Revolution.

PQA820 | MACROTESTG3 | COMBIG2 | HTANALYSIS

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energie ist messbar
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Artificial Intelligence.

Thanks to the creation of App HTanalysis it is possible to interface HT last generation instruments with tablets and smartphones. **HTanalysis** is a professional software allowing to display and look at measurements or recordings on your devices then sharing them on HTCloud database.
HTanalysis permits to create professional reports complete with pictures, texts, video and voice notes. Interfacing the instrument with your device's display you can look at a fast and detailed tracking of the recorded quantities on touch-screen.

With PQA820

- It enables you to display **recordings of voltage, current, power, harmonics, THD%, cosphi and frequency**.
- It enables you to display **all waveforms, vector diagrams and harmonics instantly**.
- **It enables you to store all recordings** into **HTCloud** database **sharing** them through **mail** as well.

With MacroTestG3 and CombiG2

- It enables you to create **reports** complete with **pictures, videos, text and voice notes, store** them into **HTCloud** database and share them through **mails**.

Share.
Whenever, whatever and wherever.

HT Cloud™

Install App HTanalysis to avail yourself of **HTCloud** database and **share** measurement results and recordings with your colleagues **from any place on the planet**.

MACROTEST G3

I'm pure technology.
Touch me, please.

Clear answer.
Complying o not.

Save time!
You will take
half time!

Color Touch Screen
with icon intuitive
graphics

kW
Wi-Fi
and USB

USB
UNIVERSAL SERIAL BUS
Power
measurement

App HTanalysis
for iOS™
and Android™

HT
Cloud
Share.
Whenever,
whatever and
wherever*

You can enter
voice notes,
text notes
and pictures*

100%
"Made in Italy"
technology
and quality

- **One instrument for all electrical safety tests** according to **IEC/EN61557-1.**
- **Advanced Loop.** Testing of MCBs, fuses and cable sizing.
- **Earth resistance** with 2- or 3-pole **volt-ampere method** in TT, TN and IT systems, **non-trip earth loop impedance measurement, stackless earth ground resistance measurement** with T2100 (optional). **Soil resistivity.**
- **Measurement of electrical parameters in single phase installations** (V, A ,W,VAR,VA, PF)

- **RCD testing** type A, AC, B with test current up to 10A.**
- **Insulation resistance** measurement.
- **Continuity** measurement of protective conductors.
- Measurement of **phase sequence (SEQ)** and **leakage currents.**
- **Measurement of environment parameters** through external probes.

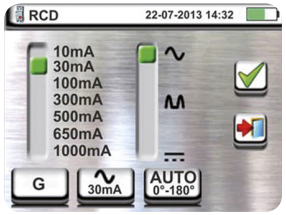
* Using HTanalysis App for iOS™ or Android™ on Tablet or Smartphone. The App can be downloaded for free on AppStore™ or Playstore™

** Optional accessory RCDX10 for testing industrial RCDs up to 10A.

RCD **testing**

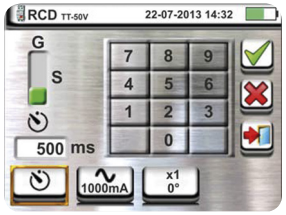
- Test on **general, selective and delayed RCDs type A, AC up to 1A** and **B up to 300mA.**
- Test on **RCDs with external toroidal transformer and test current up to 10A*.**
- Test mode **x½, x1, x2, x5** and **AUTO** to make **6 test sequences.**
- **Ramp**: measurement of real tripping current.

*with optional accessory RCDX10.

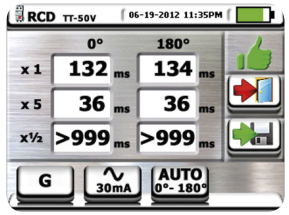


Selection of RCD type and tripping current

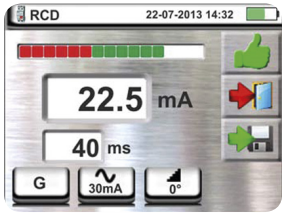
Selection of tripping current on RCDs with external toroidal transformer



Setting of RCD delayed time



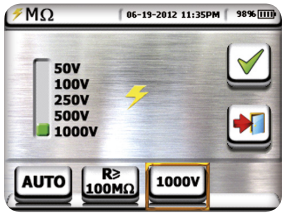
AUTO test result on RCD



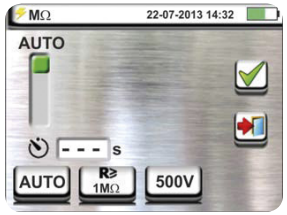
Ramp test result on RCD

Insulation resistance

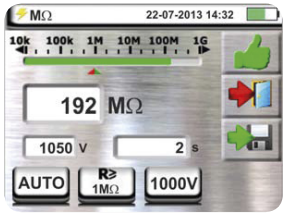
- **AUTO** function
- Rapid setting of **limit values** and **test voltages through virtual keyboard.**
- Setting of **Timer for the test**
- **Test voltage 50, 100, 250, 500, 1000 VDC**



Selection of test voltage and minimum limit value



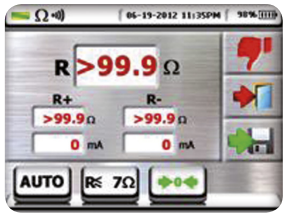
Selection of AUTO or TIMER measuring mode



