Earth-Rite® RTR™

Static Grounding for Road Tankers

ATEX IECEx SIL 2 INMETRO

Precision and reliability is what the **Earth-Rite® RTR™** provides to QHSE professionals and engineers who are tasked with protecting personnel and plant assets from the ignition hazards of static electricity during road tanker loading and unloading operations.

Enquiry > Click here to submit a product related query or a request for quotation.

Earth-Rite RTR Road Tanker Grounding System

The loading and unloading of road tankers with large quantities of chemicals and powders generates static electricity which, if left to accumulate on a road tanker, could discharge electrostatic sparks with energies far in excess of the minimum ignition energies of a vast range of combustible gases, vapours and dusts. The ignition of such atmospheres by static electricity can be prevented by ensuring the road tanker is grounded.

Grounding ensures there can be no build of static electricity on the tank and chassis of the road tanker and the most reliable way of grounding your road tankers is to specify an Earth-Rite RTR. With over 3,000 units in the field the 2nd generation Earth-Rite RTR is the most reliable and precise method of grounding road tankers today.

The Earth-Rite RTR utilises patented electronics called “Tri-Mode” technology (next page) to establish three key inputs that must be in place before the loading/unloading operation can commence. When the three key inputs are met, only then will the Earth-Rite RTR go permissive and energise its pair of volt-free change-over contacts to engage the pump, or whatever equipment is interlocked with the system, to control the flow of product to or from the road tanker. Any static generated by the loading operation is transferred from the road tanker via the Earth-Rite RTR to ground, eliminating static electricity as a potential source of ignition.

The Earth-Rite RTR includes:

> **Flameproof Enclosure** incorporating Intrinsically Safe Static Ground Monitoring System.

> **Ground Connection Junction Box** with Clamp Stowage Point and Quick Release Connector.

> **Heavy Duty Stainless Steel Universal Grounding Clamp** with Hytrel™ Extendable Cable and Quick Connectors.

Newson Gale | For over 30 years Newson Gale has been supplying the chemical and processing industry worldwide with its market leading range of static control products ensuring people and plant are protected from static related fires and explosions.

Earth-Rite® RTR™ Static Grounding for Road Tankers

Tri-Mode Technology

MODE 1 | Road Tanker Recognition

In accordance with the recommendations of IEC 60079-32-1*, the Earth-Rite RTR determines if the grounding clamp is connected to a road tanker. This ensures the clamp is connected to the main body of the road tanker and cannot be bypassed by connecting the clamp to the loading gantry.

MODE 2 | Static Ground Verification

The Earth-Rite RTR ensures that it has a connection to the general mass of the earth. This is a critical input as a connection to earth is the only means by which the static electricity can be transferred from the road tanker, preventing the accumulation of static electricity.

MODE 3 | Continuous Ground Loop Monitoring

In accordance with the key recommendations of IEC 60079-32-1* and NFPA 77*, the Earth-Rite RTR ensures the resistance between the road tanker and the verified earthing point at the loading gantry never exceeds 10 ohms. The Earth-Rite RTR achieves this by monitoring the resistance between the RTR clamp's connection to the road tanker and the RTR's connection to the verified grounding point for the duration of the transfer operation.

*IEC 60079-32-1, "Explosive atmospheres: electrostatic hazards, guidance"

*NFPA 77, "Recommended Practice on Static Electricity".

Pulsing **LEDs** confirm positive ground condition

Compliant with IEC 60079-32-1 & NFPA 77	The monitoring set-point of 10 ohms resistance is compliant with the standards for static control in hazardous areas: IEC 60079-32-1 & NFPA 77.
Operator friendly interface	Simple GO / NO GO indication informs operator when the road tanker is connected to ground. When a positive ground connection is made the pulsing hi-visibility indicators are activated during the MODE 3| Continuous Ground Loop Monitoring stage.
Control / Interlock capability (Two voltage free output contacts)	The first output contact can be used to interlock with flow control devices (e.g. pumps, valves, PLCs) to ensure product cannot flow unless the RTR has established a ground path for the road tanker. The second output contact can operate attention grabbing devices (e.g. strobe lights) to warn personnel that a hazardous product transfer is underway.
Wide operating temperature range	The RTR system can operate in extreme weather conditions without modifications or enhanced protection (-40°C to +55°C).
Detachable Clamp & Cable	Quick Connect system provides flexible and easy removal of grounding clamp and cable from the hazardous area for maintenance.
Universally Approved Enclosure	Suitable for installation in highest range of gas and vapour environments.

