HITEKS

TELEMETRY AND ENERGY

Photovoltaics

ENGINEERING
THE FUTURE

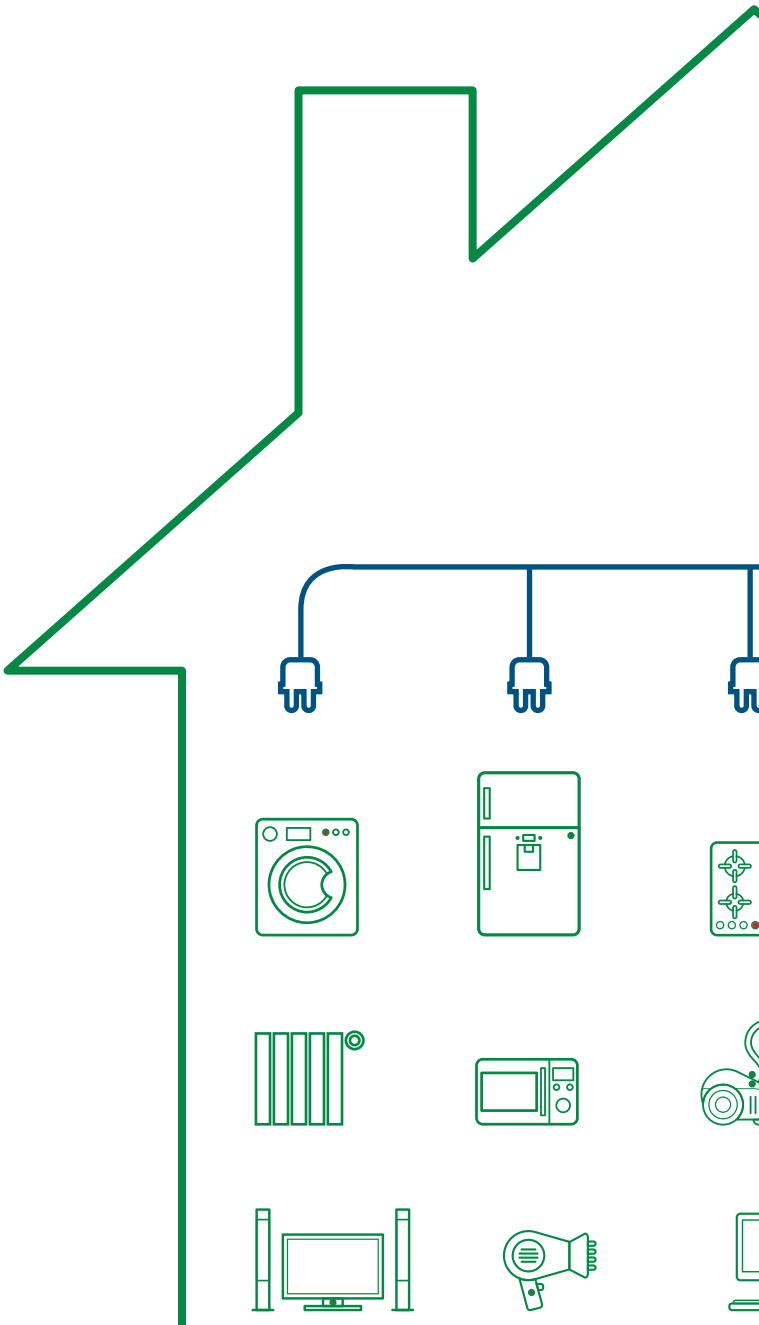
Photovoltaic and wind power remote control

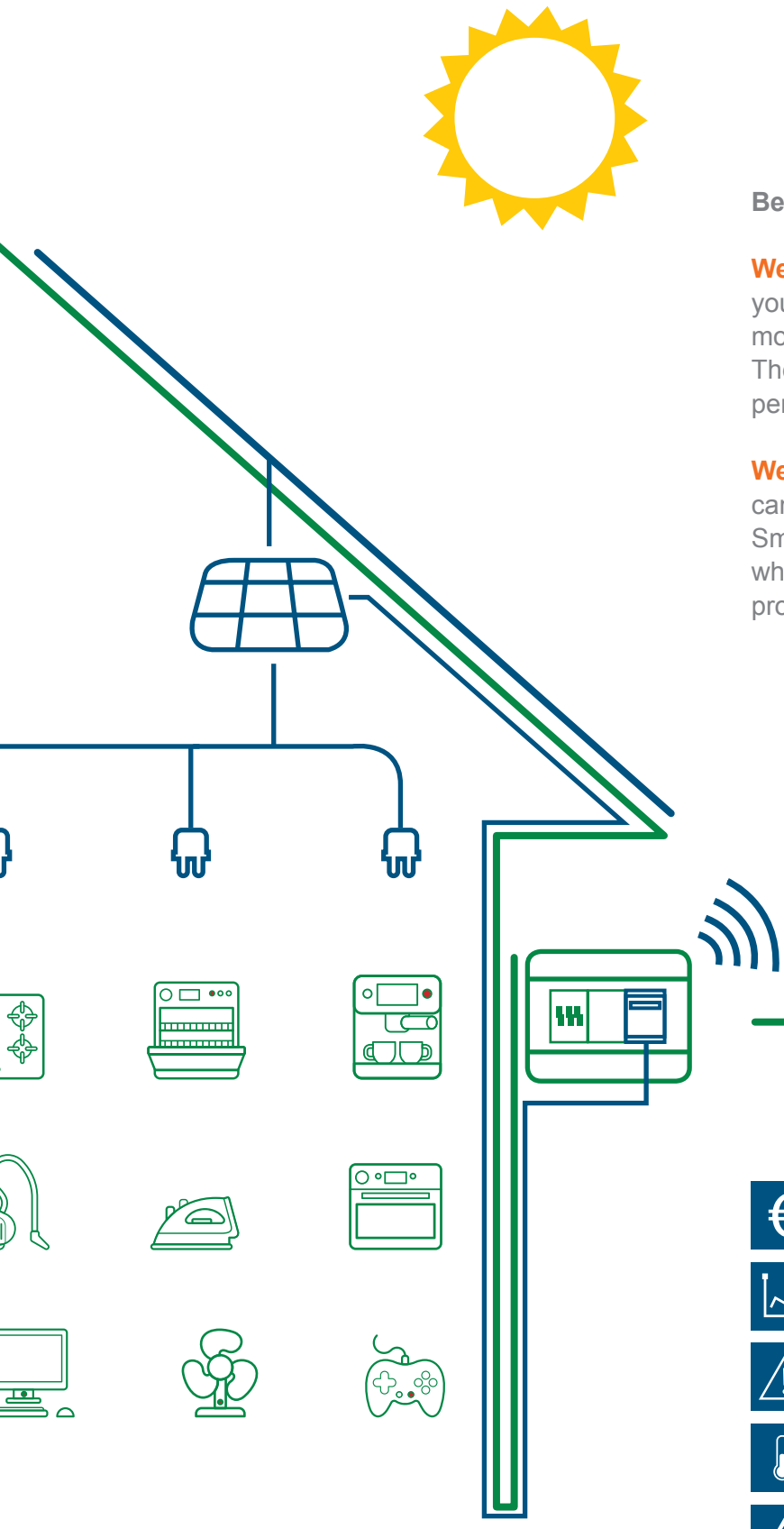
Photovoltaic and wind power are a very small electricity power stations.

