

Computation Function Setup Software

The Computation Function setup Software is a software program that plugs into the WE7000 control software (version 3.2.0 or later) to provide data computation functions, and allows you to freely define primary processes—such as basic arithmetical operations, absolute values, square root extraction, pulse width processing, digital filtering, differential/integration computation, and FFT—for the measured data to obtain desired computation results. The Mathematical Computation Software also supports waveform parameter computations for a digitizer module.

• Extensive computation functions

In addition to basic arithmetic operators (+, −, ×, and /), each computation expression can be flexibly coded in up to 63 characters using various operators to obtain the desired computation results. You can also modify computation expressions and redisplay the new computation results—effective for analyses of signal waveforms.

• FFT analysis

An FFT analysis can be performed for up to 10,000 data values. The Plug-in Mathematical Computation Software offers extensive analysis functions in the frequency domain, such as the power spectrum and transfer functions (amplitude and phase). Using the Plug-in Mathematical Computation Software together with the peak hold function allows effective assessments on frequency characteristics.

• Pulse signal display

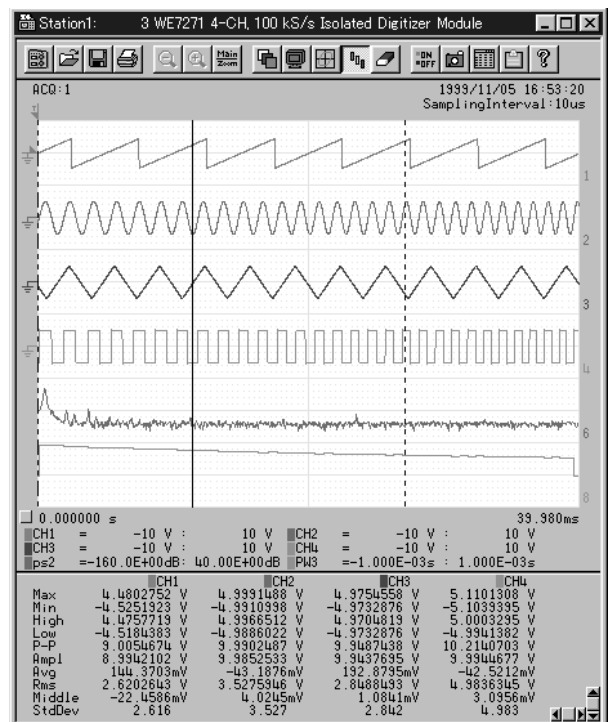
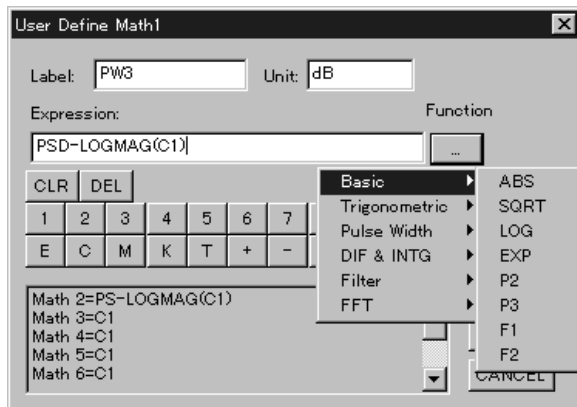
Acquired analog waveforms can be coded to pulse signals and then converted to time data of the pulse widths using the internal computations. This enables changes in a rotation pulse and a duty pulse to be displayed on the same graph with other acquired data—effective for evaluations in the field of mechatronics.

• Digital filters

Low-pass, high-pass, and band-pass filters are provided. Effective not merely for simulations of noise elimination filters during design of a circuit but also for eliminating the noise from the measured waveforms.

• Automatic computations of 20 waveform parameters

For measurements taken at a high resolution, parameters on the voltage axis such as the maximum, minimum, and RMS values, and those on the time axis such as the frequency, rise time, and duty ratio are automatically computed. You can specify the range of data to compute these waveform parameters by using cursors; recompute the parameters by moving the cursor positions; and save the computed data.



