

SOLAR ELECTRIC

KOSTAL

The new standard – PV hybrid inverter PLENTICORE plus 4.2 – 10



Smart
connections.



Simple. Versatile. Smart.

KOSTAL competence – using energy the smart way. Convincing

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KOSTAL family – success founded on history and over 100 years of experience



- Locations, customers and partnerships around the world make KOSTAL a **global company**.
- KOSTAL adheres to the automotive supplier's **“zero-error approach”** to deliver the ultimate quality for automotive, industrial and photovoltaic products.
- KOSTAL wins over its customers with a **broad understanding of the industry**, enabling numerous **smart connections** to be made.
- In 1995, **KOSTAL Industrie Elektrik** was founded for the industrial drive technology sector. With its long tradition in power electronics and close collaboration with its customers, this company can ideally respond to the needs of the market.
- **KOSTAL Solar Electric**, founded in 2006, is a leading manufacturer of innovative string inverters and storage systems for the private and small commercial sector.
- Through all its business divisions, KOSTAL works to shape the **future** right here and now, to be a stable and secure business you can continue to rely on for many years to come.
- KOSTAL is a partner you can count on, thanks to innovative solutions, finely honed expertise in **both development and technology**, and lasting, reliable quality.
- As a 4th generation **family-owned company**, here at KOSTAL we know our roots, our capabilities, our desires, our links to each other and our customers and what is important to us: our **partnership** with you.

PLENTICORE plus – the new standard: Simple. Versatile. Smart.

An inverter for every PV system

KOSTAL Solar Electric is a specialist in innovative solar inverters and storage solutions for the home. The inverter lies at the very heart of your photovoltaic system. Not only does it convert the power generated by the solar modules, it also provides you with numerous ways of using energy smartly. Our latest product sets a new standard: the PV hybrid inverter is simply always the right match for every PV system and every requirement.

As the PLENTICORE plus name suggests, it offers numerous possible uses and options, with the “PLENTI” part coming from the English “plenty” and “CORE” illustrating its simple handling, as all important functions are combined in just one unit.



Use photovoltaics to smartly generate power

As a pure solar inverter with up to 3 PV inputs, the PLENTICORE plus guarantees optimum yields even in challenging shadow situations.



Enjoy more energy self-sufficiency with the direct integration of leading high-voltage batteries

You decide whether to connect up the battery at the time of installation or retrofit it later on. The third input can also be optionally used to efficiently connect to leading high-voltage batteries from BYD, Sony/Murata, Kreisel Electric* or BMZ*.



Using energy the smart way

The PLENTICORE plus allows you to not only charge the battery directly from your own photovoltaic system, but also offers additional battery charging from another AC power source*, such as CHP, wind power or another solar system.

