

VESM02

Installation & Operating Instructions

Incorporating Specific Instructions for the use of the
VESM02 Reel with Newson Gale Monitoring Equipment



CONTENTS	PAGE
VESM02 General Installation and Operating Instructions	2
VESM02 Slip-Ring Cleaning Instructions	6
Using the VESM02 Reel with the ER11 PLUS System	8
Using the VESM02 Reel with the ER11 RTR System	10
Using the VESM02 Reel with the ER11 MGV System	13
Using the VESM02 Reel with the ER11 FIBC System	15
Using the VESM02 Reel with the ER11 OMEGA II Unit	18
Using the VESM02 Reel with the Bond-Rite CLAMP	20
Using the VESM02 Reel with the Bond-Rite REMOTE	22

US Version



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.

“Warning: Do not disassemble the spring motor, or spring housing, for any reason. Serious personal injury could result. This cable reel is equipped with springs under tension.”

VESM02

Static Discharge Grounding Reel

Installation & Operating Instructions

Model: VESM02

Newson Gale Static Discharge Grounding Reels are used to mitigate the build-up of electrostatic charges on plant items during the transfer, mixing and handling operations involving flammable liquids and powders. The VESM02 reel is a spring operated automatic retrieve reel containing a 2-core Hytrel sheathed cable and silver coated slip-rings.

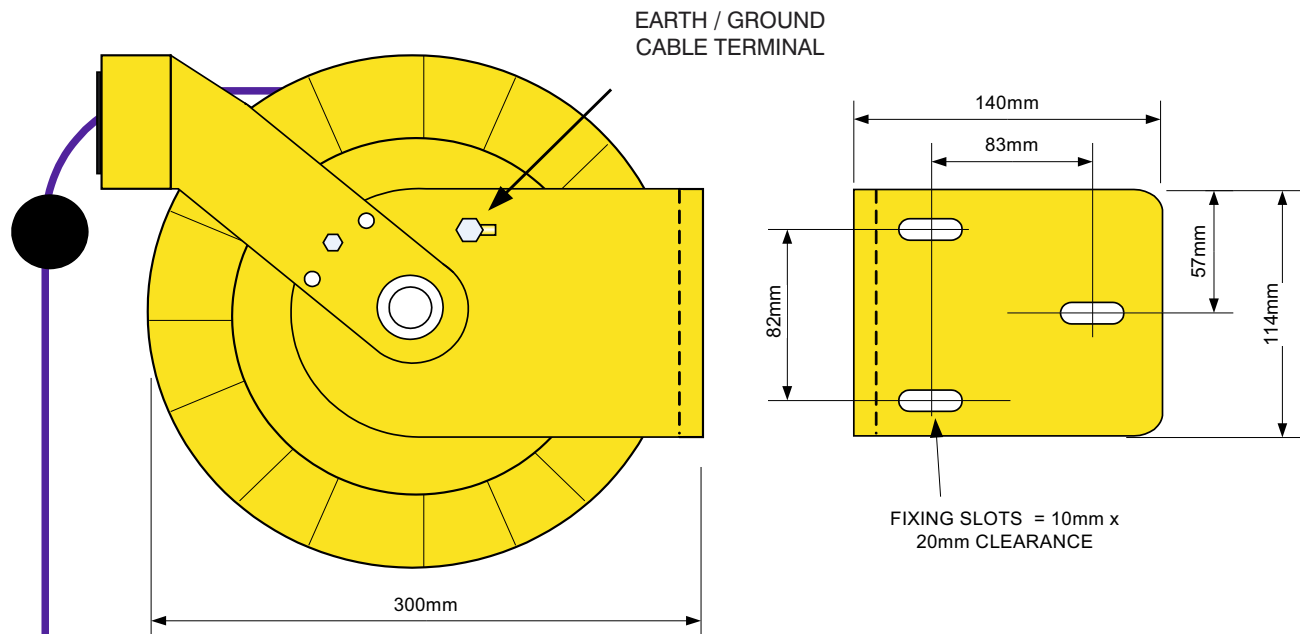
The reel is constructed of steel, with a hard-wearing painted finish. A ratchet lock provides operator control over cable pay-out. The cable is fitted with a spring dampened bump stop. The weight of the reel, including clamp and 15m cable, is 11.5kg (25lb).

The VESM02 Grounding Reel is approved, under ATEX, for use in Zones 1, 21 and 22 (CAT 2 and 3), and may be connected to any Earth-Rite Grounding System with certified Intrinsically Safe monitoring circuit output. The unit is also suitable for use in conjunction with Earth-Rite systems with certified Intrinsically Safe monitoring circuit outputs according to North American NEC Class/Division approvals.

Operation

Engage the ratchet lock by pulling cable out to the required length and letting it retract SLOWLY until the ratchet lock engages. To release the lock, pull cable out a short distance and allow it to slowly retract. DO NOT allow the cable to retract in an uncontrolled manner. Always guide cable back to reel. Failure to do so could result in damage to the reel, or personal injury.

Always operate the reel within the cable size and length and spring tensioning limits for which it was intended. Two wraps of cable should remain on the reel at maximum extension to avoid excessive tension on the cable entrance watertight grommet. The spring should not be wound to its last two turns at maximum payout to avoid overstressing the spring, thus reducing its life or damaging the reel. Keep the reel and cable clean to avoid excessive wear and damage. Arrange for maintenance service if damage is found on the cable or reel. Cable should be fully retracted when not in service to maximize spring life.



INSTALLATION

Mount the reel securely, in the vertical plane as per sketch. To minimise wear on cable and cable guide, and for best results, reel should be mounted in direct line with work so that the cable is pulled out as straight as possible during use – avoid pulling the cable out of the reel at an angle.

For best operation mount the reel at eye level.

Mounting The Reel

Standard Mounting

The reel may be mounted by bolting the base to any flat surface which is structurally sound enough to support it and the forces of winding and unwinding the cable.

The spool drum must rotate on a horizontal axis. The reel should be oriented so that the cable extends perpendicular to the rotation of the spool. The total cable deflection should not exceed 30 degrees.

If deflection is constant to either side of the reel and operation is impaired, re-mount the reel. If the angle of deflection exceeds 30 degrees a Pivot Base should be used, otherwise excessive cable wear and unreliable operation will result.

GROUNDING

Ensure reel housing is securely connected to Earth / Ground using a 4mm² (# 12 AWG) cable and the screw and crimp connector provided.

MONITORING CONNECTIONS

The reel is supplied with a 3m (10 ft) length of 2-conductor Hytrel sheathed cable for connection to the Newson Gale intrinsically safe monitoring circuit.

The reel may be connected to any Newson Gale monitoring device in accordance with the monitoring unit installation manual and any supplementary instructions.

MAINTENANCE

All springs and bearings are lubricated for life at the factory. Additional lubrication should not be required. Do not apply any lubricants or solvent cleaning agents to slip ring, brush or insulator surfaces.

The slip-rings should be inspected and cleaned as part of the planned routine maintenance schedule. Periodically check the cable for wear.

Planned Maintenance

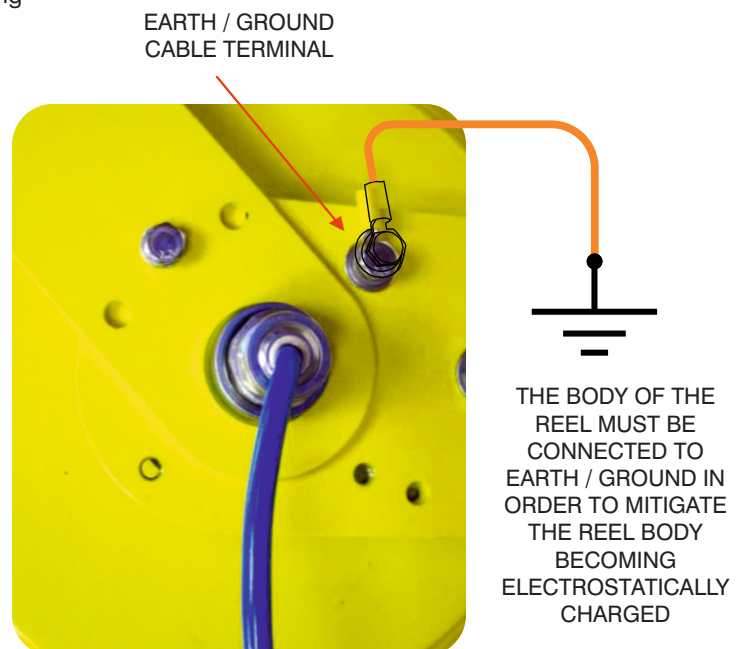
Periodically check the reel for any loose or missing fasteners. Tighten or replace as necessary. **NOTE: Do not over tighten, this will cause fasteners to snap.**

Inspect cable for damage or wear which could make it unsafe to use.

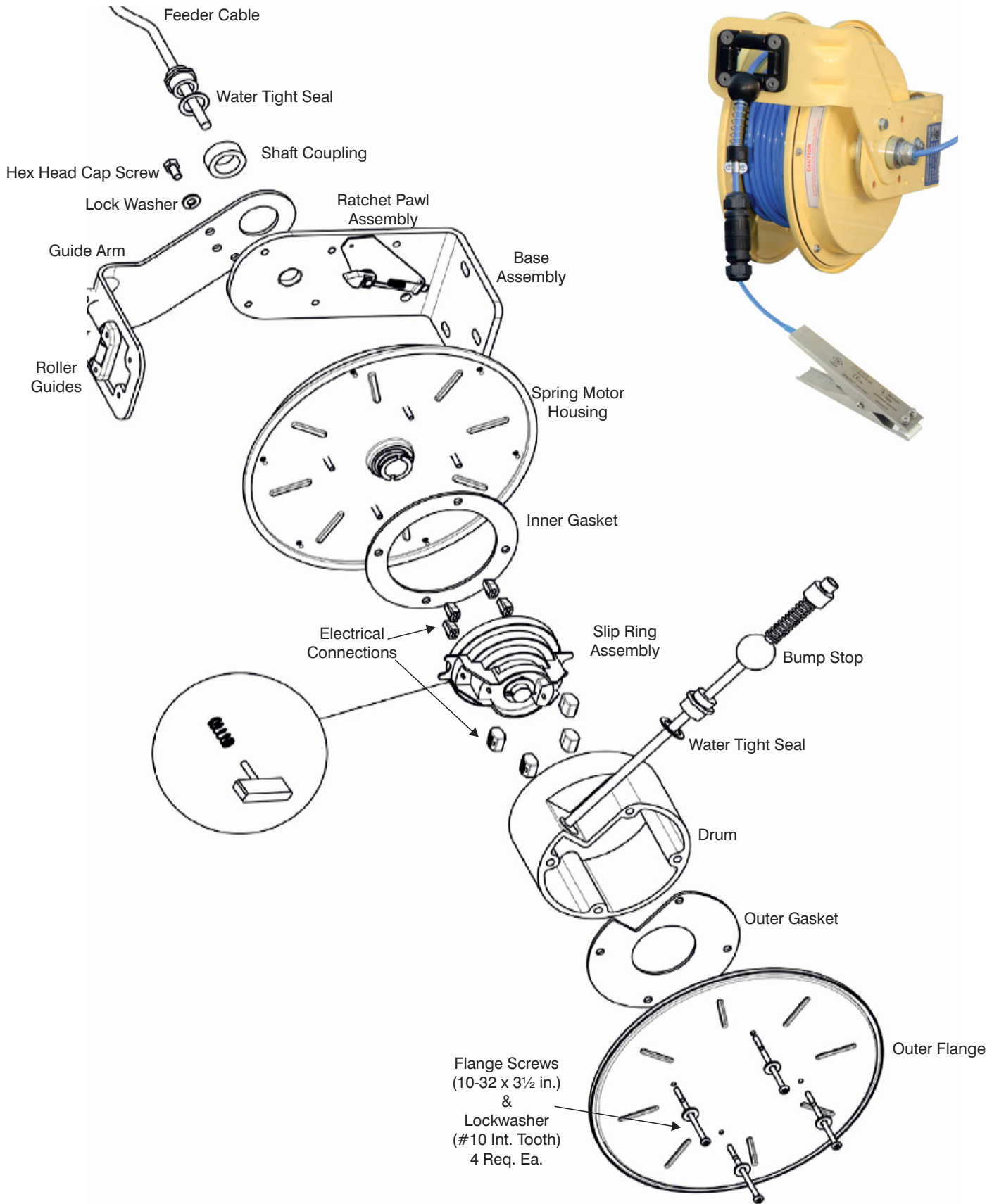
Top-up the static dissipative coating on the cable guide rollers using Techspray 1756 Licron Crystal spray.

