

Firmware history

# Release Notes PQ5000



## GMC INSTRUMENTS

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Version	Change log
V3.16 – 10900 (2024/07/23)	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><b><i>For devices using the pulse outputs: After an update to this firmware version, the configuration of the pulse outputs is void and must be done again.</i></b></p> </div> <p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Pulse outputs can be set to any pulse rate.</li> </ul> <p><b>Security upgrades</b></p> <ul style="list-style-type: none"> <li>• Nginx from 1.21.1 to 1.25.3</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Large number of frequency events if used outside the rated frequency range</li> <li>• PQ overview: No graphical display for current harmonics and interharmonics</li> <li>• SFTP configuration menu was present even for device versions without data logger</li> <li>• Time scaling of waveform display could be wrong</li> <li>• In PQ statistic frequency was shown with one decimal place</li> <li>• CU: An application stored in the device (as .zip) was deleted due to firmware update</li> <li>• Option PME: Possible wrong units in CSV export of PME data</li> <li>• CSV data export for 7 days: File was stored in the folder of the first day of the interval rather than the day of the end of the interval, in addition the time range of the file was not visible within the file name and could overwrite daily files with the same content.</li> </ul>
V3.13 – 10464 (2024/02/08)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Status of time synchronization directly visible via status bar on the device website</li> <li>• PQ and energy management data can be periodically saved in specific CSV file format and downloaded for use with PQIS® software</li> <li>• In the PQ statistic section harmonics and interharmonics of voltages and current can be displayed as daily statistic or as time series</li> <li>• Limit values can now be set also to negative values, e.g. for monitoring power quantities for both import and export</li> <li>• Option PME: Configurable radio channel map</li> </ul> <p><b>Security upgrades</b></p> <ul style="list-style-type: none"> <li>• OpenSSH from 8.7p1 to 8.9p1</li> <li>• Host Key Algorithms SSH-RSA and SSH-DSS no longer supported by default, but may be activated if required for SFTP communication</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Unreliable meter logger data download via WEB interface if larger time ranges are read</li> <li>• Configuration menu for temperature input settings did not work properly</li> <li>• In units of digital input meters the time factor (h) was missing</li> <li>• Option PME: Automatic adjustment of radio transmission power did not work</li> <li>• Option PME: Current IN calculated if measuring in a 4-wire network using 3-phase modules</li> <li>• Option PME: Improved battery load level estimation</li> </ul>

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V3.10 – 9665 (2023/08/30)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Support for option PME central unit</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• The list of CSV files created via data export scheduler could no longer be displayed via device website when too many files were stored in the device. The storage of the files and the export capability to SFTP servers were not affected.</li> <li>• Possible settings values for limits were restricted to a maximum of 100'000'000, now changed to 10'000'000'000.</li> </ul>
V3.08 – 9533 (2023/04/20)	<p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• IEEE519: Missing data reported although all values were present</li> <li>• IEEE519: Wrong assessment of 3 sec. voltage harmonics if rated voltage <math>\geq 1\text{kV}</math></li> <li>• IEC61000-2-4 class 3: Wrong limit value for 15<sup>th</sup> voltage harmonic</li> </ul>
V3.06 – 9366 (2023/02/23)	<p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Setting of meter contents did not work properly</li> <li>• Reset of meter contents in case of overflow</li> </ul>
V3.05 – 9108 (2022/11/23)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Zoom functionality in PQ daily statistics</li> <li>• Improved graphical representation of PQ statistic overview including mouse-over functionality</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Reset of min/max values via Modbus coils did not work</li> <li>• Activation of whitelist blocks Modbus/TCP communication</li> <li>• Missing data in meter logger if 1 min. interval is used</li> </ul>
V3.02 – 8805 (2022/08/19)	<p><b>Security upgrades</b></p> <ul style="list-style-type: none"> <li>• Nginx from 1.16.0 to 1.21.1</li> <li>• OpenSSH from 8.2p1 to 8.7p1</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Improved error reporting for SFTP communication test function</li> <li>• SFTP server export not possible if file names containing UTF8 characters</li> <li>• Wrong maximum values for THD_U</li> <li>• Setting parameter for homopolar voltage measurement not available</li> <li>• Wrong time stamps in CSV export of waveform display data</li> <li>• Delayed entries to alarm and event list</li> <li>• Audit log entry when pending SFTP file exports complete</li> </ul>

