

NanoVIP® KUBA™

High end **Class A** Portable Power Quality analyzer for mono, bi, three phases (balanced and unbalanced), medium and low voltages systems.



EN **NANOVIP® KUBA™** is a modern, powerful, portable **Class A Power Quality Analyzer** developed for professionals working on the most complex electrical networks.

It can be used on single-phase, two-phase, three-phase (balanced and unbalanced, 3 or 4 wires) networks, low and medium voltage.

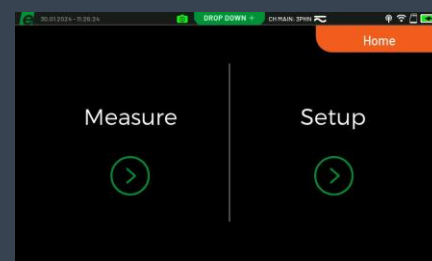
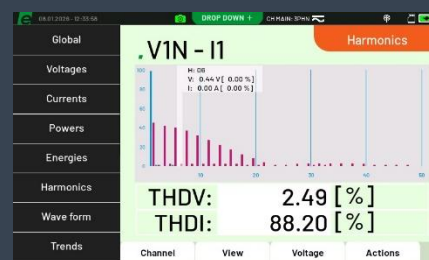
Measurements **accuracy according to EN61000-4-30 Class-A requirements**.

16bit sampling on two fully independent measuring lines (Main and Aux) guarantees excellent precision and accuracy and capability to perform realtime efficiency of UPS, inverters, transformers.

Sampling and measurements according to EN61000-4-30 Class-A requirements.

MEASUREMENT PRECISION, POWERFUL ANALYSIS

- ✓ 5 inches 800x480 touch display
- ✓ Can work on networks: single-phase, two-phase, three-phase balanced with or without neutral, three-phase unbalanced with or without neutral
- ✓ Full traditional energy analysis (V, I, P, Q, S, F, PF, THD%, instantaneous values / minimum / maximum / average, energy meters absorbed and generated both three-phase for each phase) according to EN50160.
- ✓ Two fully independent measuring lines (Main and Aux) to perform realtime efficiency of UPS, inverters, transformers.
- ✓ EN50160 compliance test and report
- ✓ **16bit continuous sampling according to EN61000-4-30**
- ✓ **Unbalance, Harmonics, Interharmonics and flickers according to EN61000-4-7**
- ✓ Dips, Swell, Interruptions from 10mSec
- ✓ Transients from 156 microseconds
- ✓ Events detection and report by channel
- ✓ 4 tariff bands setting with the related costs display
- ✓ Automatic check of the correct connection of voltage cables and current sensors
- ✓ High capacity rechargeable batteries that guaranties over 8h of work
- ✓ Fast USB communication channel
- ✓ WiFi and/or 4G connectivity (related to model)
- ✓ Free access to **NanoVIP Cloud** (WiFi and 4G models)
- ✓ Power bank (option) to extend battery autonomy to several days




	L1	L2	L3	LN
Voltage LN	233.58 V	0.00 V	0.00 V	155.71 V
Voltage LL	233.56 V	0.00 V	233.56 V	
Current	0.06 A	0.02 A	0.02 A	1.19 A
Voltage THD	0.00 %	0.00 %	0.80 %	
Current THD	70.29 %	66.03 %	74.68 %	
Frequency	Min			
	Max			



Class	Class A – According to EN 61000-4-30
CASE:	
Dimensions	203x116x53mm
Material	ABS with self-extinguishing V0 grade
Protection class	IP30
Weight	850 g
DISPLAY:	
Dimensions	108x65mm
Type	5 inch touch LCD 800x480 pixels double layer graphic
Backlight	White LED
Languages	English - Spanish - Italian - German - French
KEYPAD:	
Type	Membrane keypad with 10 double-function keys
POWER SUPPLY:	
External power supply	wall-plug switching; input 100-240VAC $\pm 10\%$ 47-63Hz with interchangeable plug; output 7.5VDC - 12W
Battery pack	4 x AA NiMH 2100mAh
Power bank	25000mAh (option)
Duration of the battery charge	>8h (wireless off)
CONNECTING SYSTEMS:	
Systems frequencies	50Hz – 60Hz – 400Hz
Single phase	✓
Two phase	✓
Three-phase, 3-wires, balanced	✓
Three-phase, 3-wires, unbalanced	✓
4-phase, 4-wires, balanced	✓
4-phase, 4-wires, unbalanced	✓
CONNECTIONS:	
Voltages	Flexible cables L = 1.5m; 2.5mm ² - 36A; 1000V CAT III - 600V CAT IV with a 4mm, 90° protected blade plug connector, crocodile clips with a 45mm opening (for sections up to 32mm) and magnetic captors
Currents	Elcontrol Energy Net interchangeable amperometric sensors
Analog inputs	Up to 3 external transducers: 0..1V, 4..20mA or PT
FUNCTIONS:	
Traditional electrical analysis	V, I, P, Q, S, F, PF, THD(V)%, THD(I)%, $\cos\phi$, ϕ , peaks, minimums, maximums, averages, max. demands, etc.
Neutral current	Measured
Three phase counters	kWh, kVAh, kVAh, both absorbed that generated
Counters for each single phase	kWh, kVAh, kVAh, both absorbed that generated
Cogeneration	✓
Waveforms	V & I
Harmonics	Values and histograms up to the 50 th order
Interharmonics	✓
Flickers	✓
Sags	Dips, swells & interruptions
Transients	Overvoltages & overcurrents
Unbalance	✓
Test EN 50160	✓
Inrush current	✓
DC measures	✓
K factor	Up to the 25 th order
Alarms	Displayed

