

R&S® ZN-Z84 Switch Matrix Specifications



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Definitions

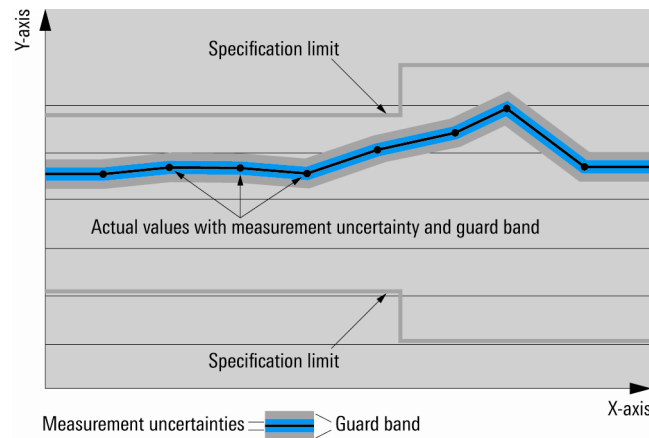
General

Product data applies under the following conditions:

- Three hours storage at ambient temperature followed by 15 minutes warm-up operation
- Specified environmental conditions met
- Recommended calibration interval adhered to
- All internal automatic adjustments performed, if applicable

Specifications with limits

Represent warranted product performance by means of a range of values for the specified parameter. These specifications are marked with limiting symbols such as $<$, \leq , $>$, \geq , \pm , or descriptions such as maximum, limit of, minimum. Compliance is ensured by testing or is derived from the design. Test limits are narrowed by guard bands to take into account measurement uncertainties, drift and aging, if applicable.



Specifications without limits

Represent warranted product performance for the specified parameter. These specifications are not specially marked and represent values with no or negligible deviations from the given value (e.g. dimensions or resolution of a setting parameter). Compliance is ensured by design.

Typical data (typ.)

Characterizes product performance by means of representative information for the given parameter. When marked with $<$, $>$ or as a range, it represents the performance met by approximately 80 % of the instruments at production time. Otherwise, it represents the mean value.

Nominal values (nom.)

Characterize product performance by means of a representative value for the given parameter (e.g. nominal impedance). In contrast to typical data, a statistical evaluation does not take place and the parameter is not tested during production.

Measured values (meas.)

Characterize expected product performance by means of measurement results gained from individual samples.

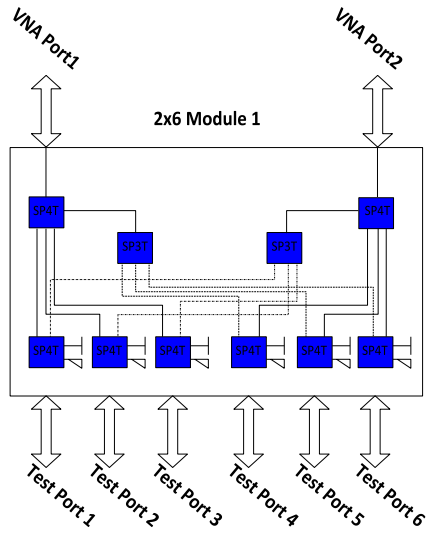
Uncertainties

Represent limits of measurement uncertainty for a given measurand. Uncertainty is defined with a coverage factor of 2 and has been calculated in line with the rules of the Guide to the Expression of Uncertainty in Measurement (GUM), taking into account environmental conditions, aging, wear and tear.

