



2019

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Indice dei prodotti

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Sviluppatori di Soluzioni Solution Developers

Elcontrol Energy Net *S.r.l.*

Da oltre 60 anni protagonisti nella progettazione e produzione di apparecchiature elettroniche per la misura, il controllo e il risparmio energetico delle reti elettriche.

L'esperienza acquisita in quasi 60 anni di storia, unita alla Competenza dimostrata nel progettare e produrre prodotti di qualità, ci rendono interlocutori affidabili a cui i clienti possono rivolgersi con fiducia; lo confermano gli oltre 2 milioni di prodotti venduti in oltre 100 paesi e la nostra presenza sui cataloghi dei maggiori leader del settore.

For over 60 years leading designer and manufacturer of electronic equipments for measurement, control and energy efficiency of the electrical networks.

The experience gained in almost 60 years of history, combined with proven expertise in designing and manufacturing quality products, make Elcontrol a reliable partner in which customers can turn with confidence; more than 2 million products sold in over 100 countries and our presence in the major industry leaders catalogs confirm it.

L'azienda

Company overview

Fondata nel 1958 a Bologna, nel corso degli anni 70 (divenuta distributrice di un primario marchio giapponese), Elcontrol crebbe rapidamente fino a diventare produttore di componenti elettronici per il mondo delle macchine automatiche.

Negli anni 80 fino alle porte del 2000 si è sempre più posizionata sul settore della misura e dell'efficientamento elettrico delle reti che l'ha portata ad una presenza internazionale stabile che ancora oggi vede riconosciuto il marchio Elcontrol.

Gli anni difficili che si sono succeduti fino al 2009 ha portato Elcontrol a diverse fasi di ristrutturazione e ridimensionamento che non le hanno comunque impedito di sviluppare nuovi prodotti di qualità che oggi presidiano stabilmente nicchie di mercato importanti e presenziano sui cataloghi di marchi leader del settore. L'azienda è oggi situata a Pontecchio Marconi in provincia di Bologna, in uno stabilimento di circa 3000mq su un'area di 12000mq, dove vengono progettati, prodotti, testati e spediti tutti i prodotti Elcontrol che possono orgogliosamente definirsi **Made in Italy**.

I nostri valori

Crediamo nel valore di relazioni corrette e trasparenti con i nostri clienti, i nostri fornitori e tutti coloro che collaborano al progetto di Elcontrol poichè sono la principale forza per una continua e robusta crescita in mercati competitivi come quelli attuali. Riteniamo centrale la ricerca di soluzioni intelligenti ed efficaci per il risparmio energetico nel rispetto dell'uomo e dell'ambiente.

I nostri prodotti

Elcontrol Energy Net srl progetta, produce e commercializza prodotti per la misura, il monitoraggio e l'efficientamento degli impianti elettrici: analizzatori portatili, analizzatori da quadro, sistemi e componenti per il rifasamento energetico, software per il monitoraggio delle reti e dei consumi.



Established in 1958 in Bologna as a primary distributor of Japanese brand, Elcontrol quickly grew and became a producer of electronic components for the world of machines.

In the 80 to the gates of 2000 it has increasingly positioned on the field of measurement of electrical networks that led it to a stable international presence of Elcontrol brand, still today widely recognized.

The difficult years that followed until 2009 led Elcontrol in various stages of restructuring and downsizing that have not, however, prevented the development of new quality products that today



preside permanently important market niches and attend the catalogs of leading brands in the industry. The company is now located in Pontecchio Marconi near Bologna, in a plant of about 3000 square meters over an area of 12000 mq, where they are produced, tested and shipped all Elcontrol products that can proudly be called Made in Italy.

Our values

We deeply believe in the value of fair and transparent relationships with our customers, our suppliers and all those involved in the project of Elcontrol as they are the main strength for a continuous robust growth in competitive markets like the present ones. We believe central finding smart and effective solutions for energy saving respecting man and the environment.

Our products

Elcontrol Energy Net srl designs, manufactures and markets products for measuring, monitoring and improving the efficiency of electrical devices: portable analyzers, analyzers framework, systems and components for power factor correction energy, software for network monitoring and consumption.

Messaggio di Michele Pancaldi,

CEO

Il nostro obiettivo primario è lo sviluppo di soluzioni efficaci finalizzate alla soddisfazione dei bisogni dei nostri clienti, che sono da sempre al centro di tutto ciò che facciamo.

EN Our primary goal is to develop smart solutions aimed at satisfying the needs of our customers, who are always at the center of everything we do.

Tre linee di prodotto per il risparmio energetico Three product lines aimed to energy saving

Per un'azienda è importante misurare e monitorare la qualità dei propri impianti e, quando necessario, intervenire per migliorarla limitando gli sprechi e le inefficienze.

EN For a company it is important to measure and monitor the quality of their electrical installation and, when necessary, intervene to reduce waste and inefficiencies.

Misurazione e monitoraggio delle reti Measurement and monitoring of networks

Gli analizzatori Elcontrol Energy Net coniugano semplicità di utilizzo con ampiezza e precisione dei parametri rilevati. Progettati per avere una elevata affidabilità nel tempo, vantano un ottimo rapporto qualità prezzo. Quelli portatili, in particolare, si dimostrano strumenti insostituibili per eseguire in modo pratico e affidabile campagne di misura in loco come, ad esempio, prima dell'installazione di un quadro di rifasamento.

I software Elcontrol di monitoraggio remoto delle reti soddisfano le esigenze dei sistemi più complessi senza alcun vincolo di dislocazione geografica.

EN Elcontrol Energy Net analyzers combine ease of use with accuracy of measured parameters. Designed to have a high reliability, they return great value for money.

Portable ones, in particular, prove irreplaceable instruments to perform practical and reliable measurement campaigns on-site such as, for example, before installation of a framework of power factor correction.

The Elcontrol remote monitoring software meet the needs of more complex systems without any constraint of geographical location.

Rifasamento/Power factor correction

In un contesto in cui l'efficientamento energetico è un tema centrale, i quadri di rifasamento consentono alle aziende di abbattere il consumo di energia reattiva e i relativi costi in bolletta addebitati dall'ente distributore. Oltre a rispettare le normative vigenti in materia ed essere robusti e affidabili, montano il regolatore PFR96, progetto e produzione Elcontrol, per cui possono essere facilmente adattati alle esigenze più specifiche del cliente.

EN In a context in which energy efficiency is a central theme, the PFC equipments enable companies to bring down the consumption of reactive energy and related costs charged in the bill by distributors. Elcontrol PFC panels comply with current regulations and are robust and reliable as they mount digital regulator PFR96, designed and manufactured by Elcontrol. Due to this, they can be easily adapted to the specific needs of the customer.

Componenti e strumenti/Components & Tools

Tutti i componenti e gli strumenti Elcontrol, a partire dalla pinza PTS4, si distinguono per robustezza e qualità frutto di una filiera totalmente "Made in Italy" e di una attenta scelta dei materiali.

EN All Elcontrol components and tools, starting from PTS4 pliers, are characterized by robustness and quality, result of a chain fully "Made in Italy" and a careful choice of materials.

Analizzatori portatili

Portable analyzers

Analizzatori portatili NanoVIP[®]

Portable power quality analyzers NanoVIP[®]

Reti Monofase e Trifase bilanciate

Single-Phase and three-phase balanced networks

1 canale di misurazione della tensione
(1 fase + neutro) per tensioni AC e DC



1 voltage channel (1 phase + neutral) for AC and DC voltages

1 canale per correnti AC e DC

1 channel for AC/DC currents

Connessione WiFi



With WiFi connectivity

Controllo remoto totale

Full remote control



Connessione al Cloud

Cloud connectivity

4 ingressi di trasduzione per sensori
(4..20mA, 0..1V e PT) intercambiabili e configurabili



4 input for transducers (4..20mA, 0..1V and PT) interchangeable, and configurable

4 modalità precaricare per trasduzione
indipendente, pompa, generatore,
chiller

4 preloaded modes: independent inputs,
pump, generator and chiller

Collegabile a reti MRH[™]

MRH[™] technology

TWO[™]

**TWO
WF**

**TWO
Plus**

MRH[™]

Reti Monofase, bifase e trifase (bilanciate e non)

Single, two and three phases networks (balanced and not)

4 canale di misurazione della tensione
(3 fasi con neutro e un canale ausiliario
indipendente) per tensioni AC e DC



4 voltage channel3 (3 phase with neutral + 1
independent auxiliary) for AC and DC
voltages

5 ingressi di corrente (3 indipendenti,
uno di neutro e un ausiliario) per
misurazioni in AC e DC

5 current inputs (3 independent, 1 neutral
and 1 auxiliary) for AC/DC measurements

Connessione WiFi



With WiFi connectivity

Controllo remoto totale

Full remote control



Connessione al Cloud

Cloud connectivity

Connessione 3G GSM



With 3G GSM connectivity

Controllo remoto

Remote control



Connessione al Cloud

Cloud connectivity

**CUBE
WF**

**CUBE
247**

**CUBE
PLUS**

MRH[™]

MRH™

QUADRA
master**Analizzatore master per reti MRH™***Master analyzer for MRH™ measurement networks*Reti di misura di energie eterogenee
(elettrico, solare e termomeccanico)Heterogeneous measuring networks:
electrical, solar, thermomechanical

Riconoscimento automatico dei client

Auto recognition of network clients
and roles

Autoconfigurazione di rete

Self setting of MRH™ measuring
networkModalità standalone e rete MRH™
(elettrico, solare ed eterogeneo)Standalone and MRH™ measuring
mode; electrical, solar and
heterogeneousMisurazioni puntuali e di rete in tempo
realeLocal and remote realtime
measurementsQUADRA
DE**Client elettrico DE per reti MRH™***Electrical client analyzer for MRH™ measurement networks*

Totale misura della Power quality



Full Power Quality analysis

Riconoscimento automatico delle pinze

Automatic plier recognition

Controllo remoto

Remote control

QUADRA
DS**Client solare DS per reti MRH™***Solar client for MRH™ measurement networks*

Misura DC uscita pannello/stringa



DC panel/string output measurement

4 ingressi per temperatura pannello,
temperatura ambiente, irraggiamento e
velocità del vento2 temperature inputs (panel,
ambient), solar radiation and wind
speed input

Controllo remoto

Remote control

QUADRA
DGP**Client termomeccanico DGP per reti MRH™***Thermomechanical client for MRH™ measurement networks*1 canale per Power Quality elettrica
(monofase, bifase e trifase bilanciato)1 electrical Power Quality channel
(monophase, biphas and three
phase balanced)4 ingressi di trasduzione per sensori
(4..20mA, 0..1V e PT) intercambiabili e
configurabili4 input for transducers (4..20mA,
0..1V and PT) interchangeable, and
configurable4 modalità precaricare per trasduzione
indipendente, pompa, generatore, chiller4 preloaded modes: independent
inputs, pump, generator and chiller

NanoVIP® TWO™

Analizzatore portatile della Qualità dell'Energia per sistemi monofase, bifase, trifase bilanciati, in bassa e media tensione.

Portable Power Quality analyzer for mono, bi, three phases balanced, medium and low voltages systems.



NanoVIP® TWO™ è un avanzato dispositivo dotato di tutte le funzioni necessarie alla misurazione ed il monitoraggio sia dei consumi elettrici che della power quality che permette un'analisi professionale adeguata alle più elevate esigenze.

Può essere utilizzato su reti monofase, trifase (3 o 4 fili equilibrato) in bassa e media tensione.



NanoVIP® TWO™ is an advanced device that has all the functions required to measure and monitor the electrical consumption and the power quality of a network that allows adequate professional analysis to the highest demands. It can be used on single-phase, three-phase networks (3 or 4-wire balanced) in low and medium voltage.

Preciso nella misura, facile nell'uso

- ✓ LCD grafico che permette un'ampia duttilità nella visualizzazione (menu multilingua, forme d'onda, istogrammi, personalizzazioni delle pagine, disegni, schemi, immagini, etc.)
- ✓ **Software PC NanoStudio** dedicato tramite il quale è possibile effettuare analisi evolute dei dati memorizzati
- ✓ 1 canale di misurazione della tensione (1 fase + neutro) fino a 600V CAT III, con la possibilità di misurare anche la tensione continua, con la precisione dello $\pm 0,25\% + \text{err.FS}$
- ✓ 1 ingresso di corrente con la possibilità di misurare anche la corrente continua, con la precisione dello $\pm 0,25\% + \text{err.FS}$
- ✓ Verifica automatica della correttezza di connessione dell'apparecchio alla rete
- ✓ Possibilità di utilizzare pinze amperometriche flessibili fino a 3000A o altri captori con fondo scala impostabile dall'utente
- ✓ Batterie ad alta capacità che consentono un'autonomia di campagna superiore alle 24 ore anche in assenza di alimentazione di rete; nessun limite di campagna se collegato alla rete
- ✓ Potente motore di calcolo che permette oltre alla misurazione di tutte le grandezze elettriche standard (V I P Q A F PF THD% ecc.) in vero valore efficace (TRMS): armoniche fino alla 50°, dips, swells, microinterruzioni e molte altre
- ✓ **20 allarmi** (generici, swells, dips e interruzioni)

Measure precision, easiness of use

- ✓ LCD graphic display that allows wide flexibility in the (multilingual menu, waveforms, histograms, personalized pages, drawings, diagrams, pictures, etc.)
- ✓ PC Software NonoStudio dedicated through which you can make advanced analysis of the data stored on uSD
- ✓ 1 voltage measuring channel (1 phase + neutral) up to 600V CAT III, with the possibility to also measure the DC voltage, with the precision of the $0,25\% + \text{err.FS}$
- ✓ 1 current input with the possibility to also measure the DC current, with the precision of the $0,25\% + \text{err.FS}$
- ✓ Automatic verification of the correctness of the device connected to the network
- ✓ Possibility to use flexible current probe up to 3000A or other captors with full scale set by the user
- ✓ High capacity batteries that allow a range of campaign more than 24 hours even in the absence of mains power; no country limit when connected to the network
- ✓ Calculation engine Powerful allowing besides the measuring of all standard electrical parameters (V I P Q A F PF THD% etc.) True RMS (TRMS): harmonics up to the 50th, dips, swells, micro interruptions and many other
- ✓ 20 alarms (generic, swells, dips and interruptions)
- ✓ Energy Measurement in 4 time zones (rates) set

Caratteristiche tecniche

Technical details

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 $\pm 10\%$ 47-63Hz with interchangeable plug; output 7.5VDC - 12W
Battery pack	4 x AA NiMH 2100mAh
Duration of the battery charge	>24h (wireless off)
CONNECTABLE 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 analysis	V, I, P, Q, S, F, PF, THD(V)%, THD(I)%, cos ϕ , 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, up to 7 th at 400Hz
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
Alarms log	5 at display
Tariff bands	4
Energy costs	✓
IEC 61724 network parameters	-

NanoVIP® TWO™

Test EN 82.25	-
OSU™ (One Shot UPS)	-
Measurement 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 balanced), 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	2 channels with common neutral
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	1 channel
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	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS V < 350VAC ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ RMS V > 350VAC ⁽¹⁾
RMS currents:	
Scale 1	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS I < 5% IN clamp ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 5% < RMS I < 20% IN clamp ⁽¹⁾
Scale 3	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 20% < RMS I < 50% IN clamp ⁽¹⁾
Scale 4	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ > 50% IN clamp ⁽¹⁾
Power	$\pm 0.5\% + 0.05\%FS^{(2)}$
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 Up to 7 th at 400Hz
ANALYSIS of EN50160 parameters	
Interruptions	>500mS
Dips	>500mS

Caratteristiche tecniche

Technical details

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	-
Client mode	-
Zigbee®	-
Maximum distance outdoor	600m (point to point)
Maximum distance indoor	60m (point to point)
Mesh network	-
WiFi	-
3G	-
Wireless to PC	-
Cloud connectivity	-
Remote control	via USB
USB	to PC
DATA STORAGE:	
Internal memory	64kB
External memory	Micro SD (2GB 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

NanoVIP[®] TWO WF[™]



Analizzatore della Qualità dell'Energia per sistemi monofase e trifase bilanciati, dotato di connettività wifi.

Power Quality analyzer for mono and three phases balanced systems, that includes wifi connectivity.



NanoVIP[®] TWO WF[™] è un analizzatore della Qualità dell'energia portatile, compatto e potente per uso professionale; può essere utilizzato su reti monofase, bi-fase, trifase bilanciate, in bassa e media tensione.

Grazie alla connettività WiFi può essere totalmente pilotato e monitorato da remoto così come scaricare autonomamente i dati sul Cloud Elcontrol.



NanoVIP[®] TWO WF[™] is a portable Power Quality Analyzer, compact and powerful for professional use; it can work on single-phase, bi-phase and three-phase balanced, low and medium voltage networks.

Thanks to its WiFi connectivity it can be monitored and driven by remote as well as upload data autonomously on the Elcontrol Cloud.

Potenza di analisi e connettività wifi

- ✓ Leggero, maneggevole, multilingua, con performance al top della sua categoria
- ✓ 1 canale di misura della tensione (1 fase + neutro) fino a 600V CAT III, con la possibilità di misurare anche tensioni continue
- ✓ 1 canale per le correnti con la possibilità di misurare anche correnti continue
- ✓ Precisione in corrente e tensione 0,25% + errore FS
- ✓ 4 canali indipendenti per trasduttori (4..20mA, 0..1V, PT)
- ✓ 4 modalità precaricate per analisi di sistemi/impianti: chiller, pump, supply and sensors
- ✓ Batteria ad alta capacità per garantire la totale copertura lavorativa sotto batteria
- ✓ 20 allarmi (5 generici, 5 swells, 5 dips and 5 interruptions)
- ✓ Calcolo della spesa elettrica con fino a 4 tariffe
- ✓ Misurazione dell'energia in 4 fasce orarie (tariffe) impostabili

Precise in measure, versatile and wifi

- ✓ Lightweight, handy, multilingual, with top performance in its category
- ✓ 1 voltage measuring channel (1 phase + neutral) up to 600V CAT III, with the possibility to measure even continuous voltages
- ✓ 1 current channel with the possibility of measuring even continuous currents
- ✓ Currents and voltages accuracy 0.25% + FS error
- ✓ 4 independent channels for transducers (4..20mA, 0..1V, PT)
- ✓ 4 preloaded mode for system / plant analysis: chiller, pump, supply and sensors
- ✓ High-capacity battery to provide total under battery cover
- ✓ 20 alarms (5 generics, 5 swells, 5 dips and 5 interruptions)
- ✓ Calculation of electric charge with up to 4 rates

Caratteristiche tecniche

Technical details

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 $\pm 10\%$ 47-63Hz with interchangeable plug; output 7.5VDC - 12W
Battery pack	4 x AA NiMH 2100mAh
Duration of the battery charge	>24h (wireless off)
CONNECTABLE 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	Up to 4 independent (4..20mA, 0..1V, 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, up to 7 th at 400Hz
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
Alarms log	5 at display
Tariff bands	4
Energy costs	✓
IEC 61724 network parameters	✓

NanoVIP® TWO WF™

Test EN 82.25	-
OSU™ (One Shot UPS)	-
Measurement 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 balanced), 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	2 channels with common neutral
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	1 channel
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	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS V < 350VAC ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ RMS V > 350VAC ⁽¹⁾
RMS currents:	
Scale 1	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS I < 5% IN clamp ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 5% < RMS I < 20% IN clamp ⁽¹⁾
Scale 3	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 20% < RMS I < 50% IN clamp ⁽¹⁾
Scale 4	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ > 50% IN clamp ⁽¹⁾
Power	$\pm 0.5\% + 0.05\%FS^{(2)}$
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 Up to 7 th at 400Hz
ANALYSIS of EN50160 parameters	
Interruptions	>500mS
Dips	>500mS

Caratteristiche tecniche

Technical details

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	-
Client mode	✓
Zigbee®	✓
Maximum distance outdoor	600m (point to point)
Maximum distance indoor	60m (point to point)
Mesh network	✓
WiFi	✓
3G	-
Wireless to PC	✓
Cloud connectivity	✓
Remote control	✓
USB	to PC
DATA STORAGE:	
Internal memory	64kB
External memory	Micro SD (2GB 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

NanoVIP® TWO PLUS™



Analizzatore della Qualità dell'Energia per sistemi monofase e trifase bilanciati, dotato di 4 ingressi indipendenti per trasduttori.

Power Quality analyzer for mono and three phases balanced systems, that includes four independent input channels for transducers.



NanoVIP® TWO PLUS™ è un analizzatore della Qualità dell'energia portatile, compatto e potente per uso professionale; può essere utilizzato su reti monofase, bi-fase, trifase bilanciate, in bassa e media tensione.

In aggiunta ai canali elettrici, dispone di 4 canali indipendenti per leggere qualsiasi tipo di trasduttore: 4..20mA, 0..1V o PT.



NanoVIP® TWO PLUS™ is a portable Power Quality Analyzer, compact and powerful for professional use; it can work on single-phase, bi-phase and three-phase balanced, low and medium voltage networks.

In addition to the electrical channels, it has 4 independent channels for reading any type of transducer: 4..20mA, 0..1V or PT

Potenza di analisi e massima versatilità

- ✓ Leggero, maneggevole, multilingua, con performance al top della sua categoria
- ✓ 1 canale di misura della tensione (1 fase + neutro) fino a 600V CAT III, con la possibilità di misurare anche tensioni continue
- ✓ 1 canale per le correnti con la possibilità di misurare anche correnti continue
- ✓ Precisione in corrente e tensione 0,25% + errore FS
- ✓ 4 canali indipendenti per trasduttori (4..20mA, 0..1V, PT)
- ✓ 4 modalità precaricate per analisi di sistemi/impianti: chiller, pump, supply and sensors
- ✓ Batteria ad alta capacità per garantire la totale copertura lavorativa sotto batteria
- ✓ 20 allarmi (5 generici, 5 swells, 5 dips and 5 interruptions)
- ✓ Calcolo della spesa elettrica con fino a 4 tariffe
- ✓ Misurazione dell'energia in 4 fasce orarie (tariffe) impostabili

Precise in measure, versatile and powerfull

- ✓ Lightweight, handy, multilingual, with top performance in its category
- ✓ 1 voltage measuring channel (1 phase + neutral) up to 600V CAT III, with the possibility to measure even continuous voltages
- ✓ 1 current channel with the possibility of measuring even continuous currents
- ✓ Currents and voltages accuracy 0.25% + FS error
- ✓ 4 independent channels for transducers (4..20mA, 0..1V, PT)
- ✓ 4 preloaded mode for system / plant analysis: chiller, pump, supply and sensors
- ✓ High-capacity battery to provide total under battery cover
- ✓ 20 alarms (5 generics, 5 swells, 5 dips and 5 interruptions)
- ✓ Calculation of electric charge with up to 4 rates

Caratteristiche tecniche

Technical details

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 $\pm 10\%$ 47-63Hz with interchangeable plug; output 7.5VDC - 12W
Battery pack	4 x AA NiMH 2100mAh
Duration of the battery charge	>24h (wireless off)
CONNECTABLE 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	Up to 4 independent (4..20mA, 0..1V, 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, up to 7 th at 400Hz
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
Alarms log	5 at display
Tariff bands	4
Energy costs	✓
IEC 61724 network parameters	✓

NanoVIP® TWO PLUS™

Test EN 82.25	-
OSU™ (One Shot UPS)	-
Measurement 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 balanced), 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	2 channels with common neutral
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	1 channel
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	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS V < 350VAC ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ RMS V > 350VAC ⁽¹⁾
RMS currents:	
Scale 1	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS I < 5% IN clamp ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 5% < RMS I < 20% IN clamp ⁽¹⁾
Scale 3	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 20% < RMS I < 50% IN clamp ⁽¹⁾
Scale 4	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ > 50% IN clamp ⁽¹⁾
Power	$\pm 0.5\% + 0.05\%FS^{(2)}$
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 Up to 7 th at 400Hz
ANALYSIS of EN50160 parameters	
Interruptions	>500mS
Dips	>500mS

Caratteristiche tecniche

Technical details

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	-
Client mode	✓
Zigbee®	✓
Maximum distance outdoor	600m (point to point)
Maximum distance indoor	60m (point to point)
Mesh network	✓
WiFi	-
3G	-
Wireless to PC	-
Cloud connectivity	-
Remote control	via USB
Wireless to PC	-
USB	to PC
DATA STORAGE:	
Internal memory	64kB
External memory	Micro SD (2GB 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

NanoVIP[®] CUBE[™]

Analizzatore portatile della Qualità dell'Energia per sistemi monofase, bifase, trifase (bilanciati e non), in bassa e media tensione.

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



Precisione nella misura, potenza nell'analisi

- ✓ Utilizzabile su impianti: monofase, bifase, trifase equilibrato con o senza neutro, trifase squilibrato con o senza neutro
- ✓ Analisi energetica tradizionale completa (V, I, P, Q, S, F, PF, THD%, valori istantanei / minimi / massimi / medi / contatori di energia assorbita e generata sia trifase che per ogni singola fase).
- ✓ Analisi dei parametri di qualità dell'energia
- ✓ Armoniche di corrente e tensione per ogni fase e per il neutro fino alla 50^a (7^a a 400Hz)
- ✓ Sbilanciamento delle fasi di tensione
- ✓ Interruzioni di rete, sovratensioni, buchi di tensione
- ✓ Test di conformità alla normativa EN 50160
- ✓ Misura reale della corrente di neutro
- ✓ Visualizzazione delle forme d'onda di correnti e tensioni
- ✓ Impostazione di 4 fasce tariffarie con visualizzazione dei relativi costi
- ✓ Configurazione e visualizzazione di 20 allarmi su grandezze e soglie impostabili
- ✓ Visualizzazione dell'andamento nel tempo di grandezze selezionabili (trend)
- ✓ Check automatico del corretto collegamento dello strumento all'impianto
- ✓ Realizzazione di campagne di misura di lunga durata (oltre 24 in autonomia, illimitato se collegato alla rete)
- ✓ Batterie ricaricabili ad alta capacità che garantiscono oltre 24h di lavoro

NanoVIP[®] CUBE[™] è un moderno e potente analizzatore portatile di rete sviluppato per l'analisi professionale dei consumi e della power quality delle reti elettriche più complesse.

Può essere utilizzato su reti monofase, bifase, trifase in bassa e media tensione. Le funzionalità evolute e il software di analisi in dotazione lo rendono uno strumento adatto alle esigenze professionali più gravose.



NANOVIP[®] CUBE[™] is a modern, powerful, portable network analyzer developed for professional analysis of consumption and power quality of the most complex electrical networks. It can be used on single-phase, two-phase, three-phase (balanced and unbalanced) networks, low and medium voltage

Measurement precision, powerful analysis

- ✓ 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).
- ✓ Analysis of power quality parameters
- ✓ The current and voltage harmonics for each phase and for the neutral up to 50th
- ✓ 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
- ✓ 4 tariff bands setting with the related costs display
- ✓ Configuration and display of alarms on sizes 20 and settable
- ✓ Display of the time course of selectable parameters (trend)
- ✓ Automatic check of the correct connection of the implant tool
- ✓ Capable to do long-term measurement campaigns (over 24 independently, unlimited if connected to the network)
- ✓ High capacity rechargeable batteries that guaranties over 24h of work

Caratteristiche tecniche

Technical details

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 $\pm 10\%$ 47-63Hz with interchangeable plug; output 7.5VDC - 12W
Battery pack	4 x AA NiMH 2100mAh
Duration of the battery charge	>24h (wireless off)
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 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
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
Alarms log	5 at display
Tariff bands	4
Energy costs	✓
IEC 61724 network parameters	✓

NanoVIP® CUBE™

Test EN 82.25	-
OSU™ (One Shot UPS)	-
Measurement 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	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS V < 350VAC ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ RMS V > 350VAC ⁽¹⁾
RMS currents:	
Scale 1	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS I < 5% IN clamp ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 5% < RMS I < 20% IN clamp ⁽¹⁾
Scale 3	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 20% < RMS I < 50% IN clamp ⁽¹⁾
Scale 4	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ > 50% IN clamp ⁽¹⁾
Power	$\pm 0.5\% + 0.05\%FS^{(2)}$
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 Up to 7 th at 400Hz
ANALYSIS of EN50160 parameters	
Interruptions	>500mS
Dips	>500mS

Caratteristiche tecniche

Technical details

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	-
Client mode	-
Zigbee®	-
Maximum distance outdoor	-
Maximum distance indoor	-
Mesh network	-
WiFi	-
3G	-
Wireless to PC	-
Cloud connectivity	-
Remote control	via USB
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

NanoVIP[®] CUBE WF[™]



Analizzatore portatile della Qualità dell'Energia per sistemi monofase, bifase, trifase (bilanciati e non), in bassa e media tensione dotato di connettività WiFi.

Portable Power Quality analyzer for mono, bi, three phases (balanced and unbalanced), medium and low voltages systems with embedded WiFi connectivity.



NanoVIP[®] CUBE WF[™] è un moderno e potente analizzatore portatile di rete sviluppato per l'analisi professionale dei consumi e della power quality delle reti elettriche più complesse.

Può essere utilizzato su reti monofase, bifase, trifase in bassa e media tensione. Le funzionalità evolute, la connettività WiFi e la possibilità di **completo controllo remoto** lo rendono uno strumento adatto alle esigenze professionali più gravose.

EN NANOVIP[®] CUBE[™] is a modern, powerful, portable network analyzer developed for professional analysis of consumption and power quality of the most complex electrical networks. It can be used on single-phase, two-phase, three-phase (balanced and unbalanced) networks, low and medium voltage. The WiFi connectivity and the capability to be **fully driven from remote**, make this analyzer an high-end device to face the most demanding applications.

Potenza di analisi, connettività WiFi

- ✓ Utilizzabile su impianti: monofase, bifase, trifase equilibrato con o senza neutro, trifase squilibrato con o senza neutro
- ✓ Analisi energetica tradizionale completa (V, I, P, Q, S, F, PF, THD%, valori istantanei / minimi / massimi / medi / contatori di energia assorbita e generata sia trifase che per ogni singola fase).
- ✓ Analisi dei parametri di qualità dell'energia
- ✓ Armoniche di corrente e tensione per ogni fase e per il neutro fino alla 50° (7° a 400Hz)
- ✓ Sbilanciamento delle fasi di tensione
- ✓ Interruzioni di rete, sovratensioni, buchi di tensione
- ✓ Test di conformità alla normativa EN 50160
- ✓ Misura reale della corrente di neutro
- ✓ Visualizzazione delle forme d'onda di correnti e tensioni
- ✓ Impostazione di 4 fasce tariffarie con visualizzazione dei relativi costi
- ✓ Configurazione e visualizzazione di 20 allarmi su grandezze e soglie impostabili
- ✓ Visualizzazione dell'andamento nel tempo di grandezze selezionabili (trend)
- ✓ Check automatico del corretto collegamento dello strumento all'impianto
- ✓ Realizzazione di campagne di misura di lunga durata (oltre 24 in autonomia, illimitato se collegato alla rete)
- ✓ Batterie ricaricabili ad alta capacità che garantiscono oltre 24h di lavoro
- ✓ Completamente pilotabile da remoto tramite NanoRemote[™]
- ✓ Collegabile al cloud Elcontrol

Powerful analysis, WiFi connectivity

- ✓ 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).
- ✓ Analysis of power quality parameters
- ✓ 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
- ✓ 4 tariff bands setting with the related costs display
- ✓ Configuration and display of alarms on sizes 20 and settable
- ✓ Display of the time course of selectable parameters (trend)
- ✓ Automatic check of the correct connection of the implant tool
- ✓ Capable to do long-term measurement campaigns (over 24 independently, unlimited if connected to the network)
- ✓ High capacity rechargeable batteries that guaranties over 24h of work
- ✓ Fully drivable from remote through NanoRemote[™] application
- ✓ Ready to be connected to Elcontrol Cloud

Caratteristiche tecniche

Technical details

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 $\pm 10\%$ 47-63Hz with interchangeable plug; output 7.5VDC - 12W
Battery pack	4 x AA NiMH 2100mAh
Duration of the battery charge	>24h (wireless off)
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 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
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
Alarms log	5 at display
Tariff bands	4
Energy costs	✓
IEC 61724 network parameters	✓

NanoVIP[®] CUBE WF[™]

Test EN 82.25	-
OSU [™] (One Shot UPS)	-
Measurement 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	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS V < 350VAC ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ RMS V > 350VAC ⁽¹⁾
RMS currents:	
Scale 1	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS I < 5% IN clamp ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 5% < RMS I < 20% IN clamp ⁽¹⁾
Scale 3	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 20% < RMS I < 50% IN clamp ⁽¹⁾
Scale 4	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ > 50% IN clamp ⁽¹⁾
Power	$\pm 0.5\% + 0.05\%FS^{(2)}$
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 Up to 7 th at 400Hz
ANALYSIS of EN50160 parameters	
Interruptions	>500mS
Dips	>500mS

Caratteristiche tecniche

Technical details

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	-
Client mode	-
Zigbee®	-
Maximum distance outdoor	-
Maximum distance indoor	-
Mesh network	-
WiFi	✓
3G	-
Wireless to PC	✓
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); 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

NanoVIP® CUBE PLUS™



Analizzatore della Qualità dell'Energia per sistemi monofase, bifase, trifase (bilanciati e non), in bassa e media tensione con tecnologia MRH™.

