Industrial Controller PSM

Measurement and control in harsh environments

- Extremely high immunity to interference
- High shock resistance for mobile use
- Wide variety of interfaces: Ethernet, ultra/ultra wide SCSI, 16 bit-GPIB, PC CARD
- Brilliant colour TFT display
- CD ROM drive
- Factory user port
- Windows™ user interface
- Safe investment through modular concept

ROHDE & SCHWARZ

Comprehensive basic configuration

When purchasing a controller, the customer frequently has to buy hardware, software and interfaces from different manufacturers and integrate them into his system. This is not the case with PSM, which has been configured to cater for any demand. All key components are included in the basic unit: the built-in Ethernet interface makes it extremely easy to connect PSM eg to a company network. The state-of-the-art ultra/ultra wide SCSI interface allows adding internal and external SCSI standard components, eg streamers. The 16-bit GPIB interface as well as a large number of serial and parallel ports have always been the standard in PSM, likewise the Factory User Port (FUP), which provides a variety of extra functions (analog input, digital I/O, relays, optocouplers, pulse width modulator) required in automated test procedures. The fast CD ROM drive makes software installations a pleasure.

Switch and go ...

... is the motto of the industrial controllers of the PSM family from Rohde & Schwarz. PSM has it all: a great variety of interfaces, comprehensive software and an interactive documentation system. Making measurements becomes a pleasure with PSM thanks to MS Windows, which is now fully at home in the world of T&M.

Especially when it comes to professional measurements, the controller should not be the weakest member of a system but rather be able to meet special requirements: shock and vibration resistance, particularly when used in vehicles or industrial environment, ultra-low temperature effect, high immunity to interference even in strong electromagnetic fields as well as low self-generated emission so that measurements will not be impaired by fields produced by the controller. Commercial PCs do not fulfill these requirements.
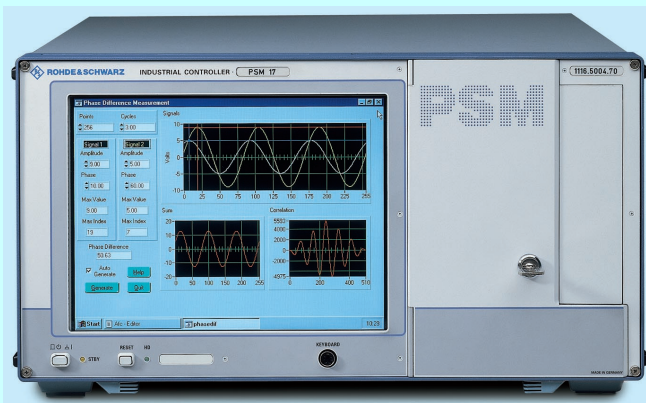
PSM offers ideal characteristics for all key applications: shock resistance in mobile applications, rackability, built-in measurement facilities for use in production and high EM shielding. For mobile applications, a DC input is provided for powering PSM from on-board supplies. The lockable cover of PSM protects the CD ROM drive, floppy disk drive and PC CARD interface against contamination and unauthorized access.

High flexibility

PSM can be tailored to suit specific needs: 4 free 16-bit ISA slots and 3 free PCI slots or alternatively 3 free 16-bit ISA slots and 4 free PCI slots leave ample space for expansion. Additionally, 2 PC CARD slots in the basic unit can be used for further extensions.

The high-performance universal power supply has a separate DC input. This makes PSM ideal also for mobile applications (eg in vehicles).

Your sensitive data under lock and key

Data security through the use of power-up passwords is a matter of course today. PSM takes it even further and "hides" all drives (CD ROM, floppy, PC CARD) behind a lockable cover. This not only enhances passive security but improves electromagnetic compatibility of PSM.

Safe investment thanks to modular concept

The high innovation rate in the computer industry results in short product lives. What is state of the art today, will be at the bottom of the scale tomorrow. The possibility of boosting computer power is therefore of particular importance. This is one of the strong points of PSM. Modules like the CPU and graphics are accommodated on a separate card which can easily be replaced when greater performance is required.

This is important especially for industrial controllers, where the cost of integrated computer functionality makes up only a minor part of total costs, the principal share being attributable to measures taken for compliance with requirements relating to shock and vibration resistance, thermal loading capacity and electromagnetic compatibility.

