4-noks®

Electronic solutions
for the photovoltaic sector

photovoltaic monitoring **/ self-consumption
/ cloud services**

AG
ASTRELGROUP

Contents

About us

4-NOKS is the business unit of the **ASTREL GROUP** specializing in the design and manufacture of electronic systems for monitoring and controlling the production of electricity using **solar energy**, and managing self-consumption. The offering covers solutions for **residential, commercial and industrial applications**, all of which affording the possibility of **remote control using an App** for smartphones and tablets, or by way of a dedicated **cloud portal**.

4-NOKS has always pursued the development of innovative solutions, with the focus in particular on **simplicity of use, quality, and eco-sustainability**. In this context, and in line with market trends, 4-NOKS continues to research and introduce components designed to **maximize the capacity for self-consumption** of energy produced by photovoltaic systems, both using **smart technologies** (intelligent activation and deactivation of **household electrical appliances** according to available power levels) and by offering dedicated **energy storage solutions** to enable the optimized use of electricity across the full 24 hour span of each day.

R&D

The **ASTREL GROUP** has a **Research & Development** department dedicated to finding innovative solutions for applications in the **energy, wellness and home automation** markets, giving special attention to the **practical attributes of products** (touch screen user interfaces, radio controls, Apps for smart devices) and to **local and remote connectivity** (connections and **cloud services** with proprietary infrastructures, wireless technologies with specializations in Bluetooth® and ZigBee®, open source integration protocols).

Organization and production

Manufacturing activity is carried on entirely at the **ASTREL GROUP production facility** in the province of Gorizia. With a production capability structured to cover all market needs in terms of **flexibility** and lead times, the **ASTREL GROUP** operates to a **lean organizational model. In-circuit and functional tests** conducted on 100% of items manufactured, plus constant monitoring and improvement of processes, combine to guarantee a **high and steady standard of quality in production.**

Certifications

ASTREL GROUP (Mossa, Italy) is certified to ISO 9001 (since 1999) and ISO 14001 (since 2011).

Solar energy, on the web

Simple, versatile and web-connected: these are the key features of 4-noks solutions for the **photovoltaic sector**. All 4-noks systems allow users **to monitor and exploit clean energy** generated by photovoltaic systems **to maximum advantage.** Devices can be managed and controlled from an App and/or web portal, by private users and by professionals/installers, utilizing an internet connection.
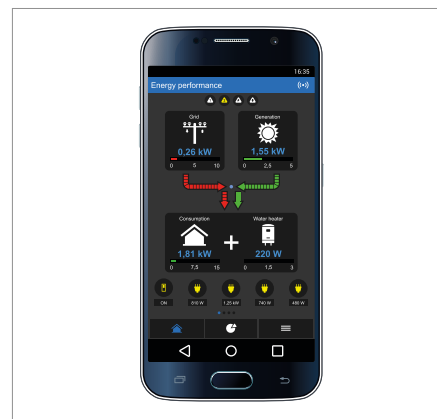
Systems for all needs

Elios4you Line: an entirely **App-controlled** system**,** simple and intuitive, for **residential and commercial installations,** which in the Smart version can provide users with a level of self-consumption even better than 80%.

100% Self-consumption

But producing clean energy with the system is only half the battle: a full contribution to the mission of making the **"green economy"** a reality requires every user to maximize the exploitation of this same energy through **self-consumption**. Irrespective of the type of system and inverter installed, 4-noks offers a variety of **smart solutions for managing self-consumption:**

/ **Production of hot water with the aid of PV energy,** using stand-alone or App-controlled devices

/ **Smart management of electrical loads**, to increase self-consumption rather than transfer of energy to the grid

The reality, beyond the theory

Using **products of the Elios4you Line** and **self-consumption accessories**, **one 4-noks customer** managed to increase his **self-consumption capacity** from a level of 15-20% initially, to **more than 80%.**
More exactly, combining the **smart technology of 4-noks products** with extensive use of electricity for household appliances and mobility (e.g. **heat pump** for heating and cooling, induction cooktop for food preparation, **electric vehicle**), ambitious targets were achieved in terms of self-consumption capacity and **energy self-sufficiency.** With simple and reliable 4-noks technology, the dream of **a low environmental impact and energy "independent" home** has become a reality, to all intents and purposes.

Elios4you line

Simple | Independent | Smart

Cultivating a dream: 100% self-consumption from a photovoltaic source

Precise and reliable electronic devices and an **App: Elios4you** gives owners and users of a photovoltaic system all the **tools needed to manage the energy produced**, with a special focus on **self-consumption.** Elios4you uses current transformers (CT) to measure energy produced and exchanged with the grid, calculating consumption in real time. With **integrated Wi-Fi technology**, data can also be displayed remotely using the **"Elios4you" free App** (internet connection with ADSL router required).

A wide range of accessories can be exploited to **increase levels of self-consumption**: **hot water** for technical and/or sanitary purposes can be produced by means of a **heat pump**, for example, and **household electrical appliances** operated when solar power is effectively available. For a more detailed look at the operation of the system and/or timely maintenance procedures, information is available on the **4-cloud portal.**

Max power (grid connected)	6 kW (single-phase systems) 100 kW (three-phase systems)
Usage metering	Split core CTs
Configuration/control	"Elios4you" App
Local data display	"Elios4you" App
Remote data display	"Elios4you" App / 4-cloud
Internet connection	Wi-Fi router
Widget	YES

"Elios4you" App

The "Elios4you" App, core element of the **Elios4you system**, allows the user to view the operation of the system simply and clearly, and in real time. Also, thanks to the facility of setting **detailed system parameters** and having simple and straightforward control over **self-consumption accessories**, this is a product guaranteed to provide a rapid ROI.

A **simple and intuitive graphic interface** gives the user full control over the system and the possibility of ensuring that the **energy it produces is managed virtuously.**

"Elios4you" App

- ✓ **Free App**
- ✓ Available for iOS and Android systems
- ✓ Monitoring and self-consumption managed **both on site and remotely**
- ✓ Graphic display of instantaneous power produced, fed to grid, drawn from grid and self-consumed
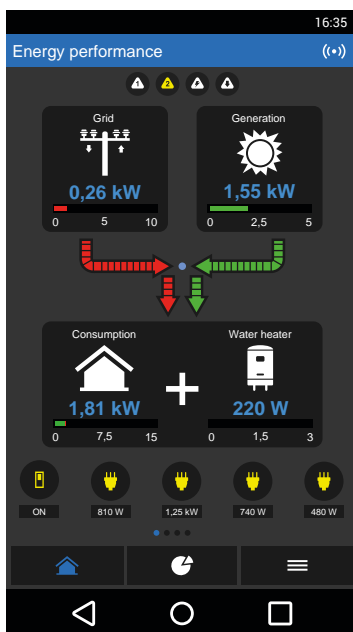- ✓ **Display of system malfunction alarms**

Minimum system requirements for App:
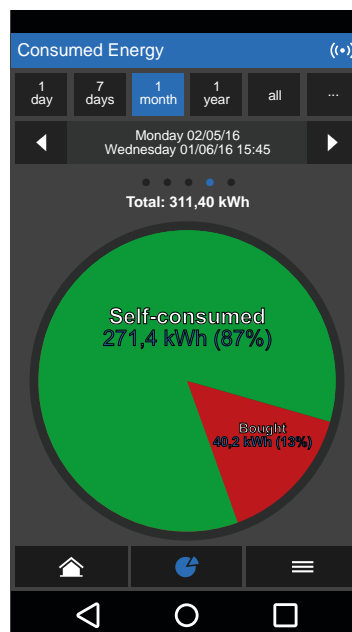- ✓ Android version 2.3.3
- ✓ iOS version 6.0

Compatible with:
- ✓ Elios4you
- ✓ Elios4you Smart
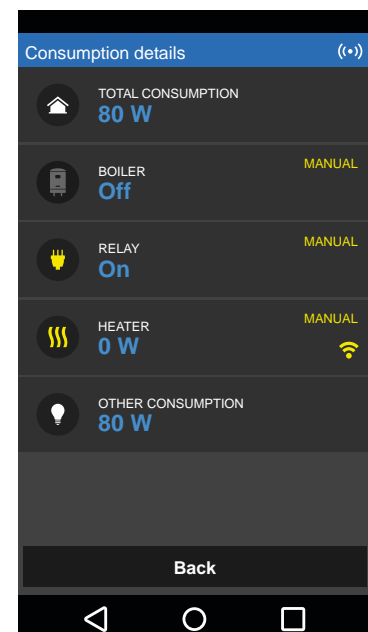- ✓ Elios4you Pro
- ✓ Elios4you [Pro] Smart

"Elios4you" App overview

System activity display

Energy usage display

Detailed usage display

Elios4you

Elios4you is a **monitoring and self-consumption** device for single-phase PV systems **rated up to 6.0 kW**.

Elios4you uses two current transformers (CT) to measure electrical energy produced and exchanged with the grid, calculating consumption in real time. The **"Elios4you" App** allows users to control and monitor the production of their photovoltaic system simply and intuitively, and to maximize self-consumption, thanks also to a **built-in programmable relay** (controlling a **heat pump**, for example).

