



• including  
order information



# Total confidence – in the data centre of the future

# Computing performance and complex applications call

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**for maximum availability and reliability.**

## **The new challenge for physical IT infrastructures:**

Whether in small businesses or major enterprises – the demands placed on IT performance are growing incessantly.

Highly complex applications, ever faster processors, round-the-clock information and communication call for more than just an intact physical infrastructure. This gives rise to a number of elementary questions:

- **Are the climate control provisions for individual racks, server rooms or even whole computing centres able to handle the greater heat generation?**
- **Are power supply and back-up designed for high availability?**
- **How can optimum use be made of the existing space when IT facilities are expanded?**
- **Are the applications and servers protected in case of hardware failures?**
- **Can all functions be managed efficiently via a perfect monitoring and remote control system?**
- **Can expansion be integrated later without interrupting current operations?**
- **Are all the costs under control in the long term – from investment through to operation and maintenance?**

**Rittal offers the solution: RimatriX5 – the integral, scalable and efficient system solution for ultimate IT performance.**

# The new concept for a secure IT infrastructure:

Cooling

Power

Security

Rack

Monitoring +  
Remote Management

A hand is shown holding a clear glass sphere. The sphere contains the text "IT-Performance" in a bold, sans-serif font. The background of the sphere is a blurred image of a server rack. The hand is positioned in the center of the frame, with fingers spread, holding the sphere. The background is a blue perforated metal mesh.

IT-  
Performance



## **System solutions, not patchwork – scalable, flexible, on demand.**

**With the complete solution, RimatriX5, your servers will at last deliver the performance you paid for. And at the same time you can minimise your costs:**

- Ultimate flexibility reduces initial investment outlay and safeguards the future value of investments
- Reduced operating costs through remote maintenance, administration and high availability
- Modular, scalable components simplify planning
- Minimised installation costs through plug-&-play technology and space-saving rack-based configuration

Whether server room or data centre, whether high or highest availability – RimatriX5 can be adapted to changing needs at any time and can grow with your demands.

The scalable service packages mean that you can obtain your complete solution from a single partner – from software-based configuration to installation and intelligent escalation management strategies, through which failure risks can be quickly recognised in day-to-day operation. That adds up to the operational reliability which your company demands.





**RIMATRIX5**  
DRIVING IT-PERFORMANCE



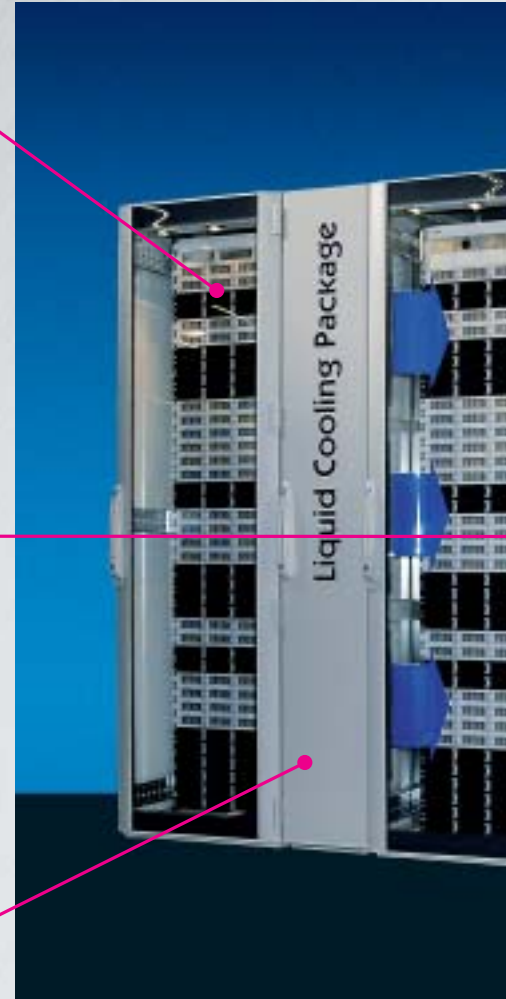
### **Rack**

As the world's leading manufacturer of server and network racks, Rittal is able to offer a comprehensive product range with an unparalleled choice of accessories. This creates ideal conditions for individual configuration of your IT infrastructure. The result: Greater freedom, greater flexibility and greater reliability.



### **Power**

This module secures constant and reliable power supplies. It comprises power supplies to racks and data centres with the Power System concept, as well as the back-up solutions of the modular UPS Power concept.



### **Cooling**

The climate control concept within RimatriX5 cuts the costs of initial investments and helps to safeguard their future value. Scalable climate control concepts such as the Liquid Cooling Package or direct CPU cooling permit the temperature-neutral enhancement of computer centres without building extensions.

## Security

The physical security of the IT racks is one of the essential factors contributing to the high availability of a whole IT infrastructure. Signal lamps and temperature, smoke and vibration sensors, together with sophisticated access control solutions and tested enclosure extinguisher systems, provide reliable protection against external influences.



## Monitoring and Remote Management

Simple handling and a perfect overview: The Monitoring & Remote Management module permits sustained savings in maintenance and operating costs and raises overall availability. The monitoring, measurement and control functions offered via CMC-TC (Computer Multi Control), for example, reduce failure risks to a minimum and enable preventive intervention.





# Five optimum solution modules. An integrated security package. With comprehensive service.



## S E R V I C E

- Worldwide customer proximity through the close-knit Rittal distribution network
- Risk analysis to evaluate availability prerequisites
- Installation, service and commissioning
- Upkeep, repair and warranty services
- Maintenance – proactive security through remote diagnosis and remote administration. The documentation of operating hours and permanent monitoring of all important physical parameters enable early detection of potential escalation and help to intercept faults before damage is incurred.

In this way, the service packages guarantee maximum operational reliability and the greatest possible economic efficiency. After all, nothing is costlier than a failure which brings your business to a standstill.

**ADVICE  
& PLANNING**

**INSTALLATION  
& COMMISSIONING**

**MAINTENANCE**



**Rittal server racks:  
High Tech**





– with cost benefits.

Rittal IT rack TS 8:  
Flexible  
in use,  
optimised  
in design.



**The performance of an IT infrastructure is dependent on the coordinated interaction of its individual components. With RimatriX5 server racks you take delivery of a system platform with perfectly matched climate control, power and security solutions. Optimisation of the available space enhances performance per rack significantly and produces lasting reductions in overhead costs.**

Rittal RimatriX5 places emphasis on maximum packing density and efficient space utilisation. Flexible configuration of the IT racks is a positive influence with regard to TCO and helps to lower the day-to-day rack operating costs.

The heart of the rack-optimised design is the widely proven TS server enclosure platform. Ultramodern and flexible production processes secure excellent performance and value for money.



# ► Greater freedom, greater flexibility, greater reliability

## Frame profile

The symmetrical design ensures an absolute maximum of useful rack volume and permits scalable suite options for optimised space utilisation in all planes.

## Interior configuration

Unique and extremely stable – thanks to the symmetrical two-level principle of the TS 8 profile, there are practically no restrictions placed on interior configuration of the rack, right up to a load capacity of 1000 kg. Depth-variable 482.6 mm (19") mounting angles permit even the individual configuration of heterogeneous server architectures.

## Surface protection

For optimum surface treatment and enhanced corrosion protection, Rittal uses the electrophoretic dipcoat priming process originally developed for the automobile industry.



## Passive ventilation

The perforated front and rear doors can offer a 78 % ventilated surface in their punched plate sections for an optimum air flow to the installed hardware components.





**Access security**

Ultimate access security is provided by a 4-point locking mechanism, which can furthermore be upgraded to integrate electronic access authorisation.



**Cladding**

A broad choice of options cater to individual demands, e.g. with glazed inspection doors, roof plates with cable entries and lockable side panels.



**Operational reliability**

International standards, patents and certification guarantee worldwide approval. The latest earthing and equipotential bonding concepts, as well as optional EMC versions, secure high levels of operational reliability.

# ► Greater freedom, greater flexibility, greater reliability

## **Plinths, integrated base frames, floor fastenings, castors and stabilisers**

A broad range of different modules permits a free choice of flexible floor fastening, cable entry and raised floor assembly options. In this way, individual system requirements can be realised quickly and simply.

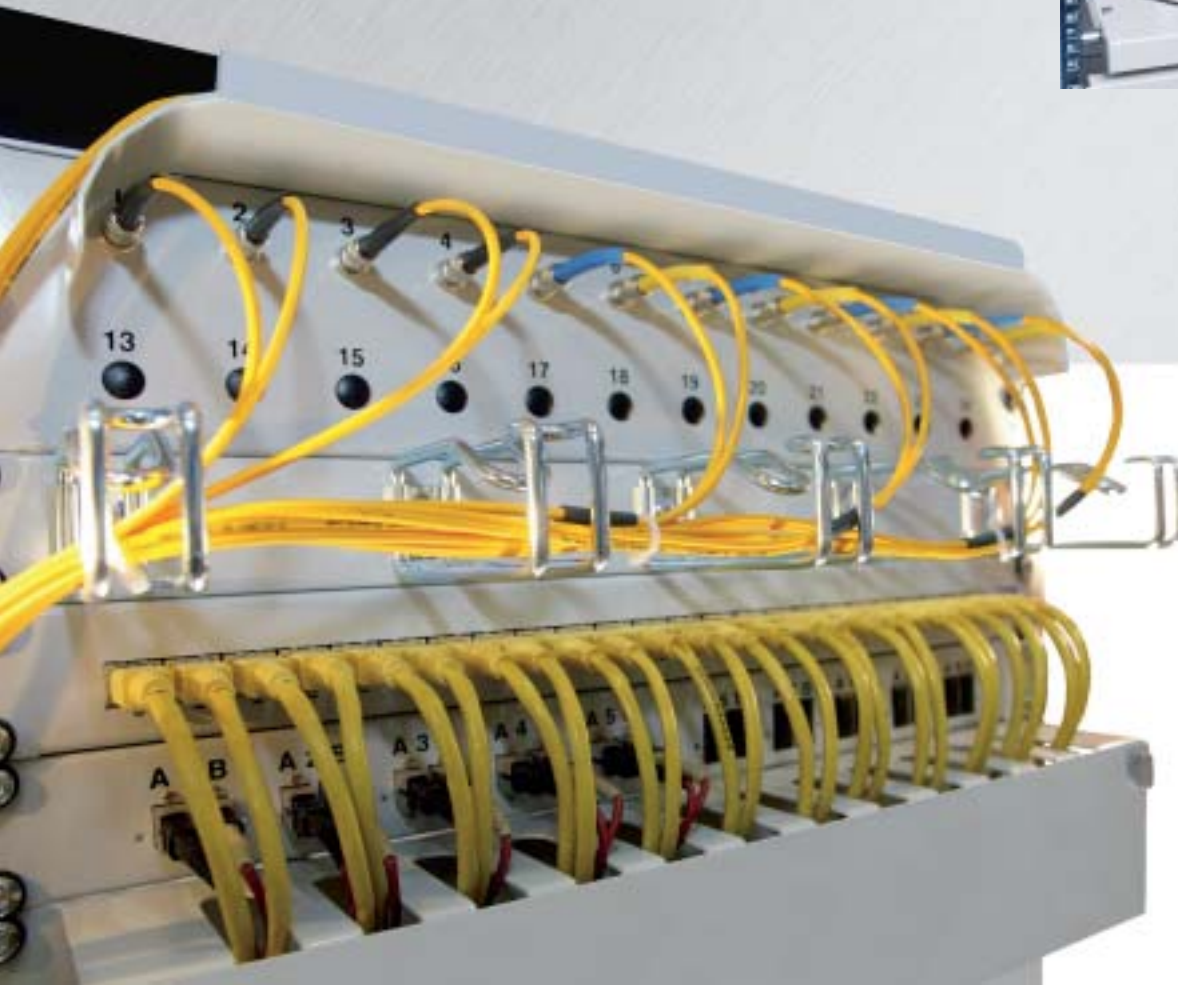
The intelligent rack stabilisers also enhance safety.

Even with a fully configured TS 8 rack, the heavy-duty transport castors keep you mobile and flexible.



## **482.6 mm (19") component shelves**

Whether depth-variable, fixed installation or heavy-duty shelves for loads up to 150 kg – the comprehensive product range fulfils practically every wish when it comes to hardware integration. The slotted shelves also ensure an optimum vertical air flow.



## **Cable management**

From cable management to fibre-optic channels with protected bend radii or surplus cable holders in the rack – cable management is a perfectly tailored system, both internal and external.





#### **Drawers**

Integrated multifunctional drawers provide for tidy accommodation of keyboards, documents or cables – also lockable, if required.



#### **Server integration**

You can still remain flexible where different server architectures are to be housed in a single rack. Depth-variable slide rails and heavy-duty rails for load capacities up to 150 kg. Flexible universal rails for the installation of heterogeneous server architectures using manufacturer-specific mounting kits.



#### **General accessories**

Individual configuration is simplified even further by a unique range of accessories such as swing frames, patch panels, adaptor doors, lighting and much more besides.

# Rittal power management: Availability up,



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Bypass Fuses  
Bypass Sicherung  
Fusible By-Pass

Warning!  
The weight of this UPS  
module is max. 55 kg  
Achtung!  
Das Gewicht dieses  
Moduls ist max. 55 kg  
Attention!  
Le poids maximal de  
ce module est de 55 kg

Warning!  
Full module (front and rear)  
is over 100 kg. Be cautious discharge  
Achtung!

JD 1 (RS 232)  
Break Port  
Serial  
Schnittstelle  
Interface Série

48 2  
Dry Port  
Port/Serie  
Schnittstelle  
Contact Série

EPD 31V  
22V ON / 23V  
Bat. Temp. 23V

SNMP Adapter



**costs down.**

Rittal PMC module:  
Innovative  
power supply  
protection.



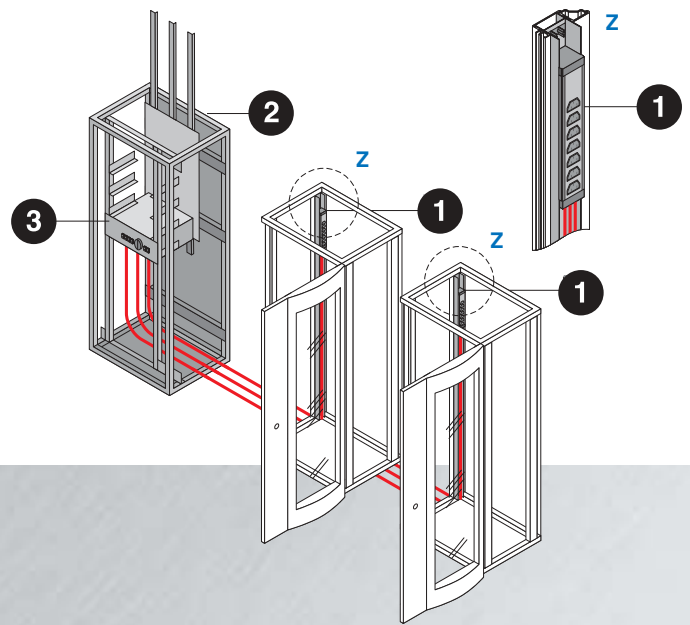
**Interruptions to critical business processes, whether due to hardware faults, production breakdowns, communications failures or insufficient – or even non-existent – protection against voltage fluctuations, can have far reaching consequences. After all, system availability and the reliability of IT infrastructure platforms are decisive factors for the efficiency and productivity of company processes – and thus equally for business success.**

Miniaturisation and the ever greater performance of the hardware components place new demands on modern power management concepts. The answer to this dilemma: Power management with RimatriX5. The demands with regard to redundancy, scalability and maximum availability are bundled into a single system. Together, the solutions help to reduce operating costs and boost the availability of the overall system. It is even possible to retrofit new modules without interrupting operation.

Particularly effective: The “n+1” technology, which ensures optimum redundancy and enhances availability. Indeed, the Power Modular Concept (PMC), with its innovative distributed parallel architecture (DPA), stands for ultimate system availability.



The power management product range for power distribution in the data centre is based on the consistent implementation of plug-&-play expansion – with no need to interrupt current operations. Downtimes are avoided and future operating costs are lowered.



## ▶ Power System Module (PSM)

1

### Busbar

- Fully wired with shock-hazard protection
- Two supply circuits for redundant configuration
- Loads up to 48 A or 96 A

### Plug-in modules

- Various country-specific versions
- Retrofitting without interrupting operation



### Active

#### power system module

- Remote power supply administration via SNMP and HTTP
- Current measurement and display
- Slot switching and user administration

### Optimum cable management

- Space-saving integration into the rack also serves to cut installation costs

## ▶ Power Distribution Rack (PDR) and Power Distribution Module (PDM) for power management between IT racks

2

### Power Distribution Rack

Local distribution up to 250 A permits connection of eight PDM systems

### Expandability

- Expandable without interrupting operation
- VDE-tested shock-hazard protection
- Direct supply-side connection to the PSM busbar

### Redundancy

- Redundant infeed with option of mechanical locking



### Flexibility

Cable-based connection to the PSM busbar for maximum planning flexibility

3

### Power Distribution Module

- Local power distribution up to 40 kW in server and network enclosures
- 4 fused three-phase outputs, 3 x 400/230 V, 16 A each



## ▶ Power Modular Concept (PMC) for power supply protection

PMC provides innovative protection against power supply problems. Through the combination of modularity (scalability and redundancy) and distributed parallel architecture (DPA), it guarantees maximum availability for critical applications.



Thanks to the modular DPA system architecture, it is possible to expand capacities and stored energy times without interrupting operation.

## ▶ Single-phase UPS, power range 1 – 6 kVA

- High-quality double-conversion technology with optimum sine-wave output voltage
- Battery expansion for extended stored energy time



- Intelligent battery management monitors battery readiness and guarantees system availability; furthermore protection against overcharging and exhaustive discharge.
- Scope of delivery offers software compatibility for all standard operating systems
- System load reduced by preventing continuous server polling after shut-down

## ▶ Three-phase UPS, power range 10 – 120 kVA per rack

### Performance/modularity/redundancy

PMC is a new three-phase UPS concept offering modular “n+1” redundancy on the basis of double-conversion technology. The modular configuration permits capacity expansion through the integration of additional hot-swappable UPS modules.

### PMC modules

PMC modules for the power classes 10, 20, 30 and 40 kVA are prepared for 482.6 mm (19”) installation in TS 8 server racks.



### Maximum availability

The “n+1” system architecture means that there are always at least two modules able to share the critical load. If any module should fail, the other modules automatically take over the whole connected load without interruption.





▶ **Integration of up to 3 modules in the IT rack or separate battery enclosure**



Modules can be retrofitted on a hot-swapping basis, without needing to switch the system to a bypass. Stored energy times can be tailored to the individual application.



**DPA**

The distributed parallel architecture comprises integrated control electronics for rectifier, booster, inverter and static bypass. The CPU, furthermore, possesses parallel intelligence for enhanced reliability.

# Rittal cooling: Cool heads





# for hot performers.

Rittal LCP:  
Scalable  
climate control  
for high-performance  
cooling.



**Heat problems in data centres can only be avoided through the implementation of new modular climate control concepts. Due consideration must be given to parameters such as temperature, humidity, the velocity, pressure and direction of air flows, as well as the heat losses of the installed components. Rittal RimatriX5 offers the solutions:**

- Passive cooling (utilising the ambient air)
- Active, rack-specific cooling
- High-performance cooling for temperature-neutral data centre expansion

In each case, the systems are tailored exactly to your specified wishes and application requirements, taking into consideration all ambient conditions. Software-assisted planning tools minimise investment outlay and provide for maximum peace of mind.



# ► Modular climate control made to measure

## Fan systems

Various fan systems are available to enhance air flow distribution in the racks, utilising the ambient air for cooling of the hardware components. Under optimum conditions, fan systems are able to dissipate heat losses of up to 5 kW from the rack.



## Heat exchangers

RimatriX5 solves the problems of climate control for racks with high heat losses of up to 20 kW. Extremely high heat loads can be transported out of the rack with air/water heat exchangers, i.e. the Liquid Cooling Package (LCP). At the same time, these systems are the key to temperature-neutral data centre expansion.



## Cooling units

Cooling units are also able to lower the inside enclosure temperatures to below the ambient temperature. This calls for enclosed systems. The range covers cooling capacities up to 4 kW.



### **CPU cooling**

CPUs, power supply units, hard disk drives and many other electronic components can be cooled directly, efficiently and quietly.



### **Recooling systems**

Recooling systems provide a central chilling and supply station for the coolant media of liquid cooling systems. The spatial separation of the media chilling and cooling processes, permits the temperature-neutral expansion of data centres.



### **Accessories**

Air baffle plates guarantee optimum air flows and direct the cool air to precisely where it is needed.



# Rittal control: Greater confidence







through prevention.

Physical  
IT rack security  
with Rittal  
CMC-TC



**The defined availability of their IT services is, for most companies, the decisive prerequisite for their whole workflow. The security of a physical infrastructure starts with the individual rack and is thus instrumental in maintaining reliable and properly controlled business processes.**

As a key component of RimatriX5, CMC-TC (Computer Multi Control-Top Concept) is a complete security management system for protection against consequential damage and costs, as well as the central organisational interface to facility management.

- Fault and alarm messages are sent to defined service or security management systems, whether central or distributed, enabling the cause of a fault to be eliminated as quickly as possible. Data exchange via bus systems and integration into LAN and building management configurations provide for the transparency of all security-relevant data.
- The modular concept permits tailoring to individual requirements, while automatic sensor detection enables plug-&-play expansion.

Through its incorporation of various preventive aspects, along with the options for integration into central facility management systems, CMC-TC advances to become the central point of information in the data centre.

# ▶ Security modules offer reliable protection against external influences

## Access control

Access authorisation is one of the most important factors in corporate security. Doors can be controlled individually using numerical codes, magnetic cards, transponder technologies, smart cards or the latest biometric systems.



## Climate control

Constant low temperatures are, for electronic components, a prerequisite for a long service life. Monitoring of the inside rack temperature and corresponding adjustment of the climate control systems to ensure reliable dissipation of the arising heat loads make a valuable contribution to minimising operating costs.



## Video

The compact cameras possess an integrated Ethernet port and can be distributed freely across the network, independent of the central control room. Zoom, night-sight and outdoor functions can be selected as required. The camera images can be managed via the Internet or through centrally installed software.



### **Rack extinguisher systems**

With its active air intake feature, the Detection Active extinguisher system offers optimum smoke detection facilities for modern server enclosures. It draws in air samples via a duct system and analyses the contents of this air. Alarms are issued and the extinguisher triggered in two stages. A 3 U high central unit is able to serve several racks in a bayed suite. Integration into data networks (TCP/IP, SNMP, HTTP) is possible via CMC-TC.



### **KVM switches and monitor/keyboard drawers**

Innovative keyboard, video and mouse systems offer a higher level of security, operating comfort and innovation. The auto-configuration function ensures optimum setting of the system. Up to 32 servers can be connected to each switch and provide simultaneous access for up to 8 users. Cascading even permits expansion to incorporate up to 512 servers. Users are connected directly via a 1 U monitor/keyboard drawer, via a remote console at distances up to 300 m or else via a TCP/IP network. System administration is offered via on-screen display (OSD) and two physically separate networks (Syslog, LDAP, Active Directory). Such central administration serves to raise transparency and cuts operating costs.



# Monitoring and Remote Management:

The screenshot displays the Rittal CMC-TC monitoring software interface. The title bar reads "CMC-TC Monitoring Web - Mozilla Internet Explorer". The interface includes a navigation menu with "Status" and "Setup" options. The main content area is titled "Status" and shows a table of monitoring data for six IO units.

IO Unit: I/O A2.1	IO Unit: I/O A2.2
1 Rauch Sensor A2.1.1 OK	1 Strom L1 80%=16A 0%
2 Rauch Sensor A2.1.2 OK	2 Strom L2 80%=16A 0%
3 Rauch Sensor A2.1.3 OK	3 Strom L3 80%=16A 0%
4 Rauch Sensor A2.1.4 OK	4 USV Alarm OK
No Alarm	
IO Unit: I/O A2.3	IO Unit: I/O A2.4
1 Abschalt Temperatur 33°C	1 Einbruch Zugang OK
2 Abschalt Power Off	2 Riegel offen = OK OK
3 Feuchte A2.3.3 28%rH	3 Glasbruchalarm OK
4 Rauch Sensor A2.3.4 OK	4 Zugangskontr. aktiv Off
No Alarm	
DK7200.520: A2.7	not available
1 Spannung L1 230V	





# Security cockpit for your IT infrastructure.

Rittal remote management reduces risks to a minimum.



**The perfect interaction of physical security concepts and remote management, as embodied in RimatriX5, is able to reduce day-to-day costs significantly. After all, targeted remote maintenance and diagnosis for sensitive parameters extends the service life of active components.**

**Security and remote maintenance – with the new remote management software, RimatriX5 offers full service from a single partner.**

The temperatures of racks or particular components, for example, can be analysed and controlled. In the same way, the operating status of the UPS backup can be documented, video surveillance for the rooms and equipment can be monitored, power management can be implemented for individual modules and the operating hours of batteries and fans can be evaluated as a basis for preventive intervention – all from a single software interface. This is a package which sets new standards in the remote management of data centres.

The unique combination of remote management and configuration software in Rittal RimatriX5 guarantees that each individual network infrastructure can be supplied directly with a perfectly matched remote management system.

# ► System-wide monitoring and control enable preventive intervention.

## Monitoring: Power

Comprehensive monitoring and control functions – from active PSM modules and intelligent local power distribution to control and analysis for UPS systems and batteries. Active power system analysis returns information on actual power consumption and supply quality.



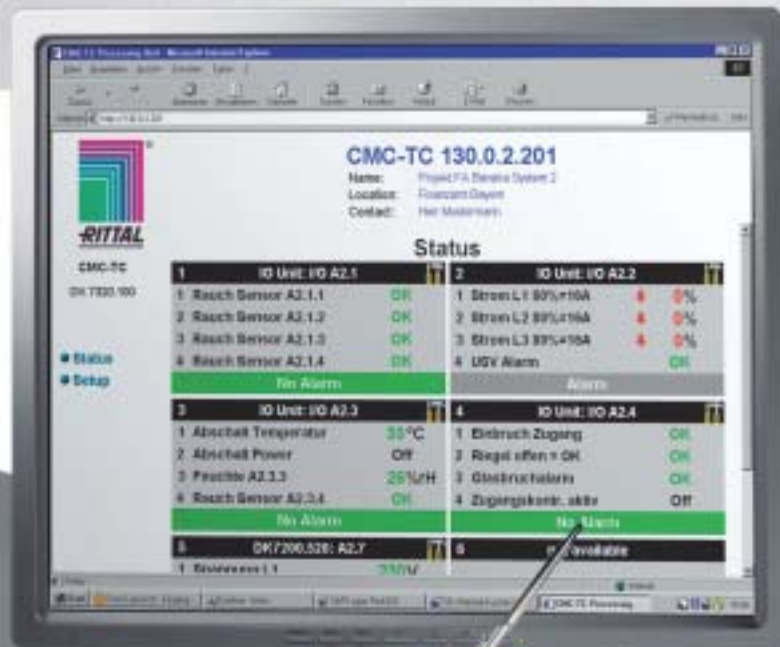
## Monitoring: Climate Control

Everything you need to know, from fan control to the administration of cooling units and high-performance climate control components: The preventive analysis of fan operating hours extends their service life and enhances reliability. Diagnosis via a network saves costs and helps to detect arising faults before they take effect.



## Maintenance

In addition to the hardware and software, the RimatriX5 concept also offers comprehensive individual maintenance services. Through the monitoring of all systems, it is possible to guarantee the shortest possible reaction times for service and maintenance work. System-wide monitoring eliminates potential faults at their source and thus maximises availability.







**Monitoring: Access, temperature, fire protection**

Access monitoring ensures that authorisation rules are observed. At the same time, all relevant events are recorded and extinguisher functions are signalled for the rack in question. The combination of temperature monitoring and access control enables the causes of faults to be recognised more quickly, leaving time to initiate preventive measures.



**Monitoring: Video**

Rack and room surveillance provides a continuous documentation of all events in the data centre.



**Configuration software**

The RimatriX5 configuration software sets new standards for individual project development. Dialogue-based tools for the Rack, Power, Cooling and Security modules enable you – in accordance with the relevant investment decisions and availability – to configure your RimatriX5 structure optimally to suit your particular requirements. The database of the configuration software is the basis for your individual remote management software.

# ► Pre-sales service: Peace of mind from the first day!

## ► The key to profitability is knowledge:

**Knowing**, what you want and need to achieve with your IT.

**Knowing**, which failure risks exist and need to be eliminated.

**Knowing**, which level of availability and security is necessary for your data centre.



This information lays the foundation for a tailored RimatriX5 solution to meet your precise requirements. It goes without saying, that your existing IT infrastructure, room layouts and personnel resources are also taken into account.

Your individual needs, analysed and formulated together with the specialists from Rittal, represent the initial engineering input. After all, neither “oversizing” nor false economy will bring you closer to your goal. It is only through a combination of performance-oriented and cost-aware planning that you can be sure to get what you expect of your IT.

Regardless of whether you are expanding or simply optimising your data centre, whether you operate one or several hundred servers, whether you are a small business or a major enterprise, Rittal offers you comprehensive advice and assists you in the definition, planning and configuration of individually tailored physical infrastructure solutions. And you retain the full freedom to modify or further expand your set-up at any time in the future.

**Performance up – costs down. Rittal RimatriX5 makes it possible.**

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# ► The shortest route to success with RiGetIT.

Individual requirements call for corresponding application-specific solutions. The optimum configuration of all components is decisive. Only in this way can security and economy be integrated into a meaningful whole. With Rittal's RiGetIT, you are offered a user-friendly and efficient planning and configuration software for the complete physical infrastructure. RiWatchIT serves as the basis for effective monitoring and remote management of the day-to-day operations in your data centre.

**Try out the demo version and see for yourself!**



Dialogue-oriented component selection for Rack, Power, Cooling, Security and Remote Management, taking into account your existing equipment.



All selected products are transferred from RimatriX5 into a clearly arranged component list.



In addition, a manual selection option enables you to integrate further items from the whole Rittal product range.



# ▶ The Rittal RimatriX5 service concept: Deliver quality, build success,

When you choose Rittal RimatriX5, you are automatically opting for top quality, maximum reliability and optimum profitability in the form of a perfectly matched system. This naturally includes comprehensive and individual support services to accompany your data centre from the initial building plans right through to secure and reliable continuous operation. Each service module represents another milestone along the road to greater reliability and economically efficient performance.

## ▶ 1. Advice

Your requirements are the starting point. Rittal specialists meet you on site to discuss the various technical solutions and future-oriented technology trends. If necessary, they are also able to measure your power consumption and calculate the heat loads. Initial ROI and TCO analysis indicates which path is the most economical in your individual case. Financial questions can similarly be addressed at this stage.



## ▶ 2. Solution concepts

The necessary components are selected and carefully matched to each other with the aid of the RimatriX5 planning software, RiGetIT. With this tool, the specialists on both our sides jointly develop the optimum overall solution. At the same time, all relevant planning data are collected to enable us to draw up a detailed individual quotation.



## ▶ 3. Realisation

The optimum components for your system can now be configured and manufactured. All RimatriX5 components are thoroughly tested, and it is checked that the delivery is complete. The next step, in close consultation with your company staff, is to plan and coordinate the scheduling of installation.



# secure lasting availability.

## ▶ 4. Logistics

Complex IT infrastructure solutions demand reliable logistics planning in the forefront of installation, to ensure that disturbance to existing operations is kept to an absolute minimum. Rittal controls the necessary logistics and keeps you informed on the progress. The fact that we ensure punctual deliveries, careful mechanical pre-assembly and the disposal of all packaging, almost goes without saying.



## ▶ 5. Installation/commissioning

For Rittal, installation always runs hand in hand with integration. After all, both new and existing components are to be brought together in a perfectly functioning overall system – from the power and water supplies to the access monitoring systems. With this in mind, all installation work is entrusted only to trained specialist staff. Comprehensive function tests and in-depth operator instruction and training round off our service package. Network-integrated implementation of the remote management software is similarly ensured – again including instruction and training.



## ▶ 6. Maintenance

Customer proximity and comprehensive after-sales service are two of the hallmarks of doing business with Rittal, and guarantee optimum performance and system availability for the whole product range. You are able to choose one of four different RimatriX5 SafetyPacks\* or individual maintenance contracts\*. One important aspect of the maintenance process is the remote management software, which guarantees you efficient monitoring and control of your data centre – up to and including automated escalation management.



\* For detailed service descriptions, please refer to the order documents

# ▶ TCO – Total Cost of Ownership: Top marks for Rittal RimatriX5.

Every investment in IT infrastructure has to pay off! For this reason, it is important to scrutinise the costs and services very carefully beforehand. Many a company which has acquired products at an apparently favourable price has been caught out later by the hidden costs which are only revealed in continuous operation. With RimatriX5 from Rittal, however, you can rest assured that your savings will be lasting. The declared principle of RimatriX5, after all, is: **Performance up – costs down!**

In assessments of the total cost of ownership (TCO), RimatriX5 has positive influences on practically all categories of costs:

## ▶ Power consumption, space costs and overheads

- Temperature-neutral data centre expansion with LCP keeps the power consumption for building air-conditioning constant, even after expansion of the computing capacity.
- The rack-optimised design of the RimatriX5 infrastructure keeps space requirements, and thus room and energy costs, to a minimum.
- The power efficiency of the modular UPS systems cuts power and climate control costs.

## ▶ MTTR = Mean time to repair

- The modular concepts of the three-phase UPS system and the liquid cooling package (LCP) ensure the shortest possible repair downtimes.

## ▶ Investment outlay

- The modular design and scalable expansion reduce investment outlay by permitting installations to be tailored to actual demands – without placing restrictions on flexible later expansion.

## ▶ Maintenance

- Proactive security packages monitor and control the hardware through a common system interface. Problems arising are detected as early as possible and can be rectified before damage is incurred.
- Service and maintenance work optimises the system operating parameters.

## ▶ MTBF = Mean time between failure

- Redundant back-up concepts for the power supply and climate control components, in combination with physical IT rack security, ensure the maximum levels of availability.



## ► Global dependability!



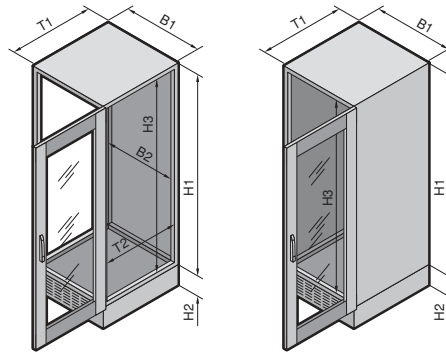
The name Rittal stands for top quality, longstanding experience, continuous innovation, lasting stability, reliable deliveries and customer proximity – worldwide. The global Rittal network – 19 production facilities, 50 subsidiaries, 70 agencies and 150 distribution and logistics centres – is a guarantee for effective customer relations, from competent initial advice through to after-sales service over the lifetime of your data centre.



**RIMATRIX5**  
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## Network enclosures, based on Rittal TS 8, pre-configured

Rack



**Material:**  
Sheet steel

**Surface finish:**  
Enclosure frame:  
Dipcoat-primed  
Doors, roof and base/plinth:  
Dipcoat-primed,  
powder-coated in RAL 7035  
Gland plates, punched sections  
with mounting flanges and  
mounting angles:  
Zinc-plated, passivated






**Supply includes:**  
Enclosure frame with doors or  
rear panel, roof plate,  
vented base/plinth 100 mm,  
earthing of all enclosure panels;  
supplied loose:  
Levelling feet incl. base/plinth  
adaptor,  
4 spacers, for raising the roof,  
4 cable clamp rails for the inner  
frame level,  
10 cable shunting rings  
(105 x 70 mm, plastic),  
50 captive nuts, M6, conductive,  
50 multi-tooth screws M6.

**Version 3**  
Glazed front door, vented, 180°,  
sheet steel rear door, vented,  
180°.  
482.6 mm (19") mounting angles  
at the front and rear, distance  
between levels pre-configured  
740 mm.  
L-shaped mounting angles  
screw-fastened to 2 or 3 depth  
stays respectively.  
Gland plate, one-piece, vented,  
with cable entry.

