System Processor MERLIN GR 2000/GR 2000 X

Process controller with high computing power for use under extremely severe conditions

The powerful System Processor MERLIN is suitable for use under extremely severe environmental conditions so that it offers reliable operation at temperatures from 0 to 50 °C.

In combination with message handling programs from Rohde & Schwarz and intelligent interface modules the system processor ensures reliable and fast data transmission via a variety of media.

It is compatible with the industry standard and features far more expansion capabilities than conventional industrial PCs.

The EMC shielding allows versatile applications of MERLIN. Even its use in the close vicinity of radio systems and antenna arrays with high field strength is no problem. The rugged construction permits vehicular and shipboard applications.
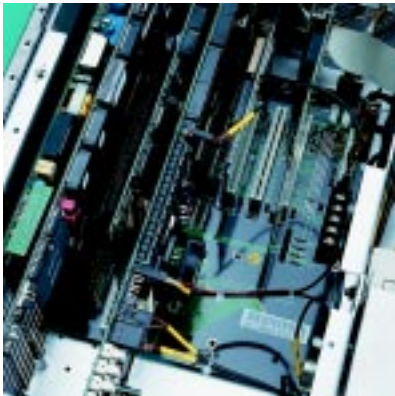
In addition to the high computing power, MERLIN has the following outstanding features:

- Excellent RF shielding
- Extremely rugged construction
- Mounting in 19" standard racks
- High thermal load
- Modular design
- Up to 20 interfaces
- Different standards/methods

ROHDE & SCHWARZ

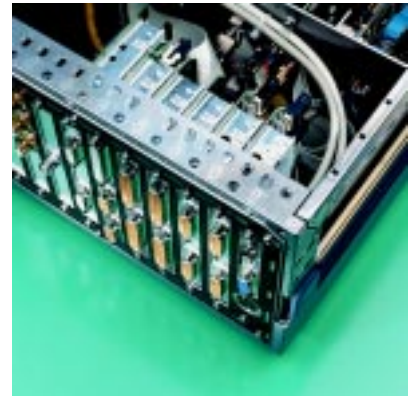# System Processor MERLIN – rugged construction…

Future-oriented design: all there is to do is to change the CPU plug-in card and System Processor MERLIN is again completely in line with the latest state of the art

Full-featured basic model – versatile expansion capabilities

The basic model of MERLIN features the following configuration:

- 32-Mbyte memory, can be expanded to 256 Mbyte
- High-speed PCI VGA graphics card
- Exchangeable hard disk
- 3½" disk drive
- CD-ROM drive
- PCI Ethernet card
- Two serial RS-232 and one parallel Centronics interfaces
- PCMCIA Type III internal + external

Thanks to the modular design and the versatile expansion capabilities the system processor can be tailored to customer's specific application needs.
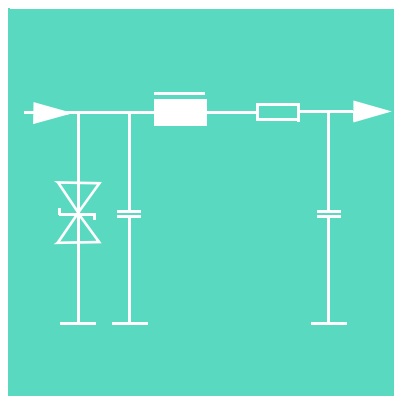
The passive backplane can accommodate up to eight plug-in cards (PCI/ISA). Rohde & Schwarz offers a variety of intelligent interface cards:

- Fax
- Video frame grabber
- Encryption
- Digital voice

The basic configuration provides five additional slots with PCI or ISA bus for further expansion. The modular design allows customized CPU upgrades, making the equipment future-safe.

A choice of universal power supplies is available for System Processor MERLIN. As an alternative to the standard power supply Rohde & Schwarz offers power supply models which satisfy the stringent requirements for use on board ships in line with STANAG 1008. They can withstand high voltage fluctuations and power-line-related spikes of up to 2.5 kV. DC power supplies are of course also available.

All standard keyboards and monitors can be connected. Rohde & Schwarz also supplies special versions for more sophisticated demands.