Elios4you	code	E4U

- ✓ For **single-phase PV systems up to 6.0 kW** (grid-connected)
- ✓ **Universal:** whatever the type of inverter
- ✓ Full configuration and control using **"Elios4you" free App**, even remotely*
- ✓ Real time data display on mobile devices (smartphones/tablets)
- ✓ Main items displayed: energy produced, fed to / drawn from the grid, consumed and self-consumed
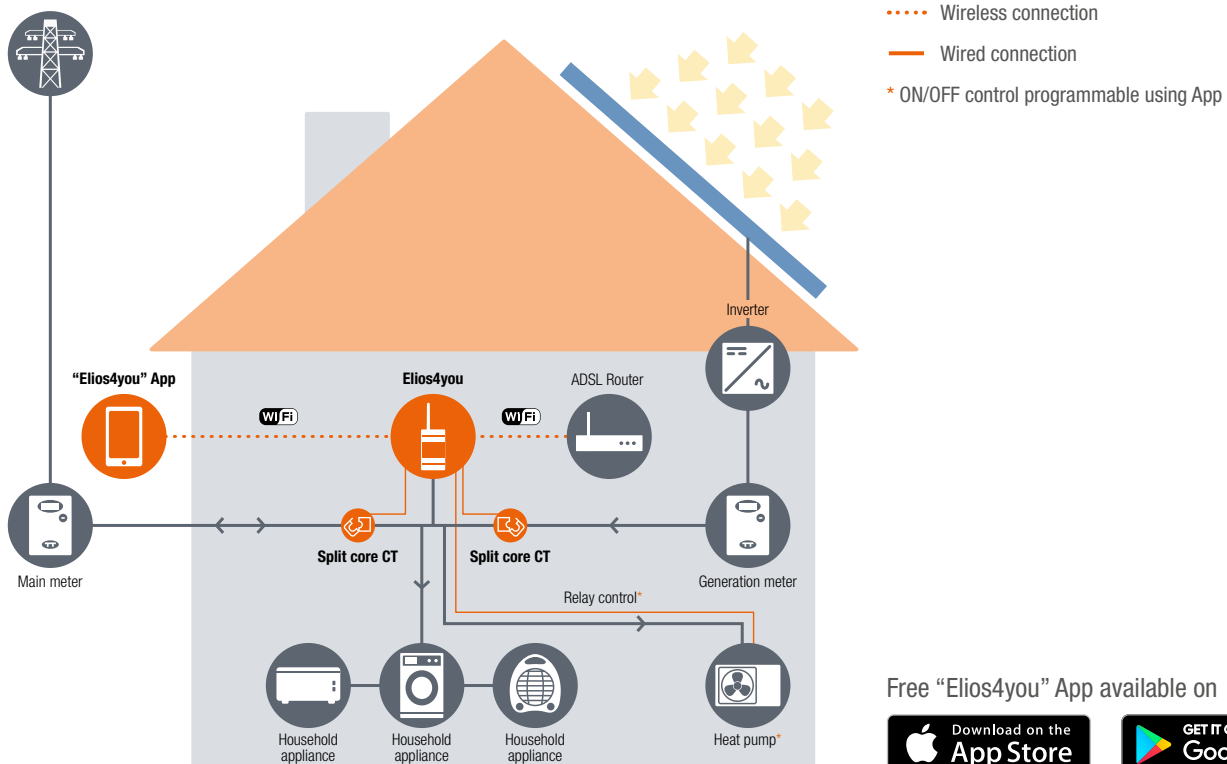- ✓ **Programmable relay** for self-consumption

Compatible accessories:
- ✓ Red Cap
- ✓ Power Reducer
- ✓ 4-cloud (web service)

Download:
- ✓ Free "Elios4you" App available on AppStore and Google Play

* With internet connection using ADSL router

Operating diagram

····· Wireless connection

— Wired connection

* ON/OFF control programmable using App

Free "Elios4you" App available on

Elios4you Smart

Elios4you Smart is a monitoring and self-consumption device for **single-phase PV systems rated up to 6.0 kW**, allowing automatic control of up to **four wireless accessories** for managing self-consumption.

With the **"Elios4you" App**, besides monitoring the production of their photovoltaic system simply and intuitively, users can also programme **the activation of electrical appliances** according to the level of surplus energy produced, using the wireless **Smart Plug RC and Smart Switch RC**. Elios4you Smart is compatible with other radio accessories for managing self-consumption.

Elios4you Smart	code	E4U-S

- ✓ For **single-phase PV systems up to 6.0kW** (grid-connected)
- ✓ **Universal:** whatever the type of inverter
- ✓ Configuration and control using **"Elios4you"free App**, even remotely*
- ✓ **Programmable relay** for self-consumption
- ✓ Management of **up to 4 accessories** with **wireless** connection
- ✓ Programming of wireless electrical sockets by way of App on the basis of available energy produced
- ✓ Real-time display of data on smartphone / table, even from remote location
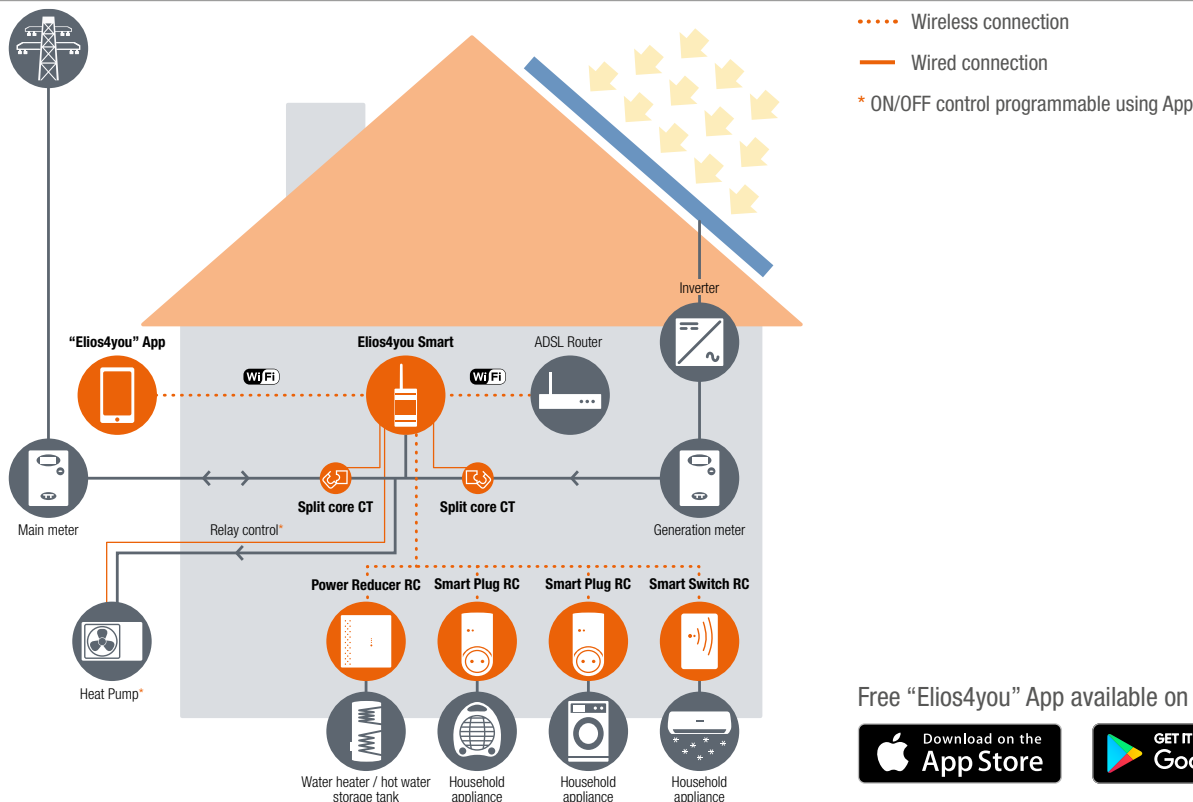
Compatible accessories:
- ✓ Smart Plug RC and/or Smart Switch RC
- ✓ Power Reducer or Power Reducer RC
- ✓ Energy Meter 1~ RC
- ✓ 4-cloud (web service)

Download:
- ✓ Free "Elios4you" App available on AppStore and Google Play

* With internet connection using ADSL router

Operating diagram

····· Wireless connection

─── Wired connection

* ON/OFF control programmable using App

Inverter

"Elios4you" App   Elios4you Smart   ADSL Router

WiFi   WiFi

Main meter   Split core CT   Split core CT   Generation meter

Relay control*

Heat Pump*

Power Reducer RC   Smart Plug RC   Smart Plug RC   Smart Switch RC

Water heater / hot water storage tank   Household appliance   Household appliance   Household appliance

Free "Elios4you" App available on

Download on the App Store   GET IT ON Google Play
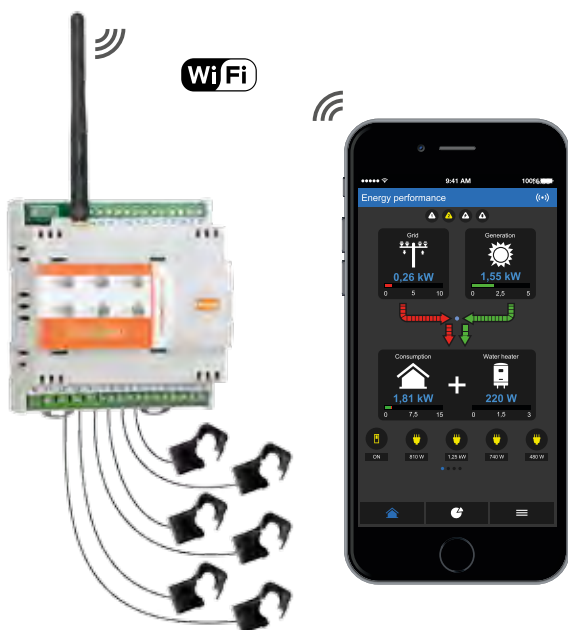
Elios4you Pro

Elios4you Pro is a **monitoring and self-consumption device** for three-phase PV systems **rated up to 100kW**, managed completely by the **"Elios4you" free App**.

