

PQIS®

from PARMELTEC Mess- und Elektrotechnik GmbH

System description

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1 Introduction

PARMELTEC Mess- und Elektrotechnik GmbH (hereinafter PARMELTEC) develops and distributes a **Power-Quality-Information-System** under the registered trademark PQIS®, a software environment for efficient readout and evaluation of time series based measurement data, with a focus on Power-Quality measurement data. Originally, the software was developed as Damon® II by HAAG Elektronische Messgeräte GmbH in Waldbrunn (DE) for the measuring instruments Euro-Quant, Combi-Quant, Omni-Quant, Omni-Quant II, Micro-Quant and Multi-Quant. With the acquisition of the source code and the worldwide distribution rights, PARMELTEC has set itself the goal of establishing PQIS® as a manufacturer-independent software platform and developing it further in line with requirements.

2 System description

2.1 Basic system description

PQIS® is a software environment developed with Visual C++/Qt, which efficiently manages time series based measurement data in a MySQL/MariaDB database. Measurements are stored in the "Measurement Wizard" is managed, organized and partially parameterized. The "DataView" module is available for evaluations. So that permanently installed measuring instruments can be processed efficiently, the "Server" takes over all automation tasks, i.e. device and evaluation actions are executed time or event-controlled in the background.

2.1.1 Current device interface

Currently, the following measuring devices are supported by PQIS®. The corresponding interfaces are subject to licensing.

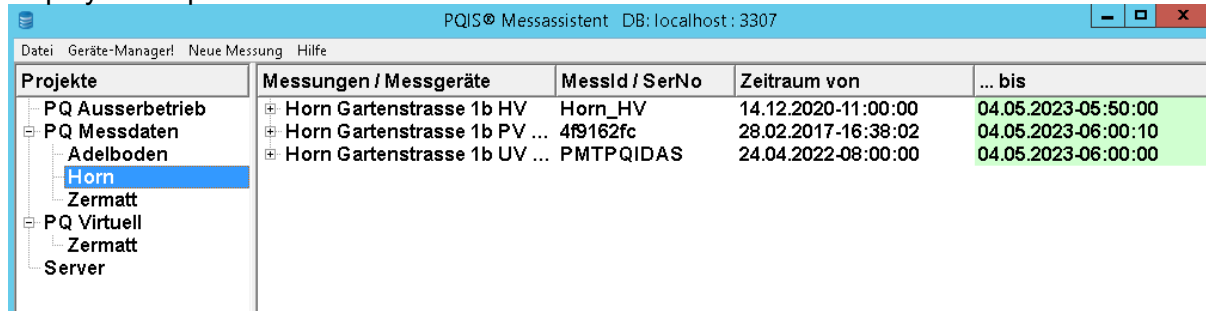
Manufacturer	Measuring device type	Interface
Camille Bauer Metrawatt	PQ5000	DataConverter CSV
	PQ5000CL and MobCL (multi-channel device)	DataConverter CSV

Using the CSV converter, other device types can also be easily imported.

2.2 Module descriptions

2.2.1 PQIS® Measurement Wizard

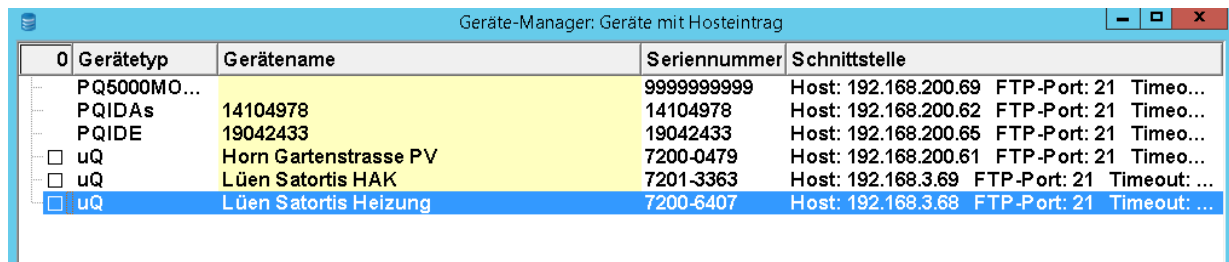
The measurement wizard is used to organize the measurements and measuring devices. Measurements can be organized hierarchically. In addition, the measurement wizard also displays the up-to-dateness of the dataset.



The screenshot shows the 'PQIS Messassistent' window with a project tree on the left and a table of measurements on the right. The table has the following columns: 'Messungen / Messgeräte', 'MessId / SerNo', 'Zeitraum von', and '... bis'.

Messungen / Messgeräte	MessId / SerNo	Zeitraum von	... bis
Horn Gartenstrasse 1b HV	Horn_HV	14.12.2020-11:00:00	04.05.2023-05:50:00
Horn Gartenstrasse 1b PV ...	4f9162fc	28.02.2017-16:38:02	04.05.2023-06:00:10
Horn Gartenstrasse 1b UV ...	PMTPQIDAS	24.04.2022-08:00:00	04.05.2023-06:00:00

The device manager is mainly used to manage the devices and network connections.



The screenshot shows the 'Geräte-Manager' window with a table of devices. The table has the following columns: 'Gerätetyp', 'Gerätename', 'Seriennummer', and 'Schnittstelle'.

Gerätetyp	Gerätename	Seriennummer	Schnittstelle
PQ5000MO...		9999999999	Host: 192.168.200.69 FTP-Port: 21 Timeo...
PQIDAs	14104978	14104978	Host: 192.168.200.62 FTP-Port: 21 Timeo...
PQIDE	19042433	19042433	Host: 192.168.200.65 FTP-Port: 21 Timeo...
uQ	Horn Gartenstrasse PV	7200-0479	Host: 192.168.200.61 FTP-Port: 21 Timeo...
uQ	Lüen Satortis HAK	7201-3363	Host: 192.168.3.69 FTP-Port: 21 Timeout: ...
uQ	Lüen Satortis Heizung	7200-6407	Host: 192.168.3.68 FTP-Port: 21 Timeout: ...

