

OhmGuard®

Intrinsically Safe Electrical Continuity Tester



The OhmGuard® electrical continuity tester is designed to test hoses used on vacuum trucks, road tankers and plant equipment prior to the transfer of flammable or combustible products. It can also be used as an effective method of checking static bonding assemblies and conductors relative to verified grounding points.

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

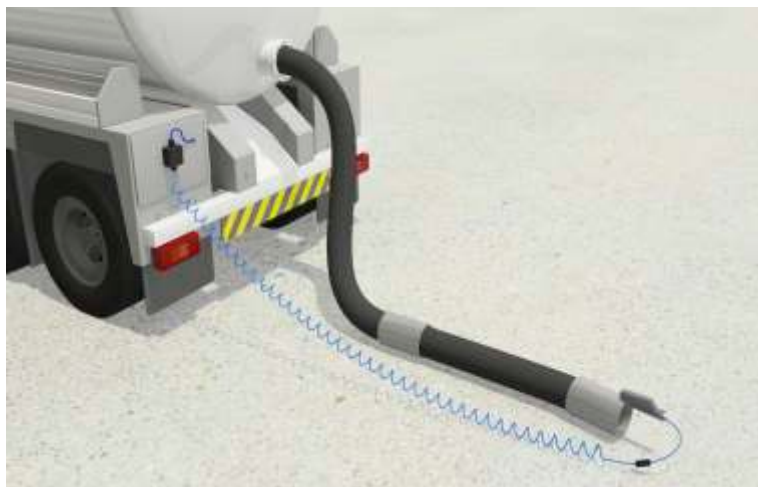
The OhmGuard verifies that the electrical conductivity of hoses and plant equipment like metal piping, mitigates the risk of a fire or explosion caused by the discharge of a static spark.

The OhmGuard is easy to operate and does not require any specialist training. For hose testing applications it will indicate, within seconds, if the hoses are safe to use.

For internal plant testing the OhmGuard can test the electrical continuity of fixed plant equipment which should be grounded through its structure and portable equipment which should, at minimum, be grounded with clamps and cables.



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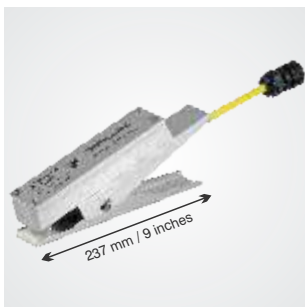
Applications

- > Testing vacuum truck hoses prior to spill cleanup or material recovery operations.
- > Testing bulk road tanker hoses prior to the delivery of flammable products (e.g. solvents) to storage tank farms.
- > General resistance testing of chemical and petrochemically compatible hoses.
- > Electrical resistance testing of plant equipment.
- > Spot testing of bonding assemblies and conductors in the field.

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The metal helical wires that reinforce hoses against discharge and suction pressures are commonly used to provide an electrical bond between the end fittings or couplings of hoses. It is important to ensure that wires, like the one illustrated, do not break as this will result in the presence of isolated conductors that have the potential to discharge electrostatic sparks repeatedly during material transfer operations.



Rugged Stainless Steel housing with Tungsten Carbide Teeth.



OhmGuard benefits:

- > Proves the hoses have **good electrical continuity** with the grounded truck.
- > Ensures potentially isolated components of **plant equipment** are identified and remedied.
- > One time test with **visual GO / NO GO** indication.
- > Enables **early detection of faults** without the need to wait for scheduled periodic testing.
- > **Easy to operate**. Drivers and operators do not need electrical training.
- > **Intrinsically Safe** certification for EX / HAZLOC requirements.
- > **Lower cost** than equivalent EX / HAZLOC approved multimeters.
- > Robust Stainless Steel construction and **more robust than multimeters** in the field.
- > **Tungsten carbide teeth** penetrate any slurries or deposits caked onto the hose end fitting.

The OhmGuard® Intrinsically Safe Electrical Continuity Tester forms part of Newson Gale's range of Static Grounding and Bonding equipment.

