Rittal – The System.
Faster – better – worldwide.

IT infrastructures
“Rittal – The System.”
Faster – better – worldwide: Everything we do centres around the benefits to you. For you, we have developed a perfectly coordinated system platform that unites innovative products, pioneering engineering solutions and comprehensive service. We plan and implement your infrastructure, ensure reliable power distribution, boost energy efficiency through innovative climate control, and develop complete data centres.

Faster
- System solutions from a single partner
- The perfect interplay between development, engineering, products and service
- A single point of contact thanks to process-optimised system consulting

Better
- Innovative strength secures competitive advantages
- Cost savings with proven energy efficiency
- Certified quality in management, production and environmental protection

Worldwide
- Over 60 subsidiaries, more than 250 service partners and over 1,000 service engineers worldwide
- Country-specific expertise from Rittal industry experts
- International approvals provide peace of mind
Engineering & consulting – Concept-based IT power

“Rittal – The System. Faster – better – worldwide.” means innovative strength plus IT expertise plus decades of experience, all from a single source. Thanks to our intelligently compiled portfolio of solutions, we will continuously supply you with ideas, concepts, innovations and the exact IT solution you need for your company, right from day one. With Rittal, you can commit to high-end solutions: Engineering & consulting, data centre construction, IT infrastructures, and the international Rittal service. Utilise the knowledge, experience and products of a successful global player, for yourself and your IT.

Rittal develops and optimises individual ITC solutions on your behalf, from small IT units to complex data centres. Our specialists will precisely analyse the current status and future requirements, the structural and physical conditions, and the existing IT structures, and on this basis will tap into proven optimisation potential. This will facilitate the planning and implementation of IT systems with maximum efficiency in terms of performance, costs, processes, energy input, compatibility, availability and security. Rittal’s technical and detailed planning teams will conduct all the necessary analyses and calculations, prepare all the drawings and documents, and select the optimum solutions and components for your IT environment.

Engineering & consulting
- Site evaluation and risk assessment
- Design and planning of complete data centres
- Optimisation of existing data centres with regard to energy, costs, processes, security, disaster recovery management and outsourcing
- External assessment of data centre and infrastructure concepts
- Efficiency analyses of energy, climate, security and IT processes
Data centre construction and IT infrastructures – Perfectly coordinated

Rittal drafts, plans and implements high-MTBF data centres and IT environments that are super-efficient in every respect.
Based on your requirements, our engineers and expert planners will devise optimised, perfectly functioning IT centres for every size of company. This means that you only have one project partner: Rittal.
As general contractors, site managers and your point of contact, we will coordinate the complex work operations on your behalf. With our supremely well-organised process and project management system, we will reduce interfaces, coordinate the various works, clarify your detailed questions on site, and strictly adhere to the agreed timetables. The finished outcome will be a perfect, turnkey data centre complete with all components: Server racks, network enclosures, power distribution, climate control, efficiency management and the necessary monitoring and security components. Upon request we will also take care of your security and energy efficiency certifications (e.g. TÜV-IT) and appropriate emergency planning concepts.

Only infrastructures with coordinated components will achieve full performance in the long term. Rittal incorporates this into the planning stage, and you will reap the benefits with regard to implementation and service. You will receive modular, scalable solutions from a single source – cooling, power, security room, monitoring, management and service. “Rittal – The System. Faster – better – worldwide.”
The components we have selected for you are tried and tested, thereby reducing any required adjustments between equipment and solutions from possible external suppliers to a bare minimum. As a complete supplier, we will also optimise the interactions between hardware and individual data centre software on your behalf in the following areas: Settings, monitoring, process optimisation, efficiency control, emergency messages, maintenance etc. With our global, solid experience and broad product portfolio, we will create a secure, highly efficient basis for your entire IT infrastructure. You will benefit immediately from maximum performance capability, combined with permanent reliability, stability and availability.

Data centre construction
- Engineering & consulting to implement complete data centres
- Site management and execution as general contractors
- Project and process management of the entire workflow
- Handling of all licensing procedures (construction application, statics and other approvals)
- Preparation of various certifications, including the relevant international certificates (safety, energy efficiency, availability)

IT infrastructures
- Standardised server racks and network enclosures
- Scalable IT cooling concepts
- Modular power distribution and backup
- High-MTBF IT security rooms, including certificates
- Complete system accessories for IT environments and data centres
- Software-based IT and infrastructure management system

Rittal endorses the European Code of Conduct and strives consistently to achieve its goals.
Rittal Global Service –
Global security and availability

“Everything works perfectly. You needn’t worry about a thing.” Rittal Global Service ensures your satisfaction, peace of mind and availability, 24 hours a day, 7 days a week, 365 days a year. Wherever you use our products, Rittal Global Service is there for you! We are on a worldwide mission to ensure that every aspect of “Rittal – The System.” is exactly as it should be: perfect.

Faster
- Short paths, fast communications:
  - With regional service support points
- A perfect interplay between sales, project management and service

Better
- Individual service solutions from a single source
- A global high standard of qualifications among Rittal service technicians
- A uniform global service ticket system

An overview of the features of the various Rittal service packages: Service contract matrix

<table>
<thead>
<tr>
<th>Reachability</th>
<th>Response time</th>
<th>Spare parts availability</th>
<th>Maintenance</th>
<th>Warranty extension</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC</td>
<td>Business hours</td>
<td>Next working day</td>
<td>Standard</td>
<td>1 x per annum</td>
</tr>
<tr>
<td>COMFORT</td>
<td>Business hours</td>
<td>Next day</td>
<td>Standard</td>
<td>2 x per annum</td>
</tr>
<tr>
<td>ADVANCED</td>
<td>24 hours</td>
<td>Next day</td>
<td>24 hours</td>
<td>2 x per annum</td>
</tr>
<tr>
<td></td>
<td>365 days a year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>FULL</td>
<td>24 hours</td>
<td>8 hours</td>
<td>Individual concept</td>
<td>Individual (at least 2 x/year)</td>
</tr>
<tr>
<td></td>
<td>365 days a year</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUSTOMIZED</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Service from a single partner
- 24/7 service reachability, 365 days a year
- Highly qualified service specialists
- Service technicians on site within 8 hours
- Automated incident and emergency management
- Individual availability of spare parts
- Global service ticket system

Worldwide
- 5 service support points worldwide
- More than 250 service partners and over 1,000 service technicians
- Represented in over 60 subsidiaries with service

You decide for yourself the format and scale in which you use the Rittal Global Service. You can choose from four standardised service packages: Basic, Comfort, Advanced and Full. Above and beyond this, you can agree further special conditions via our individual service packages.
Data centres that are perfect in every detail!

A perfect IT environment provides the basis for perfect business. Rittal plans, builds and optimises data centres on your behalf, thereby making an effective and efficient contribution to your corporate success. We will advise you, agree the details with you, and develop solutions that fit down to the smallest detail.

The benefits to you:
- You benefit from the opportunities offered by a complete supplier.
- From the initial draft, through to the implementation phase and commissioning, you only deal with one point of contact.
- You have structure and clarity in your data centre project.
- All participants and all components are precisely coordinated with one another.
- Every detail contributes to the high overall performance capability of the system.

We accompany you every step of the way, from analysis, to planning and implementation, through to safeguarding your requirements with our global service.

All services from a single source
- Engineering & consulting
- Network enclosures and server racks
- Power distribution and backup
- Climate control
- Security solutions
- Monitoring
- Service & support
High quality network enclosures and server racks!

Rittal network enclosures and server racks adapt to your personal IT task! As a central component of our overall concept, they combine maximum modularity with optimum efficiency. This means that IT enclosures based on our Top enclosure system TS 8 can be carefully tailored to the respective application. You need not compromise in any respect, and can implement your IT systems precisely in accordance with your current and future requirements.

The Rittal product range with its wide range of variants and comprehensive accessory portfolio is virtually unique. The large number of solutions – from stand-alone units to complete data centres – offers comprehensive flexibility and permits free scalability.

All components are derived from industry, for industry. Every detail has been carefully thought out. The systems are quick and clean to install, and easy to use. Another decisive advantage is the protection of your investment, thanks to longevity. The high-quality Rittal network enclosures and server racks reflect the very latest state of the art. Numerous innovative solutions during the implementation phase and in data centre operation contribute to the high performance and cost-effectiveness.

The Top enclosure system TS 8
- The reliable and flexible basis for a modular IT infrastructure and turnkey data centres
- High load capacity of up to 1,500 kg for heavy installations
- Protection category of up to IP 55 for climate control applications
- Bayable in all levels for optimum accessibility at the installation site
- Ingenious 2-level principle for maximum flexibility with interior installation
- Available in a variety of sizes and designs
- Longevity thanks to high-quality corrosion protection with nanoceramic coating
- Comprehensive system accessories for individual installation – available off the shelf
Network enclosures – As flexible as your applications

Rittal network enclosures may be used in virtually limitless applications – as under-desk enclosures, corridor distributors and as network enclosures in high-MTBF data centres. They flexibly adapt to the technical and spatial conditions and situations of your IT systems. With dimensions ranging from 600 x 800 x 600 mm (WHD) to 800 x 2,200 x 1,000 mm, a wide range of applications may be implemented.

Our network enclosures easily support the integration of active IT systems and passive network technology in a combined configuration. Structured cabling permits extremely high port densities in copper and fibre-optic technology and, in conjunction with our modular system, flexible management (adds, moves and changes). Both passive and energy-efficient active systems are available for climate control. Available with one or two 482.6 mm (19”) mounting levels in partial or full installation.