Messung : [PQ Messdaten/Horn]Horn Gartenstrasse 1b PV Anlage Gerät : 192.168.200.61 : uQ_7200-0479 PV Horn

Gerät Hauptmessobjekt Extras Daten auslesen! Gerätestatus! Schließen!

Single **Cont** 1.0 sec Aufzeichnungen: ein Anhalten Löschen

Anschluss Beschriftung Konfiguration Aufzeichnung Weitere Messwerte

Anschlussvarianten

Nennfrequenz: 50 Hz

3 Phasen, 3 Leiter

Hauptsystem

Spannungen L-N

Ströme 3-phasig

Temperatursensor aus

U-Messbereich Hauptsystem

670 Vrms (950 Vpk)

U-Wandler

Keine

U-Nennwerte: LN 230 V, LL 400 V

I-Messbereich Hauptsystem

85 Arms (120 Apk)

I-Wandler Pri. 50 A, Sek. 5 A

Keine

Bemessungsstrom 16 A

einstellen

Frequenz	49.975 Hz
Nullsystem	961.45 mV
Mitsystem	241.71 V
Gegensystem	609.14 mV
Unsymmetrie	252.01 m%
DigIn 1	low
DigIn 2	low
DigOut 1	low
DigOut 2	high

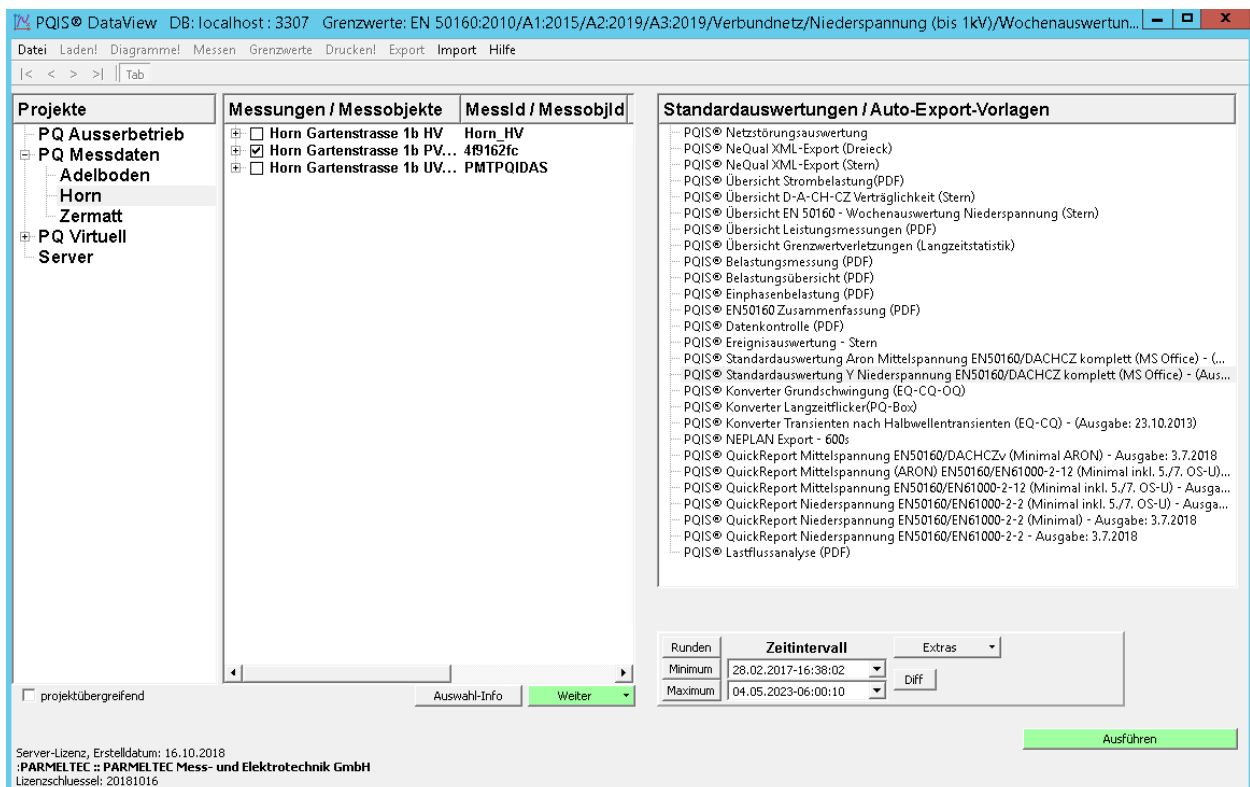
Zeiger Grundschwingung

2.2.2 PQIS® DataView

DataView is the tool for manual, standards-based and template-based data evaluation.

2.2.2.1 Evaluation with report templates

With so-called AutoExport templates, automated reports can be created in PQIS® as PDF or Word-HTLM. PQIS® already provides a collection of predefined templates. You can create your own AutoExport templates. The basic principle is that any graphic that can be created manually with PQIS® can also be created automatically in report templates.



Example of a PDF evaluation

2 Auswertung nach geltenden Normen

In diesem Abschnitt wird eine Übersicht über die Grenzwertverletzungen gemäss den angewendeten Normen dargestellt. Die Auswertung erfolgt in Normkonformen Messintervallen.

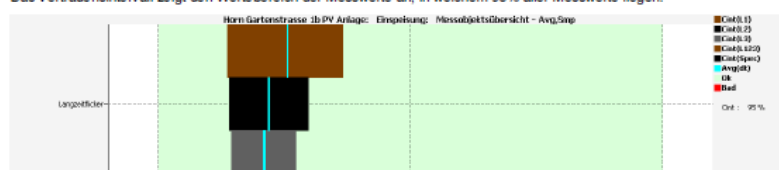
2.1 Messung: [PQ Messdaten/Horn]Horn Gartenstrasse 1b PV Anlage - Messobjekt: Einspeisung