Options

RTR System Tester (ER2/CRT)

Mode Selector Keyswitch

Self-Retracting Cable Reel

Flameproof Strobe Light

IEC/Cenelec (European) and NEC/CEC (North American) versions available

Certification

IECEx SIL 2

Ingress Protection
IP 66

Temperature Range
-40°C to +55°C - ATEX / IECEx

Power Supply
110/120 V or 220/240 V AC, 50-60 Hz
12 V or 24 V DC

The Earth-Rite® RTR™ forms part of the Earth-Rite® range of Static Grounding and Bonding Equipment available from Newson Gale Ltd.

Earth-Rite® RTR™ Static Grounding for Road Tankers

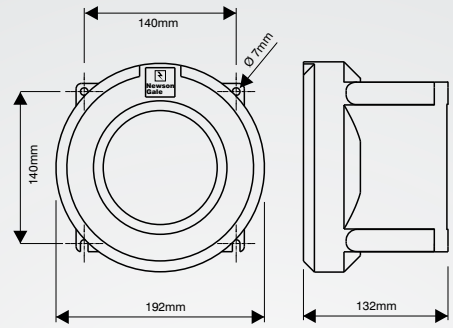
Technical Specification
Ex d (Zone 1 Gas / Vapour Installations)

Monitoring Unit	
Power Supply	110/120 V or 220/240 V AC, 50-60 Hz 12 V or 24 V DC
Power Rating	10 watt
Ambient Temperature Range	-40°C to +55°C
Ingress Protection	IP 66
Weight	4.5 kgs (9.9 lbs) nett
Construction	Copper-free cast aluminium
Monitoring Circuit	Intrinsically safe
Operational Series Ground Resistance	Nominally ≤10 Ohm
Output Relay Contact Rating	2 off voltage free change-over switch contacts, 250 V AC, 5 A, 500 VA max resistive 30 V DC, 2 A, 60 W max resistive
Cable Entries	7 x M20 (2 x plugged)

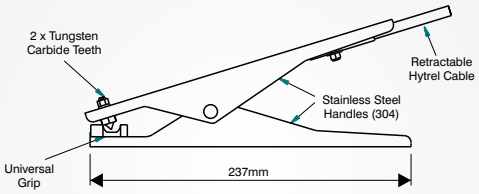
Junction Box/Stowage Point	
Enclosure Material	GRP with carbon loading
Terminals	2 x 2.5 mm^2 conductor capacity
Stowage Device	Insulated 20 mm Ø pin
Cable Entries	1 x 20 mm
Clamp Cable Connection	Quick Connect

Grounding Clamp	
Clamp Design	2 pole with tungsten carbide teeth
Body	Stainless steel
Certification	Ex II 1 GD T6
Approval	FM Approved

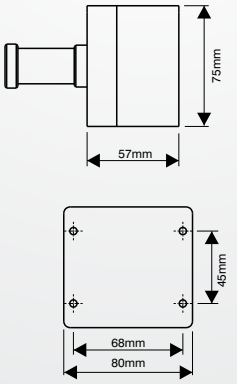
Spiral Cable	
Cable	Blue Cen-Stat Hytrel sheath (Static dissipative, chemical & abrasion resistant)
Conductors	2 x 1.00 mm^2 copper
Length	10 metres extended, 1 metre unextended (other lengths available, please enquire)



ATEX certified / UL Approved copper free cast aluminium enclosure - IP 66 / Type 4X



ATEX certified / FM Approved 2 Pole stainless steel grounding clamp fitted with one pair of tungsten carbide tips



