
EXERON
THE OFF-GRID
BEAST

WE ARE IPS

IPS is a private Bulgarian family company with 26 years of history and experience

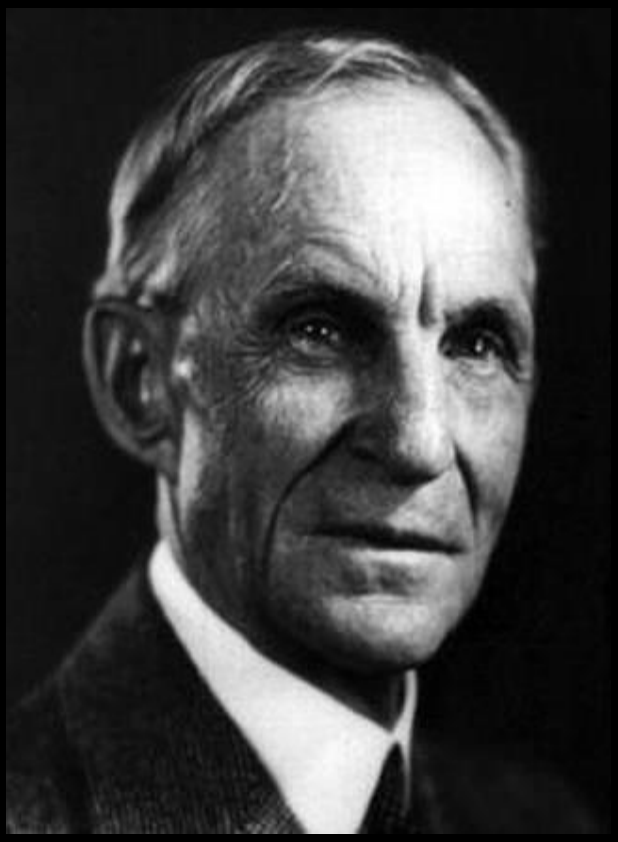
Our main activity is R&D, design and manufacture of power supply systems.

We are one of the few companies worldwide offering in its portfolio a full range of power systems in the Low Voltage area – from 12V up to 400V. Our products find applications in all industry sectors e.g. Renewables, Telecommunications, Defense, Energy, Railway etc.

In addition to the usual certifications we cover the NATO military standard for quality AQAP 2110 which guarantees a very high class production. As a consequence we at IPS are proud to be a long year and well accepted supplier of NATO and the United Nations.

Our products are well accepted in 43 countries worldwide.

IPS is represented in Europe, Asia and Africa.



“If I had asked people what they wanted, they would have said faster horses”

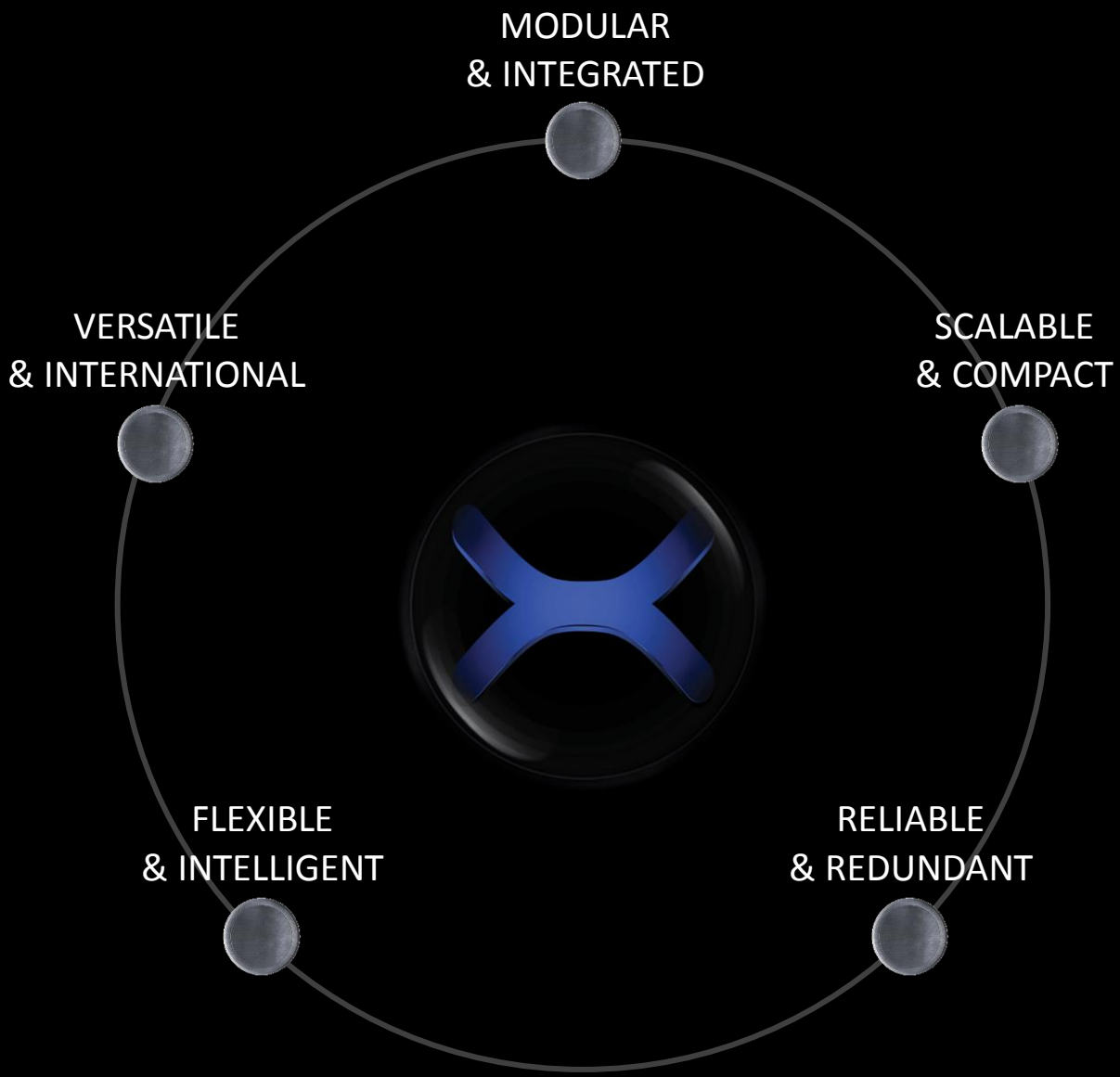
- *Henry Ford*

Free your mind and relax.

Forget everything you know about hybrid power systems.

Prepare to meet EXERON.

