

## PQube3 Rugged™ Monitoring System

*The most economic and efficient way to monitor power generation and power quality – remotely! Designed to save costs for field service organizations. Buy or Rent.*



- ▶ Monitor both AC Power to 750 VAC and DC power to 1200 VDC with one system
- ▶ Power quality and energy metering (imported/exported) simultaneously
- ▶ Every cycle monitored, no blind spots
- ▶ Store several thousand events and years of data with 16 GB flash memory
- ▶ Real-time data access via Ethernet, cellular modem, Modbus or SNMP
- ▶ Built-in web server, email server and FTP server
- ▶ Manually configured / plug-and-play system auto detects and self-configures
- ▶ Optional environmental monitoring: temperature, humidity, vibration
- ▶ View trends and events from cell phone, PC or tablet
- ▶ Available for sale or lease exclusively from **POWER<sub>etc</sub>**



### Power Monitoring Simplified

Get immediate results from the field to your inbox. Respond faster to customer concerns. Reduce unnecessary truck-rolls and service calls and ensure successful power studies. The PQube3 Rugged gives you a full picture of power quality and energy at remote sites. Upon powering-on, it begins monitoring and reports directly to your inbox. Graphs and reports are sent formatted and ready to use.

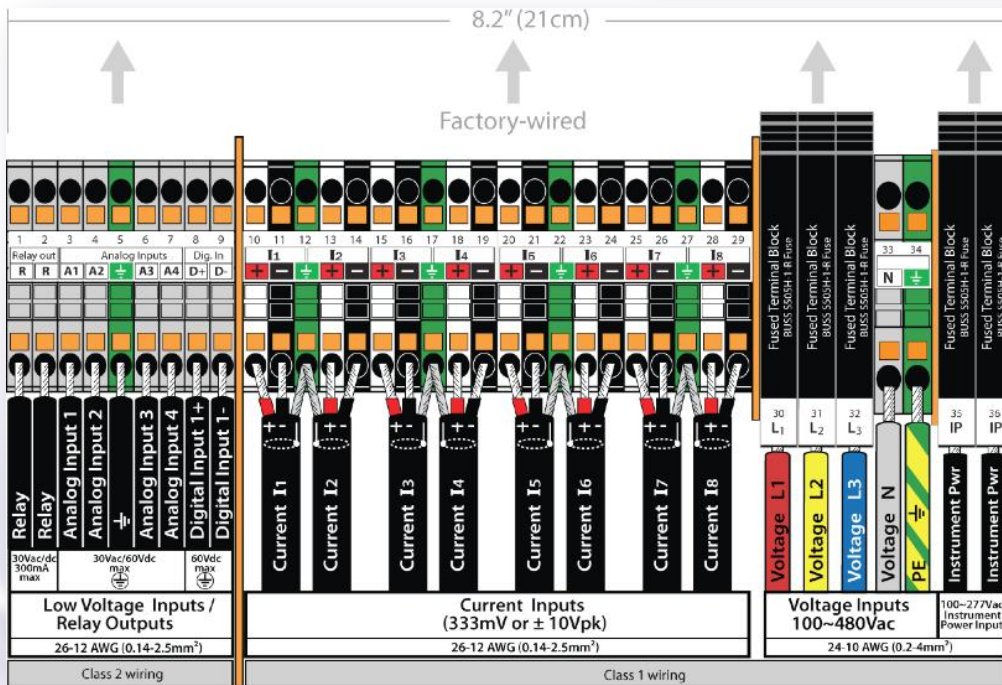
Designed for the distributed generation industry, the PQube3 Rugged is packaged in an IP44-rated indoor/outdoor wall-mount enclosure. Connections to voltage signals and current probes are made to clearly labeled terminals. It powers itself from the monitored line voltage. Connection to the Internet is via cell modem or Ethernet.

### Power Monitoring Simplified

Field service engineer trips and truck-rolls are time consuming and expensive. Instead, install a PQube3 Rugged and it will send you power data by email (logs, trend graphs, disturbance events, plus your choice of daily, weekly or monthly reports). No special software is needed. If configuration changes are needed at the remote site, simply send commands by email; or to view power values and waveforms on the fly.



