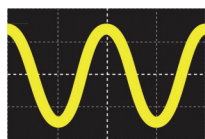
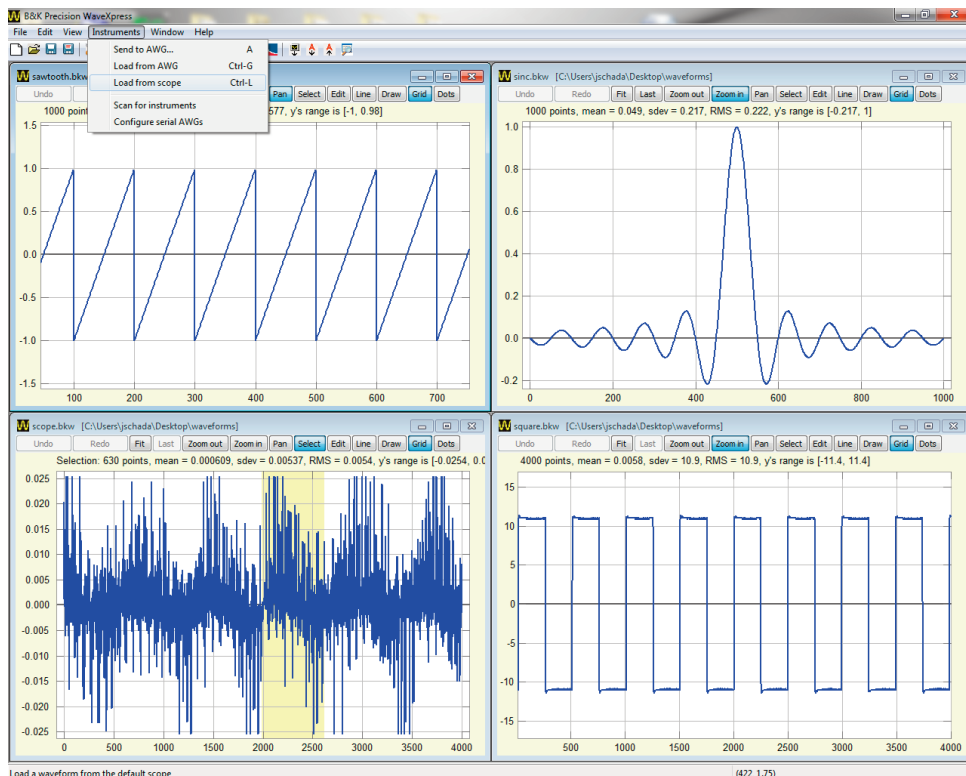


# Data Sheet



# AVE X PRESS™

## Waveform Editing Software



Leverage your investment in B&K Precision digital storage oscilloscopes (DSO) and arbitrary waveform generators (AWG). An engineer armed with a DSO, AWG, and the WaveXpress software is capable of tackling demanding real-world signal generation tasks.

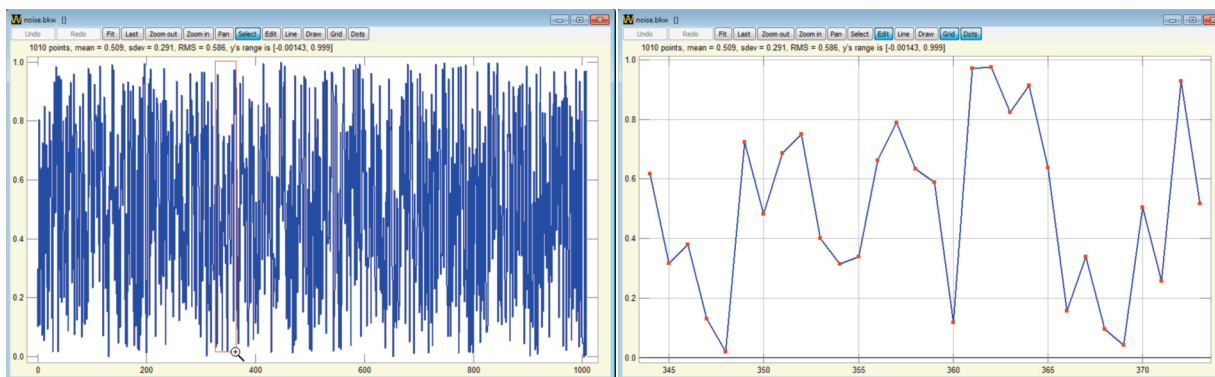
WaveXpress is a comprehensive stand-alone application with several transformation options, allowing users to easily create complex waveforms. Modify a waveform downloaded from a scope or construct a new waveform using powerful and intuitive editing tools. Quickly download them to your AWG and begin testing your circuits and systems moments later. The WaveXpress program can also be used for general-purpose waveform editing without requiring any instruments to be connected to the computer.

### Features and Benefits

- Download waveforms from B&K DSOs, AWGs, or load them into WaveXpress from other DSOs via CSV/text files.
- Capture, modify, and use real-world waveforms for testing or create them from scratch with drawing and editing tools.
- Insert commonly-used waveforms and different types of noise.
- Use the full amplitude resolution of your AWG.
- Combine waveforms with addition, subtraction, multiplication, and division.
- Numerous transformations for changing a waveform. Advanced users can add transformations in the Python programming language.
- Multi-language support: Users can edit or add new language translations.
- Fast zooming and panning with mouse.
- Virtually unlimited undo/redo capabilities and saved dialog settings for faster repetitive work.
- Simple configuration: The program automatically scans all supported communication buses and detects connected AWGs and DSOs.
- Resample data from DSOs using various interpolation methods.

