

# Keysight SD1 software

## 2.01.50 Version Information

Released Date:	November, 2019
Driver version:	1.40.000000
Operative systems:	Microsoft Windows XP Microsoft Windows 7, 10 (32-bit and 64-bit OS)
Supported Modules:	M3100A, M3102A, M3201A, M3202A, M3300A, M3302A
File Name:	Windows: SD1software_2.01.50_installer.exe

## New Features

- Increased DAQpointsPerCycle limit to  $2^{30}$  for M3102A FW  $\geq 1.41.00$
- Increased number of cycles to 1M for M3102A FW  $\geq 1.41.00$

## Bug Fixes

- FPGAload API crash issue fixed

## 2.01.47 Version Information

Released Date:	April, 2019
Driver version:	1.40.000000
Operative systems:	Microsoft Windows XP Microsoft Windows 7, 10 (32-bit and 64-bit OS)
Supported Modules:	M3100A, M3102A, M3201A, M3202A, M3300A, M3302A
File Name:	Windows: SDIsoftware_2.01.47_installer.exe

## New Features

- Temperature now can be queried from the FPGA.
- Removed Update database version check to allow the use of an older update package.
- Updated and upgraded C and Labview examples.
- Added HVI Assign Hardware Labview VIs.
- Supported larger waveform (up to  $2^{26} - 1$ ) in FW  $\geq 3.80$ .

## Bug Fixes

- Solved compatibility issues with TDC and DIO cards.
- Now DAQcounterRead return correct values for M3102A FW  $\geq 1.40.00$ .

## 2.01.41 Version Information

Released Date:	September, 2018
Driver version:	1.34.000000
Operative systems:	Microsoft Windows XP Microsoft Windows 7, 10 (32-bit and 64-bit OS)
Supported Modules:	M3100A, M3102A, M3201A, M3202A, M3300A, M3302A
File Name:	Windows: SDIsoftware_2.01.41_installer.exe

## New Features

- SD\_AIN's DAQPause/DAQResume added.
- Improved FPGA cache's clear for data acquisition.
- Added calibration functions for M3102A.
- Added function in AOU's setDigitalFilterMode() to enable/disable flatness filter.
- Added new calibration for M3202A FW  $\geq 3.67.03$  to calibrate properly DAC timing and channels-to-channel Skew.

## Bug Fixes

- Channel trigger Threshold: fix threshold over limits. Checked on SD1 and tuned on dialog.
- Correct delay scaling on waveform transmission: SD1 and dialog.
- Fix gain adjustment when setting digital filter to OFF\_MAX\_RANGE.
- Fix bug in gain calculation when disabling digital filter.
- Exported M310xA calibration functions to user API.
- Modified frequency response initialization for M3202A-CLV. Reduced 0.3dBm the gain from 350MHz to 400MHz to eliminate instability in the output amplifier. This fix affect M3202A-CLV with HW minor  $>12$ .
- Fix bug added in last release that removed clockPhase and ClockPol initialization for both CLV and CLF. For CLF this initialization must be done.
- Updated initialization for Digitizer modules.
- Initial channel alignment fixed on AWGs.
- Python's DAQbufferGet buffer return.

## 2.01.26 Version Information

Released Date:	April, 2018
Driver version:	1.34.000000
Operative systems:	Microsoft Windows XP Microsoft Windows 7, 10 (32-bit and 64-bit OS) openSUSE Leap 42.1 64-bit OS
Supported Modules:	M3100A, M3102A, M3201A, M3202A, M3300A, M3302A
File Name:	Windows: SD1software_2.01.26_installer.exe Linux: SD1software-2.01.26_x86_64.rpm

## New Features

- Opening simulated/demo modules with chassis and slot.
- Digitizer's single capture button remains pressed while capture is being performed.
- Upgraded 500MSPS digitizer (M3102A) and AWG initialization with new FW versions.
- Implemented more deterministic latency in waveform load process.
- Updated "channelfrequency.vi" VI: AOU's setFrequency returns the actual frequency if the operation has been successfully.
- Added missing AIN's VIs: channel prescaler configuration, prescaler getter, clock IO configuration and IO trigger configuration.
- Improved the DAC timing initialization (Removed SMP correction per channel given the Ref IN timing).
- Added missing AOU VIs.

## Bug Fixes

- Module's initialization in Windows 10 OS.
- M3202A initialization.

