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PQSys

Release Notes

PQI-DA smart & PQI-DE

Firmware V2.12.2



Note: Current information about the releases of the parameterization software WinPQlite can be found [here](#).

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Firmware v2.12.2 Revision 20671

- Supported by WinPQ lite Version V6.4
- Note about incompatibility: WinPQ V6.3.1 to V6.3.4 are incompatible with reading measurement data from firmware \geq V2.12. If your system is running with one of these versions **it is absolutely necessary to make an update to WinPQ \geq V6.3.5!**

Features and news

- DSP: Extension of the possible lower threshold for RoCoF triggering to 0.005 Hz/s 15614

Firmware v2.12 Revision 20502

- Supported by WinPQ lite Version V6.4
- Note about incompatibility: WinPQ V6.3.1 to V6.3.4 are incompatible with reading measurement data from firmware \geq V2.12. If your system is running with one of these versions **it is absolutely necessary to make an update to WinPQ \geq V6.3.5!**

Features and news

- Open file exchange
 - Implemented a REST-API in the web server to retrieve Comtrade, PQDIF and proprietary records [13778]
[13779]
 - New parameter to select the file export. The previously existing parameter for selecting the Comtrade/PQDIF export format in IEC61850 is no longer applicable and must be newly selected. [14706]
 - Output of PQ events via PQDIF as single files [14072]
- DSP
 - Increased sensitivity in triggering to ROCOF by using a new algorithm which prevents false triggering due to phase jumps [9972]
 - New sampling rate for oscilloscopic disturbance records of 1kHz → Fulfilment of regulatory requirements of European Grid Code RfG (2016/631) for oscilloscopic disturbance records >60sec duration [14428]
 - Further development of the algorithm of residual current measurement [12843]
 - Transducer (RCM) [14590]
 - Extension of the measurement bandwidth up to 20kHz for transducer type B+
 - New parameter for selection of measurement bandwidth for transducer types A, AC and B
 - Improved and transducer type dependent wire break detection [11336]
- Support of the Modbus command „Read Device Identification“ [14038]
- Display
 - Safety query on the PQI-DA smart whether data should really be deleted [12479]
 - Extension of the display of the energy meter on the PQI-DA smart up to 100GWh with fixed unit [kWh]/[kvarh] [13424]
 - Revision of the display language in German, English, French and Italian [12346]

Security relevant contents

- Update of the SSH server *dropbear* to V2022.82 [9335]
- Implementation of a secure update procedure with certificate handling [11772]
 - Protection of the firmware archive and the update procedure by digital signature
 - Starting with V2.12 the device will only accept firmware archives with digital signature
 - Delivery of future firmware archives exclusively with digital signature
- Update of the used SSL/TLS-library *wolfSSL* to V5.3.0 [13036]
- Web server with https and standard certificates, which can be exchanged via parameterization [13780]
- Correction of a security hole in the default parameters of the security mode for sealing off the SSH tunnel [13817]
- Correction of the internal Vendor ID for RADIUS to 59339 ([Link](#) to iana) [14661]

Improvements and fixes

- Display of the status of the SD card after starting the synchronization method in the display of the PQI-DE [8338]
- Use of a different time stamp when copying memory to SD card, so that the entire selected interval is copied to the SD card [12314]
- Input of a gateway with active DHCP for parameterization of static IP possible again [13353]
- Healing mechanisms to restore a disturbed USB transfer of many recorder files [13400]
- Bug fixing in the process of limiting PQDIF files in memory [13477]
- Extension of the address check for block operations via Modbus [13547]
- Automatic scaling of the display of real-time values on PQI-DA smart now independent of historical extremes [13618]
- Display of pop-ups from the device display is possible again in WinPQlite in the device view [13654]
- Additional locking in the write process of measurement files to prevent double entry of a measurement value in case of exceptionally high system load [14215]
- Reduction of the default parameter for triggering the ROCOF to 0,5Hz/s [14560]

Firmware v2.10.4 Revision 19836

- Supported by WinPQ lite Version 6.3.5

Improvements and fixes

- Prevention of short-term temperature measurement failures during moments of high system load
- Improvement of internal configuration file recovery during firmware update
- Correction of internally used voltage RMS values for TRMS voltage triggering

Firmware v2.10.2 Revision 19566

- Supported by WinPQ lite Version 6.3.1

Features and news

- Addition of new measurement types to protocol IEC 60870-5-104
 - Apparent energy (consumption and output per phase as well as mains)
 - Distortion reactive energy (supply and output per phase as well as mains)

Improvements and fixes

- Higher level of stability while running PQDIF

Firmware v2.10.0 Revision 19532

- Supported by WinPQ lite Version 6.3.1

Features and news

- Modbus
 - Gateway functionality via RS232 and RS485
 - Extension of the available data points to all data classes and measurands
 - Query of the status of the binary outputs
- Additional connection configuration for measurement of UNE and IN in 3-wire mode
- Addition of new measurement types
 - Total Demand Distortion (TDD)
 - Apparent energy (consumption and output per phase as well as mains)
 - Distortion reactive energy (supply and output per phase as well as mains)
 - TanPhi quadrant-wise according to IEEE 1459
- Differential current measurement at PQI-DE
 - Addition of new structures of active and reactive conductance values
 - Warning and alarm thresholds can be parameterized linearly as a function of power

