



PSL Analyzer Products

PQube 3



PQube 3e



PQube 3v





PQube 3 - the best power analyzer

PQube 3 is :

- 1. an Advanced Intelligent Sensor
- 2. a Strip Chart Recorder
- 3. a Set of advanced oscilloscopes



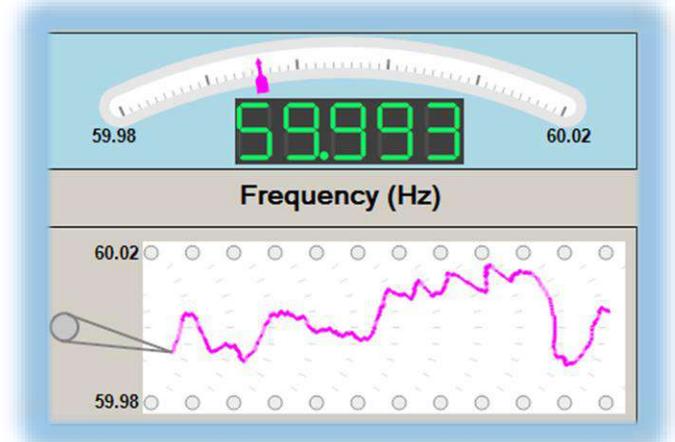
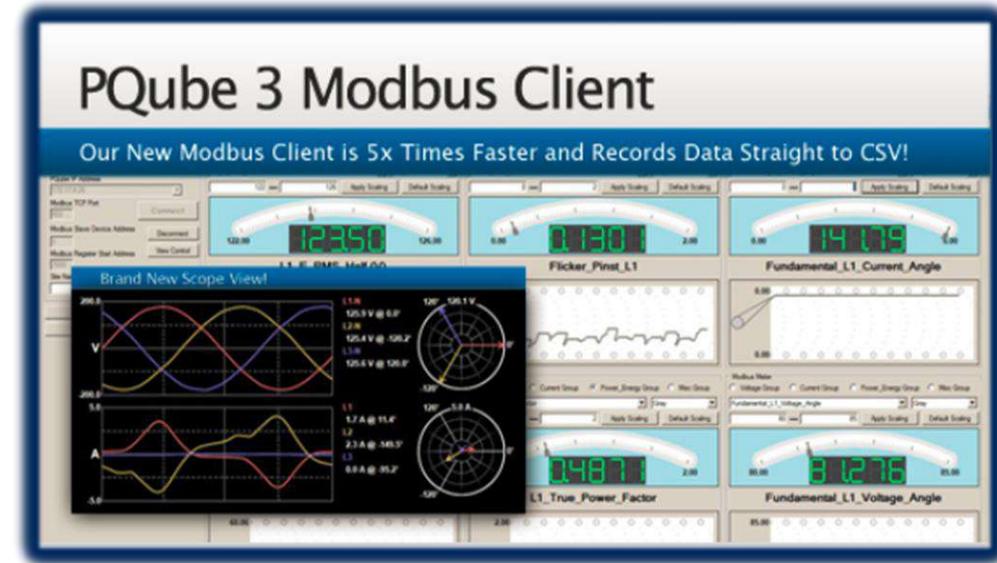


An advanced intelligent sensor ...

- Over 3000 parameters available – in real time!
 - Real time scope meter with waveforms
 - Real time voltage and current harmonics
 - Real time 2 kHz – 150 kHz range emissions (supra harmonics)
 - Recording of live meter values in CSV files

Modbus/TCP - 2 Hz meter refresh rate.

