# Rittal Electronic Systems

## the complete know-how

We create reliable systems.

FRIEDHELM LOH GROUP

When there are no barriers
to performance,

# one thing is more important than ever: Reliability.

All Rittal Electronic Systems products are systematically and precision-tested in our own internationally accredited quality assurance laboratories.

**Rittal's Electronics Division**
**Reliable solutions depend on expertise in every detail, be it standard or customised. As one of the leading suppliers in the systems sector, Rittal Electronic Systems meets every requirement in the field of electronic packaging – from the integration of innovative components, through to complete plug & play solutions. For telecommunications, industrial automation, medical, transport and security technology.**

**Perfect implementation, and a global presence**
The result is always the same: a performance which meets market-specific and standard-related requirements as well as individual customer requests. Examples include our complex operational plug & play solutions up to Level 5, developed on the basis of intensive dialogue with customers. Rittal Electronic Systems ensures the required customer proximity worldwide – in every area, from consultancy through to distribution. This is achieved thanks to a global network of production sites, centres of excellency and agencies, coupled with a quality management system which ensures high standards of service and uniform product quality throughout all the world's markets.

**Improving performance, safeguarding a competitive lead**
Getting customer satisfaction also means driving developments forward in the systems sector. Rittal Electronic Systems plays an active role in the principal standardisation bodies. The resultant expertise is channelled directly into our product development. In this way, Rittal Electronic Systems is continuously optimising its range of services to secure you an unbeatable competitive lead.

# When global business demands we are at your

## Centres of excellence:

**A global presence demands perfect organisation and local strength. Rittal Electronic Systems achieves both, thereby combining customer proximity with global service.**

To this end, we use the Rittal worldwide distribution network with more than 150 sales and logistics centres. This guarantees immediate availability for customers, as well as an outstanding maintenance and spare parts service covering all four corners of the globe.
For precise market knowledge and on-site advice tailored to your specific requirements, there are centres of excellence and production sites based at strategically important locations across Europe, Asia and America.

## Europe

**Eckental/Nuremberg (Germany)**
**European centre of excellence and headquarters of Rittal Electronic Systems.**
**Specialising in: mechatronics, development and production of prototypes and low volume.**
Offering comprehensive expert advice to customers, as well as the development, mass production and supply of electronic packaging systems. The state-of-the-art logistics center boasts a perfectly harmonised warehousing system for the entire product range. This site is complemented by its subsidiary Ertop in Joigny (France), where high volumes are produced in the new production center.


**Rittal Electronic Systems: HQ in Eckental, Nuremberg**

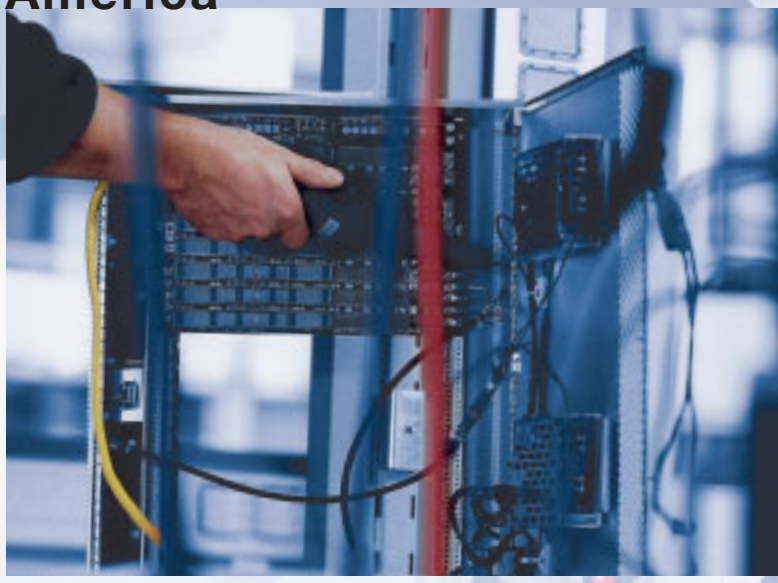
**Rittal Electronic Systems: Centre of excellence at Ertop, Joigny**

# high standards,
# side: Rittal Electronic Systems.

## Asia

**Shanghai (China)**
**Specialising in: Production engineering, production of electronic packaging components.**
A host of Rittal products are manufactured in the high-tech production plant, while complete customised systems are produced in a special integration and assembly centre.
Customer support and central coordination of logistics for the Asia-Pacific market is also controlled from this site.

