

# TestPoint™ V5.0

- Database toolkit—direct access to all popular database packages
- Internet toolkit—monitor/control from your Internet browser
- 32-bit Windows 95/98/NT/2000/Me/XP support
- Works with IEEE-488 instruments, RS-232 and RS-485 devices, and data acquisition boards and cards from Keithley
- Includes 100s of instrument-specific libraries
- Free run-time creation and distribution included
- Open environment:
  - DDE data pipeline and OLE to other Windows applications
  - DLL custom functions through Windows-language program
  - OCX and ActiveX custom controls from a number of vendors
- Flexible, high-resolution graphics with sliders, selector buttons, stripchart, graphing, labeling, and annotation; design your own live switches
- Built-in analysis with trigonometric, statistical, logical, curve fitting, frequency, and time domain functions
- Takes care of details such as automatic data type handling and syntax
- Security feature enables password protection for all or part of an application
- Error handling for tests that need to run overnight

## Test & Measurement Development Package for Plug-In Boards and Instrument Control under Windows

TestPoint lets you build complete applications quickly and easily without drawing, connecting, or wiring icons, or writing lines of code. You simply drag and drop objects representing graphs, displays, and other parts of your test on a display panel. On an Action List, you list the things you want your test to do. TestPoint builds the code to run your test and provides a description of the test to you. You program it in the same way you might describe your application to someone else!

TestPoint includes features for controlling external devices, responding to events, processing data, creating report files, and exchanging information with other Windows programs. It also includes libraries for controlling most popular GPIB instruments such as the Keithley Model 2000, 2700, and 2400. It supports Windows 95/98/NT/2000/Me/XP environments and has 32-bit capability, which means that it is fast and it provides access to additional programming features of third party products that are being introduced in 32-bit form. OCX and ActiveX controls plug directly into TestPoint, providing a range of still more features from hundreds of third party vendors.

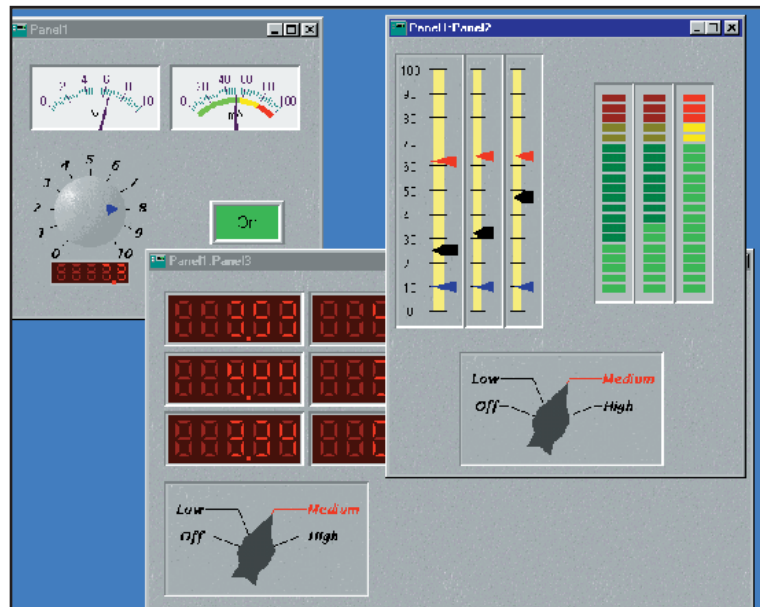
### New Features in Version 5.0

Version 5.0 of the TestPoint package is more powerful and flexible than ever, with a variety of new features:

- Test sequencer.
- Objects to interface with Microsoft Word and Excel.
- 10 new objects to provide better integration with industrial data acquisition systems. New objects include a knob, gage, LED bar, odometer, slider, and more.
- A MATLAB® interface that makes it easy to take advantage of the power of MATLAB by sharing data, developing graphical representations, and using the extensive analytical capability resident in this widely used software package.
- TestWizard and Test Styles for building professional customized applications quickly.
- ActiveX® 32-bit support to take advantage of the growing availability of hardware/software interfaces offered in this plug-in software format.

