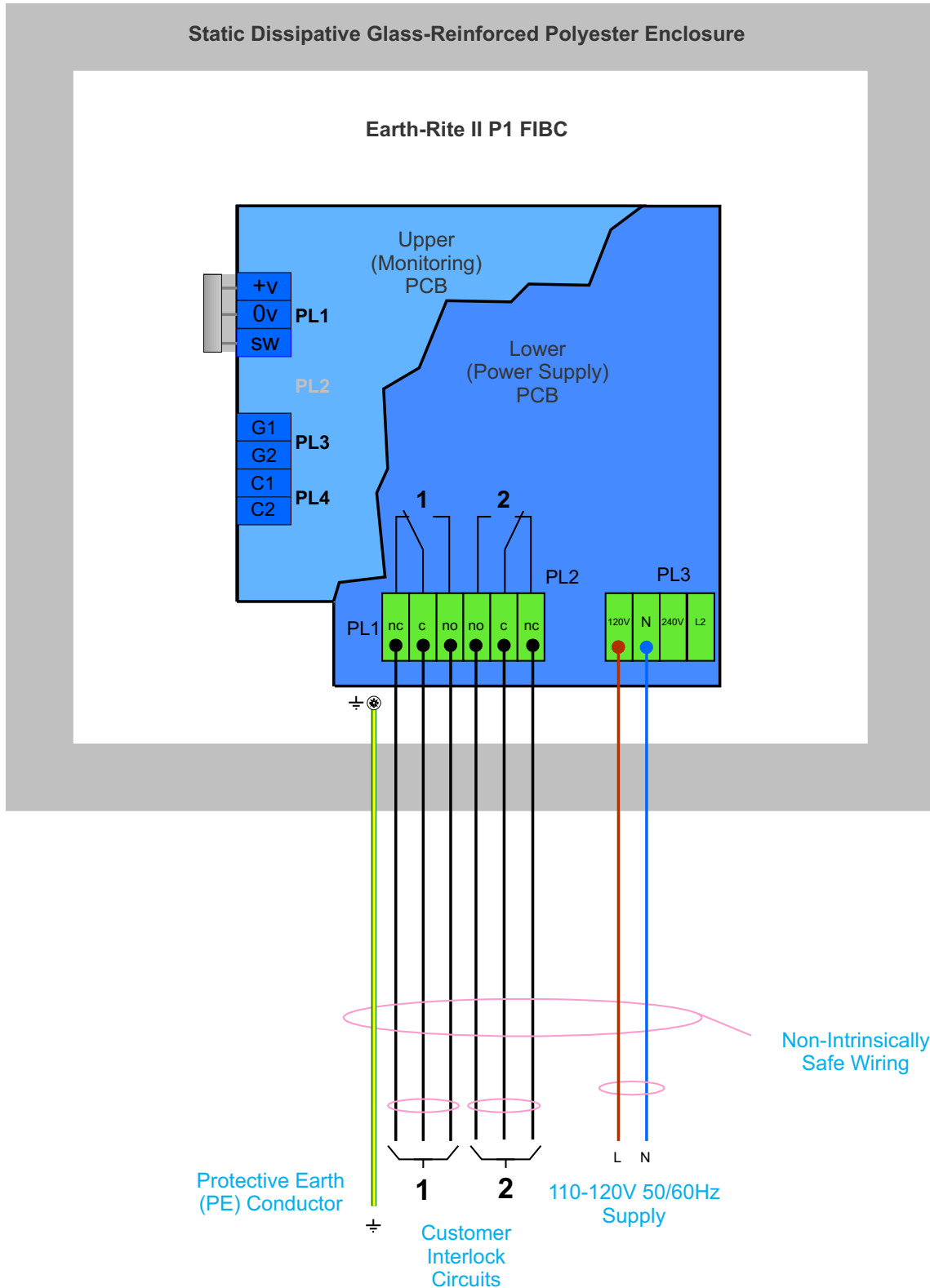
220-240V 50/60Hz Live and Neutral Supply