The slip ring assembly should be checked periodically as follows:

- 1 - Clean to remove dust and dirt from the slip ring housing area and all slip ring assembly and brush surfaces.
- 2 - Brushes should be centered on slip rings and brush springs should be seated in the terminal grooves. Terminal screw connections should be tight. Check for excessive brush wear.



EXPLODED VIEW



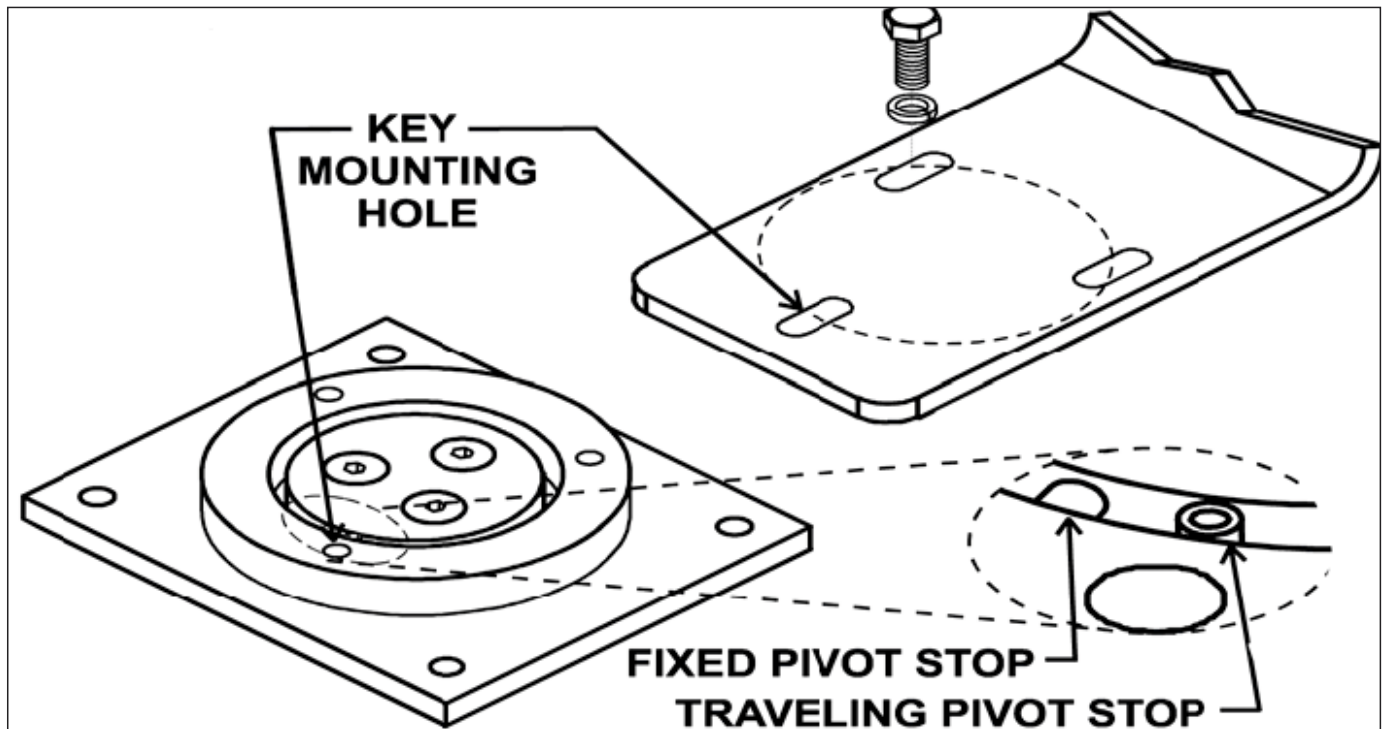
PIVOT BASE MOUNTING (Optional Accessory)

The VESM02 Reel can be furnished with a pivot base to allow the reel to rotate and keep the extended cable perpendicular to the application. The Pivot Base will rotate up to 345 degrees. Travel can be limited to 90 degrees, 180 degrees, or 270 degrees by installing an additional roll pin in the appropriate available hole.

When a pivot base is used the reel must be mounted horizontally ("ceiling" or "floor" mounted).

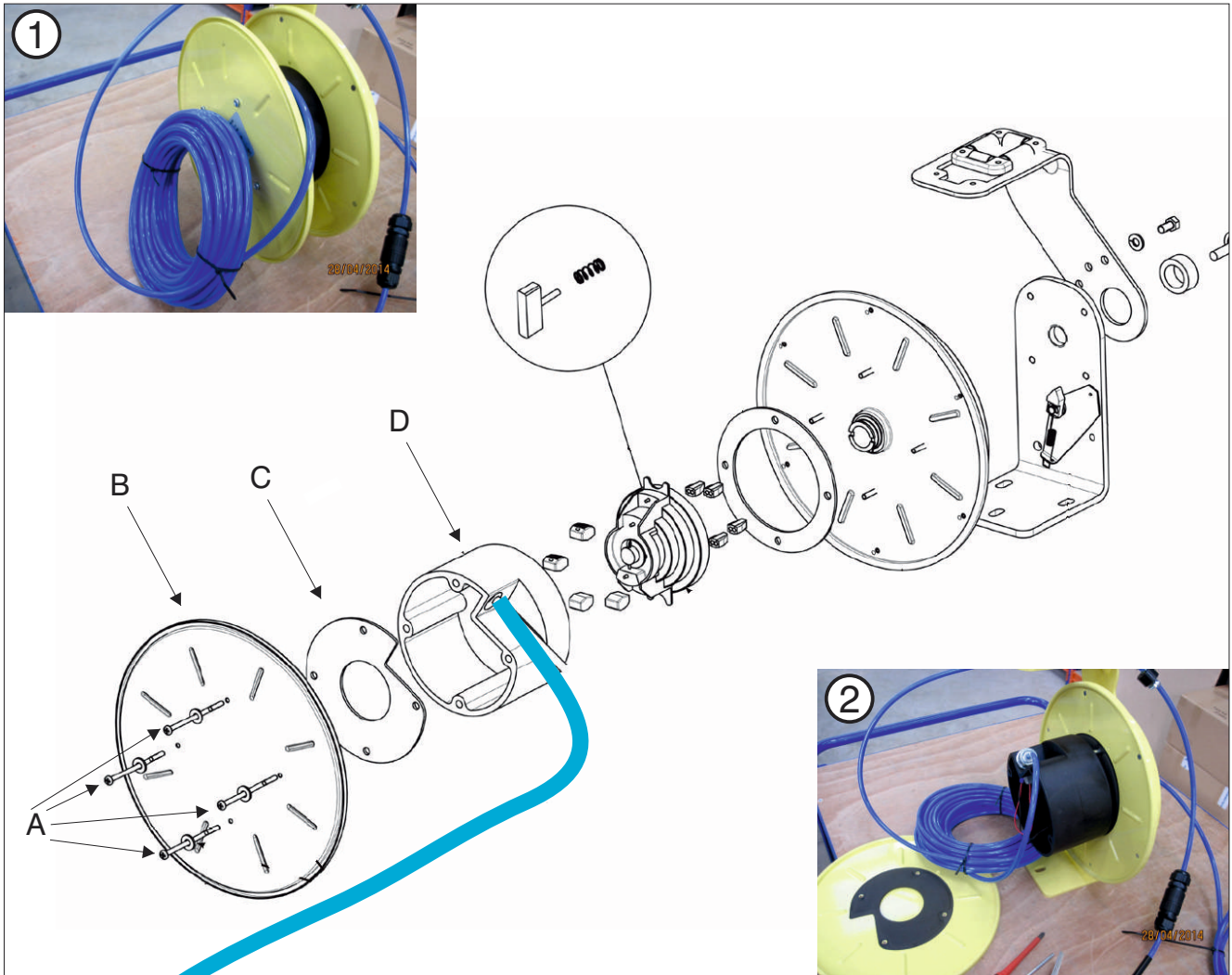
The Roller Guide should be mounted to require the cable to travel perpendicular to the axis of rotation.

This will guard against cable twisting and ensure effective swivel action from the pivot base.

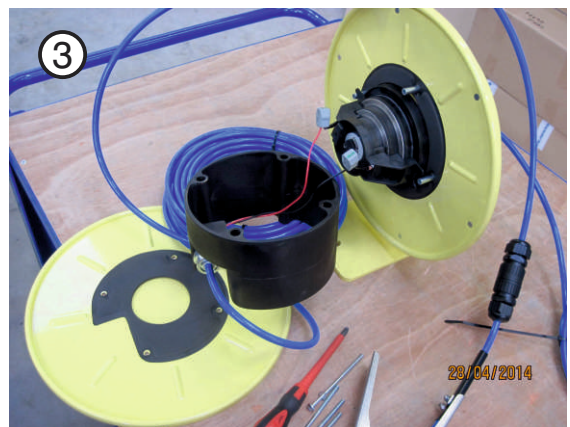


VESM02 SLIP RING CLEANING

1. Pull cable from reel until it latches in the first position.
2. Remove the cable from the drum by passing over outer flange in an anti-clockwise direction. Cable tie the cable to ensure it is held in position (see photograph)



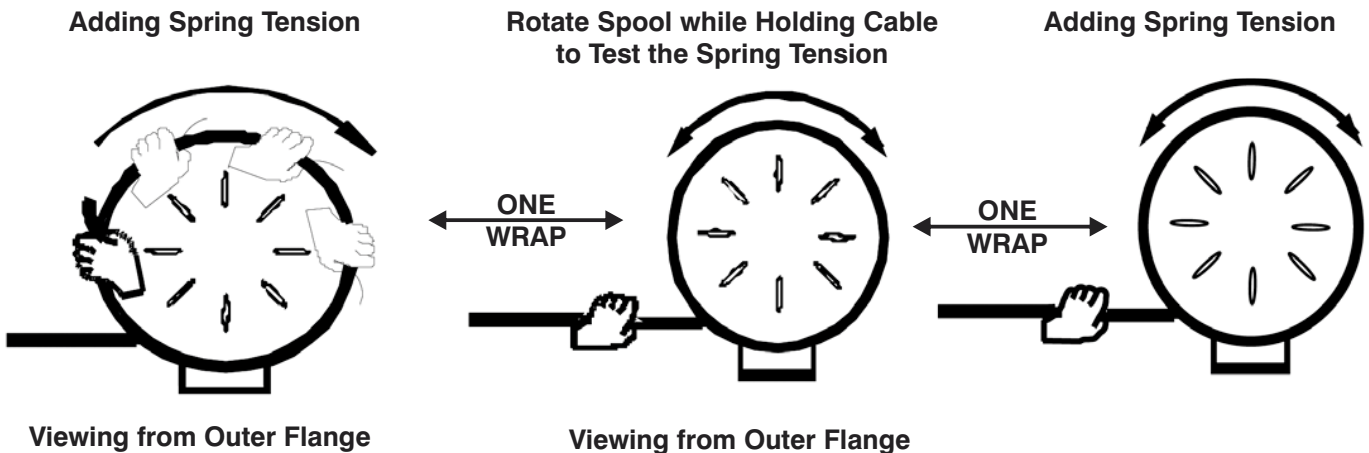
3. Remove the 4 screws (A) securing the outer flange. Remove outer flange (B) and gasket (C) from the remaining assembly (see photograph 2).
4. Remove the black plastic drum (D) from the reel (see photograph 3).