The Rittal network enclosures
- Network enclosures for stand-alone installation and data centres
- Complete system solutions for small to large networks
- Maximum configuration diversity and protection for installed equipment
- Investment protection and flexibility thanks to simple conversions and use of the comprehensive modular system
Server racks – Freely scalable server solutions

Protection, efficiency and maximum availability are the main requirements placed on modern data centres. Rittal server racks make a decisive contribution towards meeting these requirements. They may either be sited alone with lockable side panels, or bayed in a high-performance data centre.

The high load capacity of our rack systems of up to 1,500 kg allows a high server density and the problem-free use of heavy blade servers. The perforated doors with 78% free ventilation space (passive cooling) and our energy-efficient climate control concepts (active cooling) ensure optimum cooling with maximum operational reliability. The system is available with one or more perforated doors or with solid viewing doors, for example in the case of side rack cooling.

Rittal server racks have symmetrical frames for stand-alone siting (with lockable side panels) or baying on all sides in the data centre – also in conjunction with Rittal IT infrastructure systems for power backup and cooling. The 4-point lock and electronic handle systems ensure reliable access protection. The racks are equipped with divided rear doors for use in narrow aisles in the data centre.

For many years, Rittal has been a close partner and OEM supplier to the world’s leading server manufacturers. The technical benefits of the Rittal server racks and the global arrangement of production, sales and service represent an attractive prospect for discerning key accounts in the IT sector.

The Rittal server racks

- Broad application spectrum from 600 x 1,200 x 1,000 mm (W x H x D) to 800 x 2,200 x 1,200 mm (W x H x D)
- Integrated system, from small server racks to bayed rack suites in the data centre
- First-class finish for maximum protection
- High-quality lock systems for optimum access protection
- Comprehensive, system-compatible complete range for cooling, power distribution/power back-up and monitoring
- Available in pale grey (RAL 7035) and black (RAL 9005)
482.6 mm (19˝) wall-mounted enclosures –
Perfect systems on the wall

Should you require network distributors on the wall, we have four special Rittal systems for you: Wall-mounted enclosures EL for industrial environments, VerticalBox, FlatBox and QuickBox for office environments. All enclosures are available in a wide choice of sizes, off the shelf, and thanks to the universal accessories, may be configured into individual network solutions.

Wall-mounted enclosures EL
Thanks to the robust, stable base structure and enclosure protection category up to IP 55, the Rittal wall-mounted enclosure EL is particularly suitable for use in industrial environments. The 3-part enclosure principle with wall section and swivelling centre section and front door offers optimum accessibility. Available with 482.6 mm (19˝) mounting angles, mounting plate or preassembled.

VerticalBox
The Rittal VerticalBox is a compact solution for small network tasks that may be used as a wall-mounted, under-desk or desktop enclosure. The door and the rear and side panels are easily and quickly removed. The VerticalBox has passive ventilation in the roof and base area. Size: vertical 482.6 mm (19˝) level with 5 U. Optionally with vertically hinged mounting plate.

FlatBox
Because it is flatpacked, the Rittal FlatBox minimises warehousing and transport costs. The wall-mounted or free-standing enclosure (optionally with base/plinth) is easily assembled using toolless one-man fast assembly. The door hinge may be swapped to the opposite side.

QuickBox
With its removable hood, the QuickBox ensures perfect handling during installation and maintenance. An extensive range of accessories is available for the assembly of small networks.
Accessory range – Rittal accessories for maximum modularity

Rittal has one of the most comprehensive ranges of accessories for network enclosures, server racks and wall-mounted enclosures. This means that numerous very specific solutions are supported, giving extensive free scalability to the overall Rittal concept.

The Rittal range of accessories includes numerous cable glands for the roof and base area, neatly constructed cable management systems on the 482.6 mm (19”) level, active and passive solutions for targeted air routing, and a broad selection of components for cable routing and equipment installation inside the enclosure.

As well as active Rittal systems such as modular socket strips (PSM), electronic monitoring systems (CMC-TC), monitor/keyboard units and KVM switches (SSC) we also offer general accessories such as component shelves, 482.6 mm (19”) installation systems, base/plinths, swing frames, power distribution strips and much more besides.

Enclosures + cases + accessories = modular, integrated complete solutions for maximum security, availability and efficiency of IT systems and networks.

The Rittal system accessories
- Extensive range of system accessories for all network and server applications.
- Compatible modular system for maximum flexibility and investment protection
- Practical range of accessories for cable management, baying, interior installation, lock system and 482.6 mm (19”) installation
- With products for power distribution, climate control and monitoring to create comprehensive solutions
Rittal energy management – Systematic, holistic concepts

With our expertise, knowledge and innovative products, Rittal offers two key benefits for the energy supply to your data centre: Efficiency and supply reliability. In order to ensure that your IT has an optimum energy supply at all times, we implement state-of-the-art, powerful energy management solutions individually on your behalf.

We face up to the continuously changing requirements: Rising performance demands on hardware, and the need for the installations to be future-safe through expandability. We meet these requirements with an intelligent, modular overall concept for power distribution and backup using UPS systems and mains backup systems. We also consistently make allowance for the aspects of system redundancy and energy efficiency.

Rittal power supply for data centres

- Consistently modular and flexibly extendible at any time
- Optimum energy and cost efficiency with maximum availability
- Systems in a compact design, with a high performance density that may be operated by your own trained staff
- Reduced installation costs, administration input and manpower
- All from a single source!

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Intelligent power distribution strip |
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Rittal energy management – Systematic, holistic concepts

You benefit from our ideas and innovations. Our complete system offers comprehensive, complete solutions for power distribution and backup. All components are coordinated for maximum benefits. The Rittal PSM power distribution system, for example, can be adjusted with the system operational. New servers may be installed with little effort (amendments to the infrastructure, coordination of servicing windows or supply of specialist personnel).

From the outset, we ensure supply reliability, for example with the low-voltage main distributor or the integration of load transfer switches (with up to several hundred KW of output) for connecting mains backup systems such as diesel generators. Or with our UPS systems based on double conversion technology, with outstanding efficiencies of 95%. With our systems, you save valuable energy, time and therefore costs.
IT INFRASTRUCTURE SOFTWARE & SERVICES

Rittal IT infrastructures
Ri4Power system solutions – A new dimension in intelligent power distribution

Rittal offers the entire product spectrum of innovative power distributors up to 5,500 A, from the industrial infeed via IT power distributors, through to the socket in the server rack.

The structured Rittal system solution Ri4Power achieves fast, secure and cost-optimised assembly of low-voltage switchgear and IT power distributors in your data centre. The system is based on the broad Rittal product portfolio which provides all the components necessary for highly efficient, intelligent power distribution.

By developing the Ri4Power concept, we have broken new ground to achieve even greater flexibility with extensive modularity.

Within the control and distribution technology for data centres, the innovative Rittal busbar system up to 1,600 A is at the heart of Rittal’s low-voltage solutions.

With numerous measurement points, Ri4Power records all key data centre performance parameters and makes them available to the network via an integral web server. In this way, the effectiveness of the data centre or PUE (Power Usage Effectiveness) and the efficiency of individual systems or EER (Energy Efficiency Ratio) such as refrigeration may be intelligently and selectively optimised. Configuration of the system and measurement points is automatic thanks to the “autodetect” feature of the controller. Via SNMP communication, RiZone may be functionally extended to include intelligent power distribution. It is optionally possible to connect a network-compatible display on site.

Rittal has integrated innovative high-current measurement systems into the low-voltage main distributor for intelligent monitoring of data centres to optimise energy demand (energy balance PUE).
Power Distribution Rack (PDR) – Intelligent power for your data centre

PDR modular
Based on the Rittal TS 8 enclosure platform, the PDR modular IT power distributor supplies up to four IT racks with 3 x 16 A (11 kW) for each Power Distribution Module (PDM) that is inserted. Additional PDMs are easily inserted by trained staff with the system operational.

Standardised connection cables permit fast incorporation of new racks into the power supply, without any expert knowledge and no need for any operational interruptions. Customised PDMs, which may be fitted for example with integrated output and differential current measurement or a single-/3-phase 32 A output circuit, provide flexibility. The compact design with an enclosure depth of just 500 mm allows easy integration of the system into the data centre.

PDR Flex
The Rittal IT current distributor PDR Flex is specifically designed for use in data centres with a high power density. The system is available as a free-standing or wall-mounted distributor, and in both versions is prepared to accommodate installed equipment. All devices in the ABB smissline range (conduction current and residual-current circuit breaker, surge voltage protector etc.) may be used. The ABB smissline locations are wired to the outlet terminals with individual 6 mm² wires to facilitate the use of 32 A circuit-breakers.

The straightforward handling means that long interruptions to operation during removal and conversion are now a thing of the past. A 200 mm wide cable chamber behind a vertically hinged trim panel, for example, facilitates easy cable entry from above or below. The system solution PDR Flex is consistently designed for future extendibility. Upon request, it is also possible to integrate an output measurement or network analysis system.
Power System Module (PSM) – Power distribution directly in the IT rack

Modern, powerful servers such as blade server systems have an increasingly high energy demand. This necessitates corresponding power distribution components directly in the IT rack. To this end, Rittal has developed the intelligent Power System Module (PSM) which intelligently meets current demands for power management and performance data logging at server level. Requirements such as operational reliability, redundancy and extendibility with the system operational have been consistently implemented.

As a bar system for IT racks, our PSM has complete contact hazard protection. The outputs are designed as plug-in modules available for the various pin patterns and application scenarios. The bar system with three-phase circuits has a redundant design.

