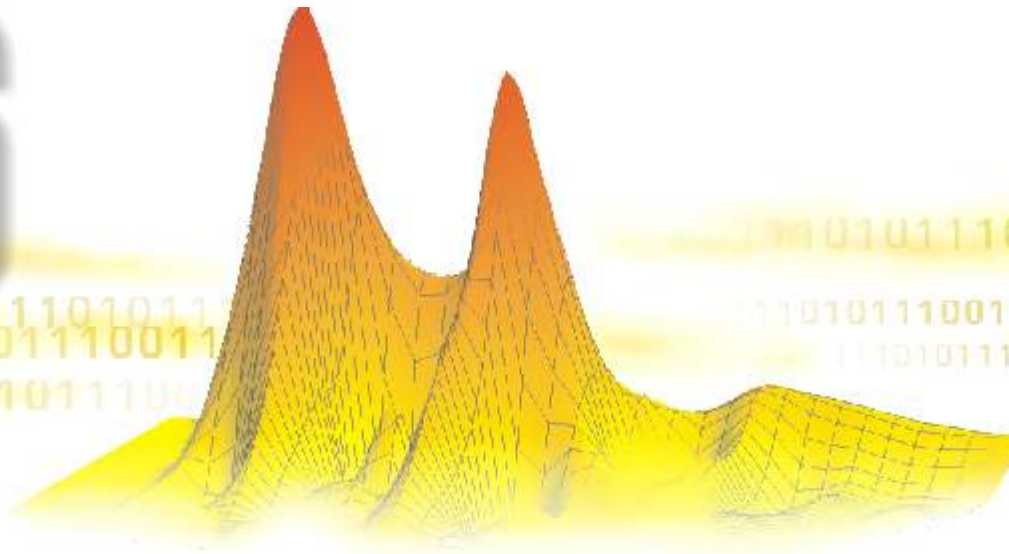


**GRAPH AND ANALYZE
DATA PERFECTLY
WITH FLEXPRO[®]**

new
Version 6



FlexPro **Version 6**

Data Analysis and Presentation

FlexPro Version 6

No matter where your data originates, FlexPro can analyze it!

FlexPro® is the powerful platform for data presentation and analysis and uses a unique way to offer user-friendly operation with high performance. FlexPro can handle large amounts of data up gigabytes in size and offers you a modern, easy to use, object-oriented user interface. If you want drag & drop functionality, visual editing, an undo/redo function, customizable menus and toolbars, macro recording and playback, you need not wait any longer. This is the power of FlexPro with the feel of Excel®!

FlexPro manages your data, analyses and presentations in a powerful object database that is displayed within **FlexPro Explorer**. Here you can organize your data and results. The size of the object database is not limited by your computer's main memory and FlexPro can even work with large datasets directly on your hard drive. In the **data view** you manually enter the data as you would in Excel®. The preview window immediately displays the content of an object. With the powerful search functions you have an excellent perspective because you can combine numbers and text any way you want.

FlexPro is not a standalone solution. FlexPro can **import binary data** from many measuring instruments and from popular data acquisition programs. You can import the data into the database as a copy or create links to the original data. There are even special modules available for programs such as DasyLab®, LabView®, Agilent-VEE®, TestPoint® and Visual Designer® that allow you to transfer data directly to FlexPro using **ActiveX**. With the powerful **ODBC browser** from FlexPro you can import datasets from any database.

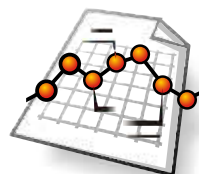
The **text data import wizard** automatically analyzes ASCII files to provide you with the best possible way to import data. Best of all, you only have to use the wizard once and

save all settings as a new import template. For future imports, all changes will take place automatically.

Not only can you import your **Excel tables**, you can also open them with Excel from within FlexPro. Using data linking you can access Excel data with FlexPro. The full power of FlexPro is now at your command.

You can **export** your analyses and presentations in a variety of formats. FlexPro also supports the OLE standard. For instance, you can transfer a diagram as an OLE object to Microsoft® Word® and update it within Word after you have imported new raw data into FlexPro.

