PowerPro
Data Acquisition
PowerPro Commander is a powerful desktop PC operating on Microsoft Windows® XP Pro. Data collected by the Sensor Interface Device (SID) is transmitted to the Commander Computer where it is displayed in an easy-to-read and fully-customizable virtual dashboard (right). Dynamometer and engine data can be viewed on the PowerPro Main Display screen, while data is automatically collected and calculated for post-test review.

Now it is easier than ever before to run sweep or steady-state tests, while monitoring your data on-screen. Running a sweep test is as easy as defining the starting and ending rpms, increasing the engine's rpm throughout the test range, and the test is over! The test information between the starting rpm and the ending rpm is automatically recorded. Steady-state test information is automatically recorded at user-defined intervals or on-demand.

PowerPro's on-screen alarm indicators allow high and low sensor limits to be entered into a computer prior to a test to display an alarm state. When an input is out of the normal range or when a sensor (such as the tachometer) reaches its high limit (red line), the gauge background turns red. In turn, a low limit turns the gauge background blue.

Data, Data, Data

The collection of data is just the start. Dynamometer users demand accurate data. A common belief is that if a computer does not control the dynamometer, then the test cannot be repeated. PowerPro proves otherwise! PowerPro monitors the acceleration rate of the dynamometer and corrects the data based upon the rate of change from one reading to the next. What this means is that if an engine is swept quickly, slowly, or inconsistently, the PowerPro software compensates for the changes and standardizes the results with inertia compensation. Back-to-back repeatable pulls prove it. The result is no more lost data caused by accelerating the engine too fast.

Once the data has been recorded, it is presented in neat, easily understood graphs, tables, and spreadsheets. Data can also be viewed on-screen via the software's View/Chart feature. Furthermore, data can be exported into Microsoft® Excel spreadsheet software. All tests can be stored and easily recalled. The reports can even be e-mailed to others. For professional looking results, color reports are easily printed and can include your company logo.

While we have strived to make this system as easy-to-use as possible for those unfamiliar with computers, we have included advanced features that allow users to explore the real capabilities of this system. There is simply no other data acquisition tool on the market that will offer you ease of use, accuracy of data, and so many affordable features.

PowerPro Features

- Operator-friendly “Virtual Dashboard” has easy-to-read on-screen displays
- Fully configurable sensors with color changing displays to quickly indicate alarm conditions
- Customize sensor units, ranges, alarm values, and even the language of display if desired
- Automatically record data for easy diagnostics, including graphing and table formats
- Completely customizable data reporting, including company logo, workshop information, customer information, and engine manufacturer specifications
- Easy-to-use menu system minimizes operator learning curve
- Save data to hard drive, send customer reports via e-mail, and print out diagnostic data on the spot

Automatic Load Control

Stuska’s revolutionary Automatic Load Control allows the operator to perform smooth, repeatable tests, while maintaining the engine’s natural sweep.

Available with the QuikStik throttle control (shown) or as a stand alone unit, Stuska's Automatic Load Control and PowerPro make an unbeatable combination.
PowerPro Software Data Capabilities & Report Fields

**Included Sensors**
1 Magnetic Speed Pickup with 50-tooth gear
1 Strain Gauge Load Cell
3 Low Temperature, 32°-300°
8 High Temperature (EGT Thermocouples), 200°-1600°
2 Pressure Sensors, 0-200 PSI
1 Fuel Flow (vol.) 8-80 GPH

**Measured Data**
- Speed
- Torque
- Volumetric Fuel Flow
- Mass Air Flow (optional)
- Elapsed Time
- Lambda O₂ (optional)

**Calculated Data**
- Observed Horsepower: Calculated Using RPM and Torque Sensor
- Corrected Horsepower: Calculated Using RPM and Torque Sensor with Correction Factors
- Acceleration: Calculated Using RPM and Time, Shows Rate of Sweep Throughout the Test
- Corrected Torque: Calculated Using Torque Sensor with Correction Factors
- Brake Specific Fuel Consumption: Calculated Using Observed HP and Mass Fuel Consumption
- Corrected S.F.C.: Calculated Using Corrected HP and Mass Fuel Consumption
- Volumetric Efficiency: Ratio of Displacement per Revolution vs. Actual Air Flow Measured
- Volumetric Air Flow: Calculated Using Mass Air Flow & Weather Conditions
- Brake Specific Air Consumption: Calculated Using Mass Air Flow and HP
- Corrected S.A.C.: Calculated Using Mass Air Flow and Corrected HP
- Correction Factor: Calculated Based on SAE Correction and Weather Conditions
- Air Density: Calculated Based on Weather Conditions

**System Input Data**
- Inertia Value: User Inputs Value Required
- Sweep Test Start RPM: User Inputs Desired Value
- Sweep Test End RPM: User Inputs Desired Value
- Sweep Step Size RPM: User Inputs Desired Value
- Fuel Density (specific gravity): Requires Input from User
- Inlet Air Temperature: Requires Input from User or an Optional Sensor
- Barometric Pressure: Requires Input from User or an Optional Sensor
- Relative Humidity: Requires Input from User or an Optional Sensor
- Volume/Revolution: Used for Volumetric Efficiency. Requires Input from User
**PowerPro Data Acquisition**

**PowerPro Reports**
- PowerPro allows all sensor data, calculated data, and input data to be reported, displayed, and saved as desired
- Report as many sensors as needed. Reports may be simplified for ease of understanding
- Report formats may be saved for recalling with other tests
- Electronic storage of reports is limited only by hard drive space. Each test file is very small so many can fit on a standard flash drive
- Test reports can be saved, e-mailed, and viewed by a standard Internet web browser
- Test results can be reported and viewed as graphs, spreadsheets, averages/peaks, etc. and separated by each pull

**Available Inputs**
- Torque
- Speed
- 3 Fuel Flow
- 12 EGTs
- 5 Low Temperatures
- 4 Pressures
- 3 Analog Auxiliary Inputs

**Commander PC Minimum Specifications**
- Windows® XP Pro based PC
- 2.4 GHz, Core 2 Duo Processor
- 80 GB Hard Drive, 1.0 GB RAM
- CD-RW/DVD Combo
- 17” Flat Panel, LCD Color Monitor
- Windows® Keyboard
- Optical Mouse and Mouse Pad
- Color Ink Jet Printer with Printer Cable
- Power Surge Protector

**Optional Equipment**
- Additional Fuel Flow Turbines
- Additional Low Temperature Sensors
- Additional Pressure Transducers
- Additional EGT Sensors
- Mass Air Flow Sensors
- PowerPro Expansion
  - 16 additional channels
- O₂ Sensor Kits
- Integrated Weather Station
- Instrumentation and Control Desk
- Automatic Load Control with the new QuikStik LC (shown) or Stand Alone LC

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**Stuska Dynamometers - A division of Power Test, Inc.**

- Power Test, Inc. has extensive years of experience developing and manufacturing dynamometers and data acquisition and controls. We have used this experience to develop our PowerPro data acquisition system and to further develop the TrackMaster LC dynamometer system with Automatic Load Control.

- Our staff of courteous customer service technicians are here to meet your individual business needs and make your dynamometer and data acquisition experience a positive one.

- Power Test and Stuska are committed to our customer's needs by providing on-site training at your facility.

- Power Test, Inc. has been manufacturing heavy duty dynamometers since 1976. Power Test provides a full range of engine dynamometers and single, tandem, and multi-axle chassis dynamometers. Please visit www.pwrtst.com for more information about the full line of dynamometers, data acquisition, and dynamometer controls.

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