This means that outputs of up to 22 kW (2 x 3 x 16 A) can be distributed across up to seven module slots via the PSM bar. There are also variants with 3 x 32 A or 1 x 32 A infeed. Special versions (PSM+) have four three-phase infeeds which doubles the output. Upon request, several PSM bars may be integrated into one IT rack, facilitating the physical separation of A and B supplies in the rack.

Other application options – such as the deactivation of individual racks or components in the event of alarm messages – may be utilised via the active Rittal PSMs with switching function and current measurement at server level.
Rittal develops individual UPS concepts on your behalf for the reliable backup of corporate processes where availability is crucial. We will precisely analyse your IT systems to determine which systems are best capable of supporting the critical load in a worst-case scenario. Our aim is to ensure maximum availability of the connected infrastructure, maximum energy efficiency, and exceptional protection for your investment.

The particular benefit of Rittal UPS technologies lies in the high operating ratio of the systems. This is synonymous with efficiency, which in turn is reflected in the operating costs. After all, with a service life of around 15 years, the energy costs are far more important than the initial investment.

With an efficiency of around 95%, Rittal keeps power loss extremely low, which in itself saves a large amount of energy. Additionally, the low heat loss also means less heat loss inside the enclosure, which in turn saves on energy costs associated with additional climate control. In this way, Rittal UPS systems save twice over with their high efficiency.

### Rittal PMC UPS systems for data centres
- Flexibly extendible, rack-mounted modular UPS
- Choice of redundancy concepts
- High energy and cost efficiency, thanks to a high level of efficiency and maximum supply reliability with double conversion technology
- Transformerless design, compact systems, high performance density
- Maximum availability of the entire system
- No system disturbance in case of unbalanced load (PMC 40/200/800)
- Various UPS climate control concepts plus network-based UPS and battery monitoring
- Comprehensive service and maintenance concepts

### Efficiency
Particularly in the lower load range, a high efficiency really comes into its own, and also ensures significantly lower heat loss dissipation.

### Capacitive load
The capacitive load is increasing in the IT environment. The UPS must be designed accordingly. The PMC 200 can emit constant and full power from 0.9 kW capacitive to 0.8 kW inductive.

<table>
<thead>
<tr>
<th>Category</th>
<th>UPS classification to EN 620 40-3</th>
<th>Rittal UPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>VFI</strong>: UPS output independent of mains, voltage and frequency variations within the limits to IEC 61 000-2-2 (voltage and frequency independent)</td>
<td>PMC 800, PMC 200, PMC 40, PMC 12</td>
</tr>
<tr>
<td>2</td>
<td><strong>VI</strong>: UPS output frequency dependent on mains frequency, voltage stabilised (electronic/passive) within the limits for normal operation (voltage independent)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><strong>VFD</strong>: UPS output dependent on mains voltage and frequency variations (voltage and frequency dependent)</td>
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</table>
UPS batteries – Useful information

UPS battery concepts
In order to ensure efficient, maximum availability, we rely on optimised battery concepts. We precisely tailor the required output to the essential bridging times (autonomy/backup time).

Our systems use standardised valve-regulated lead acid (VRLA) batteries, which means that spares can be purchased inexpensively worldwide.

The batteries are compliant with the EUROBAT 5 standard, and upon request with the EUROBAT 10 standard (service life up to 10 years).

Single-phase UPS systems (such as the Rittal PMC 12) generally have integral battery packs that guarantee a bridging time of at least 5 minutes at full load. Optional standardised battery packs may additionally be connected.

Service life of UPS batteries
In order to achieve a normal service life, batteries need the right ambient conditions. With VRLA batteries, the service life will be significantly reduced with high operating temperatures over long periods. This is due to technological factors, and can only be prevented with sensible climate control. In permanent operation, the operating temperature of the battery packs should not exceed 25 °C.

Other damage may arise as a result of overloading and short-circuits. Despite the gas-sealed design, dangerous gases may still escape. For this reason, when handling UPS batteries, it is essential to observe the provisions of EN 50272-2.

In order to protect the environment, we will take back batteries sold by us free of charge at the end of their useful life. Rittal guarantees that they will be professionally disposed of in an environmentally friendly manner.

Important information for climate control of a UPS
- Dissipation of heat loss
- Constant low temperature of the battery packs
- Battery gas release
- Application of various climate control scenarios depending on the installation site
- In a climate controlled environment (temperatures predominantly up to 25 °C), vented front and rear doors are sufficient for outputs of up to 120 kW
- Use of wall-mounted cooling unit or air/water heat exchanger (such as LCP Smart) with central gas release

![Service life vs. ambient temperature graph]

<table>
<thead>
<tr>
<th>Temperature [°C]</th>
<th>Service life [years]</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>25</td>
<td>5</td>
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<tr>
<td>30</td>
<td>4</td>
</tr>
<tr>
<td>35</td>
<td>3</td>
</tr>
<tr>
<td>40</td>
<td>2</td>
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</table>

In a climate controlled environment (temperatures predominantly up to 25 °C), vented front and rear doors are sufficient for outputs of up to 120 kW. Use of wall-mounted cooling unit or air/water heat exchanger (such as LCP Smart) with central gas release.
UPS monitoring –
Reliable protection of your UPS systems

There are various options for monitoring Rittal UPS systems. The available floating contacts may be used with the PMC. There is optionally a relay card for the PMC 12 which may be inserted into the extension slot and which transmits fault messages for forwarding to the building control system.

Detailed information on the operating status of the UPS system, including the charging status of the battery, is sent to a website via a network monitoring card (SNMP card). In the event of an alarm, it is also possible to send a warning e-mail. Via this network card, servers may also be shut down individually or in groups according to predefined rules before the battery capacity is exhausted.

In order for the server to be able to respond to commands from the UPS, a small software tool is required for each server which receives the commands from the UPS and forwards them to the respective operating system. To this end, Rittal uses special shut-down software (RCCMD client software) which may be used for all UPS systems sold by Rittal.

Rittal UPS monitoring
- Monitoring via the use of the floating contacts provided (PMC 40/PMC 200/PMC 800) or an optional relay card (PMC 12)
- Or via a network monitoring card (SNMP card)
- Additional automatic shutdown of servers if necessary via special RCCMD client software.
UPS product portfolio –
Always the exact UPS solution to fit your needs

PMC 12/PMC 12 compact
Single-phase UPS for mounting in the 482.6 mm (19”) level, output 1 kVA to 18 kVA, with 90° swivellable LCD display.
- Serial/USB interface and emergency power-off contact.
- Optional SNMP monitoring card.
- Batteries “hot swap” compatible, may be exchanged from the front.
- Integral batteries for 1 – 3 kVA, external batteries for 4.5 kVA and 6 kVA.
- Parallel connection of 4.5 kVA and 6 kVA UPS modules up to 12 kVA n+1 redundant.

PMC 40
Rack-independent UPS system (three-phase, up to 40 kW), for installation in any 482.6 mm (19”) racks from an enclosure depth of 800 mm.
- Redundant system (decentralised parallel architecture, DPA) for maximum possible availability.
- “Safe swap” capability with redundancy: Safe module exchange with the system operational, no need to switch to bypass mode.
- Mixed configuration (e.g. with servers) in the same rack is also supported.
- Various IP protection classes supported by the rack used.

PMC 200
Modular rack-mounted UPS system, three-phase, up to 200 kW per rack. Scalable thanks to parallel switching of several UPS systems (max. 20 modules) up to a total output of 800 kW (760 kW n+1 redundant). Scalability up to 20 modules. This facilitates a maximum output of up to 800 kW or 760 kW n+1.
- Decentralised parallel architecture (redundant protection without “single point of failure”) offers optimum availability of critical applications.
- The modular concept keeps the purchasing and operating costs of redundant solutions (n+1) particularly low.
- Modular expansion of output and autonomy with the system operational!
- Super-fast service with extremely short MTTR (Mean Time To Repair).
- Rack plus UPS modules plus battery packs produce a customised UPS.
- Absolute output density up to 200 kW (160 kW redundant) in one rack translates into extremely minimal space requirements.
PMC 800

Modular UPS system, three-phase, up to 240 kW per rack. Scalable thanks to parallel switching of several UPS systems (max. 20 modules) up to a total output of 800 kW (760 kW n+1 redundant).

- Scalability of up to 12 modules, which allows a maximum output of up to 960 kW or 880 kW n+1, higher outputs available on request.
- The transformerless double conversion architecture ensures a high level of efficiency.
- The decentralised parallel architecture (DPA) ensures that no single point of failure influences availability of the UPS.
- The modular architecture allows energy-efficient configuration, precisely tailored to requirements.
- The Safe Swap technology means that the UPS can be replaced (in inverter mode) or extended with the system operational. With a redundant configuration of the UPS, the load continues to be supplied with current while a module is being replaced.
- Every UPS module has a separate static bypass and a display, together with the control electronics and a processor.

3-phase, output range scalable 8 – 800 kW

Minimum floor space is required by a rack with three modules (2+1 redundancy) and batteries with autonomy integrated into a single rack.

The Rittal PMC 200 allows the integration of up to 5 modules (4+1 redundancy) in one rack. For this configuration, an additional battery rack is required. The autonomy may be flexibly adapted to suit your requirements.

A safe investment – almost unlimited scalability
Up to 20 PMC modules may be gradually switched in parallel e.g. in order to supply 800 kW without redundancy or 760 kW n+1 (with 40 kW modules) uninterrupted. May be upgraded with the system operational; no need to switch over to an unprotected network.
High-end solutions for the lowest energy costs

Climate control of your data centre plays a particularly important role in terms of availability and energy costs. With the special Rittal liquid cooling concepts, we develop and implement high-efficiency climate control solutions on your behalf. This offers added security and greater energy and cost efficiency, yet the computer and server performance remains the same.