Let your journey start in 3…2…1…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What is EXERON

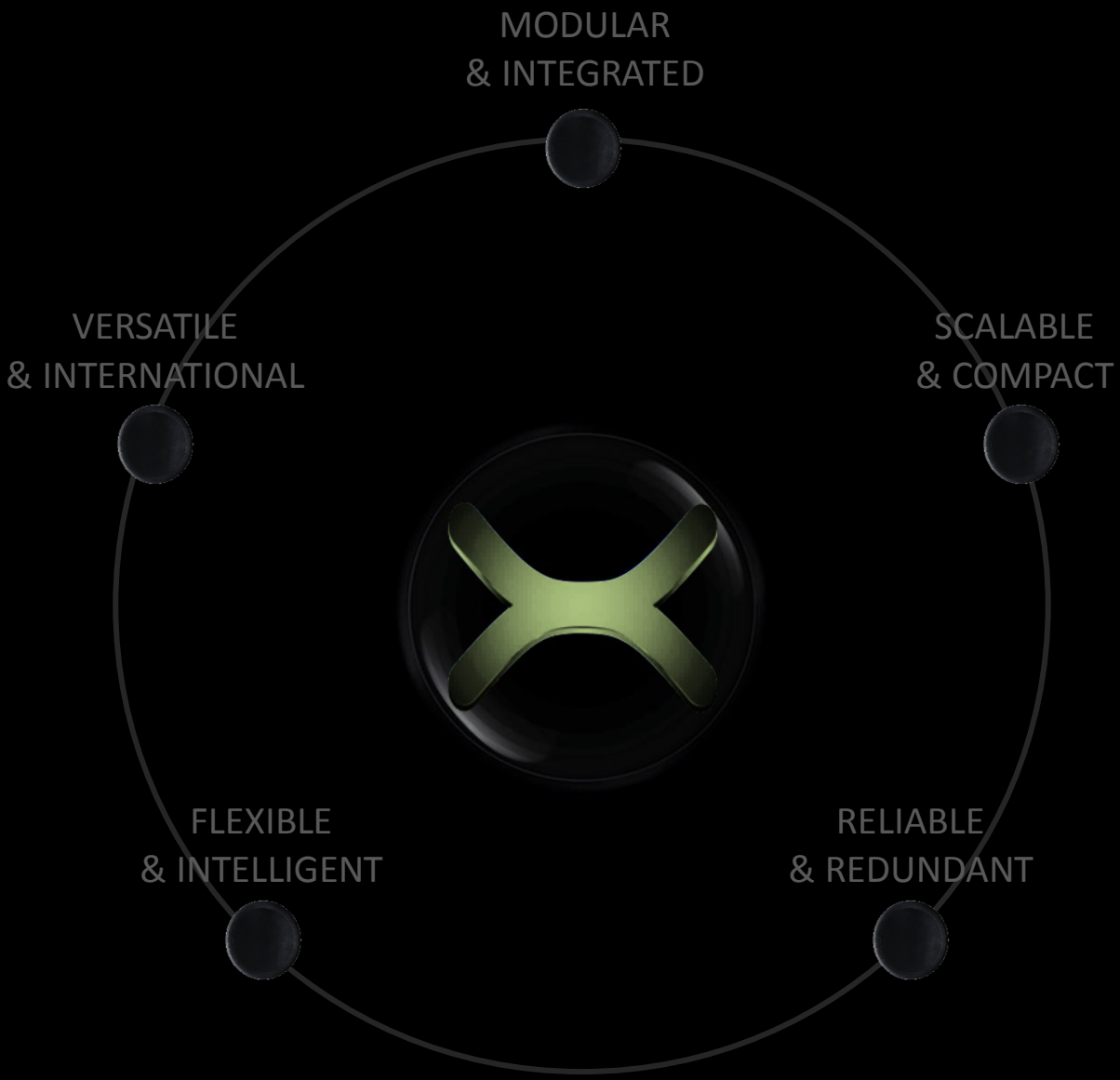
Exeron is a multi-talent system that can use, combine, manage, store, supply energy and takes decisions such as how much, when and how to do it. At the input we can have PV, Wind, Grid and diesel generator, batteries for storage and different kind of loads like Residential, Industrial, Telecom etc. AC or DC, 1 or 3-phase, 110 or 220 V, 50 or 60 Hz.

The system consists of plug & play, interconnected power modules with different functions (DC-DC conversion with MPPT, AC-DC conversion, DC-AC conversion etc.), main control unit and power distribution unit.

The main system function is to provide power supply for remote objects or areas or such with low quality electrical grid as well as to improve the energy efficiency for grid connected loads. EXERON can be scaled from 2 kW up to 65 MW incl. unlimited energy storage.

Why a SYSTEM and not just a product?

Because EXERON is a set of interacting components forming an integrated set of power and control modules and relationships between them. EXERON is a network of objects (power and control modules communicating to each other. It has behavior and interconnectivity. The system's structure and behavior may be decomposed via subsystems and sub-processes to elementary parts and process steps.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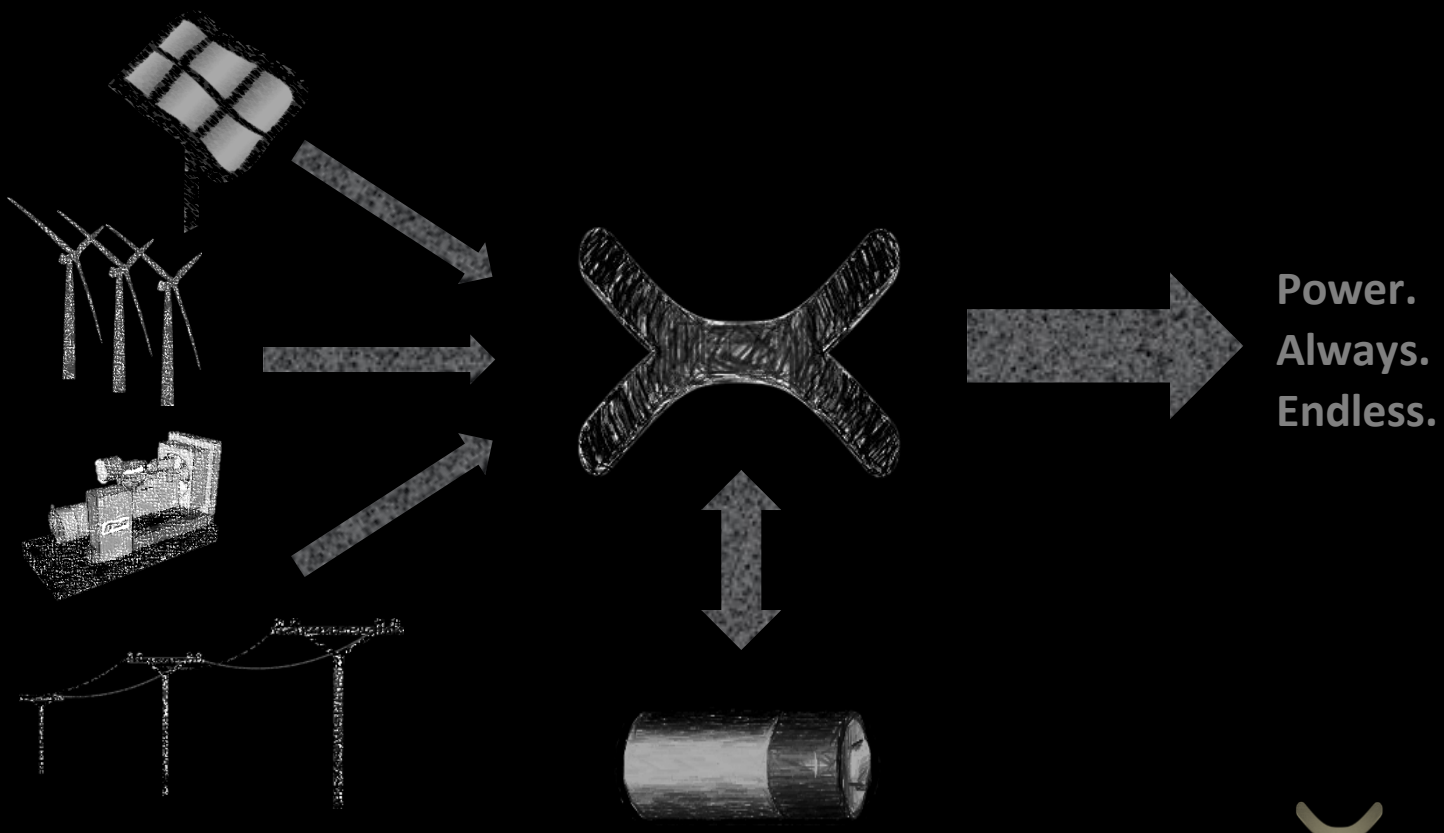
How it works