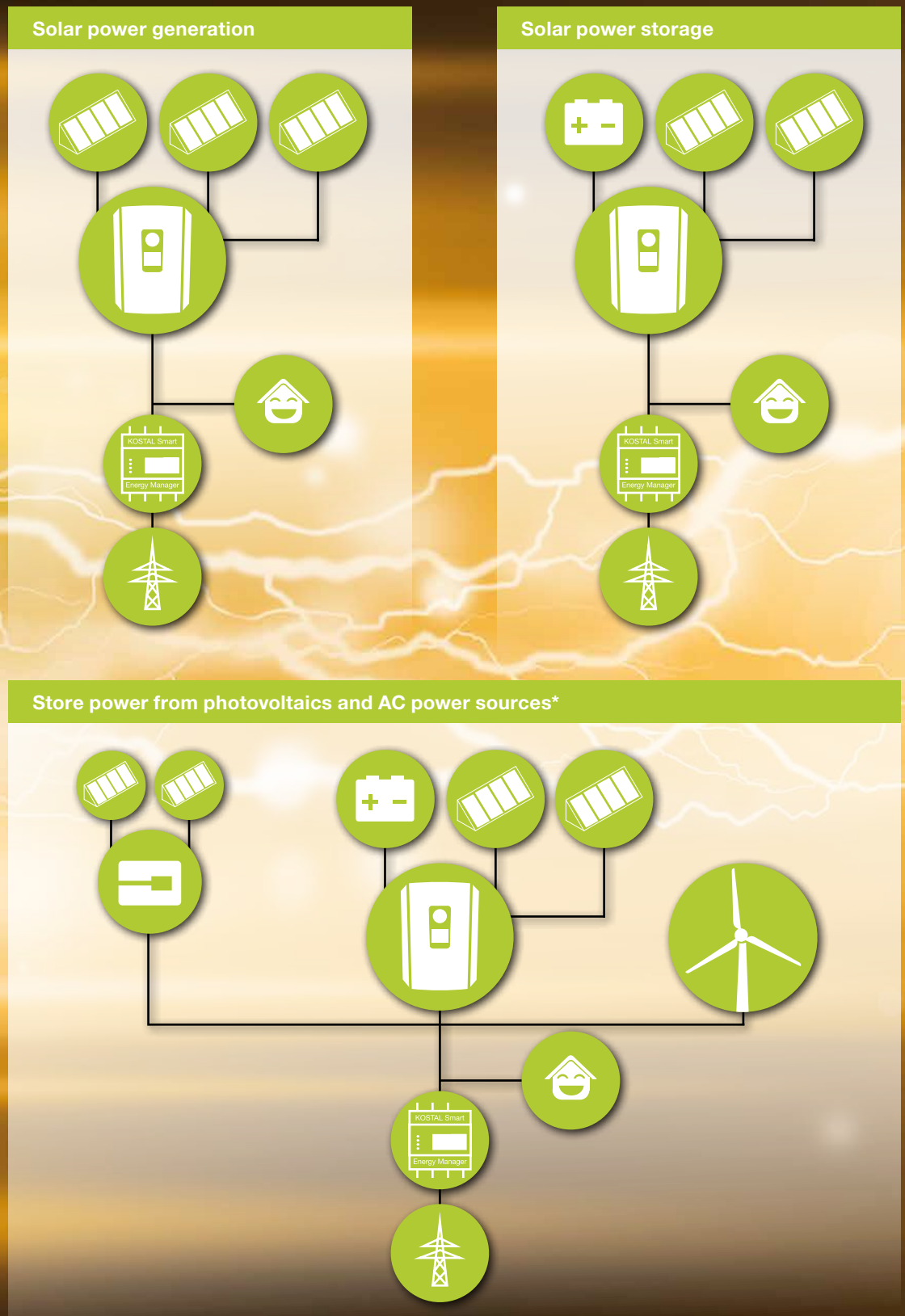


Easy repowering

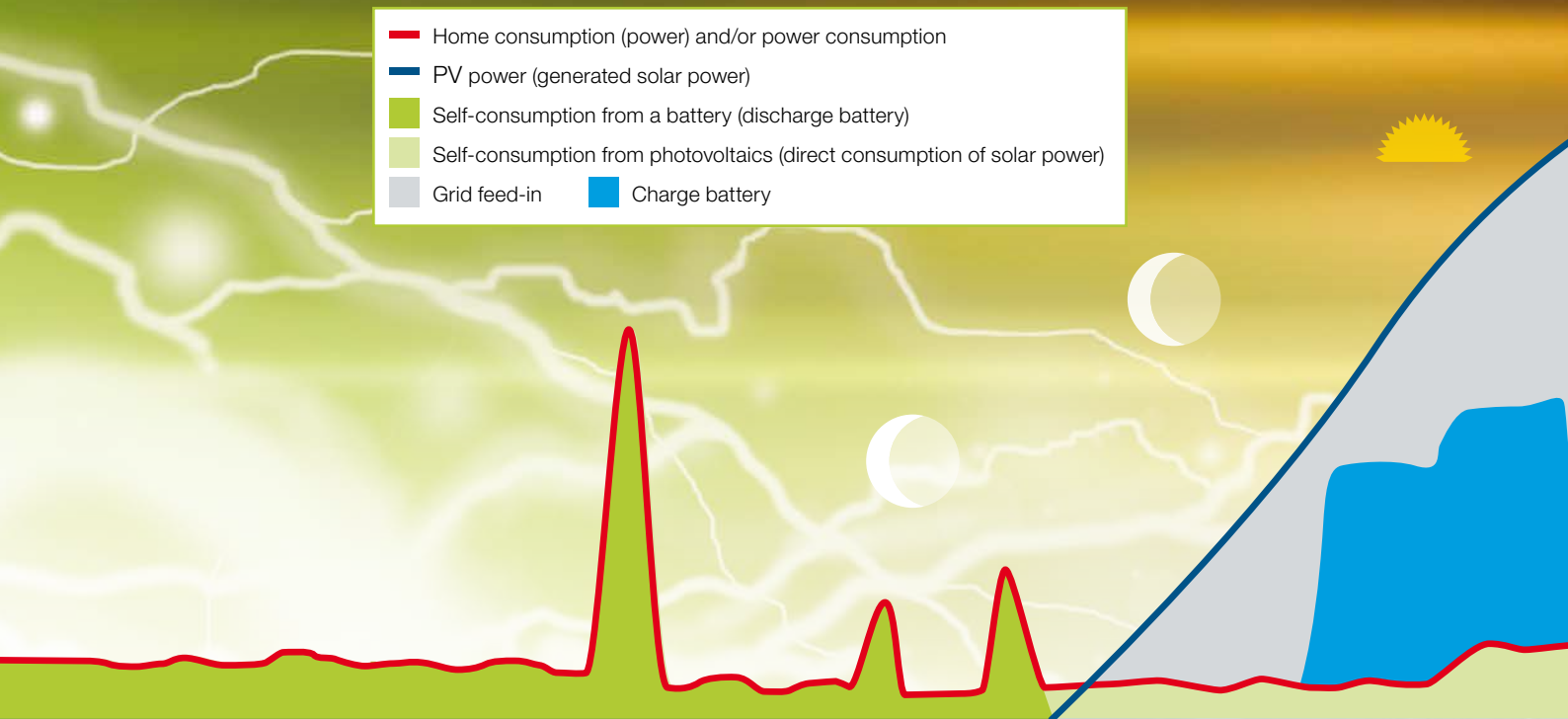
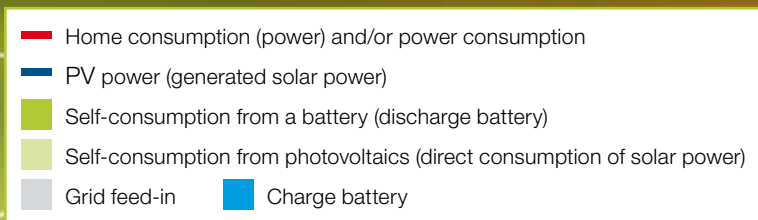
Thanks to its versatility (up to 3 PV inputs), the PLENTICORE plus is the perfect replacement for your old inverter.

