Release Notes for Firmware of H&H PLI Series Electronic Loads

Contact H&H to check possibility of firmware update for your specific device. Provide serial number.

Concerning Components:

AI: Analog Interface Board
DI: Data Interface Board
UI: User Interface Board
GI: GPIB Interface Board

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1 Multi-Range Models (PLI MR)

Firmware Release: AI1.3.0 DI1.3.1 UI1.3.0

New Features/Added

- Added binary block transfer for data reading from the internal memory according to IEEE488.2 Definite Length Block Response Data.
- Added SyncroLink mode for RS-232 interface.

Enhancements / Changed

- Extended FRAM driver to work with different devices.
- Enhanced CAN transmit function.
- FORMat:DATA command only affects formatting of measurement data queried by DATA:REMove?

Bugfixes / Corrected

- n. a.

Backwards Compatible
Hardware: yes
Software: yes

Firmware Release: AI1.2.0 DI1.2.0 UI1.2.1

New Features/Added

- n. a.

Enhancements / Changed

- Added functionality to enter UI bootloader from application.

Bugfixes / Corrected

- n. a.

Backwards Compatible
Hardware: yes
Software: yes

Firmware Release: AI1.2.0 DI1.2.0 UI1.2.0

New Features/Added

- Added functionality for external voltage level measurement.
- Added functionality for external control with active power or resistance regulation mode.
- Added functionality for getting last buffered data point.

Enhancements / Changed

- Added "Factory Settings" entry to the "Configuration" menu if the device is in slave mode.

- Removed possibility to combine voltage list execution with discharge function execution.
- Disabled auto-dimming during UI color tests.
- Added the ability to switch UI color test screens back and forth with the rotary encoder.

Backwards Compatible
Hardware: yes
Software: yes

Firmware Release: AI1.1.1 DI1.1.0 UI1.1.0

Enhancements / Changed

- Optimized synchronization between software regulator and hardware protections as well as between voltage control and ZV functionality.

Backwards Compatible
Hardware: yes
Software: yes

Firmware Release: AI1.1.0 DI1.1.0 UI1.1.0

Enhancements / Changed

- Added functionality for triggered input state.
- Integrated error codes for device-specific setting conflicts.
- Added parameters and extended functionality for debouncing the questionable status bits OV, RV, UV.
- Completed functionality for master-slave mode.
- Improved wrapping function in Technical Data dialog.
- Improved comparison of Toggle Setting Values before the range is changed.
- Removed displaying of range change info text on slave devices.

Bugfixes / Corrected

- Fixed max. current calculation in Technical Data dialog.

Backwards Compatible
Hardware: yes
Software: yes

Firmware Release: AI1.0.0 DI1.0.1 UI1.0.3

Enhancements / Changed

- Changed the frequency for controlling the backlight of the display.
- Removed Timer State checkbox from the Charger Starter Settings dialog.
- Renamed Delay timer to Auto-off timer.
- Restricted control of USB logging function to local operation mode.
- Added status "Fu logging" to the discharge main screen.
- Removed support for command/query CSTarter:OUTPut:TIMer[:STATe].

Backwards Compatible
Hardware: yes
Software: yes

Firmware Release: AI1.0.0 DI1.0.0 UI1.0.2

Enhancements / Changed

- Added continuous execution of the data logging function for the main graph view.
- Added Main Screen and Graph Screen Settings dialogs to the menu content of slave devices.
- Added possibility to enter the relative adjustment points with one decimal place.
- Replaced temperature unit text "deg C" by "°C" in Cooling dialog window.

Backwards Compatible
Hardware: yes
Software: yes

Firmware Release: AI1.0.0 DI1.0.0 UI1.0.1

Enhancements / Changed

- Enhanced display of the measurement resolutions per division in MPPT main screen.

Backwards Compatible
Hardware: yes
Software: yes

Firmware Release: AI1.0.0 DI1.0.0 UI1.0.0

New Features/Added

- Initial release with multi-range functionality basically with the features of single-range firmware AI4.3.x DI4.3.x UI4.3.x

Backwards Compatible
Hardware: -
Software: -

2 Single-Range Models

Firmware Release: AI4.6.0 DI4.6.1 UI4.6.0

New Features/Added

- Added binary block transfer for data reading from the internal memory according to IEEE488.2 Definite Length Block Response Data.
- Added SyncroLink mode for RS-232 interface.