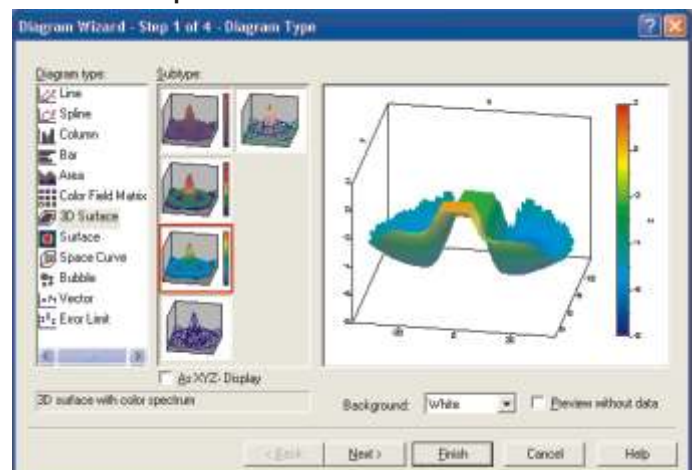
With the **HTML export wizard** from FlexPro you can publish your results in seconds to an Intranet or to the Internet. FlexPro creates a complete Web site with a hierarchical table of contents and hyperlinks for your database.

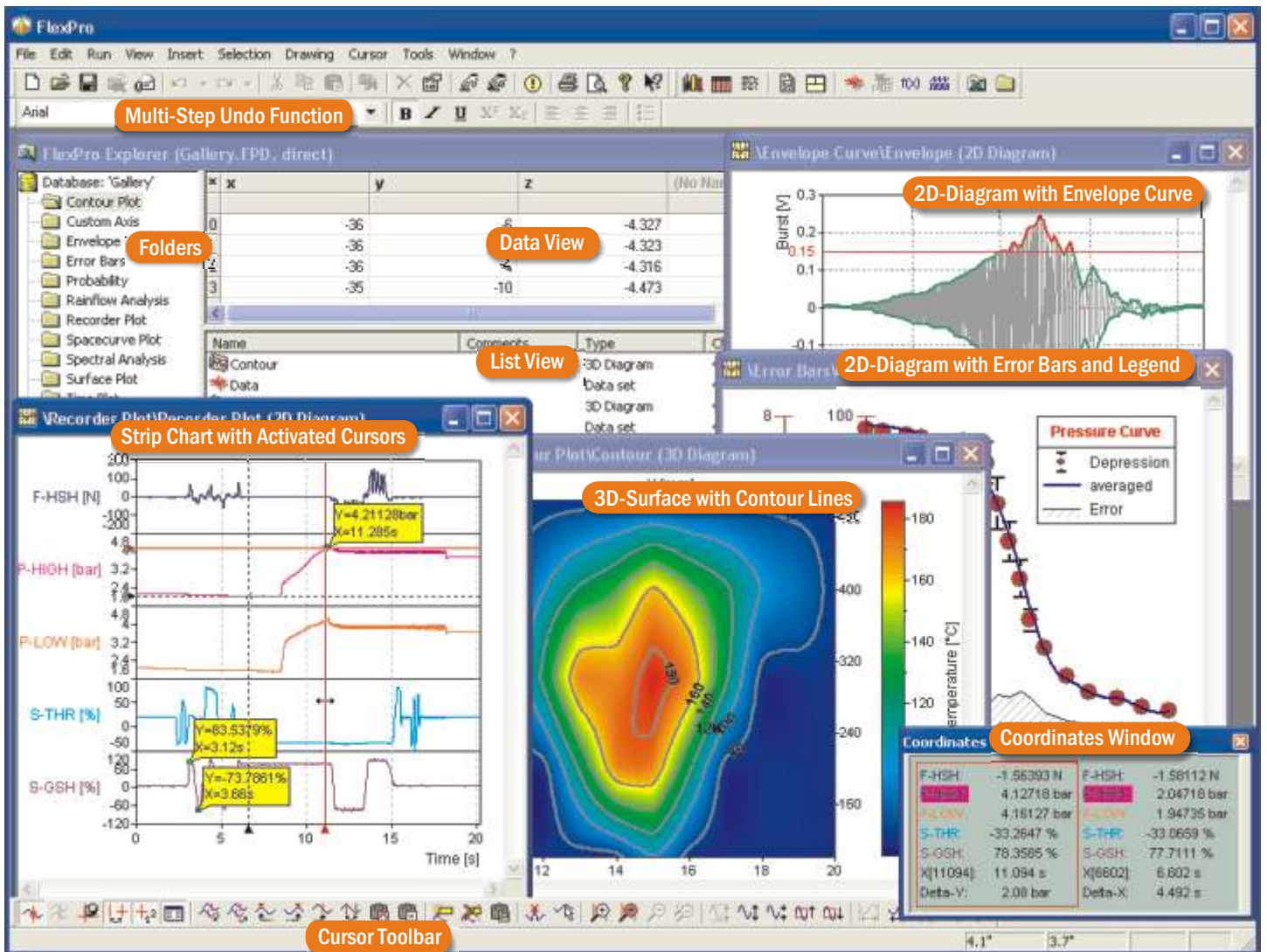


PRESENTATION

FlexPro View offers everything that you need for presenting your data. In the powerful **diagram wizard** you can choose from over a hundred types of diagrams. If you want you can set up details such as