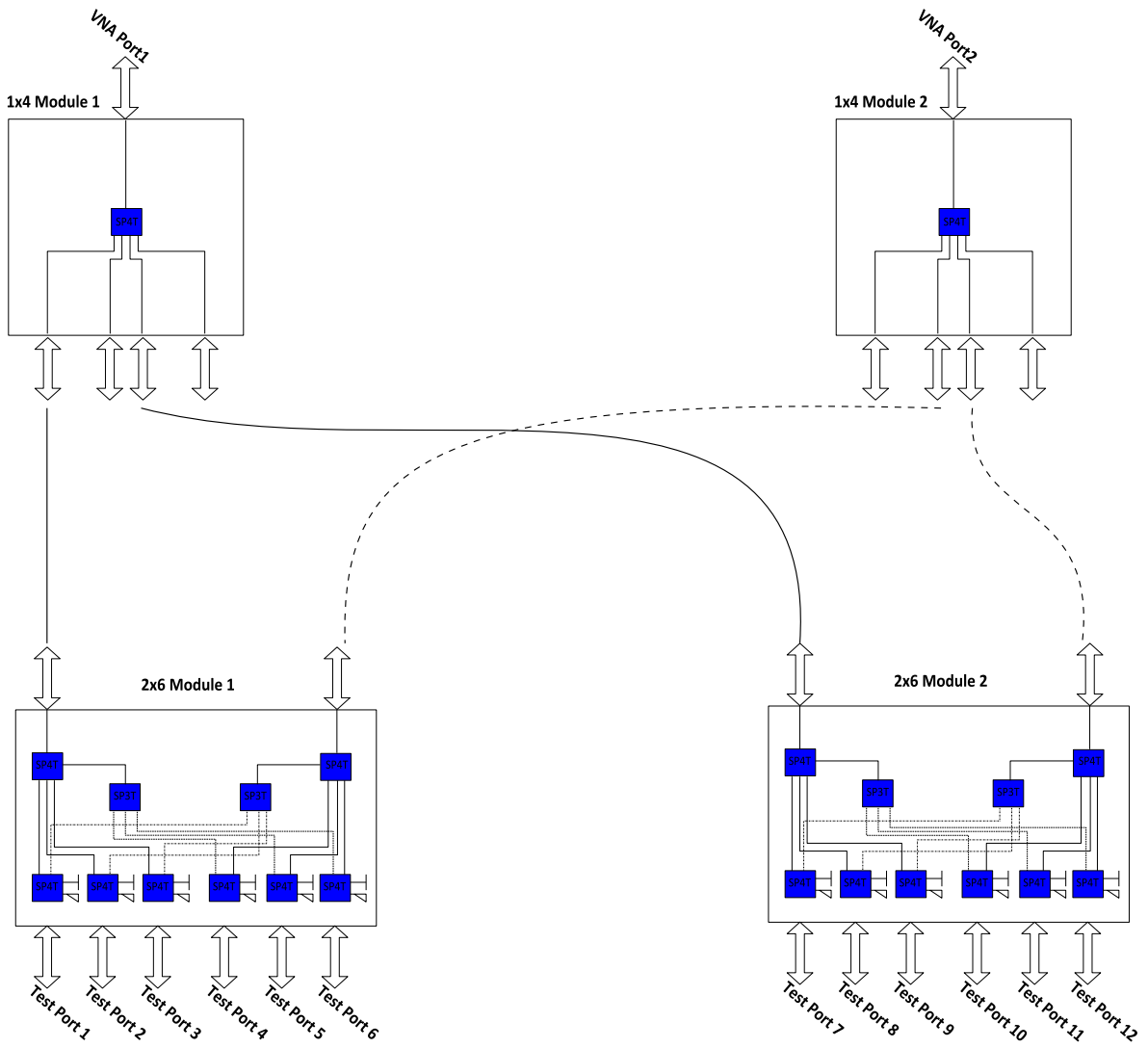
Device settings and GUI parameters are indicated as follows: "parameter: value".

Typical data as well as nominal and measured values are not warranted by Rohde & Schwarz.