5. The slip ring assembly should now be accessible.
6. Clean to remove dust and dirt from the slip ring housing area and all slip ring assembly and brush surfaces using contact cleaner.
7. Assemble the black plastic drum (D) onto the reel.
8. Attach outer flange gasket (C) and outer flange (B) to the drum (replace outer flange gasket if damaged).
9. Attach with screws (A). Do not use any other screws.
10. Place cable back on to the spool by passing the cable over the outer flange in a clockwise direction.
11. Adjust tension by following procedure below.

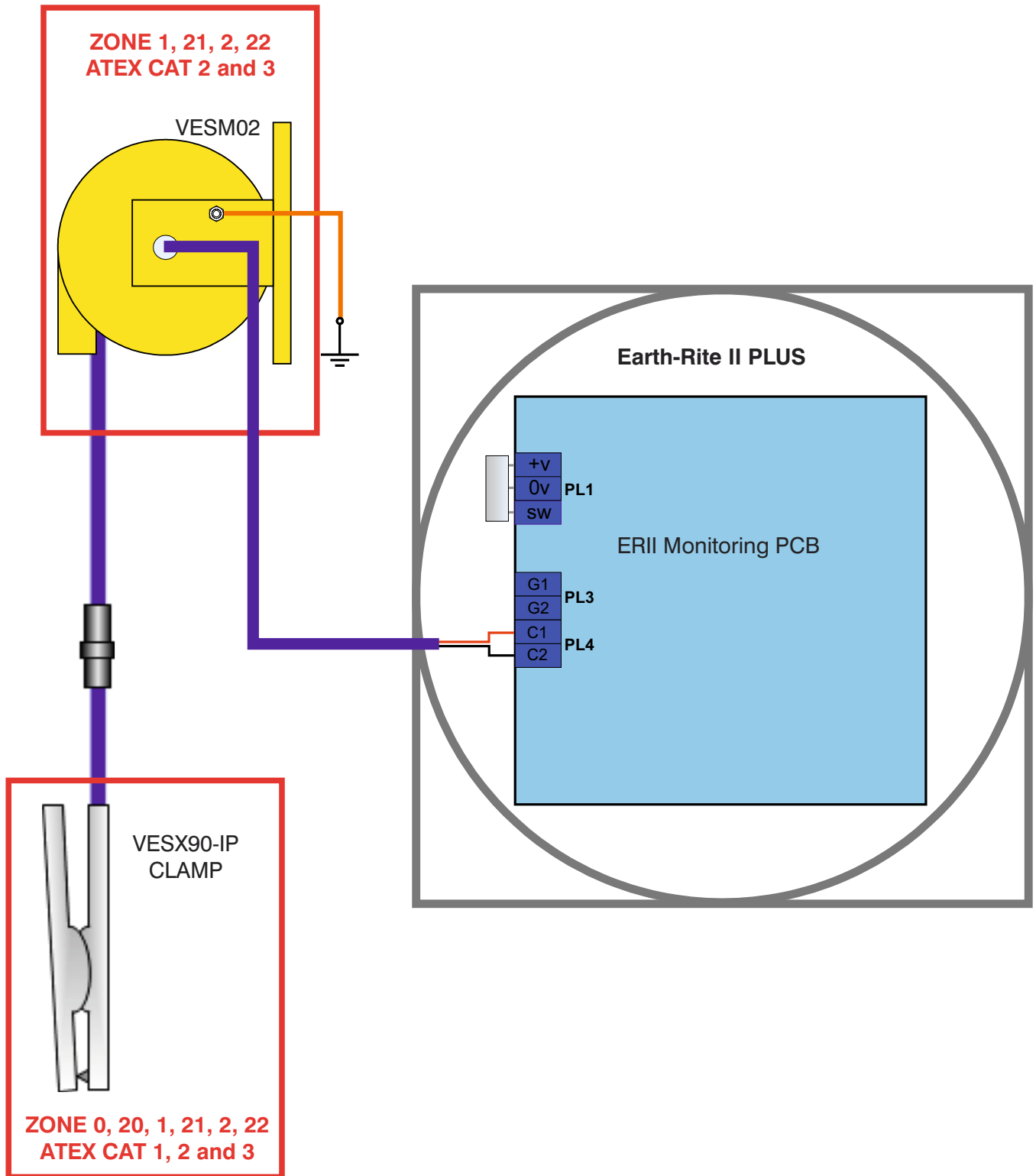
VESM02 SPRING TENSION ADJUSTMENT

1. To assure that the cable will retract properly and operate under the correct tension, the reel should be tested.
2. Pull the cable out approximately 8 metres and allow it to rewind. This procedure should be repeated five to ten times in order to set the spring. Walk the cable back to the reel during the spring tension adjusting process.
3. **WARNING:** Do not allow cable to retract without restraining the retraction speed. Always maintain two full cable wraps on drum at maximum cable extension.
4. To increase spring tension: With all the cable wound on the reel, grasp the end of the cable and rotate the drum and cable together in a clockwise direction in order to pretension the spring. Generally, one full turn is adequate for most applications. Use no more than two full turns for pre-tension.
5. To reduce spring tension: With all the cable wound on the reel, grasp the end of the cable and rotate the drum and cable together in a counter-clockwise direction in order to reduce the spring tension.
6. Repeat step 4 to add tension or step 5 to reduce tension.



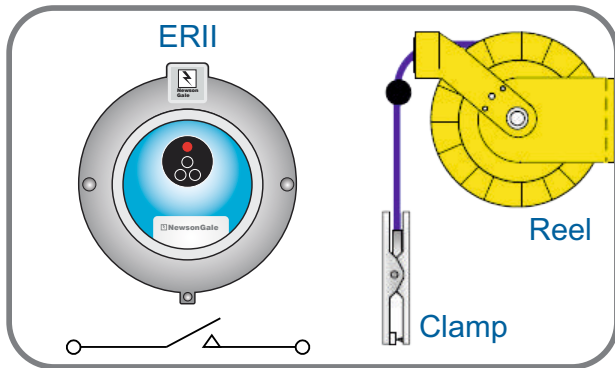
Using the VESM02 Reel with the ERII PLUS System

Earth-Rite II PLUS & VESM02 Reel Wiring Connections

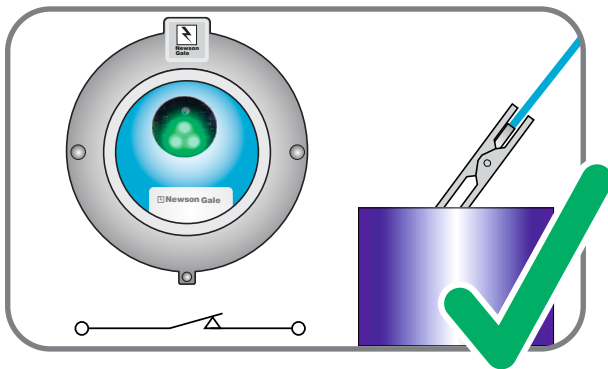


Operation - Earth-Rite II PLUS

Important Note: The Grounding Clamp should be fitted prior to any other operation, as per the recommendations of IEC TS 60079-32-1, CLC/TR: 60079-32-1, NFPA 77 and API RP 2003.



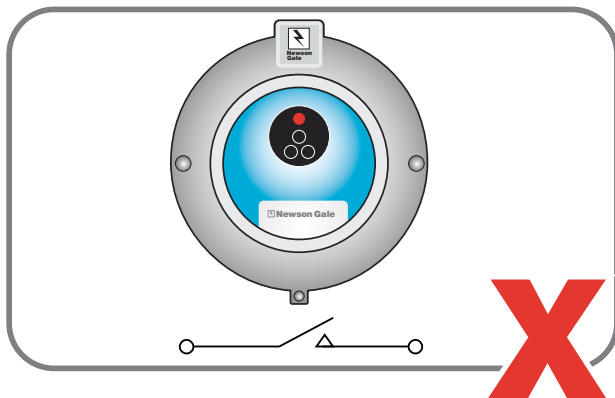
A. In the normal "rest" state, with the Grounding Clamp not attached and the clamp-cable wound onto the reel, the **Red Negative Ground Condition** LED will be showing. It is essential that the red LED is showing before proceeding.



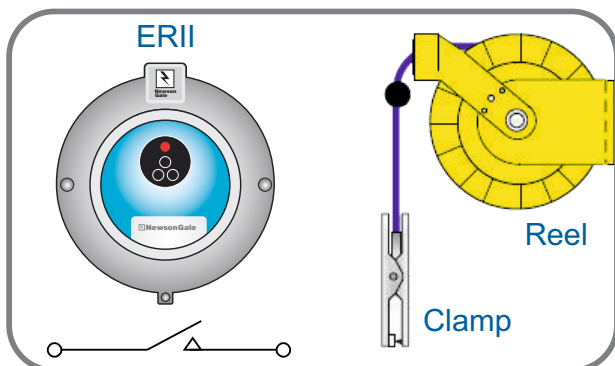
B. Attach the Grounding Clamp onto the conductive plant item at a suitable point and ensure that the pointed contacts are positively located.

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

The product transfer/mixing can now take place.