With **Elios4you Pro**, users can **view levels of energy produced, consumed and self-consumed**, and much more information besides. Elios4you Pro uses current transformers (CT) to measure electrical energy produced and exchanged with the grid, **calculating consumption in real time**.

✓ For **three-phase PV systems up to 15 / 50 / 100 kW** (grid-connected), according to model
✓ Full configuration and control using **"Elios4you"free App**, even remotely*
✓ **Programmable relay** for self-consumption
✓ Real-time display of data on smartphone / table, even from remote location
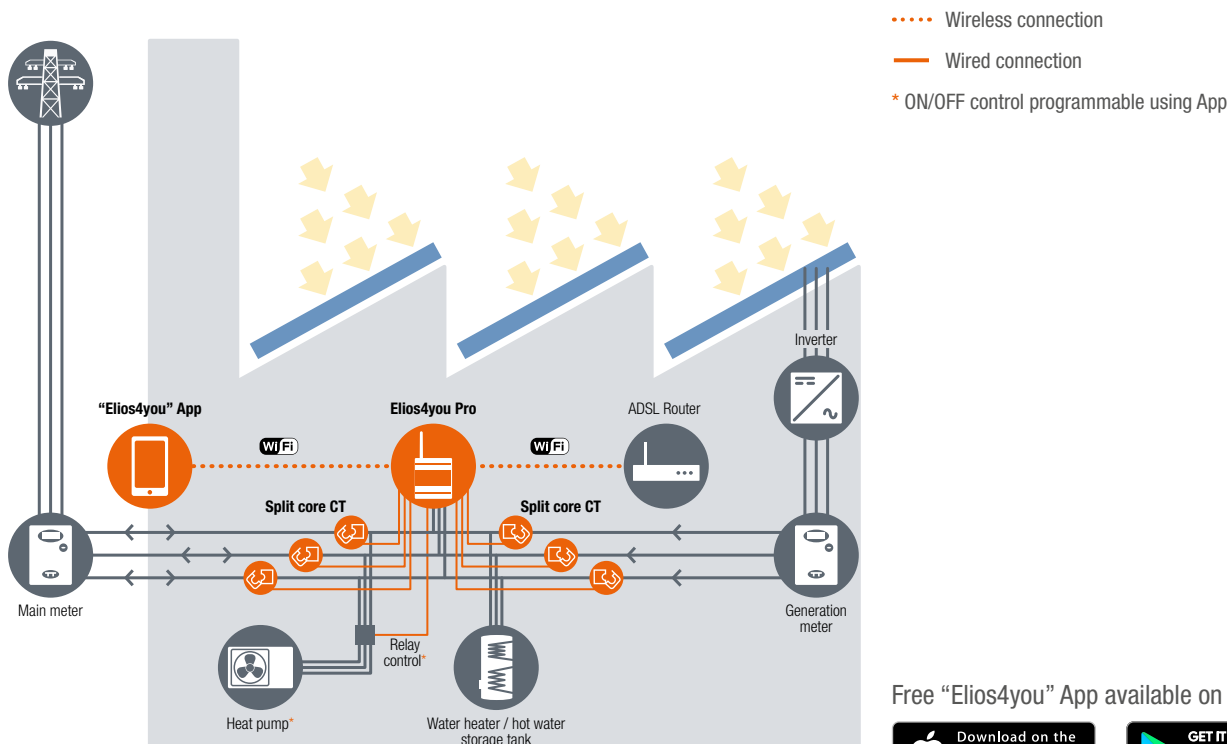
Compatible accessories:
✓ Pro Smart
✓ Power Reducer
✓ 4-cloud (web service)

Download:
✓ Free "Elios4you" App available on AppStore and Google Play

* With internet connection using ADSL router

Operating diagram

····· Wireless connection

—— Wired connection

* ON/OFF control programmable using App

"Elios4you" App

Elios4you Pro

ADSL Router

Inverter

Split core CT

Split core CT

Main meter

Generation meter

Relay control*

Heat pump*

Water heater / hot water storage tank

Free "Elios4you" App available on

Download on the App Store

GET IT ON Google Play

Elios4you [Pro] Smart

Elios4you [Pro] Smart is a **monitoring and self-consumption system** for **three-phase PV systems rated up to 100kW**, allowing automatic control of up to **four electrical consumers** according to the quantity of surplus power produced by the system.

With the **"Elios4you" App**, besides monitoring the production of their photovoltaic system simply and intuitively, users can also programme **the activation of electrical appliances** according to the level of surplus energy produced, using the **wireless Smart Plug RC** and **Smart Switch RC**. Elios4you [Pro] Smart is compatible with other radio accessories for managing self-consumption.

Elios4you [Pro] Smart	code	E4U-PRO-xx + PRO-SMART

- ✓ For **three-phase PV systems up to 15 / 50 / 100 kW** (grid-connected), according to model
- ✓ **Programmable relay** for self-consumption
- ✓ Management of **up to 4 accessories** with **wireless** connection
- ✓ Programming of wireless accessories for self-consumption
- ✓ Instant readout of user consumption
- ✓ Real-time display of data on smartphone / table, even from remote location*
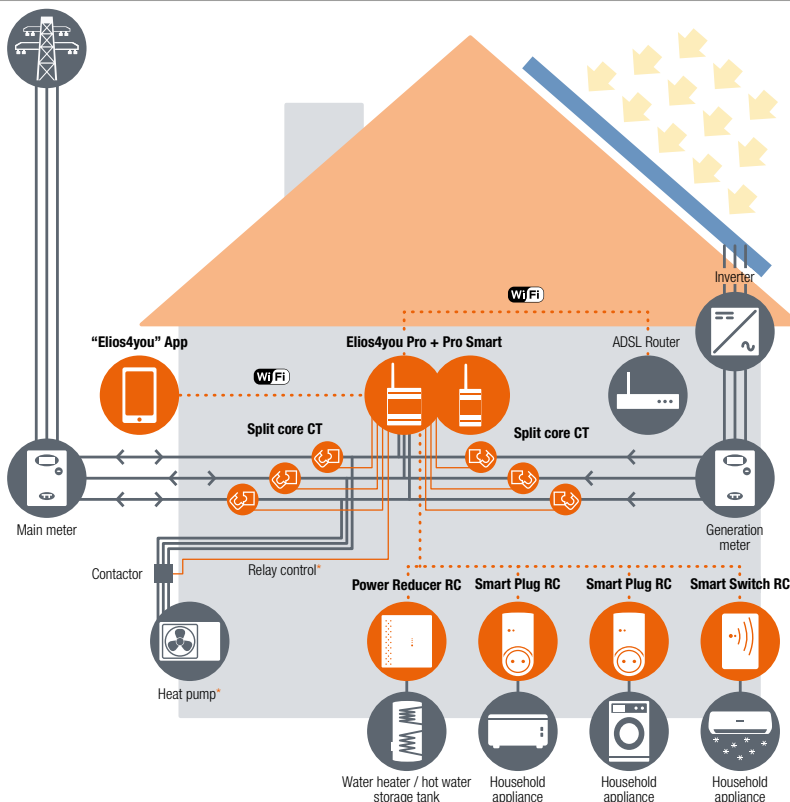
Compatible accessories:
- ✓ Smart Plug RC and/or Smart Switch RC
- ✓ Power Reducer or Power Reducer RC
- ✓ Energy Meter 3~ RC
- ✓ 4-cloud (web service)

Download:
- ✓ Free "Elios4you" App available on AppStore and Google Play

* With internet connection using ADSL router

Operating diagram

····· Wireless connection

── Wired connection

* ON/OFF control programmable using App

Free "Elios4you" App available on

Elios4you accessories

Simple to use | Versatile | Complete

Exploits solar energy! More savings and lower emissions

Heating water only with electrical power provided by the photovoltaic system; **activating electrical loads** only when there is power available: this can all be controlled and programmed using the **"Elios4you" App**, even remotely.
Self-consumption capacity can be increased by up to 80%, thanks to electronics and to "smart" management! The benefits: **more savings** (not only on electricity, but also on other fuels used for heating purposes) and **lower environmental impact**, and with no loss of comfort.

Power Reducer

The Power Reducer is a **control device** which, **when combined with Elios4you**, provides the facility of **producing hot water** by maximizing the use of surplus photovoltaic energy generated on site, without ever drawing power from the grid.

It is suitable for **hot water storage tanks / electric immersion heaters rated up to 3.0 kW**. Connected to the Elios4you controller by a cable, the Power Reducer allows the system to **divert and route surplus PV power automatically** to the immersion heater, **without drawing electricity from the grid**, even when no more than **a few hundred Watts** may be available.