No chance for RF leakage and pickup: elaborate filter banks at the inputs and outputs of GR 2000 X essentially contribute to the excellent EMC shielding

Excellent EMC shielding – no chance for RF leakage and pickup

High-grade filters at the inputs and outputs of GR 2000 X as well as elaborate shielding measures make MERLIN extremely RF-leakage- and pickup-proof. The shielding is effective both for radiated and conducted interference and allows the system processor to be used even in the immediate vicinity of radio systems and their antennas or other strong interfering sources. On the other hand, the system processor itself does not affect RFI-sensitive equipment. Tempest-qualified and RF-leakage-proof versions are available.

Block diagram of EMC filters in MERLIN GR 2000 X

…yet extremely versatile in practical use

Case and frame withstand extreme environmental conditions

The case is of an extremely sturdy construction. MERLIN can be used even in splashwater environments and – thanks to a pressure cooling system with the air sucked in via filters – in very dusty environments. The frame is reinforced and designed to withstand extremely high mechanical stress. This ensures problem-free operation under extremely high vibration, impact and shock loads. The instrument is available as a bench model or can be incorporated in a 19" rack. The 19" rackmount is especially designed for use in vehicles and on board ships.

Extremely high vibration, impact or shock loads? Dust and splashwater?
No problem for System Processor MERLIN, its rugged case and reinforced frame withstand even the most adverse environmental conditions

Exchangeable hard disk: well-prepared for any eventuality

The exchangeable hard disk features maximum versatility so that any operating system can be loaded simply and quickly. Sensitive data can conveniently be stored in a safe place. Special high-capacity storage media are available for applications subject to extremely high levels of vibration.

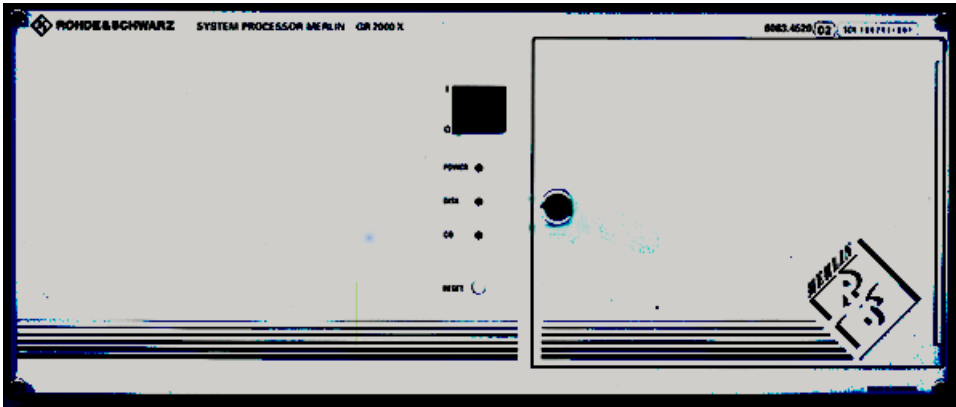## Versatile and flexible in practical use

In conjunction with message handling programs and intelligent interfaces, reliable and fast data transmission can be implemented and combined via external media. HF, VHF/UHF radio links, telephone lines as well as satellite and LAN links can quickly and easily be established. The handling programs support the transmission of fax files and video still pictures and they optimize the use of e-mail networks. Access to different communication networks is thus possible simply from the familiar office environment.