Brilliance pure

Optimum quality of LC displays is in many cases obtained only for the main viewing angle. The greater the departure from this angle, the more difficult to read the display, and colours change. Not so with PSM: its large 10.4'' colour TFT with standard VGA resolution is state of the art and bears comparison with a picture tube. This does away with the problem of viewing angle.

In conjunction with an external monitor, eg PMC3, a high-resolution graphics mode of up to 1280 x 1024 pixels is available. The 2 Mbyte video memory ensures true depth of shade for SVGA resolution. With 1024 x 768 pixels, 64k colours are displayed flicker-free.
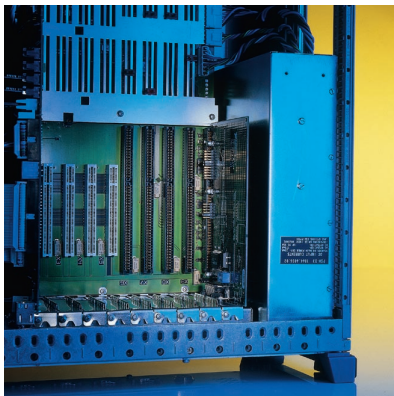
Unlimited memory expansion

Expandability of memories is of particular importance. The standard 32 Mbyte RAM can be expanded to 256 Mbyte. Mass storage can be expanded to practically any size; a modern EIDE hard disk is installed as standard. The integrated SCSI interface allows any kind of SCSI peripherals, eg streamer drives, to be controlled.

A variety of interfaces are included in the basic unit: eg Ethernet, ultra/ultra wideSCSI, 16-bit GPIB. The factory user port adds versatile auxiliary functions

The PC CARD interface provided as standard is particularly suitable for the connection of external interface and memory cards. This interface is a standardized universal bus for which numerous interface modules (eg fax modems) are available in addition to memory cards and hard disks (PSM-B9).

Versatile auxiliary functions

For automating test procedures, control lines are needed which are not available in standard PCs. The digital I/O interfaces, partly isolated via optocouplers, allow external processes to be controlled or analog voltages to be measured without an IEC/IEEE-bus-compatible voltmeter being needed. These interfaces are available as standard in PSM via the factory user port (FUP).

In spite of its great versatility, the FUP is designed so that its functions, eg digital or analog input/output, are easy to operate. Various high-level language drivers are supplied for interface control: the user may choose programming the simple way with BASIC under DOS or with VisualBASIC or C under Windows.
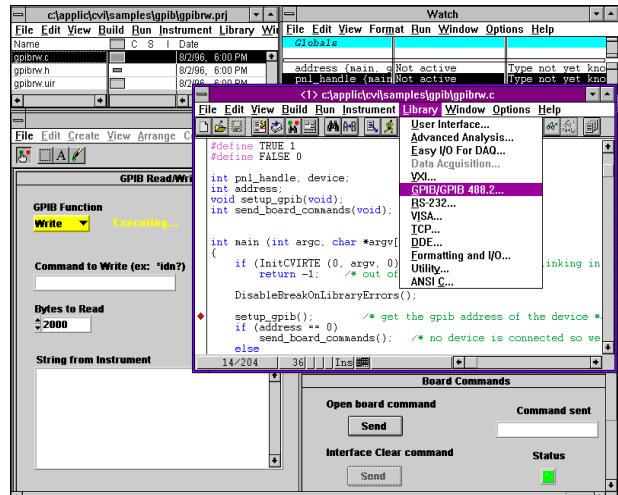

PSM has a well organized interior and, while featuring comprehensive basic configuration, offers plenty of space for extensions

R&S system software

A powerful computer requires a powerful software. The system software not only contains the operating system but also the professional LabWindows/ CVI measurement software. It goes without saying that the software is installed on the hard disk and tailored to the PSM hardware configuration. A CD ROM with all drivers, LabWindows/CVI and utility programs is supplied as a backup.

Important: Select the desired language when placing your order by choosing the appropriate option PSM-K10 (free-of-charge).

Interactive development and rapid testing of test software is a salient feature of LabWindows/CVI

LabWindows/CVI*)

National Instruments' LabWindows/ CVI is an interactive base for the programming of virtual instruments on the PSM and is regarded by most as today's industry standard.