Simple Apparatus GRP clamp stowage box with grounding clamp stowage pin

Earth-Rite® RTR™ Static Grounding for Road Tankers

Hazardous Area Certification

Europe / International:	North America:
IECEx Ex d[ia] IIC T6 Gb(Ga) (gas & vapour). Ex tb IIIC T80ºC IP66 Db (combustible dusts). Ta = -40ºC to +55ºC. IECEx SIR 09.0018 IECEx certifying body: SIRA. **ATEX** Ⓔx II 2(1)GD Ex d[ia] IIC T6 Gb(Ga) Ex tb IIIC T80ºC IP66 Db Ta = -40ºC to +55ºC. Sira 09ATEX2047 ATEX Notified Body: SIRA.	**NEC 500 / CEC (Class & Division)** Associated Equipment [Ex ia] for use in Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III, Div. 1, Providing intrinsically safe circuits for Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III, Div. 1, When installed per Control Dwg; ERII-Q-10110 cCSAus Ta = -40°C to +50°C. Ta = -40°F to +122°F. OSHA recognised NRTL: CSA. **NEC 505 & 506 (Class & Zoning)** Class I, Zone 1 [0] AEx d[ia] IIC T6 Gb(Ga) (gas & vapour). Class II, Zone 21 [20] AEx tD [iaD] 21 T80°C (combustible dusts). **CEC Section 18 (Class & Zoning)** Class I, Zone 1[0] Ex d[ia] IIC T6 Gb(Ga) DIP A21, IP66, T80ºC

Additional Certification

Safety Integrity Level:	SIL 2 (in accordance with IEC/EN 61508).
SIL assessment body:	Exida
EMC Tested:	to EN 61000-6-3, EN 61000-6-2 FCC - Part 15 (Class B)

ATEX IECEx SIL 2

Earth-Rite® RTR™ Static Grounding for Road Tankers

Technical Specification

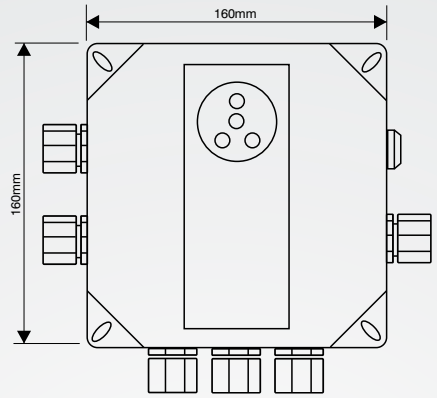
(Zone 2 Gas / Vapour Installations - Zone 21 & 22 Dust Atmospheres)

Power Supply & Monitoring Unit	
Power Supply	108/125 V or 216/250 V AC, 50-60 Hz 12 V or 24 V DC
Power Rating	10 watt
Ambient Temperature Range	-40°C to +55°C
Ingress Protection	IP 66
Weight	2 kgs (4.4 lbs) nett
Construction	Carbon-loaded GRP
Monitoring Circuit	Intrinsically safe
Operational Series Ground Resistance	Nominally ≤10 Ohm
Output Relay Contact Rating	2 off voltage free change-over switch contacts, 250 V AC, 5 A, 500 VA max resistive 30 V DC, 2 A, 60 W max resistive
Cable Entries	7 x M20 (2 x plugged)

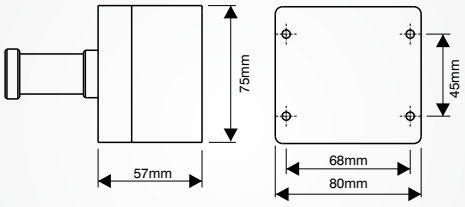
Junction Box/Stowage Point	
Enclosure Material	GRP with carbon loading
Terminals	2 x 2.5 mm^2 conductor capacity
Stowage Device	Insulated 20 mm Ø pin
Cable Entries	1 x 20 mm
Clamp Cable Connection	Quick Connect

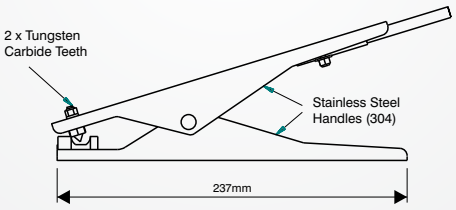
Grounding Clamp	
Clamp Design	2 pole with tungsten carbide teeth
Body	Stainless steel
Certification	Ex II 1 GD T6
Approval	FM Approved

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

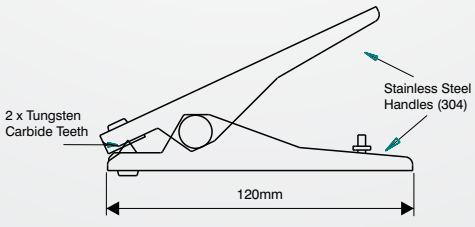


Earth-Rite RTR in Static Dissipative Enclosure consisting of ground loop monitoring module and 230V/110V power supply for Zone 21& 22 dust atmospheres installations. This system may also be installed in Zone 2 atmospheres. **For Zone 1 installations the Earth-Rite RTR is supplied in a universally approved Ex(d)/XP metal enclosure**.





