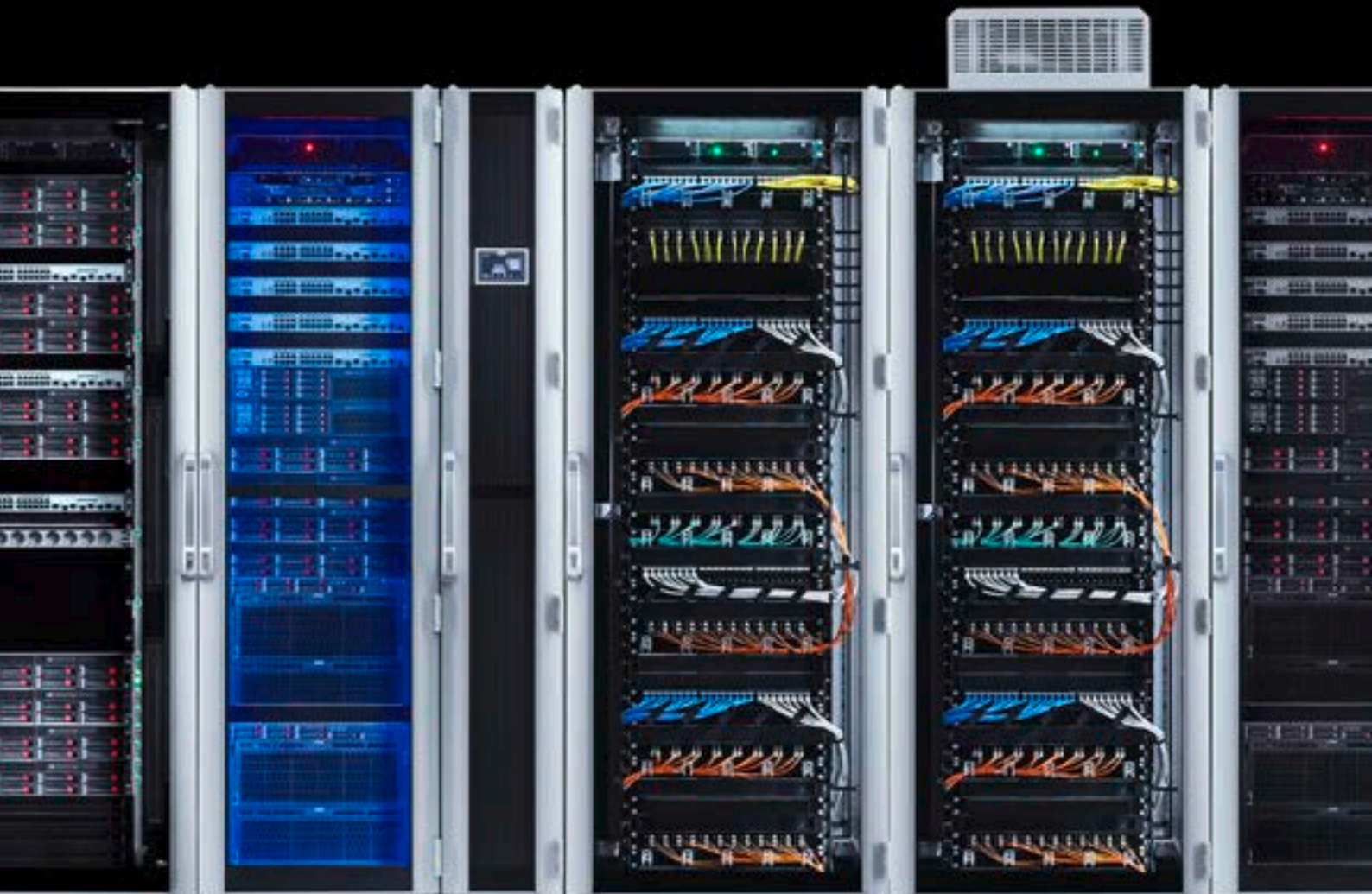


Rittal – The System.

Faster – better – everywhere.

