

# E8267D PSG

## Vector Signal Generator

### Introduction

This configuration guide contains information to help you configure your E8267D PSG vector signal generator to meet your requirements. Ordering optional capabilities at the time of purchase provides the lowest overall cost.



# E8267D PSG Vector Signal Generator Options

Standard product includes installation guide, adapters, and country specific power cord. High output power and step attenuator are standard features in the E8267D vector signal generator.

## 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.

Ordering number	Description	Purpose	Requires
E8267D-513 <sup>1</sup>	Frequency range from 250 kHz to 13 GHz	Selects the maximum frequency of the signal generator	
E8267D-520	Frequency range from 250 kHz to 20 GHz	Selects the maximum frequency of the signal generator	
E8267D-532	Frequency range from 250 kHz to 31.8 GHz	Selects the maximum frequency of the signal generator	
E8267D-544	Frequency range from 250 kHz to 44 GHz	Selects the maximum frequency of the signal generator	

## Step 2. Choose spectral purity

Ordering number	Description	Purpose	Requires
Standard	Standard spectral purity	Provides low phase noise	
E8267D-UNX <sup>2</sup>	Ultra-low phase noise	Improves phase noise performance close-to-carrier	
E8267D-UNY <sup>2</sup>	Enhanced ultra-low phase noise	Improves phase noise for carrier offsets from 1 Hz to 300 kHz	
E8267D-1EH	Improved harmonics below 2 GHz	Improves harmonic performance for carrier frequencies below 2 GHz	

<sup>1</sup> E8267D-513 is not compatible with the E8267D-H18.

<sup>2</sup> E8267D-UNX and E8267D-UNY are mutually exclusive; choose one or the other or neither.

## Step 3. Choose modulation

Ordering number	Description	Purpose	Requires
Standard	CW signal generation, vector (IQ) modulation capability	Generates continuous wave (CW) signals and can modulate IQ waveforms provided by the optional internal baseband generator (Option 602) or an external baseband source	
E8267D-UNT	AM, FM, Phase modulation, and LF output	Generates analog modulated signals	
E8267D-UNU <sup>3</sup>	Pulse modulation	Generates pulse modulated signals (150 ns minimum pulse width)	
E8267D-UNW <sup>3</sup>	Narrow pulse modulation	Generates pulse modulated signals (20 ns minimum pulse width)	
E8267D-HNS <sup>4</sup>	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	E8267D-544

## Step 4. Choose ramp sweep

Ordering number	Description	Purpose	Requires
E8267D-007	Analog ramp sweep of frequency and amplitude	Generates a fully synthesized ramp (analog)	

## Step 5. Choose internal baseband generator

Ordering number	Description	Purpose	Requires
E8267D-602	Internal baseband generator, 64 MSa memory	Generates arbitrary and real-time I/Q waveforms (80 MHz of RF modulation bandwidth)	
E8267D-009	Removable flash memory	Provides 8 GB of removable compact flash memory; all user-accessible files are located on this memory card	

<sup>3</sup> Option E8267D-UNU and E8267D-UNW are mutually exclusive; choose one or the other or neither. However, option E8267D-UNU can be upgraded to E8267D-UNW.

<sup>4</sup> Recommended for customers in countries subject to export regulations.

## Step 6. Choose wideband external I/Q

Ordering number	Description	Purpose	Requires
E8267D-016	Wideband external differential I/Q inputs	Provides up to 2 GHz RF modulation bandwidth for carrier frequency above 3.2 GHz and up to 260 MHz below 3.2 GHz; standard external I/Q inputs provide 160 MHz RF modulation bandwidth	
E8267D-HBQ	Band limited wideband differential external I/Q inputs	Provides greater than 300 MHz of modulation bandwidths for carrier frequency above 3.2 GHz and up to 260 MHz below 3.2 GHz	
E8267D-H18 <sup>5</sup>	Wideband modulation less than 3.2 GHz	Provides up to 2 GHz of modulation bandwidth below 3.2 GHz; actual bandwidth depends on what other options are installed, e.g. 016 or HBQ	E8267D-016 (recommended) E8267D-HBQ (recommended)

## Step 7. Choose signal creation software for your baseband generator

Ordering number	Description	Purpose	Requires
E8267D-403	Calibrated Noise (AWGN) generation	Provides settable Eb/No and C/N	E8267D-602
E8267D-409	GPS personality	Create multi-satellite GPS signals for testing GPS receivers	E8267D-602
E8267D-423	Scenario generator for MS-GPS personality	Create, edit, and playback custom GPS scenario files	E8267D-409, E8267D-602
E8267D-SP1	Signal Studio for jitter injection	Create repeatable additive calibrated jitter with variable rate and deviation for tolerance measurements	E8267D-602
N7600EMBC	PathWave Signal Generation for 3GPP W-CDMA/HSPA+	Create W-CDMA FDD single/multi-carrier uplink/downlink test signals at baseband and RF, for base stations, mobile transceivers, and their components	E8267D-602
N7601EMBC	PathWave Signal Generation for cdma2000®/1xEV-DO	Create cdma2000® and IS-95-A single/multi-carrier, forward/ reverse link test signals at baseband and RF, for base stations, mobile transceivers, and their components	E8267D-602
N7602EMBC	PathWave Signal Generation for GSM/EDGE/Evo	Create GSM/EDGE/Evo single or multi-carrier test signals at baseband or RF	E8267D-602
N7606EMBC	PathWave Signal Generation for <i>Bluetooth</i> ®	Create signals that conform to Bluetooth® BR+EDR, Bluetooth LE 4.0/4.2/5.x communication standards	E8267D-602
N7607EMBC	PathWave Signal Generation for DFS Radar Profiles	Create radar signals according to the radar profiles defined by FCC, ETSI, Japan MIC, China, and Korean standard for DFS.	E8267D-602, E8267D-UNW

<sup>5</sup> E8267D-H18 is not compatible with the E8267D-513.