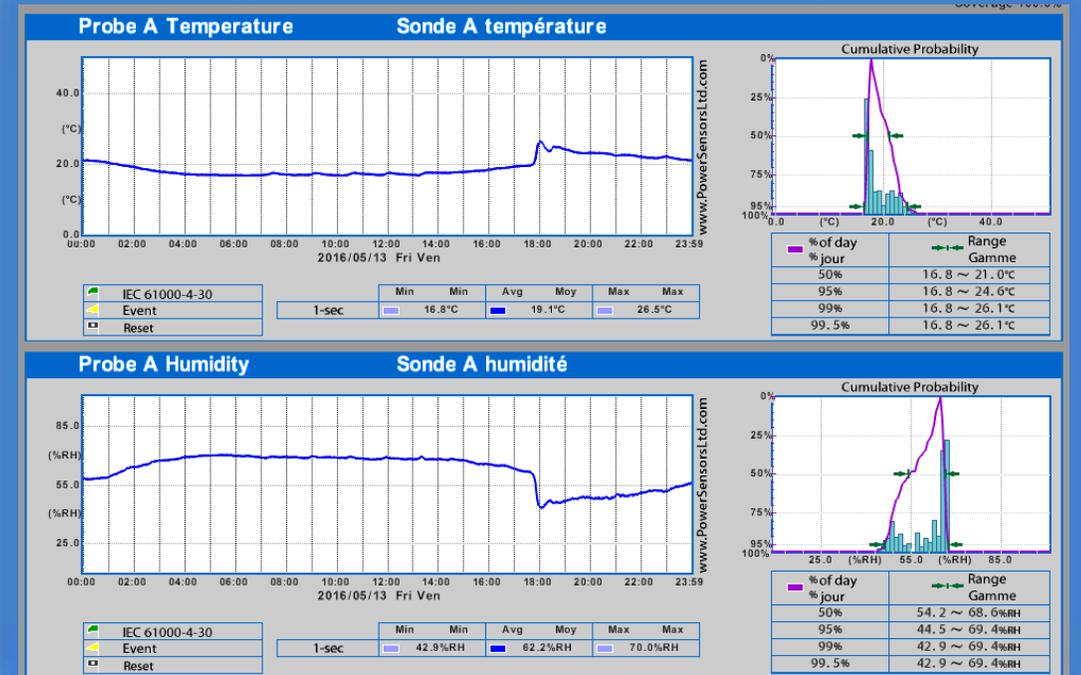
SNMP - also sends event “traps”





The best strip chart recorder!

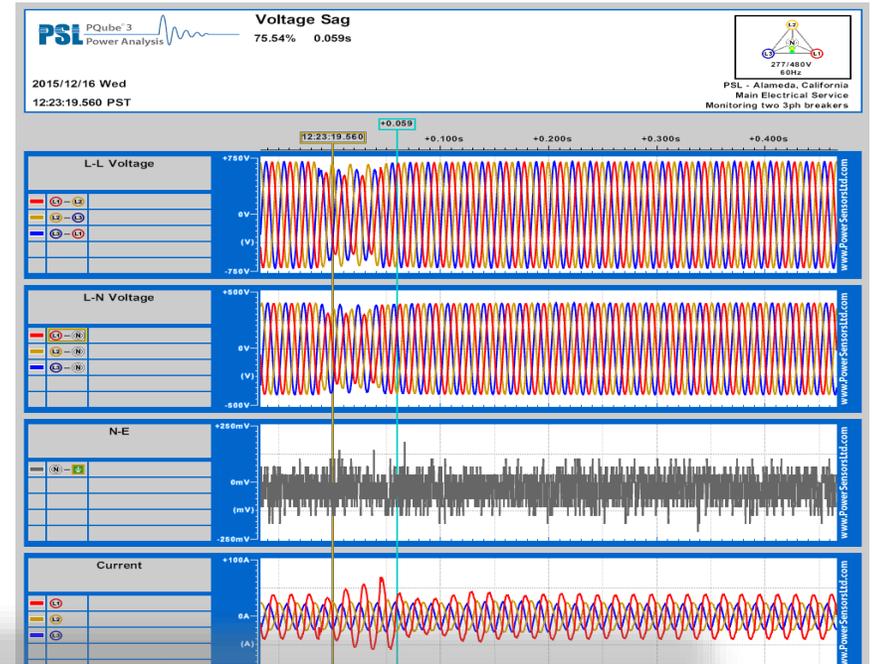
- Computes min/avg/max every minute ... does not miss a single cycle!
- Each 1min value goes into trends everyday also weekly and monthly trends
- Available as graphs(GIFs), ASCII(CSV) files, or PQDIF files





40+ oscilloscope triggers!