Enhancements / Changed

- Extended FRAM driver to work with different devices.
- Enhanced CAN transmit function.
- FORMat:DATA command only affects formatting of measurement data queried by DATA:REMove?

Bugfixes / Corrected

- n. a.

Backwards Compatible
Hardware: yes
Software: yes

Firmware Release: AI4.5.0 DI4.5.0 UI4.5.1

New Features/Added

- n. a.

Enhancements / Changed

- Added functionality to enter UI bootloader from application.

Bugfixes / Corrected

- n. a.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.5.0 DI4.5.0 UI4.5.0

New Features/Added

- Added functionality for external voltage level measurement.
- Added functionality for external control with active power or resistance regulation mode.
- Added functionality for getting last buffered data point.

Enhancements / Changed

- Added "Factory Settings" entry to the "Configuration" menu if the device is in slave mode.

- Removed possibility to combine voltage list execution with discharge function execution.
- Disabled auto-dimming during UI color tests.
- Added the ability to switch UI color test screens back and forth with the rotary encoder.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.4.1 DI4.4.2 UI4.4.4

Enhancements / Changed

- Improved wrapping function in Technical Data dialog.
- Improved comparison of Toggle Settings in Mode dialogs.
- Enhanced Reset, Save and Recall function.
- Enhanced processing of cooling mode if device is in master mode.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.4.1 DI4.4.2 UI4.4.3

Enhancements / Changed

- Changed the frequency for controlling the backlight of the display.
- Removed Timer State checkbox from the Charger Starter Settings dialog.
- Renamed Delay timer to Auto-off timer.
- Removed support for command/query CSTarter:OUTPut:TIMer[:STATe].

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.4.1 DI4.4.1 UI4.4.1

New Features/Added

- Added functionality for triggered input state.
- Added functionality for buffering current/voltage measurement value during stop of discharge function.
- Added voltage and current readings at the moment of discharge function termination to the discharge main screen.
- Added voltage and current values at the moment of switch-off of the discharge function to the USB logging file.
- Added status "Fu logging" to the discharge main screen.

Enhancements / Changed

- Optimized resynchronization with external ADC after firmware update.

- Restricted control of USB logging function to local operation mode.
- Prevented the start of the USB logging controlled by the discharge function during the execution of the follow-up time.

Bugfixes / Corrected
- Corrected error in master-slave mode for checking type of slave devices.
- Fixed bug that in some cases unit "mmA" for the setting value was displayed in main screen.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.3.0 DI4.3.0 UI4.3.1

Enhancements / Changed
- Added continuous execution of the data logging function for the main graph view.
- Added Main Screen and Graph Screen Settings dialogs to the menu content of slave devices.
- Added possibility to enter the relative adjustment points with one decimal place.
- Replaced temperature unit text "deg C" by "°C" in Cooling dialog window.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.3.0 DI4.3.0 UI4.3.0

New Features/Added
- Added commands/queries for user-specific messages and signal tones.
- Added functionality for getting MPPT and list execution status (time and points).
- Added functionality for getting status of memory positions for settings.
- Added functionality for resetting triggered levels by abort command.
- Added functionality for debouncing of questionable status signals OV, RV and UV.
- Added possibility to update GPIB and CSI firmware in production mode.
- Added shortcut popup window.
- Added a LIST function specific main screen.
- Added product string macro in order to unify source code for series PLI (B), PLI-MR and ERI (B)

Enhancements / Changed
- Optimized recalling of settings.
- Changed grouping and the order of the signals in the status window.
- Enhanced the error queue management for local and remote errors.
- Changed time representation in IRES and DISC function specific main screens.

Backwards Compatible

Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.2.0 DI4.2.0 UI4.2.4

New Features/Added

- Added firmware versions and system unit mode to the exported setting file.
- Added Alarms dialog.

Enhancements / Changed

- Enhanced "Help" popup window.

Bugfixes / Corrected

- Fixed bug which occurred during settings import in system unit mode MASTER.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.2.0 DI4.2.0 UI4.2.3

New Features/Added

- Added "USB Locked" icon which is displayed if there are any open files on the USB flash drive on UI.
- Added storage of the product ID into the backup registers before starting the firmware update on UI.