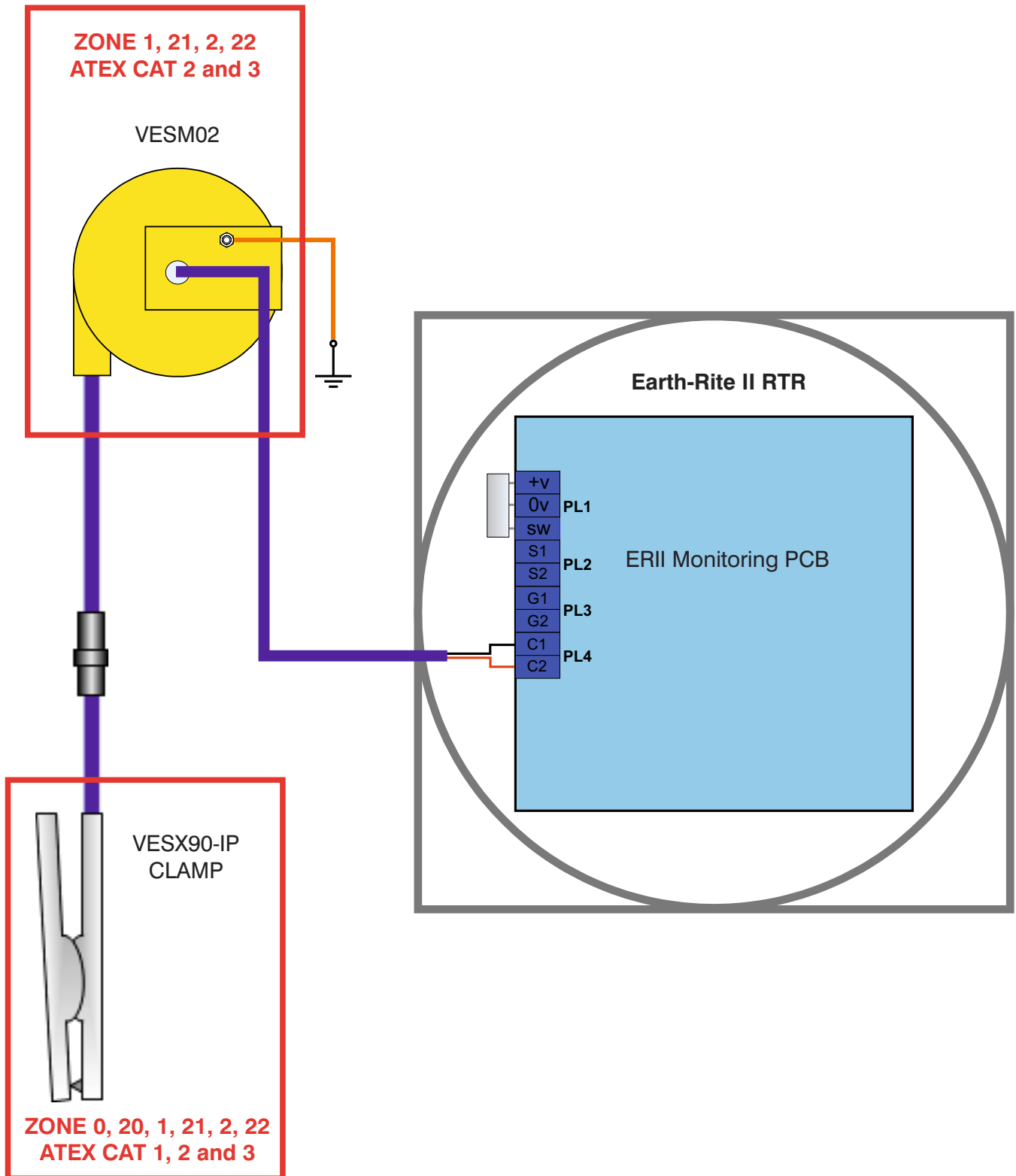
C. If the connection between the plant item and Ground is broken during the transfer/mixing operation, the **Red Negative Ground Condition** LED will show and the interlock contacts will open.



D. On completion the Grounding Clamp should be removed from the plant item and the clamp-cable carefully rewound onto the reel. The **Red Negative Ground Condition** LED will show.

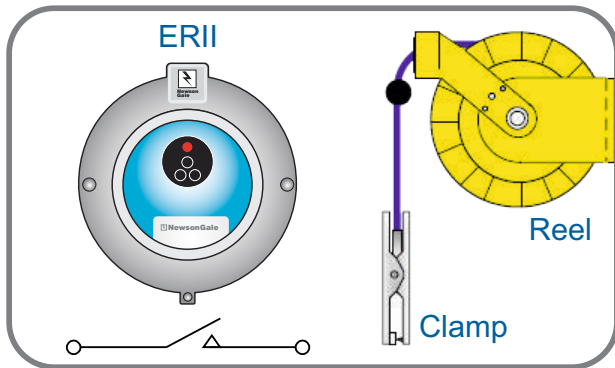
Using the VESM02 Reel with the ERII RTR System

Earth-Rite II RTR & VESM02 Reel Wiring Connections

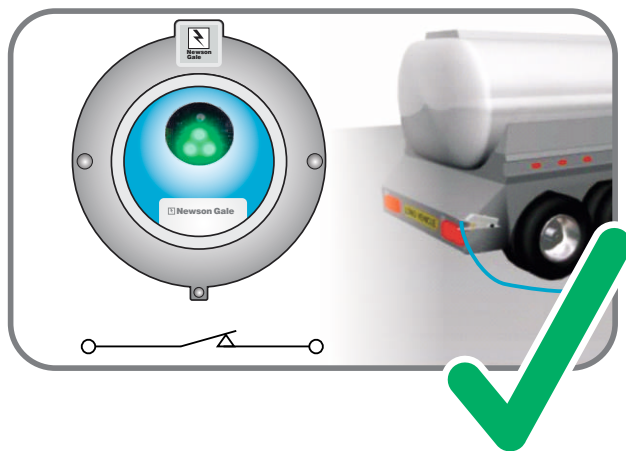


Operation - Earth-Rite II RTR Tri-Mode

Important Note: The Grounding Clamp should be fitted prior to fitting hoses, or any other operation, as per the recommendations of IEC TS 60079-32-1, CLC/TR: 60079-32-1, NFPA 77 and API RP 2003.



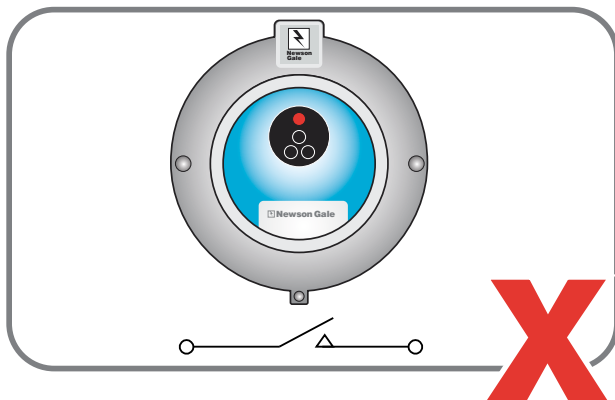
A. In the normal "rest" state, with the Grounding Clamp not attached and the clamp-cable wound onto the reel, the **Red Negative Ground Condition** LED will be showing. It is essential that the red LED is showing before proceeding.



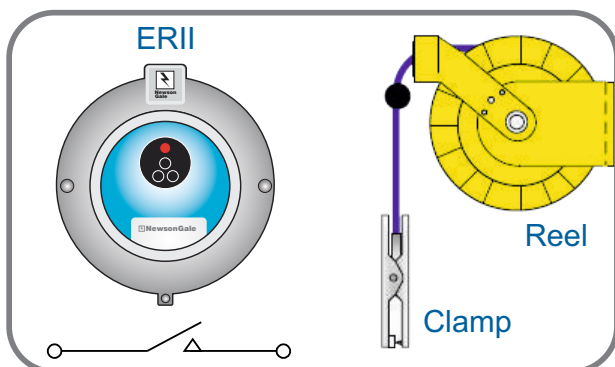
B. Attach the Grounding Clamp onto the Tank Truck at a suitable point which is in contact with the tank/frame and ensure that the pointed contacts are positively located.

If the connection to the Tank Truck and Ground is good, the **Green Positive Ground Condition** LEDs will flash and the interlock contacts will close.

The product transfer operation can now take place.



C. If the connection between the Tank Truck and Ground is broken during the transfer operation, the **Red Negative Ground Condition** LED will show and the interlock contacts will open.

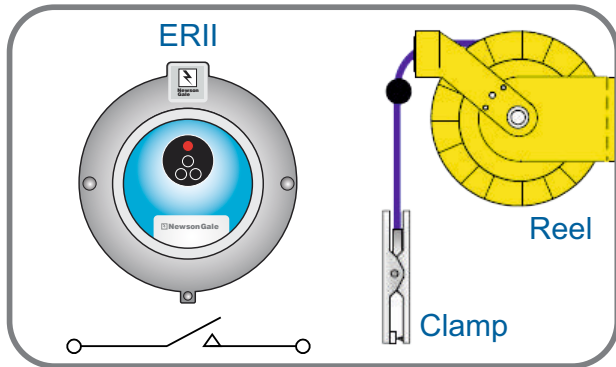


D. On completion the Grounding Clamp should be removed from the Tank Truck and the clamp-cable carefully rewound onto the reel. The **Red Negative Ground Condition** LED will show.

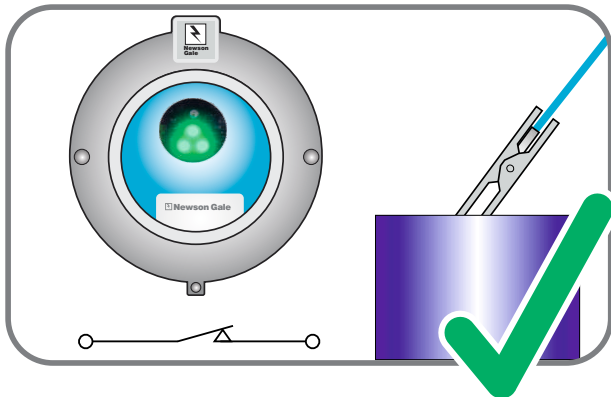
Operation - Earth-Rite II RTR

With system switched to Single-Mode using the Mode Selector Key Switch

Important Note: The Grounding Clamp should be fitted prior to fitting hoses, or any other operation, as per the recommendations of IEC TS 60079-32-1, CLC/TR: 60079-32-1, NFPA 77 and API RP 2003.



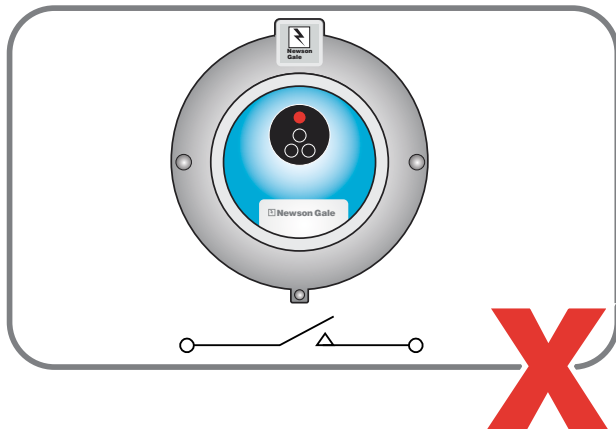
A. In the normal "rest" state, with the Grounding Clamp not attached and the clamp-cable wound onto the reel, the **Red Negative Ground Condition** LED will be showing. It is essential that the red LED is showing before proceeding.



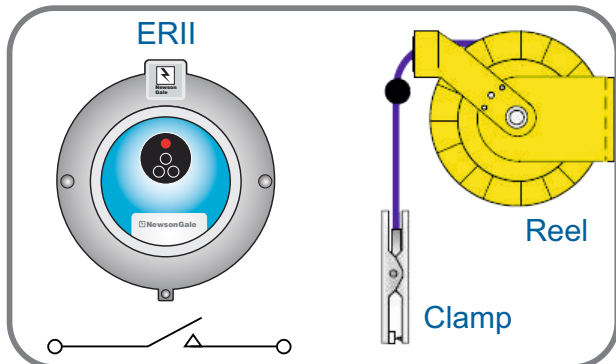
B. Attach the Grounding Clamp onto the conductive plant item at a suitable point and ensure that the pointed contacts are positively located.

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

The product transfer / mixing operation can now take place.



