HT ITALIA PQA 820 Power Recorder

PQA820 is the **innovative** proposal by HT to **easily analyze** all involved components on a **three-phase** or **single-phase** electric system.

When designing them, HT has taken particular care of three aspects: **setting**, the operating or storage environment and data transfer.

- PQA820 **do not need to be set**. They simply need to be connected, started and they respectively record 383 and 44 quantities simultaneously.
- They are provided with a comfortable **IP65** case, which allows working **in any kind of environment**.
- When recording has finished, **thanks to the WI-Fi connection**, the devices are capable of transferring all data onto a **tablet, smart phone** or **PC**.

Further to the Wi-Fi connection, PQA devices are provided with USB connection for transferring data via cable to the PC through **the provided TopView software**.

They do not need any batteries since they are **auto power-supplied** from the mains they are analyzing. The **internal battery is automatically recharged** by the input voltage and will provide the necessary energy to **go on recording in case power supply is interrupted**.

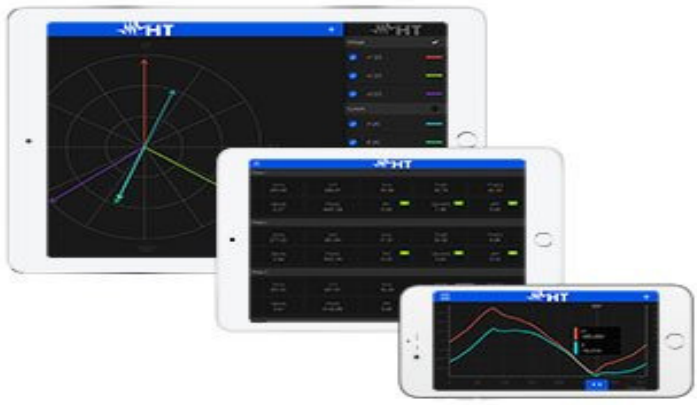
To make the most of the technology used by PQA820 and PQA819 we recommend using the **HTanalysis App (available for free download** on AppStore and Google Play) on a tablet or smart phone.

Here are some of the functions of HTanalysis:

- Display of measured data on high-definition screen.
- Possibility of “scrolling” through a determined waveform and immediately detecting its critical “moments”: it will be sufficient to “touch” a certain spot of the screen in which the measured signal is proposed to immediately obtain all necessary information in order to understand what happened in that spot and in that particular moment!

PQA820 respectively record 383 and 44 quantities which can be **recalled and dragged onto the screen** to be **compared between each other**; for example, if you are displaying the trend of voltages and **you want to check for the possible presence of harmonic distortion**, it will be sufficient to scroll through the list of recorded measures and **drag the one relevant to harmonics to the screen**. The same can be done for all other quantities: **power, cosphi, current, energy**, etc.

Everything can then be shared on **HT Cloud**, the web database created by HT to **archive** recordings and **share them** quickly with anyone around the world.



Functions

AC/DC voltage in single-phase/three-phase systems	**MAX 415V +/- 10%**
AC/DC current in single-phase/three-phase systems	**MAX 1000A**
Cosphi, Power Factor	
Voltage unbalance (NEG%, ZERO%)	
Active, reactive, apparent power/energy and DC power	
Voltage and current harmonics up to the 49th with THD	
Voltage anomalies (dips, peaks) with a resolution of 10ms (@ 50Hz)	
Phase sequence	
Neutral current	
Max number of simultaneously selectable parameters	**383**
Recording with selectable integration period	**5s-60m**
Indicative memory duration (in days @ PI=10min @ max number of parameters)	**30 days**
Indication of recording duration	
Internal memory capacity	**8MB**
Saving instant sampled values	**Through App HTANALYSIS**
Summary table of main electric parameters	**Through App HTANALYSIS**
Voltage/current waveforms	**Through App HTANALYSIS**
Tables or histograms of Harmonics and THD%	**Through App HTANALYSIS**
Voltage/current vector diagram	**Through App HTANALYSIS**
Measurement category	**CAT IV 300V**
Measurement with use of external TA and TV (with optional accessory HT903)	**Adapter ACONBIN necessary**
Power supply and rechargeable battery recharging	**Auto power supplied**
Auto power off	
USB port for data download onto Pen Drive	**Only PC**
Provided PC interface with software for Windows	**Wi-Fi**
Size (LxWx H) (mm)	**255x200x115**
Weight in grams (batteries included)	**700**