- sags/swells, inrush currents, rapid voltage changes, wave shape changes!
- over/under frequency, under/overvoltages DC...
- over/under temperature, mechanical shocks...
- Available as graphs(GIFs), ASCII(CSV) files, or PQDIF files





8 CURRENTS
333mv/10Vpk

GPS
SYNC

VOLTAGE
0-600V

PWR SUPPLY
100-240VAC

1 RELAY OUT
(NC)

4 ANALOG IN
DIGITAL IN
0-60V

PWR
SUPPLY
24-48VDC

BACK UP
Power
30mins

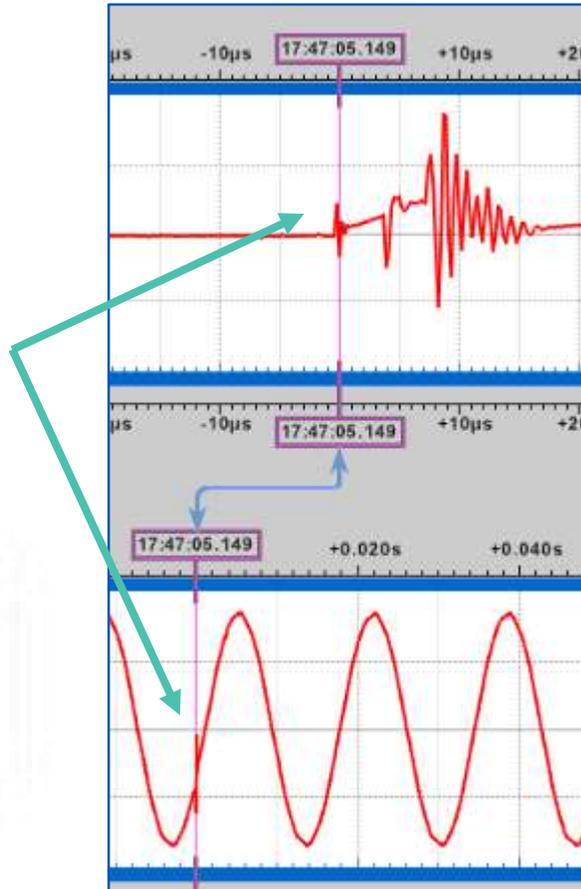




PQube 3 – Performance Highlights

- PQube 3 is full Class A as per IEC 61000-4-30 Edition 3 (2015)
- Sampling rate: 512 sample per cycle
- High resolution and accuracy (20 bit equivalent resolution)
- HF (high frequency) impulses detection AND recording, at 4 MHz
- Revenue grade accuracy – Class 0.2 including PSL ultra-precise CT's
- Supra-harmonics: 2 kHz-150 kHz conducted emissions

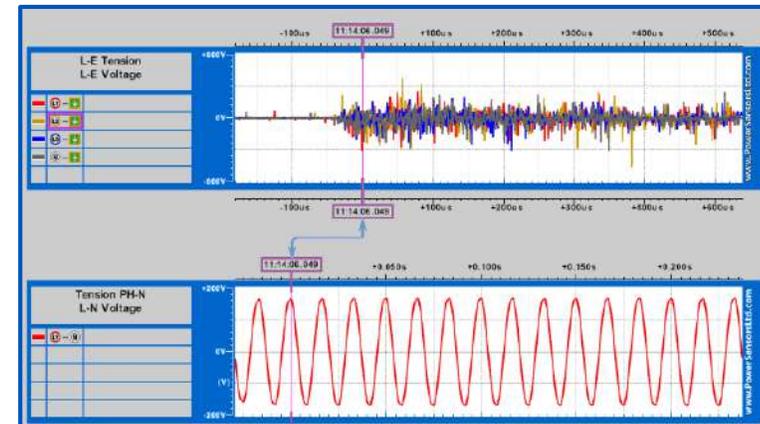
High Frequency Impulses



Peak: 344Vpk
 Rate Of Rise: 167V/ μ s
 Total Volt-Seconds: -0.00V-s
 Peak Volt-Seconds: 0.02V-s
 Joules (50 Ohm, 300 V Threshold): 0.000J
 Trigger Threshold: 300V

