

Power solutions. Worldwide.
Made in Germany. Since 1968.



**Our passion are innovative and
efficient protection and control systems
for safe and reliable
power generation and distribution**



**Marine &
Offshore
Applications**

**Landbased
Applications**





Protection and control of power generation and distribution is our DNA

Assuring the availability of energy on land and at sea and safe energy supply solutions through network protection and control systems – this is what stuckeGROUP products and solutions offer.

stucke was founded in a residential place in Hamburg in 1968 with the purpose of designing and repairing cables. In 1974, we started developing electronic components, followed by the first protection system for generators on vessels called SYNPOL® in the early 1980s, continued with by now three product lines of the successful SYMAP® series.

Our mutual values – sustainability, diversity, respect and trust, agility as well as helpfulness and mutual support – guide us in communication, decision making and interaction.

We are proud to say our products are exclusively developed and made in Germany. Our multi-functional protection and control systems offer engine control and a Power Management system as well as comprehensive protection functionality for generators, motors, transformers and other feeder lines. Our portfolio includes arc protection, grid decoupling and power plant control for low, medium and high voltage

systems, for gas and diesel engines, gensets and power units as well as hybrid systems. We hold spare parts for all product generations on stock.

Our customers are for example system integrators, panel builders, shipyards, shipowners and -managers, designers, owners and operators of power plants, sites for generation of renewables or of emergency energy systems. Customer focus, a profound understanding of customer needs and prompt availability are important for us.

- we develop, produce and distribute control and protection devices for safe and reliable power generation and distribution on land and at sea
- stuckeGROUP has its Head Office in Hamburg and liaison offices and partners around the globe
- we manufacture exclusively in Hamburg
- our proprietary development department is responsible for hard- and software
- we offer worldwide after-sales-service including repairs and spare parts
- we are proud of more than 60.000 installed systems



Reliable, flexible and fair – since 1968.



Quality made in Germany



Highest customer satisfaction is achieved through excellence in our quality standards certified by ISO 9001 – and we do not compromise. This not only means high-class-materials, components and modules, but using the expertise of our qualified specialists and advanced systems and making comprehensive tests. That way we ensure reliability, availability and longevity of not only the stucke systems, but also the power supply systems controlled

and protected by them. Further quality features are easy access to service and support, repair services and the availability of spare parts. The list of longtime international customers speaks for itself. Our engineers and technicians have long-standing professional experience as well as detailed knowledge of the stucke protection systems – not only regarding the latest generation of products, but for all that are still in use worldwide.



Sustainability



Sustainability, climate change and protection of our environment are important to us. Our production is CO₂ neutral – and we are certified according to Environment Management regulations ISO 14001. We support efficient energy management and strengthen the utilization of renewables by providing suitable product solutions. stucke products protect and control energy supply systems on land and at sea and enhance their efficiency, productivity and life cycle. Integrated power management ensures that only the energy needed and used is actu-

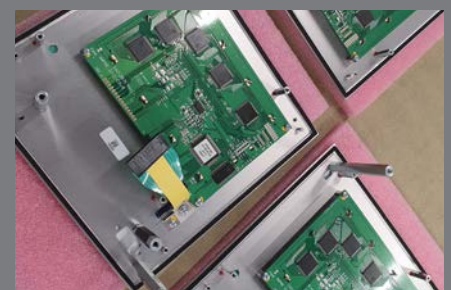
ally provided. The materials, components and modules used for our protection and control systems are sustainable and of high quality. Our housings are made of metal, devices are highly reliable and in use for several decades, preserving the environment from unnecessary electronic waste.

With our worldwide service not only for the latest systems, but also for all previous product generations, our repair service and long-term availability of spare parts we ensure the longevity of stucke protection and control systems.

Innovation

We constantly innovate, develop, enhance and refine our state-of-the-art protection and control systems, striving for technology leadership. Focus is on the needs and requirements of our international customers and on future trends within the energy market, including the renew-

ables market. Software and firmware for our products are developed inhouse, giving us the flexibility to quickly respond to individual customer requirements. Our engineers and technicians use latest design, software and development tools as well as the latest tools for testing.