## America



**Waterloo/Toronto (Canada)**
**Specialising in: The development and production of electronic components.**
The centre of excellence in Canada provides centralised support to customers in North America. Services provided by this plant include the development of system solutions tailored to customer-specific requirements, the mass production of systems, and the production of backplanes for electronic packaging. The subsidiary Jardon Engineering in Tustin/California is responsible for the design and layout of backplanes and PCBs.

**Rittal Electronic Systems: Centre of excellence in Shanghai**


**Rittal Electronic Systems: Centre of excellence at Kaparel, Waterloo/Toronto**

# Where high availability and maximum one thing gives peace

# Telecommunications.

**Requirements.**

There is a growing trend for the standardisation of computing platforms. The benefits include: Cost-effectiveness, maximum availability of 99.999 percent, more flexible design of the components, manufacturer independence, and faster market launches. This requirement profile is met in full by the Advanced Telecom Computing Architecture Standard (ATCA), an advancement of the modular CompactPCI standard. Specially developed for the telecommunications industry, ATCA is sure to impress with its exceptional availability, compatibility, maximum speed, consistent redundancy and high data throughput coupled with a high level of fail-safeness. This affords a high degree of reliability, allowing telecommunications equipment manufacturers to concentrate on their core competencies.

# speed are the yardsticks, of mind: Coordinated system solutions.

## Solutions.

We integrate complete system solutions based on the VME, CompactPCI, ATCA and MicroTCA platforms in order to develop end products such as telephone systems, call logging and charging systems, voice mail or carrier grade applications. The components are combined into a complete plug & play system, including wiring, climate control technology, software integration, power supply and backplane.
A range of application-specific climate control solutions – from direct CPU cooling to effective enclosure cooling – ensure that your electronics function reliably, even with very high power losses.

## Applications.

**Access systems (e.g. VOIP, WIMAX, WIFI)**

**Server applications**

**Switches/Central Office**

## Product spectrum.

AdvancedTCA®
AdvancedMC™
µTCA™

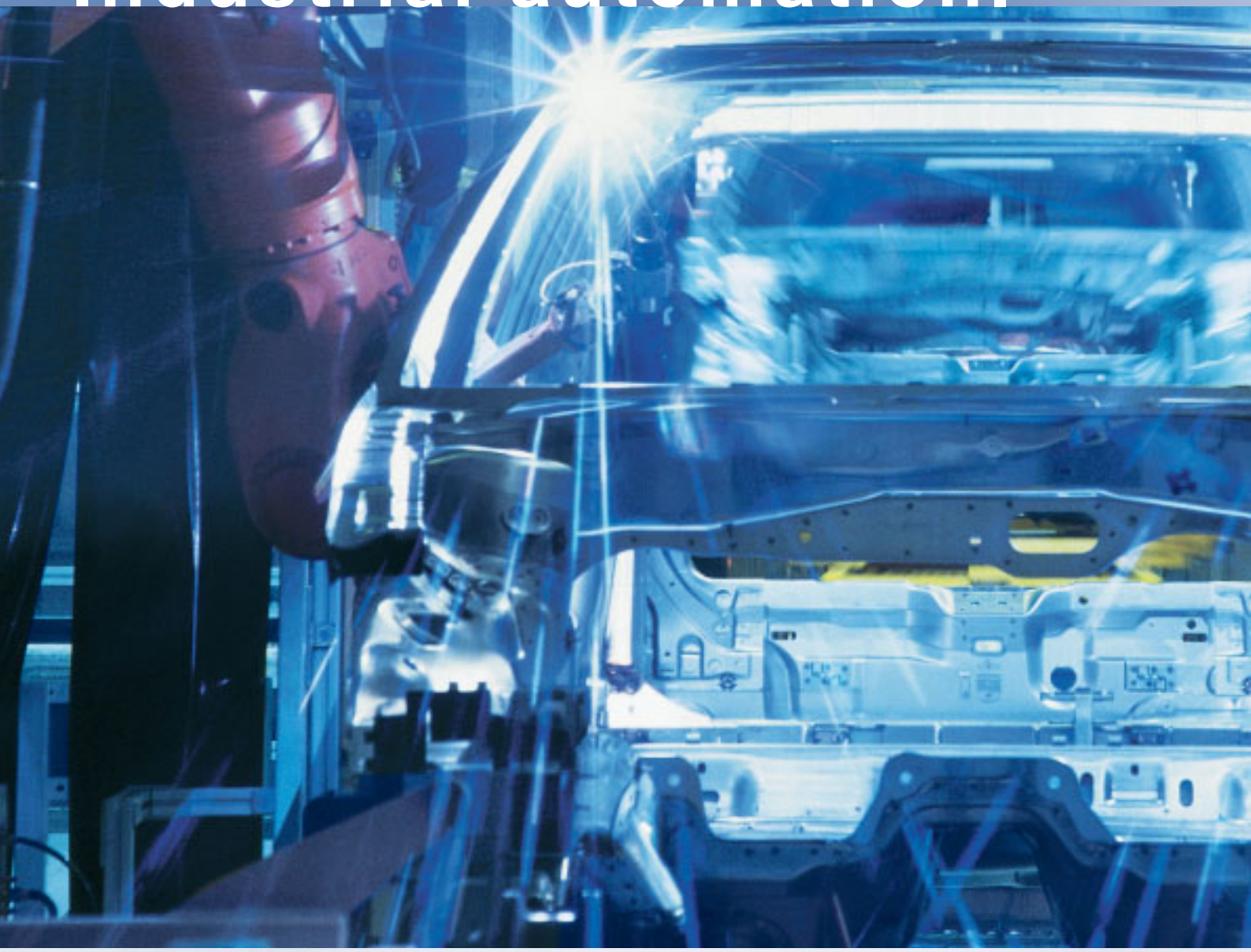
- System solutions for ATCA/MicroTCA, VME and CompactPCI
- System integration up to Level 5
- Complex climate control solutions

