# QubeView



# pqube management system

# INTRODUCTION

Configuring device and downloading data without application software is one of the great PQube features, but in large system environments this approach has some drawbacks. While configuration and download of couple of devices can easily be done manually using web browser, this way of handling larger system (tens or hundreds of devices) is rather time consuming, and not efficient. We have recognized the need for PQube management software, which can be utilized for automatic and simplified handling of multi-device configuration, data download, analysis, archiving and reporting.

## **KEY FEATURES**

- Fast and reliable communication via HTTP protocol
- Remote upload of PQube configuration
- Scheduled download of measurement data
- Single database for all PQube units
- Automatic customizable data backup
- Conversion of all records into PQDIF
- Management of multiple PQube units
- Data comparison of multiple PQubes
- Parallel data analysis from multiple PQubes
- Event list from multiple Pqubes
- Diverse reports (basic,compliance,comparison)
- Automatic background data processing

### PQUBE MANAGEMENT SOFTWARE





### QubeView provides the following functionalities:

→ Hierarchical device database - list of all devices in system, grouped hierarchically by some characteristics (geographical location, voltage level, measurement point type...). Database contains network address, configuration settings, data download schedule and status logs for all devices.

Time period:						
From to 👻						
From: To: 1. 3.2016. ▼ 31. 3.2016. ▼	Oube	Viow				
HIERARCHY BY PROPERTIES	Qube					
		x				
Demo	PQube device status					
🚝 Rooftop Solar						
Household Consuption	Location	TUGARE				
	PQube 3 ID	SE TECTRA 2				
PQube 4	Note 1	IEC61000-4-30 10min				
Substation 1	Note 2	www.tectra.hr				
POute 3	PQube 3 Serial Number	P3001391				
	Model Number	PQube3-PQ-E08N-0000 3.4.0.16.03.24				
PQube 0	Firmware Version					
MPMS_TEST_SQL	IP Address	192.168.1.40				
-	Power Configuration	Wye/Star				
	Nominal Line-to-Neutral Voltage	230V				
	Nominal Line-to-Line Voltage	400V				
	Nominal Frequency	50Hz				
	Potential Transformer Ratio	1:1				
	Current Transformer Ratio	50:0.333				
	Time	Fri May 13 14:31:22 CEST 2016				

→ Configuration management – device configuration is done in intuitive and easy to use graphical user interface, much more user friendly than INI files. Configuration can be changed or added to one device, or to all devices in group, making process of configuring multiple units easy. If new device, with configuration identical or similar to configuration of existing device has to be added in system, it can easily be "cloned" from existing ones. Configurations are sent and written into devices by single click!

0 I W				
General settings	Configuration			
Device type: PQube3	PQube configuration			
Online device				
Https	Firmware version			
	3.4.0 👻	Load from file Save as		
D: P3001391_1				
Name	Downstream voltage   Current Inggering	Audiary Inggenng ENV Sensor Trend Logging		
PQube 4	Harmonics   Mains Signaling   Network Set	up Security Time Synch Modbus/SNTP		
_	PQube3 Email Setup   Email Commands to	PQube3 Emails from PQube3		
Communication parameters	General AC Voltage   AC Current   Auxilia	ny inputs   Relay Outputs   Event Setup   Voltage Triggering		
Network address	PQube_Information			
tectratugare dyndos org	PQube_ID	"SE TECTRA 2"		
Det Commands and	Location_Name	"TUGARE"		
Commands por	Note_1	"IEC61000-4-30 10min"		
8888	Note_2	"www.tectra.hr"		
	Power_Configuration	Wye =		
Admin User name	Offeet Free UTC in Hours	-2		
admin	UPS Time In Minutes	3		
Admin Password	UPS_Model	None		
admin	UPS Battery Canacity In mAh	inono .		
HTTP user name	Fan Temperature Threshold in DegC	55		
	PQube_Primary_Language	English-American		
HTTP pageword	PQube_Secondary_Language	None		
ni ir passworu	⊿ Output_Formatting			
	Decimal_Separator			
	Date_Separator	"/"		
	Time_Separator	"."		
	CSV_Separator			
	▲ Channel_Recordings			
	Generate_GIF_Graphs	UN -		
		Download from device Upload to device		

Download and archiving – Device database contains all parameters required for automatic data download and archiving. Once properly configured, software will automatically connect to devices, and download desired files into specified folders, without any need for user intervention.