### Connection Diagram

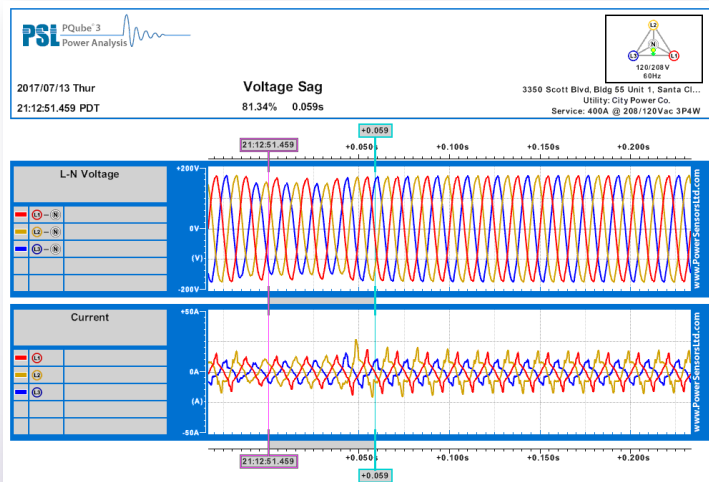


- ▶ Safe and quick field wiring. Drill holes for conduit or cables and connect to terminal and fuse blocks
- ▶ Rugged and safe- IP44, high voltage rated, corrosion-resistant polycarbonate outdoor enclosure
- ▶ Hinged door allows access to touch screen- for configuration and real-time meter viewing
- ▶ Security- pad-lockable door avoids tampering
- ▶ Self-powered- powered from the measured voltage
- ▶ UPS- 1-hour battery backup
- ▶ Single-phase, split single-phase, three-phase (wye/delta) voltage monitoring (L1, L2, L3, N)
- ▶ Eight current channels- compatible with split-core and flexible current sensors
- ▶ I/O connections (standard): relay output, 4 analog or 2 DC signal inputs, binary digital input
- ▶ Environmental sensor: combined temperature/humidity/barometric pressure/shock & vibration is included to monitor internal enclosure conditions. A second environmental sensor for external monitoring can be added as an option that connects via a USB cable.

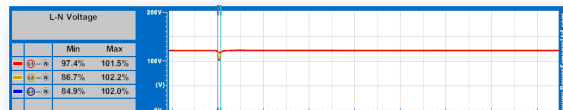
## Comprehensive Power Monitoring —

Monitor and record power quality, power generation and energy. Diagnose reliability issues, utility compatability and verify power output. The PQube3 Rugged measures the entire range of power parameters to track energy generation with revenue-grade accuracy. Plus it catches transient disruptions and voltage anomalies to confirm “all-good” or “poor” power quality.

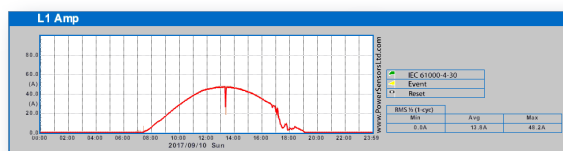
## Sample Reports



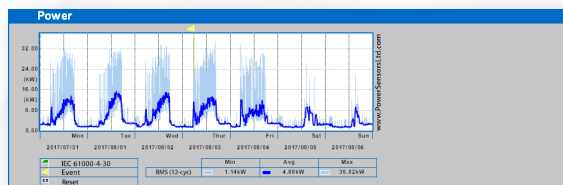
Voltage sag event - detailed waveform view