## 2.01.17 Version Information

Released Date:	November, 2017
Driver version:	1.32.03
Operative systems:	Microsoft Windows XP Microsoft Windows 7, 10 (32-bit and 64-bit OS) openSUSE Leap 42.1 64-bit OS
Supported Modules:	M3100A, M3102A, M3201A, M3202A, M3300A, M3302A
File Name:	Windows: SD1software_2.01.17_installer.exe Linux: SD1software-2.01.17_x86_64.rpm

## New Features

- Added support for new module calibration for:
  - M3300A with HW minor version  $\geq 10$ . For example, version 4.10 or 3.10.
  - M3100A with HW minor version  $\geq 2$ . For example, version 4.02 or 3.02.
- AWG's frequency setter returns the frequency that really is set in the channel.

## Bug Fixes

- AWG's IQ modulation setup.
- AWG waveform reload.
- When a binary file is loaded to FPGA of module, the correspondent error is returned if file is invalid. In older versions, the compatibility error was wrongly returned.

## 2.01.15 Version Information

Released Date:	August, 2017
Driver version:	1.32.03
Operative systems:	Microsoft Windows XP Microsoft Windows 7, 10 (32-bit and 64-bit OS) openSUSE Leap 42.1 64-bit OS
Supported Modules:	M3100A, M3102A, M3201A, M3202A, M3300A, M3302A
File Name:	Windows: SD1software_2.01.15_installer.exe Linux: SD1software-2.01.15_x86_64.rpm

## New Features

- Added support for Windows 10 Operative System.
- Module chassis detection when more than one chassis is connected.
- Removed unused trigger mode on triggerIOconfig functions.
- Added triggerIOconfigV5 for Virtex 5 legacy AWGs.
- Added sync mode parameter to triggerIOwrite functions.

## Bug Fixes

- Improved clock initialization to eliminate one-sample start-up skew between channels in M3202A.
- Improved M32x clock configuration to support 1Hz resolution and delay response.
- Improved digitizer scope auto-mode capture.

## 2.01.07 Version Information

Released Date:	June, 2017
Driver version:	1.32.03
Operative systems:	Microsoft Windows XP Microsoft Windows 7 (32-bit and 64-bit OS) openSUSE Leap 42.1 64-bit OS
Supported Modules:	M3100A, M3102A, M3201A, M3202A, M3300A, M3302A
File Name:	Windows: SD1software_2.01.07_installer.exe Linux: SD1software-2.01.07_x86_64.rpm

## New Features

- Sync/Immediate external triggers for AWGs (M320xA and M330xA) and DAQs (M310xA and M330xA).
- Added M3102A product support.
- Improved digitizer scope functionment.

## 2.01.05 Version Information

Released Date:	April, 2017
Driver version:	1.32.03
Operative systems:	Microsoft Windows XP Microsoft Windows 7 (32-bit and 64-bit OS) openSUSE Leap 42.1 64-bit OS
Supported Modules:	M3100A, M3102A, M3201A, M3202A, M3300A, M3302A
File Name:	Windows: SD1software_2.01.05_installer.exe Linux: SD1software-2.01.05_x86_64.rpm

## New Features

- Added M3302A product support.
- Added *DAQcounterRead* function to M310xA modules.
- Software Front Panel:
  - Digitizer scope data can be saved to file.
  - Added digitizer prescaler compatibility on scope.

## Bug Fixes

- Fixed *getSerial* functions on Python.
- Changed return type of AIN buffer pool on .NET from long-array to short-array.
- Changed waveform load and queue limits from 240 to 1024 on M320xA module.



## 2.01.00 Version Information

First software release.

Released Date:	March, 2017
Driver version:	1.31.71
Operative systems:	Microsoft Windows XP Microsoft Windows 7 (32-bit and 64-bit OS) openSUSE Leap 42.1 64-bit OS
Supported Modules:	M3100A, M3102A, M3201A, M3202A, M3300A, M3302A
File Name:	Windows: SD1software_2.01.00_installer.exe Linux: SD1software-2.01.00_x86_64.rpm

## Features

- SD1 driver for SD1 modules
- Full custom control of SD1 modules with programming libraries:
  - C/C++, .NET 3.5/4.5, LabVIEW, MATLAB (using .NET), Python, Borland
  - New open module functions are added in order to make compatible the channel facing numbers with legacy models. For instance, using C++ and DIG module we have these new methods with a new compatibility parameter:

```
int SD_AIN::open(const char* productName, const char* serialNumber, int compatibility);
int SD_AIN::open(const char* productName, int chassis, int slot, int compatibility);
```

The channels on new Keysight SD1 compatible modules are labeled from 1 while on legacy modules the labeling starts from 0. Modules are opened by default with the channel enumeration indicated in the front panel. However, it is possible to open the modules in compatibility mode, forcing the channel enumeration to start from 0 or from 1 depending on the selected option and regardless of the module version. This option is useful when new and legacy modules coexist or when the software must be compatible with both legacy and new modules.

- Software front panel for each module