SIMATIC Rack PC –
flexible, powerful and reliable

Brochure · September 2006

simatic pc

SIMATIC PC – the more industrial PC

With SIMATIC Rack PC, you, as control cabinet and system manufacturers, are offered flexible and highly available industrial PC systems for powerful applications in 19" format.

To optimally accomplish your tasks and meet individual requirements, we offer you two different device classes:

- **SIMATIC Rack PC IL 43 –** maximum performance at an attractive price
- **SIMATIC Rack PC 840 –** maximum expandability with top industrial functionality

SIEMENS

SIMATIC Rack PC –
flexible, powerful and reliable

With SIMATIC Rack PC, you are offered high-quality and reliable industrial PCs in 19" format for horizontal and vertical applications, which are able to accomplish numerous tasks in the long term:

- Measuring, control and regulation of process/ machine sequences
- Visualization of production processes
- Image processing within the scope of quality inspections
- Data acquisition and management, e.g. for recipe management or Internet applications

You can order the SIMATIC Rack PC in various configurations according to your requirements. Our online configurator supports you with the individual selection from a pool of different processors, memory configurations, drive configurations, add-on cards and pre-installed operating systems.

www.siemens.com/ipc-configurator

Ruggedness and improved industrial suitability included

Already the product design meets high requirements in terms of industrial suitability. The SIMATIC Rack PCs are characterized by the following special features:

- Rugged full-metal enclosure with high electromagnetic compatibility (EMC) and integrated industrial power supplies.
- High-quality components and parts with a high MTBF (mean time between failure) as well as overpressure ventilation with temperature-controlled fans and replaceable dust filter increase the service life of all internal components.
- The active cooling concept and optimum component arrangement assure 24-h continuous operation in full configuration with full processor power – without power loss (throttling) – up to the specified maximum ambient temperature during operation.
- High vibration/impact resistance due to special hard disk suspensions, locked plug connectors and retaining card holders.
- Service-friendly device installation and the possibility of laterally mountable extendable telescopic rails for fast replacements in service cases.
- Enclosed restore CD for a fast restoration of the delivery state.

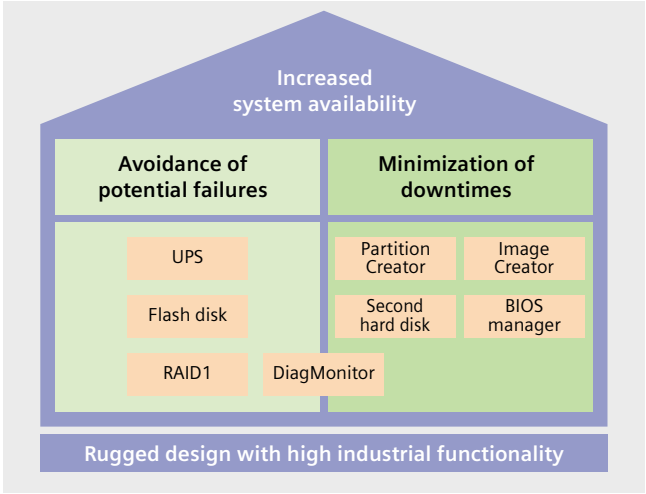
Long-term availability

SIMATIC Rack PC offers innovative PC technologies with a high degree of continuity as the application of long-term available components and motherboards from in-house development and production (Rack 840) stands for secured innovation cycles and long-term availability. Together with the guaranteed spare parts supply of several years, the Rack PCs provide you with a high degree of continuity and investment protection.

Improved system availability

Already in their standard design, SIMATIC Rack PCs are equipped with a high system availability (e.g. due to integrated diagnostics and signaling functions for temperature, fan and watchdog). With perfectly matched hardware and software expansion components, the system availability can be individually increased and accurately adjusted to the respective requirements. For example by:

- RAID1 mirror disk system consisting of a serial ATA-RAID controller and the hot-swap removable frame with which the hard disks can be replaced during ongoing operation.
- Preventive data back-up with a second hard disk and the SIMATIC PC/PG Image Creator.
- Early diagnostics of internal enclosure temperature, fan and program sequence (watchdog) as well as hard disks – locally or via LAN – with the PC diagnostics and signaling software SIMATIC PC DiagMonitor, which transmits error messages to the user via Ethernet, e-mail or SMS or directly to the SIMATIC software via the OPC interface.
- Uninterrupted Masterguard power supplies with 115/230 V AC for non-stop employment even over longer power failures.