2.1.1 Auswertung nach EN50160

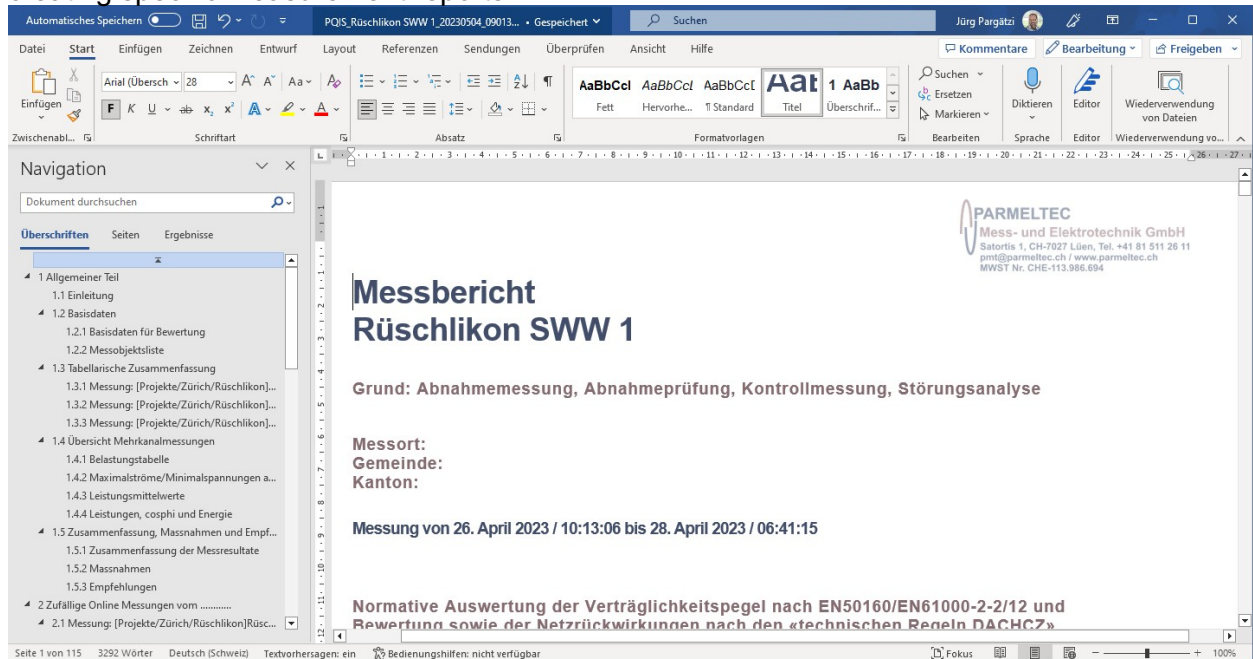
In diesem Hauptabschnitt erfolgt eine Normbeurteilung der Spannungsqualität gemäss der Norm EN50160 Ausgabe 2010. Das Diagramm beschreibt die Kriterien der Spannungsqualität (Y-Achse) sowie das Vertrauensintervall 95% (Wertebereich) dieser Kriterien bezogen auf den unteren (lowLim) und oberen (upLim) Grenzwert. Die Türkis farbene Linie beschreibt den Mittelwert des Vertrauensintervalles.

2.1.1.1 Vertrauensintervall (95% Werte)

Das Vertrauensintervall zeigt den Wertebereich der Messwerte an, in welchem 95% aller Messwerte liegen.

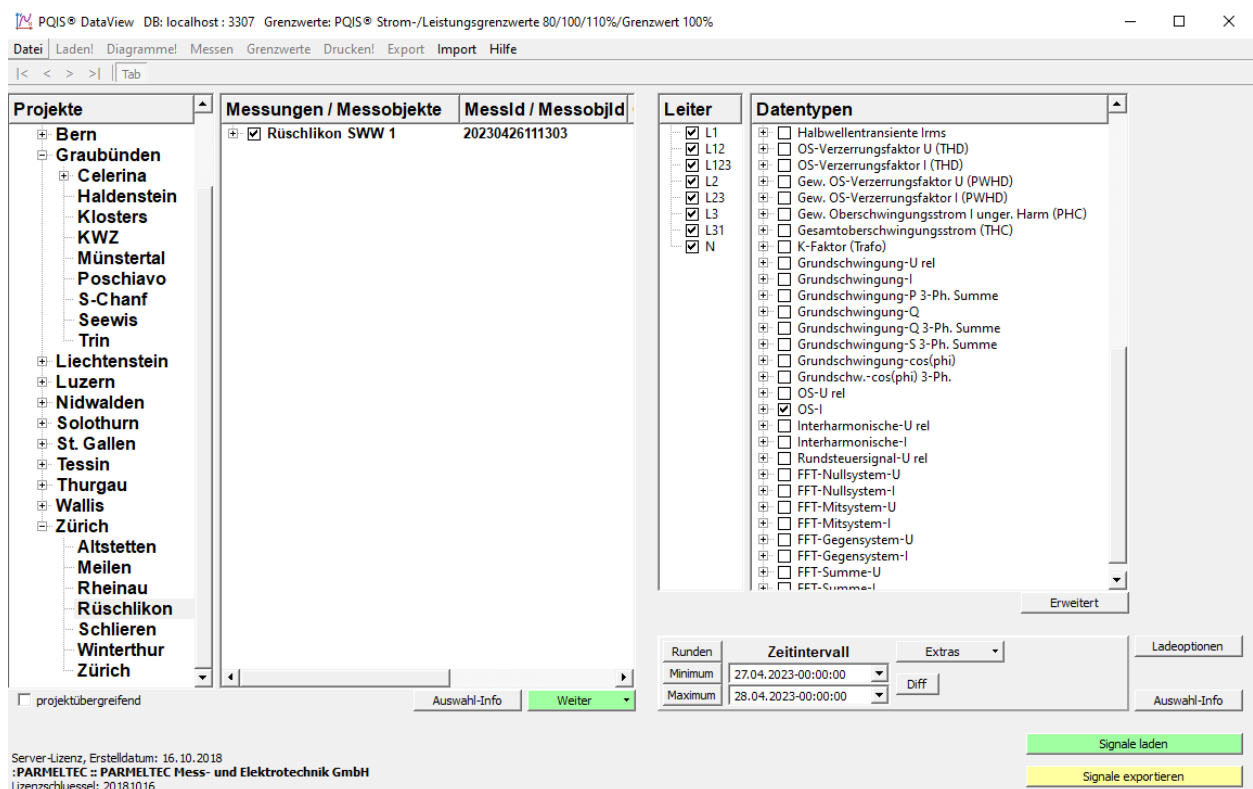


The export to Word via HTML allows to design measurement reports according to the same rules and to edit them in Word afterwards. There is currently no more efficient method for creating specific measurement reports.



