E8257D PSG

Microwave Analog Signal Generator

Introduction

This configuration guide contains information to help you configure your E8257D PSG microwave analog signal generator to meet your requirements. Ordering optional capabilities at the time of purchase provides the lowest overall cost.



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E8257D PSG Microwave Analog Signal Generator Options

Standard product includes installation guide, adapters, and country specific power cord.

Step 1. Choose a frequency range (required)

All frequency range options support underrange to 100 kHz. However, performance specifications are not provided between 100 kHz and 250 kHz. Additionally, Option 567 supports overrange to 70 GHz. Typical performance specifications are provided between 67 GHz and 70 GHz.

Ordering number	Description	Purpose	Requires
E8257D-513	Frequency range from 250 kHz to 13 GHz	Selects the maximum frequency of the signal generator	
E8257D-520	Frequency range from 250 kHz to 20 GHz	Selects the maximum frequency of the signal generator	
E8257D-532	Frequency range from 250 kHz to 31.8 GHz	Selects the maximum frequency of the signal generator	
E8257D-540	Frequency range from 250 kHz to 40 GHz	Selects the maximum frequency of the signal generator	
E8257D-550	Frequency range from 250 kHz to 50 GHz	Selects the maximum frequency of the signal generator	
E8257D-567	Frequency range from 250 kHz to 67 GHz	Selects the maximum frequency of the signal generator	

Step 2. Choose ultra-high output power model

Ordering number	Description	Purpose	Requires
E8257D-521[1]	Ultra-high output power model frequency range from 10 MHz to 20 GHz	Selects the frequency range of the ultra-high output power signal generator	

[1] E8257D-521 is not compatible with E8257D-513, -520, -532, -540, -550, -567, 1SM, or 1EU. E8257D-521 includes E8257D-1EH.

Step 3. Choose modulation

Ordering number	Description	Purpose	Requires
Standard	CW signal generation	Generates continuous wave (CW) signals (i.e. no modulation)	
E8257D-UNT	AM, FM, Phase modulation, and LF output	Generates analog modulated signals	
E8257D-UNU[2]	Pulse modulation	Generates pulse modulated signals (150 ns minimum pulse width)	
E8257D-UNW[2]	Narrow pulse modulation	Generates pulse modulated signals (20 ns minimum pulse width)	
E8257D-1SM[3]	Scan modulation	Provides deep AM capability	E8257D-520 and -UNT

Step 4. Choose step attenuator

Ordering number	Description	Purpose	Requires
Standard	No step attenuator	Generates signals with output power levels ranging from –20 dBm to maximum power	
E8257D-1E1	Step attenuator	Generates signals with output power levels below –20 dBm (20, 31.8, and 40 GHz models range from –135 dBm to their maximum power, and 50 and 67 GHz models range from –110 dBm to their maximum power)	

Step 5. Choose high output power

Ordering number	Description	Purpose	Requires
Standard	Standard output power	Generates standard level RF output power	
E8257D-1EU	High output power	Generates high power signals	

[2] Option E8257D-UNU and E8257D-UNW are mutually exclusive; choose one or the other or neither. However, option E8257D-UNU can be upgraded to E8257D-UNW.
[3] E8257D-1SM is not compatible with E8257D-521, -532, -540, -550, 567, or 1EM.

Step 6. Choose spectral purity

Ordering number	Description	Purpose	Requires
Standard	Standard spectral purity	Provides low phase noise	
E8257D-UNX[4]	Ultra-low phase noise frequency offsets ranging from 1 Hz to 10 kHz	Improves phase noise performance close-to-carrier	
E8257D-UNY[4]	Enhanced ultra-low phase noise	Improves phase noise for carrier offsets from 1 Hz to 300 kHz	
E8257D-1EH	Improved harmonics below 2 GHz	Improves harmonic performance for carrier frequencies below 2 GHz	
E8257D-HY2[4,5]	Enhanced Ultra Low Phase Noise Level 2	Up to 8 dB improvement in phase noise performance at offsets > 1 MHz from carrier compared to option UNY	E8257D-1E1, 1EH, 1EU, and 513 or 520

