

# Earth-Rite® II RTR™

## Static Grounding for Tank Trucks



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

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

The loading and unloading of tank trucks with large quantities of chemicals and powders generates static electricity which, if left to accumulate on a tank truck, 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 tank truck is grounded.

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

The Earth-Rite II 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 II RTR go permissive and energise its pair of dry 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 tank truck. Any static generated by the loading operation is transferred from the tank truck via the Earth-Rite RTR to ground, mitigating static electricity as a potential source of ignition.



**Earth-Rite II RTR** Road Tanker Grounding System

### The Earth-Rite II RTR includes:

- > **Explosion Proof Control Enclosure** incorporating Intrinsically Safe Static Ground Monitoring Electronics.
- > **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.

## Earth-Rite® RTR™ Static Grounding for Tank Trucks

### Tri-Mode Technology

#### MODE 1 | Tank Truck Recognition

In accordance with the recommendations of IEC 60079-32-1\*, the Earth-Rite RTR II determines if the grounding clamp is connected to a tank truck.

#### MODE 2 | Static Ground Verification

The Earth-Rite II 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 tank truck, 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 II RTR ensures the resistance between the tank truck and the verified grounding point at the loading rack never exceeds 10 ohms. The Earth-Rite II RTR achieves this by monitoring the resistance between the RTR clamp's connection to the tank truck 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 connection.

<b>Compliant with IEC 60079-32-1 &amp; NFPA 77</b>	The monitoring set-point of 10 ohms resistance is compliant with the standards for static control in hazardous areas: IEC 60079-32-1 & NFPA77.
<b>Operator friendly interface</b>	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.
<b>Control / Interlock capability (Two dry output contacts)</b>	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 tanker truck. The second output contact can operate attention grabbing devices (e.g. strobe lights) to warn personnel that a hazardous product transfer is underway.  * Optional Intrinsically safe switching PCB is also available, see Page 8.
<b>Wide operating temperature range</b>	The RTR system can operate in extreme weather conditions without modifications or enhanced protection: -40°F to +122°F.
<b>Detachable Clamp &amp; Cable</b>	Quick Connect system provides flexible and easy removal of grounding clamp and cable from the hazardous area for maintenance.
<b>Universally Approved Enclosure</b>	Suitable for installation in highest range of gas and vapour environments.

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

**Options**

- RTR System Tester (ER2/CRT)
- Mode Selector Keyswitch
- Self-Retracting Cable Reel
- Explosion Proof Strobe Light
- Intrinsically Safe (I.S.) Switching PCB
- IEC/Genelec (European) and NEC/CEC (North American) versions available

