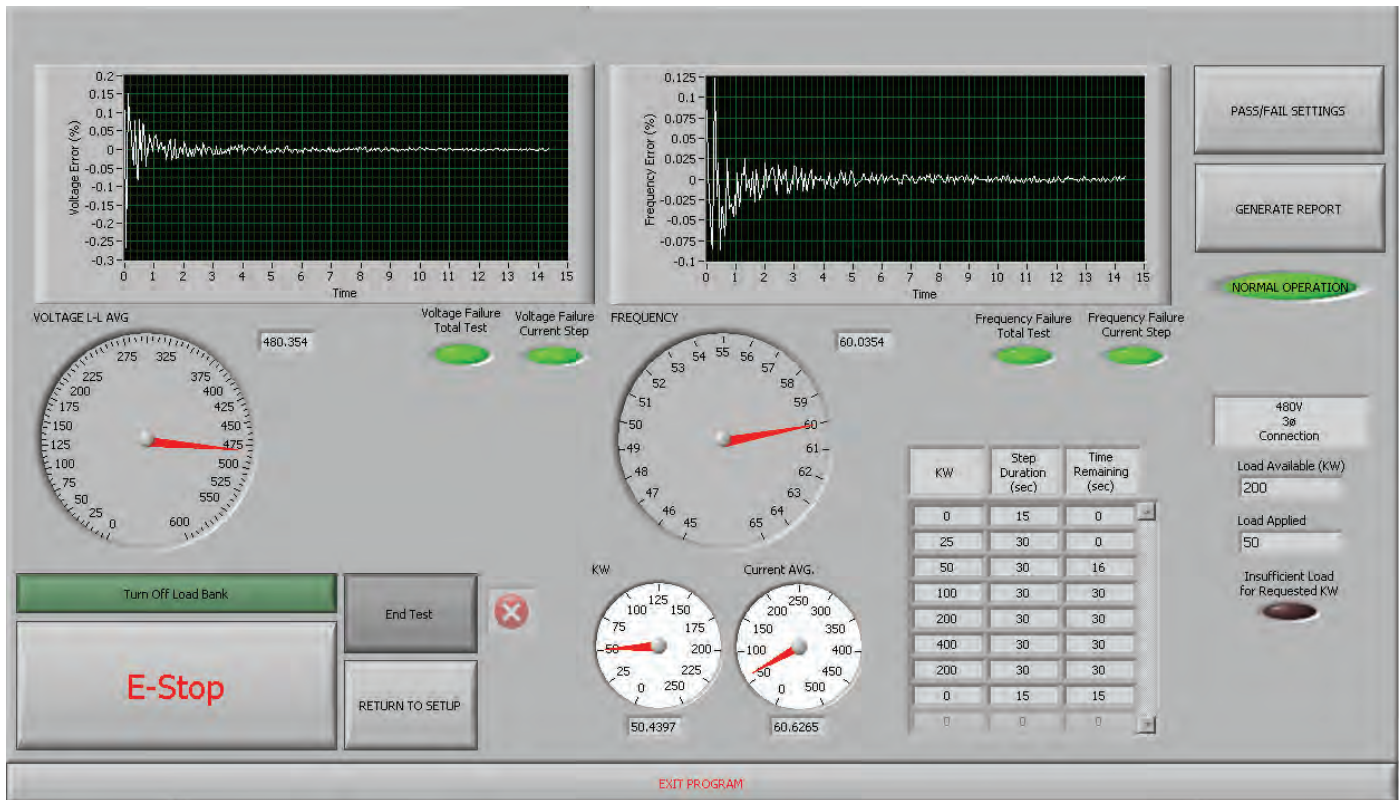


Auto Test Software

Automated Generator Load Testing,
Performance-Proving and Documentation



Operating Screen

Simplex AutoTest Software delivers full automation of generator load testing when applied with a load bank system equipped with AutoTest hardware. Simplex AutoTest provides user-definable automated load-test routines, pass-fail analysis, data collection and report generation. Simplex designed and developed the AutoTest Software system specifically for OEM production line test cell use. AutoTest is equally applicable to field testing, performance-proving, commissioning and acceptance of generator sets. AutoTest is intended for use with Simplex resistive and resistive/reactive load banks, either as new equipment or as a field upgrade. AutoTest can also be applied to other brands of load banks when these load banks are equipped with AutoTest hardware.

