

Keithley Instruments

28775 Aurora Road
Cleveland, Ohio 44139
1-800-935-5595
www.tek.com/keithley

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General Information

This document describes the features added to ACS Basic Edition software (version 2.1.5).

The Keithley Instruments ACS Basic Edition software supports component characterization testing of packaged parts and wafer-level testing using a manual probe station. ACS Basic Edition software can be installed on any computer, including Keithley Instruments Model 4200A-SCS Parameter Analyzer or Model 4200 Semiconductor Characterization System (4200-SCS) with a Microsoft® Windows® XP Professional Service Pack 3 (SP3), or Windows 7 x 86 (32 bit), Windows 7 x 64 (64 bit), Windows 10 x 86 (32 bit), or Windows 10 x 64 (64 bit) operating system.

Updating ACS Basic information

NOTE: If you have an older version of ACS Basic software installed on your PC, Model 4200A, or Model 4200, and you are updating to the newest version of ACS Basic, choose one of the following tasks to update your software. The following items also apply if you uninstall and reinstall the same version.

NOTE: If you have NI GPIB driver installed and you are updating the ACS Basic V2.1 to the newest version of ACS Basic, you must manually to delete `ieee_32m.dll` before updating. The `ieee_32m.dll` file is in `C:\Windows\System32\` (32-bit OS) or `C:\Windows\SysWOW64\` (64-bit OS).



You can use several methods to install the software. The recommended method is described in "Rename the C:\ACS_BASIC directory (recommended)." You can also overwrite the earlier version or remove the earlier version before updating.

Rename the C:\ACS_BASIC directory (recommended)

1. Go to the C:\ACS_BASIC directory and rename it C:\ACS_BASICx.x_old.
2. **If you are not installing ACS Basic on a Model 4200A or 4200:** Go to the C:\S4200 directory and rename it C:\S4200_old.
3. **If an NI GPIB driver was installed and you are updating from ACS Basic V2.1:** Delete the ieee_32m.dll file.
4. Install the new version of ACS Basic.
5. Restore user projects and libraries from ACS_BASICx.x_old, if needed.

Overwrite earlier version of ACS Basic when updating

1. Go to the C:\ACS_BASIC directory, copy and paste the contents, then rename the copy of ACS_BASIC directory to ACS_BASICx.x_old.
2. **If you are not installing ACS on a Model 4200A or 4200:** Go to the C:\S4200 directory and rename it C:\S4200_old.
3. **If you have ACS v4.2 or earlier software installed and you are updating to a newer version:** Remove the C:\ACS_BASIC\KATS\KATS_pref.ini file.
4. **If an NI GPIB driver was installed and you are updating from ACS Basic V2.1:** Delete the ieee_32m.dll file.
5. Install the new version of ACS Basic.
6. If ACS Basic detects that the directory C:\ACS_BASIC already exists, click **Yes** to continue the installation.

Remove earlier version of ACS Basic before updating

1. Go to the C:\ACS_BASIC directory, copy and paste the contents, then rename the copy of ACS_BASIC directory to ACS_BASICx.x_old.
2. Go to Microsoft Windows® Start to remove ACS Basic from your computer: Select **Start > Program > ACS BasicX.X -> Uninstall Automated Characterization Suite**.
3. Once uninstalled, delete the C:\ACS_BASIC directory.
4. **If you are not installing ACS on a Model 4200A or 4200:** Go to the C:\S4200 directory and rename it C:\S4200_old.
5. **If an NI GPIB driver was installed and you are updating from ACS Basic V2.1:** Delete the ieee_32m.dll file.
6. Install the new version of ACS Basic.
7. Once installed, restore user projects and libraries from ACS_BASICx.x_old, if needed.

Launch an older version of ACS BASIC

After installing a new version of ACS BASIC, you can use the following steps to launch an older version of ACS BASIC.

1. Go to the C:\ACS_BASIC directory and rename it C:\ACS_BASIC_new.

2. Go to the C:\ACS_BASICx.x_old directory and rename it C:\ACS_BASIC.
3. Open ACS Basic software. The previous version launches.
4. To launch the newer version of ACS Basic, rename C:\ACS_BASIC to C:\ACS_BASICx.x_old and then rename C:\ACS_BASIC_new to C:\ACS_BASIC.

Supported models and test configurations

NOTE: Before installing ACS Basic Edition software on a computer, read and complete all of the pre-installation requirements listed in the Installation section of the Automated Characterization Suite (ACS) Basic Edition Reference Manual (document number ACSBASIC-901-01). This manual is provided in PDF format on the ACS Basic Edition CD-ROM.

ACS Basic Edition software can be used with the following Keithley Instruments models in several different testing configurations:

- Perform multi-group testing of Series 2600, Series 2600A, and Series 2600B System SourceMeter® instruments using ACS Basic Edition software installed on a personal computer or laptop.
- Control Models 4200A-SCS or 4200-SCS hardware using ACS Basic Edition software installed on the Model 4200A-SCS or 4200-SCS.
- Perform combined group testing of Model 4200A-SCS or Model 4200-SCS, Series 2600, Series 2600A, and Series 2600B, Series 2400, and Model 237 using ACS Basic Edition software's combined test-execution engine and mixed platform test module.

Installation

ACS Basic Edition software comes with an installation option that generates a 30 day temporary license for quick installation of the software in the field. For complete ACS Basic Edition software installation requirements and instructions (including detailed licensing information), refer to the Installation section of the ACS Basic Edition Reference Manual.

ACS Basic Edition version 2.1.5

Overview

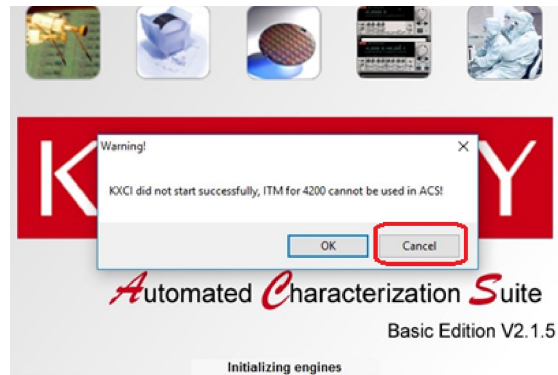
Version 2.1.5 is a maintenance release of the ACS Basic Edition software.

