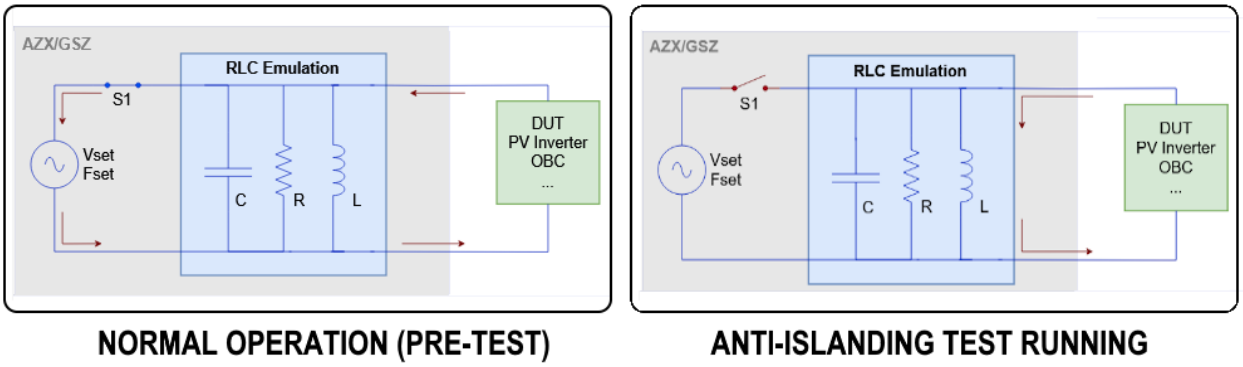
Anti-Islanding Test Function (Option P) Datasheet

Available for AZX Series and GSZ Series grid simulators.



NORMAL OPERATION (PRE-TEST) **ANTI-ISLANDING TEST RUNNING**

1. Anti-Islanding Test Function Overview

The anti-island test requirements for Distributed Energy Resources such as PV inverters or bidirectional V2G EV Chargers are mandatory for regulatory approval of these energy producing devices.

Performing this important test requires the use of programmable grid simulator, an RLC load and a measuring device such as an oscilloscope. This test can also be accomplished by using a single Pacific Power Source regenerative grid simulator with on advanced, built-in electronic load and digital storage oscilloscope which greatly simplifies the test setup.

This function requires the optional PV anti-islanding test option firmware available for either AZX Series regenerative AC & DC power sources and GSZ Series[1] regenerative grid simulators. The anti-islanding test firmware option is controlled from the standard **SmartSource Suite** Web browser interface.

2. Test Option P Benefits

This P option provides the following benefits:

Single instrument test setup: No need to connect multiple test instruments make all the necessary interconnects between them. Just connect the unit under test to the single or three phase grid simulator output of the power source and you are ready to test.

No need to develop test software to control all instruments needed. The anti-islanding test is run by pressing the RUN button once all relevant test parameters have been set by the user.

RLC values for the anti-islanding test load are calculated based on relevant user settings. Choose from six available modes for computing the required RLC load setting for the Resistive, Inductive and Capacitive portion. Since the RLC load is electronic, adjusting resistors, selecting caps and inductors to approximate the relevant resonance impedance is a thing of the past.