▶ **IT solutions prepared for the tasks of tomorrow.**



ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES



FRIEDHELM LOH GROUP



4
NETWORK TECHNOLOGY



8
SMALL SOLUTIONS FOR SMES



12
HIGH-PERFORMANCE COOLING



16
MEASUREMENTS &
EFFICIENCY



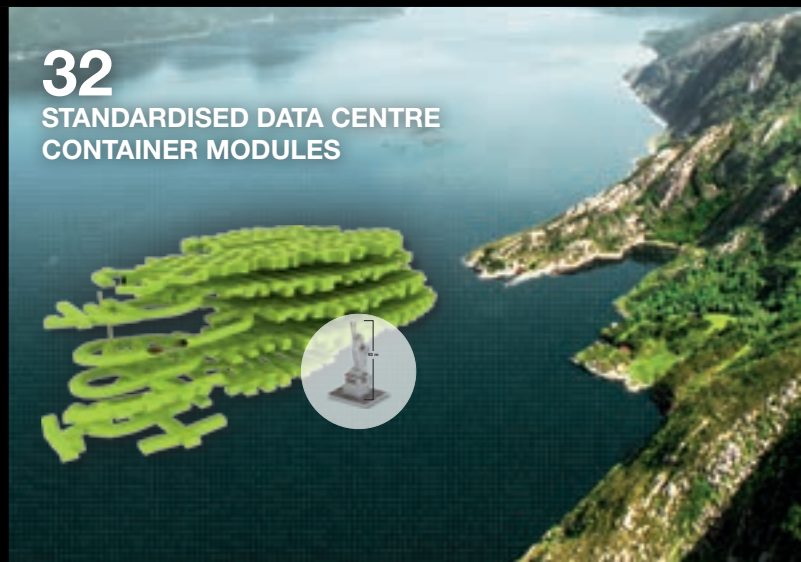
20
LARGE SOLUTIONS
FOR SMES



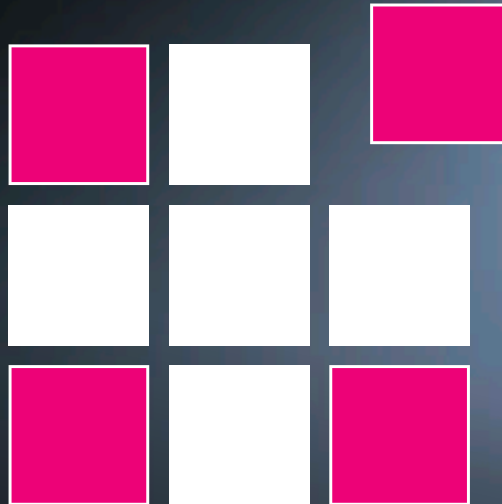
24
MICRO DATA
CENTER



28
SMART PACKAGE



32
STANDARDISED DATA CENTRE
CONTAINER MODULES



Our Expertise. Your Benefit.

More than ever before, the success of small and medium-sized companies depends on a cost-effective and, above all, reliable IT infrastructure, as the basis for Industry 4.0.

All system components in the Rittal system platform are perfectly coordinated with one another. From small to large network and server applications, we offer comprehensive, complete solutions that are consistently modular, and flexibly extendible at any time.

As data volumes rise, so too does the cost of providing an IT infrastructure. Rittal combines optimum energy and cost efficiency with maximum availability of the entire system. This is rounded off by a diverse range of security measures in the areas of power distribution, demand-based climate control, and protection from potential physical threats such as fire, water and theft.

In accordance with our simple principle, "Faster – better – everywhere", our innovative products and efficient service enable us to configure, build and commission your solution in next to no time. For more than five decades, Rittal has made it a global mission to quickly translate market trends into products and secure competitive advantages on behalf of its customers!

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES

FRIEDHELM LOH GROUP



Nothing brings you closer to your goal than a perfect start.

The same is true of network planning.



“We need a powerful data centre for digital video and content distribution. Standard components like the Rittal TS IT rack allow us to expand quickly and flexibly, and keep pace with the ever-growing volumes of data associated with digital film distribution.”

Herbert Götsch, Director Wholesale & Datacenter, MTI Teleport

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

If you talk to today's IT decision-makers about the security of their own infrastructure, they like to use buzzwords such as "defence strategies against destructive malware" and "failsafe RAID arrays". They question the data security of WLAN hotspots, and debate biometric authentication techniques.

Only a few of them will consider rudimentary topics such as a stable power supply. They also take it for granted that the server climate control will withstand weeks of high summer temperatures. When asked about fire protection or the dust-tightness and water-proofness of their IT racks, they may just shrug their shoulders.

Yet the underlying basis of a functioning IT infrastructure is crucially important. Only a fully functioning complete system, comprised of network and server enclosures, climate control, power distribution and backup, and last but not least, transparent monitoring, will keep the built-in IT equipment operational.

MTI Teleport in Unterföhring have put their trust in IT infrastructure solutions from Rittal for many years, and with good reason: Their satellite receiver and transmitter systems and signal routing for various television channels must remain operational 24/7.

Outages are unthinkable when transmitting Formula 1 races or football matches via the 2,500 km long optical fibre network.

The TS IT rack from Rittal convinced them as a complete system solution offering maximum extendibility with a high level of security for the installed equipment, which is both flexible and a reliable investment.

Whatever your network may look like, we have the ideal solution for you.

If you want to secure pole position in the network and server technology segment, you should opt for the Rittal global standard – the TS IT rack, now available in more than 140 configuration variants.

As well as the TS IT rack, Rittal also offers a wide range of different network racks to create the optimum solution for your specific application. Particularly given the growing importance of IT in the industrial environment, we offer network enclosures with suitable protection categories. The coordinated accessory system components, together with power distribution and climate control, round off the complete package.

The range of system accessories comprises all the components needed to fit, route and manage cables. We have devoted particular attention to air routing and partitioning, to ensure maximum flexibility of the cabling and optimum sealing of the enclosure. This ensures that a network enclosure, combined with a rack of server enclosures, accommodates the aisle containment-based climate control concept and meets the set energy efficiency targets.

Each network enclosure needs one or two socket systems to supply active components with power. Rittal offers a selection of connector types and socket systems.

Additionally, network enclosures must be monitored to ensure that vital operating parameters are maintained, as well as providing the required access and protection mechanisms. The cleverly thought-out, coordinated modular system allows customers great flexibility in implementation.

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

Your benefits at a glance:

- An innovative product range of small enclosures, wall-mounted distributors, networking racks and open frames
- Intelligent accessories that are quick and easy to select
- Cleverly designed cable management and flexible socket system
- An efficient climate control concept and comprehensive monitoring



Our comprehensive portfolio of small floor-standing and wall-mounted enclosures, such as the FlatBox, can accommodate solutions for virtually any application.



The TE 8000 provides a flexible platform for enclosures. The frameless design of the enclosure, which may be dismantled, allows optimum access to the 482.6 mm (19") level for all work on your installed equipment.

IT INFRASTRUCTURE

SOFTWARE & SERVICES



Far more than just hot air: What is the best cooling solution?



“We undoubtedly took a pioneering step forwards with this project. With annual energy savings of around € 20,000 per annum, the new data centre also contributes financially to the company's sustainability. What is more, the cooling solution has already passed its first major test. The exceptionally hot summer of 2015 passed without a hitch, and unlike prior years, there were no noticeable effects.”



Dipl.-Ing. Gerhard Wagner, Head of IT, Pöttinger (top)

Ing. Benedikt Hartl, Head of IT System Administration, Pöttinger (bottom)



ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

Depending on the location and cooling technology, climate control can account for more than one-third of a data centre's entire power consumption. It therefore makes sense to take a closer look at the energy efficiency of different cooling concepts.

Although air cooling remains very popular, liquid cooling may be more efficient overall, and ultimately save a lot of energy and money. The fact that a liquid like water can conduct heat up to more than 4,000 times more effectively than air should be enough to make you think.