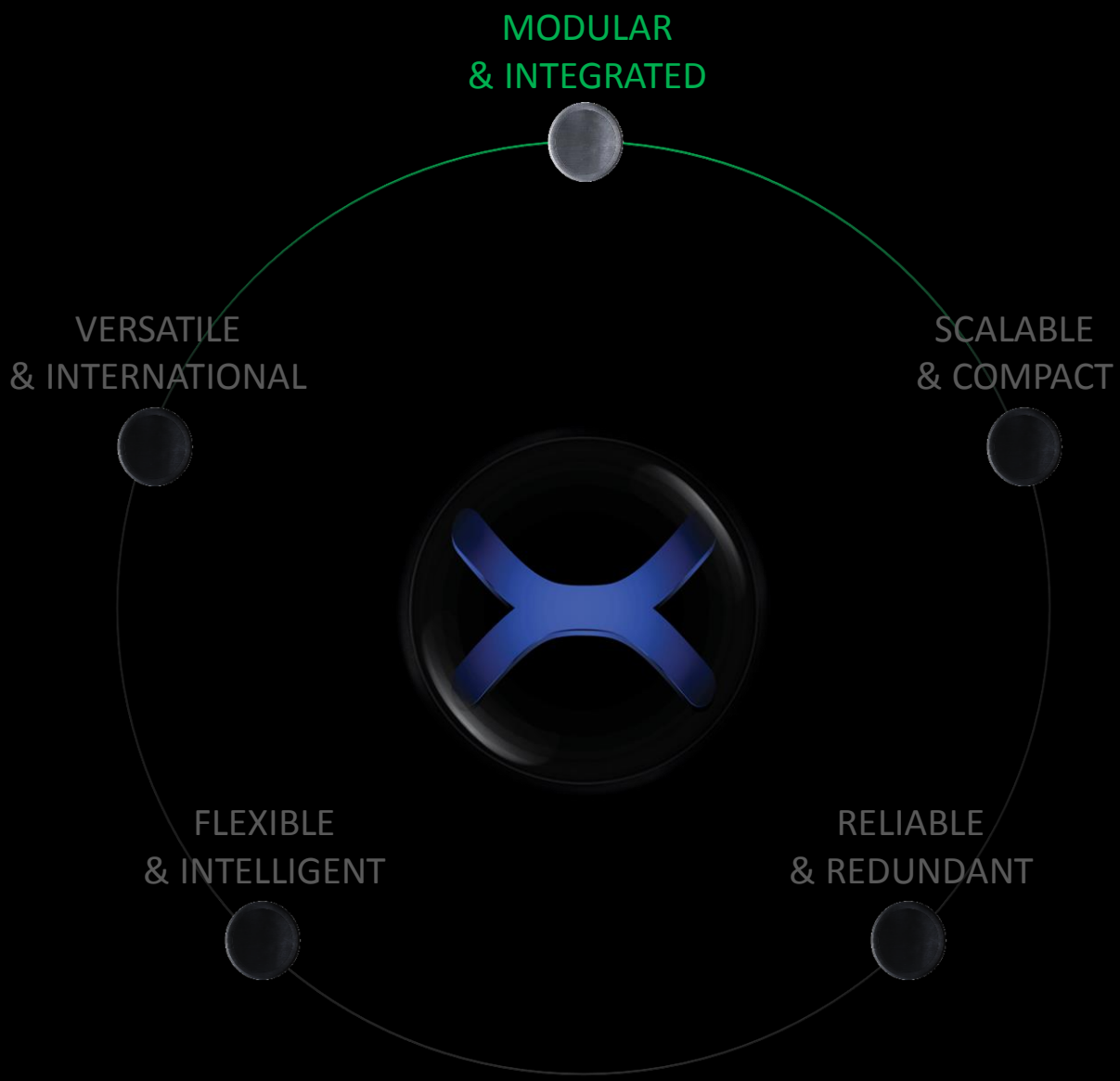
The system can simultaneously combine, use and control different power sources like PV strings, wind turbines, diesel generator and grid, if available. Unlimited battery storage capacity can be installed because of the N x virtual outputs design.

Configuration and process example: At the input of EXERON we have connected: PV strings, diesel genset and electrical grid. A battery storage capacity is installed.

During the day only the PV energy is used to power the load and to charge the batteries. Evenings and in the night time the load is powered only from the battery. In case that the battery is empty then the electrical grid input will be activated so that it will supply the load through the EXERON system and no power interruption will be inflicted. The battery could be charged at the same time from the grid if it is desired. In case that during the "grid time" there is a power outage then the diesel generator is being started automatically from EXERON to power the load and charge the battery. When the battery charge reaches a certain level EXERON stops automatically the diesel generator and the load continues to be supplied from the battery. A full or partial system bypass could be activated automatically or manually.

EXERON has integrated intellect. Different scenarios and behaviors could be configured.

