

Fluke 430 Series II Firmware Upgrade

With this Flash Tool you can upgrade the firmware of the Fluke 430 Series II Power Quality Analyzer V03.01 and later to V05.04.

It is recommended to make a copy of the SD-Card prior to upgrading the firmware. After archiving the SD-Card files, you may delete the files from the SD-Card. Firmware V05.04 can read measurement data created with previous versions of the firmware. Firmware V05.04 is compatible with Power Log V5.4

It is recommended to use USB 2.0 ports only for the firmware upgrade. Instruments with serial number prior to S/N 33363001 do not support USB 3.0. If the upgrade fails, the unit may lose functionality or calibration status.

Version history:

V05.04 (September 2017) Improvements compared to **V05.03 (unreleased)**

- Add support for Variable Speed Drives. Supports Voltage Source Inverter drives with 40 Hz .. 70 Hz output frequency, V/F and Flux Vector control modes and feedback loops.
- Fixed issue with changing custom colors un User Preference menu
- Corrected Motor Analyzer warning messages
- Corrected Timed Start menu title
- Set default design type for 50Hz motors to IEC design type N, this is similar to NEMA design type B
- Fixed issues with THD when changing harmonics scaling in logger (%f, %r and rms)
- Changed default value for transient detection to 50% of nominal voltage
- Corrected issues with "Instrument needs calibration" warning
- Fixed issues with resolution for voltage and frequency on 438-II.
- Fixed issues with swapped current channels on phase B and C when using Function Preference setting: phasor angle clockwise positive
- Improved handling of overload conditions for min max and average trend recordings
- Corrected issues for Function Keys in Polish language
- Improved cursor behavior for Wave Event analysis
- Fixed clipping issues with Torque Trend data
- Improved waveform display in Scope mode for VSD signals
- Fixed Over Load issues for measurement of current spikes
- Improved handling of low frequencies for Flex current probes

Version history:

V05.03 (July 2017, unreleased) Improvements compared to **V05.02**

- Energy efficiency of the battery charging system has been improved to meet the CEC (California Energy Commission) Title 20 requirements. Standby current usage is reduced once the battery is fully charged.

Version history:

V05.02 (November 2016) Improvements compared to **V05.01**

- Power Inverter Efficiency function: Corrected Output Power measurement - firmware

V05.00 and V05.01 showed incorrect results

- Energy Loss Calculator function: Corrected wrong scaling for neutral Amps in Energy Loss screen for firmware V05.00 and V05.01
- Improved Motor Analyzer function (Fluke 438-II) to support Voltage THD higher than 3%
- Improved TrendPlot of THD and Harmonics
- Corrected and extended Russian translations
- Improved startup screen to indicate if Motor Analyzer option (Fluke 430-II/MA) is installed

Version history:

V05.01 (July 2016) Improvements compared to **V05.00**

- Improved bar graph 100% indication for Motor Analyzer function
- Enabled Menu page 2 for Fluke 434-II when Motor Analyzer is installed
- Corrected issue with formatting SD cards
- Improved time aggregation for Harmonics and THD
- Corrected THD calculation to always use THDS as per IEC 61000-4-7
- Changed Harmonics to use harmonic subgroups measurements instead of harmonic group measurements when Interharmonics is set to off, subsequently smoothing of the harmonic signals is no longer applied

Version history:

V05.00 (April 2016) Improvements compared to **V04.05**

- Added Motor Analyzer function for Fluke 438-II. The Motor Analyzer function is optional (Fluke 430-II/MA) for Fluke 434-II, Fluke 435-II and Fluke 437-II.
- Improved Energy Loss Calculator. Losses due to load current and losses due to source voltage are measured and displayed separately. A new analyzer screen shows the loss relative to the positive sequence power (an optimal system only positive sequence power is present)
- Replaced Energy Loss Calculator “Auto” method with “Fuse Value” method for improved calculation of energy loss.
- Extended Energy Loss Calculator with “Cable Resistance” method for calculating energy loss.
- Extended Energy Loss Calculator setup with extrapolation setting: hour, day, week or year
- Corrected Energy Loss Calculator to use absolute sum of phase powers for total power
- Added Vdc and Adc measurements to Logger mode
- Corrected delta (3 wire) configuration to show kVAfund+ instead of kVA
- Improved power measurements for delta (3 wire) configuration by using a virtual star instead of using the 2-Watt meter method
- Several UI improvements
- Fixed date property for files on SD-Card
- Improved bandwidth response for Vrms measurements
- Corrected Over Load indication for Phasor and Harmonics screens
- Corrected Crest Factor Over Load indication
- Corrected Inrush Current measurement to measure between markers
- Corrected Unbalance measurement when using scaling for current inputs
- Fixed issues with Battery Information screen

Version history:

V04.05 (August 2015) Improvements compared to **V04.04** (version V04.04 was not used for production)

- Increased speed for SD-Card formatting process by removing test cycle
- Fixed issues with losing clamp settings after power OFF
- Improved saving measurement data when opening battery door

V04.04 (May 2015) Improvements compared to **V04.02** (version V04.03 was not released)

- Improved writing process to SD-Card to prevent from files that cannot be opened
- Fixed several UI issues like white spots on screen, scaling and trend graph display
- Formatting SD-Cards now includes a test of the card write speed, due to this, formatting can take up to 10 minutes
- Removed Unbalance measurement from single phase IT measurements
- Fixed issues with incorrect cursor time for events
- Fixed issues with timestamps for Wave Event and RMS Event
- Fixed Timed measurement for Inrush. Now Inrush can use different duration time
- Improved power on behavior. Once the initial Power on Wizard is filled out, the settings are stored and only reset when selecting factory defaults on the instrument.
- Fixed issues with Energy Loss Calculator now showing the selected currency correctly
- Added Timed measurement for Transients mode
- Added warning to turn the instrument off when the battery door is opened
- Fixed entering nominal voltage for H-Leg configuration. Now the phase to phase voltage must be entered
- Fixed issue with measurements not starting without SD-card
- Disabled Power Off key while measurement is running
- Fixed issues when trying to save more than 100 screens
- Corrected Harmonics fundamental voltage for 3 phase Delta configuration to show phase to phase instead of phase to neutral voltages
- Added Pst and Zero sequence voltage Unbalance to Monitor mode to support GOST 32144
- Added limit template GR32144 for testing according to GOST 32144
- Corrected issues when automatically saving files if battery runs empty
- Corrected clearing of the flagging status for Flicker after an event
- Resolved issues with 'white screen' after power on
- Fixed issue with incorrect indication of maximum recording duration
- Fixed unjust Unbalance OL (overload) indication for L3,L2,L1/C,B,A phase sequence
- Fixed clipping problems for Total Power
- Fixed behavior of Keyboard Lock function interfering with Save message popup when measurements are automatically stopped
- Reduced the number of files written to SD-card to improve write speed performance
- Extended voltage ratio settings to support up to 999 kV
- Measurement data files are extended with system status like: battery condition, temperature, memory status, and error conditions
- Added warning message when pressing the power button while keyboard lock is enabled
- Demo mode is automatically disabled at power off to prevent from using it by mistake
- Saved screens are also stored as images (.BMP) on the SD-card for use by 3rd party applications
- Improved automatic shutdown on low battery to assure files are closed correctly.

- Fixed issue with non-responding “preparing SD Card” message when restarting Monitor measurements
- Fixed issues with available recording time indication in Logger start menu

Version history:

V04.02 (December 2014) Improvements compared to **V04.01**

- Optimized SD card write process to prevent from write errors on slow responding SD cards

Version history:

V04.01 (December 2013) Improvements compared to **V04.00**

- Removed phase to phase voltage in split phase configuration
- Automatically trigger on Amps threshold in Inrush mode to capture event details
- Difference between Vrms result on screen and via interface in transients mode resolved
- Wave Event timestamps corrected for 400 Hz
- Translation issues with Russian Font resolved
- Load Unbalance parameters removed from Logger selection list
- Reset issue resolved when pressing power off button in save dialog window
- Resolved issues with instrument not starting.
- Fixed issues with 0 Events and RMS- WAVE Event key showing strange data
- Falling edge of DIP not shown in RMS- and Wave EVENT tab
- Fixed issue with Monitor trend, not able to move cursor to the newest pixel on screen
- Fixed issues with voltage readings for Logger delta configuration
- Improved data download via USB
- Fixed erroneous power readings for single phase IT configuration
- Fixed SD card error when downloading measurement with event on 434-II
- Fixed issues when more than 9999 events occur
- Improve Energy Loss Calculator layout
- Resolved instrument crash due to a specific input signal
- Improved font for " KVA fund"
- IEEE power shows more data than Unified
- Added PF reading to IEEE power measurement mode
- Fixed Leading/Lagging indicator for IEEE power measurement mode
- Removed power method indication from Energy Loss Calculator function
- Fixed corrupting SD card when turning off instrument during delete
- Fixed Flicker measurement results
- Fixed double readings of VA unbal readings list
- Fixed PF missing trend when IEEE calculation method is selected
- Fixed RMS missing event trend in DELTA mode
- Fixed cursor movement to the right of screen
- Removed reading at neutral for single phase without neutral configuration
- Fixed PF and DPF duplicates
- Fixed trends display for PF and Cos Phi in IEEE power measurement mode
- Improved Energy Loss measurement for residual power loss
- Fixed power readings for single Phase IT configuration
- Fixed IEEE Power readings for delta configuration
- Fixed random shutdown of instruments

- Fixed Phasor diagram for delta configuration and left turning phase sequence
- Fixed incorrect apparent power calculation in single Phase IT configuration (no neutral)
- Fixed Split Phase apparent power calculation
- Fixed Efficiency Factor and Harmonic Pollution readings for PowerLog
- Improved OL detection and extended phase to phase reading above 1000V

V04.00 (May 2013) Improvements compared to V03.08

- Fixed issues with timestamps
- Corrected duration of Monitor measurement
- Improved handling of events starting prior to the measurement
- Improved handling of events that ended after the measurement was finished
- Default filename shortened to MEASx
- Corrected setting for averaging time
- Fixed changing settings while in HOLD
- Fixed issues with events in Monitor mode
- Added support for Energy Loss calculation on aluminum cables
- Added support for power measurements according to IEEE 1459 - 2010
- Fixed issues with firmware crash when multiple events occurred during 10 minute sync
- Fixed reference selection for Dips & Swells in setup menu
- Corrected calculation of first Plt reading
- Added support for backup and restore of tasks using PowerLog 4.0
- Added support to display measurement specific information in PowerLog
- Corrected Russian font
- Improved digit scrolling in menus
- Fixed issues when recalling measurement with empty battery
- Fixed issues when recalling Energy Loss measurements
- Fixed issues when recalling Power Wave measurements
- Fixed SD CARD ERROR 1:9:5 for download via USB
- Fixed issues with downloading screens via USB
- Unbalance Power readings removed when using Classic Power measurement method
- Recording length is limited to match averaging time and number of readings selected

V03.08 (February 2013) Improvements compared to V03.07

- No functional changes. Version V03.08 was released to support a new hardware board revision

V03.07 (December 2012) Improvements compared to V03.06

- Resolved issues with "SD card full" error message when selecting Monitor after power On
- Added test commands for Logger mode for testing 10/12 cycles timestamp with ms resolution to verify IEC61000-4-30 time sync requirements

V03.06 (November 2012) Improvements compared to V03.05

- Added support for EN50160 report generation with Power Log 3.4
- Added functionality to discard measurements
- Added functionality to rename measurements when saving
- Improved digit scrolling when entering values using cursor keys

- Added functionality to resume a measurement when power returns after shut down on low battery while measuring
- Reduced the number of default selected parameters in logger
- Event triggering on AMP threshold selected by default when using Inrush function
- Fixed Vrms min, avg and max values not matching cursor values
- Fixed Cursor mismatch at inrush trend
- Added millisecond resolution timestamp to QB remote command
- Fixed logger crash with 150 parameters and 250ms interval time setting
- Fixed missing right trend pixels in 250ms and 0.5s trend mode
- Fixed issues with 32GB SD-card
- Fixed logger maximum duration error