## Services.

| ON-SITE SUPPORT AND ADVICE | APPLICATION ENGINEERING | TESTS/CHECKS CERTIFICATIONS | MASS PRODUCTION | GLOBAL LOGISTICS AS KEY SUPPLIER |
|---|---|---|---|---|

# If complexity governs the flexible solutions

# Industrial automation.



**Requirements.**

In process and production automation, the links with information technology and related standards are responsible for the growing complexity of automation solutions. The consequence: Increased requirements e.g. on the real-time response of bus systems in factory automation. A further development is the more widespread use of CompactPCI for control, monitoring and visualisation tasks, alongside the popular VMEbus standard. The demands for flexibility may be high, yet budgets are limited.

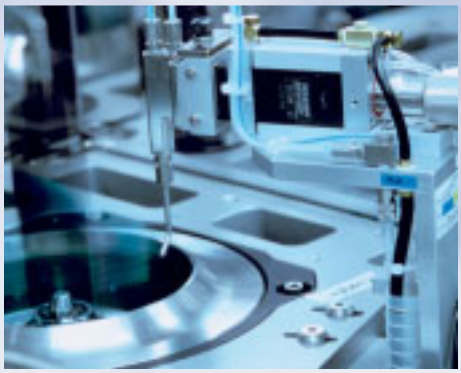
# market,
# are the answer.

## Solutions.

For perfect system integration of VME, VME64x, CompactPCI and future CompactPCI-Express applications, Rittal Electronic Systems offers a range of modular rack-mounted systems which may be configured to suit the respective requirements. The performance spectrum includes: Mechanical systems, backplanes, power packs, EMC measures, wiring, tests and checks, thermal management as well as system surveillance, networking and monitoring.

## Applications.

**Robotics**



**Measurement, open and closed-loop control technology**

## Product spectrum.

- Customised plug & play solutions for VME and CompactPCI
- Industrial PCs
- 482.6 mm (19″) TFTs and keyboards

## Services.

| | | | | |
|---|---|---|---|---|
| ON-SITE SUPPORT AND ADVICE | APPLICATION ENGINEERING | PROTOTYPING | TESTS/CHECKS CERTIFICATIONS | SYSTEM INTEGRATION |

## You need optimum protection. We

# Medical technology.

**Requirements.**

Whether in the recovery room, intensive care ward or operating theatre, all electronics used in the medical sector are subject to demanding requirements. The stringent hygiene and safety provisions, particularly in the intensive care sector, are a key factor. Other considerations include protection from electromagnetic interference (EMI), high thermal loads, caused by escalating data transmission rates and growing data volume requirements, particularly in medical and image-processing information technology.

# offer even more:
# Perfectly integrated system technology.

## Solutions.

Specially developed for use in extreme environments, enclosure solutions from Rittal Electronic Systems provide perfect protection from particles, humidity and electromagnetic interference (EMI) for the installed electronics. As well as ensuring a high level of functional reliability, the enclosure solutions also offer impressive ergonomics, to allow optimum monitoring and operation of the equipment. For reliable heat dissipation, there are innovative climate control solutions available.