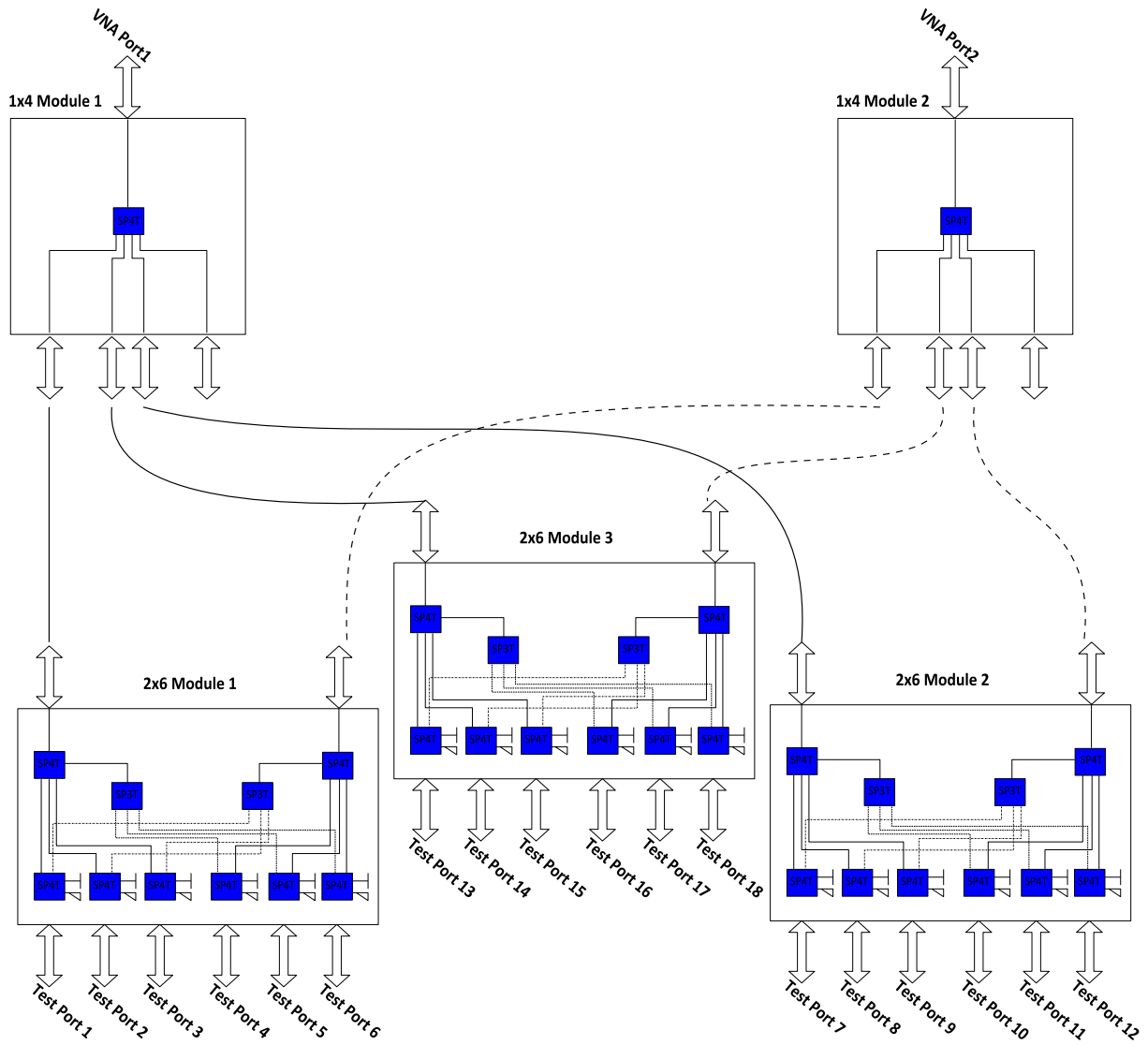
Block diagrams