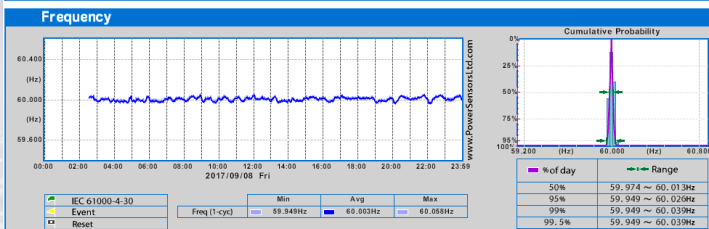
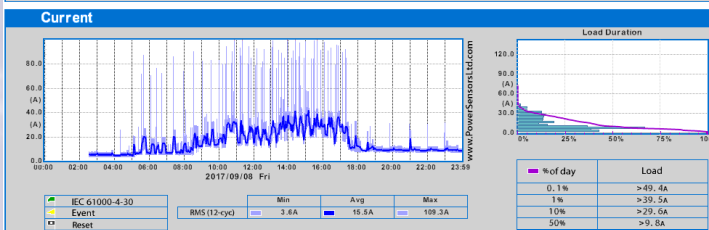
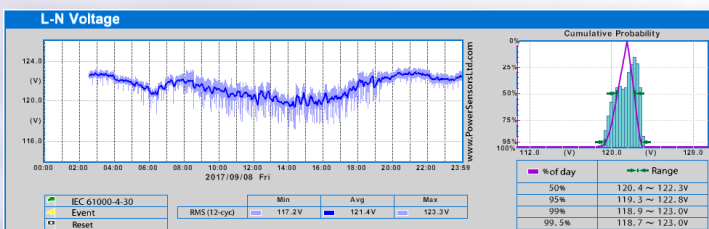
Voltage sag event - RMS view



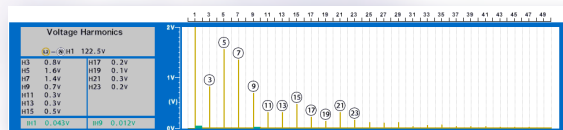
Daily current profile from solar installation



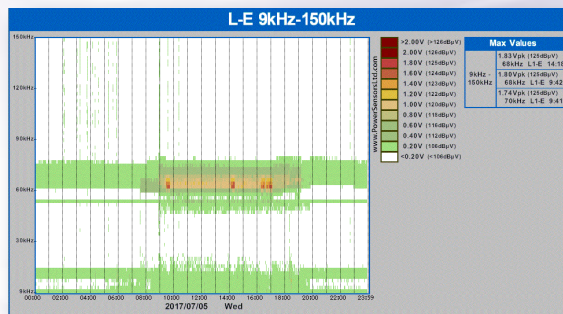
Weekly power report



Daily, weekly, monthly trend reports available for all power parameters



Harmonic snapshot



Conducted high-frequency emissions

# PQube3 Rugged™ Monitoring System



Communications to the PQube3 Rugged can be either by direct Ethernet cable or via wireless cell modem. It is equipped with two outdoor antennas and an internal antenna. Cell modem is ideal for remote locations or where connecting to a hardwired IP network is not practicable. We can supply appropriate modems for most cell service providers, US and International.

## PQube3 Rugged Specifications

Voltage range	0 to 750 VAC (L-N) and 0 VAC to 1300 VAC (L-L)
Current ranges	High accuracy split cores to 6000A, flexible-types to 3000A, 6000A
Power Quality measurements	Sags, swells, interruptions, impulses, flicker, harmonics to 50th, THD, TDD, interharmonics, unbalance
Energy measurements	Watts, VA, VAR, true pF, kWh
Conducted emissions	2 kHz-150 kHz, ±60 V
Frequency measurement range	13.3 to 23.3 Hz, 40 to 70 Hz, 320 to 560 Hz
Sampling rates	256/512 samples per cycle for RMS and power, user-selectable, 4 MHz on L1 only, or 1 MHz on 4 channels L1- L4 for impulses, user-selectable
Analog Inputs	60V DC or AC. Optional attenuators available for 600 VAC or 1200 VDC
Email Protocols: POP3, SMTP, and SSL over SMTP	Sends emails on every event with data attached in the form of GIF graphs, CSV spreadsheet files, PQDIF, HTML and XML summaries. Similarly daily, weekly and monthly trends are sent by email. On-demand, user can request real-time meters and reports. Control is via e-mail messages to to change setups and get snapshots of power values and waveforms. Firmware upgrades via USB drive.
Security	Secure FTP-FTPS, HTTPS

### PQube3 Rugged Dimensions