Power Quality analyzer for mono, bi, three phases (balanced and unbalanced), medium and low voltages systems with MRH™ technology.



NanoVIP® CUBE+™ è un potente e versatile analizzatore della Qualità dell'Energia che, oltre a svolgere misure e campagne autonome, può partecipare ad una rete di misura multipunto MRH™.

E' possibile l'upgrade hardware da un sistema NanoVIP® CUBE™ a NanoVIP® CUBE+™.

EN The NanoVIP® CUBE+™ is a powerful and versatile Power Quality analyzer due to the implementation of MRH™ technology that allows it to participate to an MRH™ measuring network. With NanoVIP CUBE+™ you get more than one standalone powerful analyzer as it can work also as a measuring client of a NanoVIP® QUADRA™ master set

Potente, wireless, con la flessibilità MRH™

- ✓ Utilizzabile su impianti: monofase, bifase, trifase equilibrati e non, con o senza neutro
- ✓ Può operare in una rete di misura MRH™ come client elettrico poiché integra NanoVIP MRH™ technology
- ✓ Modalità di misura MRH™ disponibili: Standalone, Point, Net, Generator, Load, Inverter, Storage, Event
- ✓ Funzionalità One Shot UPS™ per misurare rapidamente sistemi UPS
- ✓ Analisi energetica tradizionale completa (V, I, P, Q, S, F, PF, THD%, valori istantanei, minimi, massimi, medi, contatori di energia assorbita e generata sia trifase che per ogni singola fase).
- ✓ Analisi dei parametri di qualità dell'energia
- ✓ Armoniche di corrente e tensione per ogni fase e per il neutro fino alla 50°
- ✓ Sbilanciamento delle fasi di tensione
- ✓ Interruzioni di rete, sovratensioni, buchi di tensione
- ✓ Test di conformità alla normativa EN 50160
- ✓ Misura reale della corrente di neutro
- ✓ Visualizzazione delle forme d'onda di correnti e tensioni
- ✓ Configurazione e visualizzazione di 20 allarmi su grandezze e soglie impostabili

Measurement precision and MRH™ flexibility

- ✓ It can work on networks: single-phase, two-phase, three-phase balanced with or without neutral, three-phase unbalanced with or without neutral
- ✓ It includes all the NanoVIP® CUBE™ features.
- ✓ It can operate as an MRH™ network electrical client as it includes the NanoVIP MRH™ technology
- ✓ MRH™ available modes: Standalone, Point, Net, Generator, Load, Inverter, Storage, Event
- ✓ One Shot UPS™ function to easily measure UPS™ systems efficiency
- ✓ Network outages, surges, sags
- ✓ Conformance testing to EN 50160
- ✓ Real measurement of the neutral current
- ✓ Display of the waveforms of currents and voltages
- ✓ 4 tariff bands setting with the related costs display
- ✓ Configuration and display of alarms on sizes 20 and settable
- ✓ Display of the time course of selectable parameters (trend)
- ✓ Automatic check of the correct connection of the implant tool
- ✓ Long-term measurement campaigns (over 24 independently, unlimited if connected to the network)

Caratteristiche tecniche

Technical details

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 $\pm 10\%$ 47-63Hz with interchangeable plug; output 7.5VDC - 12W
Battery pack	4 x AA NiMH 2100mAh
Duration of the battery charge	>24h (wireless off)
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	Elcontrol Energy Net solar meter
PT100	-
Anemometer	-
Transducers	-
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, 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 50 th order
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
Alarms log	5 at display
Tariff bands	4
Energy costs	✓
IEC 61724 network parameters	✓

NanoVIP® CUBE PLUS™



Test EN 82.25	-
OSU™ (One Shot UPS)	✓
Measurement 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	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS V < 350VAC ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ RMS V > 350VAC ⁽¹⁾
RMS currents:	
Scale 1	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS I < 5% IN clamp ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 5% < RMS I < 20% IN clamp ⁽¹⁾
Scale 3	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 20% < RMS I < 50% IN clamp ⁽¹⁾
Scale 4	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ > 50% IN clamp ⁽¹⁾
Power	$\pm 0.5\% + 0.05\%FS^{(2)}$
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 Up to 7 th at 400Hz
ANALYSIS of EN50160 parameters	
Interruptions	>500mS
Dips	>500mS

Caratteristiche tecniche

Technical details

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	-
Client mode	✓
Zigbee®	✓
Maximum distance outdoor	600m (point to point)
Maximum distance indoor	60m (point to point)
Mesh network	✓
WiFi	-
3G	-
Wireless to PC	-
Cloud connectivity	-
Remote control	via USB
Wireless to PC	-
USB	to PC
DATA STORAGE:	
Internal memory	64kB
External memory	Micro SD (2GB 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

NanoVIP® CUBE 247™



Analizzatore della Qualità dell'Energia per sistemi monofase, bifase, trifase (bilanciati e non), in bassa e media tensione con connettività GSM 3G™ per una comunicazione senza limitazioni.

Power Quality analyzer for mono, bi, three phases (balanced and unbalanced), medium and low voltages systems with 3G™ technology to guarantee unlimited connectivity..

NanoVIP® CUBE 247™ è un potente e versatile analizzatore della Qualità dell'Energia che, oltre a svolgere misure e campagne autonome, può connettersi alla rete 3G garantendo il massimo della connettività.

E' possibile l'upgrade hardware da un sistema NanoVIP® CUBE™ a NanoVIP® CUBE 247™..

EN The NanoVIP® CUBE 247™ is a powerfull and versatile Power Quality analyzer that, thanks to the implementation of 3G™ technology, guarantees an unlimited connectivity.

It is possible to upgrade latest NanoVIP® CUBE™ models to NanoVIP® CUBE 247™



Potente, preciso, sempre connesso

- ✓ Utilizzabile su impianti: monofase, bifase, trifase equilibrato con o senza neutro, trifase squilibrato con o senza neutro
- ✓ Analisi energetica tradizionale completa (V, I, P, Q, S, F, PF, THD%, valori istantanei / minimi / massimi / medi / contatori di energia assorbita e generata sia trifase che per ogni singola fase).
- ✓ Analisi dei parametri di qualità dell'energia
- ✓ Armoniche di corrente e tensione per ogni fase e per il neutro fino alla 50° (7° a 400Hz)
- ✓ Sbilanciamento delle fasi di tensione
- ✓ Interruzioni di rete, sovratensioni, buchi di tensione
- ✓ Test di conformità alla normativa EN 50160
- ✓ Misura reale della corrente di neutro
- ✓ Visualizzazione delle forme d'onda di correnti e tensioni
- ✓ Impostazione di 4 fasce tariffarie con visualizzazione dei relativi costi
- ✓ Configurazione e visualizzazione di 20 allarmi su grandezze e soglie impostabili
- ✓ Visualizzazione dell'andamento nel tempo di grandezze selezionabili (trend)
- ✓ Check automatico del corretto collegamento dello strumento all'impianto
- ✓ Realizzazione di campagne di misura di lunga durata (oltre 24 in autonomia, illimitato se collegato alla rete)
- ✓ Batterie ricaricabili ad alta capacità che garantiscono oltre 24h di lavoro in modalità AirPlane e oltre 8h in connessione continua alla rete.
- ✓ **Connessione al cloud Elcontrol**

Powerful, precise, always connected

- ✓ 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).
- ✓ Analysis of power quality parameters
- ✓ 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
- ✓ 4 tariff bands setting with the related costs display
- ✓ Configuration and display of alarms on sizes 20 and settable
- ✓ Display of the time course of selectable parameters (trend)
- ✓ Automatic check of the correct connection of the implant tool
- ✓ Capable to do long-term measurement campaigns (over 24 independently, unlimited if connected to the network)
- ✓ High capacity rechargeable batteries that guaranties over 24h of work in Airplane Mode and over 8h in continuous 3G connection.
- ✓ **Ready to connect to Elcontrol Cloud**

Caratteristiche tecniche

Technical details

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 $\pm 10\%$ 47-63Hz with interchangeable plug; output 7.5VDC - 12W
Battery pack	4 x AA NiMH 2100mAh
Duration of the battery charge	>24h (Airplane mode), >8h in continuous connection
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 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
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
Alarms log	5 at display
Tariff bands	4
Energy costs	✓
IEC 61724 network parameters	-

NanoVIP® CUBE 247™

Test EN 82.25	-
OSU™ (One Shot UPS)	✓
Measurement 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	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS V < 350VAC ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ RMS V > 350VAC ⁽¹⁾
RMS currents:	
Scale 1	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS I < 5% IN clamp ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 5% < RMS I < 20% IN clamp ⁽¹⁾
Scale 3	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 20% < RMS I < 50% IN clamp ⁽¹⁾
Scale 4	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ > 50% IN clamp ⁽¹⁾
Power	$\pm 0.5\% + 0.05\%FS^{(2)}$
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 Up to 7 th at 400Hz
ANALYSIS of EN50160 parameters	
Interruptions	>500mS
Dips	>500mS

Caratteristiche tecniche

Technical details

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	-
Client mode	-
Zigbee®	✓
Maximum distance outdoor	600m (point to point)
Maximum distance indoor	60m (point to point)
Mesh network	✓
WiFi	-
3G	✓
Wireless to PC	-
Cloud connectivity	✓
Remote control	-
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

NanoVIP® QUADRA™



Sistema di misura wireless portatile della qualità delle energie: elettrico, solare e termomeccanico.

Portable wireless Power Quality measurement system for any energy field: electrical, solar and thermomechanical.



NANOVIP® QUADRA™ e la tecnologia MRH™ rappresentano la soluzione innovativa per i moderni analizzatori di fascia alta.

La tecnologia MRH™ consente di misurare in **tempo reale** la qualità dell'energia e della potenza su **reti distribuite ed eterogenee complesse**; grazie alla connettività wireless non richiede alcun cablaggio e aumenta drasticamente la facilità di installazione e di utilizzo.

La **connessione wireless** potente ed affidabile permette di effettuare in tempo reale misure simultanee su reti distribuite garantendo il collegamento **outdoor fino a 600m e indoor a 60m**. La **strategia mesh** della rete consente di raggiungere enormi estensioni di rete, poiché ogni dispositivo ripete segnali attraverso la rete.

EN NANOVIP® QUADRA™ and MRH™ technology represent a brand new solution for modern high-end analyzers.

MRH™ technology makes it possible to perform **realtime** energy and power quality measurements on **spread and etherogeneous networks**; thanks to its wireless capability it does not require any wiring and boosts up easiness of installation and usage.

Its **powerfull and reliable wireless connectivity** makes it possible to perform realtime and concurrent measures with a maximum **point to point distance of 600m outdoor and 60m indoor**.

The **mesh strategy** of the network makes it possible to reach huge network extensions, because each device repeats signals through the network.

Powered by MRH™ technology

NanoVIP® QUADRA™ utilizza la tecnologia MRH™ che, grazie a soluzioni hardware e firmware specifiche, è in grado di offrire ai professionisti del settore energetico la possibilità di eseguire misure:

- ✓ Multipunto
- ✓ In Tempo reale
- ✓ Eterogenee

La tecnologia MRH™ finalmente supera la difficoltà di catturare eventi quando e dove si sono effettivamente verificati; rende le verifiche e le misure elettriche più sicure, più facili e veloci permettendo ai professionisti di monitorare facilmente più punti critici di una rete contemporaneamente e in tempo reale.

Powered by MRH™ technology

NanoVIP® QUADRA™ is powered by MRH™ technology that, thanks to specific hardware and firmware solutions, is capable to offer to energy field professionals the possibility to make measures:

- ✓ Multipoint
- ✓ Realtime
- ✓ Heterogeneous

MRH™ technology finally overcomes the difficulty to catch events where and when they are really originated; it makes multipoint electrical checks safer, easier and quicker allowing users to patrol many critical points of a network in realtime and remotely.

Funzionalità analizzatori MRH™

Main MRH™ analyzers features

	Master	DE	DS	DGP	TWO+	CUBE+
MAIN:						
Master operating	✓					
Client operating		✓	✓	✓	✓	✓
Standalone	✓				✓	✓
Single point monitoring	✓	✓	✓	✓	✓	✓
USB connection	✓	✓	✓	✓	✓	✓
uSD card	✓	✓	✓	✓	✓	✓
Local survey data storage	✓	✓	✓	✓	✓	✓
ELECTRICAL:						
AC measurement	✓	✓		✓	✓	✓
DC measurement	✓	✓	✓	✓	✓	✓
Harmonics	✓	✓			✓	✓
Transients	✓				✓	✓
Inrush	✓				✓	✓
Wave form	✓	✓		✓	✓	✓
Counters	✓	✓		✓	✓	✓
Alarms	✓				✓	✓
Active, Reactive and Apparent PE	✓	✓			✓	✓
Tariffs	✓				✓	✓
EN 50160 test	✓				✓	✓
EN 61724 parameters	✓	✓	✓	✓	✓	✓
SOLAR:						
Solar meter input	✓		✓	✓	✓	
Solar measurements	✓		✓			
Panel and panel strings verification (CEI 82-25)	✓		✓			
Multi lines solar systems verification (CEI 82-25)	✓					
Multi lines solar system realtime measurements	✓					
THERMOMECHANICAL:						
PT inputs			✓	✓	✓	
Wind speed input			✓	✓	✓	
4..20mA transducers inputs				4	4	
0..1V transducers inputs				4	4	
WIRELESS CONNECTIVITY:						
Max indoor point to point distance	60m	60m	60m	60m	60m	60m
Max outdoor point to point distance	600m	600m	600m	600m	600m	600m

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[™].



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.

Potente, preciso, wireless; non solo reti elettriche

- ✓ 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)

Powerful, precise, wireless; not only electrical measures

- ✓ 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, electrical loads, generators, storage systems, 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)

Caratteristiche tecniche

Technical details

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 $\pm 10\%$ 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 analysis	V, I, P, Q, S, F, PF, THD(V)%, THD(I)%, cos ϕ , 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
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
Alarms log	5 at display
Tariff bands	4
Energy costs	✓

NanoVIP[®] QUADRA master[™]

IEC 61724 network parameters	✓
Test EN 82.25	✓
OSU [™] (One Shot UPS)	✓
Measurement 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	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS V < 350VAC ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ RMS V > 350VAC ⁽¹⁾
RMS currents:	
Scale 1	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS I < 5" IN clamp ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 5" < RMS I < 20" IN clamp ⁽¹⁾
Scale 3	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 20" < RMS I < 50" IN clamp ⁽¹⁾
Scale 4	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ > 50" IN clamp ⁽¹⁾
Power	$\pm 0.5\% + 0.05\%FS^{(2)}$
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 Up to 7 th at 400Hz
ANALYSIS of EN50160 parameters	
Interruptions	>500ms

Caratteristiche tecniche

Technical details

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	✓
WiFi	-
3G	-
Wireless to PC	-
Cloud connectivity	-
Remote control	via USB
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

NanoVIP® DE™

Dispositivo di misurazione elettrica remoto per reti MRH™.

Remote electrical measuring device for MRH™ networks.



NanoVIP® DE™ è un potente analizzatore di qualità dell'energia remoto da collegare a un dispositivo master NANOVIP® QUADRA™.

NANOVIP® DE™ può eseguire un ampio spettro di misure elettriche e inviarle al dispositivo master in tempo reale per combinarle con altre misure da ulteriori punti di misura remoti.

EN NANOVIP® DE™ is a powerfull remote power quality analyzer to be connected to a NANOVIP® QUADRA™ master device.

NANOVIP® DE™ can perform a wide spectrum of electrical measures and send them to master device to be realtime combined with other measures retrieved by additional remote measure points.

Misure ovunque in totale sicurezza

- ✓ Autoconnessione alla rete MRHTM
- ✓ Modalità client di rete
- ✓ Massima distanza di collegamento punto-punto indoor: 60m
- ✓ Massima distanza di collegamento punto-punto outdoor: 600m
- ✓ Può operare su reti: monofase, bifase, trifase equilibrata con o senza neutro, trifase sbilanciato con o senza neutro
- ✓ Analisi Power Quality energetica tradizionale completa.
- ✓ 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
- ✓ 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)
- ✓ Multilingua

Measurements everywhere safely

- ✓ Self setting wireless network connection
- ✓ Max indoor point to point distance: 60m
- ✓ Max outdoor point to point distance: 600m
- ✓ MRH network client 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 power quality analysis.
- ✓ Can measure heterogeneous energies and power: solar, electrical loads, generators, storage systems, multiple grid connections, eolic, UPS, inverters etc
- ✓ The current and voltage harmonics for each phase and for the neutral up to 50°
- ✓ Imbalance of power phases
- ✓ Real measurement of the neutral current
- ✓ Display of the waveforms of currents and voltages
- ✓ Display of the time course of selectable parameters (trend)
- ✓ Automatic check of the correct connection of the implant tool
- ✓ Realization of long-term measurement campaigns (over 24 independently, unlimited if connected to the network)
- ✓ Multilanguage

Caratteristiche tecniche

Technical details

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 $\pm 10\%$ 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
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 analysis	V, I, P, Q, S, F, PF, THD(V)%, THD(I)%, cos ϕ , 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
Sags	Dips, swells & interruptions
Transients	Overvoltages & overcurrents
Unbalance	✓
Test EN 50160	-
Inrush current	✓
DC measures	✓
K factor	Up to the 25 th order
Alarms	-
Alarms log	-
Tariff bands	-
Energy costs	-

NanoVIP[®] DE[™]

IEC 61724 network parameters	✓
Test EN 82.25	-
OSU [™] (One Shot UPS)	-
Measurement campaigns	unlimited, up to fill the memory card
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 + 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	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS V < 350VAC ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ RMS V > 350VAC ⁽¹⁾
RMS currents:	
Scale 1	$\pm 0.25\% + 0.1\%FS^{(2)}$ @ RMS I < 5% IN clamp ⁽¹⁾
Scale 2	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 5% < RMS I < 20% IN clamp ⁽¹⁾
Scale 3	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ 20% < RMS I < 50% IN clamp ⁽¹⁾
Scale 4	$\pm 0.25\% + 0.05\%FS^{(2)}$ @ > 50% IN clamp ⁽¹⁾
Power	$\pm 0.5\% + 0.05\%FS^{(2)}$
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 ANALYSIS	
	Up to 50 th order Up to 7 th at 400Hz
ANALYSIS of EN50160 parameters	
Interruptions	>500mS
Dips	>500mS

Caratteristiche tecniche

Technical details

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	-
Client mode	✓
Zigbee®	-
Maximum distance outdoor	600 m
Maximum distance indoor	60 m
Mesh network	✓
WiFi	-
3G	-
Wireless to PC	-
Cloud connectivity	-
Remote control	-
USB	✓
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

NanoVIP® DS™

Dispositivo di misurazione elettrica remoto per impianti fotovoltaici in reti MRH™.

Remote electrical measuring device for photovoltaic systems within MRH™ networks.



NanoVIP® DS™ è un potente analizzatore di qualità dell'energia remoto per la misura di singoli pannelli o stringhe fotovoltaici.

Rileva tutte le grandezze necessarie alla misura e verifica di un impianto fotovoltaico (Temperatura pannello e ambiente, irraggiamento, velocità del vento e parametri elettrici), inviandoli in tempo reale a un dispositivo master NANOVIP® QUADRA™.



NanoVIP® DS™ is a powerful remote power quality analyzer for measuring individual panels or photovoltaic strings. It detects all the necessary parameters for the measurement and verification of a photovoltaic system (panel and environment temperatures, irradiation, wind speed and electrical parameters), sending them in real time to a NANOVIP® QUADRA™ master device.

Misure solari distribuite, in tempo reale e wireless

- ✓ Autoconnessione alla rete MRHTM
- ✓ Modalità client di rete
- ✓ Massima distanza di collegamento punto-punto indoor: 60m
- ✓ Massima distanza di collegamento punto-punto outdoor: 600m
- ✓ Temperatura pannelli (sonda in dotazione)
- ✓ Temperatura ambiente (sonda in dotazione)
- ✓ Irraggiamento solare (solarimetro in dotazione)
- ✓ Velocità del vento (anemometro opzionale)
- ✓ Misure DC per singoli pannelli e/o stringhe di pannelli
- ✓ E' possibile effettuare test differenziati per singola calata in impianti solari complessi
- ✓ Tutti dati locali sono disponibili in tempo reale sul dispositivo QUADRA master
- ✓ Test 82.25 per singolo ramo
- ✓ Realizzazione di campagne di misura a lungo termine (oltre 24 in modo indipendente, senza limiti, se collegato alla rete)
- ✓ Multilingua

Realtime solar measurements, wireless, everywhere

- ✓ Self setting wireless network connection
- ✓ Max indoor point to point distance: 60m
- ✓ Max outdoor point to point distance: 600m
- ✓ MRH network client mode
- ✓ Panel temperature (PT sensor supplied)
- ✓ Ambient temperature (PT sensor supplied)
- ✓ Solar radiation via solar meter (included in package)
- ✓ Wind speed (anemometer is optional)
- ✓ DC data for each panel or string of panel
- ✓ Possible to differentiate test result per each group of panels
- ✓ Realtime data available set by set on QUADRA master device
- ✓ Realization of long-term measurement campaigns (over 24 independently, unlimited if connected to the network)
- ✓ Multilanguage

Caratteristiche tecniche

Technical details

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 $\pm 10\%$ 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
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	✓ (anemometer not included in package)
FUNCTIONS:	
Traditional electrical analysis	V, I, P, peaks, minimums, maximums, averages, max. demands, etc.
Neutral current	-
Three phase counters	kWh, kVAh, kVAh, both absorbed that generated
Counters for each single phase	kWh, kVAh, kVAh, both absorbed that generated
Cogeneration	✓
Waveforms	-
Harmonics	-
Sags	-
Transients	-
Unbalance	-
Test EN 50160	-
Inrush current	-
DC measures	-
K factor	-
Alarms	-
Alarms log	-
Tariff bands	-
Energy costs	-

NanoVIP® DS™

IEC 61724 network parameters	✓
Test EN 82.25	✓
OSU™ (One Shot UPS)	-
Measurement campaigns	unlimited, up to fill the memory card
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	DC single phase PV output line
Type of grid which can be connected	Low and medium voltage (LV and MV)
VOLTAGE (TRMS)	
Channels	1 independent DC 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	1 channel
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)
Active power count (kW)	Class 0.5
Reactive power count (kVar)	Class 1
HARMONIC ANALISYS	
	Up to 50 th order Up to 7 th at 400Hz
ANALYSIS of EN50160 parameters	
Interruptions	>500mS
Dips	>500mS

Caratteristiche tecniche

Technical details

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	-
Client mode	✓
Zigbee®	-
Maximum distance outdoor	600 m
Maximum distance indoor	60 m
Mesh network	✓
WiFi	-
3G	-
Wireless to PC	-
Cloud connectivity	-
Remote control	-
USB	✓
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

NanoVIP® DGP™

Dispositivo wireless remoto di misurazione elettrica e lettura trasduttori per reti MRH™.

Remote wireless device for electrical measuring and transducers reading for MRH™ networks.



NanoVIP® DGP™ è un potente analizzatore di qualità dell'energia (mono, bi e trifase bilanciato) e un versatile e potente lettore di trasduttori 4..20mA, 0..1V e PT, integrabile in una rete MRH™ tramite il collegamento ad un dispositivo master NANOVIP® QUADRA™.

NANOVIP® DGP™ include 4 modalità preprogrammate per la misura delle prestazioni di sistemi termomeccanici come pompe, chiller e generatori.

EN NanoVIP® DGP™ is a powerful Power Quality Analyzer (mono, bi and three-phase balanced) and a versatile and flexible transducers reader (4..20mA, 0..1V and PT); it can be linked to an MRH™ network via a NANOVIP® QUADRA™ master device.

NANOVIP® DGP™ includes 4 preloaded modes for measuring systems like pumps, chillers and gensets.

Qualsiasi misura ovunque

- ✓ Autoconnessione alla rete MRHTM
- ✓ Modalità client di rete
- ✓ Massima distanza di collegamento punto-punto indoor: 60m
- ✓ Massima distanza di collegamento punto-punto outdoor: 600m
- ✓ Può operare su reti: monofase, bifase, trifase equilibrata con o senza neutro, trifase sbilanciato con o senza neutro
- ✓ Analisi Power Quality energetica tradizionale completa.
- ✓ Permette l'analisi in tempo reale dei parametri generali di qualità dell'alimentazione di reti complesse e distribuite
- ✓ Un canale elettrico per reti: monofase, bifase, trifase equilibrata con o senza neutro
- ✓ Fino a 4 trasduttori indipendenti completamente configurabili
- ✓ Trasduttori interfacciabili: mA, V o PT
- ✓ 4 modalità precaricate: Sensors, Pump, Chiller e Supply
- ✓ Conforme a IEC 61724
- ✓ Può misurare grandezze eterogenee: idrauliche, chimiche, solari, carichi elettrici, generatori, storage systems, ecc
- ✓ Realizzazione di campagne di misura a lungo termine (oltre 24 in modo indipendente, senza limiti, se collegato alla rete)

Any measure everywhere

- ✓ Self setting wireless network connection
- ✓ Max indoor point to point distance: 60m
- ✓ Max outdoor point to point distance: 600m
- ✓ MRH network client 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 power quality analysis.
- ✓ Can measure heterogeneous energies and power: solar, electrical loads, generators, storage systems, multiple grid connections, eolic, UPS, inverters etc
- ✓ Up to four transducers, fully settable
- ✓ Available transducer types: mA, V or PT
- ✓ Four preloaded modes: Sensors, Pump, Chiller and Supply
- ✓ Fully integrated within IEC 61724 logic
- ✓ One electrical channel: single-phase, two-phase, three-phase balanced with or without neutral
- ✓ Full traditional energy analysis (V, I, P, Q, S, F, PF, THD% on electrical channel).
- ✓ Can measure heterogeneous energies and power: hydraulic, chemical, solar, electrical loads, generators, storage systems, multiple grid connections, eolic, UPS, inverters etc
- ✓ Realization of long-term measurement campaigns (over 24 independently, unlimited if connected to the network)

Caratteristiche tecniche

Technical details

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
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; 2.5mm² - 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	4..20mA, 0..1V
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 50 th order
Sags	Dips, swells & interruptions
Transients	Overvoltages & overcurrents
Unbalance	-
Test EN 50160	-
Inrush current	-
DC measures	✓
K factor	Up to the 25 th order
Alarms	-
Alarms log	-
Tariff bands	-
Energy costs	-

NanoVIP[®] DGP[™]

IEC 61724 network parameters	✓
Test EN 82.25	-
OSU [™] (One Shot UPS)	-
Measurement campaigns	unlimited, up to fill the memory card
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 + 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)
Active power count (kW)	Class 0.5
Reactive power count (kVar)	Class 1
HARMONIC ANALISYS	
	Up to 50 th order Up to 7 th at 400Hz
ANALYSIS of EN50160 parameters	
Interruptions	>500mS
Dips	>500mS

Caratteristiche tecniche

Technical details

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	-
Client mode	✓
Zigbee®	-
Maximum distance outdoor	600 m
Maximum distance indoor	60 m
Mesh network	✓
WiFi	-
3G	-
Wireless to PC	-
Cloud connectivity	-
Remote control	-
USB	✓
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

NanoVIP®

		TWO	TWO+	TWO WF	CUBE	CUBE+	CUBE WF	CUBE 247	Master	DE	DS	DGP	Nano Flex	200A	1000A	5A	DC clamp
TWO	4NAN2N	1															
	4NAN2	1											1				
	4NAN2A	1												1			
	4NAN2B	1											1	1			
	4NAN2C	1												1		1	
TWO+	4NAN2PN		1														
	4NAN2P		1										1				
	4NAN2PA		1											1			
	4NAN2PB		1										1	1			
	4NAN2PC		1											1		1	
TWO WF	4NAN2WFN			1													
	4NAN2WF			1									1				
	4NAN2WFA			1										1			
	4NAN2WFB			1									1	1			
	4NAN2WFC			1										1		1	
CUBE	4NAN3N				1												
	4NAN3				1								3				
	4NAN3A				1									3			
	4NAN3B				1								3	3			
	4NAN3C				1									3		3	
CUBE+	4NAN3PN					1											
	4NAN3P					1							3				
	4NAN3PA					1								3			
	4NAN3PB					1							3	3			
	4NAN3PC					1								3		3	
CUBE WF	4NAN3WFN						1										
	4NAN3WF						1						3				
	4NAN3WFA						1							3			
	4NAN3WFB						1						3	3			
	4NAN3WFC						1							3		3	
CUBE 247	4NAN3247N							1									
	4NAN3247							1					3				
	4NAN3247A							1						3			
	4NAN3247B							1					3	3			
	4NAN3247C							1						3		3	
QUADRA	4NANQ								1				3				
	4NANQA								1					3			
	4NANQB								1				3	3			
	4NANQC								1				3	3	3		
	4NANQD								1						3		
	4NANQN								1								
	4NANQS								1				3				1
	4NANQDE									1			3				
	4NANQDEA									1				3			
	4NANQDEN									1							
	4NANQDS										1						1
	4NANQDSN										1						
	4NANQDGP											1	1	1		1	
	4NANQKDE								1	1			6				
	4NANQKDS								1		1		3				1
	4NANQKDGP								1			1	3				
	4NANQKSE								1	1			6				1
	4NANQKCP					1			1				6				

		Big bag	Small bag	Solar meter	4,20mA cable	0,1V cable	PT100	Voltage cable	Croco	Voltage captor	Magnet captor	uSD	Battery	Power Supply	Calibr. Certif.
TWO	4NAN2N		1					2	1	1		1	1	1	1
	4NAN2		1					2	1	1		1	1	1	1
	4NAN2A	1						2	1	1		1	1	1	1
	4NAN2B	1						2	1	1		1	1	1	1
	4NAN2C	1						2	1	1		1	1	1	1
TWO+	4NAN2PN		1		2	2	2	2	1	1		1	1	1	1
	4NAN2P		1		2	2	2	2	1	1		1	1	1	1
	4NAN2PA	1			2	2	2	2	1	1		1	1	1	1
	4NAN2PB	1			2	2	2	2	1	1		1	1	1	1
	4NAN2PC	1			2	2	2	2	1	1		1	1	1	1
TWO WF	4NAN2WFN		1					2	1	1		1	1	1	1
	4NAN2WF		1					2	1	1		1	1	1	1
	4NAN2WFA	1						2	1	1		1	1	1	1
	4NAN2WFB	1						2	1	1		1	1	1	1
	4NAN2WFC		1					2	1	1		1	1	1	1
CUBE	4NAN3N		1					4	4			1	1	1	1
	4NAN3		1					4	4			1	1	1	1
	4NAN3A	1						4	4			1	1	1	1
	4NAN3B	1						4	4			1	1	1	1
	4NAN3C	1						4	4			1	1	1	1
CUBE+	4NAN3PN		1					4	4			1	1	1	1
	4NAN3P		1					4	4			1	1	1	1
	4NAN3PA	1						4	4			1	1	1	1
	4NAN3PB	1						4	4			1	1	1	1
	4NAN3PC	1						4	4			1	1	1	1
CUBE WF	4NAN3WFN		1					4	4			1	1	1	1
	4NAN3WF		1					4	4			1	1	1	1
	4NAN3WFA	1						4	4			1	1	1	1
	4NAN3WFB	1						4	4			1	1	1	1
	4NAN3WFC	1						4	4			1	1	1	1
CUBE 247	4NAN3247N		1					4	4			1	1	1	1
	4NAN3247		1					4	4			1	1	1	1
	4NAN3247A	1						4	4			1	1	1	1
	4NAN3247B	1						4	4			1	1	1	1
	4NAN3247C	1						4	4			1	1	1	1
QUADRA	4NANQ		1					4	4		4	1	1	1	1
	4NANQA	1						4	4		4	1	1	1	1
	4NANQB	1						4	4		4	1	1	1	1
	4NANQC	1						4	4		4	1	1	1	1
	4NANQD	1						4	4		4	1	1	1	1
	4NANQN		1					4	4		4	1	1	1	1
	4NANQS	1		1			2	6	6		6	1	1	1	1
	4NANQDE		1					4	4		4	1	1	1	1
	4NANQDEA	1						4	4		4	1	1	1	1
	4NANQDEN		1					4	4		4	1	1	1	1
	4NANQDS	1		1			2	2	2		2	1	1	1	1
	4NANQDSN	1		1				2	2		2	1	1	1	1
	4NANQDGP		1		2	2	2	2	1	1	2	1	1	1	1
	4NANQKDE		2					8	8		8	2	2	2	2
	4NANQKDS	1	1	1			2	6	6		6	2	2	2	2
	4NANQKDG		2		2	2		4	4		4	2	2	2	2
	4NANQKSE	1	1	1				8	8		8	2	2	2	2
	4NANQKCP		2					8	8		8	2	2	2	2

Pinze ampereometriche

Current sensors

NanoFlex™

Sensori di corrente flessibili basati sul principio dei Rogowski coils, permettono la misura di un ampio range di correnti.

