



NG Family
the New Generation of Energy Efficiency for the Industry 4.0



20 years at the service of Energy Efficiency



Energy Efficiency

Energy: a precious and vital stream with a major influence on our lives

The awareness of this condition and the growing worldwide demand for this primary asset require urgent management policies in order to achieve the highest level of energy efficiency. Our mission is to develop products and services aimed to the exploitation of the most important, ecological and economical available resource that is Energy Efficiency, often hidden in our unconscious daily wastes.

Our solutions together with the data management system "Energy Sentinel®", allow Energy Managers, energy professionals, energy consulting firms (ESCOs in particular) and all those companies wishing to be compliant with the ISO 50001:2011 certification, to monitor in an effective way their energy consumptions.

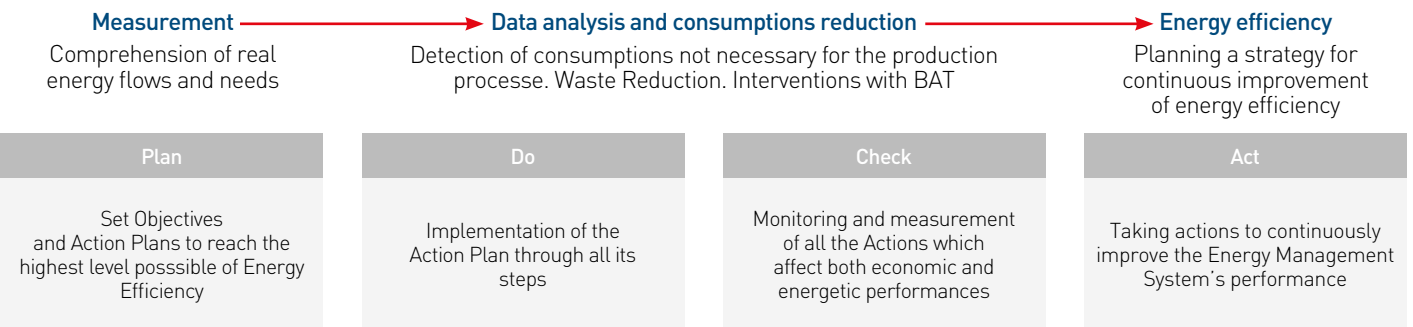
A constantly growing and developing Company

Energy Team was founded in 1996 and thanks to good instincts and passion, the company started developing and providing efficient solutions for the effective use of energy resources. Energy Team has never stopped growing both in ideas and size and currently counts 70 employees, allocated in different business areas (more than 50% in Technical and R&D area). After the consolidation of National Market, we are moving towards foreign markets.

10.000 customers guarantee, more than anything else, reliability and results brought by Energy Team solutions.

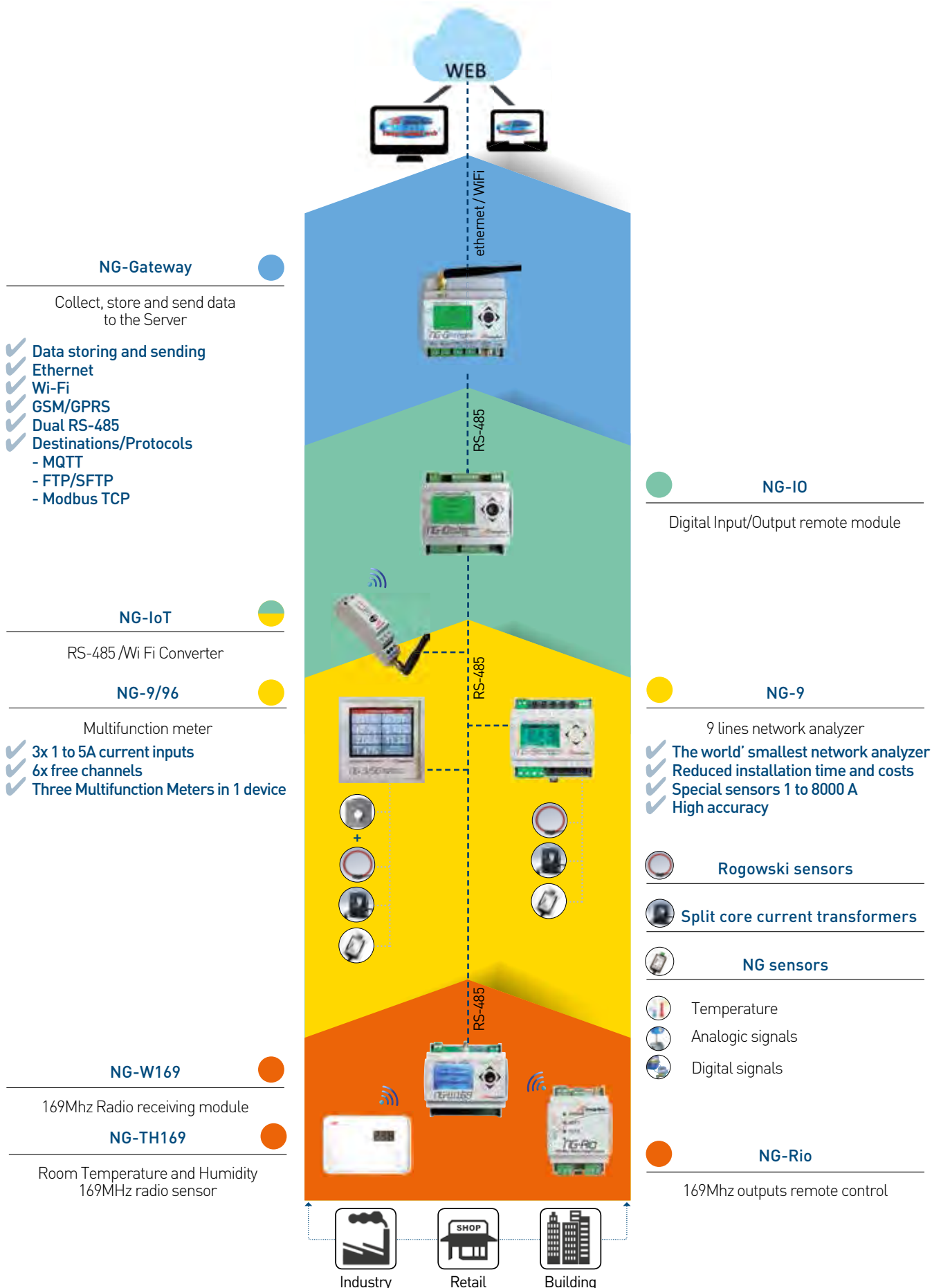


The role of monitoring in energy management systems



The key to each Management System which provides "continuous improvement" principle (Kaizen), according to ISO 50001:2011 Rule

New Generation devices for a new concept of Energy Efficiency



NG-Gateway

Collect, store and send data to the Server



NG-Gateway is ideal for acquiring and filing data from instruments measuring electricity, gas, water, steam, heat, ect. it then sends all the collected measurements to one or more servers for data publication.

Easy installation and configuration, together with reduced size, flexible Wi-Fi / Ethernet / GPRS connectivity, high number of managed channels and large memory, make NG-Gateway a unique product.

NG-Gateway, placed side by side with new generation Energy Team analyzers, becomes an essential tool for all users operating in the field of energy efficiency like Energy Managers, Production Managers, Maintenance Technicians, Energy Consulting firms, ESCO's, Energy Certifications (White certificates, Diagnosis, Audit, ISO 50001).

System features

Extremely flexible system

The system can manage tens of sensors thanks to 2 integrated, RS485 isolated lines and Ethernet or Wi-fi connection.

High number of channels

The system can manage up to 1.600 measures, filing up to 5 years' worth of data.

Simplified management

Along with remote configuration, the display and joystick consent basic parameters' reading and local programming of the device with no need for a supporting PC.

Automatic data export

Together with a great volume of internal memory (over 5 years' worth of data), NG-Gateway manages automatic data export of all measurements, sending them to a FTP/SFTP server.

TCP slave Modbus

All instant data from the instruments can be acquired from other systems (i.e. SCADA, plc, bms) via TCP Modbus protocol.

High connectivity

The system communicates via Ethernet with GPRS and Wi-Fi optional modules.