Enhancements / Changed

- Improved displaying of questionable register signals in the status window.
- Improved switching between functions in order to avoid settings conflicts if ACQ is enabled.
- Improved widget placement in "Import Settings form File" screen.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.2.0 DI4.2.0 UI4.2.2

Note: The settings memory on UI becomes invalid after this update. Reset to factory settings after the update!

New Features/Added

- Added Toggle Setting functionality for simple one-keypress changes on UI.
- Added displaying of max. resistance value in Technical Data screen.

Enhancements / Changed

- Encapsulated functions in module UI which are used for save and recall settings.
- Enhanced displaying of max. current, power and resistance values in Technical Data screen if the device is in unit mode Master.
- Enhanced indication of RV and OV conditions in order to allow entering the parameter menu during pending RV or OV conditions.
- Enhanced widget order for a more meaningful movement of the graphical cursor in LAN Configuration dialog.
- Enhanced the user notification before changing the operating mode if the external signal "Function mode" is enabled.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.2.0 DI4.2.0 UI4.2.1

Bugfixes / Corrected

- Fixed error when calling "Import list from USB" via shortcut at user interface.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.2.0 DI4.2.0 UI4.2.0

New Features/Added

- Added optional Charger Starter Interface functionality.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.1.0 DI4.1.0 UI4.1.2

Enhancements / Changed

- Improved buzzer signal generation to avoid blocking of the CTRL task.
- Improved displaying of the technical data if components (AI or DI) are unavailable.
- Moved "Diagnostic" screen to "H&H Service" menu.
- Improved the evaluation of the rotary encoder to avoid unwanted encoder events.
- Improved the USB data logging function in terms of sampling time accuracy and removed unused MPPT data logging.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.1.0 DI4.1.0 UI4.1.1

Bugfixes / Corrected

- Fixed bug that prevents the DHCP status from being changed (affected UI FW version: 4.1.0).
- Fixed bug in Calibration dialog which prevented from proper value input of the upper adjustment point (affected UI FW versions: 4.0.4, 4.0.5, 4.1.0).

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.1.0 DI4.1.0 UI4.1.0

New Features/Added

- Added functionality for internal Zero Volt option.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.0.2 DI4.0.2 UI4.0.5

Bugfixes / Corrected

- Fixed bug which prevented the update of the setting value after a change of the function mode via the I/O port

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.0.2 DI4.0.2 UI4.0.4

New Features/Added

- Added the displaying of German 'Umlaute' in the help texts

Enhancements / Changed

- Changed label text of left function key from "SAVE" to "OK"
- Changed graphical cursor appearance for checkbox and button widgets for better visibility.
- Added scaled value input for settings which are lower than 1.0F (e.g. Rmax = 0.47 Ohm), these values are now displayed with unit prefix "m" (e.g. 477 mOhm)

Bugfixes / Corrected

- Fixed bug in "Discharge stop condition" dialog which displayed an incorrect voltage value.
- Fixed bug in "USB data logging" dialog which set an incorrect Follow up time after pressing "OK".

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.0.2 DI4.0.2 UI4.0.3

New Features/Added

- Added functionality of service test state for simplified testing of power protection during production.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.0.1 DI4.0.1 UI4.0.3

New Features/Added

- Added combined Discharge/List functionality on UI.

Bugfixes / Corrected

- Minor bugfixes and corrections.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.0.1 DI4.0.0 UI4.0.2

Bugfixes / Corrected

- Added line wrapping of a very long string in the Technical Data which does not fit into the corresponding column on UI.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.0.1 DI4.0.0 UI4.0.1

Bugfixes / Corrected

- Corrected error in startup interface info screen (CAN baudrate and address were swapped).

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.0.1 DI4.0.0 UI4.0.0

Bugfixes / Corrected

- Corrected order of recalling setting values of the trigger system.

Backwards Compatible
Hardware: Yes, only for production series B
Software: Yes, down to Release 4.0.x

Firmware Release: AI4.0.0 DI4.0.0 UI4.0.0

New Features/Added

- Added Master-Slave functionality.
- Added screenshot function.
- Added rectangular function generator.
- Added functionality for diagnostic values.
- Added functionality for automated calibration.
- Added functionality for current trigger level.
- Added device parameters for fast and slow power regulation.
- Added command/query for configuration of CAN termination.
- Added help system for user interface in German and English.