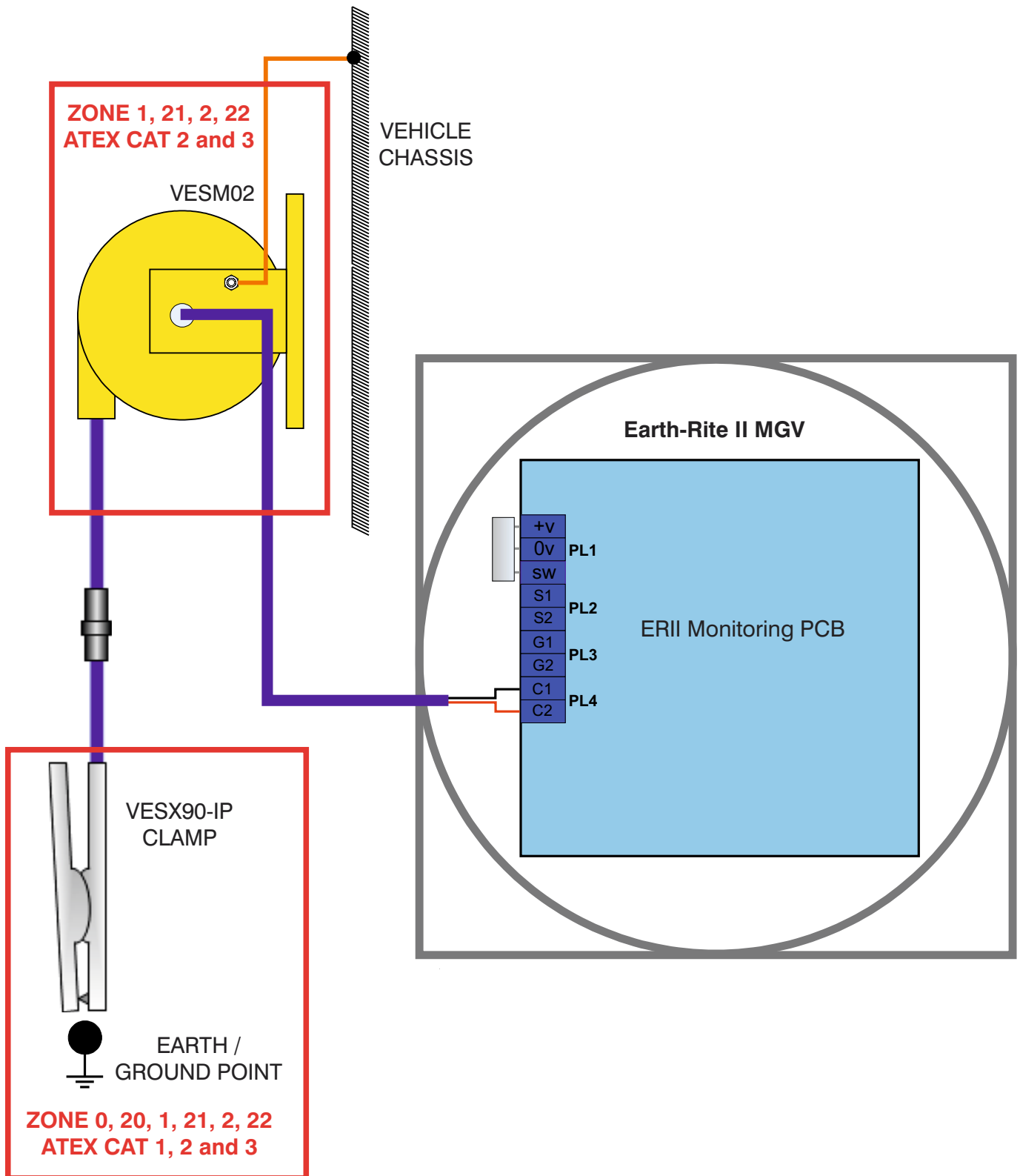
C. If the connection between the plant item and Ground is broken during the transfer/mixing operation, the **Red Negative Ground Condition** LED will show and the interlock contacts will open.



D. On completion the Grounding Clamp should be removed from the plant item and the clamp-cable carefully rewound onto the reel. The **Red Negative Ground Condition** LED will show.

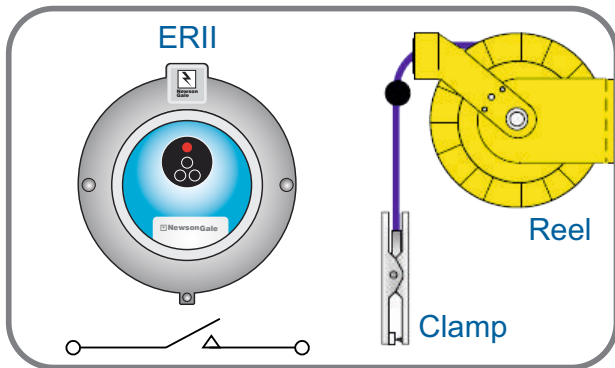
Using the VESM02 Reel with the ERII MGV System

Earth-Rite II MGV & VESM02 Reel Wiring Connections

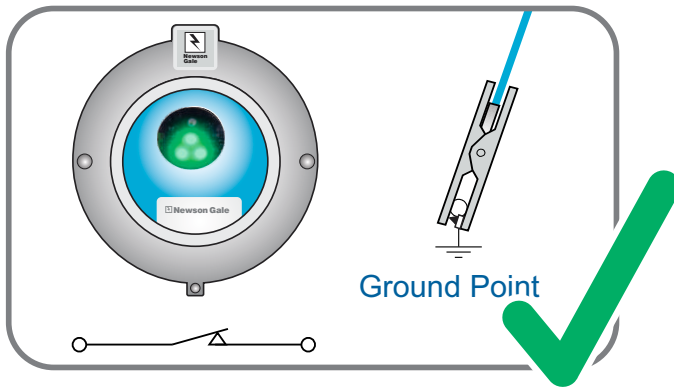


Operation - Earth-Rite II MGV

Important Note: The Grounding Clamp should be fitted prior to fitting hoses, or any other operation. as per the recommendations of IEC TS 60079-32-1, CLC/TR: 60079-32-1, NFPA 77 and API RP 2003.



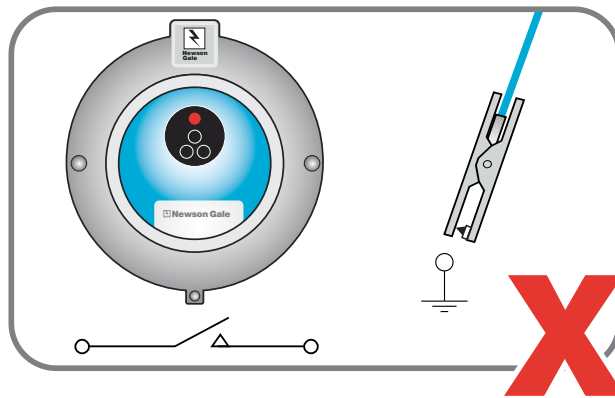
A. In the normal "rest" state, with the Grounding Clamp not attached and the clamp-cable wound onto the reel, the **Red Negative Ground Condition** LED will be showing. **It is essential that the red LED is showing before proceeding.**



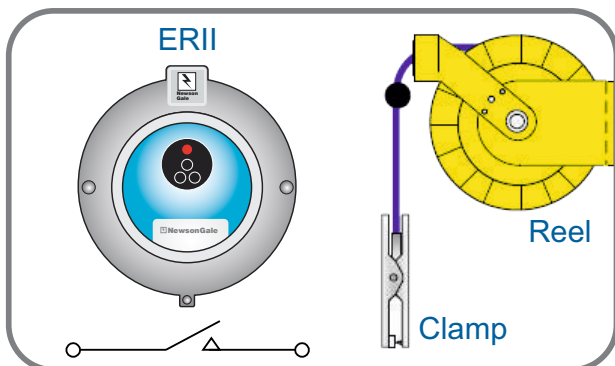
B. Attach the Grounding Clamp onto a suitable Ground point and ensure that the pointed contacts are positively located.

If the connection to the Vehicle and Ground is good, the **Green Positive Ground Condition** LEDs will flash and the interlock contacts will close.

The product transfer can now take place.



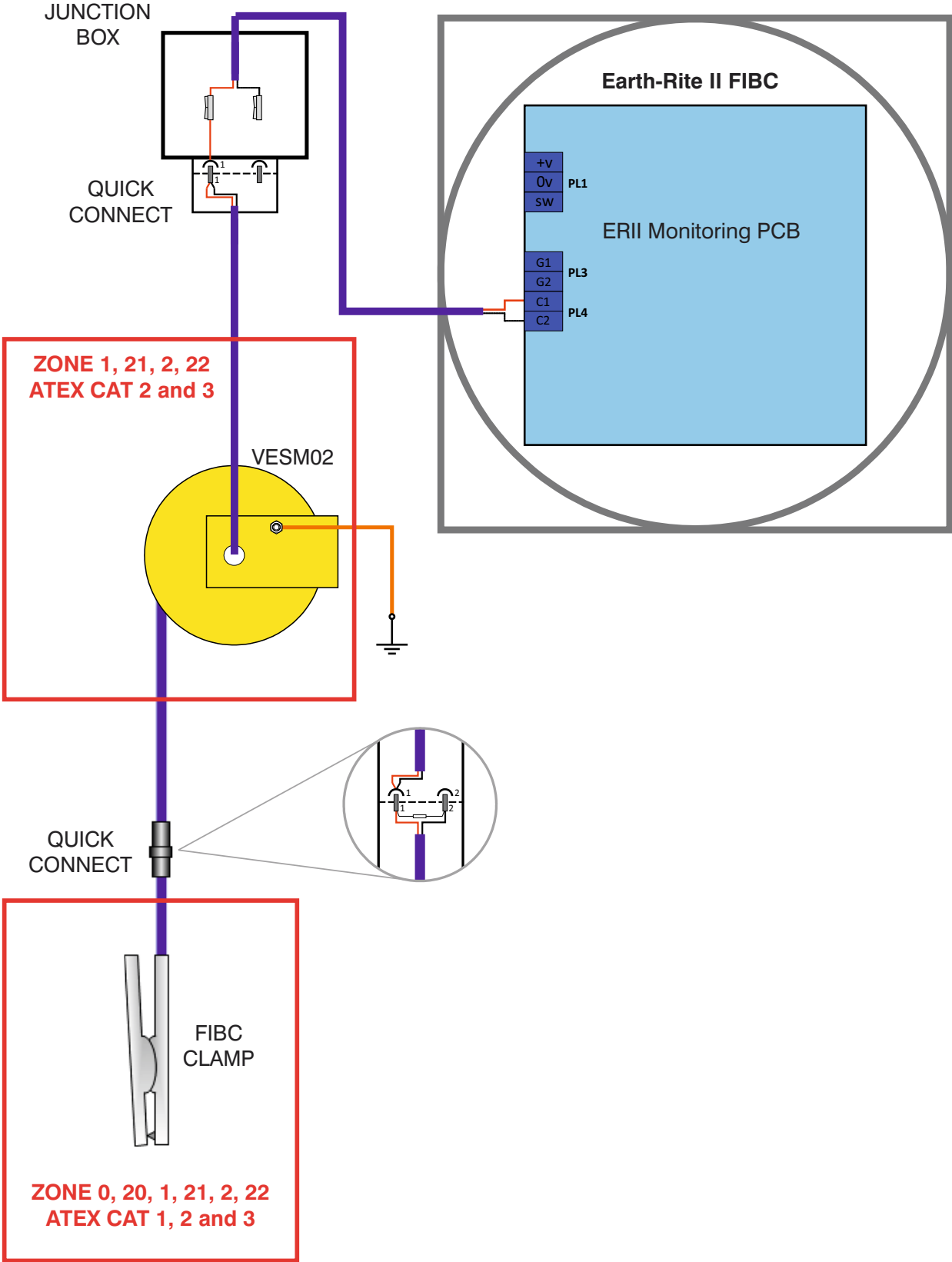
C. If the connection between the Vehicle and Ground is broken during the transfer operation, the **Red Negative Ground Condition** LED will show and the interlock contacts will open.