*available at a later date via software update

So many options from just one device



Enjoy more energy self-sufficiency with the PLENTICORE plus as a hybrid inverter with battery storage



4 o'clock

8 o'clock

12 o'clock

Morning

When the sun comes up in the morning, the first solar power of the day is produced. So you can make your coffee from power you have generated yourself, for example. If you don't have enough power to do this, you can draw more from your battery or the grid.

Mid-morning

When all occupants have left the house in the morning, the power not needed in the household is fed to the battery and saved there for the evening.

What is energy self-sufficiency?

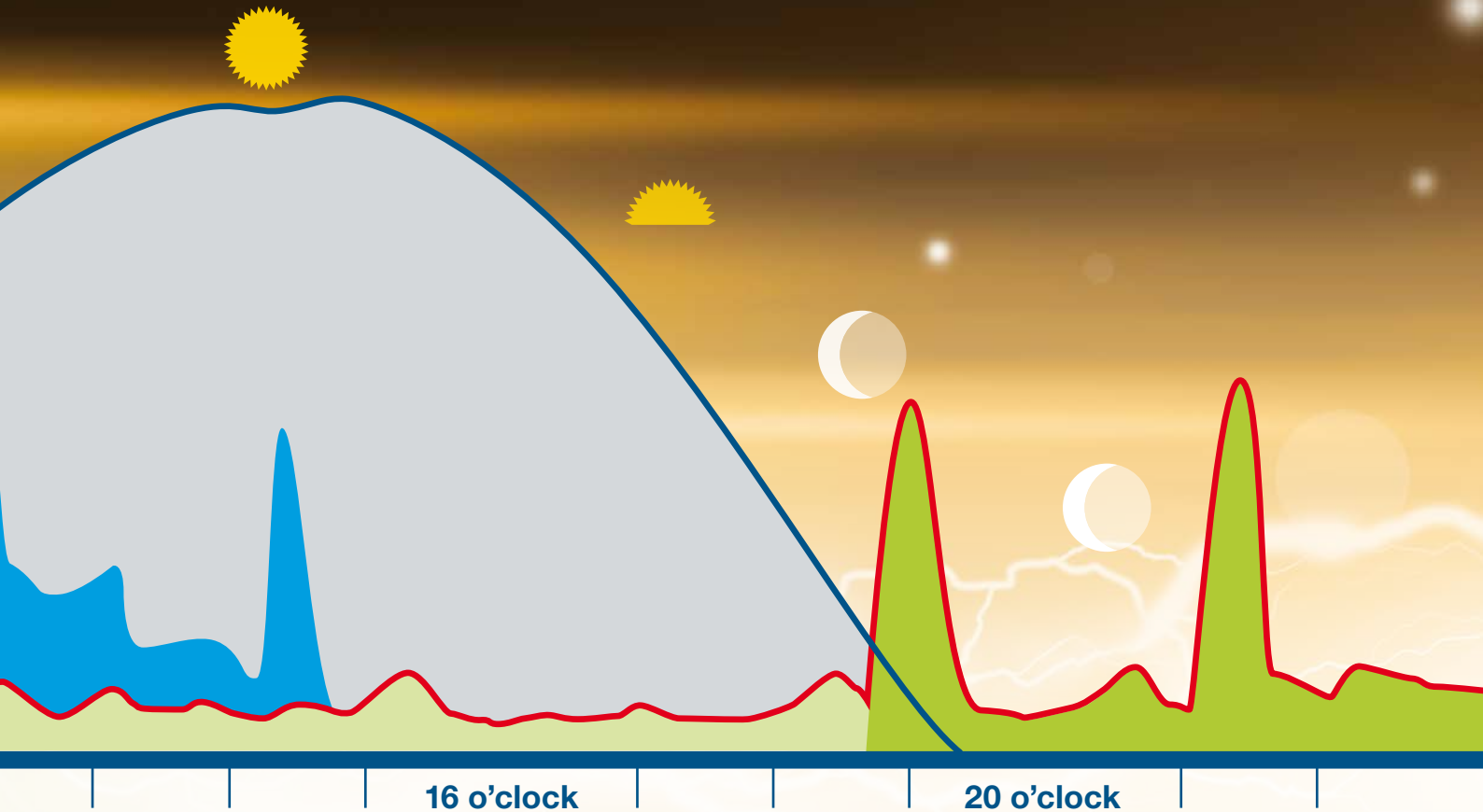
Energy self-sufficiency means supplying all your energy needs yourself so that you no longer have to obtain any power from the grid operator. By using a photovoltaic system and battery storage, you can increase your self-consumption and also use the energy you have generated yourself at night. This gives you independence from your energy provider. In this way, you can cover up to 60% or more

of your annual power requirement from a PV system (depending on your individual power consumption).

What is self-consumption?

The energy generated by a photovoltaic system is first fed into the home network. This energy is used directly by consumers in the house (e.g. by electrical appliances). This is called self-consumption.

... Solar power around the clock



Midday

At midday when a lot of solar power is being produced, the excess power, which can neither be used nor stored, is fed into the public power grid. This means that you also secure the legally guaranteed feed-in compensation for this solar electricity for the next 20 years.

Afternoon

In the afternoon when a lot of power is being consumed, the increased demand can be covered by the power generated on your own roof, and at the same time by the power stored in your battery, fully automatically, without you having to do anything. Smart consumer management helps you to ensure a high self-consumption rate.

Night

Only at night when no solar power can be produced and if the battery is empty electricity needs to be acquired from the public grid.

What is feed-in management?

The mains grid operator often sets a feed-in restriction (e.g. restricting to 70% of the PV energy generated). If this is the case, the inverter first covers self-consumption and then reduces output to the maximum current feed-in permitted by the grid operator. In some countries, no photovoltaic power whatsoever may be fed into the grid. This is called zero feed-in. And this can be

achieved with the PLENTICORE plus, meaning that the requirements of the grid operator are satisfied with ease.

Smart diversity –
the simple approach to your own PV
system, yet the widest range imaginable



... for smart power generation!

I'm interested in a photovoltaic system. But it is worth it on my roof?

Since the PLENTICORE plus is available in five power classes between 4.2kW and 10kW, we have a perfectly matched solution for virtually every size of home. And it doesn't matter which way your roof faces – east-west, south or a combination of all directions – as the PV hybrid inverter has up to 3 MPP trackers, allowing various roof types to be fitted with the solar modules most suited to their individual circumstances.

And what if some of my roof is in the shade?

Thanks to the fast and self-learning shadow management function available with the PLENTICORE plus, which adapts individually to the installation site, high yields can be obtained despite shading.

And what if my roof is only very small?

If you have a small roof area, PIKO MP plus is the right solution for you. Simply take a look at the brochure for this product.