1 - ELECTRICAL SPECIFICATIONS

Accuracy indicated as ± [%rdg + (no. dgts * resolution)] at 23°C ± 5°C, <75%HR

DC Voltage

Range [V]	Resolution [V]	Accuracy
10.0 ÷ 265.0	0.1	±(0.7% rdg + 0.4V)

Voltage values <10.0V are zeroed

AC TRMS Voltage – Phase to Neutral

Range [V]	Frequency [Hz]	Resolution [V]	Accuracy
10.0 ÷ 265.0	42.5 ÷ 65.0	0.1	±(0.5% rdg + 0.2V)

Max Crest Factor =1.5, Voltage values <10.0V are zeroed

AC TRMS Voltage – Phase to Phase

Range [V]	Frequency [Hz]	Resolution [V]	Accuracy
50.0 ÷ 460	42.5 ÷ 65.0	0.1	±(1.0%rdg + 0.2V)

Max Crest Factor =1.5, Voltage values <10.0V are zeroed

Voltage Anomalies – Phase to Neutral

Range [V]	Resolution Voltage [V]	Resolution Time	Accuracy Voltage	Accuracy [ms]
15.0 ÷ 265.0	0.2	10ms	±(1.0%rdg + 2dgt)	± ½ cycle

DC TRMS Current by external clamp transducer – STD clamps

Range [mV]	Resolution [mV]	Accuracy	Overload protection
5.0 ÷ 219.9	1	±(0.7%rdg + 1mV)	10V
220.0 ÷ 999.9		±0.7% rdg	

Current values correspondent to a voltage < 5mV are zeroed

AC TRMS Current by external clamp transducer – STD clamps

Range [mV]	Frequency [Hz]	Resolution [mV]	Accuracy	Overload protection
5.0 ÷ 219.9	42.5 ÷ 65.0	1	±(0.5%rdg + 0.6mV)	10V
220.0 ÷ 999.9			±0.5% rdg	

Current values correspondent to a voltage < 5mV are zeroed

AC TRMS Current by external clamp transducer – Flex (100A AC range – 85uV/A)

Range [mV]	Frequency [Hz]	Resolution	Accuracy	Overload protection
0.085 ÷ 8.50	42.5 ÷ 65.0	8.5µV	±(0.5%rdg +0.007mV)	10V

Max Crest Factor =1.5, Current values <1A are zeroed

AC TRMS Current by external clamp transducer – Flex (1000A AC range – 85uV/A)

Range [mV]	Frequency [Hz]	Resolution	Accuracy	Overload protection
0.425 ÷ 85.0	42.5 ÷ 65.0	85µV	±(0.5%rdg + 0.15mV)	10V

Max Crest Factor =1.5, Current values <5A are zeroed

Frequency

Range [Hz]	Resolution [Hz]	Accuracy
42.5 ÷ 65.0	0.1	±(0.2% rdg + 0.1Hz)

DC Power – (Vmeas>200V)

Clamp FS [A]	Range [W] [Wh]	Resolution [W] [Wh]	Accuracy
1< FS ≤ 10	0.000k ÷ 9.999k	0.001k	±(1.0%rdg + 5W)
	10.00k ÷ 99.99k	0.01k	±(1.0%rdg + 50W)
10< FS ≤ 200	0.00k ÷ 99.99k	0.01k	±(1.0%rdg + 50W)
	100.0k ÷ 999.9k	0.1k	±(1.0% rdg + 500W)
200< FS ≤ 1000	0.0k ÷ 999.9k	0.1k	±(1.0%rdg + 0.5kW)
	1000k ÷ 9999k	1k	±(1.0% rdg + 5kW)

Vmeas = Voltage in which the power is measured

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Power/Energy – (Vmeas>200V, Pf=1)