Flexible current sensors based on the Rogowski coils principle, allow the measurement of a wide range of currents.



NanoFlex™ è un sensore di corrente con una parte attiva (bobina Rogowski) caratterizzata da una **elevata flessibilità** che ne permette l'installazione nelle posizioni più impegnative. Il particolare sistema di chiusura ne permette un facile utilizzo anche con i guanti di sicurezza. Non essendo soggette a fenomeni di saturazione magnetica, offrono una **elevatissima linearità**, un **basso sfasamento** e un'ampia gamma di misura.



NanoFlex™ is a current sensor with an active part (Rogowski coil) characterized by a high flexibility that allows it to be installed in the most demanding positions. The particular locking system allows easy use even with safety gloves. Not subject to magnetic saturation phenomena, they offer a very high linearity, a low phase shift and a wide measuring range.

PRECISA, FLESSIBILE, RESISTENTE, CON UN AMPIO CAMPO DI MISURA

- ✓ Utilizzabile su analizzatori della famiglia NanoVIP® senza necessità di alimentazione o amplificazione esterna.
- ✓ Dotata di sistema di riconoscimento automatico se utilizzata sui più recenti analizzatori della serie NanoVIP®: TWO™, CUBE™ e QUADRA™
- ✓ Cordone di soli 5,5mm di diametro.
- ✓ Flessibile e leggera
- ✓ Progettato per la misura di correnti alternate in un ampio range di valori: da 6A a 3000A
- ✓ Grazie alle sue caratteristiche meccaniche può essere facilmente avvolta in due spire per portarne il range di misura da 3A a 1500A con un aumento della precisione stessa
- ✓ Ottima risposta alle rapide variazioni di corrente, non essendo soggetta all'induzione delle correnti di Fourier.
- ✓ Altissima linearità dovuta all'assenza di saturazione magnetica anche in presenza di correnti molto alte, come nel caso della trasmissione di energia elettrica, saldatura elettrica o applicazioni che implicano impulsi ad alta potenza
- ✓ Il particolare sistema di chiusura ne permette un uso sicuro anche indossando i guanti di sicurezza

FLEXIBLE, PRECISE, STRONG WITH A WIDE RANGE OF MEASUREMENT

- ✓ Can be used on NanoVIP® family analyzers without the need for external power supply or amplification.
- ✓ Equipped with automatic recognition system if used on the latest NanoVIP® series analyzers: TWO™, CUBE™ and QUADRA™
- ✓ Cord only 5.5mm in diameter.
- ✓ Flexible and light
- ✓ Designed for the measurement of alternating currents in a wide range of values: from 6A to 3000A
- ✓ Thanks to its mechanical characteristics it can easily be wound in two turns to bring its measuring range from 3A to 1500A with an increase in precision itself
- ✓ Excellent response to rapid changes in current, not being subject to induction of Fourier currents.
- ✓ Very high linearity due to the absence of magnetic saturation even in the presence of very high currents, such as in the case of electricity transmission, electric welding or applications involving high power pulses
- ✓ The particular closing system allows safe use even when wearing safety gloves

Code

Description

4AAZARP

NanoFlex™ Rogowski [6A – 3000A] 400mm

4AAZ6ARP

NanoFlex™ Rogowski [6A – 3000A] 600mm

Caratteristiche tecniche

Technical details

ELECTRICAL SPECIFICATIONS ⁽¹⁾ :	
Measured range	6A up to 3000A
Operating voltage	600V rms or DC (CAT IV) 1000V rms or DC (CAT III)
Voltage at sensor terminals	39,1µV/A at 50Hz on 10kΩ load
Accuracy	≤ 1 % + 0.3 A (only sensor)
Linearity	<0.3%
Phase shift	-90° ± 0,5° at 50 Hz
Interchangeability error	≤ 0.5% (maximum error between 2 sensor for the same measurement point)
Influence of temperature	0.05%/10 °K from -20 °C to +60 °C
Influence of humidity	0.1% from 10% to 90% RH
Influence of conductor position with non sensor deformation:	≤ 1.5%
Influence of adjacent conductor placed 1cm from sensor:	≤ 0.7% of the adjacent current at 50Hz
Influence of sensor deformation (flattened/oblong shape):	≤ 0.5%
Common mode rejection	≥ 100dB for a voltage of 600V / 50Hz applied between the sensor enclosure and the secondary
⁽¹⁾ Conditions of reference	23 °C ± 5 °K, 20% to 75% RH Continuous external DC magnetic field (earth field) < 40 A/m Absence of external AC magnetic field External electrical field < 1 V/m Position of conductor measured: centred in the measurement coil Shape of measurement coil: quasi-circular Measurement instrument input impedance (oscilloscope) ≥ 1 MΩ Frequency and form of signal measured: 40 to 400 Hz sinusoidal
MECHANICAL SPECIFICATIONS:	
Dimensions	Ø of sensor: 5.5mm approx. Sensor lenght: 400mm Output cable length: 2m
Weight	60g
Operating temperature	-20 °C to +60 °C
Storage temperature	-40 °C to +80 °C
Max temperature of clamped conductor (measured)	≤ 90 °C
Operating altitude	0 to 2000 m (for 600V CAT III)
Storage altitude	≤ 12000m
Casing protection rating (leakproofing)	IP50 according to EN 60529/A1 Ed.06/2000
Self-extinguishing capability	UL94 V0
SAFETY	
Electrical safety	Class II equipment with double or reinforced insulation between the primary and the secondary (winding connected to the connection cable) as per EN 61010-1 & EN 61010-2-032: - 1000V CAT III, pollution degree 2 - 600V ACT III, pollution degree 2 - Type-B sensor

UltraFlex™

Sensori di corrente flessibili basati sul principio dei Rogowski coils, permettono la misura di correnti fino a 6000A e (opzionalmente) oltre.

Flexible current sensors based on the Rogowski coils principle, allow the measurement currents up to 6000A and (optionally) higher ones.



UltraFlex™ è un sensore di corrente con una parte attiva (bobina Rogowski) caratterizzata da una **struttura robusta ed affidabile** che permette la misura di alte correnti (fino a **6000A**) nelle posizioni più impegnative, grazie al cordone di **600mm**. Non essendo soggette a fenomeni di saturazione magnetica, offrono una **elevatissima linearità**, un **basso sfasamento** e un'ampia gamma di misura.



UltraFlex™ is a current sensor with an active part (Rogowski coil) characterized by a robust and reliable structure that allows to measure high currents (up to **6000A**) in the most demanding positions, thanks to its **600mm** coil length. Not subject to magnetic saturation phenomena, they offer a very high linearity, a low phase shift and a wide measuring range.

PRECISA, ROBUSTA, CON UN AMPIO CAMPO DI MISURA FINO AD ALTISIME CORRENTI

- ✓ Utilizzabile su analizzatori della famiglia NanoVIP® senza necessità di alimentazione o amplificazione esterna.
- ✓ Cordone di soli 8,0 mm di diametro.
- ✓ Robusta e affidabile.
- ✓ Progettato per la misura di correnti alternate in un ampio range di valori: fino a 6000A
- ✓ Opzionalmente fornibile per correnti più elevate
- ✓ Grazie al cordone di 600mm può essere facilmente avvolta negli spazi più critici.
- ✓ Ottima risposta alle rapide variazioni di corrente, non essendo soggetta all'induzione delle correnti di Fourier.
- ✓ Altissima linearità dovuta all'assenza di saturazione magnetica anche in presenza di correnti molto alte, come nel caso della trasmissione di energia elettrica, saldatura elettrica o applicazioni che implicano impulsi ad alta potenza
- ✓ Il particolare sistema di chiusura ne permette un uso sicuro anche indossando i guanti di sicurezza

FLEXIBLE, STRONG WITH A WIDE RANGE OF MEASUREMENT UP TO HIGH CURRENTS

- ✓ Can be used on NanoVIP® family analyzers without the need for external power supply or amplification.
- ✓ Cord only 8,0 mm in diameter.
- ✓ Flexible and reliable
- ✓ Designed for the measurement of alternating currents in a wide range of values: up to 6000A
- ✓ Optionally can be supplied for higher currents
- ✓ Thanks to its 600mm coil length it can easily be wound in difficult conditions
- ✓ Excellent response to rapid changes in current, not being subject to induction of Fourier currents.
- ✓ Very high linearity due to the absence of magnetic saturation even in the presence of very high currents, such as in the case of electricity transmission, electric welding or applications involving high power pulses
- ✓ The particular closing system allows safe use even when wearing safety gloves

Codice/Code

Descrizione / Description

4AAALG6000

UltraFlex™ Rogowski [6000A] 600mm

Caratteristiche tecniche

Technical details

ELECTRICAL SPECIFICATIONS ⁽¹⁾ :	
Measured range	6000A (optionally higher currents can be provided)
Operating voltage	600V rms or DC (CAT IV) 1000V rms or DC (CAT III)
Voltage at sensor terminals ⁽²⁾	19,55µV/A at 50Hz on 10kΩ load
Accuracy	≤ 2%
Frequency range	approximately 8 Hz to 20 kHz the range depends on the coil length
Test voltage	7400 Vrms / 1 min
⁽¹⁾ Conditions of reference	23 °C ± 2 °C, 20% to 75% RH Position of conductor measured: centred in the measurement coil Shape of measurement coil: quasi-circular Measurement instrument input impedance (oscilloscope) ≥ 1 MΩ Frequency and form of signal measured: 40 to 400 Hz sinusoidal
⁽²⁾ Output levels	The Rogowski coil output is proportional to the rate of change of current. The calculation formula is: Ampere rms x Hertz x K x 10 ⁻⁶ , where K depends on manufacturing. The K value is 2 for 100 mV model and 0.8 for 40 mV model.
MECHANICAL SPECIFICATIONS:	
Dimensions	Ø of sensor: 5.5mm approx. Sensor lenght: 600mm (optionally different measures available) Output cable length: 2m
Weight	90g
Locking system	Bayonet holder
Operating temperature	-20 °C to +80 °C
Storage temperature	-40 °C to +80 °C
Self-extinguishing capability	UL94 V0
SAFETY	
Electrical safety	EN61010-1, EN61010-031, EN61010-2-031, EN61010-2-032 standards

AmpFlex™

Sensori di corrente flessibili basati sul principio dei Rogowski coils, permettono la misura di correnti fino a 1000A e con cordone 800mm

Flexible current sensors based on the Rogowski coils principle, allow the measurement currents up to 1000A and 800mm coil length.



AmpFlex™ è un sensore di corrente con una parte attiva (bobina Rogowski) caratterizzata da una **struttura robusta ed affidabile** che permette la misura di alte correnti (fino a **1000A**) nelle posizioni più impegnative, grazie al cordone di **800mm**. Non essendo soggette a fenomeni di saturazione magnetica, offrono una **elevatissima linearità**, un **basso sfasamento** e un'ampia gamma di misura.



AmpFlex™ is a current sensor with an active part (Rogowski coil) characterized by a robust and reliable structure that allows to measure high currents (up to **1000A**) in the most demanding positions, thanks to its **800mm** coil length. Not subject to magnetic saturation phenomena, they offer a very **high linearity**, a **low phase shift** and a **wide measuring range**.

PRECISA, ROBUSTA, CON UN CORDONE DA 800MM

- ✓ Utilizzabile su analizzatori della famiglia NanoVIP® senza necessità di alimentazione o amplificazione esterna.
- ✓ Cordone di 12,0 mm di diametro.
- ✓ Robusta e affidabile.
- ✓ Progettato per la misura di correnti alternate in un ampio range di valori: fino a 1000A
- ✓ Grazie al cordone di 800mm può essere facilmente avvolta negli spazi più critici.
- ✓ Ottima risposta alle rapide variazioni di corrente, non essendo soggetta all'induzione delle correnti di Fourier.
- ✓ Altissima linearità dovuta all'assenza di saturazione magnetica anche in presenza di correnti molto alte, come nel caso della trasmissione di energia elettrica, saldatura elettrica o applicazioni che implicano impulsi ad alta potenza
- ✓ Il particolare sistema di chiusura ne permette un uso sicuro anche indossando i guanti di sicurezza

FLEXIBLE, STRONG WITH 800MM COIL LENGTH

- ✓ Can be used on NanoVIP® family analyzers without the need for external power supply or amplification.
- ✓ Cord with 12,0 mm in diameter.
- ✓ Flexible and reliable
- ✓ Designed for the measurement of alternating currents in a wide range of values: up to 1000A
- ✓ Thanks to its 800mm coil length it can easily be wound in difficult conditions
- ✓ Excellent response to rapid changes in current, not being subject to induction of Fourier currents.
- ✓ Very high linearity due to the absence of magnetic saturation even in the presence of very high currents, such as in the case of electricity transmission, electric welding or applications involving high power pulses
- ✓ The particular closing system allows safe use even when wearing safety gloves

Codice/Code

Descrizione / Description

4AAXX

AmpFlex™ Rogowski [1000A] 800mm

Caratteristiche tecniche

Technical details

ELECTRICAL SPECIFICATIONS ⁽¹⁾ :	
Measured range	up to 1000A
Operating voltage	600V rms or DC (CAT IV) 1000V rms or DC (CAT III)
Voltage at sensor terminals	39,1µV/A at 50Hz on 10kΩ load
Accuracy	≤ 2 % + 0.3 A (only sensor)
Linearity	<0.3%
Phase shift	-90° ± 0,5° at 50 Hz
Interchangeability error	≤ 0.5% (maximum error between 2 sensor for the same measurement point)
⁽¹⁾ Conditions of reference	23 °C ± 5 °K, 20% to 75% RH Continuous external DC magnetic field (earth field) < 40 A/m Absence of external AC magnetic field External electrical field < 1 V/m Position of conductor measured: centred in the measurement coil Shape of measurement coil: quasi-circular Measurement instrument input impedance (oscilloscope) ≥ 1 MΩ Frequency and form of signal measured: 40 to 400 Hz sinusoidal
MECHANICAL SPECIFICATIONS:	
Dimensions	Ø of sensor: 12,0 mm approx. Sensor lenght: 800mm Output cable length: 2m
Weight	60g
Operating temperature	-20 °C to +60 °C
Storage temperature	-40 °C to +80 °C
Max temperature of clamped conductor (measured)	≤ 90 °C
Operating altitude	0 to 2000 m (for 600V CAT III)
Storage altitude	≤ 12000m
Casing protection rating (leakproofing)	IP65 according to EN 60529/A1 Ed.06/2000
Self-extinguishing capability	UL94 V0
SAFETY	
Electrical safety	Class II equipment with double or reinforced insulation between the primary and the secondary (winding connected to the connection cable) as per EN 61010-1 & EN 61010-2-032: - 1000V CAT III, pollution degree 2 - 600V ACT III, pollution degree 2 - Type-B sensor

MN13TM

Pinza amperometrica per correnti alternate da 0.5 A a 200 A caratterizzata da dimensioni ridotte e un'elevata ergonomia.

Amperometric mini-clamp for AC currents from 0.5 A to 200 A with reduced dimensions and high ergonomics.



La pinza amperometrica MN13 è utilizzabile su tutti gli analizzatori della famiglia **NanoVIP[®]** per la misura delle correnti alternate fino a 200 A; è dotata di un sistema di **riconoscimento automatico** da parte dell'analizzatore che rende molto semplice il suo settaggio.

Le dimensioni particolarmente compatte ne fanno uno strumento altamente ergonomico, facilmente collocabile e con una minima occupazione di spazio.



The MN13 current clamp can be used on all analyzers of the **NanoVIP[®]** family to measure AC currents up to 200 A; it is equipped with an **automatic recognition system** by the analyzer that makes its setting very simple.

The particularly **compact dimensions** make it a highly ergonomic tool, easy to place and with minimal space requirements.

COMPATTA, RESISTENTE E PRECISA

- ✓ Utilizzabile su analizzatori della famiglia NanoVIP[®] senza necessità di alimentazione o amplificazione esterna.
- ✓ Dotata di sistema di riconoscimento automatico se utilizzata sui più recenti analizzatori della serie NanoVIP[®]: TWOTM, CUBETM e QUADRATM
- ✓ Progettato per la misura di correnti alternate in un ampio range di valori: da 0.5A a 200A
- ✓ Compatta e leggera
- ✓ La forma delle pinze rende facile l'aggancio sui cavi, anche nelle zone più ridotte.
- ✓ Le pinze possono afferrare conduttori fino a 20 mm di diametro.
- ✓ La precisione che offre su tutto il campo di misura le consente un utilizzo molto ampio (dal civile all'industriale)
- ✓ La conformazione ne permette un uso sicuro anche indossando i guanti di sicurezza
- ✓ Dispone opzionalmente di adattatori per l'utilizzo con analizzatori Elcontrol di vecchia generazione, cioè privi di riconoscimento automatico delle pinze

COMPACT, STRONG AND PRECISE

- ✓ Can be used on NanoVIP[®] family analyzers without the need for external power supply or amplification.
- ✓ Equipped with automatic recognition system if used on the latest NanoVIP[®] series analyzers: TWOTM, CUBETM and QUADRATM
- ✓ Designed for the measurement of alternating currents in a wide range of values: from 0.5A to 200A
- ✓ Compact and light
- ✓ The shape of the pliers makes it easy to hook onto the cables, even in the smallest areas.
- ✓ The grippers can grip conductors up to 20 mm in diameter.
- ✓ The precision that it offers on the whole measuring range allows it a very wide use (from civil to industrial)
- ✓ The shape allows a safe use even when wearing safety gloves
- ✓ Optionally adapters are available to use it on older generation of Elcontrol analyzers, without automatic clamp recognition

Codice/Code	Descrizione / Description
4AR10RP	MN13-EL [0,1A – 200A]

Caratteristiche tecniche

Technical details

ELECTRICAL SPECIFICATIONS ⁽¹⁾ :																			
Measured range	0,5 A up to 240A																		
Operating voltage	600V rms																		
Output signal	5 mV AC / A AC (1,2 V for 240A)																		
Accuracy and Phase shift	<table><tr><td>Primary current:</td><td>0,5 A...5 A</td><td>5 A...15 A</td><td>15 A...40 A</td><td>40 A...100 A</td><td>100 A...240 A</td></tr><tr><td>% Accuracy of output signal</td><td>≤ 2 % + 0,5 mV</td><td colspan="2">≤ 1 % + 0,25 mV</td><td>≤ 1 %</td><td>≤ 0,5 %</td></tr><tr><td>Phase shift</td><td>not specified</td><td>≤ 7°</td><td>≤ 5°</td><td>≤ 3°</td><td>≤ 1,5°</td></tr></table>	Primary current:	0,5 A...5 A	5 A...15 A	15 A...40 A	40 A...100 A	100 A...240 A	% Accuracy of output signal	≤ 2 % + 0,5 mV	≤ 1 % + 0,25 mV		≤ 1 %	≤ 0,5 %	Phase shift	not specified	≤ 7°	≤ 5°	≤ 3°	≤ 1,5°
Primary current:	0,5 A...5 A	5 A...15 A	15 A...40 A	40 A...100 A	100 A...240 A														
% Accuracy of output signal	≤ 2 % + 0,5 mV	≤ 1 % + 0,25 mV		≤ 1 %	≤ 0,5 %														
Phase shift	not specified	≤ 7°	≤ 5°	≤ 3°	≤ 1,5°														
Bandwidth	40 Hz ...10 kHz																		
Crest factor	3 for a current of 200A rms																		
Maximum currents	200 A continuous for a frequency ≤ 1 kHz (derating proportional to the inverse of frequency beyond)																		
Common mode voltage	600 V category III and pollution degree 2																		
Influence of adjacent conductor:	≤ 15mA / A at 50 Hz																		
Influence of conductor position in jaws:	≤ 0,5 % of output signal at 50 / 60 Hz																		
Influence of DC current >20A overlying on the nominal current:	≤ 5%																		
Influence of frequency ⁽²⁾ :	< 3% of output signal from 40Hz...1kHz < 12% of output signal from 1kHz...10kHz																		
Influence of crest factor:	< 3% of output signal for a crest factor of 3 and current of 200A rms																		
⁽¹⁾ Conditions of reference	23 °C ± 5 °K, 20% to 75% RH Continuous external DC magnetic field (earth field) < 40 A/m Absence of external AC magnetic field External electrical field < 1 V/m Position of conductor measured: centred in the measurement coil Shape of measurement coil: quasi-circular Measurement instrument input impedance (oscilloscope) ≥ 1 MΩ Frequency and form of signal measured: 40 to 400 Hz sinusoidal																		
⁽²⁾	Out of reference domain																		
MECHANICAL SPECIFICATIONS:																			
Dimensions	135x51x30 mm																		
Weight	180g																		
Operating temperature	-10 °C to +55 °C																		
Storage temperature	-40 °C to +70 °C																		
Influence of temperature:	≤ 15% of output signal per 10 °K																		
Relative humidity for operation:	0 to 85% RH decreasing linearly above 35 °C																		
Influence of relative humidity:	< 0,2 % of output signal from 10% to 85% RH																		
Operating altitude	0 to 2000 m (for 600V CAT III)																		
Storage altitude	≤ 12000m																		
Clamping capacity:	Cable: Ø max 20 mm Busbar: 1 busbar of 20 x 5 mm																		
Drop test:	1 m (IEC 68-2-32)																		
Shock resistance:	100 g 6 ms ½ period (IEC 68-2-27)																		
Vibration resistance:	10/55/10 Hz, 0.15mm (IEC 68-2-6)																		
Casing protection rating	IP40 (IEC 529)																		
Self-extinguishing capability	Casing: UL94 V2 Jaws: UL94 V0																		
SAFETY																			
Electrical safety	Class II equipment with double or reinforced insulation between the primary and the secondary (winding connected to the connection cable) as per EN 61010-1 & EN 61010-2-032: - 1000V CAT III, pollution degree 2 - 600V ACT III, pollution degree 2 - Type-B sensor																		

MN95TM

Pinza amperometrica per correnti AC da 0.01A a 5.0A caratterizzata da dimensioni ridotte e un'elevata precisione.

Amperometric mini-clamp for AC currents from 0.01A to 5.0A with reduced dimensions and high precision.



La pinza amperometrica MN95 è utilizzabile su tutti gli analizzatori della famiglia **NanoVIP[®]** per la misura delle correnti alternate fino a 5 A; è dotata di un sistema di **riconoscimento automatico** da parte dell'analizzatore che rende molto semplice il suo settaggio.

Le dimensioni particolarmente compatte ne fanno uno strumento altamente ergonomico, facilmente collocabile e con una minima occupazione di spazio.



The MN95 current clamp can be used on all analyzers of the **NanoVIP[®]** family to measure AC currents up to 5 A; it is equipped with an **automatic recognition system** by the analyzer that makes its setting very simple.

The particularly **compact dimensions** make it a highly ergonomic tool, easy to place and with minimal space requirements.

COMPATTA, RESISTENTE E PRECISA

- ✓ Utilizzabile su analizzatori della famiglia NanoVIP[®] senza necessità di alimentazione o amplificazione esterna.
- ✓ Altissima precisione nelle misura
- ✓ Dotata di sistema di riconoscimento automatico se utilizzata sui più recenti analizzatori della serie NanoVIP[®]: TWOTM, CUBETM e QUADRATM
- ✓ Progettato per la misura di correnti alternate in un ampio range di valori: da 0.01A a 5A
- ✓ Compatta e leggera
- ✓ La forma delle pinze rende facile l'aggancio sui cavi, anche nelle zone più ridotte.
- ✓ Le pinze possono afferrare conduttori fino a 20 mm di diametro.
- ✓ La precisione che offre su tutto il campo di misura le consente un utilizzo molto ampio (dal civile all'industriale)
- ✓ La conformazione ne permette un uso sicuro anche indossando i guanti di sicurezza
- ✓ Dispone opzionalmente di adattatori per l'utilizzo con analizzatori Elcontrol di vecchia generazione, cioè privi di riconoscimento automatico delle pinze

COMPACT, STRONG AND PRECISE

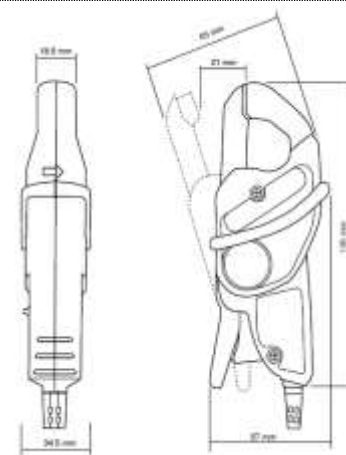
- ✓ Can be used on NanoVIP[®] family analyzers without the need for external power supply or amplification.
- ✓ Very high precision
- ✓ Equipped with automatic recognition system if used on the latest NanoVIP[®] series analyzers: TWOTM, CUBETM and QUADRATM
- ✓ Designed for the measurement of alternating currents in a wide range of values: from 0.01A to 5A
- ✓ Compact and light
- ✓ The shape of the pliers makes it easy to hook onto the cables, even in the smallest areas.
- ✓ The grippers can grip conductors up to 20 mm in diameter.
- ✓ The precision that it offers on the whole measuring range allows it a very wide use (from civil to industrial)
- ✓ The shape allows a safe use even when wearing safety gloves
- ✓ Optionally adapters are available to use it on older generation of Elcontrol analyzers, without automatic clamp recognition

Codice/Code	Descrizione / Description
4AAYVRP	MN95-EL [0,01A – 5A]

Caratteristiche tecniche

Technical details

ELECTRICAL SPECIFICATIONS ⁽¹⁾ :				
Measured range	0,01 A up to 6 A			
Operating voltage	600V rms			
Output signal	200 mV AC / A AC (1,2 V for 6A)			
Accuracy and Phase shift	Primary current	0.01A...0.1A	0.1A...1A	1A...6A
	Accuracy in % of output signal	≤ 2%	0.5%	≤ 0,5%
	Phase shift	Not specified	≤ 1.3°	0.7°
Bandwidth	40 Hz ...10 kHz			
Crest factor	3 for a current of 6A rms			
Maximum currents	6 A continuous for a frequency ≤ 10 kHz (derating proportional to the inverse of frequency beyond)			
Common mode voltage	600 V category III and pollution degree 2			
Influence of adjacent conductor:	≤ 15mA / A at 50 Hz			
Influence of conductor position in jaws:	≤ 0.5 % of output signal at 50 / 60 Hz			
Influence of DC current >20A overlying on the nominal current:	≤ 3%			
Influence of frequency ⁽²⁾ :	< 5% from 20 to 1kHz			
	< 10% from 1kHz to 10 kHz			
Influence of crest factor:	< 3% of output signal for a crest factor < 5 with current < 6A rms			
⁽¹⁾ Conditions of reference	23 °C ± 5 °K, 20% to 75% RH			
	Continuous external DC magnetic field (earth field) < 40 A/m			
	Absence of external AC magnetic field			
	External electrical field < 1 V/m			
	Position of conductor measured: centred in the measurement coil			
	Shape of measurement coil: quasi-circular			
	Measurement instrument input impedance (oscilloscope) ≥ 1 MΩ			
	Frequency and form of signal measured: 40 to 400 Hz sinusoidal			
⁽²⁾	Out of reference domain			
MECHANICAL SPECIFICATIONS:				
Dimensions	135x51x30 mm			
Weight	180g			
Operating temperature	-10 °C to +55 °C			
Storage temperature	-40 °C to +70 °C			
Influence of temperature:	≤ 15% of output signal per 10 °K			
Relative humidity for operation:	0 to 85% RH decreasing linearly above 35 °C			
Influence of relative humidity:	< 0.2 % of output signal from 10% to 85% RH			
Operating altitude	0 to 2000 m (for 600V CAT III)			
Storage altitude	≤ 12000m			
Clamping capacity:	Cable: Ø max 20 mm			
	Busbar: 1 busbar of 20 x 5 mm			
Drop test:	1 m (IEC 68-2-32)			
Shock resistance:	100 g 6 ms ½ period (IEC 68-2-27)			
Vibration resistance:	10/55/10 Hz, 0.15mm (IEC 68-2-6)			
Casing protection rating	IP40 (IEC 529)			
Self-extinguishing capability	Casing: UL94 V2 Jaws: UL94 V0			
SAFETY				
Electrical safety	Class II equipment with double or reinforced insulation between the primary and the secondary (winding connected to the connection cable) as per EN 61010-1 & EN 61010-2-032: - 1000V CAT III, pollution degree 2 - 600V ACT III, pollution degree 2 - Type-B sensor			



C107TM

Pinza amperometrica per correnti alternate da 0.1 A a 1000 A caratterizzata da un'ottima precisione e stabilità di misura in tutto il range.

Amperometric mini-clamp for AC currents from 0.1 A to 1000 A with high measurement precision and stability all over the range.



La forma rotonda delle ganasce garantisce una elevata precisione e uno sfasamento minimo.

Dispone di un sistema di regolazione degli elementi magnetici e una struttura particolarmente resistente.

La **capacità di serraggio** di conduttori con diametro fino a **52 mm** permette di realizzare misure di corrente sulla maggior parte dei conduttori installati sugli impianti industriali in Cat.III 600V.



