

NanoVIP 2-3

HANDHELD THREE PHASE POWER QUALITY ENERGY ANALYZER



NanoVIP is the new handheld three phase power quality energy analyzer, able to combine a high level of performance with an extremely competitive price.

What makes it unique is its small size, however, the instrument has all the features normally found so far only in high-end products.

NanoVIP is therefore a measuring instrument for anyone who requires a product easy to handle, precise and easy to use.

Is therefore aimed to users who want to acquire a thorough knowledge of their plants, both Energy Managers, Fitters, Electricians, Contractor, for the activities of diagnosis and intervention, or who want to offer a consulting service concerning all matters related to the electricity.

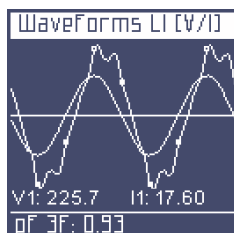
The **NanoVIP** series will be available in two main versions:

- For the analysis of three-phase electrical systems (NanoVIP3)
- For the analysis of single-phase electric systems (NanoVIP2)



NanoVIP makes it possible to:

- Control loads, consumption and costs;
- Test the correct dimensioning of new plants;
- Prevent risk to overheating and lack of insulation due to high harmonic content;
- Correctly resolve the problems of power factor correction;
- Identify and eliminate peak load of power to also reduce the electricity consumption;
- Monitor power and consumption in different time zones
- Monitor and evaluate the performance of UPS, with measures AC input and DC output (or vice versa);



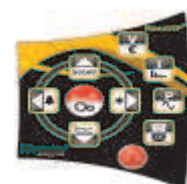
- Measure signals including non-symmetrical PWM control of inverter;
- Identify the causes of issues resulting from a poor quality electrical (presence of harmonics, interruptions, overloads, voltage dips, phase unbalance voltage) which, in addition to causing potential production blocks, may damage or shorten the life cycle of plant and machinery.
- Both versions above are equipped with a large graphic LCD with high efficiency, which allows the visualization of waveforms, graphics, etc.. and the use of a multilingual menu (English, Italian, Spanish, German, French).
- The white pixels on indigo provide exceptional visibility of the display.



The instrument can be indifferently grasped through its ergonomic rubber, or else placed on a plane thanks to an integrated removable support, both to simplify the measurement operations on the field, that the use near to a PC.



An elegant keyboard with 10-key dual function allows the user an easy and intuitive navigation menu



NanoVIP 2-3



NanoVIP is equipped with a slot for a 2 GB uSD memory card, which can be used to store measurement campaigns data (Sect. 5.2.11.2), fast transients (Sect. 5.2.10.1) and inrush currents (Sect. 5.2.10.2).

In fact, the availability of a microSD memory card for storing data and a USB port for communication with a PC, allows the creation of accurate measurement campaigns and the subsequent analysis of the data using the dedicated software.



The uSD card is supplied with the instrument, together with the:

- User Manual
- PC software (See software manual for use)

A further innovation is the equipment of mini flexible current probes.



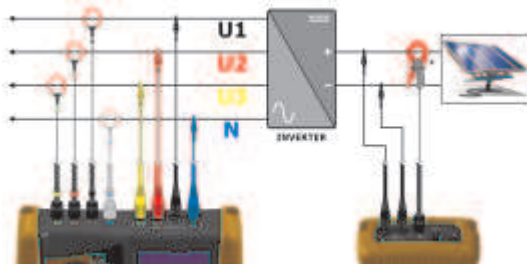
This feature significantly improves the portability and handling of the instrument, reducing weight and size, without impairing the possibility of measurement.

CONNECTION DIAGRAMS

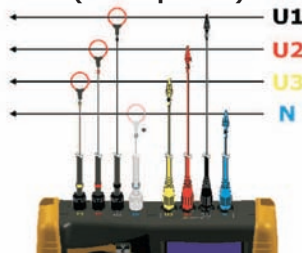
All Nanovip series enables measures in DC.

Some examples of electrical connections are shown below.

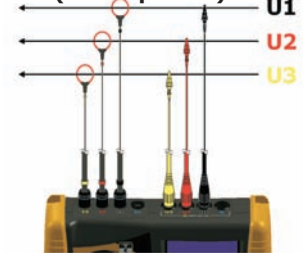
Connection for inverter measurement



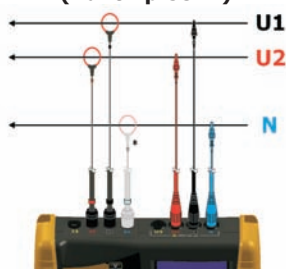
Three-phase + N + STAR (Nanovip CUBE)



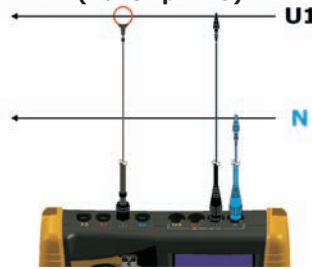
Three-phase DELTA (Nanovip CUBE)