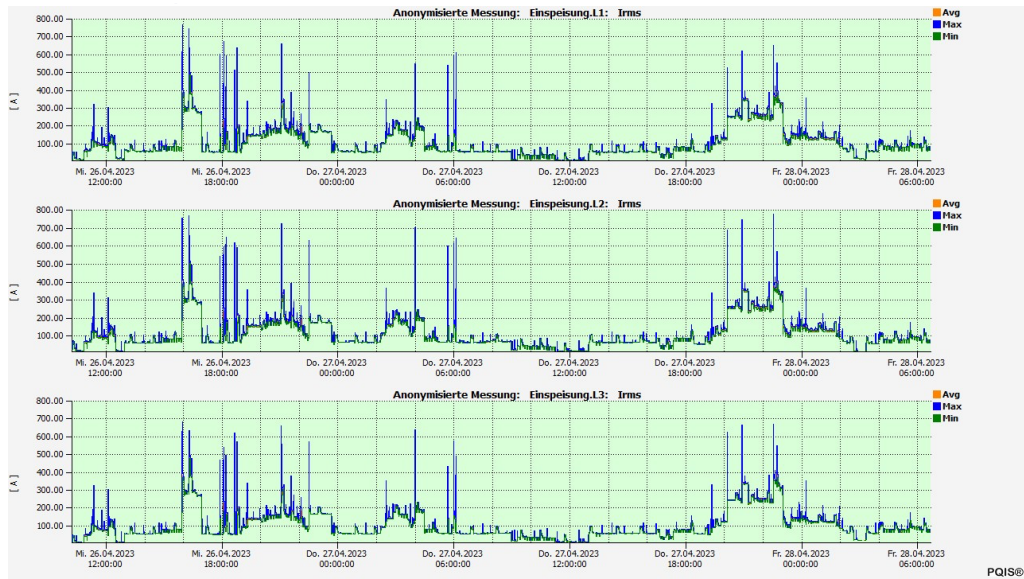
2.2.2.2 Evaluations in expert mode

In expert mode, measurement data can be loaded and viewed in common diagrams.

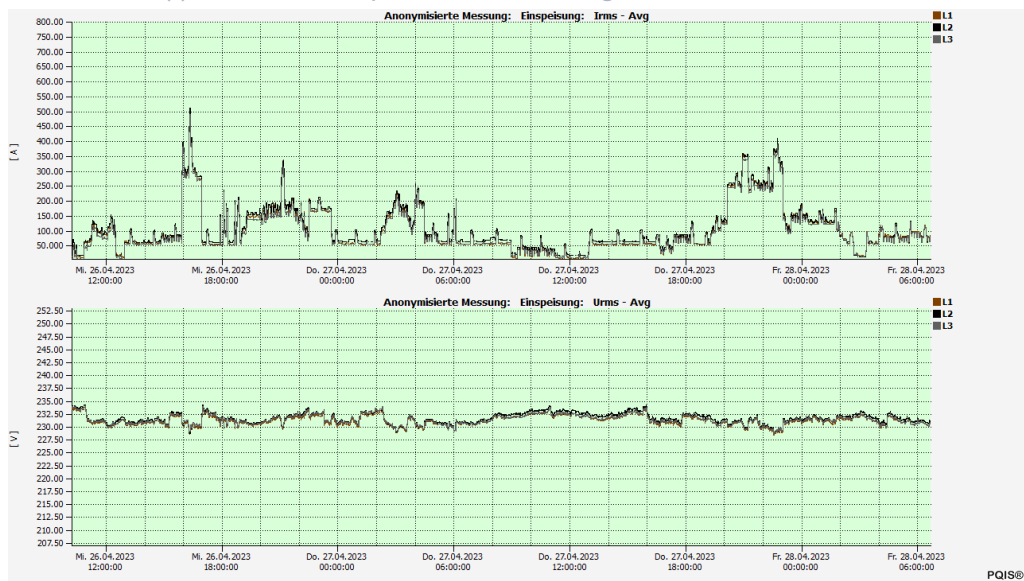


The following diagrams are available.

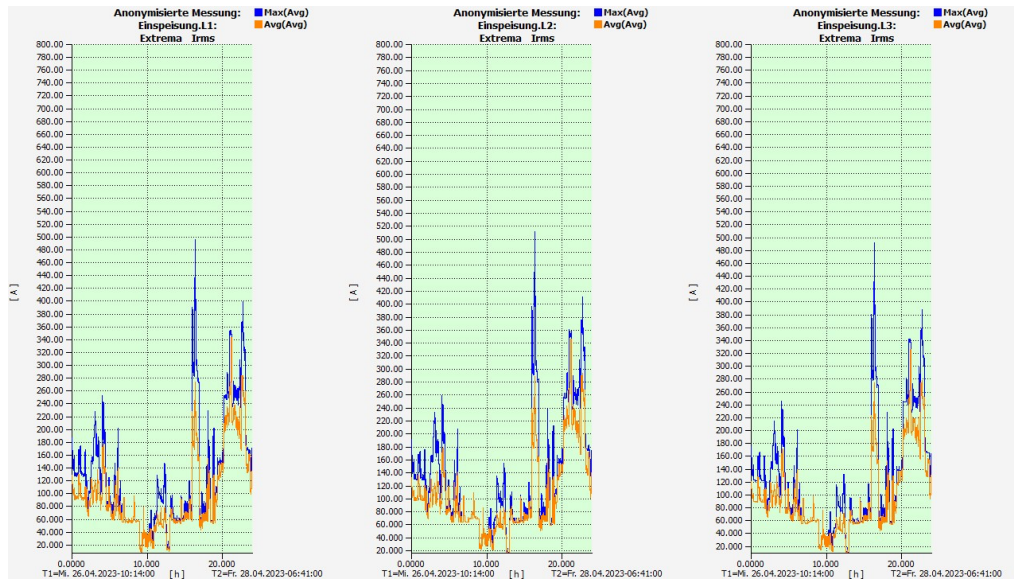
2.2.2.2.1 Y(t) per phase with min/max and average