### Free Run-Time Distribution

If you develop applications that will be used by others, you'll like TestPoint's simple run-time creation and free run-time distribution.



Bitmaps, customized live buttons, and display text are easy to add for professional looking applications.

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A GREATER MEASURE OF CONFIDENCE

Build custom applications without programming

SOFTWARE

# TestPoint™ V5.0

## Ordering Information

### TESTPOINT

Full product with documentation including reference and users manuals on CD-ROM

### TPFSL5

5 pack contains one set of documentation and disks and licenses for five computers

### TPDOC

Extra documentation

### TP-DATABASE

Database toolkit

### TP-INTERNET

Internet toolkit

### TP-SPC

Statistical process control toolkit

### TP-SUITE

Includes TestPoint and the TP-DATABASE, TP-INTERNET, and TP-SPC toolkits

### TP-SUITE-UP

Includes TP-DATABASE, TP-INTERNET, and TP-SPC toolkits

### TP488-MODULE

Driver module for IOtech and National Instruments IEEE-488 interfaces

### TPUP

Upgrade kit to current revision level

# Test & Measurement Development Package for Plug-In Boards and Instrument Control under Windows

Once the TestPoint application is written, the designer can use it locally in the editing environment, create a run-time icon for use in Windows, or make a run-time disk. Run-time versions are as fast as compiled C/C++ programs. Run-time support is an integral part of TestPoint. Any TestPoint application can be packaged, written to floppy disk, and distributed free of charge for use on any Windows platform.

## Database Toolkit

TestPoint's Database Toolkit provides direct access to all popular database packages, including Access, MS SQL Server, Oracle, Sybase, IBM DB2 and SQL, Informix, Paradox, and other ODBC (open database connectivity) compliant databases.

TestPoint is fully compliant with the ODBC standard and provides complete SQL (structured query language) support. This means that any function that is supported by your database can be used by TestPoint. For example:

- Manipulate records—create, select, insert, update, and delete records.
- Search a database and retrieve all records that match the specific conditions.

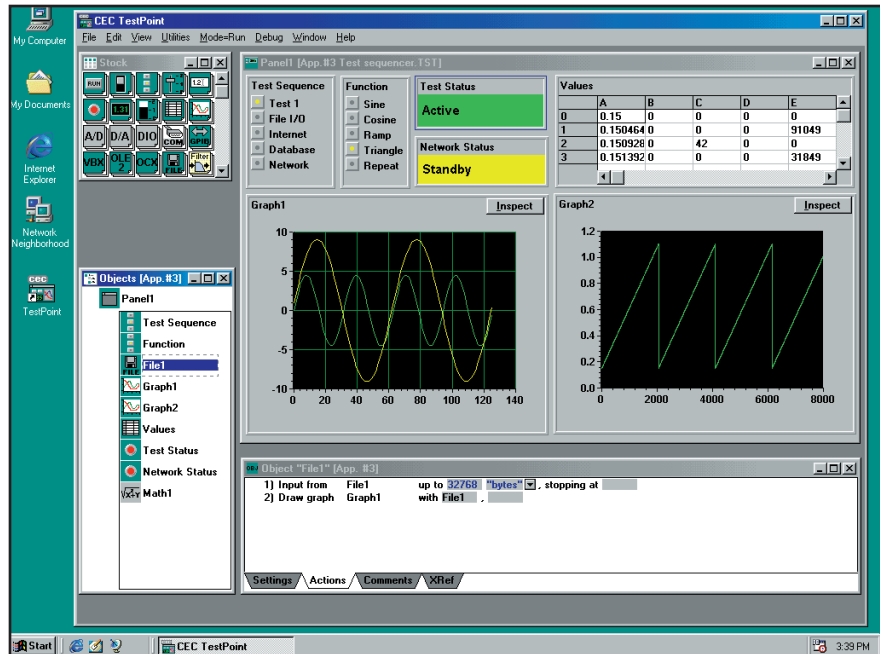
The Database Toolkit supports remote access between PCs, PCs and a server, and PCs and a mainframe. It also provides full development and runtime support.