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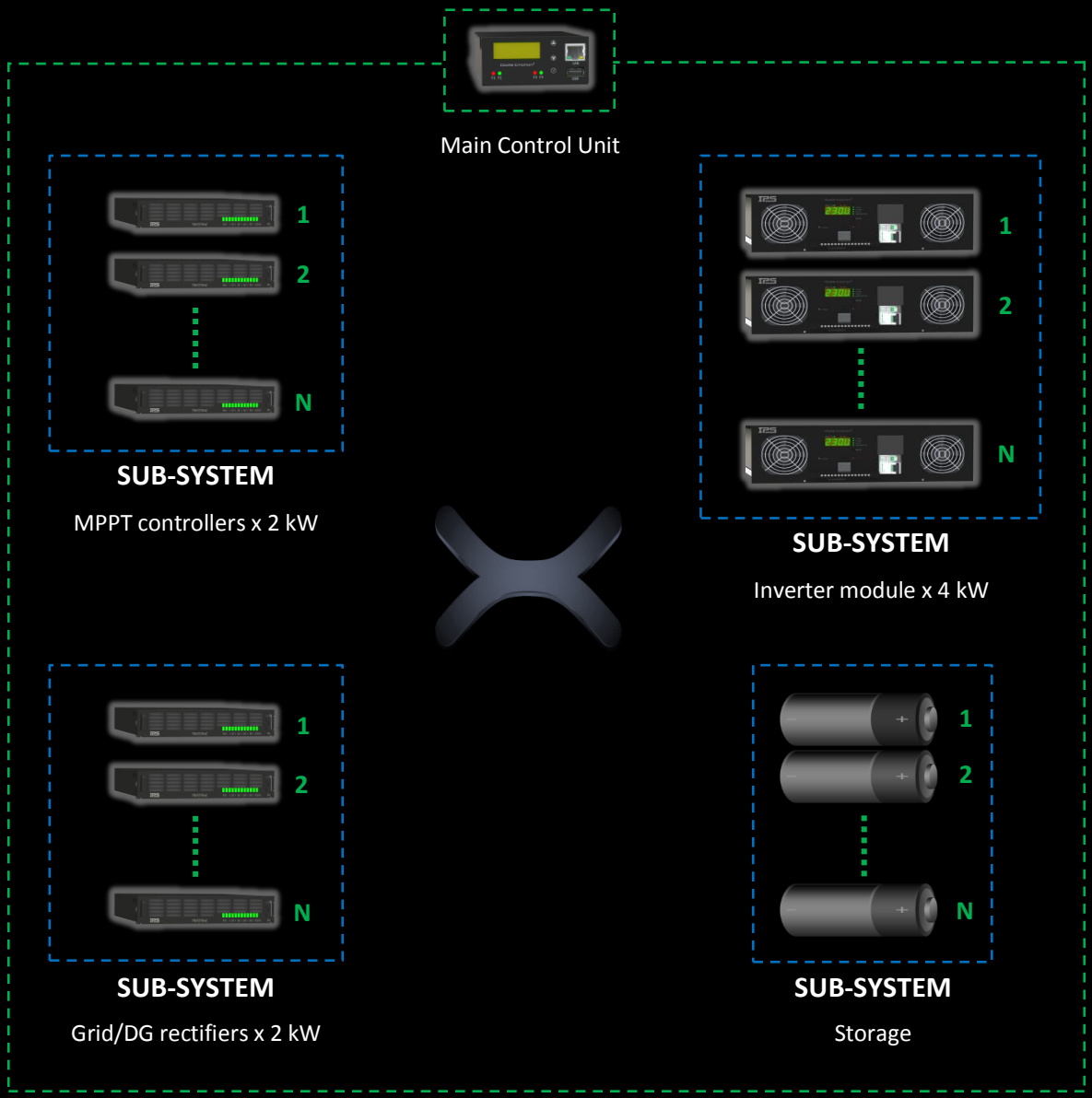
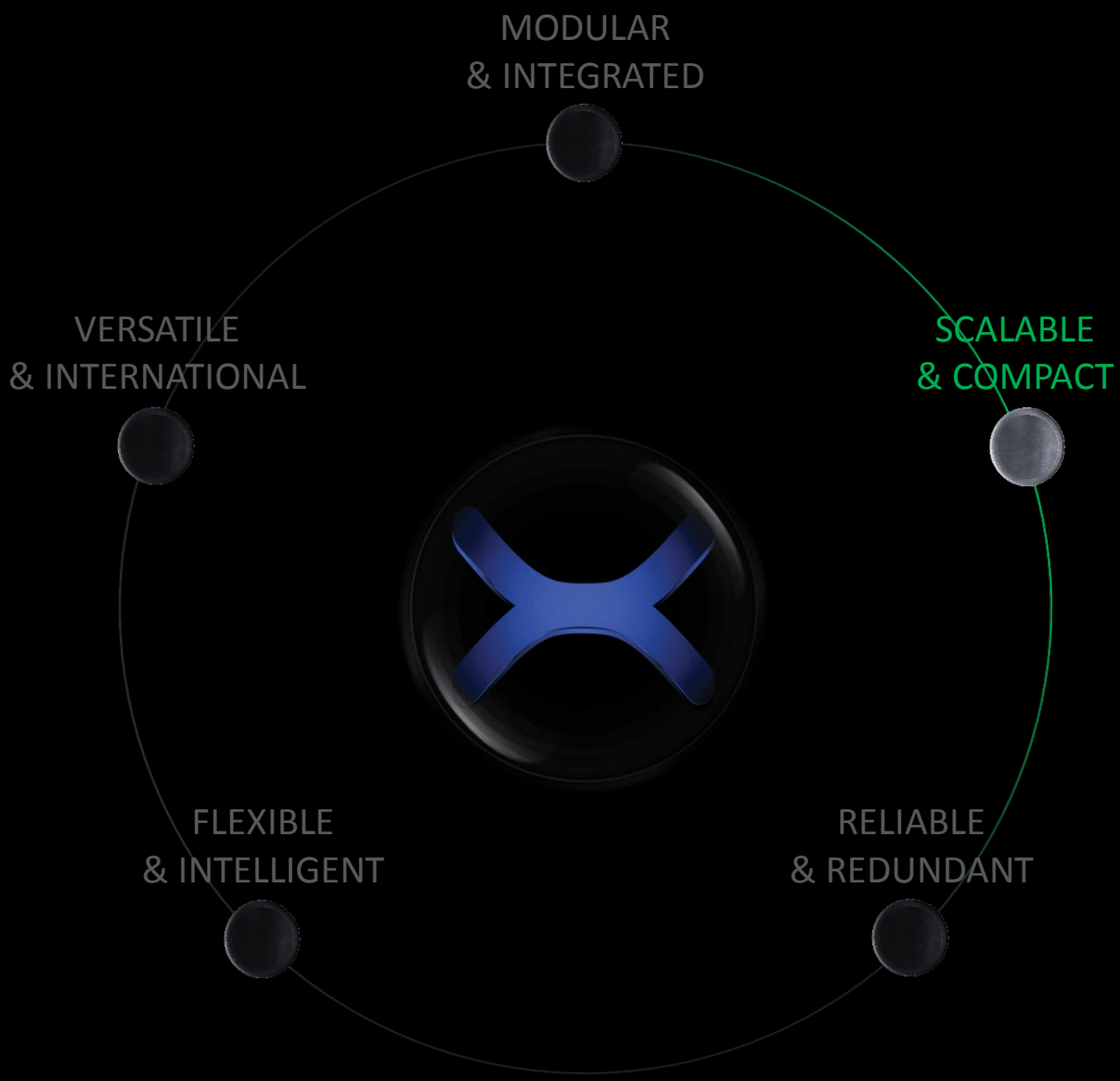
EXERON is not a product. EXERON is a system.