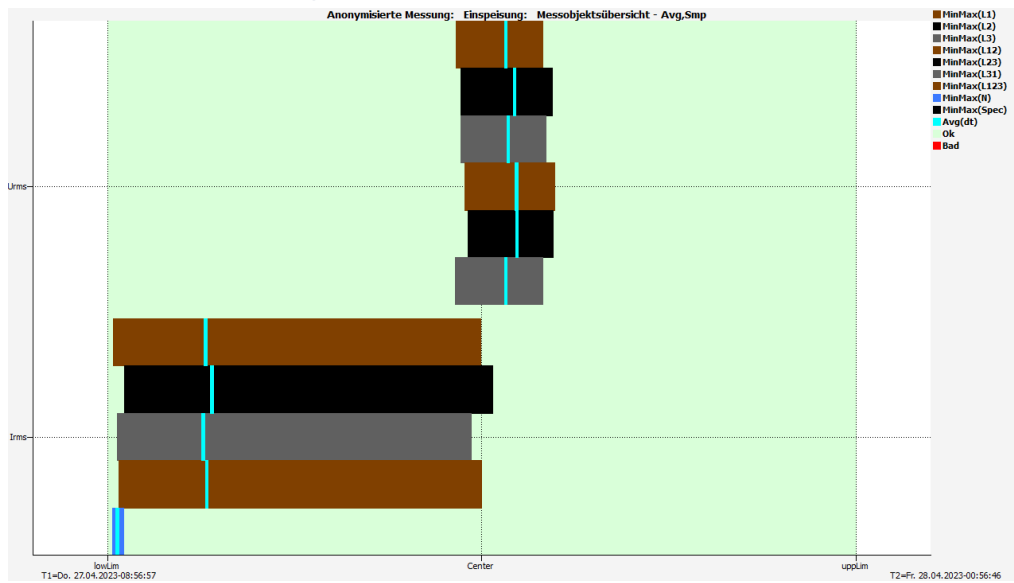
2.2.2.2.2 Y(t) with all three phases in one diagram



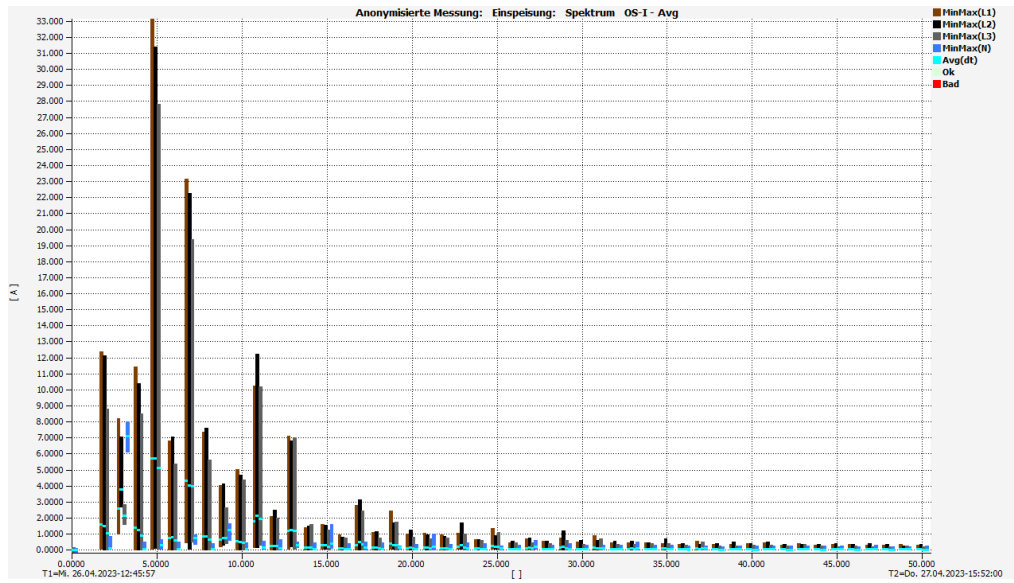
2.2.2.2.3 Extreme value chart (profile per day/week)



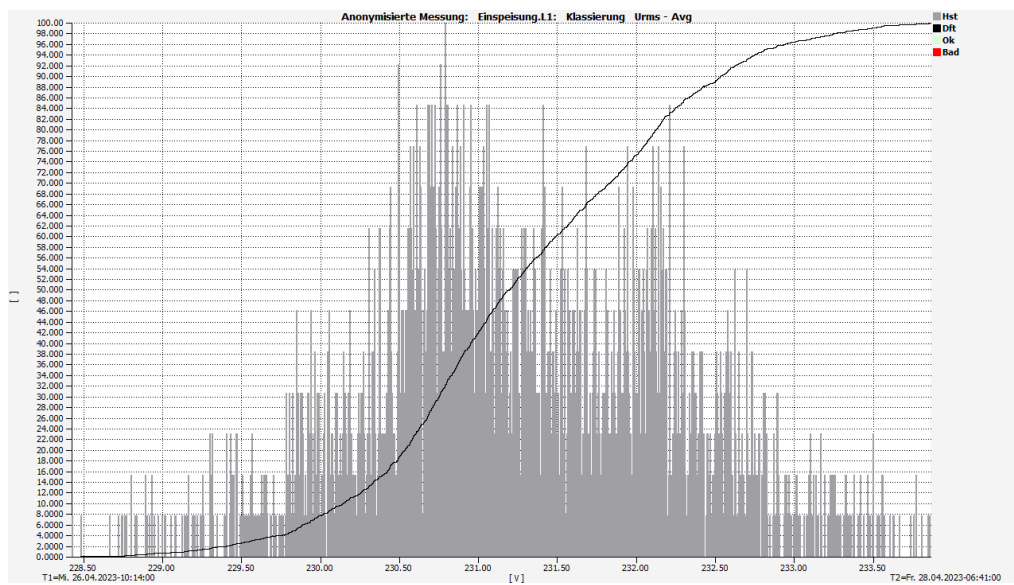
2.2.2.2.4 Measured object overviews of all quantities related to the standards