Downloads can be scheduled:

- daily
- weekly
- monthly
- in custom time periods

Manual download of latest data is also available. Automatic scheduled download can be used for unattended archiving, or loading of measurements into the third party PQ database (e.g. Electrotek PQView). Measurement data can be stored on a hard drive (with same folder structure as one used on PQube device) or in a SQL database. User can precisely define which files / measurements are downloaded which reduces timing and bandwidth problems. Real-time download of selected measured quantities is also available.

QubeView[admin] (demo)		_
	i 🛃 🔛	
Time period:	DOWNLOAD: FILE SYSTEM	
From to *	Download settings Advanced settings	
26. 4.2016	PQube Classic 🐱 Events	Profile: Default downloa. 🗸 💌 🗘
HIERARCHY BY PROPERTIES	PQube 3 Trends: Inin fincludes hamonics)	
e 📴 Demo	2kHz - 150 kHz	
🚝 Rooftop Solar		
	Select all	
PQube 4		
💭 PQube 3	Download now Schedule download	
🎬 PQube 0	Date range	
MPMS_TEST_SQL	New since last download	
	Start downloading Cancel	

#### → Data analysis and visualization – Steady state measurements and event data analysis tools are available:



- Interactive trends of steady state parameters, including harmonics
- Data from multiple PQubes, multiple channels and long time intervals can be loaded into single trend chart
- Chart data can be exported into image or spreadsheet files

New list	ļ					Ê						۲	
Liet1 X							750	Event count (Phase A)	3	vent count (Phase B)		Event count (Phas	=C)
LISCI	-	-					330						
PQube name	Timestamp	Event type	Magnitude	Duration [s]	Phase	Â		- 1 A I I I I I I I I I I I I I I I I I I					
Rooftop Solar	03.03.2016 19:23:07.353	Voltage Sag	89,04 %Un	369,544006	L2-N		300 -			+ +-+ ++++++++++++++++++++++++++++++		- +	
Rooftop Solar	03.03.2016 19:18:52.764	RVC	3,33 △ %Ustat	0,041	L2-N		E						
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Rooftop Solar	03.03.2016 19:11:50.761	RVC	3,78 △ %Ustat	0,071	L2-N		-n%						
Rooftop Solar	03.03.2016 19:08:31.407	RVC	3,2 △ %Ustat	0,07	L1-N		- 200						
Rooftop Solar	03.03.2016 18:19:49.520	RVC	6,07 △ %Ustat	0,141	L2-N		ji i	$\langle \rangle$					
Rooftop Solar	03.03.2016 18:15:50.139	RVC	3,22 △ %Ustat	0.05	L1-N		e 150-						
Rooftop Solar	03.03.2016 18:15:31.814	RVC	3,23 △ %Ustat	0.04	L1-N		Itog						
Rooftop Solar	03.03.2016 18:15:10.588	RVC	3,23 △ %Ustat	0,06	L1-N		§ 100 -					•• ••	••• •
Rooftop Solar	03.03.2016 18:14:37.517	RVC	3,28 △ %Ustat	0.05	L1-N		50			+ + + +++++++++++++++++++++++++++++			
Rooftop Solar	03.03.2016 18:14:17.233	RVC	3,25 △ %Ustat	0.049	L1-N								
Rooftop Solar	03.03.2016 18:13:50.627	RVC	3,3 △ %Ustat	0,059	L1-N								
Rooftop Solar	03.03.2016 18:13:25.876	RVC	3,07 △ %Ustat	0,04	L1-N		10-4	10-3	10-2 1	D <sup>-1</sup> 10 <sup>0</sup>	101	102	1
Rooftop Solar	03.03.2016 18:13:06.726	RVC	3,45 △ %Ustat	0.05	L1-N					Duration[s]			

- Event lists for single or more Pqube units
- Different types of event analysis plugins available upon request, including (but not limited to): Histograms, Cross-tabs, SARFI reports, ITIC/CBEMA charts, Event waveform/RMS charts

#### → Energy management

Energy management module provides tools for energy consumption, load analysis and sub-metering applications. Some of the functionalities are:

- QubeView[admin] (demo) E File Administration Download Analysis Reporting Help 🧶 🐢 📼 👳 🍵 📑 🎿 🐘 ENERGY MANAGEMENT Time period: From ... to From: To: 1. 3.2016. 
  To:
  5. 3.2016. 
  To: X × Chart 4 HIERARCHY Vs Last Period (%) n/a Last Year Wh Last Period Wh Vs Last Period Wh Vs Last Year Wh Plan Wh Vs Plan Wh Real Wh Vs Plan (%) Vs Last Year (%) 212786 117171 55,00 95615 95615 95615 n/a 0 Demo Rooftop Solar Rooftop Solar - [Real Energy] 1.3.2016.-5.3.2016 Ideal profile Household Cons 1.3.2016 2.3.2016 3.3.2016 4.3.2016 5.3.2016 2000 PQube 4 1800 Substation 1 PQube 3 1600 1400 PQube 0 MPMS\_TEST\_SQL 1200 € 1000 800 600 400 200 -H 3 E 22日 E 0 -
- Comparison of real measurements to predefined load profiles with alarming options detection of load interruptions, unauthorized consumption, failures, etc.

• Energy consuption overview graph including multi-site and multi-period comparison



→ Compliance Reporting – Reports can be manually created on demand, or configured for automatic scheduled generation. Once configured report template (which contains device list, report period, parameters to display...) automatically creates reports on scheduled time.

User can edit existing compliance standard, or create a new standard for evaluation of compliance.

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QubeView[admin] (de	mo)	d An	alveie Reporting H	- -	- >
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Time period: From to	-	СОМР	LIANCE REPORT		
From: To:	3.6	Can	and actions	Generated report Profile: EN50160 LV D♥	Ó
1. 3.2010. • 3. 3.2010. •		Gen	erai settings	Report directory C:\Users\Frane\Documents\MPMS\Reports	
HIERARCHY BY P	ROPERTIES	Rep	ort section layout	Report file name EN 50160 LV	
Demo				Add field to file name None -	
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🚰 Household	Consuption			Compliance FN 50160 LV Cate May Deleto	
PQube 4				Votage connection O LL O LN	
Substation 1					
		Date rar	nge	Generate now Schedule generation	
		From .	to v		
		From: 29. 2.1	2016. • 6. 3.2016. •		
		Selecte	d weeks: 1	Generate document Cancel	
				×	
	Editing: E	N 5016	0 LV		
	General Set	ig5	Compliance name	N 50160 LV	
			Compliance interval 1	week v Week start day Monday v	
			No data limit 0,8	85 🐳	
			Description EN	N 50160 compliance standard for low and middle voltage	
	Parameters				
	Frequency 2 Voltage RMS	1	Parameter name Fre	equency 1 Parameter is harmonic	
	Flicker PLT Flicker PST	2	Short name F1	LN channels: Frequency (1-cyc)	
	Voltage unba Voltage THD Voltage ham	onics	Ime percentage 99	1.00 🔤	
			Lower limit 99		
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	Add	Delete		Edt Delete	
	Events				
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	Add	Oelete	Magnitude maximum 0,	90 🚖 Maximum duration  60,00 🚖	
				Save changes Save as new	
2. (	Complia	ance	charts by	parameters	
Roof	top Solar				
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9	0				
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# HIGHLIGHTS

#### Modular architecture:

Many different optional components can be delivered with the software as plug-in modules:

- Storage and archiving: file system, SQL database...
- Data analysis: Trend charts, statistics, event charts and tables
- Reporting: Custom statistical and compliance reports
- Localization: user interface (and report documents) can be translated to different languages

#### All in one solution for PQube users:

- Fast and reliable communication with HTTP
- Remote upload/download of PQube configuration
- Scheduled download of measured data
- One database for all units
- Automatic data backup with filter
- Conversion of all data into PQDIF
- Management of many PQube units
- Data comparison of different PQubes
- Data analysis from many PQubes
- Event list from many PQubes
- Compliance reporting
- Background data processing and reporting
- Archiving and e-mailing reports in PDF, HTML, DOCX, CSV... document formats

#### **Benefits:**

- Avoid time consuming manual PQube management,
- Increase your efficiency and minimize user induced errors,
- Simplify complex analysis through flexible automatic reporting

#### Applications:

- Large scale power quality monitoring systems in utilities, industry or households,
- Energy management and sub-metering,
- Data archiving and compliance reporting



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