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V2.05 – 8160 (2022/03/02)	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><b><i>Once installed, it is not possible to return to an older firmware version</i></b></p> </div> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• In rare cases an Ethernet interface connection could not be established after a factory reset or device restart</li> <li>• Password length for SFTP server access was limited to 12 characters</li> <li>• Configuration parameter for maximum load current (for scaling of TDD values) not available via menu</li> <li>• Homopolar voltage (zero displacement voltage) may be displayed in event recordings for 3-wire systems</li> <li>• RCM channels and temperature sensor types could not be activated via on-site display</li> </ul>
V2.04 – 7857 (2021/12/07)	<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p><b><i>This is a crucial update for the long-term stability improvement of the device. Once installed, it is not possible to return to an older version of the firmware.</i></b></p> </div> <p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Support for Unicode characters (UTF8) in all user-defined event and description texts. These texts are used in event lists, for PQ reporting and as part of the CSV and PQDIF file names.</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Missing scaling for current harmonics / interharmonics in PQ daily statistic</li> <li>• Wrong storage path for local storage of CSV data files. Files stored in the wrong directory will be transferred to the correct folder.</li> <li>• Crash of WEB-GUI when displaying mains signaling events</li> <li>• U<sub>NE</sub> could not be displayed in event samples visualization</li> <li>• Fault current module configuration not protected via RBAC</li> <li>• PQ event list display could be different for local and WEB-GUI</li> <li>• Via local display input values in analog output configuration had to be entered in basic units rather than the displayed unit</li> <li>• Event state in status bar was not reset if event duration was longer than 3 minutes</li> <li>• Devices with RCM get stuck after a certain period of time</li> </ul>
V2.03 – 7001 (2021/06/11)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• EasyUpdater: Software for firmware updates</li> <li>• Selectable periodic PQDIF format: Data in three files or one file, generated daily or weekly, either for one or 7 days</li> <li>• PQDIF with additional frequency trend data (10-min average)</li> <li>• Selectable decimal separator for CSV export for easy import into Excel</li> <li>• Additional daily PQ assessment for 3-s quantities according IEEE519</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Factory reset</li> <li>• Double ITIC graphic in PQEasy report</li> <li>• Event-driven PQDIF generation did not work</li> <li>• States of optional temperature and fault-current channels not selectable as input in monitoring functions or as source for digital output states</li> <li>• Possibly wrong display values of fault-current module if channel 1 is not used</li> <li>• Wrong scaling of instantaneous values of user defined mean-values when displayed on local GUI or webpage</li> </ul>