The big Rittal benefit to you: You receive state-of-the-art, high-efficiency climate control technology plus planning, assembly, commissioning and servicing, all from a one-stop supplier. All components and operations are optimally coordinated with each other. The solutions we develop are precisely tailored to the requirements of your data centre, down to the last detail.

With rack, suite and room-based cooling solutions, free cooling, IT chillers and pipework, this saves you investment costs as well as energy, operating and service costs. You also help to protect the environment with resource and CO₂ savings.

Rittal IT cooling
- From cooling a single enclosure to a complete data centre
- Simple emulation of even complex structures, thanks to products for rack, suite and room climate control
- Optimisation of existing infrastructures with aisle containment and cross-system control concepts
- Cooling with energy-efficient IT chillers
- Optional free cooling to minimise operating costs
- Alternative cooling
High-end solutions for the lowest energy costs

On average, 50% of the energy costs in data centres are attributable to the infrastructure. For this reason, Rittal focuses particular attention on energy-efficient cooling components and cross-system control concepts.
Rack cooling –
The best climate for your server racks

Data centres support corporate process with ever-growing output. The packing density in computer systems is increasing, and processor capacity is growing. This leads to a continuous growth in heat development.

You can keep temperatures at a constant level with the highly efficient Rittal Liquid Cooling Packages (LCP). With optimised operating costs, our LCPs precisely and effortlessly dissipate heat losses of up to 30 kW per enclosure.

LCP Smart/LCP Plus
- Cooling output of 20 kW with LCP Smart and 30 kW with LCP Plus
- Energy saving with high water inlet temperatures (more free cooling)
- Minimisation of operating costs with efficient EC fan technology
- Spatial separation of cooling and server rack
- Integral condensate and leakage management
- Highly developed control concept including online connection
- Optional cooling of one or two server racks
- Simple emulation of redundancies
- Assembly- and service-friendly
- Integration into RiZone (data centre management software)

LCP T3+
- Redundant heat exchanger concept with two active water circuits (A/B medium supply)
- Redundant power infeed (A/B power supply) with automatic changeover in case of an emergency
- Fully redundant cooling output of 24 kW
- Redundant fan configuration
- Integrated controller with its own web server for network and BMS interfaces
- Auto-load balancing function
- Auto-recovery function
- Energy saving with high water inlet temperatures (more free cooling)
- Minimisation of operating costs with efficient EC fan technology
- Integration into RiZone

You can keep temperatures at a constant level with the highly efficient Rittal Liquid Cooling Packages (LCP). With optimised operating costs, our LCPs precisely and effortlessly dissipate heat losses of up to 30 kW per enclosure.
Bayed suite cooling – For when climate control of the room is insufficient

Rittal bayed suite cooling with LCP Inline is extremely powerful and the ideal climate control solution for extremely high cooling demands, particularly when the cooling of server racks cannot be achieved via the room climate control.

Alternatively, bayed suite cooling can be used to support the existing climate control system in the room or for transforming existing structures into server rooms. A raised floor is not necessary for the operation of suite cooling.

**LCP Inline**

The LCP Inline is designed for sitting within a bayed enclosure suite. The hot air is drawn in from the room or hot aisle at the rear of the device and expelled at the front into the room or cold aisle after cooling.

**Suite cooling**

- Cooling output 30 kW
- Cooling of several server racks
- Energy saving with high water inlet temperatures (more free cooling)
- Minimisation of operating costs with efficient EC fan technology
- Spatial separation of cooling and server rack
- Integral condensate and leakage management
- Highly developed control concept including online connection
- Assembly- and service-friendly
- Optional front cover to reduce the air outlet speed and for superior air distribution
- Increased performance and efficiency in conjunction with Rittal aisle containment
- Integration into RiZone
Room cooling – Cool IT rooms professionally and efficiently

Room cooling with the Rittal CRAC system is an innovative technology for professional IT climate control. The main emphasis is on constant temperatures and precisely set humidity levels.

CRAC systems dissipate waste heat from the IT equipment on demand, ensuring that the overall system operates in the most energy-saving and cost-efficient way possible.

Device options
- 3-way valve
- Double infeed, electricity side
- Vapour humidifier
- Electric reheater
- Interfaces to SNMP, BACnet, Modbus etc.
- Sound absorber
- Intake and delivery plenum
- Louvred flap
- Hygrostat
- Smoke, fire and water alarms
- Raised floor pressure sensor
- Condensate pump

Rittal CRAC systems
- Hot air is drawn in from above, and cold air is expelled downwards into the raised floor
- Four output categories with a cooling output of 23 – 118 kW – medium: cold water (CW)
- Four output categories with a cooling output of 18 – 54 kW – medium: refrigerant (DX)
- The CRAC DX cools using external air via an external capacitor
- Optimum energy and space efficiency thanks to intelligent design features, such as the slanted heat exchanger and base-integrated fan.
- The basic variant of the units includes the unit console and the fan supporting structure for integration into the raised floor, as well as the autarchic control with graphic display, 2-way valve and integral filters
- Integration into RiZone
Aisle containment – Cold air precisely where it is needed

In server rooms that have not been designed as data centres, the permanent mixing of cooled and heated air often leads to cooling deficits. Hot spots make the IT equipment’s work more difficult.

In order to efficiently ensure the necessary cooling here, Rittal has developed three cooling variants for aisle containment. Two solutions use containment of the cold aisle. The LCP Inline guides the cooled air directly to the cold aisle at the front, and the CRAC system to the raised floor, so that the cooled air is fed to the cold aisle via perforated raised floor plates. The third solution operates according to the principle of enclosing the hot aisle. The LCP Inline extracts the hot air directly at the point where it is created. The cooling performance of the cooling units is utilised to optimum effect, and the overall efficiency of the system increases significantly.

Rittal aisle containment
- Intake air (cold) and waste air (hot) are unable to mix.
- It is possible to operate at a higher temperature level throughout the entire system.
- The CRAC units operate at maximum efficiency, thanks to the greater temperature difference between the cold and hot air.
- Modular, scalable and upgradable.
- Simple arrangement.
- An inexpensive solution for the optimum cooling of existing data centres.

Rittal aisle containment (cold aisle)

With raised floor
- Use of inexpensive standard CRAC cooling units sited outside of the server area
- Even with low room heights, the raised floor height is maximised for cooling air supply without flow losses
- Undisturbed and uniform air flow distribution of cooling air in the cold aisle guarantees high efficiency
- Favourable working conditions in the cold aisle due to low temperature, flow and noise load conditions
- Hardware racks not connected to the enclosure do not impair the cooling efficiency of the cold aisle
Rittal aisle containment (cold aisle)

**Without raised floor**
- Direct connection of the liquid cooling packages to an external cold water supply
- Simple laying of pipework in the rack base/plinth
- Homogeneous distribution of cooling air in the cold aisle guarantees a high level of efficiency
- Favourable working conditions in the cold aisle due to low temperature, flow and noise load conditions
- Hardware racks not connected to the containment system do not impair cooling efficiency via the cold aisle
- Room heights play only a minimal role

Rittal aisle containment (hot aisle)

**Without raised floor**
- Simple assembly using the existing components of Rittal aisle containment
- Direct connection of the Liquid Cooling Packages (LCP Inline) to an external cold water supply
- Simple laying of pipework in the rack base/plinth
- Suitable for use with high heat losses
- Room-neutral dissipation of the heat loss
IT chillers –
Exceptionally efficient IT cooling

The Rittal IT chiller in conjunction with free cooling supplies media for exceptionally energy- and cost-efficient IT cooling. The system is specially designed for supplying critical IT applications cooled via LCP, air/water heat exchangers or CRAC systems.

In this atmospherically sealed system, security options such as redundant, speed-regulated pumps, compressors, emergency cooling or buffer stores ensure optimum operational reliability and fail-safeness.

Alongside optional heat recovery from the system, the connection to the Rittal free cooling recooling systems ensures exceptionally energy-efficient operation. Free cooling uses cold ambient air for cooling, reduces operating costs by up to 80%, extends the service life of components, and increases operational reliability. If the free cooling performance is insufficient, the IT chiller will cut in.

**IT chiller**
- Redundant pumps, speed-regulated
- Redundant scroll compactor
- Intelligent control concept
- Interfaces: SNMP, BACnet
- Integral or separate free coolers (optional)
- Integral automatic bypass valve
- Flow monitor
- Minimisation of operating costs thanks to high water inlet temperatures for LCP and CRAC operation
- High COP (coefficient of performance)
- Integration into RiZone
Alternative cooling – New forms of IT cooling

Rittal is consistently seeking new technological approaches to make data centre operation even more efficient and eco-friendly. We are intensively involved in the new forms of IT cooling, and we monitor trends, and evaluate new technologies. Anything which is eco-friendly and helps to cut energy costs is incorporated into our product development.

Direct free cooling (DFC)
Rittal climate control systems with DFC cool directly with cold external air at low external temperatures. An air valve system regulates the various airflows and adds waste air from the data centre to achieve the required inlet temperature.

Kyoto cooling (KC)
KC refers to the indirect cooling of a data centre with external air. At its heart is a rotary heat exchanger which connects the external and internal air zones energetically but physically separates the airflows.

Goethermal energy
With geothermal energy, the cooling medium heated in the data centre is conducted into the earth via probes and cooled so that it can be reused directly for cooling purposes.