X90-IP - Static Grounding Clamp



X45-IP - Static Grounding Clamp

ATEX certified / FM Approved 2 Pole stainless steel grounding clamp fitted with one pair of tungsten carbide tips.

Earth-Rite® RTR™ Static Grounding for Road Tankers

Hazardous Area Certification

Europe / International:	North America:
IECEx Ex nA nC [ia] IIC T4 Gc(Ga) (gas & vapour). Ex tb IIIC T70ºC Db (combustible dusts). Ta = -40ºC to +55ºC. IECEx SIR 09.0097 IECEx certifying body: SIRA. **ATEX** Ⓔx II 3(1) G Ex II 2D Ex nA nC [ia] IIC T4 Gc(Ga) Ex tb IIIC T70ºC Db Ta = -40ºC to +55ºC. Sira 09ATEX2247 ATEX Notified Body: SIRA.	**NEC 500 / CEC (Class & Division)** Associated Equipment [Ex ia] for use in Class I, Div. 2, Groups A, B, C, D; Class II, Div. 2, Groups E, F, G Class III, Div. 2, Providing Intrinsically Safe circuits for Class I, Div. 1, Groups A, B, C, D; Class II, Div. 1, Groups E, F, G; Class III, Div. 1; When installed per Control Dwg; ERII-Q-10165 cCSAus Ta = -25°C to +55°C. Ta = -13°F to +131°F. OSHA recognised NRTL: CSA. **NEC 505 & 506 (Class & Zoning)** Class I, Zone 2, (Zone 0), AEx nA[ia] IIC T4 (gas & vapour). Class II, Zone 21, AEx tD[iaD] 21, T70ºC, (combustible dusts). **CEC Section 18 (Class & Zoning)** Class I, Zone 2 (Zone 0) Ex nA[ia] IIC T4 DIP A21, IP66, T70ºC

Additional Certification

Safety Integrity Level:	SIL 2 (in accordance with IEC/EN 61508).
SIL assessment body:	Exida
EMC Tested:	to EN 61000-6-3, EN 61000-6-2 FCC - Part 15 (Class B)

ATEX IECEx SIL 2 INMETRO

Earth-Rite® RTR™ Static Grounding for Road Tankers

System options

Newson Gale supplies a range of product options that enhance the control and general safety of transfer processes and aid engineers with system installations and routine system service checks. Contact Newson Gale or your local Newson Gale representative for more information on the range of options available.

Installer's Kit

This kit provides installation engineers with the necessary Ex (d) enclosure glands (x5) and system cable (x3) required to complete an **Earth-Rite RTR** or **Earth-Rite PLUS** installation as specified in the system installation manuals. Two of the glands cater for both armoured and non-armoured cable diameters ranging from 9 mm to 13.5 mm. Three glands cater for IS current carrying non-armoured cable with cable diameters ranging from 4 mm to 8.4 mm. * For areas not requiring IIC apparatus.

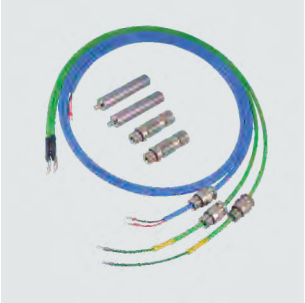
> Ex (d) IP68 glands (x2) for armoured cable 9 mm to 13.5 mm Ø.*

> Ex (d) IP68 glands (x3) for non-armoured cable 4 mm to 8.4 mm Ø.*

> 3 m of 2 core conductor cable (x1) to connect system enclosure to clamp stowage box.

> 1 m of solid green earth loop cable (x2), with Ex (d) glands, PCB connectors and 10 mm bolt eyelets attached.

> 1 pair of handles to aid opening and closing of the enclosure lid.



