Release Notes

4000A X Series Oscilloscopes

(Latest) Version Information

Released Date:	16 February 2015
Instrument software version:	Revision 4.05
File Name:	4000XSeries04.05.2015021000.agx

New Features

This software revision includes the following new capabilities:

- CAN-FD eye testing support has been added to DSOX4AUTO option.
- LIN Symbolic decoding support has been added to DSOX4AUTO option.
- Control Loop measurements have been added to the DSOX4POWER option.
- Bitrate measurement has been added.
- Single shot capability has been added to the Waveform Generator.
- DSOX4POWER option now includes Class D harmonics measurements, including mA/W.
- USB frame triggers have been added – Start of Packet, End of Packet, Reset Complete, Enter Suspend, and Exit Suspend.

KEYSIGHT TECHNOLOGIES

Enhancements

- DSOX4POWER option now supports Keysight's N7020A Power rail probe.
- N7020A Power rail probe has a number of behavior improvements; improved autoscale; added calibration detection; improved trigger level interaction; expansion is now center screen.
- DISPlay:BACKLIGHT [ON|OFF] command has been added.

Bug Fixes

- A number of missing localized help screen strings and GUI strings have been added.
- "FFT" is now a valid waveform source for a number of SCPI commands.
- Status byte behaviors are improved.

(Earlier) Version Information

Released Date:	1 Nov 2014
Instrument software version:	Revision 4.00
File Name:	4000XSeries.04.00.2014101303.agx

New Features

This software revision includes the following new capabilities

- DSOX4SENSOR - SENT Serial Triggering and Decode option support has been added.
- N2804A/N2805A 100MHz/300MHz differential probe support has been added.
- N7020A Power rail probe support has been added.
- Event lister sidebar capability has been added.
- Frequency peak searching has been added.
- Gated FFT capability has been added.

- New math operators have been added- Smoothing, Maximum Hold, Minimum Hold, Averaging, Envelope.
- New training signals have been added: Sine with Harmonics Distortion; Square wave with Sinusoidal Noise Coupling; SENT; CAN-FD; Keysight Arbitrary waveform.
- New bit rate measurement has been added.

Enhancements

- Product SW has been branded as Keysight.
- DSOX4AUTO – Has been expanded to support CAN FD signal trigger and decode capabilities.
- User configurable sidebar capability has been added.
- New sidebar counter readout has been added.
- Swiping capabilities have been added to waveform, lists, menus, segments.
- DSOX4POWER – Several new capabilities have been added
    - Switching Loss
        - Added an Offset Calibration feature to correct the oscilloscope/probe offset error.
    - Rds(on) & Vce(sat) Analysis
        - New analysis that indicates whether a switching device is operating near the values published in the device's data sheet.
    - Deskew
        - After completion, allow users to restore the oscilloscope's vertical and horizontal setting prior to executing Deskew.
    - PSRR
        - Improved the throughput/speed.
        - Improved the vertical scaling during the sweep.
        - Changed the trigger source to the internal WaveGen for stability.
    - Power Quality
        - Pressing Apply will now install all the measurements in the sidebar
- Annotation has been expanded to 4 annotations.

- Waveform label lengths have been increased to 32 characters.
- Users can now save analysis results to thumb drives; this includes results for Cursors data, Measurement results, Mask Test statistics, Search results, Segment timestamps.
- Phase setting between the two waveform generators has been added for Sine, Sine Cardinal, Ramp, Gaussian, Pulse & Cardiac signals.

