

APQM-702/703

Power quality analysers



Class A network analysis with built-in GSM and GPS

APQM-702/703

Class A power quality analysers

amperis

www.amperis.com

 C/ María Barbeito, 14
27003, Lugo, Spain

 Contact

T [+34] 982 20 99 20
info@amperis.com | www.amperis.com

Class A measurements to IEC 61000-4-30 up to 1000 V, with remote control and transient capture on the APQM-703.

Product overview



The APQM-702 class A analyser

Reliable class A measurements

The APQM-702 and APQM-703 measure in accordance with class A of IEC 61000-4-30, with five voltage inputs — L1, L2, L3, N and PE — up to 1000 V and an error of $\pm 0.1\%$ of U_{nom} , four current inputs up to 6 kA and frequency measured within ± 0.01 Hz. They record harmonics up to the 50th plus interharmonics, K factor, THD, flicker, unbalance and mains signalling, in networks from 64/110 V to 400/690 V, including DC systems.

Remote control and huge recording capacity

The 8 GB card, expandable to 32 GB, collects over 4500 parameters simultaneously at intervals down to 200 ms. The built-in GSM/GPRS modem allows remote configuration and real-time data transfer with any static IP SIM card, the GPS receiver synchronises the clock and triggers the anti-theft SMS alert, and the OR-1 radio receiver works up to 50 m. Powered from the measured network at 100...690 V AC, with an internal battery and a heater for -20°C .

Main features

- Class A per IEC 61000-4-30: $\pm 0.1\%$ U_{nom} and ± 0.01 Hz.
- Five voltage inputs up to 1000 V; currents up to 6 kA.
- Harmonics to the 50th, interharmonics, K factor and flicker.
- Built-in GSM/GPRS modem and GPS with anti-theft SMS alert.
- 8 GB memory expandable to 32 GB; intervals from 200 ms.
- IP65, heater down to -20°C , colour LCD of 3.5 inches.



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Applications and models

Applications

- Class A power quality analysis for professional energy services.
- Disturbance diagnostics in industrial plants and distribution networks.
- Measurements on LV poles and behind voltage transformers.
- Verification of compliance with EN 50160 with automatic reports.

Two models, one platform

Both analysers share the IP65 housing of $200 \times 180 \times 77$ mm and about 1.6 kg. The APQM-702 covers the complete class A analysis; the APQM-703 adds a voltage transient recorder with a range of ± 8000 V and a maximum sampling frequency of 10 MHz, and the APQM-702T variant also measures the external temperature.



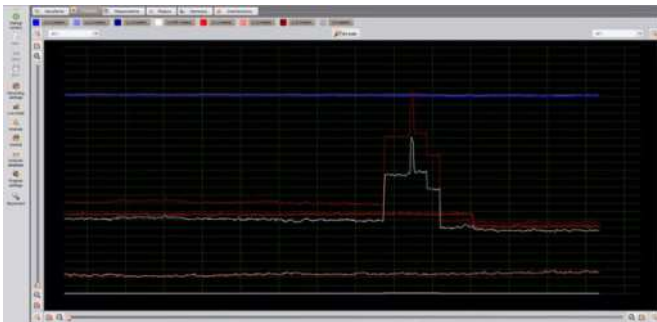
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The analysis software reads the recordings — locally or through the mobile network — and prepares the report.

Software & applications



Time plots of the recorded voltages and currents with zoom over any interval

A screenshot of the Amperis Analysis software interface showing an event list. The list contains columns for 'Event', 'Type', 'Severity', 'Date', 'Time', 'Duration', 'Amplitude', 'Frequency', and 'Remarks'. The events are categorized as 'DIP', 'SWELL', and 'INTERRUPTION'. Each event is linked to its waveform, which is displayed in a separate window on the right side of the interface.

Event list with dips, swells and interruptions, each linked to its waveform

Connected to the analyser anywhere

The Amperis Analysis software configures the APQM-702 and APQM-703, follows the measurement in real time and downloads the recordings through USB, through the OR-1 radio receiver or, with the built-in GSM modem, from any point of the network with mobile coverage, on a Windows computer.

Deep analysis of the supply

Time plots, phasor diagrams, harmonics and interharmonics up to the 50th order, flicker and unbalance are examined in interactive graphs and tables. Dips, swells and interruptions appear in an event list with the waveform of each disturbance — including the ± 8000 V transients captured by the APQM-703 — and the EN 50160 report documents the compliance of the supply.

What the software provides

- Remote reading through the built-in GSM modem.
- Live preview of waveforms, phasors and harmonics.
- Event list with the waveform of every disturbance.
- EN 50160 reports and export to popular formats.