Software compatibility

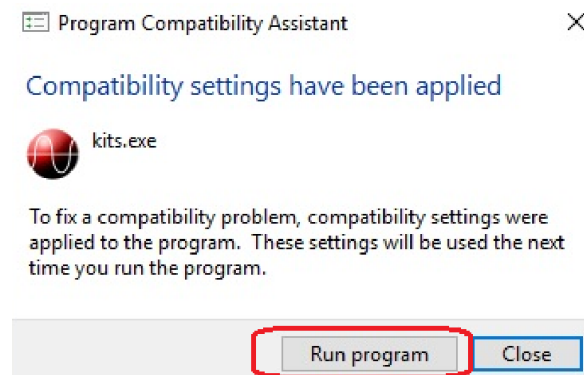
You can use ACS Basic software with Clarius software version 1.0, or later, that is included with the Model 4200A-SCS Parameter Analyzer.

When you start ACS Basic on the 4200A-SCS that has Clarius software version 1.4 or higher (with Windows 10 operating system), a warning message may appear indicating that KXCI did not start successfully (see next figure).

1. Select the Cancel button and the Program Compatibility Assistant will pop-up.



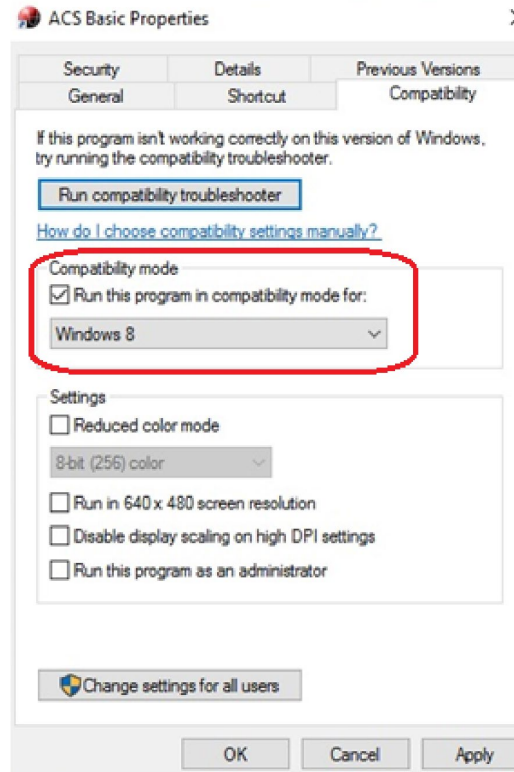
2. Select Run program to apply the compatibility settings. Note that this procedure is required one time. You will not have to run the compatibility assistant again.



Note that you will have to manually fix the compatibility issue if the Compatibility Assistant does not open when you select Cancel (see step 1 above).

To manually configure Compatibility mode, follow the next steps:

1. Right-click the ACS Basic icon and select properties.
2. Open the Compatibility tab.
3. Select the "Run this program in compatibility mode for" and using the drop-down arrow choose the appropriate operating system you have (for example Windows 7 or Windows 8)(see next figure). Note that this procedure is required one time. You will not have to accomplish this procedure again.



You can also use ACS Basic software with Keithley Interactive Test Environment (KITE) software version 8.2, or later.

You can find GPIB driver compatibility information in the ACS Basic Edition Reference Manual (document number ACSBASIC-901-01). This manual is provided in PDF format on the ACS Basic Edition CD-ROM that is included with your shipment of ACS Basic Edition software. It is also available in the Help menu of ACS Basic within the software.

New features and enhancements

- Added support to install ACS Basic software on Windows 10 x 86 (32-bit), or Windows 10 x 64 (64-bit) operating system.
- Added support to install ACS Basic software on Keithley Instruments Model 4200A-SCS Parameter Analyzer (Clarius software version 1.0 or later).
- Added support for autoscan for Keithley Instruments Model 2450, 2460, and 2461 (GPIB connection and SCPI command set in instruments).
- Support autoscan for Keithley Instruments Model KI26x4B (GPIB connection).
- Merged all ACS Basic Software version 2.1 hotfix files.

Critical fixes

The following issues have been corrected in ACS Basic version 2.1.5:

Problem report	Symptom
PR-61408	ACS Basic scanning 2634B does not work.
PR-60558	ACS Basic scanning 2634B does not work. NOTE: If you ran an ITM with a 2634B, you need to add <code>load_old_26xxITM = 1</code> item in the <code>common</code> section in <code>C:\ACS_BASIC\KATs\ACS_Setting.ini</code> file.
PR-60233	Support for running project level tasks.
PR-59776	Configuration of an ITM in ACS Basic cannot be changed with a 2657A instrument.
PR-57406	The graph setting pop-up window does not pop-up.
PR-57405	The PTM library will not load.
PR-57403	ACS Basic displays an ITM run time error when opening the settings.
PR-57274	PTM for control of switching fails to display the GUI.
PR-54716	The 2651A is not programmed to the correct Vcompliance measure range, which is particularly evident on the 100 mV and 1 V ranges.

ACS Basic 2.1.5 Features and Supported SMUs												
ACS Basic Feature	Instruments											Notes
	2400	2600	2600A	2600B	2651A	2657A	Virtual SMU	42xx-SMU	42xx-CVU	2290	237	
Automatic hardware scan and configuration	✓	✓	✓	✓	✓	✓	✗	✓	✓	✗	✗	Model 237 and model 2290 power supply must be manually added as an external instrument. The Virtual SMU must be manually combined in the hardware configuration; supports combining two 2602A, 2602B, two 2612A, 2612B, two 2636A, 2636B, or two 2651A SMUs. Supports autoscan on 2450, 2460, and 2461 instruments in the 2400 series.
ITM	✗	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗	The 2600 ITM supports Series 2600A/B trigger models and supports both DC and pulse measurements. Also supports 265xA high-power SMUs in a safe configuration. Includes built-in test libraries for a variety of devices. The Model 4200 ITM only supports DC measurements.
STM	✗	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗	Can write scripts using the Script Editor tool to achieve maximum speed from TSP-enabled instruments. Supports LPT commands. Includes built-in test libraries for a variety of devices.
PTM	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Can write scripts using the Script Editor tool to achieve maximum speed from TSP-enabled instruments. Supports LPT commands. Includes built-in test libraries for a variety of devices.
Trace Mode	✓	✗	✓	✓	✓	✓	✓	✗	✗	✗	✗	Pulse testing is possible with Series 2600A/B and 2651A. Do not mix different series of SMUs in the same test module. Note that Trace Mode does not support the following touch screen instruments: 2450, 2460, 2561.
General Purpose PTM (Combined_Test_Mixed_SMU.py)	✓	✓	✓	✓	✓	✓	✗	✓	✗	✗	✓	An interactive specific test module that allows you to use different series of SMUs in a safe connection to build a custom test.