Project Management

We offer planning, manufacturing, installation and commissioning of complete and customized switchboards for emergency power systems

- stucke is a reliable partner for your projects
- experienced service technicians and engineers
- consulting, conceptual design and planning, including generation of wiring diagrams
- customer-specific configuration of SYMAP® series protection devices
- commissioning and acceptance tests



Solutions

- consulting for comprehensive energy concepts
- stuckeGROUP has more than 50 years of experience with electronic protection systems
- our main areas of consulting are
 - comprehensive offshore and DP applications
 - low and medium voltage protection
 - power management
 - hybrid solutions
 - emergency as well as wind and solar power plants

Service and support

- after-sales-service for all stucke products and OEMs
- service and support for all stucke product generations
- a worldwide service network
- centralized coordination of worldwide service and commissioning assignments in Hamburg, based on a ticket system
- service is performed by our own experienced service technicians and engineers as well as through our global network of service partners
- support for installations, parameter setting, technical problems, trouble shooting and related corrective action, exchanges, upgrades, retrofits and commissioning
- repair service and spare parts
- class checks for low and medium voltage switchboards





References for marine and offshore applications

SYNPOL[®], SYNPOL[®]D and SYMAP[®] (BC, BCG and Y series) and its OEMs (HIMAP etc.) are globally installed on:

- more than 2.500 container vessels
- more than 800 tankers
- more than 400 gas carriers
- more than 250 bulk carriers
- more than 300 RoRo & passenger ships
- more than 50 offshore vessels & platforms

References for landbased applications

SYMAP[®] (BC, BCG and Y series) and SYMAP[®]Compact series are installed worldwide in:

- approx. 1.000 solar power plants (PV)
- approx. 50 hydroelectric power stations and combined heat and power plants
- approx. 1.000 emergency power and energy backup systems for
 - hospitals
 - data centers
 - shopping centers
 - airports
 - stadiums
 - governmental buildings



Certifications

Management System Certificate
DIN ISO 9001 and 14001



Type certification for
SYMAP[®]Compact series



Type certifications for marine and offshore:

- LR Lloyds Register
- ABS American Bureau of Shipping
- DNV Det Norske Veritas
- BV Bureau Veritas
- CCS China Classification Society
- PRS Polski Rejestr Statkow
- NPK Nippon Kaiji Kyokai
- RINA Registro Italiano Navale
- KR Korean Register

DNV Cyber Secure
Essential Type Approved
in accordance with IEC 62443-3-3
security level 1



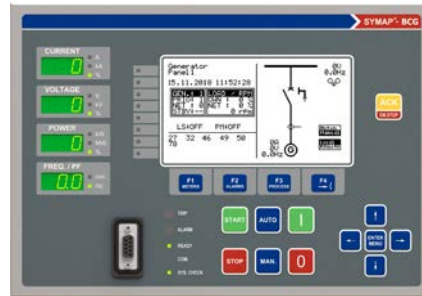
Control and protection systems

Marine & offshore and landbased applications – SYMAP® series

SYMAP®BC-BCG

Medium voltage protection relay
Power Management

- generator protection, differential protection optional
- transformer protection, differential protection optional
- load computer function
- load sharing
- synchroniser
- DP system
- section protection



SYMAP®ECG/EC/G/DC

Low voltage protection relay
Power Management

- generator protection, differential protection optional
- load computer function
- load sharing
- synchroniser
- DP system
- section protection



SYMAP®F/M/T/D/LD

Medium voltage protection relay

- feeder protection
- motor protection
- transformer protection including differential protection
- line differential protection
- distance protection



Hybrid solutions

SYMAP®BAT

Power Management system for static and dynamic energy sources

- low and medium voltage protection of battery converter output
- main breaker control
- synchronisation & load sharing between generators and battery converter
- stand-by diesel start demand on low battery



Network quality

SYMAP®THD

Monitoring of network quality

- analysis of harmonics for voltage and current
- alarm functionality
- logging and transfer of data