APQM-702/703 – TECHNICAL SPECIFICATIONS

Measurement class	Class A per IEC 61000-4-30
Voltage inputs	5 (L1, L2, L3, N, PE); up to 1000 V; $\pm 0.1\%$ Unom
Current inputs	4; up to 6 kA depending on clamp; $\pm 0.1\%$ Inom
Frequency	40.00...70.00 Hz; accuracy ± 0.01 Hz
Harmonics	Up to the 50th plus interharmonics; K factor; THD
Flicker and unbalance	PST, PLT $\pm 5\%$; unbalance $\pm 0.15\%$
Mains signalling	5.00...3000.00 Hz, up to 15% of Unom
Transients — APQM-703 only	± 8000 V; sampling up to 10 MHz
Recording	Over 4500 parameters; intervals from 200 ms
Memory	8 GB card; expandable to 32 GB
Communication	Built-in GSM/GPRS; USB; OR-1 radio up to 50 m
GPS	GPS-synchronised clock; anti-theft SMS alert
Display	Colour LCD 3.5-inch, 320 × 240 pixels
Power supply	From measured network 100...690 V AC; battery
Environment	IP65; internal heater; -20...+55 °C
Measuring category	CAT IV 600 V / CAT III 760 V
Dimensions and weight	200 × 180 × 77 mm; approx. 1.6 kg



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APQM-702/703 – MEASUREMENT DATA

Measured parameters – IEC 61000-4-30 class A

Parameter	Measuring range	Max. resolution	Accuracy
Alternating voltage (TRMS)	0.0...1000.0 V or 0.0...760.0 V**	4 significant digits	$\pm 0.1\% U_{nom}$
Crest factor – voltage	1.00...10.00 (up to 1.65 at 690 V)	0.01	$\pm 5\%$
Crest factor – current	1.00...10.00 (up to 3.6 for I_{nom})	0.01	$\pm 5\%$
Alternating current (TRMS)	depending on the clamp*	4 significant digits	$\pm 0.1\% I_{nom}$
Frequency	40.00...70.00 Hz	0.01 Hz	± 0.01 Hz
Active, reactive, apparent and distortion power	depending on the configuration (transducers, clamps)	4 significant digits	depending on the configuration (transducers, clamps)
Active, reactive and apparent energy	depending on the configuration (transducers, clamps)	4 significant digits	as the power error
$\cos\phi$ and power factor (PF)	-1.00...1.00	0.01	± 0.03
$\tan\phi$	-10.00...10.00	0.01	depends on the P and Q errors
Voltage harmonics and interharmonics	DC, orders 1...50	as for voltage (TRMS)	$\pm 0.05\% U_{nom}$ (m.v. < 1% U_{nom}); $\pm 5\%$ m.v. (m.v. $\geq 1\% U_{nom}$)
Current harmonics and interharmonics	DC, orders 1...50	as for current (TRMS)	$\pm 0.15\% I_{nom}$ (m.v. < 3% I_{nom}); $\pm 5\%$ m.v. (m.v. $\geq 3\% I_{nom}$)
THD of voltage and current	0.0...100.0% (relative to RMS)	0.1%	$\pm 5\%$
Active and reactive power of harmonics	depending on the configuration (transducers, clamps)	depends on the minimum U and I values	—
Angle between voltage and current harmonics	-180.0...+180.0°	0.1°	$\pm (n \times 1^\circ)$
K-Factor	1.0...50.0	0.1	$\pm 10\%$
Flicker P_{ST} , P_{LT}	0.20...10.00	0.01	$\pm 5\%$
Unbalance factor (U and I)	0.0...20.0%	0.1%	$\pm 0.15\%$ (absolute error)
Mains signalling (control) signals	up to 15% U_{nom} , 5.00...3000.00 Hz	4 significant digits	$\pm 0.15\%$ (1...3% U_{nom}); $\pm 5\%$ (3...15% U_{nom}); unspecified below 1% U_{nom}
Voltage transients (APQM-703 only)	± 8000 V	4 significant digits	$\pm (5\% + 25 \text{ V})$

* F-1A1/F-2A1/F-3A1 clamps: 0...1500 A AC; F-1A/F-2A/F-3A: 0...3000 A AC; F-1A6/F-2A6/F-3A6: 0...6000 A AC; C-4A: 0...1000 A AC; C-5A: 0...1000 A AC/CC; C-6A: 0...10 A AC; C-7A: 0...100 A AC. The current accuracy does not include the clamp error. ** Depending on the analyser version.

All parameters are recorded in compliance with class A acc. to IEC 61000-4-30; data analysis and reports acc. to EN 50160.

"m.v." – measured value.



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