## Applications.

**Diagnostics**

**Information technology**

## Product spectrum.

- MPS systems
- Industrial PCs
- Instrument cases for static or mobile use
- 482.6 mm (19″) TFTs and keyboards for ergonomic operation
- Individual climate control solutions

## Services.

| ON-SITE SUPPORT AND ADVICE | APPLICATION ENGINEERING | SMALL/LARGE SERIES | SYSTEM SPECIALISATION | GLOBAL CUSTOMER SERVICE |
|---|---|---|---|---|

# Where every signal is significant, one aspect

# Traffic guidance systems.

**Requirements.**

Traffic guidance systems are directly linked to human safety and the protection of goods. The demands on electronics are correspondingly high; the principal applications include traffic control and information systems. Particularly in the rail sector, resistance to shock and vibration is decisive – the highly sensitive electronics must operate faultlessly even under constant acceleration and permanent vibration.

# is paramount: Safety.

## Solutions.

Rittal Electronic Systems offers an extensive product range for use in the various segments of rail and traffic guidance technology, including the subrack system Ripac Vario-Mobil, microcomputer packaging systems, and complete enclosure systems for indoor and outdoor use. The range of accessories is equally extensive. A formal process is used to ensure optimum implementation of individual customer requirements, from project planning and application engineering, through to the finished product. This enables us to develop customised solutions with a modular design to facilitate optimum adaptation to the specific requirements.
The products used by Rittal Electronic Systems are tested by an independent test institute to EN 50 155 (electronic equipment for rail vehicles) and other standards, and therefore meet the required safety conditions for rail and traffic technology, even under very high stress.

## Applications.

**Railway technology**

**Traffic guidance systems**

## Product spectrum.

- Individual complete solutions for VME, CPCI or MicroTCA
- System integration up to Level 5
- Subracks to EN 50 155
- Indoor and outdoor applications

## Services.

| | | | | |
|---|---|---|---|---|
| **ON-SITE SUPPORT AND ADVICE** | **APPLICATION ENGINEERING** | **SMALL/LARGE SERIES** | **CUSTOMISATION** | **GLOBAL ON-SITE CUSTOMER SERVICE** |

# When it comes to protecting there is only one solution:

# Safety technology.

**Requirements.**

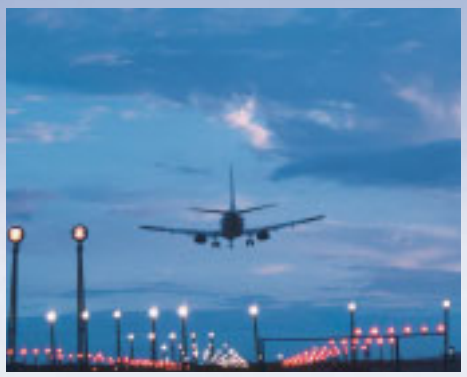
Wherever malfunctions could pose a threat to human life, systems need to be extremely reliable. Alongside the conventional areas of safety technology such as in aviation, building protection and shipping, security solutions for industry and automotive engineering are becoming increasingly significant. In order to ensure optimum protection for every application area, exceptionally high standards of availability, serviceability and safety are maintained during product development.

# human life,
# Customised reliability.

## Solutions.

In dialogue with our customers, we develop customised solutions with an exceptionally high level of safety. This includes monitoring and operating systems for plant and building monitoring, complete plug & play solutions using CompactPCI, VME and AdvancedTCA for control and computer systems, as well as a comprehensive range of enclosure and case solutions for both indoor and outdoor use.
Additionally, reliability is ensured by using our own, certified laboratories with individual climate control concepts and specific tests (EMC protection, splash-proofing etc.).

## Applications.



**Aviation**

**Shipping**

**Building services management**

## Product spectrum.

- Enclosures for indoor or outdoor applications
- Instrument cases
- Monitoring
- System solutions for VME, CPCI or ATCA

## Services.

| | | | | |
|---|---|---|---|---|
| ON-SITE SUPPORT AND ADVICE | APPLICATION ENGINEERING | SMALL/LARGE SERIES | CUSTOMISATION | GLOBAL ON-SITE CUSTOMER SERVICE |

# When we say complete, we mean A complete service

## The optimum

**PROJECT PLANNING** → **APPLICATION ENGINEERING** → **PROTOTYPING**

### PROJECT PLANNING

The first step is to conduct a precise analysis of your requirements based on relevant factors such as location, function and technical status. The resultant overall picture provides the basis for sound advice.