Like all TestPoint offerings, the Database Toolkit uses the drag-and-drop interface for ease of use.

## Internet Toolkit

TestPoint's Internet Toolkit provides a web server, a TCP/IP (Internet) object, and an e-mail object that allow you to:

- Monitor and control instruments, A/D, D/A, digital I/O, and custom hardware through your Internet browser (Netscape Navigator, Internet Explorer, etc.) from anywhere in the world;
- See and capture graphs, pictures, audio, and video;
- View all or part of any remote application;
- Insert test data, images, and graphs into web pages; and
- Communicate with any TCP/IP-based program or instrument (Model 2701) on any network-connected computer.



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## APPLICATIONS

- General data acquisition and analysis applications
- Control PCI, ISA, or PCMCIA data acquisition boards
- Automatic test equipment systems
- GPIB, RS-232/485, and VISA instrument control
- PID control
- Thermocouple measurements
- Time- and frequency-domain analysis
- Waveform generation
- Industry test and research applications

The Internet Toolkit's advanced "server push" technology allows you to automate. For example, you can have updates or downloads happen automatically at specific times or whenever certain operating conditions occur. The following lists a few examples of what you can do with the e-mail feature of TestPoint combined with the "server push" technology.

- At timed intervals, send test results to an e-mail distribution list.
- Send maintenance notices based on cycle time, wear, or other measurement.
- Send alarm messages when abnormal measurement conditions occur.

## Specifications

### INPUT/OUTPUT

TestPoint supports multiple boards per system limited by PC resources imposed, such as DMA channels, interrupt levels, and slots. A combination of IEEE-488, RS-232, and/or data acquisition boards are supported. Contact a Keithley Applications Engineer for more details.

### A/D, D/A, DIGITAL I/O

- KPCI-31XX Series
- KPCI-1801HC/1802HC
- KPCI-PIO, -PDISO Series
- KPCMCIA Series
- DAS-800/801/802 — up to four boards in interrupt mode.
- DAS-1200/1400/1600 — up to two boards from the entire DAS-1600 Family in interrupt or DMA mode.
- DAS-1800 — up to three boards in interrupt or DMA mode for the entire Series.
- DAS-TC/B — up to two boards.
- EXP-16, EXP-GP, EXP-800, EXP-1600, EXP-1800 — up to 8 per DAS board.
- Other boards may be supported —consult factory for the latest list.
- Demo mode pseudo driver simulates hardware for prototyping.
- Thermocouple UDO automatically converts measurements to engineering units.
- Single waveform or continuous
- Supports digital I/O from Intel 8255 compatible hardware
- Data logging to memory or disk; input to file

## TestPoint Statistical Process Control (SPC) Toolkit

The TestPoint SPC Toolkit adds charts, statistics, and analysis capabilities to test and measurement applications. The SPC Toolkit provides a variety of charts and calculations, including: Xbar, R, X, mR, mXbar, R, and Pareto charts, histograms, process capability (Cp, Cpk), standard deviation, skew, kurtosis, and many other commonly used statistical functions and graphs.

Typical applications for the TestPoint SPC Toolkit include:

- Production line quality monitoring
- Process improvement
- Process analysis
- Real-time process control
- Production cost analysis

## IEEE-488 BOARDS AND GPIB INSTRUMENTS

TestPoint contains libraries for hundreds of popular instruments in the package. During installation, the user selects the specific libraries to copy to hard disk. New libraries are being added regularly by Keithley and others. See our web site for the latest selections.