**Detailed drawing,**  
available on the Internet.

	Version 3	Version 3	Version 3	Version 3	Version 3
<b>U</b>	24	42	42	47	47
<b>Width (B1) in mm</b>	800	800	800	800	800
<b>Height (H1 + H2) in mm</b>	1200 + 100	2000 + 100	2000 + 100	2200 + 100	2200 + 100
<b>Depth (T1) in mm</b>	900	900	1000	900	1000
Clearance width (B2) mm	712	712	712	712	712
Clearance height (H3) mm	1112	1912	1912	2112	2112
Clearance depth (T2) mm	812	812	912	812	912
<b>Model No. DK including 2 plug-in side panels, with security lock 3524 E</b>	<b>7830.120</b>	<b>7830.300</b>	<b>7830.330</b>	<b>7830.320</b>	<b>7830.340</b>
<b>Model No. DK as a bayed enclosure without side panels, incl. baying kit TS 8800.500</b>	–	<b>7830.350</b>	<b>7830.335</b>	<b>7830.370</b>	<b>7830.380</b>

**Network enclosures, based on Rittal TS 8, pre-configured**

	Version 3	Version 3	Version 3	Version 3	Version 3	Page
						
<b>U</b>	24	42	42	47	47	
<b>Width (B1) in mm</b>	800	800	800	800	800	
<b>Height (H1 + H2) in mm</b>	1200 + 100	2000 + 100	2000 + 100	2200 + 100	2200 + 100	
<b>Depth (T1) in mm</b>	900	900	1000	900	1000	
<b>Model No. DK including 2 plug-in side panels, with security lock 3524 E</b>	<b>7830.120</b>	<b>7830.300</b>	<b>7830.330</b>	<b>7830.320</b>	<b>7830.340</b>	
<b>Model No. DK as bayed enclosure without side panels, including baying kit TS 8800.500</b>	–	<b>7830.350</b>	<b>7830.335</b>	<b>7830.370</b>	<b>7830.380</b>	
<b>Doors</b>						
Glazed front door/sheet steel rear door, vented	■	■	■	■	■	
Various door options	from page 63	from page 63	from page 63	from page 63	from page 63	
<b>Side panel</b>						
Side panel, plug-in, IP 20	■	■ (7830.300 only)	■ (7830.330 only)	■/- (7830.320 only)	■/- (7830.340 only)	
Lock for side panel, plug-in, 3524 E	■	■	■	■	■	
Internal latch for side panel, plug-in	7824.510	7824.510	7824.510	7824.510	7824.510	61
Side panel, screw-fastened, IP 55	–	8109.235	8100.235	8129.235	–	61
Baying	from page 62	from page 62	from page 62	from page 62	from page 62	
<b>Roof</b>						
Roof plate for cable entry	■	■	■	■	■	
Roof plate, vented	7826.789	7826.789	7826.780	7826.789	7826.780	65
Roof plate, vented, for cable entry	7826.899	7826.899	7826.809	7826.899	7826.809	65
Fan roof, modular	see page 98	see page 98	see page 98	see page 98	see page 98	
Fan mounting plate, active, with controller	7988.035	7988.035	7988.035	7988.035	7988.035	98
DC fan mounting plate with FCS speed control	7858.488	7858.488	7858.488	7858.488	7858.488	97
Spacers, 50 mm	7967.000	7967.000	7967.000	7967.000	7967.000	65
<b>Base/plinth</b>						
Base/plinth components, solid, front and rear	8601.805	8601.805	8601.805	8601.805	8601.805	59
Gland plate variants	from page 61	from page 61	from page 61	from page 61	from page 61	
Castors	see page 60	see page 60	see page 60	see page 60	see page 60	
<b>Interior installation</b>						
482.6 mm (19") mounting angles, L-shaped (for server technology), front and rear	■	■	■	■	■	
Punched section with mounting flange, interior installation rail systems	from page 65	from page 65	from page 65	from page 65	from page 65	
Cable clamp rails, C rails	see page 75	see page 75	see page 75	see page 75	see page 75	
Earthing/potential equalisation	■	■	■	■	■	
Socket strips, power management	from page 82	from page 82	from page 82	from page 82	from page 82	
Component shelves	from page 67	from page 67	from page 67	from page 67	from page 67	
482.6 mm (19") installation system	from page 78	from page 78	from page 78	from page 78	from page 78	
Cable management	from page 75	from page 75	from page 75	from page 75	from page 75	
CMC-TC system monitoring	from page 103	from page 103	from page 103	from page 103	from page 103	

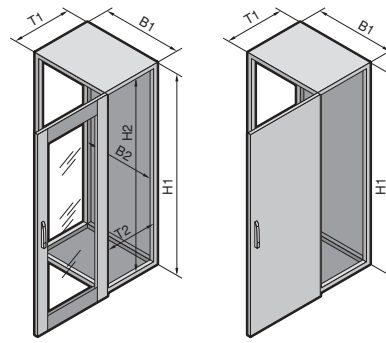
■ Included with the supply.

Rack



## Network enclosures, based on Rittal TS 8, types 1 and 2

Rack



### Type 1

Glazed aluminium door at the front (180°), with 3 mm single-pane safety glass, comfort handle for semi-cylinder and security lock 3524 E; sheet steel door at the rear (130°), with handle and security lock 3524 E.

### Type 2

Sheet steel door at the front (180°), with comfort handle for semi-cylinder and security lock 3524 E; sheet steel door at the rear (130°), with handle and security lock 3524 E.

**Material:**  
Sheet steel

**Surface finish:**  
Enclosure frame: Dipcoat-primed  
Doors and roof: Dipcoat-primed, powder-coated in RAL 7035  
Gland plates and punched sections with mounting flanges: Zinc-plated, passivated

**Supply includes:**  
Enclosure frame with doors, roof plate, multi-piece gland plate, 2 punched sections with mounting flanges in the enclosure depth.

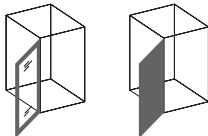
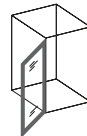
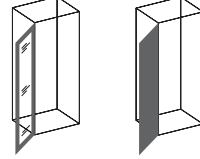
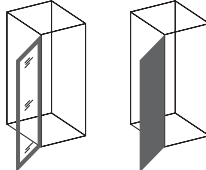
**Approvals,**  
see Catalogue 31, page 82.

**Detailed drawing,**  
available on the Internet.

<b>U</b>	24	24	38	38	42
<b>Width (B1) in mm</b>	800	800	600	800	600
<b>Height (H1) in mm</b>	1200	1200	1800	1800	2000
<b>Depth (T1) in mm</b>	900	1000	900	1000	900
Clearance width (B2) mm	712	712	512	712	512
Clearance height (H2) mm	1112	1112	1712	1712	1912
Clearance depth (T2) mm	812	912	812	912	812
<b>Model No. DK, type 1 with glazed door at the front</b>	<b>7820.355</b>	<b>7820.360</b>	<b>7820.620</b>	<b>7820.670</b>	<b>7820.720</b>
<b>Model No. DK, type 2 with sheet steel door at the front</b>	<b>7821.355</b>	–	<b>7821.620</b>	<b>7821.670</b>	<b>7821.720</b>

<b>U</b>	42	42	42	47	47
<b>Width (B1) in mm</b>	600	800	800	800	800
<b>Height (H1) in mm</b>	2000	2000	2000	2200	2200
<b>Depth (T1) in mm</b>	1000	900	1000	900	1000
Clearance width (B2) mm	512	712	712	712	712
Clearance height (H2) mm	1912	1912	1912	2112	2112
Clearance depth (T2) mm	912	812	912	812	912
<b>Model No. DK, type 1 with glazed door at the front</b>	<b>7820.730</b>	<b>7820.760</b>	<b>7820.770</b>	<b>7820.860</b>	<b>7820.870</b>
<b>Model No. DK, type 2 with sheet steel door at the front</b>	<b>7821.730</b>	<b>7821.760</b>	<b>7821.770</b>	<b>7821.860</b>	<b>7821.870</b>

**Network enclosures, based on Rittal TS 8, 24 – 38 U**

	Type 1	Type 2	Type 1	Type 1	Type 2	Type 1	Type 2	Page
								
<b>U</b>	24		24		38		38	
<b>Width (B1) in mm</b>	800		800		600		800	
<b>Height (H1) in mm</b>	1200		1200		1800		1800	
<b>Depth (T1) in mm</b>	900		1000		900		1000	
<b>Model No. DK</b>	<b>7820.355</b>	<b>7821.355</b>	<b>7820.360</b>	<b>7820.620</b>	<b>7821.620</b>	<b>7820.670</b>	<b>7821.670</b>	
<b>Doors</b>								
Glazed front door/sheet steel rear door	■	–	■	■	–	■	–	
Sheet steel front door/sheet steel rear door	–	■	–	–	■	–	■	
Various door options	from page 63		from page 63		from page 63		from page 63	
180° hinges for sheet steel rear door	8800.190		8800.190		8800.190		8800.190	
<b>Side panel</b>								
Side panel, plug-in, IP 20	7824.129		7824.120		7824.189		7824.180	
Lock for side panel, plug-in	7824.500		–		7824.500		7824.500	
Internal latch for side panel, plug-in, 3524 E	7824.510		–		7824.510		7824.510	
Side panel, screw-fastened, IP 55	–		8176.235		8189.235		8180.235	
Baying	from page 62		from page 62		from page 62		from page 62	
<b>Roof</b>								
Roof plate, solid	■		■		■		■	
Roof plate, vented	7826.789		7826.780		7826.769		7826.780	
Roof plate for cable entry	7826.895		7826.805		7826.695		7826.805	
Roof plate, vented, for cable entry	7826.899		7826.809		7826.699		7826.809	
Fan mounting plate, active, with controller	7988.035		7988.035		7968.035		7988.035	
Fan roof, modular	see page 98		see page 98		see page 98		see page 98	
Spacers, 20 mm	2423.000		2423.000		2423.000		2423.000	
Spacers, 50 mm	7967.000		7967.000		7967.000		7967.000	
Cooling	see page 91		see page 91		see page 91		see page 91	
<b>Base/plinth</b>								
Base/plinth components, vented, front and rear, H = 100 mm	7825.801		7825.801		7825.601		7825.801	
Base/plinth components, solid, front and rear, H = 100 mm	8601.805		8601.805		8601.605		8601.805	
Base/plinth trim panels, side, H = 100 mm	8601.095		8601.015		8601.095		8601.015	
Gland plate variants	from page 61		from page 61		from page 61		from page 61	
Castors	see page 60		see page 60		see page 60		see page 60	
<b>Interior installation</b>								
482.6 mm (19") mounting angles, cranked (for network technology)	7827.120		7827.120		7827.180		7827.180	
482.6 mm (19") mounting angles, L-shaped (for server technology)	7827.121		7827.121		7827.181		7827.181	
Depth stays for mounting angles	7827.900		7827.000		8612.090		7827.000	
Installation brackets for mounting angles	7827.480		7827.480		–		7827.480	
Cable clamp rails	see page 75		see page 75		see page 75		see page 75	
Earthing/potential equalisation	from page 72		from page 72		from page 72		from page 72	
Socket strips/power management	from page 82		from page 82		from page 82		from page 82	
Component shelves	from page 67		from page 67		from page 67		from page 67	
482.6 mm (19") installation system	from page 78		from page 78		from page 78		from page 78	
Cable management	from page 75		from page 75		from page 75		from page 75	
CMC-TC system monitoring	from page 103		from page 103		from page 103		from page 103	

■ Included with the supply.

## Network enclosures, based on Rittal TS 8, 42 U

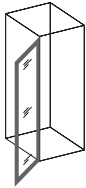

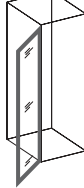

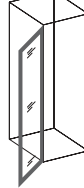
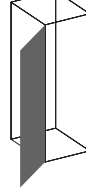
Rack

	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Page
<b>U</b>	42		42		42		
<b>Width (B1) in mm</b>	600		600		800		
<b>Height (H1) in mm</b>	2000		2000		2000		
<b>Depth (T1) in mm</b>	900		1000		900		
<b>Model No. DK</b>	<b>7820.720</b>	<b>7821.720</b>	<b>7820.730</b>	<b>7821.730</b>	<b>7820.760</b>	<b>7821.760</b>	
<b>Doors</b>							
Glazed front door/sheet steel rear door	■	–	■	–	■	–	
Sheet steel front door/sheet steel rear door	–	■	–	■	–	■	
Various door options	from page 63		from page 63		from page 63		
180° hinges for sheet steel rear door	8800.190		8800.190		8800.190		64
<b>Side panel</b>							
Side panel, plug-in, IP 20	7824.209		7824.200		7824.209		61
Lock for side panel, plug-in	7824.500		7824.500		7824.500		61
Internal latch for side panel, plug-in, 3524 E	7824.510		7824.510		7824.510		61
Side panel, screw-fastened, IP 55	8109.235		8100.235		8109.235		61
Baying	from page 62		from page 62		from page 62		
<b>Roof</b>							
Roof plate, solid	■		■		■		
Roof plate, vented	7826.769		7826.760		7826.789		65
Roof plate for cable entry	7826.695		7826.605		7826.895		65
Roof plate, vented, for cable entry	7826.699		7826.609		7826.899		65
Fan mounting plate, active, with controller	7968.035		7968.035		7988.035		98
Fan roof, modular	see page 98		see page 98		see page 98		
Spacers, 20 mm	2423.000		2423.000		2423.000		65
Spacers, 50 mm	7967.000		7967.000		7967.000		65
Cooling	see page 91		see page 91		see page 91		
<b>Base/plinth</b>							
Base/plinth components, vented, front and rear, H = 100 mm	7825.601		7825.601		7825.801		59
Base/plinth components, solid, front and rear, H = 100 mm	8601.605		8601.605		8601.805		59
Base/plinth trim panels, side H = 100 mm	8601.095		8601.015		8601.095		59
Gland plate variants	from page 61		from page 61		from page 61		
Castors	see page 60		see page 60		see page 60		
<b>Interior installation</b>							
482.6 mm (19") mounting angles, cranked (for network technology)	7827.200		7827.200		7827.200		78
482.6 mm (19") mounting angles, L-shaped (for server technology)	7827.201		7827.201		7827.201		78
Depth stays for mounting angles	8612.090		8612.000		7827.900		79
Installation brackets for mounting angles	–		–		7827.480		79
Cable clamp rails	see page 75		see page 75		see page 75		
Earthing/potential equalisation	from page 72		from page 72		from page 72		
Socket strips/power management	from page 82		from page 82		from page 82		
Component shelves	from page 67		from page 67		from page 67		
482.6 mm (19") installation system	from page 78		from page 78		from page 78		
Cable management	from page 75		from page 75		from page 75		
CMC-TC system monitoring	from page 103		from page 103		from page 103		

■ Included with the supply.



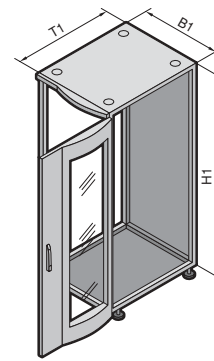
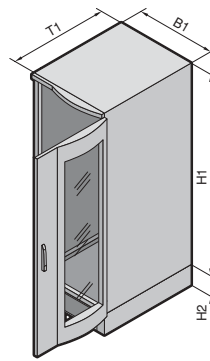
**Network enclosures, based on Rittal TS 8, 42 – 47 U**

	Type 1	Type 2	Type 1	Type 2	Type 1	Type 2	Page
							
<b>U</b>	42		47		47		
<b>Width (B1) in mm</b>	800		800		800		
<b>Height (H1) in mm</b>	2000		2200		2200		
<b>Depth (T1) in mm</b>	1000		900		1000		
<b>Model No. DK</b>	<b>7820.770</b>	<b>7821.770</b>	<b>7820.860</b>	<b>7821.860</b>	<b>7820.870</b>	<b>7821.870</b>	
<b>Doors</b>							
Glazed front door/sheet steel rear door	■	–	■	–	■	–	
Sheet steel front door/sheet steel rear door	–	■	–	■	–	■	
Various door options	from page 63		from page 63		from page 63		
180° hinges for sheet steel rear door	8800.190		8800.190		8800.190		64
<b>Side panel</b>							
Side panel, plug-in, IP 20	7824.200		7824.229		7824.220		61
Lock for side panel, plug-in	7824.500		7824.500		7824.500		61
Internal latch for side panel, plug-in, 3524 E	7824.510		7824.510		7824.510		61
Side panel, screw-fastened, IP 55	8100.235		8129.235		–		61
Baying	from page 62		from page 62		from page 62		
<b>Roof</b>							
Roof plate, solid	■		■		■		
Roof plate, vented	7826.780		7826.789		7826.780		65
Roof plate for cable entry	7826.805		7826.895		7826.805		65
Roof plate, vented, for cable entry	7826.809		7826.899		7826.809		65
Fan mounting plate, active, with controller	7988.035		7988.035		7988.035		98
Fan roof, modular	see page 98		see page 98		see page 98		
Spacers, 20 mm	2423.000		2423.000		2423.000		65
Spacers, 50 mm	7967.000		7967.000		7967.000		65
Cooling	see page 91		see page 91		see page 91		
<b>Base/plinth</b>							
Base/plinth components, vented, front and rear, H = 100 mm	7825.801		7825.801		7825.801		59
Base/plinth components, solid, front and rear, H = 100 mm	8601.805		8601.805		8601.805		59
Base/plinth trim panels, side H = 100 mm	8601.015		8601.095		8601.015		59
Gland plate variants	from page 61		from page 61		from page 61		
Castors	see page 60		see page 60		see page 60		
<b>Interior installation</b>							
482.6 mm (19") mounting angles, cranked (for network technology)	7827.200		7827.220		7827.220		78
482.6 mm (19") mounting angles, L-shaped (for server technology)	7827.201		7827.220		7827.221		78
Depth stays for mounting angles	7827.000		7827.900		7827.000		79
Installation brackets for mounting angles	7827.480		7827.480		7827.480		79
Cable clamp rails	see page 75		see page 75		see page 75		
Earthing/potential equalisation	from page 72		from page 72		from page 72		
Socket strips/power management	from page 82		from page 82		from page 82		
Component shelves	from page 67		from page 67		from page 67		
482.6 mm (19") installation system	from page 78		from page 78		from page 78		
Cable management	from page 75		from page 75		from page 75		
CMC-TC system monitoring	from page 103		from page 103		from page 103		

■ Included with the supply.

## Network enclosures, based on Rittal flexRack(i), pre-configured and standard version

Rack



**Material:**

Vertical frame sections:  
Extruded aluminium section  
Base, roof frame, base/plinth,  
panels: Sheet steel

**Surface finish:**

Enclosure panels:  
Spray-finished in RAL 7035  
Frame sections and doors:  
RAL 9006  
Lock panels: RAL 7035  
Viewing window:  
tinted, grey  
Gland plates, 482.6 mm (19")  
mounting angles:  
zinc-plated, passivated

**Supply includes:  
Pre-configured:**

Multi-platform frame FR(i) with  
designer glazed front door  
(130°), sheet steel rear door  
(130°).  
Roof plate, side panels, vented  
base/plinth, gland plate, interior  
installation depending on  
design, see table on page 47.  
Earthing of all enclosure panels,  
comfort handles for semi-  
cylinders with security  
lock 12321, front and rear.

**Supply includes:  
Standard version:**

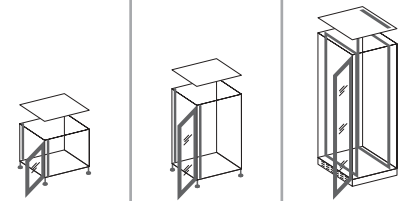
Multi-platform frame FR(i) with  
designer glazed front door  
(130°), sheet steel rear door  
(130°), solid roof plate, multi-  
piece gland plate, levelling feet,  
comfort handles for semi-  
cylinder with security  
lock 12321, front and rear.

**Property rights:**

German patent no. 103 11 376  
German Registered Design  
no. 403 04 312 and 401 03 180  
British Registered Design  
no. 301 54 31 and 210 49 77  
US Design Patent no. 479,241

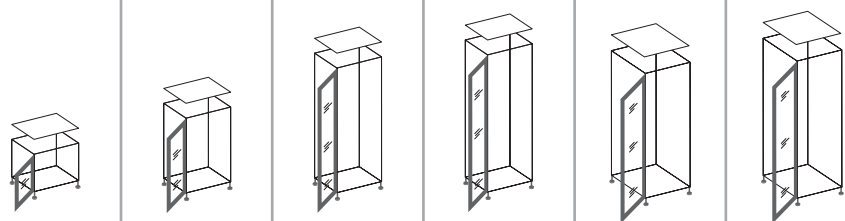
**Detailed drawing,**  
available on the Internet.

### Pre-configured



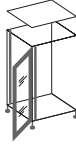
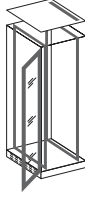
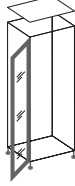
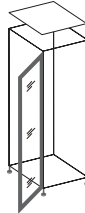
<b>U</b>	11	24	42
<b>Width (B1) in mm</b>	600	600	800
<b>Height (H1 + H2) in mm</b>	600	1200	2000 + 100
<b>Depth (T1) in mm</b>	1005	1005	1005
<b>Depth absolute, including handles and curvature (T1) mm + 90 mm</b>	1095	1095	1095
<b>Model No. FR(i) as single enclosure including 2 side panels</b>	<b>7855.500</b>	<b>7855.510</b>	<b>7855.570</b>
<b>Model No. FR (i) as bayed enclosure without side panels, including baying kit</b>	-	-	<b>7855.560</b>

### Standard version



<b>U</b>	11	24	42	47	42	47
<b>Width (B1) in mm</b>	600	600	600	600	800	800
<b>Height (H1) in mm</b>	600	1200	2000	2200	2000	2200
<b>Depth (T1) in mm</b>	1005	1005	1005	1005	1005	1005
<b>Depth absolute, including handles and curvature (T1) mm + 90 mm</b>	1095	1095	1095	1095	1095	1095
<b>Model No. FR(i)</b>	<b>7855.620</b>	<b>7855.640</b>	<b>7855.670</b>	<b>7855.680</b>	<b>7855.720</b>	<b>7855.740</b>

**Network enclosures, based on Rittal flexRack(i), pre-configured and standard version**

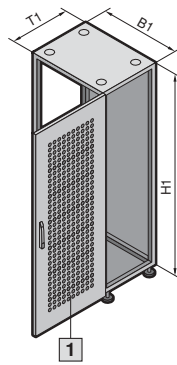
Pre-configured				Standard version						
										
U	11	24	42	11	24	42	47	42	47	Page
Width (B1) in mm	600	600	800	600	600	600	600	800	800	
Height (H1) in mm	600	1200	2000 + 100	600	1200	2000	2200	2000	2200	
Depth (T1) in mm	1005	1005	1005	1005	1005	1005	1005	1005	1005	
Depth absolute, including handles and curvature (T1) mm + 90 mm	1095	1095	1095	1095	1095	1095	1095	1095	1095	
Model No. FR(i) single enclosure, including 2 side panels	7855.500	7855.510	7855.570	-	-	-	-	-	-	
Model No. FR(i) bayed enclosure without side panels, including baying kit	-	-	7855.560	-	-	-	-	-	-	
Model No. FR(i)	-	-	-	7855.620	7855.640	7855.670	7855.680	7855.720	7855.740	
<b>Doors</b>										
Designer glazed front door/sheet steel rear door	■	■	■	■	■	■	■	■	■	
Various door variants, based on TS 8, available on request	-	-	-	-	-	-	-	-	-	
<b>Side panel</b>										
Side panel, plug-in including security lock 12321	■	■	■ (7855.570 only)	7856.663	7856.672	7856.687	7856.696	7856.687	7856.696	61
Internal latch for side panel, plug-in	■	■	■	7856.700	7856.700	7856.700	7856.700	7856.700	7856.700	61
Baying	from page 62									
<b>Roof</b>										
Designer roof plate, solid	■	■	-	■	■	■	■	■	■	
Designer roof plate for cable entry, two-piece	-	-	■	-	-	-	-	-	-	
Various roof plate variants, based on TS 8	from page 65									
<b>Base/plinth</b>										
Base/plinth components, solid, front and rear	8601.605	8601.605	8601.805	8601.605	8601.605	8601.605	8601.605	8601.805	8601.805	59
Base/plinth components, vented, front and rear	7825.601	7825.601	■	7825.601	7825.601	7825.601	7825.601	7825.801	7825.801	59
Base/plinth trim, side	8601.015	8601.015	■	8601.015	8601.015	8601.015	8601.015	8601.015	8601.015	59
Gland plate, fitted as an infill panel at the front, rear section open	-	-	■	-	-	-	-	-	-	
Gland plate, one-piece, vented	■	■	-	-	-	-	-	-	-	
Gland plate, multi-piece	-	-	-	■	■	■	■	■	■	
Gland plate variants, based on TS 8	from page 61									
<b>Interior installation</b>										
482.6 mm (19") mounting angles, L-shaped	■ (front)	■ (front)	7856.809	7856.800	7856.803	7856.809	7856.812	7856.809	7856.812	78
482.6 mm (19") mounting frame	7856.710	7856.713	■ (front and rear)	7856.710	7856.713	7856.719	7856.722	7856.731	7856.734	78
Punched sections with mounting flanges, interior installation of rail systems	from page 65									
Cable clamp rails	from page 75									
Earthing/potential equalisation	from page 72									
Socket strips/power management	from page 82									
Component shelves	from page 69									
482.6 mm (19") installation system	from page 78									
4 hammerhead rails including system adaptor, supplied loose, for cable clamping in the enclosure depth	-	-	■	-	-	-	-	-	-	
10 cable shunting rings 105 x 70 mm, supplied loose	-	-	■	-	-	-	-	-	-	
50 cage nuts and multi-tooth screws, supplied loose	-	-	■	-	-	-	-	-	-	
Cable management	from page 75									
CMC-TC system monitoring	from page 103									

■ Included with the supply.

**Accessories** Catalogue 31, page 832 **Security** page 103 **Cooling** page 91



## Based on Rittal TS 8, pre-configured



Rack

### Design features

- Firmly linked frame structure
- Front and rear door fully vented; free vented surface area 78 % in the perforated plate part
- 4-point locking, 2-point locking with multiple door versions
- Door hinge may be swapped to opposite side without any machining
- Cable entry via the roof and base
- Bayable at all levels
- Load capacity up to 1000 kg



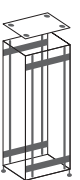

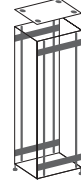
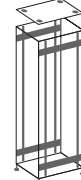
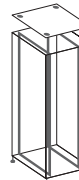
**Material:**  
Sheet steel

**Surface finish:**  
Enclosure frame:  
Dipcoat-primed  
Enclosure panels:  
Dipcoat-primed, powder-coated in RAL 7035 or RAL 9005  
Mounting angles and punched sections with mounting flanges:  
Zinc-plated, passivated

**Supply includes:**  
Enclosure frame TS 8 with sheet steel doors front and rear, vented, with 130° hinges, L-shaped, depth-variable fitted mounting angles and/or 482.6 mm (19") mounting frame, levelling feet, comfort handle with security lock and 4-point lock.

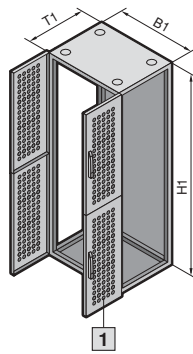
**Detailed drawing,** available on the Internet.

**1** Optimised air flow

								
<b>Number of front and rear doors</b>		1	1	1	1	1	1	1
<b>U</b>		24	24	42	42	47	47	42
<b>Width (B1) in mm</b>		600	600	600	600	600	600	800
<b>Height (H1) in mm</b>		1200	1200	2000	2000	2200	2200	2000
<b>Depth (T1) in mm</b>		900	1000	900	1000	900	1000	1000
<b>Model No. DK as bayed enclosure without side panels</b>	RAL 7035	<b>7831.431</b>	<b>7831.433</b>	<b>7831.436</b>	<b>7831.438</b>	<b>7831.440</b>	<b>7831.442</b>	<b>7831.446</b>
	RAL 9005	<b>7831.432</b>	<b>7831.434</b>	<b>7831.437</b>	<b>7831.439</b>	<b>7831.441</b>	<b>7831.443</b>	–
<b>Doors</b>								
Sheet steel doors, vented, front and rear <sup>1)</sup>		■	■	■	■	■	■	■
<b>Roof</b>								
with openings for cable entry		■	■	■	■	■	■	■
<b>Base/plinth</b>								
Levelling feet		■	■	■	■	■	■	■
<b>Interior installation</b>								
482.6 mm (19") levels, front and rear		■	■	■	■	■	■	■
L-shaped mounting angles		■	■	■	■	■	■	–
Mounting angles attached to depth stays		■	■	■	■	■	■	–
482.6 mm (19") mounting frames front and rear		–	–	–	–	–	–	■
Panel earthing, fitted		■	■	■	■	■	■	■
<b>Accessories</b>								
Plug-in side panels with T lock	RAL 7035	7824.129	7824.120	7824.209	7824.200	7824.229	7824.220	7824.200
	RAL 9005	7816.129	7816.120	7816.209	7816.200	7816.229	7816.220	–
Security lock for side panels		7824.500	7824.500	7824.500	7824.500	7824.500	7824.500	7824.500
Base attachment bracket		8800.210	8800.210	8800.210	8800.210	8800.210	8800.210	8800.210
Depth-variable slide rail, 1 U		7063.880	7063.880	7063.880	7063.880	7063.880	7063.880	7063.880
Stabiliser, pull-out		7825.200	7825.250	7825.200	7825.250	7825.200	7825.250	7825.250

■ Included with the supply. <sup>1)</sup> Free surface area in perforated plate part 78 %.

Based on Rittal TS 8, pre-configured, multi-door



**Design features**

- Firmly linked frame structure
- Front and rear door fully vented; free vented surface area 78 % in the perforated plate part
- 4-point locking, 2-point locking with multiple door versions
- Door hinge may be swapped to opposite side without any machining
- Cable entry via the roof and base
- Bayable at all levels
- Load capacity up to 1000 kg

Rack

**Material:**  
Sheet steel

**Surface finish:**  
Enclosure frame:  
Dipcoat-primed  
Enclosure panels:  
Dipcoat-primed, powder-coated in RAL 7035 or RAL 9005  
Mounting angles and punched sections with mounting flanges:  
Zinc-plated, passivated

**Supply includes:**  
Enclosure frame TS 8 with sheet steel doors front and rear, vented, with 130° hinges, L-shaped, depth-variable fitted mounting angles and/or 482.6 mm (19") mounting frame, levelling feet, comfort handle with security lock and 4-point lock.

**Detailed drawing,** available on the Internet.

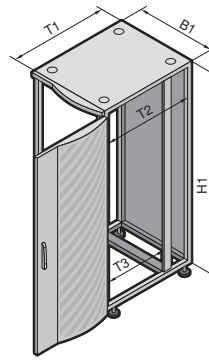
**1** Optimised air flow

<b>Number of front and rear doors</b>		2	2 (vertically divided)	4
<b>U</b>		2 x 21	2 x 21	4 x 10
<b>Width (B1) in mm</b>		600	600	600
<b>Height (H1) in mm</b>		2200	2200	2200
<b>Depth (T1) in mm</b>		900	900	900
<b>Model No. DK as a bayed enclosure without side panels</b>	RAL 7035	<b>7831.450</b>	<b>7831.457</b>	<b>7831.460</b>
	RAL 9005	<b>7831.451</b>	<b>7831.458</b>	<b>7831.461</b>
<b>Doors</b>				
Sheet steel doors, vented, front and rear <sup>1)</sup>		■	■	■
<b>Roof</b>				
with openings for cable entry		■	■	■
<b>Interior installation</b>				
482.6 mm (19") level, front and rear		■	■	■
L-shaped mounting angles		■	■	■
Mounting angles attached to depth stays		■	■	■
Individual compartments, partitioned		■	■	■
Protected, separate cable routing per compartment		■	■	■
Panel earthing, fitted		■	■	■
<b>Accessories</b>				
Plug-in side panels with T lock	RAL 7035	7824.229	7824.229	7824.229
	RAL 9005	7816.229	7816.229	7816.229
Security lock for side panels		7824.500	7824.500	7824.500
Base mounting bracket		8800.210	8800.210	8800.210
Depth-variable slide rail, 1 U		7063.878	7063.878	7063.878
Stabiliser, pull-out		7825.200	7825.200	7825.200

■ Included with the supply. <sup>1)</sup> Free surface area in perforated plate part 78 %.

## Based on Rittal flexRack(i), 1000 and 1200 mm deep, pre-configured

Rack



### Design features

- Enclosure system may be dismantled because the vertical sections are screw-fastened to the roof and base frame.
- Aluminium vertical section with multi-functional system channel
- Vented front and rear door with free surface area of 64 % in the perforated plate part
- 2-point locking
- Cable entry via the roof and base

- Pull-out stabiliser
- Bayable
- Load capacity up to 1000 kg

### Material:

Vertical frame sections: Extruded aluminium section.  
Roof frame, panels: Sheet steel

### Surface finish:

Enclosure panels/door trim panel: Spray-finished in RAL 7035

Frame sections, perforated plate of door: RAL 9006  
482.6 mm (19") mounting angles: Zinc-plated, passivated

### Supply includes:

System frame section FR(i)<sup>1)</sup> with designer door, vented, sheet steel door at rear, vented, levelling feet, stabiliser, earthing of all enclosure panels, comfort handles for semi-cylinders with security lock 12321.

### Property rights:

German patent no. 103 11 376  
German registered design no. 403 04 312 and 401 03 180  
British Registered Design no. 301 54 31 and 210 49 77  
US Design Patent no. 479,241

**Detailed drawing,** available on the Internet.

<b>U</b>	24	42	24	42
<b>Width (B1) in mm</b>	600	600	600	600
<b>Height (H1) in mm</b>	1200	2000	1200	2000
<b>Depth (T1) in mm</b>	1005	1005	1205	1205
<b>Depth absolute, including handles and roof curvature (T1) mm + 90 mm</b>	1095	1095	1295	1295
Maximum distance between levels (T2) mm	829	829	1029	1029
Distance between the 482.6 mm (19") levels (T3) mm	750	750	850	850
<b>Model No. FR(i) as bayed enclosure without side panels</b>	<b>7855.310</b>	<b>7855.330</b>	<b>7855.312</b>	<b>7855.332</b>
<b>Doors</b>				
Designer door, front, vented <sup>2)</sup>	■	■	■	■
Sheet steel door, rear, vented <sup>2)</sup>	■	■	■	■
<b>Roof</b>				
Solid roof plate	■	-	■	-
Roof plate with cable entry openings	-	■	-	■
<b>Base frame</b>				
Levelling feet	■	■	■	■
Stabiliser	■	■	■	■
<b>Interior installation</b>				
482.6 mm (19") mounting angles, front	■	■	■	■
482.6 mm (19") mounting frame, rear	■	■	■	■
<b>Earthing</b>				
Earthing of all enclosure panels on the enclosure frame	■	■	■	■
1 central earthing point fitted at the rear of the base frame	■	■	■	■
<b>Accessories</b>				
2 designer side panels with beading, including security lock 12321	7856.672	7856.687	7856.673	7856.688
Transport kit, 4 castors including assembly parts	7825.900	7825.900	7825.900	7825.900

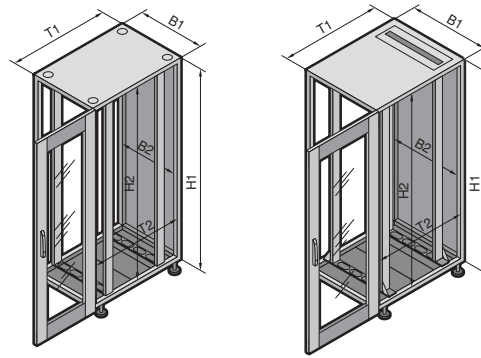
<sup>1)</sup> The system frame FR(i) is generally suitable for the installation of TS 8 accessories. <sup>2)</sup> Free surface area in the perforated plate part 64 %.

■ Included with the supply.

**Accessories** Catalogue 31, page 832 **Liquid Cooling** page 100



**Network/server enclosures for high performance cooling systems HPC**



**Material:**

Sheet steel

**Surface finish:**

Dipcoat-primed, panels additionally powder-coated, RAL 7035.

Doors, roof, gland plates and 482.6 mm (19") mounting frame zinc-plated, passivated.

**Supply includes:**

Enclosure frame with doors and/or rear panel, roof plate, gland plate, 482.6 mm (19") interior installation, earthing of all panels, levelling feet, fitted.

**Version 7:**

Glazed aluminium door at the front, (180°), with 3 mm single-pane safety glass, sheet steel door at the rear, (130°), comfort handle for semi-cylinder and security lock 3524 E on both sides.

482.6 mm (19") mounting frame front and rear, distance between levels pre-configured 740 mm, free space to front door approx. 100 mm, max. load capacity of the interior installation 10,000 Newtons per rack. Roof plate with concealed round holes in the corner areas for cable entry. Multi-divided base/gland plate. Maximum attainable protection category IP 55, in conjunction with solid roof (bayed solution) and additional screw-fastened side panels with stand-alone siting.

**Version 8:**

Glazed aluminium door at the front, (180°), with 3 mm single-pane safety glass, sheet steel door at the rear, (130°), comfort handle for semi-cylinder and security lock 3524 E on both sides.

482.6 mm (19") mounting frame front and rear, distance between levels pre-configured 740 mm, free space to front door approx. 100 mm, max. load capacity of the interior installation 10,000 Newtons per rack. Roof plate, two-piece for cable entry via sliding plate. Multi-divided base/gland plate. Maximum attainable protection category IP 55, in conjunction with solid roof (bayed solution) and additional screw-fastened side panels with stand-alone siting.

	Version 7	Version 8
<b>U</b>	42	42
<b>Width (B1) in mm</b>	600	800
<b>Height (H1) in mm</b>	2000	2000
<b>Depth (T1) in mm</b>	1000	1000
Clearance width (B2) mm	512	712
Clearance height (H2) mm	1912	1912
Clearance depth (T2) mm	512	712
<b>Model No. DK</b>	<b>7831.810</b>	<b>7831.800</b>

## Monitoring



### Monitor/keyboard unit, 1 U with 15" and 17" TFT display

This compact 1 U console in a new 2-colour design was developed for secure, space-saving server administration. In order to access other servers, this monitor/keyboard unit is easily combined with the Rittal KVM switches SSC view 8 and SSC view 32 Cat (see page 53). This makes it possible to connect up to 8 servers to one unit in 1 U. The special thing about this compact solution is that despite its small size, a 482.6 mm (19") keyboard including numeric keypad and touchpad has been integrated. The minimal depth of the unit, at just 490 mm (610 mm with 17" TFT display, each without SSC extension), makes it suitable for installation in enclosures of depth 700 – 1000 mm. The installation kits supplied permit adaptation to an existing difference between levels of 680 – 850 mm for the 482.6 mm (19") levels.

When closed, the drawer can be locked for protection against unauthorised operation. In order to prevent heat accumulation when folded, the backlight is deactivated automatically. The illuminated master switch is easily accessible on the front.

Upon request, it is also possible to integrate a trackball instead of the touchpad and the numerical keypad (international versions). The display may be activated in both analog and digital form via the new standard Digital Visual Interface (DVI), which makes this monitor unit particularly future-proof for forthcoming server generations. The integral active mini-speakers ensure audio feedback in case of error messages or system sounds. The unit has a German keyboard layout. Versions in English and French, as well as country- and customer-specific versions, including USB keyboard connection, available on request.

#### Supply includes:

Complete monitor/keyboard unit in colour version RAL 7035 (light grey) or RAL 9005 (black) with design elements and handle in RAL 9006 (silver) including assembly parts and all the required connection cables (approx. 1.6 m) for:

- Power supply
- VGA (15-pole D-Sub)
- DVI-D
- Audio (2 x jack plugs 3.5 mm, stereo)
- Keyboard connection (PS/2)
- Mouse connection (touchpad or trackball, PS/2).