axis scaling, axis structure, a legend, etc. by taking additional steps.





Designing with FlexPro is fun! Just highlight an element in a diagram and change it using the toolbar. You can set the font size, position, color, etc. without having to wade through numerous dialog boxes. You can add curves and axes easily using drag & drop.

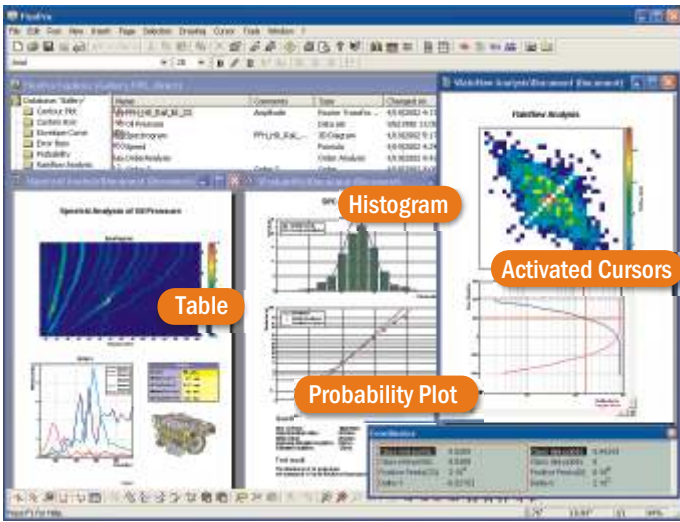
Measurement Date:	15.02.2002	16.02.2002	17.02.2002			
Measurement Period:	between 11:25 and 13:32	since 14:42				
by:	P. Smith	G. Miller				
Mean	45	47	No values available.			
Minimum	42.2					
Maximum	46.6	Reserved for the actual values				
Standard Deviation	1.52					
Variance	2.32					
	24.51	25.40	24.55	24.62	25.61	25.11
	24.58	25.48	24.61	24.58	25.62	25.10
	24.64	25.54	25.09	24.77	25.76	25.26
	24.62	25.42	24.67	24.63	25.83	25.02
	24.51	25.41	24.86	24.61	25.59	25.10
	24.45	25.38	24.83	24.64	25.82	25.13
	24.55	25.45	25.00	24.50	25.48	24.99
	24.62	25.43	24.88	24.62	25.55	25.09

You can display statistics and smaller data series in tables. The wizard offers you a variety of different display options. You can also set details such as text alignment, number formatting or background colors easily using the toolbars. The text object is also ideal for scalar values. You can set up the text as you would in your word processor and embed the calculation results using placeholders.

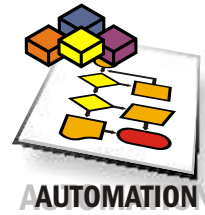
To set your analyses down on paper, you can use your word processor or the **FlexPro document**. Place your diagrams, tables and texts on as many pages as you want. Insert illustrations, labeling as well as headers and footers. You can easily import your company logo as an OLE object. FlexPro can automatically break up large tables and diagrams such as a strip chart recording into many pages. The number of pages is then automatically determined from the size of the dataset.

With FlexPro's **cursor functions** you can extract even the last piece of information from your data. Arrange multiple 2D or 3D diagrams in a worksheet and take advantage of the space on your screen. Of course you can also activate the cursor function for a single diagram or document. You can survey, zoom, scroll and highlight your data. All information is clearly displayed in the **coordinates window**. You can save individual values or areas of curves for further processing.

For comparing curves, FlexPro can synchronize the movement of the cursors in multiple diagrams. You can continue working directly on the area between the cursors using, for instance, the many different FlexPro mathematical functions.

