Data sheet

Version 01.00

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RF System Panel R&S®TS-RSP

With Plug-In Modules R&S®TS-RBRF, R&S®TS-REMI, R&S®TS-REMS

- Versatile platform for EMC and RF applications
- Configurable RF switching unit
- Modular 19" design

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Concept

Versatile platform for EMC applications

The RF System Platform R&S®TS-RSP is a versatile, configurable RF switching unit specially designed for EMI and EMS applications. It consists of the R&S®TS-RSP basic unit with three possible plug-in modules (R&S®TS-RBRF, R&S®TS-REMI and R&S®TS-REMS) and replaces the SCIU, RSU and DCU units in RF test systems (e.g. EMC test systems, RF measurement systems). Whilst the R&S®TS-RBRF and the R&S®TS-REMI contain only RF relays, the R&S®TS-REMS has a built-in RF Power Meter R&S®NRVS and can optionally be equipped with additional RF power relays.

Modular 19'' design for rack integration

The basic frame of the R&S®TS-RSP (4 HU, 19") holds the plug-in modules for integration into EMC systems. For installation in a 19" rack, no additional rackmounting kit is required. The frame can be equipped with each of the plug-in modules alone or with a combination of the R&S®TS-REMI with either the R&S®TS-RBRF or the R&S®TS-REMS.

Features

R&S®TS-RSP basic unit with R&S®TS-USM board

The various inputs and outputs of the R&S®TS-USM make the R&S®TS-RSP highly versatile. Besides the relay drivers, it contains further functionalities that can be used in Rohde&Schwarz projects.

For example, one of the optocoupler inputs is used as read-back for the safety interlock provided by the R&S®EMC32. Four of the relay drivers can be used for external high-power RF relays (relays in a Power Switch Unit R&S®PSU).

R&S®TS-REMS

The R&S®TS-REMS plug-in module is specially designed for EMS test systems to measure the electromagnetic susceptibility of DUTs. It combines RF path switching, high-power RF switching and a power meter in one device. With this plug-in, up to three power amplifiers can be controlled and switched to three different connection points, e.g. in anechoic chambers and shielded rooms. Forward and reverse power can be measured with the integrated Power Meter R&S®NRVS.

However, if permanent monitoring of forward and reverse power is necessary, an additional external power meter is required. The standard version (.02) is designed for up to 12 GHz. Version .03 is available for up to 18 GHz.

The R&S®TS-REMS can be equipped with up to four internal power relays, which have to be ordered as options.

Rear view of the R&S®TS-RSP with the R&S®TS-REMI (top) and R&S®TS-RBRF (bottom) plug-in modules

R&S®TS-REMI

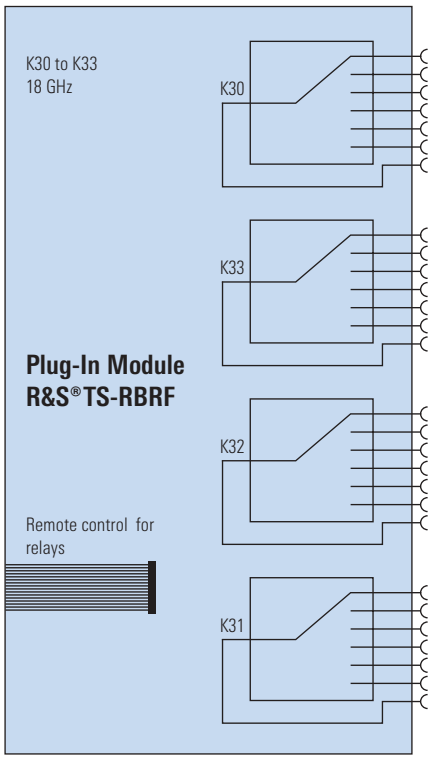
The R&S®TS-REMI plug-in module is specially designed for EMI test systems to measure the electro-magnetic emission of DUTs. Six relays (type SPDT) allow a customized configuration for any system. For example, a tracking generator can be routed to two different connection points, and additionally one RF input of an EMI test receiver can be connected to up to five different connection points (shielded room, anechoic chamber 1 m, 3 m, 10 m, etc). Two of the six relays can switch microwave signals up to 40 GHz, which enables measurements according to FCC as well as MIL or any other microwave EMI measurement. The other relays are limited to 18 GHz.