Step 7. Choose ramp sweep

Ordering number	Description	Purpose	Requires
E8257D-007	Analog ramp sweep	Generates a fully synthesized ramp (analog) sweep of frequency and amplitude	

Step 8. Choose instrument security

Ordering number	Description	Purpose	Requires
E8257D-008	Removable flash memory	Provides 8 GB of removable compact flash memory. All user-accessible files are located on this memory card	

[4] E8257D-UNX, E8257D-UNY, and E8257D-HY2 are mutually exclusive. Choose at most one.
[5] E8257D-HY2 includes E8257D-UNY.

Step 9. Choose custom options[6]

Custom options add unique capabilities to the signal generator for specific applications.

Ordering number	Description	Purpose	Requires
8257D-HCC	Add input and output of phase reference LO	Provides multi-source phase coherency	U3035P distribution network is recommended
E8257D-H1S	Add 1 GHz external frequency reference input and output. Incompatible with HCC	Enables use of an external frequency reference to improve spectral purity	E8257D-UNX or E8257D-UNY
E8257D-HGT	Add compatibility with GT-8003 scalar network analyzer	Provides operation with Gigatronics SNA	E8257D-007
E8257D-HNS[7]	Modified narrow pulse modulation	Provides the pulse performance of Option UNW below 31.8 GHz and the performance of Option UNU above 31.8 GHz	E8257D-540, 550, or 567
E8257D-HNY[7]	Enhanced ultra-low phase noise, phase noise, modified version. Incompatible with 1EM, 1ED, 1SM, or any custom hardware options	Provides improved phase noise performance approximately midway between Option UNX and Option UNY performance levels	E8257D-1E1 and 520, 532, or 540

[6] All specified performance attributes of custom options are tested at 25 °C (± 3 °C) unless otherwise noted. For more information contact Keysight Technologies.
[7] Recommended for customers in countries subject to export regulations.

Step 10. Choose instrument connector configuration

Note: Option 513, 520 and 521 instruments ship with a precision APC-3.5 mm (m) RF output connector on the front panel. Option 532, 540, and 550 instruments ship with a precision 2.4 mm (m) RF output connector on the front panel. Option 567 instruments ship with a precision 1.85 mm (m) RF output connector on the front panel.

Ordering number	Description	Purpose	Requires
Standard with E8257D 513, 520 and -521	3.5 mm (f) to 3.5 mm (f) connector adapter	Adapter is included with the purchase of the 13 and 20 GHz models to connect to 3.5 mm (m)	
Standard with E8257D-532, -540	2.4 mm (f) to 2.4 mm (f) and 2.4 mm (f) to 2.9 mm (f) connector adapter(s)	Adapter set is included with the purchase of the 32, 40 and 50 GHz models to connect to 2.4 mm (m)	
Standard with E8257D-567	1.85 mm (f) to 1.85 mm (f) and 2.4 mm (f) to 2.9 mm (f) connector adapter(s)	Adapter set is included with the purchase of the 67 GHz models to connect to 1.85 mm (m)	
E8257D-1ED[8]	Type-N (f) RF output connector	Type-N (m) to 3.5 mm (f) adapter is included with the purchase of the type-N (m) connector	
E8257D-1EM[9]	Moves all front panel connectors to the rear panel	Simplifies cable management in rack mount environments	
E8257D- C09	Moves all front panel connectors to the rear panel except the RF output connector	Simplifies cable management in rack mount	E8257D-1EM

[8] Option 1ED is not compatible with frequency options E8257D-532, -540, -550, or -567.
[9] Not compatible with Option 1SM (scan modulation).