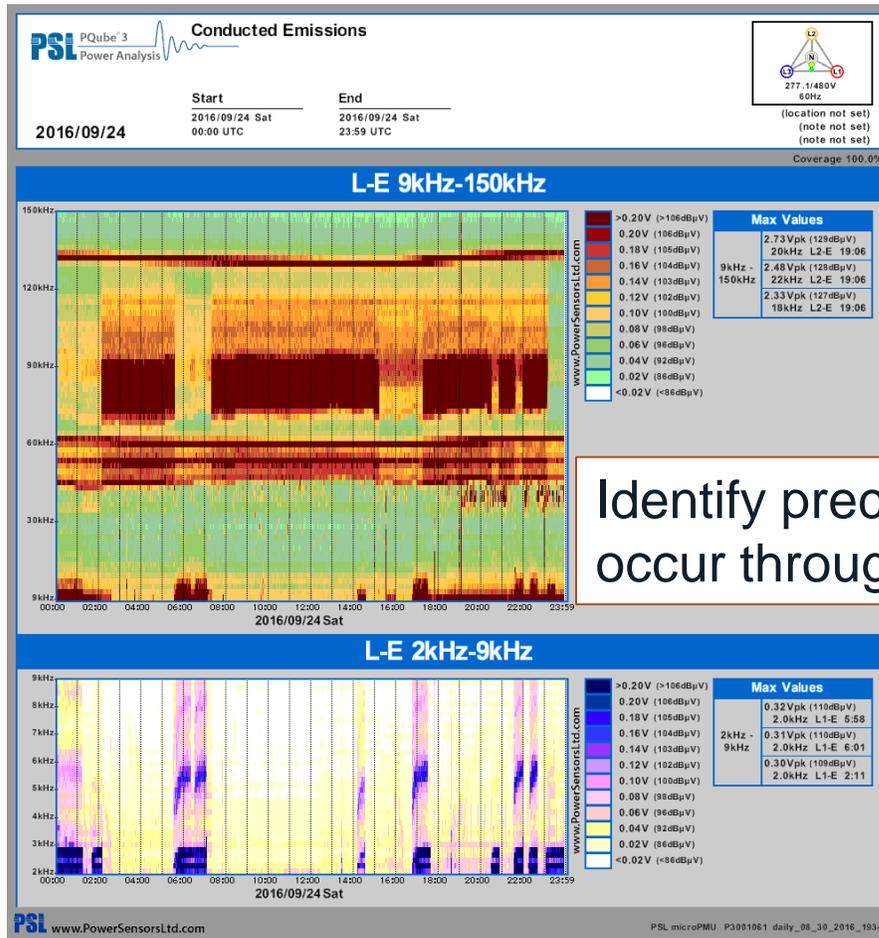
Position in the waveform is important to characterize the disturbance source:

- Lightning
- Breaker or contactor switching operation
- Inductive load switching off
- Capacitive load switching on





2 kHz to 150 kHz Emissions – Supra harmonics High resolution spectrum



24 hours

Effects:

- > PLC communication jammed
- > Meter readings off
- > Power supply burning
- > Lighting control malfunctions

...