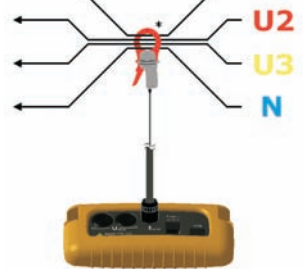
Two-phase (Nanovip CUBE)



Single-phase (Nanovip TWO)



Dispersion Measurement

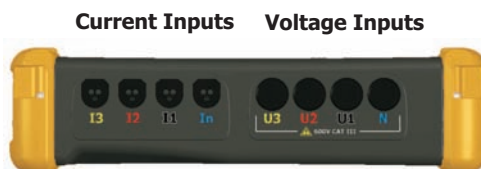


The main features of the series NanoVIP3 are: ability to connect and analyze various types of Electrical Systems

- Ø singlephase (all models)
- Ø twophase (NanoVIP3)
- Ø balanced three-phase with or without neutral (all models)
- Ø unbalanced phase with or without neutral (NanoVIP3).



Single-phase connection (NanovipTWO)



Three-phase connection (Nanovip CUBE)



AUX connection (NanovipCUBE)

NanoVIP 2-3

FULL TRADITIONAL ENERGY ANALYSIS

Current (A)	U (V)	Reactive (var)	PF	Current THD %	THD%	Total E. (kVAh)
L1 0.798	217	L1 132.0	-0.42	L1 100.0	4.32	L1 00.84
L2 0.805	217	L2 133.4	-0.44	L2 99.95	4.30	L2 00.87
L3 0.770	217	L3 130.1	-0.42	L3 97.28	4.27	L3 00.85
3PH 0.791		3PH 395.5		3PH 99.07		3PH 02.57
Prms 3F: -223.9		Prms 3F: 395.5		Prms 3F: -20.1		Prms 3F: 587.4

(V, I, P, Q, S, F, PF, THD%, actual values/ minimum / maximum / average, energy meters and consumption generated for each phase and single phase).

ANALYSIS OF POWER QUALITY PARAMETERS

Harmonic Histogram	Interruptions	Freq. - Unbalance	Test 50160
VL3 H1 218.1 IL3 H1 0.498 Prms 3F: -209.6	Interruption 3 of 5 Beginning on: 27/01/2005 - 00:49:38 Duration: 0 min. e 9 sec Prms L1: 0.02 ENTER	Freq. (Hz) 50.02 U Unb. (%) 14.12 Prms 3F: -206.6	Test Freq: Pass Test V: Pass Test ThdV: Fail Test Unbalance: Pass Int. 57 Dips 31 Swells 283

harmonics of current and voltage for each phase and for the neutral

net interruption, overvoltage, sags,

phase unbalance voltage

Test according to EN 50160.

ANALYSIS OF POWER QUALITY PARAMETERS

Neutral Current (A)	Waveforms L2 (V/I)	Band Count. Q+ Rvarch	Alarm 2 Set-up	Connections Check
In 0.018 Prms 3F: -181.5	V2: 217.8 I2: 0.722 Prms 3F: 463.2	T1 00.00 T2 01.36 T3 01.71 T4 00.00 Prms 3F: 717.4	Mode: Display Meas: Vrms 3F Th. min: 201 Th. max: 239 Hysteresys: 7 N.of Events: 1	Voltage sequence: L1 - L2 - L3 V/I Check (PF>0.87): V/I 1: Passed V/I 2: Passed Invert CT

real measurement of the neutral current,

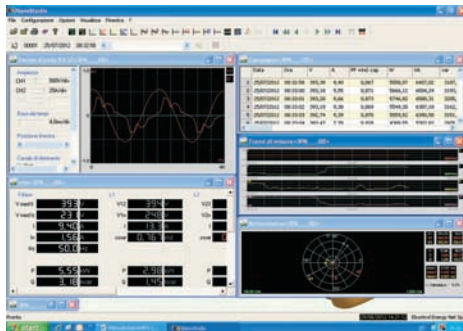
display waveforms of currents and voltages,

setting four tariff bands with display of relative costs

Configuration and display of alarms and thresholds on selectable measurement

Check of the correct connection of the instrument to the plant

SOFTWARE



- The software NanoStudio is a simple and convenient tool for analyzing memory campaigns made with the instrument NANOVIP
- "NanoStudio is compatible with operating systems WINDOWS XP, WINDOWS VISTA and WINDOWS7, and to install it you need to run SETUP.EXE contained in the supplied card microSD and follow the instructions displayed on the computer screen.
- "Through this software, the operator can analyze all the events recorded in the campaign, export measurements performed in a EXCEL file, report, etc..