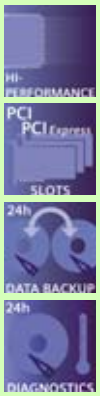


SIMATIC Rack PC –
the two device classes

SIMATIC Rack PC IL 43 – maximum performance at an attractive price

The SIMATIC Rack PC IL 43 is a powerful industrial PC in 19" format (4U) with competitive pricing.

It is perfectly suited for industrial applications requiring maximum PC performance (state-of-the-art) such as, for example, in process control technology, image processing or building automation.



Latest PC technology:

- State-of-the-art Intel technology
- High power and scalability
- PCI and PCI Express slots
- Gigabit Ethernet

Industrial suitability:

- Dust protection
- Service friendliness
- CE marking for industry and office
- Transportation lock for expansion cards

High system availability:

- Monitoring and diagnostics functions
- RAID1 configuration (mirror disks), optionally in hot-swap removable frame

Investment protection:

- Innovation cycle of 15 to 18 months
- Guaranteed spare parts availability of at least 3 years

SIMATIC Rack PC 840 V2 – maximum expandability with top industrial functionality

The SIMATIC Rack PC 840 V2 is a very rugged, scalable industrial PC in 19" format (4U) and offers maximum investment protection due to its outstanding long-term availability.

Under particularly harsh operating conditions, for example at high temperatures and under impact loads, it guarantees a safe operation in industrial environments such as, for example, in production automation or in test and measuring technology.

High industrial suitability:

- Protection against high vibration and impact loads during operation
- High temperature application range
- Dust protection
- High service friendliness

High system availability:

- Monitoring and diagnostics functions
- RAID1 configuration (mirror disks), optionally in hot-swap removable frame

High industrial functionality:

- ISA and PCI slots
- High component flexibility and expandability
- Integrated PROFIBUS DP/MPI interface (optional)

High investment protection:

- In-house developed and produced motherboards
- Innovation cycle of 2.5 to 3 years
- Guaranteed spare parts availability of at least 5 years

SIMATIC Rack PC IL 43 –
maximum performance at an attractive price

Equipped with the latest Intel® processor technology, the Rack PC IL 43 offers the best computing power in the industrial segment at an extremely attractive price while also offering a high scalability.

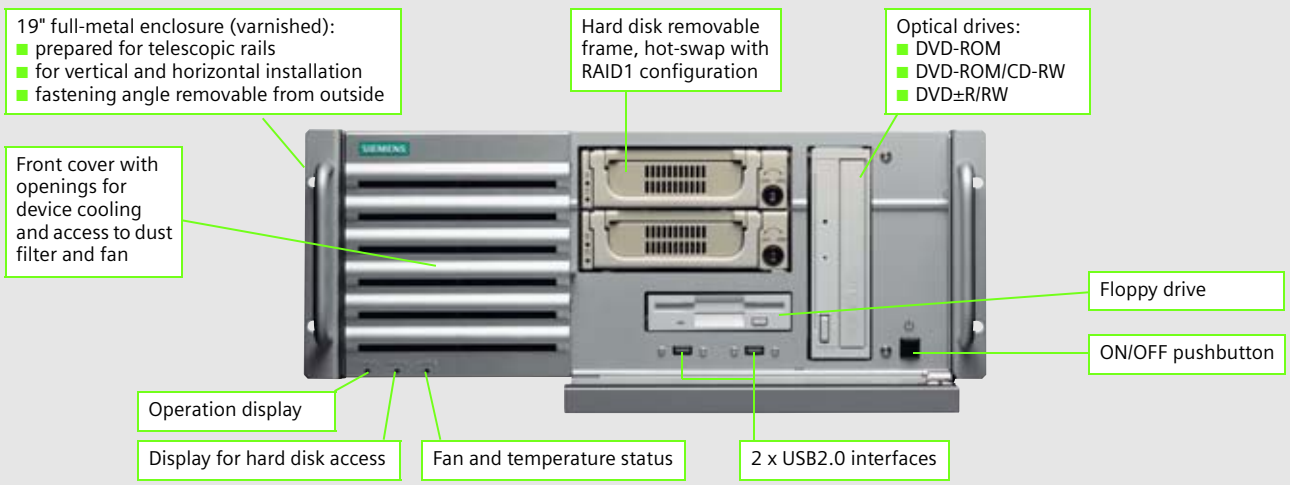
The powerful PCI Express technology facilitates the application of modern expansion cards such as PCIe x16 graphics cards for the connection of two monitors.