Photovoltaic
The plant owner can use her spaces exposed to the sun as its roof, the garden, Covers or canopies to produce energy, saving on your bill and making an important contribution to environmental protection.
The strength consists in the panels or photovoltaic modules, which exposed to sunlight convert solar energy into electricity in continuous form, and the inverter which converts the direct current produced by the panels into alternating current, ready to serve utilities electrical home (such as lights, refrigerator, TV, PC, etc.) or be fed into the distribution grid.

Ae olic
Wind power is the conversion of wind energy into a usable form of energy, usually through the use of wind turbines that produce electricity; large wind farms consist of hundreds of individual wind turbines connected to the electricity transmission network.
The power companies are buying more electricity produced in excess by small domestic turbines.
In conventional installations it is often not present a monitoring system.
In conventional installations often it isn't present a monitoring system.

What solution can be adopted?





Benefits of Monitoring System

Web Vision is a personalized web portal that allows you to control and view the production data of one or more photovoltaic and wind power.
The system gives the possibility to monitor the actual performance of the plant's output.

Web Vision is a usable system from any device that can access the Internet.
Smartphone, Tablet, PC, Notebook are the tools with which we can at all times monitoring not only our production, but all historical data and forecasting.

- Monitoring of the profitability
- Graphic performance display
- Monitoring of the plant status
- Temperature monitoring
- Monitoring of the production
- Monitoring of amount the wind

Webvision

Web Vision is a personalized web portal that allows you to control and view the production data of one or more photovoltaic and wind power.

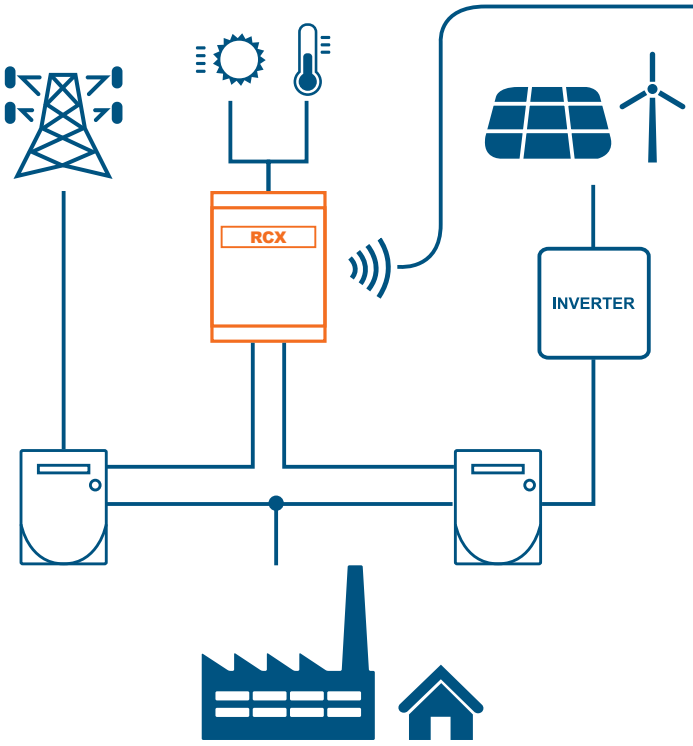
Statistics

FUNCTION CONTROL

Web Vision allows to compare a whole series of statistics which allow the user to control the performance of the system and to program the maintenance depending on the data that are released.

COMPARISON PROFITABILITY

Statistics can afford to buy what they earn, and the savings in electricity, splitting the exchange and GSE contribution.