		15"		17"	
		RAL 7035/ RAL 9006	RAL 9005/ RAL 9006	RAL 7035/ RAL 9006	RAL 9005/ RAL 9006
Touchpad	German	<b>9050.100</b>	<b>9050.200</b>	<b>9050.300</b>	<b>9050.400<sup>1)</sup></b>
	English	<b>9050.102</b>	<b>9050.202</b>	<b>9050.302<sup>1)</sup></b>	<b>9050.402<sup>1)</sup></b>
	French	<b>9050.103<sup>1)</sup></b>	<b>9050.203<sup>1)</sup></b>	<b>9050.303<sup>1)</sup></b>	<b>9050.403<sup>1)</sup></b>
Trackball	German	<b>9050.150</b>	<b>9050.250</b>	<b>9050.350</b>	<b>9050.450</b>
	International	<b>9050.151<sup>2)</sup></b>	<b>9050.251<sup>2)</sup></b>	<b>9050.351<sup>2)</sup></b>	<b>9050.451<sup>2)</sup></b>

#### Technical design

TFT screen with anti-reflection coated safety glass	15" (381 mm)	17" (432 mm)
Maximum resolution	1024 x 768	1280 x 1024
Colours	16.7 million	
Brightness	250 cd/m <sup>2</sup>	
Contrast ratio	approx. 400 : 1	
Sound	2 active mini-speakers	
Mains voltage	100 – 240 V AC, 50 – 60 Hz	
Dimensions (W x H x D)	448 mm x 1 U x 490 mm	448 mm x 1 U x 610 mm

#### Connections at the rear

Mains voltage	IEC 320 connection
Video input	Analog (D-SUB 15-pole, jack)
	Digital (DVI-D, jack)
Audio	3.5 mm, stereo
Keyboard	PS/2, jack
Mouse	PS/2, jack
Power out	(12 V DC) for SSC view 8/view 32 Cat

<sup>1)</sup> Extended delivery times. <sup>2)</sup> International version only available with trackball and without numeric keypad. Please state the required language on the order.

Versions: French/Spanish/Portuguese/Italian/Danish/Norwegian/Finnish/Swedish/Belgian/  
UK English/US English with Euro/Swiss/German. Other country-specific versions available on request



1



2

**SSC view 8/SSC view 32 Cat  
8 or 32-port KVM switch  
for monitor/keyboard unit 9050.XXX**

This compact SSC view optionally extends the Rittal monitor/keyboard unit to include the function of an 8- or 32-port KVM switch, without requiring an additional U in the server rack for mounting. The switch may be mounted behind the existing monitor unit, and voltage is supplied via the power pack integrated into the drawer. The SSC has a password-protected OSD menu, but server selection may also be made via hotkeys.

The SSC view 8 may be cascaded with KVM switches from the SSCmulti series if more than the 8 servers are to be administered. In this way, the Rittal SSC switching system is able to grow flexibly in line with requirements. With the SSC view 32 Cat, the computers are connected via CAT cables and SSC converters (PS/2 or USB). In this way, the signals for video, keyboard and mouse are transmitted via a shared cable. This cuts down on cabling work considerably, particularly in fully populated racks. One SSC converter is required for each computer. Processor-controlled keyboard and mouse emulation for each channel ensures fault-free booting and reliable switching between the connected computers.

Rittal SSC	1 SSC view 8	2 SSC view 32 Cat
Model No. DK	7552.000	7552.100
<b>Equipment</b>		
Number of computers in stand-alone mode	8	32
Number of users	1	1
Number of users that may be administered (with allocation of rights)	2	10
Cascading as slave to SSCmulti series	■	–
Integral user/computer administration	■	■
OSD menu with mouse operation (English)	■	■
OSD superimposed on computer screen (may be deactivated)	■	■
OSD display of channels used	■	■
Hotkeys for computer selection	■	■
Autoscan	■	■
Autoskip (skip over unused channels)	■	■
Cable type to computer (view 8) or to SSC converter (view 32)	VGA/HD15, PS/2	Cat 5, 6, 7
Maximum cable length, SSC to computer (depending on cable quality)	4 m	15 m (30 m)
Port and system support	PS/2 <sup>1)</sup>	PS/2, USB, SUN-USB
Automatic cable alignment (manually readjustable)	–	■ <sup>3)</sup>
LED displays (rear)	None	Power
Maximum video resolution (depending on cable length)	1280 x 1024@85 Hz	1920 x 1440@75 Hz
Bandwidth	200 MHz	250 MHz
<b>Connections</b>		
Computer	SUB-HD15/PS/2	RJ45
Console	SUB-HD15/PS/2	SUB-HD15/PS/2
Service (for firmware update)	–	Jack 2.5 mm
Power supply 12 V from monitor/keyboard unit <sup>2)</sup>	Hollow connector	Hollow connector
External power supply	12 V/approx. 0.8 A	12 V/approx. 1.0 A
Power consumption (approx.)	9 W	12 W
Operating temperature	+5 to +45°C	+5 to +45°C
Protection category	IP 40	IP 40
Enclosure	Sheet steel, powder-coated	Sheet steel, powder-coated
Colour	RAL 9006	RAL 9006
Dimensions (excluding projecting parts) approx. W x H x D mm	325 x 44 x 85	325 x 44 x 85
Dimensions (with rack installation) approx. W x H x D	19" x 1 U x 140 mm	19" x 1 U x 140 mm
Certifications	CE	CE
<b>Accessories</b>		
3 SSC converter PS/2	–	7552.201
4 SSC converter USB	–	7552.202
SSC converter SUN-USB (German)	–	7552.203
SSC converter SUN-USB (US English)	–	7552.204
5 CPU cable 2 m (with interlocking PS/2 connectors)	7552.120	–
CPU cable 4 m (with interlocking PS/2 connectors)	7552.140	–
Cat 5 cable 0.5 m	–	7320.470
Cat 5 cable 2 m	–	7320.472
Cat 5 cable 5 m	–	7320.475
Cat 5 cable 10 m	–	7320.481
Cat 5 cable 15 m	–	7320.485



3



4



5

<sup>1)</sup> Adaptor for SUN/MAC server available on request.

<sup>2)</sup> External long-range power input available on request.

<sup>3)</sup> With a cable length of max. 15 m, there is no need for any manual readjustments.

Above and beyond this, the maximum permissible cable length is approximately 30 m (depending on the cable quality). Here, manual readjustment is needed.



## KVM switch

Rack



### SSC premium 2/16, 4/32, 8/32 Highly integrated KVM matrix based on Cat technology

With the SSC premium, Rittal offers a new KVM switching technology which can adapt flexibly to your future requirements. By using Cat technology (i.e. transmission of signals for keyboard, video and mouse via a Cat-x cable), the required cabling work inside the rack may be reduced considerably; what is more, highly compact 1 U systems with up to 32 server ports are supported. The SSC premium are full-matrix switches which support simultaneous, unrestricted access to the chosen computer system for each of the connected users. Various console types are available for administration purposes, via which all computer systems may be conveniently activated via OSD or hotkeys.

Switchable socket strip for 482.6 mm (19") (redundant, individually switchable) available on request.

By separating the hardware switch and operating console, the systems may be adapted to any required computer environment. On the computer side, conversion to standard PC interfaces is achieved via separate converters which optimize all signals (keyboard, video, mouse) for transmission via the Cat cable. Needless to say, all SSC premium have comprehensive configuration and management functions, and additional functions may be added in the future thanks to Flash upgradability. The full matrix may be flexibly extended via cascading with type-identical SSC premiums in up to 3 levels. The structure of the cascaded system right down to the individual computer level may be graphically depicted in a tree structure, thus facilitating an overview of the entire system.

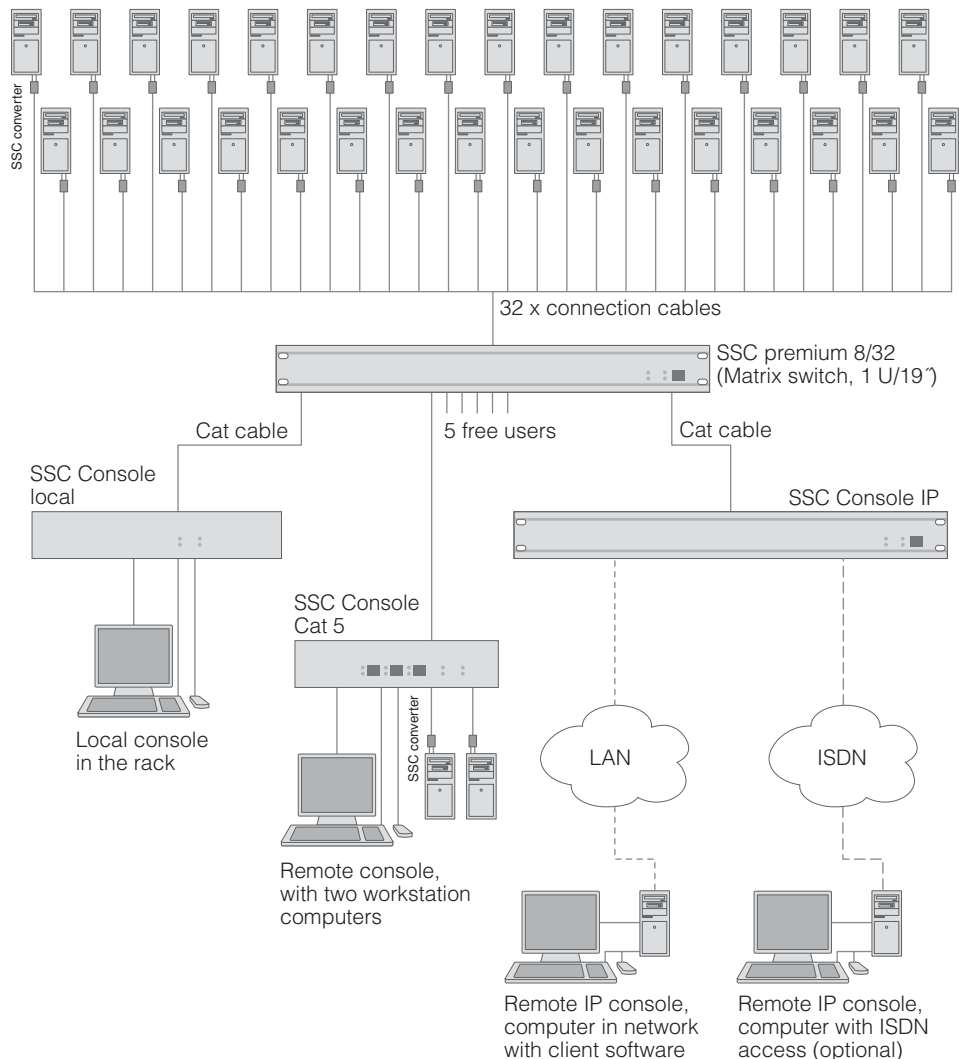
**Material/colour (enclosure):**  
Sheet steel, spray-finished in RAL 7035

**Protection category:**  
IP 40

**! Also required:**

SSC converter (depending on the number of computers) and at least one operator console, see page 56/57.

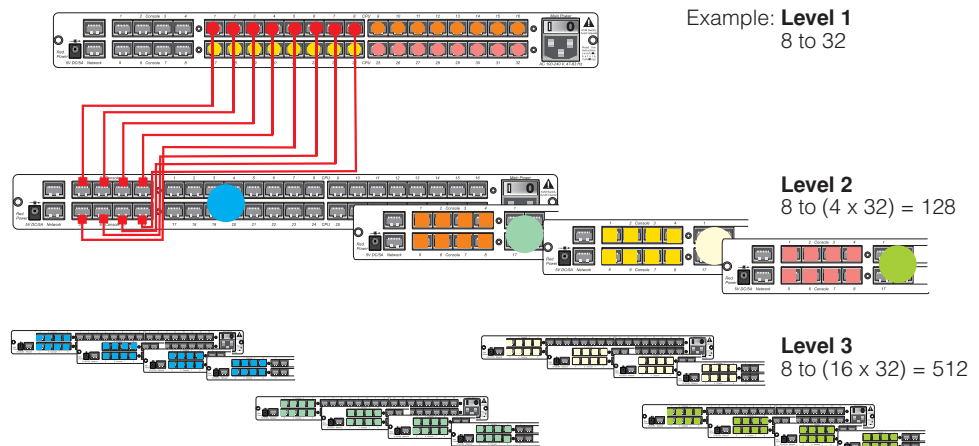
### Connection example, SSC premium 8/32



Rittal SSC premium	SSC premium 2/16	SSC premium 4/32	SSC premium 8/32
<b>Model No. DK</b>	<b>7552.020</b>	<b>7552.030</b>	<b>7552.040</b>
<b>Equipment</b>			
Number of computers in stand-alone mode	16	32	32
Number of computers with cascading as full matrix (max. 3 levels, type-identical SSC)	1024	2048	512
Number of users (local, remote, IP), mixed and simultaneous	2	4	8
Number of users that may be administered (with allocation of rights)	128	128	128
Integral user/computer administration	■	■	■
Support of central directory services	-	-	■
Support of authentication systems	-	-	■
OSD menu with mouse operation (English)	■	■	■
Display of system structure in the OSD per computer (path)	■	■	■
OSD superimposed on computer screen (may be deactivated)	■	■	■
OSD display of channels used	■	■	■
Hotkeys for computer selection	■	■	■
Type of cable to SSC Converter and SSC Console	Cat 5, 6, 7	Cat 5, 6, 7	Cat 5, 6, 7
Maximum cable length console – computer (depending on cable quality)	300 m	300 m	300 m
Port and system support (SSC Converter)	PS/2, USB, SUN-USB	PS/2, USB, SUN-USB	PS/2, USB, SUN-USB
Automatic video alignment (manually readjustable)	■	■	■
Automatic cable alignment (manually readjustable)	■	■	■
LED displays (front):			
Power/Power Redundant	■	■	■
System Ready (illuminates as soon as the system booting process has been completed without error)	■	■	■
Status Switch (illuminates when the SSC is operational)	■	■	■
LED displays (rear):			
Computer port busy/connected	yellow/green	yellow/green	yellow/green
Console port busy/connected	yellow/green	yellow/green	yellow/green
Network port full duplex/half duplex	-	-	yellow/flashing
Network port connection status/activity	-	-	green/flashing
Maximum video resolution (depending on cable length)	1920 x 1440 @ 75 Hz	1920 x 1440 @ 75 Hz	1920 x 1440 @ 75 Hz
Bandwidth	250 MHz	250 MHz	250 MHz
Activation of switchable socket strip (on/off)	■	■	■
<b>Connections</b>			
Computers/consoles	RJ 45	RJ 45	RJ 45
Service (front) for firmware update	Jack 2.5 mm	Jack 2.5 mm	Jack 2.5 mm
RS232 (front)	RJ 11	RJ 11	RJ 11
Network	-	-	2 x RJ 45
Power supply via IEC 320 connection (IEC320 C13)	■	■	■
Redundant power supply (with SSC power pack)	4-pole mini-DIN	4-pole mini-DIN	4-pole mini-DIN
Power supply (internal power pack)	90 – 264 V/ 47 – 63 Hz	90 – 264 V/ 47 – 63 Hz	90 – 264 V/ 47 – 63 Hz
External power supply, redundant	12 V/approx. 1 A	12 V/approx. 1 A	12 V/approx. 1 A
Power consumption (approx.)	12 W	13 W	16 W
Dimensions (excl. projecting parts) approx. W x H x D mm	435 x 44.4 x 286	435 x 44.4 x 286	435 x 44.4 x 286
Certifications	CE	CE	CE

By cascading type-identical SSC premiums, the maximum number of administrable computers may be flexibly extended.

SSC premium	2/16	4/32	8/32
Level	Number of computers		
1	16	32	32
2	128	256	128
3	1024	2048	512



**KVM switch accessories**



**Console local**

**for SSC premium, for installation in 482.6 mm (19") and at the rear of 15"/17" monitor unit (9050.XXX)**

This local console forms the link between the keyboard, monitor and mouse (or the Rittal monitor/keyboard unit) and the SSC premium. Via the console, the computer systems connected to the switch may be conveniently selected and administered via OSD. The signals are converted to CAT cables with a length of up to 10 m and forwarded to the KVM matrix. Power supply is optionally via the Rittal monitor/keyboard unit or, in the case of stand-alone 482.6 mm (19") installation, via the SSC PowerPack. Supplied complete with assembly parts.

Type	Packs of	Model No. DK
Console local	1	7552.200

**Connections (jack):**

- PS/2 (keyboard/mouse)
- USB-A (keyboard/mouse)
- HD15 (VGA video RGB & Sync.)
- RJ45 (KVM-Matrix connection)
- Mini-DIN 4 (12 V power supply).



**Also required:**

Only for 482.6 mm (19") installation without MTE: SSC Power Pack DK 7552.220, see page 57, Cat 5 cable, see page 57.



**Console Cat 5**

**for SSC premium**

This remote console forms the link between the keyboard, monitor and mouse and the SSC premium. Via the console, the computer systems connected to the switch may be conveniently selected and administered via OSD. The signals are forwarded via CAT cable, depending on the cable quality up to 300 m, via the KVM-Matrix to the connected computers. Additionally, if required, 2 local PCs and the corresponding converters may be connected to the console via Cat cables. Switchover to these two computers is achieved via keys on the front. The console is designed as a compact desktop enclosure with integral wide-range power pack (482.6 mm (19") versions on request).

Type	Packs of	Model No. DK
Console Cat 5	1	7552.212

**Dimensions:**

W x H x D: 270 x 44.4 x 220 mm

**Connections (jack):**

- PS/2 (keyboard/mouse)
- USB-A (keyboard/mouse)
- SUB-HD15 (VGA video RGB & Sync.)
- 2 x Cat (RJ45) to connect 2 local PCs via converters (VGA, PS/2 or USB)
- RJ45 (KVM-Matrix connection)
- IEC320 C13 (power supply)
- Mini-DIN 4 (redundant power supply).



**Also required:**

Cat 5 cable, see page 57, SSC converter for local PCs, see page 57.



**Console IP**

**for SSC premium**

With the IP remote console, computers connected to the KVM-Matrix may be accessed via any given TCP/IP network (or optionally via ISDN on request). The Console IP is a hardware solution in which no software installation whatsoever is required on the target computer. This ensures independence from the type and status of the operating system used, and facilitates remote monitoring of the computers even during the booting phase at BIOS level. Even in the event of a total failure of the network, access to the computers is still possible via the optional ISDN connection. Precise operation of the remote computer can only be achieved via the original mouse pointer. A browser-based Web interface is available for configuration purposes. With the system operational, access to the target computers may be achieved via Web browsers and Java applets (irrespective of the operating system) or via optimised client software for common operating systems. With the Rittal KVM-over-IP solution, security is a top priority. For this reason, access to the console is additionally password-protected. KVM access to the Web interface is encrypted via HTTPS (SSL 128-bit). In the case of KVM access via the Java applet or the client software, optionally only the control canal, but additionally the video channel and/or the keyboard mouse channel as well, may be encrypted.

Type	Packs of	Model No. DK
Console IP	1	7552.213

**Dimensions:**

W x H x D: 448 x 44.4 x 220 mm

**Connections (jack):**

- PS/2 (keyboard/mouse)
- USB-A (for future applications)
- SUB-HD15 (VGA video RGB & Sync.)
- RJ45 (KVM-Matrix connection)
- RJ45 (2 x Ethernet, 1 x ISDN)
- IEC320 C13 (power supply)
- Mini-DIN 4 (redundant power supply).

**KVM switch accessories**



**SSC premium client software**

The SSC IP console may be operated on a cross-platform basis using the supplied Java applet (from Java Version 1.4.2\_02). Optionally, Rittal offers adapted client software with graphical user interface in German (other languages available on request) for the operating system platforms listed. In such cases, installation of the Java software is unnecessary.

Operating system	Model No. DK
MS Windows: NT4 Workstation/Server, 2000 (Professional/Server), XT Professional, 2003 Server	<b>7552.310</b>
Linux: RedHat, Suse, Mandrake, Debian	<b>7552.320</b>
Sun: Solaris 8 and Solaris 9	<b>7552.330</b>



**SSC converter for SSC premium**

The SSC converters convert the signals for keyboard, video and mouse from the connected computer to the CAT cable.

There is a choice of four different variants for connecting a PC with PS/2 or USB port, and a separate version for use with SUN computers with a USB port with two different keyboard layouts. One converter is required for each computer.

SSC converter	Packs of	Model No. DK
PS/2	1	<b>7552.201</b>
USB	1	<b>7552.202</b>
SUN-USB (German)	1	<b>7552.203</b>
SUN-USB (US English)	1	<b>7552.204</b>



**Cat 5 patch cable**

Flexible, preconfigured Cat 5 STP patch cable with shielded RJ45 connectors for connecting the SSC Converter and SSC Console to the SSC premium switch. The cables are connected 1 : 1 (AT&T 258A/T568B) and comply with ISO/IEC 11801, UL E151955.

**Colour of plastic sheathing:**  
Grey

Length (m)	Packs of	Model No. DK
0.5	4	<b>7320.470</b>
2	4	<b>7320.472</b>
5	4	<b>7320.475</b>
10	1	<b>7320.481</b>
15	1	<b>7320.485</b>



**SSC Power Pack**

In order to increase fail-safeness, we recommend that the power supply to the SSC premium and the connected user consoles should be designed as redundant. This compact long-range power pack (AC: 100 – 240 V, 50/60 Hz, DC: 12 V/5 A) with socket (IEC320) and Mini-DIN 4 connectors is ideal for this purpose. Should the 1st power supply of the internal power pack fail, the functionality of the KVM switch is maintained.

**Supply includes:**  
Assembly parts.

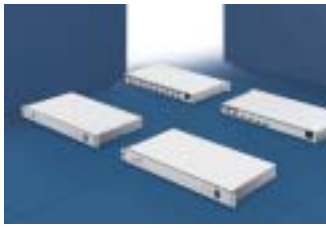
SSC	Packs of	Model No. DK
SSC Power Pack	1	<b>7552.220</b>

**! Also required:**

Connection cable for power pack, see page 107.



## Monitoring system SSC



### Rittal SSCmini/SSCmulti

By using the Rittal SSC, the number of key-boards, monitors and mice required is reduced to just one. Computer access becomes easier, more effective and more cost-efficient. As the number of computers increases, the SSC easily grows with it by cascading. The basic variant, the SSC-mini, offers 4 channels and an integral hotkey function. The SSCmulti, the multi-talented all-rounder, additionally has 4/8/16 channels, an OSD menu, auto scan, auto skip and multi-platform capabilities. The multi-console feature supports a second Cat 5 console on the SSCmulti. As a hardware changeover switch, the Rittal SSC utilises the keyboard, monitor and mouse interfaces of the computer, irrespective of the software and operating system.

The SSCmulti is ideal for use in a heterogeneous server environment with different platforms such as PS/2 and IBM-compatible, HP 9000, sgi, SUN, RS 6000 and laptops.

#### Dimensions:

(W x H x D) 482.6 x 44 x 245 mm

#### Material:

Enclosure: Sheet steel

#### Surface finish:

Spray-finished in RAL 7035

#### Available on request:

- Converter for Apple Mac and USB interface.
- Distance bridging via fibre-optics.
- Global access for remote server maintenance.

Rittal Server Switch Control SSC	SSCmini 4	SSCmulti 4	SSCmulti 8	SSCmulti 16
Model No. DK	7551.000	7551.010	7551.020	7551.030
Number of computers in stand-alone mode	4	4	8	16
Number of computers in cascade configuration (identical types/maximum)	-/64	16/64	64/128	256/256
Number of local operating consoles	1	1	1	1
Additional remote consoles (concurrent)	1	1	1	1
Integral remote console booster, Cat 5 port	-	■	■	■
Status displays	LEDs	OSD menu	OSD menu	OSD menu
On-screen display (OSD)	(■)	■	■	■
Keyboard hotkey operation	■	■	■	■
Auto scan/auto skip	(■)	■	■	■
Free server name allocation	(■)	■	■	■
Password protection	(■)	■	■	■
Allocation of user rights	(■)	■	■	■
Keyboard and mouse emulation by 1 processor in each case	■	■	■	■
Combined operation of various different server platforms is supported	■	■	■	■
Direct connection of Sun servers (MiniDIN 8/SUN-VGA) – no adaptor required	-	■	■	■
Independent from the software and operating system	■	■	■	■
"Stay live" function in case of power loss	■	■	■	■
Power supply via	Keyboard output	Mains cable	Mains cable	Mains cable
Maximum video resolution (depending on distance) at 85 Hz	1600 x 1200	1600 x 1200	1600 x 1200	1600 x 1200
Bandwidth	250 MHz	250 MHz	250 MHz	250 MHz
<b>Accessories</b>				
CPU cable for video (HD15), PS/2 keyboard and PS/2 mouse <sup>2)</sup> , 1 m	7551.110	7551.110	7551.110	7551.110
CPU cable for video (HD15), PS/2 keyboard and PS/2 mouse <sup>2)</sup> , 2 m	7551.120	7551.120	7551.120	7551.120
CPU cable for video (HD15), PS/2 keyboard and PS/2 mouse <sup>2)</sup> , 4 m	7551.140	7551.140	7551.140	7551.140
CPU cable for video (HD15), PS/2 keyboard and PS/2 mouse <sup>2)</sup> , 6 m	7551.160	7551.160	7551.160	7551.160
CPU cable for video (HD15), PS/2 keyboard and PS/2 mouse <sup>2)</sup> , 9 m	7551.190	7551.190	7551.190	7551.190
CPU cable for SUN video (HD15), miniDIN 8 keyboard/mouse, 1 m	-	7551.111	7551.111	7551.111
CPU cable for SUN video (HD15), miniDIN 8 keyboard/mouse, 2 m	-	7551.121	7551.121	7551.121
CPU cable for SUN video (HD15), miniDIN 8 keyboard/mouse, 4 m	-	7551.141	7551.141	7551.141
CPU cable for SUN video (HD15), miniDIN 8 keyboard/mouse, 6 m	-	7551.161	7551.161	7551.161
CPU cable for SUN video (HD15), miniDIN 8 keyboard/mouse, 9 m	-	7551.191	7551.191	7551.191
230 V connection cable with earthing-pin plug and IEC 320 connector, version D	-	7200.210	7200.210	7200.210
Remote console receiver module, desktop, transmission via 1 x Cat 5, up to 200 m	-	7551.900	7551.900	7551.900
Transmission kit (sender and receiver) up to 200 m (Cat 5) up to 300 m (coax)	On request	On request	On request	On request
Console cable kit (HD15, 2 x PS/2), for passive extension, 2, 5, 7, 10 m	On request	On request	On request	On request

<sup>2)</sup> Adaptor for serial mouse and DIN 5 keyboard supplied loose. (■) in conjunction with an SSCmulti.



**Base/plinth TS/FR(i)**

For detailed information, see Catalogue 31.

<b>Base/plinth components, front and rear</b> (Cat. 31, page 835)					
For enclosure width mm	Design	Colour		Model No. TS	
		RAL 7022	RAL 7035	100 mm high	200 mm high
600	Solid	■	–	<b>8601.600</b>	<b>8602.600</b>
	Solid	–	■	<b>8601.605</b>	<b>8602.605</b>
	Vented	–	■	<b>7825.601</b>	–
	Vented with designer cover	–	■	<b>7825.603</b>	–
800	Solid	■	–	<b>8601.800</b>	<b>8602.800</b>
	Solid	–	■	<b>8601.805</b>	<b>8602.805</b>
	Vented	–	■	<b>7825.801</b>	–
	Vented with designer cover	–	■	<b>7825.803</b>	–
<b>Base/plinth trim, side</b> (Cat. 31, page 835)					
For enclosure depth mm				Model No. TS	
900		RAL 7035		<b>8601.095</b>	<b>8602.095</b>
1000		RAL 7035		<b>8601.015</b>	<b>8602.015</b>
<b>Base/plinth trim with brush strip for base/plinth TS</b> (Cat. 31, page 839)					
Width mm	Height mm	Colour		Model No. TS	
600	100	RAL 7022		<b>8601.610</b>	
600	100	RAL 7035		<b>8601.615</b>	
<b>Base/plinth adaptor for levelling feet</b> (Cat. 31, page 849)					
Packs of		4		<b>8800.220</b>	
<b>Base/plinth adaptor for twin castors</b> (Cat. 31, page 849)					
Packs of		4		<b>8800.290</b>	

Rack



**Underfloor frame**

For detailed information, see Catalogue 31.

<b>Underfloor frame for DK-TS, FR(i)</b> (Cat. 31, page 846)				
Width mm	Height mm	Depth mm		Model No. DK
600	400	1000		<b>7855.340</b>
800	400	1000		<b>7855.342</b>



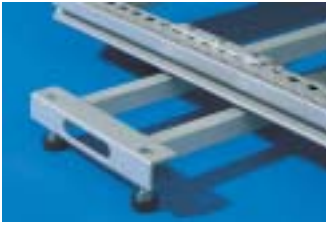
**Levelling feet**

For detailed information, see Catalogue 31.

<b>Levelling feet 18 – 43 mm high</b> (Cat. 31, page 848)	
Packs of	Model No. PS
4	<b>4612.000</b>

## Base/plinth

Rack



### Accessories, base/plinth

For detailed information, see Catalogue 31.

<b>Stabiliser</b> for server racks TS, FR(i), pull-out		(Cat. 31, page 847)
Enclosure depth mm		<b>Model No. DK</b>
900		<b>7825.200</b>
1000		<b>7825.250</b>
<b>Stabiliser bracket</b> for base/plinth TS/FR(i)		(Cat. 31, page 847)
Packs of		<b>Model No. DK</b>
2		<b>7825.150</b>
<b>Base mounting plate</b> for base/plinth TS/FR(i)		(Cat. 31, page 838)
Packs of		<b>Model No. SO</b>
10		<b>2817.000</b>
<b>Base mounting bracket</b> for TS/FR(i) for base frame mounting		(Cat. 31, page 850)
Packs of		<b>Model No. TS</b>
4		<b>8800.210</b>



### Castors

For detailed information, see Catalogue 31.

<b>Twin castors</b>						(Cat. 31, page 848)
Maximum permissible static load (per castor) kg	Ground clearance mm	Lock	Packs of	Colour		<b>Model No.</b>
40	50	4 without	1 set	Black		<b>4611.000</b>
75	85	2 with, 2 without	1 set	Black with grey running surface		<b>6148.000</b>
120	125	2 with, 2 without	1 set	Black		<b>4634.500</b>
						<b>7495.000</b>



### Transport kit

For detailed information, see Catalogue 31.

<b>Transport kit</b> for DK-TS		(Cat. 31, page 849)
Maximum static load 750 kg/enclosure	Packs of	<b>Model No. DK</b>
	1 set	<b>7825.900</b>





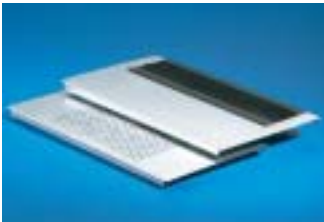
### Gland plates

For detailed information, see Catalogue 31.

Gland plate, one-piece vented, with cable entry, for TS, FR(i)		(Cat. 31, page 851)
for enclosures		Model No. DK
Width mm	Depth mm	
600	900	7825.690
600	1000	7825.610
800	900	7825.890
800	1000	7825.810



Filter mat for gland plate, one-piece		(Cat. 31, page 851)
Packs of	Model No. DK	
1	<b>7825.620</b>	



Gland plate modules for DK-TS		(Cat. 31, page 851)
For enclosure width mm	Design	Model No. DK
600	For cable entry	<b>7825.361</b>
600	Vented, with filter mat	<b>7825.360</b>
800	For cable entry	<b>7825.381</b>
800	Vented, with filter mat	<b>7825.380</b>

Rack



### Walls

For detailed information see Catalogue 31, from page 853.

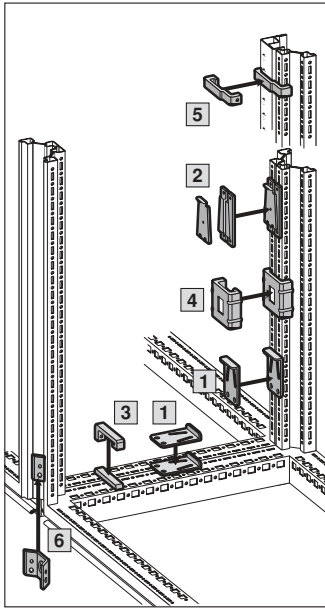
For enclosures		TS					FR(i)
Component	Side panels			Cable management panel	Partitions		Side panels
	Model No. TS						Model No. FR(i)
Attachment	Screw-fastened	Plug-type	Plug-type	Screw-fastened	Plug-type	Screw-fastened	Plug-type
Max. attainable protection category	IP 55	IP 20	IP 20	-	-	IP 20	IP 20
Surface finish/ Colour	RAL 7035	RAL 7035	RAL 9005	RAL 7035	Zinc-plated	RAL 7035	RAL 7035
600   1000	-	-	-	-	-	-	<b>7856.663</b>
1200   900	-	<b>7824.129</b>	<b>7816.129</b>	-	-	-	-
1200   1000	<b>8176.235</b>	<b>7824.120</b>	<b>7816.120</b>	-	-	-	<b>7856.672</b>
1200   1200	-	-	-	-	-	-	<b>7856.673</b>
1800   900	<b>8189.235</b>	<b>7824.189</b>	<b>7816.189</b>	-	-	-	-
1800   1000	<b>8180.235</b>	<b>7824.180</b>	-	-	-	-	-
2000   600	-	-	-	<b>7824.560</b>	-	-	-
2000   800	-	-	-	<b>7824.580</b>	-	-	-
2000   900	<b>8109.235</b>	<b>7824.209</b>	<b>7816.209</b>	<b>7824.590</b>	<b>7831.720</b>	-	-
2000   1000	<b>8100.235</b>	<b>7824.200</b>	<b>7816.200</b>	-	<b>7831.722</b>	-	<b>7856.687</b>
2000   1200	-	-	-	-	-	-	<b>7856.688</b>
2200   900	<b>8129.235</b>	<b>7824.229</b>	<b>7816.229</b>	-	-	<b>7831.715</b>	-
2200   1000	-	<b>7824.220</b>	<b>7816.220</b>	-	-	-	<b>7856.696</b>
<b>Lock for TS side panel, plug-type</b>							(Cat. 31, page 855)
Packs of		<b>Model No. DK</b>					
4		<b>7824.500</b>			-	-	■
<b>Internal latch for side panel, plug-type</b>							(Cat. 31, page 855)
Packs of		<b>Model No. DK</b>					<b>Model No. FR</b>
4		<b>7824.510</b>			-	-	<b>7856.700</b>

■ Included with the supply.



## Baying

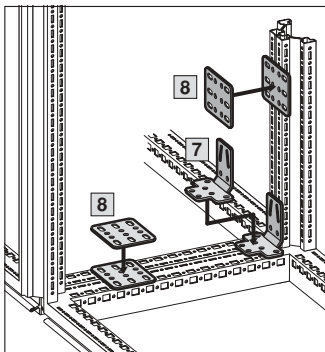
Rack



### Baying at the installation site

For detailed information, see Catalogue 31.

<b>1 Quick-fit baying clamps, one-piece</b>		(Cat. 31, page 863)	
	Packs of	<b>Model No. TS</b>	
for TS/TS and FR(i)/FR(i)	6	<b>8800.500</b>	
<b>2 Quick-fit baying clamps, three-piece</b>		(Cat. 31, page 863)	
for TS/TS	6	<b>8800.590</b>	
<b>3 Baying clamp, horizontal</b>		(Cat. 31, page 863)	
for TS/TS, TS/PS and FR(i)/FR(i)	4	<b>8800.400</b>	
<b>Baying clamp, vertical</b>		Cat. 31, page 863/864	
4 for TS/TS	6	<b>8800.410</b>	
5 for TS/PS	6	<b>8800.420</b>	
<b>Baying connector, external</b>		Cat. 31, page 864/867	
6 for TS/TS	6	<b>8800.490</b>	
for DK-TS/DK-TS with side panels	4	<b>Model No. DK 7824.540</b>	
<b>Baying kit</b>		(Cat. 31, page 867)	
for FR(i)/FR(i)	1	<b>Model No. FR(i) 7856.752</b>	
for FR(i)/FR (old)	1	<b>7856.750</b>	
<b>Top baying cover for TS enclosures</b>		(Cat. 31, page 867)	
For enclosure depth mm	Packs of	<b>Model No. TS</b>	
		RAL 7032	RAL 7035
400	1	<b>8800.440</b>	<b>8800.840</b>
500	1	<b>8800.450</b>	<b>8800.850</b>
600	1	<b>8800.460</b>	<b>8800.860</b>
800	1	<b>8800.480</b>	<b>8800.880</b>
900	1	–	<b>8800.890</b>
1000	1	–	<b>8800.892</b>
<b>Compensating panel for TS, when baying different depths</b>		(Cat. 31, page 867)	
Depth difference mm		<b>Model No. DK</b>	
100		<b>7067.100</b>	
200		<b>7067.200</b>	



### Baying for transport

For detailed information, see Catalogue 31.

<b>7 Angular baying brackets</b>		(Cat. 31, page 865)	
	Packs of	<b>Model No. TS</b>	
for TS/TS	4	<b>8800.430</b>	
<b>8 Baying brackets</b>		(Cat. 31, page 865)	
for TS/TS and TS/PS	4	<b>4582.500</b>	



1

2



3

### Door variants

For detailed information see Catalogue 31, from page 870.