The memory configuration in the dual-channel mode and the serial ATA hard disks considerably accelerate the system's response speed. Moreover, the Gigabit Ethernet interface allows a fast transfer of even large data volumes.

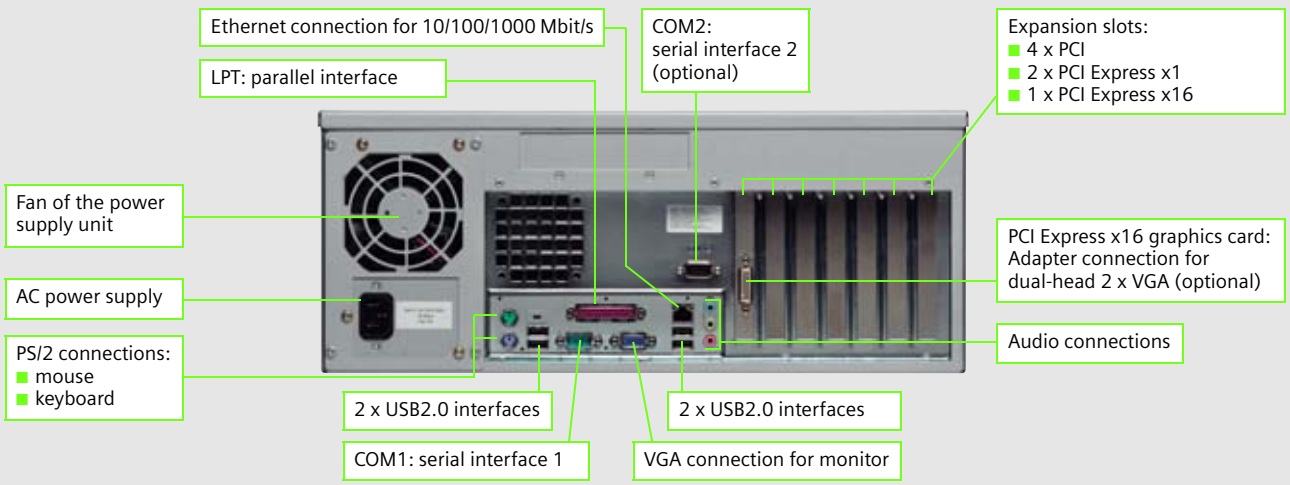
The Rack PC IL 43 offers a reliable 24-h continuous operation at ambient temperatures from 5 to 40 °C.

The SIMATIC Rack PC IL 43 is available as control cabinet device for vertical and horizontal installation and with an optional tower kit for conversion into an industrial workstation or as server in control centers and technical offices.