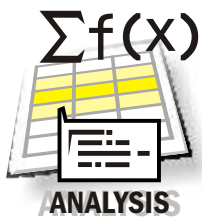
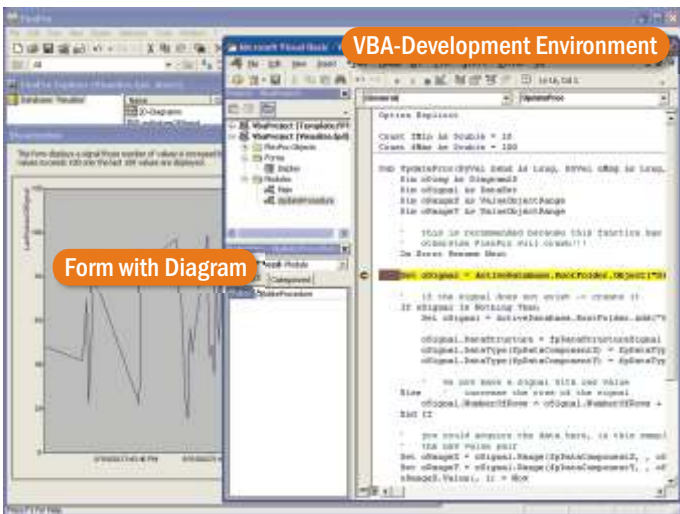


Once you have determined how your data should be mathematically analyzed and then graphically displayed, you can always reuse this template. Simply import the data from a new test into the Explorer and update your documents with a mouse click.



FlexPro Professional includes the Microsoft **Visual Basic® For Applications (VBA)** development environment. This allows you to create user interfaces and dialog boxes, set up import

filters for your data formats and automate your analyses. The **object model** provides you with access to all FlexPro functions. Creating your own applications with FlexPro Professional is easy because you can record as many operational steps as you want in a macro and then afterwards edit it using the **Visual Basic Code Editor**. The developer environment includes project management, a user-friendly editor with IntelliSense® technology, the **Visual Basic Forms** dialog box editor and a powerful debugger. Microsoft Visual Basic is one of the most widely used programming languages in the world and is the tool of choice for millions of developers. Instead of proprietary scripting tools, you can use an industry standard and fall back on available resources. For example, you can use existing **ActiveX controls** to capture data or to access databases. VBA programs are processed into machine code very quickly.

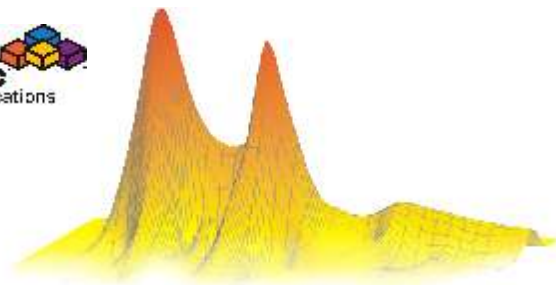


FlexPro Standard also includes perfect mathematical analysis. You can use pre-designed **analysis objects** for FFT, event isolation, statistics, filters and much more. Just highlight the

dataset you want to use and select the analysis function. The analysis is complete!

You can create your own algorithms as formulas using **FPScript**. You can choose from over 160 functions and a variety of operators. Even here the useful FlexPro wizards can help you. FPScript is specially designed for data analysis. For instance, you can include complete signals with X and Y data in a single line of code without using a loops, append them to one another, extract sections and much more. You can also quickly use your FPScript formulas via drag & drop on more than one dataset at a time to scale raw data, for instance.

For special analyses from the domains of sound and vibration, fatigue testing, engine development and SPC, you can use acoustics, spectral analysis, rainflow counting, order tracking and inductive statistics options. You can find more information about these options in the FlexPro feature summary.



VERSION 5
FlexPro

FlexPro® 6

Feature Summary

Edition

View
Standard
Professional

Operation

Modern MS Office® compatible user-interface with universal support of drag & drop, multilevel undo/redo function, highlighting and direct manipulation using toolbars, context menus, properties dialog boxes and double-clicking to open objects. Overlapping windows or full screen display with tab bar.

User-friendly multi-step wizards guide you through a variety of tasks.

A unique object-oriented structure in which dynamically linked data, analyses and graphics can be updated at the click of a button.

Wide range of dynamic, easy-to-use analysis objects for all common analyses.

Customizable menus and toolbars.

Powerful user management with configurable user permissions.

Data Management

Project database, size limited only by hard drive space, hierarchical structure in folders. An unlimited number of folders, datasets and other objects.