Automated Characterization Suite (ACS) Basic Edition Release Notes

Generic HVCV PTM (GenericHVCVlib.py and CVITM.py)	X	✓	✓	✓	✓	✓	X	✓	✓	X	X	An interactive generic HVCV PTM test module that allows you to use different series of SMUs in a safe connection to build a custom test. 3 kV bias tees and 200 V bias tees for the Model 4200 requires ACS installed on the 4200. No remote support. For CVITM this requires KXCI and can be used form a remote computer, with ACS installed on the remote computer.
Device specific HVCV PTM	X	✓	✓	✓	✓	✓	X	✓	✓	X	X	Includes built-in device-specific HVCV test libraries and test modules for a variety of devices. 3 kV bias tees and 200 V bias tees for the Model 4200 require ACS installed on the 4200. Remote computer is not an option.
Mixed SMU Pulse PTM (Mixed_SMUs_pulselib.py)	✓	✓	✓	✓	✓	✓	X	✓	X	X	✓	Mixed model SMUs in pulse mode is available for the following models: 4200, 2657A, 2651A, 2600, 2600A, 2600B, and Series 2400.
Power supply library (PowerSupplyLib.py)	X	X	✓	✓	X	X	X	✓	X	✓	X	The power supply PTM supports the following models: 2290-5, 2290E-5, 2290J-5, and 2290-10. This module can support the following SMUs for measuring the current through the device: 2611A, 2611B, 2612A, 2612B, 2635A, 2635B, 2636A, 2636B, 4200-SMU, and 4210-SMU.
ACS Basic also supports these instruments: - Keithley Models 707A/B 708A/B Switch - Keithley Model 2010 DMM - Keithley Model 3700/3700A Switch/DMM - Agilent 4284 CV Meter							ACS Basic supports these communication interfaces: - GPIB* (NI and Keithley cards only) - LAN* - TSP-Link subordinates *GPIB and LAN cannot be used simultaneously					

Non-critical fixes

The following issues have been corrected in ACS Basic version 2.1.5:

Symptoms

The delay time will not update when importing some libraries.

The bias and sweep switch cause issues when importing some libraries.

Trace mode test takes 30 seconds to stop.

Known issues

Problem report	Symptom
PR-61401	When you install the KUSB-488B GPIB card driver for ACS Basic, you must install the Keithley command-compatible driver. Also, if you install the NI command-compatible driver, Keithley instruments may not get scanned during hardware configuration.
PR-61402	While you are installing ACS Basic software, and after the NI GPIB driver is installed, a pop-up dialog box may indicate an error has occurred and was unable to automatically close all applications (NI error reporting server). Click the IGNORE button and proceed with the installation.

ACS Basic Edition version 2.1

Overview

Version 2.1 is the latest release of the ACS Basic Edition software.

Software compatibility

Version 2.1 software should be used with Keithley Interactive Test Environment (KITE) software version 8.2, or later, with no special configuration requirements.

For GPIB driver compatibility information, see the ACS Basic Edition Reference Manual (document number ACSBASIC-901-01). This manual is provided in PDF format on the ACS Basic Edition CD-ROM that is included with your shipment of ACS Basic Edition software. It is also available in the Help menu of ACS Basic within the software.

New Features

Added a CVU compensation routine that is accessible through the Tools menu.

Added a compensation demo data file; note that the name of the file begins with the following: `factory_8010_`.

Added a 'Device Interface Setting' GUI in the hardware configuration window (it includes the 8010 and 8020 with Bias Tee settings).

Added a Generic HVCV PTM test module with functions switching between C vs. V, C vs. t and C vs. f; it works with both 200 V bias tees and 3 kV bias tees; it supports 4200 SMUs and 26XX and 2657A SMUs; you can access this test module through the import `GenericHVCVlib.py` file in a PTM, or you can open directly in the `CommonLib_CV` test category in single mode.

Added the following nine device-specific PTM libraries under the `PTMLib` folder:

- `Specific_IGBT.py`
- `Specific_nMOSFET.py`
- `Specific_npnBJT.py`,
- `Specific_npnPowerBJT.py`
- `Specific_nPowerMOSFET.py`
- `Specific_pMOSFET.py`
- `Specific_pnpBJT.py`
- `Specific_pnpPowerBJT.py`
- `Specific_pPowerMOSFET.py`

You can access the device-specific PTM libraries by importing the `.py` file in a PTM, or you can open directly in a parametric test category in single mode; you can select it from one of the following devices:

- IGBT: Cce, Cgc, Cge, Cies, Coes, Cres.
- npnBJT, pnpBJT, npnPowerBJT, pnpPowerBJT: Ccb, Cce, Ceb, Cibo, Cobo.
- nMOSFET, pMOSFET, npnMOSFET, pnpMOSFET: Cds, Cgd, Cgs, Ciss, Coss, Crss.

Added a discharge test (Discharge_Test.py) that you can insert in the test sequence; this test discharges bias tees by programming all SMUs to zero volts with 1 mA compliance and turning their outputs on.

In single mode, adjusted the PTM test categories common library in to four different categories: CommonLib_SMU, CommonLib_CV, CommonLib_other, and Mixed_SMU_Mode.

Removed the 'TwoWireResistor_3706' from the Commonlib_SMU test category.

Removed the Resistor_4T device from the GUI for single-mode and multi-mode.

Moved force mode to the advanced dialog in trace mode.

Added step offset and stop on compliance function for trace mode.

Added support for combining KI2602A/B, KI2612A/B, and 2636B in series or parallel.