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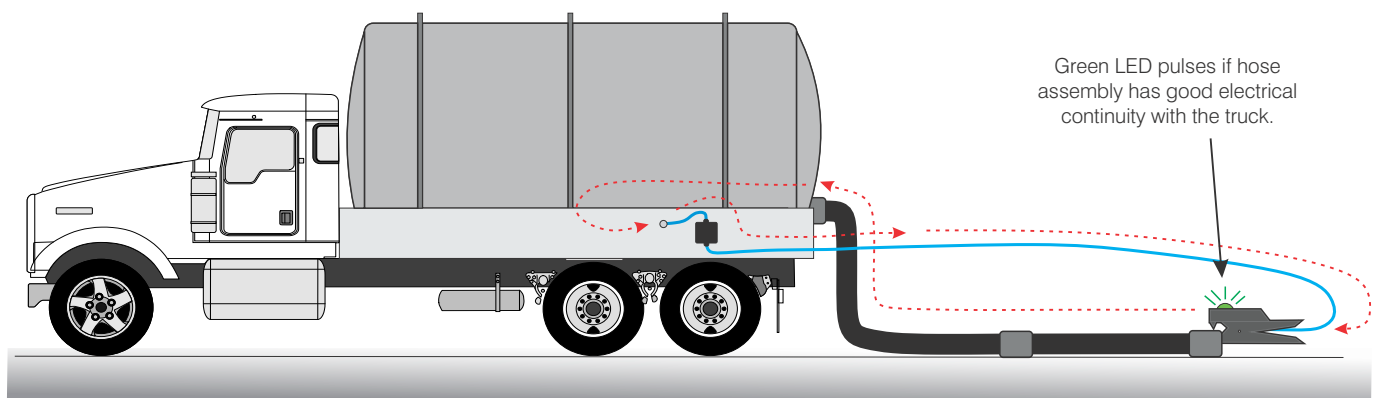
EXAMPLE 1

Truck hose testing with an OhmGuard connected via a truck mounted junction box:

The OhmGuard injects an Intrinsicly Safe current through the assembled sections of hoses and through the truck body to the junction box fitted to the truck. If the current returns to the OhmGuard via the blue cable the OhmGuard's green LED will pulse continuously indicating that the hoses have good electrical continuity with the truck.

PLEASE NOTE:

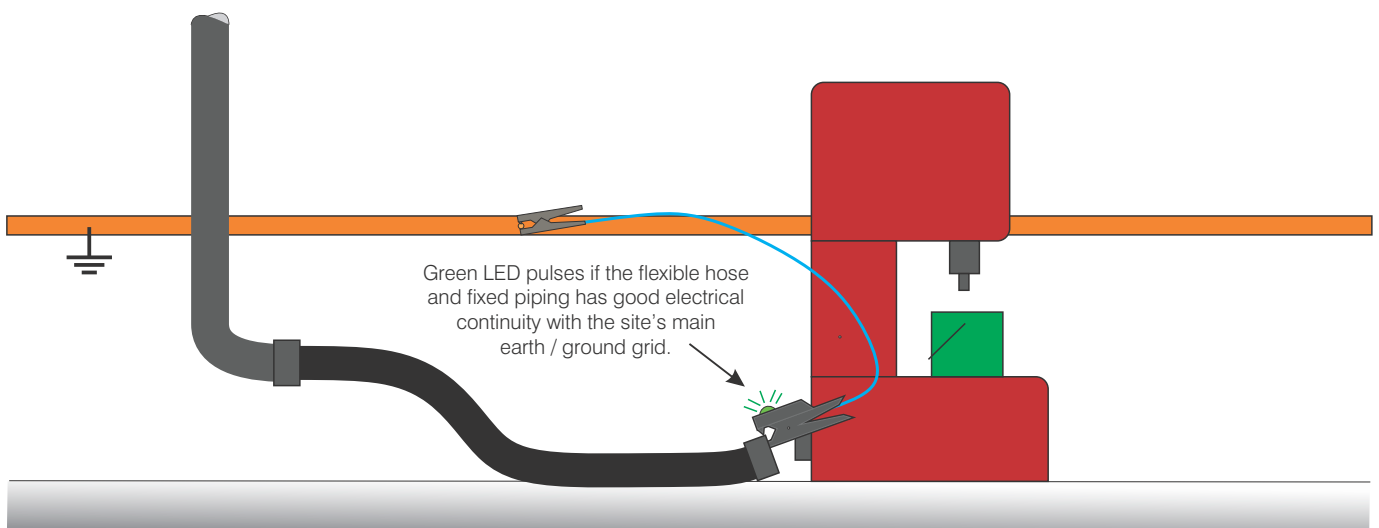
It is assumed that the truck itself has a verified connection to earth, otherwise static charges will accumulate on, and potentially discharge from, the hoses connected to the truck. Mobile truck ground verification can be achieved with Newson Gale's [Earth-Rite® MGV](#) mobile ground verification system.