Performance monitoring

WEATHER AND RADIATION

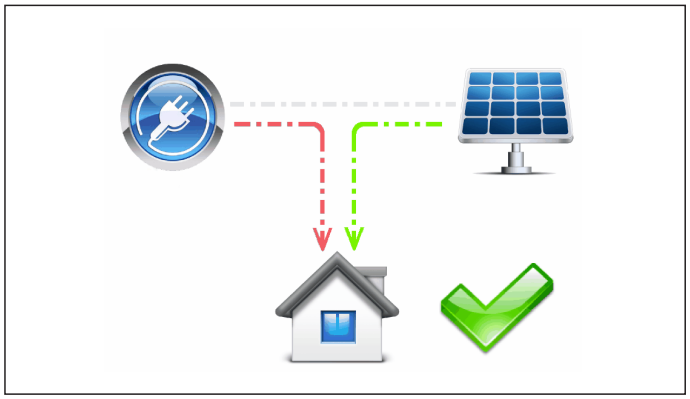
By monitoring of radiation sensors the system can control the plant performance and generate alerts if the performance is less than the default thresholds.

As poor performance alarm:

yield <90% for more than an hour.

String management

The peculiarity of your system lies in the ramified control; each string (row of panels), can be controlled individually to ensure proper functionality.



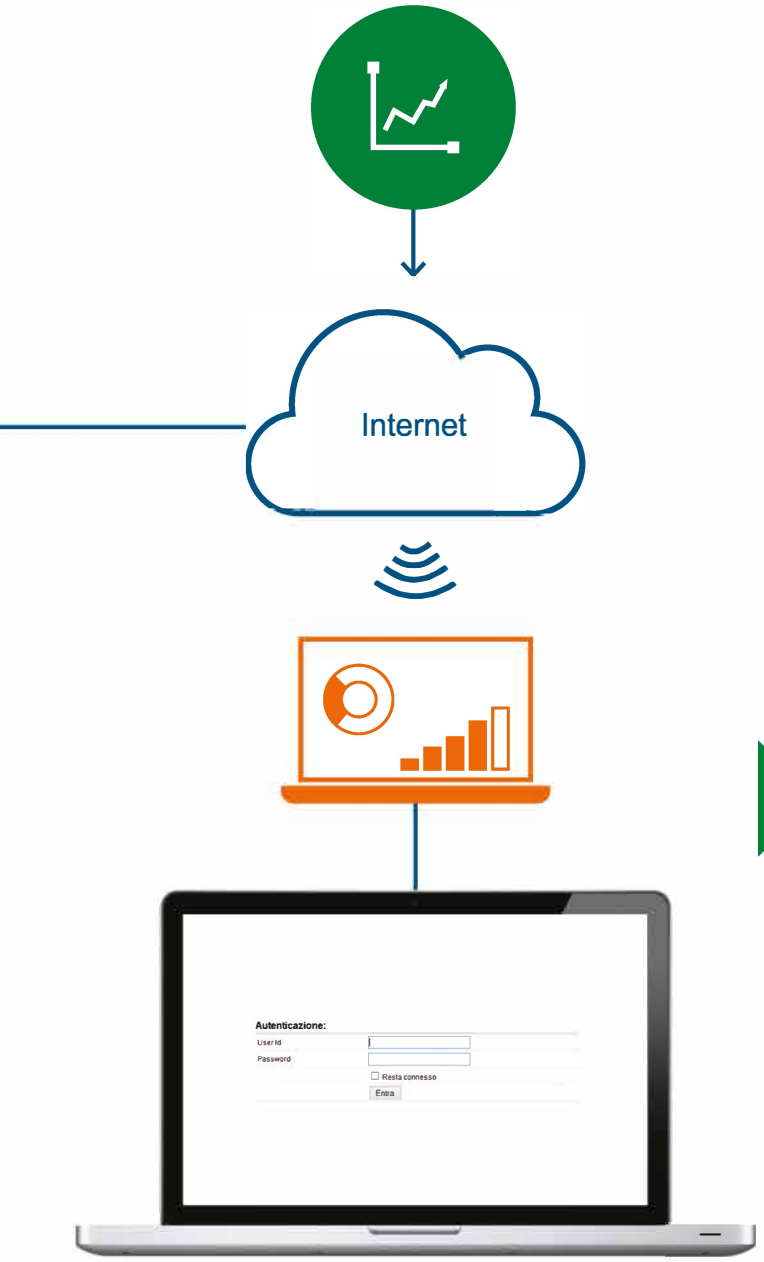
Alarm Management

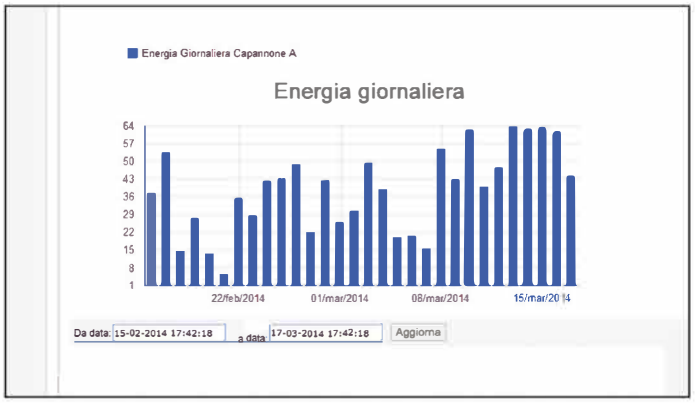
Any detected alarm can be handled in three ways:

- Visualization via web
- Sending SMS
- Sending Email

Alarm Example: network disconnection, poor performance, inverter alarm, alarm strings, etc ...