Insulation measurement outcome

Continuity of protection conductors with 200mA

- **Calibration of measuring cables**
- Rapid setting of **limit values** through virtual keyboard.
- Setting of **Timer for the test**



Negative outcome

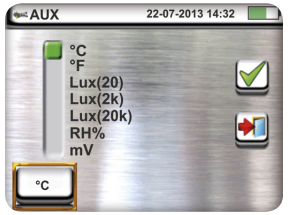
Selection of maximum resistance value

Selection of AUTO or TIMER measuring mode

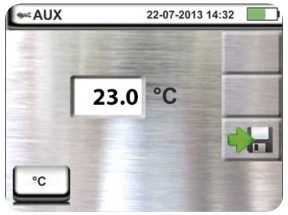
Measurement of environmental parameters through external probes

Using external transducer it is possible to measure the following environmental parameters

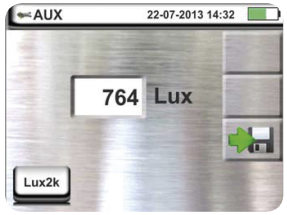
- **Air temperature** in °C, °F and RH%
- **Air relative humidity**
- **Illuminance** with ranges 20/2k/20kLux



Selection of measurement type



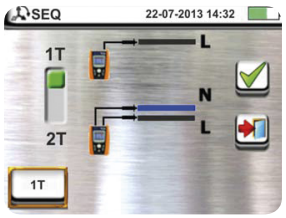
Real time display of temperature measurement

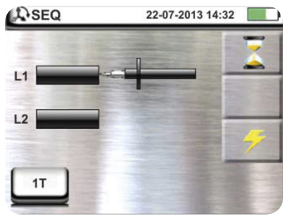


Real time display of LUX measurement

Measurement of phase sequence SEQ

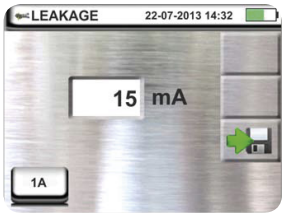
- Check of **phase sequence** with 1 or 2 terminals.
- Check of **phase compliance**.

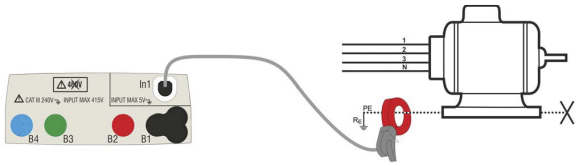




Measurement of leakage currents

Leakage current can be measured with external clamp **HT96U** (optional).





Evolution of saving.

- Virtual keyboard to enter comments.
- Saving on file structure.
- **New detailed reports** with **TopView** software.

Saving with file tree

Entering comments on measurements

Transfer of data to PC by TopView software

HTanalysis™ and HTCloud™

App HTanalysis will change your working concept.

During testing you can:

- Dictate comments orally
- Associate a picture or a video to each measurement
- Review and customize your measurements

HTCloud will enable you to **share your measurements with everybody.**

Advanced Loop

Testing of MCBs, fuses and cable sizing.

For the first time ever.

For the first time you will be able to check whether a complex system is working in compliance with standards. **HT enriched loop measurement** including functions and tests which were earlier possible just thanks to project-oriented calculations.

The rules of the game? We know all the answers.

In order to protect power lines, IEC/EN61557-1 standards require designers to size the installation to grant:

- **protection against indirect contacts**
- **protection against short circuits.**

MacrotestG3 is quite familiar with standards and is capable of directing you in solving any problem.

Just challenge us.

- **STD** Line impedance measurement between L-N, L-L, L-PE and calculation of prospective short circuit current.
- **I²t** Testing of MCB against short circuit thermal effect.
- **kA** Testing of MCB tripping power.
- Testing of MCB against indirect contacts (TT-TN-IT systems).
- Testing of MCB tripping time.

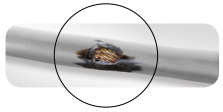
All the a.m. measurements can be also effected with high resolution (0.1mΩ) using IMP57 (optional accessory).

No more guessing.

- **I²t Testing of MCB against short circuit thermal effect.**

  Are cables suitably sized to support short circuit currents? Is MCBs' tripping time short enough to safeguard your cables? MactrotestG3 will direct you in solving those problems. After setting the type of MCB/fuse, of cable section and conductor material you will be advised of line protection according to the following relation:

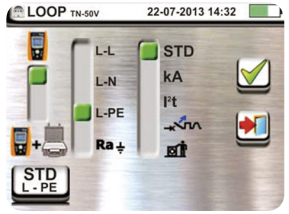
$$I_{cc}^2 \times t \leq K^2 \times S^2$$

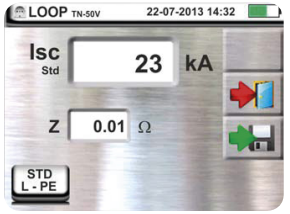


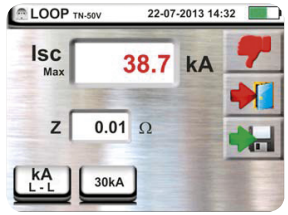
Where, according to standards, K represents the conductor material while S is the cable section.