The C107 round jaw shape and the uniformly-distributed winding guarantee **accuracy and minimum phase difference**. It is equipped with an oscillating magnetic element adjustment system. Its **Ø 52 mm clamping capacity** allows current measurements on most conductors on CAT III 600 V industrial applications.

ROBUSTA, PRECISA E AFFIDABILE

- ✓ Utilizzabile su analizzatori della famiglia NanoVIP® senza necessità di alimentazione o amplificazione esterna.
- ✓ Dotata di sistema di riconoscimento automatico se utilizzata sui più recenti analizzatori della serie NanoVIP®: TWOTM, CUBETM e QUADRATM
- ✓ Progettata per la misura di correnti alternate in un ampio range di valori: da 0.1A a 1000A
- ✓ Minimo sfasamento
- ✓ Resistente e affidabile
- ✓ Le ganasce possono afferrare conduttori fino a 52 mm di diametro.
- ✓ Dotata di un sistema di controllo dell'apertura progressiva delle ganasce
- ✓ Dotata di sistema di regolazione degli elementi magnetici
- ✓ La precisione che offre su tutto il campo di misura le consente un utilizzo molto ampio (dal civile all'industriale)
- ✓ La conformazione ne permette un uso sicuro anche indossando i guanti di sicurezza
- ✓ Dispone opzionalmente di adattatori per l'utilizzo con analizzatori Elcontrol di vecchia generazione, cioè privi di riconoscimento automatico delle pinze

COMPACT, STRONG AND PRECISE

- ✓ Can be used on NanoVIP® family analyzers without the need for external power supply or amplification.
- ✓ Equipped with automatic recognition system if used on the latest NanoVIP® series analyzers: TWOTM, CUBETM and QUADRATM
- ✓ Designed for the measurement of alternating currents in a wide range of values: from 0.1A to 1000A
- ✓ Minimum phase difference
- ✓ Robust and reliable
- ✓ The grippers can grip conductors up to 52 mm in diameter.
- ✓ Progressive grippers opening control system
- ✓ Oscillating magnetic element adjustment system
- ✓ The precision that it offers on the whole measuring range allows it a very wide use (from civil to industrial)
- ✓ The shape allows a safe use even when wearing safety gloves
- ✓ Optionally adapters are available to use it on older generation of Elcontrol analyzers, without automatic clamp recognition

Codice/Code	Descrizione / Description
4AAWSRP	C107 [1000A]

Caratteristiche tecniche

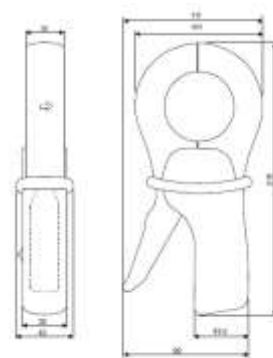
Technical details

ELECTRICAL SPECIFICATIONS ⁽¹⁾ :																						
Measured range	0,1 A up to 1200A																					
Operating voltage	600V rms																					
Output signal	1 mV AC / A AC (1 V for 1000A)																					
Accuracy and Phase shift	<table><tr><th>Primary current</th><th>0.1 A...10 A</th><th>10 A</th><th>50 A</th><th>200 A</th><th>1000 A</th><th>1200 A</th></tr><tr><th>% Accuracy of output signal</th><td>≤ 3 % + 0.1 mV</td><td>≤ 3 %</td><td>≤ 1.5 %</td><td>≤ 0.75 %</td><td>≤ 0.5 %</td><td>≤ 0.5 %</td></tr><tr><th>Phase shift</th><td>not specified</td><td>≤ 3°</td><td>≤ 1.5°</td><td>≤ 0.75°</td><td>≤ 0.5°</td><td>≤ 0.5°</td></tr></table>	Primary current	0.1 A...10 A	10 A	50 A	200 A	1000 A	1200 A	% Accuracy of output signal	≤ 3 % + 0.1 mV	≤ 3 %	≤ 1.5 %	≤ 0.75 %	≤ 0.5 %	≤ 0.5 %	Phase shift	not specified	≤ 3°	≤ 1.5°	≤ 0.75°	≤ 0.5°	≤ 0.5°
Primary current	0.1 A...10 A	10 A	50 A	200 A	1000 A	1200 A																
% Accuracy of output signal	≤ 3 % + 0.1 mV	≤ 3 %	≤ 1.5 %	≤ 0.75 %	≤ 0.5 %	≤ 0.5 %																
Phase shift	not specified	≤ 3°	≤ 1.5°	≤ 0.75°	≤ 0.5°	≤ 0.5°																
Bandwidth	30 Hz ...10 kHz																					
Crest factor	≤ 6 for a current ≤ 3000 A peak (500 A rms)																					
Maximum currents	1000 A continuous for a frequency ≤ 1 kHz (limitation proportional to the inverse frequency beyond)																					
Common mode voltage	600 V category III and pollution degree 2																					
Influence of adjacent conductor:	≤ 1 μV / A at 50 Hz																					
Influence of conductor position in jaws:	≤ 0.1 % of output signal for frequencies ≤ 400 Hz																					
Influence of DC current >20A overlying on the nominal current:	< 1% of output signal for a current ≤ 30A DC																					
Influence of frequency ⁽²⁾ :	< 1% of output signal from 30Hz...48Hz < 0,5% of output signal from 56Hz...1kHz < 1% of output signal from 1kHz...5kHz																					
Influence of crest factor:	< 1% of output signal for crest factor ≤ 6 with current ≤ 3000A peak (500A rms)																					
⁽¹⁾ Conditions of reference	23 °C ± 5 °K, 20% to 75% RH Continuous external DC magnetic field (earth field) < 40 A/m Absence of external AC magnetic field External electrical field < 1 V/m Position of conductor measured: centred in the measurement coil Shape of measurement coil: quasi-circular Measurement instrument input impedance (oscilloscope) ≥ 1 MΩ Frequency and form of signal measured: 40 to 400 Hz sinusoidal																					
⁽²⁾	Out of reference domain																					

MECHANICAL SPECIFICATIONS:	
Dimensions	216 x 111 x 45 mm
Weight	550g
Operating temperature	-10 °C to +55 °C
Storage temperature	-40 °C to +70 °C
Influence of temperature:	≤ 0.1 % of output signal per 10 °K
Relative humidity for operation:	0 to 85% RH decreasing linearly above 35 °C
Influence of relative humidity:	< 0.1 % of output signal from 10% to 85% RH
Operating altitude	0 to 2000 m (for 600V CAT III)
Storage altitude	≤ 12000m
Clamping capacity:	Cable: Ø max 52 mm Busbar: 1 busbar of 50 x 5 mm / 4 busbars of 30 x 5 mm
Drop test:	1 m (IEC 68-2-32)
Shock resistance:	100 g 6 ms ½ period (IEC 68-2-27)
Vibration resistance:	5/15 Hz 1.5 mm; 15/25 Hz 1 mm; 25/55 Hz 0.25 mm; (IEC 68-2-6)
Self-extinguishing capability	Casing: UL94 V2 Jaws: UL94 V0

The technical drawing consists of two views of the device. The front view (top) shows a rectangular device with a width of 111 mm and a height of 216 mm. The side view (bottom) shows the device's profile with a width of 45 mm and a height of 216 mm. The device has a circular opening in the center of the front face and a rectangular opening on the side face.

SAFETY	
Electrical safety	Class II equipment with double or reinforced insulation between the primary and the secondary (winding connected to the connection cable) as per EN 61010-1 & EN 61010-2-032: - 1000V CAT III, pollution degree 2 - 600V ACT III, pollution degree 2 - Type-B sensor



PAC11TM

Pinza amperometrica ad effetto Hall per la misura di correnti continue ed alternate.

Amperometric clamp based on Hall effect to measure AC and DC currents.



La pinza PAC11 ad effetto Hall permette la misura di correnti Ac e DC.

La **capacità di serraggio** permette di misurare su conduttori con diametro fino a **30 mm** e piccole barre.

Il metodo ZeroDC semplificato ne rende l'uso particolarmente semplice e intuitivo.



The PAC11 is a Hall-effect current clamp for measuring direct and alternating currents.

This clamp has 2 scales for better measurement resolution and accuracy, it includes a simplified ZeroDC adjustment system and the possibility to deactivate the automatic standby function.

VERSATILE, SEMPLICE NELL'USO E POTENTE

- ✓ Utilizzabile su analizzatori della famiglia NanoVIP® senza necessità di alimentazione o amplificazione esterna.
- ✓ Dotata di sistema di riconoscimento automatico se utilizzata sui più recenti analizzatori della serie NanoVIP®: TWOTM, CUBETM e QUADRATM
- ✓ Progettata per la misura di correnti alternate fino a 400V e continue fino a 600V
- ✓ Doppia scala
- ✓ Resistente e affidabile
- ✓ Le ganasce possono afferrare conduttori fino a 30 mm di diametro.
- ✓ Dotata di un sistema di disattivazione dello stand-by automatico
- ✓ La precisione che offre su tutto il campo di misura le consente un utilizzo molto ampio (dal civile all'industriale)
- ✓ La conformazione ne permette un uso sicuro anche indossando i guanti di sicurezza
- ✓ Dispone opzionalmente di adattatori per l'utilizzo con analizzatori Elcontrol di vecchia generazione, cioè privi di riconoscimento automatico delle pinze

VERSATILE, EASY TO USE AND POWERFUL

- ✓ Can be used on NanoVIP® family analyzers without the need for external power supply or amplification.
- ✓ Equipped with automatic recognition system if used on the latest NanoVIP® series analyzers: TWOTM, CUBETM and QUADRATM
- ✓ Designed for the measurement of alternating currents up to 400V and direct currents up to 600V
- ✓ Double scale
- ✓ Robust and reliable
- ✓ The grippers can grip conductors up to 30 mm in diameter.
- ✓ Automatic stand-by can be bypassed
- ✓ The precision that it offers on the whole measuring range allows it a very wide use (from civil to industrial)
- ✓ The shape allows a safe use even when wearing safety gloves
- ✓ Optionally adapters are available to use it on older generation of Elcontrol analyzers, without automatic clamp recognition

Codice/Code	Descrizione / Description
4AABUS	PAC11 AC/DC

Caratteristiche tecniche

Technical details

ELECTRICAL SPECIFICATIONS ⁽¹⁾ :																							
Measured range	AC: 0,2 A up to 400A (600A peak) DC: 0,4 A up to 600A																						
Operating voltage	600V rms																						
Overload	2000A DC and 100A AC up to 1kHz																						
Accuracy and Phase shift	<table><tr><th>Calibre</th><th>60 A</th><th>600 A</th></tr><tr><td>Current range</td><td>0.2 A ... 40 A (60 A peak) 0.4 A ... 60 A DC</td><td>0.5 A ... 400 A (600 A peak) 0.5 A ... 600 A DC</td></tr><tr><td>Output signal</td><td>10 mV/A</td><td>1 mV/A</td></tr><tr><td>% Accuracy of output signal ⁽¹⁾</td><td>0.5 A ... 40 A: 1.5 % ± 5 mV 40 A ... 60 A DC: 1.5 %</td><td>0.5 A ... 100 A: 1.5 % ± 1 mV 100 A ... 400 A DC: 2 % 400 A ... 600 A DC: 2.5 %</td></tr><tr><td>Phase shift (45 ... 65 Hz) ⁽¹⁾</td><td>10 A ... 20 A: < 3° 20 A ... 40 A: < 2°</td><td>10 A ... 100 A: < 2° 100 A ... 400 A: < 1.5°</td></tr><tr><td>Noise</td><td>DC ... 1 kHz: < 8 mV DC ... 5 kHz: < 12 mV 0.1 Hz ... 5 kHz: < 2 mV</td><td>DC ... 1 kHz: < 1 mV DC ... 5 kHz: < 1.5 mV 0.1 Hz ... 5 kHz: < 500 µV</td></tr><tr><td>Rise/fall time</td><td>≤ 100 µs from 10 % to 90 % of the voltage value</td><td>≤ 70 µs from 10 % to 90 % of the voltage value</td></tr></table>		Calibre	60 A	600 A	Current range	0.2 A ... 40 A (60 A peak) 0.4 A ... 60 A DC	0.5 A ... 400 A (600 A peak) 0.5 A ... 600 A DC	Output signal	10 mV/A	1 mV/A	% Accuracy of output signal ⁽¹⁾	0.5 A ... 40 A: 1.5 % ± 5 mV 40 A ... 60 A DC: 1.5 %	0.5 A ... 100 A: 1.5 % ± 1 mV 100 A ... 400 A DC: 2 % 400 A ... 600 A DC: 2.5 %	Phase shift (45 ... 65 Hz) ⁽¹⁾	10 A ... 20 A: < 3° 20 A ... 40 A: < 2°	10 A ... 100 A: < 2° 100 A ... 400 A: < 1.5°	Noise	DC ... 1 kHz: < 8 mV DC ... 5 kHz: < 12 mV 0.1 Hz ... 5 kHz: < 2 mV	DC ... 1 kHz: < 1 mV DC ... 5 kHz: < 1.5 mV 0.1 Hz ... 5 kHz: < 500 µV	Rise/fall time	≤ 100 µs from 10 % to 90 % of the voltage value	≤ 70 µs from 10 % to 90 % of the voltage value
Calibre	60 A	600 A																					
Current range	0.2 A ... 40 A (60 A peak) 0.4 A ... 60 A DC	0.5 A ... 400 A (600 A peak) 0.5 A ... 600 A DC																					
Output signal	10 mV/A	1 mV/A																					
% Accuracy of output signal ⁽¹⁾	0.5 A ... 40 A: 1.5 % ± 5 mV 40 A ... 60 A DC: 1.5 %	0.5 A ... 100 A: 1.5 % ± 1 mV 100 A ... 400 A DC: 2 % 400 A ... 600 A DC: 2.5 %																					
Phase shift (45 ... 65 Hz) ⁽¹⁾	10 A ... 20 A: < 3° 20 A ... 40 A: < 2°	10 A ... 100 A: < 2° 100 A ... 400 A: < 1.5°																					
Noise	DC ... 1 kHz: < 8 mV DC ... 5 kHz: < 12 mV 0.1 Hz ... 5 kHz: < 2 mV	DC ... 1 kHz: < 1 mV DC ... 5 kHz: < 1.5 mV 0.1 Hz ... 5 kHz: < 500 µV																					
Rise/fall time	≤ 100 µs from 10 % to 90 % of the voltage value	≤ 70 µs from 10 % to 90 % of the voltage value																					
Bandwidth	DC ... 10 kHz at -3dB																						
Common mode voltage	600 V rms																						
Influence of adjacent conductor:	< 10mA/A at 50 Hz																						
Influence of conductor position in jaws:	0.5 % of the reading																						
Influence of DC current >20A overlying on the nominal current:	< 1% of output signal for a current ≤ 30A DC																						
Battery	9V alkaline																						
Battery lasting time	50 hours																						
⁽¹⁾ Conditions of reference	23 °C ± 5 °K, 20% to 75% RH Continuous external DC magnetic field (earth field) < 40 A/m Absence of external AC magnetic field External electrical field < 1 V/m Position of conductor measured: centred in the measurement coil Shape of measurement coil: quasi-circular Measurement instrument input impedance (oscilloscope) ≥ 1 MΩ Frequency and form of signal measured: 40 to 400 Hz sinusoidal																						

B102TM

La pinza B102 viene impiegata per la misurazione delle correnti di dispersione.

The B102 clamp is designed for measuring leakage current diverted towards the earth.



La pinza B102 viene impiegata per la **misurazione delle correnti di dispersione**.

Consente di localizzare il guasto o di anticiparlo, senza scollegare le apparecchiature collegate.

È stata realizzata in particolare per individuare le **correnti deboli di guasto** sui circuiti di potenza.



The B102 clamp is designed for measuring leakage current diverted towards the earth.

It enables the fault to be located or anticipated without disconnecting the equipment linked.

It is specially designed to detect low fault currents on power circuits.

VERSATILE, SEMPLICE NELL'USO E POTENTE

- ✓ Utilizzabile su analizzatori della famiglia NanoVIP® senza necessità di alimentazione o amplificazione esterna.
- ✓ Progettato per la misura di correnti deboli di dispersione
- ✓ Resistente e affidabile
- ✓ Le ganasce possono afferrare conduttori fino a 115 mm di diametro.
- ✓ Utilizzo su sistemi monofase o trifase, con correnti in fase o non in fase e su circuiti equilibrati o no
- ✓ La conformazione ne permette un uso sicuro anche indossando i guanti di sicurezza

VERSATILE, EASY TO USE AND POWERFUL

- ✓ Can be used on NanoVIP® family analyzers without the need for external power supply or amplification.
- ✓ Designed for the measurement of leakage currents
- ✓ Robust and reliable
- ✓ The grippers can grip conductors up to 115 mm in diameter.
- ✓ used on single or multi-phase systems, with phased or unphased currents and on balanced or unbalanced circuits
- ✓ The shape allows a safe use even when wearing safety gloves

Codice/Code	Descrizione / Description
4AADM	B102

Caratteristiche tecniche

Technical details

ELECTRICAL SPECIFICATIONS ⁽¹⁾ :																												
Measured range	4A rating: 0,5 mA up to 4A 400A rating: 0,5 mA up to 400A																											
Operating voltage	600V rms																											
Overload	2000A DC and 100A AC up to 1kHz																											
Accuracy and Phase shift	4A rating <table border="1"><thead><tr><th>I_p</th><th>0.5 mA to 10 mA</th><th>10 mA to 100 mA</th><th>100 mA to 4A</th></tr></thead><tbody><tr><td>Intrinsic error</td><td>3% + 1 mV</td><td>0.5 % + 0.5 mV</td><td>0.5 % + 0.5 mV</td></tr><tr><td>Dephasing</td><td>Not specified</td><td>< 15°</td><td>< 10°</td></tr></tbody></table> 400A rating <table border="1"><thead><tr><th>I_p</th><th>0.5 A to 10A</th><th>10A to 100A</th><th>100A to 400A</th></tr></thead><tbody><tr><td>Intrinsic error</td><td>0.5% + 0.5 mV</td><td>0.35% + 0.5 mV</td><td>0.35% + 1 mV</td></tr><tr><td>Dephasing</td><td>Not specified</td><td>< 60°</td><td>< 40°</td></tr></tbody></table>				I _p	0.5 mA to 10 mA	10 mA to 100 mA	100 mA to 4A	Intrinsic error	3% + 1 mV	0.5 % + 0.5 mV	0.5 % + 0.5 mV	Dephasing	Not specified	< 15°	< 10°	I _p	0.5 A to 10A	10A to 100A	100A to 400A	Intrinsic error	0.5% + 0.5 mV	0.35% + 0.5 mV	0.35% + 1 mV	Dephasing	Not specified	< 60°	< 40°
I _p	0.5 mA to 10 mA	10 mA to 100 mA	100 mA to 4A																									
Intrinsic error	3% + 1 mV	0.5 % + 0.5 mV	0.5 % + 0.5 mV																									
Dephasing	Not specified	< 15°	< 10°																									
I _p	0.5 A to 10A	10A to 100A	100A to 400A																									
Intrinsic error	0.5% + 0.5 mV	0.35% + 0.5 mV	0.35% + 1 mV																									
Dephasing	Not specified	< 60°	< 40°																									
Output/input ratio	1 mV AC / A AC																											
Overloads	I _p limit current: permanent 400 AC RMS Peak current: < 1000A. Permissible transient di/dt: ≤30 A/μs. Conductor temperature: ≤ 70°C with a maximum peak of 90°C.																											
Frequency	From 48 Hz to 1 kHz.																											
⁽¹⁾ Conditions of reference	23 °C ± 5 °K, 20% to 75% RH Continuous external DC magnetic field (earth field) < 40 A/m Absence of external AC magnetic field External electrical field < 1 V/m Position of conductor measured: centred in the measurement coil Shape of measurement coil: quasi-circular Measurement instrument input impedance (oscilloscope) ≥ 1 MΩ Frequency and form of signal measured: 40 to 400 Hz sinusoidal																											

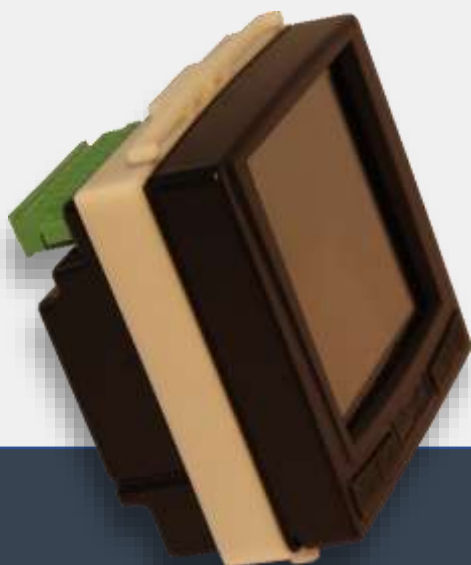
Analizzatori da quadro

Panel Analyzers

Polar EnergyTM

Analizzatore di Energia da quadro 96x96, ideale per la misura e il monitoraggio delle reti elettriche in bassa e media tensione.

Energy Analyzer from 96x96 frame, ideal for measuring, monitoring of electrical networks in low and medium voltage.



Polar Energy (successore dell'analizzatore di energia Elcontrol VIP396) è uno strumento multifunzionale da pannello (96x96mm.), ideale per la misura, la visualizzazione e monitoraggio remoto delle grandezze elettriche.

Può essere utilizzato su reti **monofase, bifase, trifase** in bassa e media tensione. Le funzionalità evolute lo rendono uno strumento adatto alle esigenze più gravose.



Polar Energy (successor to the Elcontrol VIP396 energy analyzer) is a multifunctional panel instrument (96x96mm), ideal for measurement, display and remote monitoring of electrical parameters.

It can be used on **single-phase, two-phase, three-phase** low and medium voltage networks. Its advanced features make it a tool suitable for the most demanding needs

POTENTE E FLESSIBILE

- ✓ Ridotti ingombri in profondità nel pannello
- ✓ Frontale IP65
- ✓ Alimentazione switching 90/230 Vac e 90/300 Vdc (+ opzione 24-48 Vdc)
- ✓ Analisi dei parametri di qualità dell'energia
- ✓ Scalabile grazie alle opzioni plug & play da inserire posteriormente
- ✓ 3 canali di misurazione della tensione fino a 600V CAT III con la precisione dello 0,25%
- ✓ 4 distinti ingressi di corrente (3 + 1 per la corrente di neutro), con la precisione dello 0,25%, con 4 TA interni per un migliore isolamento elettrico;
- ✓ 6 diversi sistemi elettrici analizzabili (monofase; bifase; trifase a 3 fili sbilanciato; trifase a 4 fili sbilanciato; trifase a 3 fili equilibrato; trifase a 4 fili equilibrato)
- ✓ Utilizzabile in reti con frequenze 40-70Hz e 400Hz
- ✓ Multilingua
- ✓ Display customizzabile, scegliendo quali grandezze visualizzare a rotazione nella parte inferiore e ruotandolo di 90° in funzione della comodità di lettura

MEASUREMENT

EASINESS OF USE

PRECISION,

- ✓ Reduced dimensions in depth inside the panel
- ✓ IP65 front panel
- ✓ Switching power supply 90/230 and 90/300 Vac Vdc (+ 24-48 Vdc option)
- ✓ Scalable thanks to the plug & play options to insert posteriorly
- ✓ 3 measuring channels of voltage up to 600V CAT III with the precision of 0.5%
- ✓ 4 distinct current inputs, with 0.5% accuracy
- ✓ 6 different electrical systems analyzed (single-phase, two-phase, three-phase 3-wire unbalanced, three-phase 4-wire unbalanced, balanced three-phase 3-wire, three-phase 4-wire balanced)
- ✓ It can be applied on systems with 40 – 70 Hz and 400Hz frequency
- ✓ Multilingual
- ✓ Customizable display, choosing which values display in rotation in the lower part and rotating it 90° in relation to the comfort of reading

Codice/Code	Descrizione / Description
4BAAA	Polar Energy
4BAAB	Polar Energy + 485
4BAAC	Polar Energy + 485 + ALM

Caratteristiche tecniche

Technical details

ENCLOSURE:	
Sizes	96x96x58 mm 96x96x96 mm (with option modules)
Overall dimensions inside the board	96x105x40 mm 96x105x77 mm (with option modules)
Material	ABS with V0 self-extinguish rating
Protection rating	IP65 (at the front), IP30 (at the back)
Weight	320 g + 35 g for each option
DISPLAY:	
Type	LCD dot matrix (graphic type) 128x128 FSTN negative
Backlight	White LED
Languages	English, Spanish, Italian, German, French
KEYPAD:	
Type	4 keys
Material	Silicone
CONNECTIONS:	
Supply and voltages	Removable terminals with retaining screws
Currents	Removable terminals with retaining screws
POWER SUPPLY:	
AC	90-230V $\pm 10\%$ 50 - 60 Hz 8VA
DC	90-300V $\pm 10\%$ 8W
DC (with dedicated option)	12-24V $\pm 10\%$
DC (with dedicated option)	48-60V $\pm 10\%$
Consumption	5VA
Wire section	2.5mm ²
MEASURES:	
Refresh interval of video data	1 sec.
Type of possible connection	Three-phase (with 3 or 4 leads), two-phase (with 2 leads) and single-phase network
Type of network that can be connected	Low and Mean Voltage (LV)
VOLTAGE (TRMS)	
Available frequencies	From 40 Hz to 70 Hz and 400 Hz
Channels	3 channels with common neutral
Input impedance	4 Mohm
Direct measure	Phase-phase: 17-700VAC 40-70Hz, 400Hz Phase-neutral: 10-400VAC 40-70Hz, 400Hz
Measure through VT	Ratio: 1-60000 Max. value displayed: 20 MV
Permanent overload	800VAC
Sensitivity	10V Phase-neutral, 17 Phase-phase
Wire section	2.5mm ²
CURRENT (TRMS)	
Channels	4 independent channels with shunt
Input consumption	<1VA
Scales	2
Direct measure	N/A
Maximum measurable current	8A
Measure through CT	Ratio: 1-60000 Max. value displayed: 500KA
Permanent overload	10A
Intermittent overload	50A 1 sec

Polar EnergyTM

Sensitivity	10mA
Wire section	2.5mm ²
POWERS	
Single phase power	Values < 999 GW, Gvar, GVA
Total powers	Values < 999 GW, Gvar, GVA
ENERGY COUNTERS	
Max. value before reset	99999999 kWh, kvarh, kVAh
ACCURACY	
Voltages	±0.25% + 0.05%FS
Currents	±0.25% + 0.05%FS
Powers	±0.5% + 0.05%FS
Power Factor (PF)	±0.5° (from 40 Hz up to 50 Hz)
Frequency	±0.01 Hz (40 - 70Hz, 400 Hz)
Active energy count (kW)	Class 0.5
Reactive energy count (kVar)	Class 1
CONDITIONS OF USE:	
Operating temperature	from -10 to +55 °C
Storage temperature	from -20 to +85 °C
Relative humidity	Max 95%
Maximum operation altitude (a.s.l.)	2,000 m
EC COMPLIANCE:	
Directives	93/68/EEC (LV 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)
REFERENCE STANDARDS:	
Safety	EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326 EN 61326/A1 EN 61326/A2 EN 61326/A3
Mechanical dimensions	IEC 61554 (ex DIN 43700)
Temperature	IEC 60068-2-1 (operating temperature) IEC 60068-2-2 (storage temperature)
Vibrations	IEC 60068-2-6
Humidity	IEC 60068-2-30 (humidity)
Overload	IEC 60947-1

Caratteristiche tecniche

Technical details

Polar StarTM (Base/Top)

Analizzatore di Energia da quadro 96x96, ideale per la misura e il monitoraggio delle reti elettriche in bassa e media tensione.

Energy Analyzer from 96x96 frame, ideal for measuring, monitoring of electrical networks in low and medium voltage.



Polar Star è uno strumento multifunzionale da pannello (96x96mm.), ideale per la misura, la visualizzazione e monitoraggio remoto delle grandezze elettriche.

Può essere utilizzato su reti **monofase, bifase, trifase in bassa e media tensione**. Le funzionalità evolute e il software di analisi in dotazione lo rendono uno strumento adatto alle esigenze professionali più gravose..



Polar Star is a multifunctional panel instrument (96x96mm), ideal for measurement, display and remote monitoring of electrical parameters.

It can be used on **single-phase, two-phase, three-phase** low and medium voltage networks. Its advanced features make it a tool suitable for the most demanding needs.

POTENTE E FLESSIBILE

- ✓ Ridotti ingombri in profondità nel pannello
- ✓ Frontale IP65
- ✓ Alimentazione switching 90/230 Vac e 90/300 Vdc (+ opzione 24-48 Vdc)
- ✓ Analisi dei parametri di qualità dell'energia
- ✓ Scalabile grazie alle opzioni plug & play da inserire posteriormente
- ✓ 3 canali di misurazione della tensione fino a 600V CAT III con la precisione dello 0,25%
- ✓ 4 distinti ingressi di corrente (3 + 1 per la corrente di neutro), con la precisione dello 0,25%, con 4 TA interni per un migliore isolamento elettrico;
- ✓ 6 diversi sistemi elettrici analizzabili (monofase; bifase; trifase a 3 fili sbilanciato; trifase a 4 fili sbilanciato; trifase a 3 fili equilibrato; trifase a 4 fili equilibrato)
- ✓ Utilizzabile in reti con frequenze 40-70Hz e 400Hz
- ✓ Multilingua
- ✓ Display customizzabile, scegliendo quali grandezze visualizzare a rotazione nella parte inferiore e ruotandolo di 90° in funzione della comodità di lettura

MEASUREMENT EASINESS OF USE

PRECISION,

- ✓ Reduced dimensions in depth inside the panel
- ✓ IP65 front panel
- ✓ Switching power supply 90/230 and 90/300 Vac Vdc (+ 24-48 Vdc option)
- ✓ Scalable thanks to the plug & play options to insert posteriorly
- ✓ 3 measuring channels of voltage up to 600V CAT III with the precision of 0.5%
- ✓ 4 distinct current inputs, with 0.5% accuracy
- ✓ 6 different electrical systems analyzed (single-phase, two-phase, three-phase 3-wire unbalanced, three-phase 4-wire unbalanced, balanced three-phase 3-wire, three-phase 4-wire balanced)
- ✓ It can be applied on systems with 40 – 70 Hz and 400Hz frequency
- ✓ Multilingual
- ✓ Customizable display, choosing which values display in rotation in the lower part and rotating it 90° in relation to the comfort of reading

Codice/Code	Descrizione / Description
4ABAA	PolarStar Base
4ABAB	PolarStar Top
4ABAC	Polar Star Top + 485
4A485	Option 485
4AALM	Option Alarms
4ADIN	Option Digital Inputs

Caratteristiche tecniche

Technical details

ENCLOSURE:	
Sizes	96x96x58 mm 96x96x96 mm (with option modules)
Overall dimensions inside the board	96x105x40 mm 96x105x77 mm (with option modules)
Material	ABS with V0 self-extinguish rating
Protection rating	IP65 (at the front), IP30 (at the back)
Weight	320 g + 35 g for each option
DISPLAY:	
Type	LCD dot matrix (graphic type) 128x128 FSTN negative
Backlight	White LED
Languages	English, Spanish, Italian, German, French
KEYPAD:	
Type	4 keys
Material	Silicon
CONNECTIONS:	
Supply and voltages	Removable terminals with retaining screws
Currents	Removable terminals with retaining screws
POWER SUPPLY:	
AC	90-230V $\pm 10\%$ 50 - 60 Hz 8VA
DC	90-300V $\pm 10\%$ 8W
DC (with dedicated option)	12-24V $\pm 10\%$
DC (with dedicated option)	48-60V $\pm 10\%$
Consumption	5VA
Wire section	2.5mm ²
MEASURES:	
Refresh interval of video data	1 sec.
Type of possible connection	Three-phase (with 3 or 4 leads), two-phase (with 2 leads) and single-phase network
Type of network that can be connected	Low and Mean Voltage (LV)
VOLTAGE (TRMS)	
Available frequencies	From 40 Hz to 70 Hz and 400 Hz
Channels	3 channels with common neutral with shunt (BASE) 4 indep. channels with internal 5A CTs (TOP)
Input impedance	4 Mohm
Direct measure	Phase-phase: 17-700VAC 40-70Hz, 400Hz Phase-neutral: 10-400VAC 40-70Hz, 400Hz
Measure through VT	Ratio: 1-60000 Max. value displayed: 20 MV
Permanent overload	800VAC
Sensitivity	10V Phase-neutral, 17 Phase-phase
Wire section	2.5mm ²
CURRENT (TRMS)	
Channels	4 independent channels with shunt
Input consumption	<1,0 VA (BASE) <0,5 VA (TOP)
Scales	2 (BASE) 3 (TOP)
Direct measure	N/A (BASE) 5A (TOP)
Maximum measurable current	8A

Polar Star™ (Base/Top)

Measure through CT	Ratio: 1-60000 Max. value displayed: 500KA
Permanent overload	10A
Intermittent overload	50A 1 sec
Sensitivity	10mA
Wire section	2.5mm²
POWERS	
Single phase power	Values < 999 GW, Gvar, GVA
Total powers	Values < 999 GW, Gvar, GVA
ENERGY COUNTERS	
Max. value before reset	99999999 kWh, kvarh, kVAh
ACCURACY	
Voltages	±0.25% + 0.05%FS
Currents	±0.25% + 0.05%FS
Powers	±0.5% + 0.05%FS
Power Factor (PF)	±0.5° (from 40 Hz up to 50 Hz)
Frequency	±0.01 Hz (40 - 70Hz, 400 Hz)
Active energy count (kW)	Class 0.5
Reactive energy count (kVar)	Class 1
CONDITIONS OF USE:	
Operating temperature	from -10 to +55 °C
Storage temperature	from -20 to +85 °C
Relative humidity	Max 95%
Maximum operation altitude (a.s.l.)	2,000 m
EC COMPLIANCE:	
Directives	93/68/EEC (LV 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)
REFERENCE STANDARDS:	
Safety	EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326 EN 61326/A1 EN 61326/A2 EN 61326/A3
Mechanical dimensions	IEC 61554 (ex DIN 43700)
Temperature	IEC 60068-2-1 (operating temperature) IEC 60068-2-2 (storage temperature)
Vibrations	IEC 60068-2-6
Humidity	IEC 60068-2-30 (humidity)
Overload	IEC 60947-1

Caratteristiche tecniche

Technical details

SIRIO™

Analizzatore/Contatore da quadro 4 moduli DIN, dotato di comunicazione RS485.