available in multiple languages


Internet
Autenticazione:
User Id
Password
Resta connesso
Entra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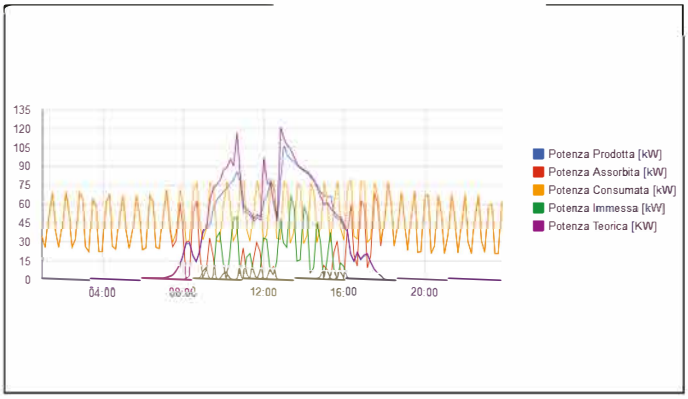
Aggiorna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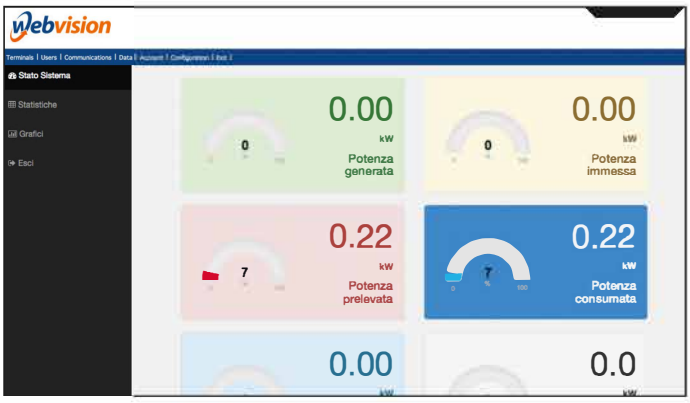
Potenza Teorica [KW]


webvision
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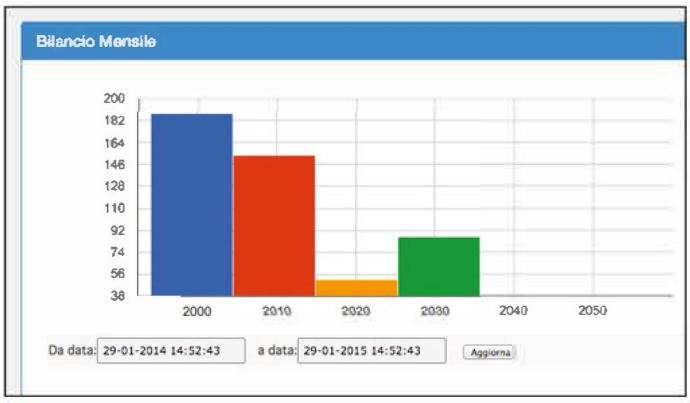
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a data: 29-01-2015 14:52:43
Aggiorna

BOX RCX 3G

Kit for the remote control of photovoltaic systems

BOX RCX 3G is a KIT that allows real time remote control of technological systems via GSM/GPRS network, and it's usable with any photovoltaic/aeolic system and allows to control its:

- production
- utilities
- settings
- temperatures

BOX RCX 3G is available in 5 models:

- GPRS (RCX GPRS) module version and three-phase analyzer
- GPRS module version and single-phase analyzer 2 TA (RCX NRG GPRS)
- Single-phase analyzer 2 TA (RCX NRG) module version

Inside RCX BOX 3G it is integrated the UPS utility, with automatic signaling of electric network power off/on.

The internal button battery guarantess autonomy to the system, with the purpose of sending with decent notice any possible interruption signals.

The antenna is integrated in BOX*, or, as a requestable optional, it can be used remotely with an external antenna and an extension cable of 1-3-5-10 m.

*except for RCX NRG module

Power supply	230Vac 20W Power supply with UPS function embedded, lead battery 12V 1.3Ah
Connectivity	3G GSM/GPRS Dual Band
SIM card	Standard SIM card
Digital input	n°5 digital I/O: • n°1 used for elettrical grid connection/disconnection alarms • n°4 analog input: - digital input (open/close contact) - counter (max frequency 10Hz) - oper-collector output (maximum load 100mA – 24V)
Analog input	n°4 analog input: • n°2 0-5V input • n°2 4-20mA input
Output	n°2 output relays with separated NO e NC terminals (contacts rating 0.5A 230vac)
Serial communication	n°1 RS485 configurable Modbus RTU n°1 RS232 TTL configurable Modbus RTU (Konnex using external converter) Baud rate configurable from 2400 to 19200 bps
Status Indicators	n°7 LED I/O status indicator n°1 LED communication indicator n°1 LED power indicator
Enclosure Type	Wall mount box IP65, 12 module
Dimensions	280x220x100mm
Operating temperature	-20°C ... +55°C
Relative Humidity	0 to 80% non-condensing
Components	Lead battery 12v 1.3Ah Internal power supply with UPS Internal Ucoil relay 230V Uout 230V Internal fuses 230Vac 1A