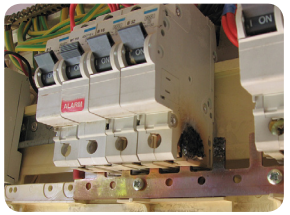
- **kA Testing of MCB tripping power.**

  Is the short circuit current calculated in every point of the line suitable? If yes your MCB is correctly sized.

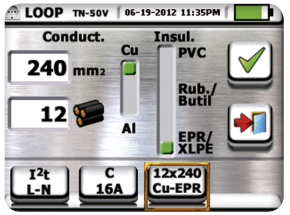








Setting of MCB/fuse type and rated current



Selection of material type and conductor section

› **Testing of protection against indirect contacts (TT-TN-IT systems)**

When an earth fault occurs masses can become potentially dangerous as long as protection trips out. The instrument checks that danger does not overcome the limits set by the standards. For example in a TN system after setting the curve type and tripping time of MCB the instrument calculates short circuit current with positive outcome if MCB trips out before contact voltage becomes dangerous.

› **Testing of MCB tripping time.**

If MCBs comply with tripping times provided by the standards the instrument will indicate positive outcome.

Selection of tripping time

Positive outcome of measurements

Earth Resistance

Any kind of installation.

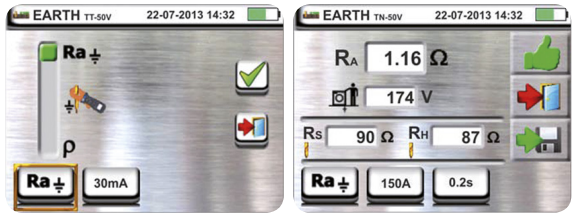
Earth resistance with 2- or 3-pole volt-ampere method in TT, TN and IT systems.

After setting the distribution system (TT, TN, IT) the instrument can check the requisites provided by the standards IEC/EN61557-1 for protection against indirect contacts with positive outcome in case of compliance.


Earth resistance measurement by Volt-ampere method

Watchword: make it easier.

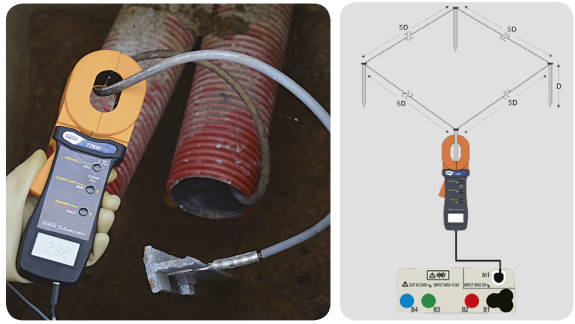
In TN systems after setting maximum earth fault current **Ig** and tripping time for medium voltage protections (data provided by the Electricity Board) the instrument calculates contact voltage **Utp** after measuring earth resistance comparing it with EN50522's data. If outcome is **OK!** the user does not need to carry out step and contact voltage measurement.



More than one earth.

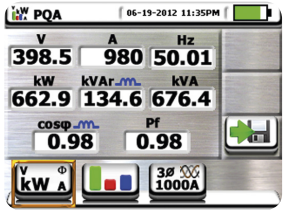
In addition to volt ampere method other testing modes can be adopted as follows:

- **Stackless earth ground resistance measurement with T2100 (optional)**
  MacrotestG3 adopts an innovative method for earth resistance measurement eliminating the worry of finding a place for auxiliary earth rods. Earth resistance measurement will be easier thanks to an algorithm HTEarth storing all measurements effected with clamp T2100 and calculating earth resistance value without disconnecting rods.
- **Non-trip earth loop impedance measurement**
  It measures earth resistance and contact voltage without causing protections tripping in systems with neutral and without neutral.
- **Soil resistivity**
  It measures soil resistivity (ρ) with 4-pole Wenner method.

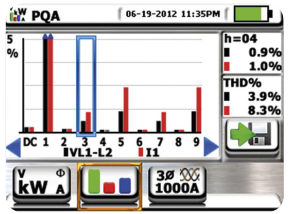

Measurement with clamp T2100

Power and Load Analysis

- **Single Phase** and **Three Phase** balanced systems
- **Voltage,Current and frequency** measurement
- **Active power, reactive power** and **apparent power** measurement
- **Cosphi**, **power factor** measurement
- **THD%** and **Harmonics analysis** up to 25th



Power Analysis



Harmonics Analysis up to 25th

Tech specs

Continuity with 200mA

Measuring range: 0,01Ω÷99.9Ω
Accuracy: ±(5.0% reading + 3 digits)
Test current: > 200mA (R ≤ 2Ω)
Open circuit voltage: 4V ≤ V_0 ≤ 12V

Insulation resistance

Test voltage: 50, 100, 250, 500, 1000VDC
Measuring range: 0.01MΩ ÷ 99.9MΩ (50V)
0.01MΩ ÷ 199.9MΩ (100V)
0.01MΩ ÷ 499MΩ (250V)
0.01MΩ ÷ 999MΩ (500V)
0.01MΩ ÷ 1999MΩ (1000V)
Basic accuracy: ±(2.0% reading + 2 digits)
Test current: > 1mA on 1kΩ x Vnom (50,100, 250, 1kV)
> 2.2mA on 230kΩ @ 500V
Short circuit current: <6.0mA for each test voltage