Wide range of measurable quantities

Connect NG-Gateway to appropriate sensors via cable or wireless to acquire, manage and file any kind of physical quantity (electricity, water, gas, irradiation, temperature, etc.)

Double TCP Modbus gateway

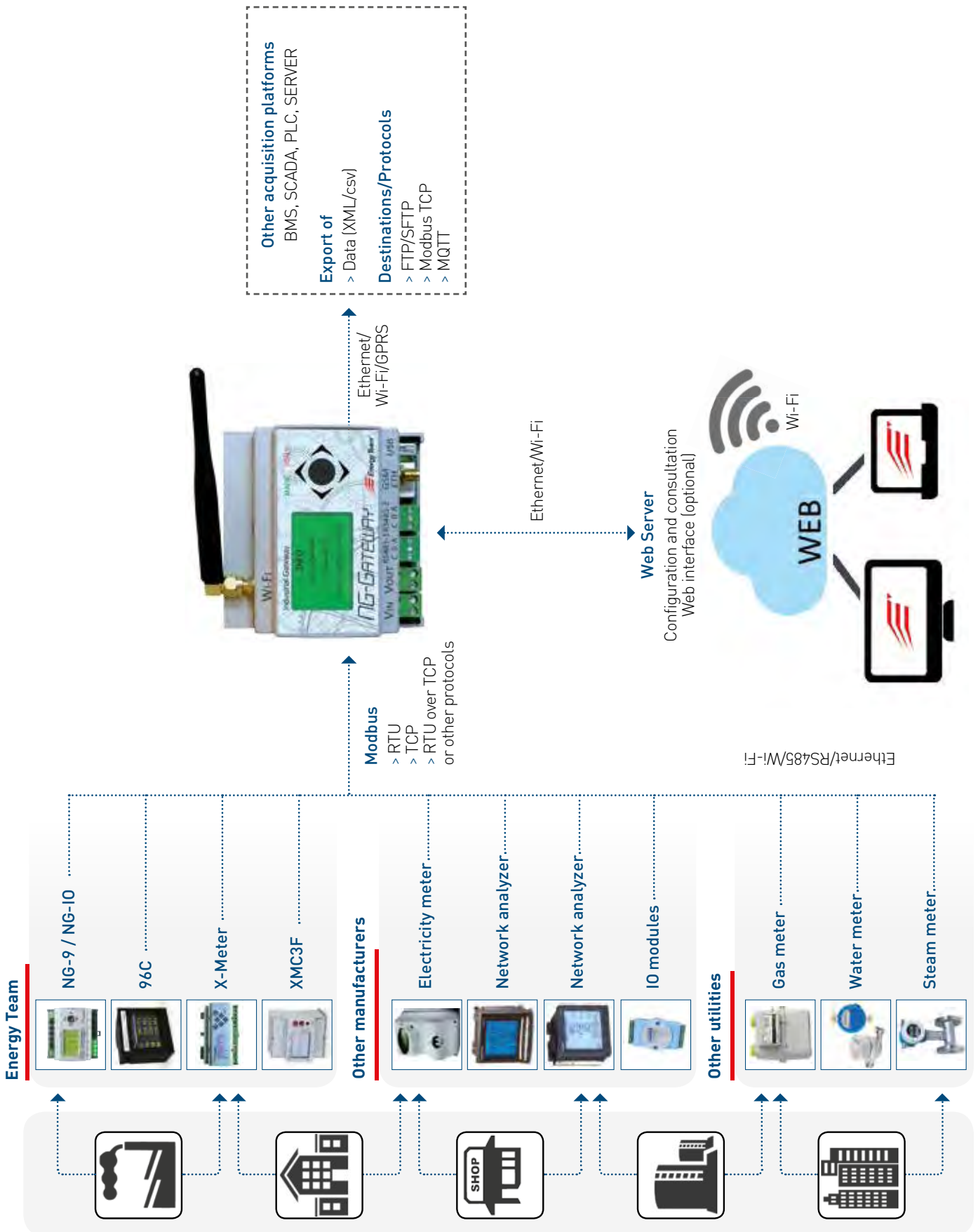
This makes NG-Gateway work as protocol converter (TCP to RTU Modbus) thus allowing the independent use of both RS485 serials.

Double LAN-RS485 converter

This mode allows independent use of the two serials via TCP connection.

Power Supply	65 to 265 Vac or 60 to 120 Vdc
Sensors	tens of sensors and up to 1.600 measures with 2 RS485 isolated ports
Connectivity	Ethernet, with optional Wi-Fi and GPRS connection
Web server	Integrated for system configuration and data analysis <i>(optional)</i>
Wi-Fi	integrated module with detachable antenna that can be placed outside the panel
GPRS	quad band integrated module (850/900/1800/1900MHz) with detachable antenna that can be placed outside the panel
Dimensions	5 DIN modules
Internal memory	8GB storage memory to file up to 1600 channels for over 5 years' worth of data
TCP Modbus gateway	on two RS485 independent lines
LAN Wi-Fi authentication modes accepted	WPA2 - PSK - RS485 converter on two RS485 independent lines
Available options	<ul style="list-style-type: none"> - NG-Gateway-Wi-Fi (with Wi-Fi module) - NG-Gateway-GPRS (with GPRS module) - NG-Gateway-DMG (Generic Modbus Driver)
Protocols	FTP/SFTP, Modbus TCP, MQTT

Complete solution for Collecting and Sending Energy Consumption Data for system integrators



The ideal device to acquire status from the field, pulses from every meter and manage programmed switching ON and OFF of every kind of load both in civil, industrial and service sectors.



AC Power supply	90-250 Vac 50/60 HZ
DC Power supply	24-120 Vdc
Consumption	1.5 VA max (AC) or 1.5 W max (DC)
Dimension	5 DIN modules (88x90x60 mm)
Weight	95 grams
Display	128x64 pixel graphic with RGB LED display
Communication Interface	RS isolated with RTU Modbus protocol with selectable speed up to 115200 bps with programmable parity
Working temperature	between -10°C and +55°C
Inputs	8 active Inputs with 8 Vdc that can be interfaced with NAMUR contacts with 5Hz max Frequency
Outputs	4x24 Vdc Max and 100 mA optomos Outputs

NG-IO is a compact and sturdy device for digital Input/Output acquisition; it's equipped with specific characteristics for an efficient digital signal management.

The modular system, bearing particular characteristics not easily found on the market, is specifically designed for installers:

- > A detailed display allows reading all measured parameters as well as specific diagnostic ones for a correct device setting.
- > The 5 functions jog button allows local setting, checking or editing of all parameters with no need for any connected PC's.
- > Unlike the majority of the devices available on the market that need an external power supply, NG-IO is equipped with an internal power pack that can be used with both AC (90-240 Vac) and DC (24-120 Vdc) without extra settings.
- > The instrument's case is a compact 5 DIN modules (90x90x60mm), ideal to be inserted into electric panels without any adapter needed.
- > The connectors are all screw terminals and are removable for ease of wiring and replacement.

NG-IO, a different approach to digital signals acquisition

- > NG-IO measures, 1000 times per second, the resistance of all contacts wired on its 8 inputs. Unlike classical optoisolated inputs, this technology allows discriminating ON-OFF status as well as alarms for cut wires or shortcircuit or NAMUR passive circuits status (<1 Kohm and > 8 Kohm).
- > NG-IO measures and shows on the display pulses' intervals and durations thus allowing a quick check directly on the field and easy setting of a debounce filter.
- > Using NG-IO as pulses' counter will give you an overall meter and 4 partial ones that can be individually activated and set for a simpler pricing periods management.
- > It is possible, for each Input, to specify its offset and variable gradient as well as pulses' weight (unit/pulse or pulses/unit), if dealing with meters. Read, via Modbus, instant and integrated values of the monitored quantity or pulses' pure number.
- > There is a specific function for machinery monitoring, to measure its actual running times and utilisation percentage over time and use the data to plan correct maintenance activities.
- > 4 optomos non polarised Outputs, with infinite actuation cycles, can be used as static control, command with self-return (monostable) or 0 to 5 Hz settable frequency generator.

NG-9

New Generation analyzer, 9 lines measured by a single device

The world' smallest analyzer featuring 9 channels within only 9 cm.