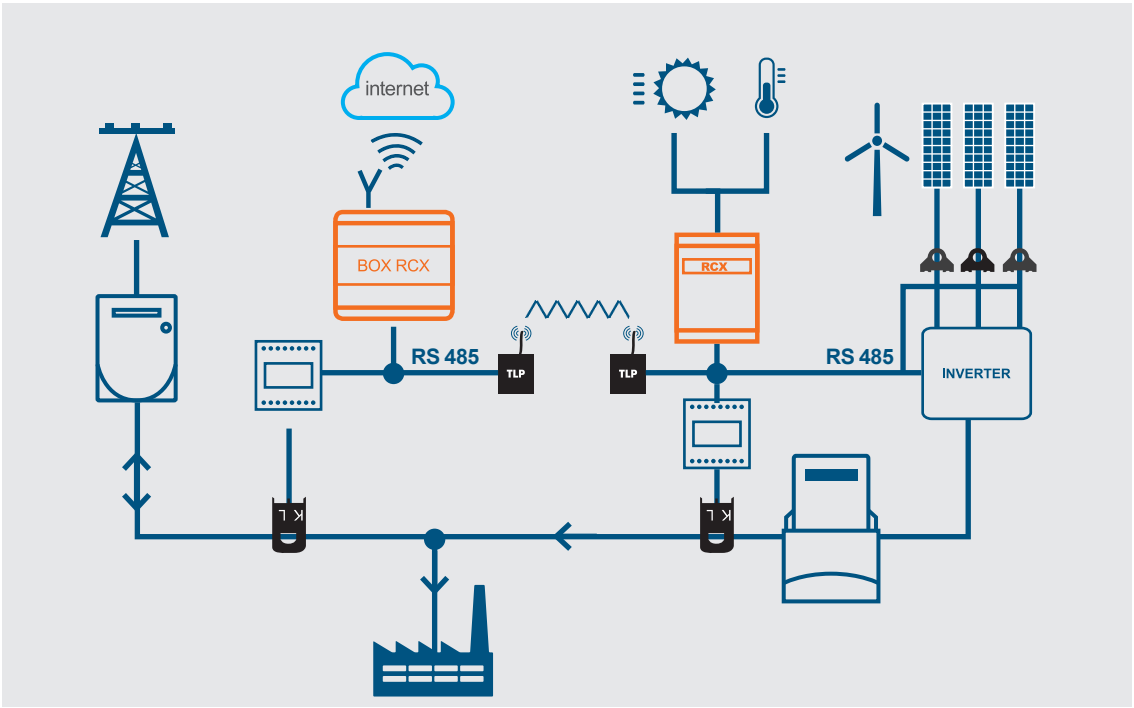
view datasheet

- 24 hours real time remote control
- GPRS communication module provided with antenna
- Battery charger / power supply
- Button battery
- Bipolar fuse box
- Box IP55
- Integrated standard stilo antenna*
- Connecting to the portal WebVision

KIT with RCX GPRS:
order code: TL.042.100

KIT with RCX NRG:
order code: TL.042.111

KIT with RCX NRG GPRS:
order code: TL.042.110



Electricity grid
Electronic meters
Meters with output
Solarimeter
Thermometer
Energy meter
Photovoltaic panels
Aerogenerator
Radio module
Inverter
Current Transformer Analyzer Power Grid
Current Transformer

RCX 3G

TL.042.000

Modem for remote monitoring of photovoltaic systems

3G remote modem to see 24 hours 24 the effectiveness of your photovoltaic systems. GSM / GPRS quad band 800 / 1900MHz.

RCX 3G transmits data collected in the field on a Web site, so that you can view at any time the current status of your production and graphics with historical system data.

Power supply	12Vdc ±10% , consumption 500mA
Connectivity	3G GSM/GPRS Dual Band
SIM card	Standard SIM card
Digital input	n°5 I/O usable as: - digital input (open/close contact) - counter (max frequency 10Hz) - oper-collector output (maximum load 100mA - 24V)
Analog input	n°4 analog input: • n°2 0-5V input • n°2 4-20mA input
Output	n°2 output relays with separated NO e NC terminals (contacts rating 0.5A 230vac)
Serial communication	n°1 RS485 configurable Modbus RTU n°1 RS232 TTL configurable Modbus RTU (Konnex using external converter) Baud rate configurable from 2400 to 19200 bps
Status Indicators	n°7 LED I/O status indicator n°1 LED communication indicator
Enclosure Type	Self-extinguishing plastic material class V0
Dimensions	90x53x58mm - 3 DIN modules
Operating temperature	-20°C ... +55°C
Relative Humidity	0 to 80% non-condensing