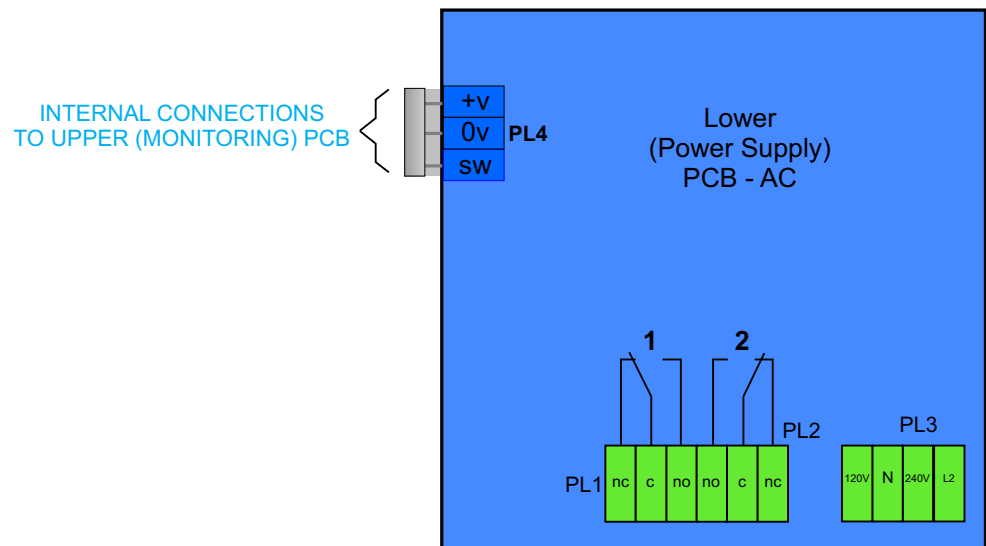
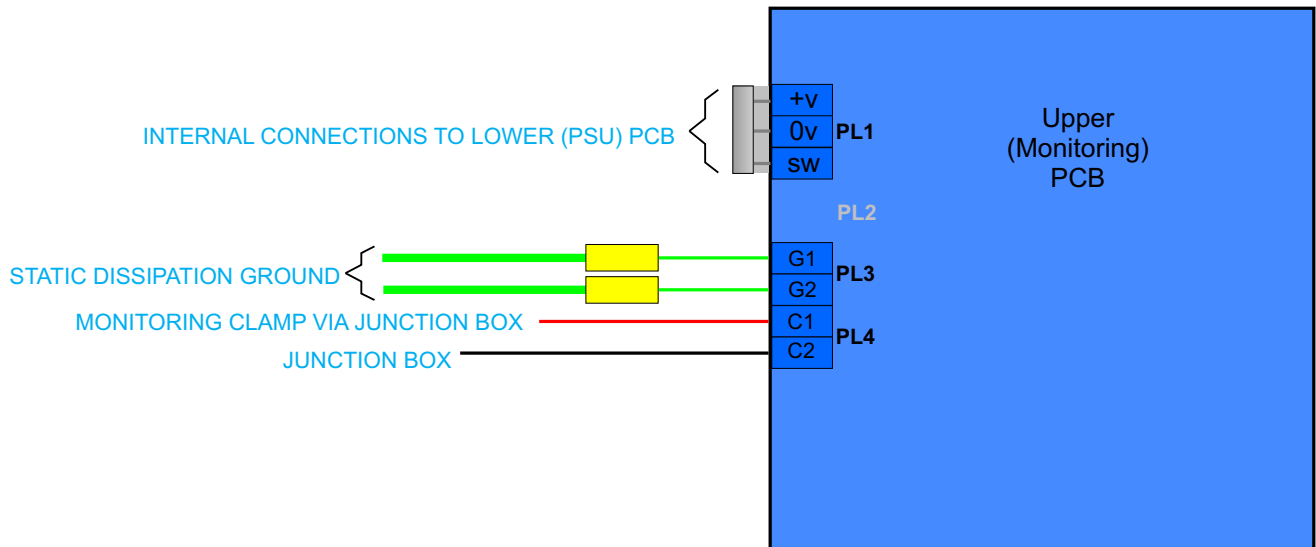
Earth-Rite II P1 FIBC AC - Terrestrial Version