Step 11. Choose accessories

Ordering number	Description	Purpose	Requires
1CM114A	Rackmount flange kit (Palette 2015)	Provide a flange kit to mount the signal generator into a standard EIA 19” rack	
1CN103A	Front handle kit (Palette 2015)	Provides front handles for carrying the instrument (not for rack mount)	
1CP106A	Rackmount kit with front handles (Palette 2015)	Provides front handles and a flange kit to mount the signal generator into a standard EIA 19” rack	
1CR100A	Rack slide kit (Palette 2015)	Provides a non-tilting rack slide kit	
U3035P	Distribution network - PSG	Distribute primary LO signal to multiple secondary PSGs	E8257D-HCC

Step 12. Choose frequency extender (optional)

Ordering number	Description	Purpose
N5179V-W19	VDI model number WR19 SGX-M	Millimeter frequency extension module, 40 to 60 GHz
N5179V-W15	VDI model number WR15 SGX-M	Millimeter frequency extension module, 50 to 75 GHz
N5179V-W12	VDI model number WR12 SGX-M	Millimeter frequency extension module, 60 to 90 GHz
N5179V-W10	VDI model number WR10 SGX-M	Millimeter frequency extension module, 75 to 110 GHz
N5179V-W08	VDI model number WR8.0 SGX-M	Millimeter frequency extension module, 90 to 140 GHz
N5179V-W06	VDI model number WR6.5 SGX-M	Millimeter frequency extension module, 110 to 170 GHz
N5179V-W05	VDI model number WR5.1 SGX-M	Millimeter frequency extension module, 140 to 220 GHz
N5179V-W04	VDI model number WR4.3 SGX-M	Millimeter frequency extension module, 170 to 260 GHz
N5179V-W03	VDI model number WR3.4 SGX-M	Millimeter frequency extension module, 220 to 330 GHz
N5179V-W2B	VDI model number WR2.8 SGX-M	Millimeter frequency extension module, 260 to 400 GHz
N5179V-W02	VDI model number WR2.2 SGX-M	Millimeter frequency extension module, 325 to 500 GHz
N5179V-W1B	VDI model number WR1.5 SGX-M	Millimeter frequency extension module, 500 to 750 GHz
N5179V-W01	VDI model number WR1.0 SGX-M	Millimeter frequency extension module, 750 to 1100 GHz

Step 13. Choose documentation

Standard products ship with an installation guide.

Ordering number	Description
E8257D-ABA	Printed copy of the English documentation set (user's guide, programming guide, SCPI reference, key reference, and data sheets)
E8257D-AB2	Printed copy of the Chinese User's Guide
E8257D-ABD	Printed copy of the German User's Guide
E8257D-ABJ	Printed copy of the Japanese User's Guide

Step 14. Choose a calibration plan

Ordering number	Description
E8257D-UK6	Commercial calibration certificate with test data
E8257D-A6J	ANSI Z540-1-1994 calibration
E8257D-AMG	Keysight Cal + Uncertainties + Guardbanding (accredited cal)
E8257D-1A7 (Opt 550 and 567 only)	Keysight Cal + Uncertainties + Guardbanding
R-50C-011-3	Calibration Assurance Plan, Return-to-Keysight, 3 years
R-50C-011-5	Calibration Assurance Plan, Return-to-Keysight, 5 years
R-50C-016-3	Keysight Calibration + Uncertainties + Guardbanding, 3 years
R-50C-016-5	Keysight Calibration + Uncertainties + Guardbanding, 5 years
R-50C-021-3	ANSI Z540-1-1994 Calibration, 3 years
R-50C-021-5	ANSI Z540-1-1994 Calibration, 5 years

Step 15. Choose start-up assistance options

Ordering number	Description
PS-S10	Remote scheduled assistance 1-999 hours
PS-S20	Daily productivity assistance
PS-X10	Custom services to be qualified by Keysight

Upgradeable Options

For complete upgrade details, including firmware, visit: www.keysight.com/find/E8257d_upgrade_table

Customer-installable and service center-installable upgrade kits are available for the E8257D signal generators. If an option is not mentioned that you would like to have upgraded on your PSG, please contact your local Keysight representative about our customized upgradeable options.