Line/Loop Impedance (L-L, L-N, L-PE)

Measuring range: 0.01Ω ÷ 199.9Ω
Resolution: 0.01Ω min (0.1mΩ with optional accessory IMP57)
Accuracy: ±(5.0% reading + 3 digits)
Test voltage: 100÷265V (L-N) / 100÷460V (L-L), 50/60Hz
Maximum test current: 5.81A (@265V); 10.10A (@457V)
Selectable MCB protections: curves B, C, D, K
Selectable fuse protections: type aM and gG
Insulating material (test I2t): PVC, butyl rubber, EPR, XLPE

Earth resistance and ground resistivity

Measuring range R: 0.01Ω ÷ 49.99kΩ
Measuring range: ρ 0.60Ωm÷3.14MΩm
Accuracy: ±(5.0%reading + 3digits)
Test current: 10mA, 77.5Hz
Open circuit voltage: <20Vrms

RCD tripping time and current

RCD type: AC (∿), A (⩙), B, General (G), Selective (S), Delayed (R)
RCD rated currents: 10, 30, 100, 300, 500, 650, 1000mA
Relays: 0.3..10A (with optional accessory RCDX10)
L-N, L-PE voltage: 100V ÷ 265V, 50/60Hz ± 5%
Half sine-wave test current: 0°, 180°
Tripping time accuracy: ±(2.0%reading + 2 digits)
Test current multipliers: x1/2, x1, x2, x5
Tripping current range: (0.3 ÷ 1.1) Idn (AC, A, B)
Tripping current accuracy: 5%Idn (10mA - 650mA)

Non-trip earth loop impedance
L-N, L-PE voltage range: 100V ÷ 265V, 50/60Hz ± 5%
Measuring range: 0,01Ω÷1999Ω (systems with neutral)
1Ω÷1999Ω (systems without neutral)
Accuracy: ±(5.0% reading + 3 digits)
Test current: <15mA

Contact voltage Ut
Measuring range: 0 ÷ Utlim (Utlim = 25V o 50V)
Accuracy: ±(5.0% reading + 3V)

1 terminal phase sequence
L-N, L-PE voltage range: 100V ÷ 265V, 50/60Hz ± 5%
Measurement type: contact on metal parts (no insulating material)

Leakage current (with clamp HT96U)
Measuring range: 2mA ÷ 999mA
Resolution: 1mA
Accuracy: ±(5.0% reading + 2 digits)

Measurement of environmental parameters (with optional probes)
Air temperature (°C/°F): -20.0 ÷ 60.0 °C / -4.0 ÷ 140.0 °F
Relative humidity: 0% ÷ 100%RH
Illuminance (Lux): 0.001lux ÷ 20klux
Accuracy: ±(2.0% reading + 2 digits)

Measurement of main parameters and harmonics (PQA)

AC TRMS Voltage

Range (V)	Resolution (V)	Accuracy
15.0÷459.9	0.1 V	± (1.0%rdg + 1dgt)

Allowed crest factor ≤ 1,5 • Frequency 42.5 ÷ 69.0 Hz

Frequency

Range (Hz)	Resolution (V)	Accuracy
42.5÷69.0	0.01 V	±(2.0%rdg + 2dgt)

Allowed voltage: 15.0 ÷ 459.9V • Allowed current: 5%FS clamp ÷ FS clamp

AC TRMS Current

FS clamp	Range (A)	Resolution (A)	Accuracy
≤10A	5% FS ÷ 9.99	0.01	1ph: ±(1.0%rdg + 3dgt)
10A ≤ FS ≤ 200	5% FS ÷ 199.9	0.1	3ph: ±(2.0%rdg + 5dgt)
200A ≤ FS ≤ 3000	5% FS ÷ 2999	1	

Range: 5 ÷ 999.9 mV • Values under 5mV are zeroed • Allowed crest factor ≤ 3 • Frequency: 42.5 ÷ 69.0 Hz

Active Power
(@ 230V in 1Ph systems, 400V in 3 Ph systems, cosphi=1, f=50.0Hz)

FS clamp	Range (kW)	Resolution (kW)	Accuracy
≤10A	0.000 ÷ 9.999	0.001	1ph: ±(2.0%rdg + 5dgt)
10A ≤ FS ≤ 200	0.00 ÷ 999.99	0.01	3ph: ±(2.5%rdg + 8dgt)
200A ≤ FS ≤ 1000	0.0 ÷ 999.9	0.1	
1000A ≤ FS ≤ 3000	0 ÷ 999.9	1	

Reactive Power
(@ 230V in 1Ph systems, 400V in 3 Ph systems, cosphi=0, f=50.0Hz)

FS clamp	Range (kVAr)	Resolution (kVAr)	Accuracy
≤10A	0.000 ÷ 9.999	0.001	1ph: ±(2.0%rdg + 7dgt)
10A ≤ FS ≤ 200	0.00 ÷ 999.99	0.01	3ph: ±(3.0%rdg + 8dgt)
200A ≤ FS ≤ 1000	0.0 ÷ 999.9	0.1	
1000A ≤ FS ≤ 3000	0 ÷ 999.9	1	

Power Factor
(@ 230V in 1Ph systems, 400V in 3 Ph systems, f=50.0Hz)

Range	Resolution	Accuracy
0.70c÷1.00÷0.70i	0.01	±(4.0%rdg + 10dgt) if I ≤ 10% FS ±(1.0%rdg + 7dgt) if I >10% FS

Voltage Harmonics
(@ 230V in 1Ph systems, 400V in 3 Ph systems, f=50.0Hz)

Range (%)	Resolution (%)	Order	Accuracy
0.1÷100.0	0.1	01÷25	±(5.0%rdg + 5dgt)

Frequency of fundamental: 42.5 ÷ 69 Hz, DC accuracy not declared.

