

PQube® 3r Power Analyzer



Overview

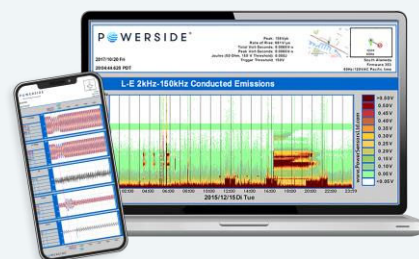
The PQube 3r Power Analyzer is the best choice for protecting sensitive processes that need accurate detection of power disturbances and flexible relay programming. PQube 3r Power Analyzer has 4 built-in programmable relay outputs that can be individually assigned to a specific trigger condition associated to the type or severity of disturbance.

The PQube 3r Power Analyzer boasts an impressive number of standard features including 8 energy metering channels, 4-quadrant ANSI Class 0.2 revenue-grade metering, alarms, and push reporting. It's compact and easy to configure with auto-detection of the mains frequency, wiring configuration, and nominal voltage.

Features

- Connects directly to voltages up to 750 Vac nominal
- Compatible with Rogowski coils (no integrator needed) and traditional current transformers
- Four built in programmable relay outputs assigned to specified disturbance events
- Certified for Class A power quality as per IEC 61000-4-30 Ed3
- Monitors AC/DC power and process parameters with four additional AC/DC analog channels
- Detects high-frequency impulse events at 4 MHz and records 2 kHz to 150 kHz emissions
- No software to install, built-in web and email server

RESULTS



- **Real-time readings via protocols**
Modbus, SNMP, BACnet, DNP3.0
- **Event recordings and graphs**
Text, CSV, GIF, and IEEE 1159-3 PQDIF
- **Daily, weekly, monthly, trends and graphs**
Text, CSV, GIF, and IEEE 1159-3 PQDIF

Technical Specifications

TECHNICAL SPECIFICATIONS	
Dimensions (L x W x H)	4.33 in X 2.89 in X 3.08 in (11.0 cm X 7.34 cm X 7.82 cm), 1.8 in (3.5 cm) DIN rail mountable
Weight	10.5 oz (300g)
Operating Environment	Temperature: -4 to +149° F (-20 to +65° C), +131° F (+55° C) with PM2 AUX load Humidity: 5 - 95% RH (inside use) Altitude: <2000 m above sea level
Power Supply	AC: 24 Vac $\pm 10\%$ at 50/60/400 Hz, 1.5A max DC: ± 24 to 48 Vdc $\pm 10\%$ (polarity independent), 1A max. Optional PM1 and PM2 modules: 100 to 240 Vac 50/60 Hz and 120 to 370 Vdc Power over Ethernet (PoE) compatible
Internal Memory	32 GB (holds over a year of data, depending on number of recorded events)
Data Backup	USB 2.0 thumb drive; External microSD card (not included)
Clock Synchronization	SNTP, NTP
Output File Types	Text, GIF, CSV, and IEEE 1159-3 PQDIF
Communication Ports	Ethernet RJ45 10/100 (optional external wireless or cell modem)
Communication Protocols	Modbus/TCP, DNP 3.0, SNMP with traps, BACnet, FTP or HTTP (secure FTPS and HTTPS), and email

Measurement Functions

VOLTAGE	
Sampling rate	512 samples per cycle at 50 Hz / 60 Hz (applies to voltage, current, and analog channels)
Inputs	4 + Reference to earth (L1, L2, L3, N, E)
Voltage Range	0 to 750 Vac (L-N), 0 to 1300 Vac (L-L), impedance: 4.8M Ω
Voltage Magnitude*	L-L, L-N, L-E, and N-E. RMS over 1/2 cycle (Urms 1/2)
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)	%, IEC 61000-4-7
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 4 channels at 1 MHz, range: ± 6 kV
Conducted Emissions (2 - 9 kHz)*	Volts for L1-E, L2-E, L3-E : resolution 200 Hz bins, range 0 to 60 Vpk
Conducted Emissions (8 - 150 kHz)*	Volts for L1-E, L2-E, L3-E, and N-E: resolution 2000 Hz bins, range 0 to 60 Vpk



CURRENT	
Inputs	8 inputs (I1 to I8), differential, 0 to 6000 Amp with CTs (Inductive & Rogowski coil) Low Range: 0.333 Vrms High Range: 10 Vpk Impedance: 33.3 k Ω
Current Magnitude*	RMS refreshed 1/2 cycle (I _{rms} 1/2)
Peak Current	RMS over 1 sec, 1 min, or user defined (3 min to 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	Amp, IEC 61000-4-7
Total Harmonic Demand Distortion (THDI)	%, IEC 61000-4-7

POWER	
Channels	8 calculated channels. I1 to 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	
Channels	8 channels. I1 to I8, calculated with either L1-N, L2-N, or L3-N voltages
Energy (Import, Export, & Net)	kWh (per-phase and total) Accuracy certified C.12.20 Class 0.2 and IEC 62053-22 Class 0.2S
Reactive Energy (Import, Export, And Net)	kVARh (per-phase and total)
Apparent Energy	kVAh (per-phase and total)



ANALOG	
Inputs	4 single ended or 2 differential inputs (A1, A2, A3, A4, E) Low Range: Low: ± 10 Vdc or 6 Vac High Range: ± 100 Vdc or 60 Vac
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	
Inputs	1 differential input (D+, D-). Digital threshold 1.5 V \pm 0.2 V typical

ENVIRONMENT SENSORS	
Inputs	2 ENV2 probe inputs (USB2, USB3). Uses Powerside's ENV2 EnviroSensor probe
Temperature	-4 to 176° F (-20 to 80° C)
Humidity	0 to 100 % RH
Barometric Pressure	Resolution better than 0.001 hPa
Acceleration (x, y, and z)	(x, y, and z) ± 2 , ± 4 , or ± 8 gravity ranges, trigger on shock/vibration, seismic, or tilt

RELAY		
Output Relays	Operate Time Function	<20ms Each relay can be individually wired with Normally Open (NO) or Normally Closed (NC).
Main Relay [RLY1]	Terminals Rating Function	[RLY1] 2-pole terminal Max 300 mA at 30 Vac/Vdc Normally open contact (NO) when PQube 3r is not powered Normally closed (NC) When PQube 3r is powered Upon event triggering, the relay opens for 3 seconds or for the event duration (whichever is longer)
Additional Relays [RLY2, RLY3, RLY4]	Terminals Rating	[RLY2, RLY3, RLY4] each relay has a 3-pole terminal, comes with 3 pluggable screw connectors 2 Amps at 60 Vdc/30 Vac

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

Order Information

Part Number: PQube3-PQ-E08N-03RL-XXXX

Contact Us

Canada

Montreal, QC
1 (877) 333-8392

sales@powerside.com
powerside.com

United States

Alameda, CA
1 (888) 736-4347

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