Datasets up to 2 GB in size, data types integer 16/32 bit, floating point 32/64 bit, real and complex numbers, strings and Boolean values. Direct processing of signals, signal series, surfaces and space curves with up to three components (X, Y, Z). Management of comments and units for all components. Non-equidistantly sampled and non-monotone datasets.

FlexPro Explorer with hierarchical, list and data view for quick data entry. Preview window for data and graphics. User-friendly search function with linkable search criteria for text and data.

Import: wizard for text data, custom text format definitions can be saved as a new data format after using the wizard once. Import and open Excel® data directly in FlexPro Explorer. Importing of Wave files. Generic binary import filter for custom binary files. ODBC interface for importing data from a variety of databases. OLE2 interface for embedding and linking OLE objects. Importing of binary data from data acquisition programs and measuring instruments: Astro-Med Dash® 18/8X, B+S ME 3, BMC NextView®, Caesar MDF, Data Translation DCF, FlexPro Text files, Gould Oscilloscope, Graphtec WR, HBM Catman®, HIOKI HiCORDER®, IEEE COMTRADE, Imtec INSIGHT® and PC-Scope®, Iotech WaveView®, LeCroy Waveform, National Instruments DasyLab®, DAGO® and DIAdem®, MTS RPC III, Nicolet TEAM® and WFT, OROS Wave, SEFRAM Recorder, Sony Pcsan®, The MathWorks MATLAB®, SPSS Data, Stemmer TurboLab®, SYSTAT®, TableCurve® 2D/3D, TEAC TAFFmat, Tektronix DPO/TDS, Yokogawa ORP/ORM, DL/AR, DX/MV, Ziegler Signalys®.

Export: ASCII text (TXT) and Rich Text Format (RTF), Windows Metafile (WMF), Enhanced Metafile (EMF), Bitmap graphic files (BMP), JPEG graphic files (JPG), PNG graphic files (PNG). Wave files (WAV), FlexPro Text files, The MathWorks MATLAB, NI DIAdem (DAT), MTS RPC III, NASA CDF, IEEE COMTRADE, OLE2 object linking. HTML export wizard for publishing complete databases or sections of databases on the Intranet or Internet, customizable using HTML templates.

Active-X based interface modules for LabView®, Agilent-VEE®, TestPoint®, Visual Designer® and DASYLab® for direct data transfer into FlexPro project databases.

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Edition

View
Standard
Professional

Visualization

2D diagrams: create with the wizard. Display types: line, step line, symbol, range, vector, error indicator, labeling, surface, differential surface, column, differential column, bar graph in any combination or shape. Color palettes. Curve legends can be freely positioned. Multi-page diagrams for strip chart display. Any number of X- and Y-axes. Stacked or side-by-side/adjacent Y-axes. Fixed or automatic scaling, manual or via any dataset and/or function. Scaling types: linear, logarithmic (to basis 2, e, 10), reciprocal, offset-reciprocal, logit, probit, third octave, octave, date, time and custom. Axis labeling using any character sets, rotatable text, super script and subscript, Greek symbols. Free drawing and labeling. Flexible formatting of values.

3D diagrams: create with the wizard. Four display types waterfall, column, surface and space curve in any combination. Depending on the display type, the line, symbol, labeling, and surface elements can be freely manipulated. Contour lines, projections and perpendiculars. Color palettes, color shading and color spectrum for surfaces, lines and symbols. Color shading legend and curve legend. Lighting effects and any angle of rotation and inclination. Axis scaling as with 2D diagrams. Free drawing and labeling. Flexible formatting of values.

Column and cell tables: create with the wizard. Display datasets, calculation results and text. Adjustable column height and width. Any text direction, including vertical text. Automatic and free row and column indexing. Column and table titles can be freely edited and formatted. Placeholders for data access. Background colors for titles and columns. Adjustable dividing lines. Automatic wrap onto following pages. Free drawing and labeling. Flexible formatting of numeric data.

Text object: free text formatting. Placeholders for embedding calculation results.

Documents with any number of pages, headers and footers. Diagrams, tables, text and OLE objects can be freely positioned. Powerful drawing tool. Diagrams and tables can be transformed into graphics and post-edited at any time. Text with placeholders for formatting, such as page numbering.

Graphic editor for free drawing, labeling, formatting and positioning. Available to add drawings to diagrams, tables and documents.