D. On completion the Grounding Clamp should be removed from the Ground point and the clamp-cable carefully rewound onto the reel. The **Red Negative Ground Condition** LED will show.

Using the VESM02 Reel with the ERII FIBC System

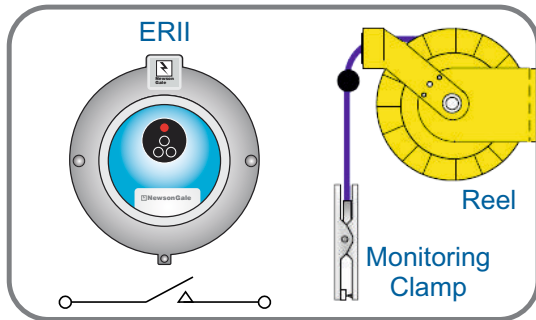
Earth-Rite II FIBC & VESM02 Reel Wiring Connections



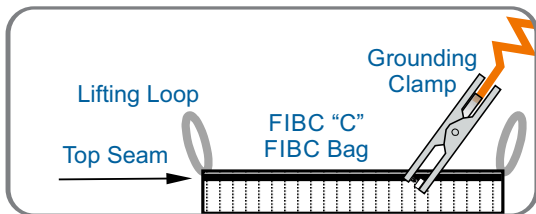
Operation - Earth-Rite II FIBC

System using VESM02 Reel with Monitoring Clamp and Supplementary Grounding Clamp

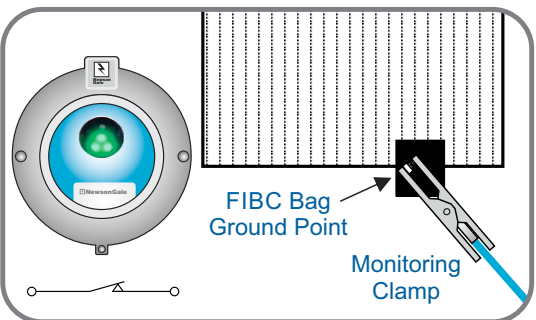
Important Note: The Grounding Clamp should be fitted prior to any other operation, as per the recommendations of IEC TS 60079-32-1, CLC/TR: 60079-32-1, NFPA 77 and API RP 2003.



A. In the normal "rest" state, with the clamps not attached, and the Monitoring clamp-cable wound onto the reel, the **Red** Negative Ground Condition LED will be showing.



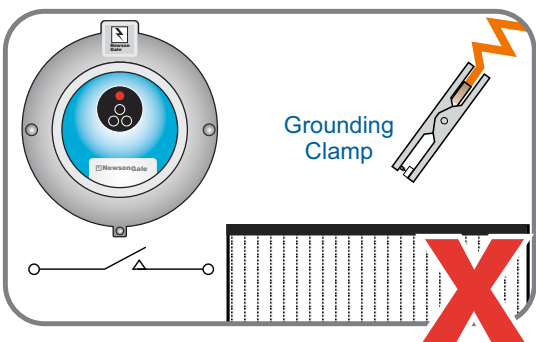
B. Attach the Grounding Clamp (green cable) onto one of the top seams of the Type "C" FIBC.



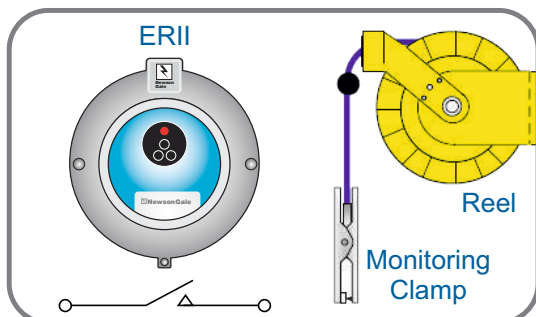
C. Attach the Monitoring Clamp (blue cable) onto the Ground Point of the Type "C" FIBC bag.

If the connection is healthy, and the Loop Resistance $< 10^8$ Ohms*, the **Green** Positive Ground Condition LEDs will flash and the interlock contacts will close. (This may take a few seconds).

The product transfer can now take place.



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



E. On completion the Monitoring Clamp should be removed from the Ground Point of the FIBC bag and the clamp-cable carefully rewound onto the reel. The **Red** Negative Ground Condition LED will show.

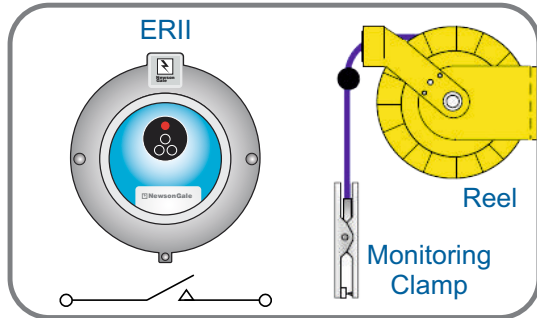
The Grounding Clamp should be removed from the FIBC bag.

* For systems using FIBC's manufactured to the 10^7 ohm standard, the healthy Loop Resistance needs to be $< 10^7$ ohms.

Operation - Earth-Rite II FIBC

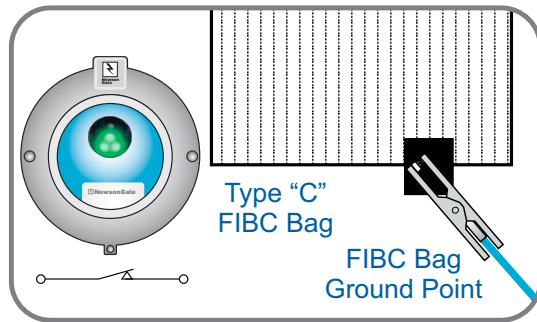
System using VESM02 Reel with Monitoring Clamp and Lifting Gear with Grounded Hooks

Important Note: The Ground connection should be made prior to any other operation, as per the recommendations of IEC TS 60079-32-1, CLC/TR: 60079-32-1, NFPA 77 and API RP 2003.



A. In the normal "rest" state, with the Monitoring Clamp not attached, and the clamp-cable wound onto the reel, the **Red Negative Ground Condition** LED will be showing.

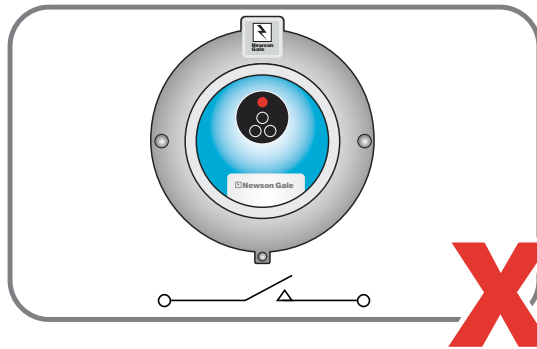
B. Attach the FIBC (bag) to the lifting hooks and check that the lifting loops are in good contact with the lifting hooks.



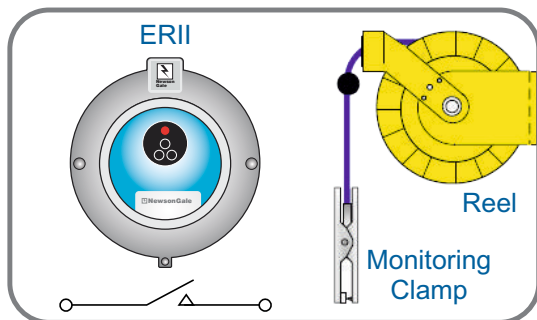
C. Attach the Monitoring Clamp (blue cable) onto the FIBC (bag) bottom Ground Point.

If the connection is healthy, and the Loop Resistance $< 10^8$ ohms*, the **Green Positive Ground Condition** LEDs will flash and the interlock contacts will close. (This may take a few seconds).

The product transfer can now take place.



D. If the ground monitoring loop circuit is broken during the transfer operation, the **Red Negative Ground Condition** LED will show and the interlock contacts will open.

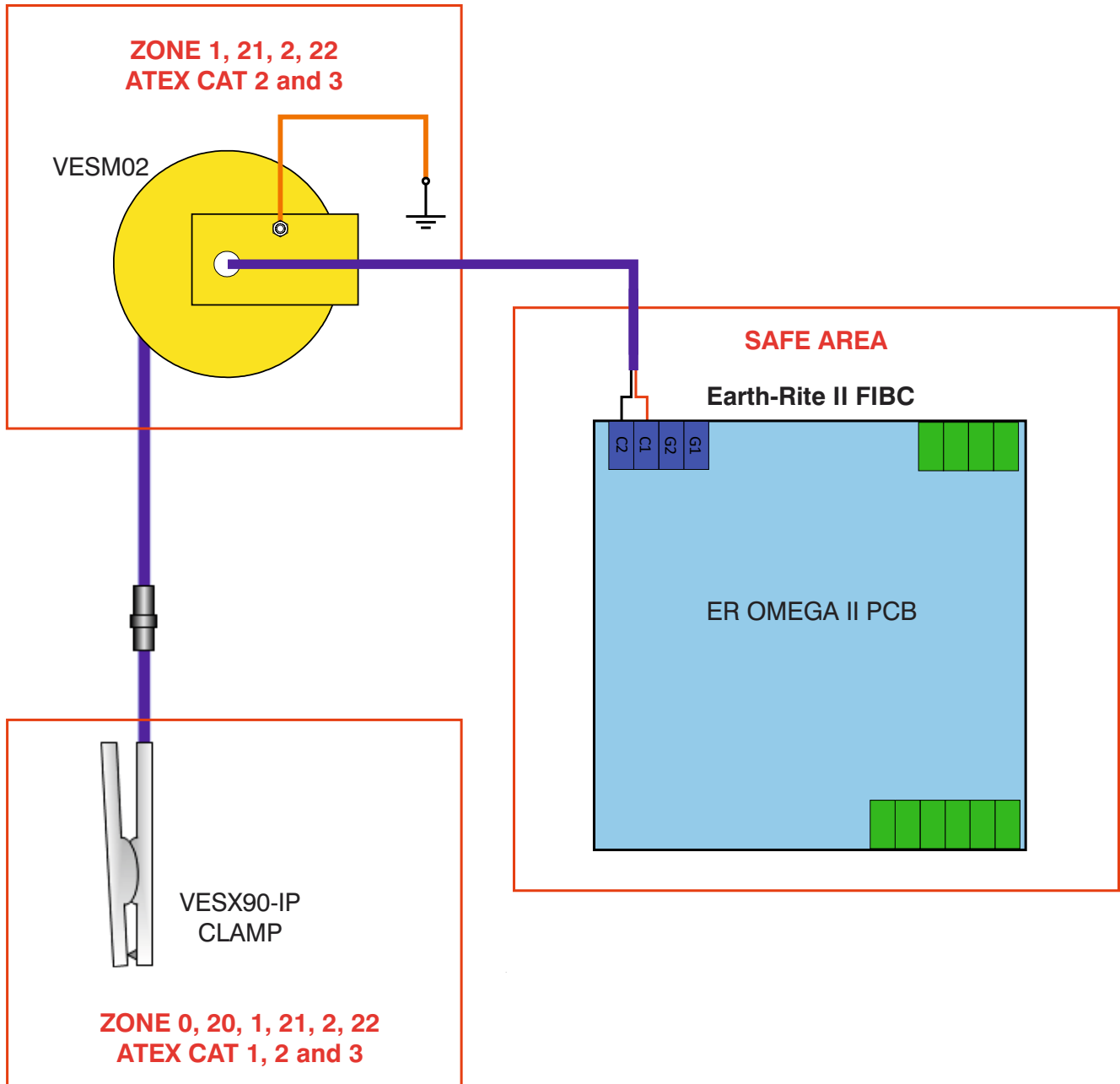


E. On completion the Monitoring Clamp should be removed from the Ground Point of the FIBC bag and the clamp-cable carefully rewound onto the reel. The **Red Negative Ground Condition** LED will show and the interlock contacts will open.

