Computerized Aeronautical Gas Turbine Test Rig (Product Code: AGTC01)



Features

- Complete aeronautical axial flow gas turbine engine
- Full instrumentation and sensors
- Easy Starting
- Data acquisition and software included
- Small scale equipment minimizes laboratory space needed
- Supplied with technical manual
- Three-year warranty

Product Description

The engine is a small compact free turbine engine. It comprises a gas generator and an accessory drive assembly. The gas generator incorporates a centrifugal compressor, an axial flow turbine rotating unit and an ignition and combustion system. The engine is mounted a sturdy Mild steel frame with caster wheels.

The engine is mounted on a load cell to measure the thrust of the engine. The engine is also provided with pressure, temperatures, air flow and fuel flow measurement system. The data from these sensors is passed to the PC on the USB interface and is displayed using the software provided. The data display and acquisition system require a PC running Windows 8. The software calculates the thrust, temperature and pressure readings using the Brayton cycle formulae. This calculated thrust can be compared with the measured thrust. The software also calculates the turbine entry pressure.

The user has access to a wide range of data acquisition, graph plotting and display functions. As well as the standard graph plotting functions, a special routine has been written to display H – S diagrams (Entropy – Enthalpy diagrams) which are of particular interest in thermodynamics.

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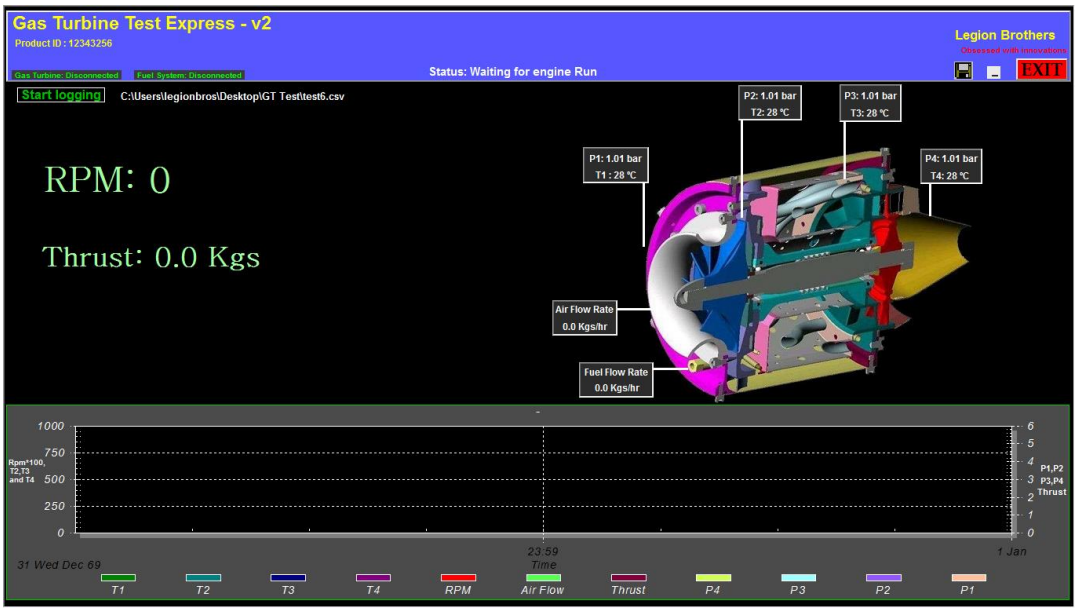
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Product / Component Specification

Product	Computerized Aeronautical Gas Turbine Test Rig
Product code	AGTC01
Engine	Length : 90mm Diameter : 238mm Thrust : 2.5 Kg @ 70,000 RPM Exhaust Temperature : 580°C – 700°C Fuel : Jet A1, Kerosene Fuel Consumption : 250ml/min at full Power Lubrication : 5% Turbo oil Mix
Panel	Mild steel powder coated with provision for mounting computer, ups, printer and instrumentation
Air measurement	DP sensor with inline transmitter
Fuel measurement	Optical liquid level sensor constant volume, fully automatic
Thrust measurement	Strain gauge load cell with inline transmitter
Speed measurement	Non-contact PNP sensor with inline transmitter
Temperature	“k” type with inline signal transmitter
Daq	200 Ks/s
Software	Engine test express for engine combustion analysis and performance software

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Turbine Software



Measurement of Pressure at different points

Type Range Signal conditioning/transmitter Location	Piezo Resistive 0-200 Bar Standalone Compressor Inlet Pressure
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Type Range Signal conditioning/transmitter Location	Piezo Resistive 0-200 Bar Standalone Turbine Inlet Pressure
Type Range Signal conditioning/transmitter Location	Piezo Resistive 0-200 Bar Standalone Turbine Outlet Pressure

Measurement of Temperatures at different points

Type Range Signal conditioning/transmitter Location	"K" 0-1500°C Standalone Compressor Inlet Temperature
Type Range Signal conditioning/transmitter Location	"K" 0-1500°C Standalone Compressor Outlet Temperature
Type Range Signal conditioning/transmitter Location	"K" 0-1500°C Standalone Turbine Inlet Temperature
Type Range Signal conditioning/transmitter Location	"K" 0-1500°C Standalone Turbine Outlet Temperature

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