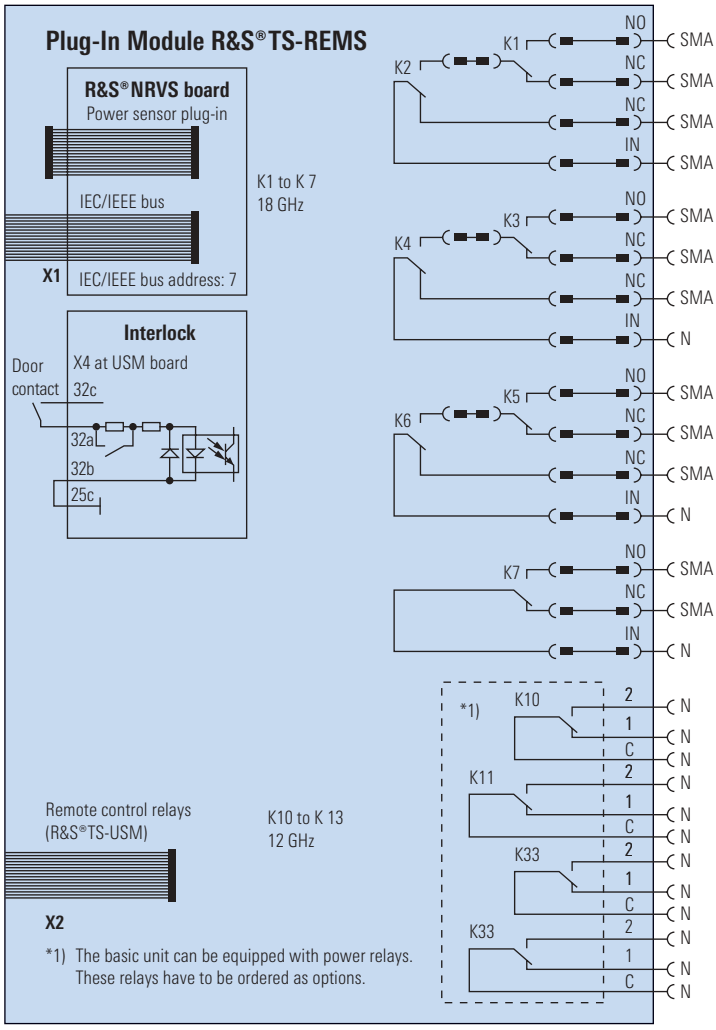
R&S®TS-RBRF

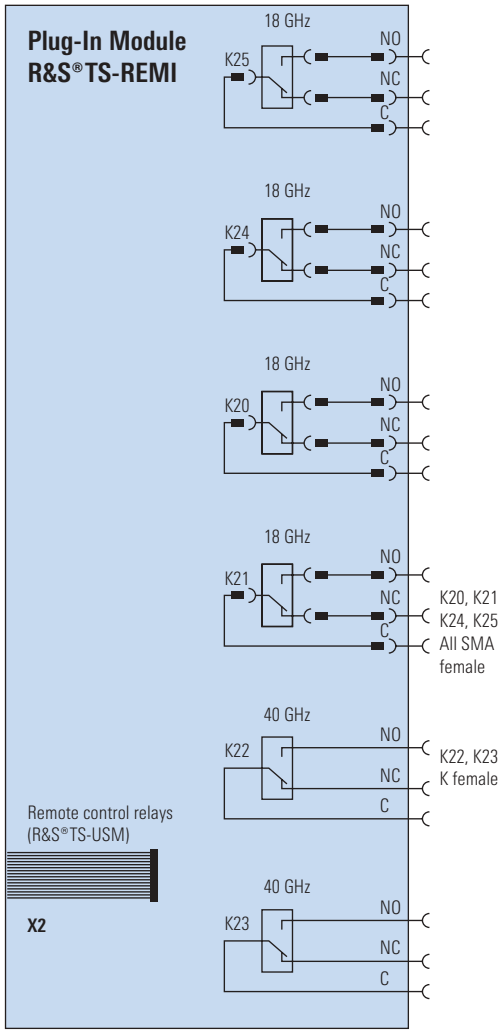
The R&S®TS-RBRF plug-in module is designed for basic RF measurement systems (such as the R&S®TS 9976). Four relays (type SP6T) allow a customized configuration for any RF test and measurement system. The relays are designed for a frequency range from DC to 18 GHz.