### APPLICATION ENGINEERING

You outline your requirements to our application consultants, and we show you ways of achieving them. In order to develop the most efficient solution, we will seek to clarify all key questions relating to systems and components as well as specific market conditions and developments, e.g. in standardisation.

### PROTOTYPING

Once a suitable electronic packaging concept has been agreed with you, we produce a prototype. In intensive consultation with you, any optimisations that may be needed are achieved quickly and in an uncomplicated fashion, and the prototype is then completed to your precise requirements.

# complete:
# up to Level 5. From Rittal.

# service process

**TESTS/ CHECKS** → **MASS PRODUCTION** → **AFTER-SALES SERVICE**

### TESTS/CHECKS

At an accredited Rittal testing laboratory, the prototype undergoes a comprehensive series of tests and checks. General requirements such as mechanical load and protection against dust and humidity are tested, together with specific requirements such as extreme climatic conditions or tough industrial environments.
**Your advisor will notify you immediately of the outcome of all these tests and checks. Any emerging optimisation requirements are defined and implemented, then checked by further testing.**

### MASS PRODUCTION

As soon as the prototype has achieved acceptable functional reliability, mass production can commence. Prior to delivery, every sytem undergoes further functional and safety testing in accordance with a pre-defined plan, and is then awarded the test seal which guarantees Rittal quality.