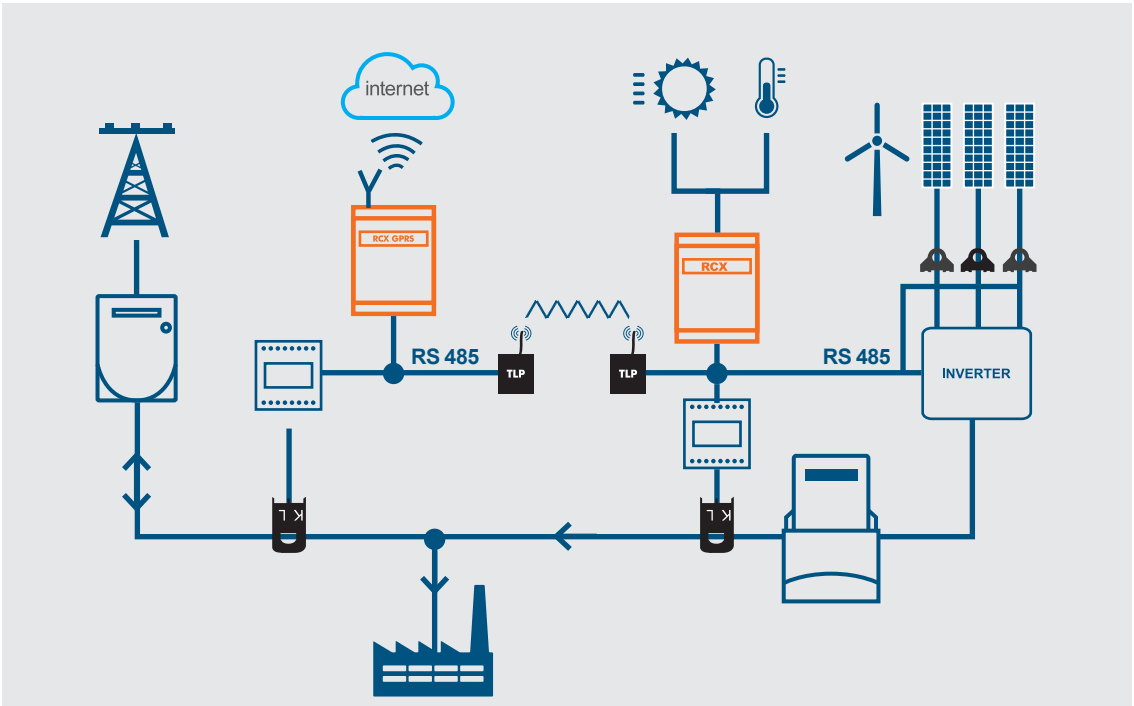
view datasheet

Web Vision manages alarms by text message or by e-mail, which allow the user to take swift action if necessary.
Also it offers graphics and performs calculations related to production, allowing the user to control the system performance and to program its maintenance.

RCX

Acquisition module MODBUS RTU RS485

TL.042.001



- Electricity grid
- Electronic meters
- Meters with output
- Solarimeter
- Thermometer
- Energy meter
- Photovoltaic panels
- Aerogenerator
- Radio module
- Inverter
- Current Transformer Analyzer Power Grid
- Current Transformer

RCX NRG GPRS

Modem for remote monitoring of photovoltaic systems

TL.042.301

GPRS GSM remote modem to see 24 hours 24 the effectiveness of your photovoltaic systems.

Connector for rechargeable battery UPS function, battery included in the kit.

Power supply	110-230Vac 50-60HZ, consumption 5W
Connectivity	GSM/GPRS Dual Band
SIM card	Standard SIM card
Input	n°2 analog input for C.T., 333mVac FS, equivalent to 30Arms in primary side n°1 digital input configurable as alarm/counter input n°1 analog input configurable as 4-20mA or 0-5Vdc n°1 analog input configurable as 0-5V or as temperature sensor using external NTC 10k 1%
Output	n°2 output relays with separated NO e NC terminals (contacts rating 0.5A 230vac)
Serial communication	n°1 RS485 configurable Modbus RTU n°1 RS232 TTL configurable Modbus RTU (Konnex using external converter) Baud rate configurable from 2400 to 19200 bps
Status indicators	n°1 LED GSM status indicator n°1 LED Power status indicator n°1 LED RS485 status indicator n°1 LED relè status indicator
Enclosure Type	Self-extinguishing plastic material class V0
Dimensions	90X71X58 mm (4 modules DIN)
Operating temperature	-20°C ... +55°C
Relative humidity	0 to 80% non-condensing

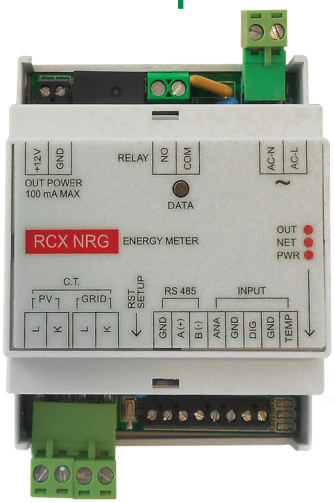
View Quick Installation Guide

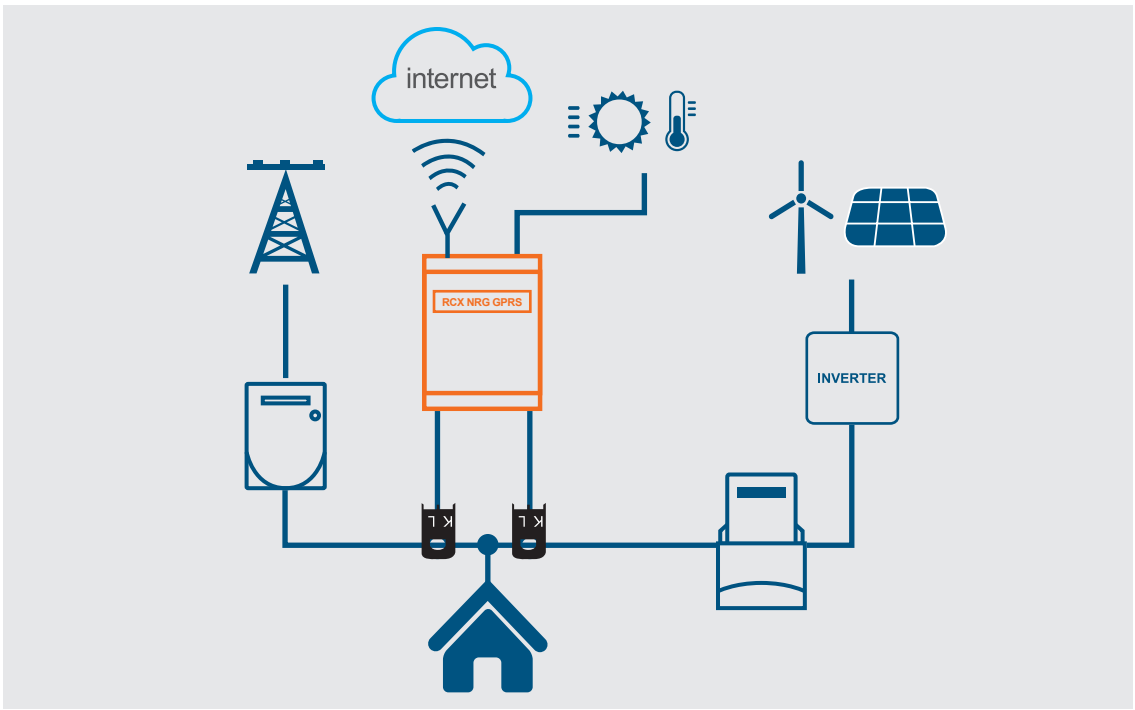
WebVision allows access through custom accounts generations. You can make more accesses deciding what role and what data can see a type of account, generated directly by the customer.
WebVision with this system guarantees the confidentiality of the data.