Added support for combining two KI2651A in Mixed_SMUs_pulselib.

Added PTM support for KI2290-5, KI2290E-5, KI2290J-5 and KI2290-10 power supplies (PowerSupplyLib.py).

Added the ability to save and load reference data in the data window.

Added support for 7072-HVD high voltage matrix cards.

Moved 'hwlimits.ini' file from C:\S4200\sys\kcon folder to C:\ACS_BASIC\KATS\CONFIG folder.

Removed Generic 2 terminal GPI and Generic 4 terminal GPI instrument types from external hardware configuration.

Added 2600 PCT models and PCT-CVU checkbox for parametric curve tracer demo system.

Added support for composite 2600A/B SMUs (combination in parallel or series) in trace mode.

Added the following power device test libraries for trace mode:

- npnPowerBJT, pnpPowerBJT: BVcbo, BVceo, IbcVbe_StepVc
- nPowerMOSFET, pPowerMOSFET: BVdg, BVdss, IgVg_StepVd

Critical fixes

PR51661

Symptom:

In the KI42xxCVU module, the sweeping V in negative direction causes errors in user mode.

Resolution:

This issue has been corrected.

PR51660

Symptom:

In the KI42xxCVU module, the hold time does not work in system mode.

Resolution:

This issue has been corrected

PR51638

Symptom:

“Sense Mode” is not available for the Model 2420 in Combined_Test_Mixed_SMUs.

Resolution:

This issue has been corrected.

PR51631

Symptom:

ACS Basic overwrites the prober file C:\s4200\sys\kcon\sysconfiginfo.ini when installing on a system with KITE already installed.

Resolution:

This issue has been corrected.

PR51595

Symptom:

You will receive a Licensekey.txt invalid when using Windows 7 without a network connection.

Resolution:

This issue has been corrected.

PR51198

Symptom:

Errors are generated when using switchctrl.py to select Slot 1, column 1 to 9, in a 707B switch.

Resolution:

This issue has been corrected.

PR51145

Symptom:

ITM Dual sweep mode sometimes applies incorrect step size to sweep.

Resolution:

This issue has been corrected.

PR51144

Symptom:

Limited autoranging does not work in ITMs.

Resolution:

This issue has been corrected.

PR51085

Symptom:

Timing button doesn't work when VMeter is selected.

Resolution:

This issue has been corrected.

PR50570

Symptom:

Large datasets (10,000 points) may fail to plot correctly.

Resolution:

This issue has been corrected.

PR47928

Symptom:

When combining 2651A SMUs (100 A) for a current sweep, Transient Capture Mode may result in incorrect output levels.

Resolution:

This issue has been corrected.

PR46995

Symptom:

nPowerMOSFET VgsON characterization may give bad results.

Resolution:

This issue has been corrected.

PR46992

Symptom:

pPowerMOSFET VgsON characterization may give bad results.

Resolution:

This issue has been corrected.

Features and Supported SMUs

ACS Basic 2.1 Features and Supported SMUs											
ACS Basic Feature	Instruments									Notes	
	2400	2600	2600A	2600B	2651A	2657A	42xx-SMU	42xx-CVU	237		
Automatic hardware scan and configuration	✓	✓	✓	✓	✓	✓	✓	✓	✓	✗	Model 237 must be manually added as an external instrument.
ITM	✗	✓	✓	✓	✓	✓	✓	✗	✗	✗	The 2600 ITM supports Series 2600A/B trigger model and it supports both DC and pulse measurement. It also supports 265xA high-power SMUs in a safe configuration. Includes sample test modules for a variety of devices in ACS\Test Module Template\subsite directory. The Model 4200 ITM only supports DC measurements.
STM	✗	✓	✓	✓	✓	✓	✗	✗	✗	✗	Can write scripts using the Script Editor or Test Script Builder tool to achieve maximum speed from TSP-enabled instruments. Supports LPT commands. Includes device test libraries and wafer-level reliability (WLR) library in ACS\library\26library directory.
PTM	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	Can write scripts using the Script Editor tool to achieve maximum speed from TSP-enabled instruments. Supports LPT commands.
Trace Mode	✓	✗	✓	✓	✓	✓	✗	✗	✗	✗	Specific test module with interactive style that allows you to use different series of SMUs in a safe connection to build a custom test. Includes sample test modules for a variety of devices in ACS\Test Module Template\subsite directory.
General Purpose PTM (Combined_Test_Mixed_SMU.py)	✓	✓	✓	✓	✓	✓	✓	✗	✓	✓	Two types of CTMs: ACS classic style and advanced style (support CTM list). Classic style CTM contains one test module, but the advanced style CTM contains many test modules.

Generic HVCV PTM (GenericHVCV/lib.py and CVITM.py)	X	√	√	√	√	√	√	√	X	Can write scripts using the Script Editor or Test Script Builder tool to achieve maximum speed from TSP-enabled instruments. Supports LPT commands. Includes device test libraries and wafer-level reliability (WLR) library in ACS\library\26library directory.
Device specific HVCV PTM	X	√	√	√	√	√	√	√	X	Can write scripts using the Script Editor tool to achieve maximum speed from TSP-enabled instruments. Supports LPT commands.
Combined SMUs	X	X	√	√	√	X	X	X	X	Includes HCI and NBTI, Fast-NBTI, Time dependent dielectric breakdown (TDDB_CVS), Voltage ramp (Vramp), Ramped current (Jramp), Electromigration (Iso_EM) and Poly_Heater modules. Includes VDS Sample Tests in ACS\Test Module Template\device\Vds Reliability directory.
ACS Basic also supports these instruments:						ACS Basic supports these communication interfaces:				
<ul style="list-style-type: none"> - Keithley Models 707A/B 708A/B Switch - Keithley Model 2010 DMM - Keithley Model 3700/3700A Switch/DMM - Agilent 4284 CV Meter 						<ul style="list-style-type: none"> - GPIB* (NI and Keithley cards only) - LAN* - TSP-Link subordinates <p>*GPIB and LAN cannot be used simultaneously</p>				

Enhancements

PR53796

Enhancement:

Upgrade GPIB driver relate file ieee_32m.dll version from 8.2 to 9.3.

