# Release Notes for Firmware of H&H ACL 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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## Firmware Release: AI1.3.5 (M), AI1.0.11 (S), DI1.3.2, UI1.3.5 – only for new devices!

Enhancements / Changed

- Optimized software PLL execution to improve distortion factor.

Backwards Compatible
Hardware: Yes, but device shall be re-adjusted after firmware update.
Software: Yes

## Firmware Release: AI1.3.5 (M), AI1.0.10 (S), DI1.3.2, UI1.3.5

Enhancements / Changed

- Changed behavior in case of parameter error of the slave controller after firmware update.

Backwards Compatible
Hardware: Yes
Software: Yes

## Firmware Release: AI1.3.4 (M), AI1.0.10 (S), DI1.3.2, UI1.3.5

New Features/Added

- Added functionality to update the AI slave controller.

Backwards Compatible
Hardware: Yes
Software: No - AI master controller 1.3.4 needs AI slave controller 1.10.0 or higher and UI1.3.5 or higher

## Firmware Release: AI1.3.2 DI1.3.2 UI1.3.4

New Features/Added

- Added functionality to update the AI slave CPU.
- Added USB Info dialog to Data menu.

Enhancements / Changed

- Enhanced power protection level calibration.
- Enhanced Errors dialog.

Backwards Compatible
Hardware: Yes
Software: Yes

## Firmware Release: AI1.3.1 DI1.3.1 UI1.3.2

Enhancements / Changed

- Added functionality and parameter for service test state.
- Added functionality and parameters for debouncing status signals STAT_ERR_PSC and STAT_OVP.
- Enhanced usability of Graphical Data Viewer and Arbitrary Waveform Graph dialogs.

- Added displaying of relative timestamp of the measurement point to the Graphical Data Viewer dialog.
- Renamed "User Manual Export" dialog to "User Manual".
- Added QR code which links to the user manual download at H&H website.
- Enhanced Remote Notification popup window in order to display extended ASCII set characters.
- Added displaying of initiated functions in status window which are active in manual operation.
- Enhanced test coverage of the display touch sensor test.
- Improved displaying of OK and ESC side buttons in various dialogs.
- Enhanced reset execution

Bugfixes / Corrected

- Fixed bug in DC current protection calibration function.
- Fixed a bug that caused some undefined UI-specific settings when the "reload last settings" function failed on power-up.
- Fixed bug that caused displaying of wrong peak voltage in "Measured Waveform" main view.

Backwards Compatible
Hardware: Yes
Software: Yes

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

Enhancements / Changed

- Changed formula character for the reactive power from "Q" to "Qd" according to DIN40110-1 on UI.
- Improved handling of the focused widgets during calibration procedure.

Bugfixes / Corrected

- Fixed bug in DC current protection calibration function.

Backwards Compatible
Hardware: Yes
Software: Yes

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

New Features/Added

- Added continuous background execution of the data logging function for the yt main view.
- Added displaying of AI slave controller firmware version to Technical Data dialog.
- Added functionality to control the enable state of the phase/channel selection window in order to avoid phase/channel change during calibration, etc.
- Added functionality to control the enable state of the status overview window in order to avoid calling the status overview window during a FW update, data transfer, etc.

- Added confirmation message box after pressing the ESC or HOME side button in Harmonics Waveform and Arbitrary Waveform dialog.
- Added possibility to enter the relative adjustment points with one decimal place.
- Fixed bug in UI_Client module which prevented from proper calibration of the level signals via UI.

Enhancements / Changed
- Ported firmware to new microcontroller.

Bugfixes / Corrected
- Fixed color issue in Data Export to USB dialog.

Backwards Compatible
Hardware: No – firmware only for AI board rev. 8 or higher!
Software: Yes

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

New Features/Added
- Added functionality for commands/queries :DISPlay:TEXT, :LIST:POINts?, :LIST:TIME? and SYSTem:BEEP
- Added a list function specific main screen.
- Added Alarms dialog which allows the configuration of alarm notifications.
- Added Graphical Data Viewer dialog for the displaying of measurement data.
- Added "Toggle Settings" functionality for fast switching of the setting value in standard main view.
- Added Settings Export/Import from/to an attached USB flash drive.
- Added displaying of total current and power values for parallel channels in Technical Data dialog.
- Added displaying of internal memory usage to Status Overview popup window.

Enhancements / Changed
- Expanded shortcut popup window and made it scrollable.
- Improved FW Update Selection dialog in order to allow updating the GPIB interface during initial operation or in production mode.
- Enhanced the error queue management for local and remote errors.
- Increased backlight intensity in dimmed state.
- Added a warning text if the precalculated amount of measurement points of the list function exceeds the size of the internal measurement data memory.
- Extended Data Export to USB dialog by an additional button to export data from the "Data Viewer" memory.
- Reordered layout for the settings memory in internal EEPROM.

Backwards Compatible
Hardware: Yes
Note: The settings memory on UI becomes invalid after this update. Reset to factory settings after the update.
Software: Yes

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

New Features/Added

- Added functionality for master-slave mode.

Enhancements / Changed

- Removed "extern." synchronization from Waveform dialog if the I/O Port is not available.
- Removed useless information texts in Factory Settings, Reset and Save/Recall dialog screens for single phase devices.
- Added channel master slave (parallel) operation for current/power range expansion.
- Changed rated current specification in the Technical Data dialog for 3-phase devices to e.g. "3 x 10 A".
- Added a status overview popup window for devices or systems with multiple phases.
- Extended the creation and editing of the list function by an add and remove list point function.
- Added relative input method for the arbitrary waveform if the setting level is controlled externally via the I/O port.
- Added displaying of a new icon if the USB flash drive must not be detached when a file is open.
- Enhanced indication of OV condition in order to allow entering the parameter menu during pending OV conditions.
- Improved the labeling of the delete buttons in the virtual keypad window.
- Limited the minimum current and voltage scaling from 0.1 % to 1 % of the corresponding RMS value in measured waveform main screen.
- Increased the default time before dimming the display from 10 s to 30 s.

Bugfixes / Corrected

- Corrected the unit for the power settings in input mode AC (from W in VA).

Backwards Compatible
Hardware: Yes
Software: Yes

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

Initial Release