



Pushing Performance

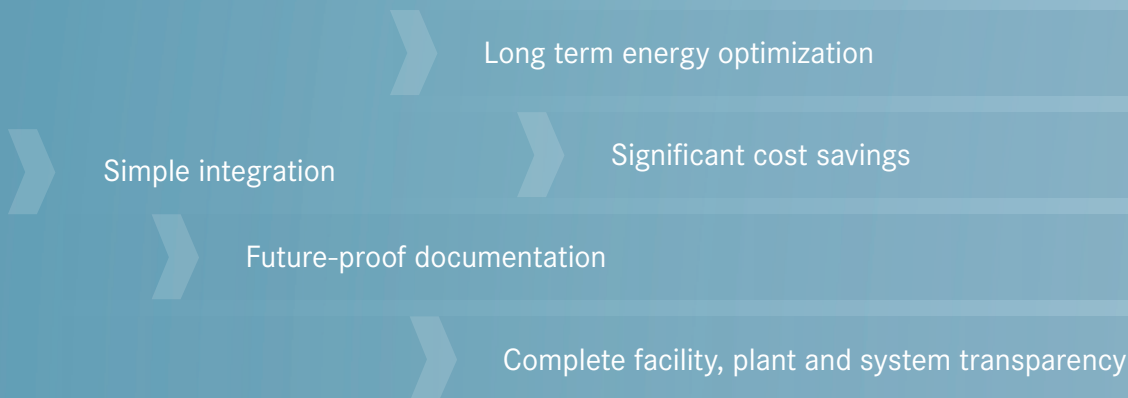
People | Power | Partnership

## HARTING smart Power Networks

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Transparency. Intelligence. Efficiency.

# Energy intelligence: HARTING smart Power Networks.



Rising energy costs, ecological constraints and increasing competitive pressure are pushing the topic of energy efficiency ever more urgently into the focus of industrial enterprises. It is particularly in production and manufacturing that innovative energy management can quickly identify savings potentials and tap these savings over the long term. This represents a significant advantage delivering financial benefits and securing competitiveness.

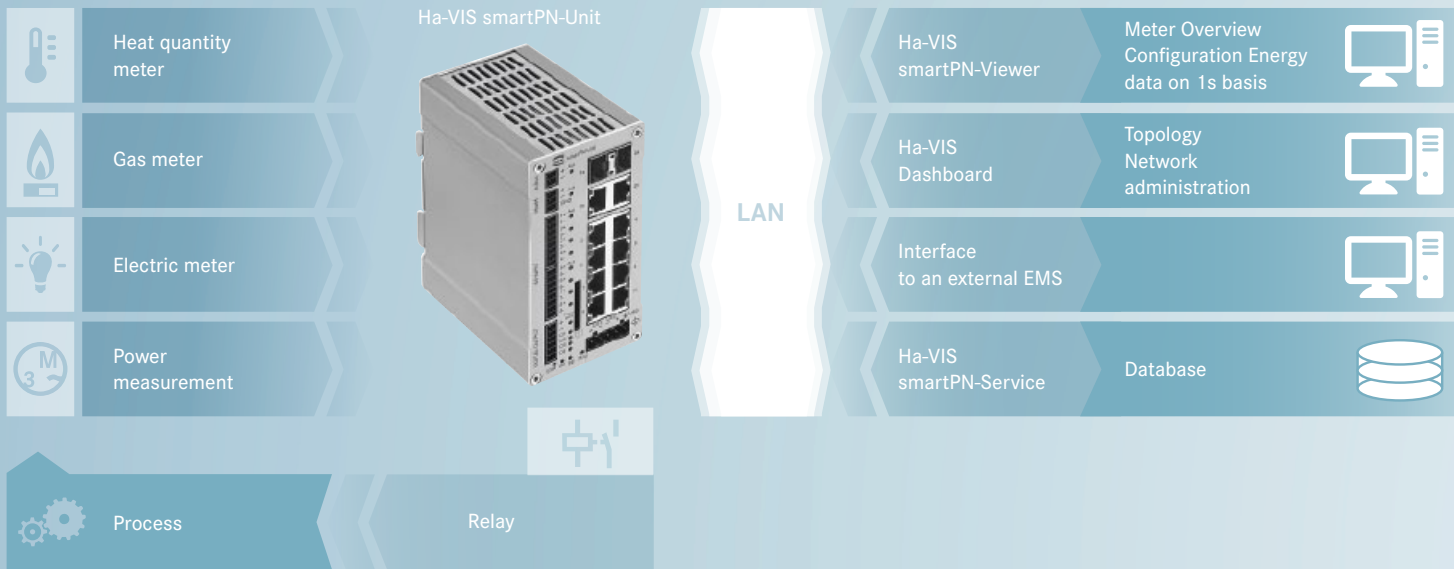
“smart Power Networks”, the intelligent Energy Management System developed by HARTING, systematically collects consumption data and transparently displays energy flows. In this way “smart Power Networks” provides a valuable information basis for targeted energy optimization in production processes. An important step that can lead to significant reductions in energy costs – in connection with minimum effort and input. Thanks to the open architecture of “smart Power Networks”, the system is simple to integrate into existing Ethernet network infrastructures. It can be expanded smoothly according to requirements and scaled to suit the given application scenarios.