Sheet steel doors for TS								
		Standard door		Designer door	Vertically divided		Adaptor door 100 mm	
		Non-vented	Vented	Vented	Non-vented	Vented	Vented	
Opening range <sup>1)</sup>		180°	180°	130°	180°	180°	180°	
for enclosures		<b>Model No. DK</b>						
Width mm	Height mm							
600	1200	–	<b>7824.123</b>	<b>7816.612</b>	–	–	–	
600	1800	–	<b>7824.183</b>	–	–	–	–	
800	1800	–	<b>7824.184</b>	–	–	–	–	
600	2000	<b>7824.205</b>	<b>7824.203</b>	<b>7816.620</b>	<b>7816.360</b>	<b>7824.360</b>	<b>7824.760</b>	
800	2000	<b>7824.207</b>	<b>7824.204</b>	<b>7816.820</b>	<b>7816.380</b>	<b>7824.380</b>	<b>7824.780</b>	
600	2200	<b>7824.225</b>	<b>7824.223</b>	<b>7816.622</b>	<b>7816.362</b>	<b>7824.362</b>	<b>7824.762</b>	
800	2200	<b>7824.227</b>	<b>7824.224</b>	<b>7816.822</b>	<b>7816.382</b>	<b>7824.382</b>	–	

Glazed doors for TS								
		Aluminium glazed door	1) Sheet steel glazed door	2) Designer door	3) Vertically divided			
		Non-vented	Vented	Non-vented	Non-vented			
Opening range <sup>1)</sup>		180°	180°	130°	130°	180°		
for enclosures		<b>Model No. DK</b>						
Width mm	Height mm							
600	1200	–	<b>7824.121</b>	<b>7824.612</b>	–	–		
600	1800	<b>8610.680</b>	<b>7824.181</b>	<b>7824.618</b>	–	–		
800	1800	<b>8610.880</b>	<b>7824.182</b>	<b>7824.818</b>	–	–		
600	2000	<b>8610.600</b>	<b>7824.201</b>	<b>7824.620</b>	–	–		
800	2000	<b>8610.800</b>	<b>7824.202</b>	<b>7824.820</b>	<b>7824.480</b>	<b>7824.490</b>		
600	2200	<b>8610.620</b>	<b>7824.221</b>	<b>7824.622</b>	–	–		
800	2200	<b>8610.820</b>	<b>7824.222</b>	<b>7824.822</b>	–	–		

<sup>1)</sup> Stand-alone siting

### Lock systems

For detailed information see Catalogue 31, from page 881.



Comfort handle for TS/FR(i)						
Version RAL	For lock inserts	For padlock and lock inserts	With lock insert, lock E1	For semi-cylinder	For lock system ASSA	With numerical code
<b>Model No. TS</b>						<b>Model No. DK</b>
7035	<b>8611.020</b>	<b>8611.290</b>	<b>8611.045</b>	<b>8611.070</b>	<b>8611.280</b>	<b>7200.800</b>
9005	<b>8611.350</b>	–	–	<b>8611.360</b>	–	–
Swivel handle for sheet steel door TS						
Design				<b>Model No. DK</b>		
RAL 7035				<b>7829.300</b>		

## Door/lock systems

Rack



### Lock inserts

For detailed information see Catalogue 31, from page 881.

Standard inserts		
Design	Model No. TS	
7 mm square	8611.100	
8 mm square	8611.110	
6.5 mm triangular	8611.220	
7 mm triangular	8611.120	
8 mm triangular	8611.130	
Screwdriver	8611.140	
Daimler	8611.150	
3 mm double-bit	8611.160	
Fiat	8611.170	
Lock and push-button inserts		
Design	for comfort handle for lock inserts	for comfort handle for semi-cylinder
Lock insert, lock no. 3524 E	8611.180 <sup>1)</sup>	2467.000 <sup>1)</sup>
Push-button insert	8611.190	2468.000
Push-button and lock insert, lock no. 12321; no other lock is possible.	8611.200 <sup>1)</sup>	2469.000 <sup>1)</sup>

<sup>1)</sup> with 2 keys



### Trim frame TS

instead of a front door

For detailed information, see Catalogue 31.

Sheet steel trim frame for TS, screw-fastened		(Cat. 31, page 873)
for enclosures		Model No. DK
Width mm	Height mm	
600	2000	7824.130
800	2000	7824.132
Aluminium trim frame for TS, hinged		(Cat. 31, page 873)
		Available on request.



### Hinges

For detailed information, see Catalogue 31.

Hinges 180° for TS				(Cat. 31, page 893)
Door variants	Handle system	Colour	Packs of	Model No. TS
Sheet steel	Standard	RAL 7035	4	8800.190
		RAL 7035	4	7824.520
Sheet steel	Comfort	RAL 9005	4	7824.522
		RAL 7035	4	7824.525
Glazed door	Comfort	RAL 7035	4	7824.525





### Roof variants for TS/FR(i)

For detailed information see Catalogue 31, from page 901.

Roof plates		For cable entry		Vented			Cable management roof plate
				Variant 1 with vent slots	Variant 2 with perforated plate (Ø 3 mm)		
For enclosures		Two-piece	On all sides	One-piece, without cable entry	Two-piece, with cable entry		
Width mm	Depth mm	Model No. DK					
600	900	7826.695	–	7826.769	7826.699	–	–
600	1000	7826.605	–	7826.760	7826.609	–	–
800	900	7826.895	7826.589	7826.789	7826.899	7826.896	7826.894
800	1000	7826.805	–	7826.780	7826.809	7826.806	–

**Note:**

Modular fan roof, high-performance roof-mounted fan, roof plates for cooling units, see from page 97.



### Accessories

For detailed information, see Catalogue 31.

Spacers for roof plate		(Cat. 31, page 904)
Height mm	Packs of	Model No. SZ/DK
10	4	2422.000
20	4	2423.000
50	4	7967.000



### Rail systems

For detailed information see Catalogue 31, from page 921.

TS punched section with mounting flange, 17 x 73 mm				
For enclosure width/depth mm	Packs of	For the outer mounting level <sup>1)</sup>	For the inner mounting level	For the outer mounting level; notched version
		Model No. TS		
300	4	8612.130	–	–
400	4	8612.140	8612.040	–
500	4	8612.150	8612.050	–
600	4	8612.160	8612.060	7828.064
650	4	8612.165	8612.065	–
800	4	8612.180	8612.080	7828.084
900	4	–	8612.090	7828.094
1000	4	8612.100	8612.000	7828.104
1200	4	8612.120	8612.020	–
TS punched section with mounting flange 17 x 73 mm depth-variable for mounting frame, for DK-TS, FR(i)				
19" distance between levels mm	Packs of	Model No. TE		
420 – 590	2	7000.676		
650 – 820	2	7000.678		

<sup>1)</sup> Note: In conjunction with plug-in side panels, notched punched sections are required.



## Rail systems

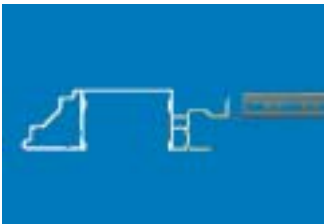
Rack



### Mounting bracket

For detailed information see Catalogue 31, from page 930.

Mounting brackets	
Packs of	Model No. PS
4	4597.000



### System adaptor for FR(i)

For detailed information see Catalogue 31, from page 930.

System adaptor for FR(i)		
For integration of the TS frame punchings in the FR(i). Enclosure depth TS – 200 mm.	Packs of	Model No. FR(i)
	8	7856.760



### Screws

For detailed information see Catalogue 31, from page 937.

Multi-tooth screws			
Type of screw	Dimensions mm	Packs of	Model No. SZ
	M6 x 12	300	2504.500
	M8 x 12	300	2504.800
Metal multi-tooth screws			
	BZ 5.5 x 13	300	2486.500
Self-tapping screws			
Hex screws	M5 x 10	500	2504.000
Posidrive raised countersunk screws	M5 x 12	500	2488.000
Pan-head screws, posidrive	M5 x 12	500	2489.000
Pan-head screws, multi-tooth	M5 x 12	500	2489.500
Self-tapping screws			
	ST 4.8 x 16	300	2487.000



**Component shelf for frame attachment**

**Enclosure width 600 and 800 mm or between two 482.6 mm (19") mounting frames**

Maximum depth of component shelves with enclosure frame attachment = Enclosure depth minus 100 mm.

**Technical specifications:**

Mounting bolts or mounting rails may be installed on a 25 mm pitch pattern in the enclosure depth. Mounting hole for handles provided.

**Load capacity:**

50 kg/100 kg surface load, static

**Material:**

Sheet steel

**Colour:**

RAL 7035

**Supply includes:**

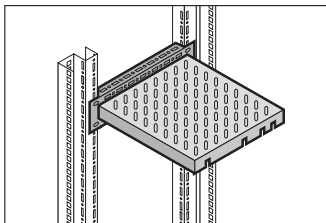
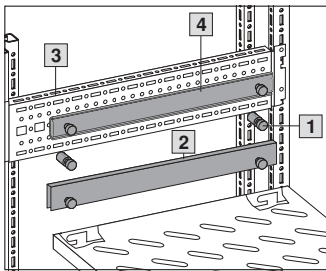
Assembly parts.



**Also required:**

TS punched section with mounting flange, 17 x 73 mm as divider kit for component shelves, see page 65.

For FR(i) plus system adaptor, see page 66.

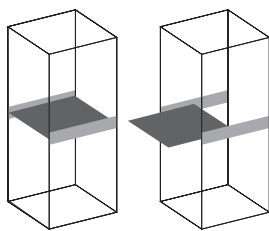


- 1 Fastening bolts
- 2 Mounting rails
- 3 Divider kit
- 4 Telescopic slides

Load capacity kg	50				100			
Component shelf depth mm	400	500	600	700	400	500	600	700
Component shelf height mm	29				45			
<b>Model No. DK, slotted</b> for enclosure width 600 mm and between 482.6 mm (19") mounting frames	<b>7164.035</b>	<b>7165.035</b>	<b>7166.035</b>	<b>7166.735</b>	<b>7464.035</b>	<b>7465.035</b>	<b>7466.035</b>	<b>7466.735</b>
<b>Model No. DK, unslotted</b> for enclosure width 600 mm and between 482.6 mm (19") mounting frames	<b>7264.035</b>	<b>7265.035</b>	<b>7266.035</b>	-	-	-	-	-
<b>Model No. DK, slotted, for enclosure width 800 mm</b>	<b>7184.035</b>	<b>7185.035</b>	<b>7186.035</b>	<b>7186.735</b>	<b>7484.035</b>	<b>7485.035</b>	<b>7486.035</b>	<b>7486.735</b>



**Additionally required:**



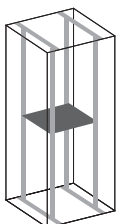
<b>for TS</b>	600	8612.060
TS punched sections with mounting flanges 17 x 73 mm as divider kit for enclosure depth mm	800	8612.080
	900	8612.090
	1000	8612.000
<b>for FR(i)</b>	600	8612.140
TS punched sections with mounting flanges 17 x 73 mm as divider kit for enclosure depth mm	800	8612.160
	1000	8612.180
	1200	8612.100
plus system adaptor		7856.760



**Accessories:**

Telescopic slides see page 72	50 kg				100 kg		
	7061.000	7081.000	7161.000	7161.700	7064.000	7065.000	7066.000
Handles for component shelves see page 72	3636.010						

**Mounting on the 482.6 mm (19") mounting frame<sup>1)2)</sup>**



482.6 mm (19") distance between levels, minimal	495	595	695	895	495	595	695	895
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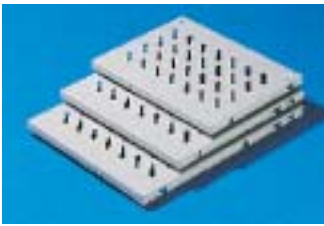


**Additionally required:**

TS punched section with mounting flange 17 x 73 mm as divider kit in the enclosure depth between the 482.6 mm (19") mounting frames	8612.040	8612.050	8612.060	8612.080	8612.040	8612.050	8612.060	8612.080
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**Note:** <sup>1)</sup> Only with component shelves for 600 mm wide enclosures. <sup>2)</sup> Combination with telescopic slides is not possible

## Component shelves



### Component shelf, 482.6 mm (19") configuration

For enclosures with two 482.6 mm (19") mounting levels.

Depending on their depth, the component shelves have several attachment points, so the distance between the 482.6 mm (19") mounting angles is variable within certain limits. Each component shelf secured in this way can be retrospectively upgraded to full withdrawal using telescopic slides. For this purpose, the telescopic slides are screw-fastened in place of the spacers.

**Load capacity:**  
50 kg surface load, static

**Material:**  
Sheet steel

**Colour:**  
RAL 7035/RAL 9005

**Supply includes:**  
Assembly parts.

**! Also required:**

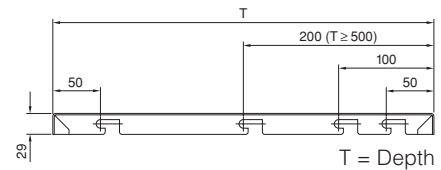
Adaptor for L-shaped mounting angles TS, see page 71.  
Divider kit, depth-variable, for installation on mounting frames and L-shaped mounting angles, see page 71.

**+ Accessories:**

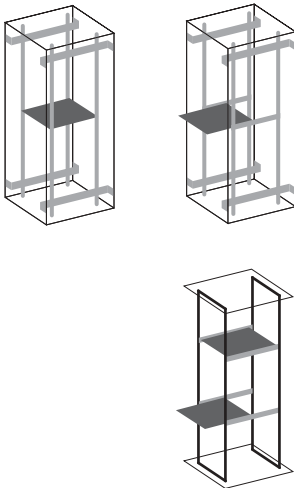
Telescopic slides, see page 72.  
Cable support, hinged, see page 72.

**↔ Possible alternative:**

Component shelf, heavy duty, for 482.6 mm (19") population, see page 69.



Rack



Component shelf width mm	409					Page
Component shelf depth mm	300	400	500	600	700	
Distance between levels (X)	298	348/398	348/448/498	448/548/598	548/648/698	
<b>Model No. DK RAL 7035</b>	<b>7143.035</b>	<b>7144.035</b>	<b>7145.035</b>	<b>7145.635</b>	<b>7145.735</b>	
<b>Model No. DK RAL 9005</b>	–	–	<b>7145.005<sup>1)</sup></b>	<b>7145.605<sup>1)</sup></b>	<b>7145.705<sup>1)</sup></b>	

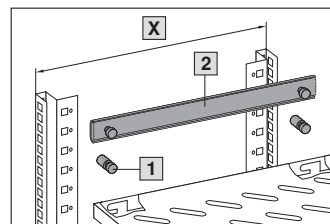
<sup>1)</sup> Delivery times available on request.

**+ Accessories:**

Telescopic slides for 50 kg	7051.000	7061.000	7081.000	7161.000	7161.700	72
Handles for component shelf	3636.010					72

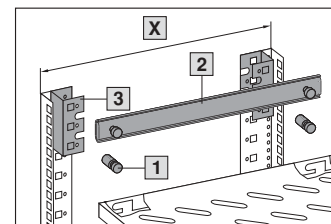
#### Note for installation in network enclosures based on TS, cranked mounting angle:

The component shelves are mounted on the sides of the 482.6 mm (19") cranked mounting angle with spacers on a U pitch pattern.



#### Note for installation in network enclosures based on TS, L-shaped mounting angle:

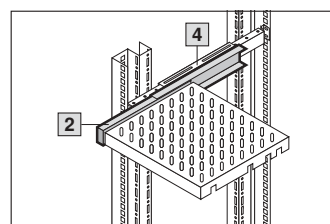
If L-shaped mounting angles are used, adaptor DK 7827.300 is required.



- 1** Spacers
- 2** Telescopic slides
- 3** Adaptor
- 4** Divider kit, depth-variable
- X** Distance between levels

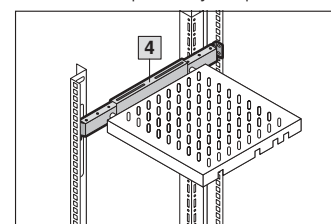
#### Note for installation between two mounting frames or L-shaped mounting angles:

May be mounted directly on the 482.6 mm (19") system punchings using the depth-variable divider kit.

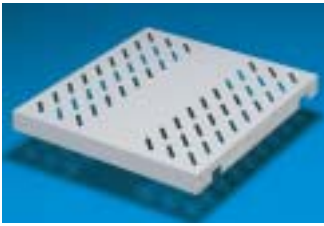


#### Note for installation between mounting angles and mounting frames:

May be mounted directly on the 482.6 mm (19") system punchings, using the depth variable divider kit, optionally as pull-out design.



Component shelves



**Component shelves, 482.6 mm (19") installation, heavy duty**

For detailed information see Catalogue 31, page 946.

Component shelf, heavy-duty 482.6 mm (19")			
for	Component shelf depth mm	Model No. DK	
		RAL 7035	RAL 9005
• L-shaped mounting angles	500	<b>7063.895</b>	<b>7063.835</b>
• Mounting frame 19"	700	<b>7063.897</b>	<b>7063.837</b>

**Load capacity:**  
100 kg surface load, static

**Also required:**  
Divider kit, depth-variable DK 7063.890, see page 71.



**Component shelves**

**for frame attachment**

For detailed information see Catalogue 31, page 941.

Component shelf, static installation for TS			
	For enclosures		Model No. DK
	Width mm	Depth mm	
Locate the mounting pieces in the frame and attach the component shelf. Attachment in the TS enclosure section offers the greatest possible support surface.  <b>Load capacity:</b> 75 kg surface load, static	600	600	<b>7828.660</b>
	600	800	<b>7828.680</b>
	600	900	<b>7828.690</b>
	600	1000	<b>7828.600</b>
	650	650	<b>7794.210</b>
	800	600	<b>7828.680</b>
	800	650	<b>7794.220</b>
	800	800	<b>7828.880</b>
	800	900	<b>7828.890</b>
	800	1000	<b>7828.800</b>

**Note:**  
Combined use with vertically divided doors is not possible.  
Not suitable for combination with telescopic slides.



**Two-part component shelves, pull-out**

For detailed information see Catalogue 31, page 941.

Component shelf, two-part with telescopic extension and handles for TS, FR(i)						
For attaching to the enclosure frame. The component shelves can be pulled out independently of one another on telescopic slides.  <b>Load capacity:</b> 25 kg surface load per shelf, static	For enclosure width mm	Dimensions of component shelf			Packs of	Model No. DK
		Width mm	Depth mm	Height mm		
	600	220	500	35	2	<b>7183.205</b>
	800	320	500	35	2	<b>7183.215</b>

**Also required:**  
TS punched section with mounting flange 17 x 73 mm for the inner mounting level, see page 65,  
for FR(i): TS punched section with mounting flange for the outer mounting level plus system adaptor FR(i), see Cat. 31, page 66, as divider kit for component shelves.



**Component shelves for direct mounting between two 482.6 mm (19") mounting frames**

For detailed information see Catalogue 31, page 945.

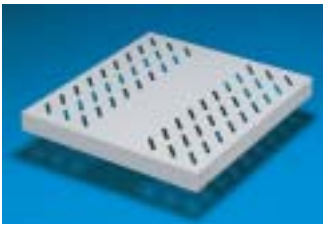
Component shelf, static installation on the 482.6 mm (19") mounting frame					
The component shelf is attached directly to the front and rear 482.6 mm (19") mounting frame.  <b>Load capacity:</b> 30 kg surface load, static	Width mm	Height mm	Depth mm	19" distance between levels mm	Model No. DK
	512	22	412	495	<b>7000.620</b>

**Note:**  
Combination with telescopic slides is not possible.



## Component shelves

Rack



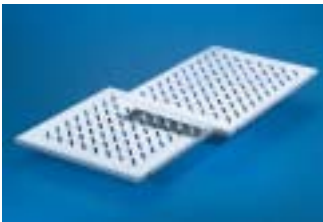
### Component shelves, static installation for mounting angles

**for attachment to 482.6 mm (19") mounting angles, based on TS**

For detailed information see Catalogue 31, page 945.

<b>Component shelf, heavy-duty</b> for network enclosures TS with cranked mounting angles					
Zinc-plated version	Dimensions			Distance between levels mm	Model No. DK
For static installation between two 482.6 mm (19") attachment levels. The component shelf is located directly onto the <b>cranked</b> mounting angles.	Width mm	Height mm	Depth mm		
	452.5	20	478	498	<b>7828.950</b>
	<b>Load capacity:</b> 75 kg surface load, static	452.5	20	578	598
	452.5	20	678	698	<b>7828.970</b>
Spray-finished version	Dimensions			Distance between levels mm	Model No. DK
<b>Load capacity:</b> 100 kg surface load, static	Width mm	Height mm	Depth mm		
	453	44	470	498	<b>7145.535</b>

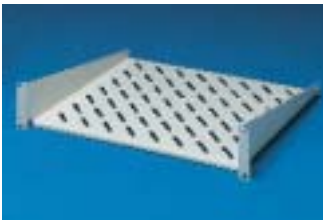
**Note:**  
Not suitable for combination with telescopic slides.



For detailed information see Catalogue 31, page 946.

<b>Component shelf, heavy-duty</b> for network enclosures TS with L-shaped mounting angles					
For static installation between two 482.6 mm (19") attachment levels. The component shelf is located directly onto the <b>L-shaped</b> mounting angles (not with TS server enclosures DK 7831.xxx).	Dimensions			Distance between levels mm	Model No. DK
	Width mm	Height mm	Depth mm		
	507.5	20	478	498	<b>7828.951</b>
	<b>Load capacity:</b> 75 kg surface load, static	507.5	20	578	598
	507.5	20	678	698	<b>7828.971</b>

**Note:**  
Not suitable for combination with telescopic slides.



### Component shelves for attachment to the 482.6 mm (19") system punchings

**Component shelves for one attachment level, static installation**

For detailed information, see Catalogue 31.

<b>Component shelf 1 U</b> , static installation 482.6 mm (19")/535 mm (metric) (Cat. 31, page 947)			
The ideal support surface for small active components such as modems or mini-hubs in 482.6 mm (19") or metric levels.	Component shelf depth mm	Model No. DK	
		482.6 mm (19")	Metric
<b>Load capacity:</b> 10 kg surface load, static	140	<b>7119.140</b>	<b>7119.155</b>

**Also required:**  
Captive nuts and screws, see page 81.

<b>Component shelf 2 U</b> , static installation 482.6 mm (19")/535 mm (metric) (Cat. 31, page 948)			
If only one 482.6 mm (19") or metric mounting level is available for mounting a component shelf, this variant offers a particularly cost-effective solution.	Component shelf depth mm	Model No. DK	
		482.6 mm (19")	Metric
		250	<b>7119.250</b>
<b>Load capacity:</b> 25 kg surface load, static	400	<b>7119.400</b>	<b>7119.455</b>

**Also required:**  
Captive nuts and screws, see page 81. **Note:**  
Not suitable for combination with telescopic slides.



### Utility table for one attachment level

For detailed information see Catalogue 31, page 948.

<b>Utility table</b> for location in the 482.6 mm (19") section		
The utility table may be attached directly between the 482.6 mm (19") mounting angles without any additional assembly work. The utility table has a height of 3 U and a support area of 450 x 295 mm; it can be used as a support for measuring devices or splicing equipment during maintenance and wiring work.	Support surface mm	Model No. DK
	450 x 295	<b>7183.100</b>



**Component shelves for attachment to the 482.6 mm (19") system punchings**

**Component shelves for one attachment level, extendible**

For detailed information see Catalogue 31, page 946.

<b>Component shelf 2 U, 482.6 mm (19")</b>			
Suitable for installation in all enclosures with only one 482.6 mm (19") recess and all swing frames with flange mounting, 482.6 mm (19").	Width mm	Depth mm	<b>Model No. DK</b>
	390	300	<b>7148.035</b>
<b>Load capacity:</b> 25 kg surface load, static			
<b>To order versions in RAL 7032, please add extension .000 to the Model No. Delivery times available on request.</b>			



**Component shelves for two attachment levels, depth-variable**

For detailed information see Catalogue 31, from page 947.

<b>Component shelf 1/2 U, depth-variable 482.6 mm (19")</b>		
The space-saving component shelf is screw-fastened to the front and rear 482.6 mm (19") attachment level. It is infinitely adjustable in the depth and may be fitted independently of the enclosure.	Distance between levels mm	<b>Model No. DK</b>
	400 – 600	<b>7063.710</b>
	600 – 900	<b>7063.720</b>
<b>Load capacity:</b> 50 kg surface load, static		
<b>Component shelf 1 U, depth-variable 482.6 mm (19")</b>		
For mounting between the front and rear 482.6 mm (19") levels. The component shelf is infinitely depth-adjustable from 488 mm to 750 mm.	Distance between levels mm	<b>Model No. VR</b>
	488 – 750	<b>3861.580</b>
	<b>Load capacity:</b> 50 kg surface load, static	
<b>Note:</b> Not suitable for combination with telescopic slides.		



**Divider kits, depth-variable for component shelves**

For detailed information, see Catalogue 31.

<b>Mounting kit, depth-variable for 482.6 mm (19") component shelves</b>			(Cat. 31, page 949)
Length mm	Load capacity	<b>Model No. DK</b>	
400 – 600	50 kg	<b>7063.858</b>	
600 – 850	50 kg	<b>7063.860</b>	
610 – 900	100 kg	<b>7063.891<sup>1)</sup></b>	
710 – 1000	100 kg	<b>7063.890</b>	
<b>Adaptor for L-shaped mounting angles for TS network enclosures</b>			(Cat. 31, page 950)
Packs of		<b>Model No. DK</b>	
4		<b>7827.300</b>	

<sup>1)</sup> Only in conjunction with 500 mm deep component shelves

## Earthing

Rack



### Accessories for component shelves

For detailed information, see Catalogue 31.

Telescopic slides for component shelves		(Cat. 31, page 951)	
For component shelf depth mm	Packs of	Model No. DK	
		50 kg	100 kg
300	2	7051.000	–
400	2	7061.000	7064.000
500	2	7081.000	7065.000
600	2	7161.000	7066.000
700	2	7161.700	7066.700

Cable support hinged, with quick-release fastener		(Cat. 31, page 951)	
For enclosure depth mm	Model No. DK		
	< 600	7163.500	
	> 600	7163.550	

Cable support hinged, with anti-kink device and clamp		(Cat. 31, page 951)	
For enclosure depth mm	Model No. DK		
	< 600	7163.560	
	> 600	7163.565	

Handles for component shelves		(Cat. 31, page 953)	
Packs of	Model No. RP		
	2	3636.010	

Mounting bolts for slotted component shelves		(Cat. 31, page 953)	
Packs of	Model No. DK		
	4	7115.000	



### Earthing

For detailed information, see Catalogue 31.

Central earthing point		(Cat. 31, page 961)	
	Packs of	Model No. DK	
	1	7829.200	

Complete earthing kit for DK-TS		(Cat. 31, page 961)	
	1 set	7829.150	

Earth rail, horizontal		(Cat. 31, page 962)	
Length mm	Packs of	Model No. DK	
		450	1

Earthing set, pre-assembled for star earthing, for DK-TS		(Cat. 31, page 962)	
for TS enclosures up to W x H x D mm	Packs of		
	800 x 2000 x 800	1 set	
	800 x 2200 x 1000	1 set	

Earth rail, vertical		(Cat. 31, page 963)	
For enclosure height mm	Length mm	Packs of	Model No. DK
800	600	1 set	7541.000
1000	800	1 set	7542.000
1200	1000	1 set	7543.000
1400	1200	1 set	7544.000
1600	1400	1 set	7545.000
1800	1600	1 set	7546.000
2000	1800	1 set	7547.000
2200	2000	1 set	7548.000

Expansion kit for earth rail, vertical		(Cat. 31, page 963)	
Earth conductor, 500 mm, with cable lug and wire end ferrule	10	7549.000	

Potential equalisation rail, vertical, with 6.3 mm flat-pin connector terminal		(Cat. 31, page 963)	
Minimum enclosure height mm	Packs of	Model No. DK	
1800	1 set	7548.200	

ESD connection point		(Cat. 31, page 963)	
	1	7752.950	



**System lights**

For detailed information see Catalogue 31, from page 954.

Components	Standard light	Courtesy light	Universal light	Linestra
Sockets and connectors for:				
- Power supply	■	■	■	■
- Through-wiring	■	■	■	■
- Facility for connecting a door-operated switch	■	■	-	■
Jack for normally open contact	-	-	■	■
Motion sensor	-	-	■	-
Interference suppression via:				
- Radio interference suppression capacitor	■	-	-	-
- Full-electronic ballast	-	■	■	-
Additional manual switching with rocker or slide switch	■	■	■	■
Light cover	-	■	■	-
Light cone adjustment	-	-	■	-
Individual voltage supply 110 – 240 V	-	■	■	-

**Standard light** (Cat. 31, page 954)

Technical specifications	Socket	Width mm	Height mm	Depth mm	Model No. SZ		Approvals
					With door operated switch	Without door operated switch	
14 kW, 230 V, 50 Hz	Yes	452	117	50	<b>4138.150</b>	<b>4138.140</b>	ENEC
18 kW, 230 V, 50 Hz	Yes	682	117	50	<b>4138.190</b>	<b>4138.180</b>	ENEC
30 kW, 230 V, 50 Hz	Yes	987	117	50	<b>4138.350</b>	<b>4138.300</b>	ENEC

With fluorescent lamp, socket G 13, length 375/604/908 mm

**Courtesy light** (Cat. 31, page 954)

Technical specifications	Socket	Width mm	Height mm	Depth mm	Model No. SZ		Approvals
					With door operated switch	Without door operated switch	
14 W, 100 – 240 V, 50/60 Hz	Yes	452	117	50	<b>4139.150</b>	<b>4139.140</b>	ENEC
18 W, 100 – 240 V, 50/60 Hz	Yes	682	117	50	<b>4139.190</b>	<b>4139.180</b>	ENEC
30 W, 230 V, 50 Hz <sup>2)</sup>	Yes	987	117	50	<b>4139.350</b>	<b>4139.300</b>	ENEC

<sup>2)</sup> from April 2005: 100 – 240 V, 50/60 Hz

**Universal light** (Cat. 31, page 955)

Technical specifications	Socket	Width mm	Height mm	Depth mm	Model No. SZ		Approvals
					Yes	No	
26 W, 110 – 240 V, 50 – 60 Hz	Yes	345	95	55	<b>4155.100</b>		VDE
	No	345	95	55	<b>4155.000</b>		VDE
	No	345	95	55	<b>4155.500</b>		UL

With compact fluorescent lamp, TC-DEL 26 W, base G24q-3, length 174 mm

**System light with filament tube (Linestra)** (Cat. 31, page 955)

Technical specifications	Socket	Width mm	Height mm	Depth mm	Model No. SZ
35 W, 230 V AC/DC	No	380	59	41	<b>4103.350<sup>1)</sup></b>
60 W, 230 V AC/DC	No	580	59	41	<b>4103.600<sup>2)</sup></b>

With filament tube. <sup>1)</sup> Base 35 S14s, length 300 mm <sup>2)</sup> Base 60 S14s, length 500 mm

**Light 1 U** (Cat. 31, page 955)

Technical specifications	Packs of	Model No. DK
8 W, 230 V, 50 Hz, including mains switch, connection cable and earthing-pin plug	1	<b>7109.200</b>

**Enclosure light 48 V DC** (Cat. 31, page 955)

Width mm	Height mm	Depth mm	Model No. CS
452	117	50	<b>9765.100</b>

**Accessories**

Connection cables for enclosure light 48 V DC	For	Cable length m	Model No. CS	Packs of
	Power supply	3	<b>9765.137</b>	1
Through-wiring	1	<b>9765.138</b>	1	

Rack



## Lights

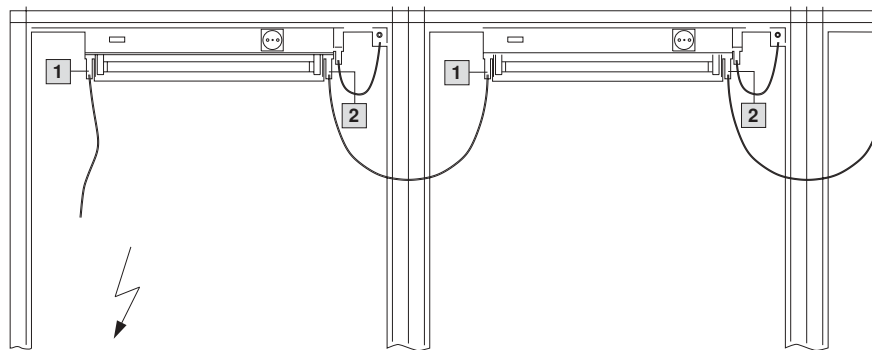


### System lights, connection accessories

For detailed information see Catalogue 31, from page 956.

Connection cable						
For	UL	Length mm	Packs of	Model No. SZ		
				Orange	Yellow	Grey
Power supply (with jack, without connector)		3000	5	4315.100	4315.110	–
Power supply (with jack and strain relief, without connector)	■	3000	1	–	–	4315.150
Through-wiring (with jack and connector)	■	600	1	–	–	4315.450
Power infeed via connection component/ through-wiring (with jack and connector)	–	600	5	4315.400	4315.410	–
	–	1000		4315.200	4315.210	–
	–	4000	1	4315.600	4315.610	–
Door operated switch with mounting accessories						
with connection cable	–	6000	1	4315.500	4315.510	
	–	1000		4315.300	4315.310	
without connection cable	■	–		4127.000		
Door operated switch with toggle						
		Technical specifications	Packs of	Model No. SZ		
Without connection cable, for TS enclosures with installed large swing frame. The toggle is actuated via the tubular door frame of the sheet steel door, or in the case of glazed doors, via an adaptor included with the supply.		230 V AC, 6 A 24 V DC, 10 A	1	4127.200		
Connection component with circuit-breaker 10 A						
Reduce assembly costs: Power is supplied quickly and reliably to system lights via the connection cable. For independently configured cables, connector SZ 2507.200 must be used. Connection component to be snapped onto the top hat rail.			1	2507.500		
For self-assembly						
Sockets for power supply through-wiring			5	2507.100		
Connectors for connection component through-wiring				2507.200		
T distributor with 2 sockets, 1 connector				2507.300		
Connector for door operated switch cable				2507.400		

- 1 Connector
- 2 Socket





### Cable fastening

For detailed information see Catalogue 31, page 982.

Cable ties				
Length mm		Packs of	Model No. SZ	
150		100	2597.000	

Metal cable ties, see Cat. 31, page 958.

Nylon loop				
Width mm	Length mm	Max. cable diameter mm	Packs of	Model No. DK
16	130	30	10	7072.220
16	200	50	10	7072.230
16	300	90	10	7072.240



### Cable clamp rails

For detailed information, see Catalogue 31.

Cable clamp rails for FR(i) and 482.6 mm (19") mounting frames (Cat. 31, page 983)					
for enclosures		19" distance between levels Mounting frame mm		Packs of	Model No. DK
Width mm	Depth mm	for the inner attachment level	for the outer attachment level		
600	600	645		4	7828.061
800	800	845		4	7828.081
900	900	945		4	7828.091
1000	1000	1045		4	7828.101
600	600		695	4	7828.062
800	800		895	4	7828.082
900	900		995	4	7828.092
1000	1000		1095	4	7828.102

Cable clamp rail, depth-variable for TS and 19" mounting frames (Cat. 31, page 984)			
		19" distance between levels Mounting frame mm	
		445 – 695	4
		620 – 1015	4



### System supports for cable routes

for DK-TS/FR(i)  
Enclosure depth 800 – 1000 mm

The depth-variable support system may be attached to all 800, 900 and 1000 mm deep enclosures and all FR(i) enclosures with external screw-fastening of the roof plate. The integral system punchings, for screws or captive nuts, support the attachment of most common cable route systems from a variety of manufacturers.

**Material:**

Sheet steel

**Surface finish:**

Powder-coated, RAL 7035



Packs of	Model No. DK
2	7831.470

**+** Accessories:

Multi-tooth screws BZ 5,5 x 13 mm, SZ 2486.500, see Catalogue 31, page 937.  
Captive nuts M6, TS 8800.340, see Catalogue 31, page 936.

## Cable management

Rack



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3



4



5



6

### Cable management

For detailed information, see Catalogue 31.

Shunting ring, plastic			(Cat. 31, page 984)
Material	Dimensions mm	Packs of	Model No. DK
Polyamide	70 x 44	10	7218.035 <sup>1)</sup>
Polyamide	105 x 70	10	7219.035 <sup>1)</sup>
Polycarbonate	95 x 50	10	7228.035

<sup>1)</sup> German patent no. 44 13 124

1 Cable shunting ring, metal			(Cat. 31, page 984)
	120 x 80	10	7111.900
	120 x 60	10	7111.000
	80 x 37	10	7112.000

2 Shunting ring, large			(Cat. 31, page 985)
	330 x 90/70	4	7220.600

3 Cable clamp rail <sup>2)</sup> for patch panel			(Cat. 31, page 985)
Design			Model No. DK
Without cable shield contacting			7610.000
With spring clips for contacting the cable screen			7611.000

<sup>2)</sup> For matching patch panels see Cat. 31, page 1021 – 1025

4 Fibre-optic shunting rings			(Cat. 31, page 986)
		2	7116.500

Cable route for baying systems			(Cat. 31, page 986)
		1	7827.050

5 Surplus cable holder			(Cat. 31, page 986)
W x H x D mm			Model No. DK
280 x 151 x 75			7220.500

Cable duct for TS			(Cat. 31, page 987)
For enclosure height mm	For 482.6 mm (19") mounting frames	U	Model No. DK
1600	1800	31	7827.333
1800	2000	36	7827.338
2000	2200	40	7827.342
2200	–	45	7827.347

Cable shunting components for FR(i) frame channel			(Cat. 31, page 987)
Type 1: With horizontal bar for attaching the cables in the frame channel.		10	7218.100
Type 2: Additionally with semi-circular bead for buckle-free cable entry and exit.		10	7218.105

Extension kit horizontal cable management for FR(i)			(Cat. 31, page 987)
Expansion kit		Packs of	Model No. FR
Expansion kit		1 set	7856.740
Trim panels		2	7856.743
		2	7856.746

6 Cable tray			(Cat. 31, page 988)
Width mm	Length mm	Packs of	Model No. DK
150	1700	2	7858.150
200	1700	2	7858.152
300	1700	2	7858.154

System support for cable routes for DK-TS/FR(i)			see page 75
		Packs of	
		2	7831.470

**Cable management 482.6 mm (19")**

**Cable management 482.6 mm (19")**

For detailed information, see Catalogue 31.



1



2



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7

1 Management panel, 1 U 482.6 mm (19") (Cat. 31, page 989)				
Colour	U	Material	Ring size mm	Model No. DK
RAL 7035	1	Polyamide	70 x 44	7159.035
RAL 7035	1	Polycarbonate	95 x 50	7255.035
RAL 7035	1	Metal	100 x 37	7257.035
RAL 7035	2	Metal	120 x 80	7257.100
RAL 9005	1	Metal	100 x 37	7257.005 <sup>1)</sup>
RAL 9005	2	Metal	120 x 80	7257.105 <sup>1)</sup>

<sup>1)</sup> Delivery times available on request.