MERLIN has proven itself as a system processor and data terminal in a large variety of applications at a great number of customers. In its function as a data terminal MERLIN is equipped with an ICOM-8 card. This card provides eight serial channels, eases the workload of the CPU through its own processor and also supports the 5-bit teletype mode (Baudot code). It allows more instruments to be simultaneously controlled than a conventional standard PC. MERLIN can thus utilize several media at a time and avoid delays in data transmission.
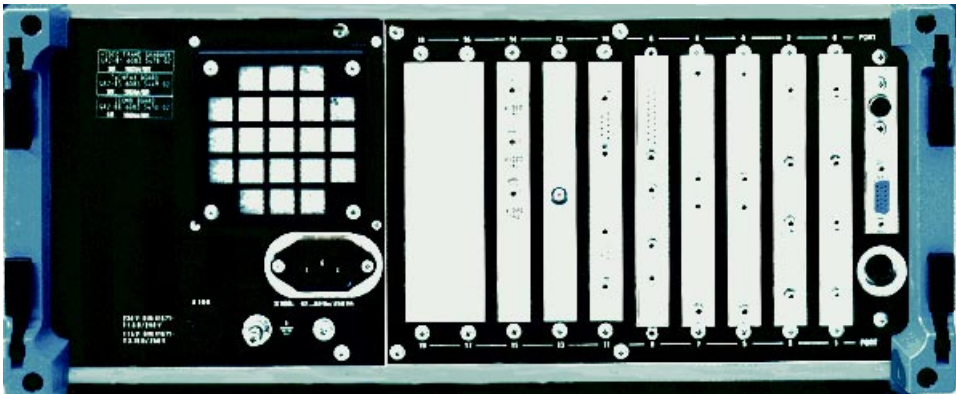

Exchangeable hard disk provided in basic model: convenient loading of other operating systems or storing of sensitive data in a safe place

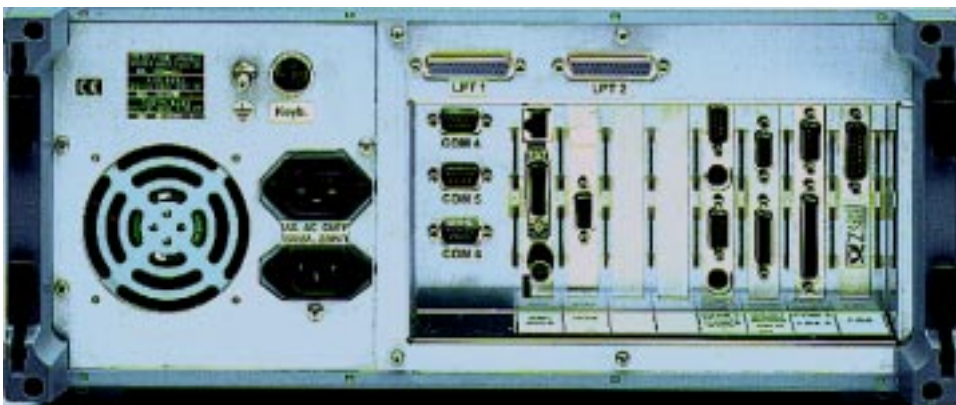# System Processor MERLIN GR 2000 and GR 2000 X

Construction details

Front view of GR 2000 X
and GR 2000

Rear view of GR 2000 X

Rear view of GR 2000

MERLIN GR 2000 and GR 2000 X – Specifications

Basic configuration — GR 2000 and GR 2000 X

CPU	Intel Pentium, 166 MHz
Coprocessor	on chip
Cache	256 Kbyte, L2
HD/FD controller	PCI-IDE on board
RAM	32 Mbyte (can be expanded to 256 Mbyte), PS2
Graphics card	PCI VGA with 2-Mbyte RAM
Drives	3½" floppy disk, 1.44 Mbyte; CD-ROM drive PCMCIA Type III internal + external
Exchangeable hard disk	1.3 Gbyte
I/O interface	2 x serial (SIO 16550), 16 byte (FIFO), 1 x parallel (SPP/ECP/EPP)
Network card	PCI Ethernet, 10 Mbit/s, IEEE 802.3i 10BASE-T
Operation	keyboard, mouse (PS2)
Free slots	PICMG standard: 2 x PCI + 4 x ISA + 1 PCI in line with ISA

Operational reliability

	GR 2000	GR 2000 X
MTBF	>15000 h	>15000 h
MTTR	<0.5 h	<0.5 h
Availability	99.9 %	99.9 %
EMS/EMI	EN 50081-1, EN 50082-1 (CE), EN 61000-3-2	EN 50081-1, EN 50082-1 (CE), EN 61000-3-2, MIL-STD-461C Part 4, Test CE03, RE02, CS01, CS02, CS06, RS03, Tempest version on request
Electrical safety AC supply	EN 60950	EN 60950, STANAG 1008
Electrical safety DC supply	–	EN 60950