Enhancements / Changed

- Changed firmware versioning concept with major, minor, revision counter
- New menu structure and user interface design.
- Extended UI functions with yt diagram, IV/PV diagram.
- Extended sample time for USB data logging to 0.5 ... 30 s.
- Extended measurement data buffer from 8000 to 40000.
- Extended number of setting memory positions from 2 to 10.
- Extended discharge functionality.
- Extended MPPT functionality.
- Extended error and added warning detection.
- Changed device parameter list structure.
- Changed resolution of slow ADC from 18 to 23 bits.
- Changed resolution of fast ADC from 12 to 16 bits.
- Changed maximum value for list count from 4.0E+09 to 999999.
- Changed maximum value for dwell and ramp time from 800,000 s to 1,000 s.
- Changed maximum value for sampling time from 800,000 s to 1,000 s.
- Changed reset value for regulation state of voltage protection from ON to OFF.
- Changed the directory name pattern for USB exports (new PLI_Snxxxxx)

Backwards Compatible
Hardware: No - firmware only for PLI production series B
Software: No - see changes

Firmware Release: AI3.07 DI3.03 UI3.08

New Features/Added

- Added versioning pattern check of the file names for the firmware update. Now the application can evaluate if the firmware update file is suitable for PLI production series A.

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI3.07 DI3.03 UI3.07

Bugfixes / Corrected

- Fixed bug in Main screen if the setting value is changed with Shift + 0.
- Fixed bug in RS-232 screen which caused that the RS-232 changes were not saved.

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI3.07 DI3.03 UI3.06

Bugfixes / Corrected

- Fixed bug in "Power-On Settings" function if the quick boot option was disabled.

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI3.07 DI3.03 UI3.05

New Features/Added

- Added a verification of loaded EEPROM values in user interface.

Bugfixes / Corrected

- Fixed bug which occurred if a *.lst file with infinite list count 9.9E+37 was imported.

Backwards Compatible
Hardware: Yes

Software: Yes

Firmware Release: AI3.07 DI3.03 UI3.04

New Features/Added

- Added input watchdog functionality to protect DUT when communication with the controlling computer fails

Enhancements / Changed

- Restructured the LAN menu and its submenus
- Remover trigger source "Hold" via HMI
- Enhanced creation of new LIST settings via HMI
- Enhanced firmware update procedure

Bugfixes / Corrected

- Fixed bug which caused a reboot if the UI Error screen was displayed
- Fixed bug which randomly disturbed USB write sequences
- Fixed bug when calculating float values near end of range (epsilon)
- Some smaller bugfixes

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI3.06 DI3.02 UI3.03

Enhancements / Changed

- Changed level of reverse current for reverse voltage detection

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI3.05 DI3.02 UI3.03

Enhancements / Changed

- Enhanced reverse voltage detection depending on level of reverse current

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI3.04 DI3.02 UI3.03

New Features/Added

- Yellow warning screen and acoustic alarm signal when overvoltage or reverse voltage is present

Enhancements / Changed
- Changed behavior at overvoltage or reverse voltage detection: input is switched off
- Overvoltage and reverse voltage detection now are independent of the beeper settings but always generate an alarm beep if pending
- Changed measurement function in static operation so that infinite value 9.9E37 is returned at overrange

Bugfixes / Corrected
- Corrected LIST function. Ramps were faulty when long ramp times or low setting deltas were set

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI3.03 DI3.02 UI3.02

New Features/Added
- Added LIST in power mode
- Added variable trigger voltage
- Added internal resistance measurement function
- Added load settings import/export from/to a USB flash drive

Enhancements / Changed
- Enhanced ID reading so that *IDN? can also be queried while a LIST or ACQ is running
- Changed initialization of Zero Volt enabling
- Enhanced display of measurement values when fast ADC is active
- Enhanced current and voltage measurement in CP mode
- Enhanced adjustment in CR mode
- Changed directory structure on the USB flash drive for exported measurement files
- Changed the enumeration process of an attached USB MSD to recognize and display the text "Unsupported file system" if an NTFS formatted USB flash drive is attached

Bugfixes / Corrected
- Fixed "Parameter error" bug when trying to edit a SCPI programmed list function without STIM:DWEL and STIM:RTIM lists specified
- Fixed some bugs in list editing

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI3.01 DI3.01 UI3.01

New Features/Added
- Added discharge function for test of energy storage devices
- Added a footer comment to the USB data logging file

