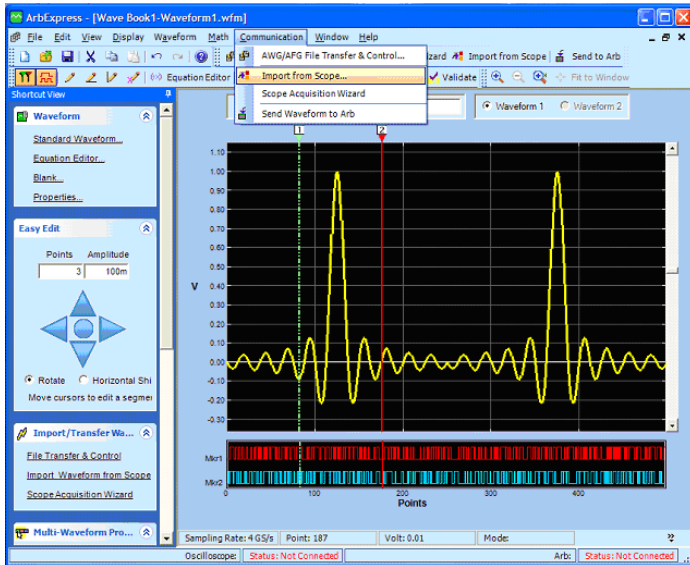


# ArbExpress® 2.5 Waveform Tool for Tektronix AWG/AFG AXW100 Data Sheet



## Features & 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 Models

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 generators.

## Comprehensive Library of Waveforms and Flexible Editing Tools

The large ArbExpress 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 to quickly add noise to an existing waveform. 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 oscilloscopes through .CSV files. If the sampling rates of the oscilloscope and ARB do not match, ArbExpress can resample the signal using linear or sync algorithms.

## Characteristics

Characteristic	Description
User Interface	Windows 98 SE/ME/NT/2000/XP/7 Professional
Displays	Waveform and Marker Data

### Waveform Translation

Product	Description
Oscilloscope	Import waveforms directly from TDS1000, TDS2000, TDS3000, TDS5000, TDS6000, TDS7000, CSA7000, DPO7000, or DPO/DSA70000 Series oscilloscopes. Translation of oscilloscope .WFM waveform formats to AWG/AFG formats. Resampling of signals with linear or sync interpolation
AWG	Tektronix AWG400, AWG500, AWG600, AWG700, AWG2000, AWG5000, and AWG7000 Series
AFG	Tektronix AFG300 and AFG3000 Series
MATHCAD	ASCII
MATLAB	*.CSV, ASCII
Others	*.CSV, ASCII

### Standard Waveforms

Characteristic	Description
Basic Waveforms	Sine, Square, Triangle, DC, Pulse, Noise (Gaussian White, Pink), Exponential Rise, and Exponential Decay
Advanced Waveforms	Sync, 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

Characteristic	Description
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

Characteristic	Description
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

Characteristic	Description
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**

Characteristic	Description
Math Operators	Add, Subtract, Multiply, and Divide on Basic Waveforms, Scalar, and Clipboard. Optionally normalize waveforms

**Waveform Transfer**

Characteristic	Description
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**

Characteristic	Description
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	Pentium III at 800 MHz, or higher 256 MB RAM
Windows 2000	300 MB free disk space
Windows ME	Microsoft Internet Explorer 5.01, or higher
Windows 98 SE*1	.NET Framework 1.1 redistributable
Windows NT Service Pack 6a	800×600 display resolution
Windows 7	

\*1 Does not support USB driver for AFG3000 Series.

**ArbExpress 2.5 requires TekVISA 3.3.2.7 or higher. TekVISA enables the communication between the ArbExpress application and instruments connected to the PC. The following table lists the conditions under which ArbExpress uses TekVISA™:**

Connection	AWG/AFG	Oscilloscope
LAN	AWG Series – TekVISA is not required (supported through raw sockets) AFG3000 Series – Supported through VX11 server*2	TekVISA required
GPIB	TekVISA required	TekVISA required
USB	TekVISA required*3	TekVISA required
RS232	Not supported	TekVISA required

\*2 AFG3xx and AWG2xxx Series instruments do not support LAN.

\*3 Only AFG3xxx supports USB.

**Ordering Information**

**AXW100 ArbExpress**

Available only as a free download from [www.tektronix.com/axw](http://www.tektronix.com/axw).

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- Switzerland** 00800 2255 4835\*
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- United Kingdom & Ireland** 00800 2255 4835\*
- USA** 1 800 833 9200

\* European toll-free number. If not accessible, call: +41 52 675 3777

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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](http://www.tektronix.com)



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