Clamp FS [A]	Range [W] [Wh]	Resolution [W] [Wh]	Accuracy
1< FS ≤ 10	0.000k ÷ 9.999k	0.001k	±(0.7%rdg + 3W/Wh)
	10.00k ÷ 99.99k	0.01k	±(0.7%rdg+30W/Wh)
10< FS ≤ 200	0.00k ÷ 99.99k	0.01k	±(0.7%rdg+30W/Wh)
	100.0k ÷ 999.9k	0.1k	±(0.7%rdg+300W/Wh)
200< FS ≤ 1000	0.0k ÷ 999.9k	0.1k	±(0.7%rdg+0.3kW/kWh)
	1000k ÷ 9999k	1k	±(0.7%rdg+3kW/kWh)

Vmeas = Voltage in which the power is measured

Power factor (Cosφ)

Range (cosφ)	Resolution	Accuracy (°)
0.20 ÷ 0.50	0.01	0.6
0.50 ÷ 0.80		0.7
0.80 ÷ 1.00		1.0

Voltage/Current harmonics

Range	Maximum resolution	Base accuracy
DC ÷ 25th	0.3V / 0.1% FS clamp	±(5.0% rdg + 2dgt)
26th ÷ 33th		±(10% rdg + 2dgt)
34th ÷ 49th		±(15% rdg + 2dgt)

Harmonics will be zeroed:

- DC harmonics: DC value <0.5% 1st Harmonic value or if DC value < 0.5% FS clamp
- 1st Harmonic: 1st Harmonic value <0.5% FS clamp
- 2nd ÷ 49th Harmonics: 2nd ÷ 49th values <0.5% 1st Harmonic value or <0.5% FS clamp

2. GENERAL SPECIFICATIONS

ELECTRICAL SYSTEMS

- Single Phase,
- 3 Phase without Neutral
- 3 Phase with Neutral

CHANNELS RECORDED SIMULTANEOUSLY

- Phase to Neutral and Phase to Phase voltages
- Voltage anomalies (sags, swells, breaks)
- Voltage unbalance
- Phase currents, neutral current
- Voltages and currents harmonics (DC,1,2,…49)
- Phase and Total Active, Reactive, Apparent power
- Phase and Total Power factor and Cosφ
- Phase and Total Active energy (Class 2 EN61036), Reactive energy (Class 3 IEC1268)
- All channels concerning Powers, Pf, cosφ and Harmonics are automatically managed as generated and consumed.
- Number of recorded parameters: 383 (fixed)
- Max number of voltage anomalies: 65530
- Integration Period: 5, 10, 30s, 1, 2, 5, 10, 15, 60min.
- Recording autonomy: > 30 days with integrated period of 10 minutes
- Memory capacity: 8Mbyte

POWER SUPPLY:

Internal power supply:	Rechargeable battery, battery life approx. 1 hour
External power supply:	By mean Red/Yellow plugs, 100V ÷ 415V, 50/60Hz 45mA@100V, 30mA@230V, 20mA@415V

COMMUNICATION INTERFACE

PC (Windows), Tablet/Smartphone(iOS, Android):	USB (PC only) / WiFi

MECHANICAL FEATURES:

Dimensions (L x W x H):	245 x 210 x 110mm
Weight:	1.5kg

WORKING ENVIRONMENTAL CONDITIONS:

Reference temperature:	23°C ± 5°C
Working temperature:	0° ÷ 40°C
Allowed relative humidity:	<80%HR
Storage temperature:	-10 ÷ 60°C
Storage humidity:	<80%HR

POWER/ENERGY MEASUREMENTS REFERENCE GUIDELINES:

Features of voltage supplied by public utilities:	EN50160 (flicker and frequency analysis not performed)
Active energy static counters for AC current	EN61036 (Class 2)
Reactive energy static counters for AC current	IEC1268 (Class 3)

GENERAL REFERENCE GUIDELINES:

Safety of measuring instruments:	IEC/EN61010-1
Insulation:	double insulation
Pollution degree:	2
Encapsulation:	IP65 (case board closed)
Measurement category:	CAT IV 300VAC to ground, max 460V between Inputs
Max height of use:	2000m

This instrument complies with the prescriptions of the European directive on low voltage 2006/95/EEC (LVD) and EMC directive 2004/108/EEC