Control and protection systems

Landbased applications – SYMAP® Compact series

SYMAP® Compact

Protection and control device for safety classes F0, F1, F2, F3 and F4 as well as generator protection type GC

- shallow depth
- full colour touchscreen display
- IEC61850 with high-speed GOOSE



SYMAP® Compact+

Protection and control device for safety classes +F0, +F1, +F2, +F3 and +F4 as well as generator protection type +GC with enhanced functionalities for measurement and communication

- shallow depth
- full colour touchscreen display
- IEC61850 with high-speed GOOSE



Special features of SYMAP® Compact+GC

- reactive power undervoltage protection (QU)
- independent overcurrent time-lag protection (UMZ)
- network and system protection (NA)
- distance protection ANSI 21
- reactive power controller (EZA)

Arc protection system

SYMAP® ARC

Low and medium voltage arc protection system

- modular and expandable
- extremely short tripping time < 2 ms
- DNV certified

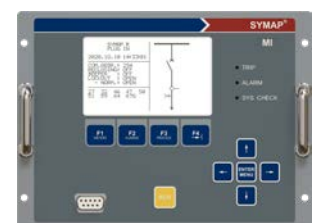


Retrofit solution

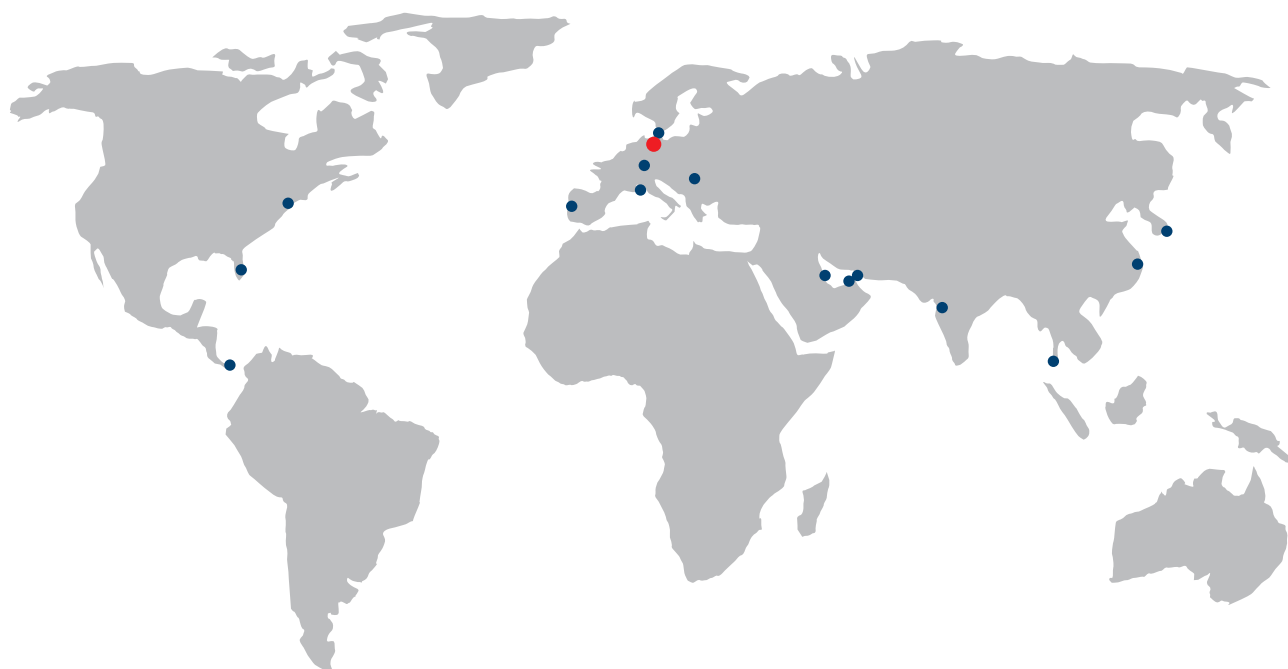
SYMAP® R-FI/MI/TI

Medium voltage protection relay for retrofit solutions

- feeder protection
- motor protection
- transformer protection



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