Keysight M8195A/M8197A Arbitrary Waveform Generator and Synchronization Module

Version 3.6.0.0 Information

Released Date:	April 23, 2018
Operating System:	• Windows 10 (32 bit or 64 bit)
	• Windows 8.1 (32 bit or 64 bit)
	• Windows 8 (32 bit or 64 bit)
	• Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Names:	• M8195_Setup.exe
	• M8197_Setup.exe

New Functionality

- N/A

Bug Fixes

- Fix for communication issues between M8195 and M8197 instances in systems with Keysight IO Libraries Suite newer than 18.0 (2017 Update 1)
- Fix for issues regarding import of Signal Studio generated files.

Known Issues

The default FIR filter type is now Zero-order hold for memory sample rate divider 1 and Nyquist for memory sample rate divider 2 and 4. The setting of the user-defined FIR filter coefficients has only effect after switching to FIR filter type USER.

KEYSIGHT TECHNOLOGIES

Version 3.5.17.1 Information

Released Date:	October 11, 2017
Operating System:	• Windows 10 (32 bit or 64 bit) • Windows 8.1 (32 bit or 64 bit) • Windows 8 (32 bit or 64 bit) • Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Names:	• M8195_Setup.exe • M8197_Setup.exe

New Functionality

- N/A

Bug Fixes

- Fix for PCIe communication issue between M8195A and embedded controller or M8195A and external PC

Known Issues

- The default FIR filter type is now Zero-order hold for memory sample rate divider 1 and Nyquist for memory sample rate divider 2 and 4. The setting of the user-defined FIR filter coefficients has only effect after switching to FIR filter type USER.

Version 3.5.0.0 Information

Released Date:	March 17, 2017
Operating System:	• Windows 10 (32 bit or 64 bit) • Windows 8.1 (32 bit or 64 bit) • Windows 8 (32 bit or 64 bit) • Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Names:	• M8195_Setup.exe • M8197_Setup.exe

New Functionality

- Import of Signal Studio generated encrypted waveform files including up-conversion to a user defined carrier frequency

Bug Fixes

- N/A

Known Issues

- The default FIR filter type is now Zero-order hold for memory sample rate divider 1 and Nyquist for memory sample rate divider 2 and 4. The setting of the user-defined FIR filter coefficients has only effect after switching to FIR filter type USER.

Version 3.2.0.0 Information

Released Date:	November 07, 2016
Operating System:	- Windows 10 (32 bit or 64 bit) - Windows 8.1 (32 bit or 64 bit) - Windows 8 (32 bit or 64 bit) - Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Names:	- M8195_Setup.exe - M8197_Setup.exe

New Functionality

- N/A

Bug Fixes

- Sometimes the installer created a file named "REBOOT=ReallySuppress" and in some cases the system automatically re-started.

Known Issues

- The default FIR filter type is now Zero-order hold for memory sample rate divider 1 and Nyquist for memory sample rate divider 2 and 4. The setting of the user-defined FIR filter coefficients has only effect after switching to FIR filter type USER.

Version 3.1.30.3 Information

Released Date:	October 14, 2016
Operating System:	- Windows 10 (32 bit or 64 bit) - Windows 8.1 (32 bit or 64 bit)

	• Windows 8 (32 bit or 64 bit)
	• Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Names:	• M8195_Setup.exe
	• M8197_Setup.exe

New Functionality

- N/A

Bug Fixes

- M8195: SFP sometimes crashes when started with command line switch "/auto".
- M8195: SFP fails to start after some hardware errors caused by an unstable clock. In this case a power cycle of the AXIe chassis is necessary.
- M8195/M8197: after the system was stopped due to a clock loss, hardware is not always initialized correctly when the waveform generation is started again, so the generated waveform is not correct.
- M8195/M8197: when performing a remote controlled "stop / change sample frequency / start"-loop we may get a clock loss warning or the system may switch to configuration mode. Then "start" fails with an error message.
- M8195: when the user logs off or when the PC is re-booted or shutdown, the module hardware is not shutdown correctly. In particular, with an embedded controller a re-boot may fail until a power cycle of the AXIe chassis is done.