If there is no need to site your data centres or hosted infrastructures in the immediate vicinity of your own premises, countries like Sweden, Norway and Ireland offer benefits with their more moderate temperatures. If you prefer to remain within the German legal system, you should opt for climate control solutions which ensure optimum, high-efficiency cooling.

When it comes to cooling IT infrastructures in small to medium-sized companies, the Liquid Cooling Package DX is an extremely attractive solution. The LCP draws in the air sideways at the rear of the server enclosures, cools it down with high-performance heat exchangers, and blasts the cooled air back into the front part of the server rack at the sides. Maximum energy efficiency is achieved with EC fan technology. The speed-regulated compressor ensures that the cooling output is ideally adapted to actual requirements.

Pöttinger can verify that these facts are not just "hot air", but a tried-and-tested reality. Each year, the Rittal data centre saves the company some 20,000 euros in energy costs, using an outstanding solution which kept its cool even in the long hot summer of 2015.

Liquid Cooling Unit: Small, but impressive.

Every IT decision-maker is familiar with the imposing images of enormous data centres. They look almost futuristic, with their seemingly endless aisles, flanked on either side by flashing component towers.

By contrast, IT infrastructures comprised of just one or two enclosures are rather less impressive, but must still demonstrate all the features of a large data centre, from a reliable power supply and cooling, through to monitoring.

Cooling is based on the output of the installed active components. Rittal offers a selection of different cooling solutions: The Liquid Cooling Unit (LCU) is used

for the small output range from 3 kW to 6.5 kW. The internal part is discretely and space-savily installed inside the enclosure. Refrigerant lines transport waste heat to the external part, which is sited outside on the external wall or on the roof.

If larger heat losses are incurred, a Liquid Cooling Package DX (LCP DX) can be bayed to the side of the rack, for cooling one or two IT racks with a total output of up to 12 kW.

The extensive range of system accessories includes all the additional products needed, such as socket systems, cable routing and management, plus components for tidy air routing. The coordinated components in the Rittal modular system may be flexibly selected for a bespoke and efficient solution.

Your benefits at a glance:

- Flexible cooling solution in the output range from 3 kW to 6.5 kW
- Space-saving installation inside the enclosure
- Minimal space requirements for the redundant version with two cooling circuits in one unit
- Extensive range of coordinated system accessories



The LCP DX can be used for rack-based climate control, and also for suite climate control within the context of aisle containment.



If larger cooling outputs are required, the LCP DX offers a solution in the output range up to 12 kW.

IT INFRASTRUCTURE

SOFTWARE & SERVICES



The right cooling solution not only lowers the temperature, it also cuts costs.



“Our aims were to increase the high-MTBF of the data centre and to cut our climate control costs with LCP CW cooling units. The outstanding technical knowledge of the Rittal experts enabled us to achieve this.”

Thomas Heinemann, Manager IT, Stadtwerke Schönebeck

Over the next few years, German research centres will be investing millions in the development of new energy stores, network infrastructures and IT solutions incorporating renewable energies. There are three key requirements which are pivotal to success: Energy storage systems must be capable of bridging fluctuations. Efficient infrastructures should be capable of managing power distribution. And cross-sectoral networking must ensure greater flexibility, efficiency and cost-effectiveness.

Time will tell which energy stores emerge as the leading contenders; there are several to choose from: Batteries and electrochemical stores, electrolysis and hydrogen, synthetic hydrocarbons, fuel cells and thermal energy stores. New materials in electrochemical energy stores should facilitate cost-effective production of large-format battery cells with higher specific energy and output densities and greater reliability.

Alongside the format of future energy supply, energy efficiency in ever-expanding network infrastructures will remain a key issue. Unfortunately, even renewable energies are not free. Reduced climate control costs was the key factor which persuaded Stadtwerke Schönebeck to opt for LCP CW cooling units from Rittal. Ahead of their decision, the Rittal IT Cooling calculator helped them to design a suitable solution, incorporating their relevant core data into the calculation.

For Thomas Heinemann, IT Manager at Stadtwerke Schönebeck, as well as cutting climate control costs, the other priority was to boost the data centre's high-MTBF. This reflects the current thinking within the industry: Corporate processes are becoming ever more powerful, packing density in computer systems is increasing, and processor capacity is growing, which in turn generates ever more heat. The highly efficient Rittal Liquid Cooling Packages keep temperatures at a constant level. With optimised operating costs, the LCPs precisely and effortlessly dissipate heat losses of up to 55 kW per enclosure.

High-performance cooling: Maximum performance can be so economical.

With the range of high-performance cooling solutions from Rittal, large data centres and powerful stand-alone enclosure solutions may be cooled reliably and efficiently.

Rittal draws on every aspect of the generation, transportation and distribution of cooling in the data centre for rack, suite and room climate control. Design tools assist with the dimensioning of the cooling system.

The Rittal service also includes the option of an efficiency consultation or a health-check for your data centre.

With IT climate control in particular, the investment costs and operating costs must be carefully analysed in an ROI calculation, since this is where the greatest potential savings can be made. Rittal offers a broad range of water or refrigerant-based systems for rack, suite and room climate control.

Your benefits at a glance:

- State-of-the-art cooling technology
- Enhanced security plus improved energy and cost efficiency
- Environmentally friendly, thanks to resource savings and reduced CO2 emissions.



The LCP CW is the optimum solution for efficient, flexible rack and suite climate control.



With a moderate load per rack, large infrastructures may be climate-controlled via the raised floor with the aid of CRAC systems.