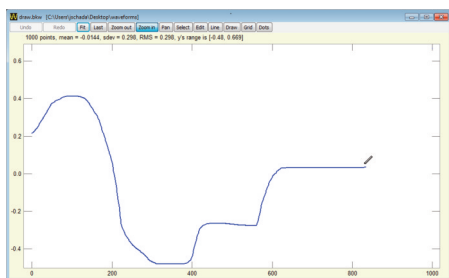
## Convenient Viewing Features

Flip back and forth between detailed view and the big picture to see effects of editing. Turn a grid on, display dots showing individual points, or change the plot's colors and line widths.



## Simple Drawing Tools

Edit your waveform with line drawing, freehand drawing, or by dragging individual points.



Quickly insert waveforms from the toolbar.



## Precise Waveforms

Specify all the parameters of your waveforms such as the insertion point, number of points per cycle, number of cycles, amplitude, and DC offset.

Insert square

You can insert the waveform at a specified point (enter the index number in the "Insertion point" box) or use the selection, if there is one.

Insertion point:  ☐ Insert before or after selection

☐ Replace the selection ☒ Insert before ☐ Insert after

Points per cycle:  Number of cycles:

Amplitude:  DC offset:

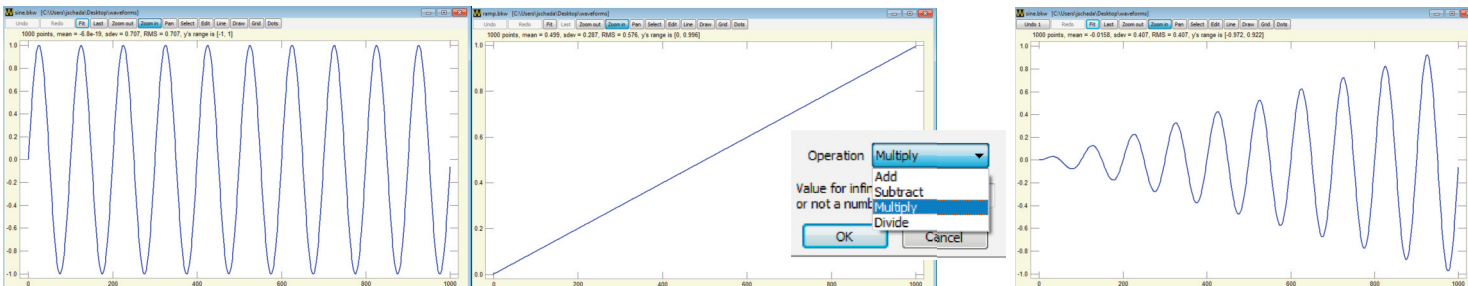
OK Cancel

## User-Defined Transformations

Add an arbitrary number of user-defined transformations in the Python programming language. Take full advantage of the numpy array-processing module, including elementary functions, statistical functions, and discrete Fourier transform tools. Adding on powerful Python libraries like SciPy and mpmath can also add advanced mathematical and signal processing tools to your waveform editing. By taking advantage of full access to the wxPython framework, users can even add new dialogs and functions.

## Combine Waveforms

Add, subtract, multiply, and divide two different waveforms. If needed, waveforms will automatically be resampled to make them the same size.



## Increase Productivity

Avoid tedious programming and create waveforms quickly and effortlessly. Users can select from the following tools.

### Waveforms

- Sine
- Square
- Triangle
- Sawtooth
- Pulse
- Sinc
- Noise
- Exponential Rise/Decay

### Filters

- Savitzky-Golay smoothing
- Low-pass
- Band-pass
- High-pass
- Notch

### Noise Distributions

- Beta
- Chi Square
- Exponential
- F
- Gamma
- Laplace
- Lognormal
- Logistic
- Normal
- Rayleigh
- Uniform
- Weibull

### Transformations

- Linear ( $ax + b$ )
- Gaussian noise
- Clip
- Resample
- Convert to DC (max, min, average, or RMS)
- Signum
- Absolute value
- Sort ordinates
- Reverse ordinates (mirror about vertical axis)
- Differentiate
- Integrate
- Make positive
- Normalize amplitude to unity
- Zero amplitude
- Negate (mirror about horizontal axis)

### Open Source Tools

|             |   |
|-------------|---|
| Python v2.6 | A general-purpose and open source programming language. See <a href="http://www.python.org/">http://www.python.org/</a> for more details. |
| NumPy       | A powerful python library for array processing.   |
| wxPython    | A python library for writing GUI (graphical user interface) programs.   |
| pySerial    | A python library used to communicate with instruments via RS-232.   |
| pyVISA      | A python library used to communicate with instruments via USB and GPIB.   |

### Supported File Formats:

CSV, ASCII, proprietary BKW file

### Supported Interfaces:

RS232/USB/GPIB

### Download Information:

[www.bkprecision.com/WaveXpress](http://www.bkprecision.com/WaveXpress)

### Supported Instruments

|               |  |
|---------------|--|
| Oscilloscopes | B&K Precision 2534, 2540, 2542                                 |
| AWGs          | B&K Precision 4045, 4075, 4075GPIB, 4076, 4078, 4078GPIB, 4079 |

### System Requirements:

Windows XP/Vista/7  
NI-VISA Run-Time Engine\*

\*Download for free at the NI website link below:  
<http://joule.ni.com/nidu/cds/view/p/id/1606/lang/en>