Known Issues

- The default FIR filter type is now Zero-order hold for memory sample rate divider 1 and Nyquist for memory sample rate divider 2 and 4. The setting of the user-defined FIR filter coefficients has only effect after switching to FIR filter type USER.

Version 3.1.8.2 Information

Released Date:	August 02, 2016
Operating System:	• Windows 10 (32 bit or 64 bit)
	• Windows 8.1 (32 bit or 64 bit)
	• Windows 8 (32 bit or 64 bit)
	• Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Names:	• M8195_Setup.exe
	• M8197_Setup.exe

New Functionality

- M8195A LabVIEW driver supporting hardware revision 2
- M8197A IVI-COM, IVI-C, MATLAB and LabVIEW driver
- Enhance SCPI API for file import by a command to enable/disable scaling of imported data.
- Default memory configuration after reset changed to a more useful setting. Channel 1 uses extended memory, channels 2, 3, and 4 use DAC internal memory. Memory Sample Rate Divider is 1.
- Simpler Memory Mode selection in SFP Output Panel.
- Increase maximum possible Crest Factor for noise generation to 16dB in Standard Waveform Panel.
- Improved setup of multi-module group in M8197 SFP
  - Button for switching between configuration and operation mode always visible and next to run/stop button
  - Pressing run button causes automatic switch to operation mode and start of signal generation.

Bug Fixes

- M8195/M8197: fix potential AXIe backplane timing problems.
- Switch to run mode possible from M8197, when no M8195 modules are added.
- Auto-scale in waveform preview sets limits to +/-1.2 instead of +/-1.0.
- Setting the M8197 GPIO pin state, reset, and set the same pin and state again does not work.
- SCPI commands for dynamic sequence selection and setting the bit width of the Dynamic Control Port don't update the corresponding fields in the M8197 Dynamic Control Panel.
- M8195 IVI driver method ConfigureSingleChannelWithMarkers does not set the Sample Rate Divider correctly.
- Output amplitude can be set beyond limit when termination voltage is used.

Known Issues

- The default FIR filter type is now Zero-order hold for memory sample rate divider 1 and Nyquist for memory sample rate divider 2 and 4. The setting of the user-defined FIR filter coefficients has only effect after switching to FIR filter type USER.

Version 3.0.10.4 Information

Released Date:	May 31, 2016
Operating System:	• Windows 10 (32 bit or 64 bit)
	• Windows 8.1 (32 bit or 64 bit)

	• Windows 8 (32 bit or 64 bit)	
	• Windows 7 (32 bit or 64 bit)	
Hardware Revision:	1.0 and 2.0	
File Names:	• M8195_Setup.exe	
	• M8197_Setup.exe	

New Functionality

- N/A

Bug Fixes

- Wrong M8195 module list in synchronous system when same module is added twice using different VISA resource names.
- Check boxes for unavailable target channels in DAC modes 'Dual Channel Duplicate' and 'Dual Channel with Markers' not disabled correctly.
- Serial Data Waveform with Bessel-Thomson edge shape and skew not generated correctly for bit rates higher than 10 GBaud.
- Sample clock delay field in clock tab not updated when value is modified using SCPI, or when sample rate is changed using SCPI.
- Sample clock delay not being reapplied to hardware when it was changed while the signal generation was stopped.
- Fixed some minor usability issues.

Known Issues

- The default FIR filter type is now Zero-order hold for memory sample rate divider 1 and Nyquist for memory sample rate divider 2 and 4. The setting of the user-defined FIR filter coefficients has only effect after switching to FIR filter type USER.