IT INFRASTRUCTURE

SOFTWARE & SERVICES



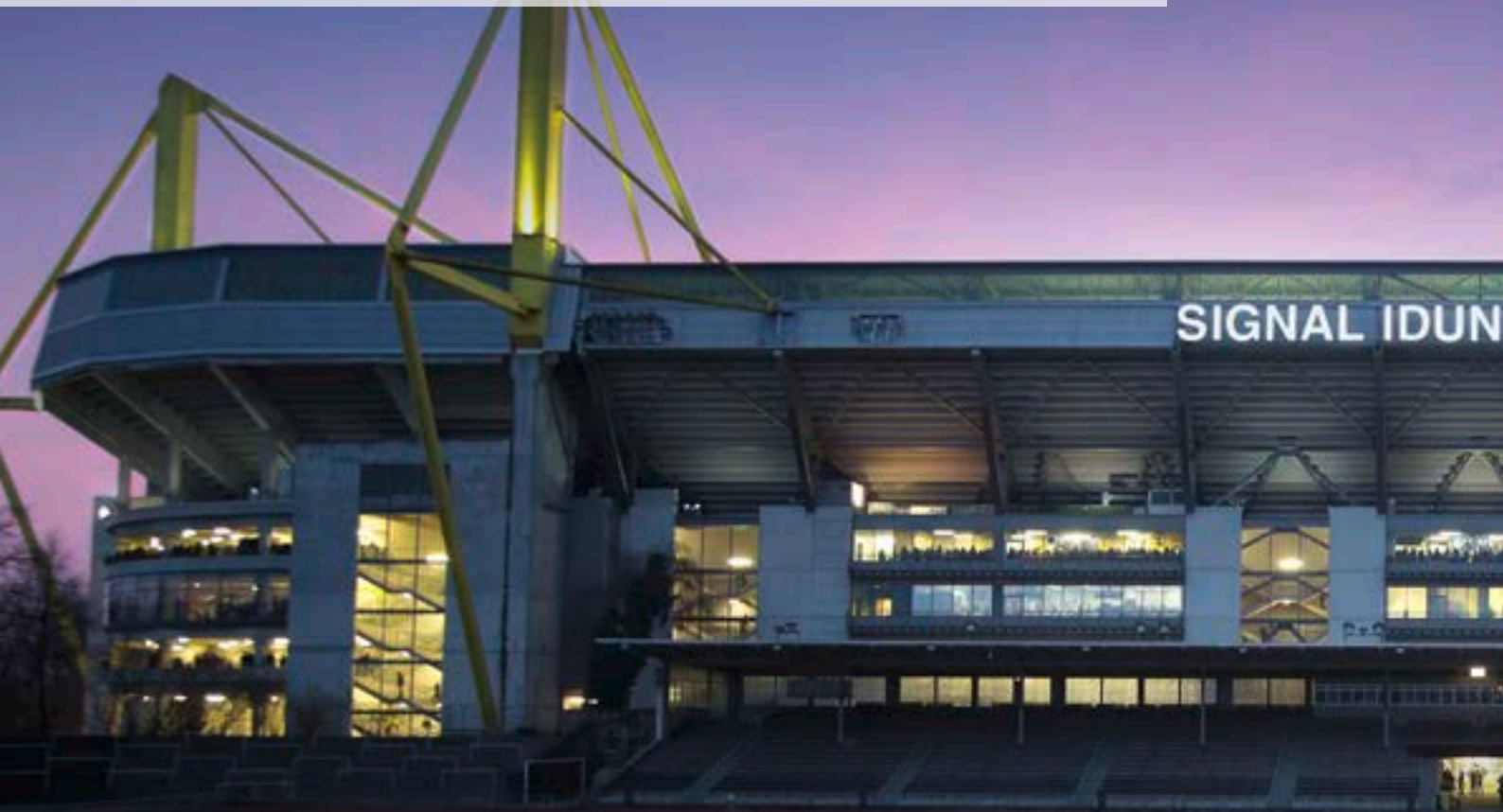
A winning goal!

On target for more efficiency.



“We want to implement new projects quickly and flexibly, while remaining transparent and cost-efficient. Precise representation of the energy flows in the data centre with Rittal PDUs enables us to plan our IT operations reliably.”

Boris Giese, Head of Building Equipment, Signal Iduna



ENCLOSURES


POWER DISTRIBUTION

CLIMATE CONTROL

The growing performance of hardware components places particular requirements on modern energy management concepts. As energy demands escalate, so do the requirements placed on power backup for racks and data centres and on power distribution management. What is more, a lack of monitoring functions makes many IT infrastructures vulnerable to potential threats. Many people are far too casual when it comes to ensuring a reliable power supply, not to mention analysing their energy consumption. They only see the cost of a professional power distribution, rather than the potential savings it can offer.

Any IT rack may be quickly and easily equipped with a professional power distribution system. The compact Power Distribution Unit from Rittal offers extensive power measurement and monitoring functions, and represents a cost-effective, reliable investment.

Boris Giese, Head of Building Equipment at Signal Iduna, was impressed. He was looking for a fast, affordable solution to identify energy flows in the data centre. Having purchased a number of PDUs from Rittal, he is now able to reliably plan IT operations within the company.

A  PARK

IT INFRASTRUCTURE

SOFTWARE & SERVICES



Power Distribution Unit: Panta rhei – Everything flows.

Particularly cost-effective, constant and fault-free – that's what the power supply in an IT network enclosure should be, from the low-voltage distributor through to each individual piece of equipment. Nothing must interrupt the flow of electricity, everything should be in harmony: Panta rhei.

Obviously, it takes more than just a socket strip to achieve this. But what is the optimum solution? At Rittal, customers can choose between two different socket systems: PDU and modular PDU.

Sockets in the PDU system series are available with a range of connector patterns and functions in the categories basic, metered, switched and managed. They cover a broad spectrum: from purely passive distributors, through to intelligent socket

systems which allow sockets to be switched on and off individually or specifically measured.



Your benefits at a glance:

- Flexible socket system: Basic, metered, switched and managed
- Modular design supports exchange with the system operational
- User-friendly interface supports Web browser administration
- CAN bus sensors supply comprehensive infrastructure readings

The modular system also allows individual modules to be exchanged with the system operational, to change the connector pattern or incorporate different measurement options depending on requirements.

