

## technische Information

# NanoVIP® BOX™



Portable Power Quality analyzer for mono, bi, three phases (balanced and unbalanced), medium and low voltages systems, self powered through measuring line and with 4G communication.



**EN** NanoVIP® BOX™ does not require an external power source as it is **self-powered by the same measurement line** and equipped with a **battery that allows it to remain active** even in the absence of line for over 24h. **4G communication** allows it to be fully controlled through **direct SMS commands**, send data to the **Elcontrol Cloud** or be **fully remotely driven**.

It can be used on single-phase, bi-phase, three-phase (3 or 4 wires balanced and unbalanced) networks in low and medium voltage with voltages at the phase-phase instrument input up to 400V+10%.

## Self powered with 4G communication

- ✓ It does not require an external power supply because it is powered by the same voltage measurement line.
- ✓ Rechargeable battery to guarantee operation for over 24 hours in the event of a voltage absence/dip.
- ✓ 4G communication for: control via SMS, connection to the Elcontrol Cloud and direct remote control from PC/App
- ✓ Full coverage of EN50160 measurements and tests
- ✓ Can be used on systems: single-phase, two-phase, balanced three-phase with or without neutral, unbalanced three-phase with or without neutral
- ✓ Current and voltage harmonics for each phase and for the neutral up to the 50th (7th at 400Hz)
- ✓ Implementation of long-term measurement campaigns (over 24 autonomously, unlimited if connected to the network)
- ✓ Free access to Elcontrol Cloud included

# NanoVIP<sup>®</sup> BOX<sup>™</sup>



## CASE:

Dimensions	260x240x170mm
Material	ABS with self-extinguishing V0 grade
Protection class	IP30 (optional IP67)
Weight	350 g (435g including batteries)

## DISPLAY:

Dimensions	42x50mm
Type	128x128 STN Negative dot matrix graphic LCD
Backlight	White LED
Languages	English - Spanish - Italian - German - French

## KEYPAD:

Type	Membrane keypad with 7 double-function keys
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## POWER SUPPLY:

External power supply	Self powered by tension measured line L1/N; input 100-400VAC $\pm 10\%$ 47-63Hz
Battery	4 x AA commercial 1.5V Alkaline or rechargeable NiMH
Duration of the battery charge	Up to 24h

## CONNECTABLE SYSTEMS:

Systems frequencies	50Hz – 60Hz
Single phase	✓
Two phase	✓
Three-phase, 3-wires, balanced	✓
Three-phase, 3-wires, unbalanced	✓
Three-phase, 4-wires, balanced	✓
Three-phase, 4-wires, unbalanced	✓

## CONNECTIONS:

Voltages	Flexible cables L = 1.5m; 2.5mm <sup>2</sup> - 36A; 1000V CAT III - 600V CAT IV with a 4mm, 90° protected
Currents	Elcontrol Energy Net interchangeable amperometric sensors
Solar radiation	-
PT100	-
Anemometer	-
Transducers	-

## FUNCTIONS:

Traditional electrical analysis	V, I, P, Q, S, F, PF, THD(V)%, THD(I)%, $\cos\phi$ , $\phi$ , peaks, minimums, maximums, averages, max.
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 <sup>th</sup> order
Sags	Dips, swells & interruptions
Transients	Overvoltages & overcurrents
Unbalance	✓
Test EN 50160	✓
Inrush current	✓
DC measures	✓
K factor	Up to the 25 <sup>th</sup> order
Alarms	Displayed

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Alarms log	5 at display
Tariff bands	4
Energy costs	✓
IEC 61724 network parameters	✓
Test EN 82.25	-
OSU <sup>™</sup> (One Shot UPS)	-
Measurement campaigns	unlimited, up to fill the memory card (4Gb)

## MEASUREMENTS:

Sampling frequency	128 samples per cycle (adaptive in 40Hz-70Hz range)
Data record rate	1 sec.
Data storage rate	User selectable: 1", 5", 3", 1', 5', 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	3 channels with common neutral
Input impedance	4 Mohm
Scales	2
Direct measurement	Phase-phase: 7-400VAC 40-70Hz
Measurement with VT	Ratio: 1-60000
Permanent overload	Phase-phase: 1200VAC
Sensitivity	5VAC Phase-neutral, 7VAC Phase-phase, 10VDC

## CURRENT (TRMS)

Channels	4 independent channels
Input impedance	10KOhm
Scales	4
Measurement with current clamps	Ratio: 1-60000
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
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## ACCURACY

### RMS voltages:

Scale 1  $\pm 0.25\% + 0.1\%FS^{(2)}$  @ RMS V < 350VAC <sup>(1)</sup>

Scale 2  $\pm 0.25\% + 0.05\%FS^{(2)}$  @ RMS V > 350VAC <sup>(1)</sup>

### RMS currents:

Scale 1  $\pm 0.25\% + 0.1\%FS^{(2)}$  @ RMS I < 5% IN clamp <sup>(1)</sup>

Scale 2  $\pm 0.25\% + 0.05\%FS^{(2)}$  @ 5% < RMS I < 20% IN clamp <sup>(1)</sup>

Scale 3  $\pm 0.25\% + 0.05\%FS^{(2)}$  @ 20% < RMS I < 50% IN clamp <sup>(1)</sup>

Scale 4  $\pm 0.25\% + 0.05\%FS^{(2)}$  @ > 50% IN clamp <sup>(1)</sup>

Power  $\pm 0.5\% + 0.05\%FS^{(2)}$

Power Factor (PF)  $\pm 0.5^\circ$

Frequency  $\pm 0.01$  Hz (40-70Hz)

Active power count (kW) Class 0.5

Reactive power count (kVar) Class 1

## HARMONIC ANALYSIS

Up to 50<sup>th</sup> order

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## ANALYSIS of EN50160 parameters

Interruptions	>500mS
Dips	>500mS
Swells	>500mS

## Transient ANALYSIS

Swells and overcurrents	>150uS
Inrush current analysis	RMS continuous sampling every 2 periods – Duration 1, 2, 5, 10 sec.

## COMMUNICATION:

MRH <sup>™</sup>	-
Server mode	-
Connectable MRH <sup>™</sup> clients	-
Client mode	-
Zigbee <sup>®</sup>	-
Maximum distance outdoor	-
Maximum distance indoor	-
Mesh network	-
WiFi	-
3G/4G	✓ 4G
SMS	✓ (commands through SMS available)
Wireless to PC	-
Elcontrol Cloud connectivity	✓
Remote control	✓
Wireless to PC	-
USB	to PC

## DATA STORAGE:

Internal memory	64kB
External memory	Micro SD (4GB included)

## 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

## EC COMPLIANCE:

Directives	93/68/EEC (Low Voltage Electrical Equipment);
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## REFERENCE STANDARDS:

Safety	EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326
Temperature	IEC 60068-2-1 (Operating temperature)
Vibrations	IEC 60068-2-6
Humidity	IEC 60068-2-30 (Humidity)
Overload	IEC 60947-1