Imagine a network of N objects communicating to each other. Imagine this objects build N sub-systems. Imagine a fully integrated network of sub-systems communicating to each other.

No need to imagine anymore. This is the EXERON system!



It's a WOW architecture, isn't it?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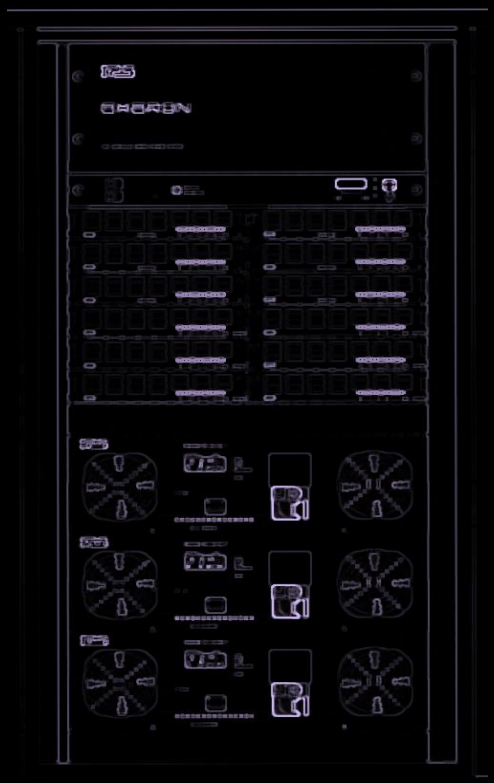
EXERON – The Off-Grid BEAST

Now we know that EXERON is a system. But not just a system. It's a BEAST!

We consider the sub-system from inverter modules. It could be built from 1 to N inverter modules. Each inverter module is maximum 4 kW. N could be maximum 16300.



16300 x 4 kVA = 65 MVA

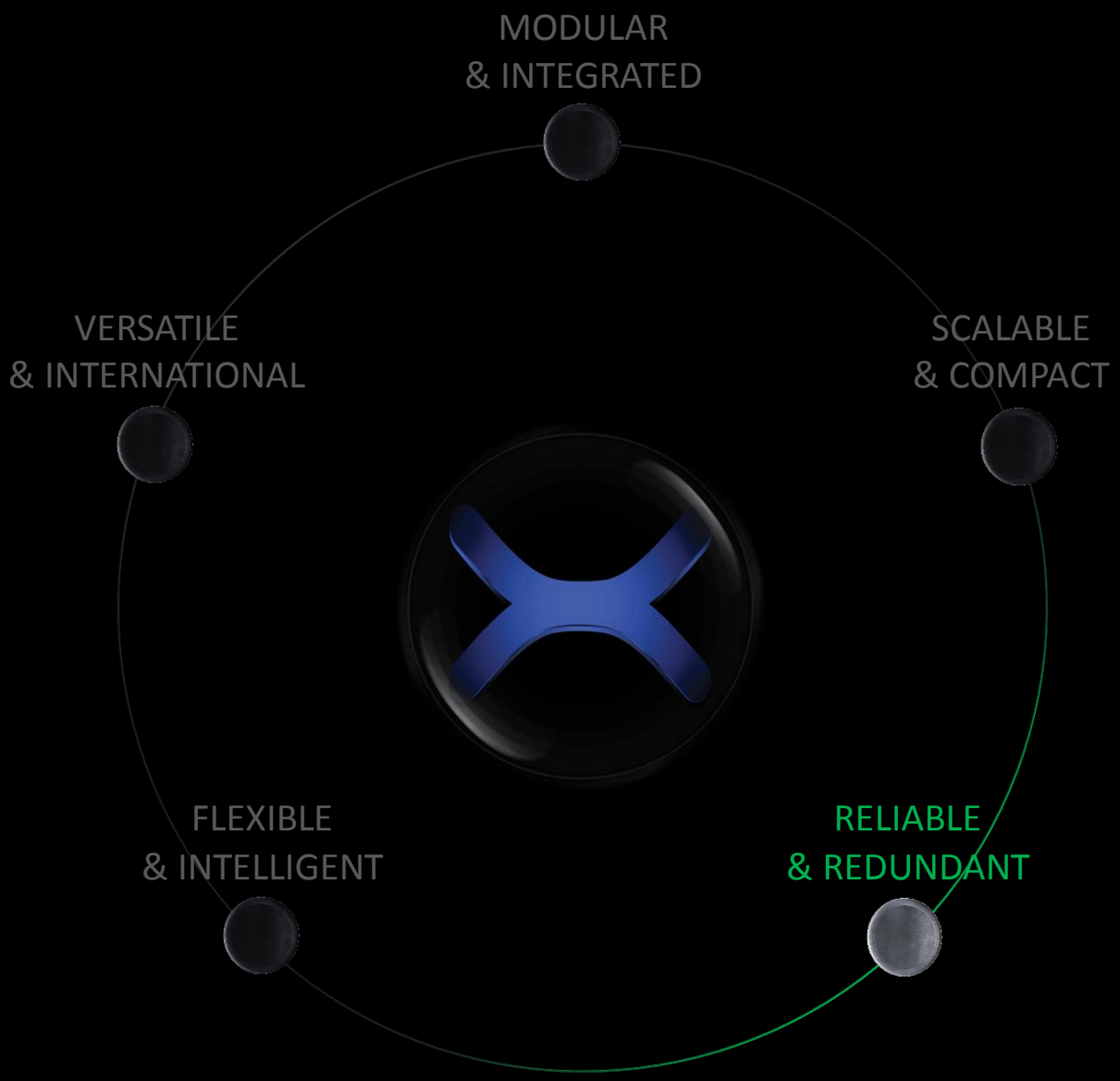
36 kW in 0.36 m² footprint

Our inverter module has PF = 1.

In other words: the maximum output power of 1 fully integrated EXERON system is 65 MW. From 2 kW up to 65 MW. Expandable in 2 kW power steps.

Enormous power density. Huge power in minimum space and footprint due to high frequency switch mode IPS technology.