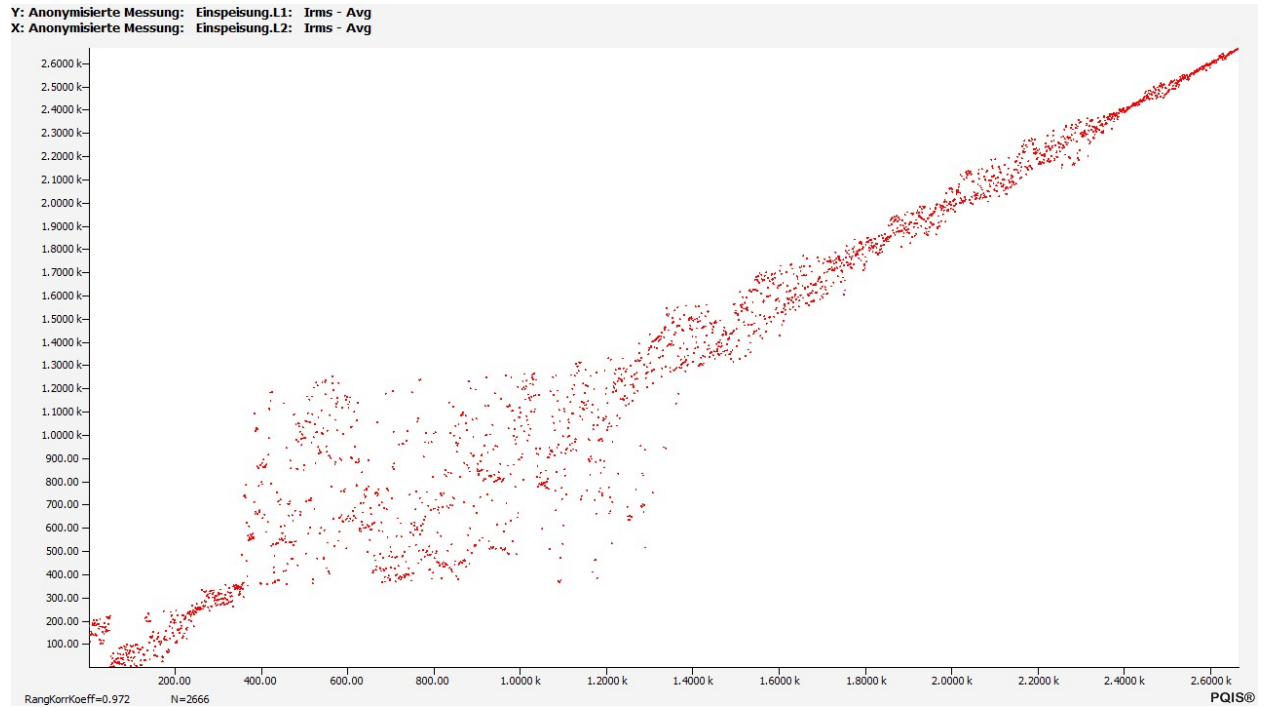
2.2.2.2.5 Spectral representation of the frequency-dependent