4 modules rail DIN power analyzer/counter, with RS485 communication.



SIRIO™ è uno strumento **4 moduli DIN** multifunzionale a basso costo, ideale per la misurazione, la visualizzazione e la **trasmissione remota** dei parametri elettrici più importanti.

SIRIO™ può essere installato in sistemi squilibrati monofase e trifase a triangolo o a stella.

Include **due relay di output** configurabili come allarme, contatto o controllo remoto.

EN SIRIO™ is a cost-effective multi-function meter in a **4 DIN module**, ideal for measurement, display and transmission of the most important electrical parameters.

Sirio can be installed in single phase and three-phase unbalanced systems in a triangle or in a star layout.

It includes **two relay outputs**, user-configurable for alarms, pulse or remote control.

UN POTENTE E VERSATILE STRUMENTO DI MISURA

- ✓ Oltre 40 misure disponibili in rete
- ✓ RS485: Porta seriale multi-protocollo RS485 supportante
- ✓ Protocolli Modbus RTU (BCD ed IEEE) e Modbus ASCII
- ✓ Uscite a relè: possono essere regolate per la segnalazione di allarmi, la generazione di impulsi o per il controllo a distanza mediante la porta RS485
- ✓ I relé sono tarabili per una soglia massima e minima; possono essere impostati sia l'isteresi, sia il tempo di ritardo
- ✓ Funzione "Allarme" associabile a diverse misure per essere usata come funzione di disinnesto per i MCB esterni
- ✓ Modalità "Pulse" dei relé che permette di generare impulsi proporzionali alla misura associata
- ✓ Modalità "Remote Control" per decidere la posizione dei relé tramite un dispositivo matrice esterno (PLC, PC, ecc), attraverso la linea RS485. Molto conveniente per l'applicazione di controllo del carico remoto
- ✓ Particolarmente indicato per le reti di misura estese

A POWERFUL AND VERSATILE TOOL

- ✓ More than 40 sizes available on the net
- ✓ RS485: Serial port multi-protocol RS485 which supports the protocols Modbus RTU (BCD and IEEE) and Modbus ASCII
- ✓ Relay outputs: can be set for either alarm signaling, pulses generation or to be remotely controlled via the RS485 port.
- ✓ The relays are calibrated by a maximum and minimum threshold; They can be set in both the hysteresis and the delay time.
- ✓ Function "Alarm" associable with different sizes to be used as a disengagement function for external MCB.
- ✓ Mode "Pulse" relay that allows you to generate pulses proportional the associated measure.
- ✓ Mode "Remote Control" to decide the position of the relays via an external master device (PLC, PC, etc) through the RS485 line. Very convenient for the application of the remote load control.
- ✓ Ideal as remote device for monitoring networks

Codice/Code	Descrizione / Description
4AAX4A	SIRIO

Caratteristiche tecniche

Technical details

CASE:	
Dimensions	70x58x90mm
Material	ABS with self-extinguishing V0 grade
Protection class	IP20, front panel IP30
Weight	400 g
DISPLAY:	
Type	LCD 128 segments
KEYPAD:	
Type	Membrane keypad with 3 keys
POWER SUPPLY:	
Power supply	230 or 115VAC $\pm 10\%$; 35 \div 400 Hz
Consumption	3VA
Duration of the battery charge	>24h (wireless off)
CONNECTING SYSTEMS:	
Systems frequencies	35 \div 400 Hz
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	50Vac phase-neutral; 450Vac phase-neutral
Input impedance	2 Mohm
Current inputs	5A (external TA required); 1 VA
Max input currents	7 A permanent; 15 A 1 second
MEASURES:	
Traditional electrical analysis	T.R.M.S. up to 25th harmonic
PRECISIONS:	
Voltage	0,01
Current	0,01
Powers	2% (Class 2 IEC 1036)
OUTPUTS:	
Communication	RS485, Modbus RTU (BCD ed IEEE) e Modbus ASCII
Digital outputs	1 electronic relay 120mA/100VAC
	1 electromechanic relay 1A/250VAC
OPERATING CONDITIONS:	
Operating temperature	-10 to +60 °C
Relative humidity	Max 80%
NORMS:	
Directives	93/68/CEE
	2004/108/CE (EMC)
	72/23/CEE (LVD)
Safety	EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326, EN 61326/A1, EN 61326/A2, EN 61326/A3
	EN 61000-6-2, EN 61000-6-3,
	EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2,
	EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1,
	EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1,
	EN 61000-4-11, EN 61000-4-11/A1

STAR3 DINTM

STAR3 DIN è un analizzatore di energia da pannello di alta qualità in grado di fornire caratteristiche brillanti ed un prezzo molto competitivo.

STAR3 DIN is a reliable, professional and low cost solution for electrical panels, sub metering systems and OEM applications.



STAR3 DINTM offre un ampio spettro di parametri misurati compreso il THD%, la possibilità del multi-protocol della porta RS485 e una precisione classe 0.5%.

E' una soluzione professionale, perfetta per i quadri elettrici, i sistemi di monitoraggio, le applicazioni bordo macchina così come per i sistemi di supervisione e di automazione..



STAR3 DINTM is an high quality panel energy analyser provides brilliant features at a competitive price. The bright LCD display, the harmonic analysis, the wide set of measured parameters including the TDH (available in all the models), the multi-protocol capability of the RS485 port and the high accuracy class 0.5% allow to consider STAR3 DIN a very convenient option for panel analyzers.

POTENTE, VERSATILE ED ECONOMICO

- ✓ Oltre 40 misure disponibili in rete
- ✓ RS485: Porta seriale multi-protocollo RS485 supportante protocolli Modbus RTU (BCD ed IEEE) e Modbus ASCII
- ✓ 1 uscita digitale per allarmi, impulsi e controllo a distanza.
- ✓ I relé sono tarabili per una soglia massima e minima; possono essere impostati sia l'isteresi, sia il tempo di ritardo
- ✓ La funzione "ALLARME" può essere associata con le misure più importanti compreso V, A, W, THD% e le armoniche. Ogni relé è tarabile per una soglia massima e una soglia minima, le isteresi ed il tempo di ritardo. Usati nel modo "pulse" i relé generano degli impulsi proporzionali alle misure collegate. Egualmente in questo caso il comportamento è regolabile con il menu di setup. In "remote control" la posizione del relé è decisa da un dispositivo matrice esterno (PLC, PC, ECC) attraverso la linea Rs485. Ciò è molto conveniente per l'applicazione di eliminazione del carico.
- ✓ Modalità "Pulse" dei relé che permette di generare impulsi proporzionali alla misura associata
- ✓ Lo STAR3 DIN è conforme alle direttive IEC 1010-1 430 V per Cat. III e livello di protezione 2 secondo IEC 664-664 A. per quanto riguarda la sicurezza degli operatori.

MANY RELIABLE PARAMETERS

- ✓ Over 40 measures available on the net
- ✓ RS485: RS485 multi-protocol serial port supporting Modbus RTU (BCD and IEEE) and Modbus ASCII protocols
- ✓ 1 digital output for alarms, pulses and remote control.
- ✓ The relays can be calibrated for a maximum and minimum threshold; both the hysteresis and the time can be set
- ✓ The "ALARM" function can be associated with the most important measurements including V, A, W, THD% and harmonics. Each relay can be set for a maximum and minimum threshold, the hysteresis and the delay time. Used in the "pulse" mode, the relays generate pulses proportional to the connected measurements. Also in this case the behavior is adjustable with the setup menu. In "remote control" the position of the relay is decided by an external matrix device (PLC, PC, ECC) through the Rs485 line. This is very convenient for load elimination application.
- ✓ "Pulse" mode of the relays which allows generating pulses proportional to the associated measurement
- ✓ The STAR3 DIN complies with the IEC 1010-1 430 V for Cat. III directives and protection level 2 according to IEC 664-664 A. with regard to operator safety.

Codice/Code	Descrizione / Description
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4AAWI	STAR3 DIN
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Caratteristiche tecniche

Technical details

CASE:	
Dimensions	157.5x58x90mm (9 modules)
Material	ABS with self-extinguishing V0 grade
Protection class	IP20, font panel IP40
Weight	600 g
DISPLAY:	
Type	LCD dot matrix
KEYPAD:	
Type	Membrane keypad with 3 keys
POWER SUPPLY:	
Power supply	230 or 115VAC $\pm 15\%$; 50/60 Hz
Consumption	4VA
CONNECTING SYSTEMS:	
Systems frequencies	35 ÷ 400 Hz
Mono phase	✓
Two phases	✓
Three-phase, 3-wires, balanced	✓
Three-phase, 3-wires, unbalanced	-
4-phase, 4-wires, balanced	✓
4-phase, 4-wires, unbalanced	-
CONNECTIONS:	
Voltages	430Vac phase-neutral, 600Vac phase-phase
Voltage input overload	850Vac phase-neutral
Input impedance	2 Mohm
Current inputs	5A (external TA required); 1 VA
Max input currents	7 A permanent; 15 A 1 second
Scales	1 voltage scale; 2 current scales
MEASURES:	
Traditional electrical analysis	T.R.M.S. up to 25th harmonic (50 Hz)
PRECISIONS:	
Voltage	0,01
Current	0,01
Powers	2% (Class 2 IEC 1036)
OUTPUTS:	
Communication	RS485, Modbus RTU (BCD and IEEE) and Modbus ASCII
Digital outputs	1 electromechanic relay 1A/250VAC
OPERATING CONDITIONS:	
Operating temperature	-10 to +50 °C
Relative humidity	Max 80%
NORMS:	
Directives	93/68/CEE 2004/108/CE (EMC) 72/23/CEE (LVD)
Safety	EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326, EN 61326/A1, EN 61326/A2, EN 61326/A3 EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1

VIP ENERGY 2K8™

Analizzatore di energia da pannello di alta qualità su guida DIN con una precisione classe 0.5%.

Powerful DIN rail power quality analyzer with a competitive price and a 0.5% precision range.



VIP ENERGY 2K8 è una soluzione professionale, perfetta per i quadri elettrici, i sistemi di monitoraggio, le applicazioni bordo macchina così come per i sistemi di supervisione e di automazione.

Include un display LCD, analisi armonica, un ampio set di parametri misurati incluso il TDH (disponibile in tutti i modelli), la comunicazione multiprotocollo della porta RS485 con una classe di precisione 0,5%.



VIP ENERGY 2K8 is a reliable, professional and low cost solution for electrical panels, sub metering systems and OEM applications.

It includes a bright LCD display, harmonic analysis, a wide set of measured parameters including the TDH (available in all the models), the multi-protocol capability of the RS485 port and the high accuracy class 0.5%.

ECONOMICO E VERSATILE

- ✓ 9 moduli din.
- ✓ Misure in vero valore efficace-RMS.
- ✓ Visualizzazioni di 215 misure
- ✓ Analisi armonica delle tre fasi fino alla venticinquesima.
- ✓ Per sistemi trifase squilibrato a triangolo o stella, bifase o monofase.
- ✓ Alta precisione: errore di tensione, corrente e potenza 0,5%.
- ✓ Display LCD a matrice di punti per istogramma dello spettro armonico.
- ✓ Fattore di distorsione armonica totale per fase.
- ✓ Porta di comunicazione RS485, protocollo di comunicazione Modbus ASCII, RTU o IEEE.
- ✓ In aggiunta alle misure comunemente conosciute, il VIP ENERGY 2K8 introduce parecchie misure avanzate che sono di solito disponibili in strumenti ad alto costo.
- ✓ La corrente di neutro da informazioni sulle condizioni del cavo neutro, spesso sovraccaricato come conseguenza di carichi sbilanciati ed armonici.
- ✓ Misura RMS della corrente di neutro.

VERSATILE POWER ANALYZER

- ✓ 9 modules din.
- ✓ Measurements in true RMS-effective value.
- ✓ Views of 215 measures
- ✓ Harmonic analysis of the three phases up to the twenty-fifth.
- ✓ Unbalanced three-phase systems in delta or star, two-phase or single-phase.
- ✓ High precision: voltage error, current and power 0.5%.
- ✓ Dot matrix LCD display for graphical histogram of the harmonic spectrum.
- ✓ Total harmonic distortion factor per phase.
- ✓ RS485 communication port: Modbus ASCII, RTU or IEEE communication protocol.
- ✓ In addition to the commonly known measures, the VIP ENERGY 2K8 introduces several advanced measures that are usually available in high-cost instruments.
- ✓ The neutral current gives information on the conditions of the neutral cable, often overloaded as a consequence of unbalanced and harmonious loads.
- ✓ RMS measurement of neutral current.

Codice/Code

Descrizione / Description

4A2K8

VIP ENERGY 2k(

Caratteristiche tecniche

Technical details

CASE:	
Dimensions	157.5x58x90mm (9 modules)
Material	ABS with self-extinguishing V0 grade
Protection class	IP20, front panel IP40
Weight	600 g
DISPLAY:	
Type	LCD dot matrix
KEYPAD:	
Type	Membrane keypad with 3 keys
POWER SUPPLY:	
Power supply	230 or 115VAC $\pm 15\%$; 50/60 Hz
Consumption	4VA
CONNECTING SYSTEMS:	
Systems frequencies	35 ÷ 400 Hz
Mono phase	✓
Two phases	✓
Three-phase, 3-wires, balanced	✓
Three-phase, 3-wires, unbalanced	✓
4-phase, 4-wires, balanced	✓
4-phase, 4-wires, unbalanced	✓
CONNECTIONS:	
Voltages	430Vac phase-neutral, 600Vac phase-phase
Voltage input overload	850Vac phase-neutral
Input impedance	2 Mohm
Current inputs	5A (external TA required); 1 VA
Max input currents	7 A permanent; 50 A 1 second
Scales	1 voltage scale; 2 current scales
MEASURES:	
Traditional electrical analysis	T.R.M.S. up to 25th harmonic (50 Hz)
PRECISIONS:	
Voltage	0,01
Current	0,02
Powers	0.5%
OUTPUTS:	
Communication	RS485, Modbus RTU (BCD and IEEE) and Modbus ASCII
Digital outputs	1 electromechanic relay 100VAC max, 120mA AC max
OPERATING CONDITIONS:	
Operating temperature	-10 to +50 °C
Relative humidity	Max 80%
NORMS:	
Directives	93/68/CEE 2004/108/CE (EMC) 72/23/CEE (LVD)
Safety	EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326, EN 61326/A1, EN 61326/A2, EN 61326/A3 EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1

DMM3™

Strumento multifunzionale in un contenitore 9 moduli DIN, ideale per la misurazione e la visualizzazione dei parametri elettrici.

9 DIN module multi-functional instrument ideal for the measurement and display of electrical parameters.



I grandi e chiari display a Led sono di grandissima visibilità in qualsiasi condizione di luce. DMM3 visualizza fino a 28 parametri e può essere installato in sistemi Monofase, Bifase e Trifase a Triangolo o a Stella, tramite robusti morsetti da 2.5 mm². Il funzionamento è semplice ed immediato.

Il setup può essere protetto da password.



The large and clear LED displays are easily read under any lighting condition. DMM3 displays up to 28 parameters (see table) and is suitable for single-phase, two-phase, three-phase Star and three-phase Delta installation, via sturdy 2,5mm² terminals.

Operation is simple and straightforward.

ECONOMICO E ROBUSTO

- ✓ Controllo con solo tre tasti
- ✓ Sostituisce da solo molti strumenti tradizionali in un unico apparecchio digitale.
- ✓ Ottima precisione ed affidabilità.
- ✓ Costi ridotti grazie ad un'installazione semplice.
- ✓ Elevato rapporto Qualità/Prezzo
- ✓ Strumento in vero RMS: prestazioni superiori in caso di forte distorsione.
- ✓ Uscite opzionali:
 - Modbus RS485
 - Lonworks FTT10A
 - Uscita a relé
 - Uscite analogiche

ROBUST AND VERSTAILE

- ✓ Controlled with just three buttons
- ✓ Replaces many traditional instruments with one single digital package
- ✓ Improved accuracy and reliability
- ✓ Simple installation reducing costs
- ✓ Competitive pricing
- ✓ TrueRMS instrument: Superior performance on distorted waveforms
- ✓ Optional Outputs:
 - Modbus RS485
 - Lonworks FTT10A
 - Relay output
 - Analogue outputs

Codice/Code	Descrizione / Description
4AAVC	DMM3
4AAVQ	DMM3 4..20mA
4AAWF	DMM3 485 ALM

Caratteristiche tecniche

Technical details

CASE:	
Dimensions	157.5x58x90mm (9 modules)
Material	ABS with self-extinguishing V0 grade
Protection class	IP20, font panel IP40
Weight	600 g
DISPLAY:	
Type	LED 7 segments
KEYPAD:	
Type	Membrane keypad with 3 keys
POWER SUPPLY:	
Power supply	230 or 115VAC ±15%; 50/60 Hz
Consumption	4VA
CONNECTING SYSTEMS:	
Systems frequencies	35 ÷ 400 Hz
Mono phase	✓
Two phases	✓
Three-phase, 3-wires, balanced	✓
Three-phase, 3-wires, unbalanced	✓
4-phase, 4-wires, balanced	✓
4-phase, 4-wires, unbalanced	✓
CONNECTIONS:	
Voltages	430Vac phase-neutral, 600Vac phase-phase
Voltage input overload	850Vac phase-neutral
Input impedance	2 Mohm
Current inputs	5A (external TA required);1 VA
Max input currents	7 A permanent
Scales	1 voltage scale; 2 current scales
MEASURES:	
Traditional electrical analisys	T.R.M.S. up to 25 th harmonic (50 Hz), 24 th harmonic (60 Hz)
PRECISIONS:	
Voltage	1%
Current	1%
Powers	1%
OUTPUTS:	
Communication	RS485, Modbus RTU (BCD and IEEE) and Modbus ASCII
Digital outputs	1 electromechanic relay 100VAC max, 120mA AC max
OPERATING CONDITIONS:	
Operating temperature	-10 to +60 °C
Relative humidity	Max 80%
NORMS:	
Directives	93/68/CEE 2004/108/CE (EMC) 72/23/CEE (LVD)
Safety	EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326, EN 61326/A1, EN 61326/A2, EN 61326/A3 EN 61000-6-2, EN 61000-6-3, EN 61000-3-2, EN 61000-3-3, EN 61000-3-3/A1, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-5/A1, EN 61000-4-6, EN 61000-4-6/A1, EN 61000-4-8, EN 61000-4-8/A1, EN 61000-4-11, EN 61000-4-11/A1

PFR96TM

Regolatore digitale per sistemi di rifasamento fino a 1000kVar e 12 batterie indipendenti, remotabile e dotato di logica equalizzata di inserzione.

Digital PFC regulator for power factor correction sets up to 1000kVar, 12 steps, remote monitoring and equalized insertion logic.



Il regolatore digitale PFR96 può gestire fino a **12 batterie indipendenti**, una **porta di comunicazione** e due ingressi di corrente nel formato da quadro 96×96.

Il **campionamento a 10ms** della tensione permette il calcolo in RMS della tensione in modo continuo, individuando buchi di rete e microinterruzioni e distaccare immediatamente i gradini attivi a protezione dei dei contattori e dei banchi.

Il PFR96 può gestire **numerosi allarmi associabili a relè** disponibili sui morsetti.



The digital controller PFR96 can manage **up to 12 independent batteries**, a **communications port** and two current inputs in size from 96×96 framework.

10ms sampling of the voltage allows to calculate the RMS voltage continuously, identifying network holes and temporary interruptions to promptly detach the active steps to protect the contactors and benches.

The PFR96 can handle many alarms associated to available relays

UN COMPLETO ED EFFICIENTE CONTROLLO DEL RIFASAMENTO:

- ✓ Campionamento 10ms (8,33ms a 60Hz) della tensione e definizione del valore RMS; indispensabile per la protezione da buchi di rete o inserzioni indesiderate
- ✓ Non necessità di ricablaggio in caso di errata connessione del TA
- ✓ Display retroilluminato multilingua
- ✓ Allarmi programmabili e associabili alle grandezze misurate
- ✓ Possibilità di impostare il livello di massima distorsione armonica della corrente dei condensatori
- ✓ Modalità automatica e manuale
- ✓ Modalità di intervento parametrica e configurabile dall'utente
- ✓ Avvisi di manutenzione
- ✓ Campionamento a frequenza variabile per la massima affidabilità nella misura del cosφ
- ✓ Uscite a relè statico zero-crossing
- ✓ Comunicazione RS485 con protocollo Modbus RTU (PFR96 Plus)
- ✓ Ingresso supplementare per la misura della corrente del sistema di rifasamento

A COMPLETE AND EFFICIENT POWER FACTOR CORRECTION:

- ✓ Sampling 10ms (8,33ms 60Hz) voltage and definition of the RMS value; vital for the protection of the network from unwanted holes or insertions
- ✓ No need for rewiring with faulty CT connection
- ✓ Multilingual backlit display
- ✓ Programmable alarms and associated with measured quantities
- ✓ Ability to set the maximum level of harmonic distortion of the capacitor current
- ✓ Automatic mode and related section
- ✓ Parametric intervention mode and user-configurable
- ✓ Maintenance Alerts
- ✓ Sampling variable frequency for maximum reliability as far as cosφ
- ✓ Static relay outputs zero-crossing
- ✓ RS485 communication with Modbus RTU protocol (PFR96 Plus)
- ✓ Additional input for the measurement of the current of the power factor correction system
- ✓ Terminal block with safety screws

Caratteristiche tecniche

Technical details

ENCLOSURE:	
Sizes	96x96x58 mm
Overall dimensions inside the board	96x105x40 mm
Material	ABS with V0 self-extinguish rating
Protection rating	IP40 (at the front), IP20 (at the back)
Weight	800 g
CONNECTIONS:	
Supply and voltages	Removable terminals with retaining screws
Currents	Removable terminals with retaining screws
POWER SUPPLY:	
AC	215-250V ±10% 50 - 60 Hz
	380-440V ±10% 50 - 60 Hz
Consumption	10 VA max
MEASURES INPUTS:	
Grid current	0.1 – 5.0 A from CT
Overload from grid	6A max
PFC set currents	0.1 – 5.0 A from CT
Overload from PFC set	6A max
CT range	5/5 up to 5000/5
Self consumption	Max 0.1 VA
COS Ø regulation:	
Regulation range	0.7 inductive – 0.7 capacitive
COMMUNICATIONS (only for PLUS version):	
Serial port	RS485
Protocol	MODBUS RTU
OUTPUT RELAIS	
PFC steps	5 with common terminal (PFR96/PFR96PLUS 6R)
	10 with common terminal (PFR96PLUS 12R)
Relais NO	1 with independent terminals (PFR96/PFR96PLUS 6R)
	2 with independent terminals (PFR96PLUS 12R)
CONDITIONS OF USE:	
Operating temperature	from -10 to +50 °C
Storage temperature	from -25 to +70 °C
Relative humidity	Max 80%
REFERENCE STANDARDS:	
Safety	EN 61010-1
Electromagnetic Compatibility (EMC)	EN 61326
	EN 61326/A1
	EN 61326/A2
	EN 61326/A3
Mechanical dimensions	IEC 61554 (ex DIN 43700)
Temperature	IEC 60068-2-1 (operating temperature)
	IEC 60068-2-2 (storage temperature)
Vibrations	IEC 60068-2-6
Humidity	IEC 60068-2-30 (humidity)
Overload	IEC 60947-1

PFR96™

Codice/Code	Descrizione / Description
2WE10	PFR96 6 RELAY 380-440V
2WE01	PFR96 6 RELAY 210-250V
2WE06	PFR96 6 RELAY 380-440V
2WE09	PFR96 PLUS 6 RELAY SSR 380-440V
2WE08	PFR96 PLUS 12 RELAY 380-440V
2WE05	PFR96 PLUS 12 RELAY SSR 210-250V
2WE04	PFR96 PLUS 6 RELAY SSR 210-250V
2WE07	PFR96 PLUS 6 RELAY 380-440V
2WE0A	PFR96 PLUS 12 RELAY SSR 380-440V
2WE03	PFR96 PLUS 12 RELAY 210-250V
2WE02	PFR96 PLUS 6 RELAY 210-250V

Quadri di rifasamento

PFC panels

Sistemi di Rifasamento

Power factor correction systems

Sistemi di rifasamento fisso fino a 125 kVar

Fixed power factor correction systems

Potenze fino a 125 kVar



Powers up to 125 kVar

Impiego di condensatori 440V ad elevata sovracorrente ammissibile per una maggior affidabilità nel tempo

Use of 440V capacitors with high permissible current for a higher reliability over time

Impiegabili in reti a moderato contenuto armonico (THD<20%)

Usable in a moderate harmonic content networks (THD<20%)

Adatti per il rifasamento di trasformatore MT/BT con secondario 380-400V 50Hz

Suitable for for Power Factor correction of MV/LV transformers with secondary 380-400V 50Hz

STPF



Sistemi di rifasamento automatico fino a 50kVar

Automatic power factor correction up to 50kVar

Reti trifase 230V e 400V a 50-60Hz



Three phases networks 230V and 400V 50-60Hz

Versione con condensatori 230V, 400V, 440V e 500V

Versions with capacitors 230V, 400V, 440V and 500V

Adatti a reti con contenuto armonico fino 60% di THDI, non risonanti

Suitable for networks with with harmonics harmonic content up to 60% of THDI non resonant

STP



Sistemi di rifasamento automatico fino a 250kVar

Automatic power factor correction up to 250kVar

Reti trifase 400V a 50-60Hz



Three phases networks 400V 50-60Hz

Versione con condensatori 400V, 440V e 500V

Versions with capacitors 400V, 440V and 500V

Adatti a reti con contenuto armonico fino 60% di THDI, non risonanti

Suitable for networks with with harmonics harmonic content up to 60% of THDI non resonant

QR



ARCM

Rifasamento modulare automatico fino a 1000 kVar
Modular automatic PFC systems up to 1000 kVa

Reti trifase 400V a 50-60Hz



Three phases networks 400V 50-60Hz

Potenze da 275 kVar

Powers from 275 kVar

Versione con condensatori 400V, 440V e 500V

Versions with capacitors 230V, 400V, 440V and 500V

Adatti a reti con contenuto armonico fino 60% di THDI, non risonanti

Suitable for networks with with harmonics harmonic content up to 60% of THDI non resonant

ARCM
5H
Rifasamento modulare automatico fino a 1000 kVar
Modular automatic PFC systems up to 1000 kVa

Reti trifase 400V a 50-60Hz



Three phases networks 400V 50-60Hz

Potenze da 275 kVar

Powers from 275 kVar

Versione con condensatori 400V, 440V e 500V

Versions with capacitors 230V, 400V, 440V and 500V

Reattanze trifase 5H

5H inductances

Adatti a reti con contenuto armonico fino 60% di THDI, con moderato rischio di risonanza

Suitable for networks with with harmonics harmonic content up to 60% of THDI with moderate resonance risk

ARCM
7H
Rifasamento modulare automatico fino a 1000 kVar
Modular automatic PFC systems up to 1000 kVa

Reti trifase 400V a 50-60Hz



Three phases networks 400V 50-60Hz

Potenze da 275 kVar

Powers from 275 kVar

Versione con condensatori 400V, 440V e 500V

Versions with capacitors 230V, 400V, 440V and 500V

Reattanze trifase 7H

7H inductances

Adatti a reti con contenuto armonico fino 60% di THDI, con elevato rischio di risonanza

Suitable for networks with with harmonics harmonic content up to 60% of THDI with high resonance risk

Quadri fissi STPF™

Fixed panels STPF™

Potenze fino a 125 kVar

Power up to 125 kVar



I quadri STPF sono progettati per reti 400V 50Hz e prodotti con condensatori a tensione nominale 440V, così da garantire una vita elevata anche in condizioni di esercizio continuative con tensioni di rete che, solitamente, superano costantemente i 400V. Sono particolarmente indicati per il rifasamento del trasformatore di cabina.

Il condensatore utilizzato per le apparecchiature STPF è caratterizzato da una elevata sovracorrente ammissibile così da poter garantire il suo corretto funzionamento anche in presenza di armoniche.

Disponibili anche per reti a 60Hz.



STPF PFC panels are designed for 400V 50Hz networks and assembled with 440V nominal voltage capacitors; this ensures a high life even under continuous operating conditions with supply voltages constantly exceeding 400V. They are particularly suitable for power factor correction of cabin transformers. Capacitors used in STPF panels are characterized by a high allowable overcurrent to guarantee their correct operation even in presence of harmonics. 60Hz versions are available too.

LE APPARECCHIATURE STPF SONO DOTATE DI:

- ✓ Sezionatore generale tripolare con manovra rotativa rinviata sulla portella
- ✓ Dispositivo blocco porta
- ✓ Una o due terne di fusibili ad alto potere di interruzione
- ✓ Cablaggio con conduttori unipolari flessibili tipo N07VK
- ✓ Carpenteria metallica per fissaggio a parete
- ✓ Colore RAL7032
- ✓ Grado di protezione IP30.