Non I.S. Cable Connections

110-120V 50/60Hz Live and Neutral Supply

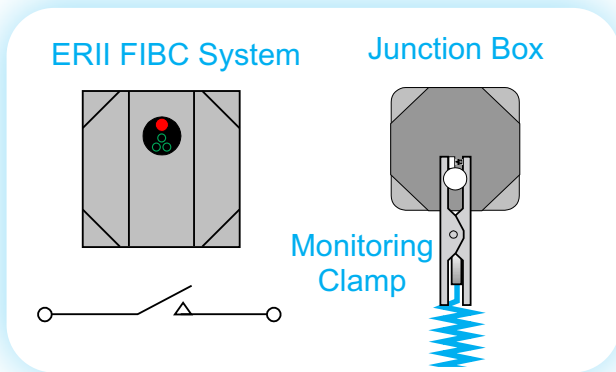


Intrinsically Safe PCB Connections

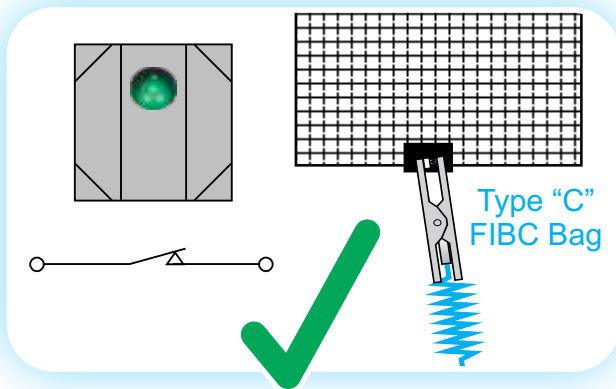


Operation - For systems using the supplementary Earthing Clamp and Cable

Important Note: The Clamp/s should be fitted prior to any other operation as per the recommendations of CLC/TR: 50404, NFPA 77 and API RP 2003.



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

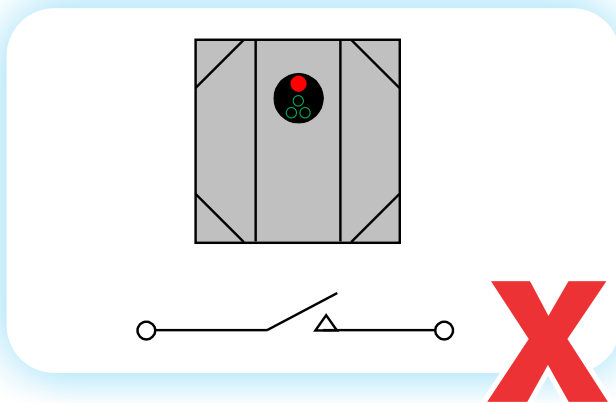


B. Attach the Earthing Clamp onto the top seam of the FIBC.

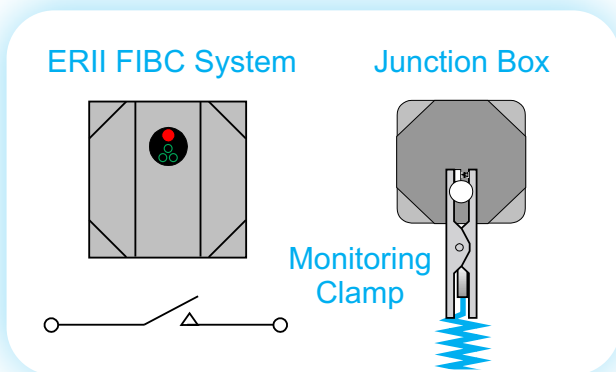
C. Attach the Monitoring Clamp onto the Earth tag of the FIBC.

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

The product transfer can now take place.