Flexibility: Special sensors from 1 to 8000 A offer the highest flexibility on the market.

Accuracy: 0,5 class on the entire measure chain.

Measurements: 160 parameters on LCD display and, on your own device, via Modbus-RTU.

Versatility: Possibility of using all range of Rogowski Sensors or Split Current Sensors on each instrumenton either single, three or mixed phase mode.



It does not exist anything like our NG-9 to compare to.

NG9 is an innovative metering solution, unique on the market. It offers flexibility and simplicity by reducing product and installation costs compared to other devices on the market.



The world' smallest analyzer



Save 85% on installation costs



160 parameters via RTU Modbus



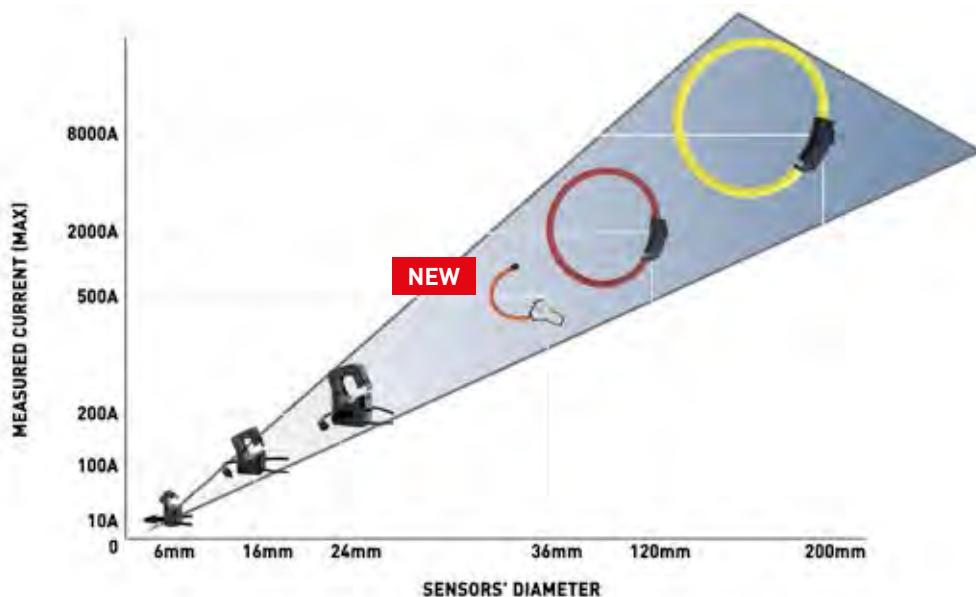
Special probes with 1 to 8000A range



Combine split CT's and Rogowski coils

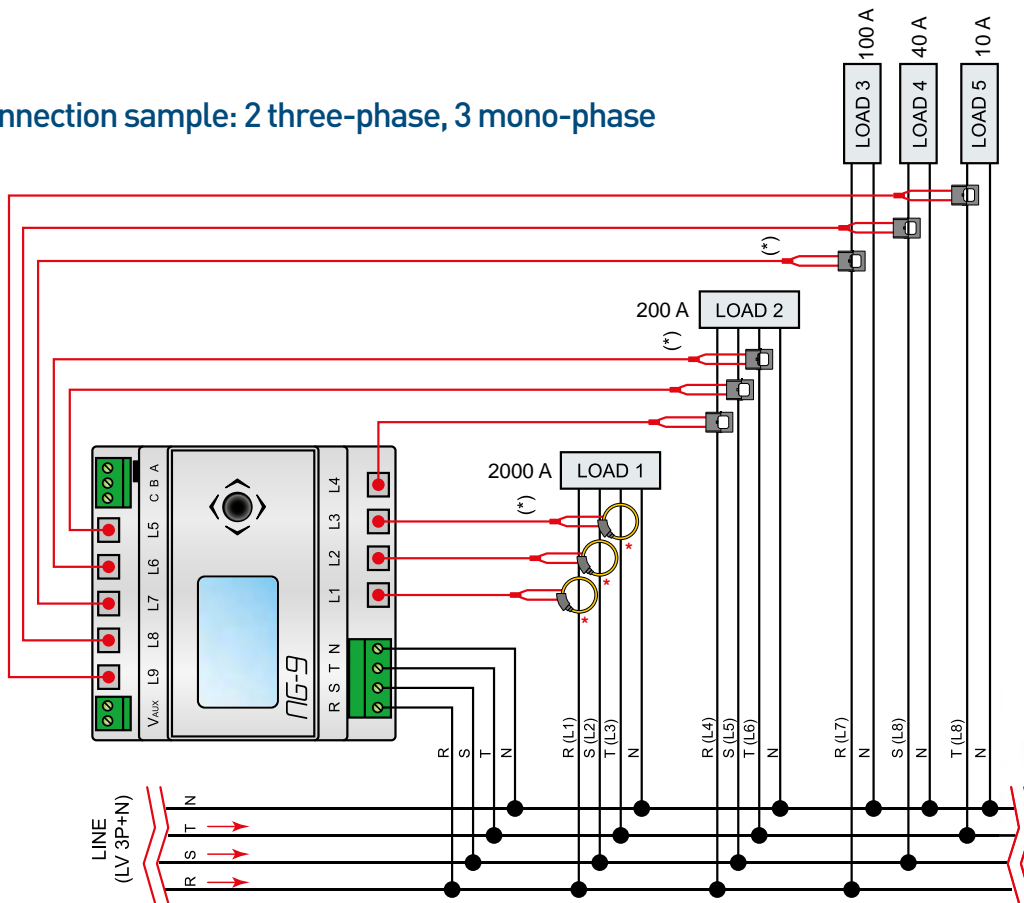


0,5 class instrument and sensors, accuracy guaranteed



NG-9 less time consuming, reduces installation costs and avoids plant shutdowns.

Connection sample: 2 three-phase, 3 mono-phase



Choose your configuration

- 3 three-phase systems
- 2 three-phase, 3 single-phase
- 1 three-phase, 6 single-phase
- 9 single-phase systems

Example of CT's application for secondary current measurement



Inputs	
Voltage	Each voltage input can be matched with a current channel to allow any type of three or single phase measurement
Number of channels	3
Maximum working voltage	430 V _{peak} phase - neutral 300 Vac phase - neutral 520 Vac phase - phase
Current	
Number of channels	9 - Choose among the combination of current sensors listed below; each channel is selectable individually
Accuracy	Class 0,5
Sensor type 1 - Rogowski Sensor RG-2k	
Max. cable external diameter	100 mm
Selectable ranges by Joystick	2000 - 1000 - 400 - 200 - 100 A
Sensor type 1a - Rogowski Sensor RG-4k/ RG-8k	
Diameter	from 200 to 850 mm
End scale	from 4000 to 8000 A
Sensor type 1b - mini Rogowski Sensor RG-500 NEW	
Diameter	36 mm
Selectable ranges by Joystick	500 - 250 - 100 - 50 A
Sensor type 2 - CC 24	
Cable window	24 mm
Dimensions [LxHxW]	44,5 x 65 x 33,5 mm
Selectable ranges by Joystick	200 - 80 - 40 - 20 A
Sensor type 3 - CC 16	
Cable window	16 mm
Dimensions [LxHxW]	30 x 43,5 x 30 mm
Selectable ranges by Joystick	100 - 40 - 20 - 10 A
Sensor type 4 - CC 06	
Cable window	6mm
Dimensions [LxHxW]	16 x 32 x 26,4 mm
Selectable ranges by Joystick	1 - 2 - 5 - 10 A

