

Data Analysis ActiveX Control

Product Goals

This package is bundled as a group of separate data analysis controls. These controls provide the most complete and flexible set of data analysis tools available as ActiveX controls. The underlying algorithms of each control can be called from within a program, or from a property page interface. Place a control on a form and add general statistics, regression analysis, curve fitting, solution of equations, solution of eigen systems, Fourier analysis, digital filtering and thermocouple linearization capability to your program. The matrices and vectors operated on by these controls are only limited by available memory.

The properties of a data analysis control can be edited via methods or by property pages. This includes all methods and summary statistics for a given algorithm.

Control Summary

Linear Equation Solver

The solution of simultaneous linear equations is one of the most common algorithms used in science. Three distinct algorithms are included: Gauss-Jordan, Gauss-Seidel, and Crout (LU factorization). These routines have been used to solve systems of equations with as many as 1000 unknowns.

Regression Analysis

Regression analysis is a statistical tool used to evaluate the relationship between a single dependent variable (the Y-value) and one or more independent variables (the X-values) for a fixed number of observations. Multiple regression, stepwise multiple regression, summary statistics, correlation matrices and analysis of variance (ANOVA) are included in this control.

Curve fitting

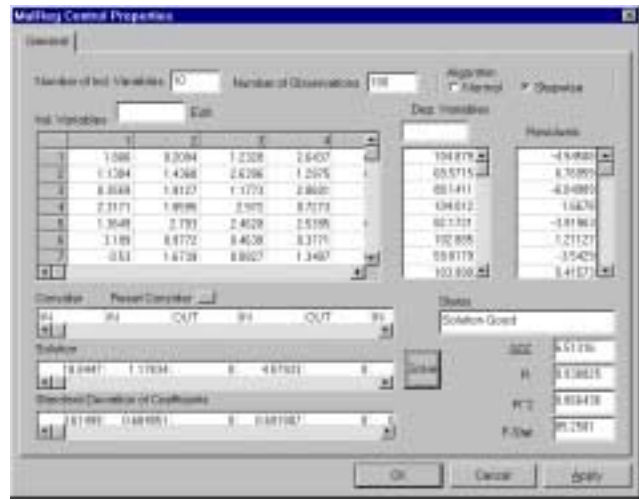
Curve fitting is used to generate a function $y=f(x)$ which maps an independent variable (x) to a dependent variable (y), using actual measured data. This control can fit data to polynomials, exponentials, rational fractions and any combination of the three.

Solution of Eigen Systems

Eigenvalues and eigenvectors are important tools in the analysis of physical systems. This control will calculate all eigenvalues and eigenvectors for real, symmetric matrices using the QL algorithm.

Fourier Analysis and Digital Filtering

This control will calculate real and complex FFT. It also includes related functions for 2-D FFT's, magnitude, phase and power spectrums, windowing, high and low pass digital filter design.



General Statistics

Statistics can be calculated for vector based collections of information. Minimum, maximum, mean, median, standard deviation, correlation, Student T tests and Fisher's F test are included.

Thermocouple Linearization

Thermocouples are the most widely used transducers for measuring temperature. All IPTS-68 Thermocouple (T/C) types are supported: J, K, R, S, T, B, E, JN, JP, KN, KP, BN, BP, TN and TP. The entire usable temperature range of each thermocouple is supported.

Other Features

- On-line Help.
- Serialization.

The controls are documented in a comprehensive manual which references all available member functions. On-line help and example programs are also included. Demo programs for the controls can be downloaded from our web site.

Ordering Information

Product	Part #	Price
Data Analysis ActiveX Control	WIN-AXC-400	\$150

Shipping Charges

UPS Ground	UPS Blue	UPS Red	DHL	Canada
9	15	26	38	12

SEND ORDERS AND INQUIRIES TO:

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DSP Control

Properties

FFTLength
FFTSampleFrequency
FFTWindow
FFTDirection
FFT2DRows
FFT2DColumns
FFT2DDirection
FIRType
FIRLength
FIRFrequency
FIRHighCutoff
FIRLowCutoff
FIRWindow
FIRDC
FFTInputX
FFTInputY
FFTOutputX
FFTOutputY
FFTFrequency
FFTMagnitude
FFTPhase
FFTPower
FFT2DInputX
FFT2DInputY
FFT2DOutputX
FFT2DOutputY
FIRCoef

Methods

FFTSolve
FFT2DSolve
FIRsolve
SetFFTInputXVector
SetFFTInputYVector
GetFFTOutputXVector
GetFFTOutputYVector
GetFFTPowerVector
GetFFTFrequencyVector
GetFFTMagnitudeVector
GetFFTPhaseVector
SetFFT2DInputXMatrix
SetFFT2DInputYMatrix
GetFFT2DOutputXMatrix
GetFFT2DOutputYMatrix
GetFIRCoefVector
FilterData
FIRFrequencyResponse

Solution of Equations

Properties

SolutionError
NumEqns
SolutionAlgorithm
Coefficients
Solution
RHSConstants
Residuals

Methods

SetCoefficientMatrix
GetSolutionVector
GetResidualsVector
Inverse
GetInverseMatrix
SetRHSVector
Solve

Regression Analysis

Properties

NumIV
NumObs
Algorithm
SEEValue
RValue
RSqrValue
FStatValue
IV (Independent variables)
DV (Dependent variables)
CorrMatrix
ColumnHeads
RowHeads
Residuals
Consider
Solution
CoefSig
PartialFStats

Methods

Solve
SetIVMatrix
SetDVVector
GetPartialFStatsVector
GetResidualsVector
GetSolutionVector
GetCoefSigVector
SetConsiderVector
GetConsiderVector
GetCorrMatrixMatrix

Curve Fitting

Properties

NumObs
CurveFitType
Order
Algorithm
SEEValue
RValue
RSqrValue
FStatValue
IV (Independent variables)
DV (Dependent variables)
Solution
Residuals
PartialFStats
CoefSig

Methods

Solve
GetCoefSigVector
SetDVVector
GetSolutionVector
GetPartialFStatsVector
GetResidualsVector
SetIVVector

Thermocouple Linearization

Methods

TempToVolts
VoltsToTempPoly
VoltsToTempPter
CalcSeebeck
TCLinearizeIter
TCLinearize
HighTemp
LowTemp
HighVolts
LowVolts

Statistics

Properties

NumRows;
NumCols;
Sum
Min
Max
Range
Mean
Median
Variance
StdDev
SSQ
MatrixElement
MatrixElement
TTest
FTest

Methods

SaveMatrixData
LoadMatrixData
GetMatrixStats
GetColStats
GetRowStats
GetMatrix
SetMatrix

Eigenvalues and Eigenvectors

Properties

MatrixDim
Eigenvalue
EigenvectorElement
SystemMatrixElement

Methods

GetSystemMatrix
GetEigenvalues
GetEigenvectors
SetSystemMatrix
Solve
SaveSystemMatrix
LoadSystemMatrix
SaveEigenvectorMatrix
SaveEigenvalues