# Computation Waveform Viewer

The Viewer function (with the computation function) of the WE7000 Control Software has been modified to run as an independent software program for offline analysis.
This allows you to perform tasks efficiently such as when analyzing measured data collectively at a later time.

## ■ Display, compute, and analyze waveforms of the data of the WE7000 or DL Series on your PC

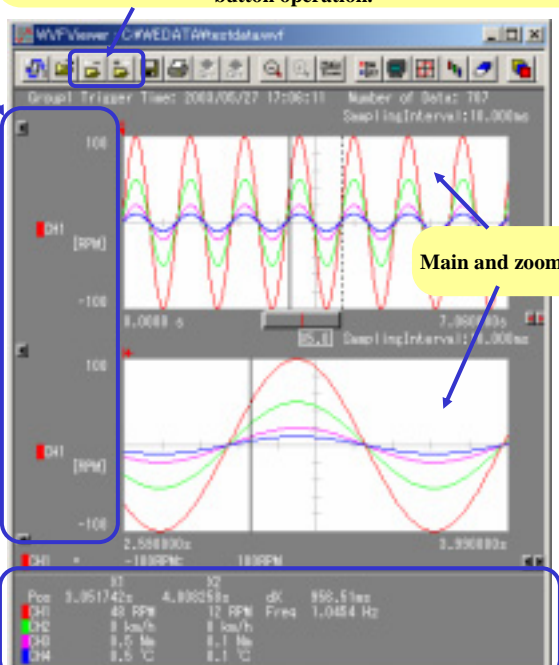Switch the display between sequential files that have been created using the auto naming function through a single button operation.

Easy-to-view Y-axis display
The Y-axis scale can be changed

**WE7000**

**DL Series**

Binary files

WVF
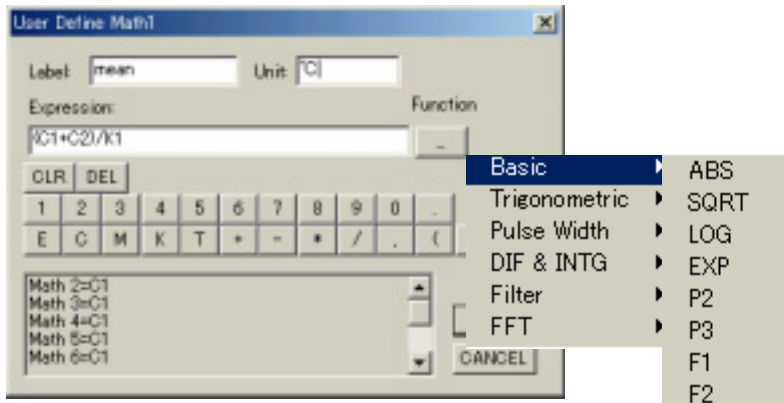format

Double-click or
drag and drop

Main and zoom displays

Simply double-click the
file icon to start the
waveform viewer
or
load a waveform file by
dragging the file icon
onto the Waveform
Viewer screen

*Can also be used to
compute/analyze the data of
the DL Series on your PC!*

Cursor measurement
Displays the X and Y values of two cursors and the time
and frequency between the cursors

## ■ Equipped with extensive computation function
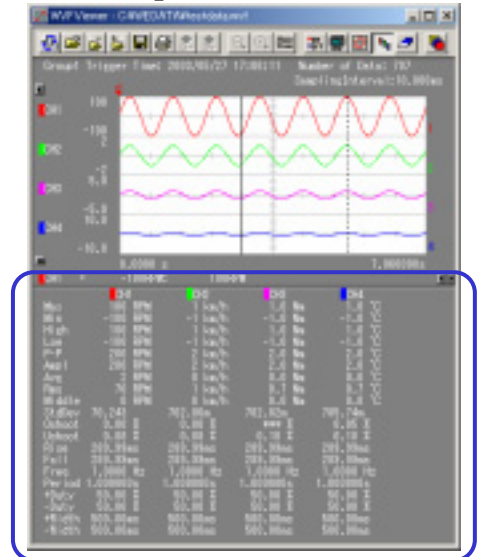
### ● Register arbitrary equations in up to 10 channels

| Basic | ABS |
| Trigonometric | SQRT |
| Pulse Width | LOG |
| DIF & INTG | EXP |
| Filter | P2 |
| FFT | P3 |
| | F1 |
| | F2 |

In addition to the four arithmetic operations, you can enter various
equations freely using up to 63 characters and register the equations in
up to 10 channels.

### ● Waveform parameter measurements

Equipped with waveform parameter
measurements (20 types total) similar to
those for the DL Series.

