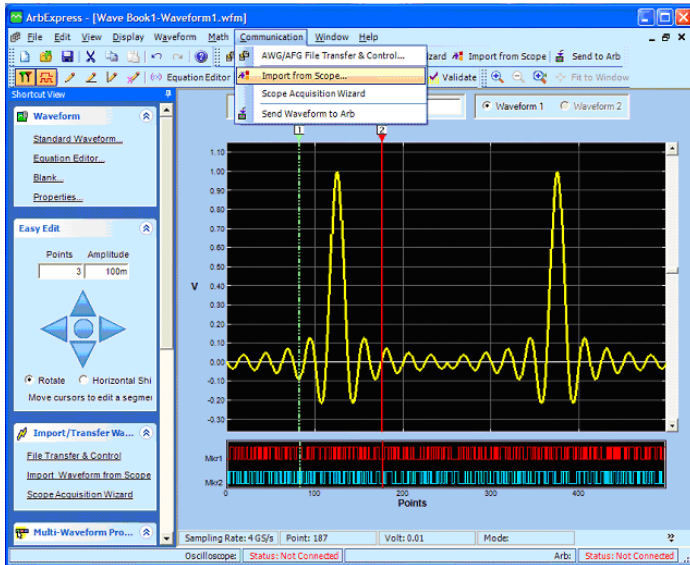


ArbExpress® 2.1 Waveform Tool for Tektronix AWG/AFG AXW100 Data Sheet



Features And Benefits

- Comprehensive Library of Standard Functions for Quick Waveform Creation
- Powerful Equation Editor for Mathematical Definition of Waveforms
- Point Draw Tool for Entry of Waveform through a Numerical Table
- Seamless Import of Oscilloscope Data with Optional Resampling of Waveform
- Easy Transfer of Waveform Files to Connected ARB Directly from ArbExpress, or MATLAB
- Validation of Waveform Parameters Specific to the Selected Instrument
- Math Operations on Waveforms (Add, Subtract, Multiply, Divide)
- Digital Marker Output Editor Allows for Easy Creation and Editing of Marker Pulses
- Multiwaveform Overlay for Convenient Comparisons and Editing
- Microsoft .NET-based Application

Applications

- Configuration of ARBs in Characterization, Functional Test, Design, and Validation
- Creation and Editing of Standard and Arbitrary Waveforms
- Replication of Real-world Signals Recorded with DSO
- Simulation of Sensor Outputs
- Stimulation and Driving of Actuators
- Phase Comparator Test with Controlled Phase Difference Signals
- Frequency Response Test with Swept Signals
- SFDR/IM Test with Multitone Signals

Efficient and Effortless Waveform Creation for Tektronix AWG and AFG

Designers frequently need to ensure their designs operate under real-world conditions. ARBs are ideally suited to generate any signal. ArbExpress enables engineers to quickly and conveniently create the desired waveforms and send them to Tektronix AFG/AWG arbitrary waveform and function generators.

Comprehensive Library of Waveforms and Flexible Editing Tools

ArbExpress' large waveform library includes various standard and advanced functions that users can easily adapt to fit their needs. Individual signals can be combined with waveform math functions such as add or multiply, for example, for the addition of noise. Freehand, point drawing, and easy edit tools are available to shift or rotate waveform segments, or to augment signals with anomalies.

Link MATLAB Directly to ARB

All commands to open and close a connection to the ARB, transfer waveforms, remote control, and query the ARB can be conveniently included in a MATLAB program. Create waveforms directly in MATLAB, connect to the ARB, transfer waveform data, and control the instrument directly from the MATLAB command line.

Grab from Oscilloscope and Go!!

If sensor signals are difficult to access, but can be acquired with an oscilloscope once, they can be downloaded into an ARB and replicated indefinitely with ease. ArbExpress seamlessly imports acquisition data from Tektronix DSOs or from other scopes through .CSV files. If the sampling rates of the oscilloscope and ARB do not match, ArbExpress can resample the signal using linear or sinc algorithms.

Characteristics

User Interface – Windows 98 SE/ME/NT/2000/XP Professional.

Displays – Waveform and Marker Data.

Waveform Translation

Oscilloscope –

Import waveforms directly from TDS1000, TDS2000, TDS3000, TDS5000, TDS6000, TDS7000, or CSA7000 Series oscilloscopes.

Translation of oscilloscope .WFM waveform formats to AWG/AFG formats.

Resampling of signals with linear or sinc interpolation.

AWG – Tektronix AWG400, AWG500, AWG600, AWG700, and AWG2000 Series.