NANOVIP2 KIT



- n. 1 NanoVIP TWO Power Analyser
- n. 1 Battery pack
- n. 2 Voltage cables
- n. 2 Crocodile clips, which can be opened
- n. 1 Voltage tip
- n. 1 Amperometric sensor (type left to user's discretion)
- n. 1 USB-A/miniUSB-B connection cable
- n.1 2GB microSD memory card (containing the PC NanoStudio software and user manual)
- n. 1 External wall-plug power supply with interchangeable plugs
- n.1 Rigid box (type will depend on current clamp(s) desired)

NANOVIP3 KIT



- n. 1 NanoVIP CUBE handheld energy analyser
- n. 1 battery pack
- n. 4 voltage cables (yellow, black, red, blue) with integrated alligator clips
- n. 3 current probes (type chosen by the user)
- n. 1 USB-A/miniUSB-B connection cable
- n. 1 memory card MicroSD 2GB (containing the PC software NanoStudio and the user manual)
- n. 1 wall-plug power supply
- n. 1 hard carrying case

GENERAL TECHNICAL DATA

	NANOVIP3	NANOVIP2
Type	HANDHELD	HANDHELD
Dimension	203 x 116 x 53 mm	203 x 116 x 53 mm
Weight	580 g	580 g
Protection	IP30	IP30
Container material	ABS V0 e EPDM	ABS V0 e EPDM
ELECTRICAL		
Singlephase	X	X
Threephase	?	
Input Voltage	4 (3 + N común + AUX)	1
Input Current	5 independent	1
Safety	600 V CAT III	600 V CAT III
POWER SUPPLY		
Battery Package	4xAA 2100mAh	4xAA 2100mAh
Power supplier		
battery charger, ext.	100-240Vca / 50-60Hz	100-240Vca / 50-60Hz
Autonomy charge	>24 h	>24 h
LCD		
Type	Graphic LCD	Graphic LCD
Dimension	68x68 mm	68x68 mm
Definition	128x128	128x128
Color	White Pixel/Indigo Background	WhitePixel/Indigo Background
Back light	X	X
Menú	multilingual	multilingual
Key board	10 membrane keys	10 membrane keys
Threephase counter	X	X
Counter for each phase	X	X
Cogeneration	X	X
Waveform	X	X
Harmonics	Up to 50 ^a	Up to 50 ^a
Histogramm Harmonics	X	X
Dips	>500 ms	>500 ms
Swells	>500 ms	>500 ms
Interruptions	>500 ms	>500 ms
Fast Transient	X	X
Trend	X	X
Unbalance Voltage	X	
Test EN 50160	X	
Neutral current	X	
Inrush current	X	X
DC Measure	X	X
Allarms	X	X
K factor	X	X
Voltage	"1000 Vca phase-phase	
700 Vca	phase-neutral	
1000 Vcc"	"1000 Vca phase-neutral	
1000 Vcc"		
Current	Up to 3000 A (with miniflex)	Up to 3000 A (with miniflex)
Frequency	40÷70 Hz	40÷70 Hz
Tariffs band	X	
Voltage	±0,25% +0,05 F.S.	±0,25% +0,05 F.S.
Current	±0,25% +0,05 F.S. ± S clamp	±0,25% +0,05 F.S. ± S clamp
Power	±0,5% +0,05 F.S. ± S clamp	±0,5% +0,05 F.S. ± S clamp
Measurement survey	X	X
Alarm Log	X	X
ANALYZED SYSTEM		
Singlephase	X	X
Two phase	X	
3fi + N, balanced	X	X
3fi + N, Unbalanced	X	
3fi Without neutral , balanced	X	X
3fi without neutral , unbalanced	X	X
COMMUNICATION		
USB	To PC	To PC
Wireless (ZigBee)		
DATA RECORDING		
Internal memory	64 kB	64 kB
External memory	MicroSD 2GB	MicroSD 2GB
ENVIRONMENT		
Functioning temperature	da -10 a +55 °C	da -10 a +55 °C
Storage temperature	da -20 a +85 °C	da -20 a +85 °C
Max. Humidity	95% (no condensation allowed)	95% (no condensation allowed)
REFERENCE STANDARDS		
EN 61010-1	X	X
EN 61326 X	X	
EN 61326/A1	X	X
EN 61326/A2	X	X
EN 61326/A3	X	X
IEC 60068-2-1 (Operating temperature)	X	X
IEC 60068-2-2 (Storing temperature)	X	X
IEC 60068-2-6	X	X
IEC 60068-2-30 (Humidity)	X	X
IEC 60947-1	X	X

Duncan Instruments Canada Ltd.

216 Rivermede Road, Units 1 & 2, Concord, Ontario L4K3M6 Canada

Tel. 416-742-4448 - Fax 416-749-5053

<http://www.duncaninstr.com> - E-Mail: sales@duncaninstr.com