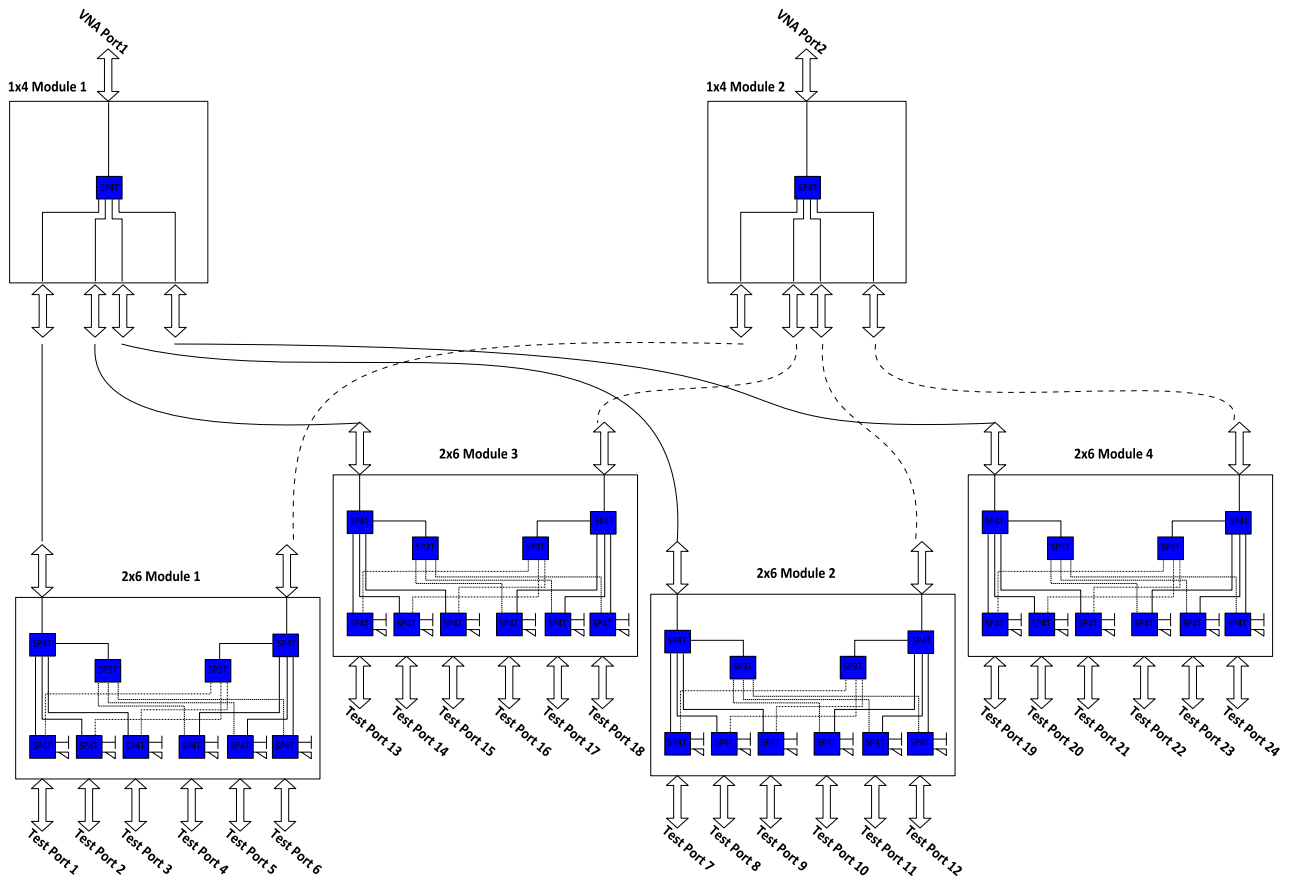
R&S®ZN-Z84 base unit.



