

# POWERNET DATA ACQUISITION AND CONTROL



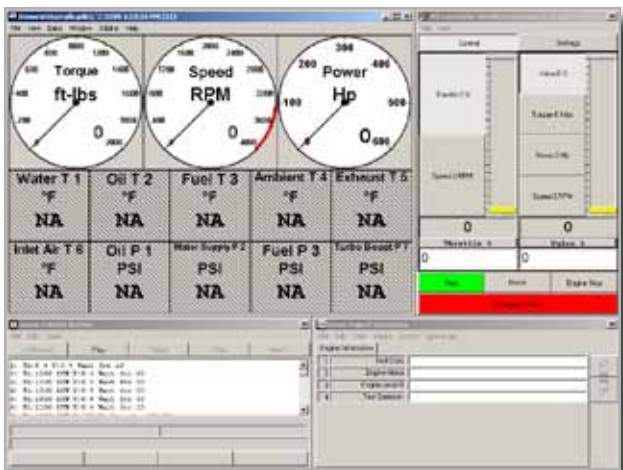
# POWERNET

The PowerNet data acquisition and control system is the future in water brake dynamometer instrumentation and control. The PowerNet system sets new benchmarks for dynamometer control by incorporating the features that were exclusive to electric dynamometers, while providing the reduced inertia, enhanced stability, cost effectiveness, and durability found in traditional Power Test water brake designs.

PowerNet is a two computer system incorporating the latest in data acquisition technology. The system is comprised of the Commander Computer, a modified desktop PC, and the WorkStation, a touch-screen operated unit housed in a rugged industrial enclosure. Both systems communicate to each other through an Ethernet cable, providing rapid data transfer speeds, wiring simplicity, and LAN connections.

PowerNet instrumentation is designed specifically for your engine dynamometer. It uses a Windows® based software package to provide consistent, automated test results. PowerNet allows either manually or automatically controlled operation, warm-up, break-in, and power tests. Accurate test results can be obtained regardless of the operator's skill level.

PowerNet's ability to run automatically at predetermined speeds and loads allows the operator to step effortlessly through all testing operations. Automatic mode gives the operator a choice between running a pre-configured test pattern or entering direct numeric setpoints for speed, torque, or power. Manual control is achieved through the use of slider bars. This system gives the operator a quick, effective, and accurate means of controlling test conditions, while providing rapid feedback in an easy to comprehend visual format.



## ***A Powerful User Interface***

PowerNet's user interface was designed to offer a wide range of configuration options, while remaining easy-to-use. Sensor configuration is achieved through an on-screen menu system that provides a visual representation of each sensor input. Each gauge's display can show test ranges, have alarm conditions assigned to them, and be customized to desired units. Once an operator has set PowerNet's gauges to the desired ranges, all testing configurations can be saved to the system's hard drive and recalled as needed.

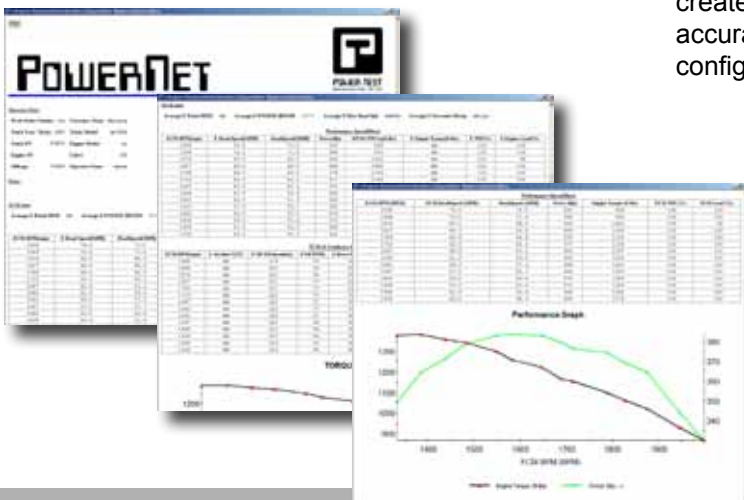
## ***Keeping It Organized***

PowerNet saves information in a variety of formats, automatically putting the right file types at your fingertips. These files contain all recorded information from a test, including data points and sensor settings. This file management system allows PowerNet to automatically filter through your saved files and present you with the correct file choices. PowerNet saves the date each file was created, as well as the name of the file's author, allowing you to keep accurate records of customers, engines, testing data, and sensor configurations.

## ***Custom Reporting***

PowerNet's report generation system is extremely flexible. Output options range from graphs displaying torque, horsepower, and engine speed to a table of data collected from temperature and pressure sensors.

You choose what to include and the order it appears in the final report. Data collected during an engine test can also be imported into popular spreadsheet applications like Microsoft Excel. PowerNet also makes it possible to e-mail all PowerNet files, including data setups and patterns.





### **The PowerNet Commander**

Remote engine control and data acquisition are taken to a new level with PowerNet. The Commander Computer combines control, data acquisition, test report generation, test pattern management, and data storage into a desktop package placed in the control area.

Simply click on a sensor to view and edit its settings. Once you have configured the sensor inputs for range, units, and alarm values, the settings can be saved and recalled as needed.