Version 3.0.4.3 Information

Released Date:	May 02, 2016
Operating System:	• Windows 10 (32 bit or 64 bit)
	• Windows 8.1 (32 bit or 64 bit)
	• Windows 8 (32 bit or 64 bit)
	• Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Names:	• M8195_Setup.exe
	• M8197_Setup.exe

New Functionality

- M8195A IVI-COM, IVI-C, and MATLAB drivers supporting hardware revision 2
- Serial data waveform generation enhancements with impairments
    - Spread Spectrum Clock (SSC), Periodic and Random Jitter, Duty Cycle Distortion (DCD)
    - Link emulation by addition of bandwidth limited noise, Low-Pass Filter, ISI Filter, S-Parameter Embedding and De-Embedding
    - De-Emphasis with five pre- and five post-cursor taps
- Significantly increased the performance of the waveform calculation algorithms for Serial Data Waveform and Complex Modulated Waveform Panel
- FIR filter configuration per channel
    - Predefined correction filter types for best signal quality: Low-Pass, Nyquist, Linear interpolation, Zero-order hold

    - FIR delay per channel
    - FIR scale per channel
- Sample clock delay per channel
- Instrument Modes 'Dual Channel Duplicate' and 'Dual Channel with Markers' available with channel options 002 and 004.
- Added a command line argument to select the location of temporary files and log files: `/OutputDir <path>`
- M8197A: When [Discover] is clicked, all M8195A modules with active Soft Front Panel are added to the module list, even if they were not added in the Keysight Connection Expert before.
  A message box is shown, if a module without active Soft Front Panel is found.
- M8197A: If a M8195A module entry in the module list is double-clicked, its Soft Front Panel is brought to the front.
- Show the Wait Cursor when an action takes some time.

Bug Fixes

- Increased the initial window size: On the first start after installation, the Soft Front Panel window was too small.
- Fixed access conflicts: If more than one M8195A Soft Front Panel was started with command line argument `/r auto` at the same time, it could happen that they tried to use the same hardware.
- Fixed corrections from file in Serial Data Panel.

Known Issues

- The default FIR filter type is now Zero-order hold for memory sample rate divider 1 and Nyquist for memory sample rate divider 2 and 4. The setting of the user-defined FIR filter coefficients has only effect after switching to FIR filter type USER.

Version 2.6.7.1 Information

Released Date:	February 22, 2016
Operating System:	• Windows 10 (32 bit or 64 bit) • Windows 8.1 (32 bit or 64 bit) • Windows 8 (32 bit or 64 bit) • Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Names:	• M8195_Setup.exe • M8197_Setup.exe

New Functionality

- Added a compiled version of IQTools in ...\Examples\MATLAB\iqtools_compiled, which doesn't require a MATLAB installation but only the free MATLAB Runtime.
- Allow exchange of sequence table entries during active signal generation.

Bug Fixes

- Sequences consisting of segments with an odd number of memory vectors are not played correctly.
- Data generation works unreliable with more than 64 sequence table entries.
- Waveform transfer using the SCPI API with an 'offset' parameter greater 4G does not work.
- File import using the SCPI API with data length greater 2G does not work.
- Remote control of a multi-module system causes conflicts with SFP control.
- Exchange of waveform segments during active signal generation ("Memory Ping-Pong") not working in a multi-module system.
- Correct names for modulation schemes pi/4-QPSK and 3pi/8-8PSK (EDGE) in SFP.

Version 2.5.7.1 Information

Released Date:	November 27, 2015
Operating System:	• Windows 8.1 (32 bit or 64 bit)

	• Windows 8 (32 bit or 64 bit)
	• Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Names:	• M8195_Setup.exe
	• M8197_Setup.exe

New Functionality

- Exchange of waveform segments during active signal generation ("Memory Ping-Pong") supported by the SFP.

Bug Fixes

- Import of BIN8 file format fails.
- Setting offset and termination voltage using SCPI in one transaction not working.
- Synthesizer PLL sporadically does not lock to required frequency.
- Temporary files used for file import not always deleted correctly.
- Waveform downloads not working reliably when multiple M8195 SFP instances send data at the same time.
- "Waveform cannot be imported with current settings" message is shown sometimes although settings are valid.