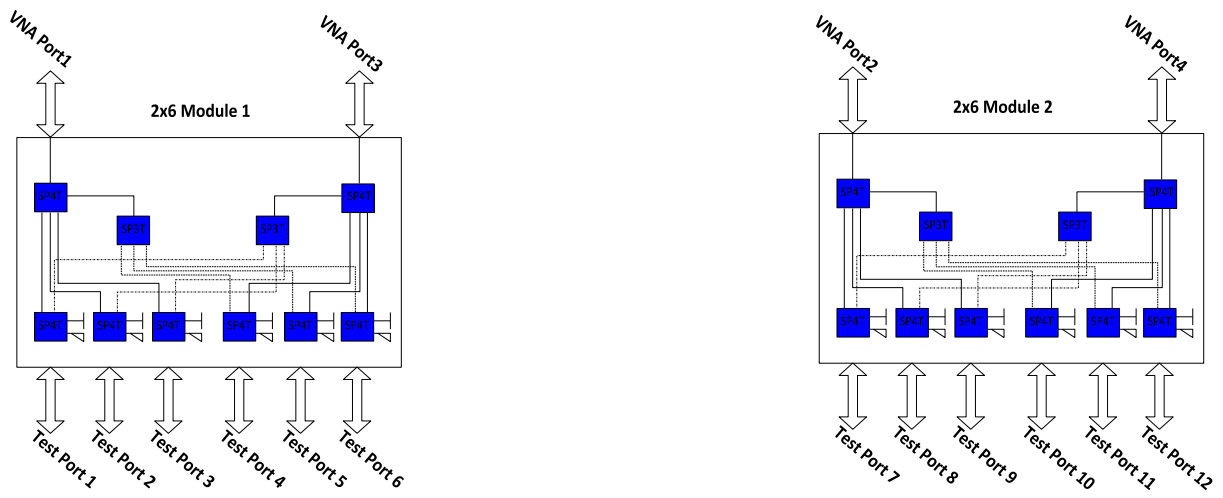
R&S®ZN-Z84 (2 × 12) base unit + B22.



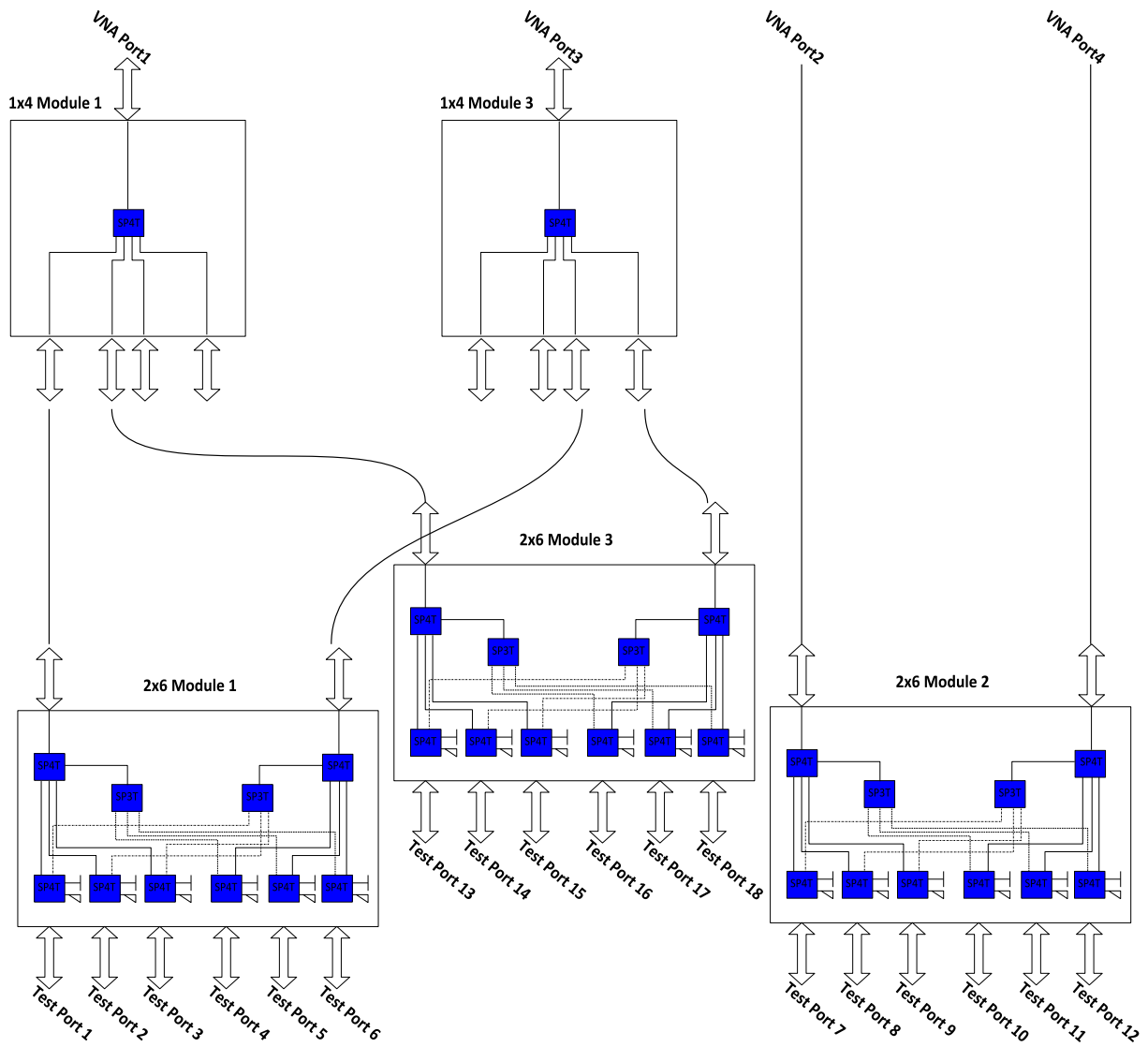
R&S[®]ZN-Z84 (2 × 18) base unit + B22 + B32.