Software support

The R&S®TS-RSP and the three possible plug-in modules are supported by the Rohde & Schwarz EMC software packages, i.e. R&S®EMS-K1, R&S®ES-K1 and R&S®EMC 32. For other applications, a description of the remote control interface is available on request.







Block diagrams of the R&S®TS-RBRF, R&S®TS-REMS and R&S®TS-REMI

Specifications

RF System Platform R&S®TS-RSP

Power supply	100 V to 120 V or 200 V to 240 V, automatically selected, 50 Hz to 60 Hz 225 VA
Remote control	IEEE 488

Operating temperature range	+5 °C to +40 °C
Permissible temperature range	0 °C to +45 °C
Storage temperature range	–25 °C to +60 °C
Dimensions	19", 4 HU, depth 45 cm

Plug-in modules

R&S®TS-REMI relay configuration

4 × SPDT	**DC to 18 GHz**		**SMA female connectors**		
		DC to 1 GHz	1 GHz to 18 GHz		
	Power rating	300 W	90 W		
		0 GHz to 3 GHz	3 GHz to 8 GHz	8 GHz to 12.4 GHz	12.4 GHz to 18 GHz
	Isolation	≥80 dB	≥70 dB	≥60 dB	≥60 dB
	Return loss	≥20.8 dB	≥17.7 dB	≥15.6 dB	≥14 dB
2 × SPDT	**DC to 40 GHz**		**K female connectors**		
		DC to 40 GHz			
	Power rating	10 W			
		0 GHz to 6 GHz	6 GHz to 18 GHz	18 GHz to 26.5 GHz	26.5 GHz to 40 GHz
	Isolation	≥70 dB	≥60 dB	≥55 dB	≥50 dB
	Return loss	≥17.7 dB	≥14 dB	≥11.7 dB	≥10.0 dB

R&S®TS-REMS relay configuration

7 × SPDT R&S®TS-REMS 12 GHz version .02	**DC to 12 GHz**		**SMA/N female connectors**		
		DC to 1 GHz	1 GHz to 12 GHz		
	Power rating	300 W	100 W		
		0 GHz to 3 GHz	3 GHz to 8 GHz	8 GHz to 12 GHz	
	Isolation	≥80 dB	≥70 dB	≥60 dB	
	Return loss	≥20.8 dB	≥17.7 dB	≥15.6 dB	
7 × SPDT R&S®TS-REMS 18 GHz version .03	**DC to 18 GHz**		**SMA/N special female connectors**		
		DC to 1 GHz	1 GHz to 18 GHz		
	Power rating	300 W	90 W		
		0 GHz to 3 GHz	3 GHz to 8 GHz	8 GHz to 12.4 GHz	12.4 GHz to 18 GHz
	Isolation	≥80 dB	≥70 dB	≥60 dB	≥60 dB
	Return loss	≥20.8 dB	≥17.7 dB	≥15.6 dB	≥14 dB
4 × SPDT optional power relays	**DC to 12.4 GHz**		**N female connectors**		
		DC to 1 GHz	1 GHz to 7 GHz	7 GHz to 12.4 GHz	
	Power rating	1 kW	300 W	200 W	
	Isolation	≥90 dB	≥80 dB	≥70 dB	
	Return loss	≥34.2 dB	≥17.7 dB	≥16.5 dB	

R&S®TS-RBRF relay configuration

4 x SP6T	**DC to 18 GHz**		**SMA female connectors**		
		DC to 18 GHz			
	Power rating	40 W			
	Isolation	≥60 dB			
		0 GHz to 4 GHz	4 GHz to 12.4 GHz	12.4 GHz to 18 GHz	
	Return loss	≥19 dB	≥15.6 dB	≥14 dB	

Ordering Information

Designation	Type	Order No.
RF System Panel	R&S®TS-RSP	1144.1500.03
Options		
Plug-In Module EMS (12 GHz, power relays not included)	R&S®TS-REMS	1144.3490.02
Plug-In Module EMS (18 GHz, power relays not included)	R&S®TS-REMS	1144.3490.03
Plug-In Module EMI	R&S®TS-REMI	1144.2493.02
Plug-In Module for Basic RF	R&S®TS-RBRF	1144.4496.02

More information at
www.rohde-schwarz.com
(search term: TS-RSP)

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