Front side design



Rear side design



Technical data

	SIMATIC Rack PC IL 43	SIMATIC Rack PC 840 V2
Design	19" rack, 4U • prepared for telescopic rails • for horizontal and vertical installation • 19" fastening angle removable from the outside • tower kit (optional) for conversion to tower PC	19" rack, 4U • prepared for telescopic rails • for horizontal and vertical installation • 19" fastening angle removable from the outside
Processor	• Intel® Pentium® 4 551, 3.4 GHz, 800 MHz FSB, 1024 KB SLC, with HT and EM64 technology; • Intel® Pentium® 4 531, 3.0 GHz, 800 MHz FSB, 1024 KB SLC, with HT and EM64 technology; • Intel® Celeron® D 331, 2.66 GHz, 533 MHz FSB, 256 KB SLC, with EM64 technology	• Intel® Pentium® 4 2.8 GHz, 533 MHz FSB, 512 KB SLC; • Intel® Pentium® 4 2.4 GHz, 533 MHz FSB, 512 KB SLC; • Intel® Pentium® 4 Mobile 2.2 GHz, 400 MHz FSB, 512 KB SLC; • Intel® Celeron® 2.0 GHz, 400 MHz FSB, 128 KB SLC
Main memory	• from 256 MB DDR2 533 SDRAM dual-channel support • upgradeable up to 4 GB	• from 256 MB DDR333 SDRAM • upgradeable up to 2 GB
Free slots for expansions	• PCI: 4 x long • PCI Express x16: 1 x • PCI Express x1: 2 x	• PCI: 5 x long • PCI/ISA (shared): 2 x long • ISA: 3 x long
Graphics	• onboard Intel® GMA950 graphics controller integrated in chipset; dynamic video memory; up to 2048 x 1536 pixels at 75 Hz refresh rate and 16 bit colors • in PCIe x16 slot (optional) PCI Express graphics card (dual-head: 2 x VGA [5]); 64 MB; up to 2048 x 1536 pixels at 75 Hz refresh rate and 32 bit colors	• onboard VIA ProSavage8 graphics controller at AGP bus, integrated in chipset, up to 32 MB, 1280 x 1024 pixels at 100 Hz refresh rate and 32 bit colors
Operating system • incl. in scope of supply, pre-installed & provided on restore DVD	• without • Microsoft® Windows® 2000 Professional MUI [1] • Microsoft® Windows® XP Professional MUI [1] • Microsoft® Windows® Server 2003 incl. 5 client MUI [1]	• without • MS-DOS 6.22 English • Microsoft® Windows® NT German/English • Microsoft® Windows® 2000/XP Professional MUI [1]
• separately available	–	• SICOMP RMOS3 V3.30 realtime operating system
• project-specific	• Linux [6]; others upon request	• Linux [6]; others upon request
Power supply	AC: 120/230 V, 50/60 Hz	AC: 120/230 V, 50/60 Hz
Short-time voltage interruption	max. 16 ms	max. 20 ms (in acc. with NAMUR)
Drives		
Hard disks	Installation internal • 120 GB, SATA • 2 x 120 GB, SATA • RAID1, 2 x 120 GB, SATA (onboard RAID controller) Installation in the front drive holder in removable frame • 120 GB, SATA • 2 x 120 GB, SATA • RAID1, 2 x 120 GB, SATA (onboard RAID controller) [2]	Installation internal [3] • 40 or 80 GB, ATA • 2 x 80 GB, ATA • RAID1, 2 x 120 GB, SATA (RAID-PCI controller) [4] • SCSI, 72 GB or 2 x 72 GB (SCSI-PCI controller) Installation in the front drive holder or in removable frame • 40 or 80 GB, ATA • 2 x 80 GB, ATA • RAID1, 2 x 120 GB, SATA (RAID-PCI controller) [2] [4]
Optical drives	• DVD-ROM • DVD-ROM/CD-RW • DVD ± R/RW	• DVD-ROM • DVD-ROM/CD-RW • DVD ± R/RW
Floppy drive	1.44 MB	1.44 MB
Module slots	6 (internal: 2 x 3.5", front-side: 3 x 5.25", 1 x 3.5")	7 (internal: 2 x 3.5", front-side: 3 x 5.25", 2 x 3.5")
Interfaces		
PROFIBUS/MPI	–	12 Mbit/s (isolated, CP 5611-compat.); optional
Ethernet	10/100/1000 Mbit/s (RJ 45)	10/100 Mbit/s (RJ 45)
USB	• 2 x front-side (high current), USB 2.0 • 4 x rear-side (high current), USB 2.0	• 1 x front-side (high current), USB 2.0 • 2 x rear-side (high current), USB 2.0
Serial	COM1 (V.24); COM2 (V.24) (optional)	COM1 (V.24), COM2 (V.24)
Parallel	LPT1 (EPP/ECP)	LPT1 (EPP/ECP)
VGA	1 x	1 x
Keyboard/mouse	2 x PS/2	2 x PS/2
Audio	1 x line-in; 1 x line-out; 1 x microphone	–

1) MUI (multi-language user interface); 5 languages (Ger/Eng/Fr/Sp/It)
2) Hot-swap removable frame
3) In impact- and vibration-damped drive holder
4) In combination with Microsoft® Windows® 2000/XP Professional
5) Or 2 x DVI (optional)
6) In accordance with the specifications of the Siemens manufacturer declaration "Suitable for Linux"