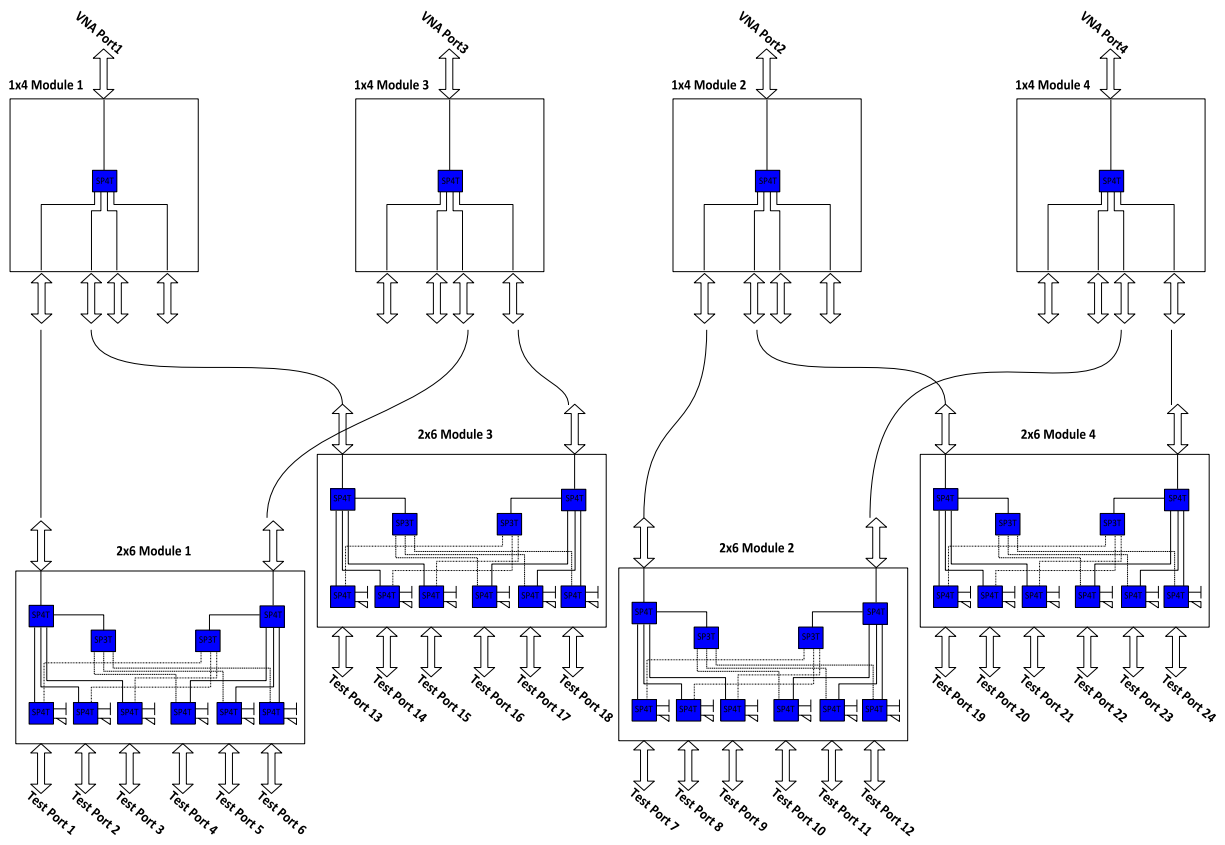
R&S[®]ZN-Z84 (2 × 24) base unit + B22 + B32 + B42.