The visual instruments for creating graphic user interfaces are an integral component of the C development environment with which EXE programs and DLL files can be generated.
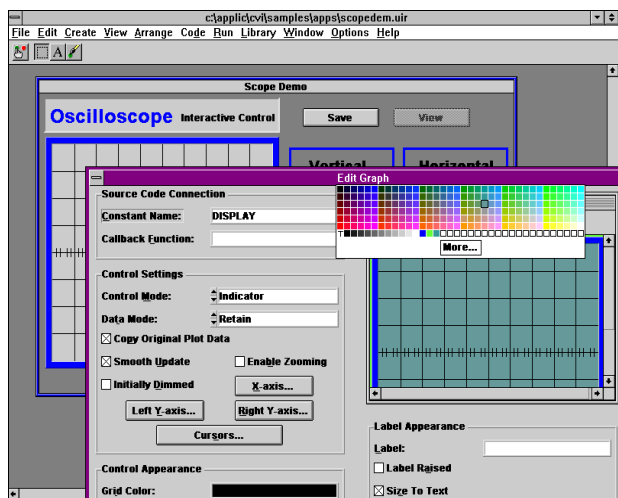
The software is delivered with a selection of drivers and extensive analysis functions. With LabWindows/CVI a C source code can be generated in next to no time, allowing communication with measuring instruments via IEC/ IEEE bus or serial interface.

LabWindows/CVI simplifies the creation of displays, ie virtual instruments. The displayed data come from either a measuring card in the PSM or from an external measuring instrument that is communicated with via the IEC/IEEE bus

Options

TTL I/O Interface PS-B11
The interface extends the control inputs/outputs of the factory user port. PS-B11 offers 40 digital I/O lines, eight single-pole switching relays and four two-pole optocoupler inputs/outputs each that can be read or set just like the FUP by means of the supplied driver software. Eight of these 40 lines can be configured to detect interrupt events.

Analog I/O Interface PS-B13
The interface provides eight differential or 16 unipolar analog inputs as well as two analog outputs, each with a resolution of 16 bits. Signals applied to the inputs can be sampled up to 100,000 times a second, thus covering the entire audio frequency range.

PS-B11 and PS-B13 are supplied with drivers for numerous programming languages such as R&S BASIC, Quick-BASIC, MS-C or VisualBASIC for DOS and Windows. Interfaces are addressed by means of simple instructions.

PC CARD Exchangeable Hard Disk PSM-B9
Exchangeable hard disks simplify data logging and software installation. The handy hard disk is operated via the PC CARD connector on the front of PSM. Thanks to a compact design, the hard disk is particularly shock-proof and therefore ideal for mobile applications.

*) (CVI = **C** for **V**irtual **I**nstrumentation)

Specifications

Processing unit	CPU slot, CPU performance: min. Pentium MMX, 233 MHz; 32 Mbyte RAM (expandable to max. 256 Mbyte)
Display	
PSM 12	none
PSM 17	LCD colour, 10.4″
Mass storage	
Hard disk	1 Gbyte or more
Disk drive	1.44 Mbyte, 3 1/2″
CD ROM drive	11 times or faster
Interfaces	
IEEE	IEEE 488.2, compatible with NI NAT
FUP (factory user port)	8 digital inputs/outputs 4 analog inputs: 0 to 5 V, 10-bit resolution 1 analog output: 0 to 5 V, 8-bit output via pulse width modulator optocouplers: 1 input, 1 output relays: 2 switches, SPS driving
Serial	RS-232, COM1, 2, 3, 4 (16550-compatible)
Parallel	Centronics LPT1 (ECP, EPP), LPT2
PC CARD	release 2.1, type III (slot 1), type II (slot 2)
SCSI	ultra , ultra wide (internal)
Ethernet	10 base T (10 Mbit/s)
Keyboard connector	5-pin DIN connector (on the rear) PS/2 connector (on the front)
Software	
Operating system	MS Windows from version 95 (free-of-charge option) MS Windows NT/3.1x on request
Measurement software	LabWindows/CVI
Graphics	
Video memory	2 Mbyte
Resolution with integrated LCD	VGA standard: 640 x 480 pixels
Resolution for external monitors	max. 1280 x 1024 pixels