Bug Fixes

- DSO4XPOWER
    - **Efficiency**- Fixed *Auto Setup* problem with certain probes

(Earlier) Version Information

Oscilloscope Firmware Version 03.22.2014052101
Release Date: May 21, 2014
File Names: 4000XSeries03.22.2014052101.agx

This version of the oscilloscope firmware includes the items below:

Enhancements

- CANdb symbolic decode performance has been improve in a number of situations.
- N2820A/N2821A high sensitivity current probe – Range for the user defined resistance has been expanded and now is 10 microOhms to 1 MegaOhm
- Java application security enhancement to track Java engine security improvements
- USB SQ application fonts now have improved legibility
- Waveform Generator vertical accuracy is now improved in a number of situations.
- V average measurement resolution is much improved for small measurements
- Power application improvements
    - Switching loss measurement now behave better around 0 amps
    - Inrush current measurement is now more reliable
    - Efficiency measurement
        - Scaling of waveforms is now optimized, less clipping in some situations
        - Added DC to DC, DC to AC, AC, to AC efficiency measurement.
        - Absolute current is used to give correct result, even if probe is hooked up backwards
    - Current Harmonic measurement
        - Now uses BH window as default, just like the U1881A application
    - Transient response – triggering is made more flexible

Defects Addressed

- The Tablet viewer will now correctly launch on recent instruments
- :MEAS:DEF THR, PERCent,95,10,5 no longer given an out of range error
- Current Harmonic measurement now correct scales grid at decibels to Vrms settigns change.

Oscilloscope Firmware Version 03.21.20140110001
Release Date: January 21, 2014
File Names: 4000XSeries.03.21. 20140110001.agx

This version of the oscilloscope firmware includes the items below:

Enhancements

- None

Defects Addressed

- Dual bus lister now operates as intended when both busses are UART

Oscilloscope Firmware Version 03.20.2013082300
Release Date: September 3, 2013
File Names: 4000XSeries.03.20.2013082300.agx

This version of the oscilloscope firmware includes the items below:

Enhancements

- Zone triggering and segmented memory can now be used at the same time.
- CAN symbolic decode, trigger and search was added to the current CAN serial capability. It uses DBC files to load the symbols.
- LIN triggering for parity and checksum errors was added.
- SPI trigger can be entered using a Hex entry pad.
- In XY mode the user can set the scale between 50ms/div – 200ns/div.
- In Roll mode when stopped the user can zoom in around their reference point without any movement.
- ΔY/ΔX (Slew Rate) readout was added to the cursors sidebar tab.
    - :MARKer:DYDX? Added to support via remote interfaces
- Added Negative Duty Cycle measurement.
- We have enabled the ability to navigate search events using the :SEARch:EVENt remote command.
- N2818A/19 differential probe support has been added.

- N2797A extreme temperature active probe support has been added.

Defects Addressed

- We have improved the ability to abort a :DIGitize remote command.
- The Vpp measurement and cursor behavior have been improved for the N2820A/21 high sensitivity current probes.
- LIN 2.0 decoding now better handles the Checksum field.
- For I2C decoder search: previously, read packets sometimes erroneously found during write searches.

Oscilloscope Firmware Version 03.12.2013041700
Release Date: April 23, 2013
File Names: 4000XSeries.03.12. 2013041700.agx

This version of the oscilloscope firmware includes the items below:

Enhancements

- MSO threshold calibration has been improved and is now better centered about 0 Volts.
- The default cursor placement has been changed; they are no longer reset to the same values.
- N2820A/21 high sensitivity current probes – the range of resistance supported by the user defined resistance probe head is now 1 milliohm to 10 Ohms.

Defects Addressed

- All segmented memory segments are now saved when using binary and ASCII XY formats.
- Measurements statistics are now reset for the 10th tracked measurement

Oscilloscope Firmware Version 03.11.2013030100
Release Date: March 01, 2013
File Names: 4000XSeries.03.11. 2013030100.agx

This version of the oscilloscope firmware includes the items below:

Enhancements

- Final localized help screens added for the new 3.10 capabilities.