Power Reducer	code	PR

- ✓ **Modulates power absorbed** by the load, exploiting available PV energy without drawing from the grid
- ✓ **Easy to install:** no plumbing skills required
- ✓ **Safe:** compliance with EC and EMC regulations for residential and commercial use
- ✓ Configuration and management directly from **free "Elios4you" App**
- ✓ Max rated power of **heating element 3kW** @ 230V
- ✓ Connection with cable to **Elios4you device**

Compatible accessories:
- ✓ Elios4you
- ✓ Elios4you Smart
- ✓ Elios4you Pro

Operating diagram

····· Wireless connection

— Wired connection

* ON/OFF control programmable using App

"Elios4you" App · WiFi · Elios4you · WiFi · ADSL Router · Inverter

Main meter · Split core CT · Split core CT · 2.4 kW · Generation meter

2.0 kW

Household appliance · Power Reducer · 0.4 kW · Water heater / hot water storage tank
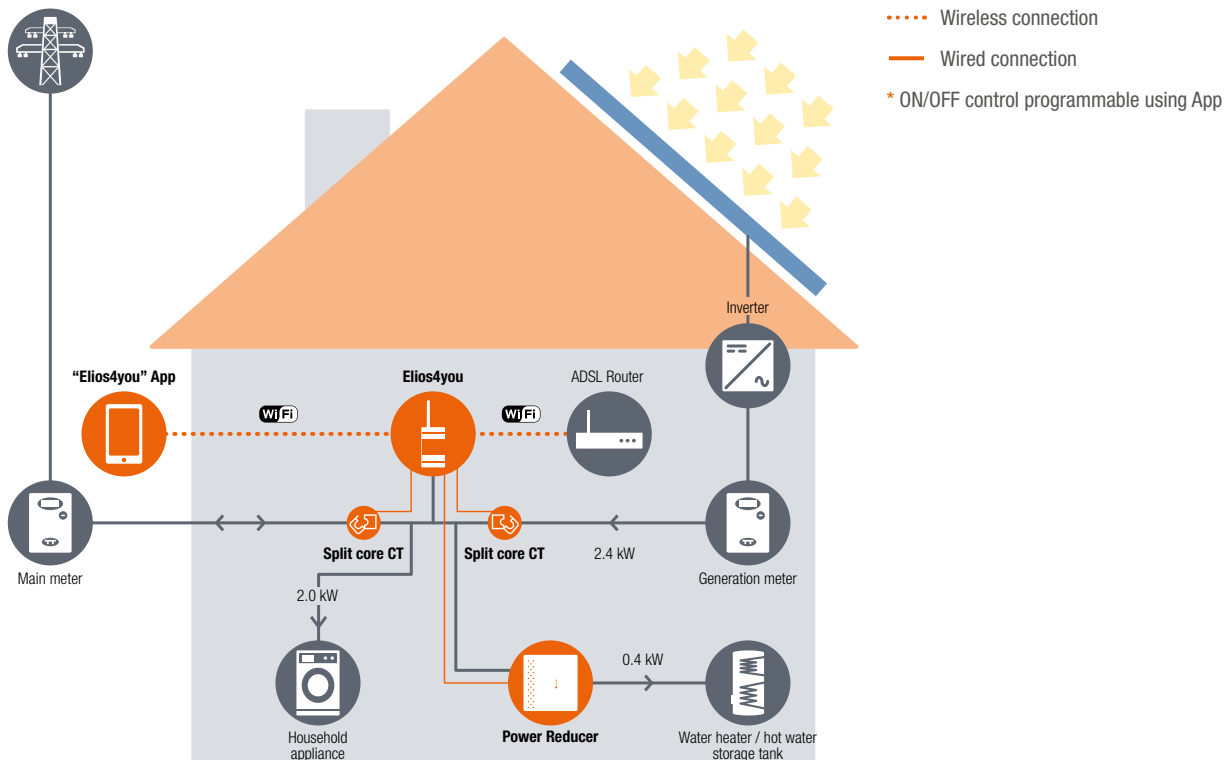
Red Cap

Red Cap is an accessory that converts Elios4you into **Elios4you Smart**. Self-consumption provided by a **single-phase** PV system can be increased by controlling **wireless accessories** automatically so as to exploit surplus power. There is also the option of connecting a wireless energy meter (RC).

Red Cap	code	RED-CAP

✓ Converts Elios4you to Elios4you Smart*

Compatible with:
✓ Elios4you

Download:
✓ Free "Elios4you" App available on AppStore and Google Play

* Compatible only with certain versions of Elios4you. Simple verification by way of App

Pro Smart

Pro Smart is an accessory which, when combined with **Elios4you Pro**, gives increased levels of **self-consumption** in a three-phase photovoltaic system, operating **up to 4 electrical consumers** automatically, depending on surplus PV power available and/or using a **wireless energy meter**.

Pro Smart connected to Elios4you Pro by way of a communication cable will allow wireless control of Smart Plug and Smart Switch RC, and of Power Reducer RC (wireless). It will also allow the use of a wireless Energy Meter 3~ (RC).

Pro Smart	code	PRO-SMART

✓ Management of **up to 4 accessories** with **wireless connection**
✓ Programming of electrical consumers by way of App on the basis of available energy produced
✓ Instant readout of the consumption of individual users
✓ Management of wireless **Energy Meter RC**

Compatible with:
✓ Elios4you Pro

Compatible accessories:
✓ Smart Plug RC and/or Smart Switch RC
✓ Power Reducer RC
✓ Energy Meter 1~ RC or Energy Meter 3~ RC

Power Reducer RC

The Power Reducer RC is a **wireless device** which, **when combined with Elios4you Smart** (single-phase and three-phase), provides the facility of **producing hot water** using photovoltaic energy generated on site, without ever drawing power from the grid.

Thanks to the **wireless connection** with the Elios4you Smart or **Elios4you [Pro] Smart** controller, the Power Reducer RC is easily installed near to the water heater or storage tank, **without any need for additional wiring**.

Power Reducer RC	code	PR-RC

✓ **Modulates power** absorbed by the load, exploiting available PV energy without drawing power from the grid
✓ **Easy to install:** no plumbing skills required
✓ Max rated power of **heating element 3kW @ 230V**
✓ **Wireless connection**
✓ **Safe:** compliance with EC and EMC regulations for residential and commercial use
✓ Configuration and management directly from **free "Elios4you" App**

Compatible products:
✓ Elios4you Smart
✓ Elios4you [Pro] Smart (Elios4you Pro + Pro Smart)

Operating diagram

····· Wireless connection

─── Wired connection

* ON/OFF control programmable using App

Inverter

"Elios4you" App

Elios4you Smart

ADSL Router

WiFi

WiFi

Main meter

Split core CT

Split core CT

2.4 kW

Generation meter

2.0 kW

0.4 kW

Household appliance

Power Reducer RC

Water heater / hot water storage tank
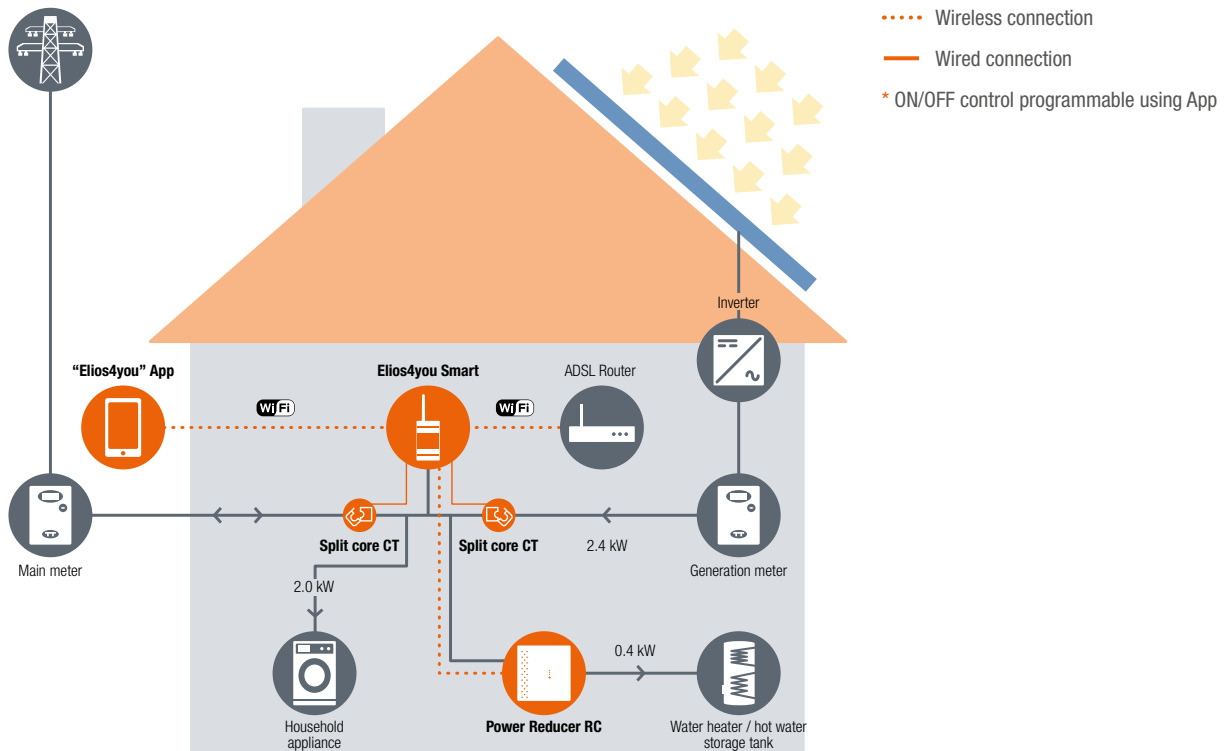
Smart Plug RC

Smart Plug RC is a **wireless pass-through socket** designed to make the most of energy produced on site by a PV system, and is compatible with **Elios4you Smart systems** (single-phase and three-phase).