* For systems using FIBC's manufactured to the 10^7 ohm standard, the healthy Loop Resistance needs to be $< 10^7$ ohms.

Using the VESM02 Reel with the ER OMEGA II Monitoring Unit

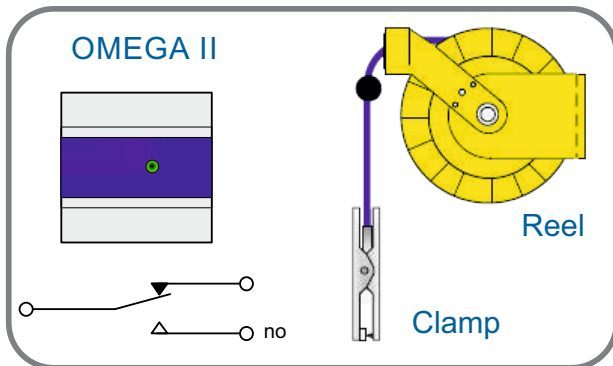
Earth-Rite OMEGA II & VESM02 Reel Wiring Connections



Operation - Earth-Rite OMEGA II

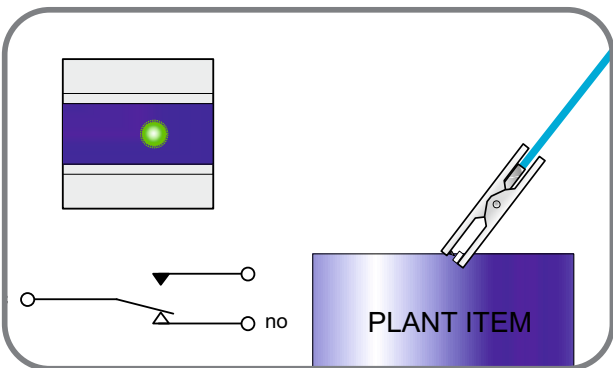
System using VESM02 Reel with OMEGA II Monitoring Unit

Important Note: The Grounding Clamp should be fitted prior to any other operation, as per the recommendations of IEC TS 60079-32-1, CLC/TR: 60079-32-1, NFPA 77 and API RP 2003.



A. In the normal "rest" state, with the Grounding Clamp not attached, and the clamp-cable wound onto the reel, the **Green Positive Ground Condition** LED will be switched off and the c-no output contacts will be open.

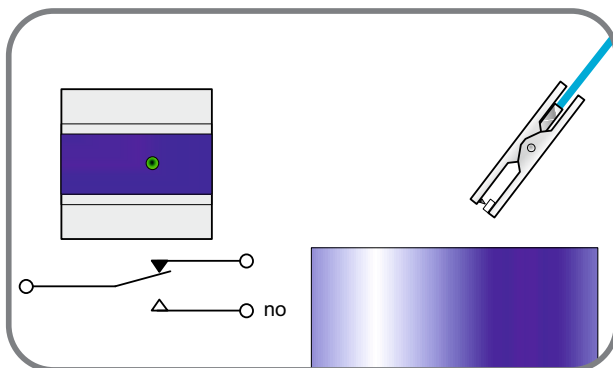
Note: A blue LED indicates that the power to the OMEGA II is on.



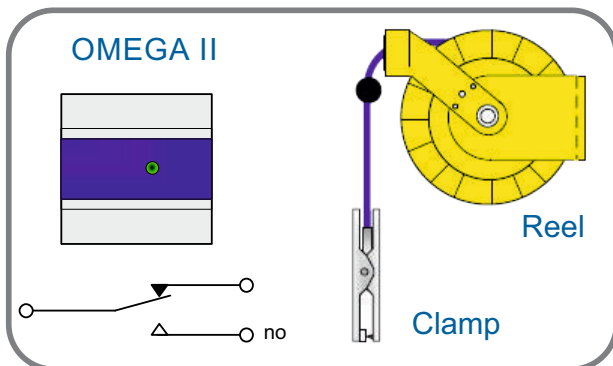
B. Attach the Grounding Clamp onto the conductive plant item at a suitable point and ensure that the pointed contacts are positively located.

If the connection to the plant item and Ground is good, the **Green Positive Ground Condition** LED will show and the c-no output contacts will close.

The product transfer / mixing operation can now take place.

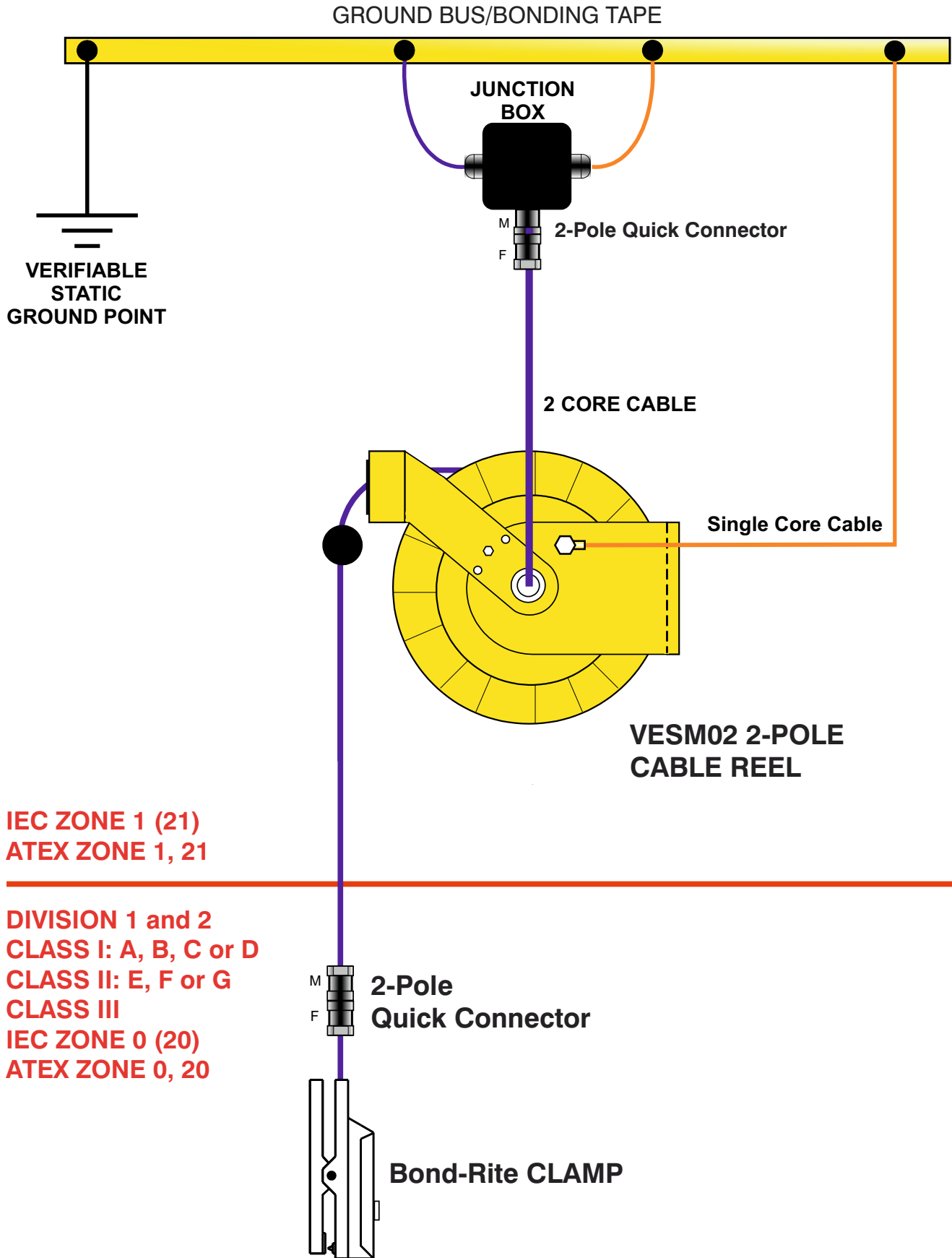


C. If the connection between the plant item and Ground is broken during the transfer operation, the **Green Positive Ground Condition** LED will switch off and the c-no output contacts will open.



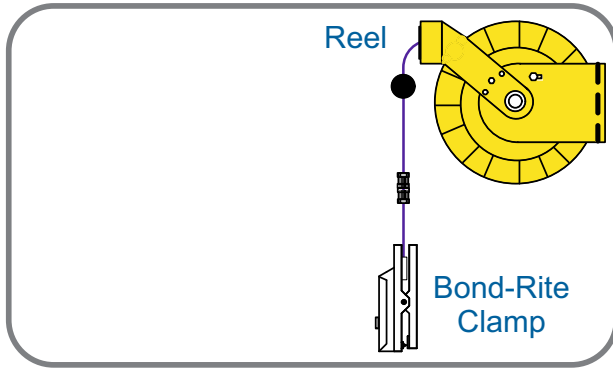
D. On completion the Grounding Clamp should be removed from the plant item and the clamp-cable carefully rewound onto the reel. The **Green Positive Ground Condition** LED will switch off and the c-no output contacts will open.

Using the VESM02 Reel with the Bond-Rite CLAMP

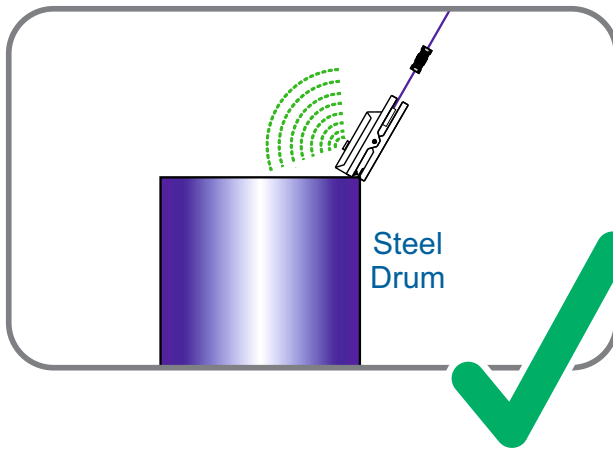


Operation - Bond-Rite CLAMP

Important Note: The Bond-Rite CLAMP should be fitted prior to any other operation, as per the recommendations of IEC TS 60079-32-1, CLC/TR: 60079-32-1, NFPA 77 and API RP 2003.



A. In the normal "rest" state, with the Bond-Rite Clamp not attached and the clamp-cable wound onto the reel, the Bond-Rite LED lamp will not be showing.

