



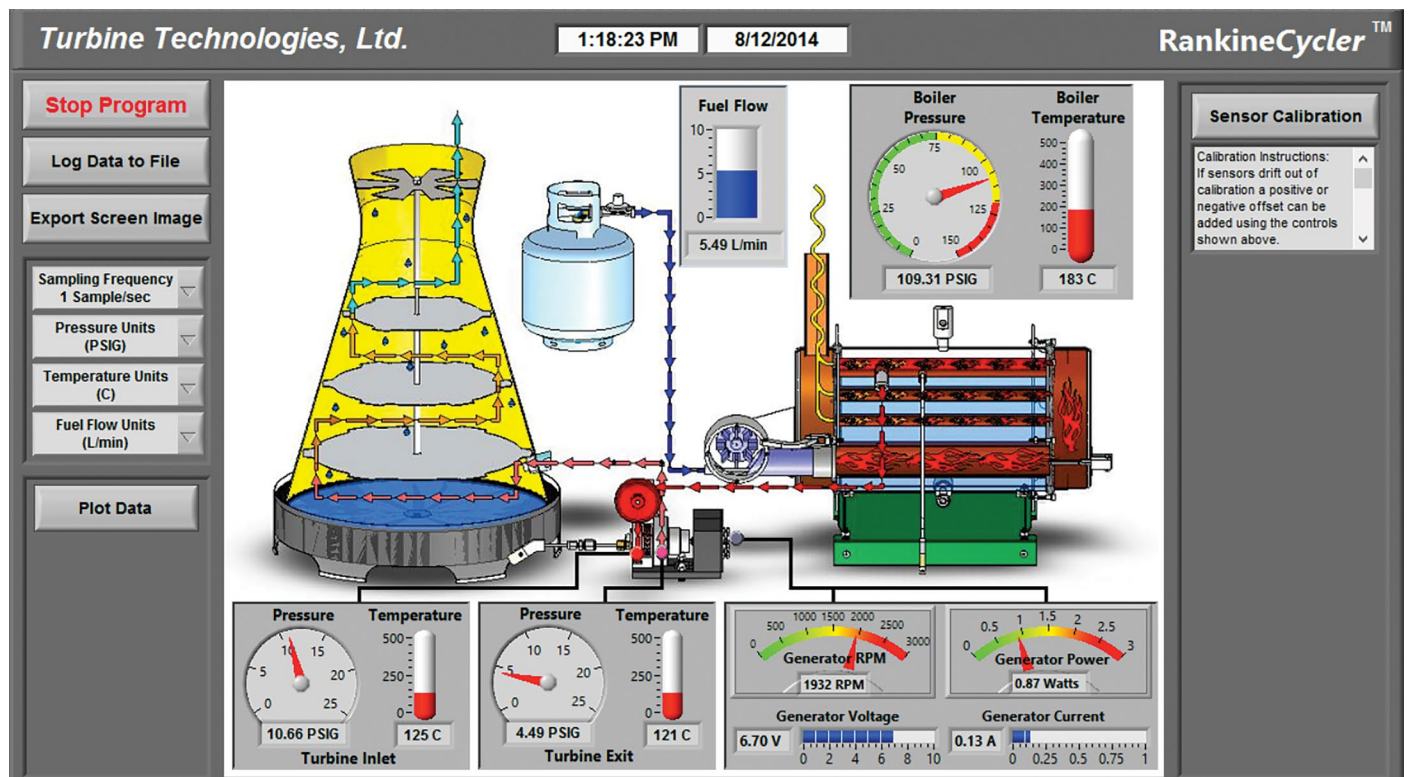
Product Summary

- A Complete Steam Turbine Power System
- National Instruments™ Data Acquisition System Configured With LabVIEW™
- Modern Steam Turbine Design
- Complete Thermodynamic Teaching Solution
- Shipped Ready to Operate

Students will learn: Fundamentals of steam turbine power generation and become familiar with the associated thermodynamic principles and efficiencies of the Rankine power cycle.