The socket systems have a user-friendly interface and support Web browser administration. Data, measurements and alarms may be forwarded via SNMP to IT management systems (DCIM) or via OPC-UA to BMS systems.

The CMC (Computer Multi Control) system is available to log all relevant infrastructure readings such as temperature, humidity, smoke and access. The sensors are connected

to this controller or data collector via CAN bus. Whether they opt for a CMC Compact for individual enclosure monitoring or a user-friendly CMC system, customers can select and configure a bespoke solution from the wide range of sensors and actuators to suit their particular application. The interfaces and links to management systems are identical to those of socket systems. Electronic selectors and expert customer advisers can assist with selection and configuration.



The complete PDU range is used for intelligent power distribution in IT racks. Measurement, switching and monitoring, even at individual slot level if required.



Computer Multi Control (CMC) is a monitoring system for network and server enclosures, standard enclosures, containers and rooms. It monitors temperatures, humidity, access, smoke, energy and many other physical ambient parameters. The system is modular and can be flexibly adapted to meet specific monitoring requirements.

IT infrastructures may not generate revenues, but they can save you hard cash every minute.



“Rittal RiZone is the ideal solution for monitoring all the processes in our IT infrastructure and ensuring business continuity.”

Tiziano Villa, Network Manager,
Nestlé Italiana S.p.A.

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT management is not exactly a popular topic. To the company executives, it can seem that money is constantly being invested in systems with no obvious return. However, if IT systems fail, things can get very expensive indeed. The more employees a company has, the more cost-intensive a system failure becomes – for companies with 3,000 employees, the cost of an IT failure can reach six figures (euros) in just an hour. It is easy to imagine the financial damage this could cause over the course of a year.

Monitoring & remote management help to permanently reduce maintenance and operating costs with the system operational, and increase availability. For example, monitoring, measurement and control tasks with the CMC III (Computer Multi Control) reduce the risk of failure and facilitate preventive intervention.

The CMC monitoring system from Rittal is modular and can be flexibly adapted to meet specific monitoring requirements. On request, sensors can monitor temperatures, humidity, access, smoke, energy and many other physical ambient parameters

This generates user benefits plus exceptional savings, thanks to monitoring via the network and the automation of security processes. Nestlé in Italy recognised this, and has been using the RiZone monitoring and management software from Rittal for a while now. RiZone is the Data Center Infrastructure Management (DCIM) platform for all components in a data centre infrastructure, from power supply and power distribution, to cooling, through to the security system. Its simple, fast configuration makes RiZone the ideal DCIM solution for data centres of any size.

RiMatrix: Adapts to your needs.

Anyone who attaches particular value to individuality when building an IT infrastructure will find the Rittal RiMatrix modular system ideal. The precise-fit solution for any application is compiled from racks, IT climate control, power backup and distribution, monitoring and alarm management, plus IT security, with an emphasis on physical IT security aspects.

Climate control may take the form of rack, suite or room climate control concepts. Solutions are selected based on the current load of the IT racks, the overall load, and the forecasted growth. Both the investment costs and the operating costs should be carefully analysed to incorporate cooling generation aspects.

Customers also have the same flexibility at every stage of the power supply chain: from the mains infeed, to backup and sub-distribution, through to the socket systems in the individual enclosures. Here too,

the choice of product depends on the application.

The monitoring system incorporates all the relevant parameters and forwards them to the superordinate management system (DCIM), such as RiZone. From the IT administrator's viewpoint, the interactions between the individual areas of the data centre are crucial. The DCIM software represents the overall consumption and efficiency of the data centre using trend analyses. It allows control circuits to be defined so that a data centre's optimum operating point can be set according to require-

ments. This leads to the continuous optimisation of an IT infrastructure and maximisation of the cost-cutting potential. Open interfaces and compliance with international standards and regulations also facilitate the creation of sub-solutions.

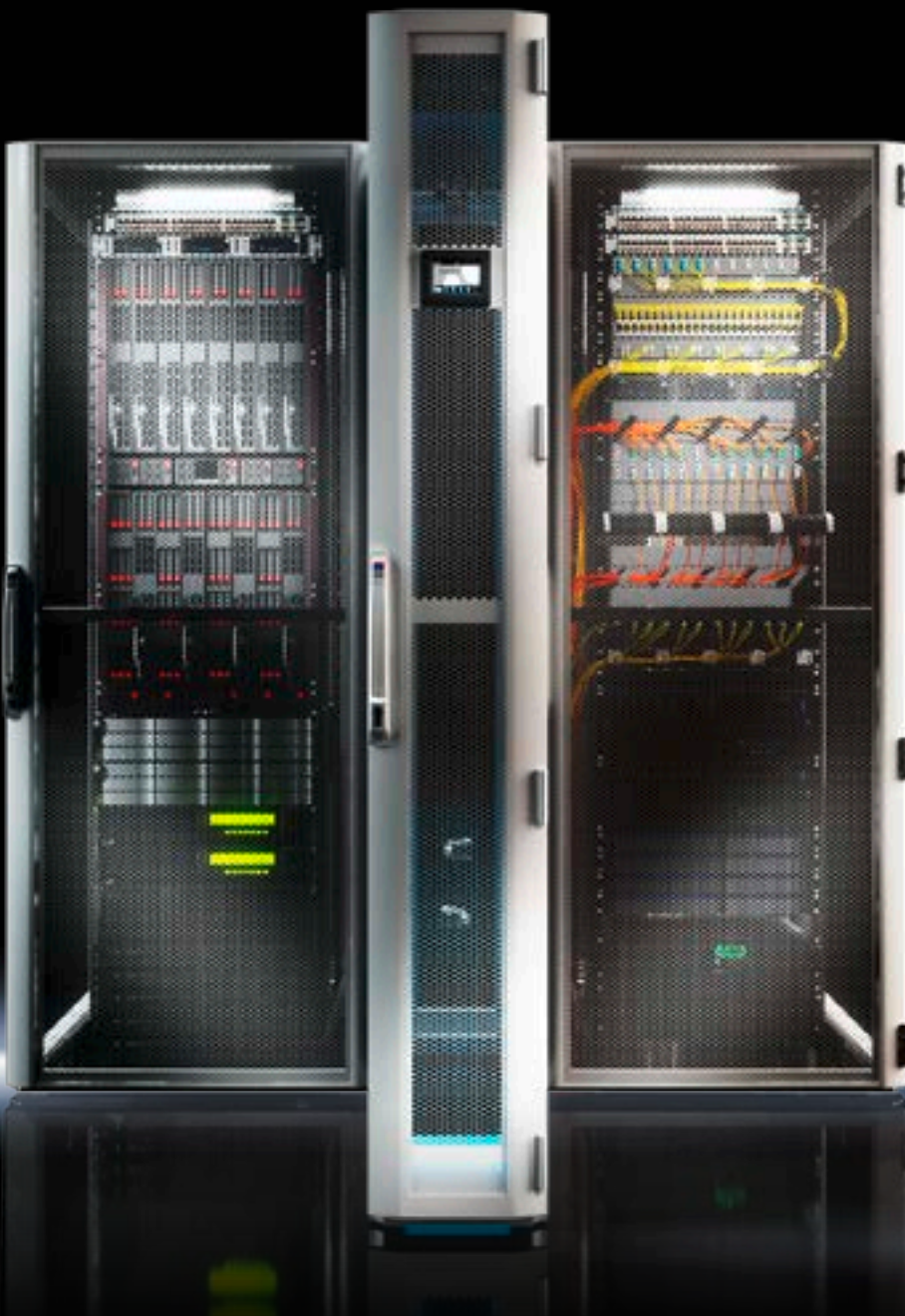
ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