EXAMPLE 2

Portable plant testing with an OhmGuard and clamp

The OhmGuard injects an Intrinsicly Safe test current through the hose and fixed piping to a plant grounding point. The second clamp is attached to a verified grounding point that is connected to the plant's ground network. If the current returns to the OhmGuard via the blue cable the OhmGuard's green LED will pulse continuously indicating that the hose and fixed piping have good electrical continuity with the plant grounding grid.

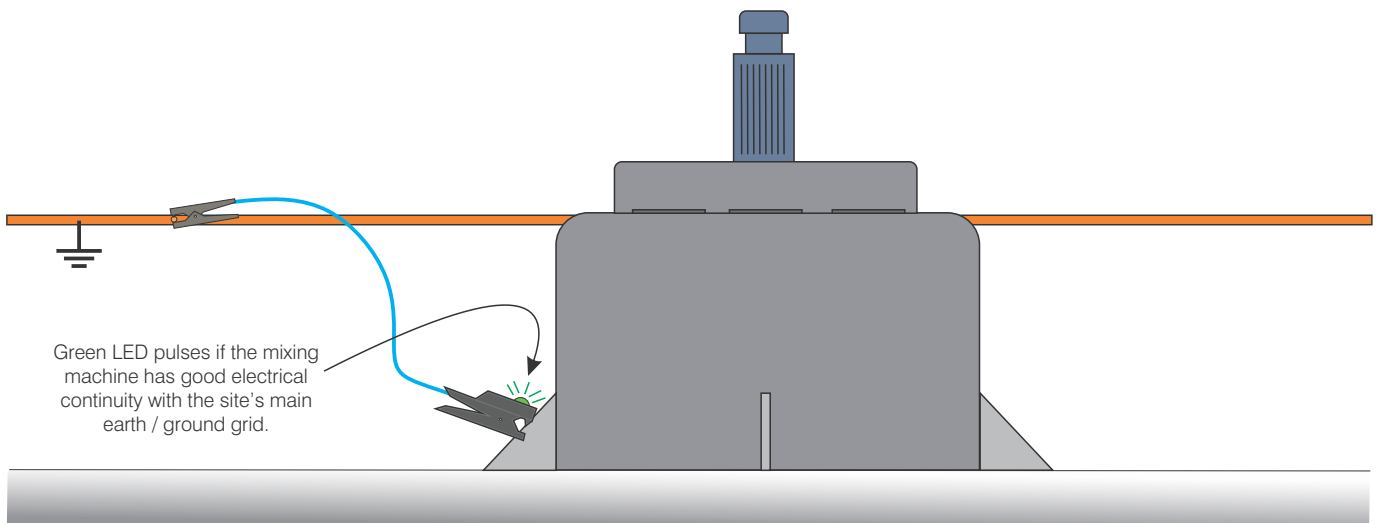


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EXAMPLE 3

Portable plant testing with an OhmGuard and clamp:

The OhmGuard injects an Intrinsically Safe test current through the mixing machine to verify that the mixing machine is connected to the main plant earth / ground grid. If the OhmGuard establishes that the machine is connected to the main plant earth / ground grid, the green LED will pulse continuously.