R&S[®]ZN-Z84 (4 × 12) base unit + B24.



R&S®ZN-Z84 (4 × 18) base unit + B24 + B34.



R&S[®] ZN-Z84 (4 × 24) base unit + B24 + B34 + B44.

Specifications

General features

Frequency range		10 MHz to 8.5 GHz
Impedance		50 Ω
VNA port connector type		SMA, female
Number of VNA ports	R&S®ZN-Z84 all models	2 to 4
Test port connector type		SMA, female
Number of test ports	R&S®ZN-Z84 base unit	6 to 24
Switching configuration	Base unit, B22, B32, B42	full crossbar
Switching configuration	Base unit, B24, B34, B44	VNA ports A, C to test ports 1 to 6, 13 to 18, full crossbar VNA ports B, D to test ports 7 to 12, 19 to 24, full crossbar
Damage level		+23 dBm
Damage DC voltage		12 V
0.1 dB compression	at 2 GHz	20 dBm (from switch datasheet)

Performance data

		10 MHz to 50 MHz (dB)	50 MHz to 2 GHz (dB)	2 GHz to 4 GHz (dB)	4 GHz to 6 GHz (dB)	6 GHz to 8.5 GHz (dB)
Insertion loss	R&S®ZN-Z84 B22, B32, B42, B34, B44					
	any VNA port to any test port	< 6	< 5	< 6.5	< 8	< 9
Insertion loss	R&S®ZN-Z84 B22 (B32, B42)					
	VNA port A, B to test ports 1 to 3, 7 to 9	< 6	< 5	< 6.5	< 8	< 9
	VNA port A, B to test ports 4 to 6, 10 to 12	< 6	< 6	< 8.5	< 10	< 12
	VNA port C, D to test ports 1 to 3, 7 to 9	< 6	< 6	< 8.5	< 10	< 12
Insertion loss	R&S®ZN-Z84 base unit, B24					
	any VNA port to any test port	< 6	< 3	< 4.5	< 5.5	< 6
Insertion loss	R&S®ZN-Z84 base unit, B24					
	VNA port A, B to test ports 1 to 3, 7 to 9	< 6	< 3	< 4.5	< 5.5	< 6
	VNA port A, B to test ports 1 to 3, 10 to 12	< 6	< 5	< 6.5	< 8	< 9
	VNA port C, D to test ports 1 to 3, 7 to 9	< 6	< 5	< 6.5	< 8	< 9
Raw load match	any selected test port (active)	> 8, 15 (typ.)	> 12, 20 (typ.)	> 10, 15 (typ.)	> 10, 15 (typ.)	> 10, 15 (typ.)
	any unselected test port (passive)	> 15, 20 (typ.)	> 20, 25 (typ.)	> 20, 23 (typ.)	> 20, 23 (typ.)	> 15, 20 (typ.)
Isolation	any unselected test port to any VNA port	> 90	> 90	> 85	> 75	> 70

