

PQube® 3r Power Analyser



Features

- Auto-detects the mains frequency, wiring configuration and nominal voltage
- Connects directly to voltages up to 690 V
- Certified for Class A power quality as per IEC 61000-4-30 Ed3
- Computes 4-quadrant ANSI Class 0.2 revenue-grade energy on 8 single-phase channels
- 4 programmable relay outputs can be assigned to disturbance types
- 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
- No software to install, built-in web and email server
- 32 GB of internal flash memory, holds years of data

Control your Processes with 4 Programmable Relays

The PQube 3r is the best choice for protecting sensitive processes that need accurate detection of power disturbances and flexible alarm programming. PQube 3r 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.

PQube 3r boast an impressive number of standard features including 8 energy metering channels, 4-quadrant metering, alarms, and push reporting.

PQube 3r is easy to install and an accurate power analyzer and versatile controller.

Results



- **Real-time readings via protocols**
Modbus/TCP, 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

PQube 3r 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 (temp., hum., alt.)	-4 to 149°F (-20 to 65 °C), 131°F (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 ±10% at 50/60/400 Hz, 1.5A max (Powerside's PM1 and PM2 modules supply PQube 3 compatible power at 100 to 240 VAC 50/60 Hz, and 120 to 370 VDC)
POWER SUPPLY (DC)	±24 to 48 VDC ±10% (polarity independent), 1A max. Power over Ethernet (PoE) compatible
INTERNAL MEMORY	32 GB (holds over a year of data, depending on number of recorded events)
DATA BACKUP	16 GB (up to 128GB) micro SD card or USB 2.0 thumb drive
CLOCK SYNCHRONIZATION	SNTP, NTP, GPS (optional)
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)
Number of Inputs	4 + Reference to earth (L1, L2, L3, N, E)
Range	0 - 750 VAC (L-N), 0 - 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 50 th
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 - 60 Vpk
CURRENT	
Number of Inputs	8 inputs, differential. I1 to I8 Range: 0.333Vrms, 10Vpk, 0 - 6000 Amp with CTs, 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 50 th
Total Demand Distortion (TDD) or	Amp, IEC 61000-4-7
Total Harmonic Demand Distortion (THDI)	%, IEC 61000-4-7

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

POWER

Number of 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

Number Of 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 ANSI C12.20 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

Number Of Inputs	4 single ended or 2 differential (A1, A2, A3, A4, E). Range: Low: ± 10 VDC, High: ± 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

Number of Inputs	1 differential input (D+, D-). Digital threshold 1.5 V \pm 0.2 V typical
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ENVIRONMENT

Number of 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	<20ms
Main Relay [RLY1]	Terminals Rating Function	[RLY1] 2-pole terminal Max 300 mA at 30VAC/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 connectos 2 Amps at 60VDC/30VAC
	Function	Each relay can be individually wired with Normally Open (NO) or Normally Closed (NC).

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

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