NanoVIP® KUBA™

Alarms log	5 at display
Tariff bands	4
Energy costs	✓
IEC 61724 network parameters	✓
Test EN 82.25	-
OSU™ (One Shot UPS)	✓
Measurement campaigns	unlimited, up to fill the memory card
MEASUREMENTS:	
Sampling frequency	Adaptive within 40Hz-70Hz range
Sampling bits	16 bits per sample
Sampling method	Continuous on 9 channels according to EN61000-4-30 Class A requirements; 69.120 Samples per sec
Data record rate	Min 1 sec.
Data storage rate	User selectable: 1", 5", 10", 30", 1', 5', 10', 15'
Type of connections available	Three-phase (3 or 4 leads), two-phase (2 leads), and single phase grid
Type of grid which can be connected	Low and medium voltage (LV and MV)
VOLTAGE (TRMS)	
Channels	4+1: 3 channels with common neutral + 1 independent (auxiliary channel)
Input impedance	4 Mohm
Direct measurement	Phase-phase: 7-1000VAC 40-70Hz Phase-neutral: 5-600VAC 40-70Hz Aux: 5-1000VAC 40-70Hz, 10-1400VDC
Measurement with VT	Ratio: 1-60000 Maximum value which can be displayed: 20MV
Permanent overload	Phase-phase: 1200VAC Phase-neutral: 700VAC Aux: 1200VAC, 1700VDC
Sensitivity	5VAC Phase-neutral, 7VAC Phase-phase, 10VDC
CURRENT (TRMS)	
Channels	5 independent channels
Input impedance	10KOhm
Measurement with current clamps	Ratio: 1-60000 Maximum value which can be displayed: 500KA
Sensitivity	0,2% of F.S.
POWERS	
Single phase power	Values < 999 GW, Gvar, GVA
Total power	Values < 999 GW, Gvar, GVA
POWER COUNTERS	
Maximum value before reset	99999999 kWh, kvarh, kVAh
ACCURACY	
	IEC 61000-4-30 Class A, $\pm 0.1\%$ of nominal voltage
PRECISION	
RMS voltages:	$\pm 0.15\% + 0.1\%$ EOS (end of scale)
RMS currents:	
Input channels	$\pm 0.15\% + 0.1\%$ EOS
Power	$\pm 0.5\% + 0.05\%$ EOS
Power Factor (PF)	$\pm 0.5^\circ$
Frequency	± 0.01 Hz (40-70Hz)
Active power count (kW)	Class 0.5
Reactive power count (kVar)	Class 1

HARMONIC ANALISYS	Up to 50 th order
Interharmonics	According to EN61000-4-7
Flickers	According to EN61000-4-15
ANALYSIS of EN50160 parameters	
Interruptions	>10mS
Dips	>10mS
Swells	>10mS
TRANSIENTS	
Swells and overcurrents	>156uS
Inrush current analysis	RMS continuous sampling
ANALOGIC (THERMOMECHANICAL)	
Inputs	3 independent transducer inputs (according to model)
COMMUNICATION:	
Channels	Up to 3 independent
WiFi	✓ (According to model)
4G	✓ (According to model)
MRH™	✓ (According to model)
Server mode	✓
Connectable MRH™ clients	-
Client mode	-
Maximum distance outdoor	600m
Maximum distance indoor	60m
Mesh network	✓
Wireless to PC	✓
USB	✓
DATA STORAGE:	
Internal memory	2Mb
External memory	Micro SD (included in package)
OPERATING CONDITIONS:	
Operating temperature	-10 to +55 °C
Storage temperature	-20 to +85 °C
Relative humidity	Max 95%
Maximum altitude a.s.l. (600V CAT III)	2000 m
REFERENCE STANDARDS:	
Directives	93/68/EEC (Low Voltage Electrical Equipment); 89/336/EEC and 2004/108/EC (EMC - Electromagnetic Compatibility); 2006/95/EC - 72/23/EEC (LVD - Low Voltage Directive); 2002/95/EC (RoHS - Restriction of Hazardous Substances); 2002/96/EC and 2003/108/EC (WEEE - Waste Electrical and Electronic Equipment); IEC 61724
Classification	EN 61000-4-30 Class S or Class A (according to model)
Safety	EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326/A1/A2/A3
Temperature	IEC 60068-2-1 (Operating temperature) IEC 60068-2-2 (Storing temperature)
Vibrations	IEC 60068-2-6
Humidity	IEC 60068-2-30 (Humidity)
Overload	IEC 60947-1