■ Computation Functions

Number of computed-data channels that can be displayed: Up to 10 channels per acquisition

- Acquisition mode: Based on trigger, or free run (associated with restrictions in display of currently measured waveforms).
- Accuracy of computations: Single-precision floating-point values
- Data saving: Saves the physical values of computed waveform data
- Computation coding method: Flexible expression with up to 63 characters using specified operators (see the list of operators below).
- Waveforms for which computation can be set: Waveforms of raw data from input channels, and waveforms of mathematical computation data
- Measurements: 20 parameters are measured for waveform data between two cursors.

- Computation constants: K1 to K10
- Number of values for FFT computations: 1000, 2000, or 10000
- FFT window functions: Rect, Hanning, and FlatTop
- Averaging: Exp, Linear, or Peak Hold
- Digital filters: Low-pass, high-pass, or band-pass
 - Filter algorithm: Gauss, Sharp, or IIR
 - Cutoff frequency: 2 to 30% of sampling frequency

● Operators

+, -, *, /	Addition, subtraction, multiplication, division
ABS	Absolute value
SQRT	Square root
LOG	Logarithm
EXP	Exponential
BIN	Coding to binary
PWHH	Pulse width computation (↑↑)
PWHL	Pulse width computation (↑↓)
PWLL	Pulse width computation (↓↓)
PWLH	Pulse width computation (↓↑)
PWXX	Pulse width computation (↑↓ to ↓↑)
SIN	Sine
COS	Cosine
TAN	Tangent
ATAN	Arctangent of two waveforms ($\pm \pi$)
MEAN	Moving average
DIF	Differential
DDIF	Double differential
INTG	Integration
IINTG	Double integration
PH	Phase difference between two waveforms
HLBT	Hilbert function
P2	Power of 2
P3	Power of 3
F1	$\sqrt{ C1^2 + C2^2 }$
F2	$\sqrt{ C1^2 - C2^2 }$
FILT1	Filter 1
FILT2	Filter 2
K1 to K10	Constants
LS-REAL	Real value of linear spectrum
LS-IMAG	Imaginary value of linear spectrum
LS-MAG	Amplitude of linear spectrum
LS-LOGMAG	Logarithmic amplitude of linear spectrum
LS-PHASE	Phase of linear spectrum
RS-MAG	Amplitude of RMS spectrum
RS-LOGMAG	Logarithmic amplitude of RMS spectrum
PS-MAG	Amplitude of power spectrum
PS-LOGMAG	Logarithmic amplitude of power spectrum
PSD-MAG	Amplitude of power spectrum density
PSD-LOGMAG	Logarithmic amplitude of power spectrum density
CS-REAL	Real value of cross spectrum of two waveforms
CS-IMAG	Imaginary value of cross spectrum of two waveforms
CS-MAG	Amplitude of cross spectrum of two waveforms

CS-LOGMAG	Logarithmic amplitude of cross spectrum of two waveforms
CS-PHASE	Phase of cross spectrum of two waveforms
TF-REAL	Real value of transfer function of two waveforms
TF-IMAG	Imaginary value of transfer function of two waveforms
TF-MAG	Amplitude of transfer function of two waveforms
TF-LOGMAG	Logarithmic amplitude of transfer function of two waveforms
TF-PHASE	Phase of transfer function of two waveforms
CH-MAG	Amplitude of coherence function of two waveforms

● Waveform Parameters Measured

Maximum	Maximum voltage
Average	Average voltage
Minimum	Minimum voltage
RMS	Root-mean-square voltage value
High level	'High' voltage level
Middle	Middle value of voltage amplitude
Low level	'Low' voltage level
Deviation	Standard deviation
Peak to peak value	Peak-to-peak value
Overshoot	
Amplitude	
Undershoot	
Rise time	
+Plus duty	Positive duty ratio
-Plus duty	Negative duty ratio
Fall time	
Frequency	
+Plus width	Positive pulse width
-Plus width	Negative pulse width
Period	

■ Model Information

Name	Model
Computation Function Setup Software	707702



CAUTION



- For safe use of this product, carefully read the product manual before use.



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