



## How to carry out High Voltage Testing?

There are many standards and procedures which related to high voltage testing, often these have been created by the generation company or distribution network operator and form the basis for their staff safety training. Earlier we mentioned the process of safe isolation and this basic practice forms the starting point for most high voltage training courses around the world.

The safe isolation process consists of three stages; Prove that the indicator or detector works, prove that the system to be worked on is 'dead' and then finally re-prove the indicator or detector afterwards.

To prove that the detector or indicator is working we need to have a know source on which to test safely, this function is usually performed by a device call a 'proving unit' like Seaward's PH3. The proving unit is a battery powered device that generates a high voltage which can then be used to test the operation of the detector or indication before and after proving dead. The three step safe isolation process is designed to reduce the risk of an incorrect reading, which could lead you to believe that a system is 'dead' when in fact it still poses a danger. This outcome could result from testing with a faulty detector or indicator which fails to light when connected to a 'live' circuit or even a detector or indicator which fails during the testing process. Only by proving before the test do we know that the detector or indicator is working and then by re-proving again afterwards do we know that it was still working at the time of test, giving us the confidence that the system is actually safe to work on.

To perform phasing tests it is first necessary to perform voltage detection to

ensure that all phases are 'live' and operational, in earthed neutral system this is achieved by performing a test to earth using an appropriate voltage detector or indication, such as Seaward's KD1E range. Measurements are then made between the line conductors of the two circuits to be connected. Where the two lines are in-phase no voltage difference will be detected, lines that are out of phase will have a voltage difference and this will be detected and the indicator will light. These tests are performed across all combinations of the line conductors to be paralleled to ensure that phasing is correct before connection.

It is important to note that high voltage testing is extremely dangerous and should only be performed by competent persons who are fully instructed in the safe systems of work for the type of system being worked on. Never attempt any work on or near high voltage systems without the expressed permission of the system operator or owner.

If you require more help, please contact us at <https://www.seaward.com/gb/enquiry/>.