Security relevant contents

- Separate security log according to BDEW white paper
- Address conflict detection (ACD) can be (de)activated

Improvements and fixes

- MappingDB: Renaming the data class names
- Change of accumulation of net energies from string energies
- PQI-DE: Energy representation format generally in [kWh]
- PQI-DE: All 8 binary inputs are recorded by default
- PQI-DA smart: Improved behavior of IBN wizard for current transformer
- PQI-DA smart: Input of NTP server on device display
- Improvement of SD card handling
- Deactivation of wire break detection at temperature sensor

Firmware v2.8.0 Revision 19199

- Supported by WinPQ lite Version 6.2.0

Features and news

- Power Quality Data Interchange Format – PQDIF (software feature F1)
 - General conversion to the "IEEE 1159.3 - 2019" standard for fault records and synchronous data (10s, 10min, 2h)
 - Different file wrapping criteria 2h, 6h, 12h, 24h
 - Reserved memory of PQDIF is parameterizable
- Uniform format of the displayed quantities in the display of the PQI-DA smart.
- Reduction of the noise signal by the inherent noise of the calibration with respect to IEC 61557-12
- Calculation of the residual current TRMS (RCM) with a bandwidth of 20kHz
- New language Italian on PQI-DA smart
- New display pages on PQI-DE
 - state of binary inputs and outputs
 - level time diagram of RCM and FCM
- Actualization of the MappingDB with PQDIF Support

Security relevant contents

- Improvement system behavior for SSH communication
- defense mechanism against automated brute force - IP blacklist like Fail2Ban (intrusion prevention)
- Closing of an CMP Based TCP Reset Denial of Service Vulnerability

Improvements and fixes

- Improvement of the passive trigger after startup
- Displayed time on PQI-DE is now in local time
- Improved error handling of communication when reading data when a timeout occurs
- Switching to automatic operation of the temperature chip

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Firmware v2.6.4 Revision 18986

- Supported by WinPQ lite Version 6.2.0

Improvements and fixes

- Prevention of wrong ip address binding after update-process of the firmware
- Improvement system behavior for SSH communication
- Fixed connection limitations caused by the Zero Windows Probe algorithm
- Improvement of raw write function used to flash booter image

Firmware v2.6.0 Revision 18945

- Supported by WinPQ lite Version 6.2.0

Features and news

- New IP stack with full DNS support
- New popup notification on IPv4 Address conflict Detection – double IP adress detection
- Blocking coarse time synchronization in the system time after the start of the measurement and recording.
- DNS hostname can be used as an NTP server address parameter
- Update of the real-time operating system
- Actualization of the MappingDB with PQDIF Support

Security relevant contents

- Improvement system behavior for SSH communication (Broadcast storm protection)
- IPv4 Address Conflict Detection (RFC 5227)
- MAC Authentication Bypass as fallback for 802.1X port authentication
- Sending hostname (Option 12) to server from DHCP client
- Deletion of public keys possible

Improvements and fixes

- Improved high pass filter values of current clamps inputs
- Degree unit added for Comtrade exports
- Corrected display of the serial number
- Modbus addresses of harmonics are specifically readable
- Modbus default configuration changed
- States of measurement supervision can be read via Modbus without restart
- Corrected the handling in IEC61850 with limit violations of the 10s-frequency - new ICD file necessary!

Firmware v2.4.8 Revision 18760

- Feature and bug fix version of v2.4.6, Revision 18451
- Supported by WinPQ lite Version 6.1.0

Features and news

- Improvement of resistive residual current monitoring
- Reduced settling time for rogowski coils (C40)
- Adapted calculation of displacement voltage for halfcycle recording
- Actualization of the MappingDB

Improvements and fixes

- System behaviour for SSH communication, especially in instable mobile networks
- System behavior for IEC 61850 communication
- Comtrade files are not deleted by a reset anymore

Firmware v2.4.6 Revision 18451

- Feature and bug fix version of v2.4.4, Revision 18290
- Supported by WinPQ lite Version 5.2.8 & 6.0.0

Features and news

- Actualization of the MappingDB

Security relevant contents

- Readout of the ip-settings in the parameterization

Improvements and fixes

- Screensaver of the PQI-DE is activated by default
- Startup with activated SCADA, if the Ethernet cable is physically disabled

Firmware v2.4.2 Revision 18228

- Feature and bug fix version of v2.4.0, Revision 17795
- Supported by WinPQ lite Version 5.2.8 & 6.0.0

Features and news

- Template EN50160-NS-IT added to commissioning wizard of PQI-DA smart & PQI-DE.
- Log message about connection establishment during Modbus communication extended.
- Ethernet settings for security mode shown in device display of PQI-DA smart & PQI-DE.
- MappingDB integrated into firmware.
- Automatic long-term recording of RCM measured variables implemented when starting the RCM function.

Security relevant contents

- Modified behavior of the system tick for SSH communication.
- Stability improvements with regard to ARP storms.
- Improvement of the security vulnerability (severity 2) in the ICMP protocol.

Improvements and fixes

- Improvement of the download of COMTRADE files via IEC61850.
- Modification of the update process for PQI-DE with hardware feature E3.

We take care of it.



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