V03.05 (September 2012) Improvements compared to V03.04

- Support new Fluke 437-II Power Quality and Energy Analyzer 400Hz
- Added 400Hz measurements for Fluke 437-II
- Added Shipboard function for Fluke 437-II
- Corrected several translations
- Default average time changed from 1s into 10s
- Readings on meter screens are restored after recall
- Harmonics bar graphs and readings are restored after recall
- Improved PowerLog communication speed
- Added Power Wave waveform support for PowerLog
- Improved communication robustness
- Added setup information for PowerLog
- Added scaling information for PowerLog
- Fixed cursor timestamps for RMS events
- Fixed missing unstable flagging indicator after recall
- Improved harmonic phase angle for Flex probes
- Fixed missing power measurement in H-leg configuration
- Fixed Energy Loss Calculator cost always showing "k 0.0000"
- Fixed Transient event not captured in Monitor
- Corrected F4 soft key label for clamp setup to NEUTRAL instead of TOTAL
- Fixed issue with Energy Loss Calculator when changing currency
- Fixed reset issue when turning off demo mode
- Fixed scaling for harmonic rms values
- Improved timing wave event
- Changed setup AMPS SCALING " Range:" to "Clamp range:"
- Several small UI improvements are made

V03.04 (May 2012) Improvements compared to V03.03

- Resolved Power readings error clipping to 32767 in Trend view

V03.03 (April 2012) Improvements compared to V03.02

- Resolved timing issues with SD-Card to prevent from SD-Card errors
- Corrected algorithm for MetCal Bandwidth verification

V03.02 (February 2012) Improvements compared to **V03.01** (V03.01 is the 1st release,)

- Improved SD-Card startup
- Corrected Setup Function Pref. menu for Chinese, Korean, Czech and Polish language
- Corrected Czech character set
- Corrected several font issues due to 'hard' space
- Corrected menu title for Volts/Amps/Hertz in Russian language

Getting Started:

- Enter the serial number of your instrument in the Instrument DM dialog box.
- Connect your instrument using USB cable
- Configure virtual USB COM port to range COM1 ... 8 of your PC
- Select the virtual com port to which the instrument is connected
- Connect the instrument to mains power using the BC430 Battery Charger
- Turn on your instrument
- Press the START button to start the upgrade process
- When the upgrade is successful, a message is displayed. Note that your instrument will switch off and on several times automatically during the upgrade process.

Risks when upgrading firmware!

Updating the instrument firmware involves overwriting the internal Flash-ROM code currently stored on the instrument and replacing it with new code. This process has the potential to render your instrument useless if there is an error or interruption while the update is occurring. This may require returning the instrument for repair at a nominal fee.

Follow the steps below prior to selecting the Flash Tool START button.

- Validate that the communication link between your computer and the instrument is reliable. *(Tip: Use the PowerLog software to test the communication and show the COM port that is used)*
- Log on to your computer with an administrator account
- Close all other applications
- Close applications running in the background. Some of the most common applications running in the background that are known to interfere are antivirus software, the IntelliMouse application, and audio players. Most of these applications appear in the System Tray on the Desktop. To close an application that appears in the System Tray, right click on the application icon and look for options to close or disable the application

If the upgrade fails:

If the upgrade is unsuccessful, sometimes the instrument is unable to start properly. In this situation the display will not switch on, and only a beep indicates that the instrument is on. Turn on your instrument while holding the cursor up and cursor right keys and listen for the soft beep. Now restart the upgrade process. The Flash Tool will recognize that the previous installation failed, and recover the instrument data automatically. Release the cursor keys once the upgrade process has started.

In other rare situations the instrument will turn on only briefly and shut down automatically. If this is the case, removing the power cord and battery for 5 to 10 minutes resolves the issue as it clears the RAM memory of the instrument.