Adsoprtion cooling
With this technology, the waste heat e.g. from solar thermal energy plants or combined heat and power (CHP) units is used to generate cooling.

Efficient control concepts
ΔT control, ΔP control
The Rittal control concept ensures the cost-effective operation of the EC fans used in the cooling units. By variably adapting the volume of air required depending on the servers, the fans operate at maximum effectiveness and efficiency.
IT security solutions –
Targeted physical protection for your IT

IT security rooms and safes
With Rittal IT security rooms and security safes, we offer a broad spectrum of products for the physical protection of your IT, ranging from basic protection through to high-MTBF protection. The system-tested solutions protect against fire, water, dust, fumes and external access. With the modular room-within-a-room solution, you invest and expand according to your individual requirements, while the option to dismantle and reassemble the system ensures flexibility and protects your investment. The Rittal complete security solution also includes climate control, power distribution, an uninterruptible power supply, monitoring, fire detection and extinguishing.

The benefits to you:
- Protection ranging from basic protection to high-MTBF
- Simple, flexible integration into existing building structures
- Expandability and lasting cost-effectiveness
- Optimum space utilisation, thanks to the flexible modular system
- Flexibility, by enclosing existing IT and infrastructure solutions
- System-tested protection from potential physical threats
- Room-within-a-room concept with the associated depreciation benefits
- Compatibility with RimatriX5 solutions
- High level of pre-manufacturing – fast assembly times
- May be constructed and extended with the IT systems operational
- Plus: The Data Centre Container as a temporary main or backup data centre for outdoor areas

Fire alarm and extinguisher systems
As well as protecting against potential threats from the environment, the various fire alarm and extinguisher systems focus on identifying and extinguishing a fire inside the data centre. Early fire detection combined with an active extinguisher system prevents the destruction of your IT systems and associated data losses, and therefore safeguards your corporate processes.
The Rittal security rooms LER Basic, LER Extend and LSR 18.6 E allow you to choose between basic protection, extended protection or high-MBTF protection for your data centre. Thanks to the modular layout of the rooms and the wide range of options available, we will provide you with precisely the protection services your IT needs. The table below provides an insight into the Rittal security room concept.

<table>
<thead>
<tr>
<th>Criterion</th>
<th>Standards</th>
<th>Conventional design(^1)</th>
<th>LSR 18.6 E</th>
<th>LER Extend</th>
<th>LER Basic</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>System testing</strong></td>
<td>[X] Testing of the following standards as complete system or structure(^2)</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Fire protection</td>
<td>ECB·S certifications to EN 1047-2, 50 K temperature increase and 85% rel. humidity up to 24 hours (reheating period), 60 minutes flame impingement time</td>
<td>X</td>
<td>✔</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>50 K temperature rise and 85% rel. humidity over 30 minutes, without reheating period</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>F120 as system test to EN 1363 (DIN 4102), for the cellular structure and its built-in modules</td>
<td>X</td>
<td>✔</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>F90 as system test to EN 1363 (DIN 4102), for the cellular structure and its built-in modules</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>F180 only as component testing to EN 1363 (DIN 4102), wall system only</td>
<td>X</td>
<td>✔</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>F120 only as component testing to EN 1363 (DIN 4102), wall system only</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>F90 only as component testing to EN 1363 (DIN 4102), wall system only</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Explosion</td>
<td>Detonation test as system testing of 200 kg TNT from 40 m</td>
<td>X</td>
<td>✔</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Water</td>
<td>Standing water, 72 hours, 40 cm, maximum 20 drops</td>
<td>X</td>
<td>✔</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Extinguisher water, IP x6 as system testing to EN 60529, for the cellular structure and its built-in modules</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>Relative humidity, 85%, over 24 hours (reheat period), 60 minutes flame impingement time, to EN 1047-2</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>Relative humidity, 85%, over 30 minutes</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Dust-tightness</td>
<td>IP x5 as system test to EN 60529, for the cellular structure and its built-in modules</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Corrosive fire gases</td>
<td>Acid gas-tightness, based on EN 1634-3 (DIN 18096)</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>Unauthorised access</td>
<td>WK 3 as system test to EN 1627/1630, for the cellular structure and its built-in modules, such as doors</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>WK 2 as system test to EN 1627/1630, for the cellular structure and its built-in modules, such as doors</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>WK 4 only as component testing to EN 1627/DIN 1630, door system only</td>
<td>X</td>
<td>✔</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td>Falling debris</td>
<td>Shock test as system test, 3 shocks of 200 kg from 1.5 m after 45 minutes flame impingement time</td>
<td>X</td>
<td>✔</td>
<td>X</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Shock test as system test, 1 shock of 200 kg from 1.5 m after 30 minutes flame impingement time</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>EMC protection</td>
<td>Protection against high-frequency irradiation and radiation, verified by tests on comparable components by TU Aachen</td>
<td>X</td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td>EMC optional package</td>
<td>Extended high-frequency shielding in accordance with BSI TL-03304</td>
<td>X</td>
<td>✔</td>
<td>X</td>
<td>X</td>
</tr>
</tbody>
</table>

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\(^1\) System-tested products are tested as a complete construction. This comprises the cellular structure and installation modules such as doors, cable shields or ventilation units. By contrast, component testing only refers to individual parts.

\(^2\) The conventional design refers to room structures of plasterboard, concrete and other standard construction materials which do not offer sufficient protection for data centre applications. Conventional designs are generally tested for use as fire walls.

\(^3\) Tested to EN 60529, category 1 (underpressure).
IT infrastructure software & services

IT security rooms – From basic protection to high-MTBF

Scalable room solutions from Rittal
Rittal offers cost-effectively expandable designs and structures, with ecologically and economically optimised data centres offering a host of other benefits:
- Turnkey handover of the data centre
- Scalability – Selection of the most cost-effective solution
- Investment protection thanks to modularity and expandability
- Option of installation with the system operational
- Fast availability

High-MTBF protection
As a high-MTBF solution, the Rittal security room LSR 18.6 E offers maximum physical protection for data centres and IT system locations. The system was certified by ESSA (European Security Systems Association) to ECB-S regulations. This certification confirms that the LSR 18.6 E meets the requirements of EN 1047-2 without restriction. Moreover, construction of the security room is subject to constant, independent quality monitoring.

LSR 18.6 E
- High-MTBF protection for data centres
- High level of pre-production of elements, which reduces dust and noise during assembly
- Fire protection to quality class R60D to EN 1047-2 (fire resistance testing, shock testing, floor testing)
- Protection against external access – Resistance category WK 3, optionally WK 4 based on EN 1627
- Protection against standing water, 72 h, 40 cm, maximum 20 drops
- Explosion testing to SEAP standard
- Extended protection against falling debris
- Dust- and water-tight to IP 56, category 1 (underpressure) to EN 60529
- Optionally extendible EMC protection to BSI TL-03304

Benefits of ECB-S certification
- Optimum quality protection thanks to independent quality monitoring
- Improvement in the rating situation for loan applications and residual risk insurance
- Transparency for banks and insurance companies
- Compliance with European standards on IT protection

Standard protection from:
- Fire
- Extinguishing water
- Corrosive gases
- Vandalism
- Unauthorised access
- Electromagn. interference
- Dust
- Explosion
- Falling debris
- Theft/ burglary
- Mechanical access
- Shot-proofing
IT security rooms –
From basic protection to high-MTBF

Basic protection and extended basic protection
The security rooms LER Basic and LER Extend offer high-quality, system-tested solutions for the basic protection range. As basic and extended solutions, LER Basic and LER Extend are optimum technical rooms for the protection of infrastructure components such as extinguisher systems, uninterrupted power supply etc.

LER Basic
- Basic protection for data centres or infrastructure solutions
- Fire resistance over 90 minutes – F90 according to the limits of EN 1363
- Dust- and water-tight to IP 56 to EN 60529
- Protection against external access – Resistance category WK 2, optionally WK 3 based on EN 1627
- EMC protection
- Acrid gas-tightness based on EN 1634-3
- Shock test with 3,000 Nm energy

LER Extend
- Extended basic protection for data centres based on the LER Basic
- Fire resistance testing over 90 minutes – F90, according to the limits of EN 1363 plus compliance with the limits of ECB-S requirements pursuant to EN 1047-2 over 30 minutes

Fully system-tested
All Rittal security systems are system-tested. System-tested products are tested as a complete structure, taking into account the interactions between all components. During testing, allowance is made for built-in modules such as doors, cable shielding systems and ventilation units. Benefit from multifunctional risk coverage (fire, water, burglary etc.) and compliance with the latest EN and DIN standards.
IT security safes – Flexible, modular, requirement-based solutions

The Rittal product range offers the ideal solution for every level of business security. Like security rooms, security safes also provide optimum protection against potential physical threats to your IT applications. Particularly for small and medium-sized enterprises, the compact safes represent an optimum protection concept as a physical cover for individual server racks. Features such as modularity and extendibility guarantee investment protection and flexibility. Scalable protection levels allow you to select the solution best suited to your needs.

Rittal IT security safe
As well as a physical cover in the form of an IT security safe, the configuration components listed below complement the Rittal safe and transform it into a fully fitted compact data centre.