It's a BEAST, isn't it?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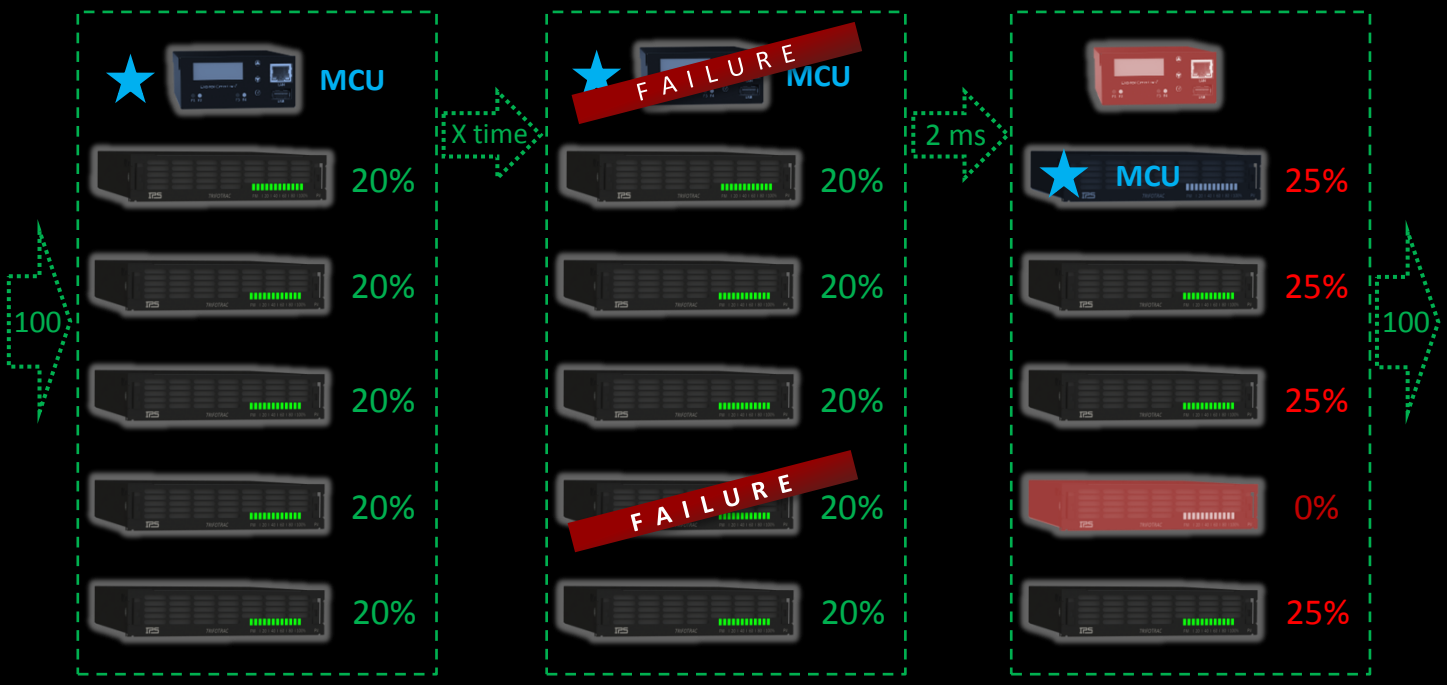
EXERON is powerful, but also extremely reliable.

For “Login” into the most reliable system ever, remember:
user: *Modularity* **pass**: *LoadSharing*

The key feature regarding the reliability which derives from the innovative modular structure of the system is the load and risk sharing between the interdependent objects.



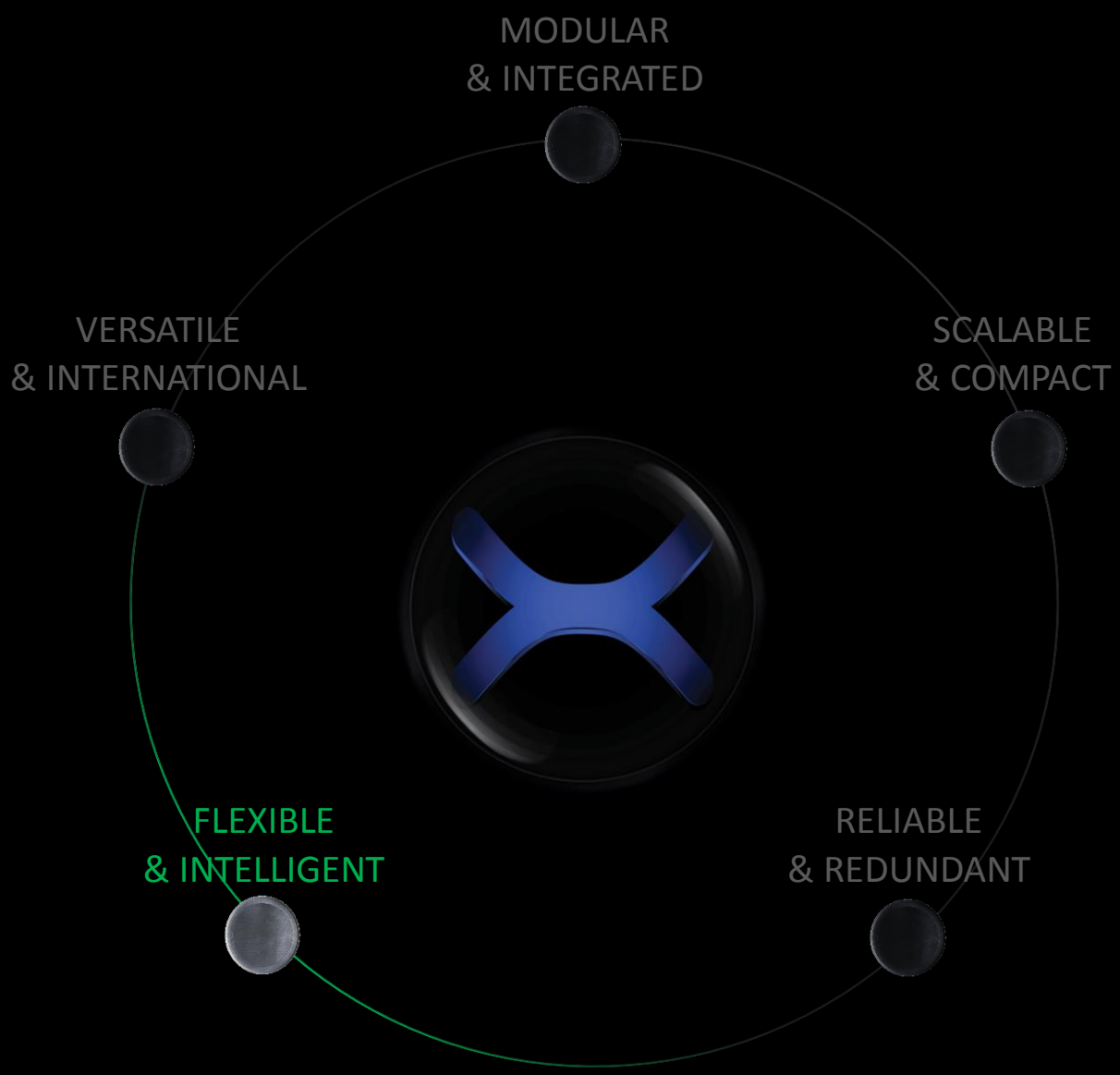
Let we consider 5 modules in a sub-systems e.g. grid controllers. We put at the input 100 power units. Then what happens is the immediate and balanced load sharing between the modules. Each module is loaded with equal amount of power: 20%. Assuming an unexpected failure and one of the modules is down, non-working. In only 2 ms the system shares the load between the other modules. There is a new power balance and loading of the modules: 25%. They share the load of the failed module between themselves.