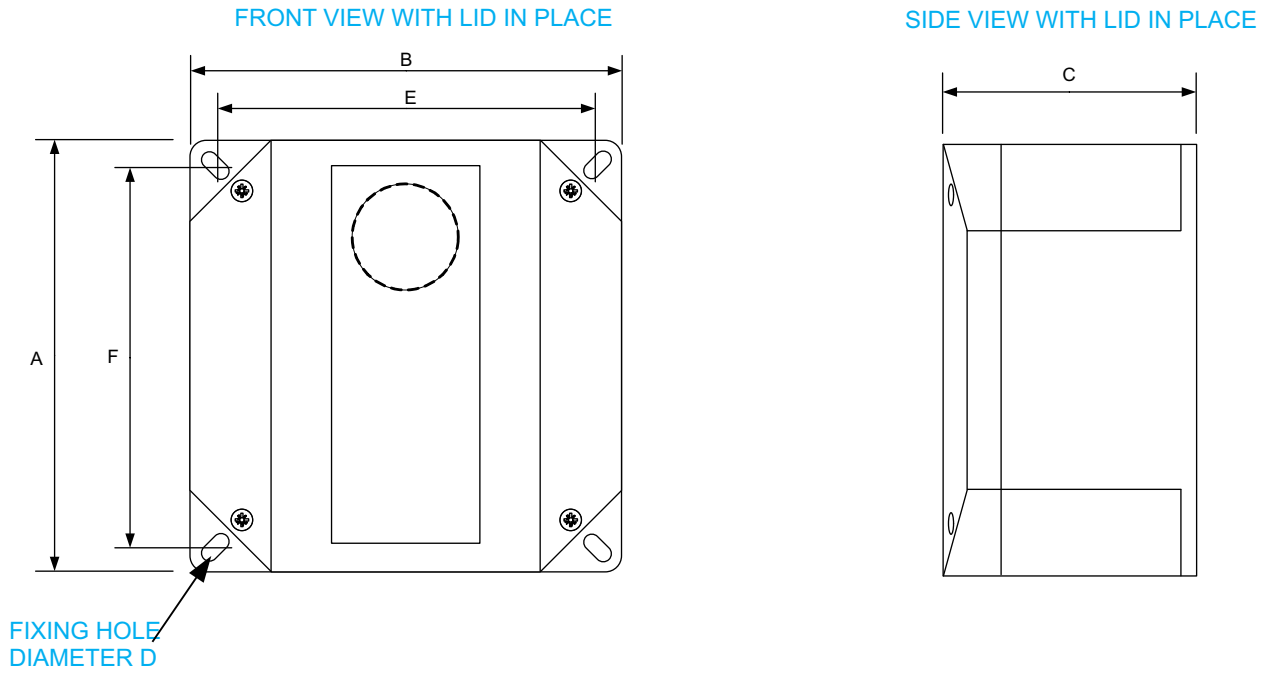
D. If the connection between the FIBC and Earth is broken during the transfer, then the **Red Negative Earth Condition** LED will show and the interlock contacts will open.



