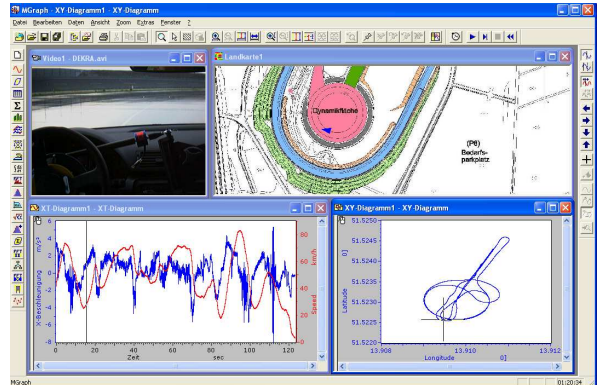


## MGraph - intuitive Data Analysis

Since **MGraph** provides easily accessible mechanisms for calculation, display and presentation, it is perfectly suited for the fast and intuitive analysis of large data sets. With MGraph, you can retrieve and analyse measurement data from various source and in different data formats. With optional available components, MGraph can handle and process videos and images, too.



### Features

#### Data handling

- Analysis of data files of unlimited size with configurations listed below:
  - File rollover (post mortem)
  - Data may be spread across several files, folders or hard disks
- Hierarchical display of data via project tree (including preview function)
- Annotations for data records, data ranges and single measuring point
- An unlimited number of data files and data records may be opened.
- Attributes of data records may be changed: name of record, description, unit, comment
- Editing the dataset properties: Dataset name, label, unit, commentary
- Import of all common data file formats:
- ASCII, DasyLab (\*.ddf), DiaDem (\*.dat), Famos (\*.dat, \*.raw), ME3 V2 (\*.dat), nCode (\*.dac), Quasar, RigSys (\*.dmd), Remus (\*.rms), RPCIII, Servotest (\*.sbf, \*.sbr), SoMat (\*.sif), TurboLab (\*.dat), WAV-Daten
- Export of selected data records into different file formats:
  - ASCII, DasyLab (\*.ddf), DiaDem (\*.dat), MS-Excel (\*.xls), Famos (\*.dat, \*.raw), MatLab (\*.mat), ME3 V2 (\*.dat), nCode (\*.dac), RigSys (\*.dmd), Remus (\*.rms), RPCIII, Servotest (\*.sbf, \*.sbr), TurboLab (\*.dat)
- Aggregation of different data files in projects
- Loading and storage of project configurations
- Data records may be defined as result of arithmetical calculations
- Processing of data records with varying sample rates

#### Interactive Display

- Display as many data records as you would like in different graphical representations: time plot, XY-plot, bar chart, listing
- Cursor functions: time cursor, cross hairs cursor, difference cursor, interpolated cursor values while using data records with varying sample rates
- Multiple zoom functions: unrestricted zoom in / zoom out, fit whole data range, horizontal and vertical scrolling, restoration of one of the ten last zoom levels used
- Combination of plots
- Scaling of axes: manual scaling for each individual data record, optimised auto scaling based on value range for each individual data record, adjustment of scales for all data records
- Display of data records with different sample rates
- Labelling and of measurement points and highlighting of data ranges
  - Links can be saved in individual data file
  - Fast display of labels by selection of labels inside the hierarchical tree
  - Type of display and type of print can be parameterised
- Graph definition: individual colour and line for each graph
- Integrated display of legends and cursor data

### Presentations

- Scientific and business graphics with unconfined design options
- Insertion of data, charts and table via drag&drop
- Design of templates for consistent display of forms
- Plot functions:
  - Lines, rectangles
  - Display of graphics as background image or logo
  - Text in any Windows-font available
  - Data objects like charts and tables
- Object attributes may be edited (colours, fill patterns, content)
- Effortless alignment and scaling of graphic objects
- Objects used in other programs may be embedded via OLE-interface (e.g. MS-Excel)
- Serial output of all presentation pages via printer
- Preview of presentation page inside the project tree

### Printout

- Printout of record can be issued from the project tree
- Printout of all records stored inside a file onto one or multiple pages
- Printout of individual tables and charts
- Printout of individual pages from a presentation
- Sorted printout of all pages of a presentation

### Statistics

- Statistical parameters:
  - Minimum, maximum, mean values, differences (X+Y), standard deviation
  - Linear regression, gradient

## MGraph Options

Name	Description
One channel frequency analysis	Analytical methods: amplitude spectrum, amplitude density, power spectrum density (PSD), effective value (RMS)-spectrum, squared effective value RMS <sup>2</sup> -spectrum, autocorrelation function.
Extended frequency analysis	Analytical methods: transfer function, coherence function, current source density spectrum (CSD), cross correlation function (KKF), coherent output power (COP), cross covariation function, complex FFT / iFFT, pulse response, discrete convolution
Waterfall frequency analysis	Calculation of several spectra, using different rotational frequencies (individual data records), results are displayed side by side
Classification according to DIN 4566	Classing methods: random sample, exposure time, accurate exposure time, maximum value I/II/III, class pass, range, range pair
Extended Classification	Classing methods: rainflow, Markov, mean of range, rollover, 2D-rollover, sample-sample, class pass-sample. Results are displayed in 3D charts
Calculation of hysteresis	Calculation of area of a closed curve or a complex hysteresis resp. Besides, parameter of loss energy of visco-elastic components resulting from hysteresis can be calculated according to DIN 53513 (parameter: area of hysteresis, area of ellipse, loss angle, dynamic stiffness, minimum / maximum / mean value of force, minimum / maximum / mean value of path)
Analysis of strain gauge rosettes	Analysis of strain gauge rosettes for 0°45°90°, 0°60°120° und 0°90°-strain gauge rosettes. Results of calculation: main elongation, main normal stress, main stress difference, maximum shear stress, maximum comparison stress according to shear stress hypothesis, angle of maximum comparison stress according to shear stress hypothesis, normal stress at maximum angle, shear stress at maximum angle, comparison stress
FIR-Filter	Filter module for data using non recursive FIR filter. Only filter parameters have to be given, filter design will be performed by the module. During parametrisation, the design can be controlled online via a monitoring window. Methods: FIR filter design via monitoring window, FIR filter design via Kaiser-window, user defined FIR filter, median/minimum/maximum/mean value filters, phase shifting of signal
Analysis of video data	Simultaneous display of measuring data and video data. Automatic or step-by-step display of measuring data and video data
Display of GPS-Position on a map	Simultaneous display of measuring data and GPS-Position on a map. Automatic or step-by-step display of measuring data and GPS data

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