

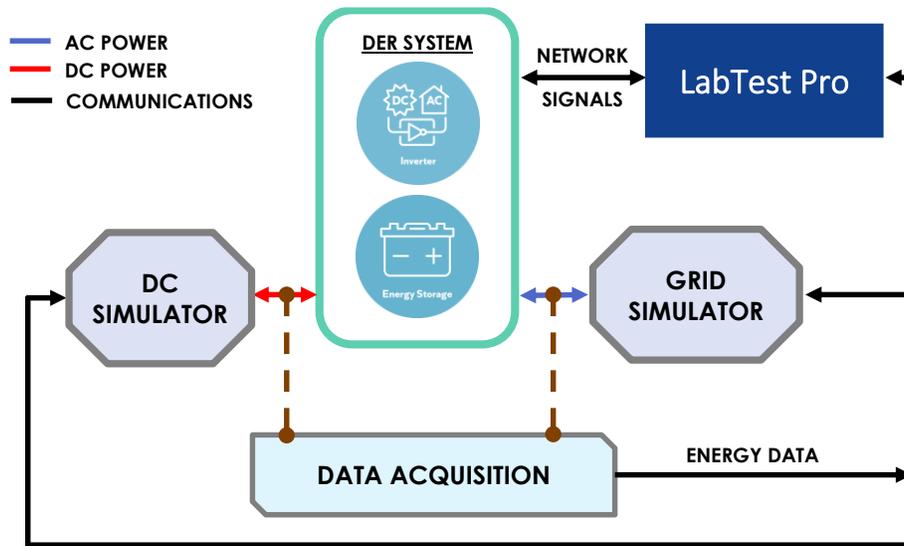

**DERSec
LabTest**

Overview

DER Security (DERSec) LabTest is the world's most capable DER certification tool. The software provides power performance and interoperability spot checks, scripting operations, and fully automated end-to-end tests for IEEE 1547.1, UL 1741 SB, and other interconnection standards. This software has been successfully used by many PV, BESS, wind, and other DER vendors and Nationally Recognized Testing Laboratories (NRTLs) to complete grid interconnection and interoperability certifications.

Lab Configuration

LabTest Pro software automates the certification procedure by communicating with laboratory hardware through Ethernet, serial, or GPIB programmatic interfaces. Generally, laboratory setups include a **DC power supply**, **AC grid simulator**, **data acquisition system (DAQ)**, and the **Equipment Under Test (EUT)**. With this equipment, test sequences are executed based on the standard requirements, log data is captured, and the results are processed to assess the pass/fail performance of the EUT.



LabTest automates certification by communicating with AC/DC power supplies, DAQ systems, and the EUT.

Hardware Drivers

DERSec continuously adds new equipment drivers. Current support includes:

DER Protocols

SunSpec Modbus, IEEE 2030.5 CSIP, DNP3

DC Simulators

Ametek TerraSAS, Chroma, Keysight, Regatron, NHR, Elektro-Automatik, ITECH, Magna Power

Grid Simulators

Ametek, Chroma, Elgar, Cinergia, Spitzenberger & Spiess, ITECH, Keysight, NHR, Opal-RT, Regatron, Typhoon HIL