PR53781

Enhancement:

Updated the hardware configuration (demo) window to include the new PCT configurations.

PR51765

Enhancement:

Test module name first character must be A-Z or a-z when export a test.

PR51702

Enhancement:

Added the RPM_config PTM to control the RPM.

PR48068

Enhancement:

Mixed mode PTMs are now accessible from "Mixed_SMU_Mode" under the Test Category in the main GUI.

PR47755

Enhancement:

Add the CV tests Ciss, Coss, and Crss test modules for Power Transistors under Parametric in Single Mode.

PR47558

Enhancement:

For the breakdown test libraries in Trace mode, sweep is improved to provide more resolution near the breakdown voltage.

PR46939

Enhancement:

When performing a breakdown test, the last curve before reaching compliance is saved. The "Stop on compliance" function is added in Trace Mode to implement this feature.

PR46361

Enhancement:

Added offset to step generator in Trace mode.

PR44560

Enhancement:

Moved Sense Mode (Local/Remote) and Force Mode (DC/Pulse) to the advanced settings in Trace mode.

Noncritical fixes

PR51621

Symptom:

Y1, Y2 label missing when save plot as a PNG type.

Resolution: This issue has been corrected.

PR51614

Symptom:

Append data is missing after a test module name change.

Resolution: This issue has been corrected.

PR51548

Symptom:

For on-state device-specific tests for FETs and IGBTs, increasing the default current compliance of the gate SMU is not sufficient.

Resolution: Gate compliance is increased to 100 mA.

PR50812

Symptom:

The duty cycle setting is not updated when you reopen Advanced Settings in Trace mode.

Resolution: This issue has been corrected.

PR50811

Symptom:

In Trace mode, pulse width is not disabled when Force mode is DC.

Resolution: This issue has been corrected.

PR50765

Symptom:

The Trace mode IgVg_StepVd_nMOSFET posts redundant data.

Resolution: This issue has been corrected.

PR48906

Symptom:

In Single mode, when you select DIODE and open DynamicZ_24XX ITM, the test is blank.

Resolution: This issue has been corrected.

PR48829

Symptom:

The sweep slider in Trace mode is defaulted to 100% instead of 0% when a test is loaded.

Resolution: This issue has been corrected.

PR48386

Symptom:

The SMU Sense mode setting is not recorded when you export a 2600 ITM test.

Resolution: This issue has been corrected.

PR48316

Symptom:

When ACS is installed after installing KTEI, the file userlib.mak is overwritten.

Resolution: Move your KULT files to the userlibs.inc file.

PR47721

Symptom:

When you save a graph as an image, the image is not saved with the standard horizontal and vertical size ratios.

Resolution: This issue has been corrected.

PR47692

Symptom:

GeneralTest PTM GUI is not be displayed in Single mode when connected to a Model 2400.

Resolution: This issue has been corrected.

PR47687

Symptom:

In trace mode, contact check is enabled on all SMUs whether they are used in the test setup or not.

Resolution: This issue has been corrected.

PR47367

Symptom:

The test for nPowerMOSFET is missing in trace mode.

Resolution: This issue has been corrected.

PR46919

Symptom:

A common ground symbol instead of an earth ground symbol is used in pin connection diagrams in single mode and the ACS Basic Edition Libraries Reference Manual.

Resolution: This issue has been corrected.

PR46780

Symptom:

In the "Pads-SMUs Mapping" table under Device Settings, the pad number column creates confusion because the SMU numbers are shown in the device diagram instead of pad numbers.

Resolution: This issue has been corrected.

PR46730

Symptom:

Switchctrl GUI is truncated after switching between modules.

Resolution: This issue has been corrected.

PR46607

Symptom:

The graph "Comments" and "Comments 2" display overlap.

Resolution: This issue has been corrected.

PR46362

Symptom:

The voltage output for the 2600A/265xA does not update in the front panel display while running an ITM if connected as the master instrument.

Resolution: This issue has been corrected.

Known issues

PR51016

Symptom:

After installing Python 27, the ACS Basic user environment value is missing.

ACS Basic Edition version 2.0

Overview

Version 2.0 is a maintenance release of the ACS Basic Edition software.

Software compatibility

Version 2.0 software should be used with Keithley Interactive Test Environment (KITE) software version 8.2 with no special configuration requirements.

For GPIB driver compatibility information, see the ACS Basic Edition Reference Manual (document number ACSBASIC-901-01). This manual is provided in PDF format on the ACS Basic Edition CD-ROM that is included with your shipment of ACS Basic Edition software. It is also available in the Help menu of ACS Basic within the software.

Critical fixes

PR45974

Symptom:

ACS Basic will not open after upgrading from the previous software version.

Resolution:

The issue was with the KTEI version not getting checked by the new upgrade, however, that has been corrected and will not be an issue with future versions.

PR45460

Symptom:

While utilizing the Combined Test Mixed SMUs module to setup a Model 237 sweep test, sometimes the 237 keeps forcing after the test is finished, and you have to manually stop the 237 using the front panel.

Resolution:

This issue has been corrected.

PR46353

Symptom:

While performing ITM testing and de-selecting (or un-checking) the 'Auto' checkbox in the 'Axis Settings' properties page, it will remain checked while the test is performed.

Resolution:

This issue has been corrected.

PR46280

Symptom:

Selecting the Valid for Series checkbox in the XY plot GUI and then going back to the test GUI, the 'Valid for Series' checkbox will change to un-checked and the X label on the plot is missing.

Resolution:

This issue has been corrected.

PR46028

Symptom:

Attempting to abort the ITM testing on the Model 4200-SCS instrument is not working.

Resolution:

This issue has been corrected.

PR45461

Symptom:

While appending a test and saving the test data to a .csv file, the appended data is not correct in the saved file.

Resolution:

This issue has been corrected.

PR44138

Symptom:

While importing PTM information to the PTM GUI and checking the hardware configuration, then switching back to the test GUI, the imported data does not get saved.

Resolution:

This issue has been corrected.

Enhancements

PR46538

Enhancement:

Added an abbreviated channel notation in the Test info bitmap and Device view.

PR46524, PR45722

Enhancement:

When you export a test module and you want to make modifications, you can use your keyboard to break a line by pressing the Enter key. Also, any content that you edit will be highlighted.