General data — GR 2000 and GR 2000 X

Rated temperature range	+5 to +45 °C
Operating temperature range	0 to +50 °C
Storage temperature range	–40 to +70 °C
Cooling	pressure cooling system with easily replaceable air filter
Noise level	42 dB (A) at 1 m from front panel
Max. height above sea level	3000 m
Relative humidity	95 % at 40 °C; without condensation
Protection class	IP 41 on front panel, IP 21 for total unit (EN 60529)
Vibration test	10 to 300 Hz, 0.01g²/Hz and 300 to 500 Hz, 0.003 g²/Hz, each test 30 min and approx. 1.9 g (rms)
Shock test	shock spectrum 0 to 40 g with 45 Hz transition frequency and acceleration of 30 g with a pulse duration of 11 ms, halfsine; in line with VG 95332, severity level 7
Quality management	developed and manufactured in line with ISO 9001
Colour of front panel	light grey RAL 7035

		GR 2000	GR 2000 X
Power supply	AC supply	115 V: 85 to 132 V, 230 V: 180 to 265 V, 47 to 63 Hz	
	DC supply	–	19 to 31 V
Power consumption		44 W	51 W
Dimensions (W x H x D in mm)		435 x 177 x 475	435 x 177 x 590
Weight (basic model)		12.7 kg	17.5 kg

Ordering information

Order designation	System Processor MERLIN	
	GR 2000	GR 2000 X
Basic configuration with:	6084.2520.02	6083.4520.02, additional filters at serial and parallel interfaces
– Intel Pentium (166 MHz)		
– VGA graphics card		
– 32-Mbyte RAM		
– CD-ROM drive		
– 3.5" disk drive (1.44 Mbyte)		
– 1.3-Gbyte hard disk		
– 2 serial and 1 parallel interfaces		
– PS2 mouse		
– Ethernet card		
– AC power supply		
– PCMCIA Type III		

Options		GR 2000	GR 2000 X
Video Frame Grabber Card			
Win3.1x	GR2-B1	6083.5478.02	6083.5478.02
WindowsNT	GR2-B12	6083.6668.02	6083.6668.02
Encryption Card			
ISA	GR2-B2	6083.5561.02	6083.5561.02
PCMCIA	GR2-B2	6083.5561.03	6083.5561.03
4 COM: 4 x RS-232-C	GR2-B4	6084.3040.02	–
with EMC filter	GR2-B3 [1]	–	6083.5510.02
TwinFax Card	GR2-B5	–	6083.5449.02
	GR2-B6	6084.3010.02	–
RSX.25 Interface Card	GR2-B7	–	6083.5710.02
ICOM 8: 4 x RS-232-C and 4 x RS-485 with EMC filter	GR2-B8 [1]	–	6083.5410.02
DC Power Supply (alternative to standard power supply)	GR2-B9	–	6083.6516.02
RAM expansion from			
32 to 128 Mbyte	GR2-B10	6083.6568.03	6083.6568.03
32 to 64 Mbyte	GR2-B11	6083.6616.03	6083.6616.03

Recommended extras

Keyboard:		
Cherry		
English	GR2-K1	6084.3710.02
German	GR2-K2	6084.3762.02
Metal, broad, EMV; IP65		
English	GR2-K3	6083.6768.02
German	GR2-K4	6083.6816.02
Metal, 19" rackmount		
English	GR2-K5	6083.6868.02
German	GR2-K6	6083.6916.02
Display:		
CRT 17", bench model	GR2-D1	6084.3510.02
21", bench model	GR2-D2	6084.3562.02
19", rackmount	GR2-D3	6084.3610.02
TFT	GR2-D4	6084.3662.02

[1]) Simultaneous use of GR2-B3 and GR2-B8 not possible.

Fax Reply

o   **Please send me an offer**

o   **I would like a demonstration**

o   **Please call me**

o   **I would like to receive your free-of-charge CD-ROM catalog**
(including Test&Measurement Products +
Sound and TV Broadcasting)

Others: _____
_____
_____

Name: _____
Company/Department: _____
Position: _____
Address: _____
_____
_____
Country: _____
Telephone: _____
Fax: _____
E-mail: _____

Certified Quality System
ISO 9001
DQS REG. NO 1954-04

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