Your benefits at a glance:

- Individual IT solutions with the RiMatrix system from Rittal
- Wide range of components for rack, power, cooling, monitoring and security solutions



Power infeed, backup and optimum distribution must be tailored to the customer's specific requirements.



The High Availability Room offers maximum physical protection for data centres and IT system locations. The system was certified by ECB (European Certification Body GmbH) to ECB-S regulations, and therefore meets the requirements of EN 1047-2 without restriction.

IT INFRASTRUCTURE

SOFTWARE & SERVICES




To be secure, you must be prepared for the worst.



“We have very specific requirements regarding the physical security of our IT infrastructure. Using a Micro Data Center as back-up at two of our sites, Rittal provided us with a solution which is precisely tailored to our needs, yet flexibly extendible at any time.”

Romain Seibt, Head of IT at the health centre management company,
Görlitz district



When people think of IT infrastructures, they tend to picture empty offices with clean floors and white walls. The heart of the IT department beats behind closed doors, secure from unauthorised access.

It is easy to forget that many locations are less secure, including inhospitable sites exposed to storms, salty air, and very high temperatures in summer. At these types of location in particular, it is worth considering whether a server enclosure is sufficient, or whether a Micro Data Center incorporating an optimum protection concept with efficient cooling and extinguishing technology might be a better solution. After all, the greatest enemy of sensitive data is not always man.

The health centre in Görlitz was quick to realise this. The more sensitive the data, the greater the need for security. As a result, it now uses Rittal Micro Data Centers at two of its sites.

What does a Micro Data Center have to offer?

Security and freedom at the same time.

Free-standing enclosure solutions in a harsh environment often need additional protection from physical threats such as fire, smoke, water, dust and theft. Rittal's Micro Data Center (MDC) solutions are cleverly designed to effectively and efficiently counteract potential threats.

Customers benefit from the comprehensive plug & play solution, incorporating all aspects of a data centre infrastructure. A Micro Data Center lends itself particularly well to local government, small and medium-sized companies, as well as IT departments in remote locations, because it also provides adequate protection from physical threats. As with the secure room, customers can choose from a range of different security levels.

The Micro Data Center Level B offers excellent value for money and provides solid basic protection. The TS IT rack is used as the supporting frame for the enclosure. The LCU (Liquid Cooling Unit) is used for cooling, optionally in a redundant or non-redundant design. Power is distributed via the PDU socket systems. All parameters may be logged, documented and evaluated with the CMC sensor system. A 1 U fire detection and extinguishing unit protects the Micro Data Center and also provides the required VdS recognition.

The Micro Data Center Level E offers high-quality, complete system protection. It is bayable and readily extendible, even with the system operational. It is also possible to assemble a Micro Data Center around a pre-installed enclosure without interrupting operation. A user-friendly selector assists with the optimum configuration of an application-specific solution.

Your benefits at a glance:

- Robust safe solutions and flexible racks specifically designed for server and network technology.
- Efficient cooling solutions in a range of designs
- IT-specific power distribution
- Network-compatible monitoring and security solutions
- Reliable early fire detection and automatic rack extinguishing



Explore the multiple installation and configuration options of the Micro Data Center with a flexible, easy-to-use selector.

► www.rittal.com/it-configurator



The DET-AC system is used for early fire detection and extinguishing. It uses the extinguishing agent Novec 1230, which is harmless to people, the environment and the IT systems.

IT INFRASTRUCTURE

SOFTWARE & SERVICES



The most expensive IT solution is rarely the smartest.



“Space requirements and energy efficiency were the top two criteria for our new data centre infrastructure. The modular data centre from Rittal not only fits into our limited space, but also operates extremely efficiently. This solution has now been set as our organisational standard for all future data centres.”

Jay Phalak, Head of IT, TATA TECHNOLOGIES LTD.



ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL



Successful companies grow, open branch offices, and even expand across national borders, which in turn increases the volume of data. Eventually they reach the point where it becomes necessary to invest in a new IT infrastructure. This can be particularly annoying if the existing components were hardly used.

In addition to long-sighted planning, they would also be well-advised to ensure a modular layout of the entire system. Each component performs specific tasks and can be replaced as and when necessary. The entire system is retained and has space for additional components, which may be integrated at a later date.