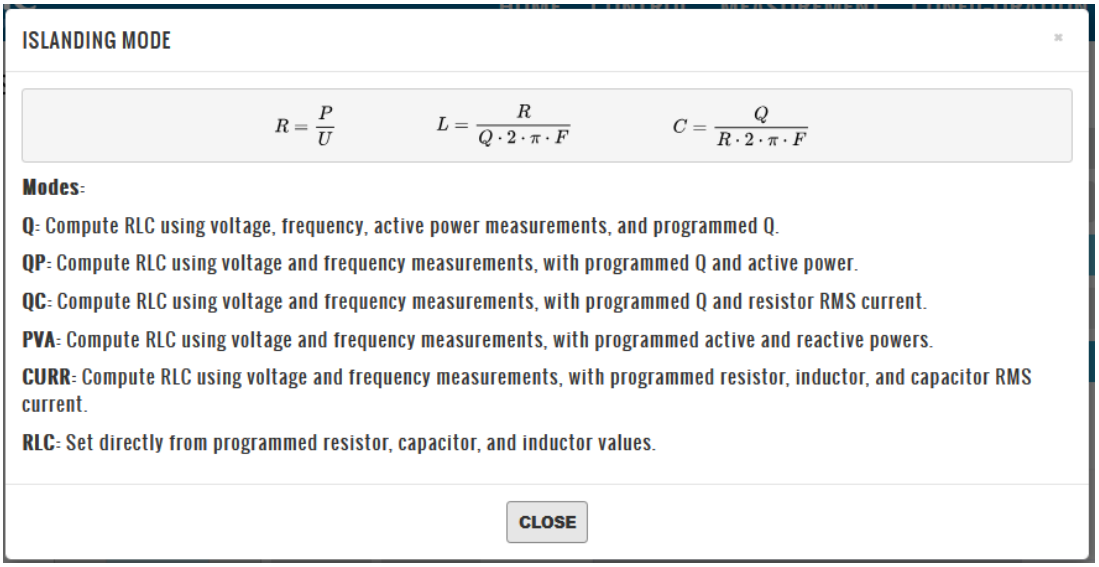


Figure 2-1: Available RLC Load parameter formulas

[1] The Anti-Islanding P Option on GSZ series does not require the L Option (Electronic Load). For other electronic load applications, the L option will be required on GSZ Series.

The actual time it takes to the PV inverter under test to disengage from the 'grid' is calculated from the captured internal digital scope data and displayed in the PV anti-islanding test setup screen.

3. Single Test Setup Screen

All user settings for each test are on a single web browser screen. This makes it easy to see all relevant settings and hit RUN to start a new test.