Can I add battery storage to my PV system at a later date?

Sure, the PLENTICORE plus is KOSTAL's first PV hybrid inverter. It has 3 MPP trackers, one of which can also be used as a battery connection at a later date.

Does this extra function not make the inverter more expensive?

No, because you only pay for this add-on if you want it. And it's really easy to do, simply purchase the necessary activation code when you need it from our online shop.

What kind of battery do I need?

The PLENTICORE plus is approved for various high-voltage storage systems. To begin with, you can choose between the modular BYD Battery Box HV or our tried and tested PIKO Battery Li. We are adding qualified manufacturers to our list all the time. Safety and of course perfect interaction with the system are important to us.

How can I use the PLENTICORE plus to optimise my self-consumption?

The EM300-LR energy meter permits optimum use of energy in the home thanks to its 3-phase energy measurement in real time and 24-hour home consumption measurement. This enables you to optimise your self-consumption and significantly cut your electricity bills. This smart energy meter is available as an accessory in our online shop.

Can I also incorporate my photovoltaic system into my Smart Home?

Through various interfaces, such as EEBus or SunSpec, the PLENTICORE plus can also be integrated into a Smart Home, allowing you to increase your self-consumption and minimise energy costs. Using the smart consumption control feature, consumers in the house, such as the washing machine, can be switched on when there is surplus energy, e.g. at midday – this is done automatically or you can do it yourself at any time, even if you are not at home.

Smart partnerships, which connect

E-mobility: innogy, Kreisel Electric, Schneider Electric

Smart Home/energy management:

Schneider Electric, Phoenix Contact, Loxone, TQ Group, MyPV, Kiwigrd

System monitoring: Solarfox, smartblue, skytron, meteocontrol, PowerDog, Solar-Log, Rockethome

Smart repowering – Give your existing PV system a boost



I already have a PV system. What will I gain from replacing the inverter?

Continual technical developments mean that new inverters, like the PLENTICORE plus, are more efficient. So replacing your old inverter will deliver much higher yields. Do a quick check: Go to www.kostal-solar-repower-check.com to find the right inverter for you.

The inverter (including those from other manufacturers) in my PV system has developed a defect after years of use. Can I upgrade to the PLENTICORE plus?

Yes, given its flexibility and versatility, you can replace your old inverter with a PLENTICORE plus and you can even retrofit a battery at any time too. Simply purchase the activation code for this from our online shop. This will give you the option of retrofitting a battery once funding from the Renewable Energies Act is no longer available.

My roof is in partial shading. So I'm automatically going to suffer from lost yield – even if I replace the inverter ...

The PLENTICORE plus has a solution for this: Using the smart and self-learning shadow management function, you can enjoy high yields despite shading.

Are there any conversion costs for the PV system when I replace the inverter?

No, the new PLENTICORE plus is designed so flexibly that it can easily replace the existing inverter like for like in most cases. For example, it has an optimum voltage range, a huge variety of interfaces and is available in five power classes. You can connect between 5 and 22 PV modules per string. In a nutshell: the PLENTICORE plus is always the perfect fit.

Do I need extra space for the device with a higher output?

No, thanks to its compact design, the PLENTICORE plus doesn't take up a lot of space and in fact requires less room than previous generations of inverters.

In the past, I've not used batteries for storage, but now I want to increase my self-consumption ...

This is easily done with the PLENTICORE plus. Alongside two PV inputs, the PV hybrid inverter has a combi input, which can be used as a battery connection too. What's more there is plenty of choice when it comes to storage because the device is compatible with various high-voltage batteries. And all this can be retrofitted at any time – by simply buying an activation code from our online shop and thereby releasing the combi input on the PLENTICORE plus for battery use.

Now you can retrofit a battery to small systems too. Take a look at our flyer for the PIKO MP plus.

Smart energy –
the perfect solution for
all energy experts



... or people who want to become one

I already own a photovoltaic system. Now I want to add a battery to increase my self-consumption. Can I do that?

Yes, thanks to the AC coupling* on the PLENTICORE plus, not only can you extend your existing PV system, but also store energy from the old and new system in the battery, allowing you to easily increase your self-consumption.

Could I also store the power from my combined heat and power (CHP) unit?

Yes, the PLENTICORE plus allows you to store in the battery both photovoltaic power and also energy generated in a CHP. So you benefit from different sources of power, which complement one another perfectly and enable the best possible self-consumption.

And can I do all that with a combination of wind and photovoltaics?