	SIMATIC Rack PC IL 43	SIMATIC Rack PC 840 V2
Monitoring and diagnostics functions		
Basic functionality	• Temperature, fan, watchdog (local signaling via SystemGuard software)	• Temperature, fan, watchdog (local signaling via SOM Safecard on Motherboard software)
Expanded functionality; local or remote signaling via SIMATIC PC DiagMonitor software (optional)	• Temperature, fan, watchdog • Hard disks (SMART) • System/Ethernet monitoring • Hour meter • Communication via Ethernet • SNMP and OPC interface	• Temperature, fan, watchdog • Hard disks (SMART) • System/Ethernet monitoring • Hour meter • Communication via Ethernet • SNMP and OPC interface
Front LEDs	• POWER (PC ON) • HARDDISK (access to hard disk) • STATUS (fan/temperature monitoring)	• POWER (internal power supply available, PC ON) • HARDDISK (access to hard disk) • PROFIBUS/MPI (PROFIBUS status) • WATCHDOG (function/fault indication) • TEMP (temperature status) • ETHERNET (Ethernet status, "heart beat") • FAN (fan speed monitoring)
Ambient conditions		
Degree of protection in acc. with EN 60529	IP30 front-side, IP20 rear-side	IP41 front-side, IP20 rear-side
Protection class	Protection class I in acc. with IEC 61140	Protection class I in acc. with IEC 61140
Vibrations during operation [1) 2)]	20 to 58 Hz: 0.015 mm; 58 to 200 Hz: 2 m/s^2 (approx. 0.2 *g*) in acc. with IEC 60068-2-6	10 to 58 Hz: 0.0375 mm; 58 to 500 Hz: 5 m/s^2 (approx. 0.5 *g*) in acc. with IEC 60068-2-6
Impact during operation [1) 2)]	9,8 m/s^2, 20 ms (approx. 1 *g*) in acc. with IEC 60068-2-27	50 m/s^2, 30 ms (approx. 5 *g*) in acc. with IEC 60068-2-27
Electromagnetic compatibility (EMC): • Emitted interference • Interference resistance to conducted disturbances on supply lines • Interference resistance on signal lines • Interference resistance to static electr. discharge • Interference resistance to high-frequency radiation • Interference resistance to magnetic fields	 EN 55022 class B, FCC class A ± 2 kV (IEC 61000-4-4, burst) ± 1 kV (IEC 61000-4-5, surge symm.) ± 2 kV (IEC 61000-4-5, surge asymm.) ± 1 kV (IEC 61000-4-4, burst, length <10 m) ± 2 kV (IEC 61000-4-5, surge, length >30 m) ± 4 kV, contact discharge (IEC 61000-4-2) ± 8 kV, air discharge (IEC 61000-4-2) 10 V/m 80% AM, 80 MHz to 1 GHz (IEC 61000-4-3) 10 V/m 80% AM, 1.4 GHz and 2 GHz (IEC 61000-4-3) 10 V, 10 kHz to 80 MHz (IEC 61000-4-6) 100 A/m, 50/60 Hz (IEC 61000-4-8)	 EN 55022 class A; FCC class A ± 2 kV (IEC 61000-4-4, burst) ± 1 kV (IEC 61000-4-5, surge symm.) ± 2 kV (IEC 61000-4-5, surge asymm.) ± 1 kV (IEC 61000-4-4, burst, length < 10 m) ± 2 kV (IEC 61000-4-5, surge, length > 30 m) ± 6 kV, contact discharge (IEC 61000-4-2) ± 8 kV, air discharge (IEC 61000-4-2) 10 V/m 80% AM; 80 MHz to 1 GHz (IEC 61000-4-3); 10 V/m 50% ED; 900 MHz and 1.89 GHz (IEC 61000-4-3); 10 V; 9 kHz to 80 MHz (IEC 61000-4-6) 30 A/m, 50/60 Hz (IEC 61000-4-8)
Ambient temperature during operation [4)]	5 to 40 °C	5 to 45 °C, up to 50 °C with Pentium 4 Mobile
Humidity	5 to 80% at 25 °C (no condensation)	5 to 80% at 25 °C (no condensation)
System-tested SIMATIC industrial software		
SIMATIC industrial software [3)]	STEP 7®, WinAC®, WinCC®, SOFTNET®	STEP 7®, WinAC®, ProTool/Pro®, WinCC®, SOFTNET®
Certifications/directives		
Safety standards	EN 60950, UL 60950, CSA C22.2	EN 60950, UL 60950, CSA C22.2
Certifications	cULus (UL 60950)	cULus (UL 60950)
CE mark	Application in office and industrial areas: Emitted interference: EN 61000-6-3 Interference resistance: EN 61000-6-2	Application in office and industrial areas: Emitted interference: EN 61000-6-4 Interference resistance: EN 61000-6-2
EU directives	WEEE / RoHS (as of 05/15/2006) [5)]	WEEE / RoHS (as of 07/01/2006) [5)]
Dimensions and weights		
Installation dimensions (W x H x D in mm)	430 x 177 x 449	430 x 177 x 444
Weight	approx. 19 kg	approx. 19 kg
Body of type order number	6AG4011-2...	6ES7643-7...