The Smart Plug RC can be programmed by the **"Elios4you" free App to switch an electrical load on or off** on the basis of power produced by the PV system and energy effectively available for **self-consumption**.

Smart Plug RC	code **ZR-PLUG-xx-RC**

✓ Electrical loads controlled by "Elios4you" App
✓ Max power 13A @ 240Vac
✓ Instant usage measurement (displayed on App)
✓ **Wireless** communication to **ZigBee** standards
✓ Available with EU (Schuko) / FR / UK standards

Compatible products:
✓ Red Cap (retrofit accessory for Elios4you)
✓ Elios4you Smart
✓ Elios4you [Pro] Smart (Elios4you Pro + Pro Smart)

Operating diagram

····· Wireless connection
── Wired connection

"Elios4you" App — WiFi — Elios4you Smart — WiFi — Router ADSL
Inverter
Main meter
Split core CT   Split core CT
Generation meter
Smart Plug RC   Smart Plug RC   Smart Plug RC   Smart Plug RC
Household appliance   Household appliance   Household appliance   Household appliance
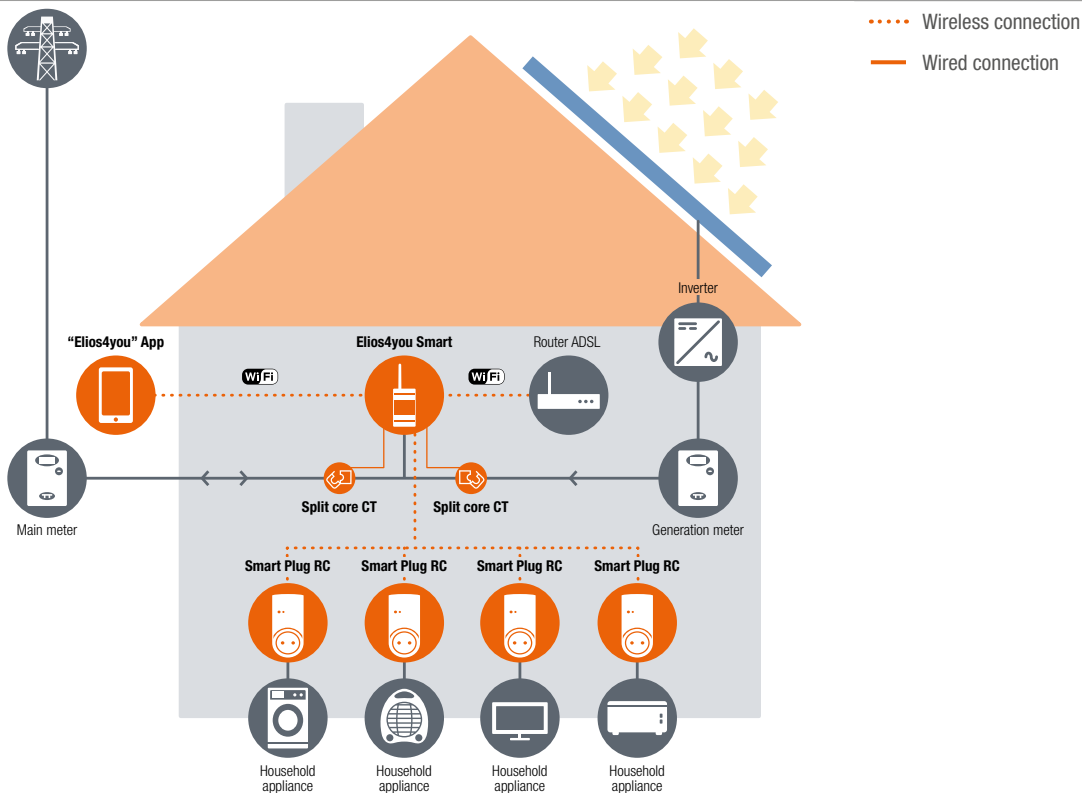
Smart Switch RC

Smart Switch RC is a **wireless wall socket** designed to make the most of energy produced on site by a PV system, and is compatible with **Elios4you Smart systems** (single-phase and three-phase).

The Smart Switch RC can be programmed by the **"Elios4you" free App to switch an electrical load on or off** on the basis of power produced by the PV system and energy effectively available for **self-consumption**.

Smart Switch RC	code	ZR-SWITCH-RC

✓ Electrical loads controlled by "Elios4you" App
✓ Max power 13A @ 240Vac
✓ Instant usage measurement (displayed on App)
✓ Wireless communication to ZigBee standards

Compatible products:
✓ Red Cap (retrofit accessory for Elios4you)
✓ Elios4you Smart
✓ Elios4you [Pro] Smart (Elios4you Pro + Pro Smart)

Operating diagram

····· Wireless connection
—— Wired connection
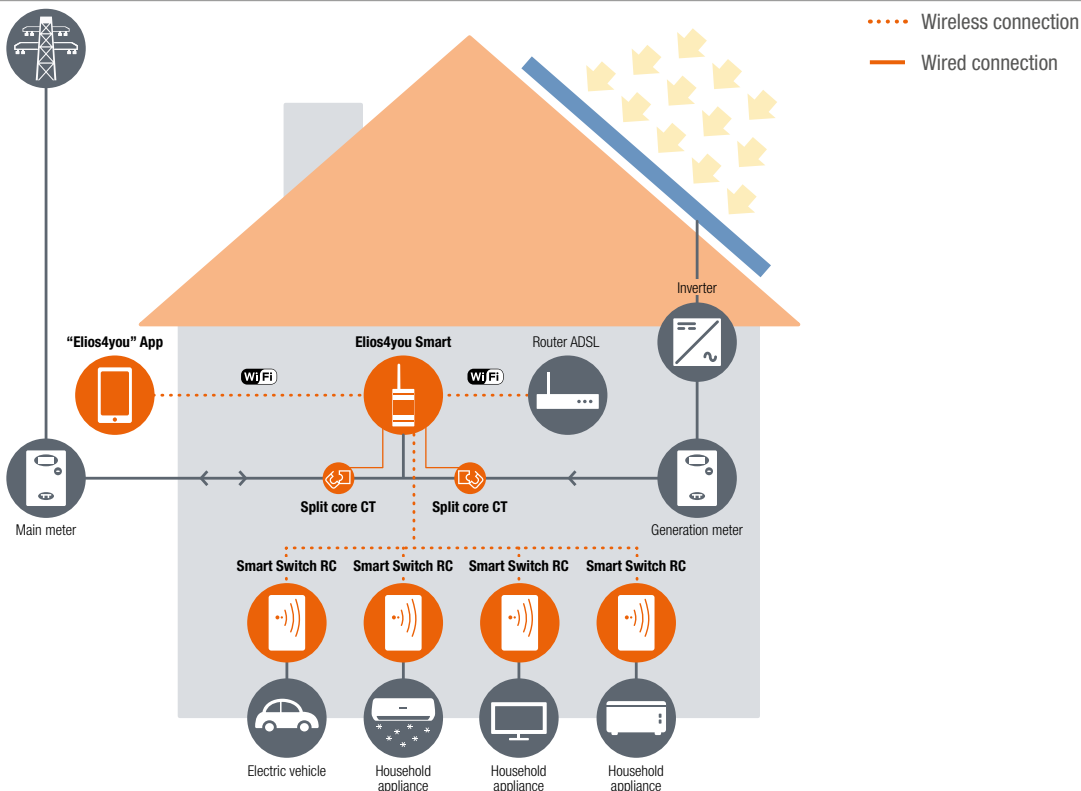
Energy Meter 1~ RC

Energy Meter 1~ RC is a **wireless power metering device** for **Elios4you Smart** systems. It can replace one of the measurement transformers (CT) installed with Elios4you, or it can be used for monitoring energy drawn by a consumer (e.g. **household electrical appliance**).

Where the Energy Meter 1~ RC is used for **remote management of a CT in the Elios4you system**, the information will be the same as acquired with a wired CT. Conversely, if the device is used for monitoring a consumer via the "Elios4you" App, it will be possible to view data on energy exchanged with the consumer.

Energy Meter 1~ RC	code	ZR-HM.D-RC

✓ **Wireless** power metering device
✓ Simple and swift installation
✓ Guided configuration by way of "Elios4you" App
✓ **ZigBee** technology
✓ Precise voltage and current measurement
✓ Transmission of energy and exchanged power data
✓ Data viewed by way of "Elios4you" App

Compatible with:
✓ Elios4you Smart

Operating diagram

····· Wireless connection
—— Wired connection

* ON/OFF control programmable using App

Inverter

Energy Meter RC | "Elios4you" App | Elios4you Smart | ADSL Router

Main meter

Split core CT

Relay control*

Split core CT

Generation meter

Heat pump*

Energy Meter RC | Power Reducer RC | Smart Plug RC | Smart Switch RC

Household appliance | Water heater / hot water storage tank | Household appliance | Household appliance

Energy Meter 3~ RC

Energy Meter 3~ RC is a **wireless power metering device** for **Elios4you [Pro] Smart** systems. The device can have a dual function: as a replacement for one of the measurement transformers (CT) installed with Elios4you, or for monitoring energy drawn by a consumer (e.g. **heat pump**).

Where the Energy Meter RC is used for **remote management of a CT in the Elios4you system**, the information will be the same as acquired with a wired CT. Conversely, if the device is used for monitoring a consumer via the "Elios4you" App, it will be possible to view all the data indicating energy exchanged with the consumer (in the case of a storage system, both energy stored and energy drawn) on a dedicated page.