Identify precisely when emissions occur throughout the day

1min resolution - average and max value

- > 2000Hz -9000Hz by bins of 200Hz
- > 8kHz -150kHz with bins of 2000Hz



EnviroSensor ENV2

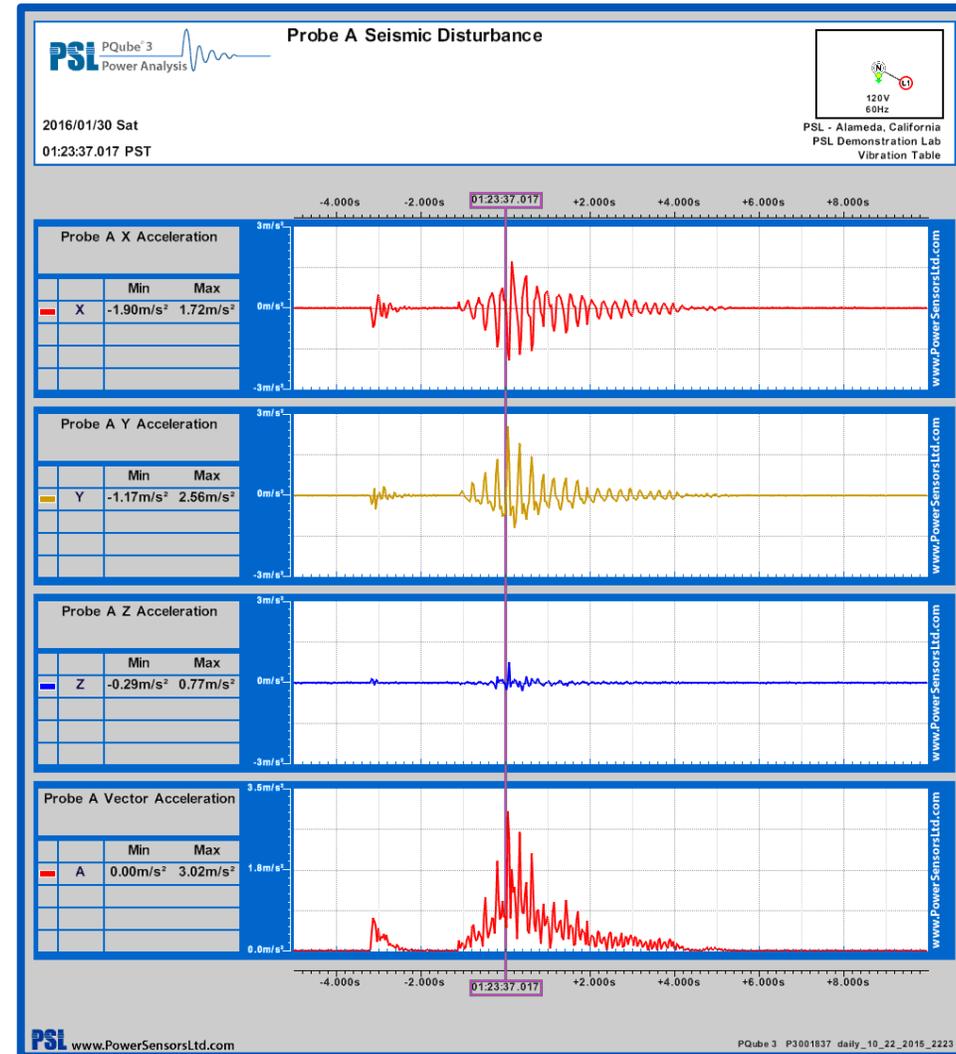
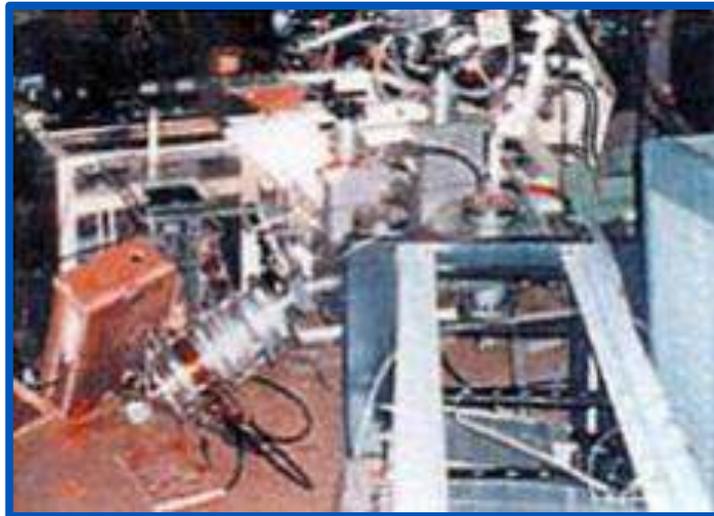
- Temperature/humidity
- Barometric pressure
- 3D acceleration sensor
 - mechanical shocks
 - seismic disturbances
 - tilt angle