1) Restrictions on the operation of optical drives and removable frames
2) Specification for complete device
3) In compliance with the permitted system configuration
4) At full processor power (without throttling)
5) Scheduled conversion dates, given the required components are available on the market in time.

Subject to technical changes/improvements

SIMATIC Rack PC 840 V2 –
maximum expandability with top industrial functionality

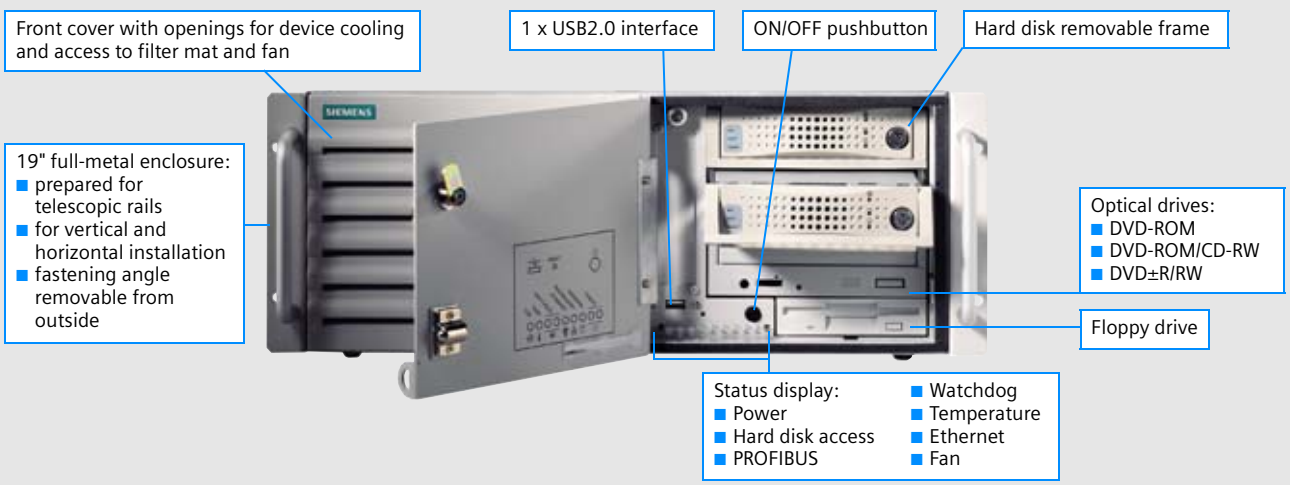
Especially under harsh operating conditions in industrial environments, the SIMATIC Rack PC 840 V2 offers a safe PC platform for machine-level applications due to its distinctive ruggedness.

Interfaces with reinforced gold plating and an especially developed motherboard concept for an ideal cooling airflow guarantee a safe continuous operation at ambient temperatures from 5 to 50 °C.