But “smart Power Networks” does more than merely setting a new quality standard for the efficient control of energy flows. The implementation of the system already lays the foundation for certification to DIN EN ISO 50001. In this way, it makes a decisive contribution to securing the future viability of production plants and company processes.

## **Convincingly efficient: the “smart Power Networks” advantages at a glance**

- Complete transparency of energy flows and energy consumption.
- Simple integration thanks to the use of existing Ethernet structures.
- Long term reduction of energy costs by up to 30 % and reduction of EEG levies.
- Efficient optimization of energy flows and production processes.
- Future-proof basis for certification of energy management to DIN ISO 50001.
- Detailed representation of the plant structure and the usage data.
- Long term documentation of consumption data and load profiles.
- Integrated switchable outputs allow direct load management.

# The smart Power Networks system.



Energy efficiency begins with the intelligent application of resources. The system architecture of “smart Power Networks” is the best example of this approach. By harnessing existing Ethernet infrastructures, the system requires only minimal components and can be implemented simply and at low cost into existing facilities, plants and systems.

**In order to record, visualize and document energy flows effectively, “smart Power Networks” requires only three system components:**

## ■ smartPN-Units

The smartPN Unit is the key element of “smart Power Networks”. Via standardized interfaces it captures measurement data values from multiple measurement points – regardless of whether the source is a water volume meter, power measurement device, gas or current meter. And with the integrated Ethernet switch, the smartPN Unit can use available infrastructure for the transmission of data. Data preprocessing takes place directly in the smartPN

Unit, shortening reaction times and optimizing data throughput. In this way, the system can react directly to the exceeding of limit values and trigger appropriate measures. This effective integration and the number of interfaces available allows the “smart Power Network” to be easily extended.

The application spectrum of the smartPN Unit is not limited to the collection of data alone. Integrated switchable outputs allow the direct optimization of production processes. For example, the switching states of auxiliary equipment or lighting units can be controlled automatically.

# Measurably more: the “smart Power Networks” system components.

## ■ smartPN-Service

The recorded energy data provide a basis of valuable information for the optimization of energy consumption. A good reason to ensure the reliable storage and documentation of the data collected by the smartPN Units. This is exactly the task for which the smartPN Service system component was developed. The documentation application stores the consumption values in a central database, thereby forming the decisive basis for evaluation and analysis.

Besides the optimization of energy usage, the volume of generated data, consumption values and consumption documentation constitutes an essential prerequisite for certification to ISO 50001. In this way, smartPN Service lays a strong foundation for a future-oriented energy management.

## ■ smartPN-Viewer

In order to identify potential savings in the data records generated, “smart Power Networks” employs an effective software visualization package: smartPN Viewer. The monitoring program displays the energy usage of all components graphically and provides full transparency for the energy flows across the entire plant structure. The temporal resolution can be raised from the standard 15 min. up to a value of 1 second. In this way, for example, the energy consumption of machines and plant of the same type can be directly compared.