2 Management panel, 2 U 482.6 mm (19") (Cat. 31, page 990)		
U	Depth mm	Model No. DK
2	85	7158.035

Grooved cable management panel 482.6 mm (19") (Cat. 31, page 990)		
U	Depth mm	Model No. DK
1	85	7149.135
3	100	7149.035

3 Cable management panel, 2 U (Cat. 31, page 990)		
U	Model No. DK	
2	7269.135	

2 Cable management duct, horizontal 482.6 mm (19") (Cat. 31, page 991)		
U	Model No. DK	
2	7158.100	
3	7158.150	

7 Cable tray, 2 U (Cat. 31, page 991)		
U	Model No. DK	
2	7269.235	

Copper and fibre-optic cable management panel (Cat. 31, page 991)		
U	Model No. DK	
2	7269.335	

Other versions available on request.

Fibre-optic cable management panel, 2 U 482.6 mm (19") (Cat. 31, page 991)		
U	Model No. DK	
2	7116.560	

4 Fibre-optic management panel, 1 U 482.6 mm (19") (Cat. 31, page 992)		
U	Model No. DK	
1	7256.035	

5 Cable entry panel 482.6 mm (19") (Cat. 31, page 992)		
U	Model No. DK	
1	7140.535	
2	7150.535	

Other versions available on request.

6 Cable routing on the 482.6 mm (19") level (Cat. 31, page 992)			
		Depth in mm	Model No. DK
482.6 mm (19") C rail	482.6 mm (19") level, vertical routing	-	7016.100
482.6 mm (19") cable clamp rail with hammer heads	482.6 mm (19") level, vertical routing	-	7016.110
Cable clamp rail, rear	DK-TS mounting angles, horizontal routing	100	7016.130

Rack



## 482.6 mm (19") configuration



Rack

### Mounting angles

For detailed information, see Catalogue 31.

<b>Mounting angles, 482.6 mm (19")</b> for TS, 600 mm wide, inner level 800 mm wide with divider kit				(Cat. 31, page 1004)	
Full installation rack height mm	U	Packs of	Model No. DK		
			Cranked	L-shaped	
600	11	2	–	7827.061	
800	15	2	7827.080	7827.081	
1000	20	2	7827.100	7827.101	
1200	24	2	7827.120	7827.121	
1400	29	2	7827.140	7827.141	
1600	33	2	7827.160	7827.161	
1800	38	2	7827.180	7827.181	
2000	42	2	7827.200	7827.201	
2200	47	2	7827.220	7827.221	

Installation kits see page 79

<b>Mounting angles, 482.6 mm (19")</b> L-bracket for TS, 600 mm wide, outer level				(Cat. 31, page 1005)	
	U	Packs of	Model No. DK		
	10	2	7831.630 <sup>1)</sup>		
	21	2	7831.635 <sup>1)</sup>		
	42	2	7831.642		
	47	2	7831.647		

Installation kits see page 79

<sup>1)</sup> Delivery times available on request.

<b>Mounting angles, 482.6 mm (19")</b> for FR(i), 600 mm wide on frame section				(Cat. 31, page 1005)	
Enclosure height mm	Usable U with full installation	Packs of	Model No. FR(i)		
600	11	2	7856.800		
1200	24	2	7856.803		
1800	38	2	7856.806		
2000	42	2	7856.809		
2200	47	2	7856.812		

Installation kits see page 79

<b>T-slot mounting angles, 482.6 mm (19")/metric (465 mm)</b> for TS/FR(i)					(Cat. 31, page 1006)	
Full installation Rack height mm	SU	U	Packs of	Model No. DK		
800	26	15	2	7000.150		
1000	35	20	2	7000.200		
1200	42	24	2	7000.240		
1400	51	29	2	7000.290		
1600	58	33	2	7000.330		
1800	67	38	2	7000.380		
2000	74	42	2	7000.420		
2200	83	47	2	7000.470		

Installation kits see page 79

<b>Mounting frame, 482.6 mm (19") for TS/FR(i)</b>					(Cat. 31, page 1007)	
For enclosures		U		Model No. FR(i)		
Width mm	Height mm					
600	600	11			7856.710	
600	1200	24			7856.713	
600	1800	38			7856.716	
600	2000	42			7856.719	
600	2200	47			7856.722	
800	1200	24			7856.725	
800	1800	38			7856.728	
800	2000	42			7856.731	
800	2200	47			7856.734	

**482.6 mm (19") configuration**



**Mounting kits for mounting angles**

For detailed information, see Catalogue 31.

**Mounting angle centre fastening attachment** for 800 mm wide TS/FR(i) network enclosures (Cat. 31, page 1008)

	Packs of	Model No. DK
	2	7284.135

**TS punched sections with mounting flange as installation kit** for mounting angles, TS 600 mm wide, inner level (Cat. 31, page 1008)

For enclosures 600 mm wide		Packs of	Model No. TS
Depth mm			
600		4	8612.060
800		4	8612.080
900		4	8612.090
1000		4	8612.000

**TS punched sections with mounting flange, notched as installation kit** for mounting angles, TS 600 mm wide, outer level (Cat. 31, page 1008)

For enclosures 600 mm wide		Packs of	Model No. DK
Depth mm			
600		4	8612.160
800		4	8612.180
900		4	-
1000		4	8612.100

**Depth stays as installation kit** for mounting angles, TS 800 mm wide, outer level (Cat. 31, page 1008)

For enclosures 800 mm wide		Packs of	Model No. DK
Depth mm			
900		4	7827.900
1000		4	7827.000

**Depth stays as installation kit** for mounting angles 482.6 mm (19")/metric (Cat. 31, page 1009)

For enclosures mm		Packs of	Model No. DK		
Width mm	Depth mm		Mounting dimensions		
			21" <sup>1)</sup>	23"	24"
800	900	4	7794.330	7827.923	7827.924
800	1000	4	-	7827.023	7827.024

<sup>1)</sup> Also for metric mounting angles, mounting dimensions 515 mm.

**Installation brackets TS/FR(i)** for mounting angles, TS/FR(i) 800 mm wide, on base and roof frame (Cat. 31, page 1009)

	Packs of	Model No. DK
	2	7827.480

**Installation brackets TS/FR(i)** for T-slot mounting angles, TS/FR(i) 600/800 mm wide, on base and roof frame (Cat. 31, page 1006)

Enclosure width mm	Standards	Installation position	Packs of	Model No. DK
600	482.6 mm (19")	central	2	7696.000
800	482.6 mm (19")/ metric (465 mm)	central	2	7698.000
800	482.6 mm (19")/ metric (465 mm)	side	2	7697.000
800	Metric (515 mm)	central	2	7000.100



**Blanking panels**

**Blanking panel, 482.6 mm (19")** (Cat. 31, page 1025)

U	Installation height mm	Packs of	Model No. DK	
			RAL 7035	RAL 9005
1	44	2	7151.035	7151.005 <sup>1)</sup>
1.5	66	2	7157.035	-
2	88	2	7152.035	7152.005 <sup>1)</sup>
3	132.5	2	7153.035	7153.005 <sup>1)</sup>
6	266	2	7156.035	7156.005 <sup>1)</sup>

<sup>1)</sup> Delivery times available on request.



## 482.6 mm (19") configuration



### Slide rails

For detailed information, see Catalogue 31.

Slide rails, heavy-duty for TS network enclosures with two attachment levels				(Cat. 31, page 1010)
distance between 19" levels mm	Contact surface		Packs of	Model No. DK
	Width mm	Depth mm		
298	40	261	2	<b>7492.300</b>
398	40	361	2	<b>7492.400</b>
498	40	461	2	<b>7492.500</b>

Also required: For fastening to L-shaped TS mounting angles: Adaptor DK 7827.300, see page 71.

Slide rails, depth-variable 1 U for TS, FR(i) with L-shaped mounting angles or 482.6 mm (19") mounting frames					(Cat. 31, page 1010)
Length mm	Load capacity	Contact surface		Packs of	Model No. DK
		Width mm	Depth mm		
390 – 600	80 kg	50	330	2	<b>7063.878</b>
590 – 930	80 kg	50	525	2	<b>7063.880</b>
590 – 930	150 kg	50	525	2	<b>7063.884</b>

Slide rails, vented for TS network enclosures with two 482.6 mm (19") levels					(Cat. 31, page 1011)
distance between 19" levels mm	Contact surface		Packs of	Model No. DK	
	Width mm	Depth mm			
–	50	152 <sup>1)</sup>	2	<b>7063.000</b>	
298	50	261	2	<b>7063.300</b>	
398	50	361	2	<b>7063.400</b>	
498	50	461	2	<b>7063.500</b>	
598	50	561	2	<b>7063.600</b>	
698	50	661	2	<b>7063.700</b>	

<sup>1)</sup> Only for attachment to the front or rear mounting angles.

Also required: For fastening to L-shaped TS mounting angles: Adaptor DK 7827.300, see page 71.

Cable clamp rails for FR(i), TS 19" mounting frames					(Cat. 31, page 1011)
distance between 19" levels mm	Contact surface		Packs of	Model No. DK	
	Width mm	Depth mm			
395	85	324	2	<b>7963.310</b>	
495	85	424	2	<b>7963.410</b>	
595	85	524	2	<b>7963.510</b>	
695	85	624	2	<b>7963.610</b>	

Rack



### Server integration

For detailed information, see Catalogue 31.

Universal server installation kit, for mixed assemblies, 482.6 mm (19") for TS, FR(i)			(Cat. 31, page 1012)
For	Packs of	Model No. DK	
all common server types	1 set	<b>7063.100</b>	

#### Also required:

Mounting adaptor according to server type, original installation kit from the respective server manufacturer. For FR(i) and enclosures with two 482.6 mm (19") mounting frames: Installation kit DK 7063.102, see table.

Mounting adaptor			(Cat. 31, page 1012)
For server types	Packs of	Model No. DK	
With front 19" server attachment	1 set	<b>7063.110</b>	
With side attachment (SUN)	1 set	<b>7063.120</b>	
With side attachment (HP rack system/E)	1 set	<b>7063.130</b>	

Installation kit for FR(i) mounting angles and 482.6 mm (19") mounting frames		(Cat. 31, page 1012)
Packs of	Model No. DK	
1 set	<b>7063.102</b>	

Server rails, 482.6 mm (19") for network enclosures with two 482.6 mm (19") levels, attachment infinitely variable			(Cat. 31, page 1012)
19" distance between levels mm	Packs of	Model No. DK	
550 – 850	2	<b>7063.850</b>	

482.6 mm (19") configuration



**482.6 mm (19")/metric installation**

**Integration aids**

For detailed information, see Catalogue 31.

<b>Adaptor, metric/21"/19"</b> for flexible integration of different standards (Cat. 31, page 1017)			
SU	U	Packs of	Model No. DK
2	1	2	<b>7246.010</b>
6	3	2	<b>7246.030</b>
11	6	2	<b>7246.060</b>

<b>Adaptor, 3 U</b> depth offset of the mounting level 100 mm (Cat. 31, page 1016)	
Packs of	Model No. DK
2	<b>7246.400</b>

<b>Mounting kit, 2 U</b> for flexible integration of additional components (Cat. 31, page 1017)	
Packs of	Model No. DK
2	<b>7246.420</b>



Rack



**Assembly parts**

For detailed information, see Catalogue 31.

<b>Spring nuts with screws</b> M5 x 10 mm/M6 x 10 mm for T-slot section (Cat. 31, page 1019)			
	Design	Packs of	Model No. DK
M6	Posidrive	50	<b>7000.990</b>
M5	Multi-tooth 25	50	<b>7856.755</b>

<b>Assembly screws</b> M5 x 16 mm/M6 x 16 mm (Cat. 31, page 1019)			
	Design	Packs of	Model No. EL
M5	Phillips-head screw	100	<b>2099.500</b>
M6	Cheese-head screw	100	<b>2093.200</b>
M6	Phillips-head screw	100	<b>2089.000</b>

<b>Multi-tooth screws</b> M5 x 16 mm/M6 x 16 mm (Cat. 31, page 1019)			
	Bit size	Packs of	Model No. DK
M5	Multi-tooth 25	100	<b>7094.500</b>
M6	Multi-tooth 30	100	<b>7094.600</b>

<b>Captive nuts M5/M6</b> (Cat. 31, page 1020)				
	Design	For metal thicknesses mm	Packs of	Model No. EL
M5	With contact	0.8 – 2.0	50	<b>2094.500</b>
M5	Without contact	0.8 – 2.0	50	<b>2092.500</b>
M6	With contact	0.8 – 2.0	50	<b>2094.200</b>
M6	Without contact	0.8 – 2.0	50	<b>2092.200</b>
M6	With contact	1.2 – 1.5	50	<b>2094.300</b>
M6	Without contact	1.2 – 1.5	50	<b>2092.300</b>



**Drawers for keyboards**

For detailed information, see Catalogue 31.

<b>Keyboard drawer 2 U with pull-out mousepad</b> for 482.6 mm (19") keyboards, for front attachment to the 482.6 mm (19") system punchings (Cat. 31, page 1051)			
Height	Installation depth mm	Model No. DK	
2 U	390	<b>7281.035</b>	

<b>Drawer 482.6 mm (19")</b> for standard keyboards > 482.6 mm (19"), for attachment between the front and rear mounting level (Cat. 31, page 1052)	
Packs of	Model No. DK
1	<b>7063.888</b>

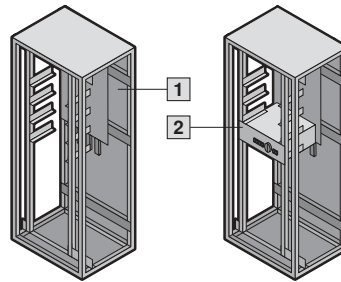
  

<b>Keyboard drawer 1 U</b> , for 482.6 mm (19") keyboards, with integral mouse controller, for front attachment to the 482.6 mm (19") system punchings (Cat. 31, page 1052)	
Distance between levels mm	Model No. DK
460 – 800	<b>7281.200</b>



## Power Distribution Rack PDR

Power



- Power Distribution Rack to accommodate a maximum of 8 PDMs
- Height 1.20 m for 4 PDMs and 2 m height for 8 PDMs
- PDM may be retrofitted whilst the system is operational
- A maximum of 32 racks may be fitted to the sub-distributor
- Fully shock-hazard-protected
- Main switch available in various versions on request<sup>1)</sup>:

- Isolator switch
- On-load isolator
- Power circuit-breakers
- RC circuit-breaker
- Low-voltage distribution up to 250 A

<sup>1)</sup> Depending on the standards of the local power supply company.

**Note:**  
**Observe the standards of the local power supply companies.**

**Material:**  
Sheet steel

**Surface finish:**  
Enclosure frame: Dipcoat-primed  
Doors, roof and base/plinth: Dipcoat-primed, powder-coated in RAL 7035  
Gland plates, punched sections with mounting flanges and mounting angles: Zinc-plated, passivated

**Supply includes:**  
Enclosure frame with door, rear panel, side panels and roof plate, levelling feet including base/plinth adaptor, earthing of all enclosure panels, busbars shock-hazard-protected, main switch integrated.

Extended delivery times.

Power Distribution Rack PDR	Packs of	<b>1</b>	<b>1</b>
Possible number of PDM modules		4	8
Dimensions mm	W H D	800 1200 500	800 2000 500
<b>Model No. DK</b>	1	<b>7857.310</b>	<b>7857.300</b>

Accessories				
<b>Power Distribution Module PDM</b>	PDM 482.6 mm (19"), 4 outlets per 10 kW		<b>7857.320</b>	
	PDM 482.6 mm (19"), 4 outlets, project-specific		<b>7857.350</b>	
	Connection cable with 32 A CEEkon connector		<b>7857.321</b>	
<b>Plug &amp; play connection cable</b> (PSM rail to PDM) to the server enclosures	Length 3 m	1	<b>7857.130</b>	
	Length 5 m	1	<b>7857.150</b>	
	Length 8 m	1	<b>7857.180</b>	
	Length 9 m	1	<b>7857.190</b>	
Base/plinth components front and rear	Height 100 mm	1 set	8601.800	8601.800
	Height 200 mm	1 set	8602.800	8602.800
Base/plinth trim side	Height 100 mm	1 set	8601.050	8601.050
	Height 200 mm	1 set	8602.050	8602.050



### Connection cable for PSM rail

For detailed information see Catalogue 31, page 745.

Connection cable, three-phase		(Cat. 31, page 745)
	Length	Model No.
EU type	3 m	<b>7856.025</b>
US type		<b>7856.055<sup>1)</sup></b>
Connection cable, single-phase		
	3 m	<b>7856.026</b>
Connection cable, UPS, single-phase		
	3 m	<b>7856.027</b>

<sup>1)</sup> Delivery times available on request.

**Power System Module PSM/active PSM, 8-way**



**Power System Module PSM**

For detailed information see Catalogue 31, page 744.

Busbar		(Cat. 31, page 744)	
For enclosure height mm	Number of modules	Model No. DK	
		EU type	US type
1200	4	<b>7856.010</b>	<b>7856.050<sup>1)</sup></b>
2000	7	<b>7856.020</b>	<b>7856.060<sup>1)</sup></b>
Mounting kit			
For enclosure height 1200/2000 mm	For static installation	<b>7856.011</b>	
	Moveable, for open 19" level	<b>7856.012</b>	

<sup>1)</sup> Delivery times available on request.

Plug-in modules				(Cat. 31, page 745)
Plug-in module	Number of sockets	Without overcurrent protection	With overcurrent protection	
IEC320	6	<b>7856.080</b>	<b>7856.070</b>	
IEC320	4	–	<b>7856.220<sup>2)</sup></b>	
D/NL/A	4	<b>7856.100</b>	<b>7856.090</b>	
F/B	4	<b>7856.120<sup>1)</sup></b>	<b>7856.110<sup>1)</sup></b>	
USA	4	<b>7856.140<sup>1)</sup></b>	<b>7856.130</b>	
UK	3	<b>7856.160<sup>1)</sup></b>	<b>7856.150<sup>1)</sup></b>	
CH	4	<b>7856.190<sup>1)</sup></b>	<b>7856.180<sup>1)</sup></b>	

<sup>1)</sup> Extended delivery times. Other modules available on request. <sup>2)</sup> With individual overcurrent fusing

Overvoltage protection		(Cat. 31, page 745)
With adaptor connector	<b>7856.170</b>	
Active Power System Module PSM, 4-way		
Detailed information may be found under "Monitoring", on page 775 of Catalogue 31.		<b>7856.200</b>



Reg. no. A592

Power



**Active PSM 8-way, individually switchable**

The active plug-in module for the busbar system PSM has 8 current outlets with IEC320 C13 slots. Each of the 8 slots is individually switchable (via the CMC-TC system). Furthermore, a current indicator, circuit display and thermal overload protection are integrated into the module. The module is twice the length of a standard PSM module, so that a maximum of 2 modules may be inserted into a 1200 mm long PSM rail, and a maximum of 4 modules into a 2000 mm long PSM rail.

**Operate the module without CMC-TC:**

For operation of the module, power pack 7201.210 and a connection cable (see page 82) are needed. Up to 2/4 modules may be operated in one PSM rail (1200/2000 mm) with one power pack.

Usable functions: Current display, circuit display, automatic selective activation

**Operate the module with CMC-TC:**

No additional power pack is needed; the module is supplied with power via the CMC-TC system. Up to 4 x 4 modules may be connected to one Processing Unit II.

Usable functions: Current display, circuit display, automatic selective activation, via CMC-TC in the network: Individual switching of the 8 current outlets, current limit monitoring, delayed switching of the individual current outlets, status display of the module.

**Recommended accessory list CMC-TC:**

- 7320.100 CMC-TC Processing Unit II
- 7320.425 CMC-TC power pack 24 V, input 100 – 230 V AC
- 7320.440 CMC-TC 1 U mounting unit
- 7320.472 CMC-TC connection cable sensor unit 2 m
- 7200.210 CMC-TC connection cable D 230 V AC (depending on country version)
- 7200.221 CMC-TC programming cable

Design	Model No. DK
8-way	<b>7856.201</b>

**Description of functions:**

- 2-digit local LED 7-segment current display on the module. Legibility is independent from the installation position.
- Measuring and monitoring of the current per module. Min./max. limits may be set. Measurement range 0 – 16 A.
- Alarm indication via a flashing 7-segment display.
- Monitoring of the thermo-fuse
- Modules may be combined via the bus system, thereby enabling selective activation.
- In conjunction with the CMC-TC, the 8 individual current outlets of the modules may be activated and deactivated individually via HTTP and SNMP.
- Remote administration of the power supply, editing and monitoring of remote limits, SNMP trap messages in case of alarm.
- 8 IEC320 C13 slots per module
- User administration (from summer 2005)

**Material:**

Aluminium chassis with plastic cover

**Supply includes:**

- 1 module (max. 10 A per module),
- 10 A thermal miniature circuit-breaker,
- 1 bus cable,
- 1 infeed cable 24 V DC,
- 1 adaptor for power pack 24 V DC.

**Note:**

For more information on the power rail system, see Catalogue 31, page 744.



**Also required:**

A separate power pack (100 – 240 V AC/24 V DC) is required for stand-alone operation without CMC-TC (7201.210) and the relevant connection cables, see page 82.

**Plug-in modules/Rittal Power Control Unit (PCU)**



**PSM plug-in module IEC320 C19**

**4-way**  
The plug-in module for the busbar system PSM has 4 current outlets with IEC320 C19 slots. A PSM busbar is required to operate the module. A maximum of 4 modules may be inserted into a 1200 mm long PSM bar, and a maximum of 7 modules into a 2000 mm long PSM rail.

Design	Model No. DK
4-way	7856.230

**Note:**  
For more information on the Power System Module PSM, see Catalogue 31, page 744.



**PSM plug-in module, red with earthing-pin**

**4-way**  
The plug-in module for the busbar system PSM has 4 current outlets with earthing-pin (D/NL/A) slots. A PSM busbar is required to operate the module. A maximum of 4 modules may be inserted into a 1200 mm long PSM bar, and a maximum of 7 modules into a 2000 mm long PSM bar.

Design	Model No. DK
4-way	7856.240

**Note:**  
For more information on the Power System Module PSM, see Catalogue 31, page 744.

Power



**Rittal Power Control Unit (PCU) 1 U, 8-way, individually switchable**

The 1 U PCU socket strip has 8 current outlets with IEC320 C13 slots. Each of the 8 slots is individually switchable (via the CMC-TC system). Furthermore, a current indicator, circuit display and thermal overload protection are integrated into the module. The socket strip may be installed on the enclosure frame or in the 482.6 mm (19") section (1 U) of a rack.

**Operate the socket strip without CMC-TC:**  
For operation of the socket strip, power pack 7201.210 and a connection cable (see page 82) are needed. Up to 4 socket strips may be operated with one power pack.

Usable functions: Current display, circuit display, automatic selective activation

**Operate the socket strip with CMC-TC:**  
No additional power pack is needed; the PCU is supplied with power via the CMC-TC system. Up to 4 x 4 PCUs may be connected to one Processing Unit II.

Usable functions: Current display, automatic selective activation, via CMC-TC in the network: Individual switching of the 8 current outlets, current limit monitoring, delayed switching of the individual current outlets, status display of the module.

- Recommended accessory list CMC-TC:
- 7320.100 CMC-TC Processing Unit II
  - 7320.425 CMC-TC power pack 24 V, input 100 – 230 V AC
  - 7320.440 CMC-TC 1 U mounting unit
  - 7320.472 CMC-TC connection cable, sensor unit 2 m
  - 7200.210 CMC-TC connection cable D 230 V AC (depending on country version)
  - 7200.221 CMC-TC programming cable

Design	Model No. DK
8-way	7200.001

- Description of functions:**
- 2-digit local LED 7-segment current display on the PCU. Legibility rotates according to the installation position.
  - Measuring and monitoring of the current per PCU. Min./max. limits may be set. Measurement range 0 – 16 A.
  - Alarm indication via a flashing 7-segment display.
  - Monitoring of the thermo-fuse.
  - PCUs may be combined via the bus system, thereby enabling selective activation.
  - In conjunction with the CMC-TC, the 8 individual current outlets of the PCUs may be activated and deactivated individually via HTTP and SNMP.
  - Remote administration of the power supply, editing and monitoring of remote limits, SNMP trap messages in case of alarm.
  - 8 IEC 320 C-13 slots per PCU.
  - User administration (from summer 2005).

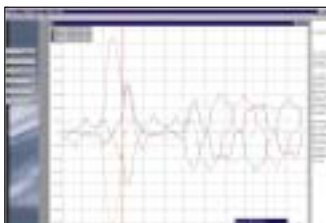
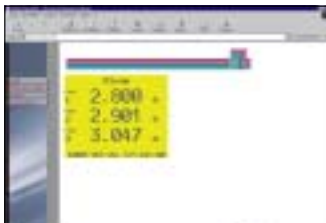
**Material:**  
Aluminium chassis with plastic cover

- Supply includes:**
- 1 socket strip PCU 1 U (max. 10 A per socket strip),
  - 10 A thermal miniature circuit-breaker,
  - 1 bus cable,
  - 1 infeed cable 24 V DC,
  - 1 adaptor for power pack 24 V DC,
  - 1 connector for power supply.

**! Also required:**

A separate power pack (100 – 240 V AC/24 V DC) is required for stand-alone operation without CMC-TC (7201.210) and the relevant connection cables, see page 82.

**System network analysis**



**System network analysis**

The quality of the energy supply is an important component of a functioning IT system. There are UPS protection systems available which can help. The quality of the energy supply from different power supply companies in conjunction with different IT applications may vary extremely widely.

To this end, Rittal offers the network analysis system. It may be ideally integrated into the Power Distribution Rack PDR, where it will analyse the power infeed.

The system performs network quality measurements to EN 50 160. It has a generous illuminated display for the direct retrieval of measurement results. Furthermore, all information is available in the network via the integrated WEB server. Evaluation software is also included with the supply, which is capable of reading the measurements via the network and analysing them to DIN EN 50 160 and EN 61 000-2-4.

The electronic measuring device, which is equipped with 4 current and voltage inputs, records and digitises the effective values (RMS) of currents and voltages in a 15 – 75 Hz network. Based on the scanned values, the built-in micro-processor calculates the electric variables. For measurement in the three-phase system, the relevant voltage may be defined as a conductor-zero or conductor-conductor voltage. This voltage is used by the Rittal network analysis system to measure harmonics and to log transients and events, and for the flickermeter.

System network analysis	On request
-------------------------	------------

**Measurement functions:**

- Automatic adjustment to a network frequency of 15 ... 75 Hz
- Measurement intervals of 10 (50 Hz) or 12 (60 Hz) period (200 ms)
- Contiguous scanning and calculation of the following measurements: Voltage L-N, neutral-point displacement voltage and asymmetry L1...L3, voltage L-L, frequency, current, aggregate current L1...L3 and L1...L3+N, active power, reactive power, apparent power, power factor, distortion reactive power, fundamental power, cosphi, phase shift, work of main and auxiliary system, reactive power demand (capacitive and inductive) 1..50 harmonic of current and voltage, distortion factor (THD) of current and voltage, short- and long-term flickermeter readings, level of ripple-control signals.

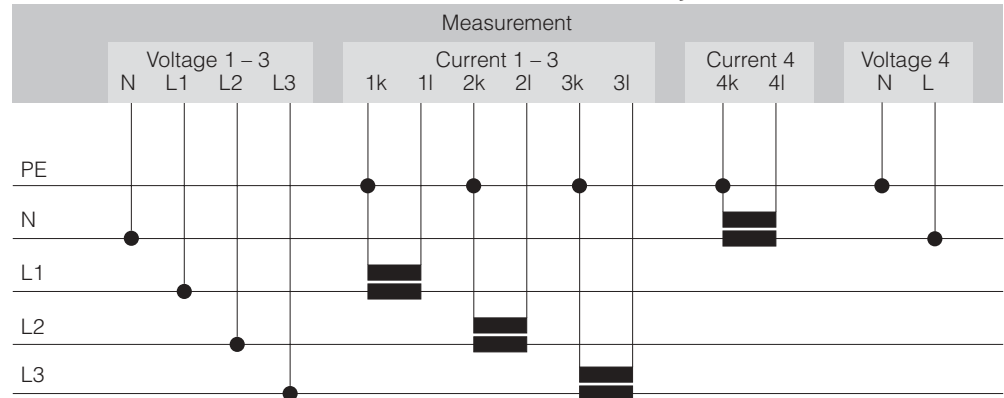
**Technical specifications:**

Dimensions W x H x D: 144 x 144 x 90 mm  
 Auxiliary voltage: 95..265 V AC; 100..370 V DC; 25 VA  
 Voltage measurement: L-N 0..500 V AC; 0.2 VA; 15 – 75 Hz  
 L-L 0..870 V AC; 0.2 VA; 15 – 75 Hz  
 Current measurement: 5 A (1 A), (larger values via converter)  
 Operating temperature range: -10 to +55°C

**Protection category:**

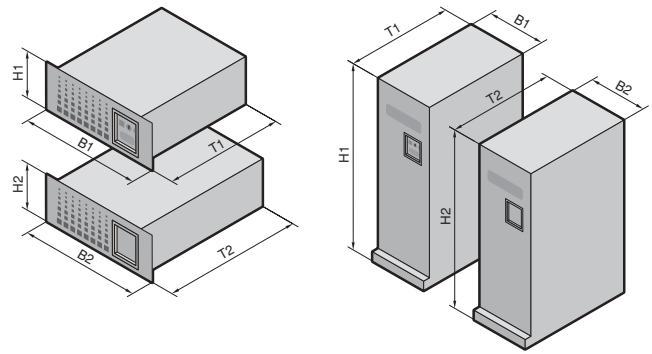
IP 20  
 I/O:  
 Digital inputs: 8  
 Digital outputs: 5

**Measurement in the four-conductor network, with main and auxiliary measurement**





## UPS, single-phase, output range 1 – 6 kVA



Power

### Rittal Power Modular Concept (PMC)

#### Supply includes:

1-phase UPS systems based on the double-conversion system with/without battery pack

#### Available on request:

Replacement batteries, AS 400 interface adaptor



#### Also required:

Country-specific connection cables are required to operate the UPS systems. Model No. see page 107.

#### Stored energy times (min.) in the event of a power failure at 100 %/50 % load:

UPS type 230 V	Supplied state Standard version	Additional battery packs				
		1	2	3	4	5
1 kVA	7/16	35/76	53/122	–	–	–
1.5 kVA	5/14	26/67	46/125	–	–	–
2 kVA	0/0	10/22	24/55	45/102	58/141	80/178
3 kVA	0/0	6/15	13/34	25/63	36/86	50/124
6 kVA	8/23	38/88	60/141	–	–	–

		UPS for 482.6 mm (19") racks			UPS floor-standing enclosure with integral battery	
		UPS with integral battery		UPS control unit		
<b>Model No. DK</b>		<b>7857.401</b>	<b>7857.402</b>	<b>7857.403<sup>1)</sup></b>	<b>7857.404<sup>1)</sup></b>	<b>7857.405</b>
Battery packs required, 2 U		–	–	7857.408	7857.408	–
Max. number of additional battery packs		2	2	5	5	2
Power	VA	1000	1500	2000	3000	6000
	Watts	700	1050	1400	2100	4200
Input	Rated voltage	230 V (160 – 276 V) AC ± 3 %				
	Frequency	50/60 Hz ± 5 %, automatic selection				
	Voltage	220/230/240 ± 3 %				
Output	Frequency, synchronised	50/60 Hz ± 0.5 % (sine)				
	Frequency, asynchronous	50/60 Hz ± 5 % (sine)				

Rated current (max.)	4 A	5.7 A	7.7 A	12 A	29.6 A
Power factor to IEC 555-2	> 0.95				
Crest factor	3 : 1				
Overload response	110 % – 130 % for 10 sec., > 130 % ± 10 % for 1.5 sec.				

#### Dimensions and weights

<b>Width (B1)</b> in mm	482.6 (19")				260
<b>Height (H1)</b> in mm	2 U				710
<b>Depth (T1)</b> in mm	410	493	410	460	555
Weight (kg)	17	20	8	11	91
Input socket-contacts	1 x IEC 320 C 13			1 x IEC 320 C 19	Clamps
Output socket-contacts	4 x IEC 320 C 13			1 x IEC 320 C 19	Clamps

#### Battery packs

<b>Model No. DK extension kit for UPS</b>	<b>7857.406</b>	<b>7857.407</b>	<b>7857.408</b>	<b>7857.408</b>	<b>7857.409</b>
<b>Width (B2)</b> in mm	482.6 (19")				260
<b>Height (H2)</b> in mm	2 U				705
<b>Depth (T2)</b> in mm	460				555
Weight (kg)	23	29	29	29	125

#### Accessories

	Packs of	
Alarm relay slide-in card	1	<b>7857.400</b>
RCCMD licence (Remote Control Command)	1	<b>7857.421<sup>2)</sup></b>
SNMP slide-in card Ethernet, FTP, Telnet ...	1	<b>7857.420<sup>2)</sup></b>

<sup>1)</sup> At least one battery pack 2/3 kVA 7857.408 must be ordered at the same time, because the UPS control units do not contain any batteries.

<sup>2)</sup> Extended delivery times, with redundancy operation of the UPS systems, i. e. servers with two power packs may be controlled via the SNMP adaptor (per UPS).

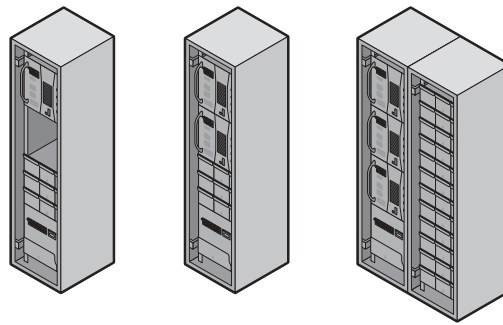
#### Battery:

Maintenance-free lead battery, service life approx. 5 years according to EUROBAT.

#### Operating environments:

Temperature: 10°C – 40°C to 1500 m NN  
Relative humidity: 20 – 90 %, non-condensing

UPS, three-phase, output range 10 – 120 kVA



The Rittal Modular Power Concept (PMC) allows easy adaptation to customer-specific requirements, thanks to its modular character, combined with investment security and a high level of availability.

The modules are integrated into prepared 482.6 mm (19") Rittal TS 8 UPS enclosures, where they may be extended whilst the system is operational.