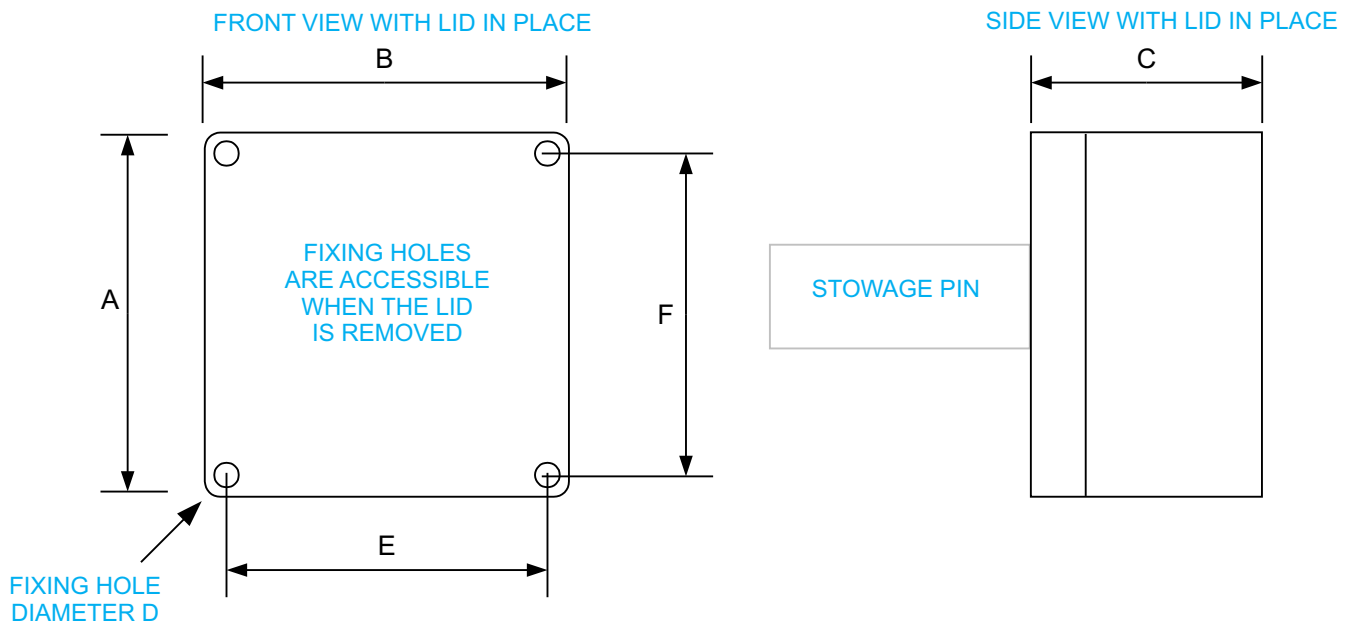
E. On completion the Monitoring Clamp should be removed from the FIBC and stowed on the insulated pin on the front of the junction box. The **Red Negative Earth Condition** LED will show. The Earthing Clamp should be removed from the FIBC.

Earth-Rite ERII P1 FIBC Mounting Dimensions

Monitoring Unit



Junction Box



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

Earth-Rite II - AC Technical Specification

Monitoring Unit

Power supply	230/240V 50Hz system (supply voltage range: 216V to 250V) 110/120V 50Hz system (supply voltage range: 108V to 125V)
Power rating	10 watt
Ambient temperature range	-40°C to +55°C
Ingress protection	IP66
Weight	1.5 kgs (nett)
Construction	Static Dissipative Glass-Reinforced Polyester
Certification	Ex na nC [ia] IIC T4 Gc(Ga) Ex tb IIIC T70C Db Ta = -40°C to +55°C Sira 09ATEX2247, IECEx SIR 09.0097
Monitoring circuit	Intrinsically safe
Operational series ground resistance	$\leq 10^8$ Ohm (continuously monitored). $\leq 10^7$ Ohm systems are available.
Output Relay contact rating	2 off voltage free change-over switch contacts, 250Vac, 5A, 500VA max resistive 30Vdc, 2A, 60W max resistive
Cable entries	7 x M20 (2 x plugged)

Junction box/stowage point

Enclosure	Stainless dissipative GRP
Terminals	2 x 2.5mm ² conductor capacity
Stowage device	Insulated 20mm Ø pin
Cable entries	1 x M20
Clamp Cable Connection	Quick Connect

Monitoring clamp

Clamp design	1 pole
Body	Stainless steel

Earthing clamp

Clamp design	1 pole
Body	Stainless steel

Monitoring Clamp Spiral Cable

Cover	Blue Cen-Stat Hytrel sheath (Static dissipative, chemical & abrasion resistant)
Conductors	1 x 4.00mm ² steel
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.

User instructions in compliance with IEC 60079-0:2007 clause 30

The following instructions apply to the **Earth-Rite II P1 FIBC Earth Monitoring Unit, Ex nA nC [ia]**, covered by certificate numbers **IECEX SIR 09.0097** and **Sira 09ATEX2247**.