Naturally, the smartPN Viewer can display energy consumption over freely definable periods of time in addition to the instantaneous values. This enables users to rapidly obtain an overview of varying consumption, generate load profiles and identify energy peaks in the production process.

Flexibility is standard here: the interfaces of the smartPN Unit allow rapid data collection of a range of media.

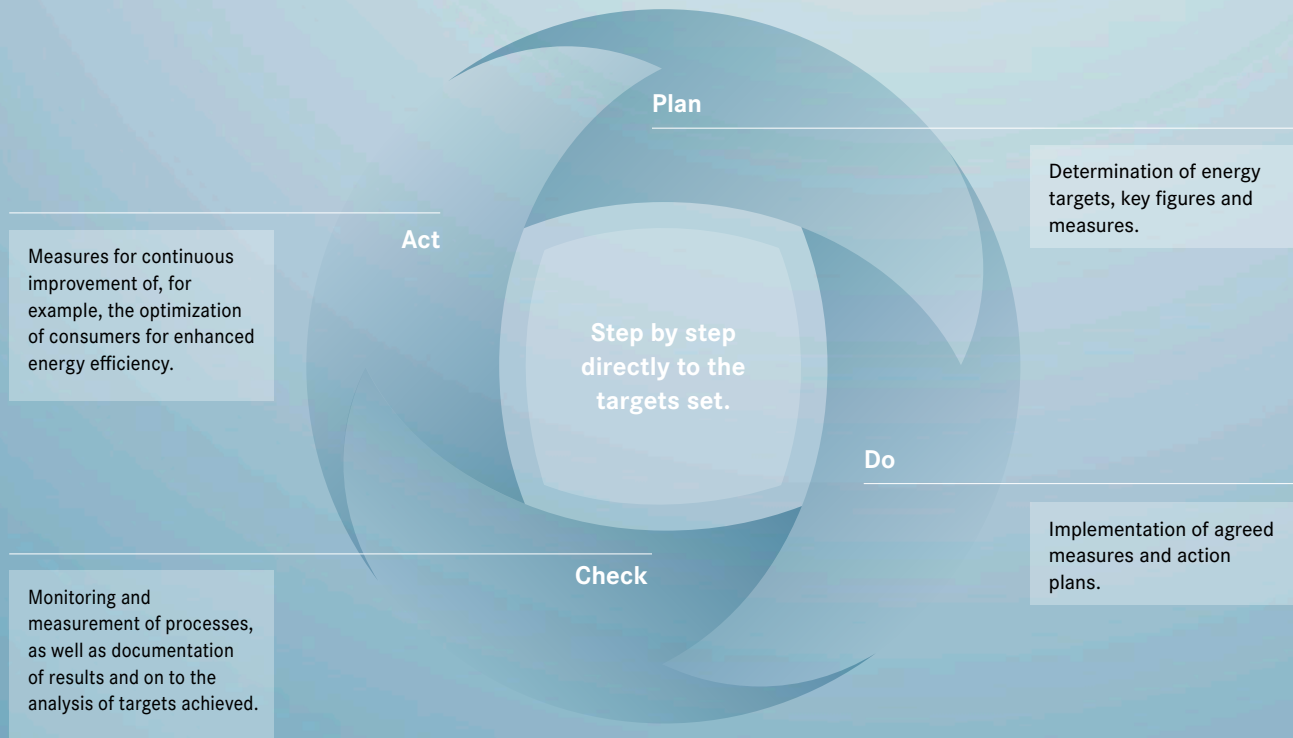
Mbus

RS485

S0 interfaces



# A perfect match to your requirements: Our services.

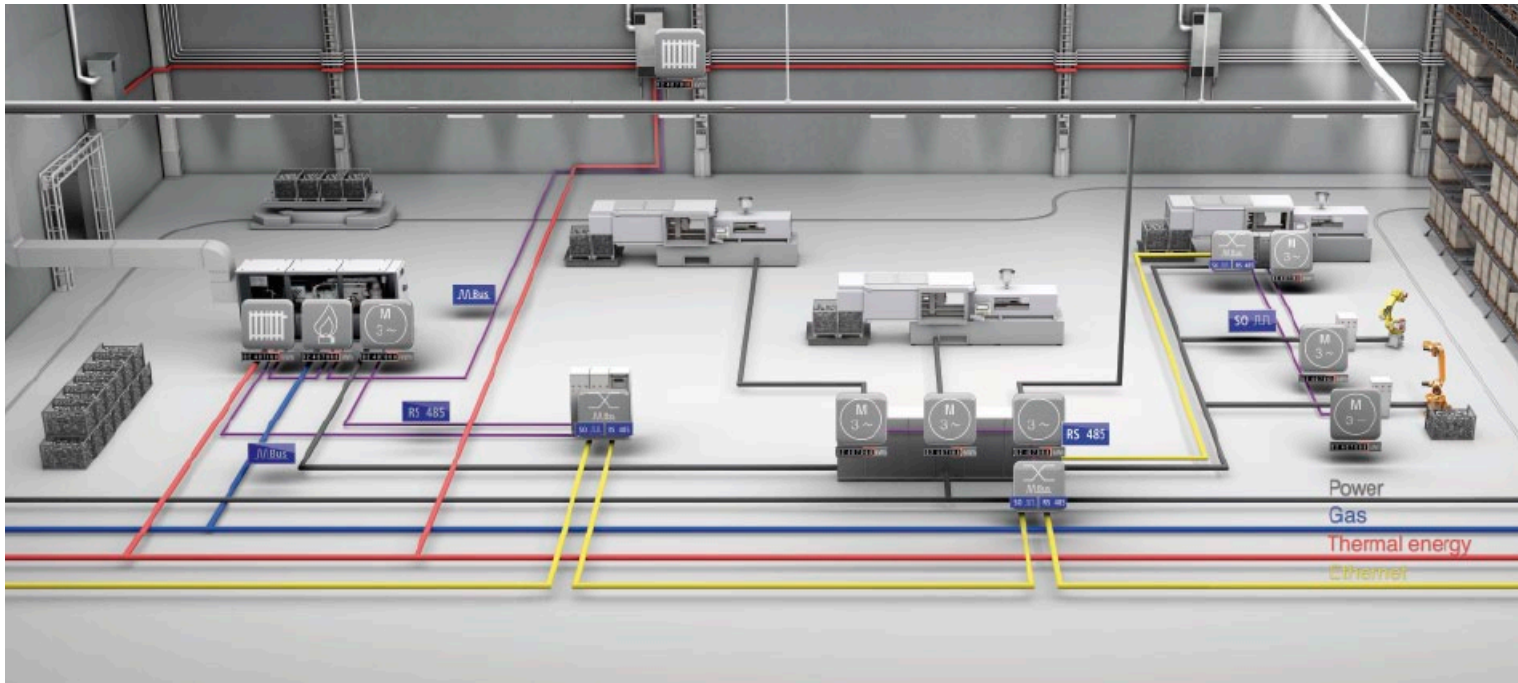


“smart Power Networks” is the ideal solution for efficient energy management and is a perfect match for existing plant, facility and system structures. In order to ensure that the system also fully conforms to your requirements, HARTING supports users in the planning and implementation of the Energy Management System. After all, common goals can be reached much faster by joining forces.

Dialoging with you we jointly define the first steps on the path towards this goal. What is the system intended to achieve? In which company areas does it make sense to use particular components and in what way? And which data are relevant for you? Based on your goals and ideas we work out a suitable design. Naturally we take the plant, facility and system structure as well as the current energy consumption into account.

This provides a strong foundation to underpin all further steps – from the installation of instrumentation and the integration of existing instrumentation, the setting up the software and all the way on to employee training. Many meaningful steps that ultimately lead towards the paramount goal: higher energy efficiency.

# Innovation as a Tradition: Energy efficiency at HARTING.



Energy efficiency is more than a just another current trend issue for the HARTING Group. The conscious and efficient use of energy resources is part of our corporate culture and a technical challenge we accepted early on.