AFG – Tektronix AFG300, and AFG3000 Series.

MATCAD – ASCII.

MATLAB – *.CSV, ASCII.

Others – *.CSV, ASCII.

Standard Waveforms

Basic Waveforms – Sine, Square, Triangle, DC, Pulse, Noise (Gaussian White, Pink), Exponential rise, and Exponential decay.

Advance Waveforms – Sinc, Sweep (linear), Multitone, and Lorentz.

Users can control all parameters of the waveform being created.

Parameters – Amplitude, Frequency, Phase, Cycles.

Extended Functions –

Supports preview before committing to changes.

Supports multiple waveform display.

Waveform Creation Palette

Manual Draw – Freehand, Vertical draw, Horizontal draw.

Point Draw – Enter waveform data as position and amplitude coordinates; linear, smooth, or staircase interpolation between points.

Edit Functions – Copy, Paste (Prepend, Append), Replace between cursors, Move Horizontally or Vertically, Rotate Horizontally or Vertically, Copy as Bitmap, Copy to System Clip Board, Zoom In, Zoom Out, Horizontal Zoom, Fit to Window, Cut, Undo, Redo, Invert, and Mirror.

Markers

Edit Markers – Modify between cursors, User-defined Patterns in Hex or Binary, Set High, Set Low, 0/1 Patterns, Random Patterns, Clear Patterns, and Freehand editing.

Equation Building

Math Operators – Add, Subtract, Multiply, Divide.

Math Functions – Linear, Absolute, Log, Square, Exponential, Integration, Differentiation, Normalize.
Supports Preview.

Equation Waveform Library – Comprehensive library of sample equations.

Waveform Math

Math Operators – Add, Subtract, Multiply, and Divide on Basic Waveforms, Scalar, and Clipboard.

Optionally Normalize Waveforms.

Waveform Transfer

Supports both NI VISA and TekVISA™ – GPIB (TekVISA), USB, (TekVISA), LAN (Raw Socket). Transfer waveform files to the ARB directly from MATLAB command line.

Instrument Control

Models – AFG3xx (GPIB), AFG3xxx (GPIB, USB, LAN), AWG20xx (GPIB), AWG4xx, AWG5xx, AWG6xx, AWG7xx (GPIB, LAN).

Controls –

Analog: Run, Stop, Frequency, Amplitude, Offset, Phase, Filter, Clock, and Channel Output On/Off.

Digital Markers: Amplitude.

MATLAB – Instrument control directly from MATLAB command line.

System Requirements

OS Supported	Minimum requirements
Windows XP Professional Service Pack 1 or Windows 2000 or Windows ME or Windows 98 SE Windows NT Service Pack 6a	Pentium III at 800 MHz, or higher 256 MB RAM 300 MB free disk space Microsoft Internet Explorer 5.01, or higher .NET Framework 1.1 redistributable 800×600 display resolution

The following table lists conditions under which ArbExpress uses TekVISA™ version 2.03, build 97, or above:

	AWG/AFG	Oscilloscope
LAN	AWG400, AWG500, AWG600, and AWG700 Series instruments are supported through raw sockets. (TekVISA may not be required*). AFG3000 Series instruments are supported through VXI 11 server	TekVISA required
GPIB	TekVISA required	TekVISA required
USB	TekVISA required*2	TekVISA required
RS232	Not supported	TekVISA required

*1 AFG3xx and AWG2xxx Series instruments do not support LAN.

*2 Only AFG3xxx supports USB.

Ordering Information

AXW100 ArbExpress

Available only as a free download from www.tektronix.com/axw.

Contact Tektronix:

- ASEAN / Australasia** (65) 6356 3900
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- Brazil** +55 (11) 40669400
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- Central Europe & Greece** +41 52 675 3777
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- Germany** +49 (221) 94 77 400
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- Italy** +39 (02) 25086 1
- Japan** 81 (3) 6714-3010
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- Middle East, Asia, and North Africa** +41 52 675 3777
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- Norway** 800 16098
- People's Republic of China** 86 (10) 6235 1230
- Poland** +41 52 675 3777
- Portugal** 80 08 12370
- Republic of Korea** 82 (2) 6917-5000
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- Sweden** 020 08 80371
- Switzerland** +41 52 675 3777
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For other areas contact Tektronix, Inc at: 1 (503) 627-7111

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For Further Information. Tektronix maintains a comprehensive, constantly expanding collection of application notes, technical briefs and other resources to help engineers working on the cutting edge of technology. Please visit www.tektronix.com



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