



FIG 1 R&S®PSL3 front view.

The Industrial Controller R&S®PSL3
 – the first model of the new R&S®PSL
 family – succeeds the R&S®PSM,
 which has been a long-standing
 success in measurement systems.

High requirements

Needless to say, measurement systems need a controller that satisfies a wide variety of requirements. Users want a compact, upgradeable device that can be relied upon to function properly under difficult ambient conditions. Such a controller should feature a future-oriented design to ensure that more powerful processors can be fitted also at a later time. It would need to include all common interfaces and much more. And, last but not least, it should be attractively priced.

Industrial Controller R&S®PSL3

New controller generation provides ideal characteristics for industry

Rohde & Schwarz focused on all these key characteristics when designing a controller generation to meet the interests in industry. The R&S®PSL3 (FIGs 1 and 2) is the first member of this new family and was tailored to deliver these specific requirements.

State-of-the-art design

Controller compliance with the above requirements largely depends on the motherboard used. The core compo-

nent of the R&S®PSL3 is therefore the latest and most powerful version of the front module controller that is already operating in numerous Rohde & Schwarz devices (see box).

Fitted with four PCI and two ISA slots, the modular concept of the R&S®PSL3 is extremely expandable. Mechanical clamps ensure the stability of the horizontally fitting plug-in cards. A 40 Gbyte hard disk, a CD-RW / DVD disk drive and a regular disk drive are standard equipment.

With three height units, the 19" housing can be economically fitted into racks while still being expandable. The R&S®PSL3 requires only about 30 W of the 150 W power supply for its own consumption, thus offering a sufficient power margin for full expandability with plug-in cards.

Extremely reliable operation is a must for industrial controllers. The R&S®PSL3 achieves excellent MTBF because of high-quality controller modules with energy-saving processors as well as a sophisticated cooling concept with a processor fan and a device fan, ensuring low temperature in the controller interior.

Nevertheless, should repair work or a spare part become necessary at any time in the future, this can be quickly dealt with: Since important spare parts such as controller and power supply are also used in numerous other measuring instruments from Rohde & Schwarz, they are available at all Rohde & Schwarz service centers.

Front module controller in the R&S®PSL3

The performance of the R&S®PSL3 is based on the front module controller, a standardized controller printed board used in numerous Rohde & Schwarz instruments, offering a multitude of advantages:

- ◆ Large-scale production, thus favourably priced.
- ◆ High quality and reliability, continuously confirmed in the QM acceptance tests for the numerous new developments by Rohde & Schwarz.
- ◆ Comprehensive inhouse know-how.
- ◆ BIOS changes are possible.
- ◆ Quick service: Front module controllers are available as spare parts in all Rohde & Schwarz service centers.
- ◆ Tried-and-tested printed board layout, EMC-optimized, test points for fault localization, IC- and function-tested.
- ◆ Ready for the future: Front module controllers are continuously developed and expanded by versions with state-of-the-art processors, chipsets and interfaces. The focus is on performance as well as on low power consumption and long availability.

The front module controller was developed exclusively for Rohde & Schwarz by a German company, where it is also manufactured in close cooperation with the Rohde & Schwarz quality management. Front module controllers of one generation are available in different configurations regarding processor, RAM and interfaces; the R&S®PSL3 is always equipped with the most powerful version.

An IEC / IEEE bus controller on the front module controller board supplies the R&S®PSL3 with this interface which is indispensable in T&M. Thus, there is no need for a plug-in card, one slot remains unoccupied and no additional costs will be accrued.

FIG 2 Rear view of the Industrial Controller R&S®PSL3.



► Easy to contact due to numerous interfaces

The R&S®PSL3 interfaces leave virtually nothing to be desired:

- ◆ Two USB controllers provide four USB ports, two of which are located at the front panel.
- ◆ Two independent Ethernet controllers for 10 Mbit/s and 100 Mbit/s permit flexible integration of the industrial controller in fast networks.
- ◆ The IEC / IEEE bus interface is compatible with the quasi industrial standard set by National Instruments (AT-GPIB/TNT) and, since it is integrated in the controller board, does not even occupy a slot.
- ◆ To connect a monitor, the analog VGA standard interface and, for even more brilliant images, the digital DVI interface are used.
- ◆ Last but not least, serial interfaces (COM1 / COM2) and a parallel interface (LPT1), which are still required, are available.

Outstanding EMC characteristics

The outstanding electromagnetic characteristics of the R&S®PSL3 are the result of consistent development coupled with decades of Rohde & Schwarz expertise in EMC. This becomes evident in the layout of the controller board and the internal cabling. Interface signals to the exterior are specially filtered; the disk drives are shielded by metal cages. Such sophistication is the reason for the minimum emission the controller radiates to the outside. Optional control media such as keyboard (R&S®PSL-Z2) and mouse (R&S®PSL-Z10) have been carefully chosen and tested.

Wide software support

The R&S®PSL3 is characterized by a hardware architecture that is 100% compatible with the industrial standard. Thus, there are no problems with

standard operating systems and programs. Another option on offer is the pre-installed Windows XP Embedded (option R&S®PSL-K12), also in combination with LabWindows / CVI (option R&S®PSL-K13). But the controller can also be used as a hardware platform for operating systems such as Linux and specific applications.

Summary

The R&S®PSL3 is a compact, powerful industrial controller. A multitude of interfaces, upgradeability and secure follow-on development constitute a sustainable concept for the future. Excellent EMC characteristics, wide temperature range, robust design and high reliability complete the picture. Owing to the consistent development strategy focusing on the multiple use of important modules, the controller features an excellent price / performance ratio without compromising on the high-quality components.

Gottfried Holzmann

Condensed data of the R&S®PSL3

Processor
Memory

Intel Mobile Pentium III Coppermine, 700 MHz
RAM 256 Mbyte
40 Gbyte hard disk
optional second hard disk with
40 Gbyte (option R&S®PSL-B7)
combined DVD / CD-RW disk drive
floppy disk drive
VGA, DVI
4 × USB
2 × Ethernet 10 Mbit/s / 100 Mbit/s
2 × RS-232-C
1 × Centronics LPT1
1 × IEC / IEEE bus
4 × PCI, 32 bit
2 × ISA, 16 bit
Windows XP Embedded (R&S®PSL-K12)
19", 3 HU
100 V to 240 V, max. 135 W
+5 °C to +45 °C

Interfaces

Slots

Operating system
Mechanical dimensions
Power supply
Operating temperature range

More information and data sheet at
www.rohde-schwarz.com
(search term: PSL3)



Data sheet R&S®PSL3