AutoTest runs under Windows XP on a PC meeting system requirements noted below. AutoTest communicates with the load bank over a dedicated Ethernet system.

AutoTest can be user configured for automated test per specific generator rating, model, serial number or bar-code scan. Test routines can be user defined as KW versus time, KW @ power factor versus time, percent load versus time, etc. Each routine can be saved to memory. Pass-fail performance criteria can be pre-set and saved as either global set points or as specific generator settings. Typical pass-fail criteria are voltage error and frequency error under transient and steady-state loads. Full manual load control is also possible with loads entered as direct entries, as percents, as analog mimic panel switches, or other user configurable interface.

The AutoTest operating screen presents high accuracy digital and analog capture and display of voltage, amperes, frequency, KW, KVAR, power factor. Running time and accumulated time, KW/KVAR-hours, and harmonic analysis are also available.

Engine data can be collected as well from appropriate network devices. This data can be integrated for pass-fail analysis, displayed on the AutoTest main operating screen and reported in the test documentation.

AutoTest can be networked to central management systems and data collection systems for display of values and collection of data. AutoTest equipped load banks can be networked to parallel individual cells to form a larger virtual test cell.

Auto Test Software

Automated Generator Load Load Testing,
Performance-Proving and Documentation • Page 2



Typical Generator Set-up Screen

Customer:
Load Customer Information Save Customer Information
Name: Simplex
Reference: 12345
Order #: A123
Sales Order #: B456
Genset Serial #: C789
Engineer: Adam Narup
Test Center: 1

Generator:
Load Generator Model Information Save Generator Model Information
Model: Simplex Class: A
Rating: 500 KVA 60 Hz
1 cosφ(PF) 3 Ph
500 kW 3 Wire
480 V

Engine:
Load Engine Information Save Engine Information
Make: Simplex
Serial #: D123
Governor: E456
Type #: F789
Speed: 1800RPM
Battery GND: +

Alternator:
Load Alternator Information Save Alternator Information
Make: Simplex
Serial #: G123
Phase Order: L1-L2-L3
Type #: H456
AVR: I789
Droop Kit: J123

Radiator:
Load Radiator Information Save Radiator Information
Make: Simplex
Serial #: K123
Type #: L456

Panel:
Load Panel Information Save Panel Information
Make: Simplex
Drawing #: M123
DC Volts: 24V

Comments:
Test run 11/11/08 9:27AM. Test will be run by AMN and to be reviewed by Engineering.

AUTOMATIC MANUAL

LOG OUT

EXIT PROGRAM

Test Routine Screen for KW Versus Time Programming

KW	TIME(SECONDS)
25	30
50	30
100	30
200	30
400	30
200	30
0	0
0	0
0	0
0	0
0	0
0	0
0	0
0	0

Load KW Auto Test Sequence Save KW Auto Test Sequence Clear KW Auto Test Sequence