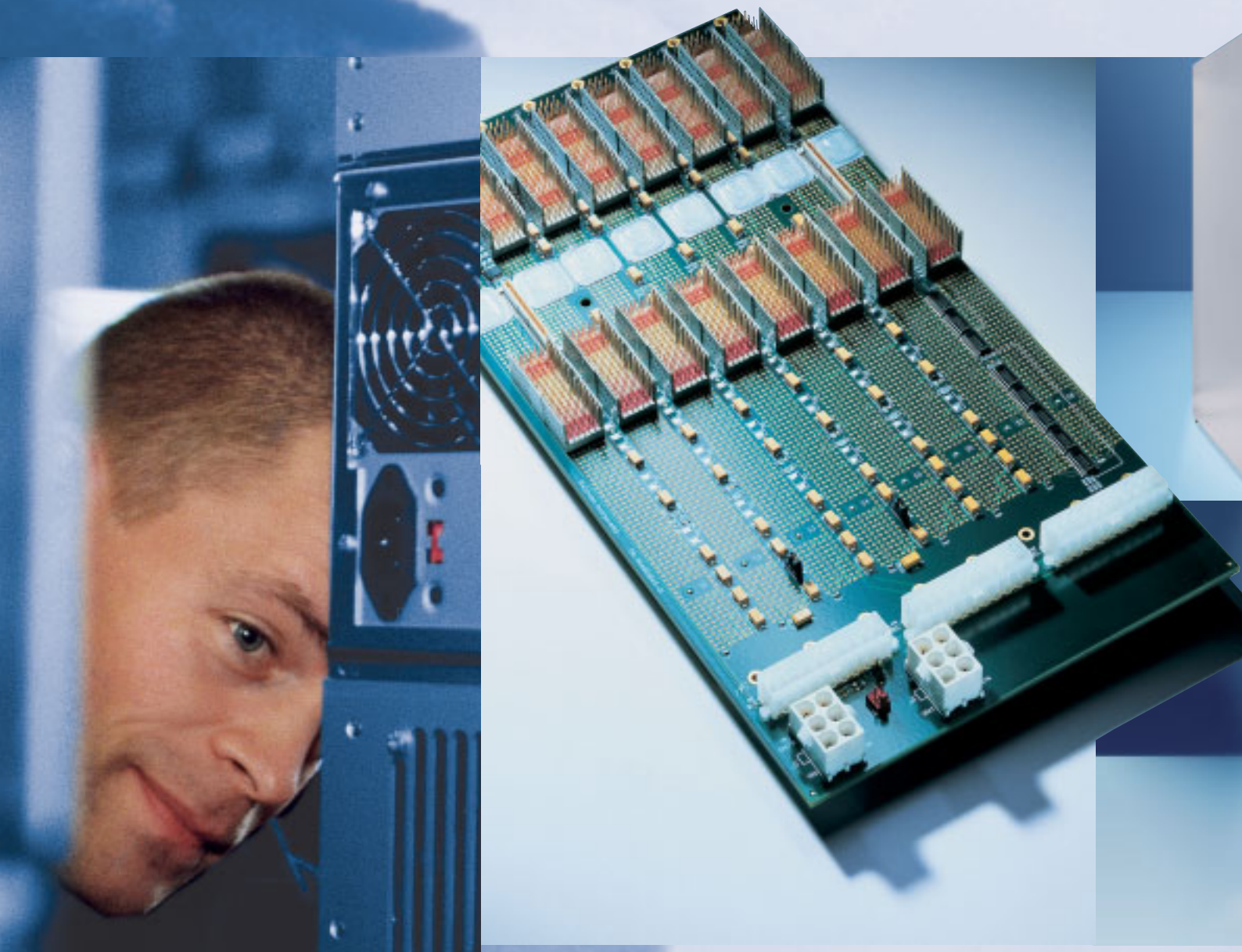
### AFTER-SALES SERVICE

We remain at your service with on-site advice and support in your specific market. This means that you can take advantage of our expertise and receive answers to any questions about the systems we supply – at any time.

### RITTAL ELECTRONIC SYSTEMS INTEGRATION SERVICES

**LEVEL 1:** Components (e.g. guide rails, connectors, etc.)
**LEVEL 2:** Preconfiguration, population (e.g. backplane, subrack etc.)
**LEVEL 3:** Integration, wiring of various components (e. g. MPS including backplane, power pack)
**LEVEL 4:** Level 3 with integral boards, tested
**LEVEL 5:** Level 4 with I/O and application software, tested

# If you expect outstanding quality and the manufacturer, you will



### AdvancedTCA/ MicroTCA/AMC

Architecture for fast, complex communication solutions based on standard modules.
Rittal is actively involved in standardisation and offers an extensive product range, from backplanes to a complete Shelf range, Shelf Management and Advanced Mezzanine Cards.

### MPS systems for CompactPCI and VME

Complete plug & play solutions for VME, CompactPCI and CompactPCI-Express applications up to Level 5. Configured according to customer requirements, including ESD/EMC protection, climate control and coding of board-type plug-in units.

### Backplanes

The complete range of high-speed backplanes for ATCA, VMEbus, CompactPCI and CompactPCI-Express applications.

# unrivalled expertise directly from
# find it here – worldwide.

Reliable components provide the basis for optimum configurations. For their production, Rittal Electronic Systems follows a tried-and-trusted principle: everything from a single source. The products we use in our systems are manufactured by us. To this end, Rittal Electronic Systems also draws on Rittal's extensive expertise which sets standards in innovative manufacturing techniques, as verified by numerous internationally recognised certifications, such as ISO 9001. In this way, Rittal Electronic Systems provides two guarantees for its electronic packaging: A high standard of quality, and modularity. For all application areas.

**Climate control**

Complex climate control solutions protect the sensitive electronics, even with high heat losses. We offer a comprehensive range, from liquid-based board cooling, to system cooling with RiCool blowers, through to system-led enclosure cooling.

**Industrial PCs**

Robust rack-mounted or desk-top enclosure solutions for BTX AT or ATX applications, EMC-ready. Assembled, prewired systems are available, as well as systems for self-assembly.

**Subracks**

Standardised subracks in 5 basic versions, on request fully assembled and wired. Individually configured, EMC-upgradable.

**Instrument cases/ system enclosures**

A comprehensive range of enclosures for measuring, medical, laboratory and safety technology through to EMC-upgradable enclosure solutions suitable for configuration as microcomputer systems with exacting standards of ergonomics and design.

**Monitors, keyboards**

482.6 mm (19˝) TFTs and keyboards for ergonomic operation at the human/machine interface, suitable for installation in cases or enclosures.

# All in all – Solutions from Rittal

**Industrial enclosures**

**Power distribution**

**Electronic packaging**

Microcomputer packaging systems for VME, VME64x, CompactPCI and AdvancedTCA · Subracks · Instrument cases · Industrial PCs · Electronic wall-mounted enclosures Electronic enclosure systems

**System climate control**

**IT solutions**

**Communication systems**

Rittal has one of the largest ranges of enclosures available for immediate delivery. However, Rittal also supplies integrated solutions – up to Level 4. This comprises mechanical installation, power supply, electronic components, climate control and central monitoring.

For all of your requirements. Fully assembled and functional. Wherever in the world you develop and implement solutions for yourself and your customers, we are close at hand. The global alliance between production, distribution and service guarantees closeness to the customer. Worldwide!

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