

# Rittal – The System.

Faster – better – everywhere.

## ► Electromobility in the fast lane

Our portfolio of solutions for the charging infrastructure



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- 1 "Stand-alone" charging pillar enclosure
- 2 Charging pillar enclosure in a customised design
- 3 Infrastructure enclosure for power electronics and cooling
- 4 Battery store, compact or container design
- 5 Transformer station

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# One system for all applications

Electromobility, e-cars and the associated charging infrastructure are now in the spotlight like never before. With ever-growing demands for a climate-friendly industry and transport policy, electromobility is set to raise its profile still further over the next few years.



## Enclosure designs

- Enclosure solutions for charging pillars:
  - From “stand-alone” solutions through to complete systems
- System solutions for the charging infrastructure:
  - Infrastructure enclosures
  - Energy store infrastructure
  - Container solution

See page 4 onwards



## System overview

- Outdoor enclosure solutions:
  - CS New Basic
  - CS Toptec
- Power distribution:
  - RiLine
- Climate control:
  - Enclosure heater
  - Thermoelectric cooler
  - Chiller
  - Cooling unit
- Energy store infrastructure:
  - Energy store enclosure
  - Energy store container

See page 6 onwards



## Expertise

- Rittal's expertise in the power distribution sector and renewable energies
- Tested quality
- Global availability

See page 19 onwards

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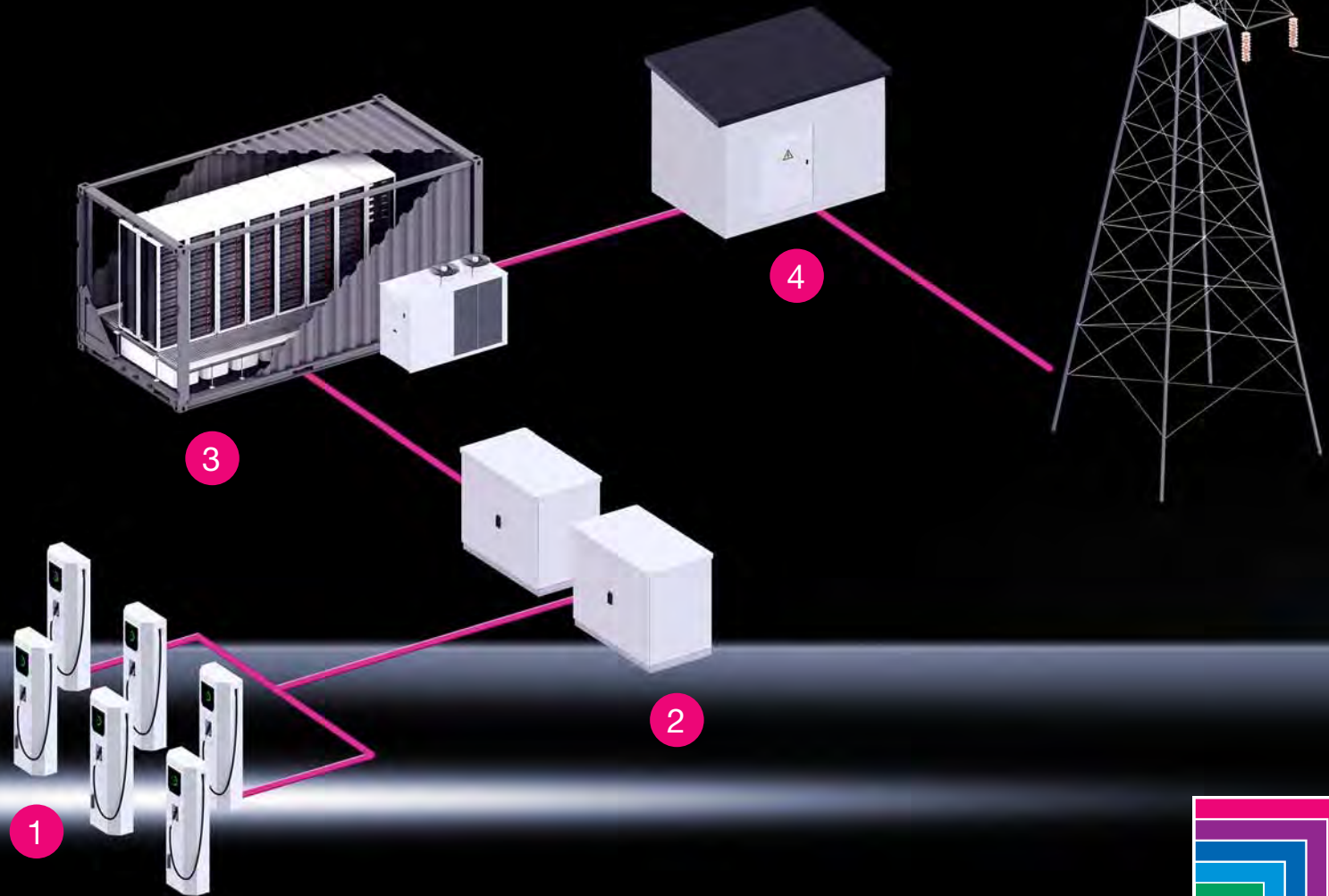
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# System solutions for the charging infrastructure