Current Harmonics (f=50Hz)

Range (%)	Resolution (%)	Order	Accuracy
0.1÷100.0	0.1	01÷9	±(5.0%rdg + 5dgt)
		10÷17	±(10.0%rdg + 5dgt)
		18÷25	±(15.0%rdg + 10dgt)

General specifications

Power supply	6x1.2V rechargeable type AA NiMH or 6x1.5V type AA alkaline
Battery life	> 550 test (alKaline)
Display	320x240 resistive color LCD with touch screen
Memory	999 locations, 3 marker levels
PC interface	optical/USB and Wi-Fi
Dimensions (L x D x H)	225 x 165 x 75 mm / 8.8 x 6.5 x 2.9 in
Weight (including batteries)	1.2 kg / 2.5 lb
Safety	IEC/EN61010-1, double insulation
Pollution degree	2
Mechanical protection	CAT III 240V, max 415V among inputs
Reference standards	IEC/EN61557-1-2-3-4-5-6-7
Working temperature	0°÷ 40°C / 32°÷104°F
Working humidity	<80%RH
Storage temp.	-10°÷ 60°C / 14°÷140°F
Storage humidity	<80%RH

Standard accessories

- **C2033X** 3-banana to Shuko plug cable
- **KITGSC5** Kit including 4 cables, 4 alligator clips and 2 test leads
- **KITTERRNE** Soft carrying bag containing 4 cables and 4 earth rods
- **PR400** Remote switch probe
- **PT400** Stylus
- **BORSA2051** Soft carrying bag
- **TOPVIEW2006** PC software and optical-to-USB connection cable C2006
- **YABAT0003000** Rechargeable NiMH battery 1.2V, AA, 6 pcs
- **YABAT0004000** External battery charger for 8 pcs. type AA batteries
- **Quick user's guide**
- **User's manual** on CD-ROM
- **Calibration certificate** ISO9000

PR400

KITGSC5

YABAT0004000

YABAT0003000

PT400

C2033X

IMP57

Optional accessories

- **HT96U** Transducer for AC currents (including leakage current) 0 ÷ 1, 0 ÷ 100, 0 ÷ 1000A AC
- **IMP57** High resolution impedance measurement adapter
- **T2100** Earth ground clamp transducer
- **HT52/05** Transducer for temperature/humidity measurement
- **HT53/05** Transducer for illuminance measurement
- **SP-0400** Free hands kit
- **606-IECN** Magnetic adapter for connection to screw heads
- **1066-IECN** Black connector for extensions (4mm banana)
- **RCDX10** Accessory for industrial RCDs up to 10A

HT53/05

HT52/05

RCDX10

HT96U

T2100

Crosstable

Functions	MACROTEST G3	COMBI G2
Insulation with 50, 100, 250, 500, 1000VDC test voltage	•	•
Continuity of earth conductors with 200mA	•	•
Earth resistance with 2-wire and 3-wire methods	•	
Earth resistance with clamp	•**	
Ground resistivity with 4-wire methods	•	
Global earth resistance without RCD's tripping	•	•
Line/Fault impedance, Phase-Phase, Phase-Neutral, Phase-PE	•	•
Line/Fault impedance, Phase-Phase, Phase-Neutral, Phase-PE with high res. (0.1 mΩ)	•*	•*
Prospective short circuit/fault current	•	•
Contact voltage	•	•
General, Selective and Delayed RCD's tripping time	•	•
RCD's test current type A, AC max 1A and B type max 300mA	•	•
Test on earth leakage delay testers RCD up to 10A	•	•
RCD trip out current (Ramp test)	•	•
Phase sequence indication	• ***	• ***
Main lines percentage voltage drop measurement	•	•
Test with remote probe (with PR400, optional accessory)	•	•
Leakage current (with HT96U optional accessory)	•	•
Measurement of electrical parameters (V, A, W, VAR, VA, Wh, cosphi)	•	•
V, A harmonic analysis up to 49th order and THD% calculation	• (1) (25a)	• (1) (25a)
Measurement of environmental parameters (with HT52/05 e HT53/05 optional probes)	• (1)	• (1)
Help on line	•	•
Internal memory to save measures	•	•
Optical/USB ports for PC connection	•	•
Built-in Wi-Fi communication interface	•	•

* With IMP57 optional accessory ** With T2100 optional accessory *** With RCDX10 optional accessory (1) Single Phase and Three Phase balanced systems

P Q A 8 2 0


www.explorercases.com
SINGLE PHASE
"SYSTEM" LED:
3 PHASE NO NEUTRAL
"SYSTEM" LED:
3 PHASE + NEUTRAL
"SYSTEM" LED:
IP65 (CLOSED CASE)
SN
>PP-MD10<
HT
241°
Tensione
v1 [V]
v2 [V]
v3 [V]
Corrente
i1 [A]
i2 [A]
i3 [A]
v1
341.54V
v2
-193.65V
v3
-203.67V
Tensione [V]
HT
13/06/2013 11:32:12
V1 avg
221.70V
V3 min
213.30V
Periodo integrazione

Power analysis and energy saving evolve.
In one finger.

