

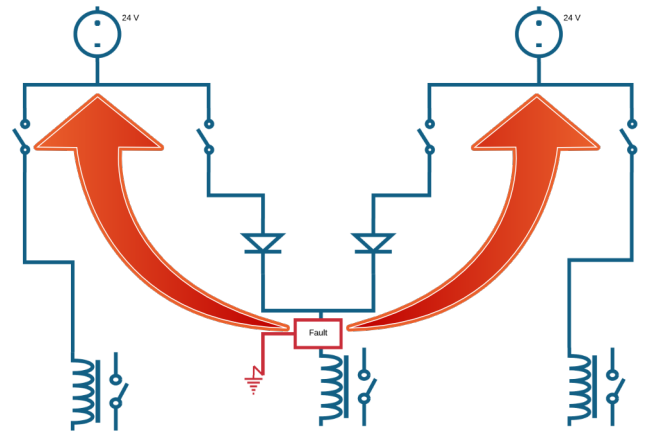
# DCShortCUT

## DC CROSS-CONNECTION SHORT CIRCUIT UNDER TEST

### Give Us A Problem...

24V DC Cross-connections have been identified by industry stakeholders as being a significant threat to the redundancy of Dynamically Positioned Vessels.

A fault downstream of cross-connected power supplies, when propagated up to the power supplies, is considered to threaten both the power supplies. If the problem propagates through the power supplies to their source, all other consumers fed by the same source are also at risk. As such, in a cross-connection arrangement, a fault on one set of supplies could cause the loss of multiple sections of the vessel. With the advent of high reliability power supplies and electronic circuit protection devices, the risk of faults propagating through a DC cross-connection has decreased significantly. How can vessel owners provide assurance to clients and stakeholders that the risk has been sufficiently mitigated through equipment selection and design?



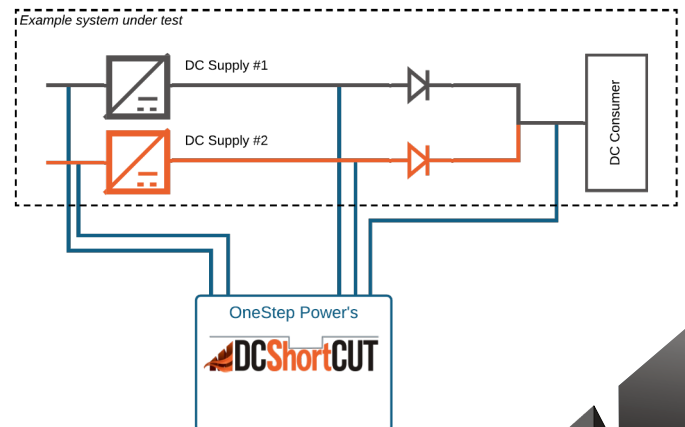
### We'll Give You A Solution!

OneStep Power has developed the DC Cross-connections Short Circuit Under Test, or DCShortCUT.

OneStep Power's DCShortCUT validates 24V DC cross-connection fault tolerance aboard dynamically positioned vessels.

Currently, OneStep Power is the only provider offering comprehensive cross-connection testing in a single test package. The DCShortCUT is temporarily installed between each of the 24V power supplies and the diode protection module, and then downstream of the diode protection module.

The DCShortCUT provides a safe and reliable method for performing testing, which can be repeated on a regular basis.

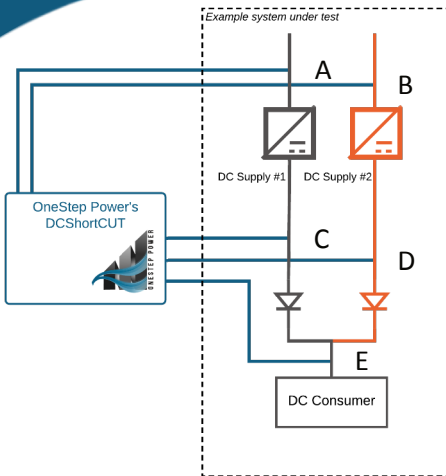


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# ROBUST RELIABLE REPEATABLE



<b>DCShortCUT Failure Mode Matrix</b>	<b>Downstream of PSU1 (Point C)</b>	<b>Downstream of PSU2 (Point D)</b>	<b>Downstream of PSU1 &amp; PSU2 simultaneously (Point C&amp;D)</b>	<b>Between protections &amp; load (Point E)</b>
<b>Load Increase</b>	✓	✓		✓
<b>Overload</b>	✓	✓		✓
<b>Short Circuit</b>	✓	✓	✓	✓
<b>Short to Ground / Earth Fault</b>	✓	✓	✓	✓
<b>Variable over-voltage (max 120%)</b>	✓	✓		✓
<b>Loss of Power Supply</b>	Point A	Point B		

## Benefits

The key benefits of performing testing using the OneStep Power DCShortCUT include:

- All OneStep Power test systems are designed to be used without changing the existing protections
- DCShortCUT is invisible to the vessel
- Actual fault responses
- Repeatable test methodology, with clear acceptance criteria
- Quick set-up and removal
- The self-contained test kit is controlled from a remote HMI to remove personnel from the testing area

## OneStep Power DCShortCUT Process

1. Our team assesses the cross-connection power supply arrangements in your system, or you can provide an already completed cross-connection study.
2. If requested, we bench test the equipment specifications installed in your systems to prove their capability and failure potential before testing on-site.
3. A vessel-specific Onsite Test Plan is created and approved by the stakeholders.
4. Our technicians perform testing aboard your vessel.
5. Immediate pass/fail indications allow vessel owners the opportunity to troubleshoot and retest.
6. A comprehensive final report is issued including graphs, images, and suggested actions.

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