



Version
02.00

September
2003

Open Test Platform R&S® CompactTSVP

Automotive & Communication Test Solutions

- ◆ CompactPCI backplane conforming to PICMG 2.0 Rev. 3.0 specification
- ◆ Rear I/O support for easy system cabling (IEEE 1101.11-1998)
- ◆ Supports two PICMG 47-pin redundant power supplies
- ◆ Front plug-in power supply unit for easy maintenance
- ◆ Supports 14 peripheral slots for versatile instrumentation
- ◆ Sophisticated analog measurement bus subsystem
- ◆ Common diagnostic features for all instrumentation modules
- ◆ Internal analog and trigger bus providing PXI functionalities
- ◆ Easy expandable ATE switching
- ◆ Cost-effective peripheral control for switching units via CAN
- ◆ Based on industrial standards
- ◆ Test and measurement modules with floating inputs available
- ◆ Comprehensive driver support including soft front panels



ROHDE & SCHWARZ

R&S® TSVP Instrument Chassis

The R&S TSVP (Test System Versatile Platform) technology represents a whole family of products developed for high-performance ATE applications.

The chassis comprises a mechanical frame, digital backplanes and bridges (if applicable), analog backplane, mains switching and filtering, power supply and diagnostic extensions.

Test and Measurement Platform R&S CompactTSVP



Applications

- ◆ Open test and measurement platform
- ◆ Test instrument framework
- ◆ Functional test including switching applications and in-circuit test

The industrial chassis for modular instrumentation includes one power supply and is prepared to accommodate an additional power supply, which allows parallel operation or DUT-specific supply. The new generation system platform is based on industrial standards and extended by the high-accuracy R&S TSVP analog bus.

The CompactPCI/PXI backplanes provide 14 peripheral slots with additional CAN serial control lines.

An external CAN port for the R&S PowerTSVP control is included.

Specifications in brief

- ◆ Slot 1 and 2 reserved for CPU
- ◆ Peripheral slots
 - 2 CompactPCI
 - 11 PXI
 - 1 CAN
- ◆ Analog measurement bus
 - 8 lines with up to 125 V
 - One or two standard P47 CompactPCI power supplies
- ◆ Mains power input and filtering
- ◆ 19-inch rackmount chassis, 4 HU rack space

Switching Application Platform R&S PowerTSVP



Applications

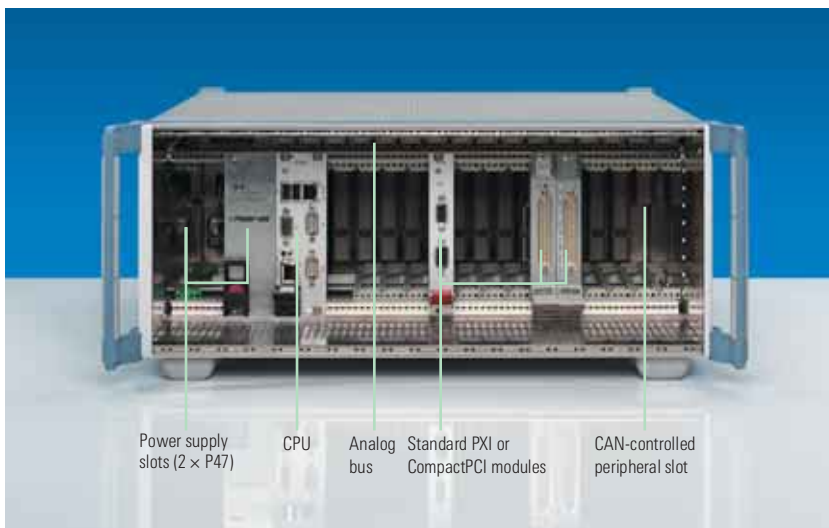
- ◆ Open test and measurement platform
- ◆ Complex switching
- ◆ High-power switching
- ◆ High-power load simulation
- ◆ RF switching

The R&S PowerTSVP is an industrial frame for complex and modular switching applications, a new generation system platform based on industrial standards and extended by the high-accuracy R&S TSVP analog bus.

It is controlled by the R&S TS-PCA3 CompactTSVP or various CAN interfaces available for PCs and notebooks.