- Energy-efficient climate control in different variants
- Modular power distribution
- Fire alarm and extinguisher systems
- Monitoring system
- Server rack as 482.6 mm (19”) supporting structure
Modular Safe Extend – Maximum security in a minimal space

IT security = A combination of technical, logical and physical security. As the optimum solution for small and medium-sized enterprises, the Rittal Modular Safe Extend represents one of these pillars by protecting against potential physical threats. The system offers a complete range of security for one or more server racks. As well as facilitating installation in poorly accessible sites, the modular design also makes it possible to enclose existing IT structures. Extendibility, dismantling and re-assembly facilitate a targeted, future-safe investment. The security safe is prepared for the installation of a requirement-based climate control system. The optional configuration components complete the modular safe and transform it into a complete compact data centre. As well as the side, top and base elements, the modular safe is also equipped with an operator door and a service door, to ensure optimum accessibility. There are cable entry systems in both side elements. The safe is available in different variants to match your requirements.

The protection categories:
- Fire protection F90 (DIN 4102), compliance with limit values 70°C and relative humidity < 85% for 30 minutes.
- Burglary protection WK 2 (EN 1627)
- Optional burglary protection WK 3 and WK 4 (EN 1627)
- Protection against dust and water jets IP 56 (EN 60529)
- Protection from acrid gases (DIN 18095)

Your Rittal benefits with the Modular Safe Extend
- Extended basic protection for compact data centres
- System-tested protection
- Compatibility with other infrastructure elements
- Systems may be dismantled and reassembled, for maximum investment security
- Targeted investment, thanks to extendibility
- High level of pre-production of elements, which reduces dust and noise during assembly
- Flexibly by enclosing existing IT structures
- High level of operational and service-friendliness thanks to the two-door system
- Numerous options available
- Available in 42 U and 47 U
- Available for 1,000 mm and 1,200 mm deep racks

Standard protection from:
- Fire
- Extinguishing water
- Corrosive gases
- Vandalism
- Unauthorised access
- Dust
- Theft/burglary
Modular Safe Light & Basic Safe Compact – Flexible protection for compact and miniature data centres

Modular Safe Light
The Rittal Modular Safe Light is a basic protection solution for one or more server enclosures or compact data centres. Thanks to its reduced weight, the Modular Safe Light is also particularly suitable for locations with limited floor load-bearing capacity. As an optional single-door system the safe also offers a solution for confined spaces.

Basic Safe Compact
The Rittal Basic Safe Compact offers solid basic protection for miniature data centres. The climate control is integrated into the system. The protection categories: Fire protection F90 (DIN 4102) with compliance with the limits 70°C and rel. humidity < 85% over 10 minutes, protection against dust and water jets IP55 (EN 60529) and burglary protection WK 2 (EN 1627). The system is assembled in the factory and delivered in an operational condition.

Your Rittal benefits with the Modular Safe Light
(Product properties deviate from the Modular Safe Extend)
- System testing for single safe with two-door system
- Weight reduction
- Available in 47 U and 33 U for 1,000 mm deep racks
- Fire protection F30
- Anti-theft protection WK 2

Your Rittal benefits with the Basic Safe Compact
- Basic protection for miniature data centres
- Delivery of the complete system with built-in climate control
- Compatibility with other infrastructure elements
- High level of operational and service-friendliness thanks to the two-door system
Climate control for modular safes – Energy-efficient safe cooling

The Rittal Modular Safes Extend and Light protect hardware components that require an optimum process climate. Depending on the heat loss inside the safe, various output categories in the range from 2.5 kW – 30 kW may be chosen. The individual systems all have separate, hermetically sealed internal and external circuits.

This means that dust and acrid gases are unable to penetrate the modular safe via the climate control system. The internal and external units are connected via coolant (water) and control lines which are routed through the cable entries into the safe and shielded in a fire-proof manner. The cold air is drawn in at the rear of the server safe and expelled horizontally in front of the 482.6 mm (19”) level on the inside. Special air baffle plates ensure targeted air routing to prevent air short-circuits and aid energy-efficient climate control.

The water-based Rittal Liquid Cooling Package (LCP) is available to dissipate high heat losses (see page 32).

Compact split cooling solution
The compact split cooling unit is suitable for use in rooms with climate control in the building or adequate ventilation, and low or no noise level requirements. It is available in the output categories 2.5 kW and 4 kW. The evaporator coil is fastened to the side panel on the inside of the modular safe, and the external device on the service door (Modular Safe Extend) or side panel (Modular Safe Light).
Outdoor split cooling solution

When using the outdoor split cooling unit, the evaporator coil is secured to the side panel on the inside of the modular safe. The external unit is of a weatherproof design and can thus be placed outside the building. Room ventilation or climate control therefore becomes superfluous, because waste heat is transported directly outside. Additionally, the operating noise of the compressor is relocated outside, which means that the modular safe can also be used in offices.

This solution is available in the output categories 2.4 kW and 5 kW, and is also available as a redundant design.

Outdoor split cooling solution with inverter technology

A special cooling unit is used for targeted cooling of the modular safe which ensures energy-efficient cooling with coordinated components. The external unit (condenser) is designed for coolant R410A on the basis of inverter technology. The inverter facilitates demand-based speed control of the compressor.

Control of the coolant volume is achieved via the electronic expansion valve; adaptation to the cooling requirements produces energy savings of up to 40%.

The internal unit (evaporator) facilitates targeted air routing inside the modular safe. This solution is designed for an output range of between 5 and 8 kW.

In order to avoid a single point of failure, we recommend a redundant design. In such cases, two cooling units are used. A changeover box regulates alternating use of the two units and at the same time serves as a redundancy controller in the event of a malfunction.
Fire alarm and extinguisher system DET-AC XL –
Fires are rapidly detected and reliably extinguished

The Rittal fire alarm and extinguisher system DET-AC XL is a standardised solution for extinguishing individual bayed suites of up to 24 enclosures or entire rooms. All components of the system are built into a 300 mm wide TS 8 enclosure, facilitating optimum baying to a suite of server enclosures.

The integral early-warning fire detection system with active smoke extraction detects fire even at the pyrolysis phase and emits a pre-alarm. Extinguishing does not occur until the main alarm is triggered, to avoid accidental activation. NOVEC 1230 is used as the extinguisher gas.

As room application
The DET-AC XL may be used as a room application for rooms up to a volume of 84 m³. In addition to the early-warning fire detector with active smoke extraction system, several smoke alarms are also positioned in the room. Extinguishing is activated via cross-zoning.

For the detection and extinguishing of rack suites
Up to 24 server enclosures can be detected and extinguished with the DET-AC XL. The system may be installed at the end of a suite of racks, but also between two server enclosures. Piping for the smoke extraction system and extinguisher gas is laid in every enclosure.

Your Rittal benefits
- Automatic extinguishing with the extinguisher gas NOVEC 1230, which is eco-friendly and harmless to humans and IT
- Fire detection at a very early stage (pyrolysis phase)
- Compact design, modular principle
Fire alarm and extinguisher system DET-AC Plus – Smoke extraction and active extinguishing

Rittal DET-AC Plus is a compact fire alarm and active extinguisher system with smoke extraction system in one unit. The 482.6 mm (19”) rack mount only requires 1 U of space. With the extinguisher NOVEC 1230 integrated in a shallow tank, a volume of up to 3 m³ may be extinguished. The integral smoke extractor system continuously extracts the air from the enclosure via a pipe, and passes it over two smoke detectors. The first smoke detector is extremely sensitive and triggers a pre-alarm. The second smoke detector triggers the main alarm and hence extinguishing. In conjunction with the DET-AC Plus slave system, up to five bayed enclosures may be extinguished. For detection purposes, the pipework from the DET-AC Plus master system is laid in all enclosures. A DET-AC Plus slave system is positioned in each additional bayed enclosure and contains the extinguisher medium for that enclosure. Detection and activation of extinguishing for all enclosures is handled by the DET-AC Plus master.

Your Rittal benefits
- Automatic extinguishing with the extinguisher gas NOVEC 1230, which is eco-friendly and harmless to humans and IT
- Minimal space requirements with just one U per enclosure
- Active smoke extraction system and therefore early fire detection

EFD Plus
For pure fire detection, the EFD (Early Fire Detection) Plus system is available. EFD Plus is a fast, effective and inexpensive option for safeguarding corporate processes and preventing physical damage. The active smoke extraction system facilitates early detection. Two smoke sensors of differing sensitivity emit a pre-alarm and a main alarm.
The Rittal Data Centre Container has been specifically designed for the mobile or temporary use of IT systems. Ideal for use during conversion and expansion work and when relocating your IT. The system can also be used as a permanent IT or server room or as a main or backup data centre. The absolute highlight is the innovative, direct free cooling. It saves up to 40% of cooling costs, and also guarantees seamless integration of a UPS, fire alarm/ extinguisher system, power supply and distribution, raised floor, cold aisle containment, access control and monitoring functions.