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)

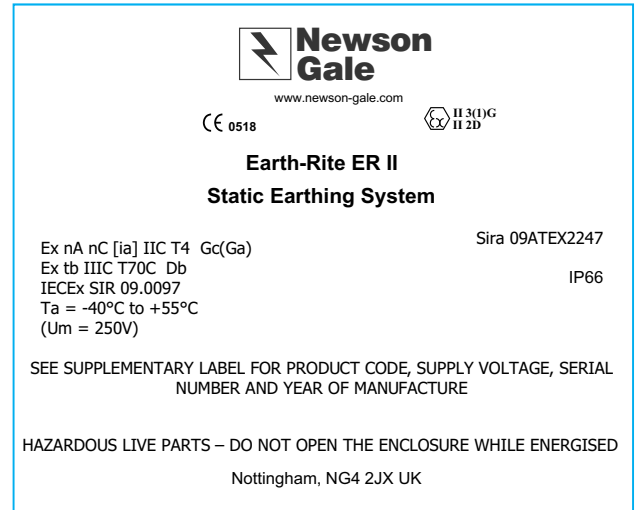
No user adjustment is required.

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.

Certification Label Detail for Sales Code FIBCP1EA



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

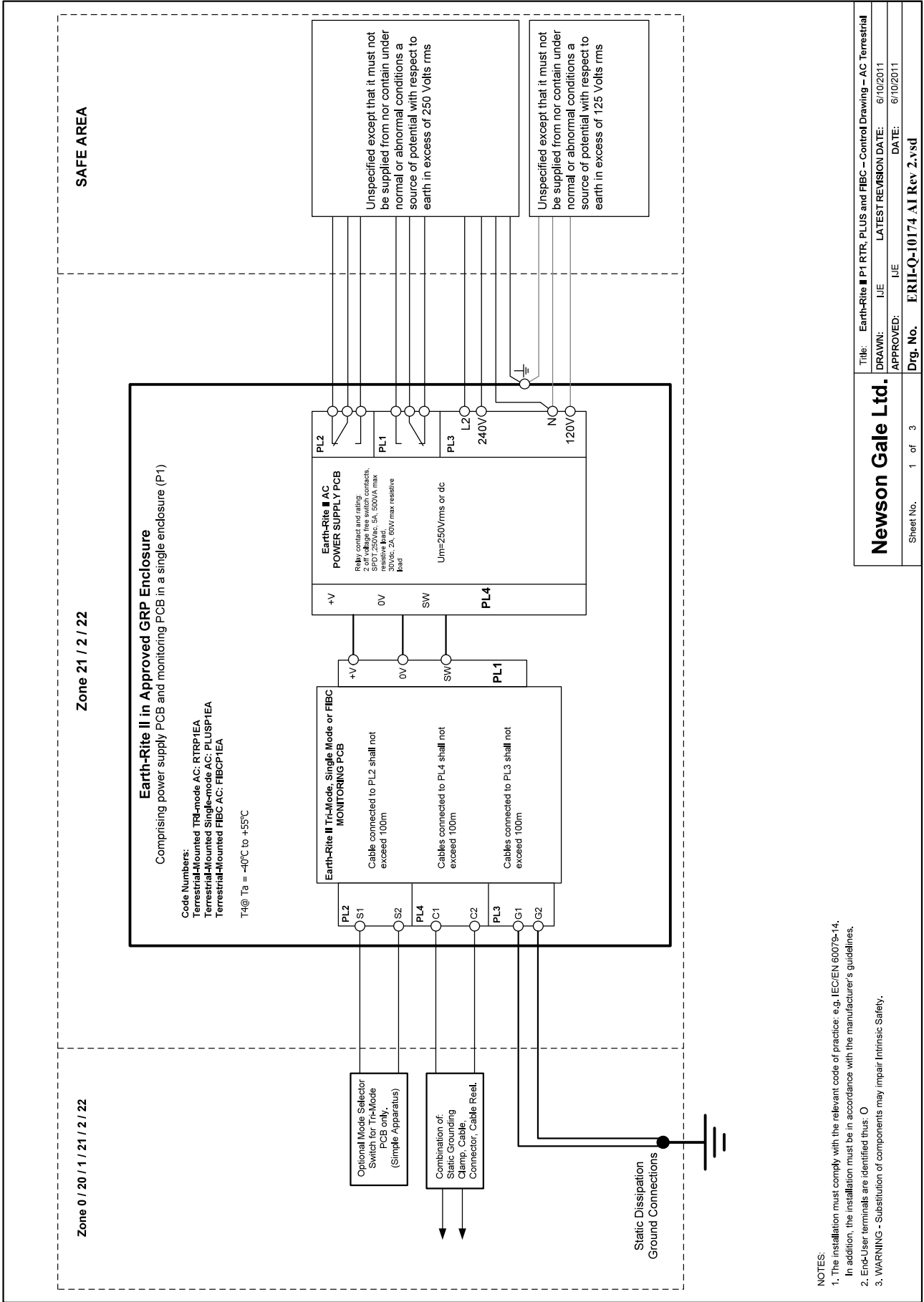
NOTE:
CCC = FIBCP1EA
YY = Year of Manufacture
XXXXX = Specific Serial Number
vvvvv = 220-240Vac, 110-120Vac