A checklist like the one supplied by Rittal provides a good starting-point. What are the server room dimensions? Is there an AC current connection? How is the room climate-controlled? What fire protection and fire-fighting equipment is in place? These and other questions make it easier to select components and ultimately save money en route to a smart IT infrastructure solution.

To ensure that configuring the solution remains fast, simple and flexible, Rittal's smart package offers pre-assembled plug & play server racks which are available off the shelf, immediately. Even the 482.6 mm (19") punched rails are pre-configured and therefore able to accommodate all standard market server installation kits directly. Of course, earthing and the sophisticated power distribution concept should not be forgotten. The accessories supplied loose include rings, panels and latches for cable management.

For Jay Phalak, IT Manager at TATA, an Indian industrial conglomerate which includes the airline Vistara, a Smart Package from Rittal was the only option. He was looking for a solution that would take up very little space and also be energy-efficient to operate. The new IT infrastructure was so well-received that in future, all TATA data centres will be equipped with this Rittal solution.

IT INFRASTRUCTURE

SOFTWARE & SERVICES



The right decision frees you from all the alternatives.

It's not easy deciding on the optimum IT infrastructure. Clever people will stick to tried-and-trusted solutions. Alternatively, they can learn from their own mistakes.

Smart Packages from Rittal eliminate many of these tricky decisions, because as plug & play solutions, they include all the principal components needed to accommodate and ensure the smooth operation of active IT equipment.

Smart Packages are available as 2, 4 or 6-enclosure solutions – standardised, smart data centre modules with pre-defined components for power supply, cooling, monitoring and IT security. Thanks to the redundant design of its power distribution and cooling, the Smart Package meets high fail-safe standards. The simple scalability supports future extension, allowing for cost-optimised adjustment as the company grows.

Split LCU (Liquid Cooling Unit) or LCP (Liquid Cooling Package) DX units are used for climate control, the choice of which is determined by the enclosure load. Like the power backup, cooling also has a completely redundant design. If one external part fails, the second is capable of supplying sufficient cooling output to ensure reliable operation.

The Smart Packages are also supplied with a mains infeed, so that all the customer needs to do is connect them to the mains power supply. All relevant parameters are monitored with the CMC monitoring system. The DET-AC system provides early fire detection and extinguishing.

The Smart Package may optionally be fitted with two redundant UPS systems (2N). It may also be connected to a DCIM system. The performance figures for this solution allow a complete ROI view which incorporates not only the investment costs, but also the operating costs.

Your benefits at a glance:

- Complete ROI view
- Fully pre-configured for plug & play
- Available off the shelf immediately



Refrigerant-based enclosure cooling in single or redundant version for TS IT or Micro Data Center, without heating up the installation room. With two output categories 3 kW and 6.5 kW, the ideal cooling solution for smaller IT applications.



CMC is your complete, modular system for preventive security. At the same time, it is also the central organisational unit for connecting to the facility management system.

IT INFRASTRUCTURE

SOFTWARE & SERVICES

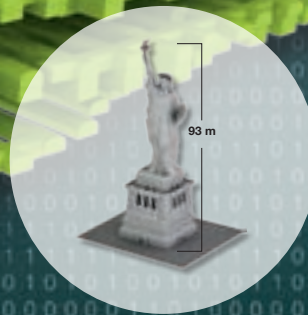
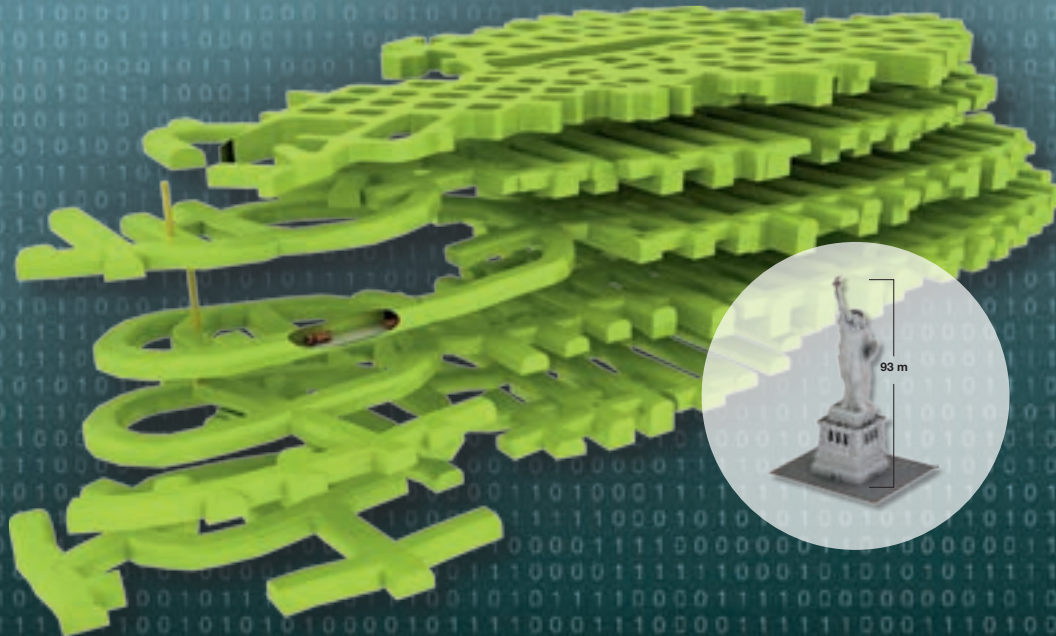


The future of IT is underground.



“In today's world, data is the new raw material, and I can't imagine a better place to store it than at Lefdal.”

Arne Norheim, Country General Manager, IBM



ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

On the west coast of Norway, one of the world's largest data centres is being built in a decommissioned mine at the Lefdal Mine Datacenter (LMD). The five-storey tunnel system with 75 chambers provides 120,000 square metres of space for an infrastructure with a potential total capacity of 200 MW. The ambitious target is to make the LMD the number one in Europe, with unsurpassed levels of cost-efficiency, security, flexibility and sustainability.