Attention! What happens in case of MCU failure? Nothing.

Each module is equipped with microprocessor and in case of Main Control Unit failure and because of the network structure of the system, then the next free module in the communication channel takes the control of the whole system.

Our concept: Whatever happens, a full system stop is impossible!

Amazing, isn’t it?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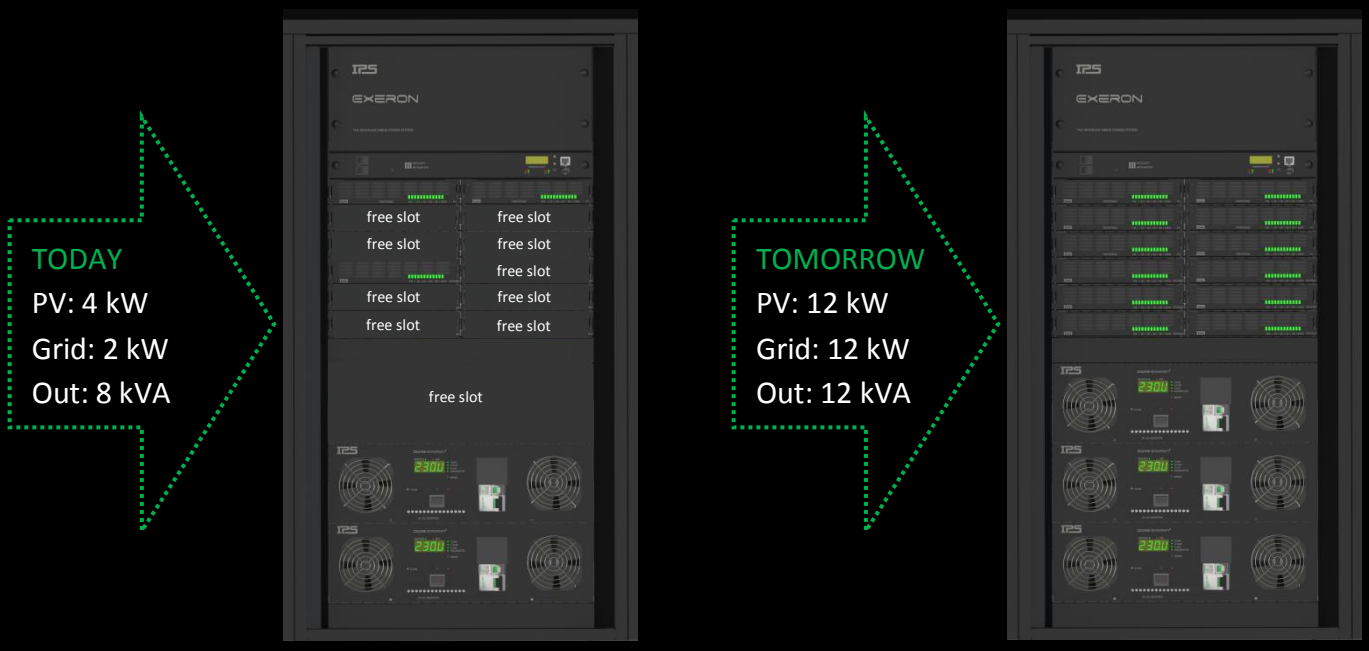
EXERON shines with endless flexibility.

The most important point in terms of power planning is the flexibility. Using EXERON you are free and flexible to plan even if you don't know exactly how much power you will need tomorrow, in some months or years.

Imagine the following case: you want to start with 10 kW, but maybe you have to start with 15 kW, or even later increase it to 40 kW. Don't worry and don't invest more than needed just for the case to have it, but without the real need to use it.

The modularity gives you the perfect opportunity and freedom for power planning. Buy the initially needed 10 kW and a system infrastructure allowing more modules. In fact you have now 10 kW power and free slots for new modules in the future. You can always add new modules in 2 kW small power steps.