STPF PANELS ARE EQUIPPED WITH:

- ✓ Main switch breaker with rotary handle on the door
- ✓ Door lock device
- ✓ One or two triads of high breaking capacity fuses
- ✓ Flexible single-conductor wiring with N07VK
- ✓ Metallic carpentry for wall mounting
- ✓ Color RAL7032
- ✓ IP30 degree of protection

Quadri automatici STP™

Automatic panels STP™

Potenze fino a 50 kVar

Power up to 50 kVar



I quadri STP sono quadri automatici controllati dal regolatore digitale PFR96 e adatti a reti trifase 230V e 400V 50Hz. Sono realizzati con condensatori aventi tensioni nominali di 230V, 400V, 440V e 500V così da poter rispondere alle più diverse esigenze impiantistiche.

La disponibilità di diverse tipologie di condensatore permette ai quadri STP di essere installati in reti con componente armonica fino a 60% di THDI, non risonanti.

Tutti i quadri STP sono dotati di sonda termica che, raggiunta la temperatura di esercizio limite, permette al PFR96 di attuare il distacco dei gradini; il riarmo è automatico.

Sono disponibili anche per reti 60Hz.

EN STP PFC panels are automatic panels controlled by digital controller PFR96 and suitable for three-phase 230V and 400V 50Hz networks. They are built with capacitors having nominal voltages of 230V, 400V, 440V and 500V to meet the most demanding network requirements.

The availability of different types of capacitor allows STP panels to be installed in networks with harmonic component up to 60% of THDI, non-resonant.

LE APPARECCHIATURE STP SONO DOTATE DI:

- ✓ Regolatore automatico Elcontrol PFR96
- ✓ Sezionatore generale tripolare con manovra rotativa rinviata sulla portella
- ✓ Dispositivo blocco porta
- ✓ Una o due terne di fusibili ad alto potere di interruzione
- ✓ Cablaggio con conduttori unipolari flessibili tipo N07VK
- ✓ Carpenteria metallica per fissaggio a parete
- ✓ Colore RAL7032
- ✓ Grado di protezione IP30
- ✓ Conformità alle norme CEI EN 60439-1 per quanto applicabili.

STP PANELS ARE EQUIPPED WITH:

- ✓ Automatic Elcontrol PFC regulator PFR96
- ✓ Main switch breaker with rotary handle on the door
- ✓ Door lock device
- ✓ One or two triads of high breaking capacity fuses
- ✓ Flexible single-conductor wiring type N07VK
- ✓ Steel bracket for wall mounting
- ✓ Color RAL7032
- ✓ IP30 protection
- ✓ Compliance with standards CEI EN 60439-1 as applicable.

Quadri automatici QR™

Automatic panels QR™

Potenze fino a 250 kVar

Power up to 250 kVar



I quadri QR sono quadri automatici controllati dal regolatore digitale PFR96 e adatti a reti trifase 400V 50Hz. Sono realizzati con condensatori aventi tensioni nominali di 400V, 440V e 500V così da poter rispondere alle più impegnative esigenze impiantistiche.

La disponibilità di diverse tipologie di condensatore permette ai quadri QR di essere installati in reti con componente armonica fino a 60% di THDI, non risonanti.

Tutti i quadri QR sono dotati di sonda termica che, raggiunta la temperatura di esercizio limite, permette il distacco dei gradini; il riarmo è automatico.

Sono disponibili anche per reti a 60Hz.



The QR models are automatic panels controlled by the digital controller PFR96 and suitable for three-phase 400V 50Hz networks. They are made with capacitors having nominal voltages of 400V, 440V and 500V to meet the most demanding network requirements.

The availability of different types of capacitor allows QR frameworks to be installed in networks with harmonic component up to 60% of THDI, non-resonant.

All QR panels are equipped with thermal probe that, once reached the limit operating temperature, allows to disconnect capacitor banks; reset is automatic when temperatures returns within operating range.

LE APPARECCHIATURE QR SONO DOTATE DI:

- ✓ Regolatore automatico Elcontrol PFR96
- ✓ sezionatore generale tripolare con manovra rotativa rinviata sulla portella
- ✓ dispositivo blocco porta
- ✓ una o due terne di fusibili ad alto potere di interruzione
- ✓ cablaggio con conduttori unipolari flessibili tipo N07VK
- ✓ colore RAL7032
- ✓ grado di protezione IP30
- ✓ Conformità alle norme CEI EN 60439-1 per quanto applicabili

QR PANELS ARE EQUIPPED WITH:

- ✓ Automatic Elcontrol PFC regulator PFR96
- ✓ Main switch breaker with rotary handle on the door
- ✓ Door lock device
- ✓ One or two triads of high breaking capacity fuses
- ✓ Flexible single-conductor wiring type N07VK
- ✓ Color RAL7032
- ✓ IP30 protection
- ✓ Compliance with standards CEI EN 60439-1 applicable

Quadri automatici modulari ARCM™

Automatic modular panels STP™

Potenze fino a 1000 kVar

Power up to 1000 kVar



I quadri ARCM sono quadri automatici controllati dal regolatore digitale PFR96 e adatti a reti trifase 400V 50Hz fino ad elevate potenze con carichi armonici fino a 60% di THDI, non risonanti. Sono realizzati con condensatori aventi tensioni nominali di 400V, 440V e 500V così da poter rispondere alle più impegnative esigenze impiantistiche.

I quadri ARCM godono di una ampia variabilità dei gradini in termini di potenza unitaria e numerosità; possono essere ulteriormente ampliati dopo l'installazione tramite l'aggiunta di cassette aggiuntive. La ventilazione è di tipo forzato con espulsione verso l'alto, comandata da termostato. Tutti i quadri ARCM sono dotati di sonda termica che, raggiunta la temperatura di esercizio limite, permette il distacco dei gradini; il riarmo è automatico.

Sono disponibili anche nella versione per reti 60Hz.



The ARCM panels are automatic and modular panels controlled by digital controller PFR96; they are suitable for three-phase systems up to 400V 50Hz high power with harmonic loads up to 60% of THDI, non-resonant.

ARCM are made with capacitors having nominal voltages of 400V, 440V and 500V to meet the heaviest network requirements.

The ARCM panels have a wide variability of steps in terms of unitary power and abundance; they can be further expanded after installation by adding additional banks

LE APPARECCHIATURE ARCM SONO DOTATE DI:

- ✓ Regolatore automatico Elcontrol PFR96
- ✓ Sezionatore generale tripolare con manovra rotativa rinviata sulla portella
- ✓ Dispositivo blocco porta
- ✓ Una o due terne di fusibili ad alto potere di interruzione
- ✓ Cablaggio con conduttori unipolari flessibili tipo N07VK
- ✓ Verniciatura a polvere epossidica con trattamento anticorrosivo di fosfatazione
- ✓ Espandibilità nel tempo tramite aggiunta di cassette
- ✓ Colore RAL7032
- ✓ Grado di protezione IP30
- ✓ Conformità alle norme CEI EN 60439-1 per quanto applicabili

ARCM PANELS ARE EQUIPPED WITH:

- ✓ Automatic Elcontrol PFC regulator PFR96
- ✓ Main switch breaker with rotary handle on the door
- ✓ Locking device port
- ✓ One or two triads of high breaking capacity fuses
- ✓ Wiring with unipolar flexible conductors type N07VK
- ✓ Epoxy powder paint with anticorrosion phosphate treatment
- ✓ Expandability in time by addition of drawers
- ✓ Color RAL7032
- ✓ Degree of protection IP30
- ✓ Compliance with standards CEI EN 60439-1 as applicable

Quadri automatici modulari ARCM5H™

Automatic modular panels ARCM5H™

Potenze fino a 1000 kVar

Power up to 1000 kVar



I quadri ARCM5H sono quadri automatici modulari controllati dal regolatore digitale PFR96 e adatti a reti trifase 400V 50Hz fino ad elevate potenze con carichi armonici fino a 60% di THDI. Sono realizzati con condensatori aventi tensioni nominali di 400V, 440V e 500V così da poter rispondere alle più diverse esigenze impiantistiche.

I quadri ARCM5H possono essere installati in reti con un moderato carico risonante grazie alla presenza di filtri di blocco armonico 5H.

I quadri ARCM5H godono di una ampia variabilità dei gradini in termini di potenza unitaria e numerosità; possono essere ulteriormente ampliati dopo l'installazione tramite l'aggiunta di cassette aggiuntive.

La ventilazione è di tipo forzato con espulsione verso l'alto, comandata da termostato.

Sono disponibili le versioni per reti 60Hz.



The ARCM panels are automatic and modular panels controlled by digital controller PFR96; they are suitable for three-phase systems up to 400V 50Hz high power with harmonic loads up to 60% of THDI, non-resonant.

ARCM are made with capacitors having nominal voltages of 400V, 440V and 500V to meet the heaviest network requirements.

The ARCM panels have a wide variability of steps in terms of unitary power and abundance; they can be further expanded after installation by adding additional banks.

LE APPARECCHIATURE ARCM5H SONO DOTATE DI:

- ✓ Regolatore automatico Elcontrol PFR96
- ✓ Reattanze trifase di antirisonanza 5H
- ✓ Sezionatore generale tripolare con manovra rotativa rinviata sulla portella
- ✓ Dispositivo blocco porta
- ✓ Una o due terne di fusibili ad alto potere di interruzione
- ✓ Cablaggio con conduttori unipolari flessibili tipo N07VK
- ✓ Verniciatura a polvere epossidica con trattamento anticorrosivo di fosfatazione
- ✓ Espandibilità nel tempo tramite aggiunta di cassette
- ✓ Colore RAL7032
- ✓ Grado di protezione IP30
- ✓ Conformità alle norme CEI EN 60439-1 per quanto applicabili

ARCM5H PANELS ARE EQUIPPED WITH:

- ✓ Automatic Elcontrol PFC regulator PFR96
- ✓ Main switch breaker with rotary handle on the door
- ✓ Locking device port
- ✓ One or two triads of high breaking capacity fuses
- ✓ Wiring with unipolar flexible conductors type N07VK
- ✓ Epoxy powder paint with anticorrosion phosphate treatment
- ✓ Expandability in time by addition of drawers
- ✓ Color RAL7032
- ✓ Degree of protection IP30
- ✓ Compliance with standards CEI EN 60439-1 as applicable

Quadri automatici modulari ARCM7H™

Automatic modular panels ARCM7H™

Potenze fino a 1000 kVar

Power up to 1000 kVar



I quadri ARCM7H sono quadri automatici modulari controllati dal regolatore digitale PFR96 e adatti a reti trifase 400V 50Hz fino ad elevate potenze con carichi armonici fino a 60% di THDI. Sono realizzati con condensatori aventi tensioni nominali di 400V, 440V e 500V così da poter rispondere alle più diverse esigenze impiantistiche.

I quadri ARCM7H possono essere installati in reti con un moderato carico risonante grazie alla presenza di filtri di blocco armonico 7H.

I quadri ARCM7H godono di una ampia variabilità dei gradini in termini di potenza unitaria e numerosità; possono essere ulteriormente ampliati dopo l'installazione tramite l'aggiunta di cassette aggiuntive.

La ventilazione è di tipo forzato con espulsione verso l'alto, comandata da termostato.

Sono disponibili le versioni per reti 60Hz.



The ARCM panels are automatic and modular panels controlled by digital controller PFR96; they are suitable for three-phase systems up to 400V 50Hz high power with harmonic loads up to 60% of THDI, non-resonant.

ARCM are made with capacitors having nominal voltages of 400V, 440V and 500V to meet the heaviest network requirements.

The ARCM panels have a wide variability of steps in terms of unitary power and abundance; they can be further expanded after installation by adding additional banks.

LE APPARECCHIATURE ARCM7H SONO DOTATE DI:

- ✓ Regolatore automatico Elcontrol PFR96
- ✓ Reattanze trifase di antirisonanza 7H
- ✓ Sezionatore generale tripolare con manovra rotativa rinviata sulla portella
- ✓ Dispositivo blocco porta
- ✓ Una o due terne di fusibili ad alto potere di interruzione
- ✓ Cablaggio con conduttori unipolari flessibili tipo N07VK
- ✓ Verniciatura a polvere epossidica con trattamento anticorrosivo di fosfatazione
- ✓ Espandibilità nel tempo tramite aggiunta di cassette
- ✓ Colore RAL7032
- ✓ Grado di protezione IP30
- ✓ Conformità alle norme CEI EN 60439-1 per quanto applicabili

ARCM7H PANELS ARE EQUIPPED WITH:

- ✓ Automatic Elcontrol PFC regulator PFR96
- ✓ Resonance filters 7H
- ✓ Main switch breaker with rotary handle on the door
- ✓ Locking device port
- ✓ One or two triads of high breaking capacity fuses
- ✓ Wiring with unipolar flexible conductors type N07VK
- ✓ Epoxy powder paint with anticorrosion phosphate treatment
- ✓ Expandability in time by addition of drawers
- ✓ Color RAL7032
- ✓ Degree of protection IP30
- ✓ Compliance with standards CEI EN 60439-1 as applicable

Modelli e caratteristiche

Models and technical specifications

	Modello Model	CODICE Code	POTENZA Power Kvar @Vn (230VAC o 400VAC)	Potenza a 230V Power at 230V	Potenza a 400V Power at 400V	Potenza a 440V Power at 440V	Potenza a 450V Power at 450V	Potenza a 550V Power at 550V	Regolazione
STPF	STPF12.5-440	2WD0M	10,0	-	10,0	12,5	-	-	-
	STPF25-440	2WD0N	20,0	-	20,0	25,0	-	-	-
	STPF37.5-440	2WD0P	30,0	-	30,0	37,5	-	-	-
	STPF50-440	2WD0Q	40,0	-	40,0	50,0	-	-	-
	STPF75-440	2WD0R	60,0	-	60,0	75,0	-	-	-
	STPF100-440	2WD0S	80,0	-	80,0	100,0	-	-	-
	STPF125-440	2WD0T	100,0	-	100,0	125,0	-	-	-
STP	STP10-230	2WCOY	10,0	10,0	-	-	-	-	2X2,5+1X5
	STP12.5-230	2WCOZ	12,5	12,5	-	-	-	-	1X2,5+2X5
	STP17.5-230	2WMNZ	17,5	17,5	-	-	-	-	1X2,5+1X5+1X10
	STP25-230	2WMP1	25,0	25,0	-	-	-	-	1X5+2X10
	STP30-230	2WD0U	30,0	30,0	-	-	-	-	2X5+2X10
	STP35-230	2WM0V	35,0	35,0	-	-	-	-	1X5+3X10
	STP40-230	2WM1W	40,0	40,0	-	-	-	-	2X5+3X10
	STP50-230	2WM0X	50,0	50,0	-	-	-	-	5X10
	STP10-400	2WMIA	10,0	-	10,0	-	-	-	2 x 2,5 + 5
	STP12.5-400	2WMIC	12,5	-	12,5	-	-	-	2,5 + 2 x 5
	STP17.5-400	2WMIE	17,5	-	17,5	-	-	-	2,5 + 5 + 10
	STP20-400	2WMIY	20,0	-	20,0	-	-	-	2 x 5 + 10
	STP25-400	2WMIG	25,0	-	25,0	-	-	-	5 + 2 x 10
	STP30-400	2WN03	30,0	-	30,0	-	-	-	5 + 10 + 15
	STP35-400	2WMII	35,0	-	35,0	-	-	-	5 + 10 + 20
	STP37.5-400	2WMIP	37,5	-	37,5	-	-	-	2,5 + 5 + 10 + 20
	STP40-400	2WMIK	40,0	-	40,0	-	-	-	2 x 10 + 20
	STP45-400	2WMIZ	45,0	-	45,0	-	-	-	5 + 2 x 10 + 20
	STP50-400	2WMIM	50,0	-	50,0	-	-	-	10 + 2 x 20
	STP62.5-400	2WDB2	62,5	-	62,5	-	-	-	12,5 + 2 x 25
	STP75-400	2WN00	75,0	-	75,0	-	-	-	2 x 12,5 + 2 x 25
	STP87.5-400	2WN01	87,5	-	87,5	-	-	-	12,5 + 3 x 25
	STP100-400	2WDB1	100,0	-	100,0	-	-	-	2 x 12,5 + 3 x 25
	STP125-400	2WN02	125,0	-	125,0	-	-	-	5 x 25
	STP10-440	2WMIB	8,0	-	8,3	10,0	-	-	2 x 2,5 + 5
	STP12.5-440	2WMID	10,0	-	10,3	12,5	-	-	2,5 + 2 x 5
	STP17.5-440	2WMIF	15,0	-	14,5	17,5	-	-	2,5 + 5 + 10
	STP20-440	2WMIT	16,5	-	16,5	20,0	-	-	2 x 5 + 10
	STP25-440	2WMIH	20,0	-	20,7	25,0	-	-	5 + 2 x 10
	STP30-440	2WMIR	25,0	-	24,8	30,0	-	-	5 + 10 + 15
	STP35-440	2WMIJ	29,0	-	28,9	35,0	-	-	5 + 10 + 20
	STP37.5-440	2WMIQ	31,0	-	31,0	37,5	-	-	2,5 + 5 + 10 + 20
	STP40-440	2WMIL	33,0	-	33,1	40,0	-	-	2 x 10 + 20
	STP45-440	2WMIS	37,0	-	37,2	45,0	-	-	5 + 2 x 10 + 20
	STP50-440	2WMIN	41,0	-	41,3	50,0	-	-	10 + 2 x 20
	STP62.5-440	2WMIV	52,0	-	51,7	62,5	-	-	12,5 + 2 x 25
	STP75-440	2WDB0	62,0	-	62,0	75,0	-	-	2 x 12,5 + 2 x 25
	STP87.5-440	2WDBJ	72,0	-	72,3	87,5	-	-	12,5 + 3 x 25
	STP100-440	2WD9R	82,0	-	82,6	100,0	-	-	2 x 12,5 + 3 x 25
	STP125-440	2WD9S	103,0	-	103,3	125,0	-	-	5 x 25
	STP60-500	2WMIU	38,0	-	38,4	60,0	-	-	12 + 2 x 24
	STP72-500	2WD36	46,0	-	46,1	72,0	-	-	2 x 12 + 2 x 24
	STP84-500	2WM20	54,0	-	53,8	84,0	-	-	12 + 3 x 24
	STP96-500	2WD9Y	61,0	-	61,4	96,0	-	-	2 x 12 + 3 x 24
	STP120-500	2WMIX	76,0	-	76,8	120,0	-	-	5 x 24
QR	QR150-400	2WF06	150,0	-	150,0	--	-	-	2 x 25 + 2 x 50
	QR175-400	2WF0C	175,0	-	175,0	--	-	-	25 + 3 x 50
	QR200-400	2WF0I	200,0	-	200,0	--	-	-	2 x 25 + 3 x 50
	QR225-400	2WF0Q	225,0	-	225,0	--	-	-	25 + 4 x 50
	QR250-400	2WF0W	250,0	-	250,0	--	-	-	5 x 50
	QR150-440	2WF13	125,0	-	124,0	150,0	-	-	2 x 25 + 2 x 50
	QR175-440	2WF19	145,0	-	144,6	175,0	-	-	25 + 3 x 50
	QR200-440	2WF1F	165,0	-	165,3	200,0	-	-	2 x 25 + 3 x 50
	QR225-440	2WF1N	185,0	-	186,0	225,0	-	-	25 + 4 x 50
	QR250-440	2WF1T	205,0	-	206,6	250,0	-	-	5 x 50
	QR144-500	2WF1Z	95,0	-	92,2	144,0	-	-	2 x 24 + 2 x 48
	QR168-500	2WF26	110,0	-	107,5	168,0	-	-	24 + 3 x 48
	QR192-500	2WF2C	125,0	-	122,9	192,0	-	-	2 x 24 + 3 x 48
	QR216-500	2WF2I	140,0	-	138,2	216,0	-	-	24 + 4 x 48
	QR240-500	2WF2Q	155,0	-	153,6	240,0	-	-	5 x 48

Modelli e caratteristiche

Models and technical specifications

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RIFASAMENTO
POWER FACTOR

CODICE Code	Corrente Current [A]	Dimensioni Dimensions [mmxmmxmm]	Peso Weight [kg]	Fusibili Fuses	Interruttore Switch	Sezione cavo Wires section [mm²]	Ventilazione Ventilation	Regolatore Regulator
2WD0M	15,0	340 x 250 x 440	10,0	3 x 25A GG (10,3X38)	63	4	-	-
2WD0N	30,0	340 x 250 x 440	13,0	3 x 50A GG (14X51)	63	10	-	-
2WD0P	45,0	400 x 270 x 620	18,0	3 x 100A GG NH00	125	16	-	-
2WD0Q	60,0	400 x 270 x 620	20,0	3 x 100A GG NH00	125	25	-	-
2WD0R	90,0	400 x 270 x 1045	30,0	3 x 50A GG NH00 3 x 100A GG NH00	250	50	-	-
2WD0S	120,0	400 x 270 x 1045	33,0	6 x 100A GG NH00	250	70	-	-
2WD0T	150,0	400 x 270 x 1045	36,0	3 x 100A GG NH00 3 x 160A GG NH00	250	95	-	-
2WCOY	25,1	340 x 250 x 440	13,0	3X50 (14X51)	63	16	Nat	PFR96/6-230
2WCOZ	31,4	340 x 250 x 440	15,0	3X50 (14X51)	63	16	Nat	PFR96/6-230
2WMNZ	43,9	400X270X620	19,0	3X80 (NH00)	125	25	Nat	PFR96/6-230
2WMP1	62,8	400X270X620	23,0	3X100 (NH00)	125	35	Nat	PFR96/6-230
2WD0U	75,3	400X250X1045	32,0	3X40+3X80 (NH00)	250	35	Nat	PFR96/6-230
2WMOV	87,9	400X250X1045	36,0	6X80 (NH00)	250	50	Nat	PFR96/6-230
2WM1W	100,4	400X250X1045	38,0	6X80 (NH00)	250	50	Nat	PFR96/6-230
2WMOX	125,5	400X250X1045	40,0	3X80+3X125	250	70	Nat	PFR96/6-230
2WMIA	14,0	340 x 250 x 440	10,0	3 x 25A GG (10,3X38)	63	4	Nat	PFR96/6
2WMIC	18,0	340 x 250 x 440	11,0	3 x 25A GG (10,3X38)	63	4	Nat	PFR96/6
2WMIE	25,0	340 x 250 x 440	12,0	3 x 32A GG (10,3X38)	63	4	Nat	PFR96/6
2WMIY	29,0	340 x 250 x 440	12,0	3 x 50A GG (14X51)	63	16	Nat	PFR96/6
2WMIG	36,0	340 x 250 x 440	13,0	3 x 50A GG (14X51)	63	16	Nat	PFR96/6
2WN03	43,0	400 x 270 x 620	15,0	3 x 80A GG NH00	125	25	Nat	PFR96/6
2WMII	50,0	400 x 270 x 620	17,0	3 x 100A GG NH00	125	25	Nat	PFR96/6
2WMIP	54,0	400 x 270 x 620	19,0	3 x 100A GG NH00	125	35	Nat	PFR96/6
2WMIK	58,0	400 x 270 x 620	20,0	3 x 100A GG NH00	125	35	Nat	PFR96/6
2WMIZ	65,0	400 x 270 x 620	21,0	3 x 100A GG NH00	125	35	Nat	PFR96/6
2WMIM	72,0	400 x 270 x 620	21,0	3 x 100A GG NH00	125	35	Nat	PFR96/6
2WDB2	90,0	400 x 250 x 1045	30,0	3 x 125A GG NH00	250	35	Nat	PFR96/6
2WN00	108,0	400 x 250 x 1045	32,0	3 x 50A GG NH00 3 x 100A GG NH00	250	50	Nat	PFR96/6
2WN01	126,0	400 x 250 x 1045	36,0	3 x 80A GG NH00 3 x 100A GG NH00	250	50	Nat	PFR96/6
2WDB1	144,0	400 x 250 x 1045	38,0	6 x 100A NH00	250	70	Nat	PFR96/6
2WN02	180,0	400 x 250 x 1045	40,0	3 x 100A GG NH00 3 x 160A GG NH00	250	95	Nat	PFR96/6
2WMIB	11,9	340 x 250 x 440	10,0	3 x 25A GG (10,3X38)	63	4	Nat	PFR96/6
2WMID	14,9	340 x 250 x 440	11,0	3 x 25A GG (10,3X38)	63	4	Nat	PFR96/6
2WMIF	20,9	340 x 250 x 440	12,0	3 x 32A GG (10,3X38)	63	4	Nat	PFR96/6
2WMIT	23,9	340 x 250 x 440	12,0	3 x 50A GG (14X51)	63	10	Nat	PFR96/6
2WMIH	29,8	340 x 250 x 440	13,0	3 x 50A GG (14X51)	63	10	Nat	PFR96/6
2WMIR	35,8	400 x 270 x 620	15,0	3 x 80A GG NH00	125	16	Nat	PFR96/6
2WMIJ	41,8	400 x 270 x 620	17,0	3 x 100A GG NH00	125	25	Nat	PFR96/6
2WMIQ	44,7	400 x 270 x 620	19,0	3 x 100A GG NH00	125	25	Nat	PFR96/6
2WMIL	47,7	400 x 270 x 620	20,0	3 x 100A GG NH00	125	35	Nat	PFR96/6
2WMIS	53,7	400 x 270 x 620	21,0	3 x 100A GG NH00	125	35	Nat	PFR96/6
2WMIN	59,6	400 x 270 x 620	21,0	3 x 100A GG NH00	125	35	Nat	PFR96/6
2WMIV	74,6	400 x 250 x 1045	30,0	3 x 125A GG NH00	250	35	Nat	PFR96/6
2WDB0	89,5	400 x 250 x 1045	32,0	3 x 50A GG NH00 3 x 100A GG NH00	250	35	Nat	PFR96/6
2WDBJ	104,4	400 x 250 x 1045	36,0	3 x 80A GG NH00 3 x 100A GG NH00	250	50	Nat	PFR96/6
2WD9R	119,3	400 x 250 x 1045	38,0	6 x 100A GG NH00	250	50	Nat	PFR96/6
2WD9S	149,1	400 x 250 x 1045	40,0	3 x 100A GG NH00 3 x 160A GG NH00	250	70	Nat	PFR96/6
2WMIU	55,4	400 x 250 x 1045	30,0	3 x 80A GG NH00	250	16	Nat	PFR96/6
2WD36	66,5	400 x 250 x 1045	32,0	3 x 50A GG NH00 3 x 100A GG NH00	250	25	Nat	PFR96/6
2WM20	77,6	400 x 250 x 1045	36,0	3 x 63A GG NH00 3 x 80A GG NH00	250	25	Nat	PFR96/6
2WD9Y	88,7	400 x 250 x 1045	38,0	6 x 100A GG NH00	250	35	Nat	PFR96/6
2WMIX	110,9	400 x 250 x 1045	40,0	3 x 80A GG NH00 3 x 100A GG NH00	250	50	Nat	PFR96/6
2WF06	216,0	700 x 370 x 1370	90,0	6 x 50A GG NH00 6 x 100A GG NH00	500	120	Nat	PFR96/6
2WF0C	252,0	700 x 370 x 1370	95,0	3 x 50A GG NH00 9 x 100A GG NH00	500	2 x 70	Nat	PFR96/6
2WF0I	289,0	700 x 370 x 1370	100,0	6 x 50A GG NH00 9 x 100A GG NH00	500	2 x 70	Nat	PFR96/6
2WF0Q	325,0	700 x 370 x 1370	102,0	3 x 50A GG NH00 12 x 100A GG NH00	500	2 x 70	Nat	PFR96/6
2WF0W	361,0	700 x 370 x 1370	105,0	15 x 100A GG NH00	500	2 x 95	Nat	PFR96/6
2WF13	178,9	700 x 370 x 1370	90,0	6 x 50A GG NH00 6 x 100A GG NH00	500	95	Nat	PFR96/6
2WF19	208,8	700 x 370 x 1370	95,0	3 x 50A GG NH00 9 x 100A GG NH00	500	120	Nat	PFR96/6
2WF1F	238,6	700 x 370 x 1370	100,0	6 x 50A GG NH00 9 x 100A GG NH00	500	2 x 70	Nat	PFR96/6
2WF1N	268,4	700 x 370 x 1370	102,0	3 x 50A GG NH00 12 x 100A GG NH00	500	2 x 70	Nat	PFR96/6
2WF1T	298,2	700 x 370 x 1370	105,0	15 x 100A GG NH00	500	2 x 70	Nat	PFR96/6
2WF1Z	133,0	700 x 370 x 1370	90,0	6 x 40A GG NH00 6 x 80A GG NH00	500	70	Nat	PFR96/6
2WF26	155,2	700 x 370 x 1370	95,0	3 x 40A GG NH00 9 x 80A GG NH00	500	70	Nat	PFR96/6
2WF2C	177,4	700 x 370 x 1370	100,0	6 x 40A GG NH00 9 x 80A GG NH00	500	95	Nat	PFR96/6
2WF2I	199,5	700 x 370 x 1370	102,0	3 x 40A GG NH00 12 x 80A GG NH00	500	120	Nat	PFR96/6
2WF2Q	221,7	700 x 370 x 1370	105,0	15 x 80A GG NH00	500	120	Nat	PFR96/6