- 1 Charging pillar
- 2 Infrastructure enclosure for power electronics and control modules
- 3 Energy store container with climate control
- 4 Transformer container



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# Enclosure solutions for charging pillars

From standard enclosures for industrial applications through to customised designer versions

## The “stand-alone” solution includes

- Standardised enclosure solution
- Optional accommodation of power electronics
- Climate control
- Power distribution

Enclosures for industrial applications and cases in your individual design both offer all the benefits of the Rittal modular system, thanks to the Rittal frame section. The interior installation of mechanical components, from power distribution through to climate control, may be implemented here in all its complexity.



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# Outdoor enclosure solutions – CS New Basic



Rittal enclosure solutions provide optimum protection for your components in the charging pillar, infrastructure enclosure or battery store case. The frame section and compatibility with the Rittal modular system ensure particularly efficient assembly solutions. In particular, Rittal outdoor enclosures offer perfect protection for tough environmental conditions such as salt-laden air, heat or cold.

## Systematic roof concept

- Roof projection increases the proportion of shading
- Air exchange with all-round louvred grilles
- Fan for active climate control with IP-compatible covering
- Eyebolts on the inner roof, concealed by the rain canopy
- The fully configured unit may be transported by crane

## Systematic installation benefits

- System punchings in the base ensure system compatibility
- Extensive range of system-compatible accessories for individual installations

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# Outdoor enclosure solutions – CS Toptec



## The universal platform for outdoor applications

- Identical system platform in the outdoor sector as for IE or IT free-standing enclosures
- Weather canopy – With projection on all sides
- Chimney effect of the twin-walled structure – Reduces the influence of sunlight
- Mounting benefit – Open frame structure supports fast configuration, even with bayed variants
- Certifications such as IP 55, IK 10 impact resistance and RC resistance class are available

## Variants and modifications

- Choice of sizes
- Baying
- Side door, rear door
- Climate control

## Materials

- Base frame: Stainless steel
- Enclosure panels: Aluminium
- Rain canopy: Aluminium

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# Infrastructure enclosures



## Infrastructure enclosures

- Housing power electronics and cooling to supply multiple charging points

## Enclosure concept

- Rittal Toptec basic enclosure
- Dimensions on request; width x height x depth variable on a 25 mm pitch pattern
- Steel or concrete base/plinth for stability and cable insertion
- Various climate control concepts (including vent slots, honeycomb perforation, fan-and-filter units, cooling units) may be achieved
- The enclosure interior (e.g. climate control and power pack) may be shielded by a divider panel
- Interior installation with 482.6 mm (19") technology or mounting plates to accommodate the components

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# Charging infrastructure for electric vehicles



Charging pillars for car parks and garages



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# Charging infrastructure for electric vehicles

Enercon E-Charger 600



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# Charging infrastructure for electric vehicles



Charging pillar for Fraport – Frankfurt Airport



Rittal charging pillar and charging pillar for Spie Hartmann GmbH

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# Power distribution

Rittal's modular system for power distribution components for power infeed and distribution meets valid standards and regulations. From the transformer station through to the charging pillar, it accommodates applications in the range from 125 A up to 5,500 A.

## Ri4Power modular system up to 5500 A

Modular system for low-voltage switchgear with design verification to IEC 61 439-1/-2 and DIN EN 61 439-1/-2, plus power distributors and structured system solutions for switchgear with Form1-4b separation.

## Distribution enclosure ISV

ISV distribution enclosures for standard-compliant power supply in buildings and industry. Flexible configuration with practical power distribution modules. Available as wall-mounted and free-standing enclosures for individual population with modular elements.