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V2.02 – 6518 (2021/03/08)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Support for PQ5000 with Rogowski current measurement</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Factory reset completed</li> <li>• Non-working screensaver in power-down mode</li> <li>• Mains signaling events not visible in appropriate event list</li> <li>• Date selection not always displayed in mean-values logger display</li> </ul>
V2.01 – 6308 (2021/02/01)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Support for IPv6 communication</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Non-working screensaver</li> <li>• Configuration file could not be uploaded via web-interface</li> <li>• Defining new tasks in the export scheduler not possible</li> <li>• Possibility to set improper alarm limits for fault-current module via local GUI</li> <li>• Time difference of events in PQ-Easy report if device is located in a different time zone</li> </ul>
V2.00 – 6162 (2020/12/04)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Security: Role-Based Access Control (RBAC) as replacement for the Simple Password Protection. Individual access rights may be assigned to up to 8 users with own login credentials. No plain-text transmission of login information, increase of the latency period in case of repeated login attempts, software access only via access keys etc.</li> <li>• Security: Audit log as replacement for the operator list. Logging of all activities relevant to safety.</li> <li>• Security: Support for Syslog protocol for transferring all audit log entries to a central grid monitoring server</li> <li>• Enhanced monitoring of PQ events: Current swell, voltage imbalance (homopolar voltage) and frequency event</li> <li>• Enhanced PQ event recording capability for waveforms: Up to 1 second before and 5 seconds after the event</li> <li>• Additional recordings of 10-min trends of frequency and mains signaling voltage, previously available as daily histogram only</li> <li>• New features when analyzing events via webpage: Zoom and value display</li> <li>• New features when analyzing daily PQ trends: Values display without limits and / or min/max fluctuation</li> <li>• PQ Easy-Report: Support for IEE519 and GB/T</li> <li>• PQ-Easy-Report: Lower limit of no-damage region in ITIC curve configurable</li> <li>• Data export scheduler for pushing CSV or PQDIF files periodically or event-driven to an SFTP server. The same files may be stored locally in the device as well.</li> <li>• Language support Turkish, Czech and Spanish</li> <li>• Filters for time range and event type in PQ event list</li> <li>• Device handbook available via webpage</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Character set problems when creating PQ-Easy-Reports if Chinese, Ukrainian or Russian language is selected</li> </ul>

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V1.13 – 5261 (2020/03/19)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Language support Ukrainian</li> <li>• Language support Russian</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• At least updater v2.0 is required for firmware update</li> </ul>
V1.12 – 4973 (2019/11/18)	<p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Rare occurrences of wrong out of range 10-sec frequency measurements affecting the appropriate PQ statistic</li> <li>• After device restart energy meter contents may be smaller than the values before the restart</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• At least updater v2.0 is required for firmware update</li> </ul>
V1.11 – 4884 (2019/09/06)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Encrypted communication via HTTPS using either a provided self-signed or customer certificate</li> <li>• Client whitelist: User may define a list of up to 10 clients allowed to access the device. If activated, all other clients will be blocked</li> <li>• Simulation of digital and analog outputs without changing the device configuration</li> <li>• Extended PQDIF for power quality data export. Added quantities are: current statistics for mean values, imbalance, harmonics, interharmonics and TDD as well as standard mean values for active / reactive power demand and apparent power</li> <li>• Enhanced SD card state information (percent of usage, failure state)</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Customized PQ statistic limit values cannot be stored in the device</li> <li>• Power quality data analysis when measurement device and analysis PC are located in different time zones</li> <li>• Possibly wrong unit in created csv files of PQ events</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• At least updater v2.0 is required for firmware update</li> </ul>
V1.10 – 4544 (2019/03/15)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Support for optional temperature input module</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• At least updater v2.0 is required for firmware update</li> </ul>

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V1.09 – 4386 (2019/02/28)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Support for optional PROFINET IO interface</li> <li>• Network status display in status bar</li> <li>• Signalling of measuring range overflow situations</li> <li>• Whitelist for Ethernet interface for blocking unauthorized clients</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Improvements in CSV file export</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• At least updater v2.0 is required for firmware update</li> </ul>
V1.08 – 4213 (2019/02/06)	<p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Mismatch in alarming of fault current channels in slot 2</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• At least updater v2.0 is required for firmware update</li> </ul>
V1.07 – 3864 (2018/11/16)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• PQ conformity report directly via webpage of the device</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Fault current module: Missing entries for user-defined channel names</li> <li>• Measurements with bad quality (such as overload) could have been stored as minimum or maximum value</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• At least updater v2.0 is required for firmware update</li> </ul>
V1.06 – 3280 (2018/08/12)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Support for optional IEC61850 communication</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• At least updater v2.0 is required for firmware update</li> </ul>
V1.05 – 3224 (2018/07/26)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Language support Vietnamese</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• In case of aborting the configuration of fault current channels some parameters were still saved by mistake</li> <li>• The local display could freeze when disconnecting the Ethernet interface connector</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• At least updater v2.0 is required for firmware update</li> </ul>