"The Lefdal Mine Datacenter will put everything else in the shade", claims Andreas Keiger, Senior Vice President, European Sales at Rittal. Rittal is on board as a strategic technology partner. This project is setting new standards, not only in terms of efficiency, but also in the area of sustainability. Lefdal will use up to 100 percent renewable energies. Even the server cooling is "green", by drawing on the water in the neighbouring fjord.

And when you consider the Total Costs of Ownership (TCO), the LMD is 40 percent cheaper than other data centres in Europe. This is partly due to standardised data centre modules which score highly in terms of flexibility and cost efficiency: RiMatrix S from Rittal. The preconfigured, space-saving modules are supplied in containers and comprise ten or twelve server racks. These are ready to use, complete with power distribution, climate control, and monitoring and IT infrastructure management software.

The operators have opted for a Liquid Cooling Package as its climate control solution. The LCP draws in waste air from the server, cools it via the high-performance heat exchangers linked to the cold seawater circuit at a temperature of 7°C, and returns it to the system. The entire system is connected to the 565 metre deep fjord, guaranteeing an unlimited supply of cold water, and reducing energy consumption to a minimum.

The underground data centre also has another inestimable benefit: Security! The system can only be accessed via a single entry point. The rock formation provides natural protection from electromagnetic pulses. Specially trained security staff patrol the entire installation around the clock, 365 days a year. A three-stage authentication process and intelligent camera systems provide additional security.

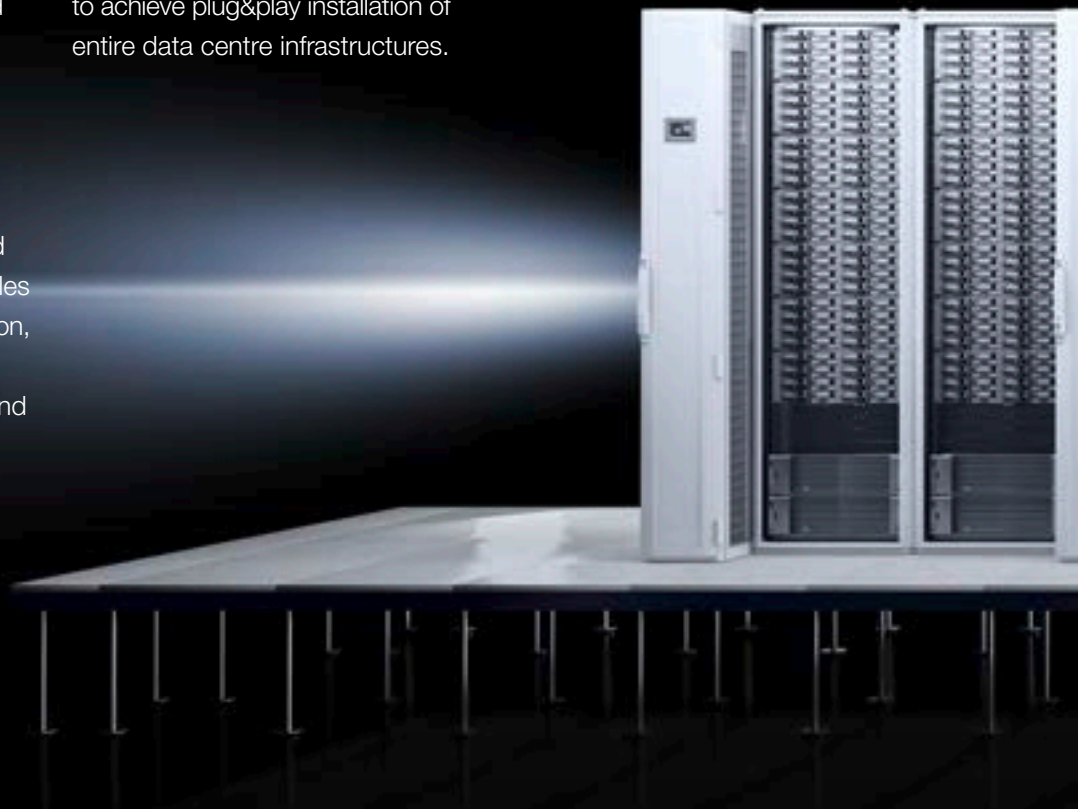
Based on RiMatrix S: Standardised data centre modules.

Standardised data centre modules from Rittal bring a whole raft of benefits: As well as short delivery times, they may also be flexibly sited (physical structure, secure room, container).

The predefined designs have been tried and tested in countless customer installations, and are subject to ongoing optimisation. All components in the data centre module are predefined and perfectly coordinated with one another. This allows the preparation of externally certified data sheets, as in the case of the RiMatrix S modules.

As well as short delivery times and fast installation, data centre modules also feature complete documentation, consisting of detailed installation instructions, operating manuals, and the required data centre management documents.

Larger installations can be built quickly and easily using multiple individual modules. Power and cooling modules round off the product range, allowing customers to achieve plug&play installation of entire data centre infrastructures.



ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

Your benefits at a glance:

- RiMatrix S offers standardised data centre modules.
- Fully functional including server and network racks, climate control, power distribution and back-up, monitoring and DCIM (Data Center Infrastructure Management)
- Available for immediate delivery – with just one Model No.



The complete IT infrastructure includes power backup and climate control, so that once connected to the power grid and the cooling supply, the data centre is fully operational.



40-foot ISO cooling container: For high cooling outputs up to 200 kW. These stackable containers are tailored to the IT container output, and may be placed on top of it. The planning of redundant chillers is supported (2N).



IT INFRASTRUCTURE

SOFTWARE & SERVICES



Rittal – The System.

Faster – better – everywhere.

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

You can find the contact details of all Rittal companies throughout the world here.



www.rittal.com/contact

ENCLOSURES

POWER DISTRIBUTION

CLIMATE CONTROL

IT INFRASTRUCTURE

SOFTWARE & SERVICES



FRIEDHELM LOH GROUP

X1VVW00073EN1603