General data

Nominal temperature range	+5 to +45°C
Operating temperature range	0 to +50°C
Storage temperature range	–20 to +60°C
Temperature loading capacity	to DIN IEC 68-2-1 and 68-2-2 as well as MIL-T-2800D class 5
Relative humidity	95% at +40°C, to DIN IEC 68-2-3
Mechanical loading	
Sinusoidal vibration	5 to 150 Hz, max. 2 g at 55 Hz, 0.5 g for 55 to 150 Hz, to DIN IEC 68-2-6, EN61010-1/ DIN IEC 1010-1 as well as MIL-T-28800D class 5
Random vibration	10 to 300 Hz, 1.2 g rms, to DIN IEC 68-2-36 and DIN 40046 T24
Shock	40 g shock spectrum, to DIN IEC 68-2-27, MIL-STD-810D, method 516.3 and MIL-T-28800D class 3 and 5
Electromagnetic compatibility	complies with EMC directive of EU
Standards complied with	EN 55022: 1994, class B EN 61000-3-2: 1995 EN 50081-1: 1992 EN 50082-2: 1992
Safety	safety class 1 to DIN VDE 106 and safety class 1 to IEC 536
Standards complied with	NSR directive of EU EN 61010-1/IEC1010-1: 1993 EN 60950/VDE 805/IEC950: 1992
Quality standard	designed and manufactured to ISO 9001
Power supply	
AC	100 to 120 V ±10%, 50 to 400 Hz ±5%, max. 4 A, 200 to 240 V ±10%, 50 to 60 Hz ±5%, max. 2 A
DC	10 to 28 V
Dimensions (W x H x D)	435 mm x 236 mm x 460 mm
Weight PSM12/PSM17	approx. 13 kg/14 kg

Ordering information

Order designation	Pentium Industrial Controller	
PSM12	1116.5004.20	
PSM17	1116.5004.70	
Please state desired option PSM-K10 in your order.		
Accessories supplied	pocket guide, power cable, LabWindows/CVI for Rohde&Schwarz	

Options		
Interfaces		
2nd IEC/IEEE Bus		
(AT-GPIB, 488.2)	PS-B4	1006.6207.04
TTL I/O Interface	PS-B11	
40 I/O ports, 8 relays, 8 optocouplers, 3 timers		1006.7303.02
without relays, optocouplers, timers		1006.7303.04
Analog I/O Interface	PS-B13	1006.6859.02
Memories		
PC CARD Exchangeable Hard Disk		
260 Mbyte (or more)	PSM-B9	1064.5700.02
32 Mbyte Memory Expansion	PSM-B2	1064.5880.04
Software (free-of-charge option)		
R&S System Software, Windows 95, German	PSM-K10 *)	1116.7507.31
R&S System Software, Windows 95, English	PSM-K10 *)	1116.7507.32
Keyboards		
Rack-attachable Special Keyboard (English) with rollkey	PSA-Z1	1009.5001.32
Standard Keyboard (English)	PSA-Z2	1007.3001.32
Mouse	PS-B1	1006.6359.02
Pinwriter (24 pins,		
with graphics capabilities)	PDN	0351.4512.04
Monochrome Ribbon	PDN-Z2	0399.0917.03
Colour Ribbon	PDN-Z3	0399.1013.03
14″ Colour Monitor	PMC1	1008.3005.03
17″ Colour Monitor	PMC3	1082.6004.03
15″ Industrial Monitor	PMC4	1034.8000.03
IEC/IEEE-Bus Cable	PCK	
0.5 m		0292.2013.05
1 m		0292.2013.10
2 m		0292.2013.20
4 m		0292.2013.40
Others		
19″ Adapter	ZZA-95	0396.4911.00
Transit Case	ZZK-954	1013.9395.00

*) Factory-installed only
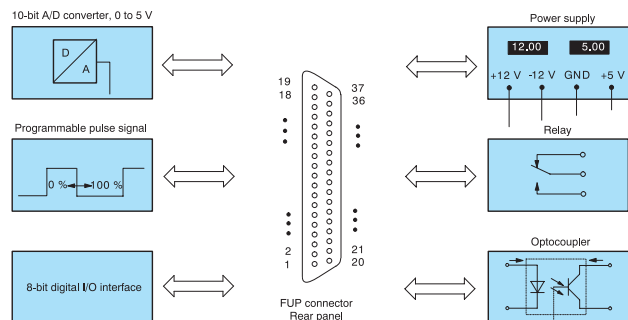
The factory user port (FUP) offers a variety of versatile auxiliary functions

Fax Reply (PSM)

❏ **Please send me an offer**

❏ **I would like a demo**

❏ **Please call me**

❏ **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: _____
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Country: _____
Telephone: _____
Fax: _____
E-mail: _____

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