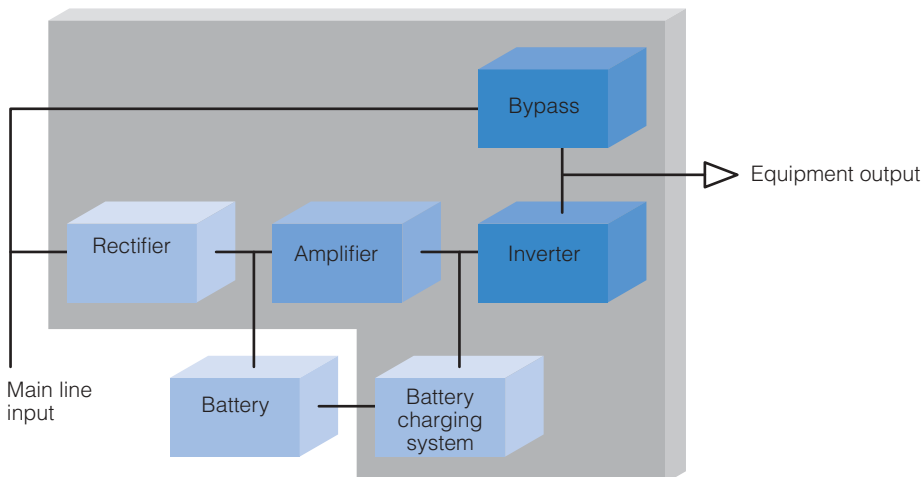
1. Technical specifications					
Rated output voltage	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Output power factor	0.8				
Topology	On-line, double conversion, VFI				
Technology	Second generation, without transformer				
Construction	Modular, may be connected in parallel				
Parallel configuration	For redundancy or increasing the output: – Standard up to 10 modules – With no restrictions on request				
Double conversion AC – AC operating ratio. Output capacity with fully charged battery					
100/75/50/25 % linear load (cos. $\varphi = 0.8$ ind.)	94.5/94.5/93/91 %	94.5/94.5/93/91 %	94.5/94.5/93/91 %	95/95/93.5/92 %	95/95/93.5/92 %
100/75/50/25 % ohmic load (cos. $\varphi = 1$ )	94/94/92/90 %	94/94/92/90 %	94/94/92/90 %	94/94/92.5/91 %	94/94/92.5/91 %
100/75/50/25 % non-linear load (EN 50 091-1)	93/93/91/90 %	93/93/91/90 %	93/93/91/90 %	93/93/92/91 %	93/93/92/91 %
Eco-mode operating ratio (load on bypass) with 100 % load	98 %	98 %	98 %	98 %	98 %
Heat loss at 100 % linear load (cos. $\varphi = 0.8$ ind.)	400 W	600 W	800 W	1200 W	1600 W
Heat loss at 100 % ohmic load (cos. $\varphi = 1$ )	480 W	720 W	960 W	1450 W	1920 W
Heat loss at 100 % non-linear load (EN 50 091-1)	560 W	840 W	1120 W	1680 W	2240 W
Required volume of cooling air (25° – 30°C) with non-linear load (to EN 50 091-1)	110 m <sup>3</sup> /h	150 m <sup>3</sup> /h	200 m <sup>3</sup> /h	300 m <sup>3</sup> /h	400 m <sup>3</sup> /h
Noise level at 100 %/50 % load	55/49 dBA	57/49 dBA	57/49 dBA	59/51 dBA	63/53 dBA
Ambient temperature for UPS	0 – 40°C				
Ambient temperature for batteries (recommended)	20 – 25°C				
Storage temperature	–25 to +70°C				
Battery storage time at ambient temperature	Max. 6 months				
Cooling	Fan-assisted				
Relative humidity	Max. 95 % (non-condensing)				
Standards – Safety – Electromagnetic compatibility (EMC) – Performance	EN 50 091 – Part 1 (IEC 62 040-1, IEC 60 950) EN 50 091 – Part 2 (IEC 62 040-2) EN 50 091 – Part 3 (IEC 62 040-3)				
Transport pallet	Included in supply				
Accessibility	Total accessibility from the front for servicing and maintenance (no access required at the top, side or rear)				
Siting	Min. 10 cm free space at the rear (for fan)				
Input and output wiring.	From the front and below				
Dry Port (floating contacts)	For remote signalling and automatic computer deactivation				
Smart Port (serial interface RS 232)	For monitoring and integration of network administration				
Input terminals	EMERGENCY OFF (normally closed) GEN-ON (normally open) BATTERY TEMP. SENSOR				
UPS module, weight (kg)	10 – 20 kVA = 40 kg; 30 kVA = 55 kg; 40 kVA = 58 kg				
UPS module, dimensions (W x H x D) mm	483 x 400 x 675				

## UPS, three-phase, output range 10 – 120 kVA

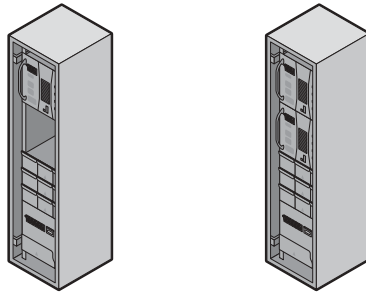
2. Rectifier data					
Model	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Input voltage	3 x 380/220 V + N, 3 x 400 V/230 V + N, 3 x 415/240 V + N				
Input voltage tolerance (ref to 3 x 400/230 V)	For loads: < 100 % (-23 %/+15 %) < 80 % (-30 %/+15 %) < 60 % (-40 %/+15%)				
Input frequency	35 – 70 Hz				
Input power factor	0.98				
Input current form	Sinusoid THDI = 7 + 9 % at 100 % load				
Start-up current	Limited by soft start				
Input power with charged battery and rated voltage	8.6 kW	12.7 kW	17.2 kW	25.8 kW	34 kW
Maximum input power with battery charging and rated output	9.6 kW	13.8 kW	19.2 kW	28.2 kW	38 kW
3. Battery data					
Max. battery charging current (standard)	10 A				
Battery charging curve	IU (DIN 41 773)				
Battery charger, temperature-controlled	Yes				
Ripple factor of battery charging current	No ripple factor				
Battery test	Automatic and periodic (adjustable)				
Battery type	Maintenance-free lead and NiCd				
Selectable number of 12 V battery blocks	30 – 50 blocks for 10 – 20 kVA, 40 – 50 blocks for 30 kVA and 50 blocks for 40 kVA				
4. Inverter data					
Rated output voltage	10 kVA	15 kVA	20 kVA	30 kVA	40 kVA
Rated output voltage	3 x 380/220 V, 3 x 400/230 V, 3 x 415/240 V				
Output power factor	0.8				
Output voltage tolerance					
– Static	< ±1 %				
– Dynamic (with load step 0 – 100 %, 100 – 0 %)	< ±4 %				
Distortion factor					
– With linear load	< ±2 %				
– With non-linear load (EN 50 091)	< ±3 % (to EN 50 091-1)				
Correction time after load step (0 – 100%, 100 – 0%)	20 msec				
Admissible load unbalance	100 % (independent phase adjustment)				
Output voltage form	Sinusoid				
Output frequency	50 Hz or 60 Hz				
Output frequency tolerance					
– Asynchronous, quartz oscillator	±0.1 %				
– Line-commutated (adjustable)	±4 %				
Overload capacity	125 % for 10 min. and 150 % for 1 min.				
Admissible Crest factor	3 : 1				

Power

### UPS modules



**UPS, three-phase, output range 10 – 120 kVA per rack**



**New standard of high availability to protect the server environment**

Parallel connection of UPS systems:

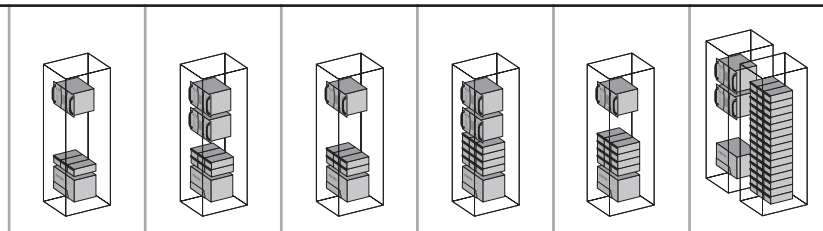
- Increase the capacity to allow the system to supply a greater load than a single installation.
- Redundancy, to increase UPS availability.

The fault-tolerant DPA (Distributed Parallel Architecture) design protects against "single point of failure", and therefore ensures permanent availability.

**Configuration example 20 kVA with autonomy time 6 min.:**

You will need:		Packs of	Model No. DK
Modules	20 kVA	1	<b>7857.020</b>
Autonomy time 6 min.	Batteries required	6	<b>7857.373</b>
Rack	Enclosure and distribution 60 kVA	1	<b>7857.360</b>

Power



<b>Step 1: Output and/or redundancy</b>							
Overall output of system	10 kVA prepared N + 1	10 kVA N + 1 redundant	20 kVA prepared N + 1	20 kVA N + 1 redundant	30 kVA prepared N + 1	30 kVA N + 1 redundant	Model No. DK
Number of modules 10 kVA	1 x	2 x	–	–	–	–	<b>7857.010</b>
Number of modules 20 kVA	–	–	1 x	2 x	–	–	<b>7857.020</b>
Number of modules 30 kVA	–	–	–	–	1 x	2 x	<b>7857.030</b>
Number of modules 40 kVA	–	–	–	–	–	–	<b>7857.040</b>
<b>Step 2: Autonomy time</b>							
6 min.	3 x	6 x	6 x	12 x	–	–	<b>7857.373</b>
	–	–	–	–	–	–	<b>7857.374</b>
10 min.	–	–	–	–	12 x	–	<b>7857.373</b>
	–	–	–	–	–	–	<b>7857.374</b>
12 min.	–	–	–	–	–	–	<b>7857.373</b>
	–	–	–	–	–	8 x	<b>7857.374</b>
15 min.	–	–	–	–	–	–	<b>7857.373</b>
	–	–	–	–	–	–	<b>7857.374</b>
<b>Step 3: Enclosure type for the selected installation</b>							
Distributor, 60 kVA	1 x	1 x	1 x	1 x	1 x	–	<b>7857.360</b>
Distributor, 90 kVA	–	–	–	–	–	1 x	<b>7857.361</b>
Distributor, 120 kVA	–	–	–	–	–	–	<b>7857.365</b>
<b>Step 4: External battery rack</b>							
Quantity	–	–	–	–	–	1 x	<b>7857.364</b>
RCCMD (Remote Control Command) licence	–	–	–	–	–	–	<b>7857.421</b>
Sub-distributor for integration into the UPS enclosure 12 outputs 3 x 10 A, pluggable, cable-linked to PSM bar	–	–	–	–	–	–	<b>7857.372</b>
SNMP slide-in card Ethernet, FTP, Telnet ...	–	–	–	–	–	–	<b>7857.366</b>

Available on request: Larger output ranges, individual battery autonomy times, 208 V UL version

Individual sub-distributors see Cat. 31, page 743.

Commissioning must be carried out by a Rittal service engineer.

Extended delivery times.



## UPS, three-phase, output range 10 – 120 kVA per rack



Power

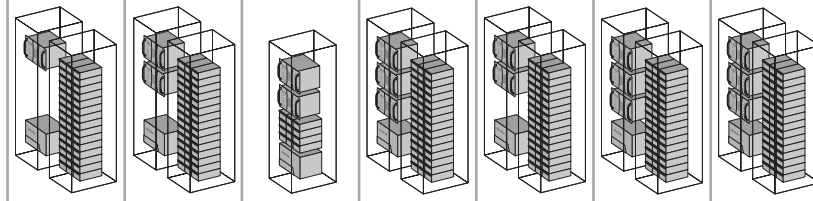
### Expand your system as your business grows.

The challenges for your infrastructure not only include the current situation, but also and in particular, the requirements of the future.

Thanks to the scalable concept, your system is easily extended.

### Configuration example 60 kVA with redundancy, with autonomy time 6 min.:

You will need:		Packs of	Model No. DK
Modules	30 kVA	3	<b>7857.030</b>
Autonomy time 6 min.	Batteries required	12	<b>7857.374</b>
Rack	Enclosure and distribution 90 kVA	1	<b>7857.361</b>
Battery rack	–	1	<b>7857.364</b>



Step 1: Output and/or redundancy								Model No. DK
Overall output of system	40 kVA prepared N + 1	40 kVA N + 1 redundant	60 kVA prepared N + 1	60 kVA N + 1 redundant	80 kVA prepared N + 1	80 kVA N + 1 redundant	120 kVA prepared N + 1	
Number of modules 10 kVA	–	–	–	–	–	–	–	<b>7857.010</b>
Number of modules 20 kVA	–	–	–	–	–	–	–	<b>7857.020</b>
Number of modules 30 kVA	–	–	2 x	3 x	–	–	–	<b>7857.030</b>
Number of modules 40 kVA	1 x	2 x	–	–	2 x	3 x	3 x	<b>7857.040</b>
Step 2: Autonomy time								
6 min.	–	–	–	–	–	–	–	<b>7857.373</b>
	–	–	5 x	12 x	–	15 x	–	<b>7857.374</b>
10 min.	–	–	–	–	–	–	–	<b>7857.373</b>
	–	–	–	–	–	–	15 x	<b>7857.374</b>
12 min.	–	–	–	–	–	–	–	<b>7857.373</b>
	5 x	10 x	–	–	10 x	–	–	<b>7857.374</b>
15 min.	–	–	–	–	–	–	–	<b>7857.373</b>
	–	–	–	–	–	–	–	<b>7857.374</b>
Step 3: Enclosure type for the selected installation								
Distributor, 60 kVA	–	–	–	–	–	–	–	<b>7857.360</b>
Distributor, 90 kVA	–	–	1 x	1 x	–	–	–	<b>7857.361</b>
Distributor, 120 kVA	1 x	1 x	–	–	1 x	1 x	1 x	<b>7857.365</b>
Step 4: External battery rack								
Quantity	1 x	1 x	1 x	1 x	1 x	1 x	1 x	<b>7857.364</b>
RCCMD (Remote Control Command) licence								<b>7857.421</b>
Sub-distributor for integration into the UPS enclosure 12 outputs 3 x 10 A, pluggable, cable-linked to PSM bar								<b>7857.372</b>
SNMP slide-in card Ethernet, FTP, Telnet ...								<b>7857.366</b>

Available on request: Larger output ranges, individual battery autonomy times, 208 V UL version

Individual sub-distributors see Cat. 31, page 743.

Commissioning must be carried out by a Rittal service engineer.

Extended delivery times.

**Perfect solutions for every application**

From passive air cooling to active liquid cooling of high-performance CPUs, Rittal offers a comprehensive range of components and systems. They are designed precisely according to your requirements and application spectrum.

Allowance is made, not only for the conditions inside the rack, but also for the ambient conditions.

Software-assisted planning helps to minimise investment costs and also offers peace of mind.

**Passive cooling (use of the ambient air)**

The air cooled via the regular ambient air or via the building's air-conditioning system is routed into the raised floor for rack cooling.

Doors with 78 % open surface area (diagram 1) or openings in the base/plinth and roof (diagram 2) ensure maximum air throughput via convection in conjunction with the fans.

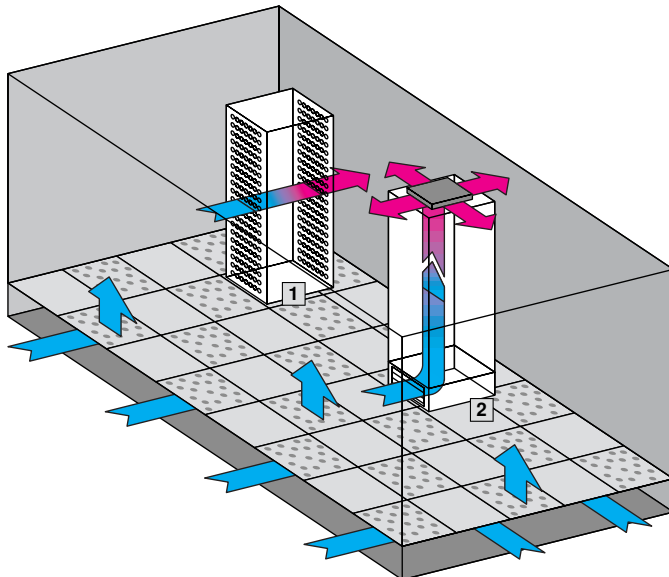


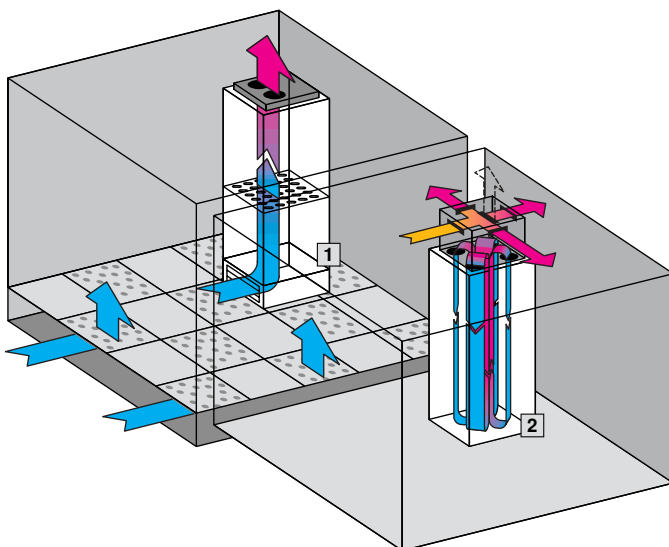
Diagram 1 Horizontal cooling:  
2 doors with high air throughput  
(78 % free space per door)

Diagram 2 Vertical cooling:  
via vented base/plinth and roof ventilation

See Catalogue 31, page 759.

**Active cooling (use of the ambient air)**

Fan systems for active cooling (diagram 1) amplify the air exchange inside the rack and use ambient air for cooling.



**Active, rack-related cooling**

By contrast, rack-related, active cooling (diagram 2) is able of reducing the interior temperature of the rack to below the ambient temperature. This cooling technique is very effective with an appropriate room volume and in industrial environments.

Diagram 1 Fan systems,  
see page 97/98.

Diagram 2 Cooling units and rack-mounted recooling system 19",  
see page 95/101.

**High-performance cooling (liquid cooling, independent of the ambient air)**

With liquid, under the same volumetric flow, approximately one thousand times as much heat loss may be dissipated as with air. This opens up a brand new dimension in cooling.

**Liquid cooling systems for rack cooling**

Extremely high heat loads are dissipated via air/water heat exchanger systems (diagram 2) from the racks (diagram 1).

**Liquid cooling systems (4) for component cooling**

CPUs, as well as power packs, hard disk drives and other electronic components are cooled directly – effectively and quietly.

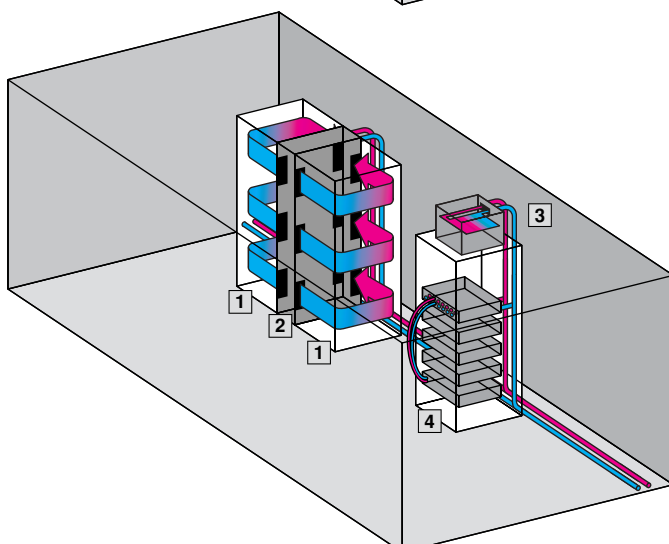


Diagram 1 Server racks

Diagram 2 LCP (Liquid Cooling Package)

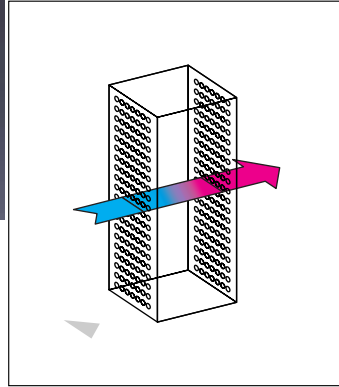
Diagram 3 Air/water heat exchanger

Diagram 4 CPU cooling

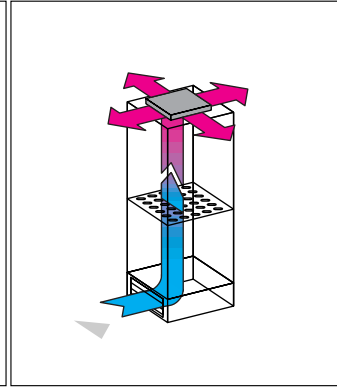
See page 100.



The perforations in the doors or openings in the base/plinth and roof ensure maximum air throughput via convection in conjunction with the equipment fans.



**Horizontal ventilation**  
A high air throughput, stylish design and outstanding security are provided by the doors (with 78 % free surface area per door) of the server racks.



**Vertical ventilation**  
Ventilation base/plinth, roof vent and slotted component shelves ensure heat dissipation.



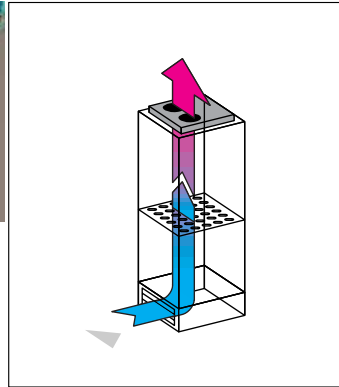
**Air baffle system**  
Cool air from the hollow base is routed over the base/plinth and distributed via the door in a targeted manner.

# Active cooling

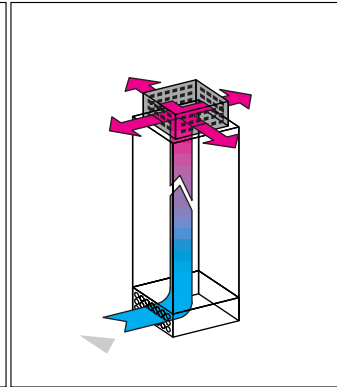


Fan systems to reinforce air exchange

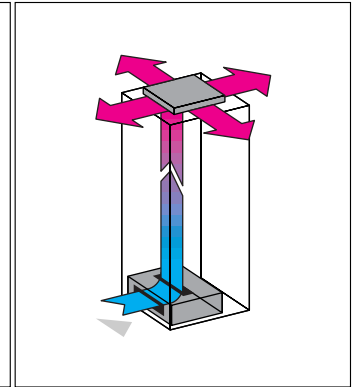
Rittal fan and filter units, see Catalogue 31, page 636.



**Fan roofs**  
Various designs and outputs, extendible with fan kits. Fast assembly tailored to racks, see page 97/98.



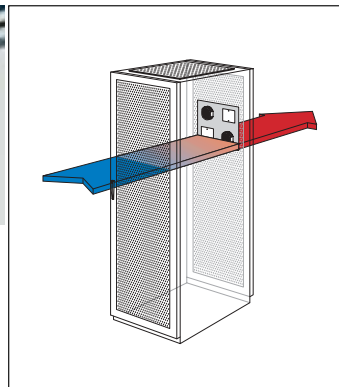
**Roof-mounted fans**  
Quiet performance (1500 m<sup>3</sup>/h) for office applications, wired ready for connection, easy assembly, see page 97.



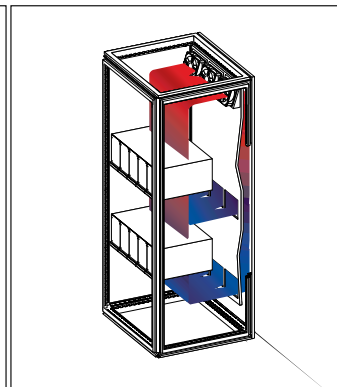
**Centrifugal fan/rack-mounted fan**  
Centrifugal fan, Rack-mounted fan, Vario rack-mounted fan, see Catalogue 31, page 645.



Fan systems to reinforce air exchange and circulation inside the rack



**Fan cross member**  
For the perforated door of TS 8 server racks. Air throughput up to 1200 m<sup>3</sup>/h, see page 98.



**Internal fan mounting panel**  
for TS 8 enclosures. For improved air blending and heat dissipation, see Catalogue 31, page 653.



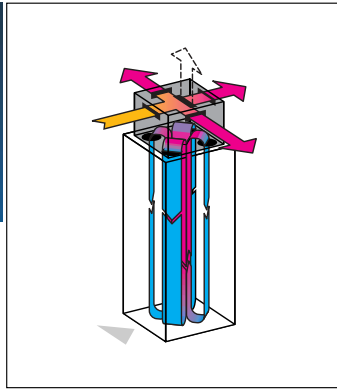
**Internal fan**  
To avoid hot spots and support climate control components, see Catalogue 31, page 653.



**Cooling of the rack interior to below the ambient temperature!**

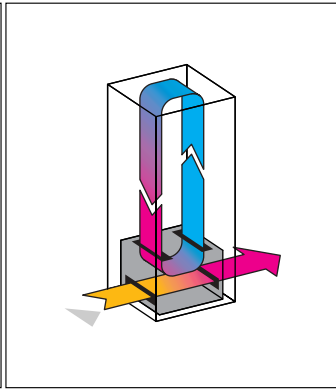
The three systems shown opposite are specifically designed for the cooling of servers, IT and electronic components.

**Rittal roof-mounted and wall-mounted cooling units, see Catalogue 31, page 590.**



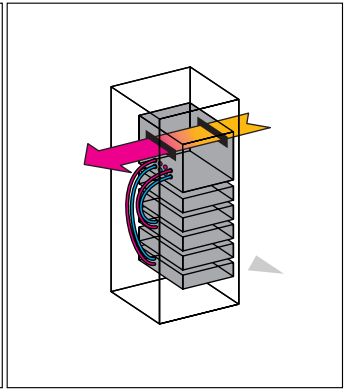
**Roof-mounted cooling unit (office application)**

Useful cooling output 1100 W at an extremely low noise level, see page 95.



**Rack-mounted cooling units 482.6 mm (19")**

Useful cooling output 1000 W, simple installation in the 482.6 mm (19") level, see Catalogue 31, page 644.



**Rack-mounted recooling system 482.6 mm (19")**

Liquid-cooled computers are supplied directly via 6 cooling circuits. Cooling output 1000 W, see page 101.

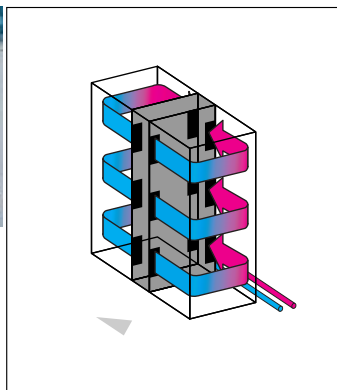
High-performance cooling (independent from the ambient air)



**Liquid cooling systems to dissipate high heat loads**

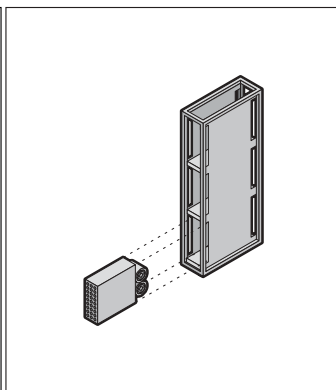
Also suitable for use in confined spaces without air-conditioning by using external recooling systems.

**Recooling systems for liquid cooling, see Catalogue 31, page 608.**

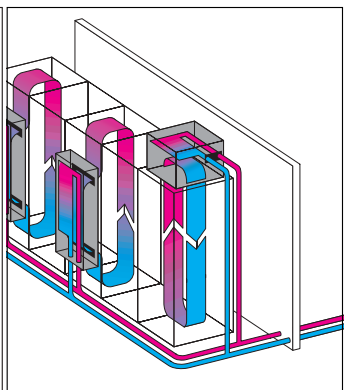


**Liquid cooling package**

This cooling rack is fitted with up to 3 cooling modules (air/water heat exchangers), see page 100.



It is bayed with one or two TS 8 server racks (H 2000 x D 1000 mm). Useful cooling output per module 4000 W (max. 12000 W), see page 100.



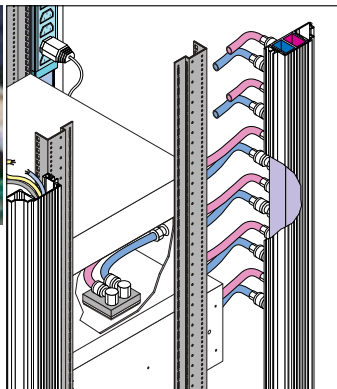
**Air/water heat exchanger**

Installation: Roof-mounting, wall-mounting and as TS 8 side panel (H 1800 x D 600 mm). Useful cooling output from 600 to 4000 W, see Catalogue 31, page 626.



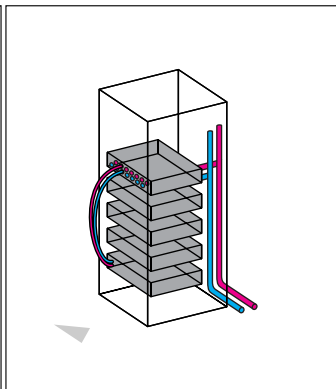
**Liquid cooling systems for component cooling**

CPUs, as well as power packs, hard disk drives and other electronic components are cooled directly – effectively and quietly.



**Cooling circuit distributor for racks**

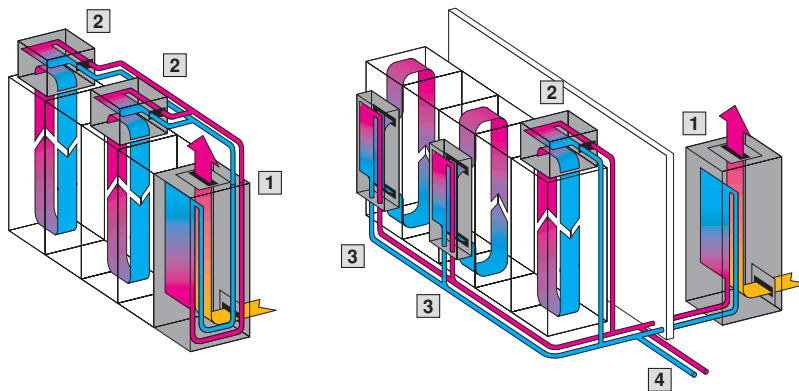
Pack 1 for 20, pack 2 for 40 CPU cooling circuits. Enclosure heights 1200 and 2000 mm, see page 102.



**Cooling circuit distributor 482.6 mm (19")**

Complete kit or individual distributors with drip-free connection of up to 10 servers, see page 102.





Recooling systems ensure central cooling and supply of the cooling medium for liquid cooling systems. This makes it possible to achieve spatial separation between the generation of cold air and cooling itself, for the temperature-neutral expansion of data centres.

- 1 Recooling system
- 2 Air/water heat exchanger, roof-mounted
- 3 Air/water heat exchanger, wall-mounted
- 4 Further cooling options



### Recooling systems solve all cooling tasks via a pipe system

As well as IT and electronic components, production processes, machines and systems are also cooled. A range of products from 960 W to 172 kW meets all required cooling services.



**Recooling systems Mini**  
Smart design, simple assembly, cooling output from 960 to 4500 W, see Catalogue 31, page 608 – 609.



**Recooling systems in the TS 8 Top enclosure system**  
Compact design, bayable with TS 8 racks, cooling output from 6000 to 25000 W, see Catalogue 31, page 615 – 616.



**Recooling systems in floor-standing and industrial enclosures**  
Cooling media water or oil, cooling output from 2100 to 172000 W, see Catalogue 31, page 617.

Cooling

## Advice, calculation, planning



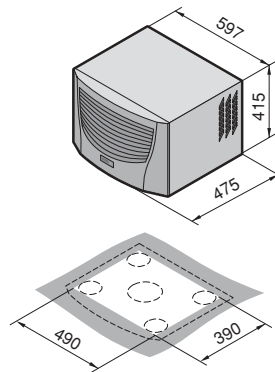
- **Software Rittal Therm**  
Simple calculation of heat loss, calculation of dissipation via the surface, device selection.
- **CFD (Computer Fluid Dynamics)** offers system reliability, because the temperature, pressure and flow speed at every point of the calculated space are simulated at the planning phase.

- **Eliminate risks through thermography.** Even with the prototype of your plant or machine, the Rittal thermography service offers precise imaging of the real temperature conditions on site.

- **Support**  
Project planning, tests and measurements in the Rittal climate laboratory, commissioning, maintenance.



**Roof-mounted cooling units, useful cooling output 1000/1100 W**



**Property rights:**  
German registered design  
no. 402 02 324  
German registered design  
no. 402 02 325



**1) Especially for office applications, low noise level.**

**Supply includes:**

Fully wired ready for connection, including drilling template and assembly parts.

<sup>2)</sup> With 3273.500, 3273.515 included with the supply.

**Note:**

Integration of the cooling units with Comfort controller, e. g. into superordinate remote monitoring systems, can be achieved by means of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).



**Accessories:**

Roof plate for TS 8 with mounting cutout, see page 99.



**Optionally available:**

Integrated automatic condensate evaporation<sup>2)</sup>.

**Approvals,** see Catalogue 31, page 68/69.

**Detailed drawing,** see Catalogue 31, page 1166.

**Performance diagrams** available on the Internet.

Model No. SK with Basic controller, RAL 7035	3383.100	3383.110	3383.140	—	—
Model No. SK with Comfort controller, RAL 7035	3383.500	3383.510	3383.540	3273.500 <sup>1)</sup>	3273.515 <sup>1) 3)</sup>
Rated operating voltage V, Hz	230, 50/60	115, 50/60	400, 2~, 50/60	230, 50/60	
Dimensions mm	WHD 597 x 415 x 475				
<b>Useful cooling output <math>\dot{Q}_K</math> to DIN 3168</b>	<b>L 35 L 35 L 35 L 50</b>	<b>1000 W/1080 W 760 W/820 W</b>		<b>1100 W/1200 W 850 W/870 W</b>	

Rated current max.	4.3 A/4.5 A	8.3 A/8.7 A	2.4 A/2.4 A	5.2 A/5.4 A	11.0 A/11.5 A
Start-up current	15.5 A/15.5 A	25.3 A/24.3 A	8.0 A/8.8 A	15.5 A/16.5 A	32.0 A/35.0 A
Pre-fuse T	10.0 A/10.0 A	16.0 A/16.0 A	10.0 A/10.0 A	10.0 A/10.0 A	20.0 A/20.0 A
Power consumption $P_{el}$ to DIN 3168	L 35 L 35 L 35 L 50	550 W/650 W 660 W/750 W	580 W/660 W 670 W/755 W	890 W/910 W 960 W/1100 W	920 W/940 W 990 W/1140 W
Refrigeration factor $\epsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.8		1.2	
Refrigerant		R134a, 500 g		R134a, 700 g	
Permissible operating pressure p. max.		25 bar			
Temperature and setting range		+20°C to +55°C			
Protection category to EN 60 529/10.91	External circuit	IP 34			
	Internal circuit	IP 54		IP 54 <sup>4)</sup>	
Duty cycle		100 %			
Type of connection		Plug-type connector terminals			
Weight		40 kg	46 kg	46 kg	42 kg 47 kg
Air throughput of fans	External circuit	1760 m <sup>3</sup> /h			
	Internal circuit	440 m <sup>3</sup> /h			
Temperature control		Basic or Comfort controller (factory setting +35°C)			

Accessories	Packs of			Cat. 31, page
Filter mats	3	3286.500	3286.100	668
Metal filters	1	3286.510	3286.210	669
Quick-change frame	1	3286.800	—	665
Door-operated switch	1	4127.000	4127.000	956
SK bus system for Comfort controller	1	3124.100	3124.100	663
RiDiag II including cables for Comfort controller	1	3159.100	3159.100	1063
Interface card for Comfort controller	1	3124.200	3124.200	99 <sup>5)</sup>
Air-ducting system	1	3286.870	3286.870	658
Cover stoppers for interior air outlet	2	3286.880	3286.980	658
Condensate hose	1	3301.612	3301.612	665

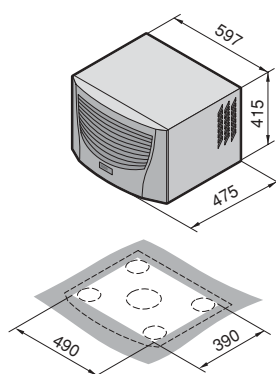
<sup>3)</sup> Delivery times on request. <sup>4)</sup> In order to avoid increased condensation, we recommend enclosures with a protection category of at least IP 54.

<sup>5)</sup> Page 99 of this brochure.

Special voltages available on request. We reserve the right to make technical modifications.

**Accessories** Cat. 31, page 657 **Configuration software** Cat. 31, page 1063

## Roof-mounted cooling units, useful cooling output 1500/2000 W



**Property rights:**  
German registered design  
no. 402 02 324  
German registered design  
no. 402 02 325



**Supply includes:**  
Fully wired ready for connection, including drilling template and assembly parts.

**Note:**  
Integration of the cooling units with Comfort controller, e. g. into superordinate remote monitoring systems, can be achieved by means of an optional interface board **SK 3124.200** (RS 232, RS 485, RS 422 and PLC interface).

**+** **Accessories:**

Roof plate for TS 8 with mounting cutout, see page 99.

**⇄** **Optionally available:**

Integral automatic condensate evaporation.

**Approvals,**  
see Catalogue 31, page 68/69.

**Detailed drawing,**  
see Catalogue 31, page 1166.

**Performance diagrams**  
available on the Internet.

Model No. SK with Basic controller, RAL 7035	3384.100	3384.110	3384.140	3385.100	3385.110	3385.140
Model No. SK with Comfort controller, RAL 7035	3384.500	3384.510	3384.540	3385.500	3385.510	3385.540
Rated operating voltage V, Hz	230, 50/60	115, 50/60	400, 2~, 50/60	230, 50/60	115, 50/60	400, 2~, 50/60
Dimensions mm	WHD 597 x 415 x 475			597 x 415 x 475		
<b>Useful cooling output <math>\dot{Q}_K</math> to DIN 3168</b>	<b>L 35 L 35</b>	<b>1500 W/1520 W</b>	<b>1100 W/1210 W</b>	<b>2000 W/2130 W</b>	<b>1570 W/1670 W</b>	
	<b>L 35 L 50</b>					

Rated current max.	5.7 A/6.8 A	12.5 A/14.1 A	3.4 A/4.0 A	5.7 A/6.6 A	13.0 A/14.2 A	3.3 A/3.8 A
Start-up current	16.6 A/17.1 A	30.7 A/29.1 A	9.8 A/9.6 A	16.8 A/18.4 A	36.0 A/32.0 A	10.0 A/12.0 A
Pre-fuse T	10.0 A/10.0 A	20.0 A/20.0 A	10.0 A/10.0 A	10.0 A/10.0 A	20.0 A/20.0 A	10.0 A/10.0 A
Power consumption $P_{el}$ to DIN 3168	L 35 L 35 L 35 L 50	815 W/930 W 950 W/1090 W	850 W/950 W 1000 W/1150 W	1000 W/1175 W 1100 W/1310 W	1050 W/1250 W 1160 W/1380 W	
Refrigeration factor $\epsilon = \dot{Q}_K/P_{el}$	L 35 L 35	1.8		2.0		
Refrigerant		R134a, 500 g		R134a, 950 g		
Permissible operating pressure p. max.		25 bar				
Temperature and setting range		+20°C to +55°C				
Protection category to EN 60 529/10.91	External circuit	IP 34				
	Internal circuit	IP 54				
Duty cycle		100 %				
Type of connection		Plug-type connector terminals				
Weight		41 kg	47 kg	47 kg	42 kg	48 kg
Air throughput of fans	External circuit	1760 m³/h			1820 m³/h	
	Internal circuit	470 m³/h				
Temperature control		Basic or Comfort controller (factory setting +35°C)				

Accessories	Packs of		Cat. 31, page
Filter mats	3	3286.500	668
Metal filters	1	3286.510	669
Quick-change frame	1	3286.800	665
Door-operated switch	1	4127.000	956
SK bus system for Comfort controller	1	3124.100	663
RiDiag II including cables for Comfort controller	1	3159.100	1063
Interface card for Comfort controller	1	3124.200	99 <sup>1)</sup>
Air-ducting system	1	3286.870	658
Cover stoppers for interior air outlet	2	3286.880	658
Condensate hose	1	3301.612	665

<sup>1)</sup> Page 99 of this brochure.  
Special voltages available on request. We reserve the right to make technical modifications.



### Roof-mounted fan

**For TS/FR(i) for the office sector**

For detailed information see Catalogue 31, from page 648.

Model No. SK	3164.610	3164.620	3164.810	3164.820	3164.115	3164.230
Rated operating voltage V, Hz	115, 50/60	230, 50/60	115, 50/60	230, 50/60	115, 50/60	230, 50/60
<b>Air throughput (unimpeded air flow)</b>	<b>1500 m<sup>3</sup>/h<sup>1)</sup></b>					
Design	with roof plate				without roof plate	
Dimensions mm	W	800	800	511		511
	H	240	240	227		227
	D	800	900	511		511
Noise level	40 dB (A)					

<sup>1)</sup> 800 m<sup>3</sup>/h at 40 Pa counterpressure using two integrated louvres, type DK 7580.500, in the enclosure base/plinth. Special voltages available on request. Technical modifications reserved.



### TS 8 air baffle system

The system has an air inlet in the base frame. In this way, cold air may be drawn in from below. The air is then routed into the twin-walled door. The cold air can then be distributed inside the rack with special covers. 15 covers are supplied with every door.

	Packs of	Model No. DK
TS 8 sheet steel door, twin-walled W 600 x H 2000 mm	1	<b>7766.520</b>
TS 8 sheet steel door, twin-walled W 600 x H 2200 mm	1	<b>7766.522</b>
Air inlet nozzle W 600 mm	1	<b>7766.500</b>



### Fan expansion kit

For retro-fitting various fan units or to supplement the fan mounting plate and fan roof, modular.

