

YOUR SOLUTION PARTNER FOR SMART GRID OPPORTUNITIES

- Grid Automation GA-box
- MV / LV automation
- Tailored fit Solution
- Power quality
- IT security
- FISR / Fault Isolation & Service Restoration
- Substation Automation



Energy



Water



Industry



Buildings



Infrastructure



passion4energy

Smart Grid is a broad term.

The current electric grid was built in the 19th century and has been improved with the technical developments through each decade. Due to the increased energy consumption and the technical developments regarding decentralized production, we are stretching the electricity grid to its capacity. To secure the energy supply, we need to approach the existing grid in a completely different way, one that uses the grid more effectively. To realize this, we need an intelligent network which controls the capacity and energy flows, a Smart Grid!

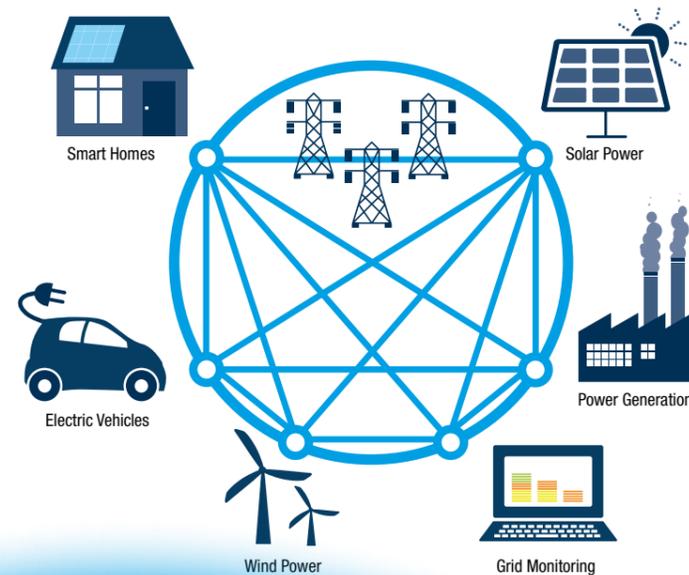
Smart Grid Solutions will be and can be used in a very wide range of applications, like Station Automation, Data Collecting, Analysing, Energy Storage, improving the availability, etc.

Electricity consumption is worldwide increasing, existing networks may be dated, or maybe not used effectively.

Decentralized energy generation, sun, wind, biomass, cogeneration and other sources causes an irregular power supply.

What can you do to get a balance in your network?

Smart Grid Solutions can help here by managing the electricity grid



Substation Automation

Ritter is specialized in Substation Automation (SA) and protection systems. We have our own specialists which are highly skilled on both subjects, realising complete new, making adjustments in existing or retrofitting SA and protection systems. As a system integrator, Ritter is independent of suppliers, which allows us to design and realise systems which completely fulfil the customer's specifications. We can use our own components and all components which are available in the market. Ritter is also selected as a Certified Advanced and Solution partner of Siemens Germany. We are familiar with the latest developments regarding the SA and protection systems.

Ritter Starkstromtechnik can offer a wide range of Grid Management solutions, like:

- Station Automation and protection Systems, delivered complete Turn Key (possible including Ritter M.V. and L.V. systems)
- Grid quality
- Power quality
- Energy Management
- Energy Efficiency



Benefits using Smart Grid solutions:

- More efficient use of existing grids
- (Automatic) Remote control
- Knowledge of power consumption (and other values U, I, cos phi, etc.)
- Knowledge of power quality
- Higher reliability
- Less down time (higher availability)
- Capacity check M.V. Installation / Transformers
- Fault location with intelligent malfunction detector

Above mentioned goals can be achieved by integrating additional Intelligent devices in the electricity network



passion4energy

Ritter is a System Integrator

Ritter Starkstromtechnik, as producer from Medium Voltage and Low Voltage systems, does have a strong relation as a System Integrator with other suppliers of intelligent devices. And is therefore able to build systems completely to client specifications with our own Software and Engineering specialists. On several locations we have our own production capacity for the production of our switchgear and switching components.

Ritter Starkstromtechnik has a lot of good worldwide references, meaning that we can offer you also a wide range of tailored fit Smart Grid Solutions and Station Automation Systems.

Our scope of competence includes:

- Engineering
- Software based engineering, programming
- Design and realisation of Station Automation & protection Systems
- Installation, building hardware solutions
- Complete Project realisation
- Combining several systems together
- Testing and commissioning primary and secondary (FAT, SAT, FIT and SIT)

For Station Automation Systems and IED's we work with

- RITTER
- Siemens
- Sprecher
- SAE
- ABB

For Smart Grid Solutions we work with:

- RITTER (Cyber Security)
- WAGO
- Siemens



Cyber Security

Our Cyber Security specialist cooperate with other specialist to stay Up-to Date.