PR46510

Enhancement:

Added the following demo configurations for customers who will use the Demo mode of ACS Basic: 1. High Power Demo System; 2. Customized Demo System.

1. The High Power Demo System allows for a 2651A and 2657A to be present in the hardware configuration.
2. The Customized Demo System allows you to specify varied combinations for 26xx, 42xx, and other instruments, within the hardware configuration depending on your needs and preferences.

Note that the High Power Demo System is the default hardware configuration for Demo mode.

PR41828

Enhancement:

Added an additional column to the Advanced Settings table for the "Meas Var" (measure variable). Now you can select the measure variable and the measurement range for each SMU.

PR46377

Enhancement:

In Multi-test mode, when two or more devices of the same type exist and you want to add a new device of the same type, when you click the Add Test button you will get a dialog box where you select the device and choose where the new test will be located in the configuration navigator.

PR44553

Enhancement:

Able to right-click on devices in the configuration navigator and rename, copy, paste. Also, you can right-click in the configuration navigator in order to create a new PTM, STM, or an ITM.

PR40704

Enhancement:

Removed the pad number (pad No.) from ACS Basic device view window.

PR44475

Enhancement:

Provided you the ability to individually select which SMU has remote sense enable in Trace mode.

PR42812

Enhancement:

Added a function that allows you to save test data, test status, and the graphic to a .xls file for manual testing on the data page.

PR42523

Enhancement:

Added a dual sweep and a log sweep for the Model 4200 ITM.

Noncritical fixes

PR46536

Symptom:

Need to set the Model 2651A (when not in use) in high-impedance state when two 2651As are used in parallel.

Resolution:

This issue has been corrected.

PR46561, PR46358, PR46278

Symptom:

The data plotting and the related data are not displayed properly when the window is re-sized.

Resolution:

This issue has been corrected.

PR46553

Symptom:

In the CommonLib, some of the test modules contain mismatched device types.

Resolution:

This issue has been corrected.

PR46352

Symptom:

When you run a test and append the test results to the previous test, the text is the same color as the previous test text.

Resolution:

This issue has been corrected.

PR46056

Symptom:

In the PTM standard GUI, if an input or output parameter has no comment, a blank tooltip is shown.

Resolution:

This issue has been corrected.

PR45705

Symptom:

In the PTM module Combined Test Mixed SMUs, the first time you open Select SMU of the Test Module window, the highlighted SMU shows None in the SMU info.

Resolution:

This issue has been corrected.

PR45701

Symptom:

When running the mixed SMUs test in single mode an error may display in the log window, if the timestamp is enabled and you select **None** for the measure variable parameter.

Resolution:

This issue has been corrected.

PR45315

Symptom:

Not able to add an external instrument using a GPIB address and remove the instrument and then add another external instrument using the same GPIB address.

Resolution:

Enabled the ability to easily remove and add an external instrument using the same GPIB address. This issue has been corrected.

PR45313

Symptom:

While utilizing the Graphically Define a New Device tool, if an invalid pad name or device name is input, the new device cannot be used.

Resolution:

Added an error check for the device name and pad name. This issue has been corrected.

PR44955

Symptom:

While connecting Model 70xB as group 1 and Series 2600B as group 2, and you setup the 70xB GPIB address lower than the 2600B, you will not be able to find and assign the 2600 SMUs after adding a device.

Resolution:

The priority will now be to assign the 2600B as group 1 when the hardware is scanned. This issue has been corrected.

PR46357, PR44556

Symptom:

It is not possible to right-click on the X or Y data column in a plot and select remove. In other words, the line will not be removed from the plot.

Resolution:

Added an Update checkbox in the Preference dialog box to ensure that the X or Y data column in a plot is removed when selected. This issue has been corrected.

PR46314 PR42036

Symptom:

Need the ability to change the name of the legend labels.

Resolution:

Added a Legend Settings on the data plot. Right-click the menu on the plot in order to change the legend name. This issue has been corrected.

PR46022

Symptom:

In Single Mode, the instrument's model names are displayed out of order in the Instrument Models Selection box.

Resolution:

This issue has been corrected.

PR45198

Symptom:

When you select SMU in the Combined Test Mixed SMUs module, the SMU text is highlighted and not inverted.

Resolution:

This issue has been corrected.

PR44707

Symptom:

If an invalid password is used while logging in to ACS Basic in Demo mode, the checkbox for Demo Mode is un-checked and must be selected again before entering the password.

Resolution:

This issue has been corrected.

PR44557

Symptom:

The PTM import default path is changed after saving a .csv file to the user default directory.

Resolution:

This issue has been corrected.

PR42269

Symptom:

In a data plot, the cursors disappear when aligned with the gridlines.

Resolution:

This issue has been corrected.

Known issues

PR46528

Symptom:

When you connect Series 2600A instruments (group 1), and connect Series 2600 instruments (non-A in group 2), and select multiple ITM groups for testing, there will be errors in group 2. The instruments in different groups must be the same type in order to avoid errors.

PR43674

Symptom:

When you open an ACS standard project while using ACS Basic, or open an ACS Basic multi-mode project while using ACS standard version, the project may not open. In ACS Basic V2.0 you can open ACS V4.4 or lower version, and in ACS V4.4 you can open ACS Basic V1.3 or lower version for a multi-mode project. Note that you should not open a single or trace mode project while using ACS standard.

ACS Basic Edition version 1.3

Overview

Version 1.3 is a maintenance release of the ACS Basic Edition software.

Use ACS Basic Edition software with Keithley Interactive Test Environment (KITE) software version 7.0 or later with no special configuration requirements.

- Added Windows 7 x 86 (32-bit) and Windows 7 x 64 (64-bit) operating system support.
- Added the Model 2651A instrument support. When connected properly, the instrument will be scanned and added automatically within the hardware configuration.
- Added support for the Model 2651A DC and pulse sweep in trace mode.
- Added support for combining two Model 2651As in trace mode to produce up to 100 amps or 80 volts.
- Added IGBT device library in trace mode with support for the following tests: ICES, IcVce_StepVge, IcVge_StepVce, IGES, and VceSAT.
- Added RdsOn test module to the nMOSFET and pMOSFET devices in trace mode.