**Certification**

**Ingress Protection**

Type 4X - IP 66

**Power Supply**

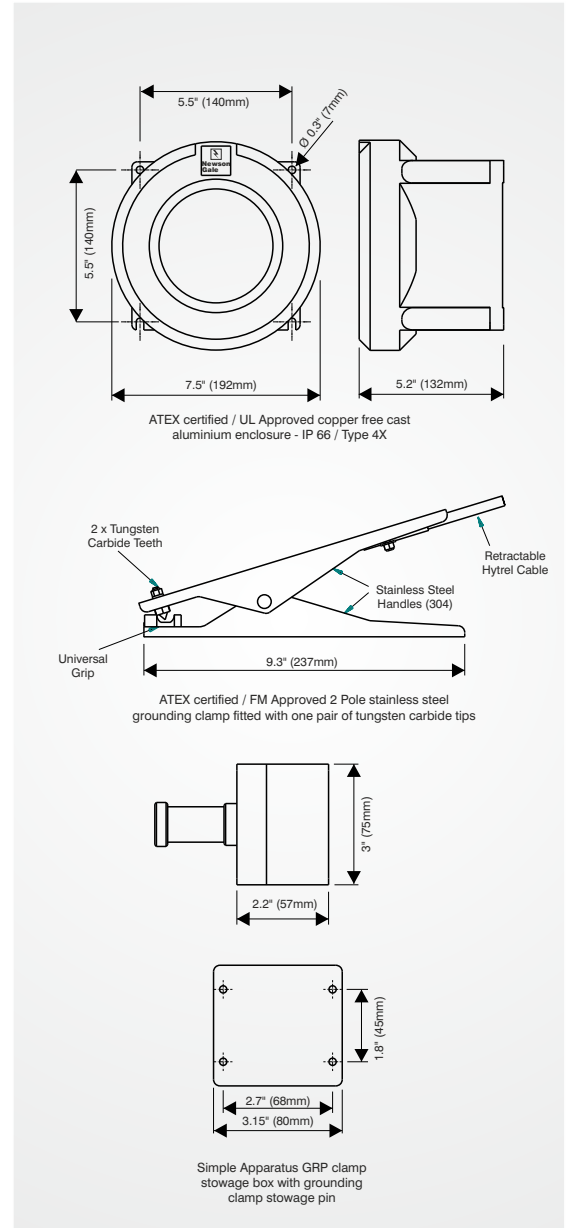
Selectable 110/120 V or 220/240 V AC, 50-60 Hz  
Selectable 12 V or 24 V DC

**Earth-Rite® RTR™** Static Grounding for Tank Trucks

**Technical Specification**

XP (Class I, II, III - Div 1 Installations)

Monitoring unit	
<b>Power supply</b>	110/120 V or 220/240 V AC, 50-60 Hz 12 V or 24 V DC
<b>Power rating</b>	10 watt
<b>Ambient temperature range</b>	-40°F to +122°F (-40°C to +50°C)
<b>Ingress protection</b>	Type 4X, (IP 66)
<b>Weight</b>	9.9 lbs (4.5 kg) nett
<b>Construction</b>	Copper-free cast aluminium
<b>Monitoring Circuit</b>	Intrinsically Safe
<b>Operational Series Ground Resistance</b>	Nominally ≤10 Ohm
<b>Output Relay Contact Rating</b>	2 off dry contacts, 250 V AC, 5 A, 500 VA max resistive 30 V DC, 2 A, 60 W max resistive
<b>I.S Switching PCB (NAMUR compatible)</b>	30 V DC, 500 mA Li = 0H, Ci = 0F Optional extra - See system options
<b>Cable Entries</b>	7 x 3/4" NPT (supplied with 4 stopper plugs)
Junction Box/Stowage Point	
<b>Enclosure Material</b>	GRP with carbon loading
<b>Terminals</b>	2 x AWG #14 conductor capacity
<b>Stowage Device</b>	Insulated 3/4" diameter pin
<b>Cable Entries</b>	1 x M20
<b>Clamp Cable Connection</b>	Quick Connect
Grounding Clamp	
<b>Clamp Design</b>	2 pole with tungsten carbide teeth
<b>Body</b>	Stainless Steel
<b>Approval</b>	FM Approved
Spiral Cable	
<b>Cable</b>	Blue Cen-Stat Hytrel sheath (Static dissipative, chemical & abrasion resistant)
<b>Conductors</b>	2 x AWG #18 copper
<b>Length</b>	32 ft. (10 m) extended, 3 ft. (1 m) unextended (other lengths available - please inquire)