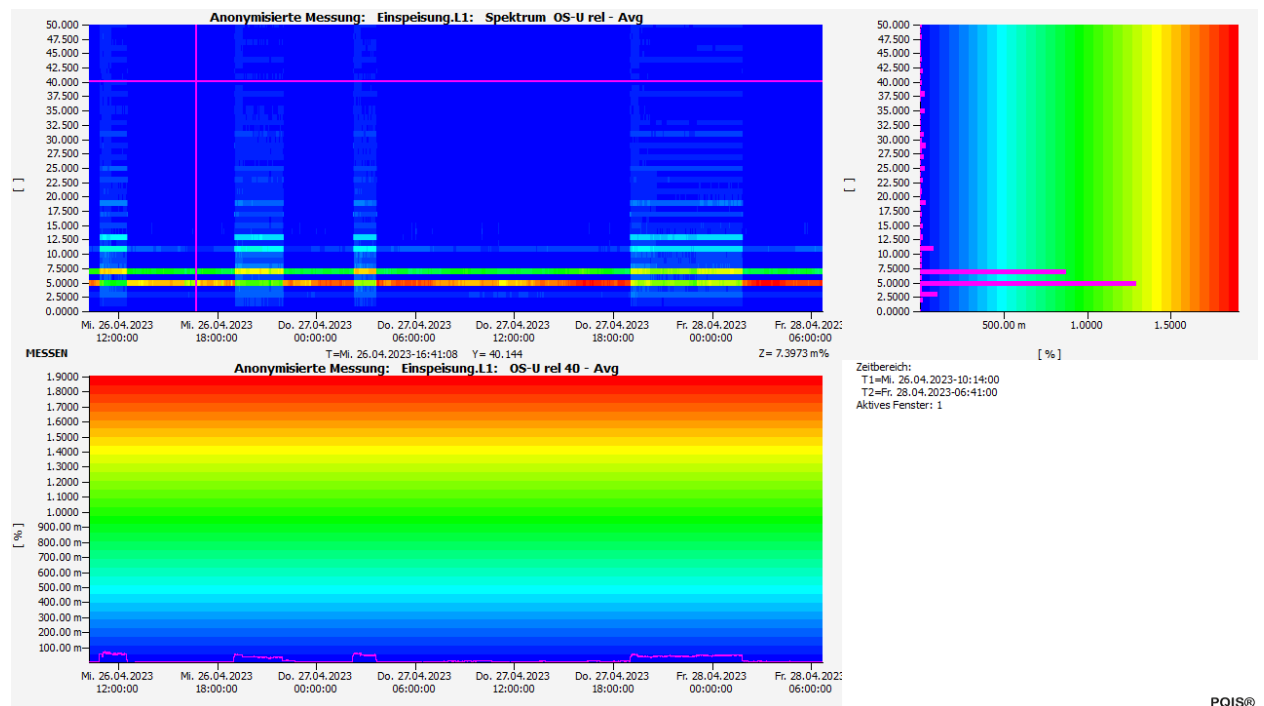
2.2.2.2.6 Distribution functions



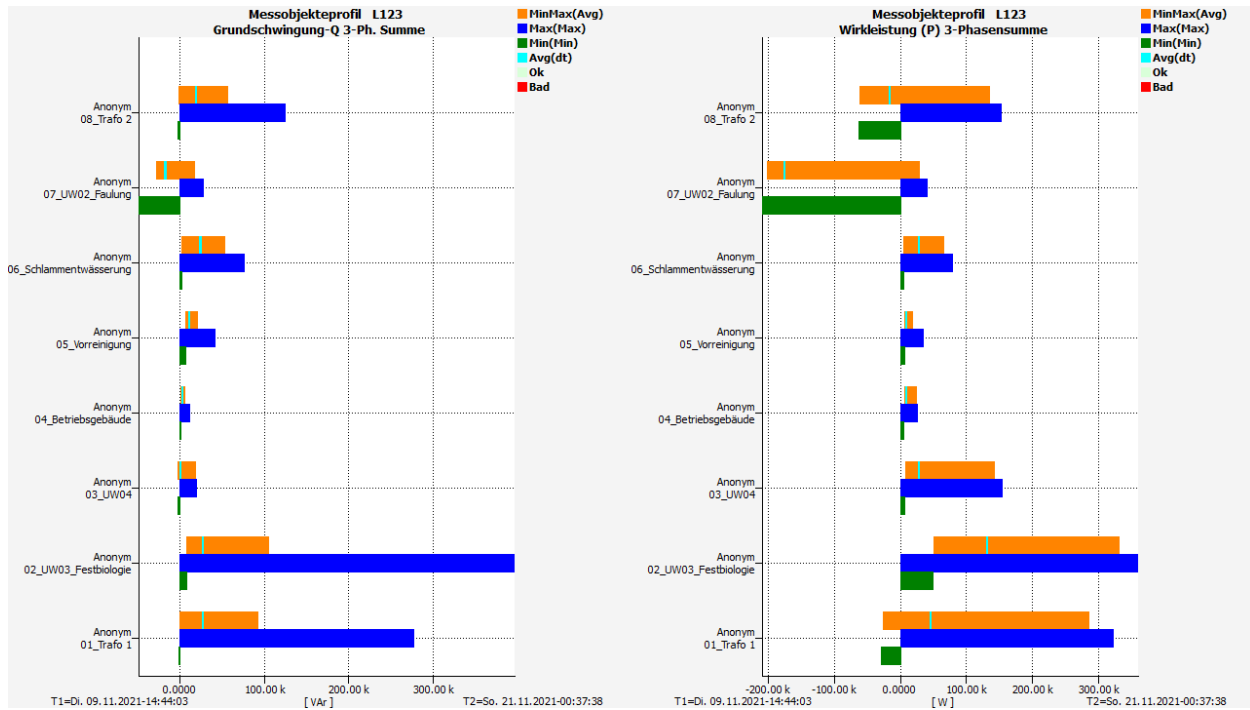
2.2.2.2.7 Correlation analysis (not AutoExport capable)



2.2.2.2.8 Color analysis (not AutoExport capable)

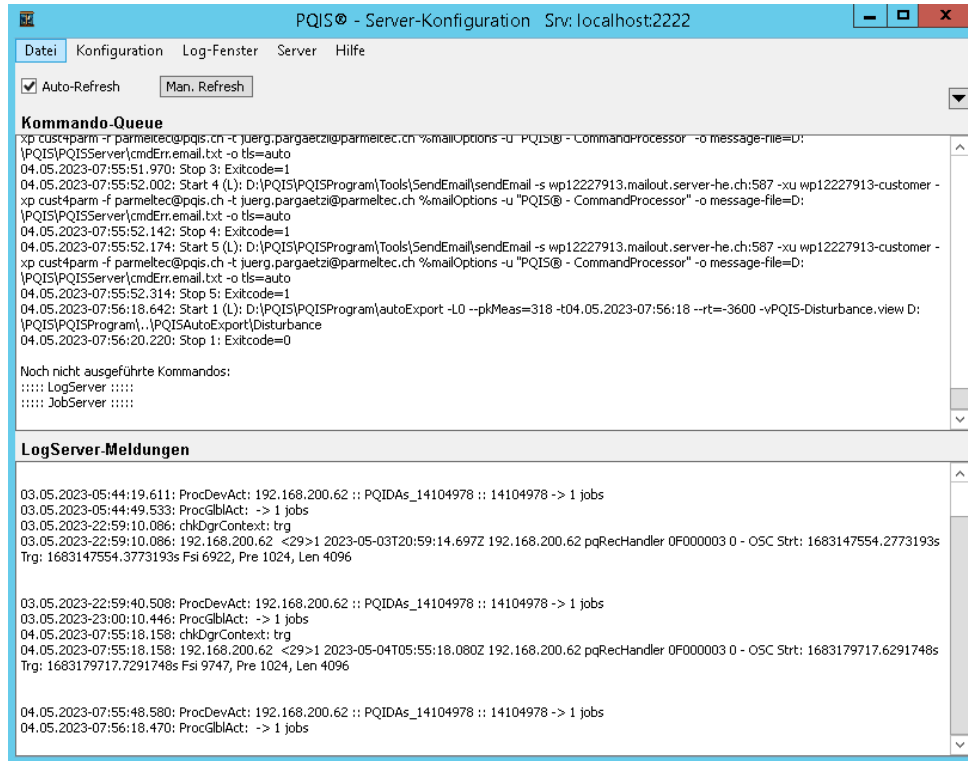


2.3 Measurement object profiles (data of several measurement points in one diagram)



2.3.1 PQIS® Server

The PQIS® Server is the actual automation component of PQIS®. In the PQIS® Server configuration, the current and past activities in the automation are displayed.



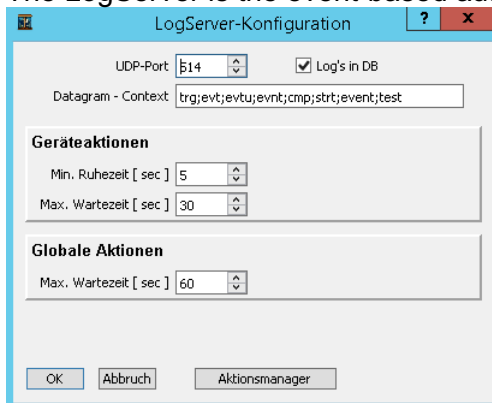
The automation unit takes into account the two independent task queues LogServer and JobServer, whereby the LogServer queue is always given priority.