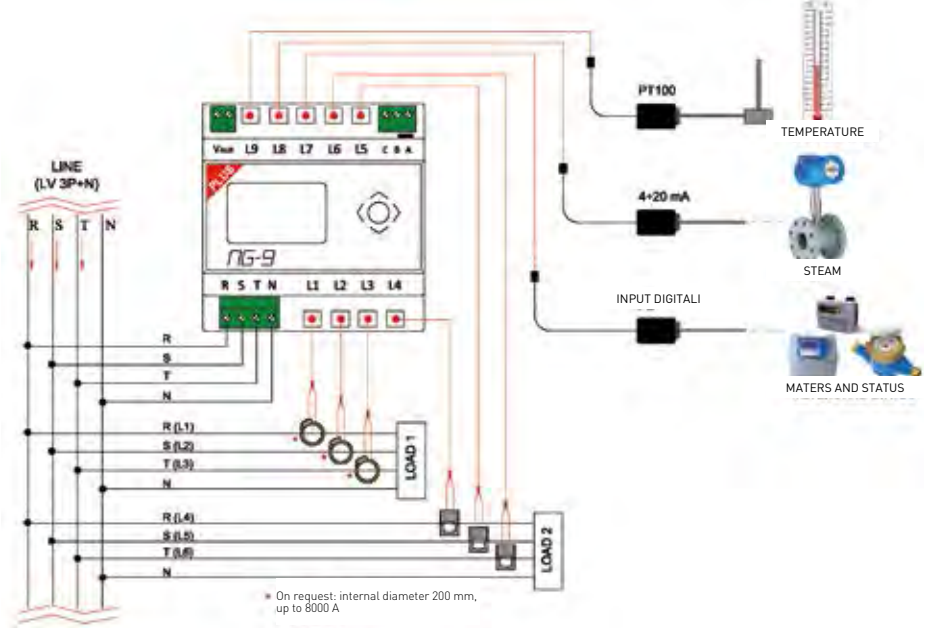
General	
Auxiliary power supply	The device allows AC or DC supply voltage in the limits specified below
AC supply voltage range	90 - 250 Vac 50/60 Hz
DC supply voltage range	24- 120 Vdc
Power consumption	1.5 VA max (ac) or 1.5 W max (dc)
Dimensions	5 DIN modules (approx. 88x90x60mm)
Weight	95 grams without external sensors
Display	128x64 pixels graphic display with multicolour RGB LED background
Keyboard	One 5 functions selector knob
Communication interface	Isolated RS-485 with Modbus RTU protocol, with selectable speed up to 115200 bps and programmable parity
Insulation 6 Kv	between Voltmetric input and Rs 485 and between Aux Alim. and Rs 485
Working temperature	between -10 °C and + 55 °C
Measurements	
Global Measures	Voltage L1-N, L2-N, L3-N, L1-2, L2-3, L3-1 Frequency (measured on Voltage 1 channel)
For each one of the device's 9 channels	Current, Peak current, Active power (bidirectional), Reactive power (bidirectional), Apparent power, Power factor, Working quadrant, Imported Active energy, Exported Active energy, Imported Inductive energy, Imported Capacitive energy, exported Inductive energy, Exported Capacitive energy.
For 3 possible three phase clustering	Equivalent line current, Three phase active power (bidirectional), Three phase reactive power (bidirectional), Three phase apparent power, Three phase power factor, Imported Active energy, Exported Active energy, Imported Inductive energy, Imported Capacitive energy, exported Inductive energy, Exported Capacitive energy.

NG-9 Plus Version

All the innovative features of NG-9 with new potential

- > Connect sensors to acquire Temperature, Status, and Digital signals
- > Measure up to the 15° Harmonic and THD on all 3 VOLTAGE channels
- > Measure up to the 15° Harmonic and THD on all 9 CURRENT channels

Exemple of connection: 2 three phases systems + sensors



NG sensors

New Generation sensors, available for NG-9 PLUS

NG-AIN

This sensor provides the NG-9 system with an analogic ISOLATED voltage or current Input.



Flow range	$\pm 10V$, 0-10V, $\pm 20mA$, 0-20mA and 4-20mA selectable straight from the instrument
Measure isolation	dielectric strength of 1kV between Input and instrument to simplify use and improve protection against disturbance and the system's overall security
Accuracy	on the entire measuring chain is 0,2% of the reading plus 0,05% of the flow
Measurement field	between 0 and 120% of the flow. Maximum permanent overload capacity 400% of the flow for current measurements and 100V (1000%) for voltage measurements

NG-RTD

This sensor provides the NG-9 system with an ISOLATED Input for Temperature measurement with RTD sensors (i.e. PT100). NG-9 PLUS is compatible with PT100 (standard), PT200, PT 500 and PT1000.



Measure isolation	dielectric strength of 1kV between Input and instrument to simplify use and improve protection against disturbance and the system's overall security
Accuracy	on the entire measuring chain is $\pm 0,2\%$ for readings between $-100^{\circ}C$ and $+200^{\circ}C$, with a typical accuracy of $\pm 0,1\%$ for readings between $-20^{\circ}C$ and $+100^{\circ}C$.

NG-DIG

This sensor provides the NG-9 system with an ISOLATED Input for digital signal acquisition from passive Outputs (PNP, NPN, OPTOMOS or electromechanical contacts) as well as active AC or DC Outputs from 12 to 110 Vdc or Vac.



Acquisitions	the system can acquire, ON-OFF static signals as well as pulses coming from meters up to 10Hz frequency with a minimum pulse's duration of 5 milliseconds (10 milliseconds for AC Input).
Measure isolation	dielectric strength of 1kV between Input and instrument to simplify use and improve protection against disturbance and the system's overall security





SYSTEM FEATURES

All settings and configurations can be made via a Web page within the device itself and it can be read by any Browser on any computer and mobile device connected to a Wi-Fi network.

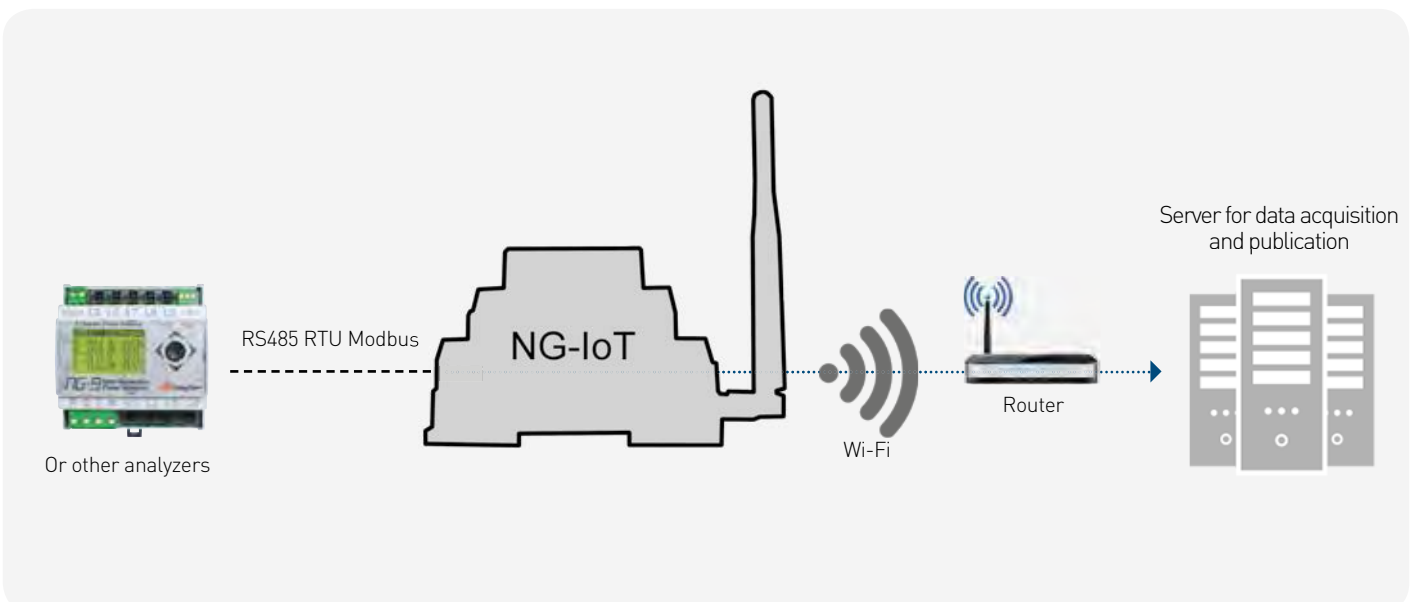
Transparent conversion of RS-485 data and to send them to the selected Port and IP address. *i.e. From RTU Modbus Protocol to Modbus over TCP Protocol.*

NG-IoT allows converting data flows from RS-485 Bus into Wi-Fi connection.