Engine settings are entered into a dialog box with blanks for information like maximum speed, maximum torque, and idle speed. These settings can be saved and recalled whenever that type of engine is tested and the results may be printed out on the included printer.

Gathering and organizing test data has never been easier. Commander can be configured to automatically store test data at predetermined intervals or the operator can grab data points manually. Commander can output this data in graphs, tables, and test report forms with your company's custom logo and address.

System administration options ensure that important data stays safe. A login box prompts operators for their name and password, allowing the PowerNet system administrator to set access levels for each employee. Employee access can be set for options like modifying existing test pattern alarm limits and configurations.

PowerNet can be connected to an existing local area computer network through its industry standard Ethernet cable. This option allows data backup and storage on network drives and hard copy output on network printers.

### **The PowerNet WorkStation**

The PowerNet WorkStation is engineered to stand up to the harsh environments inside of the test cell. The unit accepts all sensor inputs and controls the load and throttle systems. The WorkStation's sealed enclosure houses a 10.4" color touch-screen and front-mounted temperature and pressure input jacks. The pedestal mount allows its display to rotate 350° for viewing at any angle and places the display at a comfortable height for operation.

The sensor calibration procedures were developed to ensure total accuracy. Each sensor type has its own specially developed calibration procedure, which can be selected from the WorkStation's Main Menu Screen.

WorkStation speeds test setup by putting the pretest connections and procedures in one place. Once testing has begun, WorkStation's touch-screen displays important engine information like rpm, torque, and oil pressure and allows limited control functions. A large Emergency Stop button has been provided to increase test cell safety.



### **WorkStation Specifications**

- Windows® XP Computer
- LCD Touch-Screen Monitor
- Eight (8) Temperature Inputs, Standard
- Four (4) Pressure Inputs, Standard
- Barometric Pressure Sensor
- Ethernet Connection
- Load Cell Input (torque)
- Speed Input (dynamometer rpm)
- Two (2) Auxiliary Inputs

*Temperature inputs expandable to 32 channels,  
pressure inputs expandable to 16 channels*

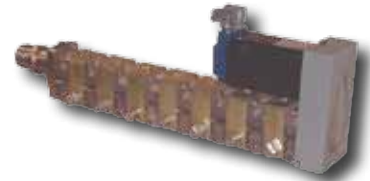
## **PowerNet Features**

The PowerNet Commander is a modified desktop PC operating on the popular Windows® XP platform. Running our exclusive PowerNet software based on a operating system known worldwide provides the ultimate in data acquisition and control that is able to be performed by anyone with basic computer skills.



The PowerNet WorkStation is engineered to stand up to the harsh environments inside of the test cell. The unit accepts all sensor inputs and controls the load and throttle systems. The WorkStation's sealed enclosure houses a 10.4" color touch-screen and front-mounted temperature and pressure input jacks. The pedestal mount allows its display to rotate 350° for viewing at any angle. Many of the components used in our systems can be sourced from major computer outlets both domestically and internationally, resulting in ease of servicing and minimal downtime in the event of a failure.

The PowerNet system offers fully automated load control through the use of a servo water valve. This valve regulates the flow of water to and from the dynamometer to control power absorption.



Our Smart Throttle control system provides automatic throttle control, resulting in ease of use and safety for the operator during testing.

## **Available Options**

Power Test provides an ECM Interface as an option to our standard PowerNet package. The ECM Interface consists of a specially designed component that attaches directly to the control system inside the cabinet. This option displays important information from electronic engines, such as engine sensors, pressures, and temperatures.

In addition, Power Test manufactures and supplies a wide variety of engine testing options for the PowerNet data acquisition and control system, including additional sensors for temperatures and pressures, fuel measurement systems, smoke opacity and exhaust gas analyzers, breakout boxes for most popular engines, as well as ECM communications, and a variety of application-specific sensors.

## **Designed for the Future of Engine Testing**

PowerNet virtually eliminates instrumentation failures by starting with a standard computer platform, ensuring that the technology offered is easily understood, serviced, and updated. Many of the components used in our systems can be sourced from major computer outlets both domestically and internationally.

Designed with the future of testing in mind, Power Test's staff of engineers, programmers, and electronics technicians are dedicated to making sure that our system is on the cutting edge of technology as engines and test requirements change.

## **A Complete Testing Solution**

Power Test provides a full range of data acquisition and control systems and accessories for engine, chassis, and transmission dynamometers. Whether you are dealing with new installation or looking to repair, upgrade, or replace an existing dynamometer, Power Test has a solution.

## **Power Test, Your Full Service Dynamometer Manufacturer**

Power Test can provide facility design and installation of every dynamometer we sell. We also offer a complete line of support equipment, including ventilation systems, exhaust systems, auxiliary cooling systems, and water recirculation systems.

Contact your Power Test representative or visit our web site at [www.pwrtst.com](http://www.pwrtst.com) for more information.

## **POWER TEST INCORPORATED**

160 W22700 SILVER SPRING DRIVE SUSSEX, WI 53089 USA

phone: (262)252-4301 fax: (262)246-0436

[www.pwrtst.com](http://www.pwrtst.com)