HARTING's environment and energy management system was certified to EMAS and ISO 14001 as early as 1995. This spurs us on to not simply remain where we are, but to adapt our structures today to conform to the standards of tomorrow. The internal energy supplier of the HARTING Technology Group, HARTING KGaA, has already implemented Energy Management to DIN EN ISO 50001 – and further group companies will follow. These are important steps towards significantly increasing energy savings in the company and reducing CO<sub>2</sub>

emissions at the same time. Here at HARTING we do not see the challenge of energetically optimizing production processes only from the customer perspective. We at the HARTING Technology Group are always searching of solutions to boost energy efficiency throughout our production activities. With “smart Power Networks” we are offering you precisely what has proven its worth in our operations here: an innovative Energy Management System.

When implementing “smart Power Networks” at the HARTING process chain we follow exactly the same steps which also lead to the goal in customer application.

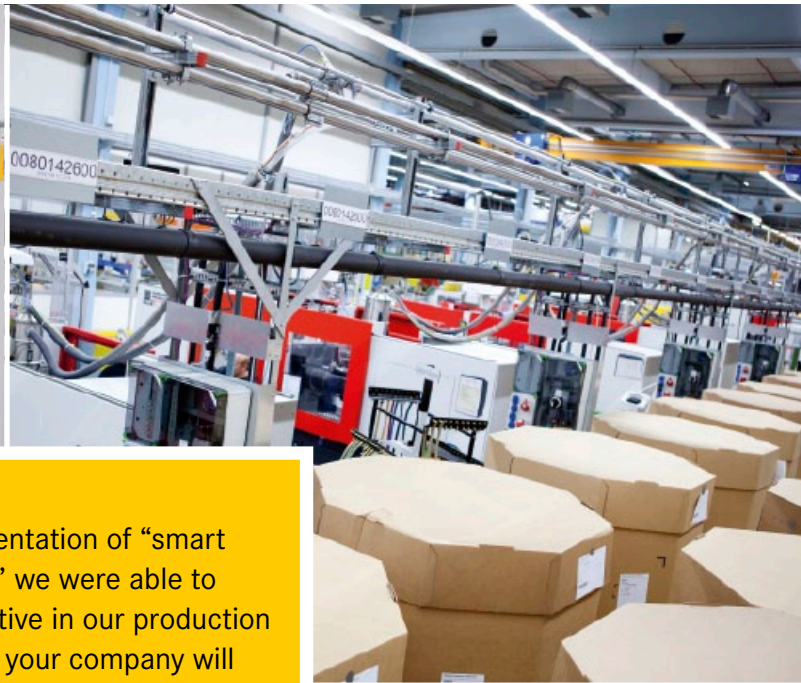
## Implementation

The first step is to define the relevant consumers and measurement points.

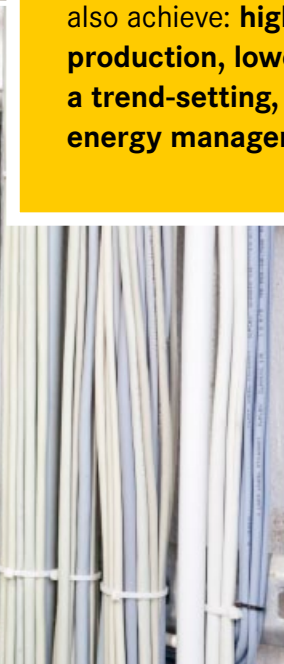
Existing instrumentation is included and integrated into the “smart Power Network”.

The connection of the smartPN Units is achieved by way of the Ethernet structures already in place.

# Theory meets practice: smart Power Networks at the HARTING Technology Group.



With the implementation of “smart Power Networks” we were able to achieve an objective in our production processes which your company will also achieve: **higher efficiency in production, lower energy costs and a trend-setting, forward-looking energy management system.**



smartPN Viewer and smartPN Service are set up and adjusted for the individual structures.

“smart Power Networks” can be put into service – without additional investments in infrastructure or software.

This implementation represents a technical basis for certification to DIN EN ISO 50001. Analyses of the evaluations bring transparency to energy consumption.



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