Thanks to a page created by the Web Server within the instrument, that can be read on any computer and mobile device bearing any kind of Operating System, it is possible to set all serial connections' parameters (Bitrate, Data Bit, Parity, Stop Bit) as well as Wi-Fi's (IP, Gateway, Subnet mask, Port, SSID, Password).

NG-IoT can be linked to the Wi-Fi network or operate through its internal Access Point; the device basically generates a Wi-Fi network to which the user has free access to set parameters and manage data flow.

Box	single DIN module box (18x104x64 mm)
Power Supply	5÷25 Vac, 6÷35 Vdc (with no need for polarity)
Maximum absorbed power	2 VA
Standard serial interface	2-wires galvanic insulated RS-485. A termination resistor can be inserted
Available Bitrates	2400; 4800; 9600; 19200; 38400; 56000; 57600; 115200
Parity	Even, Odd o none
Data Bit	7 or 8
Stop Bit	1 or 2
Wi-Fi	802.11b/g/n with internal antenna and connector for an external one as well
Connection	Access Point function or Wi-Fi connection
LED signal of Wi-Fi network status	Yes
LED signal of Rx/Tx serial data flow	Yes
Reset / Default factory configuration button	Yes
Wi-Fi authentication	WPA2 - PSK / WPA / WEP



NG-9/96

Multifunction meter
 Three Multifunction Meters in only 1 device
 Measure 3 three-phase lines with a single instrument



96x96mm Multifunction meter with **Colour LCD resistive touchscreen, three 1 to 5A current inputs and 6 channels to acquire** energy data and other sources (Temperature, digital and analogic signals).

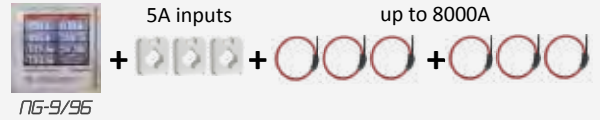
- > Bi-directional meter (Imported/delivered energy)
- > 50 true value Measurements (RMS) on 4 quadrants
- > The 96x96mm, 65mm deep case can be inserted in standard panels.
- > Graphic display: 3.5" LCD TFT, 320x240pixel, 262k colors, with resistive touchscreen, for a clear and readable displaying of measurements.
- > 84 Power Totalizers on 4 quadrants that can be set to zero.
- > Temperature probe within the instrument.
- > Clock and calendar.
- > Current measurement modules available:
 - Rogowski flexy sensors Ø from 100 mm
 - Split Current Transformers
 - Ø6 mm - max 10A
 - Ø16 mm - max 100A
 - Ø24mm - max 200A
- > New Generation sensors
 - Temperature measurement sensor NG-RTD
 - Analogic voltage or current Inputs sensor NG-AIN
 - Digital signal acquisition sensor NG-DIG
- > Serial port: RS485
- > Protocol: Modbus

Applied Standards

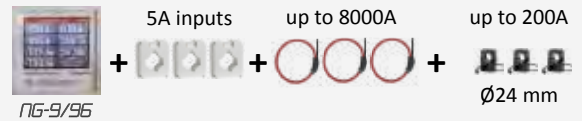
- > EN 55011(Class A)
- > EN 61000-4-2 -EN 61000-4-5
- > EN 61000-4-6
- > EN 61000-4-11
- > EN 61000-4-3
- > EN 61000-4-4
- > EN 60204-1

Some possible configurations

3x THREE PHASE SYSTEMS



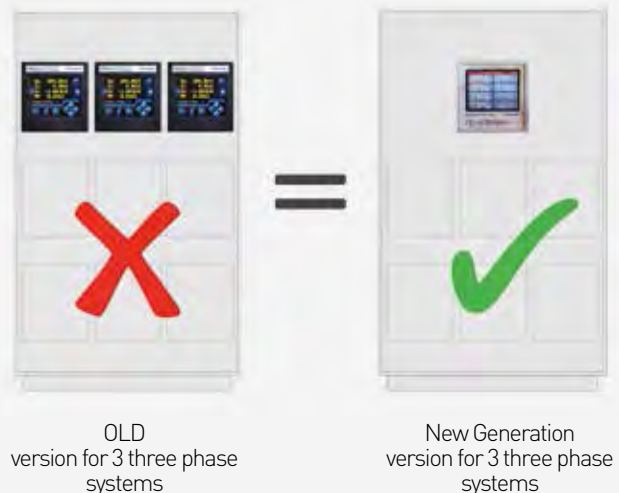
3x THREE PHASE SYSTEMS



1x THREE PHASE SYSTEM + OTHER CHANNELS



Three Multifunction Meters in only 1 device



Flexibility and simplicity to reduce product and installation costs compared to other devices on the market

NG-9/96

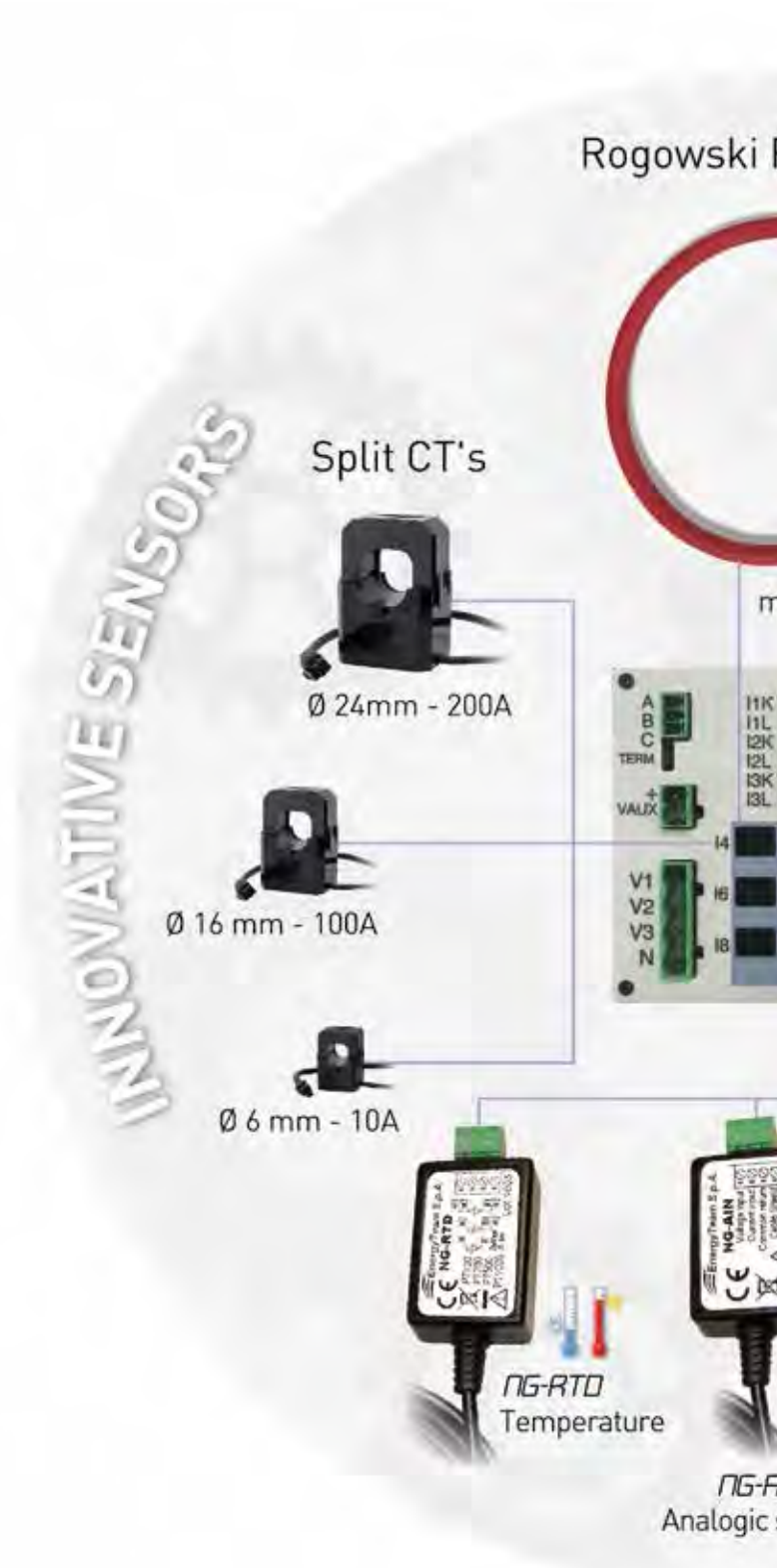
✓ 3x 1 to 5A current inputs
 ✓ 6x channels to acquire Energy data, Temperature, digital and analogic signals

Sensor type 1 - Rogowski Sensor RG-2k	
Diameter	100 mm
Selectable ranges by Joystick	100 - 200 - 400 - 1000 - 2000 A
Cable length	5m
Sensor type 1a - Rogowski Sensor RG-4k	
Diameter	200 mm
Selectable ranges	200 - 400 - 800 - 2000 - 4000 A
Cable length	5m
Sensor type 1b - Rogowski Sensor RG-8k	
Diameter	200 mm
Selectable ranges	400 - 800 - 1600 - 4000 - 8000 A
Cable length	5m

Up to 850 mm diameter available upon request.