#### Supply includes:

Fan, including assembly parts and connection cable (0.61 m).

Technical specifications	7980.000	7980.100	7980.148
Dimensions W x H x D mm	119 x 119 x 38	119 x 119 x 25	119 x 119 x 25
Rated operating voltage	230 V~	230 V~	48 V (DC)
Power consumption	19/18 W at 50/60 Hz	14/12 W at 50/60 Hz	7.7 W
Air throughput (unimpeded air flow)	160/180 m <sup>3</sup> /h, 50/60 Hz	117/135 m <sup>3</sup> /h, 50/60 Hz	184 m <sup>3</sup> /h
Noise level (unimpeded air flow)	37 dB (A)	34 dB (A)	42 dB (A)
Temperature range	-10°C to +55°C	-20°C to +70°C	-20°C to +70°C
Packs of	1 set	1 set	1 set



### DC fan mounting plate

**for TS** For detailed information see Catalogue 31, page 650.

The system is speed-controlled/monitored and may be connected to the CMC-TC system.

#### Technical specifications:

Power pack rated voltage: 100 – 240 V AC, 50/60 Hz  
 Power pack rated current: max. 1.5 A  
 Power pack secondary range: 24 V DC, 3 A  
 Temperature range: +5°C to +40°C  
 Total air throughput (unimpeded air flow): 6 x 165 m<sup>3</sup>/h = 990 m<sup>3</sup>/h

#### Technical specifications for one fan:

Rated voltage: 24 V DC  
 Rated current: max. 0.28 A  
 Rated output: max. 6.72 W  
 Air throughput (unimpeded air flow): 165 m<sup>3</sup>/h  
 Speed: 2650 rpm  
 Noise level: up to 41.0 dB (A) at maximum speed activation

For enclosures width mm	For enclosures depth mm	Number of DC fans	Model No. DK
800	800 900 1000	6	<b>7858.488</b>



#### Also required:

Connection cable 230/115 V.  
 Example D version, Model No. 7200.210, see page 107.

#### Note:

For more information on the FCS system, see page 110.



## Fan systems for TS/FR(i)



### Fan mounting plate

for TS For detailed information see Catalogue 31, page 649.

#### Technical specifications for one fan:

Rated operating voltage: 230 V  
Power consumption: 19/18 W at 50/60 Hz  
Air throughput (unimpeded air flow): 160/180 m<sup>3</sup>/h, 50/60 Hz  
Temperature range: -10°C to +55°C

For enclosures		No. of fans	Max. no. of fans	Model No. DK
Width mm	Depth mm			
600	800	2	6	7968.035
	900			
	1000			
800	800	2	6	7988.035
	900			
	1000			

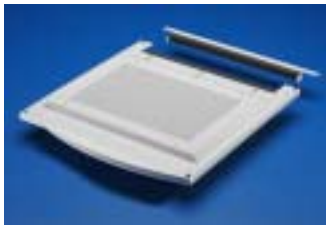
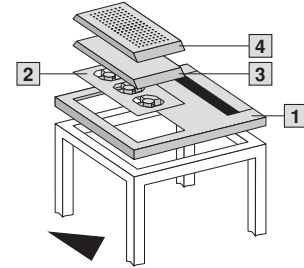


### Fan roof, modular, two-piece

for TS/FR(i) For detailed information see Catalogue 31, page 651.

#### Technical specifications for one fan:

Rated operating voltage: 230 V  
Power consumption: 15/14 W at 50/60 Hz  
Air throughput (unimpeded air flow): 160/180 m<sup>3</sup>/h at 50/60 Hz  
Temperature range: -10°C to +55°C



For enclosures		Model No. DK					Fan insert	
Width mm	Depth mm	Roof plate FR(i) <sup>1)</sup>	Roof plate TS	Cover plate		Fan insert	Fan pre-wired	Maximum no. of fans
		1 With cutout	1 With cutout	3 Solid	4 Vented			
600	600	7856.366	7826.366	2102.180	2102.400	2102.320	2	2
600	800	7856.368	7826.368	2102.190	2102.410	2102.490	2	6
600	900	-	7826.369	2102.190	2102.410	2102.490	2	6
600	1000	7856.360	7826.360	2102.190	2102.410	2102.490	2	6
600	1200	7856.362	-	2102.190	2102.410	2102.490	2	6
800	600	-	7826.486	7885.100	7885.200	7885.000	2	3
800	800	7856.388	7826.488	7886.100	7886.200	7886.000	2	8
800	900	-	7826.489	7886.100	7886.200	7886.000	2	8
800	1000	7856.380	7826.480	7886.100	7886.200	7886.000	2	8

<sup>1)</sup> Delivery times available on request.



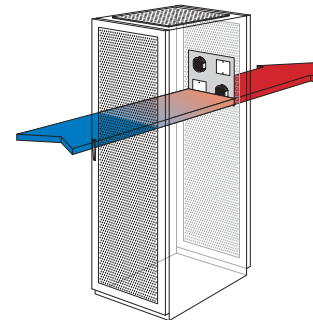
### Door mounted fan

for TS 8 server enclosures, especially for installing in perforated doors.

For detailed information see Catalogue 31, page 652.

#### Technical specifications:

- Standard cross member with two fans.
- Air throughput, unimpeded air flow 600 m<sup>3</sup>/h
- By adding two fan expansion kits, the air throughput may be increased to 1200 m<sup>3</sup>/h.
- The direction of air flow is easily reversed by rotating the fan.
- Several units may be positioned in a cascade arrangement.
- Simple mounting on the tubular door frame.



Model No. SK	3165.624 <sup>1)</sup>	3165.648 <sup>1)</sup>	3165.615 <sup>1)</sup>	3165.630 <sup>1)</sup>	3165.824 <sup>1)</sup>	3165.848 <sup>1)</sup>	3165.815 <sup>1)</sup>	3165.830 <sup>1)</sup>	Cat. 31 page
Rated operating voltage V, Hz	24 (DC)	48 (DC)	115, 50/60	230, 50/60	24 (DC)	48 (DC)	115, 50/60	230, 50/60	
Air throughput (unimpeded air flow)	600 m <sup>3</sup> /h								
Power consumption for two fans	40 W	48 W	70 W/64 W	70 W/70 W	40 W	48 W	70 W/64 W	70 W/70 W	
Noise level	55 dB (A)								
Dimensions mm W x H x D	493 x 606 x 64.5				693 x 606 x 64.5				
For doors with width (mm)	600				800				
Fan expansion kit	3165.024	3165.048	3165.115	3165.230	3165.024	3165.048	3165.115	3165.230	652

<sup>1)</sup> Delivery times on request. Special voltages available on request. Technical modifications reserved.



### Digital enclosure internal temperature display and thermostat

**Technical specifications:**

- Small size.
- Depth: 100 mm.
- The 3-digit 7-segment display is 13 mm high and clearly legible.
- Can be switched from °C/°F.
- The display can be used in a temperature range from +5°C to +70°C.
- With 1500 mm long NTC sensor.
- Two relay outputs as change-over contact and normally open contact (maximum contact load 230 V, 6 A).
- Freely selectable switching difference.
- The freely adjustable setpoint values can be adjusted via the membrane keyboard at the front. Setting range: +5°C to +55°C.
- Display and switching accuracy +/- 2 K.
- Mounting cutout 68 x 33 mm.
- The minimum and maximum recorded temperatures are stored until it is next reset.

**Installation on the enclosure door or wall and in a cooling unit or heat exchanger**

Rated operating voltage	Model No. SK
230 V (AC)	3114.100
115 V (AC)	3114.115 <sup>1)</sup>
24 V (DC)	3114.024 <sup>1)</sup>

**Integrated into a patch panel 1 U**

Colour	Model No. DK
RAL 7035	7109.035

<sup>1)</sup> Delivery times available on request.  
Special requirements available on request.



### Speed control

For detailed information see Catalogue 31, from page 662.

**Technical specifications:**

- For mounting on a 35 mm support rail DIN EN 50 022
- Dimensions (W x H x D): 94 x 57 x 180 mm
- Rated operating voltage: 230 V (AC)/115 V (AC)
- Setting range: +20°C to +55°C
- Phase cross-over with microcontroller
- Maximum fan output 250 W or 1.2 A at 230 V (AC)
- Maximum fan output 100 W or 1.2 A at 115 V (AC)

Rated operating voltage	Model No. SK
230 V (AC)	3120.000
115 V (AC)	3120.115 <sup>1)</sup>

<sup>1)</sup> Delivery times available on request.

**Accessories**

	Model No. DK
Mounting adaptor	7526.964



### Interface board

**for TopTherm cooling units with Comfort controller**

For connecting to the CMC-TC monitoring system Processing Unit II (PU II).

For detailed information see Catalogue 31, from page 662.

Packs of	Model No. SK
1	3124.200



### Roof plates TS

For mounting on:

- TopTherm roof-mounted cooling units
- TopTherm roof-mounted fan
- Vent attachment TS

The cutouts in the roof plate are arranged in such a way that the TopTherm roof-mounted cooling units are positioned centrally on the enclosure.

**Material:**

Sheet steel

**Colour:**

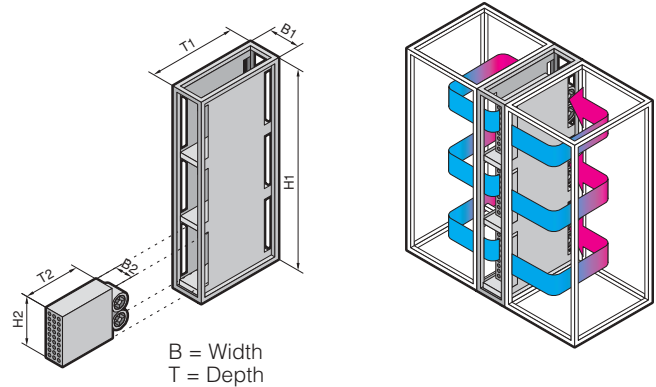
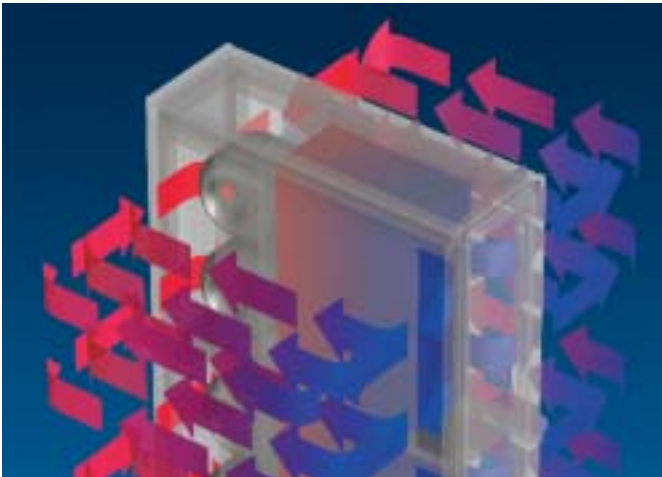
RAL 7035

**Supply includes:**

Assembly parts.

For enclosures W x D mm	Suitable for mounting cooling units	Model No. TS
600 x 900	SK 3273.5 . . .	8801.410
600 x 1000	SK 3383. . . . .	8801.420
800 x 900	SK 3384. . . . .	8801.430
800 x 1000	SK 3385. . . . .	8801.440

## Rittal liquid cooling package



Modular, upgradable and temperature-neutral cooling concept.

- Max. 12 kW cooling output, with three cooling modules possible per cooling rack.
- Approx. 4 kW cooling output per cooling module at 800 m<sup>3</sup>/h air throughput.
- Optimised air routing: Cold air is blown in at the sides, so that the cold air is evenly distributed in front of the 482.6 mm (19") level.

- Optionally 1 or 2 server racks may be cooled – stand-alone and bayed siting possible.
- Bayable to TS and PS server racks, even retrospectively.
- Active condensate handling.
- Optional control and monitoring<sup>1)</sup> of the cooling rack via Rittal CMC-TC.
- Two-piece modules; for easy installation in narrow passageways.

### Technical specifications:

- Mounted as a cooling rack on a server rack based on TS 8, with H = 2000 mm, D = 1000 mm.
- Each cooling rack can accommodate a maximum of three air/water heat exchanger cooling modules.
- Standard supply: Cooling rack equipped with one cooling module.
- Individual modules upgradable to full installation via quick-release couplings.

- Control via a separate module which may be connected to the CMC-TC for incorporation into the network (monitoring).
- Condensation management: The pump in the condensate tray pumps any condensation into the return section of the cooling circuit.

Model No. SK	Enclosure + 3 modules		Individual module for 230 V/115 V
	3301.230	3301.210	3301.250
Rated operating voltage V, Hz	230, 50/60	115, 50/60	230, 50/60
Dimensions mm	W	300	250
	H	2000	550
	D	1000	950
<b>Useful cooling output at 15°C water inlet, 15 l/min, 20°C cold air</b>	<b>4000 W/3500 W</b>	<b>4000 W/3500 W</b>	<b>4000 W/3500 W</b>

Rated current max.	1.8 A
Pre-fuse T	5.0 A
Cooling medium	Water (specifications may be found on the Internet)
Water inlet temperature	+5°C to +30°C
Permissible operating pressure p. max.	2 to 8 bar
Temperature range	+5°C to +40°C
Protection category to EN 60 529/10.91	IP 30
Duty cycle	100 %
Type of connection	Current: Connection cable with earthing-pin plug; Water: 3/4" quick-release fastener
Weight	max. 160 kg
Colour	RAL 7035
Air throughput of fans	max. 2400/2100 m <sup>3</sup> /h
Temperature control	Electronically controlled magnetic valve and 4-way fan control

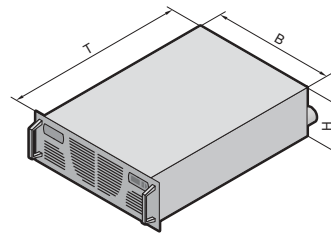
<sup>1)</sup> Flow, leakage, inlet/return, intake/exhaust temperature.  
The general remarks on air/water heat exchangers (available on the Internet) apply.

**For professional installation of the heat exchanger, where possible, the enclosures being cooled should be sealed against the ingress of ambient air:**

Description	Dimensions mm	Packs of	Model No.	Description	Dimensions mm	Packs of	Model No.	
Side panel, screw-fastened	H x D 2000 x 1000	2	<b>8100.235</b>	Divided partitioning plate for retrospective sealing in the base area	W x D	600 x 1000	1	<b>7825.300</b>
Glazed door	W x H	600 x 2000	1			<b>8610.600<sup>2)</sup></b>	800 x 1000	1
		800 x 2000	1	<b>8610.800<sup>2)</sup></b>	Divided roof plate for cable entry	W x D	600 x 1000	1
Sheet steel door, solid	W x H	600 x 2000	1	<b>7824.205<sup>2)</sup></b>			800 x 1000	1
		800 x 2000	1	<b>7824.207<sup>2)</sup></b>	Sealing kit for two-sided cooling when bayed		1 set	<b>7825.305</b>
<sup>2)</sup> Alternatively: Sealing kit for vented sheet steel doors, size	W x H	600 x 2000	1	<b>7824.185</b>				
	W x H	800 x 2000	1	<b>7824.187</b>				

<sup>3)</sup> Retrospective installation is not possible.

**Rack-mounted recooling system**



B = Width  
T = Depth

Liquid-cooled computers in a 482.6 mm (19") server rack are supplied via the shortest route via six cooling circuits, without an additional rising main.

- Partial liquid cooling in heterogeneous environments.
- Combination of air and liquid cooling possible.

**Technical specifications:**

- Installation in the 482.6 mm (19") level of the enclosure.
- 6 cooling circuit connections for server/CPU cooling on the back of the chiller via drip-free quick-release coupling.
- Vibration-free installation.
- 2 freely programmable alarm outputs.
- Operating pressure display.
- Optional automatic bypass.



**Also required:**

- Quick-release couplings
- Heat sink, retaining clamps
- Hose, see page 102.

<b>Model No. SK</b>	<b>3301.260</b>
Rated operating voltage V, Hz	230, 50/60
Dimensions mm	W 442 H 175 D 751 + 100 mm for water connections
<b>Cooling output at T<sub>w</sub> = 25°C T<sub>a</sub> = 32°C, 2 l/h</b>	<b>1000 W/1070 W</b>

Power consumption	640/790 W
Rated current max.	4.5 A
Refrigerant	R134a, 550 g
P <sub>max.</sub> cooling circuit	25 bar
Temperature range	Environment +10°C to +40°C Liquid media +10°C to +35°C
Pump capacity	4 l/min at 2 bar
Tank	Pressure-sealed
Tank capacity	-
Water connections	Quick-release coupling, drip-free
Weight	45 kg
Colour	Textured RAL 7035
Protection category (electrics)	IP 20
Air throughput of fans	450 m³/h
Temperature control	Microcontroller, setting range +10°C to +30°C, factory setting +18°C

Delivery times available on request.



## Power Cooling System PCS



### Cooling circuit distributor for racks

#### Water cooling

For detailed information see Catalogue 31, from page 674.

#### Package 1

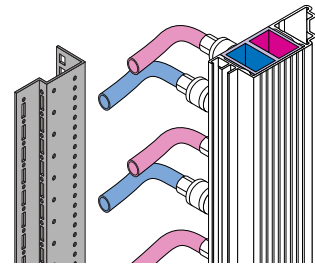
Water infeed:  
Connection system, non-return valve and 10 m hose, 1/2", fittings, filter, vent valve.

Water distribution:  
Cooling circuit distributor for 20 CPU cooling circuits, vent valve, 40 bulkhead couplings, 50 m distributor hose, 6 mm.

#### Package 2

Water infeed:  
Connection system, non-return valve and 10 m hose, 1/2", fittings, filter, vent valve.

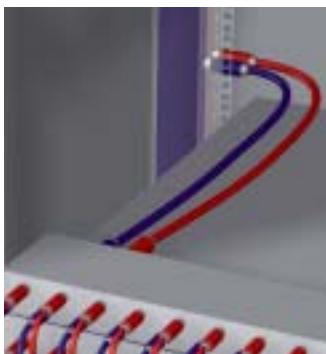
Water distribution:  
Cooling circuit distributor for 40 CPU cooling circuits, vent valve, 80 bulkhead couplings, 100 m distributor hose, 6 mm.



For enclosure height		Model No. SK	
mm	U	Package 1	Package 2
1200	24	<b>3301.810</b>	–
2000	42	–	<b>3301.820</b>

#### + Accessories:

Distributor accessories, see below.



### Cooling circuit distributor kit for Blade server

For detailed information see Catalogue 31, from page 674.

#### Supply includes:

- 1 vertical rising main with 5 taps,
- 1 482.6 mm (19") cooling circuit distributor with 10 inlet and return connections,
- 1 connection hose (inlet and return) from the 482.6 mm (19") cooling circuit distributor to the vertical rising main,
- 1 connection hose (inlet and return) from the vertical rising main to the recoler.

Packs of	Model No. SK
1	<b>3301.280</b>
<b>Accessories</b>	
<b>Additional cooling circuit distributor 482.6 mm (19")</b>	<b>3301.270</b>

## Distributor accessories

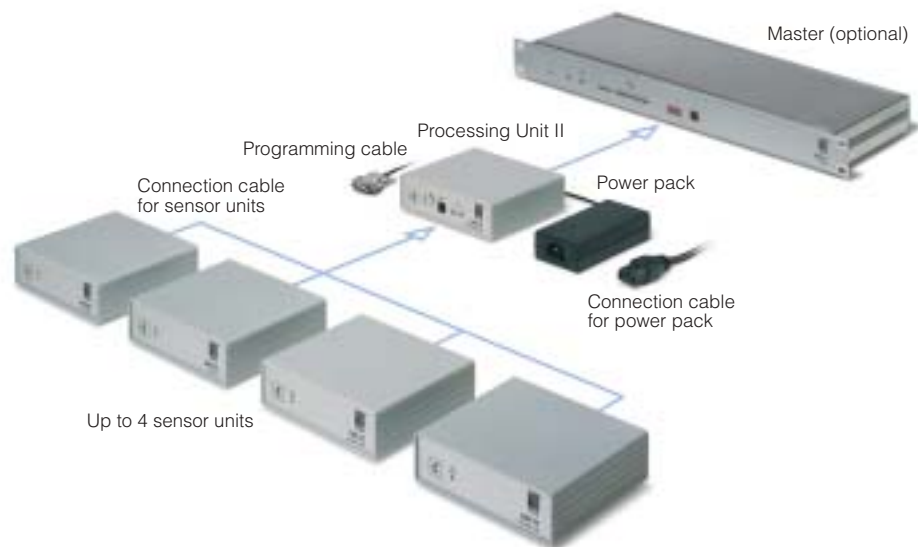
Description	Packs of	Model No. SK
Heat sink	1	<b>3301.000</b>
Connector for heat sink	6 mm	<b>3301.010</b>
	4 mm	<b>3301.020</b>
Retaining clamps	Athlon	<b>3301.030</b>
	Opteron	<b>3301.040</b>
	Xeon	<b>3301.050</b>
	P 4	<b>3301.060</b>
Connection system hose (sold by the metre)	4 mm	<b>3301.070</b>
	6 mm	<b>3301.080</b>
Screw-in coupling G 1/8" with seal	10	<b>3301.090</b>
Screw-in connector G 1/8" with seal	10	<b>3301.130</b>
Connector sleeve, 6 mm	10	<b>3301.160</b>
Connector grommet, 6 mm	10	<b>3301.170</b>
Straight screw-in connector G 1/8", 6 mm	10	<b>3301.180</b>
Sealing bung, 6 mm	10	<b>3301.190</b>
Y-adaptor, 6 to 2 x 4 mm	10	<b>3301.700</b>

Description	Packs of	Model No. SK
Water distribution: 2 x rising main 24 U for TS 8, vent valve, screw-in connector 1/2", screw-in coupling 1/2"	1	<b>3301.710</b>
Water distribution: 2 x rising main 42 U for TS 8, vent valve, screw-in connector 1/2", screw-in coupling 1/2"	1	<b>3301.720</b>
Water infeed: 2 x connector grommets 1/2", 2 x connector sleeves 1/2", hose 1/2" (10 m), non-return valve 1/2", dirt trap (with 2 x 1/2" connector sleeve), screw-in connector 1/2" (on the cooling unit), screw-in coupling 1/2" (on the cooling unit), 6 x hose clamps 1/2"	1	<b>3301.730</b>
Monitoring at the connection to the CMC: Temperature sensor + clamping screw fastening	1	<b>3301.740</b>
Hose cutter	1	<b>3301.750</b>
Accessories/ work materials	1	<b>3301.760</b>
Thermally conductive paste	1	<b>3301.770</b>
Teflon sealing tape	1	<b>3301.770</b>
Sealing bung 1/4"	1	<b>3301.780</b>

**The basic system**

The Processing Unit (PU II) forms the basis of any CMC-TC application. This offers a network interface (10/100 BaseT, TCP/IP, SNMP) directly into the user network or to the CMC-TC master. The following products are required for each CMC-TC application:

- Processing Unit II (7320.100)
- Power pack 100 – 240 V 50 – 60 Hz (7320.425) or power pack 48 V DC (7320.435)
- Connection cable for power pack, country-specific (7200.210 – .215)
- Connection cable for sensor unit (7320.470/.472/.481)
- At least one sensor unit, see table
- Programming cable (7200.221)



**Matching sensor units for Processing Unit II (PU II)**

Description	Function	Model No. DK	Page
I/O unit	4 inputs for sensors	<b>7320.210</b>	103
Access unit	2 inputs for door systems	<b>7320.220</b>	104
Climate unit	1 input for AC fan system	<b>7320.230</b>	104
FCS	DC speed-controlled/monitored fan system	<b>7320.810</b>	110
DC fan mounting plate with FCS	DC fan mounting plate for TS 8 enclosures, speed-controlled/monitored	<b>7858.488</b>	97
RTT I/O unit	For connecting TopTherm cooling units with Comfort control	<b>3124.200</b>	99
Rittal LCP 230 V	Air/water heat exchanger system for IT application	<b>3301.230</b>	100
Rittal LCP 115 V	Air/water heat exchanger system for IT application	<b>3301.210</b>	100
Active PSM 4-way	Sockets with current measurement, fully deactivatable	<b>7856.200</b>	108
Active PSM 8-way	PSM socket strip with current measurement, 8-way, individually switchable	<b>7856.201</b>	83
Rittal PCU 8-way	1 U socket strip with current measurement, 8-way, individually switchable	<b>7200.001</b>	84

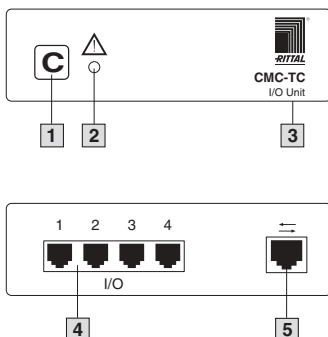


**CMC-TC sensor unit I/O unit**

This sensor unit allows alarm messages, status messages and measurements to be forwarded or remote actions to be executed via relay output modules.

The I/O unit has 4 universal inputs/outputs. The sensors/actuators listed below can be operated here.

The interface to the user network is via the PU II (Processing Unit II), which is always required to operate the system.



- 1 Control key** for detection/set-up of the sensors/actuators
- 2 Alarm LED** signals alarms or configuration changes
- 3 Mounting fixture** for 7320.440 or 7320.450
- 4 RJ 12, 4 inputs for sensors/actuators** (see table)
- 5 RJ 45, connection** to PU II 7320.100 via connection cable 7320.470/.472/.481 (The unit is also supplied with power via this connection.)

Sensor unit I/O unit	Model No. DK
4 universal inputs or outputs	<b>7320.210</b>

**! Also required:**

Sensors/actuators	Max.	Model No. DK	Page
Temperature sensor	4	7320.500	108
Humidity sensor	4	7320.510	108
Analog sensor input module "4 – 20 mA"	4	7320.520	108
Access sensor <sup>1)</sup>	4 x 5	7320.530	107
Vandalism sensor	4	7320.540	107
Airflow monitor	4	7320.550	108
Smoke alarm	4	7320.560	108
Motion sensor	4	7320.570	107
Digital input module	4	7320.580	108
Digital relay output module	4	7320.590	108
Voltage monitor	4	7320.600	108
Voltage monitor with switch output	2 – 4	7320.610	108
48 V voltage monitor	4	7320.620	108
Leakage sensor	4	7320.630	107
Fan Alarm System FAS	4	7320.811	110

<sup>1)</sup> Up to a maximum of 5 sensors may be connected in series.

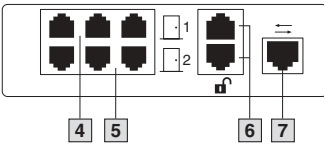
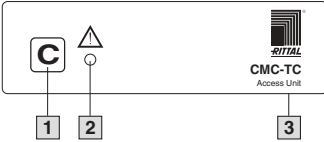
**Selection aid, see Catalogue 31, page 770.**





### CMC-TC sensor unit Access unit

With this sensor unit, one or two doors may be released via the network for access, or personalised opening via a reader system (e. g. smartcard reader) may be initiated. The system also monitors the status of the door, handle or latch. Authorised access codes can be set up via HTTP. The sensors/actuators/readers listed below can be operated here. In order to operate the unit, at least one access sensor and at least one latch (e. g. handle) per door system must always be used.



- 1 Control key** for detection/set-up of the sensors/actuators
- 2 Alarm LED** signals alarms or configuration changes
- 3 Mounting fixture** for 7320.440 or 7320.450
- 4 Inputs for access sensor, handles**  
Latch system 1 (see table)
- 5 Inputs for access sensor, handles**  
Latch system 2 (see table)
- 6 I<sup>2</sup>C bus for reader units** Door system 1 and 2 (see table)
- 7 RJ 45 connection** to PU II 7320.100 via connection cable 7320.470/.472/.481 (The unit is also supplied with power via this connection.)

Sensor unit access unit	<b>Model No. DK</b>
Control of 2 door systems	<b>7320.220</b>

**! Also required:**

Sensors/actuators	Max.	Model No. DK	Page
Access sensor <sup>1)</sup>	2 x 5	7320.530	107
Digital input module for door release	2	7320.580	108
<b>Latch/reader</b>			
Elec.-magn. Ergoform-S FR/PS/TC/TE	2	7320.700	109
Electromagnetic Ergoform-S QR	2	7320.710	109
Electromagnetic TS 8 handle Master key	2	7320.721	109
Universal lock	2	7320.730	109
Digital relay output module for room door	2	7320.740	108
Lock FR(i)	2	7320.900/.910/.920/.930	109
Universal handle	2	7320.950	109
Smart card reader for door release	2	7320.750	109
Magnetic card reader for door release	2	7320.760	109
Coded lock for door release	2	7320.770	109

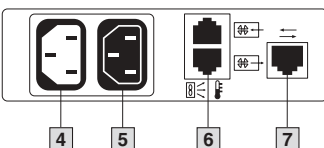
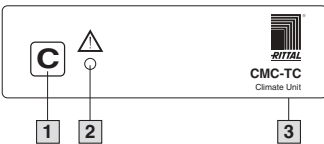
<sup>1)</sup> Up to a maximum of 5 sensors may be connected in series.

Selection aid, see Catalogue 31, page 770.



### CMC-TC sensor unit Climate unit

A temperature control circuit is installed with this sensor unit. Temperature setpoints are set via the PU II, and these are compared with the actual temperature. Depending on the evaluation, the fan system is activated. The function of the fans can also be monitored with an airflow sensor. Monitoring is only active whilst the fan is operational. Other sensors may optionally be connected to the unit. In order to operate the unit as a temperature fan control circuit, at least one temperature sensor must always be used.



- 1 Control key** for detection/set-up of the sensors/actuators
- 2 Alarm LED** signals alarms or configuration changes
- 3 Mounting fixture** for 7320.440 or 7320.450
- 4 Input for fan supply** 115/230 V AC, cable 7200.210 – .215
- 5 Output to fan** with cable 7200.215
- 6 RJ 12, 2 inputs for sensors/actuators** (see table)
- 7 RJ 45 connection** to PU II 7320.100 via connection cable 7320.470/.472/.481 (The unit is also supplied with power via this connection.)

Sensor unit climate unit	<b>Model No. DK</b>
Control of a fan system	<b>7320.230</b>

**! Also required:**

Sensors	Max.	Model No. DK	Page
Temperature sensor	2	7320.500	108
Access sensor <sup>1)</sup>	2 x 5	7320.530	107
Airflow monitor	2	7320.550	108
Smoke alarm	2	7320.560	108
Motion sensor	2	7320.570	107
Digital input module	2	7320.580	108
Voltage monitor	2	7320.600	108
48 V voltage monitor	2	7320.620	108

<sup>1)</sup> Up to a maximum of 5 sensors may be connected in series.

Selection aid, see Catalogue 31, page 770.



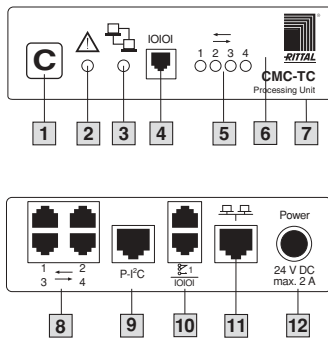


## CMC-TC monitoring system Processing Unit II

### Benefits:

- Freely selectable monitoring functions
- Sensor/actuator ports extendible
- TCP/IP SNMP network connection
- Integral web server for configuration
- Automatic menu generation
- 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
- May be used with power pack for 115/230 V AC or 48 V DC
- Choice of mounting on the enclosure frame or 482.6 mm (19") mounting angles
- The protocol for the master/slave system is TCP/IP SNMP
- May be used for large data centres or small individual applications

The Processing Unit II forms the basis of the CMC-TC system. This unit is required for every monitoring application.



- 1 Control key**  
The control key is used for sensor/actuator detection, set-up of the system and acknowledgement.
- 2 Alarm LED**  
The LED signals alarms or configuration changes.
- 3 Link/Traffic LED**  
The LED indicates the status of the 10BaseT/100BaseT network interface.
- 4 RS 232 interface RJ 10**  
For programming via a serial PC interface.
- 5 LEDs for channels of sensor units**  
The LEDs indicate the status of the connected sensor units.
- 6 Audio alarm**  
There is an audio alarm signalling device integrated into the PU II.
- 7 Mounting attachment**  
For attachment with individual bracket 7320.450 or 1 U mounting units 7320.440.

- 8 Inputs for the RJ 45 sensor units**  
Up to 4 sensor units may be connected to the PU II via the 4 inputs. The sensor units determine the function of the PU II. There is a choice of 11 sensor units:  
– I/O unit 7320.210  
– Access unit 7320.220  
– Climate unit 7320.230  
– FCS 7320.810/7858.488  
– RTT I/O Unit 3124.200  
– RLCP 3301.230/.210  
– Active PSM 7856.200/.201  
– RPCU 7200.001  
Connection cable 7320.470/.472/.481.
- 9 Power I<sup>2</sup>C bus RJ 45**  
Up to 2 voltage extension units 7200.520 may be connected via the power I<sup>2</sup>C Bus. Up to three AC voltages may be monitored with every extension unit. Connection cable 7320.470/.472/.481.
- 10 Alarm relay RJ 12/RS 232 RJ 12**  
The upper RJ 12 jack provides a change-over contact for the PU II alarm relay. Connection cable 7200.430. The lower RJ 12 jack provides a serial interface (display unit/GSM module/ISDN unit).
- 11 Ethernet 10/100BaseT RJ 45**  
Integral Ethernet interface to IEEE 802.3 via 10/100BaseT full-duplex 10/100 Mbit/s.
- 12 Voltage supply**  
The rated voltage of the PU II is 24 V DC. There is a choice of power packs with varying primary voltages. AC power pack 7320.425.

### Interface to the customer:

The PU II can be incorporated directly into the user network via 10/100BaseT. The PU II can also be linked to the master 7320.000 via this interface (TCP/IP, SNMP).

### Interface to the sensors/actuators:

The PU II provides 4 open ports for sensor units. The sensor units determine the function of the PU II. There is a choice of 11 sensor units with different functions. In this way, the monitoring functions may be freely combined.

### Fast, easy programming and installation:

The sensors/actuators are set up via an automatic electronic ID system. Installation is via a flexible plug & play system. This eliminates the need for time-consuming programming and wiring.

### Power supply:

Power is supplied centrally via a power pack in the PU II. The connected sensor units and all connected sensors are supplied with power in this way. There is a choice of two input voltages (AC power pack 7320.425 and DC power pack 7320.435).

Model No. DK	7320.100
W x H x D mm	136 x 44 (1 U) x 129
Network interface	Ethernet to IEEE 802.3 via 10/100BaseT full-duplex 10/100 Mbit/s
Protocols	TCP/IP, SNMP V1.0, TELNET, FTP, HTTP (optional: NTP, SSH, HTTPS)

Rated voltage	24 V DC
Serial interfaces	RS 232
Ports for sensor units	4 jacks RJ 45, shielded
Bus system	Power I <sup>2</sup> C for extension unit voltage AC 7200.520
Alarm relay output	Change-over contact max. 24 V DC 1 A
Audio display	Piezo signal generator
Time function	Real-time clock
Temperature application range	+5°C to +45°C
Humidity application range	5 % to 95 % relative humidity, non-condensing
IP protection category	IP 40 to EN 60 529



### ! Also required:

Selection aid, see Catalogue 31, page 770.



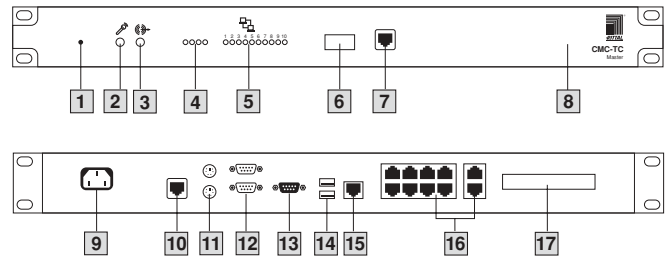
## CMC-TC additional units

For detailed information, see Catalogue 31.

Additional units	Model No. DK	Cat. 31, page
CMC-TC display unit	7320.490	767
CMC-TC GSM unit	7320.820	767
CMC-TC ISDN unit	7320.830	768
Monitoring of climate control units	Model No. SK	
RTT I/O unit	3124.200	662/785



## Master monitoring system



**Property rights:**  
German registered design  
no. 402 02 444

### Benefits:

- Centralised administration
- Network connection 10/100BaseT
- Central web server for configuration
- Local administration via PS2/VGA console
- Logging function for alarm messages
- Link for USB camera
- Free function selection for monitoring
- Ideal for large data centres
- **Web access via SSL 3.0 128 bit encryption**
- **Remote administration via SSH.**

The master system may be connected between the Processing Unit II and the user network. There are ten 10BaseT network inputs available for the Processing Unit (PU II). The PU IIs transmit all monitoring-related data and messages to the master system via TCP/IP, SNMP. The master unit has a 10BaseT/100BaseT network interface for the user network.

All monitoring data is provided in a separate MIB via TCP/IP, SNMP. The system may optionally be configured remotely, via the integral web server, or directly, via a local console. Basic settings can also be implemented serially via RS 232 or Telnet. A Telnet routing function to the individual Processing Units II is also pre-installed. This provides the user with a clear central monitoring facility. For example, up to 160 temperature sensors may be accessed or up to 80 enclosure doors may be monitored and activated via one IP address. Combined applications are also possible, and may be compiled individually from Processing Units II and sensor units. Further functional scope for the CMC-TC master is available on request in the form of a software update. Images may be archived on the hard drive via an optional web camera. USB web camera available on request.