Enhancements / Changed
- Changed User Interface so that special Main Screens for MPPT, LIST and discharge function are displayed

Bugfixes / Corrected
- Fixed bug in "Load USB List" function

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI3.00 DI3.00 UI3.00

New Features / Added
- Added data acquisition function for static and MPPT mode
- Added save and recall device settings function in local and remote mode (*SAV/*RCL)
- Added keylock function in remote state
- Added power-down detection including saving last settings to memory 0
- Added choice for power-on settings
- Added the possibility to change LAN communication port number.
- Added beeper event after the ERR bit is set in status byte.

Enhancements / Changed
- When list trigger is enabled a list is started by a trigger and now also stopped at another trigger
- Changed all timing resolutions to 200 µs, minimum list and acquisition times also 200 µs
- Changed ID string processing. *IDN? query now also possible while LIST is running
- Removed settings of external zero-volt enabling, function speed and the single external control signal enabling signals from non-volatile memory
- Removed test of external SD card at power-on of Data Interface
- Enhanced the manual trigger function. Now the manual trigger key is only considered if the trigger system is initiated in the status byte (avoids yellow "settings conflict" screen).
- Enhanced the dimming function. Now the display backlight becomes and stays illuminated if an error has occurred.
- Reduced "warning beeper" sources to OV, OPP, OTP and RV conditions.
- Enhanced the display function to choose the appropriate display controller driver
- Enhanced 'Time and date' screen to avoid a yellow error screen after an invalid date input.
- Changed [FUNC_MODE] tag into [LIST_MODE] tag in USB list files.

Bugfixes / Corrected
- Corrected voltage protection setting functionality in V mode so that the programmed value is saved and set when V mode is left.

- Corrected function so that FUNC:MODE xx does not generate a settings conflict while list is running
- Corrected writing of triggered levels as described in SCPI 19.5.4.2.
- Corrected MPPT start function when power mode is active

Backwards Compatible
Hardware: Yes
Software: No (minimum list time values and acquisition time 200 µs instead of 100 µs; tag name changed in USB list files)

Firmware Release: AI2.08 DI2.08 UI2.08

New Features / Added
- Added trigger delay functionality
- Added trigger holdoff functionality

Enhancements / Changed
- Changed current measurement value to 0.0A if input is off

Bugfixes /Corrected
- Corrected *TRG command function
- Corrected trigger button function (generated a trigger event independent of the chosen trigger source)
- Corrected ABORt function so that INIT:CONT is set to OFF

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI2.07 DI2.07 UI2.07

New Features / Added
- Added Constant Power mode functionality
- Added hint to power-cycle the device after firmware update of the Analog Interface (AI)

Enhancements / Changed
- Reload regulation and MPPT parameters immediately when re-programmed

Bugfixes / Corrected
- Corrected functionality of prohibiting changing operating mode while MPPT is running -> Settings conflict
- Corrected functionality of checking default numbers when MPPT and power control parameters are loaded

Backwards Compatible
Hardware: Yes

Software: Yes

Firmware Release: AI2.06 DI2.06 UI2.06

New Features / Added

- Added commands for Wh reading in MPPT mode
- Added the displaying of the accumulated energy in MPPT settings menu
- Added programmable list mode (LIST:MODE <mode>)
- Added functionality to automatically keep function speed and activation states of the four external control signals in non-volatile memory
- Added the possibility to transfer measurement data from the internal storage to an attached USB flash drive

Enhancements / Changed

- Changed list function so that list pauses at input off and continues at input on (segmented memory)
- Removed test of external RAM memory at power-on of Data Interface
- Changed display: MPPT is displayed instead of the setting value in main screen
- Restructured "LIST" menus

Bugfixes / Corrected

- Corrected voltage setting overwrite error when starting MPPT

Backwards Compatible
Hardware: Yes
Software: No (list mode, saved values)

Firmware Release: AI2.05 DI2.05 UI2.05

New Features / Added

- Added MPPT functionality (without Wh reading)
- Added functionality to enable optional functions
- Added the possibility to process sample times in USB list files
- Added the possibility to process list:count and list:acquisition in USB list files
- Added the possibility to deal with sample times for the list function in manual (local) operation

Enhancements / Changed

- Changed status register structure

Bugfixes / Corrected

- Corrected functionality when op mode is changed

Backwards Compatible
Hardware: Yes
Software: No (status register)

Firmware Release: AI2.04 DI2.04 UI2.04

New Features / Added
- Added trigger source initialization (BUS)

Enhancements / Changed
- Changed response format for common query "*OPT?"