EnviroSensor ENV2

➤ Seismic disturbances



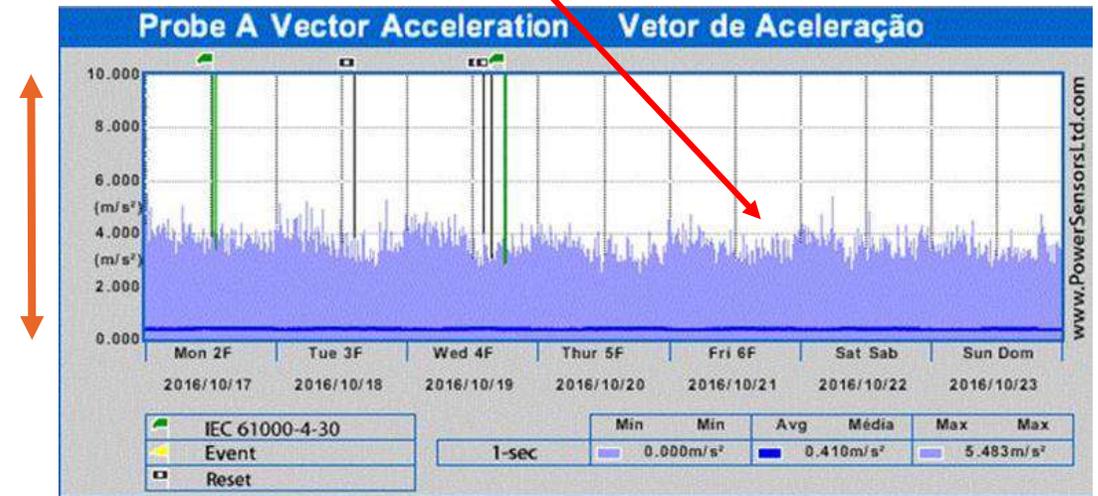
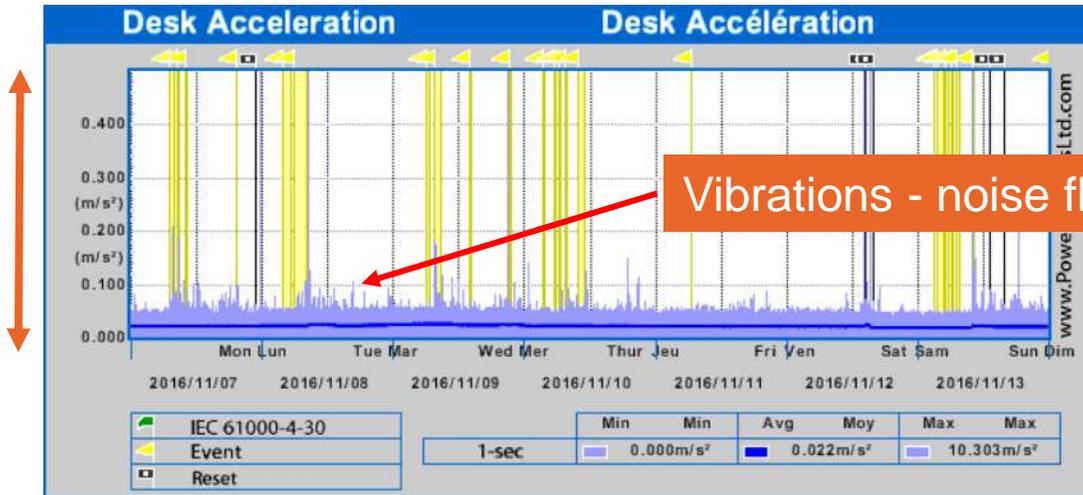


EnviroSensor ENV2



Vibrations

Vibrations - compressor operating all day



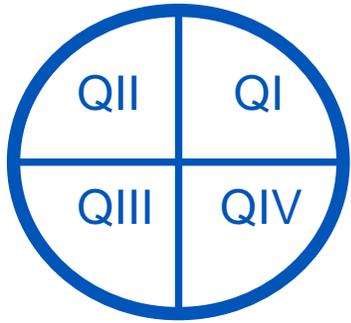


New! Power & Energy consumption on all 8 channels!

- ✓ Manage your energy costs – Class 0.2 revenue grade accuracy
- ✓ Identify critical consuming loads in your facility
- ✓ Improve energy consumption efficiency
- ✓ Proactively identify potential power problems (before they happen!)
- ✓ Identify what causes really affect the quality of your product (and it is not always the power supplied)