Analysis

Worksheet window for optimal cursor on the screen. Handles up to eight diagrams, tables and texts. Many of the window panes can be selected with the wizard. Zoom in to individual sections. Objects can be linked between worksheets and documents.

Powerful cursor in 2D diagrams, 3D diagrams, worksheets and documents. One or two cursors, cross-hair cursor, free and curve cursors and harmonic cursors. Peak value pinpointing. Zooming, synchronized zooming, scrolling, synchronized cursors even for different sampling rates. Cut and delete ranges. Highlight values with markers that can be freely positioned. Direct processing of the range of data between the cursors. Customizable coordinates window for displaying X, Y, Z and delta X/Y. Drag & drop of coordinates in the Explorer.

FPScript formula language for creating custom analyses. For and while loops, if-then-else statements, built-in inspector (debugger), freely programmable functions, void value processing; includes complete datasets in a row. Wizards for selecting functions, operators, control structures and constants.

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FlexPro® 6 Feature Summary

(continued)

FPScript operators: arithmetic, binary logic, data organization and conversion.

Additional FPScript operators: logic, comparison and indirection.

FPScript functions for basic statistics, data import, calendar time support and bit extraction.

Over 160 extra FPScript functions for approximation, data information, data manipulation, dialog boxes, event isolation, filters and smoothing, envelope curves, calendar time, single counts, curve transformation, logarithm and exponent, mathematics, matrix, signal sampling, signal analysis, signal generation, splines, statistics, trigonometry, void values, strings.

Analysis objects for curve fitting: approximation, splines, 2D splines, parametric splines, linear interpolation, smoothing, clipping, sorting, envelope curves, curve transformation (area/space curves), transformation using calibration curve.

Analysis objects for signal analysis: FFT (PSD, complex spectrum, phase spectrum, amplitude spectrum, RMS, RMS², third octave and octave analysis), IFFT, auto-correlation, cross-correlation, folding, integral, derivative.

Analysis objects for filtering: event isolation (extreme values, level crossings, slopes, bursts, values above level, values in interval), signal filters with Bessel, Butterworth and Chebyshev characteristics, signal correction (void value processing), time filter.

Inductive Statistics Option with FPScript functions and analysis objects for ANOVA, adjustment tests, outlier corrections and tests, variance tests, confidence intervals as well as calculation of sums, extrema, moments, quantiles, dispersion scales, distribution and density functions.

Counting Procedures Option with analysis objects for counting, count matrices, Rainflow counting, compound counting and counting in accordance with DIN 45667.

Order Tracking Option with analysis objects for analysis of time and angle signals. Three different data structures: a signal series, several signals or one ramp-up signal. Multiple FFT options. Four different result formats.

Acoustics and Spectral Analysis Options see sep. brochure.

Edition

View
Standard
Professional

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Edition

View
Standard
Professional

Automation

FPAccess interface based on DCOM and used to create FlexPro project databases, setting up folders, datasets and formulas. Available as DLL, which means that FlexPro does not have to be installed.

Automation object model for full access to all FlexPro objects, properties, methods and events using Visual Basic® or other programming languages.

Record, run and organize **macros**. All operations can be recorded as a macro and played back. Quick Macro for quick automation of repetitive operations.

Integrate macros into the user interface. Macros can be added to menus and toolbars and can be assigned key combinations just like FlexPro commands.

Integrated Microsoft Visual Basic® For Applications (VBA). Complete development environment including IntelliSense® code editor, dialog box editor, debugger and project management. For programming applications based on FlexPro, including customized user interfaces and custom import filters.

Documentation

Context-sensitive online help for all windows and elements in dialog boxes.

FlexPro Manual, Volume 1: Graphically displaying and analyzing data perfectly

FlexPro Manual, Volume 2: Analyzing data using FPScript

Online reference for automation object model including sample programs for customized user interfaces, custom import filters and event processing.

(● = available ○ = optional)

System Requirements

minimum: Pentium processor, 64MB RAM, 100MB hard disk space

recommended: Pentium III processor, 128MB RAM, 200MB hard disk space

Microsoft® Windows® 98, ME, NT 4.0, 2000 or XP, CD-ROM drive for installation, Microsoft mouse or compatible.

FlexPro supports all Windows compatible printers.

Reference (excerpt)



SIEMENS



Train Brake
Analysis

Engine
Testing

Transmission
Testing

Railway
Electrification

Railway
Analysis



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Rev. October 2003 – All features listed may be subject to revision.