Modelli e caratteristiche

Models and technical specifications

	Modello Model	CODICE Code	POTENZA Power Kvar @Vn (230VAC o 400VAC)	Potenza a 230V Power at 230V	Potenza a 400V Power at 400V	Potenza a 440V Power at 440V	Potenza a 450V Power at 450V	Potenza a 550V Power at 550V	Regolazione
ARCM	ARCM275-400	2WG06	275,0	-	275,0	--	-	-	25 x 5 x 50
	ARCM300-400	2WG0C	300,0	-	300,0	--	-	-	6 x 50
	ARCM350-400	2WG0Q	350,0	-	350,0	--	-	-	7 x 50
	ARCM400-400	2WG13	400,0	-	400,0	--	-	-	6 x 50 + 100
	ARCM450-400	2WG19	450,0	-	450,0	--	-	-	5 x 50 + 2 x 100
	ARCM500-400	2WG1F	500,0	-	500,0	--	-	-	4 x 50 + 3 x 100
	ARCM600-400	2WG1T	600,0	-	600,0	--	-	-	6 x 100
	ARCM700-400	2WG26	700,0	-	700,0	--	-	-	7 x 100
	ARCM800-400	2WG2I	800,0	-	800,0	--	-	-	6 x 100 + 200
	ARCM900-400	2WG2Q	900,0	-	900,0	--	-	-	7 x 100 + 200
	ARCM1000-400	2WG2W	1000,0	-	1000,0	--	-	-	6 x 100 + 2 x 200
	ARCM279-440	2WG33	230,0	-	230,6	279,0	-	-	31 + 4 x 62,5
	ARCM312.5-440	2WG39	260,0	-	258,3	312,5	-	-	5 x 62,5
	ARCM375-440	2WG3N	310,0	-	309,9	375,0	-	-	6 x 62,5
	ARCM437.5-440	2WG3Z	360,0	-	361,6	437,5	-	-	7 x 62,5
	ARCM500-440	2WG4C	410,0	-	413,2	500,0	-	-	6 x 62,5 + 125
	ARCM562.5-440	2WG4I	465,0	-	464,9	562,5	-	-	5 x 62,5 + 2 x 125
	ARCM625-440	2WG4Q	515,0	-	516,5	625,0	-	-	4 x 62,5 + 3 x 125
	ARCM750-440	2WG53	620,0	-	619,8	750,0	-	-	6 x 125
	ARCM875-440	2WG5F	720,0	-	723,1	875,0	-	-	7 x 125
	ARCM1000-440	2WG5T	825,0	-	826,4	1000,0	-	-	6 x 125 + 250
	ARCM252-500	2WH06	161,0	-	161,3	252,0	-	-	36 + 3 x 72
	ARCM288-500	2WH0C	184,0	-	184,3	288,0	-	-	2 x 36 + 3 x 72
	ARCM324-500	2WH0I	207,0	-	207,4	324,0	-	-	36 + 4 x 72
	ARCM360-500	2WH0Q	230,0	-	230,4	360,0	-	-	5 x 72
	ARCM432-500	2WH13	276,0	-	276,5	432,0	-	-	6 x 72
	ARCM504-500	2WH1F	322,0	-	322,6	504,0	-	-	7 x 72
	ARCM576-500	2WH1T	368,0	-	368,6	576,0	-	-	6 x 72 + 144
	ARCM648-500	2WH1Z	414,0	-	414,7	648,0	-	-	5 x 72 + 2 x 144
	ARCM720-500	2WH26	460,0	-	460,8	720,0	-	-	4 x 72 + 3 x 144
	ARCM864-500	2WH2I	553,0	-	553,0	864,0	-	-	6 x 144
	ARCM1008-500	2WH2W	645,0	-	645,1	1008,0	-	-	7 x 144
ARCM 5H	ARCM5H62.5-425	2WL0C	55,0	-	55,4	62,5	-	-	12,5 + 2 x 25
	ARCM5H75-425	2WL0I	66,5	-	66,4	75,0	-	-	2 x 12,5 + 2 x 25
	ARCM5H87.5-425	2WL0Q	77,5	-	77,5	87,5	-	-	12,5 + 3 x 25
	ARCM5H100-425	2WL0W	89,0	-	88,6	100,0	-	-	2 x 12,5 + 3 x 25
	ARCM5H125-425	2WL19	111,0	-	110,7	125,0	-	-	5 x 25
	ARCM5H150-425	2WL1N	133,0	-	132,9	150,0	-	-	2 x 37,5 + 75
	ARCM5H187.5-425	2WL1T	165,0	-	166,1	187,5	-	-	37,5 + 2 x 75
	ARCM5H225-425	2WL1Z	200,0	-	199,3	225,0	-	-	2 x 37,5 + 2 x 75
	ARCM5H262.5-425	2WL26	235,0	-	232,5	262,5	-	-	37,5 + 3 x 75
	ARCM5H300-425	2WL2C	265,0	-	265,7	300,0	-	-	4 x 75
	ARCM5H337.5-425	2WL2I	300,0	-	299,0	337,5	-	-	37,5 + 4 x 75
	ARCM5H375-425	2WL2Q	335,0	-	332,2	375,0	-	-	5 x 75
	ARCM5H450-425	2WL2W	400,0	-	398,6	450,0	-	-	6 x 75
	ARCM5H525-425	2WL39	465,0	-	465,1	525,0	-	-	7 x 75
	ARCM5H600-425	2WL3N	530,0	-	531,5	600,0	-	-	6 x 75 + 150
	ARCM5H675-425	2WL3T	600,0	-	597,9	675,0	-	-	5 x 75 + 2 x 150
	ARCM5H750-425	2WL3Z	665,0	-	664,4	750,0	-	-	4 x 75 + 3 x 150
	ARCM5H900-425	2WL46	800,0	-	797,2	900,0	-	-	6 x 150
	ARCM5H1050-425	2WL4C	930,0	-	930,1	1050,0	-	-	7 x 150
ARCM 7H	ARCM7H100-400	2WM0W	100,0	-	100	-	-	-	2 x 25 + 1 x 50
	ARCM7H125-400	2WM13	125,0	-	125	-	-	-	1 x 25 + 2 x 50
	ARCM7H150-400	2WM19	150,0	-	150	-	-	-	2 x 25 + 2 x 50
	ARCM7H175-400	2WM1F	175,0	-	175	-	-	-	1 x 25 + 3 x 50
	ARCM7H200-400	2WM1N	200,0	-	200	-	-	-	4 x 50
	ARCM7H225-400	2WM1T	225,0	-	225	-	-	-	1 x 25 + 4 x 50
	ARCM7H250-400	2WM1Z	250,0	-	250	-	-	-	5 x 50
	ARCM7H300-400	2WM2C	300,0	-	300	-	-	-	6 x 50
	ARCM7H350-400	2WM2I	350,0	-	350	-	-	-	7 x 50
	ARCM7H400-400	2WM2Q	400,0	-	400	-	-	-	6 x 50 + 1 x 100
	ARCM7H450-400	2WM2W	450,0	-	450	-	-	-	5 x 50 + 2 x 100
	ARCM7H500-400	2WM33	500,0	-	500	-	-	-	4 x 50 + 3 x 100
	ARCM7H600-400	2WM3F	600,0	-	600	-	-	-	6 x 100
	ARCM7H700-400	2WM3T	700,0	-	700	-	-	-	7 x 100

Modelli e caratteristiche

Models and technical specifications

CODICE Code	Corrente Current [A]	Dimensioni Dimensions [mmxmmxmm]	Peso Weight [kg]	Fusibili Fuses	Interruttore Switch	Sezione cavo Wires section [mm²]	Ventilazione Ventilation	Regolatore Regulator
2WG06	397,0	600 x 600 x 1500	143,0	3 x 50A GG NH00 15 x 100A GG NH00	630	2 x 120	Forz	PFR96/12
2WG0C	434,0	600 x 600 x 1500	180,0	18 x 100A GG NH00	630	2 x 120	Forz	PFR96/12
2WG0Q	506,0	600 x 600 x 1500	210,0	21 x 100A GG NH00	800	2 x 150	Forz	PFR96/12
2WG13	578,0	600 x 600 x 1500	230,0	24 x 100A GG NH00	800	2 x 185	Forz	PFR96/12
2WG19	650,0	600 x 600 x 2000	275,0	27 x 100A GG NH00	1000	2 x 240	Forz	PFR96/12
2WG1F	722,0	600 x 600 x 2000	290,0	30 x 100A GG NH00	1000	2 x 240	Forz	PFR96/12
2WG1T	867,0	1200 x 600 x 2000	485,0	36 x 100A GG NH00	1600	4 x 120	Forz	PFR96/12
2WG26	1010,0	1200 x 600 x 2000	525,0	42 x 100A GG NH00	1600	4 x 150	Forz	PFR96/12
2WG2I	1155,0	1200 x 600 x 2000	555,0	48 x 100A GG NH00	1600	4 x 185	Forz	PFR96/12
2WG2Q	1300,0	1200 x 600 x 2000	570,0	54 x 100A GG NH00	2000	4 x 240	Forz	PFR96/12
2WG2W	1443,0	1200 x 600 x 2000	585,0	60 x 100A GG NH00	2000	4 x 300	Forz	PFR96/12
2WG33	332,8	600 x 600 x 1500	149,0	3 x 50A GG NH00 12 x 100A GG NH00	630	2 x 95	Forz	PFR96/6
2WG39	372,8	600 x 600 x 1500	165,0	15 x 100A GG NH00	630	2 x 95	Forz	PFR96/12
2WG3N	447,3	600 x 600 x 1500	193,0	18 x 100A GG NH00	630	2 x 120	Forz	PFR96/12
2WG3Z	521,9	600 x 600 x 1500	210,0	21 x 100A GG NH00	800	2 x 150	Forz	PFR96/12
2WG4C	596,4	600 x 600 x 1500	230,0	24 x 100A GG NH00	800	2 x 185	Forz	PFR96/12
2WG4I	671,0	600 x 600 x 2000	280,0	27 x 100A GG NH00	1000	2 x 240	Forz	PFR96/12
2WG4Q	745,5	600 x 600 x 2000	300,0	30 x 100A GG NH00	1000	2 x 240	Forz	PFR96/12
2WG53	894,7	1200 x 600 x 2000	490,0	36 x 100A GG NH00	1600	4 x 120	Forz	PFR96/12
2WG5F	1043,8	1200 x 600 x 2000	535,0	42 x 100A GG NH00	1600	4 x 150	Forz	PFR96/12
2WG5T	1192,9	1200 x 600 x 2000	565,0	48 x 100A GG NH00	1600	4 x 185	Forz	PFR96/12
2WH06	232,8	600 x 600 x 1500	130,0	3 x 50A GG NH00 9 x 100A GG NH00	630	150	Forz	PFR96/6
2WH0C	266,0	600 x 600 x 1500	138,0	6 x 50A GG NH00 9 x 100A GG NH00	630	185	Forz	PFR96/6
2WH0I	299,3	600 x 600 x 1500	149,0	3 x 50A GG NH00 12 x 100A GG NH00	630	185	Forz	PFR96/6
2WH0Q	332,6	600 x 600 x 1500	165,0	15 x 100A GG NH00	630	240	Forz	PFR96/6
2WH13	399,1	600 x 600 x 1500	193,0	18 x 100A GG NH00	630	2 x 120	Forz	PFR96/12
2WH1F	465,6	600 x 600 x 1500	210,0	21 x 100A GG NH00	800	2 x 150	Forz	PFR96/12
2WH1T	532,1	600 x 600 x 1500	230,0	24 x 100A GG NH00	800	2 x 185	Forz	PFR96/12
2WH1Z	598,6	600 x 600 x 2000	280,0	27 x 100A GG NH00	1000	2 x 185	Forz	PFR96/12
2WH26	665,1	600 x 600 x 2000	300,0	30 x 100A GG NH00	1000	2 x 240	Forz	PFR96/12
2WH2I	798,1	1200 x 600 x 2000	490,0	36 x 100A GG NH00	1600	4 x 120	Forz	PFR96/12
2WH2W	931,2	1200 x 600 x 2000	535,0	42 x 100A GG NH00	1600	4 x 150	Forz	PFR96/12
2WL0C	90,0	600 x 600 x 1500	144,0	3 x 25A GG NH00 6 x 50A GG NH00	630	50	Forz	PFR96/6
2WL0I	108,0	600 x 600 x 1500	150,0	6 x 25A GG NH00 6 x 50A GG NH00	630	50	Forz	PFR96/6
2WL0Q	126,0	600 x 600 x 1500	157,0	3 x 25A GG NH00 9 x 50A GG NH00	630	70	Forz	PFR96/6
2WL0W	144,0	600 x 600 x 1500	164,0	6 x 25A GG NH00 9 x 50A GG NH00	630	70	Forz	PFR96/6
2WL19	180,0	600 x 600 x 1500	177,0	15 x 50A GG NH00	630	95	Forz	PFR96/6
2WL1N	216,0	600 x 600 x 1500	190,0	6 x 80A GG NH00 3 x 160A GG NH00	630	95	Forz	PFR96/6
2WL1T	252,0	600 x 600 x 1500	210,0	3 x 80A GG NH00 6 x 160A GG NH00	630	150	Forz	PFR96/6
2WL1Z	289,0	600 x 600 x 1500	240,0	6 x 80A GG NH00 6 x 160A GG NH00	630	185	Forz	PFR96/6
2WL26	325,0	600 x 600 x 1500	260,0	3 x 80A GG NH00 9 x 160A GG NH00	630	240	Forz	PFR96/6
2WL2C	361,0	600 x 600 x 1500	280,0	12 x 160A GG NH00	630	2 x 95	Forz	PFR96/6
2WL2I	397,0	600 x 600 x 2000	338,0	3 x 80A GG NH00 12 x 160A GG NH00	630	2 x 120	Forz	PFR96/6
2WL2Q	434,0	600 x 600 x 2000	380,0	15 x 160A GG NH00	800	2 x 150	Forz	PFR96/6
2WL2W	506,0	1200 x 600 x 2000	525,0	18 x 160A GG NH00	800	2 x 185	Forz	PFR96/12
2WL39	578,0	1200 x 600 x 2000	575,0	21 x 160A GG NH00	1000	2 x 240	Forz	PFR96/12
2WL3N	650,0	1200 x 600 x 2000	650,0	24 x 160A GG NH00	1600	4 x 95	Forz	PFR96/12
2WL3T	722,0	1200 x 600 x 2000	730,0	27 x 160A GG NH00	1600	4 x 120	Forz	PFR96/12
2WL3Z	867,0	1200 x 600 x 2000	845,0	30 x 160A GG NH00	1600	4 x 150	Forz	PFR96/12
2WL46	1010,0	1800 x 600 x 2000	995,0	36 x 160A GG NH00	1600	4 x 185	Forz	PFR96/12
2WL4C	1155,0	1800 x 600 x 2000	1150,0	42 x 160A GG NH00	2000	4 x 240	Forz	PFR96/12
2WM0W	144,3	600 x 600 x 1500	190,0	6X50+3X100 (NH00)	630	70	Forz	PFR96/6
2WM13	181,4	600 x 600 x 1500	200,0	3X50+6X100 (NH00)	630	95	Forz	PFR96/6
2WM19	216,5	600 x 600 x 1500	230,0	6X50+6X100 (NH00)	630	120	Forz	PFR96/6
2WM1F	252,6	600 x 600 x 1500	250,0	3X50+9X100 (NH00)	630	150	Forz	PFR96/6
2WM1N	288,7	600 x 600 x 1500	275,0	12X100 (NH00)	630	185	Forz	PFR96/6
2WM1T	324,8	600 x 600 x 2000	330,0	3X50+12X100 (NH00)	630	240	Forz	PFR96/12
2WM1Z	360,8	600 x 600 x 2000	365,0	15X100 (NH00)	630	2 x 95	Forz	PFR96/12
2WM2C	433,0	1200 x 600 x 2000	515,0	18X100 (NH00)	630	2 x 150	Forz	PFR96/12
2WM2I	506,2	1200 x 600 x 2000	560,0	21X100 (NH00)	800	2 x 150	Forz	PFR96/12
2WM2Q	578,4	1200 x 600 x 2000	630,0	24X100 (NH00)	800	2 x 185	Forz	PFR96/12
2WM2W	649,5	1200 x 600 x 2000	720,0	27X100 (NH00)	1000	2 x 240	Forz	PFR96/12
2WM33	721,7	1200 x 600 x 2000	820,0	30X100 (NH00)	1000	2 x 240	Forz	PFR96/12
2WM3F	867,0	1800 x 600 x 2000	960,0	36X100 (NH00)	1600	4 x 120	Forz	PFR96/12
2WM3T	1011,4	1800 x 600 x 2000	1120,0	42X100 (NH00)	1600	4 x 150	Forz	PFR96/12

Condensatori

Capacitors

Condensatori monofase MCE™

Monophase capacitors MCE™

Condensatori monofase serie MCE™.
Monophase capacitors MCE™ type.



Condensatori monofase in film di polipropilene metallizzato autorigenerabile, con **impregnante atossico e biodegradabile**; ogni elemento è posto in custodia metallica dotato di **dispositivo di protezione a sovrappressione**, che interviene in caso di guasto non rigenerabile.

E' prevista su ogni condensatori una di **resistenza di scarica**, che permette di ridurre la tensione residua del condensatore in meno di 75V in 3 minuti, in conformità con la **Norma CEI EN 60831**.

Il condensatore MCE (ad eccezione delle taglie 4,17kvar) può essere dotato di una induttanza avvolta in aria, montata su supporto plastico che, accoppiata al condensatore, permette di ridurre il picco di corrente che nasce all'atto dell'energizzazione del condensatore.

EN Single-phase capacitors in **self-generated metallic polypropylene film** with **non-toxic and biodegradable impregnation**; each element is housed in a metallic housing equipped with an **overpressure protection** device, which intervenes in the event of a non-regenerable failure.

Each capacitor is provided with a **discharge resistor**, which allows to reduce the residual voltage of the condenser to less than 75V in 3 minutes, in **accordance with CEI EN 60831**.

The MCE capacitor (with the exception of the 4.17kvar size) can be equipped with an air-wound inductance mounted on a plastic support which, coupled to the capacitor, reduces the peak current generated when the condenser energizes.

Modello Model	Codice Code	Potenza Power [kVar@50Hz]	Tensione Voltage [V]	Corrente Current [A]	Dimensioni Dimensions [mm x mm]	Peso Weight [kg]	Perdite Losses [W/kVar]
MCE1.67-230	2WA29	1.67	230	7.3	60x160	0.39	<0.4
MCE1.67-230	2WA3B	0.83	400	2	40x125	0.14	
MCE1.67-230	2WA3C	1.67	400	4.1	60x120	0.29	
MCE1.67-230	2WA3D	3.33	400	8.3	60x160	0.39	
MCE1.67-230	2WD01	4.17	400	10.4	60x160	0.40	
MCE1.67-230	2WA3E	0.83	440	1.9	40x125	0.14	
MCE1.67-230	2WA3F	1.67	440	3.8	60x120	0.31	
MCE1.67-230	2WA3G	3.33	440	7.6	60x160	0.39	
MCE1.67-230	2WD02	4.17	440	9.5	60x160	0.45	
MCE1.67-230	2WCBI	4.00	500	8.0	60x160	0.38	
MCE1.67-230	2WC03	3.33	500	6.7	60x160	0.41	
MCE1.67-230	2WA3J	3.33	550	6.1	60x160	0.41	

Condensatori trifase MCTN™

Threephase capacitors MCTN™

Condensatori trifase serie MCTN™.

Threephase capacitors MCTN™ type.



I condensatori trifase della serie MCTN sono realizzati con condensatori monofase in film di polipropilene metallizzato autorigenerabile, con impregnante atossico e biodegradabile (NO PCB); ogni elemento è posto in custodia con dispositivo di protezione a sovrappressione, che interviene in caso di guasto non rigenerabile. E' prevista su ogni condensatore una di resistenza di scarica, che permette di ridurre la sua tensione residua a meno di 75V in 3 minuti, in conformità con la Norma CEI EN 60831. Il condensatore MCTN è dotato di induttanze per la riduzione del picco di corrente associato all'inserzione. L'involucro è realizzato in materiale plastico (classe V2-UL94) con flange di fissaggio.

Il condensatore trifase tipo MCTN è provvisto di coperchio in materiale plastico, che ricopre i morsetti per l'alimentazione del condensatore, a proteggere dai contatti accidentali, (grado di protezione IP40).

EN The three-phase capacitors of the MCTN series are made with single-phase capacitors in self-healing metallized polypropylene film, with non-toxic and biodegradable impregnation (NO PCB); each element is housed in an overpressure protection device, which intervenes in the event of a non-regenerable fault. One discharge resistance is provided on each capacitor, which allows to reduce its residual voltage to less than 75V in 3 minutes, in compliance with the CEI EN 60831 Standard. The MCTN condenser is equipped with inductors for the reduction of the peak of current associated with the insertion. The casing is made of plastic material (class V2-UL94) with fixing flanges.

The MCTN three-phase capacitor is provided with a plastic cover, which covers the terminals for powering the condenser, to protect against accidental contacts, (degree of protection IP40).

Modello Model	Codice Code	Potenza Power [kVar]	Tensione Voltage [V]	Corrente Current [A]	Dimensioni Dimensions [mm x mm]	Peso Weight [kg]
MCTN 5-230	2WD40	5	230	12.6	230x79x213	2.5
MCTN 5-415	2WD41	5	415	6.9	230x79x213	2.3
MCTN 10-415	2WD42	10	415	13.9	230x79x213	2.5
MCTN 12.5-415	2WD43	12.5	415	17.4	230x79x213	2.6
MCTN 5-450	2WD44	5	450	6.4	230x79x213	2.3
MCTN 10-450	2WD45	10	450	12.8	230x79x213	2.5
MCTN 12.5-450	2WD46	12.5	450	16	230x79x213	2.6
MCTN 5-550	2WD47	5	550	5.2	230x79x213	2.3
MCTN 10-550	2WD48	10	550	10.5	230x79x213	2.5
MCTN 12.5-550	2WD49	12.5	550	13.1	230x79x213	2.6

Regolatori di livello

Level regulators

Utensili & Componenti

Tools & components

PTS4™

Pinza taglia e spela fili.

Cables stripper and cutter in one tool



PTS4™ è adatta a spellare cavi elettrici singoli flessibili **da 0,2 a 6 mm² di sezione**. Per le guaine esterne dei cavi uni o multipolari è **possibile variare la pressione delle lame** servendosi della regolazione.

La lunghezza di **spellatura del cavo è regolabile** fino a 20mm e la spellatura dell'isolante avviene senza che il conduttore risulti danneggiato.

Ideata, progettata e prodotta da Elcontrol Energy Net Srl

EN PTS4™ is suitable to peel individual flexible electric cables **from 0.2 to 6 square millimeters**. For the outer sheaths of one or multicore cables you can vary the pressure of the cutter with adjustment. The length of the cable stripping is **adjustable up to 20 millimeters**.

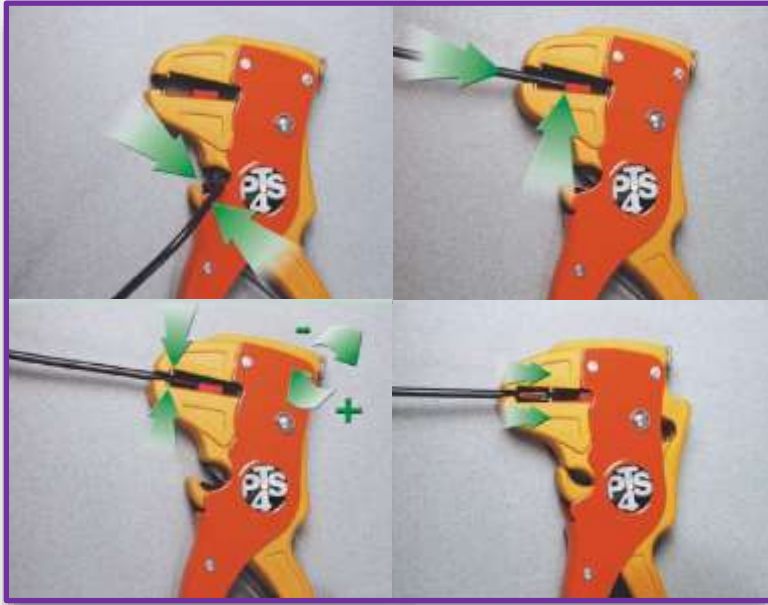
The stripping of insulation is done without the handler is damaged. **The unique 100% Made in Italy.**

ROBUSTA E AFFIDABILE

- ✓ Robusta esecuzione in lamiera stampata, verniciata con polveri epossidiche, e materiale nylon-vetro
- ✓ Coltelli in acciaio temperato
- ✓ Tastatori che permettono una sicura presa sulla guaina e una autoadattabilità della pinza ai vari diametri dei cavi, con conseguente perfetta spellatura senza incisioni sul filo di rame
- ✓ Blocchetto fermacavo con riscontro su scale millimetriche, laterali, per una esatta determinazione della lunghezza di spellatura
- ✓ Regolazione per variare la pressione delle lame e per guaine esterne di cavi tripolari
- ✓ Versione con scatola e in blister
- ✓ Disponibile in una pratica confezione da banco di 36 pezzi

ROBUST, PRACTICE AND PRECISE

- ✓ Strong execution of pressed steel, epoxy painted, and nylon-glass material
- ✓ tempered steel blades
- ✓ probes that allow a firm grip on the sleeve and a self adaptability of the clamp to the various cable diameters, resulting in perfect stripping without incisions on copper wire
- ✓ Block cable clamp with feedback on millimeter scales, side, for an exact determination of the stripped length
- ✓ adjustment to vary the pressure of the blades and outer sheaths for cables of three-pole
- ✓ Available boxed or blistered
- ✓ 36 desktop package version available



PCSS™

L'originale 100% Made in Italy porta circuiti stampati scomponibili.

L'originale 100% Made in Italy.

The original 100% Made in Italy detachable PCB assembly jig.



Le PCSS sono state ideate e progettate in Elcontrol che ancora oggi le produce direttamente; nonostante negli anni siano comparse sul mercato molteplici copie, la **qualità dei materiali e dell'assemblaggio** delle PCSS Elcontrol rimangono elementi distintivi per prodotti professionali e affidabili. Diffidate delle copie e affidatevi alle originali.



The series of detachable PCSS PC board assembly jigs have been designed to simplify and streamline printed circuit electronic component assembly. **PCSS have been created, designed by Elcontrol Energy Net Srl**; even if several times copied, the materials and assembly quality of Elcontrol ones is still today a distinguishing characteristics. Avoid copies and choose the original.

L'ORIGINALE 100% MADE IN ITALY

- ✓ La serie PCSS di maschere componibili di assemblaggio per scheda elettroniche è stata progettata per semplificare e razionalizzare l'assemblaggio su circuiti stampati di assemblaggio di componenti elettronici.
- ✓ Le parti principali del PCSS possono essere facilmente smontati nelle seguenti unità:
 - Telaio base
 - Gruppo porta circuiti
 - Coperchio premi componenti
- ✓ I coperchi sono rivestiti con schiuma antistatica conduttiva particolarmente adatta per impieghi con componenti elettronici sensibili alle cariche elettrostatiche.
- ✓ Come standard PCSA viene fornito con due barre scorrevoli, che li rende adatti per l'uso con una varietà di dimensioni di schede, e una rotaia centrale che può essere facilmente premuta manualmente in posizione. Questo rende possibile montare due file parallele di circuiti stampati.
- ✓ Su richiesta, tutti i tipi di PCSS possono essere forniti con guide scorrevoli supplementari fino ad un massimo di 4 (PCSA 1 e 2) e 6 (PCSA 4).

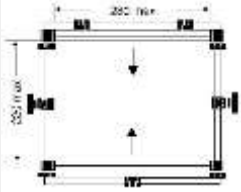
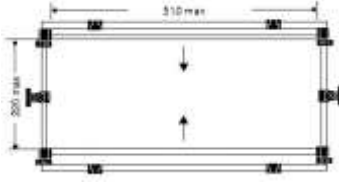
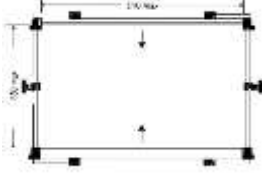
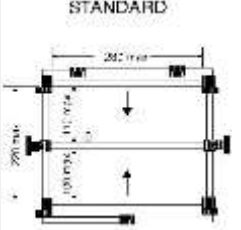
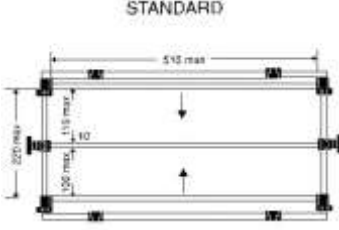
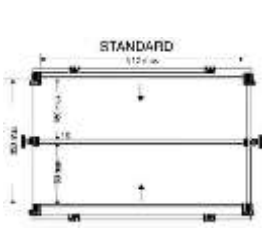
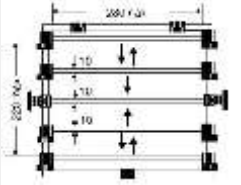
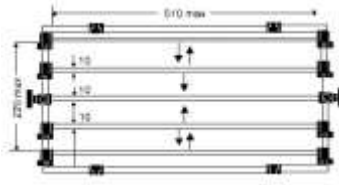
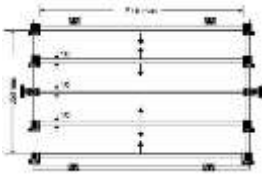
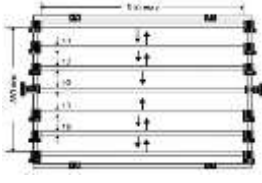
THE ORIGINAL 100% MADE IN ITALY

- ✓ The main parts of PCSS of these series are simply slotter together and can easily be disassembled into the following units:
 - Frame
 - PC holder
 - Press lid
- ✓ They are lined with antistatic conducting foam rubber especially suitable for uses with electronic component sensitive to electrostatic loads.
- ✓ Standard types are supplied with two sliding rails, making them suitable for use with a variety of PC board sizes, and one central rail which can be manually pressed in place. This makes it possible to assemble two parallel rows of printed circuits.
- ✓ On request, all types of PC boards assembly jigs may be supplied with extra sliding rails up to a maximum of 4 (PCSA 1 and 2) and 6 (PCSA 4). This makes it possible to assemble several parallel rows of small PC boards.

Modelli e configurazioni

Versions and combinations

Modello Model	PCSA-1	PCSA-2	PCSA-4
Codice Code	1DACR	1DACS	1DACU
Dimensioni area utile mm Usage dimensions mm	280 x 220	510 x 220	510 x 350
Coperchio Cover	Sì	Sì	Sì
Spugna antistatica Antistatic rubber foam	Sì	Sì	Sì
Colore Color	Rosso Red	Rosso Red	Rosso Red
Numero massimo di barre scorrevoli Maximum sliding bars numbers	4	4	6
Numero massimo di barre inclusa la fissa Maximum number of bars (including central)	5	5	7

Modello Model	PCSA-1	PCSA-2	PCSA-4
2 scorrevoli – nessun centrale 2 sliders – no central			
2 scorrevoli – 1 centrale 2 sliders – no central	STANDARD 	STANDARD 	STANDARD 
4 scorrevoli – 1 centrale 4 sliders – 1 central			
6 scorrevoli – 1 centrale 6 sliders – 1 central			

Regolatori di livello

Level regulators

energy net **elcontrol**

Regolatori di livello a conduzione liquido per montaggio a pannello e guida DIN.

Conductive liquid level regulators for panel or DIN rail mounting.



I regolatori di livello Elcontrol coniugano l'economicità e la versatilità alla robustezza dei prodotti **100% Made in Italy**; disponibili sia per montaggio a pannello (RL) che in guida DIN (RLD), dispongono di un'ampia gamma di accessori, anch'essi 100% Made in Italy.

Con le serie RL, RL2 e RLD permettono un **completo controllo dei livelli di serbatoi** con un'ampia scelta di opzioni di funzionamento; i regolatori di livello FS, offrono la massima semplicità di un **funzionamento ON/OFF** con diverse modalità di applicazione.

EN The Elcontrol level regulators combine economic efficiency and robustness of the products 100% Made in Italy; available both for Panel mounting (RL) and DIN rail mounting (RLD), they have a wide range of accessories, which are also 100% Made in Italy.

RL, RL2 and RLD series allow **complete control of tank levels** with a wide range of operating options; FS level controllers offer the **maximum ease of ON/OFF operation** with different application modes.