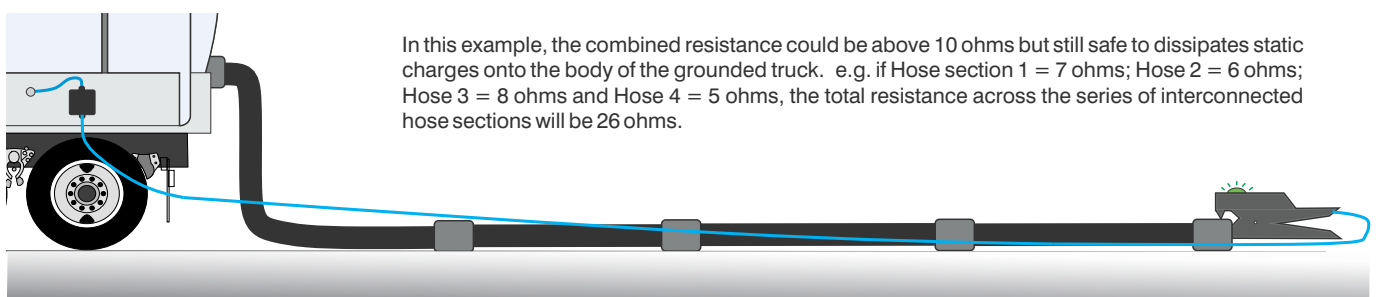
Permissible resistance range: Why select 100 ohms for truck hose testing?

There are many hoses with different materials of construction supplied to the oil & gas, petrochemical and chemical industries. The most commonly used hose in road tanker and vacuum truck operations are those that have a mechanical wire helix that supports the hose tubing material. On the majority of hoses that incorporate a metal wire helix, the helix is used to bond the hose couplings together to ensure neither coupling is electrically isolated, thereby preventing the accumulation of static electricity.

Dependant on company policy, the most commonly accepted value of end-to-end resistance is 10 ohms per hose section. However, in order to provide drivers and operators with the capability to determine if multiple sections of interconnected hoses are bonded to together and are bonded to a grounded truck, the OhmGuard looks for a combined resistance of 100 ohms or less. It is possible to specify an OhmGuard that will limit the resistance PASS level to 10 ohms, however, it must be borne in mind that hoses connected in series are likely to have a combined end-to-end resistance of over 10 ohms.

If companies are using hoses that are of the metal wire helix type, but the mandated end-to-end resistance is higher, e.g. 10,000 ohms, then the OhmGuard can be used as an early warning device to draw attention to potentially faulty hoses that should have a thorough electrical resistance check carried out by a qualified technician as it should be anticipated that metal to metal connections should actually have a low resistance connection.

100 ohms is the maximum resistance recommended for conductive hoses in IEC 60079-32-1 “Explosive atmospheres, Part 32-1: Electrostatic hazards, guidance”.



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Technical Specification

IECEX & ATEX certification details

Ingress protection	IP64
Maximum ambient temperature	-40°C to +60°C
Certification	Ex ia IIC T4 Ga, Ex ia IIIC T135°C Da, Ex II 1 GD
Approval authority	ExVeritas Test & Certification
Monitored Loop Resistance (0-100 ohm Clamp)	100 ohm maximum
Monitored Loop Resistance (0-10 Ohm Clamp)	10 ohm maximum
Indicator Lamp LED	1 green (Hose Continuity Good)

North American certification details

Maximum ambient temperature	-40°F to +140°F (-40°C to +60°C)
Certification	Class I Div 1, Groups, A, B, C, D Class II Div 1, Groups, E, F, G Class III Div 1
Approval authority	CSA
Monitored Loop Resistance (0-100 ohm)	100 ohm maximum
Monitored Loop Resistance (0-10 Ohm)	10 ohm maximum
Indicator Lamp LED	1 green (Hose Continuity Good)

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.



The extension assembly consists of an alligator clip, a test probe and stainless steel plate. It is ideal for testing equipment that does not have a large enough surface to connect to with the OhmGuard clamp. The person performing the test simply connects the OhmGuard's clamp contacts to the plate and then connects the probe or alligator clip to the equipment being tested.

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