Sensor type 2 - CC 24	
Cable window	24 mm
Dimensions (LxHxW)	44,5 x 65 x 33,5 mm
Selectable ranges by Joystick	20 - 40 - 80 - 200 A
Cable length	2m
Sensor type 3 - CC 16	
Cable window	16 mm
Dimensions (LxHxW)	30 x 43,5 x 30 mm
Selectable ranges by Joystick	10 - 20 - 40 - 100 A
Cable length	2m
Sensor type 4 - CC 06	
Cable window	6mm
Dimensions (LxHxW)	16 x 32 x 26,4 mm
Selectable ranges by Joystick	1 - 2 - 5 - 10 A
Cable length	2m

Sensors extension	
Compatible with all sensors	
Cable length	4m



The most innovative Multifunction Meter in the world

Flexy sensor



max 8000A



1 to 5A inputs



TRADITIONAL
Current Transformers

NG-9/96



NG-DIG
Digital signals
and status



signals

NG-RTD

This sensor provides the NG-9 system with an ISOLATED Input for Temperature measurement with RTD sensors (i.e. PT100). NG-9 PLUS is compatible with PT100 (standard), PT200, PT 500 and PT1000.



Measure isolation	dielectric strength of 1kV between Input and instrument to simplify use and improve protection against disturbance and the system's overall security
Accuracy	on the entire measuring chain is $\pm 0,2\%$ for readings between -100°C and $+200^{\circ}\text{C}$, with a typical accuracy of $\pm 0,1\%$ for readings between -20°C and $+100^{\circ}\text{C}$.

NG-AIN

This sensor provides the NG-9 system with an analogic ISOLATED voltage or current Input.



Flow range	$\pm 10\text{V}$, $0-10\text{V}$, $\pm 20\text{mA}$, $0-20\text{mA}$ and $4-20\text{mA}$ selectable straight from the instrument
Measure isolation	dielectric strength of 1kV between Input and instrument to simplify use and improve protection against disturbance and the system's overall security
Accuracy	on the entire measuring chain is $0,2\%$ of the reading plus $0,05\%$ of the flow
Measurement field	between 0 and 120% of the flow. Maximum permanent overload capacity 400% of the flow for current measurements and 100V (1000%) for voltage measurements

NG-DIG

This sensor provides the NG-9 system with an ISOLATED Input for digital signal acquisition from passive Outputs (PNP, NPN, OPTOMOS or electromechanical contacts) as well as active AC or DC Outputs from 12 to 110 Vdc or Vac.



Acquisitions	the system can acquire, ON-OFF static signals as well as pulses coming from meters up to 10Hz frequency with a minimum pulse's duration of 5 milliseconds (10 milliseconds for AC Input).
Measure isolation	dielectric strength of 1kV between Input and instrument to simplify use and improve protection against disturbance and the system's overall security

List of Measurements

Direct measurements for single-phase

- > Phase-neutral voltage L1-N
- > Phase-neutral voltage L2-N
- > Phase-neutral voltage L3-N
- > Phase-phase voltage L1-L2
- > Phase-phase voltage L2-L3
- > Phase-phase voltage L3-L1
- > Line current L1
- > Line current L2
- > Line current L3

Single-phase derived measurements

- > Bi-directional active power L1 (positive=imported) (Q1 and Q4), negative=exported (Q2 and Q3)
- > Bi-directional active power L2 (positive=imported, negative=exported)
- > Bi-directional active power L3 (positive=imported, negative=exported)
- > Bi-directional reactive power L1 (positive=imported (Q1 and Q4)
- > Bi-directional reactive power L2 (positive=imported)
- > Bi-directional reactive power L3 (positive=imported)
- > Distorting power L1 (indication of presence of current harmonics)
- > Distorting power L2 (indication of presence of current harmonics)
- > Distorting power L3 (indication of presence of current harmonics)
- > Apparent power L1
- > Apparent power L2
- > Apparent power L3
- > Power factor L1
- > Power factor L2
- > Power factor L3

Harmonics and THD

- > Harmonics up to the 15th, both Voltage and Current
- > Voltage and Current THD

Main measurements of three-phase system

- > Three-phase equivalent voltage phase-neutral
- > Three-phase equivalent voltage phase-phase
- > Three-phase equivalent current
- > Three-phase active power (positive=imported, negative=exported) Bidirectional
- > Three-phase reactive power (positive=imported) Bi-directional

Secondary measurements of three-phase system

- > Three-phase equivalent distorting power
- > Three-phase equivalent apparent power
- > Three-phase equivalent power factor
- > Calculated neutral current
- > Ideal Neutral-center star Voltage, N-O
- > Frequency (measured on voltage input L1)

Integrated Energy values of 2 inputs

- > Imported active Energy, Bench 1
- > Exported active Energy, Bench 1
- > Imported Inductive Energy (Q1), Bench 1
- > Exported Capacitive Energy (Q2), Bench 1
- > Exported Inductive Energy (Q3), Bench 1
- > Imported Capacitive Energy (Q4), Bench 1
- > Imported active Energy, Bench 2
- > Exported active Energy, Bench 2
- > Imported Inductive Energy (Q1), Bench 2
- > Exported Capacitive Energy (Q2), Bench 2
- > Exported Inductive Energy (Q3), Bench 2
- > Imported Capacitive Energy (Q4), Bench 2



Keypad



Harmonics



Measurements

Inputs - Voltage	NG-9/96 Classic
Voltage	Each voltage input can be matched with a current channel to allow any type of three or single phase measurement
Number of channels	3 voltage inputs ranging up to 300V (phase-neutral) and 500V (phase-phase)
Maximum working voltage	300V (phase-neutral) and 500V (phase-phase)
Inputs - Current	NG-9/96 Gold
Number of channels: 9	3 inputs with selectable 1 to 5A range + 6 free channels for other sensors (clamp on CT's up to 200A, Rogowski sensors up to 8000A, digital and analogic signals and PT100)
Accuracy	0,5 Class on the entire measuring chain
General	References
Consumption	5 VA
Weight	300 gr
Maximum size LxHxW	96 x 96 x 75 mm
Size of panel inserting part LxHxW	91 x 91 x 65 mm
Display	LCD TFT 3.5" 320x240 pixel 262k colors
User interface	Icons with touchscreen
Working temperature	-10°C + 55°C
Relative humidity	95% without condensation
Power Supply	110-240 Vac / 24-120 Vdc
Frequency	50-60 Hz

NG-TH169

Room Temperature and Humidity 169MHz radio sensor



- > No wires or cable
- > 1 km transmission extension in open field with line of sight
- > AA type batteries for over 5 years' long batteries lifespan
- > High measurement accuracy
- > Real time data visualisation
- > Modern and understated design, suitable for any environment

Applications

Being extremely precise, reliable and convenient, NG-TH169 is specifically designed to be used in many different situations (i.e. Office, Data Centres, warehouses, etc.). The sensor is set for wall fitting.

- > NG-TH169 uses radio broadcast to transmit measurements to the NG-W169 receivers, equipped with RS485 RTU Modbus.
- > Batteries' lifespan up to 5 years with 300 daily sendings.
- > LCD display for real time data visualisation.
- > Low battery warning, 30 days in advance.

