

Keysight Technologies

PNA Microwave Network Analyzers for Pulsed-RF Measurements

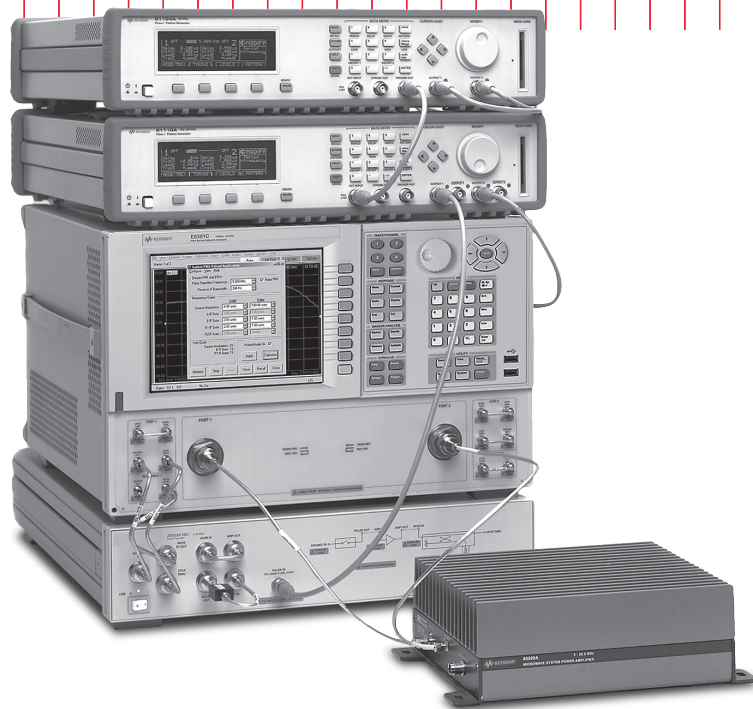
E8362C 10 MHz to 20 GHz

E8363C 10 MHz to 40 GHz

E8364C 10 MHz to 50 GHz

E8361C 10 MHz to 67 GHz

Configuration
Guide



Ordering Guide for Pulsed Measurements with the PNA Series

The following is a configuration guide for using the Keysight Technologies, Inc. microwave PNA Series network analyzers in a pulsed S-parameter configuration. This guide is specifically for pulsed-RF measurements, and is intended to serve as a supplement to the PNA Series configuration guide. Both guides are available on the Keysight PNA Series Web site: www.keysight.com/find/pna

PNA Series Network Analyzers

Model Number	Frequency Range
E8362/3/4C	10 MHz – 20/40/50 GHz
E8361C	10 MHz – 67 GHz
Recommended PNA options 1 for pulsed S-parameter measurements	
E836xC-H08	Option H08 – Pulsed RF measurement capability Option H08 provides software for controlling the PNA and external pulse generators, for calculating the proper IF bandwidths for spectral nulling when using narrowband detection, and for profiling pulses in the time domain (magnitude and phase). Option H08 can be ordered alone, but Option H11 is needed for point-in-pulse and pulse-profile measurements.
E836xC-H11	Option H11 – IF access Option H11 provides IF switches that act as receiver gates, and are used for point-in-pulse and pulse-profile measurements. Option H08 is required to enable use of the gates. Option H11 also provides other hardware for use in antenna measurements (external IF inputs, and RF and LO outputs). Option H11 also requires options 014, 080, 081, and UNL.

Pulsed S-parameter Test Sets

Model Number	Description	Frequency Range
Z5623A H81	Contains a pin-diode switch to modulate the network analyzer's internal source, an amplifier, and a directional coupler to provide a pulsed-RF reference to the analyzer. This test set provides pulsed measurements in the forward direction and CW measurements in the reverse direction.	2 – 20 GHz
Z5623A H83	Contains two pin-diode switches to modulate the network analyzer's internal source for forward and reverse measurements.	2 – 20 GHz
Z5623A H84	Contains two pin-diode switch to modulate the network analyzer's internal source for forward and reverse measurements.	20 – 40 GHz
Z5623A H85	Contains one pin-diode switch to modulate the network analyzer's internal source for forward measurements.	20 – 40 GHz
Z5623A H86	Contains one pin-diode switches to modulate the network analyzer's internal source for forward measurements. Also contains a band switch to select 2-20 GHz or 20-40 GHz bands.	2 – 40 GHz

Note: Pulsed biasing can be achieved with or without the use of a pulsed-RF S-parameter test set. A proper pulsed-bias source must be used. Contact your local Keysight Sales Representative for additional pulsed-RF S-parameter test set configurations.

Pulse Generators

Pulse generators are required to provide the baseband pulse signals used for timing to the pulsed-RF S-parameter test-set and the PNA. At least one of the pulse generators in the system must have a 10 MHz reference to lock to the PNA. The pulse generator output modules must also be able to drive the PNA IF gates (1 k Ω impedance) with TTL-level signals. The Keysight 81110A pulse/pattern generator must be ordered with the associated number of 81111A output modules depending on the measurement configuration.

Model Number	Number of output modules required	Description of module usage (i.e. what the output module would drive)	Pulsed measurements available (w-point-in-pulse)
81104/110A	–	80/165 MHz single- or dual-channel pulse/pattern generator	–
81105/111A	2	RF modulation; B receiver gating	S21 with ungated reference
	3	RF modulation; A and B receiver gating	S11, S21 with ungated reference
	3	RF modulation; R1 and B receiver gating	S21 with gated reference
	4	RF modulation; R1, A and B receiver gating	S11, S21 with gated reference
	52	RF modulation; R1, R2, A and B receiver gating	S11, S21, S12, S22 with gated references

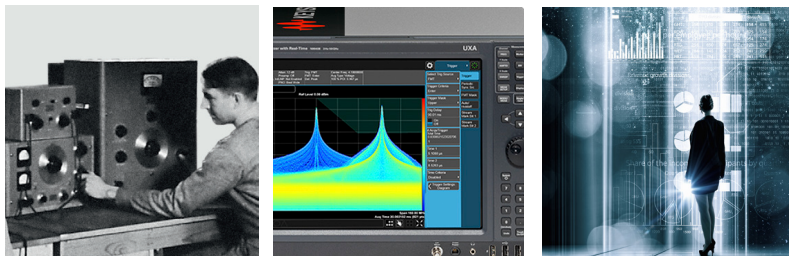
Note: Gated reference means that the reference receiver measurement delay and width can be set independent of the measurement receivers' delay and width. A gated reference can be applied to a CW or pulsed-RF signal. Ungated reference means that no gating is applied to the reference receivers, which might have a CW or pulsed-RF signal.

- For option details refer to the PNA Series Microwave Network Analyzers Configuration Guide, literature number 5989-7606EN available on the Web www.keysight.com/find/pna
- Requires a pulsed-RF test S-parameter set with forward and reverse RF modulators.

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Web Resource

For additional literature and product information visit the microwave PNA Series Web site:

www.keysight.com/find/pna

RF and microwave accessories:

www.keysight.com/find/accessories

For more information on Keysight Technologies' products, applications or services, please contact your local Keysight office. The complete list is available at:
www.keysight.com/find/contactus

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