Critical fixes

- Removed changes from KCON files on the Model 4200 that were formerly made during ACS Basic installation.
- Improved the speed of aborting a test after you select the Stop button.
- Turned off the SMU outputs when aborting a test.
- Upgraded the default menu items for operator mode.
- Repaired the operator functionality so that you can return to the library GUI to select other tests in single-test mode.
- Repaired the open library functionality in single-test mode so that an unexpected library will not open.
- Repaired the Script Editor function (button) on the vertical toolbar to open a library from the configuration navigator.
- Improved the scan hardware functionality to reflect the IP address changes in an Ethernet connection.
- Eliminated the possibility of having two or more modules with the same name in Script Editor.
- Repaired the export a library to the UserLib from the Script Editor so that the test modules display immediately.
- Limited the end used from exporting an ITM to a 24xx, 2651A, GPI, KI70x, 42CVU, and KI37xx instrument.
- Repaired the PTM and STM rename function so that you will not receive an error when using the rename button on the vertical toolbar.
- Repaired the TSP LPT setHighImp_forcel so that it works as defined.
- Repaired the test result of the Vtext_24XX module so that it is correct in the pMOSFET test.
- Improved the speed of stopping a connection test function in the IP connection test window.

Non-critical fixes

Upgraded the ACS Basic Reference manual and improved the quality of the content.

Upgraded the USB license key driver in order to support Windows 7 operating system.

Updated when you set the number of steps to 1 and obtain 1 curve on the plot.

Increased the number of steps for the current step source function.

Improved functionality so that you can create test module for each device individually in the device library.

Added and enabled a DMM function to the Model KI37XX_DMM_Switch module.

Disabled the Tools -> Preferences menu for an Operator.

Added error checking with Group availability to Single Mode testing.

Repaired the plot name for clarification.

Repaired the add cursor functionality so they are not "attached" to Y1: Floating.

Repaired the cursor issue so that it remains viewable after it makes it to Minimum or Maximum.

Enhancements to the Model 3706 functions (KI37XX_DMM_*) for Ethernet connections: added node info for TSP Lib DMM and changed the GPIB address to the Matrix name for pyLibrary DMM.

Eliminated the issue of having to hard reset an instrument when a connection is lost when using an Ethernet connection.

Removed the import library function (button). Now you can only import/open the libraries in PTMLib folder.

Improved the way errors are indicated by forcing the log window to display when an error occurs (even if the log window is not opened).

Disabled the Add and Remove device buttons under User Defined for operator mode.

Double-click a project name will open a project in operator mode.

Added the system User environment and can save in support info file.

Changed the temporary license from two weeks to 30 days.

Disabled the option for the end user to make a new project as read only. The checkbox has been disabled and it is not an option as this time.

Removed the S530SN item from troubleshooting.

Created a dialog box that will allow you to continue or break the current Ethernet connection.

Repaired the dialog box when you open a project and decide to cancel opening the project so that ACS Basic closes; it will remain open so that you can choose another project to open.

Disabled the clear append function on the device level.

Disabled the up and down buttons in the module description and log console tabs in Script Editor.

Repaired the default of the enum data type so that it is correct in Script Editor.

Repaired the button and the customize GUI type so that they match in Script Editor.

Added an error check for the module name when you export a test.

Disallowed the end user to input special characters as a pad name and the device name.

Disallowed the end user to create two identical pad names.

Repaired the misspelled words in the steps to create a new device.

Repaired the postdata command, variable name "111" that caused an error.

Added content to the ACS Basic Reference Manual regarding the GPIB Driver Compatibility that was contained in a separate document.

Repaired the test help format issue that occurred when you exported a test module.

Repaired the test info bitmap error in Single-test mode (for the Series 2600).

Repaired the TSP LPT show SMU issue that caused an error to the Series 2600 instrument with only one SMU.

Fixed both the IBEO_24XX and ICEO_24XX modules so they will run.

Repaired the Series 2400 test so that you can restore the SMU from GND to the SMU1 of the SMU resource, in Single-test mode.

Removed the existing BVGSO variable in the data sheet of the idvd_biasVG_24XX module.

Updated the Model 2636A and Model 2636 visit web page information in the hardware configuration files.

Repaired the backspace issue to clear the Max source value box for the step panel so that you will not receive an "Invalid max source value" error.

Repaired the "Select SMU for test module" for Device Terminals so that all the terminals do not need an SMU assigned. If you do not assign an SMU, the terminal will indicate NONE.

Repaired misspelling and grammar issues in ACS BASIC when selecting an SMU.

Known issues

- ACS Basic will not run and does not support using a, KPCI-488LPA, or KPCI-488LP GPIB card in Trace mode.
- ACS Basic cannot scan instruments when the Series 2600A firmware is version 2.1.6 and a 2600A instrument is the master to a Model 2651A using a TSP-Link cable. You can refresh the 2600A firmware version to 2.1.3 or 2.1.1 to solve this issue.
- ACS Basic does not support the use of fast A/D on the Keithley Model 2651A System SourceMeter instrument.
- The Model KI2651A instrument model is not supported within an ITM.
- If you have a previous version of ACS Basic software installed on a PC and you are updating to ACS Basic v1.3, you will need to perform the following operations first:
 1. Uninstall the previous version of ACS Basic.
 2. Go to the C:\S4200 directory on your computer and rename it to C:\S4200_old.
 3. Remove the C:\ACS_Basic\KATS\KATS_pref.ini file.
 4. Install ACS Basic v1.3.
- In Windows 7 operating system, you will need to keep the network cable plugged-in if you are using a license file. If the network cable is removed, ACS Basic considers your license file invalid.