Energy Meter 3~ RC	code **ZR-HM3-xx-RC**

- ✓ **Wireless** power metering device
- ✓ Simple and swift installation
- ✓ Guided configuration by way of "Elios4you" App
- ✓ **ZigBee** technology
- ✓ Precise voltage and current measurement
- ✓ Transmission of energy and feed/draw power data
- ✓ Data viewed by way of "Elios4you" App

Compatible with:
- ✓ Elios4you [Pro] Smart

Operating diagram

····· Wireless connection
─── Wired connection
* ON/OFF control programmable using App
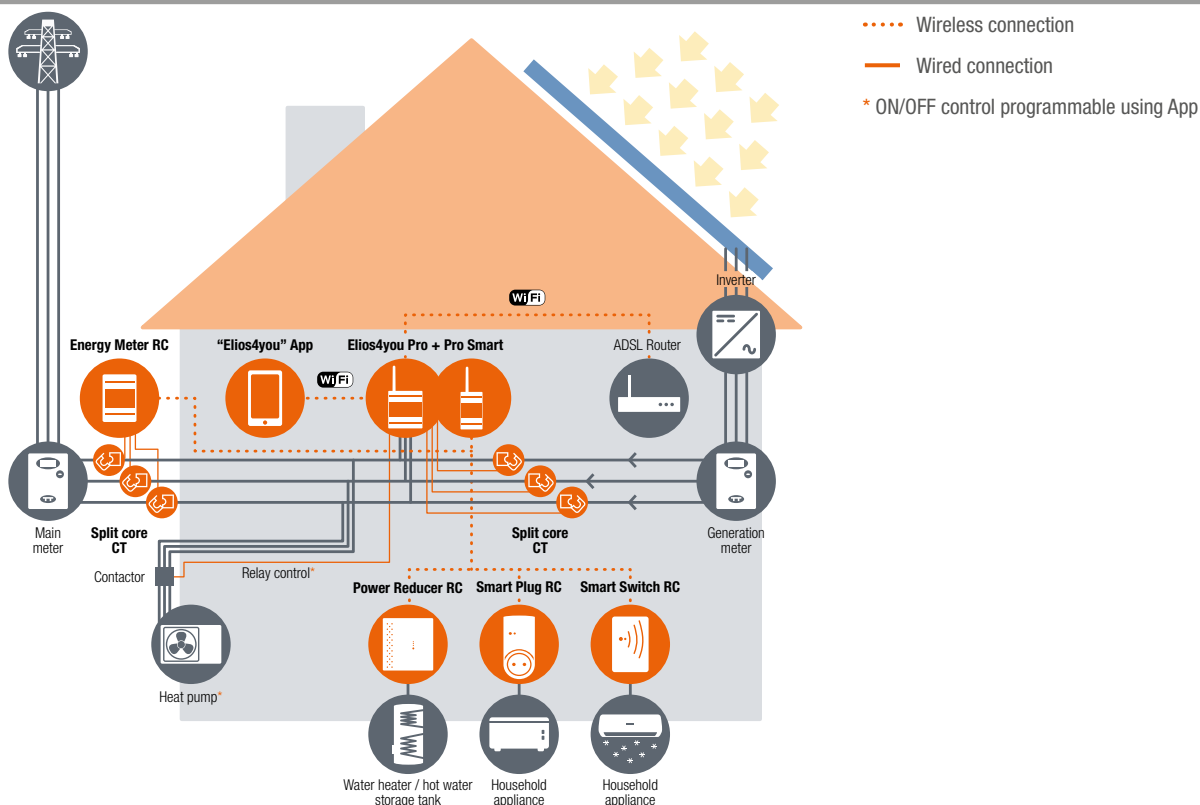
Compatibility of Elios4you Line and Accessories

	E4U Elios4you	E4U-S Elios4you Smart	E4U-PRO-xx Elios4you Pro	E4U-PRO-xx + PRO SMART Elios4you [Pro] Smart
RED-CAP Red Cap	•			
PRO-SMART Pro Smart			•	
PR Power Reducer	•	• (1)	•	• (1)
PR-RC Power Reducer RC		• (1)		• (1)
ZR-PLUG-xx-RC Smart Plug RC		•		•
ZR-SWITCH-RC Smart Switch RC		•		•
ZR-HM.D-RC Energy Meter 1~ RC		•		
ZR-HM3-xx-RC Energy Meter 3~ RC				•
ZR-REP-E230-HA Radio signal repeater with 230V power input		•		•
ANT-EXT002 ANT-EXT007 Directional antenna, external mounting. High gain 14dBi 2.4GHz; cable L = 2 or 7 m.	•	•	•	•

(1) Power Reducer and Power Reducer RC cannot be connected simultaneously in the same system.

Power Reducer SA

Stand-alone | Practical | Entry level

Heating water with photovoltaic energy

Increasing self-consumption and reducing costs: Power Reducer SA is a **stand-alone solution generating minimal impact**, in terms of expense and difficulty of installation, **for producing hot water** by means of photovoltaic energy. Routing surplus solar power automatically to an electric water heater with storage tank, users can secure an immediate benefit which, in certain cases, can mean suspending the use of power from the grid for entire periods of the year. Power Reducer SA is **suitable for all installations**: it operates independently of the inverter and of the monitoring system installed.

Power Reducer SA

Power Reducer SA is a **completely stand-alone control device** with a built-in energy meter that provides the facility of **producing hot water** without ever drawing power from the grid. Connected to a water heater / storage tank with an **electric immersion element rated up to 3.0 kW**, Power Reducer SA can deliver **immediate savings**.

Power Reducer SA **diverts surplus energy automatically** (even just a few hundred Watts) without drawing from the grid. Measuring available energy by means of the current transformer (CT) installed on the meter line of the grid supply, the Power Reducer SA minimizes the power demand of the electric element in the water heater / hot water storage tank, consequently **avoiding the need to draw electricity from the grid**.

Power Reducer SA	code	PR-SA

- ✓ **Modulates power** absorbed by the heating element, exploiting available PV energy without drawing power from the grid
- ✓ **Easy to install:** no plumbing skills required
- ✓ **Safe:** compliance with EC and EMC regulations for residential and commercial use
- ✓ Max rated power of **electric heater 3.0kW** @ 230V
- ✓ **CT** (current transformer) **included** for calculation of available energy
- ✓ **Boost function:** forces activation of heating element when PV energy production ceases

Operating diagram

Wired connection

Inverter

Water heater / hot water storage tank

Power Reducer SA

Split core CT

Main meter

Generation meter

Household appliance

Household appliance
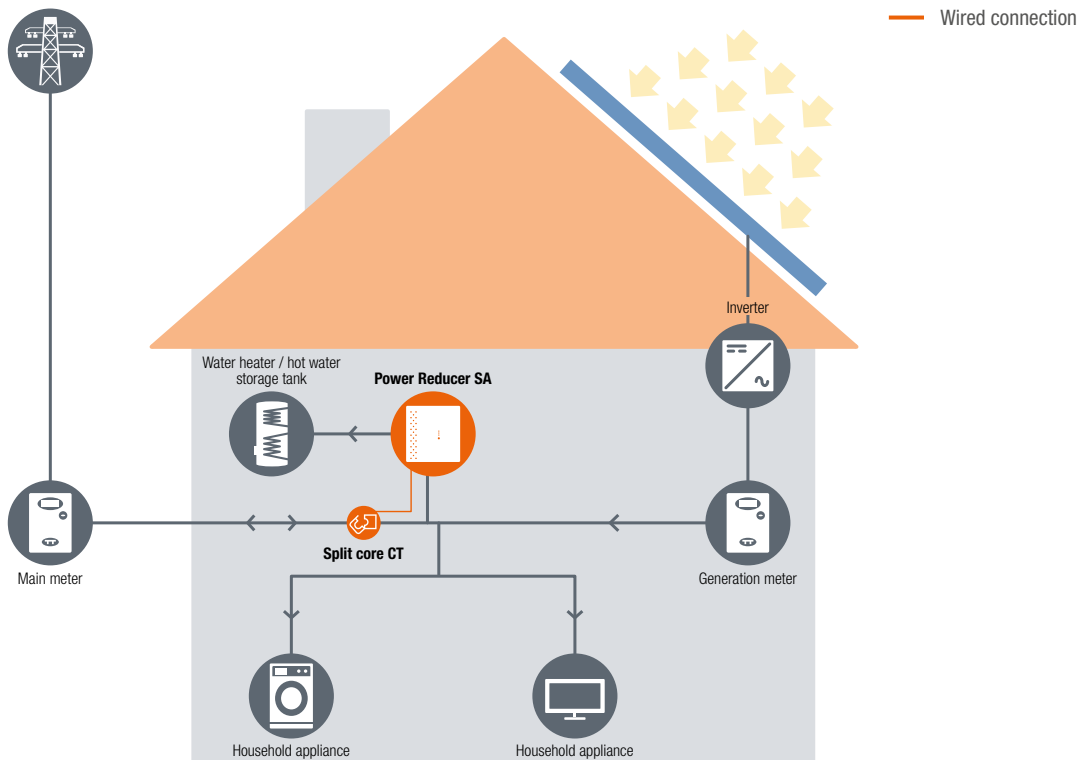
4-cloud

Monitoring | Multi-user | Multi-system

The cloud platform for monitoring: plenty of value in return for a small subscription

All **4-noks products** connected to the internet (whether by ADSL or by SIM) can be monitored directly from the **4-cloud portal**. Designed to benefit both PV system owners and installers / service technicians, 4-cloud offers the facility of viewing the **operating data log** and programming the platform to send **alarm e-mails**, for example when there is no energy being produced.