383 parameters recorded simultaneously

Suitable to any environment

Self-powered

Wi-Fi and USB

HTanalysis App for iOS™ and Android™

Share. Any style, place and time*

Multimedia notes

100% "Made in Italy" technology and quality

- **Turn your smartphone or tablet into the most advanced power and energy consumption analyzer in the world.**
- **3 system types:** Single-phase, 3-wire Three-phase, 4-wire Three-phase.
- **Easy to set up** directly **from Smartphone or Tablet**.
- **Technology and straightforwardness.** Immediate display of all recordings and simple analysis thanks to rapid gestures and detailed zoom on all quantities.

* Using HTanalysis App for iOS™ or Android™ on Tablet or Smartphone. The App can be downloaded for free on AppStore™ or Playstore™

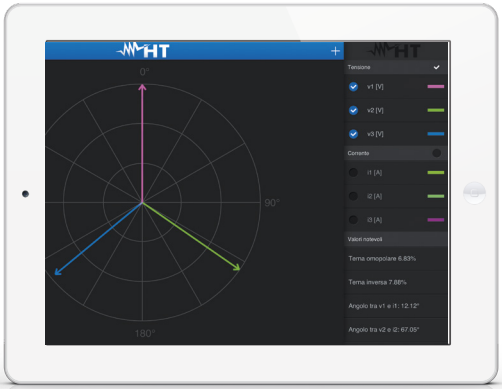
- **Real Time**. Instant display of all wave forms, harmonics, vector diagrams and summary function for a prompt reading of the most important parameters.
- **Energy saving**. Discover absorption capacity of all your equipment with one click and save energy.
- **383 parameters which can be displayed simultaneously.**
- **Jump function**. Relation between time and frequency domains or between power and energy consumed available instantly.

Live.
Real time analysis.

Using Wi-Fi connection you can display wave forms, vector diagrams, harmonics and all electrical parameters for each phase on your tablet/smartphone/PC.

Voltage and current wave forms

Current and voltage harmonics



Voltage and current vector diagram

HT cloud

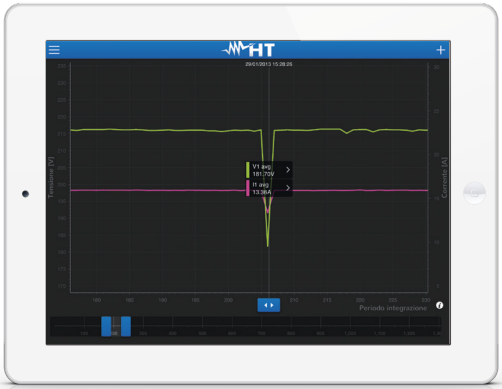
Zoom, Zoom, Zoom!
Enlarge, jump, analyze.
Two fingers needed.

PQA820 helps to dispel the myth that recording analysis is quite complex.
App HTanalysis makes it simple and clear.
Using **ZOOM Functions** you can thoroughly display all the recorded quantities. **JUMP Function** permits to display harmonics in any recording step just by clicking on the quantity.

HTanalysys App can be downloaded for free on AppStore™ or Playstore™

Unstoppable.

UNLIMITED battery life.
PQA820 gets self-powered during measurement recordings. This features eliminates all problems related to limited life of standard batteries **so avoiding employment of external power supplies.**



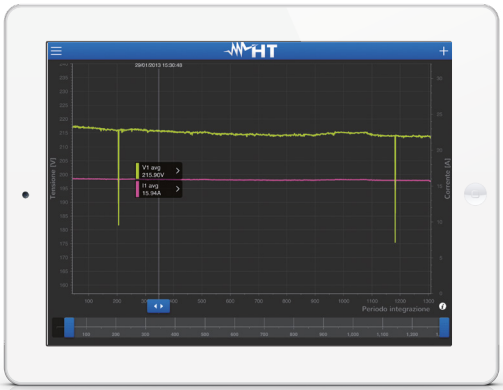
Zoom on voltage and current drop.

Jump Function
1. Click on arrow close to the value under test.

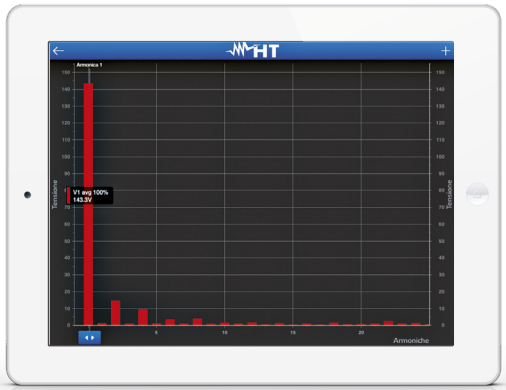
Jump Function
2. Go to real time harmonic values.