Yes, solar-wind hybrid systems combined with a battery storage system are very well suited to increasing self-consumption. The PLENTICORE plus can store both the energy from the PV system and from the wind turbine in the battery. You can become almost fully self-sufficient.

How can I further optimise my PV battery system?

By activating consumers in a targeted fashion, there are many ways of increasing your self-consumption. For instance, you can use a heat pump or air-conditioning unit when the energy is available. This will enable you to maximise your self-consumption and lower your electricity bills. Alternatively, you can use solar power to charge your electric vehicle. A perfect add-on is a Smart Home solution, which controls your consumption smartly, saves energy and is also easy to operate.

And what if I don't want to feed any energy into the grid?

That's also possible because you can reduce the PLENTICORE plus down to a 0% grid feed-in. This allows you to tap into the benefits of solar power generation while also meeting the zero feed-in requirement of some countries.

It is also worth doing with a small PV system?

It is well worth storing the energy generated, even with smaller PV systems. For details of how to do this, consult our brochure on the PIKO MP plus.

* available at a later date via software update



Smart system monitoring – simple and versatile

Where can I see the yield of my PV system?

You can use the KOSTAL Solar Portal, KOSTAL Solar App or integrated Webserver to read off the yield of your PV system at any time. Find out how much electricity you are consuming at any given time of day and how much of the energy you need can be provided by your system.

How do I stand to benefit from the KOSTAL Solar Portal?

Registering your PV system in the KOSTAL Solar Portal allows you to monitor it whenever and wherever you want. You can easily read off the DC single string power, system power and yield data from the graphic depiction. Home consumption* (24 h) is also displayed so you can optimise self-consumption. And it protects your investment in a PV system against yield loss, e.g. through active e-mail alerts of events. You can register for free via the affiliated website of KOSTAL Solar Electric**. Once you have registered, we can also offer you enhanced service and support.

Can I use several inverters at the same time?

The KOSTAL Solar Portal can also be used for PV systems with multiple KOSTAL inverters and, thanks to the multilingual menu, it can be deployed internationally.

Can I receive the data on my smartphone?

The KOSTAL Solar App – available for Android and iOS – is the easy way to monitor your system and can run on both your smartphone or tablet – and it goes without saying that it's free too. You can view important data from your PV system, such as yield data, home consumption* (24 h), performance data and battery charge status, in a graphic depiction. Depending on configuration, amounts earned and saved can also be seen.

How does the Webserver work?

The Webserver integrated in every inverter informs you at a glance of the key system data, such as current performance data, daily and total yields and shows you your home consumption*. What's more, inverter settings and adjustments, such as portal access or IP address, can be made simply and easily via a browser using a PC or tablet.

* only in conjunction with an energy meter

** www.kostal-solar-portal.com



Do more with your system – with smart accessories and Smart Warranty

What accessories are available for my PLENTICORE plus?

■ EM300-LR energy meter

The EM300-LR energy meter allows you to make optimum use of energy in your home. The energy meter takes 3-phase energy measurements in real time. It uses standard interfaces to transmit the measurement data and so efficiently supports the energy management of our PLENTICORE plus with the overall goal of maximising solar self-consumption.

■ Activation code

You can use the “Battery” activation code to release your PLENTICORE plus PV hybrid inverter for use with a battery such as the BYD Battery-Box HV or PIKO Battery Li. We are adding qualified manufacturers to our list all the time.

And where can I get the accessories from?

You can easily order accessories, like the energy meter or activation code for the battery, from our online shop*.

What is the warranty for the key part of the PV system?

The statutory warranty is 2 years. But you can benefit from our Smart Warranty: By registering with our online shop*, you get a free extension to 5 years of warranty. You can also buy a warranty extension for 5, 10 or 15 years.

Do I have to regularly update my inverter?

If your KOSTAL inverter is registered with the KOSTAL Solar Portal and the auto update function is activated, you can benefit from automatic updates**. Your PLENTICORE plus is then always up-to-date without you having to do anything.

And what if something goes wrong?

Then our service team will be happy to assist. Call us on +49 761 47744-222 Monday to Friday between 8 a.m. and 5 p.m. or simply complete our questionnaire and e-mail it to service-solar@kostal.com.

If you want even faster service, there will soon also be the option of allowing our service team to access your inverter remotely once you have given your consent for this (Remote Support)**.

More information is available at:
www.kostal-solar-electric.com/service-support

* shop.kostal-solar-electric.com

** available at a later date via software update



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