Even the basic version of the container data centre is a fully functional system. Suitable option packages can be added to the basic model. Be it linked containers, more than seven racks or higher cooling outputs, in addition to the standard model range of 12 pre-configured data centre types, we are also happy to devise special solutions.
Your Rittal benefits
- Simple planning – Fixed price for data centre
- Mobile all-in-one concept – No external assemblies, short-term location changes are possible
- High energy efficiency thanks to innovative, direct free cooling, efficient UPS with high efficiency and PUE (Power Usage Effectiveness) of less than 1.2
- With plenty of space for up to 329 U (7 racks) and max. 6 kW/rack
- Extra-wide (3 m) and very robust outdoor container
- Plug & play solution: Position – connect – and it’s ready to go! Available in next to no time
- Configuration to order
- Protection properties: Resistance to wind, rain, heat and cold
- Long autonomy in case of power failure, at least 15 minutes
- Monitoring and management of data centres and infrastructure via CMC-TC and RiZone

Technical data for the basic model
**Basic container**
- Particularly generous dimensions: External (L x W x H) 6055 x 3000 x 3250 mm, internal (L x W x H) 5722 x 2664 x 2896 mm, useful area: 15.2 m²

**Climate control – direct free cooling**
- Available as 7 and 10 kW unit. Up to 3 units can be integrated.

**Power distribution**
- Infeed: CEE wall unit connector 125 A, 3-phase/N/PE, 400 V/50 Hz
- Enclosure dimensions (W x H x D): 600 x 2000 x 400 mm

**Raised floor**
- Substructure type: Control room
- Number of slotted plates dependent on number of racks
- Total raised height: 300 mm

**Bulkhead system**
- Type: Hard bulkhead DN200
- Dimensions of packing space: 120 x 120 mm

**Protection standards**
- Fire protection of internal panels to EN 1363/DIN 4102: F30, optionally F90, type-tested
- Burglary protection, security door to EN-1627/EN-1630: Anti-theft protection WK 2, optionally WK 3

The packages:
- Access control
- Cable shielding system
- Climate control technology
- Power technology/UPS
- Fire detection/ fire extinguishing
- Base system
- Service/ maintenance
- Lighting system
- Monitoring
- Project management
- Optical package
- Data and network technology
- 482.6 mm (19’) rack system
- Power distribution
- Solar protection
- Cold aisle containment

SECURITY SOLUTIONS

The Rittal IT infrastructures

CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES
Monitoring – Maximum availability and efficiency with Rittal monitoring

For many companies, IT availability plays an important or even crucial role. In order to safeguard availability with growing data centre dimensions encompassing entire server farms, Rittal has developed the intelligent and powerful monitoring system Computer Multi Control Top-Concept (CMC-TC). The CMC-TC is an automated solution which can defuse emergency situations without the involvement of staff. All data is available in a structured format via the IT infrastructure management software RiZone. In case of an emergency, key services are easily relocated to a different server with RiZone and Microsoft System Center Operations Manager (SCOM).

The System Dynamic Rack Control uses modern RFID technology to indicate the location or rack in which a server is installed. For operation of the servers, Rittal offers a monitor/keyboard unit and a powerful KVM system. All this serves to make data centres more secure and enhance their availability. Potential risks may be more effectively assessed, and the data centre’s efficiency enhanced. As specialists in IT efficiency, Rittal help to reduce acquisition and operating costs to a minimum. Energy efficiency comes as standard with Rittal, and we have the right tools to optimise your system while operational, as outlined above.

Rittal Monitoring
- Overview of your IT infrastructure
- Enhanced security
- Automated processes
- High cost efficiency
- Enormous energy savings
- Simple project management
- Fast installation
- Flexible, individual solutions with standard products from Rittal
- High standard of quality with coordinated standard products
Computer Multi Control Top-Concept – Monitoring with maximum modularity

The Computer Multi Control Top-Concept (CMC-TC) from Rittal is a complete security management concept designed to protect against consequential costs, and is also the central organisational unit for linking to facility management systems such as RiZone.

With the extensive choice of models, individual monitoring functions may be freely selected and combined. Because it is designed for maximum modularity, the CMC-TC expands to keep pace with your company’s requirements. The benefits include plug & play installation with patch cable, automatic detection of sensors, wireless sensors, and the option of automating processes. Before an acute emergency can occur, the system sends out warning messages via redundant alarm channels, and can intervene preventively and even shut down the servers in the rack. All this occurs fully automatically, or optionally via an administrator authorisation.

This tool is the only way for the IT administrator to retain an overview of the IT infrastructure and initiate prompt counter-active measures with automated processes.

Your Rittal benefits
- Freely selectable monitoring functions
- Sensor/actuator ports extendible
- TCP/IP SNMP network connection
- Integral web server for configuration
- Huge choice of sensors/functions
- Wireless sensors 2.4 GHz
- Simple installation based on the plug & play system
- Alarm continues to record even in the event of a network failure
- Built-in real-time clock with NTP
- May be used with 100 – 240 V AC or 48 V DC via power pack
- Choice of mounting on the enclosure frame or 482.6 mm (19”) mounting angles
- May be used for large data centres or individual applications
- Shutdown function for server
- Shutdown process may be activated via Rittal UPS or CMC
- Socket ports may be switched
- Current measurement of each individual socket
- Redundant power supply
Wireless sensors, climate control, access control
Monitoring solutions to match your IT

Rittal wireless sensor network
Because it is wirelessly connected to all the security-relevant points in your company, Rittal CMC-TC is now even easier, faster and more flexible to use. The 2.4 GHz sensor network is proprietary, insusceptible to failure, and encrypted. Using wireless technology, Rittal's sensor system is flexibly integrated into your security concept. The benefits of the system really come into their own, for example, if it is necessary to monitor a large number of measurement sites in the raised floor or with server rack air infeed.

Climate control
Everything the operator of climate control components needs to know is monitored by the CMC-TC system and made available in the form of information. The CMC regulates the air infeed to the rack in a speed-controlled manner and reports any temperature and humidity limit violations. In the case of fans, the speed or airflow are monitored. Similarly, the Rittal climate control units may be remotely connected with a Comfort controller via the CMC-TC system.

Access monitoring
Monitoring of access control ensures regulated access to the rack. Personalised access is reported via SNMP and registered with the date and time. In addition to the coded lock, smart cards, magnetic cards or transponder systems may also be used.
Dynamic Rack Control – All IT components in view at all times

Dynamic Rack Control brings genuine intelligence to the IT rack; after all, the control system “thinks” for itself. With its automatic inventory monitoring functionality, it is able to document the individual location assignments in the rack and thus the exact position of any given component in real-time. If hardware components change, this is automatically detected and reported.

The objective of Dynamic Rack Control is to protect the IT infrastructure against losses of hardware and data. This is possible thanks to virtual allocation of the hardware built into the rack to infrastructure components such as climate control and power supply to the rack via external management systems. For example, if climate control problems arise in a given rack or suite of racks, it is possible to identify the affected server hardware at any time.

The ingeniously simple installation and straightforward handling of Dynamic Rack Control are the keys to efficient cost reductions. Various data records are available on all RFID tags for inventorisation information and device-specific data records. To this end, every 482.6 mm (19”) component is equipped with a self-adhesive RFID tag.

If a device is removed from a rack, the Dynamic Rack Control reports an alarm. When installing the device in a different rack (or U), the information about the original installation location is immediately available. This effectively prevents incorrect population of the rack, for example following maintenance work on a server.
Your Rittal benefits
- Automatic detection of the components in a rack
- Independent server rack assignments
- Real-time signalling of status changes
- Precise position determination for each U in the rack
- Integration into existing monitoring systems
- Management of the electrical load and power losses of each component in the rack
- Up-to-date information on cooling capacity and power supply reserves
- Optional integration into the data centre management software RiZone
- Interfaces: SNMP, XML

Mounting position of components in the IT rack
Correct hardware positions are confirmed by LEDs on each U. Installation positions may also be visually marked for the service personnel. By combining with infrastructure information, each rack may be optimally configured with 482.6 mm (19") hardware. The overview of the IT infrastructure is up-to-date at all times.

RFID reader
The integral RFID reader in the rack continuously supplies all important information. The hardware information (e.g. hardware manufacturer, type of component, date of installation, energy consumption, service appointments), which is stored on the RFID tags, is also permanently available. This constantly updated information makes the day-to-day operation of your data centre much easier.

Automated documentation
IT infrastructures today are exposed to a powerful momentum but must always be up-to-date. This can only be achieved with automated solutions. To this end, Rittal offers innovated, automated documentation.
RiZone –
Perfect data centre management

RiZone is the management platform for all components in the data centre infrastructure. The system enables the monitoring of redundant data centres (up to Tier IV). RiZone is quickly configured via the automatic recognition of all active Rittal system components, and thanks to a modular licence model is tailored precisely to the requirements of your IT applications.

The administration of the physical infrastructure (from miniature data centres to large, high-MBTF data centres) is efficient, highly flexible and ensures high availability. RiZone can communicate with a server management system (e.g. System Center Operations Manager from Microsoft) and exert direct influence over the availability of individual applications. Only the consistent merging of information from the data centre will allow the availability status of the IT infrastructure to be accurately assessed. With this information, weaknesses can be automatically detected and eliminated.

Rittal RiZone allows energy consumption in the data centre to be adjusted and optimised.

Your Rittal benefits
- Optimised availability
- Simplification by reducing complexity
- Enhanced efficiency of the data centre
- Individual representation of the entire IT infrastructure
- Diagrammatic representation of history values
- Calculation of variables such as PUE
- Automatic generation of reports
- Automatic detection of Rittal system components
- Support of the SNMP protocol
- Workflow editor for automated processes
- High-MBTF application
- Link to server management system
- Selectable software or hardware appliance
RiZone – Perfect data centre management

Efficiency example
To correspond to the power consumption of your data centre, the cooling output must be designed for maximum performance in unfavourable ambient temperatures. As this diagram of weekly operation shows, unless properly managed, a typical cooling system is oversized most of the time. Here, RiZone saves energy by intelligently adapting the cooling output to the power consumption, airflow and ambient temperature.

The main aim is availability
Linking the physical data centre infrastructure to server and application management achieves consistent monitoring of the IT services. The early detection of malfunctions allows prompt action to be taken, and ensures compliance with SLAs.