We see everything.

PQA820 is **capable** of recording **383 parameters simultaneously** on **THREE-PHASE** and **SINGLE-PHASE 3 or 4 Wire** systems. Thanks to softwares TopView and HTAnalysis (App for tablet and smartphone) you can display the tracking of all the recorded quantities, which can be selected from menu such as: voltages, currents, frequencies and powers, THD%, harmonics up to 49th, cosphi and voltage breaks.Trouble-shooting and pre-emptive service have never been achieved so easily and immediately.



Tracking of the main quantities.



Harmonics up to 49th.

Tracking of all harmonics.

IP65. Rain doesn't scare us.

PQA820 is not afraid of the weather. Thanks to its heavy-duty and waterproof case the instrument is well protected and can be used in any environment.

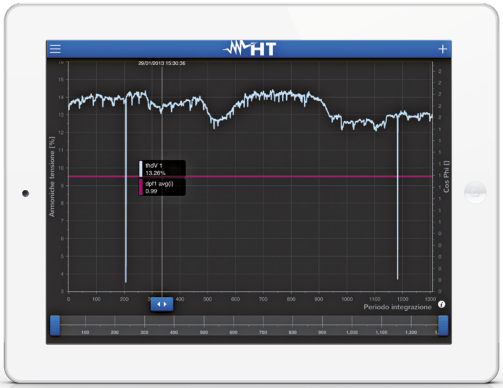
IP65 - Waterproof and resistant to extreme weather conditions.

We work, you save up.

PQA820 is capable of recording all active, reactive and apparent powers over a long period, comparing them with cosphi, THD%, harmonics and power factor. Reduction of energy dissipation will be possible thanks to the HTanalysis App.

Tracking of powers.

Jump function to check how much energy was consumed.



Example of analysis on THD% and power factor.

Functions

- DC/AC TRMS voltage (4 inputs)
- DC/AC TRMS current (4 inputs)
- DC and AC active, reactive, apparent power
- Active, reactive, apparent energy
- Power factor and cosPhi
- Analysis of voltage/current harmonic up to 49th order
- Voltage anomalies (sag, swell) with 10 ms resolution
- Voltage unbalance
- LED indication of phase sequence
- Frequency
- Parameter data table, graphs, harmonic histograms, voltage and current phasors with PC or iPad/iPhone and Android device connection
- Max 383 parameters simultaneously selectable
- Recording with integration period ranging between 5s and 60 min

Electrical Specifications

AC TRMS Voltage
Measuring range: 10.0V ÷ 265.0V (L-N)
50.0 ÷ 460.0V (L-L)
Basic accuracy: ±(0.5% reading + 0.2V)
Frequency: 42.5Hz ÷ 69.0Hz

Voltage anomalies (sags, swells)
Measuring range: 15.0V ÷ 265.0V (L-N)
Basic accuracy: ±(1.0% reading + 2 digits)
Time resolution: 10ms @ 50Hz
Time accuracy: ±1/2 period

AC/DC TRMS Current – Standard transducer (STD)
Transduced voltage range: 5.0mV ÷ 9999mV
Resolution: 0.1 mV
Basic accuracy: ±(0.5% reading)
Frequency: 42.5Hz ÷ 69.0Hz

DC and AC Active, Reactive, Apparent power
Measuring range: 0.000 ÷ 9999 kW/kVAR/kVA
Resolution: 0.001 kW/kVAR/kVA
Basic accuracy: ±(0.7% reading)

Active, Reactive energy
Measuring range: 0.000 ÷ 9999 kW/kVAR/kVA
Resolution: 0.001 kW/kVAR/kVA
Basic accuracy: ±(0.7% reading)

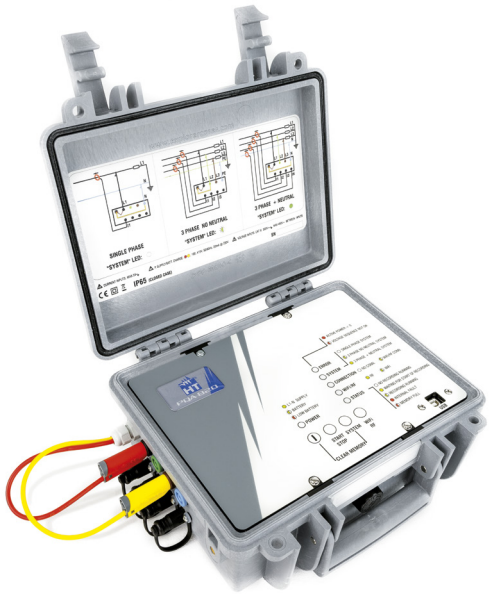
Power factor (Cosphi)
Measuring range: 0.20 ÷ 1.00
Resolution: 0.01
Basic accuracy: 0.6° ÷ 1.0°

Voltage/Current harmonics
Range: DC ÷ 49th order
Resolution: 0.1V / 0.1A
Basic accuracy: ±(5.0% reading + 2 digits) for DC ÷ 25th order
Frequency: 42.5Hz ÷ 69.0Hz