RITTER Smart Grid Devices can be fitted with the latest Cyber Security Software, due to rapid change of this protection Software it is possible, depending of the Ritter Device, to upload the latest developments.



passion4energy



Project Example

In cooperation with a Dutch DSO Ritter implemented an Automation system to control heat pumps in a big apartment complex.

All the 288 properties have their own heat-pump which are controlled by software. The automation system balances the supply and demand with one another. All the required information is collected by the RITTER GA box in the local substation and transmitted via the fibre optic network to the electricity supplier, who will use the information to coordinate supply and demand. Which results in reduced peak loads and reduced imbalance in the network.

- Reduced Peak Loads
- Reduced Imbalance
- More renewable energy is economically used
- Electricity is stored as heat energy
- Transmission over reliable and interference free fibre optic cables to the main control centre
- It's also possible to transmit the data over a wireless telecom network or even over the existing infrastructure (power cables) using Powerline (PLC)

RITTER Smart Grid Modular GA-box

The Low Cost GA-Box is developed for now and for future functionalities, specific for monitoring and controlling of medium- and low voltage distribution stations. It provides the intelligent interface between the low- and high voltage substation and the control centre. The unit is Modular, does have a lot of possibilities and can be built to customer specification. Because of the constant development of the equipment, made smaller, up-date Cyber Security and against lower costs, we can always deliver the latest versions of our GA-box.

It can be used for the following functionalities:

- Monitoring
- Measuring
- Controlling
- Power quality
- Protection

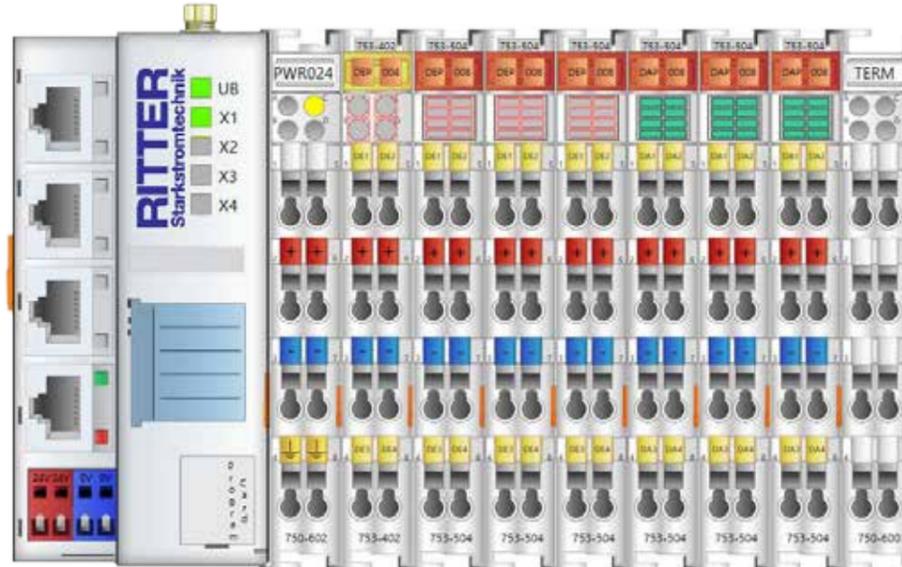
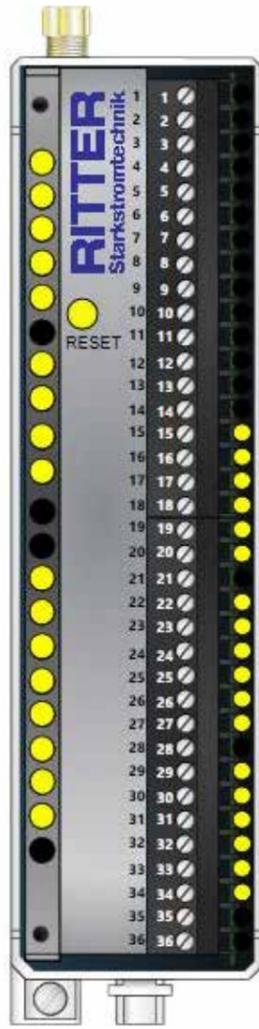
RITTER Grid Automation Modular IED

One of RITTER's Smart Grid Solution for local distribution automation using for example Heat / Cold Storage. The RITTER Grid Automation IED solutions are flexible, due to the modularity it's possible to integrate digital and analogue inputs, measuring units and PQ devices, making it possible to:

- Monitor
- Measure
- Control
- Power quality
- protect

The IED is highly flexible and can be extended anytime.