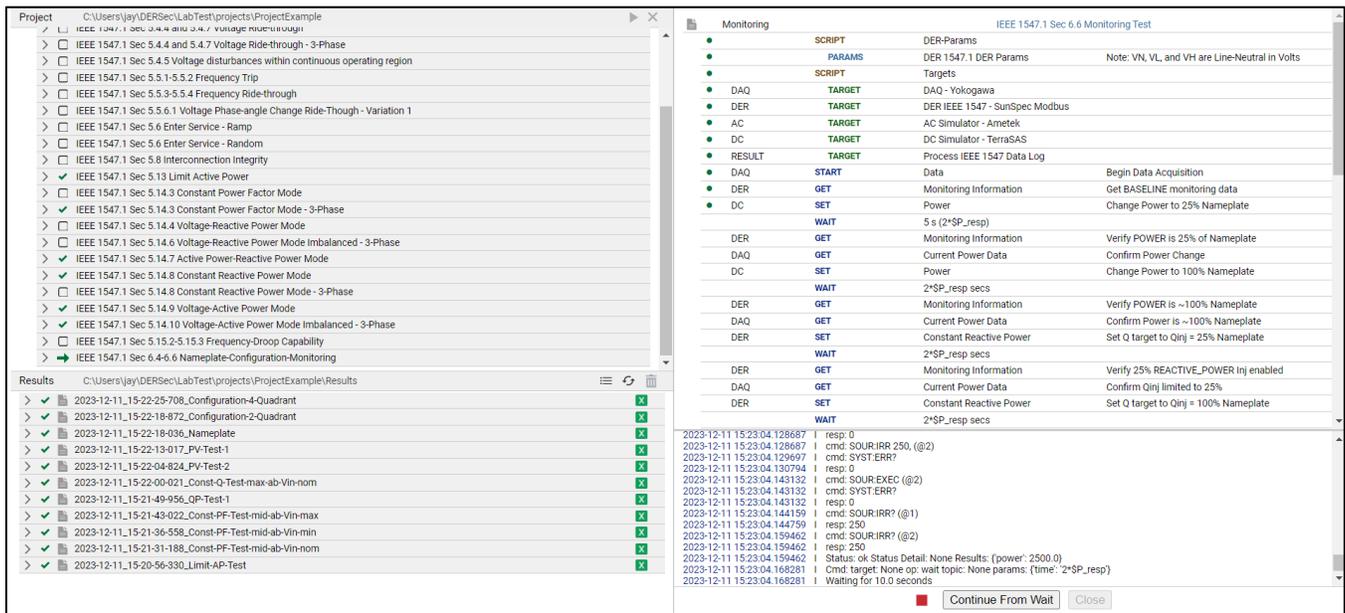
Data Acquisition

Yokogawa, Chroma, Dewesoft, Tektronix, Opal-RT, Keysight, Elspec, Regatron, Typhoon HIL

Test Coverage

LabTest includes automation testing solutions for IEEE 1547.1-2020 and UL 1741 SB, including:

- ▶ Voltage Trip
- ▶ Voltage Ride-Through
- ▶ Voltage Disturbances (Continuous)
- ▶ Frequency Trip
- ▶ Frequency Ride-Through
- ▶ Phase-Angle Change Ride-Through
- ▶ Enter Service
- ▶ Nameplate / Configuration
- ▶ Limit Active Power
- ▶ Constant Power Factor
- ▶ Voltage-Reactive Power (Volt-Var)
- ▶ Active Power-Reactive Power (Watt-Var)
- ▶ Constant Reactive Power
- ▶ Voltage-Active Power (Volt-Watt)
- ▶ Frequency-Droop
- ▶ Monitoring



The screenshot displays the LabTest software interface. On the left, a project tree shows a hierarchy of test configurations under 'IEEE 1547.1 Sec 6.4-6.6 Nameplate-Configuration-Monitoring'. The main window is divided into two panes. The top pane, titled 'Monitoring', shows a table of test parameters and their targets. The bottom pane shows a log of test results with timestamps and status messages.

| PARAMS | TARGET | Notes |
|--------------------------------|--------------------------------|--|
| DER-Params | DER-Params | Note: VN, VL, and VH are Line-Neutral in Volts |
| DER 1547.1 DER Params | Targets | |
| DAQ - Yokogawa | DAQ - Yokogawa | |
| DER IEEE 1547 - SunSpec Modbus | DER IEEE 1547 - SunSpec Modbus | |
| AC Simulator - Ametek | AC Simulator - Ametek | |
| DC Simulator - TerraSAS | DC Simulator - TerraSAS | |
| Process IEEE 1547 Data Log | Process IEEE 1547 Data Log | |
| START | Data | Begin Data Acquisition |
| GET | Monitoring Information | Get BASELINE monitoring data |
| SET | Power | Change Power to 25% Nameplate |
| WAIT | 5 s (2*SP_resp) | |
| GET | Monitoring Information | Verify POWER is 25% of Nameplate |
| GET | Current Power Data | Confirm Power Change |
| SET | Power | Change Power to 100% Nameplate |
| WAIT | 2*SP_resp secs | |
| GET | Monitoring Information | Verify POWER is ~100% Nameplate |
| GET | Current Power Data | Confirm Power is ~100% Nameplate |
| SET | Constant Reactive Power | Set Q target to Qinj = 25% Nameplate |
| WAIT | 2*SP_resp secs | |
| GET | Monitoring Information | Verify 25% REACTIVE_POWER Inj enabled |
| GET | Current Power Data | Confirm Qinj limited to 25% |
| SET | Constant Reactive Power | Set Q target to Qinj = 100% Nameplate |
| WAIT | 2*SP_resp secs | |

LabTest project running several IEEE 1547.1 tests.

Why DERSec LabTest

| | |
|---|---|
| Automated Compliance End-to-end IEEE 1547.1 and UL 1741 SB test automation with comprehensive data logging and pass/fail assessments. | Broad Hardware Support Drivers for leading DC supplies, grid simulators, and DAQ systems from multiple manufacturers. |
| Industry Leadership Built on SunSpec Alliance standards expertise and validated by national laboratories and utility partners. | Flexible Licensing LabTest Plus and Pro tiers give scaling capabilities to match your lab's needs. |

LabTest is **trusted by certification laboratories and DER manufacturers worldwide** for SunSpec Modbus, IEEE 2030.5 CSIP, IEEE 1547.1, and UL 1741 SB compliance testing.

Contact us for a demo.
www.dersec.io | info@dersec.io