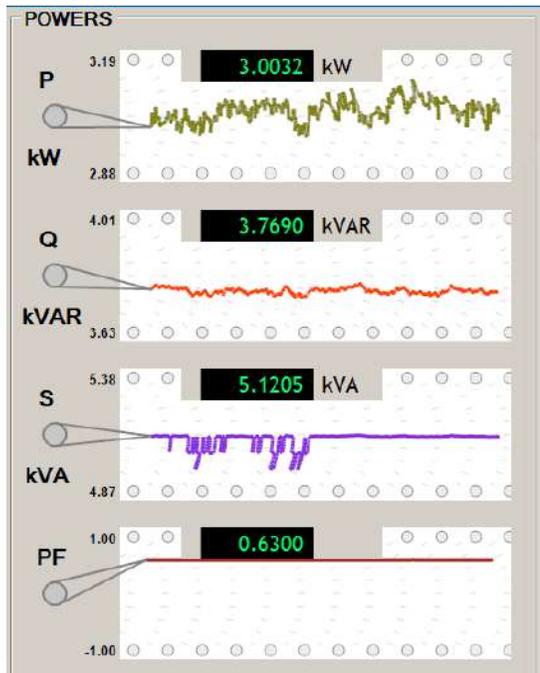


4-Quadrant Power and Energy



- ✓ Apparent energy
- ✓ Active energy - imported and exported
- ✓ Reactive energy - positive and negative
- ✓ True Power factor / Displacement power factor – CosPHI

All real time meters - Modbus



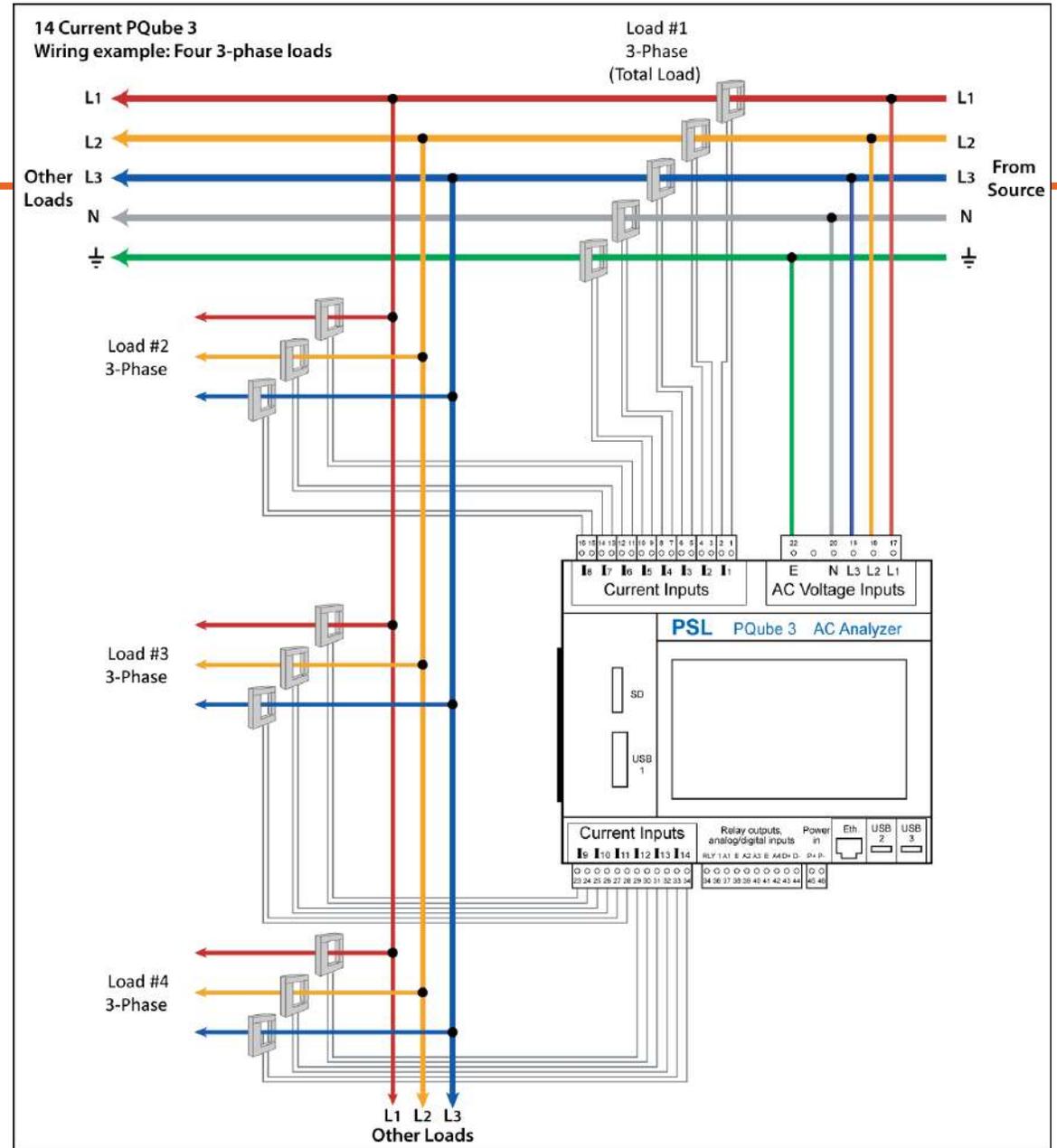
4-Quadrant Meters			
	-000,000,072	53	kWh
Net	000,000,095	10	kVAh
	000,000,003	73	kVARh
Active Energy			
Import	000,000,008	66	kWh
Export	-000,000,081	20	kWh
Reactive Energy			
	000,000,008	21	kVARh
	-000,000,004	47	kVARh