Defects Addressed

- None

Oscilloscope Firmware Version 03.10.2013020700

Release Date: Feb. 12, 2013
File Names: 4000XSeries.03.10.2013020700.agx

This version of the oscilloscope firmware includes the items below:

Enhancements

- DSOX4USBSQ option support has been added – This option allows for signal quality testing for low, full and high speed USB 2.0 devices.
- N2820A high sensitivity 2 channel current probe support has been added. This allows current measurements down to micro amp range while simultaneously viewing the large signal behavior on the second channel of the probe.
- Saving of files via email has been added.
- A multichannel Hdf5 file format has been added, allowing direct input into Agilent's InfiniiView offline viewer SW application.
- Hex key pad entry has been improved.
- The delay is now displayed when in Roll mode.
- :TRIGger:LEVel:ASETup has been added, this will set the trigger level of all displayed channels to 50% of the signal on screen.

Defects Addressed

- The Set trigger to 50% function now behaves appropriately when channels are AC coupled.
- Wavegen1&2 now recover better when overload is detected.
- Wavegen2 noise floor is improved for DC signals.
- Help screens for grayed out soft keys are now accessible via touch.
- The Sine w/ Glitch training signal now has repeatable location of glitch on the sine wave.
- Arbitrary Waveform is now preserved across a power cycle. It is no longer defaulted.

Oscilloscope Firmware Version 03.01.20121212001
Release Date: Jan. 10, 2011
File Names: 4000XSeries.03.01.20121212001.agx

This version of the oscilloscope firmware includes the items below:

Enhancements

- Averaging will now enable the display and measurement of zoomed waveforms when entering Zoom mode while stopped.
- A hexadecimal entry keypad has been added.
- The Counter measurement will now display up to 8 digits when an external 10MHz reference is selected.
- For the N2750A probe family, the probing mode is now displayed when changed from the probes action button.
- When in TV trigger mode, the trigger status line now indicates the trigger type, Field1,Field2, AllFields, etc., instead of just the trigger source channel.

- When in Roll mode, touching the Roll indicator in the upper right of screen will now bring up the Horizontal menu, rather than Trigger menu.
- An “Add Annotation” choice has been added to the zoom box list of actions.
- The :BLANk, :VIEW, and :STATus commands now accepts WMEMory<N> as an argument.
- Measurement statistics now accumulate with successive SINGLE acquired waveforms.
- The FFT resolution has been improved.

Defects Addressed

- Cursors readings now reliably update in the side bar area after certain changes, when assigned to the Math signal.
- Cursors will now track the reference waveform when selected as the source.
- Cursor readouts will now track units changed on the math waveform when the math operator is ‘Chart’
- Cursor handles are now placed correctly after changing cursor values while lister is full screen.
- When measuring an FFT, cursors will now be able to span the full zoomed window.
- Zone windows now draw more consistently when moving to/from main and zoom windows.
- Change of the Standard deviation to/from Relative Standard deviation while stopped now clear the statistics.
- Mask statistics will now update to proper language without cycling power when selected language is changed.
- Mask ‘Save On’ functionality now works appropriately for SINGLE acquisitions and :Digitize remote command.
- FlexRay TP1 Mask Test now works if the "run until" setting is something other than "forever".
- The Reference waveform is now more consistently cleared from the screen, when the clear reference action is done in Reference Waveform menu.
- When refreshing the Save webpage of scope when Reference is selected, this no longer generates a “parse error” on certain following actions.
- The waveform search marks are now cleared when the source waveform is cleared.
- The differentiate math operator now correctly represents signal amplitude after many acquisitions when using the math averaging operator.
- The :WAV:DATA? query now works for the RAW data format when running.
- The runt Search capability now works correctly the first time after a Default Setup.
- The oscilloscope now more gracefully handles a number of unsupported thumb drives.
- :DVM:FREQ will no longer return stale data when current waveform is blank.
- FFT noise floor has been improved.
- Networking behavior now conforms to LXI v1.4 standards.

(First) Version Information

Released Date:	September 2012
Requirements category (e.g., instrument software version):	Revision 3.00
File Name:	4000XSeries.03.00.201209XXXX.agx

Initial Release