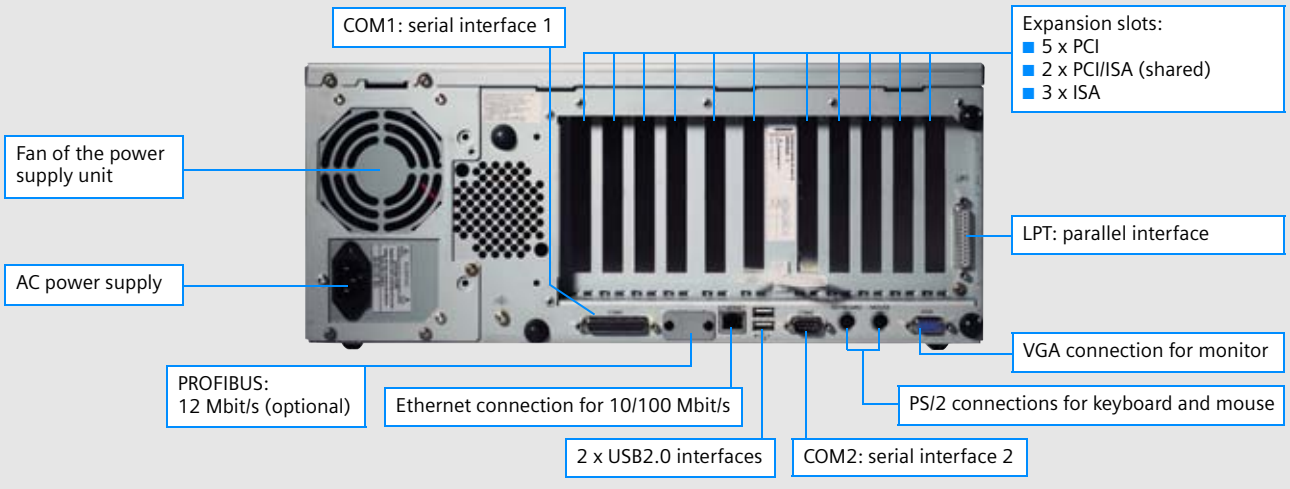
Up to 10 free PCI/ISA slots for the installation of long expansion cards as well as the integrated PROFIBUS interface serving the cost-favorable connection of distributed field devices or couplings to SIMATIC S7 offer a high degree of application flexibility.

Long-term available PC components and motherboards from in-house development and production guarantee an innovation cycle from 2.5 to 3 years. In combination with ISA slots, operating systems such as Windows NT and a guaranteed spare parts availability of 5 years, the Rack PC 840 reliably minimizes the overall costs over a long period of time (total cost of ownership).

Front side design



Rear side design



SIMATIC Rack PC
The right decision

More quality and safety

Due to their long service life and high availability, the high-quality industrial PCs substantially contribute to the prevention of costly machine downtimes. This is assured by particularly complex quality controls as well as system and load tests during the development and production stages. Within the scope of additional system/integration tests, we check the devices' smooth functioning when connected to other SIMATIC components. Furthermore, the CE certification for industrial applications makes laborious tests for quality assurance by the users unnecessary.

RoHS

To us, quality also includes the supply of environmentally-compatible devices in accordance with the WEEE and RoHS directives (as per 07/01/2006)* – our powerful Rack PC IL 43 already as of 05/15/2006*.

And with original SIMATIC PC accessories such as the SIMATIC PC keyboard, the SIMATIC PC USB Flash-Drive or the SIMATIC PC BIOS Manager, you are optimally equipped for your automation solutions as they combine design and comfort with the ruggedness of industrial devices.

Order further brochures on the subject of SIMATIC at:
www.siemens.com/simatic/printmaterial

Your local SIMATIC partners for personal assistance are listed at:
www.siemens.com/automation/partner

Via the A&D Mall, you can directly place your order electronically via the Internet:
www.siemens.com/automation/mall

Global service and support

Whether important technical documentations, detailed FAQs, tools and downloads or newsletters – we provide fast 24/7 help and support via the Internet by offering you our comprehensive know-how from all sectors and industrial areas.
In service cases, the PED online service tool (Product Equipment Data) rapidly provides you with information on equipment and suitable spare parts worldwide. This saves time and money.
www.siemens.com/ped

The SIMATIC hotline is available 24 hours on 365 days a year. Our technicians have experience in the fields of development, system commissioning as well as system tests and also consult our development and production departments for solving your problem.

Siemens is represented by subsidiaries in 190 countries and maintains repair centers for SIMATIC PC in 33 countries. This assures competent support for users – from repair to on-site service. All industrial PCs by Siemens are covered by a warranty of two years and offer a long-term spare parts availability (IL 43: 3 years, Rack PC 840: 5 years).

For accelerated engineering and the planning of PC-based automation projects, our teams of experts based in Cologne, Milan and Shanghai, who closely cooperate with our development and product marketing departments, will be able to competently support you with your requirements in terms of PC-based automation.

**SIMATIC PC –
the more industrial PC**

* Given the required components are available on the market in time.

www.siemens.com/simatic-pc

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