4-Quadrant Meters			
	-000,000,072	53	kWh
Net	000,000,095	10	kVAh
	000,000,003	73	kVARh
Active Energy			
Import	000,000,008	66	kWh
Export	-000,000,081	20	kWh
Reactive Energy			
	000,000,008	21	kVARh
	-000,000,004	47	kVARh



PQube 3e 14 current channels

Monitors up to
4 X 3-phase loads



PQube 3v Voltage Analyzer

- Ideal for distribution grid compliance analysis
Certified Class A IEC 61000-4-30 Ed3 (2015)
- Has all the advanced voltage measurement functions of PQube 3:
 - > HF impulse detection and recording at 4MHz
 - > 2kHz-150kHz conducted emissions
 - > sags/swells, RVC, wave shape changes detection ...
- Also does DC, process and environment monitoring

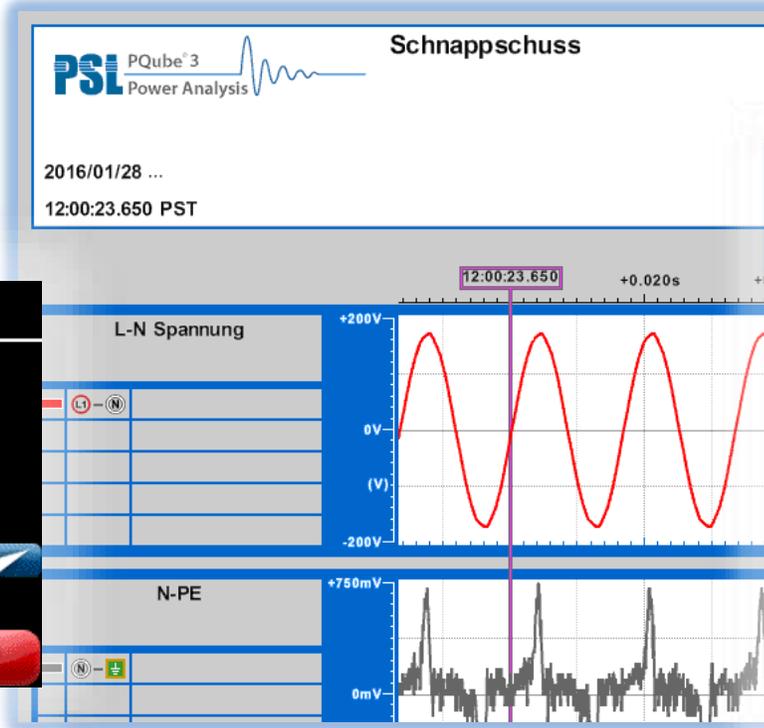




International deployment



Screen, graphs (2 languages) , web pages, emails...



PSL PQube[®] 3 Power Analysis

Trends/Statistics

Tendances/statistiques

Start	End
Début	Fin
2016/05/18 00:00	2016/05/18 Wed Mer 23:59

2016/05/18

120V
60Hz
South Alameda
Testbed firmware 340
60Hz - 120VAC - UTC
Coverage 100.0%

PQube[®] 3

Power Sensors Ltd. DSSP PQube #

- ステータス
- メーター
- イベント
- トレンド/統計
- 診断
- コマンド

2016 PQube3イベント

月	イベント	ファイル
2016/02	113	ファイルリスト
2016/01	122	ファイルリスト

2015 PQube3イベント

月	イベント	ファイル
2015/12	94	ファイルリスト

最近の事件

02/04/16 03:06:57 高频脉冲 479.00V

02/04/16 03:06:08 电压暂降 0.016 sec, 73.41%