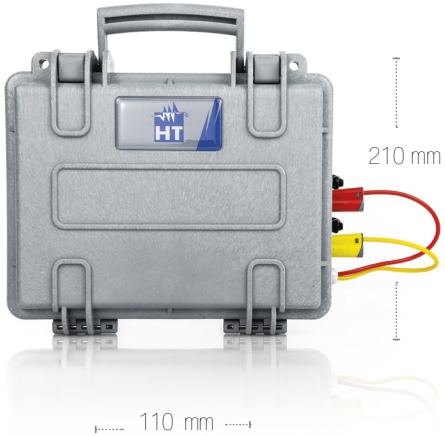
General Specifications

Simultaneously recorded parameters

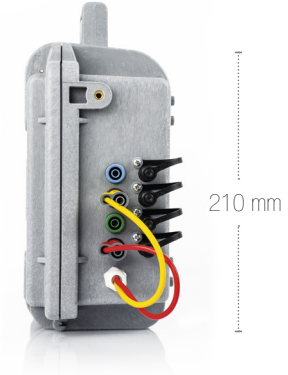
- Line to Neutral and Line to Line voltages, DC voltage
- Voltage anomalies (sags, swells)
- Line current, Neutral current, DC current
- Voltage/Current harmonics
- Phase and total Active, Reactive, Apparent power
- Phase and total power factor and cosphi
- Phase and total Active energy (class 2 EN61036)
- Phase and total Reactive energy (class 3 IEC1268)
- Maximum number of selectable parameters: 383
- Maximum number of voltage anomalies: 65530
- Integration period: 5, 10, 30s, 1, 2, 5, 10, 15, 60 min
- Recording duration: > 30 days (IP = 10 min)
- Power supply: rechargeable Li-ION battery
- External power supply: 100 ÷ 415V, 50/60 Hz
- PC interface: USB and WiFi
- Dimensions (L x D x H): 245 x 210 x 110mm 9.6 x 8.3 x 4.3in
- Weight (including batteries): 1.5 kg / 3.3lb
- Safety: IEC/EN61010-1, double insulation
- Pollution degree: 2
- Mechanical protection: IP65
- Measuring category: CAT IV 300V, max 415V among inputs
- Reference standards: EN50160
- Working temperature: 0° ÷ 40°C / 32° ÷ 104°F
- Working humidity: <80%RH
- Storage temperature: -10° ÷ 60°C / 14° ÷ 140°F
- Storage humidity: <80%RH



245 mm



110 mm



Standard accessories

- **KITMPPACW** Set of 4 measuring cables
- **KITMPPACC** Set of 4 alligator clips
- **606-IECN** Adapters with magnetic ends, 4 pcs.
- **HTFLEX33L** 0÷100A, 0÷1000A AC flexible clamp, 174mm, 4 pcs.
- **TOPVIEW2007** PC Windows software + USB cable
- **BORSA2051** Carrying case
- **Quick user's guide**
- **User's manual** on CD-ROM
- **Calibration certificate** ISO9000

KITMPPACW

KITMPPACC

606-IECN (set da 4)

HTFLEX33L (set da 4)

Optional accessories

- **HP30C2** Clamp transducer AC 200-2000A/1V, diameter 70mm
- **HT96U** Clamp transducer AC 1-100-1000A/1V, diameter 54mm
- **HT98U** Clamp transducer DC 1000A/1V, diameter 50mm
- **HP30D1** Clamp transducer DC 1000A/1V, diameter 83mm
- **HT903** Box 3 x 1-5A/1V for connection to external CTs
- **ACONBIN** Adapter for clamp transducer

HP30C2

HP30D1

HT96U

HT98U

ACONBIN

Crosstable

Functions	**PQA 820**	**PQA 819**
AC TRMS voltage in single phase/trhree phase plants	•	•
AC TRMS current in single phase/trhree phase plants	•	•
Power/Energy Active, Reactive and Apparent	•	•
Cosphi and Power Factor	•	•
DC voltage, current, power	•	•
Neutral current	•	
Voltage Dips and Swells on 10ms	•	
Voltage unbalance (NEG%, ZERO%)	•	
Measurements by external CTs and VTs	•	•
Voltage/current waveforms	• (On mobile device)	• (On mobile device)
Voltage/current harmonic histograms and THD% calculation	• (On mobile device)	• (On mobile device)
Voltage/current vectorial diagram	• (On mobile device)	• (On mobile device)
Recording analysis with selectable integration period IP	• (5s-60m)	• (5s-60m)
Max number of selectable parameters for simultaneous recording	383 (Fixed)	44 (Fixed)
Voltage/current harmonic analysis up to 49th order	•	• (Real time)
THD% voltage/current recording	•	•
Voltage anomalies (sags, swells) from 10ms (@50Hz)	•	
Recording duration indication	• (On mobile device)	• (On mobile device)
Battery	Li-ON	Li-ON
Auto Power Off	•	•
Durata indicativa memoria (in giorni@PI=15min@max num parametri)	30 (PI=10min)	230 (PI=15min)
PC interface	USB/WiFi	USB/WiFi
Contextual help at display on each screen	• (On mobile device)	• (On mobile device)
Saving of recordings and snapshots	• (On mobile device)	• (On mobile device)
Dimensions (LxWxH) mm	255x200x115	255x200x115
Weight (batteries included)	0,7 Kg	0,7 Kg
Safety in compliance with IEC/EN61010-1	•	•