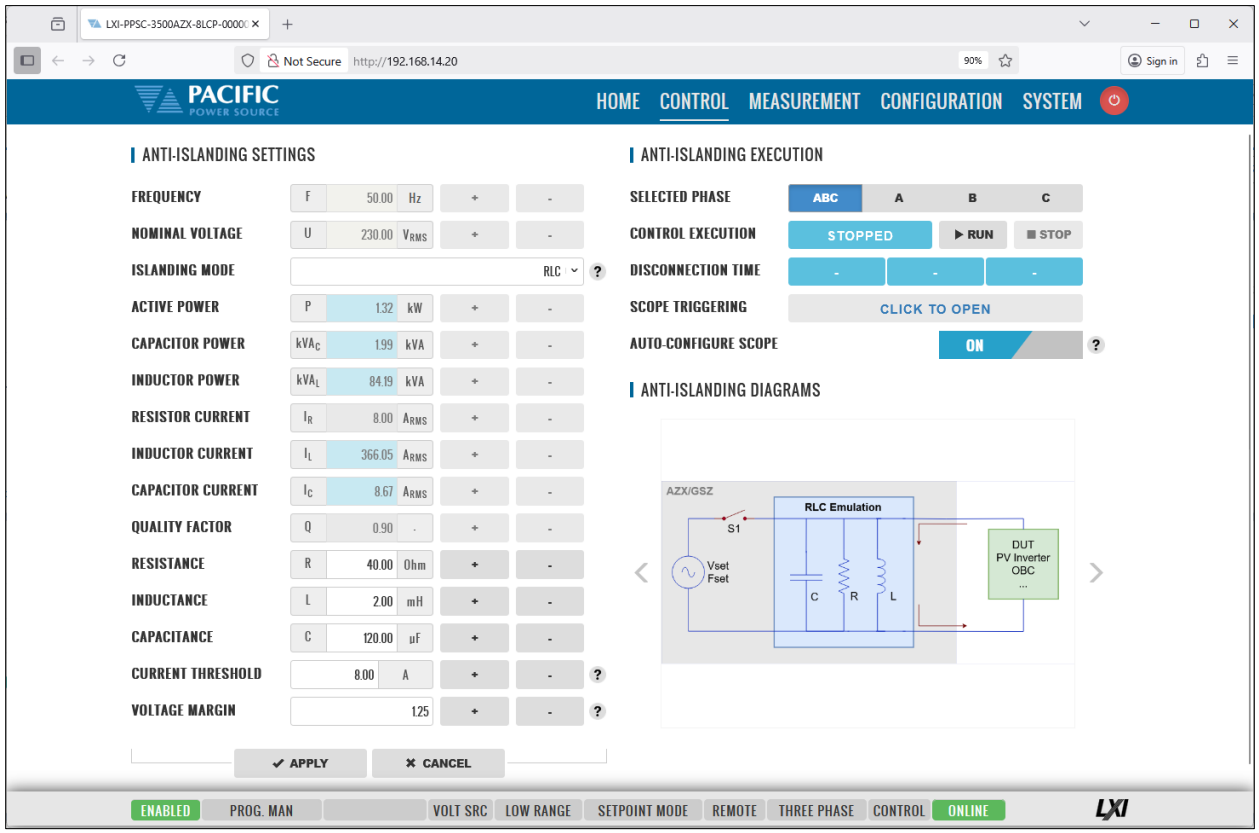


Figure 3-1: Anti-Islanding Test Option Web Browser Screen

4. Internal Digital Scope

A six channel internal storage scope on the AZX or GSZ automatically captures the entire test run and determines the disconnect time interval between disconnecting grid power and the PV inverter seizing to output power. This result is also shown in test setup windows. The scope captures all three phase voltages and currents during the test for three phase inverters of phase A voltage and current for single phase inverters. This scope function also makes test report generation easy as the setup and scope screens can be exported to PDF form the web interface.

5. Test Parameters Available

Test Parameters	Description
Islanding Mode	Available modes are: Q: Compute RLC using voltage, freq, active power meas and programmed Q QP: Compute RLC using voltage & freq meas. with programmed Q and active power. QC: Compute RLC using voltage & freq meas. with programmed Q and Resistor rms current. PVA: Compute RLC using voltage & freq meas. with programmed active and reactive power. CURR: Compute RLC using voltage & freq meas. with programmed R, L and C RMS current. RLC: Set directly from programmed resistor, capacitor and inductor values.
Current Threshold	Current threshold for detecting DUT disconnection. Typically set to a very low value indicating inverter is not providing any more power to LCR load.
Voltage Margin	If the voltage rises more than this margin setting, the power source switches to voltage mode. This prevents excessive voltage during RLC emulation. Calculated as: Vrms setpoint x voltage margin. E.g. 1.25 equals 125% of nominal voltage setting.