4-cloud allows the storage and display of data sent by devices — in simple and intuitive graphic formats — directly over the web.

4-cloud

4-cloud is the **internet platform** for storing/viewing data sent by monitoring devices. 4-cloud offers a set of functionalities common to all products, and other more specific functionalities dedicated to the type of device connected.

For example, the user can display energy and/or power produced by the PV system — amounts consumed, fed to and drawn from the grid — both numerically and graphically, with data organized by period. It is also possible to **run a check,** simply and clearly, **on self-consumption capacity** in relation to energy produced and/or drawn.

4-cloud

- ✓ **Multi-user** | **Multi-system** management
- ✓ Data viewed in table format and/or in graphic mode
- ✓ Full access to system **data log**
- ✓ **Data downloadable** in CSV format
- ✓ **Alarms sent by e-mail** in the event of system malfunction
- ✓ Yearly access fee

Compatible with:
- ✓ Elios4you line
- ✓ Widget

4-cloud demo on www.4-cloud.org:
- ✓ Username: demo4noks
- ✓ Password: demo4noks

Main functions

Multi-user management

The portal runs two types of account: **Owners** and **Viewers**.
- ✓ Owners **are people who register devices on the portal and pay the necessary access fee.**
- ✓ Viewers **are users authorized by the Owner only to view data.**

Multi-system management

Owners can register and (by accessing their account) view different systems/devices all at the same time. This facility is important especially for service technicians and Energy Managers seeking to optimize the running of systems

Alarm alerts

Whenever certain critical conditions affecting the connected device are observed, the portal will send out **alarm alerts by e-mail** (for example, when no PV energy is being produced).

Data viewing

Archived data can be viewed in table format and/or in graphic mode, for swift and immediate comprehension.

Data log and Download

The portal will allow users to access the entire **log of data transmitted by the registered device**. The data itself can also be downloaded from the portal in CSV format to allow further processing.

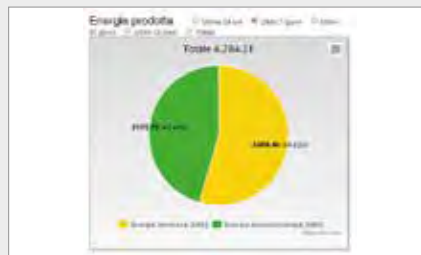Display of progress on multiple systems monitored simultaneously using a single point of access

Facility of showing data acquired by a single instrument to multiple users registered on the portal (Viewer users)

Management of alarms by configuring five different e-mail addresses for each system

Comparison of system efficiency by month across years of operation

Download of graphics in different image formats

Export of data in CSV format for quicker analysis

Widget

Share your **commitment to the environment** on-line. When requested, an **on-line display** can be created for all devices registered with the 4-cloud portal, showing the amount of energy produced and the emissions of CO_2 avoided.

The display can show the data for a single system, or the aggregate of data values from multiple systems. The Widget service can be used both for the publication of data on a user's own **website**, and to display data directly on the **browser**, on payment of a one-time subscription.

| code | **WIDGET-HTML** | code | **WIDGET-PV** |

At the request of the client, a web page is generated, with customized graphics if so desired, accessible directly from the browser with a dedicated link.
This means it is possible to share production data by displaying the page on a dedicated monitor or on a television connected to the internet.

At the request of the client, a script is generated for incorporation into a web page on the client's own site. To view the data, the script code must be inserted in the target page of the Widget.
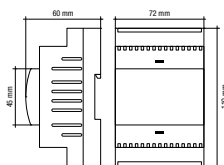
Technical
data sheets

Elios4you line

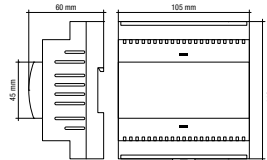| Elios4you		code	E4U
Elios4you Smart		**code**	**E4U-S**
General specifications	Control system for single-phase systems with Wi-Fi connection and App for smartphone/tablet		
Power supply	230Vac (±10%) 50/60 Hz 2W		
Radio specifications	/ Wi-Fi 802.11b/g/n / Access point (AP) Station (STA), B,G,N or mixed mode / ZigBee 2.4 GHz		
Memory	Data log up to two months, in the event of no connection to tablet, with sampling every 15 minutes		
Status displays	nr. 8 x Led		
Connections	Screw terminals for power connections, measurement CTs, alarm inputs and control outputs		
Current measurement	With split core CT (internal Ø 15 mm max)		
Antenna	External antenna on SMA RP screw connector for data transmission via Wi-Fi		
Outputs	Relay output (max 10A @ 230Vac), control output 0-10Vdc		
Inputs	nr. 2 x voltage-free alarm contact (NO)		
Ambient parameters	/ Operating conditions: 0 to +50°C; <80% R.H., non-condensing / Storage conditions: -20 to +70°C; <80% R.H., non-condensing		
Degree of protection	IP20		
Conformity	CE RoHS Directives 2014/30 EU; 2014/35 EU; 99/5 EEC; 2011/65 EU; ETSI-EN 300 328; ETSI EN301 429; EN 61326-1; EN 61010-1		
Dimensions (L x H x D)	4-module DIN rail housing 72 x 110 x 60 mm		
Mechanical drawings			

Elios4you Pro 15kW		code	E4U-PRO-15
Elios4you Pro 50kW		**code**	**E4U-PRO-50**
Elios4you Pro 100kW		**code**	**E4U-PRO-100**
General specifications	/ Control system for three-phase photovoltaic systems with Wi-Fi connection and App for smartphone/tablet. / Maximum measurable power 15 / 50 / 100 kW (depending on model)		
Power supply	400V (3x 230Vac + neutral) ± 10% 1.8 W		
Radio specifications	Wi-Fi 802.11b/g/n; Access point (AP) Station (STA), B,G,N or mixed mode		
Memory	Data log up to two months, in the event of no connection to tablet, with sampling every 15 minutes		
Status displays	nr. 6 x Led		
Connections	Screw terminals for power connections, measurement CTs, alarm inputs and control outputs		
Current measurement	With split core CT / E4U-PRO-15 and E4U-PRO-50: internal diameter Ø15 mm max / E4U-PRO-100: internal diameter Ø 24 mm max		
Antenna	External antenna on SMA RP screw connector for data transmission via Wi-Fi		
Outputs	Relay output (max 10A @ 230Vac), control output 0-10Vdc		
Inputs	nr. 2 x voltage-free alarm contact (N.O.)		

Elios4you Pro 15kW	code	E4U-PRO-15
Elios4you Pro 50kW	code	E4U-PRO-50
Elios4you Pro 100kW	code	E4U-PRO-100

|	
Ambient parameters	/ Operating conditions: 0 to +50°C; <80% R.H., non-condensing / Storage conditions: -20 to +70°C; <80% R.H., non-condensing
Degree of protection	IP20
Conformity	CE RoHS Directives 2014/30 EU; 2014/35 EU; 99/5 EEC; 2011/65 EU; ETSI-EN 300 328; ETSI EN301 429; EN 61326-1; EN50581; EN55010; EN55011; EN 61010-1
Dimensions (L x H x D)	6-module DIN rail housing 105 x 110 x 60 mm
Mechanical drawings	

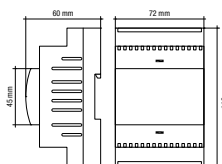| Elios4you [Pro] Smart	code E4U-PRO-xx + PRO-SMART
General specifications	/ **Elios4you Pro:** control system for three-phase photovoltaic systems with Wi-Fi connection and App for smartphone/tablet; maximum measurable power 15 / 30 / 50 kW / **Pro Smart:** ZigBee interface controllable from App
Power supply	/ **Elios4you Pro:** 400V (3x 230Vac + neutral) ± 10% 1.8 W wye configuration for power supply and voltmeter connections / **Pro Smart:** 230 Vac (± 10%) 50/60 Hz 1.4W
Radio specifications	/ **Elios4you Pro:** Wi-Fi 802.11b/g/n; access point (AP) Station (STA), A,B,G,N or mixed mode; output power 15 ± 1 dBm / **Pro Smart:** IEEE 802.15.4. / ZigBee Home Automation protocol 1.2, power 10 mW
Memory	Data log up to two months, in the event of no connection to tablet, with sampling every 15 minutes
Status displays	**Elios4you Pro:** 6 x Led; **Pro Smart:** 4 x Led
Connections	Screw terminals for power and voltmeter connections, measurement CTs, alarm inputs and control outputs
Current measurement	With split core CT / E4U-PRO-15 and E4U-PRO-50: internal diameter Ø 15 mm max / E4U-PRO-100: internal diameter Ø 24 mm max
Antenna	External antenna on SMA RP screw connector for data transmission via Wi-Fi
Outputs	Relay output (max 10A, @ 230Vac), 0-10V output, RS485 output for Pro-Smart
Inputs	nr. 2 x voltage-free alarm contact (NO)
Ambient parameters	/ Operating conditions: 0 to +50°C; <80% R.H., non-condensing / Storage conditions: -20 to +70°C; <80% R.H., non-condensing
Degree of protection	IP20
Conformity	CE RoHS Directives 2014/30 EU; 2014/35 EU; 99/5 EEC; 2011/65 EU; ETSI-EN 300 328; ETSI EN301 429; EN 61326-1; EN50581; EN55010; EN55011; EN 61010-1
Dimensions (L x H x D)	/ **Elios4you Pro:** 6-module DIN rail housing 105 x 110 x 60 mm / **Pro Smart:** 4-module DIN rail housing 72 x 110 x 60 mm
Mechanical drawings	
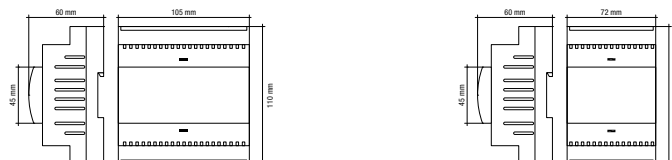
Elios4you accessories