- 1 Key**  
Offset system reset key with contact hazard protection.
- 2 Input for microphone<sup>1)</sup>**  
3.5 mm jack.
- 3 Output for speaker<sup>1)</sup>**  
3.5 mm jack.
- 4 Status LEDs**  
LED 1 Alarm – Alarm system message.  
LED 2 changeover 10/100 Mbit/s, network interface to user network.  
LED 3 Link/Activity, network interface to user network.
- 5 LEDs**  
for the 10 network inputs of the Processing Units II 7320.100.
- 6 IrDA<sup>1)</sup>**  
Infrared interface
- 7 RJ 10**  
RS 232 interface for CMC-TC menu program.
- 8 Audio alarm**  
There is an audio alarm signalling device integrated into the master.
- 9 Voltage supply**  
The IEC jack supplies the system with power, connection cables 7200.210 to .215.
- 10 Alarm relay**  
RJ 12 socket with change-over contact.
- 11 Keyboard/mouse**  
PS2 jacks for keyboard and mouse.
- 12 RS 232**  
Two serial D-SUB 9 interfaces.
- 13 VGA interface HD15**  
Connection for monitor or Rittal SSC.
- 14 USB interfaces**  
Standard 1.1, for applications with Rittal camera.
- 15 Ethernet 10/100BaseT**  
RJ 45 jack network interface, user network Ethernet 10BaseT/100BaseT, IEEE 802.3 (10/100 Mbit/s), TCP/IP.
- 16 Ethernet 10BaseT (internal)**  
Ten RJ 45 jacks, network inputs for the Processing Units II 7320.100 Ethernet 10BaseT, IEEE 802.3 (10/100 Mbit/s), TCP/IP.
- 17 PCMCIA<sup>1)</sup>**  
Two PCMCIA ports for applications with the Rittal modem.

<sup>1)</sup> These functions are prepared for specific customer application, on request.

<b>Model No. DK</b>	<b>7320.000</b>
W x D mm	1 U x 200
Network interface	Ethernet to IEEE 802.3 via 10BaseT/100BaseT, 10/100 Mbit/s
Protocols	TCP/IP, SNMP V1.0, TELNET, SSH, TFTP, HTTPS

Rated voltage	100 – 240 V AC, 50/60 Hz
Ports for processing unit	10 jacks RJ 45, shielded, 10BaseT, TCP/IP, SNMP
Serial interfaces	RJ 10 jack RS 232 menu program, 2 D-SUB 9 jacks RS 232
USB	Standard 1.1 for Rittal web cameras
Infrared interface <sup>1)</sup>	IrDA 1.0 (SIR) on the front
PCMCIA <sup>1)</sup>	2 x type I/II or 1x type III for applications with Rittal modem
Relay output module	Change-over contact, max. load capacity 24 V DC, 1 A
Time function	Real-time clock
Temperature application range	+5°C to +40°C
Humidity application range	5 % to 95 % relative humidity, non-condensing
IP protection category	IP 40 to EN 60 529

**! Also required:**  
Selection aid, see Catalogue 31, page 770.



Camera available on request.



## Cables/mounting accessories

For detailed information, see Catalogue 31.

Connection cable/extension			(Cat. 31, page 771)
Country Version	Voltage	Model No. DK	
D/F/B	230	7200.210	
GB	230	7200.211	
CH	230	7200.213	
USA/CDN	230/115	7200.214	
IEC 320 extension	230/115	7200.215	
Power pack for PU, FCS, FAS <sup>1)</sup>			(Cat. 31, page 771)
Primary input voltage	Output voltage	Model No. DK	
100 – 240 V AC/ 50/60 Hz	24 V DC	7320.425	
48 V DC	24 V DC	7320.435	
<sup>1)</sup> Also required: Connection cable for power pack DK 7320.425.			
Programming cable			(Cat. 31, page 771)
Packs of		Model No. DK	
1		7200.221	
Mounting unit 1 U			(Cat. 31, page 771)
Packs of		Model No. DK	
1		7320.440	
Mounting module			(Cat. 31, page 772)
Packs of		Model No. DK	
1		7320.450	
Connection cable RJ 45			(Cat. 31, page 772)
Length m	Packs of	Model No. DK	
0.5	4	7320.470	
2.0	4	7320.472	
5.0	4	7320.475	
10.0	1	7320.481	
15.0	1	7320.485	
Connection cable RJ 10, RJ 12			(Cat. 31, page 772)
Connector	Length m	Packs of	Model No. DK
RJ 10	5	4	7200.420
RJ 12	5	4	7200.430
Extension cable RJ 11, RJ 12			(Cat. 31, page 772)
Connector/jack	Length m	Packs of	Model No. DK
RJ 10	5	4	7200.440
RJ 12	5	4	7200.450
RJ 12	1	2	7320.814



## External security

For detailed information, see Catalogue 31.

Vandalism sensor				(Cat. 31, page 777)
I/O unit	To fit sensor unit	Climate unit	Packs of	Model No. DK
■	Access unit		1	7320.540
Access sensor				(Cat. 31, page 777)
■	■	■	2	7320.530
CMC-TC motion detector				(Cat. 31, page 778)
■		■	1	7320.570
Leakage sensor				(Cat. 31, page 778)
■			1	7320.630



## Internal security

For detailed information, see Catalogue 31.

Temperature sensor				(Cat. 31, page 773)	
To fit sensor unit				Packs of	Model No. DK
I/O unit	Access unit	Climate unit	FCS		
■		■	■	1	<b>7320.500</b>
Smoke alarm				(Cat. 31, page 773)	
■		■		1	<b>7320.560</b>
Humidity sensor				(Cat. 31, page 773)	
■				1	<b>7320.510</b>
Airflow monitor				(Cat. 31, page 774)	
■		■		1	<b>7320.550</b>
Voltage monitor				(Cat. 31, page 774)	
■		■		1	<b>7320.600</b>
Voltage monitor with IEC switch output				(Cat. 31, page 774)	
■				1	<b>7320.610</b>
Voltage monitor 48 V DC				(Cat. 31, page 775)	
■		■		1	<b>7320.620</b>
CMC-TC socket strip				(Cat. 31, page 776)	
■		■		1	<b>7200.630</b>
Active Power System Module PSM <sup>1)</sup>				(Cat. 31, page 775)	
Active module, 4-way, IEC320, to fit PU II				1	<b>7856.200</b>
<sup>1)</sup> Also required: In stand-alone mode without CMC-TC, a separate power pack (100 – 240 V AC/24 V DC) is required (7201.210), together with the relevant connection cables, see page 107.					
CMC-TC extension unit				(Cat. 31, page 776)	
Max. number per PU: 2		To fit Processing Unit II		1	<b>7200.520</b>



## Individual security

For detailed information, see Catalogue 31.

Analog sensor input module				(Cat. 31, page 779)	
To fit sensor unit				Packs of	Model No. DK
I/O unit	Access unit	Climate unit			
■				1	<b>7320.520</b>
Digital sensor input module				(Cat. 31, page 779)	
■	■		■	1	<b>7320.580</b>
Relay output module				(Cat. 31, page 779)	
■				1	<b>7320.590</b>
Room door output module				(Cat. 31, page 780)	
	■			1	<b>7320.740</b>
CMC-TC alarm signal lamp				(Cat. 31, page 780)	
Item					Model No. SZ
LED steady light component 24 V DC, red				To fit Processing Unit II	<b>2372.000</b>
Connection component					<b>2368.010</b>
Interference suppression capacitors for fans				(Cat. 31, page 780)	
Design					Model No. DK
100 IF				20	<b>7200.490</b>



## Access systems Legic transponder

With the CMC-TC system, Rittal offers an access system for racks and IT rooms. One form of access control is release with Legic transponder technology. The popular Legic system is often used in IT applications. With the Legic-Rittal transponder, the same transponder cards may be used. The contactless system has many advantages (low wear, positioning, etc.). The transponder system may be linked to the serial interface of the Processing Unit II (PU II). In this way, the access units with the doors may be activated. The 24 V DC power is supplied directly via the serial PU II connection. Code allocation is implemented via a table which may be loaded onto the PU II via FTP.

Transponder	On request
-------------	------------

The system may be flush-mounted in rooms, or on an enclosure. An integral LED provides the status display.

To fit PU II.

### Technical specifications:

**Rated voltage:** 24 V DC

**Interface:** RS232

**Transmission system:** Legic transponder

**Carrier frequency:** 13.56 MHz

**Protection category:** IP 44

**Temperature range:** -10°C to +55°C

**Humidity:** max. 90 % without condensation



## Access systems

For detailed information, see Catalogue 31.

### Comfort handle for TS 8 unit with master key function (Cat. 31, page 781)

To fit sensor unit			Model No. DK
I/O unit	Access unit	Climate unit	
	■		<b>7320.721</b>

### Handle systems with electromagnetic lock (Cat. 31, page 781)

Ergoform-S handle for FR, PS, TC, VR, TE	<b>7320.700</b>
Ergoform-S handle for QR	<b>7320.710</b>

To fit sensor unit		
I/O unit	Access unit	Climate unit
	■	

### Locking bars (Cat. 31, page 781)

Lower door locking bar for 2000 mm high PS enclosures	<b>7200.371</b>
Lower door locking bar for 2000 mm high FR enclosures	<b>7200.372</b>
Lower door locking bar for TE enclosures	On request
Other sizes available on request.	

### Smart card reader/magnetic card reader/coded lock (Cat. 31, page 782)

Smart card reader	<b>7320.750</b>
Magnetic card reader	<b>7320.760</b>
Coded lock	<b>7320.770</b>

To fit sensor unit		
I/O unit	Access unit	Climate unit
	■	

### Access door panels for FR(i) (Cat. 31, page 783)

Enclosure height mm	Electromagnetic lock system	Reader system	
2000	<sup>1)</sup>	–	<b>7320.900</b>
2000	<sup>1)</sup>	Smart card reader	<b>7320.910</b>
2000	<sup>1)</sup>	Magnetic card reader	<b>7320.920</b>
2000	<sup>1)</sup>	Coded lock	<b>7320.930</b>

<sup>1)</sup> Comfort handle TS 8 with master key function 7320.721 (Cat. 31, page 781) for the CMC-TC monitoring system is installed. All other height variants (FR(i) enclosure height 600, 1200, 1800 and 2200 mm) are available on request.

To fit sensor unit		
I/O unit	Access unit	Climate unit
	■	

### Universal lock unit (Cat. 31, page 783)

To fit sensor unit			Packs of
I/O unit	Access unit	Climate unit	
	■		1 set
			<b>7320.730</b>

### Installation kit (Cat. 31, page 783)

TS steel door	<b>7200.615</b>
TS glazed door	<b>7200.616</b>

### Handle system for universal installation with electromagnetic latching for the CMC-TC monitoring system (Cat. 31, page 784)

To fit sensor unit			Model No. DK
I/O unit	Access unit	Climate unit	
	■		<b>7320.950</b>

Extended delivery times

### TS 8 transponder handle with integral transponder release system from Simons & Voss (Cat. 31, page 784)

	Type	Model No. DK
Electromagnetic handle TS 8	Transponder, stand-alone application	<b>7320.960</b>
Transponder transmitter	Hand-held transmitter	<b>7320.961</b>
Transponder transmitter	CMC-TC transmitter	<b>7320.962</b>
Programmable transponder	Programming	<b>7320.963</b>

Extended delivery times





### Speed-monitored/ controlled fan system/DC

For detailed information see Catalogue 31,  
page 786/787.

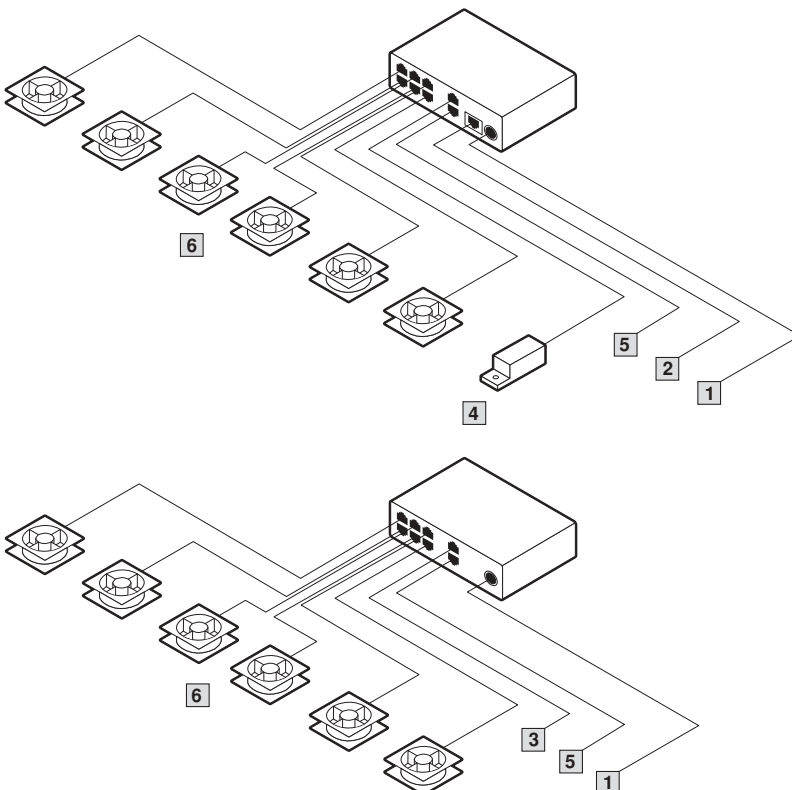
	Fan Control System FCS	Fan Alarm System FAS
	<b>Model No. DK</b>	
Properties	<b>7320.810</b>	<b>7320.811</b>
Fan speed monitoring	■	■
Pre-selectable speed	■	-
Non-temperature dependent speed	■	-
Speed increase in the event of a fan failure	■	-
Collective fault signal	■	■
Floating change-over contact	■	■
LAN connection via PU II	■	-
LAN via I/O unit + PU II	-	■
Configurable via LAN with PU II	■	-
Alarm output	Beeper, LED, relay, RJ 45 output for PU	Beeper, LED, relay, RJ 12 output for I/O unit
<b>Accessories</b>	Packs of	
<b>Fan 24 V DC</b> with speed monitoring	2	<b>7320.812</b>
<b>RJ 12 extension</b> for 24 V DC fan, 1 m	2	<b>7320.814</b>
<b>Supply connection cable</b> for FCS/FAS	1	<b>7320.813</b>

#### FCS example: Control system with fan regulation and monitoring

Description	Required Packs of	Model No. DK
Fan Control System FCS	1	7320.810
CMC-TC power pack 24 V, Input 100 – 230 V AC	1	7320.425
CMC-TC temperature sensor	1	7320.500
Fan 24 V DC (packs of 2) with speed control	3	7320.812
RJ 12 extension for DC fans, 1 m (packs of 2)	3	7320.814
CMC connection cable D 230 V AC	1	7200.210

#### FAS example: Control system with fan monitoring

Description	Required Packs of	Model No. DK
Fan Alarm System FAS	1	7320.811
CMC-TC power pack 24 V, Input 100 – 230 V AC	1	7320.425
Fan 24 V DC (packs of 2) with speed control	3	7320.812
RJ 12 extension for DC fans, 1 m (packs of 2)	3	7320.814
CMC connection cable D 230 V AC	1	7200.210



- 1 Supply with 24 V/48 V DC** via
  - Supply connection cable (direct) 7320.813
  - CMC 24 V power pack 100 – 230 V AC (input) 7320.425
  - CMC 24 V power pack 48 V DC (input) 7320.435
 When operating with 48 V DC, fans with 48 V DC must also be used.
- 2 RJ 45 jack** for connecting to the Processing Unit II 7320.100 (optional) (Cat 5 cable)
- 3 RJ 12 jack** for connecting to the I/O unit 7320.210 (optional)
- 4 CMC-TC temperature sensor** 7320.500 (essential)
- 5 Alarm relay output** 24/48 V DC, 1 A (floating change-over contact)
- 6 Fan with speed control** 7320.812 (24 V DC). 48 V DC fans may optionally be used.

**Rack extinguisher system**



**Rack extinguisher system**

**Detection-Active (DET-AC)**

The Rittal rack extinguisher system Detection-Active (DET-AC) may be mounted directly in the 482.6 mm (19") mounting level of a rack. Several racks or rack suites may be controlled and extinguished with one 3 U unit. The system is also suitable for bayed enclosure suites with the cooling system LCP. The system is equipped with a multi-stage smoke analysis extraction system, which triggers extinguisher actions with high-quality control electronics and thus provides direct fire protection for your valuable hardware/data. The electronics can directly influence the ventilation systems built into the racks or the power supply of the built-in hardware, and deactivate them. Via the Rittal CMC-TC system, the pre-alarm, malfunctions or extinguishing may be reported directly via the network (SNMP/SMS/Email/etc.) (see page 103).

**Early smoke detection:**

The earliest possible detection of a fire is reliably ensured even at the pyrolysis phase, thanks to the built-in smoke extraction system. It actively and continuously checks the air in the protected enclosure for smoke aerosols. If indicator 1 detects smoke, the alarm is triggered, and if indicator 2 detects smoke, the fire is actively extinguished.

**Optimum smoke analysis for server applications in rack suites:**

Modern servers often have their own ventilation system. If these servers are distributed amongst several rack enclosure suites, air samples must be taken from behind every server fan and analysed. This is exactly what the smoke extraction system with its system of pipes achieves to optimum effect. Distribution of the extinguisher gas is likewise fed to the racks with a distribution system.

**Automatic system deactivation:**

The defective enclosure may optionally be deenergised. In this way, the required energy is immediately withdrawn from any fire, to prevent it from spreading.

**Optional extinguishing:**

Finally, automatic activation of the gas extinguisher system integrated into the enclosure extinguisher system is initiated. Extinguishing occurs directly inside the enclosure being protected. A 3 U enclosure extinguisher system may protect up to 4 bayed racks.

**Rack requirements**

As a general rule, the rack design should be sealed tight (as in an LCP cooling application, for example).



**Rittal service:**

The extinguisher system must be installed and maintained by qualified experts. Rittal will happily provide the required servicing work for your extinguisher systems.

**Benefits:**

- Operation of the technical installation is ensured.
- Earliest possible detection, thanks to built-in smoke extraction system.
- High-quality electronics are not damaged by the extinguishing process.
- Problem-free upgrades with built-in and add-on variants.
- Provides reliable protection for individual enclosures and enclosure combinations.
- Choice of options for extinguisher gases: FM200, nitrogen.

Detection-Active DET-AC	DET-AC 1.4	DET-AC 2.9	DET-AC 1.6 + 1.6 LCP	DET-AC 4.3 LCP	DET-AC 4.3	DET-AC 5.8
Model No. DK Rack or rack suites	7320.971 <sup>1)</sup>	7320.972 <sup>1)</sup>	–	–	7320.973 <sup>1)</sup>	7320.974 <sup>1)</sup>
Model No. DK Rack-LCP-Rack	–	–	7320.976 <sup>1) 2)</sup>	7320.977 <sup>1)</sup>	–	–
Extinguisher	FM200	FM200	Nitrogen	FM200	FM200	FM200
Max. rack extinguisher volume (m <sup>3</sup> )	1.4	2.9	1.6 + 1.6	4.3	4.3	5.8
Sample application Rack/rack suites Quantity x width/height/depth (mm) (various enclosure dimensions may be suitable, with due regard for the maximum extinguisher volume)	1 x 600/2200/1000	2 x 600/2200/1000			3 x 600/2200/1000	4 x 600/2200/1000
Sample application Rack-LCP-Rack baying Quantity x width/height/depth (mm)			1 rack 600/2000/1000 1 LCP 300/2000/1000 1 rack 600/2000/1000	1 rack 600/2000/1000 1 LCP 300/2000/1000 1 rack 600/2000/1000		
Width	19"					
Height (U)	3		3 + 3	3		
Depth (mm)	487					
Rated voltage	230 V AC, 50 – 60 Hz					
Max. power consumption	62 W					
Emergency power supply	2 x 12 V/1.2 Ah lead gel batteries					
Stored energy time in case of mains failure	4 h					
Temperature range	0°C to +40°C					
Protection category	IP 20					
Alarm contacts for the CMC-TC system (7320.580)	Malfunction/pre-alarm/extinguish					

Other extinguisher gases, intermediate sizes and versions available on request.

<sup>1)</sup> Extended delivery times.

<sup>2)</sup> The system comprises two enclosures (3 U) Master/Slave.

## Video monitoring



### Video monitoring

Security is becoming increasingly significant in the IT infrastructure, and this also includes video monitoring systems. This high standard of security is essential wherever sensitive data is being processed.

For the broad application range of IT engineering, Rittal offers a variety of solutions within the context of the RimatrixX5 concept.



### Video monitoring via the system CMC-TC:

The rack monitoring system CMC-TC contains a wide range of modules and functions. For example, with this system, access to IT rooms and racks can be monitored on a personalised basis. Smart cards, magnetic cards and transponders are read, and access is registered. This safety standard may be further enhanced with video monitoring. With the CMC-TC master system 7320.000 (see page 106) up to two USB cameras may be connected. The images recorded may be stored directly on the hard disk of the master system. Images can also be backed up via FTP. The camera recording function may be linked directly to the monitoring functions of the CMC-TC system. For example, images during access registration, motion detectors, smoke generation, unauthorised codes etc. In this way, Rittal offers a complete video monitoring system with the master as central software and hardware.



### Network video cameras

For professional co-ordination of the video system with the corresponding monitoring application, Rittal offers an individually compiled video monitoring system with hardware and software. Peculiarities such as outdoor applications, night-time applications, wide-angle etc. may be incorporated into the design.



### Variant 1

#### Premium network camera:

- For outdoor and indoor applications with CMOS video chip (-35°C to +65°C).
- For night-time applications with one black-and-white cam and one colour cam.
- Night-time applications from 1 lux
- Resolution VGA 640 x 480 bis 1280 x 960.
- Full digital image processing.
- Wide angle
- Zoom digital
- Ethernet 10BaseT, ISDN, RS232
- Integral WEB server.
- Speaker, microphone, motion detector.
- Image transmission technique JPG 1280 x 960 = 4 F/s, 640 x 480 = 12 F/s, 320 x 240 = 24 F/s for simple processing and archiving.
- Image transmission technique MX-Pack 320 x 240 = 25 F/s, produces a network load of approx. 1 Mbit/s.
- Ring buffer 128 MB, adequate for 800 to 4000 frames, depending on the resolution, with FTP relocation into the network supported.
- High image quality with exposure window, CMOS technology and black-and-white camera variants.
- Rated voltage 24 V DC via ISDN or looping-in via network cable.
- Power consumption 5 W
- Optional GSM/chamber motor/ISDN control.
- Software for large installations with archiving system.

### Variant 2

#### MPEG4 network cameras:

- For indoor applications with Sony CCD Super HAD.
- Light sensitivity 0.8 lux.
- Resolution QVGA 320 x 240 to VGA 640 x 480.
- Auto-iris variofocal lens
- Ethernet 10/100BaseT, RS485, RS232
- Integral WEB server
- Motion and noise detection
- Bidirectional audio
- Image transmission technique MPEG4 coding
- High-quality video-audio streams in realtime (max. 30 F/s).
- 200 – 500 : 1 compression rate
- Thanks to MPEG4, approximately 10x lower mains load than MPEG.
- 2 digital inputs, 3 digital outputs.
- WebManager software, extensive digital recorder and security software with pre- and post-recording, weekly schedule, event schedule, multiplexer representation, remote control function etc.
- MPEG4 server for analog cameras.
- Optional network server for connecting analog cameras.

<b>Web-cam for CMC-TC master</b>	
USB web-cam for applications with the CMC-TC master system. Up to 2 cams per master may be connected.	On request
<b>Individual camera system with network connection</b>	
Variant 1: Premium network cameras. For outdoor and indoor applications, night-time applications up to 1280 x 960 as JPG or 320 x 240 as MX pack, ring buffer, Web server, ISDN.	On request
Variant 2: MPEG4 network cameras. For indoor applications, up to 640 x 480 as MPEG4, Web server, encryption, WebManager software and MPEG4 server.	On request



### RiGetIT

#### the RimatriX5 configuration software

This configuration software from Rittal offers a planning tool for a modern IT infrastructure. The planning tool contains a wizard which automatically and logically guides the user through a catalogue of questions. Key data on the mechanics, power supply, power protection, climate control and security may be set here. The result is a professionally planned IT infrastructure which may be output in an IT room plan (graphic). Individual product selections may also be made. Naturally, the software also shows all detailed parts lists. Based on this information, individual quotes with RimatriX5 products may be requested and executed.

The parts lists may be individually modified and adjusted retrospectively. Another highlight is the interface to the RiWatchIT software. The IT room plan (graphic) and the generated parts lists may be processed in the remote management software. In this way, a central management system is directly available for the RimatriX5 IT system.

The software is designed to be bilingual (English/German). Projects may be saved, modified and loaded. The system is scalable and hence extendible. Small IT applications as well as medium-sized and large computer centres may be planned using this software.



RiGetIT	Model No. DK
CD-ROM	7320.901

#### The advantages at a glance:

- Design of the climate control of the IT infrastructure.
- Design of the UPS systems.
- Design of the power distribution.
- Design of the security systems.
- IT rack configurator with plausibility checks.
- Technical information about the products.
- Technical data sheets on the products.
- TCO calculations
- Product catalogue
- Graphical output of the IT room
- Parts list for different projects.
- Interface to the remote management software RiWatchIT.

#### System requirements (minimum):

Windows XP/2000  
Internet Explorer Version 6.0  
Processor Pentium III  
Memory space required: 50 MB  
CD drive

By purchasing the RiGetIT software, you will regularly receive update versions with information.

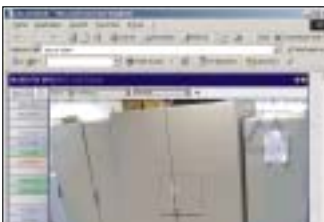


### RiWatchIT

#### the RimatriX5 remote management software

The RiWatchIT software is the Rittal monitoring software for RimatriX5. It operates in conjunction with the configuration software RiGetIT. From RiGetIT, you receive a graphical representation of the IT room with monitoring function data integrated into the individual rack/UPS/power/climate control systems. From this transfer information, the RiWatchIT software generates the basis for monitoring visualisation, the graphically depicted room with fixed allocated alarm messages.

In this way, RiWatchIT ensures that the user always has an overview of alarm management. Any current malfunctions are automatically displayed in the view of the IT room. RiWatchIT is a network management system that has been tailored to RimatriX5. Data exchange occurs in the Ethernet network via Simple Network Management Protocol SNMP.



#### Benefits and functions:

- Trap alarm message system.
- Storage of the alarms in a log file.
- Traps may be forwarded to superordinate NMS.
- In the event of an alarm, an e-mail is sent via Simple Mail Transfer Protocol SMTP.
- Monitoring and display of the status of the extinguisher systems, UPS, power distribution, climate control systems, fan speed, access systems, rack security etc.
- Setting of monitoring levels and limits.
- Graphical representation of temperature/humidity development, with the data recorded in log files.
- Preventive maintenance analysis system for hardware components.
- Auto-discovery function for simple set-up of the system.
- Incorporated video images from the IT room with archive function.
- Open to operating systems via Java (Windows/Linux).

#### System requirements (minimum):

The Java Runtime Environment JRE 1.4.1 (or higher version) must be installed on the relevant PC system. Java may be downloaded from the Internet at [www.sun.com](http://www.sun.com).

#### Note:

The software is available free of charge from the Internet at:

[www.rittal.com](http://www.rittal.com), [www.cmc-tc.com](http://www.cmc-tc.com)





### Your benefits

- Increased system availability thanks to optimum hotline and response times
- Maximization of operating times
- Extended service life for your IT investments thanks to regular maintenance, which in turn improves profitability
- Reduction in TCO (Total Cost of Ownership)
- Cost transparency thanks to calculable servicing costs
- Consistent call tracking, from call recording through to solving the problem

### Our service highlights

- Complete service (planning, installation and repair service)
- Regular preventive maintenance service
- Hardware support, either on-site or via remote access, around-the-clock on request
- Flexible service windows and response times
- Labour, travelling time and wearing parts included (depending on the package)
- Pre-defined safety packs or individual service agreements available

Packages	<b>Package 1: SafetyPack-call</b> This SafetyPack variant is distinguished by its flexibility. Costs are only incurred for the actual services used. The service hotline is at your disposal during defined hotline times. In conjunction with a response time of just 2 working days, this is a basic variant of the SafetyPack.	<b>Package 2: SafetyPack-pro</b> Play it safe with the SafetyPack-pro. This variant includes all the same services as the SafetyPack-call at an attractive fixed-rate price. Additionally, this package also contains all travelling time and labour, as well as one preventive maintenance visit per year, and therefore offers flexible basic protection.	<b>Package 3: SafetyPack-exclusive</b> With a significantly shorter response time of just 24 hours during regular business hours, you can increase the availability of your IT infrastructure several times over. Both the costs incurred for this and the cost of the hotline provided, as well as travelling time and labour, are already included in the price. In addition, this package includes one preventive maintenance visit per year.	<b>Package 4: SafetyPack-premium</b> The SafetyPack-premium is our "all-round carefree package", covering every eventuality. An additional 24 x 7 telephone hotline, combined with the shortest response times of up to 4 hours, 365 days a year, with pre-included replacement of wearing parts, are among the distinguishing features of our top service package. Every conceivable requirement is met – for perfect, all-round protection.
Model No.	7960.510	7960.520	7960.530	7960.540
<b>Hotline times</b>				
Regular working hours (8.00 a.m. – 5.00 p.m.)		■		–
24 x 7 telephone hotline		–		■
<b>Response time</b>				
48 hours, within regular business hours (8.00 a.m. – 5.00 p.m.)	■			–
24 hours, within regular business hours (8.00 a.m. – 5.00 p.m.)	–		■	–
Up to 4 hours <sup>1)</sup> ; 24 x 7 (including Sundays and public holidays)		–		■
<b>Pro-active maintenance</b>				
1 maintenance/year included	–		■	
<b>Parts management</b>				
Wearing parts included		–		■
<b>Other</b>				
Labour and travelling time included	–		■	
Contract term: 2 years			■	

<sup>1)</sup> By arrangement

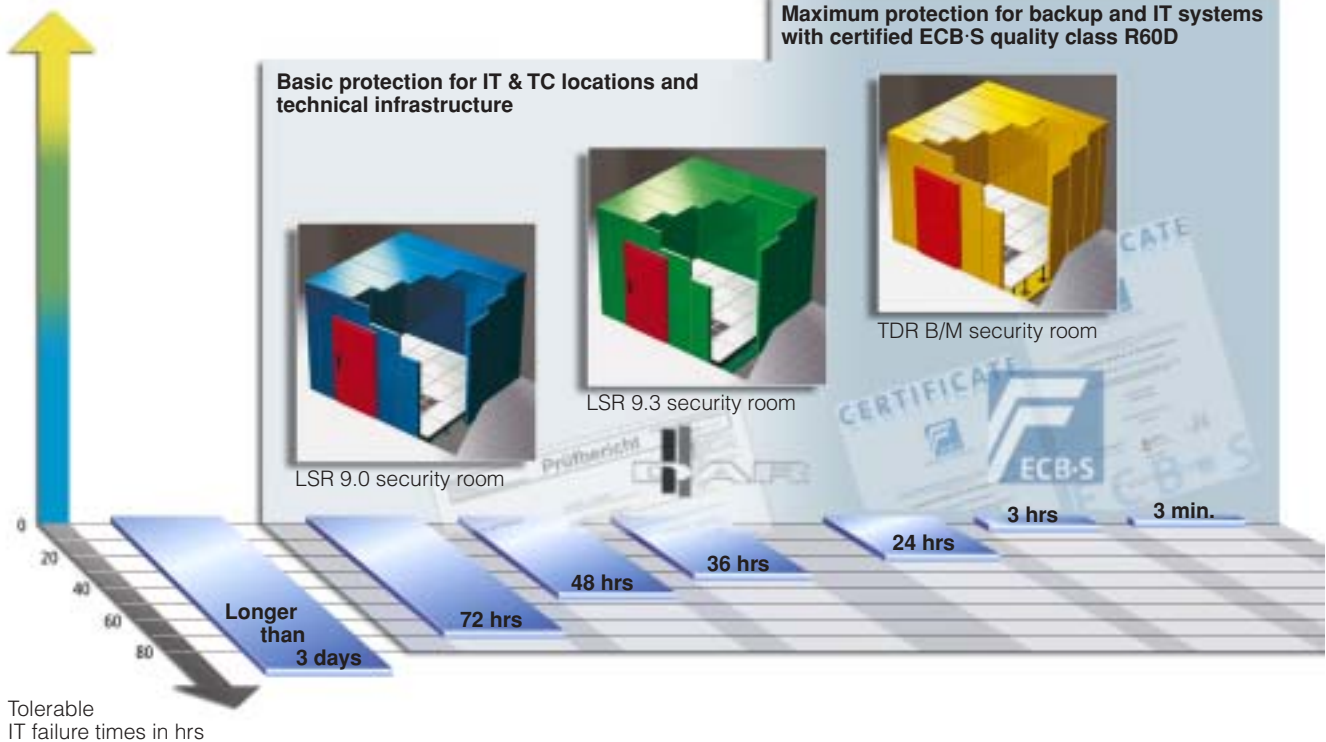
A detailed description of the services offered by the individual service packs can be found on the Internet at [www.rittal.com](http://www.rittal.com) or directly at [www.RimatriX5.de](http://www.RimatriX5.de).

**Note: Please check availability for the country of the installation.**

# IT security rooms from Lampertz

## Security Rooms – From basic protection to maximum IT protection

Protection requirements/availability



### Eliminate weak points in your IT systems!

Holistic, scalable and efficient system solutions for maximum IT security. Within the Friedhelm Loh Group, we consistently exploit synergies to benefit our customers. Take, for example, the cooperation between Rittal and Lampertz.

Lampertz offers protection against potential elementary threats from the physical environment: From basic protection to BSI (Germany National Security Agency) standard through to ECB-S (European Certification Board Security System)-certified high availability against fire, conflagration gases, water, dust, falling debris, explosions and unauthorized access.

### Complete infrastructure solutions

We supply modular infrastructure solutions and computer centres – everything from a single source, from planning through to turnkey installation. A fail-safe computer centre from Lampertz includes the following:

- Power supply
- Climate control
- Uninterruptible power supply (UPS)
- Early fire detection
- Fire alarm and extinguisher systems
- Double installation base in the room
- Cable management and cable shielding
- Access monitoring
- Room monitoring
- Alarm sequence concepts
- Water warning system
- Remote monitoring
- Video monitoring

### Our IT security rooms are:

- Extendible and refittable on a modular basis
- Configurable for individual or local requirements
- Available in various standards, depending on individual requirements
- The only building-independent IT security room available for rent or lease
- Configurable, from the standard "off the shelf" solution to the customised version in any required size.



Fire



Water



Corrosive gases



Electromagnetic fields



Unauthorised access



Vandalism



Falling debris



Explosion



Dust

More detailed information may be found at [www.lampertz.com](http://www.lampertz.com)



**Lampertz**

# List of model numbers

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2092.200	81	3301.730	102	7016.130	77	7159.035	77	7320.530	107	7552.030	55
2092.300	81	3301.740	102	7051.000	72	7161.000	72	7320.540	107	7552.040	55
2092.500	81	3301.750	102	7061.000	72	7161.700	72	7320.550	108	7552.100	53
2093.200	81	3301.760	102	7063.000	80	7163.500	72	7320.560	108	7552.200	56
2094.200	81	3301.770	102	7063.100	80	7163.550	72	7320.570	107	7552.201	57
2094.300	81	3301.780	102	7063.102	80	7163.560	72	7320.580	108	7552.202	57
2094.500	81	3301.810	102	7063.110	80	7163.565	72	7320.590	108	7552.203	57
2099.500	81	3301.820	102	7063.120	80	7164.035	67	7320.600	108	7552.204	57
2102.180	98	3383.100	95	7063.130	80	7165.035	67	7320.610	108	7552.212	56
2102.190	98	3383.110	95	7063.300	80	7166.035	67	7320.620	108	7552.213	56
2102.320	98	3383.140	95	7063.400	80	7166.735	67	7320.630	107	7552.220	57
2102.400	98	3383.500	95	7063.500	80	7183.100	70	7320.700	109	7552.310	57
2102.410	98	3383.510	95	7063.600	80	7183.205	69	7320.710	109	7552.320	57
2102.490	98	3383.540	95	7063.700	80	7183.215	69	7320.721	109	7552.330	57
2368.010	108	3384.100	96	7063.710	71	7184.035	67	7320.730	109	7610.000	76
2372.000	108	3384.110	96	7063.720	71	7185.035	67	7320.740	108	7611.000	76
2422.000	65	3384.140	96	7063.835	69	7186.035	67	7320.750	109	7696.000	79
2423.000	65	3384.500	96	7063.837	69	7186.735	67	7320.760	109	7697.000	79
2467.000	64	3384.510	96	7063.850	80	7200.001	84	7320.770	109	7698.000	79
2468.000	64	3384.540	96	7063.858	71	7200.210	58, 107	7320.810	110	7752.950	72
2469.000	64	3385.100	96	7063.860	71	7200.211	107	7320.811	110	7766.500	97
2486.500	66	3385.110	96	7063.878	80	7200.213	107	7320.812	110	7766.520	97
2487.000	66	3385.140	96	7063.880	80	7200.214	107	7320.813	110	7766.522	97
2488.000	66	3385.500	96	7063.884	80	7200.215	107	7320.814	107, 110	7794.210	69
2489.000	66	3385.510	96	7063.888	81	7200.221	107	7320.820	105	7794.220	69
2489.500	66	3385.540	96	7063.890	71	7200.371	109	7320.830	105	7794.330	79
2504.000	66	3636.010	72	7063.891	71	7200.372	109	7320.900	109	7816.120	61
2504.500	66	3861.580	71	7063.895	69	7200.420	107	7320.901	113	7816.129	61
2504.800	66	4103.350	73	7063.897	69	7200.430	107	7320.910	109	7816.189	61
2507.100	74	4103.600	73	7064.000	72	7200.440	107	7320.920	109	7816.200	61
2507.200	74	4127.000	74	7065.000	72	7200.450	107	7320.930	109	7816.209	61
2507.300	74	4127.200	74	7066.000	72	7200.490	108	7320.950	109	7816.220	61
2507.400	74	4138.140	73	7066.700	72	7200.520	108	7320.960	109	7816.229	61
2507.500	74	4138.150	73	7067.100	62	7200.615	109	7320.961	109	7816.360	63
2597.000	75	4138.180	73	7067.200	62	7200.616	109	7320.962	109	7816.362	63
2817.000	60	4138.190	73	7072.220	75	7200.630	108	7320.963	109	7816.380	63
3114.024	99	4138.300	73	7072.230	75	7200.800	63	7320.971	111	7816.382	63
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