MODELLO MODEL	FISSAGGIO FIXING	UTILIZZO USAGE
RLD	Guida DIN DIN rail	Controllo del livello Level control and regulation
RL	UNDECAL	Controllo del livello Level control and regulation
RL2	OCTAL	Controllo del livello Level control and regulation
FS	DADO Nut	On/OFF

Modelli e configurazioni

Versions and combinations

RLD

Codice Item Code	1FAAL	1FAAM
Fissaggio Fixing	Guida DIN	Guida DIN
Funzionamento Measuring method	A conduzione liquido	A conduzione liquido
Alimentazione Power supply	24/48 VAC	110/220 VAC
Consumo Consumption	3 VA	3VA
Uscita Output	5A / 250 VAC	5A / 250 VAC
Distanza max (elettrodi – controller) Max distance (electrod-controller)	50 m (cavo 0,5mm ²)	50 m (cavo 0,5mm ²)
Isolamento (alimentazione sonda) Max cable capacity	10 microF	10 microF
Isolamento (alimentazione sonda) Insulation (sensor power supply)	2500 VAC	2500 VAC
Isolamento (Contatti A) Insulation (contacts)	1000 VAC	1000 VAC
Tensione di Break Down Break Down voltage	1000My a 500 VDC	1000My a 500 VDC
Tempo di risposta I/O Response time I/O	20 msec	20 msec
Tempo di risposta riassetto Reset response time riassetto	0,5 sec	0,5 sec
Range temperatura Temperature range	-20°C, +60°C	-20°C, +60°C
Umidità Umidity	Max 80%	Max 80%
Materiale Material	NORYL	NORYL

Regolatori di livello

Level regulators






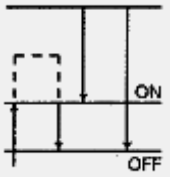
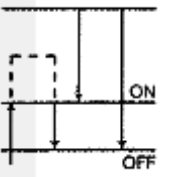
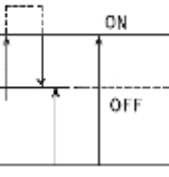
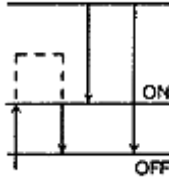

RL/RL2

Codice Code	1FAAA	1FAAB	1FAAC	1FAAD	1FAAE
Fissaggio Fixing	Pannello Panel	Pannello Panel	Pannello Panel	Pannello Panel	Pannello Panel
Zoccolatura Connector	UNDECAL	UNDECAL	OCTAL	OCTAL	OCTAL
Funzionamento Measuring methid	A conduzione liquido Liquid conduction	A conduzione liquido Liquid conduction	A conduzione liquido Liquid conduction	A conduzione liquido Liquid conduction	A conduzione liquido Liquid conduction
Alimentazione Power supply	24 VAC	110/220 VAC	24 VAC	110 VAC	220 VAC
Consumo Consumption	3 VA	3 VA	3 VA	3 VA	3 VA
Uscita Output	5A / 250 VAC	5A / 250 VAC	5A / 250 VAC	5A / 250 VAC	5A / 250 VAC
Distanza max (elettrodi – controller) Max distance (electrod-controller)	50 m (cavo 0,5mm2)	50 m (cavo 0,5mm2)	50 m (cavo 0,5mm2)	50 m (cavo 0,5mm2)	50 m (cavo 0,5mm2)
Isolamento (alimentazione sonda) Insulation (10 microF	10 microF	10 microF	10 microF	10 microF
Isolamento (alimentazione sonda) Insulation (sensor power supply)	2500 VAC	2500 VAC	2500 VAC	2500 VAC	2500 VAC
Isolamento (Contatti A) Insulation (contacts)	1000 VAC	1000 VAC	1000 VAC	1000 VAC	1000 VAC
Tensione di Break Down Break Down voltage	1000My a 500 VDC	1000My a 500 VDC	1000My a 500 VDC	1000My a 500 VDC	1000My a 500 VDC
Tempo di risposta I/O Response time I/O	20 msec	20 msec	20 msec	20 msec	20 msec
Tempo di risposta riassetto Reset response time	0,5 sec	0,5 sec	0,5 sec	0,5 sec	0,5 sec
Range temperatura Temperature range	-20°C, +60°C	-20°C, +60°C	-20°C, +60°C	-20°C, +60°C	-20°C, +60°C
Umidità Umidity	Max 80%	Max 80%	Max 80%	Max 80%	Max 80%
Materiale Material	ABS	ABS	ABS	ABS	ABS

Modelli e configurazioni

Versions and combinations

PS

Codice Code	PJAFU	PJAAA	PJAAB	PJAAC	PJAAF
Modello Model	Seeger in nylon 				
Funzionamento Function					
Per liquidi con densità Liquid density	1	1	1	0,79 (gasoil)	0,79 (gasoil)
Corsa del galleggiante dal piano (ON) Floating strokes (ON)	min 10,5 mm	max 17,5 mm	max 17,5 mm	min 34,0 mm	max 113,8 mm
Corsa del galleggiante dal piano (OFF) Floating strokes (OFF)	max 16,0 mm	min 10,5 mm	min 10,5 mm	max 41,0 mm	min 106,2 mm
Potenza commutabile Commuting max power	50 W	50 W	50 W	10 W	10 W
Massima tensione commutabile Maximum commuting voltage	200 VDC/VAC	200 VDC/VAC	200 VDC/VAC	100 VDC/VAC	100 VDC/VAC
Massima corrente Maximum current	1A (DC), 0,6A (CA)	1A (DC), 0,6A (CA)	1A (DC), 0,6A (CA)	1A (DC), 0,6A (CA)	0,2A (DC/CA)
Tensione di breakdown (contatti) Breakdown voltage (contacts)	250VDC	250VDC	250VDC	250VDC	250VDC
Tensione di breakdown (contenitore) Breakdown voltage (container)	1800 VDC	1800 VDC	1800 VDC	1800 VDC	1800 VDC
Resistenza isolamento (contatti) Insulating resistance (contacts)	100 MOhm	100 MOhm	100 MOhm	100 MOhm	100 MOhm
Resistenza di contatto iniziale Starting contact resistance	200 MOhm	200 MOhm	200 MOhm	200 MOhm	200 MOhm
Range temperatura Temperature range	-10°C, +60°C	-10°C, +60°C	-10°C, +60°C	-10°C, +60°C	-10°C, +60°C
Materiale stelo Ram material	Resina Polipropilene	Resina Polipropilene	Resina Polipropilene	Nylon 6	Nylon 6
Materiale galleggiante Floating material	Polipropilene expanded	Polipropilene expanded	Polipropilene expanded	NBR expanded	NBR expanded
Lunghezza cavo Cable length	300 mm	300 mm	300 mm	300 mm	300 mm

Sonde per regolatori RL, RL2 e RLD

Probes for RL, RL2 and RLD level regulators

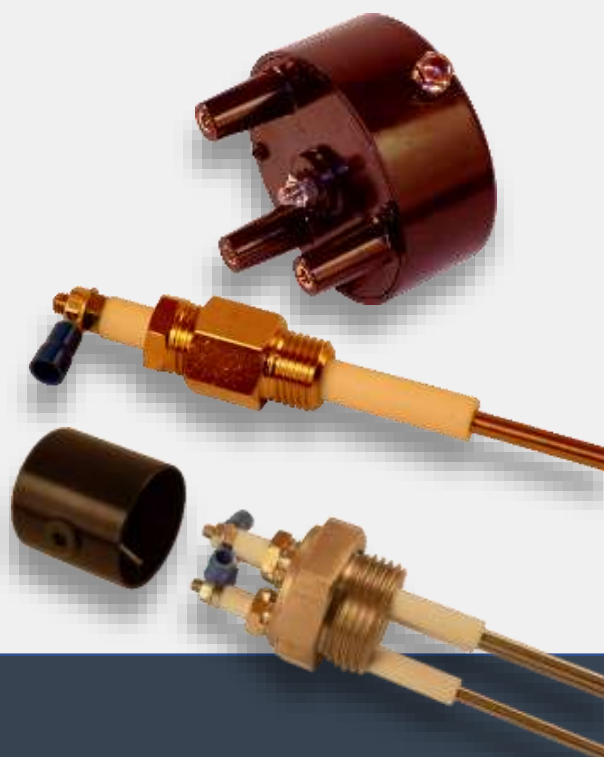
Sonde e porta sonde per regolatori di livello Elcontrol.

Probes and probe holders for Elcontrol regulators.

Sonde in acciaio inox e portasonde in bakelite caratterizzati da una elevata affidabilità garantita da una produzione totalmente Made In Italy.



Elcontrol probes and probes casing, fully produced in Elcontrol facilities, are characterized by an high level of reliability.



SL-3



Portasonde stagno in bakelite per sonde S-INOX
Probes casing, waterproof, for S-INOX probes

S-INOX

Sonde inox per SL-3
Stainless steel probes for SL-3

SMM



Sonde stagne adatte per pressioni fino a 6 atm con filetto 1" GAS e passanti in teflon
Waterproof stainless steel probes, suitable for pressures up to 6 atm with 1" GAS thread and teflon shafts

SMM-3



Portasonde adatto a pressioni fino a 6 atm con filetto 1" GAS completo di tre sonde inox da 50 cm
Waterproof probes casing, suitable for pressures up to 6 atm, with 1" GAS thread and three preassembled 50 cm probes

SM-3



Portasonde adatto a pressioni fino a 6 atm con filetto 2" GAS completo di tre sonde inox 100 cm
Waterproof probes casing, suitable for pressures up to 6 atm, with 2" GAS thread and three preassembled 100 cm probes

Modelli e configurazioni

Versions and combinations

SL-3

Codice/Code	Descrizione / Description
1HAAA	SL-3

S-INOX

Codice/Code	Descrizione / Description
1JAAA	S-INOX probe 50 cm
1JAAB	S-INOX probe 100 cm
1JAAC	S-INOX probe 200 cm
1JAAD	S-INOX probe 300 cm

SMM-1

Codice/Code	Descrizione / Description
1JAAF	SMM-1 25 cm
1JAAG	SMM-1 50 cm
1JAAH	SMM-1 100 cm

SMM-3

Codice/Code	Descrizione / Description
1JAAI	SMM-3 50 cm

SM-3

Codice/Code	Descrizione / Description
1JAAJ	SM-3 100 mm

Interruttori magnetici e fotocellule

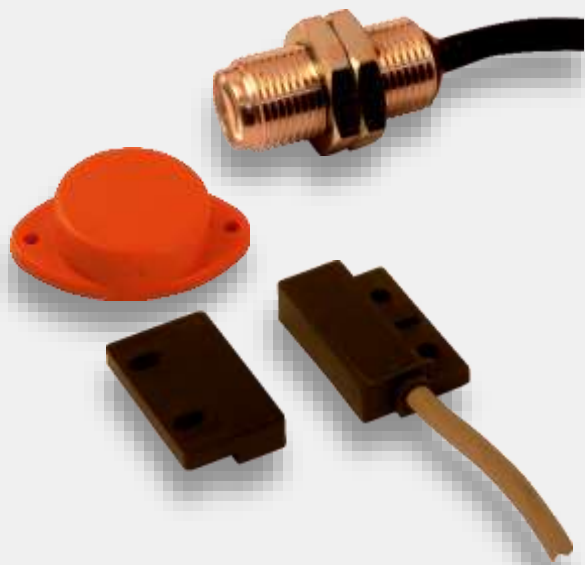
Switches and photocells



Interruttori magnetici
Switches and photocells

Un'ampia gamma di interruttori magnetici di prossimità caratterizzati da una elevata affidabilità; disponibili in diverse forme e con tutti i relativi accessori.

EN A wide range of magnetic proximity switches are characterized by a high reliability; available in various forms and with all its accessories.

The modulated light photocells, 100% Made in Italy, are also available for automated switches.




Modello Model	LS500P – 500mm	LS500R – 500mm	
			
Codice Code	2BAAA	2BAAB	
Tipo Type	Proiettore Projector	Ricevitore Receiver	
Funzionamento Fixing	Dado Nut	Dado Nut	
Foto comando Photo command	FRL/FRL-L	FRL/FRL-L	
Distanza massima Maximum distance	50 cm	50 cm	
Dimensione minima rilevabile Minimum detectable dimension	8 mm	8 mm	
Temperature Temperature range	-15 °C / +60 °C	-15 °C / +60 °C	

Codice Code	12AAA	12AAB	12AAC
Forma Shape	Catarifrangente rotondo Round reflector	Catarifrangente rotondo Round reflector	Catarifrangente rettangolare Rectangular reflector
Dimensioni mm Dimensions mm	D 47	D 80	180×50

Modelli e configurazioni

Versions and combinations

Modello <i>Model</i>	PS500	PS510	PS6132	PS6231	PS3150	PS7711
<i>Codice Code</i>	PDAAA	PDAAB	PDAAR	PDAAS	PDAAH	PDAAX
<i>Dimensioni mm Dimensions mm</i>						
<i>Materiale contenitore Case material</i>	ABS	ABS	ABS	ABS	ABS	ABS
<i>Tipo contatti Contact type</i>	1NA	1NC	1NA	1NC	1NA	1NC
<i>Tensione massima di commutazione Max commutation voltage</i>	200 VDC	200 VDC	200 VDC	200 VDC	100 VDC	200 VDC
<i>Potenza massima commutabile Max commutable power</i>	10W	10W	50W	25W	10W	10W
<i>Corrente massima commutabile Max commutable current</i>	0,5 A	0,5 A	1,0 A	0,5 A	0,5 A	0,5 A
<i>Tensione di Break Down (tra contatti) Break Down voltage (contacts)</i>	200 VDC	200 VDC	200 VDC	200 VDC	250 VDC	200 VDC
<i>Tensione di Break Down (tra contatti e contenitore) Break Down voltage (contacts- case)</i>	1500 VDC	1500 VDC	1500 VDC	1500 VDC	1500 VDC	1500 VDC
<i>Temperatura ambiente Temperature range</i>	-10 °C / 60 °C	-10 °C / 60 °C	-10 °C / 60 °C	-10 °C / 60 °C	-10 °C / 60 °C	-10 °C / 60 °C
<i>Resistenza allo shock Shock resistance</i>	30G	30G	30G	10G	30G	10G
<i>Resistenza alle vibrazioni Vibration resistance</i>	1,5mm (10-55 Hz)	1,5mm (10-55 Hz)	1,5mm (10-55 Hz)	1,5mm (10-55 Hz)	1,5mm (10-55 Hz)	1,5mm (10-55 Hz)
<i>Connessione Connection</i>	Cavetto UL 1007 AWG 26	Cavetto UL 1007 AWG 26	Cavetto UL 1007 AWG 26	Cavetto UL 1007 AWG 26	Cavetto UL 1007 AWG 26	Cavetto UL 1007 AWG 26
<i>Lunghezza cavo Cable length</i>	300 mm	300 mm	300 mm	300 mm	300 mm	300 mm

Regolatori di livello

Level regulators

energy net **elcontrol**[®]

Modello Model	IMOM A10VA	IMOM A80VA	IMOM U60VA	IMP A80VA	IMP V60VA
Codice Code	2NAAA	2NAAB	2NAAC	2PAAA	2PAAB
					
Dimensioni mm Dimensions mm	48 x D6,7	85 x D10	85 x D10	71x40x17	71x40x17
Materiale contenitore Case material	Alluminio Alluminium	Alluminio Alluminium	Alluminio Alluminium	PVC	PVC
Tipo contatti Contact type	1NA	1NA	1U	1NA	1U
Tensione massima di commutazione Max commutation voltage	300 VDC	300 VAC	300 VAC	300VAC	300VAC
Potenza massima commutabile Max commutable power	10VA	80VA	60VA	80VA	60VA
Temperatura ambiente Temperature range	-20 °C / 60 °C	-20 °C / 60 °C	-20 °C / 60 °C	-20 °C / 60 °C	-20 °C / 60 °C

Modelli e configurazioni

Versions and combinations

Modello Model	TG 0016	PS 6001	MEL 1	MEL 2
Codice Code	PHAAB	PHAAA	2RAAA	2RAAD
				
Tipo di magnete Magnet type	Permanente Permanent	Permanente Permanent	Permanente Permanent	Permanente Permanent
Dimensioni mm Dimensions mm	30x9x4	30x18x6	57x37x15,5	71x40x17
Materiale contenitore Case material	ABS	ABS	PVC	PVC
Foro fissaggio Fixing hole	1 da 2,5 mm	2 da 2,5 mm	2 da 3,5mm	2 da 3,5mm

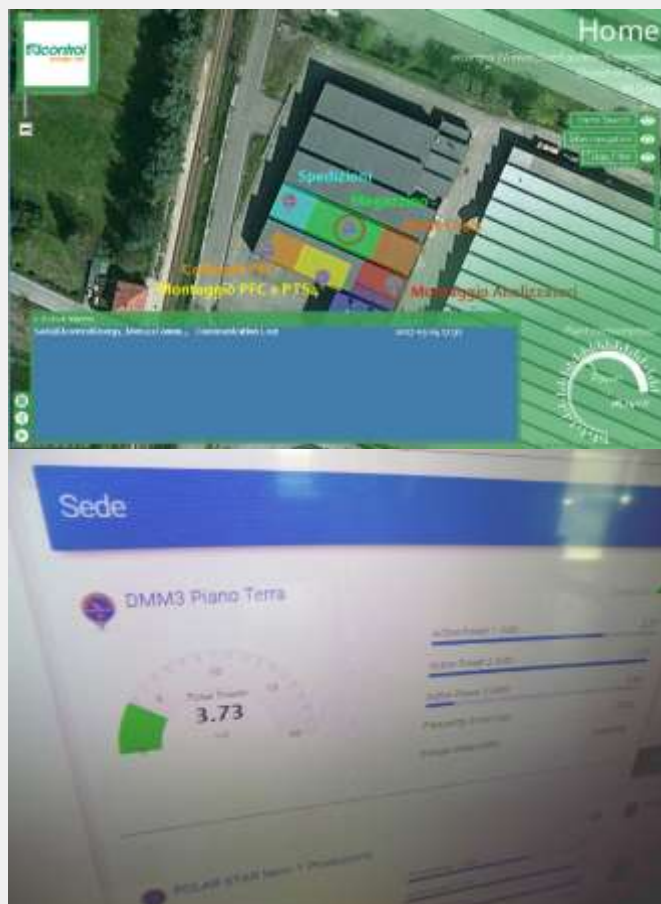
Softwares e reti

Softwares and networks

Energy Studio Cloud™

Software di monitoraggio in cloud per reti di misura non solo elettriche

Cloud monitoring system for measuring networks (electrical and non-electrical ones)



Energy Studio Cloud è un applicativo di monitoraggio basato su una piattaforma cloud moderna e potente. Energy Studio Cloud si caratterizza per la **estrema flessibilità e scalabilità** che gli permettono di adattarsi molto facilmente a qualsiasi ambiente.

ESC dispone di un ambiente standard disegnato per accontentare la maggior parte delle più comuni necessità di misura energetica, coniugando efficienza di utilizzo con rapidità di messa in servizio ed economicità. Tuttavia, grazie alla piattaforma tecnologica su cui è basato, **è possibile svilupparlo fino a diventare una vera e propria control-room**.

Grazie alla **piattaforma mobile per smartphone, tablet ecc.** il sistema di monitoraggio in cloud ESC rappresenta una soluzione tecnica flessibile e scalabile che può adattarsi a qualsiasi tipologia di applicazione: dalla più semplice alla più impegnativa.



Energy Studio Cloud is a monitoring application based on a modern and **powerful cloud platform**. Energy Studio Cloud is characterized by **extreme flexibility and scalability** that allow it to very easily adapt to any environment.

ESC has a standard environment designed to satisfy the majority of the most common need for energy measurement, combining utilization efficiency with deployment rapidity and cost economy. However, thanks to its technological platform on which it is based, it can be progressively enhanced **to become a real control room**.

Thanks to its **mobile platform**, Energy Studio Cloud can represent a complete monitoring environment for any application field.

PERSONALIZZABILE ESTENDIBILE

Energy Studio Cloud può essere progressivamente esteso e personalizzato, pur partendo dal suo pacchetto base, fino a diventare una vera e propria control room.

Le principali possibilità di personalizzazione e sviluppo di ESC possono riassumersi nelle seguenti:

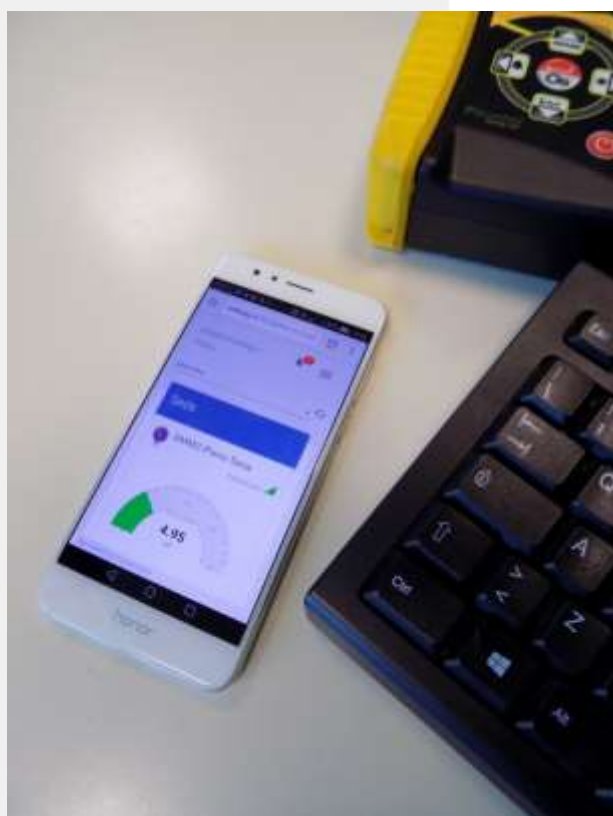
- ✓ Integrazione drivers per analizzatori non Elcontrol
- ✓ Mappa satellitare e planimetria multilivello per gestire il livello di informazione con lo zoom
- ✓ Possibilità di implementazione di un server cloud dedicato per il cliente
- ✓ Illimitati plant
- ✓ Integrazione di grandezze non esclusivamente elettriche quali ad esempio gas, acqua, pressioni, temperature, irraggiamenti ecc. tramite opportuni sensori/trasduttori
- ✓ Disponibile pacchetto hw/sw per gestione illuminazione
- ✓ Possibilità di agire sul sistema da remoto
- ✓ Possibilità di sviluppo parametri custom, grafici e reportistica personalizzata.

CUSTOMIZABLE AND EXTENSIBLE

ESC can be progressively extended and/or customized starting from its standard package becoming up to a complete control room.

Main enhancement features can be summarized in following ones:

- ✓ Integration of third parties analyzers by adding specific drivers
- ✓ Satellite Map and multilevel plan to manage the level of information according to zoom
- ✓ Possibility of implementing a dedicated cloud server for the customer
- ✓ Unlimited plants
- ✓ Integration of not only electrical parameters like water, gas, temperatures, solar radiation etc.
- ✓ Availability of hw/sw packages for public lighting management
- ✓ Ability to operate the system from remote: light switching, processes start/stop, emergency procedures etc.
- ✓ Possibility to develop specific custom parameters, graphs and reports



La **configurazione standard** è prevalentemente pensata per il monitoraggio e la consuntivazione dei consumi e dei costi energetici, misurabili con una rete di analizzatori Elcontrol.

Per chi è già utilizzatore di analizzatori Elcontrol in rete 485, il **passaggio a ESC sarà particolarmente semplice e rapido**: sarà infatti sufficiente disconnettere la rete 485 (o le reti 485) in essere collegate al server attuale e collegarla al nuovo **dispositivo di polling cloud** fornito già configurato per la lettura dei dati. La rete di monitoraggio sarà dopo breve disponibile online.

Le principali caratteristiche di Energy Studio Cloud, nella configurazione standard:

- Disponibile con **mapa satellitare o planimetria** degli ambienti misurati (DWG o DWF o PDF)
- **Fino a 20 analizzatori per plant**, estendibile (anche in un secondo momento) con ulteriori pacchetti di 20 analizzatori
- Nessun server locale necessario
- Hardware di polling inviato già configurato per una rapida messa in marcia
- **Data storage** in caso di perdita di linea
- Controllo delle energie
- Contabilizzazione dei costi
- **Gestione allarmi**
- Esportazione dei dati



The standard configuration is mainly designed for the monitoring and calculation of energy consumptions and costs, measurable with a **network of Elcontrol analyzers**.

For those who are already users of Elcontrol analyzers in 485 network, the **transition to ESC will be particularly simple and fast**: it will be enough to disconnect the 485 network (or 485 networks) and reconnect it to the new cloud polling device provided; polling hardware comes already configured. The monitoring network will be available online shortly after.

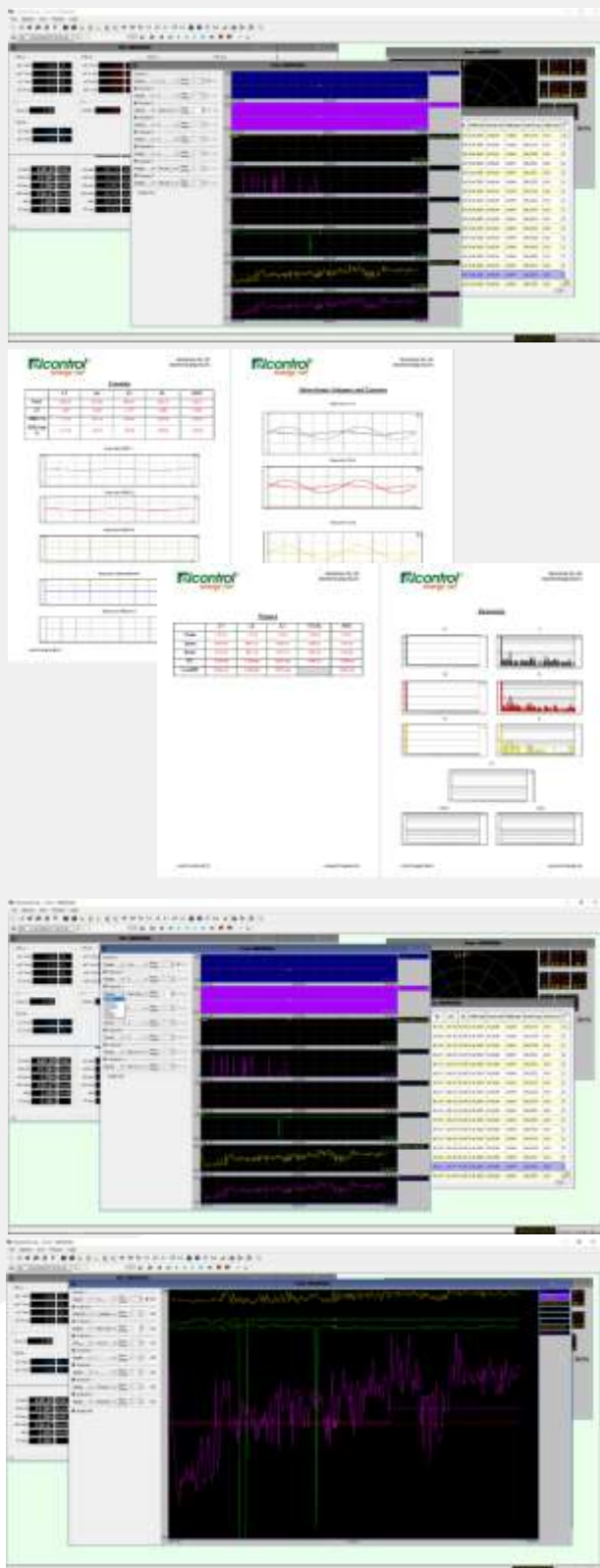
Main features of Energy Cloud Studio, in the standard configuration:

- Designed for **Elcontrol monitoring networks**
- Available with a satellite map or floor plan of measured environments (DWG or DWF or PDF)
- **Up to 20 analyzers for plant**, extensible (even at a later time) with more than 20 analyzers packages
- No local server needed
- Polling Hardware sent already configured for quick commissioning
- **Data storage** in case of line loss storage
- Control of energy
- Cost accounting
- **Alarm management**
- Data export

NanoStudio™ Qt

Software di analisi per tutti gli analizzatori della famiglia NanoVIP®

Analysis software for all NanoVIP® power quality analyzers



NanoStudio™ Qt è il nuovo software in ambiente Windows che consente di elaborare i dati registrati da **tutti gli analizzatori di energia della famiglia NanoVIP®** in modalità standalone così come in rete **MRH™**

NanoStudio™ Qt è in grado sia di aprire una campagna registrata da un qualsiasi analizzatore della famiglia NanoVIP® ma anche di **registrare direttamente la campagna collegandosi in tempo reale** ad un NanoVIP® CUBE WF™, NanoVIP® CUBE PLUS™ o NanoVIP® QUADRA™ master.

NanoStudio™ Qt include (potenziando) tutte le funzionalità di analisi della Power Quality, integrandole con molte nuove funzionalità legate al **mondo delle energie in genere** come, ad esempio, la possibilità di includere nella campagna **valori di trasduzione** o **comparare parametri eterogenei** (non esclusivamente elettrici) provenienti da punti diversi di una rete di misura multipunto MRH™.

Il software NanoStudio™ Qt è liberamente scaricabile dall'area download dopo la registrazione/login.



NanoStudio™ Qt is the new Windows software that allows users to process the data recorded by **all the energy analyzers of the NanoVIP® family** in standalone mode as well as in a MRH™ network.

NanoStudio™ Qt is able to open a campaign recorded by any NanoVIP® family analyzer but also to **directly record the campaign by connecting in real time** to a NanoVIP® CUBE WF™, NanoVIP® CUBE PLUS™ o NanoVIP® QUADRA™ master.

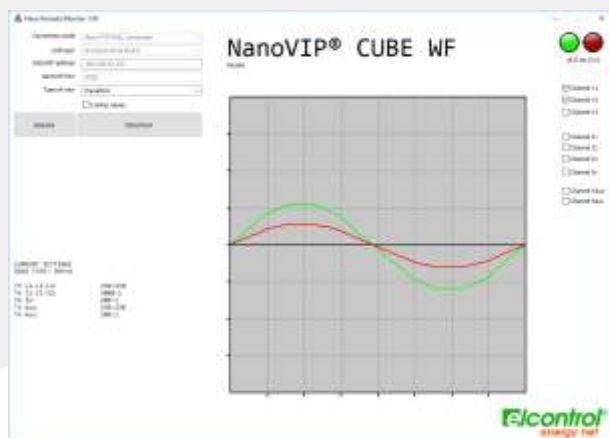
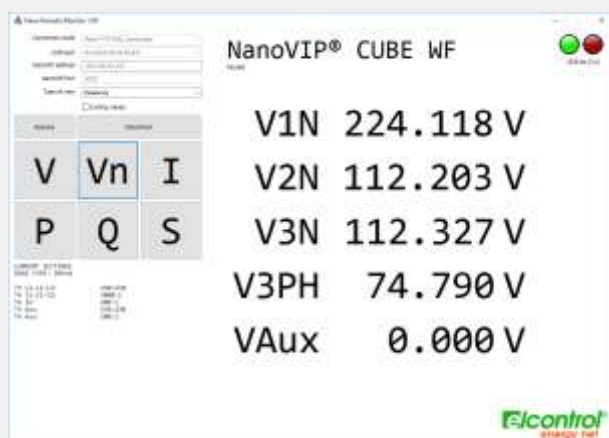
NanoStudio™ Qt includes (enhancing) all the power quality analysis features integrating them with **many new features related to the world of energies** in general, such as, for example, the possibility to include **transduction values** in the campaign or compare **heterogeneous parameters** (not exclusively electrical) from different points of the MRH™ measurement network.

The NanoStudio™ Qt software is freely downloadable from the download area after registration / login.

NanoRemote™

Software di controllo remoto per analizzatori NanoVIP CUBE WF e CUBE 247

Remote control software for NanoVIP CUBE WF and NanoVIP CUBE 247 analyzers



NanoRemote™ è una un'applicazione Windows che consente all'utente di **comunicare in tempo reale (tramite USB o WiFi)** con analizzatori NanoVIP®.

Con l'utente NanoRemote™ è possibile:

- Controllare completamente NanoVIP® da remoto
- Monitorare le misure da remoto
- Monitorare le forme d'onda da remoto

I seguenti modelli NanoVIP® sono completamente supportati da NanoRemote™:

- NanoVIP® CUBE WFTM (USB e WiFi)
- NanoVIP® CUBE Plus™ con firmware 3.07 o successivo (solo USB)
- NanoVIP® QUADRA™ master con firmware 0.15 o successivo (solo USB)

Software scaricabile gratuitamente dal sito Elcontrol.

EN NanoRemote™ is a Windows application that allows user to **communicate in realtime (via USB or WiFi)** with NanoVIP® analyzers.

With NanoRemote™ user can:

- Fully drive NanoVIP® from remote
- Monitor measures from remote
- Monitor waveforms from remote

Following NanoVIP® models are fully supported by NanoRemote™:

- NanoVIP® CUBE WFTM (USB and WiFi)
- NanoVIP® CUBE Plus™ with firmware 3.07 or higher (only USB)
- NanoVIP® QUADRA™ master with firmware 0.15 or higher (only USB)

Available for free download from Elcontrol website.

Le informazioni, i prodotti e i dati riportati in questo catalogo possono essere soggetti a variazioni senza preavviso.

Products, information and data of this catalogue can be modified anytime without notice.



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