Red Cap	code	RED-CAP
General specifications	Radio connection module for remote activation of wireless sockets and switches	
Radio specifications	ZigBee standard 2.4GHz	
Connections	Flat cable supplied for connection to Elios4you	

Pro Smart	code	PRO-SMART
General specifications	ZigBee interface for Elios4you Pro, managed from App	
Power supply	230 Vac (± 10%) 50/60 Hz 1.4W	
Radio specifications	IEEE 802.15.4. / ZigBee Home Automation protocol 1.2, power 10 mW	
Status displays	nr. 4 x Led	
Connections	Screw terminals for power supply and RS485 serial	
Communication interface with Elios4you Pro	RS485	
Antenna	External, with screw connector	
Max number of networkable devices	4	
Ambient parameters	/ Operating conditions: 0 to +50°C; <80% R.H., non-condensing / Storage conditions: -20 to +70°C; <80% R.H., non-condensing	
Degree of protection	IP20	
Conformity	Directives 2014/30 EU; 2014/35 EU; 99/5 EEC; 2011/65 EU; ETSI-EN 300 328; ETSI EN301 429; EN 61326-1; EN50581; EN55010; EN55011; EN 61010-1	
Dimensions (L x H x D)	4-module DIN rail housing 72 x 110 x 60 mm	
Mechanical drawings		

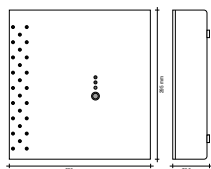| Power Reducer	code	PR
Power Reducer RC	code	**PR-RC**
Power Reducer SA	code	**PR-SA**
General specifications	App-controlled power reducer for single-phase resistive loads (typically an electric water heater)	
Power supply	230Vac (± 10%) 50Hz	
Output	3.0kW max, resistive	
Radio specifications (PR-RC only)	ZigBee standard 2.4GHz; radio range 20 m indoors / 50 m outdoors.	
Status display	/ nr. 2 x visual alarm, system power on, system with boost activated. / nr. 1 x LED with brightness proportionate to power reduction	
Protection	Internal fuse rated 20A (FF632320)	
Connections	/ Screw terminals for power supply / Screw terminals for power supply to resistive load / Screw terminals for control signal from Elios4you (PR only) / Screw terminals for CT provided; cable L = 3000 mm (PR-SA only)	
Antenna (PR-RC only)	External antenna ANT-RP-SMA	
Ambient parameters	/ Operating conditions: 5°C to +40°C; <80% R.H., non-condensing / Storage conditions: -20 to +70°C; <80% R.H., non-condensing	

Power Reducer		code	**PR**
Power Reducer RC		code	**PR-RC**
Power Reducer SA		code	**PR-SA**
Degree of protection	IP20		
Conformity		Directives 2014/30 EU; 2014/35 EU; 99/5 EEC; 2011/65 EU; EMC (Electromagnetic Compatibility); EN 55014-1; EN55014-2; EN61000-3-2; EN61000-3-3; EN61000-6-2; EN61000-6-3; EN60335-1; EN60335-2-21	
Dimensions (L x H x D)	280 x 295 x 70.5 mm		
Mechanical drawings			

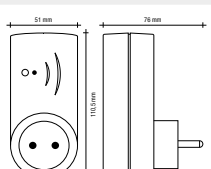| **Smart Plug RC** (Schuko standard)		code	**ZR-PLUG-EU-RC**
Smart Plug RC (French standard)		code	**ZR-PLUG-FR-RC**
Smart Plug RC (UK standard)		code	**ZR-PLUG-UK-RC**
General specifications	ZigBee energy meter and wireless switch with pass-through socket		
Power supply	90-240 Vac; 1W; 50/60Hz		
Power	/ Up to 3.0 kW / Max current 13A		
Radio specifications	/ IEEE 802.15.4. / ZigBee Home Automation protocol 1.2, power 3 dBm / Repeater function		
Measurements	Active power [W]		
Current measurement	With resistive shunt		
Antenna	Internal, gain 0 dB		
Plug/socket models	EU (Schuko); French (FR); British (UK)		
Ambient parameters	/ Operating conditions: 0 to +50°C; <80% R.H., non-condensing / Storage conditions: -20 to +70°C; <80% R.H., non-condensing		
Degree of protection	/ IP 30		
Conformity		Directives 2014/30 EU; 2014/35 EU; 99/5 EEC; 2011/65 EU; EMC (Electromagnetic Compatibility); ETSI-EN 300 328; ETSI EN301 429; EN 61000-6-2; EN 61000-6-3; EN 50371; EN 60950-1 DIN 49 440/ DIN 49 441-R1	
Dimensions (L x H x D)	51 x 110.5 x 76 mm		
Mechanical drawings			

Smart Switch RC

|		code	**ZR-SWITCH-RC**

General specifications	ZigBee energy meter and wireless switch, wall mounted
Power supply	90-240 Vac; 1W; 50/60Hz
Power	/ Up to 3.0 kW / Max current 13A
Radio specifications	/ IEEE 802.15.4. / ZigBee Home Automation protocol 1.2, power 3 dBm / Repeater function
Measurements	Active power [W]
Current measurement	With resistive shunt
Antenna	Internal, gain 0 dB
Connections	Screw terminals
Ambient parameters	/ Operating conditions: 0 to +50°C; <80% R.H., non-condensing / Storage conditions: -20 to +70°C; <80% R.H., non-condensing
Degree of protection	/ IP30
Conformity	CE RoHS Directives 2014/30 EU; 2014/35 EU; 99/5 EEC; 2011/65 EU; EMC (Electromagnetic Compatibility); ETSI-EN 300 328; ETSI EN301 429; EN 61000-6-2; EN 61000-6-3; EN 50371; EN 60950-1 DIN 49 440/ DIN 49 441-R1
Dimensions (L x H x D)	76 x 116 x 25 mm
Mechanical drawings	
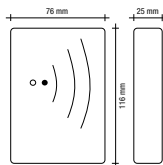
Energy Meter 1~ RC

		code	**ZR-HM.D-RC**

General specifications	ZigBee single-phase power meter with data transmission
Power supply	90/250 Vac; 1W; 50/60Hz
Radio specifications	/ Frequency: 2405 MHz to 2480 MHz / Compatible with IEEE 802.15.4 / Transmission power; +3dBm ERP (2mW) / Internal antenna
Measurements	/ Bidirectional active power [W] / Bidirectional energy [Wh]
Connections	Screw terminals (5.08 mm pitch)
CT	Ø 15 mm
Ambient parameters	/ Operating conditions: -10 to +60°C; <80% R.H., non-condensing / Storage conditions: -20 to +70°C; <80% R.H., non-condensing
Degree of protection	IP20
Conformity	CE RoHS Community Directives 2006/95/EEC, 89/336/EEC, 99/5/EEC; ETSI-EN 300 328; ETSI EN301 489; EN50371; EN60950-1; EN61000-6-2; EN6100
Dimensions (L x H x D)	53.5 x 110 x 62 mm
Mechanical drawings	
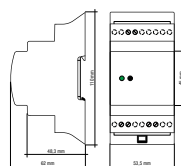
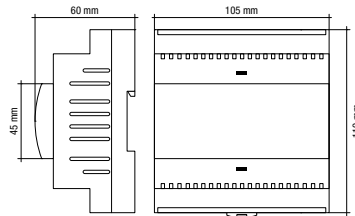| Energy Meter 3~RC (50A)		code	ZR-HM3-50-RC
Energy Meter 3~RC (100A)		code	ZR-HM3-100-RC
Energy Meter 3~RC (200A)		code	ZR-HM3-200-RC
General specifications	ZigBee three-phase energy meter with data transmission		
Power supply	230 Vac 1.5 W 50/60 Hz		
Radio specifications	/ Frequency: 2405 MHz to 2480 MHz / Compatible with IEEE 802.15.4 / Transmission power; +10dBm ERP (10mW) / External antenna / Indicative indoor/outdoor range 40/150 m		
Max current	/ ZR-HM3-50-RC: 50 A max / ZR-HM3-100-RC: 100 A max / ZR-HM3-200-RC: 200 A max		
Measurements	/ Bidirectional active power [W] / Bidirectional energy [Wh]		
Antenna	External antenna		
Ambient parameters	/ Operating conditions: 0 to +50°C; <80% R.H., non-condensing / Storage conditions: -20 to +70°C; <80% R.H., non-condensing		
Degree of protection	IP30		
Conformity	CE RoHS 2002/95/EC Directives 2014/30 EU; 2014/35 EU; 99/5 EEC; 2011/65 EU Reference standards: EN62053-21: Active energy - Class 1 ±1%; EN62053-23: Reactive energy - Class 3 ±3%; ETSI-EN 300 328; ETSI EN301 489; EN61326-1:2013; EN50581; EN55010; EN55011; EN61010-1		
Dimensions (L x H x D)	6-module DIN rail housing 105 x 110 x 60 mm		
Mechanical drawings			

Notes

Notes

4-noks®