Bugfixes / Corrected
- Corrected list processing at ramp times = 0 so that dwells are more accurate
- Corrected bug after setting a current value in "Edit list" menu

Backwards Compatible
Hardware: Yes
Software: No (*OPT? response)

Firmware Release: AI2.03 DI2.03 UI2.03 GI1.00

New Features / Added
- Added GPIB functionality
- Added Options register functionality

Enhancements / Changed
- Changed maximum number of measurement points from 10000 to 8000

Bugfixes / Corrected
- Corrected slope recognition of external trigger signal
- Corrected bug at end of list ramp
- Corrected epsilon compare in all set functions

Backwards Compatible
Hardware: Yes
Software: No (max. no. of measurement points)

Firmware Release: AI2.02 DI2.02 UI2.02

New Features / Added
- Added error code for "List not same length error"
- Added functionality for processing the Device/Interface Clear after detecting a break symbol on a serial interface
- Added hint in local mode to power-cycle the device after setting the system to factory default
- Added update of parameter list values in local mode if "CAL" state is left
- Added EEPROM Test in UI test procedure
- Added detection whether the bootloader is installed

- Added "Load list file from USB flash drive" functionality in local mode
- Added symbol at user interface to indicate attached USB flash drive
- Added displaying of "MEM" bit in user interface's questionable status register

Enhancements / Changed
- Changed number of list items to 300
- Changed design in Factory Settings menu

Bugfixes / Corrected
- Corrected behavior in external setting mode: the load could not be set to RES mode when SETT:EXT:ENAB ILEV was ON but SETT:EXT was OFF. Now only prohibited when both states are ON

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI2.01 DI2.01 UI2.01

New Features / Added
- Added function to determine unplugged AI/O board for service
- Added sample rates functionality in lists
- Added EEPROM access prohibition while list is running by generating memory use error
- Added bit 10 in Operation Status Register which is set when List sampling is active
- Added bit 12 in Questionable Status Register which is set when DAQ memory is overrun
- Added functionality for host name generation out of model and serial number string

Enhancements / Changed
- Changed Reverse Voltage value to -0.5V instead of -0.3V

Bugfixes / Corrected
- Corrected service string sending with nullstring if no string has been written to the internal memory
- Corrected float value comparison causing problems with low values in exponential format
- Corrected initial value of TRIGger:SEQuence:SOURce to POSitive instead of NEGative
- Corrected firmware update issues with blank devices in the system

Backwards Compatible
Hardware: Yes
Software: Yes

Firmware Release: AI2.00 DI2.00 UI2.00

New Features / Added
- Added ramp times functionality in lists

- Added functionality to generate a low pulse at TRG_OUT of Analog I/O Port when trigger state becomes active
- Added SYSTem:PRESet function to set device to factory default settings
- Added error handling for PORT:IO:IPIN and PORT:IO:OPIN command
- Added break symbol detection on serial interfaces for presetting communication
- Added new SCPI commands and queries to SYSTem:COMMunicate subsystem
- Added release state information (alpha, beta, release)
- Added UI Test
- Added bootloader firmware version in Technical Data menu

Enhancements / Changed
- Changed RSD polarity
- Changed baud rate values for external interfaces to a list of predefined values
- Changed design in Protection menu
- Changed standard storage path of USB data logging files to "root\LOGGING\"
- Removed Power-on menu during startup phase
- Changed voltage protection default value setting: EEPROM-saved value is set as default
- Changed function of active ADC recognition when calibration state is toggled
- Changed function of production parameter refreshing when production state is switched off
- Changed default state for voltage regulation/switching to regulation instead of switching
- Changed status model bits UVP and RSD
- Changed Service menu structure

Bugfixes / Corrected
Corrected some errors

Backwards Compatible
Hardware: No - AI needs Board Rev. 6!
Software: No

Firmware Release: AI1.00 DI1.00 UI1.00

New Features / Added
- Initial release
- Operating modes CURRent, RESistance, VOLTage
- LIST function with 250 values, without ramp times and without sampling