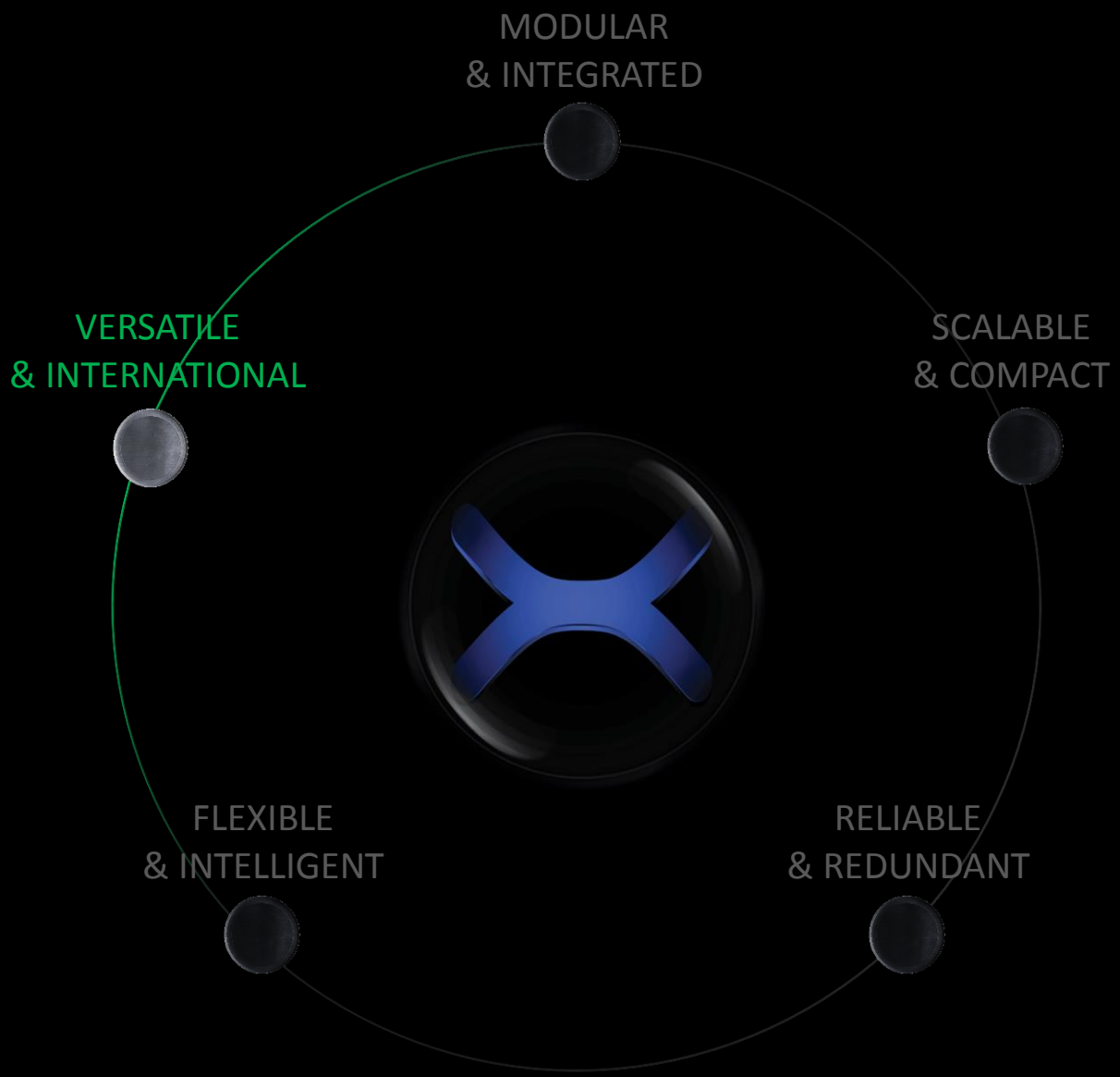


All power modules are also:

Plug & play - fast exchange in seconds without any tools, automatic synchronization.

Hot swap - no power shutdown needed. Remove or slide in a new module under voltage.

It's cool, isn't it?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EXERON – the Multi Culti Talent

One system - endless applications. Anywhere and Anytime.

1 system

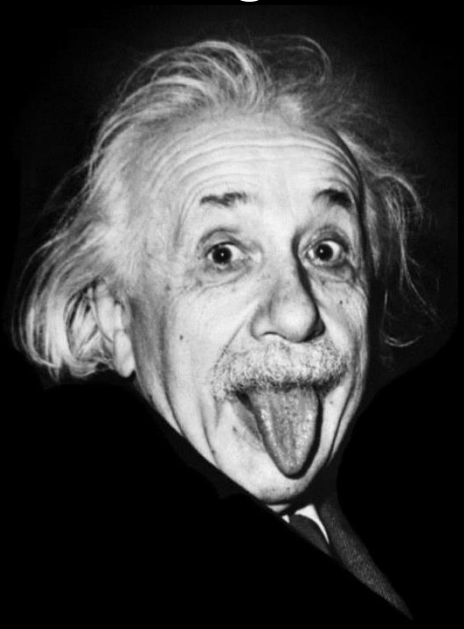
1 system

From 2 kW up to 65 MW with only 1 fully integrated system. No matter if it is a single house or a whole city. No matter if it is a residential or industrial project. No matter if it is civil or military application. EXERON is prepared for everything!

At least 1 system is producing power worldwide in Bulgaria, Germany, France, Spain, Portugal, Ukraine, Serbia, Greece, Turkey, UAE, Saudi Arabia, India, Thailand, Philippines, Singapore, Egypt, Nigeria, Gabon, Gambia, Senegal, Congo, Zambia, Zimbabwe, Mozambique, Rwanda, Uganda, Tanzania, Azerbaijan, Afghanistan, Antarctica. Yes, even Antarctica.

We are keen on more!

Imagination is more important than knowledge.



Knowledge is limited.

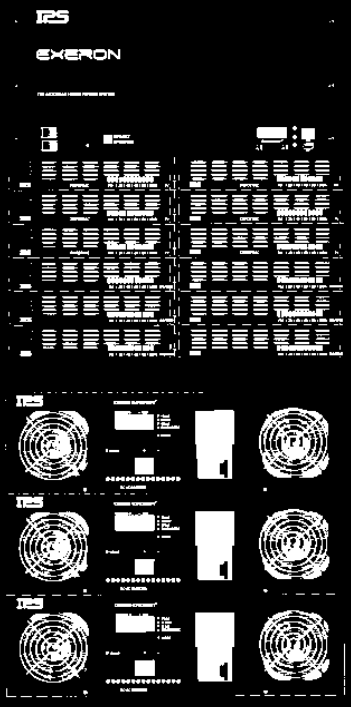
Imagination encircles the world.”

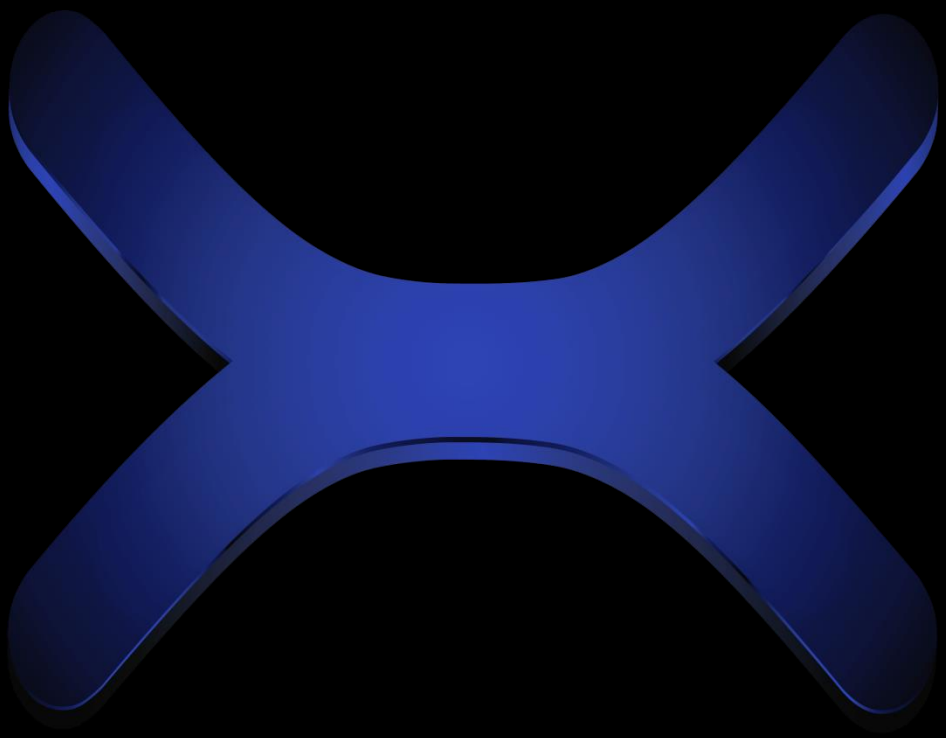
- *Albert Einstein*

The combination of creative engineering mind,

experience, knowledge, unconventional approach

and the power of our imagination leads to excellent results…





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