NanoVIP® QUADRA™ master

Analizzatore portatile wireless della Qualità dell'Energia per sistemi monofase, bifase, trifase (bilanciati e non), BT, MT e fotovoltaico.
Portable Power Quality analyzer for mono, bi, three phases (balanced and unbalanced), medium and low voltages systems and photovoltaic ones.

NanoVIP® QUADRA™ implementa la tecnologia MRH™ che permette di funzionare sia come un analizzatore di potenza portatile standard, sia come controller di una vasta rete di misurazione MRH™.
In modalità master di una rete di misurazione MRH™ può contemporaneamente effettuare misurazioni locali e raccogliere da più punti e in tempo reale misure eterogenee tramite altri dispositivi MRH™

EN **NANOVIP® QUADRA™** implements MRH™ technology, so it can work as a standard portable power analyzer as well as a master of a wide MRH™ measuring network. As master of an MRH network it can simultaneously make standard local measurements and collect Multipoint, Realtime and Heterogeneous measurements from other MRH devices.

PRECISIONE NELLA MISURA, POTENZA NELL'ANALISI

- Autoconfigurazione della rete wireless
- Riconoscimento automatico dei dispositivi disponibili
- Configurazione automatica della composizione della rete
- Massima distanza di collegamento punto-punto **indoor**: 60m
- Massima distanza di collegamento punto-punto **outdoor**: 600m
- Modalità solare standalone e solare rete
- Può operare su reti: monofase, bifase, trifase equilibrata con o senza neutro, trifase sbilanciato con o senza neutro e fotovoltaico
- Analisi Power Quality energetica tradizionale completa.
- Può misurare energie e potenze eterogenee: solari, carichi elettrici, generatori, sistemi di stoccaggio, connessioni multiple di rete, eolici, UPS, inverter ecc
- Permette l'analisi in tempo reale dei parametri generali di qualità dell'alimentazione di reti complesse e distribuite
- Spettro armonico per ogni fase e per il neutro fino al 50 °
- Interruzioni di rete, sovratensioni, sottotensioni
- Prove di conformità alla norma EN 50160
- Misura reale del neutro corrente
- Visualizzazione delle forme d'onda delle correnti e tensioni
- Realizzazione di campagne di misura a lungo termine (oltre 24 in modo indipendente, senza limiti, se collegato alla rete)

MEASUREMENT PRECISION, POWERFULL ANALISYS

- Self setting wireless network connection
- Auto recognition of available devices
- Auto configuration of network composition
- Max indoor point to point distance: 60m
- Max outdoor point to point distance: 600m
- Standalone and network solar mode
- 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).
- Can measure heterogeneous energies and power: solar, elevtrical loads, generators, storage systsems, multiple grid connections, eolic, UPS, inverters etc
- Realtime analysis of overall power quality parameters of spread complex network
- The current and voltage harmonics for each phase and for the neutral up to 50°
- Imbalance of power phases
- Network outages, surges, sags
- Conformance testing to EN 50160
- Real measurement of the neutral current
- Display of the waveforms of currents and voltages
- Configuration and display of alarms on sizes 20 and settable
- Automatic check of the correct connection of the implant tool
- Realization of long-term measurement campaigns (over 24 independently, unlimited if plugged

NanoVIP® QUADRA™ master

CASE:	
Dimensions	203x116x53mm
Material	ABS with self-extinguishing V0 grade
Protection class	IP30
Weight	580 g
DISPLAY:	
Dimensions	68x68mm
Type	128x128 FSTN Negative dot matrix graphic LCD
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 ±10% 47-63Hz with interchangeable plug; output 7.5VDC - 12W
Battery pack	4 x AA NiMh 2100mAh
Duration of the battery charge	> 24h (wireless off) > 18h (wireless on)
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
Solar radiation	✓
PT100	-
Anemometer	-
Transducers	-
FUNCTIONS:	
Traditional electrical analisys	V, I, P, Q, S, F, PF, THD(V)%, THD(I)%, cosφ, φ, peaks, minimums, maximums, averages, max. demands, etc.
Neutral current	Measured
Three phase counters	kWh, kVArh, kVAh, both absorbed that generated
Counters for each single phase	kWh, kVArh, kVAh, both absorbed that generated
Cogeneration	✓
Waveforms	V & I
Harmonics	Values and histograms up to the 50th order
Sags	Dips, swells & interruptions
Transients	Overvoltages & overcurrents
Unbalance	✓
Test EN 50160	✓
Inrush current	✓
DC measures	✓
K factor	Up to the 25th order
Alarms	Displayed

NanoVIP® QUADRA™ master

	Alarms log	5 at display
	Tariff bands	4
	Energy costs	✓
	IEC 61724 network parameters	✓
	Test EN 82.25	✓
	OSU™ (One Shot UPS)	✓
	Measurament campaigns	unlimited, up to fill the memory card
MEASUREMENTS:		
	Sampling frequency	128 samples per cycle (adaptive in 40Hz-70Hz range) 16 samples per cycle at 400HZ
	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 + 1 independent, auxiliary channel
	Input impedance	4 Mohm
	Scales	2
	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
	Scales	4
	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	
	RMS voltages:	
	Scale 1	±0.25% + 0.1%FS (2) @ RMS V < 350VAC (1)
	Scale 2	±0.25% + 0.05%FS (2) @ RMS V > 350VAC (1)
	RMS currents:	
	Scale 1	±0.25% + 0.1%FS (2) @ RMS I < 5% IN clamp (1)
	Scale 2	±0.25% + 0.05%FS (2) @ 5% < RMS I < 20% IN clamp (1)
	Scale 3	±0.25% + 0.05%FS (2) @ 20% < RMS I < 50% IN clamp (1)
	Scale 4	±0.25% + 0.05%FS (2) @ > 50% IN clamp (1)
	Power	±0.5% + 0.05%FS (2)
	Power Factor (PF)	±0.5°
	Frequency	±0.01 Hz (40-70Hz)

NanoVIP® QUADRA™ master

Active power count (kW)	Class 0.5
Reactive power count (kVar)	Class 1
HARMONIC ANALISYS	Up to 50th order Up to 7th at 400Hz
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™	✓
Server mode	✓
Connectable MRH™ clients	5
Client mode	-
Zigbee®	-
Maximum distance outdoor	600 m
Maximum distance indoor	60 m
Mesh network	✓
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); 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
REFERENCE STANDARDS:	
Safety	EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326 EN 61326/A1 EN 61326/A2 EN 61326/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