**YOKOGAWA** ◆

# ■ Specifications

## ● Computation specifications:
**Number of computation display channels:** Up to 10 channels
**Computation types:** User-defined computation (using up to 63 characters)
(See the list of operators for the computation types.)
**Constants:** 10 (K1 to K10)
**Waveform parameter measurements:** 20 items
Measures the waveform between cursors.
**Number of FFT points:** 1000, 2000, or 10000 points
**FFT window functions:** Rect, Hanning, and Flattop
**Averaging:** Exp, Linear, and Peak Hold
**Digital filter:** Lowpass, Highpass, and Bandpass
Filter characteristics: Gauss, Sharp, and IIR
Cutoff frequency: 2 to 30% of the sampling frequency during measurement

## ● Other functions:
**Loadable file formats:** Waveform format (.wvf extension)[1] and CSV format
**Display format:** TY display (time series display) and XY display
**Number of displayed waveforms:** Up to 90 channels for TY display and up to 4 channels for XY display
**Data storage:** Waveform format (.wvf extension), CSV format, waveform parameter values (CSV), and images (.bmp extension).
**Others:** Cursor measurement
Main and zoom displays
Channel grouping display (up to 10 groups)
Display scale setting
Save display conditions to a file
Automatically start Excel when saving data in CSV format.
Online help

## ● Models applicable for loading .wvf files:[1]
- ● WE7000
- ● DL708, DL708E, DL716, and DL750
- ● DL1700 Series
- ● DL1600 Series
- ● DL1500 Series
- ● DL7 00 and DL7200
- ● DL7400 Series

**1** The only binary files that can be loaded are those with .wvf extension. The program cannot handle data that has been recorded in real-time using the DL Series (.rtm extension) or files with other extensions.

## ● PC system requirements:
**(Same as those for the WE7000 Control Software)**
**OS:** Microsoft Windows 95/98/Me/XP, Windows NT 4.0, or 2000 Pro
IE4 or later installed.
**Free disk space:** 20 MB or more
**CPU:** Pentium II 400 MHz or equivalent or faster
**Memory:** 128 MB and greater than or equal to the following size.
Required memory size (bytes) = 10 MB + the number of data points × 4 bytes × (the number of channels + the number of computation channels)
The maximum number of computation channels is 10.

# ■ Model

| Model | Description |
|-------|-------------|
| 707714 | Computation Waveform Viewer |

## The List of Operators

| Operator | Description |
|----------|-------------|
| ● General operators | |
| +,-,*,/ | Four arithmetic |
| ABS | Absolute value |
| SQRT | Square root |
| LOG | Logarithmic |
| EXP | Exponential |
| P2,P3 | Square, cube |
| SIN,COS,TAN | SIN, COS, and TAN functions |
| ATAN | Arc tangent of two waveforms (within $\pm\pi$) |
| ● Differentiation and Integration | |
| DIF,DDIF | Differentiation, 2nd order differentiation |
| INTG,IINTG | Integration, 2nd order integration |
| ● FFT | |
| LS-REAL,LS-IMAG | Real, imaginary part of the linear spectrum |
| LS-MAG,LS-LOGMAG | Mag., log mag. of the linear spectrum |
| LS-PAHASE | Phase of the linear spectrum |
| RS-MAG,RS-LOGMAG | Mag., log mag. of the rms spectrum |
| PS-MAG,PS-LOGMAG | Mag., log mag. of the power spectrum |
| PSD-MAG,PSD-LOGMAG | Mag., log mag. of the power spectrum density |
| CS-REAL,CS-IMAG | Real, imaginary part of the two specified waveform's cross spectrum |
| CS-MAG,CS-LOGMAG | Mag., log mag. of the two specified waveform's cross spectrum |
| CS-PHASE | Phase of the two specified waveform's cross spectrum |
| TF-REAL,TF-IMAG | Real, imaginary part of the two specified waveform's transfer function |
| TF-MAG,TF-LOGMAG | Mag., log mag. of the two specified waveform's transfer function |
| TF-PHASE | Phase of the two specified waveform's transfer function |
| CH-MAG | Mag. of the two specified waveform's coherence function |
| ● Filter | |
| FILT1,FILT2 | Filter 1, filter 2 |
| ● Moving average | |
| MEAN | Moving average |
| ● Pulse width computation | |
| PWHH,PWHL | Pulse width computation ↑↑, ↑↓ |
| PWLL,PWLH | Pulse width computation ↓↓, ↓↑ |
| PWXX | Pulse width computation ↑↓ to ↑↓ |
| ● Others | |
| BIN | Binary computation |
| PH | Phase between two waveforms |
| F1,F2 | $\sqrt{c_1^2+c_2^2}$ , $\sqrt{c_1^2-c_2^2}$ |
| HLBT | Hilbert function |
| K1 to K10 | Constants |

| | |
|----------|-------------|
| ● Waveform parameters | |
| Maximum | Maximum value |
| Minimum | Minimum value |
| High level | High value |
| Low level | Low value |
| Peak to peak value | P-P value (Max − Min) |
| Amplitude | Amplitude |
| Average | Average value |
| RMS | RMS value |
| Middle | Middle value of the amplitude |
| Standard deviation | Standard deviation |
| Overshoot | Overshoot |
| Undershoot | Undershoot |
| Rise time | Rise time |
| Fall time | Fall time |
| Frequency | Frequency |
| Period | Period |
| Plus duty | Duty ratio (positive side) |
| Minus duty | Duty ratio (negative side) |
| Plus width | Pulse width (positive side) |
| Minus width | Pulse width (negative side) |

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