Specifications in brief

- ◆ 16 peripheral slots, serial-controlled by CAN
- ◆ Analog measurement bus
 - 8 lines with up to 125 V and PXI-Trigger support
 - One or two standard P47 CompactPCI power supplies
- ◆ Mains power input and filtering
- ◆ 19-inch rackmount chassis, 4 HU rack space



R&S® CompactTSVP Measurement Modules

You can choose from various modules suitable for industrial use in research, development and production. Designed for ATE applications (automated test equipment), the modules provide common features, such as analog bus access for seamless signal routing, diagnostics, soft front panels and high-performance driver software.

Analog Source and Measurement Module R&S TS-PSAM



Applications

- ◆ Digital multimeter (DMM)
- ◆ Fast voltage measurements
- ◆ Current (DC, AC) and resistance
- ◆ Detection of shorts, contact test and discharge of DUTs
- ◆ Analog ICT in conjunction with the R&S TS-PICT
- ◆ Various trigger-controlled measurements

The R&S TS-PSAM module contains a discharge circuit, a floating, programmable source and a fast measurement unit. DUT signals can be retrieved from the analog bus of the R&S CompactTSVP by means of relays. The trigger logic of the measurement unit is linked to the PXI trigger lines. Two 4-channel relay multiplexers are available in addition.

Specifications in brief

- ◆ Input voltage max. ± 125 V, $I_{\max} = 1$ A, $R_{\max} = 10$ M Ω
- ◆ Data acquisition rate max. 200 ksample/s
- ◆ Floating measurements
- ◆ Data buffering
- ◆ Access to analog bus
- ◆ Floating DC source and discharge unit
- ◆ CompactPCI module, 1 slot

In-Circuit Test (ICT) Extension Module R&S TS-PICT



Applications

- ◆ Analog in-circuit test of L, C and Z components in conjunction with the R&S TS-PSAM

The ICT extension module comprises an AC stimulus and a special current measurement unit for guarded impedance measurements in conjunction with the R&S TS-PSAM module.

Specifications in brief

- ◆ Floating measurements
- ◆ Access to analog bus
- ◆ Floating AC source
- ◆ CompactPCI module, 1 slot

R&S® CompactTSVP Measurement Modules

Digital Functional Test Module R&S TS-PDFT



Applications

- ◆ Digital functional test, verification of digital circuits and digital stimulus/response applications
- ◆ Communication interface for automotive communication
- ◆ Flexible digital I/O

The R&S TS-PDFT is a digital function test module with a high number of dynamic digital I/O channels as well as automotive communication interfaces. The innovative technology and versatile functionality provide excellent suitability for automotive and high-performance T&M applications.

The R&S TS-PDFT is used wherever digital circuits are tested or programmed by way of static or dynamic stimulation, recording and communication. An on-board microprocessor ensures high computing power for time-critical communication protocols, downloads of flash memories or analyses directly on the module.

Specifications in brief

- ◆ 32 digital inputs, programmable thresholds
- ◆ 32 digital outputs, programmable levels
- ◆ Realtime stimulation and data acquisition
- ◆ Automotive communication buses
 - CAN, high/low speed
 - K-Line
- ◆ CompactPCI module, 1 slot

Arbitrary Waveform and Function Generator Module R&S TS-PFG



Applications

- ◆ Generation of arbitrary waveforms
- ◆ Output of standard function generator waveforms
- ◆ Versatile signal simulation capabilities
- ◆ Power supply and pulse simulation

The R&S TS-PFG is a two-channel, floating and arbitrary waveform generator with a CompactPCI interface. Its innovative technology and high functionality makes it ideal for automotive applications. The module is used wherever one-channel or multichannel analog output signals are to be stimulated.

Standard waveforms such as sine, triangular, square as well as arbitrary waveforms can be generated. The waveforms can be output in burst mode or continuously. Comprehensive trigger capabilities via local trigger and marker signals or the PXI trigger bus permit synchronization with other measurement, stimulus and switching modules.