Description

All components are mounted on a portable chassis allowing the entire system to be conveniently moved for use and storage. Visible metal surfaces are stainless steel or anodized aluminum. The steel chassis is powder coated for durability. A USB connected National Instruments™ data acquisition system is fully integrated and pre-calibrated. Sensors measure system parameters for a LabVIEW™ virtual instrument on the provided laptop computer. This system displays real time data and has interactive operator control. Data can be recorded for playback or analysis. Data acquisition software is user configurable and all source code is open. A sealed sight glass indicates boiler water level. A steam powered axial flow turbine drives a generator producing alternating current and rectified direct current at the output. The steam exhausts into a condenser tower where it returns to its original liquid state. A graduated beaker and boiler fill-drain system is provided for easy volume measurement. A comprehensive Operator's Manual details all aspects of system operation.



Data Acquisition System Included

Details

Dimensions

RankineCycler™: 58L x 30W 48H inches
(148L x 77W x 122H cm)
As Shipped: 67L x 33H x 52H inches
(170L x 84W x 132H cm)

Weight

RankineCycler™: 260 lbs (118kg)
As Shipped: 350 lbs (158kg)

Operating Conditions / Limitations

Boiler:

Pressure 120 psi (827 kPa)
Temperature 482 F (250 C)

Generator:

15.0 Volts, 1.0 Amp
Total Load of 15.0 Watts

Operating Requirements

Power: 120V single-phase 50/60Hz
(220V upon request)
Fuel: Liquid Propane

Instrumentation

Data Acquisition System:

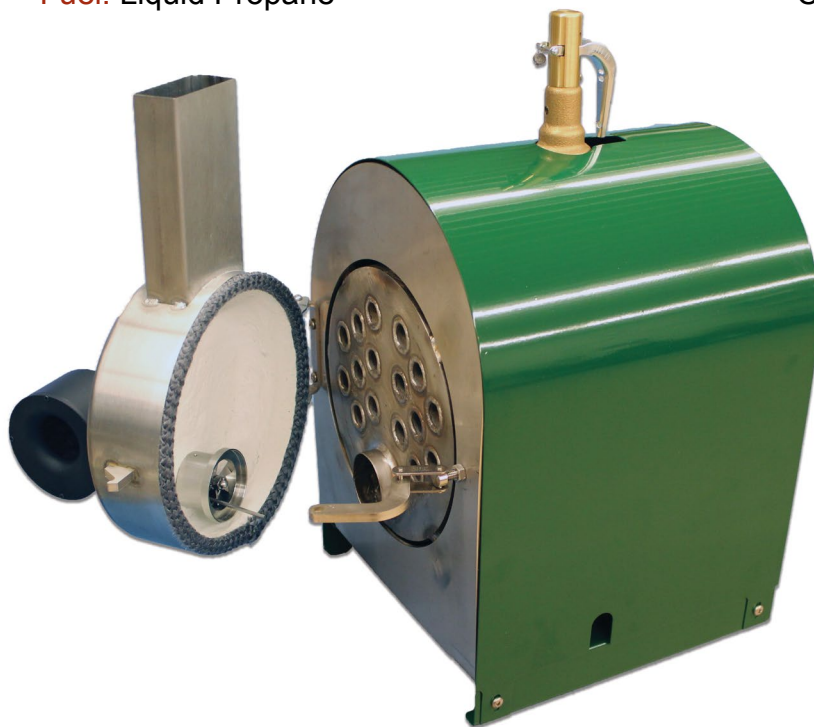
National Instruments™ Hardware
20 Analog IN - 16 Digital IN/OUT
4 Frequency/Pulse IN Channels
Windows® Laptop Computer
(all Software Loaded and Pre-calibrated)
Single Cable USB to PC Connection
Custom Virtual Instrument Display
(Configurable Data Output)

Installed Data Acquisition Sensors and Channels:

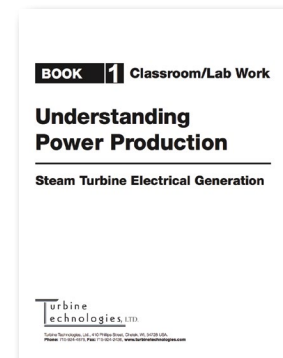
Boiler Temperature and Pressure
Turbine Inlet Temperature and Pressure
Turbine Exit Temperature and Pressure
Turbine RPM
Fuel Flow
Generator Voltage Output & Current Draw

Analog Data:

Boiler Pressure
Generator Voltage
Current Draw



Full Curriculum Included



ASME Certified Dual Pass Flame Tube Boiler