The following tasks can be performed in both the JobServer and the LogServer:

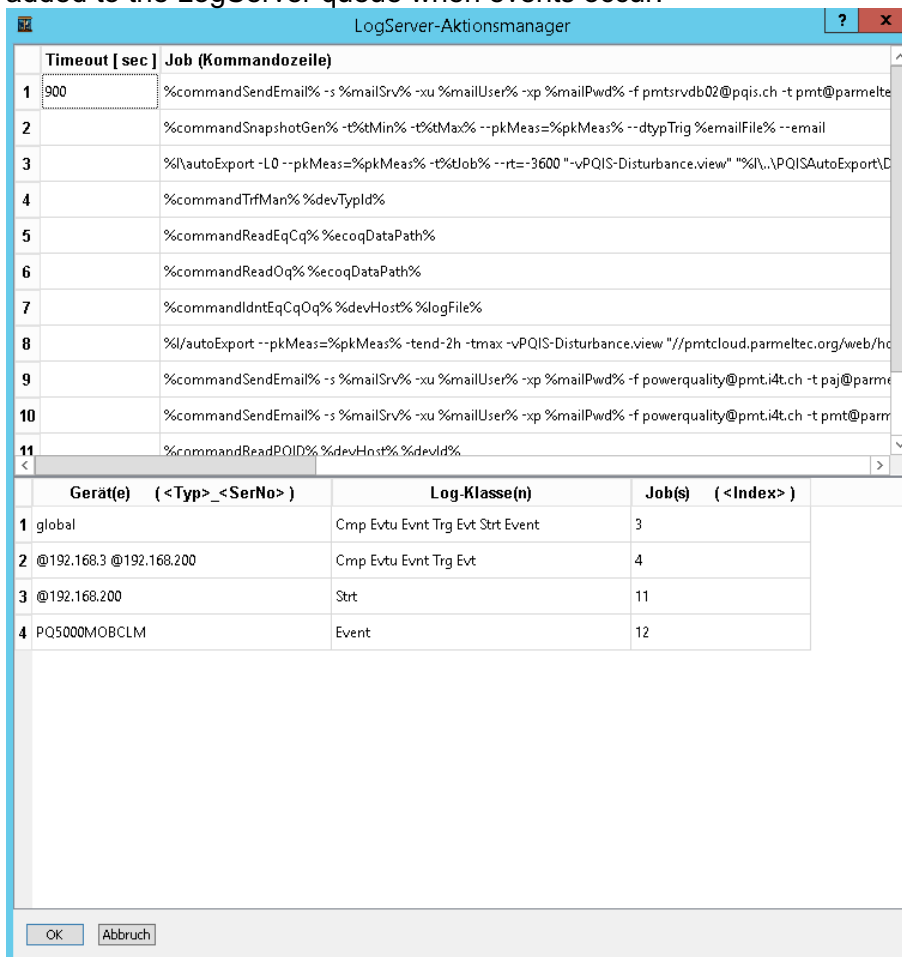
- Read out measurement data from measuring devices
- Read measurement data into database
- E-mail notifications Create reports
- according to templates Export
- measurement data Summarize
- measurement data
- Link measurement data (busbar summarization) Archive
- measurement data
- Delete measurement data

2.3.1.1 PQIS® LogServer

The LogServer is the event-based automation unit.



Tasks are defined in the action manager and depending on various source information (IP address, device types, device series numbers) and event classes, corresponding tasks are added to the LogServer queue when events occur.



2.3.1.2 PQIS® JobServer

The JobServer is the time-controlled automation unit of PQIS®.

JobServer-Konfiguration			
	Jobgruppe	Priorität	Startzeit
1	Gruppe 0	0	minute=0;hour=0;day=*;dayOfWeek=*;month=*
2	Woechentlich am Montag	0	minute=0;hour=7;day=*;dayOfWeek=1;month=*
3	Ausführen Peramanente Messungen	0	minute=0;hour=6,18;day=*;dayOfWeek=*;month=*
4	Import Kundendaten	0	minute=0;hour=1;day=*;dayOfWeek=1;month=*

Zurück Änderungen übernehmen

Actions are combined in job groups, which are executed at the corresponding time.

Jobgruppe: Ausführen Peramanente Messungen	
Timeout [sec]	Job (Kommandozeile)
1 3600	%commandParallel% --retry=5 -n5 --retryOnAllErrors 12h_auslesen.cpar
2 3600	%commandParallel% --retry=5 -n1 --retryOnAllErrors 12h_importieren.cpar

3 Licensing

3.1 License costs

License fees are generally payable when the software is procured. They essentially serve to license the corresponding modules and allow the installation of a corresponding system type on a single physical or virtual workstation or server. The license fees also include the maintenance costs within the first 12 months but license date. Licensing is done by issuing a corresponding license certificate or license file. The license file is issued to the end customer only.

3.2 Maintenance costs

The maintenance costs are to be paid for the maintenance and further development of the software. The modules and interfaces purchased via the license costs are decisive for the calculation. Maintenance costs are due annually from the 2nd installation year after the license date at the beginning of the license period. They allow the free purchase of updates of the licensed system types and modules during the current 12 months of the respective maintenance period. If maintenance costs are not paid within 30 days after the end of the maintenance period, the update entitlement is cancelled. Licensing shall be effected by issuing a corresponding license certificate or a license file.

The maintenance costs are invoiced at the beginning of each year for the current year,

3.3 Existing systems (Upgrade Damon II to PQIS®)

For existing systems, corresponding license costs are only due for expansion. The up-grade authorization to PQIS® is acquired with payment of the maintenance costs of the modules already purchased. The uninterrupted upgrade authorization can be purchased until 31.1.2019.

3.4 Upgrade during maintenance interruption

If the maintenance costs are not paid within the respective period, the upgrade authorization expires. If the system is to be upgraded at a later date, 50% of the license costs must be paid as re-entry into the upgrade authorization.