**Earth-Rite® RTR™** Static Grounding for Tank Trucks

**Hazardous Area Certification**

Europe / International:	North America:
<p><b>IECEX</b>                      Ex d[ia] IIC T6 Gb(Ga) (gas &amp; vapour)                      Ex tb IIIC T80°C IP66 Db (combustible dusts)                      Ta = -40°C to +55°C                      IECEX EXV 19.0052                      IECEX certifying body: ExVeritas</p> <p><b>ATEX</b>                      Ex II 2(1)GD                      Ex d[ia] IIC T6 Gb(Ga)                      Ex tb IIIC T80°C IP66 Db                      Ta = -40°C to +55°C                      ExVeritas 19ATEX0537                      ATEX Notified Body: ExVeritas</p>	<p><b>NEC 500 / CEC (Class &amp; Division)</b>                      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:                      ER11-Q-10110 cCSAus                      Ta = -40°C to +50°C                      Ta = -40°F to +122°F</p> <p>OSHA recognised NRTL: CSA</p> <p><b>NEC 505 &amp; 506 (Class &amp; Zoning)</b>                      Class I, Zone 1 [0] AEx d[ia] IIC T6 Gb(Ga)                      (gas &amp; vapour)                      Class II, Zone 21 [20] AEx tD [iaD] 21 T80°C                      (combustible dusts)</p> <p><b>CEC Section 18 (Class &amp; Zoning)</b>                      Class I, Zone 1[0] Ex d[ia] IIC T6 Gb(Ga)                      DIP A21, IP66, T80°C</p>

**Additional Certification**

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



**Earth-Rite® RTR™** Static Grounding for Tank Trucks

**Technical Specification**

GRP (Class I, II, III - Div 2 Installations)

Power Supply & Monitoring Unit

<b>Power Supply</b>	108/125 V or 216/250 V AC, 50-60 Hz 12 V or 24 V DC
<b>Power Rating</b>	10 watt
<b>Ambient Temperature Range</b>	-13°F to +131°F (-25°C to +55°C)
<b>Ingress Protection</b>	IP 66
<b>Weight</b>	4.4 lbs (2 kgs) nett
<b>Construction</b>	Carbon-loaded GRP
<b>Monitoring Circuit</b>	Intrinsically safe
<b>Operational Series Ground Resistance</b>	Nominally ≤10 Ohm
<b>Output Relay Contact Rating</b>	2 off dry contacts, 250 V AC, 5 A, 500 VA max resistive 30 V DC, 2 A, 60 W max resistive
<b>I.S Switching PCB (NAMUR compatible)</b>	30 V DC, 500 mA Li = 0H, Ci = 0F Optional extra - See system options
<b>Cable Entries</b>	7 x M20 (4 x plugged)

Junction Box/Stowage Point

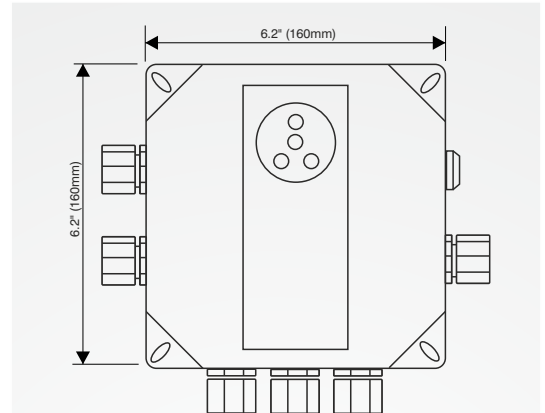
<b>Enclosure Material</b>	GRP with carbon loading
<b>Terminals</b>	2 x AWG #14 conductor capacity
<b>Stowage Device</b>	Insulated 0.79" diameter pin
<b>Cable Entries</b>	1 x M20
<b>Clamp Cable Connection</b>	Quick Connect