- Over 200 pre-written libraries exist for popular instruments
- Up to 4 GPIB boards per system are supported
- Up to 14 instruments per board
- Up to 1.5MBytes/second transfer rate with KPCI-488
- Includes support for:
  - Keithley KPC-488.2AT, Keithley KPC-488.2, Keithley KPC-488.2TM, Keithley KPCI-488, Keithley KPCMCIA-GPIB, Keithley MBC-488
  - CEC 488EX, CEC PS488, CEC PC488
- An optional driver set supports other IEEE-488 cards:
  - IOtech GP488B, AT488;
  - National Instruments GPIPCII/IIA

If the instrument library has not already been written, you can easily build your own by following the examples provided. Instrument commands can be assigned to selector buttons and displays connected to the buttons.

## RS-232 INSTRUMENT INTERFACING INPUT/OUTPUT

- Accesses instruments using the standard Windows COM driver; standard commands: enter from, output to, open, close
- Delimiters are CR, CR/LF, LF, or NULL

## System Features & Functions

### TRIGGERS

- By comparison
- Push button, toggle button pseudo-mechanical switches
- Hardware

### ENVIRONMENT CONTROL FEATURES

- Loops
- Variable input values while running application
- Lock and Unlock UDOs (User-Defined Objects)
- UDO, OCX, ActiveX, OLE, or DLL for additive functions
- Cooperative Multitasking
- Debugging tools - single step, stop after n iterations, xref
- Application printout

### GENERAL SYSTEM FEATURES

- Free run-time distribution
- Clipboard for cut, copy, paste
- Help system — extensive, on-line
- Examples
- Password protection for user code

## Analysis and Mathematics

Analysis functions may be used by name or selected via the Math Wizard point-and-click operation. Included in these are arrays operations, bitwise operations, string operations, and user-defined expressions.

### DATA TYPES & STRUCTURES

- Automatic data type handling
- Single and double precision
- Real and integer
- Characters and strings
- Data size limited by memory
- Virtual memory supported

### GENERAL MATH

- Binary operations: +, -, \*, \*\*, /, >, <, >=, <=, =min, max, power
- Abs, int, floor, ceiling, round
- Hex, bin
- Unary operations: log, exp, square root

### TRIGONOMETRY

- Sin, cos, tan, sec, csc, cot

### STRING OPERATIONS

- &, chr, instr, substr, upcase, lowcase

### STATISTICS

- Sum, average, mode, median, standard deviation, min, max
- Sum of squares, RMS

### VECTOR/ARRAY

- Dim, subarray, index
- Transpose, inverse, determinant, matrix multiply
- Generate ramp/triangle/square

### CURVE FITTING

- Fit linear/exponential/logarithmic/polynomial
- Interpolate

### FILTER

- Low pass/high pass/bandpass
- Notch
- Smooth median
- FIR, IIR

### FREQUENCY DOMAIN ANALYSIS

- FFT/IFFT
- Hamming, Hanning, Blackman, Kaiser, Blackman-Harris<sup>3</sup>, Blackman-Harris<sup>4</sup>, Poisson windows
- Automatic data type conversions

### TIME DOMAIN ANALYSIS

- Convolution
- Differentiation, integration
- Histogram
- Interpolation

## Display, Front Panels, Printing, and Graphics

### DISPLAY PANELS

- Hide and show panel operations
- Line graphs with colors or symbols
- Numeric display
- User input: numeric and text
- String display
- Strip chart
- Bar graphs, sliders, selector buttons, and user-creatable toggle buttons

### GRAPHICS

- Plotting
- Linear, log, and semi-log
- Y versus index or Y versus X
- Graphics customization
- Up to 8 traces per graph
- Multiple graphs
- Varied line types (solid, symbol, scatter)
- Legends and labels
- Grid and axis control
- Interactive page layout
- Multiple overlay plots
- Color and pattern selection
- Graphics tools
- Proportional fonts
- Interactive style and layout
- Interactive zoom and scroll

## Minimum System Requirements

- Processor—Intel or 100% compatible 80386 or higher
- Coprocessor—Not required. Will use if present
- RAM—16Mbytes or more recommended
- Windows—Windows 95 or higher
- Mouse—Windows-compatible required for development  
None required for run-time applications
- Disk—4 to 18Mbytes hard disk depending on options
- CD-ROM