6. Test Sequence Timing

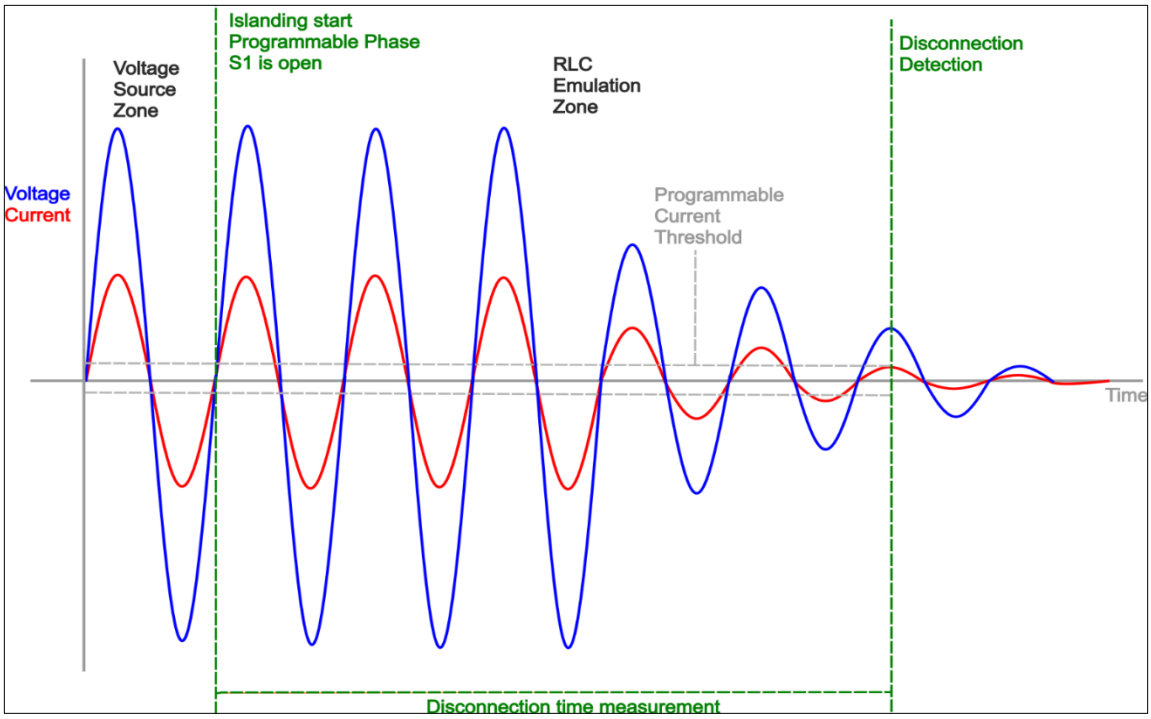


Figure 4-1: Time domain sequence of test steps

7. Internal Scope Capture

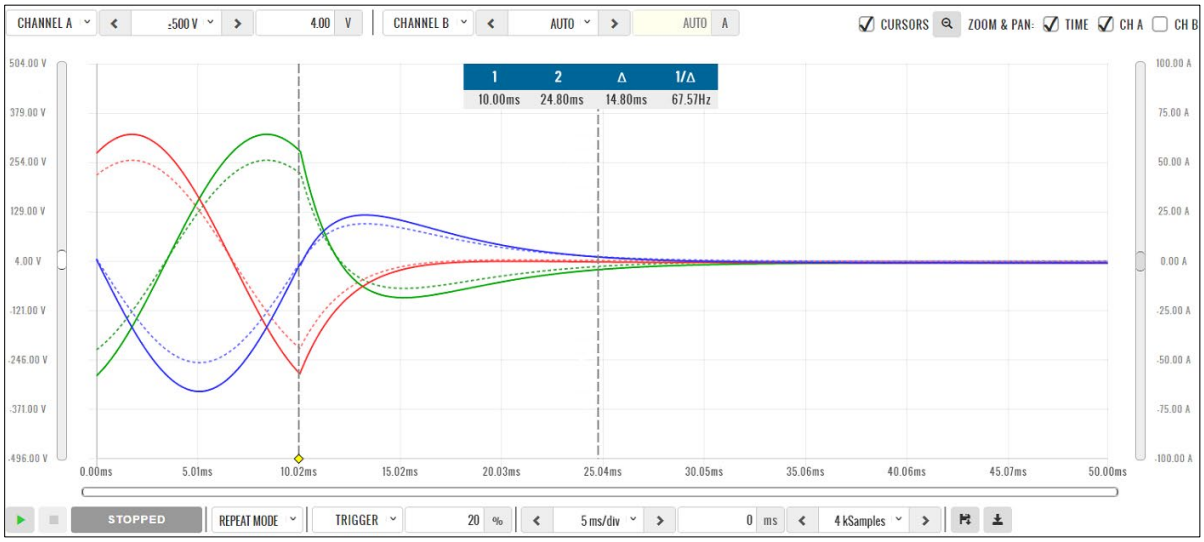


Figure 4-1: AZX Internal Scope Capture of Inverter Turnoff

Contact Us

For more information on Option P, contact our sales team: sales@pacificpower.com.