Measurement accuracy

Temperature range from -10°C to +65°C; with $\pm 0.2^\circ\text{C}$ tolerance guaranteed. As per relative Humidity, the range is from 0% to 100% with an output tolerance of $\pm 2\%$ within the 10% - 90% range.

General	
Power supply	3 Vdc, 2 x 1.5Vdc Alkaline, 1200 mAh
Consumption	100 μW / 30 μA
Measured Temperature range	-10°C \pm +65 °C
Accuracy	$\pm 0,2$ °C
Measured Humidity range	0% a 100%
Accuracy	$\pm 2\%$
Weight	60 gr
Dimensions	110x76x29 mm
Protection grade	IP20
Box type	ABS
Radio	169 MHz
Power	+15 dBm

NG-Rio

Loads' remote control



- > 2 inputs for ON/OFF status and/or pulses from the connected meters (electricity, water, gas) and 2 relay outputs.
- > Wireless connection to NG-W169, the Gateway with RTU Modbus RS485 serial. NG-Rio sends inputs' status to receive the outputs'.
- > Wireless communication with other NG-Rio. A local input to control remote outputs.
- > Automatic installation procedure for the 169MHz wireless network.
- > 169MHz radio frequency band to cover distances up to 1 km. Particularly suitable for indoor installations.

Applications

Local control of remote loads (e.g. ON/OFF) sending the information to the gateway (NG-W169) that, via RTU Modbus protocol, makes the data available; NG-Rio can manage loads' ON/OFF management with its output relays (e.g. lighting, HVAC, etc.). Reduce installation time and costs and avoid wire connection between the control panel and the load to monitor.

General	
AC power supply	100 \div 240 Vac 50/60 Hz
DC power supply	140 \div 340 Vdc
Consumption	< 0.2A @ 85Vac-265Vac, at full load
Protection	Over Current and Over Temperature
Dimensions	3 DIN modules (approx. 54x90x60mm)
Box	PC + ABS
Weight	100g
Front panel	GREEN LED for operative status signals RED LEDs for outputs status
Working temperature	-10 °C to +65 °C

Min 3 kV insulation between power supply and digital Input, relay Output and antenna connection

Inputs	
Type	Clean contact - active 12 Vdc insulated digital pulse up to 30 Hz frequency and 15 milliseconds minimum pulses' duration
Connection (3,5mm pace)	Extractable polarized connector.
Outputs	
Type	C-NC-NO Relays
Flow	250V - 12A (500mW min)
Guaranteed cycles	250.000
Control	Internal, Electronic
Protection	275V Varistors for contacts' overvoltage
Connection (5mm pace)	Extractable polarized connector.
Frequency	169 MHz
Power	+15 /+21 /+27 dBm
Antenna connection	Female SMA

NG-W169

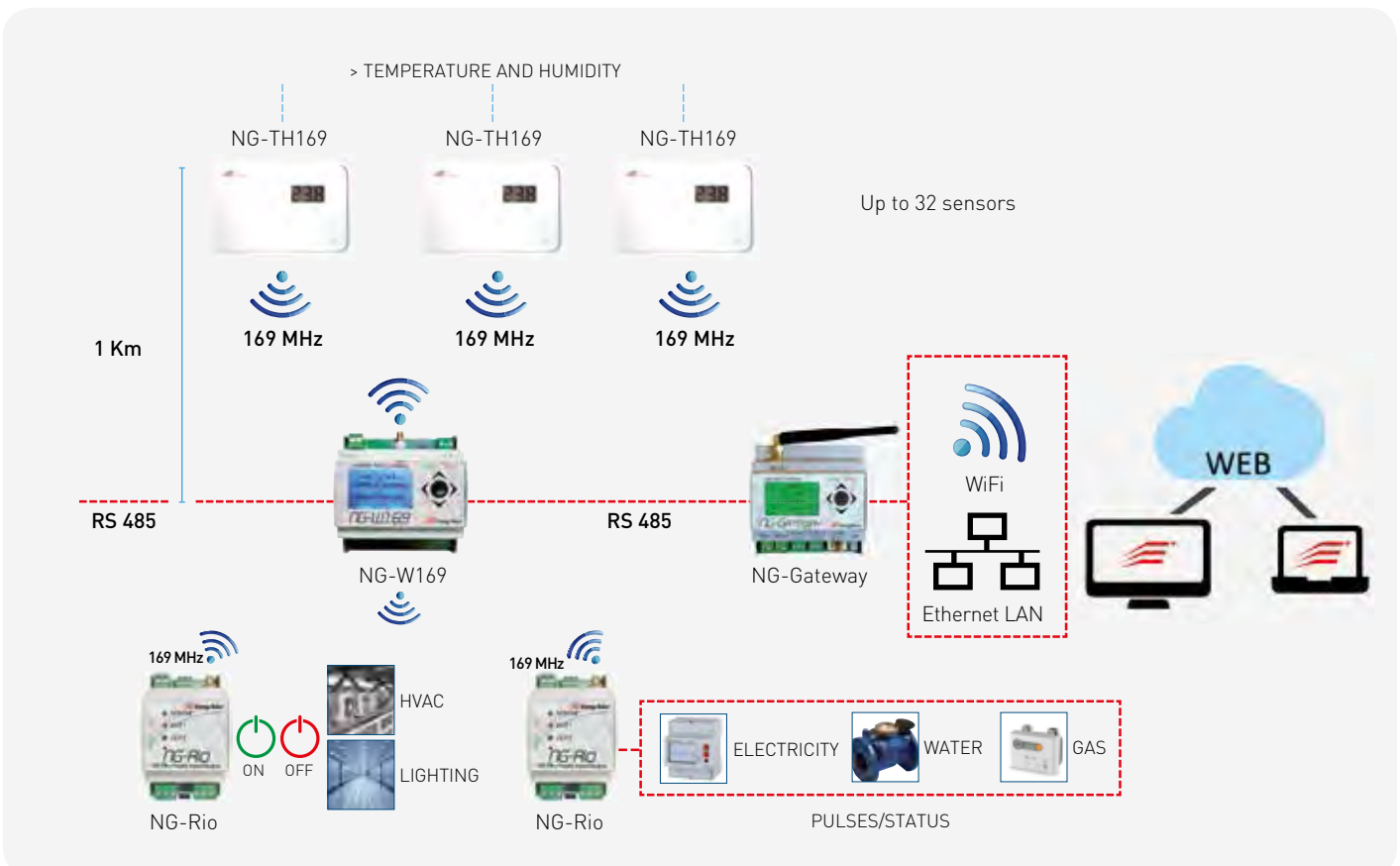
Radio receiving module. 32 channels ready to collect environmental parameters measured by RF 169Mhz sensors.



- > All measurements received via radio are transmitted via RS485 RTU Modbus.
- > The module can receive via radio and manage the "low battery" warning sent by the sensors 30days before.
- > 1 joystick to set and read data on the display
- > Graphic display with LED background allows local visualisation of all acquired measures, diagnosis and configuration of the 32 channels
- > The new 169MHz radio frequency band allows covering distances up to 1 km; particularly suitable for the indoors.

General	
External power supply	The instrument works with both AC and DC voltage power supply within the limits below
AC power supply	90 - 250 Vac 50/60 Hz
DC power supply	24 - 120 Vdc
Consumption	1.5 VA max (ac) or 1.5 W max (dc)
Dimensions	5 DIN modules (approx. 88x90x60mm)
Box type	PC+ABS
Weight	95 g
Display	Graphic 128x64 pixel display with RGB LED background
Keypad	5 functions joystick
Communication interface	Isolated RS-485 with RTU Modbus protocol, selectable speed up to 115200 bps programmable parity
Isolation	6 kV between Aux power supply and RS485
Working temperature	-10 °C +65 °C
Radio	
Range extension	1 km
Frequency	169 MHz

"Everything that ties you down, is a limit" cut every wire and free yourself from all limits.



Energy Sentinel Web

Your energy data online, anywhere, simple.

Energy management and monitoring software.

