POWERSIDE®

All our energy, in your power

Data Sheet

PQube® 3e Power Analyzer

Overview

The PQube 3e Power Analyzer is a Class A certified, revenue-grade power analyzer that measures and records power quality disturbances and environmental process parameter data in real time.

The PQube 3e boasts an impressive number of standard features including 4-quadrant ANSI Class 0.2 revenue–grade energy on 14 single-phase channels, alarms, and push reporting.

PQube 3e Power Analyzers are compact and easy to configure with auto-detection of the mains frequency, wiring configuration, and nominal voltage. Install anywhere you need to monitor multiple loads such as substations, production equipment and data centers.

Features

- Connects directly to voltages up to 750 Vac (L-N) nominal
- Compatible with Rogowski coils (no integrator needed) and traditional current transformers
- Monitor up to 4 loads with the 14 available current channels
- 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 up to 4 MHz and records 2 kHz to 150 kHz emissions

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 ±10% at 50/60/400 Hz, 1.5A max DC: ±24 to 48 Vdc ±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)
Range	0 to 750 Vac (L-N), 0 to 1300 Vac (L-L), impedance: 4.8MΩ
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	14 inputs (I1 to I14), differential. 0 to 6000 Amp with CTs (Inductive & Rogowski coil) Low Range: 0.333 Vrms High Range: 10 Vpk Impedance: 33.3 kΩ
Current Magnitude*	RMS refreshed 1/2 cycle (Irms 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	14 calculated channels. I1 to I8, I9 to I14, 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	14 channels. I1 to I8, I9 to I14 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 0,25
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 ± 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	
Outputs	1 output, trigger programmable
Activation Mode	Activated on sag/swell, over/under frequency, overcurrent, inrush, waveshape change, high frequency, impulse, snapshot, and digital/analog events
Rating	RLY1 - 30 Vac or Vdc, 300 mA max, activates for event duration or 3 seconds (whichever is longer), 20 ms delay

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

Order Information

Part Number: PQube3-PQ-E08N-E06N-XXXX

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