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V1.04 – 3171 (2018/06/28)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Support for new 2-channel fault current module:               <ul style="list-style-type: none"> <li>- Alarm and pre-warning thresholds</li> <li>- Response and dropout delays</li> <li>- Alarming via digital outputs and relays</li> <li>- Alarming or breakage activates the summary alarm</li> <li>- In case of alarm violation: Entry into alarm list</li> <li>- In case of pre-warning violation: Entry into event list</li> <li>- Measurements available via WEB-interface, Modbus RTU/TCP, local display and analog outputs</li> </ul> </li> <li>• Language support Polish</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• New color sequence of phases in graphical displays: red - yellow - blue</li> <li>• Demo mode for product presentations fixed</li> <li>• Summary alarm state no longer influenced by reset of associated output</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• At least updater v2.0 is required for firmware update</li> </ul>
V1.03 – 2958 (2018/05/07)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Additional PQDIF content: Duration of PQ events and harmonics / interharmonics up to the 50<sup>th</sup></li> <li>• New PQ logger content: Short time flicker Pst</li> <li>• Compliance to various standards can now be tested directly via device website by selecting either one of 11 standards with predefined limits or any self-defined limit set.</li> <li>• Details of the PQ statistic can be displayed directly via website on a daily basis, i.e.:               <ul style="list-style-type: none"> <li>- Trend of 10-min values of voltages, currents, Pst / Plt, imbalance U/I and THDU</li> <li>- Statistical distribution of 10-s frequency</li> <li>- Bar graphs of harmonics / interharmonics contents U/I</li> </ul> </li> <li>• Phase sequence display for voltages and currents</li> <li>• In the visualization of user mean-values and meters now the base quantity is directly visible</li> <li>• New service menu: Device reboot</li> <li>• New service menu: Communication tests (Ping, DNS, NTP)</li> <li>• Support for time synchronization via GPS</li> <li>• Unused U/I quantities in waveform and event displays are faded out</li> <li>• Language support Chinese</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Deleting of PQ data on request</li> <li>• Operating hours of the device: Possible 47 years offset issue solved</li> <li>• For mean-values modifications a device reboot was required</li> <li>• Overwriting of security settings when loading configuration file even if not selected</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• At least updater v2.0 is required for firmware update</li> </ul>



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V1.02 – 2378 (2017/11/17)	<p><b>New features</b></p> <ul style="list-style-type: none"> <li>• Support for module “4 digital inputs” active / passive</li> </ul> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Removing a backdoor security gap</li> <li>• Wrong unit in disturbance logger when used in medium voltage applications</li> <li>• Partly hang-up on webpage when closing popup window with answer “No” or “X”</li> <li>• CSV export of large logger data sets</li> <li>• PQ event logger: Event detection in 3 phase 3 wire applications</li> <li>• Deleting PQDIF files when resetting PQ data</li> <li>• Correction of PQ statistic when used in medium voltage 3-phase 3-wire applications</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• Updater v2.0 is required for firmware update</li> </ul>
V1.01 – 2330 (2017/11/07)	<p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• PQDIF exporter added</li> <li>• Correction in the languages Italian &amp; French</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• Updater v2.0 is required for firmware update</li> </ul>
V1.01 – 2194 (2017/09/21)	<p>Official product release</p> <p><b>Fixes</b></p> <ul style="list-style-type: none"> <li>• Event recognition for 3 phase / 3 wire applications</li> <li>• Correction of RVC event data</li> <li>• Startup problems</li> <li>• Event text input issue when using special symbols</li> <li>• Summary alarm state may remain active when removing monitoring functions from the status evaluation</li> <li>• Endless hourglass symbol on empty event lists</li> </ul> <p><b>Requirements</b></p> <ul style="list-style-type: none"> <li>• Updater v2.0 is required for firmware update</li> </ul>
V1.00 – 1798 (2017/05/15)	Initial release for internal demo use