Verification of the Static Earthing 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.

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 95, ATEX 137, EN 60079-14, CLC/TR 50404, or other equivalent international standard, will give guidance on the installation of a suitable Static Earthing Point.

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



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.

Newson Gale Ltd.		Title: Earth-Rite II P1 RTR, PLUS and FIBC - Control Drawing - AC Terrestrial	
DRAWN: IJE	LATEST REVISION DATE: 6/10/2011		
APPROVED: IJE	DATE: 6/10/2011		
Sheet No. 1 of 3	Dr. No. ERI-Q-10174 AI Rev 2.y.sld		



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.

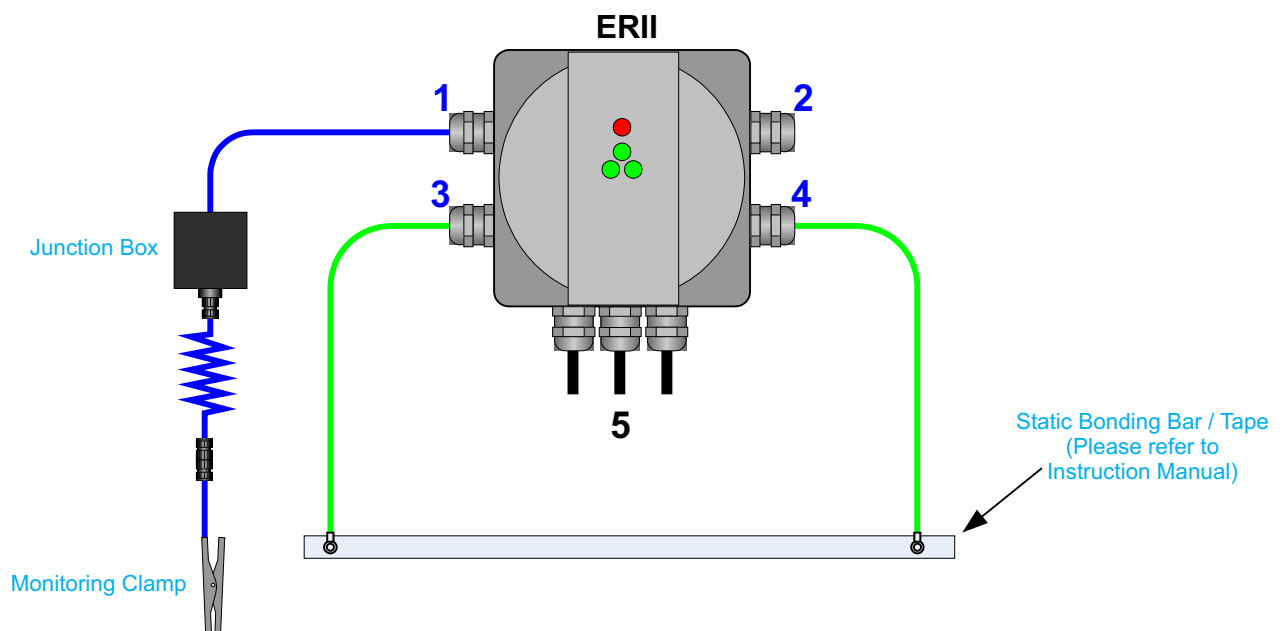
Please refer to the main manual for conduit installations.

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 OPTIONAL MODE SELECTOR KEY SWITCH (FROM MONITORING PCB TERMINALS S1 AND S2).
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, always keep the PCB / Card in the static dissipative bag provided.





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