## RiLine and RiLine Compact busbar systems

From small power distributors, to individual switchgear and controlgear, through to extremely flexible heavy-current power distributors for infrastructure and industry applications. Simple, secure assembly plus user-friendly planning with design verification are the distinguishing features of these systems.

## Fuse system/measurement system

Bus-mounting fuse bases, NH slimline fuse-switch disconnectors and fuse holders, and circuit-breaker component and OM adaptors. All this, plus a compact measurement unit consisting of measurement data acquisition unit, evaluation electronics, communication module, measurement power supply and flash data memory.



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# Climate control

Rittal offers a wide range of solutions for your charging infrastructure applications in the climate control sector. These climate control solutions ensure that heat loss from the components is efficiently removed from the enclosure. The product portfolio ranges from fan-and-filter units, to energy-efficient cooling units, through to enclosure heaters to help prevent condensation, particularly when sited outdoors. Rittal chillers may be used as a central cooling unit for removing heat from the cooling medium, and to supply the cooling unit inside the enclosure and a cooled charging cable.

## Enclosure heaters

- Prevent condensation when siting enclosures outdoors
- Energy-saving, self-regulating PTC technology
- Constant distribution of heat
- Output range: 10 – 800 W
- With quick-connect terminal

Without fan



With fan



## Thermoelectric coolers

- 100 and 200 W cooling/heating output
- High operating ratio, thanks to optimum interplay between all components
- Straightforward, user-friendly operation via PC software
- Low-vibration and low-noise, as there is no compressor

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# Climate control

## Blue e+ chillers (1 – 6 kW)

- **Efficient** – Energy savings of up to 70% thanks to DC inverter technology
- **Flexible** – International approvals, multi-voltage capability, high operating limits and pre-configured option packages support worldwide use
- **Reliable** – Longer service life for all components and high control accuracy for optimum workpieces thanks to component-friendly cooling and integral monitoring sensors
- **Simple** – Touch display and intelligent interfaces allow intuitive operation



## Chillers (11 – 25 kW)

- Touch display for simplified user prompting
- New programmable controller
- Eco-friendly: Microchannel technology reduces the amount of refrigerant needed
- Simplified option packages
- Significantly shorter delivery times, thanks to warehousing and predefined option packages
- Built-in safety functions as standard
- Fully wired ready for connection
- Hysteresis: Standard  $\pm 2$  K



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# Climate control

## Outdoor cooling unit

- Useful cooling output/heater:
  - 1600 W/400 W
- Temperature control via Comfort controller
- Aluminium enclosure in RAL 7035
- Mounting on the CS Toptec in 3 positions, internal, partial internal and external
- Internal circuit to external circuit IP 55
- To fit Toptec:
  - with width > 800 mm
  - with height > 1,200 mm



## IoT interface

- For linking Blue e+ cooling units and Blue e+ chillers to the customer's own monitoring, energy management and/or superordinate systems
- Analysis and parametrisation
- Device data can be supplied in most standard protocols
- Generate your own dashboards and analyses
- Attaches to the top hat rail or to the cooling unit itself



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# Energy store infrastructure – Enclosure solution



The VX25 baying system opens up new, practical perspectives for enclosure system configuration:

- High load-bearing capacity of the VX25 extrusion up to 1400 kg
- Pre-defined rack-mounted systems ensure fast replacement of the battery packs
- Modular 482.6 mm (19") rack-mounted system
- Heavy-duty shelves for loads up to 100 kg per level

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# Energy store infrastructure – Container solution

Rittal offers a fully pre-configured all-in-one container which emulates a complete energy store infrastructure. This comprises everything from racks to accommodate batteries, through to optimum climate control (climate zones) with cooling. All these containers may be project-planned individually or in different sizes depending on modularity and function, and bayed together in multiple arrangements.