Specifications in brief

- ◆ AWG with 2 floating output channels
- ◆ 1 Msample buffer per channel
- ◆ Output voltage ± 20 V
 - Cascading outputs yields ± 40 V
- ◆ Up to 250 mA current driving
- ◆ 14 bit resolution
- ◆ 25 Msample/s data update rate
- ◆ Access to analog bus
- ◆ CompactPCI module, 1 slot

Analyzer and Data Acquisition Module R&S TS-PAM



Applications

- ◆ Dynamic signal acquisition
- ◆ Sound and vibration measurements
- ◆ Analog data acquisition

The R&S TS-PAM is a two-channel simultaneous waveform analyzer with CompactPCI interface.

Both conversion paths can be operated with a 4-channel multiplexer. The programmable measurement range and scan operation permit a variety of signal configurations to be measured. Comprehensive trigger capabilities and differential inputs enable flexible data acquisition particularly in R&D labs, quality assurance and product re-verification in production.

LabWindows/CVI and GTSL test cases support digital signal processing and analysis such as waveform comparison.

Specifications in brief

- ◆ Analyzer module for waveform analysis
- ◆ 2 fast and synchronous data acquisition channels
- ◆ 14 bit resolution
- ◆ Data acquisition rate 20 Msample/s
- ◆ Measurement range up to 125 V
- ◆ Access to analog bus
- ◆ Comprehensive trigger configurations
- ◆ CompactPCI module, 1 slot

R&S® CompactTSVP and R&S® PowerTSVP Switching Modules

Designed for the CAN bus as a cost-effective control interface, the R&S TSVP switching modules provide signal interconnection from the DUTs to the modular instrumentation units. The modules provide common features such as analog bus access, diagnostics, soft front panels and high-performance driver software.

Switching Matrix Module R&S TS-PMB



Applications

- ◆ Switching and interconnection of DUT signals to measurement and stimulation units via the analog bus and instrument lines
- ◆ Pin-count extension for ICT
- ◆ General-purpose switching

The matrix module B allows test points or test devices to be interconnected either locally or via the R&S TSVP analog bus. The module can be used in the R&S CompactTSVP and the R&S PowerTSVP. The built-in self-test capability makes it possible to check the module within the system.

The Switching Matrix Module R&S TS-PMB comprises two switching matrices of 4×45 pins, which can be used as well as full matrices for 4 buses \times 90 pins or 8 buses \times 45 pins.

Specifications in brief

- ◆ 90 pin matrix to 4 bus lines (360 relays on board)
- ◆ Relays handle up to 125 V, 1 A/1.5 A (switch/hold)
- ◆ Remote controlled via CAN interface, 1 slot

Power Switching Module R&S TS-PSM1



Applications

- ◆ Switching and multiplexing of power signals
- ◆ Test of automotive E/E components and actuators
- ◆ Switching of power supplies and loads
- ◆ Current measurements of supply and load currents

The R&S TS-PSM1 is a power switching module controlled by the CAN bus. Its innovative technology and versatile functionality make it ideal for automotive and high current switching applications in power management and test load paradigms. For measuring high currents, shunts are integrated on-board. It is used wherever high voltage or currents have to be switched or distributed.

Specifications in brief

- ◆ Switching module for high current DUT signals and interconnection of DUTs to loads
- ◆ 8 channels, high power 16 A
- ◆ 8 channels, 2 A
- ◆ All channels up to 60 V
- ◆ Remote controlled via CAN interface, 1 slot

Ordering information

Open Test Platform R&S CompactTSVP and R&S PowerTSVP

Designation	Type	Order No.
Chassis		
Test and Measurement Platform	R&S TS-PCA3	1152.2518.02
Switching Application Platform	R&S TS-PWA3	1157.8043.02
Modules		
Analog Source and Measurement Module	R&S TS-PSAM ¹⁾	1142.9503.02
In-Circuit Test (ICT) Extension Module	R&S TS-PICT ¹⁾	1158.0000.02
Digital Functional Test Module	R&S TS-PDFT	1143.0080.02
Arbitrary Waveform and Function Generator Module	R&S TS-PFG ¹⁾	1158.0052.02
Analyzer and Data Acquisition Module	R&S TS-PAM ¹⁾	1158.0100.02
Switching Matrix Module	R&S TS-PMB	1143.0039.02
Power Switching Module	R&S TS-PSM1	1143.0139.02

¹⁾ Including R&S TS-PDC isolated DC-supply module.