Grounding Clamp

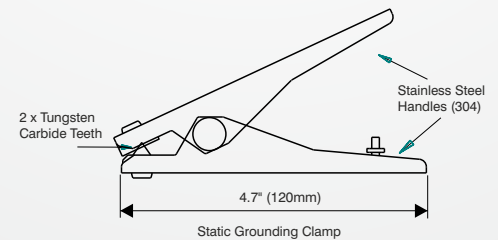
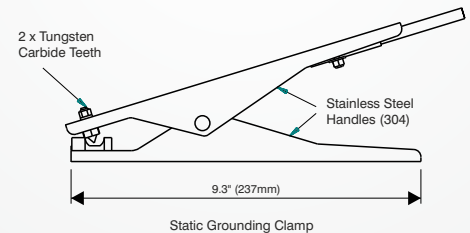
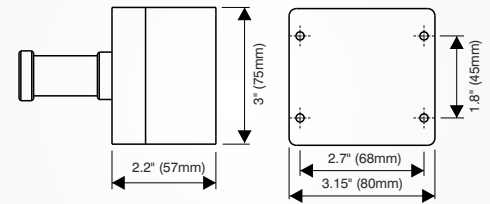
<b>Clamp Design</b>	2 pole with tungsten carbide teeth
<b>Body</b>	Stainless steel
<b>Certification</b>	Ex II 1 GD T6
<b>Approval</b>	FM Approved

Spiral Cable

<b>Cable</b>	Blue Cen-Stat Hytrel sheath (Static dissipative, chemical & abrasion resistant)
<b>Conductors</b>	2 x AWG #18 copper
<b>Length</b>	32 ft. (10 m) extended, 3 ft. (1 m) unextended (other lengths available, please inquire)



Earth-Rite II 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 II RTR is supplied in a universally approved Ex(d)/XP metal enclosure.



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

**Earth-Rite® RTR™** Static Grounding for Tank Trucks

Hazardous Area Certification

Europe / International:	North America:
<p><b>IECEX</b>                      Ex ec nC [ia] IIC T4 Gc(Ga) (gas &amp; vapour)                      Ex tb IIIC T70°C Db (combustible dusts)                      Ta = -40°C to +55°C                      IECEX EXV 19.0545X                      IECEX certifying body: ExVeritas</p> <p><b>ATEX</b>                      Ex II 3(1) G                      Ex II 2D                      Ex ec nC [ia] IIC T4 Gc(Ga)                      Ex tb IIIC T70°C Db                      Ta = -40°C to +55°C                      ExVeritas 19ATEX0545X                      ATEX Notified Body: ExVeritas</p>	<p><b>NEC 500 / CEC (Class &amp; Division)</b>                      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</p> <p>OSHA recognised NRTL: CSA</p> <p><b>NEC 505 &amp; 506 (Class &amp; Zoning)</b>                      Class I, Zone 2, (Zone 0), AEx nA[ia] IIC T4                      (gas &amp; vapour)                      Class II, Zone 21, AEx tD[iaD] 21, T70°C,                      (combustible dusts)</p> <p><b>CEC Section 18 (Class &amp; Zoning)</b>                      Class I, Zone 2 (Zone 0) Ex nA[ia] IIC T4                      DIP A21, IP66, T70°C</p>

Additional Certification

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



## Earth-Rite® RTR™ Static Grounding for Tank Trucks

### 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.

#### Hazardous Area 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 II RTR** and **Earth-Rite II PLUS**.

- > ATEX and Class/Div approved versions
- > 115 V / 230 V AC and 24 V / 48 V DC options
- > Amber, Green & Red strobe colour options



#### 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 its 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



## Earth-Rite® RTR™ Static Grounding for Tank Trucks

**Contact Us** > Your inquiry 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.

### Intrinsically Safe (I.S) Switching PCB

The I.S Switching PCB is an additional circuit board added to Newson Gale system enclosures that enable users to directly interface with, and switch intrinsically safe circuits without the need for additional equipment. The I.S Switching PCB is designed not to affect the I.S signals electrical parameters and is compatible with the **Earth-Rite II RTR, MGV, PLUS** and **FIBC** platforms.

- > 30 V DC, 500 mA
- > Li = 0H, Ci = 0F
- > Suitable for Ex ia, ib, ic rated intrinsically safe circuits only
- > NAMUR Compatible



### Retractable Cable Reel

The 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 reel can be used in conjunction with the **Earth-Rite II RTR, Earth-Rite II MGV** and **Earth-Rite II 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



### Sun Shield

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



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