Installer's Kit
Product Code: ER2KITA
(Power cable and interlock cable not supplied).

RTR Tester

The **RTR Tester** is designed to have the same electrical characteristics as a road tanker and provides engineers with a means of checking that the **RTR** undergoing installation is permissive when it detects these characteristics. The Tester is connected to the **RTR** system and it's grounding point, and when activated, the **RTR**'s LED indicators change from red to green, confirming that the Road Tanker Recognition and Static Ground Verification checks are functioning as intended.

> Ideal for system commissioning and routine service checks.

> Easy to use with simple PASS / FAIL condition.

RTR Tester
Product Code: ER2/CRT.

Earth-Rite® RTR™ Static Grounding for Road Tankers

Ex Strobe Light

The strobe light is mounted in an elevated position and when the equipment is correctly grounded, flashes continuously informing personnel that a transfer process is underway and is protected from the static hazard. The strobe light can be used in conjunction with the **Earth-Rite RTR** and **Earth-Rite PLUS**.

> 115 V / 230 V AC and 24 V DC options.

> ATEX / IECEx approved Exd strobe light.

> ⟨Ex⟩ II 2G Ex d IIC T4 (Ta. -50°C to +70°C)

> II 2G Ex d IIC T5 (Ta. -50°C to +40°C)

> II 2D Ex tD A21 IP67 T125°C based on max. Ta. 70°C

Ex Strobe Light
Product Code: STROBE11/A
(Amber strobe).
Please enquire for options

VESM02 Retractable Cable Reel

The VESM02 Retractable Cable Reel is supplied for grounding system installations where customers want to ensure the grounding clamp and cable are returned to the static grounding system by operators and drivers on completion of the product transfer process. The **VESM02 Reel** can be used in conjunction with the **Earth-Rite RTR**, **Earth-Rite MGV** and **Earth-Rite PLUS**.

> Certified for ATEX Zone 1 and 21 hazardous areas.

> Self-retracting with up to 15 m (50 ft.) of Hytrel® protected cable.

> Silver plated ultra low resistance slip ring contacts.

> ATEX - ⟨Ex⟩ II 2 GD T6

VESM02 Retractable Cable Reel
Product Code: VESM02

Sun Shield

Designed for operating environments subject to intense sunlight, the ERII Sun Shield prevents direct sunlight hitting the indicators on the **Earth-Rite RTR** and **Earth-Rite PLUS** static grounding systems.

The Sun Shield casts a shadow over the indicators during peak sun light hours so that operators can easily view the ground status indicators. The shield is constructed from stainless steel and can be fitted to any installation in a matter of minutes.

Sun Shield
Product Code: ER2/SH

Earth-Rite® RTR™ Static Grounding for Road Tankers

Contact Us > Your enquiry will be processed rapidly via our webform enquiry service. If you would prefer to call us, or e-mail us, please use the contact details provided below.

Product Ordering Codes * Additional Options Available

Ordering Code	Product Description
RTRMEA1A3A*	Earth-Rite RTR Tri-Mode Static Grounding Unit - ATEX IIC, 220/240 V AC ±10% including Heavy Duty grounding clamp,10 m retractable spiral cable, GRP clamp stowage box and operator instruction board
RTRP1EA1A2	ER RTR System + X90IP stainless steel clamp + 5 m Hytrel Cable + junction box with Quick Connect. (Complete Zone 2/22 or Non-Hazardous area installation).
RTRP1EA4A7	ER RTR System + X90IP stainless steel clamp + 15 m Cable Reel. (Complete Zone 2/22 or Non-Hazardous area installation).
STROBE11/A (230V AC)	Amber Strobe, 15 J, 115 V / 230 V AC and 24V DC options. Please enquire for further options.
ER2/CRT	RTR Tester for RTR system installation commissioning and servicing
ER2KITA	Installer's Kit including specified Ex d armoured glands for areas not requiring IIC apparatus (x2), non-amoured system grounding cable (x3) and enclosure lid handles
VESM02	VESM02 Retractable Cable reel with 15 m (50 ft) of 2 conductor Hytrel protected static grounding cable
ER2/SH	Sun Shield

* Alternative clamp, cable length and reel options upon request.
Contact your local sales office or distributor with your requirements.

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NG UK RTR 140318 R13