Version 2.5.0.0 Information

Released Date:	November 19, 2015
Operating System:	• Windows 8.1 (32 bit or 64 bit)
	• Windows 8 (32 bit or 64 bit)
	• Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Names:	• M8195_Setup.exe
	• M8197_Setup.exe

New Functionality

- Support for M8197A synchronization module.
- Support for synchronization of multiple M8195A modules.
- Dynamic sequencing
- Marker support from SFP

Version 2.0.20.2 Information

Released Date:	November 04, 2015
Operating System:	• Windows 8.1 (32 bit or 64 bit) • Windows 8 (32 bit or 64 bit) • Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Name:	M8195_Setup.exe

New Functionality

- User's Guide: Added several abstracts and block diagrams.

Bug Fixes

- Sporadic failure to restore saved configuration.
- The SFP sporadically failed to fully initialize. As a result, e.g. the Run button and error pane was not fully functional.
- Marker generation in combination with complex sequencing.
- Stopping signal generation fails, when currently used external clock is disconnected during signal generation.

Version 2.0.3.0 Information

Released Date:	October 09, 2015
Operating System:	• Windows 8.1 (32 bit or 64 bit) • Windows 8 (32 bit or 64 bit) • Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0 and 2.0
File Name:	M8195_Setup.exe

New Functionality

- The M8195A is available in two different hardware revisions. Refer to the data sheet of the M8195A for the differences between Revision 1 and Revision 2. This is the initial software version for Revision 2 instruments. This software also supports Revision 1 instruments.

Version 1.3.1.1 Information

Released Date:	31 July 2015
Operating System:	• Windows 8.1 (32 bit or 64 bit) • Windows 8 (32 bit or 64 bit) • Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0
File Name:	M8195_Setup.exe

New Functionality

- Added optional parameters for output amplitude and sample rate to the SCPI query for the frequency and phase response data.

Version 1.3.0.0 Information

Released Date:	11 May 2015
Operating System:	• Windows 8.1 (32 bit or 64 bit) • Windows 8 (32 bit or 64 bit) • Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0
File Name:	M8195_Setup.exe

New Functionality

- M8195A IVI-COM, IVI-C, MATLAB, and LabVIEW driver.

Bug Fixes

- CSV and MAT89600 files with data for multiple channels are not imported correctly.
- Sometimes the Soft Front Panel was not displayed after an instrument was selected and the Splash Screen was closed, even though the process AgM8195SFP.exe was visible in the Task Manger.

Version 1.2.0.0 Information

Released Date:	05 February 2015
Operating System:	• Windows 8.1 (32 bit or 64 bit) • Windows 8 (32 bit or 64 bit) • Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0
File Name:	M8195_Setup.exe

New Functionality

- Serial data waveform generation (NRZ, RZ, and PAM) including built-in and user-defined amplitude and phase corrections.

Version 1.1.0.0 Information

Released Date:	03 November 2014
Operating System:	• Windows 8.1 (32 bit or 64 bit) • Windows 8 (32 bit or 64 bit) • Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0
File Name:	M8195_Setup.exe

New Functionality

- Multi-tone waveform generation (equally and arbitrary spaced tones) including notches and user-defined amplitude and phase corrections.

- Complex modulated waveform generation (ASK, PSK, QAM, MSK, APSK, STAR, VSB, FSK, and user-defined modulation schemes) including user-defined amplitude and phase corrections.

Version 1.0.0.0 Information

Released Date:	24 September 2014
Operating System:	• Windows 8.1 (32 bit or 64 bit) • Windows 8 (32 bit or 64 bit) • Windows 7 (32 bit or 64 bit)
Hardware Revision:	1.0
File Name:	M8195_Setup.exe

Initial Release

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