Live representation of the rack status
Rittal RiZone supports live, clear representation of the current operating status of a rack. This facilitates reliable monitoring and administration, as well as a fast response in the event of malfunctions and deviations. All key parameters relating to the server rack are incorporated into monitoring; RiZone represents the operating status of the entire rack with the colours red, amber and green.
Mindful of availability, rationalisation and future orientation, the physical infrastructure of the IT landscape must be viewed in context. RiZone creates this context! Key for security: Take preventive action! RiZone identifies hot spots on servers or pending phase overloads early on, and responds immediately. This creates peace of mind. Key for resource planning: Identifying trends! Extensions to IT may be implemented transparently using RiZone. Permanent monitoring supplies clear data on any trend developments, enabling the user to respond promptly to any bottlenecks, and reliably plan the expansion or improvement of the IT infrastructure. Key for energy efficiency: Optimise functions! RiZone represents the energy consumption of individual racks and complete data centres, and supplies the PUE (Power Usage Effectiveness) of all components for energetic optimisation of the data centre.

RiZone – Simple, comprehensive and profitable for users

- All active RimatriX5 components are automatically detected and administered in the user interface.
- Any components that support the SNMP protocol may be incorporated and are able to use all RiZone functions.
- A workflow editor represents all mathematical operations and configures components comprehensively for optimum linking of all parameters, and therefore offers brand new opportunities for optimising the entire infrastructure.
- Customer-focused licence model: All potential applications – from the server room to the data centre – may be represented.

Be it a “one-rack data centre” or a large “server farm”, protecting the availability of the IT infrastructure is unrelated to the size of the company; RiZone always offers full functionality for controlling and monitoring all IT components. RiZone can be adapted to the size of the company with a flexible licence model.
Monitor/keyboard unit – For simple, user-friendly operation

Servers need to be adjusted and maintained. To this end, a workstation or monitor/keyboard unit is required for the server rack. The monitor/keyboard unit compactly meets these requirements in one U. The special feature of the Rittal system is that it can be distributed among 32 servers via an optional KVM switch. The KVM switch may be mounted at the rear of the monitor/keyboard unit, so that the entire system only requires one U of space.

Despite its small size, the unit integrates a full keyboard with numerical keypad and touchpad. In order to prevent heat accumulation when folded, the backlight is deactivated automatically. The monitor/keyboard unit has an energy consumption of less than one Watt when idle, and is therefore one of the top energy-savers in the data centre.

Your Rittal benefits
- High-end finish and top quality
- Analog and digital video input
- Separate numerical keypad
- Optionally with integrated KVM system for up to 32 server connections in just 1 U
- With 17˝ TFT display and VGA/DVI connection
- Low energy consumption
- Simple, one-man installation
- Connections to the digital world with DVI and USB

Monitor/keyboard unit
The 17˝ TFT monitor in the monitor/keyboard unit offers a physical resolution of 1280 x 1024. The numerical keypad is separate and its handling particularly user-friendly, thanks to the telescopic extension.

Integral KVM technology
To be able to access further servers, the monitor/keyboard unit can be combined with one of the Rittal KVM switches SSC view 8 USB or SSC view 32 Cat, allowing the monitor/keyboard unit to be used efficiently for several servers. Because servers are not constantly administered, this solution is both efficient and cost-effective.

Ready for the present and future
The monitor/keyboard unit is prepared for the future digital signal technology USB and DVI. Although analog PS2/VGA signals are still in use, the monitor/keyboard unit can continue to be used even in the event of a future switch to servers with digital signals.
KVM switches – Intelligent technology for consistent server controlling

Rittal KVM (Keyboard Video Mouse) switches provide the perfect answer for every customer requirement, from stand-alone solutions for 8 to 32 servers, to complex multiuser systems for data centre applications with up to 2048 computers. Rittal solutions are able to access and administer the computers directly, either locally or world-wide via TCP/IP networks.

We offer precise-fit solutions for a wide range of requirements: Simple server administration via OSD, SSC view (SSC = Server Switch Control) or SSC Premium. All systems in the Rittal KVM modular system have an integrated operating concept with clearly structured OSD (on-screen display) or programmable hotkeys. Users will intuitively get to grips with all manner of different SSC products.

Thanks to the exceptional transmission quality of analog systems, the display quality is just as good as on-site in the data centre, and it is therefore irrelevant whether the servers are accessed directly on the rack or via a remote console using Cat 5 cables. All systems, with the exception of IP access, support real-time operation. All SSC systems have at least one password, effectively preventing unauthorised access to the servers.

The SSC Premium KVM modular concept boasts extensive authentication and authorisation mechanisms, due to a sophisticated system of user and rights administration. Up to 128 users and the connected servers may be divided into user groups with different access rights.

Because of the high-MTBF concept with optional redundant power supply and connection of the SSC premium 8/32 to external user administration systems (such as LDAP/Active Directory), the user management system of the SSC Premium KVM system may be transferred independently of the operating system and hardware. This will reduce administration costs in the data centre significantly.

Your Rittal benefits
- Broad spectrum comprising small and large-scale solutions
- User-friendly OSD operating menu
- Operation by up to eight users simultaneously
- One KVM system for up to 2048 servers
- Operation via physical Cat5 cable over distances of up to 300 m
- Up to eight IP user channels simultaneously
- Automatic video signal comparison
- Redundant power supply
- Cabling via Cat5 cables with converters at the server
- PS/2, USB, SUN-USB, interfaces
SSC Duo 16

With the SSC Duo 16, Rittal offers an ultra-compact KVM switch with both a local access and an IP access. These two users are able to access the connected servers in parallel/simultaneously. Up to 16 servers may be connected via Cat cables and SSC Connect adaptors. The switch includes rights administration for up to 16 user profiles.

Cascading

The system grows with the server farm. New servers are simply inserted via a new converter. Once all server slots are occupied, a second switch may be cascaded as a slave for further expansion. By cascading type-identical SSC Premiums, the maximum number of administrable computers may be flexibly extended. The user uses only one OSD menu for up to three cascades. The new servers appear automatically in the menu list.

Converter

The converters are available as PS2 or USB variants. They are connected once to the server and remain there for the server’s entire service life. In this way, the server can always be connected to the globally standardised KVM system via a Cat5 cable. Even if the server moves to a different location or changes the port, it will remain available in the KVM system under the same name. A practical solution for everyday requirements, yet sufficiently flexible to remain organised in the ever-faster-changing IT world.
Rittal – The System.

Faster – better – worldwide.

Rittal Global Service – Excellent service worldwide
Rittal’s added value begins with the perfect quality of our products, and extends throughout every phase of the process, from planning and commissioning, right through to support and servicing once the system is up and running. Only “Rittal – The System.” can provide this great feeling of satisfaction and all-round support.

**PRE-SALES**
We smooth the way for your decision-making.
Requirement analysis + load test + thermographics
+ simulation and calculation

**IMPLEMENTATION**
Because we like to be there when you reach your solution.
Installation/integration + commissioning
+ instruction + certification

**AFTER-SALES**
We recognise and accept our responsibility.
Maintenance/installation + repairs + management of spare parts
+ training + service contracts
Inspection and repairs
Service contracts
Original spare parts
Training and other services
ERCO GmbH
Reliability through redundancy
ERCO GmbH, global manufacturers of hardware and software for lighting technology, are reliant on centralised IT processes, data and applications. High-MTBF and reliability are the top priorities. A business continuity analysis revealed that a second data centre was urgently needed. With Rittal Modular Safes type LMS 9.3, ERCO was able to utilise an existing data centre room while at the same time benefiting from maximum security. Within just three weeks, four modular enclosures were assembled, installed and commissioned without the need for any additional construction work. The safes provide protection from dust, extinguisher water, fire and smoke gases, as well as unauthorised access and theft.

GEVA mbH & Co. KG
Turning old into new
Gesellschaft für Einkauf, Verkauf und Absatz von Gütern mbH & Co. KG has expanded rapidly since it was founded in 1970, and now controls 25% of the entire German beverages market, with an annual budget of billions. Its IT landscape was no longer able to keep pace. With Rittal as general contractors, GEVA therefore constructed a new data centre based on the building-within-a-building principle. The IT security room Rittal LSR 9.3 in the cellar of the GEVA company headquarters now houses four new server enclosures and the complete infrastructure, including UPS, fire alarm and extinguisher system, and climate control. Changeover to the new data centre occurred within just four hours, without GEVA’s customers noticing anything.
WiTCOM GmbH
Turnkey construction and high-MTBF
As a colocation provider, WiTCOM GmbH offers its customers a reliable and high-MTBF environment for their server and storage infrastructures. This is a growth market, and as the company’s existing data centre was bursting at the seams, the Wiesbaden company commissioned Rittal as general contractors to build a new one. With the first customer already signed up for the new location, time was of the essence. In just five months, Rittal designed and constructed a completely redundant system with two separate security cells. Climate control, power supply and UPS were likewise designed in duplicate to ensure maximum availability for WiTCOM customers. Two energy-efficient free-cooling systems provide climate control. The high quality standard has also been confirmed by TÜV Rheinland, and the area was granted a Secure Data Centre certificate based on the technical requirements of standard ISO IEC 27001.

German Red Cross
IT infrastructure that saves lives
The Baden-Wuerttemberg-Hesse blood donation service of the German Red Cross cannot afford a failure in its data centre – every week, it coordinates 15,000 blood donations to supply hospitals between Ulm and Lübeck. Human lives depend on the smooth functioning of the IT systems. As the data volume has increased tenfold over the past four years, the DRK decided to create short-term additional capacity at two sites with container data centres from Rittal. Within just a few weeks, Rittal, as general contractors, had supplied the containers, which are equipped with an entire IT infrastructure including free cooling, early fire detection and monitoring system.
Rittal – The System.

Faster – better – worldwide.

- Enclosures
- Power Distribution
- Climate Control
- IT Infrastructure
- Software & Services