Remote control

USB	universal serial bus connector (type B)
LAN	local area network connector 10/100 BaseT, RJ-45
Direct connect	direct connection to internal VNA measurement bus (R&S®ZNB/T option -B12 needed)

Switching times

USB	with software handshake turned on	< 1 ms (nom.)
LAN	with software handshake turned on	< 2 ms (nom.)
Direct connect		< 100 μs (nom.)

General data

Temperature loading	operating temperature range	+18 °C to +28 °C
	permissible temperature range	0 °C to +50 °C
	storage temperature range	-40 °C to +60 °C
Damp heat		in line with IEC 60068-2-1 and IEC 60068-2-2 +40 °C at 85 % rel. humidity, in line with IEC 60068-2-30
Mechanical resistance	vibration, sinusoidal	5 Hz to 150 Hz, in line with IEC 60068-2-6
	vibration, random	10 Hz to 300 Hz, in line with IEC 60068-2-64
	shock	40 g shock spectrum, in line with IEC 60068-2-27, MIL-STD 810
Calibration interval		1 year
EMC, RF emission		in line with CISPR 11/EN 55011 group 1 class B (for a shielded test setup)
EMC, other emissions and immunity		in line with IEC/EN 61326
	emission	class B
	immunity	industrial environment (excluding operating frequency)
Safety		in line with IEC 61010-1 and EN61010-1 C22.2 No. 61010-1 and UL61010-1
Power supply		100 V to 240 V (AC) ±10 %, 50 Hz to 60 Hz/400 Hz ±5 %, safety class I to VDE 411
Power consumption		≤ 130 VA
Certification mark		VDE, _c CSA _{US} , CE conformity mark
Dimensions	W × H × D	445 mm × 88 mm × 300 mm (17.52 in × 3.46 in × 11.81 in)
Weight	depends on options	5 kg to 7 kg (11 lb to 15.4 lb)

Ordering information

Designation	Type	Order No.
Base unit		
Switch Matrix, 8.5 GHz, 2 VNA ports to 6 test ports	R&S® ZN-Z84	1319.4500.02
Options		
Additional Test Ports 7 to 12, 2 VNA ports to 12 test ports	R&S® ZN-Z84 B22	1319.4969.22
Additional Test Ports 7 to 12, 4 VNA ports to 12 test ports	R&S® ZN-Z84 B24	1319.4969.24
Additional Test Ports 13 to 18, 2 VNA ports to 18 test ports	R&S® ZN-Z84 B32	1319.4969.32
Additional Test Ports 13 to 18, 4 VNA ports to 18 test ports	R&S® ZN-Z84 B34	1319.4969.34
Additional Test Ports 19 to 24, 2 VNA ports to 24 test ports	R&S® ZN-Z84 B42	1319.4969.42
Additional Test Ports 19 to 24, 4 VNA ports to 24 test ports	R&S® ZN-Z84 B44	1319.4969.44

Service that adds value

- | Worldwide
- | Local and personalized
- | Customized and flexible
- | Uncompromising quality
- | Long-term dependability

About Rohde & Schwarz

Rohde & Schwarz is an independent group of companies specializing in electronics. It is a leading supplier of solutions in the fields of test and measurement, broadcasting, radiomonitoring and radiolocation, as well as secure communications. Established more than 75 years ago, Rohde & Schwarz has a global presence and a dedicated service network in over 70 countries. Company headquarters are in Munich, Germany.

Environmental commitment

- | Energy-efficient products
- | Continuous improvement in environmental sustainability
- | ISO 14001-certified environmental management system

Certified Quality System
ISO 9001

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