## 1 Cooling container for cooling

- Chiller systems
- Optionally with free coolers and control station
- Positioned on container frames
- Compatible with battery containers

## 2 Battery container to accommodate batteries

- Racks
- Raised floor
- Power distribution
- Cooling system

## 3 Converter container

- Modular design
- Integration of controller, converter and mains connection enclosures
- With cooling and ventilation

## 4 Transformer container

- Empty container to accommodate the transformer

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# Outdoor battery store



## Rittal products

- Twin-walled CS Toptec enclosure, aluminium, including rain canopy and base/plinth with a protection category of IP 55
- Outdoor cooling unit with 1,600 W
- Enclosure heater 800 W
- 482.6 mm (19") frame and heavy-duty racks to accommodate the battery store modules

## Product application

- Ideal for supplying charging pillars
- The battery system is well-protected under tough environmental conditions such as salt-laden air, heat or cold.
- Climate control of the enclosure – heating and cooling – is fully automated.
- The battery enclosure has the highest impact resistance class IK 10, ensuring that the battery cells inside are always reliably protected. This allows them to be sited in motorway service stations, for example, where damage from outside can easily occur.

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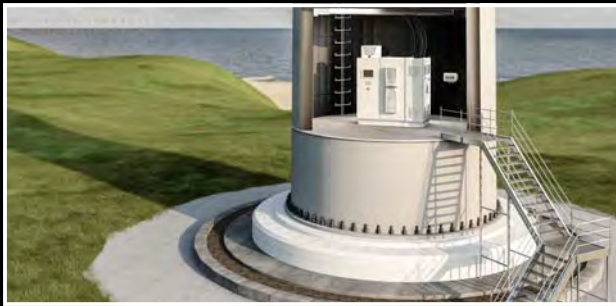
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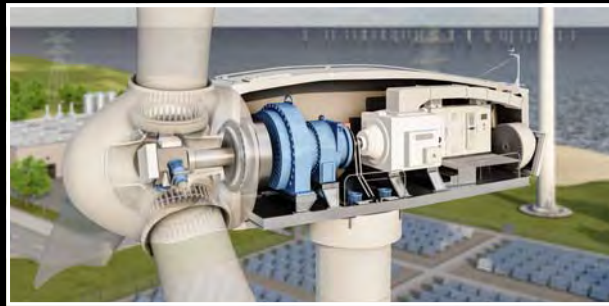
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# Rittal's expertise in the power distribution and renewable energy sector



## Tower

- Complete system solutions for powerful frequency converters including climate control



## Nacelle

- Control cabinets in the nacelle and pitch enclosure directly on the rotor, to reliably withstand even the highest dynamic forces



## Energy stores

- Flexibly scalable, modular energy store solutions to cushion peak loads



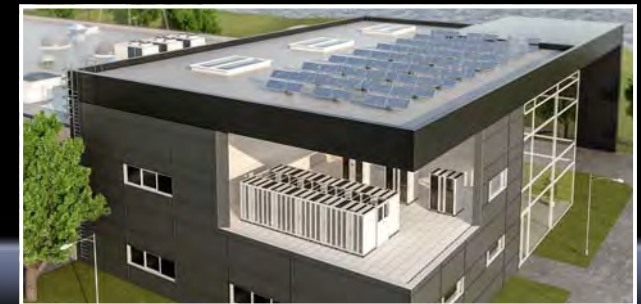
## Solar panel

- Robust, compact generator connection boxes and DC collectors directly on the solar panel



## Inverter

- Central inverter offers a high level of physical protection for the enclosure, equipped with power distributor and climate control



## IT infrastructure

- Complete physical IT Infrastructure for small to very large data centres

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# Tested quality

We are committed to consistent quality management and on-going refinements to our products, services and internal processes. All processes are continuously refined by quality control groups, and reviewed during in-house audits. Each year, our improvements and high standards are verified by countless successful external audits.



## Accredited Rittal test laboratory for

- Simulation of climatic conditions
- Dynamic and static load tests
- 3D measurement
- Testing of IP protection categories and NEMA type ratings
- Salt spray tests
- Electrical safety and function tests
- Performance testing of cooling units and heat exchangers
- Material testing

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# Worldwide

Rittal is present around the globe. We are close at hand to assist you with innovative products and a comprehensive range of services, as well as professional project management. Harness the power of “Rittal – The System.”



## Always on hand, whenever you need us!

Whenever, wherever and however you need us, we are always on hand to assist you! Simply give us a call, send an e-mail or visit our website to get in touch. Fast, simple and reliable.

## Your benefits

- International availability
- 24-hour availability
- Communication in your local language

## Faster

- Short paths, fast communications, thanks to regional service support points and service partners
- Perfect interplay between service and engineering

## Better

- Individual service solutions from a single source
- Rittal service technicians worldwide meet high qualification standards

## Worldwide

- More than 150 locations with over 1,000 service technicians

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# Rittal – The System.

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