Ordering number	Description	Upgrade contains	Additional requirements	Incompatible with
E8257DK-007	Enables fully synthesized continuous analog frequency and power sweeps	Customer installable—license key	None	None
E8257DK-008	Adds 8 GB removable flash memory	Customer installable—hardware, license key	S/N ≥ 4928	S/N < 4928
E8257DK-1E1	Adds a step attenuator to provide calibrated minimum output power levels of —135 dBm (up to 40 GHz) and 110 dBm (up to 70 GHz) while maintaining superior level accuracy	Customer installable—hardware, license key	None	None
E8257DK-1EA	Provides increased output power performance up to 67 GHz	Customer installable—License key	S/N < 4928	Option 1EU or S/N ≥ 4928
E8257DK-1ED	Replaces the option 520 standard APC 3.5 mm(m) RF output connector with a precision type-N (f) RF output connector	Customer installable—hardware, license key	Option 513, 520, or 521	Option 532, 540, 550, or 567
E8257DK-1EH	Adds improved harmonic distortion performance for carrier frequencies ranging from 10 MHz to 2 GHz	Customer installable—hardware, license key	S/N < 4928	Option 1EU or S/N ≥ 4928
E8257DK-2EH	Adds improved harmonics below 2 GHz for units with Option 1EU or SN prefix greater than or equal to 4928	Customer installable—license key	Option 1EU or S/N ≥ 4928	None
E8257DK-1EU	Adds high output power for SN prefix greater than or equal to 4928	Customer installable—license key	S/N ≥ 4928	Option 1EM, HAR S/N < 4928
E8257DK-2EU	Adds high output power (Option 1EU) for SN prefix less than 4928 without Option 1EA	Factory installation only	S/N < 4928	Option 1EA, 1EM, S/N ≥ 4928
E8257DK-3EU	Adds high output power (Option 1EU) for SN prefix less than 4928 with option 1EA	Factory installation only	Option 1EA and S/N< 4928	Option 1EM, HAR or S/N > 4928
E8257DK-UNX	Adds improved close in phase stability and phase noise at offsets less than 10 KHz from the carrier	Customer installable—hardware, license key	None	None

Ordering number	Description	Upgrade contains	Additional requirements	Incompatible with
E8257DK-UNT	Adds internally or externally driven AM, FM and ØM signals and an internal low frequency modulation generator (LF); see data sheet for details	Customer installable—license key	None	None
E8257DK-UNU	Adds standard pulse modulation; see data sheet for details	Customer installable—license key	None	Option UNW
E8257DK-UNW	Adds narrow pulse modulation; see data sheet for details	Customer installable—hardware, license key	S/N < 4928	Option UNU, 1EU or S/N ≥ 4928
E8257DK-2NW	Adds narrow pulse modulation for units with Option 1EU or SN prefix greater than or equal to 4928	Customer installable—license key	Option 1EU or S/N ≥ 4928	S/N < 4928
E8257DK-UNY	Add enhanced ultra-low phase noise	Service center installation only	S/N ≥ 5042	S/N < 5042, Option H42
E8257DK-2NY[10]	Add enhanced ultra-low phase noise	Factory installation only	S/N = 4928	S/N ≥ 5042, Option H42
E8257DK-R2C	Core instrument firmware enhancements	Customer installable—license key	None	None

[10] Keysight factory installation only. Requires an additional factory installation and calibration charge (E8257DK-700).

Web Resources

- For additional product information, visit: www.keysight.com/find/psg
- For accessory information, visit: www.keysight.com/find/accessories

Related Keysight Literature

Publication name	Publication number
E8257D PSG Microwave Analog Signal Generator - Data Sheet	5989-0698EN
E8267D PSG Vector Signal Generator - Data Sheet	5989-0697EN
E8267D PSG Vector Signal Generator - Configuration Guide	5989-1326EN
E8663D PSG RF Analog Signal Generator - Data Sheet	5990-4136EN
E8663D PSG RF Analog Signal Generator - Configuration Guide	5990-4137EN

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