



Introducing Safearth The Earthing Specialists

USA | Canada | Australia | UK

Safearth is an international team of specialist electrical engineers focussed on earthing and earthing system testing.

Safearth is committed to providing valuable solutions to meaningful problems, which has led to the development of advanced testing methods, instruments and analysis techniques.

We research, design, develop and manufacture a suite of earthing system test instruments that allow you to manage your high voltage assets more safely and effectively. These instruments

are most effective when coupled with the best testing methods, so we also offer professional training at every level, from field technicians, to asset strategists, to design engineers.

Safearth began as part of a power utility more than 30 years ago and was privatised in 2008. We started business in America in 2013 and in Europe in 2018. We are a growing global business and are excited about making a positive impact on electrical safety and reliability for you.

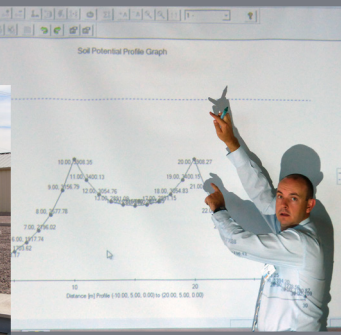
training

Earthing Training

Safeearth have been at the forefront of earthing theory and practice for more than 30 years. We delivered the first public earthing training course in Australia in the early 1990s and have since trained hundreds of people around the world.

We have a large team of trainers who are all earthing experts with substantial experience in both R&D and practical applications. We know about real-world problems and constraints, and have provided thousands of solutions in design, testing and refurbishment of assets across all industries.

Our training is focused on helping people understand, not just on providing information.



Courses include a balance of theoretical background and practical application, with real-world examples and, where possible, field demonstrations.

Courses cover all aspects of earthing design, testing and management, and can be customised and run for your company or in your city.

Condition Testing

After years of testing with equipment that was designed for other applications, Safeearth developed the first device specifically designed for site earthing integrity testing. This instrument allows you to quickly and safely:

- prove continuity
- prove segregation / separation
- identify inadequate bonding through poor installation or degradation
- monitor trends over time indicating deterioration or configuration changes

This test instrument can identify defects before they fail under fault conditions. Electrical connections can be verified across a large distance and in a noisy environment such as a live substation.

instruments

CS3 Integrity Tester

This award-winning instrument has a number of advanced features that have been developed especially for the particular requirements of earthing system integrity testing:

- Accurate measurements across large distances
- Measure multiple connections in a single test
- Up to 4x faster than traditional testing methods
- High AC and DC noise rejection
- Sufficiently accurate to identify a loose joint
- Reliably test in-service assets
- LeadSure® test lead continuity verification



Case Study: Islanded Grid Identified

- Substation grid resistance measured by others using 3-point test method, and subsequent modelling showed high EPR and non-compliant touch voltages.

- Condition testing by Safeearth using the CS3 Integrity Tester quickly showed part of the substation grid was islanded. Performance testing confirmed the high EPR and non-compliances were caused by the discontinuity across the grid.

Performance Testing

Safearth developed the first commercial low-current off-frequency injection testing system in 1994. With our modern equipment, testing can be carried out in live substations to confidently and accurately measure:

- system impedance
- grid resistance, even in interconnected systems
- fault current distribution
- step & touch voltages
- current distributions (splits)



AX1 Injection Source

What used to require 3 boxes weighing 60kg+ is now surpassed in a single 23kg package. Our purpose-built earthing injection unit is unmatched in its ability to enable testing of live, energised stations under the most arduous conditions, without having to remove any earthing interconnections.

Advantages include:

- High power and lightweight for easy transport and handling
- High immunity to induced current in test circuit
- Highly stable injection current control
- GPS-referenced frequency and phase control
- Sinusoidal current waveform
- Fast, simple user interface

MI3 Injection Multimeter

Our frequency-tuneable voltage/current meter allows direct measurement of step and touch voltages.

- High noise immunity
- PhaseSURE® GPS-referenced phase measurement (a Safearth development)
- Loaded touch voltage measurements
- Fast auto-range selection



Case Study: Safety Issues Identified

- Substation grid resistance measured by others using 3-point test method.
- Earthing system was modelled by others using the measured resistance for model correction

and showed compliant transfer voltages around the substation.

- Injection testing by Safearth measured non-compliant transfer voltages at nearby conductive 3rd party assets including gas pipelines and fences.

Supporting Equipment

Safearth has also developed a range of equipment to support the testing, including cable deployment solutions, connection kits, remote electrodes, interfaces and protection devices.



Consulting Services

consulting

Safeearth has more than 30 degree-qualified specialist engineers with world-recognised expertise in all areas relating to earthing systems.

Our experience extends to all areas of power generation, reticulation and use, including substations, transmission and distribution systems, power stations, industrial plants and mining operations.



Safeearth are available to:

- carry out testing with you or for you
- assist you to plan and implement your testing strategy
- provide technical and engineering support with any earthing problem or issue
- prepare and review earthing designs
- develop standards, policies and procedures
- investigate incidents of electric shock, circulating current or complex interactions
- carry out safety audits on earthing assets



Dr Bill Carman
Engineering Director, UK

BEng, PhD, CPEng, NER, FIEAust, SMIEEE

Bill is an international leader in the earthing specialty, with over 30 years' experience including testing, design, incident investigation, policy & standards development, training, and change management. He has published numerous technical papers and remains active within IEEE, Cigre, and ENA & Standards Australia earthing groups.

Bill is now making the UK home and he's ready to work with you!



Stephen Palmer
Managing Director

BEng, GradCertBA, FIEAust, SMIEEE, CPEng, EngExec, RPEng, NER, APEC Engineer, IntPE(Aus), RPEQ, MAICD

Stephen is Managing Director of Safeearth, the internationally recognised specialists in earthing system testing. He and his team have developed, sell & support leading earthing testing instruments. Well established in Australia and North America, Stephen is now leading the team to develop our business in the UK and Europe. He is also active in international standards and professional groups including his role as Technical Editor for the new edition of IEEE 81 on earthing system testing.

We're ready to assist you with technical and engineering support on a planned or ad-hoc basis.

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