

PQube® 3 Power Analyzer



FEATURES

- Installs easily with an ultra-compact footprint
- Connects directly to voltages up to 690 V
- Certified for Class A power quality according to IEC 61000-4-30 Ed3
- Computes 4-quadrant ANSI Class 0.2 revenue-grade energy on eight single-phase channels
- Monitors DC power and process parameters with four additional AC/DC analog channels
- Detects and records high-frequency impulses at 4 MHz
- Measures in real time and records 2 kHz ~ 150 kHz emissions
- Auto-detects the mains frequency, wiring configuration and nominal voltage
- Holds years of data and thousands of events via 32 GB of internal flash memory

OVERVIEW

This compact instrument is simply the best power monitor and real-time sensor you can buy.

It records every type of AC power disturbance—including 4 MHz sampling of impulses—Class A certified, ultra-precise revenue-grade energy meter. Monitor up to two three-phase loads, or eight single-phase loads with a single instrument.

It goes beyond AC power too. Records environmental data—such as temperature, humidity and barometric pressure, vibration, 3-axis acceleration—as well as process parameters, for example: torque, RPM, fuel level, water flow, and more.

Easy to install, easy to use.

Delivers ultra-precise results immediately to your inbox.

RESULTS



- Real-time readings via protocols: Modbus and SNMP
- Events recordings and graphs: CSV, GIF, and PQDIF
- Daily weekly, monthly trends and graphs: CSV, GIF, and PQDIF

| PQube 3 MEASUREMENT FUNCTIONS | |
|---|---|
| Sampling rate | 512 samples per cycle at 50 Hz / 60 Hz (applies to voltage, current, and analog channels) |
| VOLTAGE (4 inputs, referenced to earth) | L1, L2, L3, N, E Range: 0 ~ 750 VAC (L-N), 0 ~ 1300 VAC (L-L), impedance: 4.8M Ω |
| Voltage Magnitude* | L-L, L-N, L-E, and N-E. RMS over 1/2 cycle ($U_{rms1/2}$) |
| Frequency* | 50 Hz, 60 Hz, 400 Hz, or 16.67 Hz |
| Unbalance (negative and zero sequence)* | IEC, GB, and ANSI methods |
| Flicker (Pinst, Pst, and Plt)* | IEC 61000-4-15 |
| Voltage Harmonic & Interharmonic* | Volt or %H1, IEC 61000-4-7 Class 1, order up to 50th |
| Total Harmonic Distortion (THD) | % |
| High Frequency Impulse (voltage) | Records transient pulses on one channel (L1-E, L2-E, L3-E, or N-E) at 4 MHz sampling, or all four channels at 1 MHz, range: \pm 6 kV |
| Conducted Emissions (2 ~ 9 kHz)* | Volts for L1-E, L2-E, L3-E : resolution 200 Hz bins, range 0 ~ 60 Vpk |
| (8 ~ 150 kHz)* | Volts for L1-E, L2-E, L3-E, and N-E: resolution 2000 Hz bins, range 0 ~ 60 Vpk |
| CURRENT (8 inputs, differential) | I1 ~ I8 Range: 0.333Vrms, 10Vpk, 0 ~ 6000 Amp with CTs, impedance: 33.3 k Ω |
| Current Magnitude* | RMS refreshed 1/2 cycle ($I_{rms1/2}$) |
| Peak Current | RMS over 1 sec, 1 min, or user defined (3 min ~ 1 hr) |
| Unbalance (negative and zero sequence)* | IEC, GB, and ANSI methods |
| Current Harmonics & Interharmonics* | Amp, order up to 50th |
| Total Demand Distortion (TDD) or Total Harmonic Demand Distortion (THDI) | Amp % |
| POWER (8 calculated channels) | I1 ~ I8 calculated with either L1-N, L2-N, or L3-N voltages |
| Total Power | Up to two (3-phase) loads |
| Peak Power | Intervals: 1 sec, 1 min, or user defined (up to one hour) |
| Reactive Power | VAR (per-phase and total) |
| Apparent Power | VA (per-phase, peak, and total) |
| Power Factor | TPF or DPF method (per-phase and total) |
| ENERGY (8 calculated channels) | I1 ~ I8 calculated with either L1-N, L2-N, or L3-N (energies are calculated) |
| Energy (import, export, & net)** | kWh (per-phase and total) |
| Reactive Energy (import, export, & net) | kVARh (per-phase and total) |
| Apparent Energy | kVAh (per-phase and total) |
| ANALOG (4 single ended or 2 differential inputs) | A1, A2, A3, A4, E Range: Low: \pm 10 VDC, High: \pm 100 VDC |
| Analog Magnitude | (AN1-E, AN2-E, AN3-E, AN4-E) or differential (AN1-AN2, AN3-AN4) RMS refreshed 1/2 cycle |
| Power & Energy configuration (optional) | Power and energy meter 1 (AN1 X AN2), power and energy meter 2 (AN3 X AN4) |
| DIGITAL (1 differential input) | D+, D Digital threshold 1.5 V \pm 0.2 V typical |
| ENVIRONMENT (2 ENV2 probe inputs) | USB2, USB3 Uses PSL's ENV2 EnviroSensor probe |
| Temperature | -20 ~ +80 °C (-4 ~ 176 °F) |
| Humidity | 0 ~ 100 % RH |
| Barometric Pressure | (Resolution better than 0.001 hPa) |
| Acceleration (x, y, and z) | \pm 2, \pm 4, or \pm 8 gravity ranges, trigger on shock/vibration, seismic, or tilt |
| RELAY (1 output, trigger programmable) | Activated on sag/swell, over/under frequency, overcurrent, inrush, waveshape change, HF Impulse, snapshot, and digital/analog events |
| | RLY1 30 V AC or DC, 300mA max, activates for event duration or 3 seconds (whichever is longer), 20 ms delay |
| PQube 3 TECHNICAL SPECIFICATIONS | |
| Dimensions (L x W x H) | 4.33 in X 2.89 in X 3.08 in (metric: 11.0 cm X 7.34 cm X 7.82 cm), 35 mm DIN rail mountable |
| Weight | 10.5 oz (300g) |
| Operating Environment (temp., hum., alt.) | -20 ~ 65 °C (55 °C with PM2 AUX load), 5 ~ 95% RH (inside use), <2000 m above sea level (for EMC immunity, overvoltage, and other conditions, see full specs) |
| Power Supply (AC) | 24 VAC \pm 10% at 50/60/400 Hz, 1.5A max (PSL's PM1 and PM2 modules supply PQube 3 compatible power at 100~240 VAC 50/60 Hz, and 120~370 VDC) |
| (DC) | \pm 24 ~ 48 VDC \pm 10% (polarity independent), 1A max. Power over Ethernet (PoE) compatible |
| Internal memory | 32 GB (holds over a year of data)*** |
| Data backup | 16 GB (up to 128GB) micro SD card or USB 2.0 thumb drive |
| Clock Synchronization | SNTP, NTP, and (optional) GPS |
| Output file types | GIF, text, CSV/Excel, and IEEE 1159-3 PQDIF |
| Communication ports | 10/100 Ethernet RJ45 (optional external wireless or cell modem) |
| Communication protocols | Modbus/TCP, DNP3.0, SNMP with traps, FTP, HTTP (HTTPS,FTPS), email (SNTP/POP3) |

* Meets or exceeds IEC 61000-4-30 Ed. 3 Class A

** Accuracy certified BackSI C12.20 Class 0.2 and IEC 62053-22 Class 0.2S

*** Dependent on number of recorded events