Technical Data

The box contains reliable components, to provide a future-proof installation. In case of a failure the capacity of the battery is sufficient to switch the motor of the MV/LV installation up to 9 times. The box is almost maintenance free, due to the long life time of the battery (9 – 12 years). Via the accu management system the battery is monitored and heat compensated loading.

The core of the GA box exists of a compact, but powerful and versatile RTU, which besides processing commands and alarms also can transfer measurements of the MV/LV side. Even if there isn't a fixed fibre optic connection available, the GA box can always be integrated due to the integrated transmission media such as GPRS, HSDPA, LTE. The RTU meets the high demands on the transmission security. Data is already encrypted in the RTU with VPN / IPsec, so that no confidential data leave the GA box unprotected.

Automation

- Protection
- Energy Automation
- Process Control
- System integration
- IT Security
- SCADA Systems
- Grid Automation
- Energy Management ISO 50001
- Retrofit
- Network calculation
- Maintenance and Service
- Parametrization, testing and commissioning

TECHNICAL DATA



passion4energy

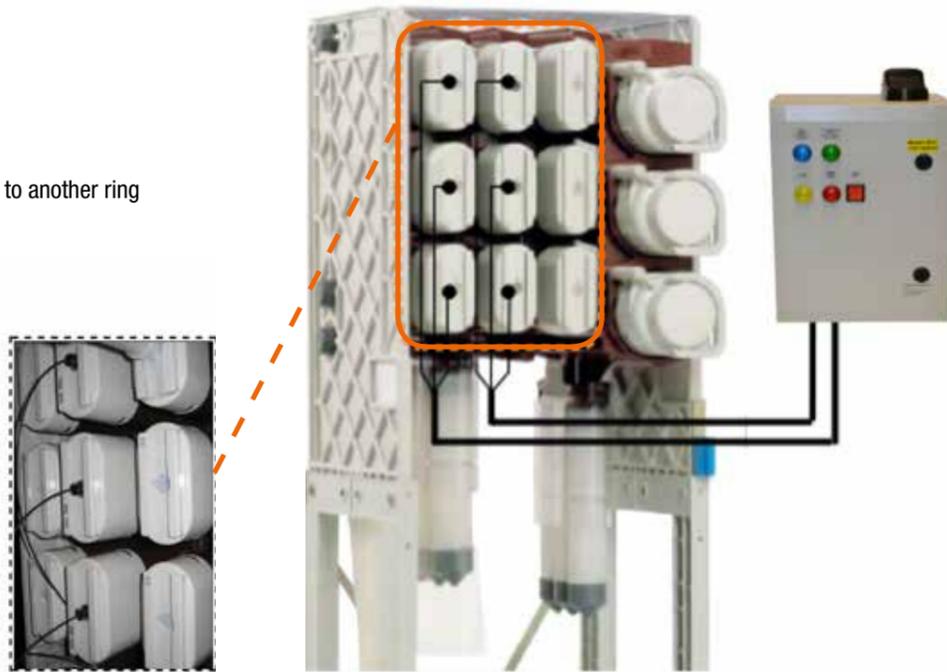


Short Circuit Indication (SCI) transmitted up-stream:

A possibility is to extend the Ritter Smart Grid Solution with short circuit indicators, which can be installed in the MV-switchgear. This makes it possible to detect and localise a failure (short circuit) from distance. Transmission of the information is realised via the existing HV Grid (BPLC)

Advantage:

- Safety
- Direct fault indication
- Possibility to switch quicker to another ring
- Shorter down time



Additional reasons to implement our Grid Automation

Energy management (kWh)

- Provide insight / increases awareness
- Saving and improve efficiency
- NEN-EN-ISO 50001:2011

Power Quality management

- Increasing availability;
- Reduction of maintenance costs and energy consumption;
- Monitoring juridical responsibilities and frameworks;
- Monitoring voltage quality acc. EN50160 / IEC61000-2-4

Registration of malfunctions (i.a. voltage dips)

- Reduction malfunction costs;
- Identify problems from the source;

We have the skills and expertise to offer you a wide range of Power Quality Systems, all according the latest IEC 50001 norms:

- We advise
- We measure / analyses
- We offer complete Grid Automation solutions

POWER QUALITY

RITTER
Starkstromtechnik

passion4energy



passion⁴energy



Installation



Automation



Switchgears



Switchgear devices

Ritter Starkstromtechnik GmbH & Co. KG

Werk für Schaltanlagen
Schutz- und Leittechnik

Installation
Automation

Distribution Office
Netherlands

Niekamp 8
59399 Olfen

Luisenglück 20
44225 Dortmund

Dorsplein 3a
NL 2631XC Nootdorp

Tel. +49(2595)381-0

Tel. +49(231)7755-0

Tel. +31 153106383

Fax +49(2595)381-233

Fax +49(231)7755-111

www.ritter-starkstromtechnik.de