- In Windows 7 operating system, when you install software or update the USB license key, you may encounter a User Account Control (UAC) error. If you encounter this error, click the Yes button to continue and perform the following steps to turn off the UAC error:
 1. Go to Control Panel -> User Account and Family Safety -> User Accounts.
 2. Select a user then click Change User Account Control setting.
 3. On setting dialog, move the notify slide to Never notify and click OK to save it.
- Trace mode only supports SCPI protocol for the Series 2400 SourceMeter instruments. It does not support 488.1 protocol.
- Trace mode does not support instrument control over an Ethernet communication interface.
- Trace mode only supports Series 2400 and Series 2600A SourceMeter instruments. However, Trace mode does not support the use of SMUs from different product series in a single test.
- If a .dll conflict error is generated during ACS Basic installation, use Windows Task Manager to end the UTMServer or the KTMServer processes. Click Retry to continue installation.
- If KITE or a Keithley / CEC GPIB interface driver is uninstalled after ACS Basic has been installed, ACS Basic may not function due to .dll errors. To resolve this issue, reinstall ACS Basic.
- If the National Instruments (NI) GPIB interface driver or NI VISA software is uninstalled after ACS Basic has been installed, you must reinstall ACS Basic.
- ACS Basic only supports Keithley / CEC488 GPIB drivers 8.2 or above.
- If installing the NI GPIB interface driver NI-488.2 v2.7.3 or above, choose to also install the NI VISA option. If the NI VISA driver is not installed, the instruments may not respond when running PTMs or during Trace mode.
- If the User Defined device type is deleted, any projects previously created using this device will not function correctly.
- If ACS Basic is installed on the Model 4200-SCS instrument and KITE is version 7.2 or lower, add the statement Get4200HWCtrl() to the PTM. This is critical to maintaining control of 4200-based instruments when running PTMs immediately after ITMs. The Get4200HWCtrl() is in the ACS_PostData module.
- On the Model 4200-SCS instrument, if a test is aborted and the "Measuring" LED of the 4200 remains lit, close and reset the 4200 hardware (in the command line, run resethw). Then restart ACS Basic.
- On the Model 4200-SCS instrument, by default, KXCI starts when ACS Basic launches. To prevent KXCI from starting with ACS Basic, set the start_kxci value to 0 in the ACS_setting.ini file. The ACS-setting.ini file can be found in the directory \ACS BASIC\KATS. For example, if a PTM is running and you abort the test before it is finished, you must restart ACS Basic because of a hardware usage conflict between PTM and KXCI.
- ACS Basic cannot be launched using remote computer control software (for example, VIN, Windows XP Remote Desktop) when a USB license key is used. In order to use ACS Basic through remote computer control software, ensure that ACS Basic is already started on the remote computer.
- If additional problems are encountered, go to the Help drop-down menu in ACS Basic and select Trouble Shooting. Next, click Zip Support. The Zip file will be saved to the following directory: ACS_BASIC\KATS\support_info. Next, send the saved file by e-mail to the following address: info@keithley.com.
- ACS Basic only supports the English language. Errors may occur when saving and opening ACS Basic files if characters from other languages appear within the names of directories on the computer.

- The backup folder is under ACS_BASIC\KATS\backups, and it contains the following projects:
 - verification_project
 - single_mode_lab
 - multi_mode_lab
 - trace_mode_lab
 - CVU_CpGp_Compensation
 - Solar_Cell_24XX
 - SolarCell

ACS Basic Edition version 1.2

Enhancements:

- Added Trace mode for interactively testing device without risk of device damage (replaces previous versions' curve tracer test module)
- Added support for multiple users in Window XP.
- Upgraded for CVITM library to include test modules
- Solar Project enhancement added the following test modules: CVTest, PulseIVRseries, PulseIVRshunt and PulseIVSweep
- Instrument information appears as a tooltip when moving or hovering the mouse cursor over pad button on device map
- Updated the "Graphically define a new device" tool: added pad setting dialog, using matrix mode to set pad setting

Critical fixes

There were no critical fixes included in this release.

Non-critical fixes

- While installing ACS Basic, the KXCI patch and old KILPT.dll will be copied to ACS Basic automatically if KITE version is less than v7.0
- USB License enhancement: ACS Basic and ACS on same PC with two different USB keys
- Removed former Curve tracer library
- Disabled Auto-Load Project and Default Project path in preferences
- Get latest Series 2600A firmware images for distribution
- During ACS Basic installation, a registry check should be performed instead of Choose install platform dialog box
- Adjusted device bitmap for Series 2400-based test modules, fixed user cannot preview test conditions
- Added the Add Cursor feature to Plot window in ACS Basic
- Exit ask for confirmation
- Added Combined_Test_Mixed_SMUs.py section in ACS Basic Reference manual
- Fixed Evaluation license generating description in reference manual

ACS Basic Edition version 1.1

Overview

Version 1.1 is a maintenance release of the ACS Basic Edition software.

Critical fixes

There were no critical fixes included in this release.

Non-critical fixes

- Set default install path to ACS_Basic
- Allow KXCI program on 4200-SCS to show GUI or not by the display_flag setting in ACS_setting.ini
- Updated interval setting for ITM sampling
- Added TSP libraries under TSPLib that ScriptEditor couldn't view
- Updated Series 2400 Library to define MAX_SIZE variable
- Added Cancel button on warning dialog box that appears when an invalid license is detected
- Improved management of enabled and disabled tests during device loop run on a project
- Enabled save button of hardware configurator when appropriate
- Updated default value of IP Address Range
- Cleared IP Address in Ethernet communication interface
- Updated login bypass function so that it is no longer inverted
- Updated ITM so that test conditions match device setting when using CommonLib tests
- Added GPI (General Purpose Instrument) to instrument modules list
- Improved thumbnail view on user defined device creation tool
- Fixed Ethernet communication so that it correctly updates instrument list
- Improved device looping behavior
- Improved hybrid ITM functionality
- Updated device editor to function in multi-mode
- Updated IP Address settings to save correctly
- Improved group scanning over Ethernet
- Improved log file naming convention for dates
- Added XRC readme file
- Removed error dialog on test stop
- Added popup to remind user to restart after changing configuration
- Added 2400 configuration control of front/rear connectors, safety interlock, and beeper enable

- Improved About box to add OK button
- Updated ITM to save appended data after test name is changed
- Limit Common Settings for hybrid ITM to meaningful and valid responses
- Keep IP addresses and range settings when switching communication mode
- Saved custom instruments through scanning and save configuration operations
- Disallow clearing of user account passwords
- Linked hybrid ITM test setup to local devices and save the device setting
- Updated text in firmware update process and updated installer text
- Improved on ITM errors when conducting many samples in a test or using Ethernet communication

If you have questions or need further assistance, contact your local Field Applications Engineer.