RCX NRG

Expansion modem

TL.042.302





- Electricity grid
- Electronic meters
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- Solarimeter
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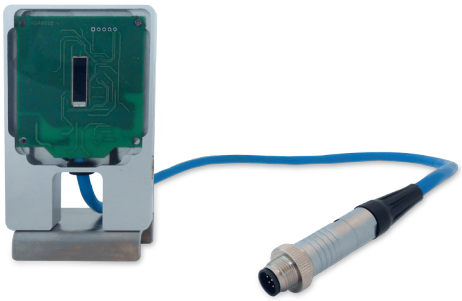
Solarimeter

Serial and Analog Output

SOLARIMETER AC.070.100

view datasheet

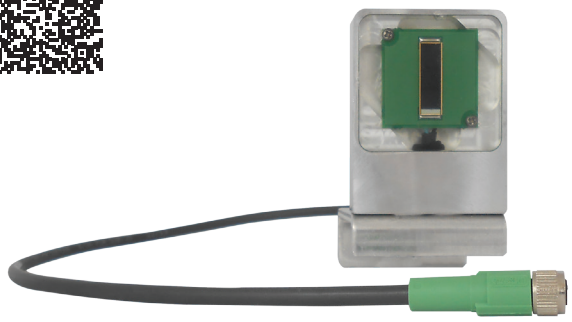


The Solarimeter with serial output is a high-tech electronic device designed to accurately measure the solar radiation and make it available to the user in the best way suitable for its applications.
It is intended primarily, but not only, to be used in solar energy conversion applications (thermal and photovoltaic), for preliminary studies, for commissioning and testing for the continuous monitoring of performance and monitoring.
It is based on a sensitive element to the silicon that thanks to our technology is sampled and run by a high performance DSP (Digital Signal Processor), in order to improve the accuracy and stability of the signal, obtaining results comparable to the best class radiometers.
It has an additional input for a 2-wire RTD PT100 external element for detecting the temperature near objects, that is, photovoltaic modules, environment, etc.
Measurements can be read by a powerful and versatile bus interface TIA / EIA-RS485 with industry standard Modbus RTU protocol.
Main features:

1. Single crystal silicon cell.
2. Measurement of the cell values with TZOS (R) technology.
3. RS485 port standard Modbus RTU to ensure value reading even at 500 meters.
4. Error compensation for the temperature for a better accuracy.
5. Output both digital and analogue, compatible with most of data-loggers.
6. High resistance to atmospheric agents.
7. In accordance to IEC EN 61215 par.10,11,12 – (aging).
8. Easy installation to structures.
9. Accurate adjustment.

SOLARIMETER AC.070.104

view datasheet



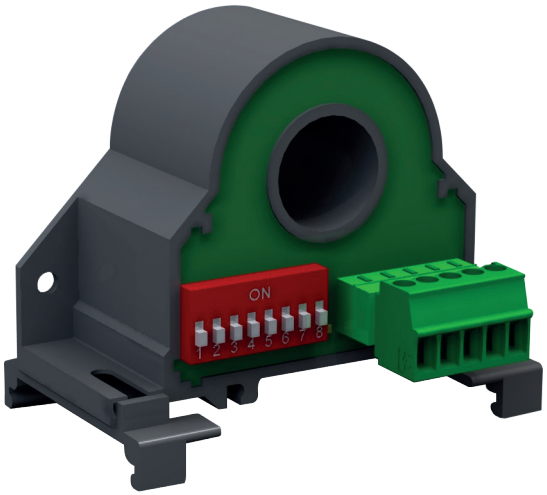
Analog Solarimeter
Our Analog Solarimeter is a radiation sensor with a monocrystalline silicon solar cell with high efficiency. Litemeter current is a small sensor with great potential.It is an analog sensor suitable for small and medium-size plants. It must be powered externally.
The 4-20mA current output allows the analog signal to remain unchanged in cases where there are paths between the sensor and the acquisition unit of 10m or more in disturbed areas.
Length of up to 20-35 m where there are disturbances content.
Simple and affordable, easy to install.
Main features:

1. Output 4-20 mA
2. Power Supply 8-30Vdc
3. Ease of installation and use
4. Calibrated with a reference Sunmeter which is calibrated with a pyranometer K & Z CMP22 of Teolo weather center every six months.
5. According to the IEC 60904
6. It equipped with bracket for quick mounting to the module or to the structure.