Access your energy data anytime you need to with Energy Sentinel Web. The **application server**, with its user-friendly web pages, allows simple and intuitive data analysis on all acquired data guaranteeing extreme reliability and data security. Rely on Energy Sentinel Web for a complete plant control and the system to reach the highest Energy Efficiency performance (KPI) possible.

Energy Sentinel Web is designed to be **multi-user and multi-site** and has the following functions:

- > **Display data on the Web** with any browser (Internet Explorer, Chrome, Safari, Firefox).
- > **Check the stored data** by accessing anytime with private User-ID and Password, without installing additional programs.
- > **Configure multiple accounts** (Admin, User, etc.).
- > **Data management from several devices**, even far from each other.
- > The **versatility of the platform** allows integration of other manufacturers devices and instruments through the implementation of their system protocol.
- > The **consultation interface** is optimized for **IPad and tablets**.

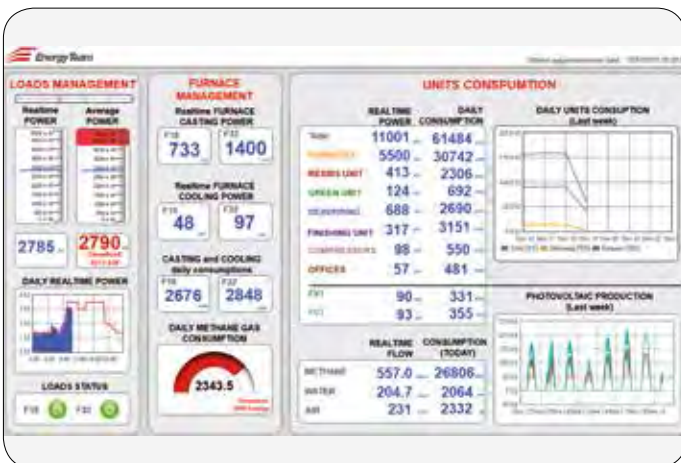
Energy Sentinel Web with its simple and intuitive graphic interface allows to:

- > Create and **compare charts**, histograms and diagrams
- > **Compare data** with different full-scale values
- > Create mathematical modules to create **virtual channels**
- > Display **real time data** with dedicated synoptic pages
- > Display **fully configurable** graphs
- > Display periods **summaries**
- > **Visualise consumptions and costs in band diagrams**
- > Display a **set period's historical data** in linear/piles diagrams with the aid of four vertical axis.
- > **Export data in CVS format for Excel** charts.
- > Create and set groups and subgroups of data coming from the various monitored systems (unlimited number of levels)
- > Set **alarm thresholds**, sending SMS and emails should the values exceed
- > Set and display the **tariff**
- > Set **alarms** for contacts closing and opening or **threshold** values with hysteresis.

DASHBOARDS module

Energy Sentinel Web lets users create personalised dashboards to monitor and manage all main parameters coming from the field to view the data from any device connected to Web Server.

Fully customisable dashboards for all monitored loads



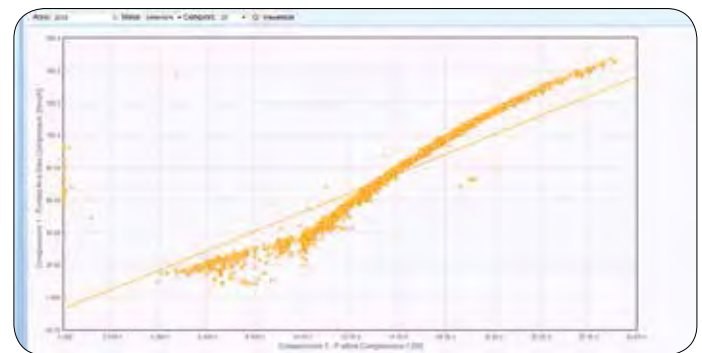
SCADA - monitoring and data acquisition



Pile chart



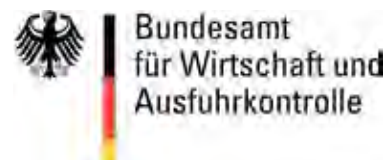
Pie chart



Scatter plot chart

The Federal Office for Economic Affairs and Export Control has helped drive Germany's transition to renewable energy for many years. The promotion of efficient and economic use of energy and the further expansion of renewable energy are this Office's main activities and Energy Sentinel Web made it to their list of "tools" to achieve ISO 50001 certification.

BAFA APPROVED

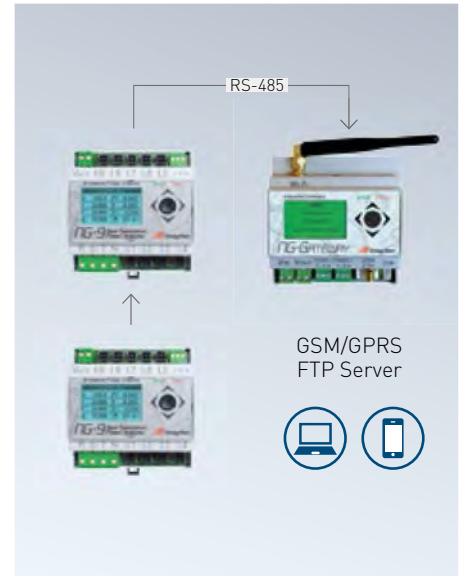




INSTALL THE WORD' SMALLEST 9 LINES ANALYZER



CONNECT THE DEVICE TO ANY NETWORK THROUGH THE MULTIFUNCTIONAL GATEWAY

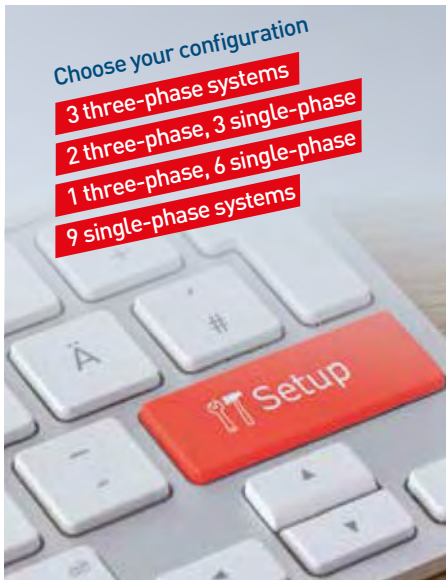


- > Identify your needs and create the most suitable solution to get extremely precise measurements.
- > Use all range of Rogowski Sensors or Split Current Sensors (Ø6,16,24 mm) on each instrument on either single, three or mixed phase mode (1 to 8000 A).
- > Each current sensor can be connected to the device with one-way electrical connectors without using additional cables, scissors and screwdrivers.
- > Installation costs reduced by 85%.
- > No need for plants shutdown.
- > Simple, safe and fast installation.
- > Make NG-9 communicate to the network and create reports, connecting it to NG-Gateway.
- > NG- Gateway, thanks to its RS485 serial, continuously reads data from the instruments connected and store them in its internal memory.
- > NG- Gateway is a GSM/GPRS Gateway with RS485 serial. It stores data from Modbus instruments and sends them in XML format to a FTP server..



It does not exist anything like our NG-9 to compare to.

PLAN YOUR CONFIGURATION



SETUP DEVICE BY REMOTE



START MONITORING YOUR ENERGY CONSUMPTION



3

- > Identify your needs and define the right configuration.
- > Complete the data sheet and let us understand your utilities and loads.
- > Create the most suitable solution to get extremely precise measurements.
- > Specialized technicians will guide you through the whole procedure.

4

- > Specialized technicians will setup your device by remote.
- > Get your User's ID and Password to access our web platform and read your data.
- > Start using NG-9, collect data and manage your energy consumption.

5

- Your energy data online, anywhere, simple.
- Energy Sentinel Web is designed to be multi-user and multi-site
- > Display data on the Web with any browser
 - > Access the platform at anytime with private User-ID and Password
 - > Data management from several devices
 - > Consultation interface optimized for iPad and tablets.

Simple and intuitive graphic interface

- > Create and compare charts
- > Compare data with different full-scale values
- > Create mathematical modules to create virtual channels
- > Display real time and historical data with dedicated synoptic pages
- > Visualise consumptions and costs in band diagrams
- > Export data in CVS format for Excel charts.

The first step to improve your energy efficiency is to be aware of your Energy consumption.