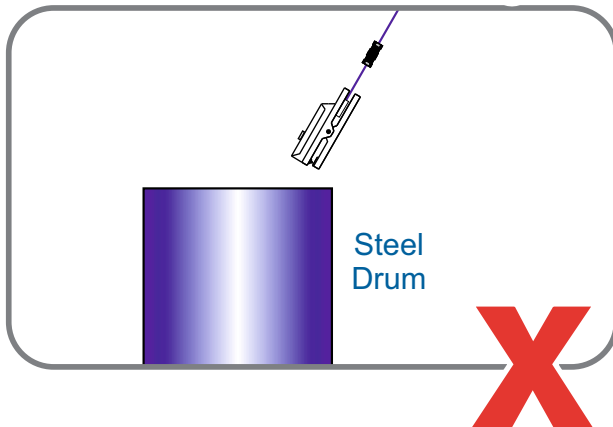


B. Attach the Bond-Rite Clamp to the Plant Item to be grounded (drum, IBC, bucket etc) and ensure that the pointed contacts are positively located.

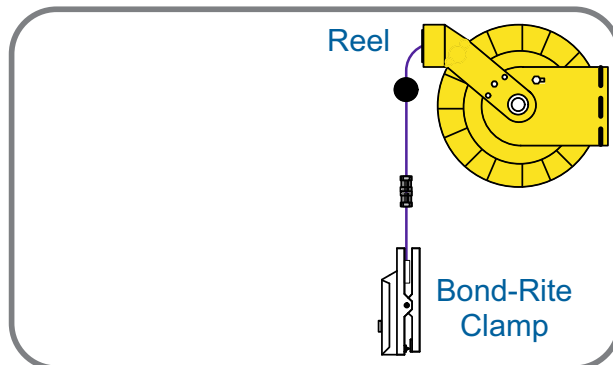
If the connection is good (less than 10 Ohms loop resistance) the Bond-Rite LED lamp should flash at a rate of about 1 flash per second.

If the LED does not flash, although the battery is in good condition, the connection resistance is too high. Check the placement of the Bond-Rite Clamp to ensure a good, positive connection.

The product mixing / transfer operation can now take place.



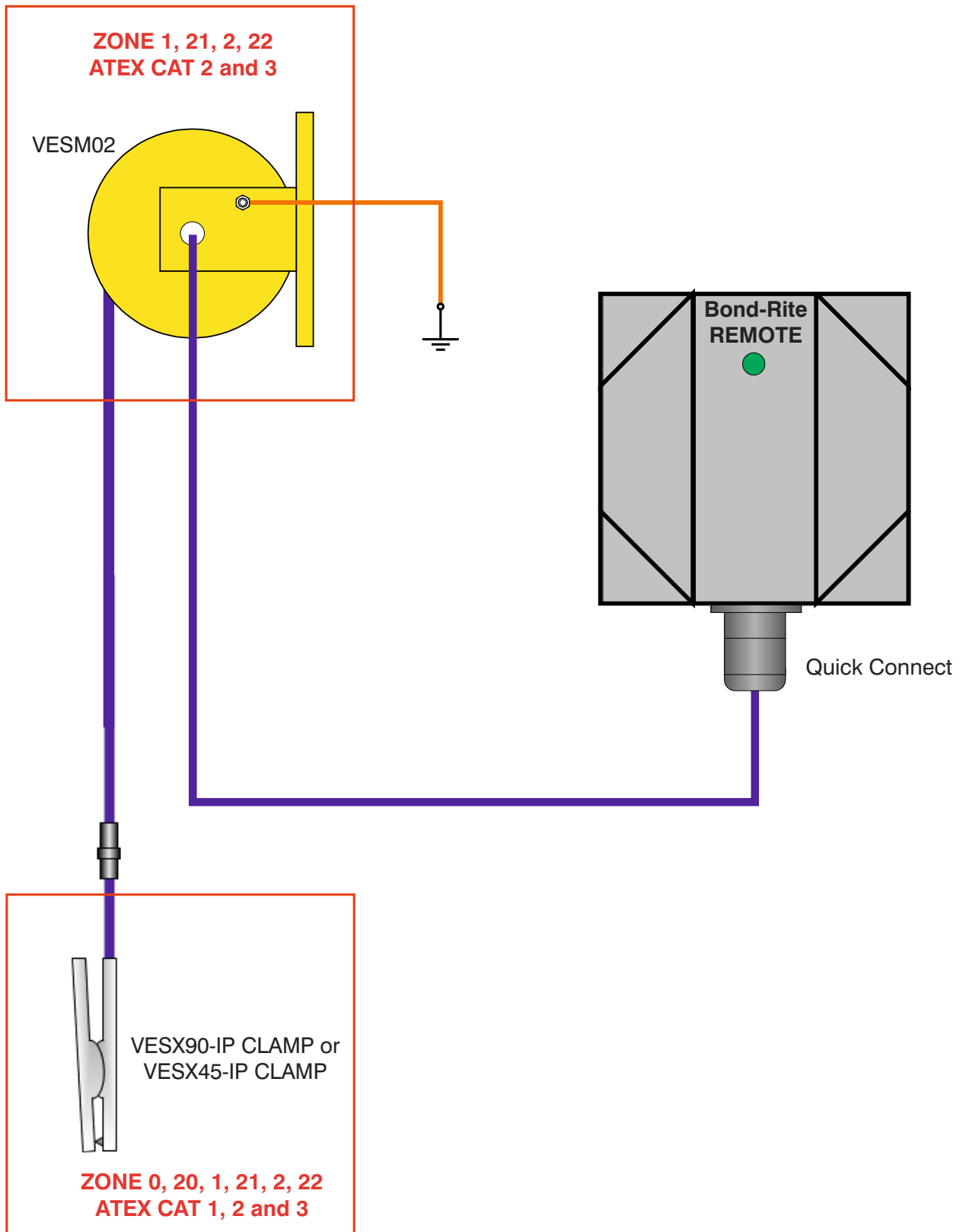
C. If the connection between the plant item and Ground is broken during the mixing / transfer operation, the Bond-Rite LED lamp will not show.



D. On completion the Bond-Rite Clamp should be removed from the plant item and the clamp-cable carefully rewound onto the reel.

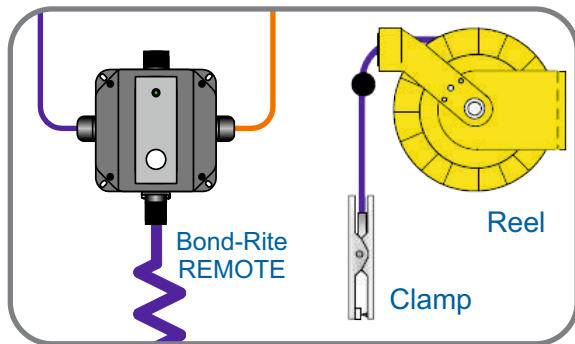
Using the VESM02 Reel with the Bond-Rite REMOTE

Bond-Rite REMOTE & VESM02 Reel Wiring Connections

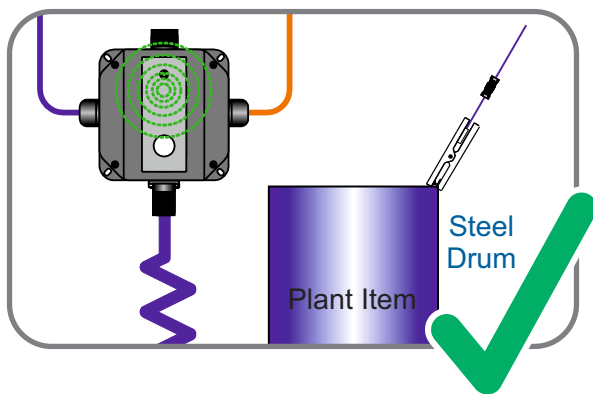


Operation - Bond-Rite REMOTE

Important Note: The Grounding clamp should be fitted prior to any other operation, as per the recommendations of IEC TS 60079-32-1, CLC/TR: 60079-32-1, NFPA 77 and API RP 2003.



A. In the normal "rest" state, with the Grounding Clamp not attached and the clamp-cable wound onto the reel, the Bond-Rite REMOTE LED lamp will not be showing.

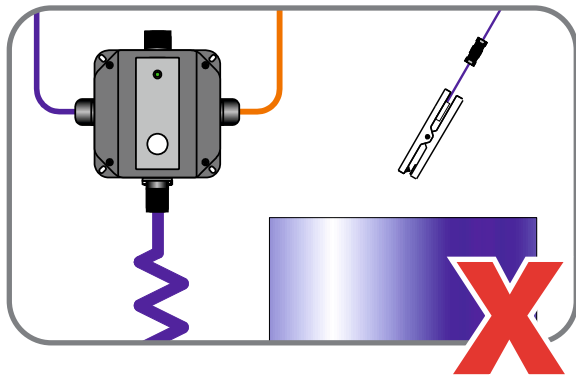


B. Attach the Clamp to the Plant Item to be grounded (drum, IBC, bucket etc) and ensure that the pointed contacts are positively located.

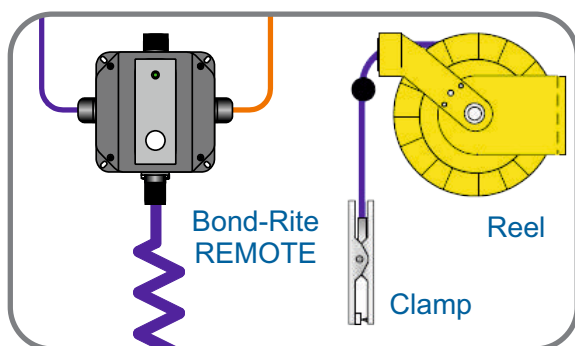
If the connection is good (less than 10 Ohms loop resistance) the Bond-Rite REMOTE LED lamp should flash at a rate of about 1 flash per second.

The product mixing / transfer operation can now take place.

If the LED does not flash, although the battery / supply is healthy, the connection resistance is too high. Check the placement of the Clamp to ensure a good, positive connection.



C. If the connection between the plant item and Ground is broken during the mixing / transfer operation, the Bond-Rite REMOTE LED lamp will not show.



D. On completion the Clamp should be removed from the plant item and the clamp-cable carefully rewound onto the reel.

Copyright Notice

The website and its content is copyright of Newson Gale Ltd © 2020. All rights reserved.

Any redistribution or reproduction of part or all of the contents in any form is prohibited other than the following:

- you may print or download to a local hard disk extracts for your personal and non-commercial use only
- you may copy the content to individual third parties for their personal use, but only if you acknowledge the website as the source of the material

You may not, except with our express written permission, distribute or commercially exploit the content. Nor may you transmit it or store it in any other website or other form of electronic retrieval system.

United Kingdom
Newson Gale Ltd
Omega House
Private Road 8
Colwick, Nottingham
NG4 2JX, UK
+44 (0)115 940 7500
groundit@newson-gale.co.uk

Deutschland
IEP Technologies GmbH
Kaiserswerther Str. 85C
40878 Ratingen
Germany
+49 (0)2102 5889 0
erdung@newson-gale.de

United States
IEP Technologies LLC
417-1 South Street
Marlborough, MA 01752
USA
+1 732 961 7610
groundit@newson-gale.com

Right to change

This document provides general information only and may be subject to change at any time without notice. All information, representations, links or other messages may be changed by Newson Gale at any time without prior notice or explanation.

Newson Gale is not obliged to remove any outdated information from its content or to expressly mark it as being outdated. Please seek the advice of professionals as necessary regarding the evaluation of any content.

Disclaimer of liability

The information provided in this Instruction Manual is provided by Newson Gale without any representations or warranties, expressed or implied, as to its accuracy or completeness. The liability of Newson Gale for any expenses, losses or actions incurred whatsoever by the recipient as a result of the use of this Instruction Manual shall be excluded.



www.newson-gale.com