Current Transformers

Current sensor AC/DC 50A RS485 Modbus

AC.070.103



The Current Sensor AC / DC 50A RS485 Modbus is an isolated, contact –less direct and alternating TRMS current transformer.
The device's function and look are very similar to those af an active standard CT, but with the remarkable feature of measuring the continuos component of the pass-trough current. The transformer has two different output, one RS485 Modbus RTU Output that allow to customize span and zero, one analog output 0…10V with dip-switch range setting.
AC/DC Current Transformer TRMS, 0…50A, analog and serial output, adjustable range by Dip-Switch and RS485, DIN rail mounting.

Power supply	12…30 Vdc, Protection against polarity reversal and over-temperature
Absorption	Max 20 mA
Protection index	IP20
Accuracy	0,5 % F.S.
Resolution	12 bit
Temperature coefficient	< 200 ppm/°C
Storage temperature	-40°C... +85°C
Response time	1000 ms
Hysteresis	0,15% f.s.
Working temperature	-15…+65°C
Type of measure	TRMS
Range	±50 A rms o ±25 Arms Dip-switch setting or RS485 customize setting
Crest factor	2
Band width	DC or from 20…1000 Hz
Isolation	3 kV on bare wire
Overange	2000 A pulse / 300 A continuos
Output	0…10 V (min. load >2Kohm) and RS485 Modbus RTU
Weight	72g
Altitude	Up to 2000 m s.l.m
Box material	PBT, grey
Mounting	Screw predisposition for vertical/horizontal mounting, DIN rail clips (included) for vertical/horizontal mounting.
Terminals	Removable terminals 3,5mm, 5 poles
Dip-switch	8 poles
Led	N°1 yellow, Power on fixed, data
Dimensions	46,1x 63x 26,4 mm (terminal excluded)

Network Analyzers

Current sensor AC/DC RS485 Modbus

AC.070.105

The current sensor and voltage energy power meter monophase AC/DC RS485 Modbus is able to measure the TRMS AC/DC current and voltage.
On the RS485 Modbus are available: Irms, Vrms, Watt, Var, Va, Vpk, Ipk, Frequency, Cosφ, Energy bidirectional and THD.
The device is fully configurable by RS485, DIN rail mounting.

Power supply	9...30 Vdc, Protetto contro l'inversione di polarità e le sovratemperature
Absorption	1,3 W
Protection index	IP20
Accuracy	Tensione, Corrente, Potenza Attiva, Potenza Reattiva, Potenza Apparente: < 0,5% F.S. Frequenza : +/- 0,1 Hz Energia: +/- 1% sulla lettura Vpicco, Ipicco : +/- 5%
Measurement	Irms, Vrms, Watt, Var, Va, Vpk, Ipk, Frequency, Cosφ, Energy bidirezionale, THD
Temperature coefficient	< 200 ppm/°C
Storage temperature	-40°C... +85°C
Sampling rate	11k campioni al secondo
Input impedence	1 M ohm +/-1%
Hysteresis	0,15% f.s.
Working temperature	-15…+65°C
Type of measure	TRMS o DC
Range	Correnti: fino a 50 A AC/DC - Tensioni: fino a 800 V AC o 1000V DC
Working frequency	DC o 1...400 Hz
Crest factor	1,8 (on current measurement)
Band width	DC or from 20…1000 Hz
Isolation	3 kV on bare wire for Current measure - 4 kV for Voltage measure (reinforced insulation to power supply and serial output)
Overange	2000 A pulse / 300 A continuos
Output	0…10 V (min. load >2Kohm) and RS485 Modbus RTU
Weight	80 g
Altitude	Up to 2000 m s.l.m
Box material	PBT, grey
Mounting	Screw predisposition for vertical/horizontal mounting, DIN rail clips (included) for vertical/horizontal mounting.
Terminals	Removable terminals 3,5mm, n°1 4 poles, n°2 2 poles
Dip-switch	2 poles
Led	N°1 yellow, Power on fixed, data communication blinking
Overvoltage category	Cat III up to 600V ; Cat II up to 1000V
Dimensions	46,1x 63x 26,4 mm (terminal excluded)

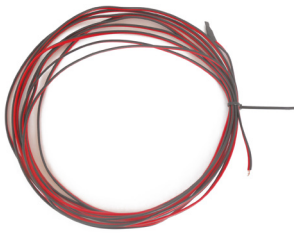
Products

Other products for photovoltaic

TLP - RADIO MODULE TL.050.000

- Radio module for RS485 serial expansion, allows the extension of wireless serial connection to all the installed devices;
- Radio module with frequency 868 MHz? 10 mW 8 channels;
- n° 2 interfaces hub RS485
- Plastic enclosure with mounting tabs
- Connection cable included in the kit
- Integrated antenna

PROBE NTC AC.021.000



Temperature measurement probe

order code:

AC.021.000	NTC-5	Probe NTC 10 Kohm silicone cable 5 meters
AC.021.001	NTC-30	Probe NTC 10 Kohm silicone cable 30 meters
AC.021.002	NTC-25	Probe NTC 10 Kohm silicone cable 25 centimeters

OPENABLE CURRENT SENSOR

AC.070.102

30 A 333 mV
Ø MAX 10 mm
Linearity ± 1%
Operating conditions -20°C + 50°C

CT_010_Ed.4.1_Rev_1_05_2016_eng

HITEKS

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