RUN

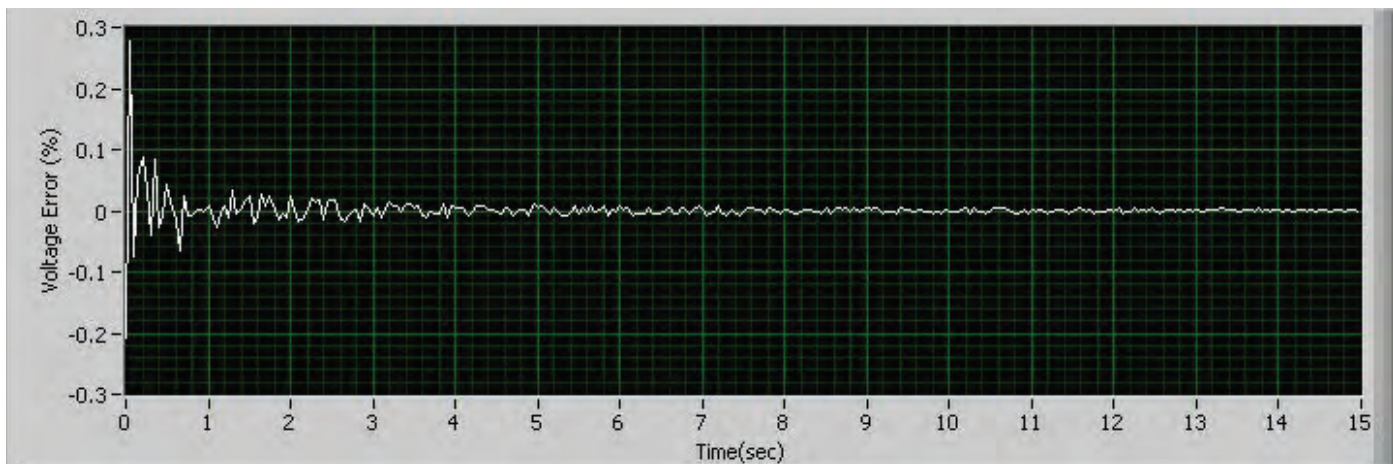
EXIT PROGRAM

System Requirements

Windows XP equipped PC, 1.4GHz,
1GB RAM

Dedicated Ethernet

Typical Test Documentation



Customer Name: Simplex
 Reference: 12345
 Order #: A123
 Sales Order #: B456
 Genset Serial #: C789
 Engineer: Adam Narup
 Test Center: Test Cell 1

Generator Model: Simplex
 Rating:
 500kVA
 1 cos ϕ (pf)
 500 kW
 480 V
 60 Hz
 3 Ph
 3 Wire

Engine Make: Simplex
 Serial #: D123
 Governor: E456
 Type #: F789
 Speed: 1800RPM
 Battery GND: +

Alternator Make: Simplex
 Serial #: G123
 Phase Order: L1-L2-L3
 Type #: H456
 AVR: I789
 Droop Kit: J123

Radiator Make: Simplex
 Serial #: K123
 Type #: L456

Panel Make: Simplex
 Drawing Number: M123
 DC Volts: 24V

Test Settings

Transient Voltage Maximum + Deviation: 0.45%
 Transient Voltage Maximum - Deviation: -70.00%
 Maximum Transient Voltage Recovery Time: 2.00sec
 Transient Frequency Maximum + Deviation: 0.45%
 Transient Frequency Maximum - Deviation: 0.45%
 Maximum Transient Frequency Recovery Time: 2.00sec
 Steady State Voltage Maximum + Deviation: 0.10%
 Steady State Voltage Maximum - Deviation: 70.00%
 Steady State Frequency Maximum + Deviation: 0.50%
 Steady State Frequency Maximum - Deviation: 0.50%
 Comments
 Test run 11/11/08 9:27AM. Test will be run by AMN and to be reviewed by Engineering.

 Step 1:0.0kW to 0.0kW
 For 15sec

Transient Response

Maximum + Voltage Deviation : 0.31% Pass
 Maximum - Voltage Deviation : -0.29% Pass
 Maximum + Frequency Deviation : 0.08% Pass
 Maximum - Frequency Deviation : -0.10% Pass
 Voltage Recovery Time : 0.05sec Pass
 Frequency Recovery Time : 0.00sec Pass

Steady State Response
 Steady State Voltage Value : 479.72
 Steady State Frequency Value : 59.98
 Maximum + Voltage Deviation : 0.02% Pass
 Maximum - Voltage Deviation : -0.01% Pass
 Maximum + Frequency Deviation : 0.02% Pass
 Maximum - Frequency Deviation : -0.02% Pass