## Step 7. Choose signal creation software for your baseband generator (continued)

Ordering number	Description	Purpose	Requires
N7608EMBC	PathWave Signal Generation Pro for Custom Modulation	Supports the creation custom OFDM and IQ waveforms	E8267D-602
N7609EMBC	PathWave Signal Generation for Global Navigational Satellite Systems (GNSS)	Enables creation of waveform file to simulate single or multiple GPS, GLONASS, Galileo, Beidou, SBAS, or QZSS satellites	E8267D-602
N7610EMBC	PathWave Signal Generation for IoT	Support IEEE 802.15.4g Wi-SUN, 802.15.4 ZigBee, and ITU-T G.9959 Z-wave standards	E8267D-602
N7612EMBC	PathWave Signal Generation for TD-SCDMA/HSPA	Supports single carrier and multi-carrier TD-SCDMA and HSDPA signal creation	E8267D-602
N7614EMBC	PathWave Signal Generation for Power Amplifier Test	Provides a tool for performing power amplifier (PA) test flow with crest factor reduction and/or digital pre-distortion	E8267D-602
N7617EMBC	PathWave Signal Generation for WLAN 802.11	Create arbitrary waveforms that comply with the WLAN standards 802.11a/b/g/j/p/n/ac/ax/be (limited to 80 MHz)	E8267D-602
N7620B	PathWave Signal Generation for pulse building	Generates customized pulse patterns for simulation; requires a PXA/MXA/EXA spectrum analyzer for waveform corrections	E8267D-602, E8267D-009, E8267D-UNX or UNY (recommended)
N7620B	PathWave Signal Generation for pulse building (wideband waveforms)	Generates customized wide bandwidth pulse patterns for simulation; requires a PXA/MXA/EXA spectrum analyzer for waveform corrections	E8267D-016, E8267D-UNX or UNY, E8267D-UNW, M8190A wideband arbitrary waveform generator
N7621B	PathWave Signal Generation for multitone distortion connect to M8190A	Generates wide bandwidth multiple tone signals and applies pre-distortion techniques to remove the nonlinear distortion of the signal generator; generates a simulated broadband noise signal to M8190A facilitate NPR measurements; pre-distortion techniques are used to improve flatness and increase notch depth; requires a PXA/MXA/EXA spectrum analyzer	E8267D-016 E8267D-009 (recommended) M8190A wideband arbitrary waveform generator
N7622C	PathWave Signal Generation Toolkit	This free software utility simplifies download and playback of custom I/Q waveforms	E8267D-602
N7623EMBC	PathWave Signal Generation for digital video	Create arbitrary waveforms for DVB-T/H/C/S/S2, ISDB-T, DTMB, CMMB, J.83 Annex A/B/C and ATSC software	E8267D-602

## Step 7. Choose signal creation software for your baseband generator (continued)

Ordering number	Description	Purpose	Requires
N7624EMBC	PathWave Signal Generation for LTE FDD	Create LTE-FDD and LTE-Advanced signals compliant with 3GPP	E8267D-602
N7625EMBC	PathWave Signal Generation for LTE TDD	Create LTE-TDD and LTE-Advanced signals compliant with the 3GPP	E8267D-602
N7626EMBC	PathWave Signal Generation for V2X	Create signals that conform to 3GPP based standards for V2X	E8267D-602
N6171A	MATLAB Software	MATLAB is a software environment and programming language created by MathWorks that provides interactive tools and command-line functions for signal processing, signal modulation, digital filtering, curve fitting, and more.	E8267D-602

## Step 8. Choose custom options

Ordering number	Description	Purpose	Requires
E8267D-H1G <sup>6</sup>	Add 1 GHz external phase reference	Provides multi-source phase coherency for carrier frequencies 100 kHz to 250 MHz	
E8267D-H1S <sup>6</sup>	Add 1 GHz external frequency reference input	Enables use of an external frequency reference to improve spectral purity	E8267D-UNX or -UNY
E8267D-HBR <sup>7</sup>	Modified wideband differential external I/Q inputs	Band-limited wideband differential external I/Q inputs for signals in the 3.2 to 10.35 GHz range. Modulation bandwidth of: > 1.3 GHz (3 dB) typ < 1.6 GHz (35 dB) typ	E8267D-HFA
E8267D-HCC	Add input and output of phase reference LO	Provides multi-source phase coherency	U3035P distribution network (recommended)
E8267D-HFA <sup>7</sup>	Modified upper frequency limit	Limits maximum upper frequency to 10.35 GHz.	E8267D-520
E8267D-SP2	Dynamic sequencing	Provides ability to change sequences on command in the arbitrary waveform generator	E8267D-602

<sup>6</sup> E8267D-H1G and E8267D-H1S are mutually exclusive. Order one or the other or neither.

<sup>7</sup> Recommended for customers in countries subject to export regulations.

## Step 9. Choose instrument connector configuration

Note: Option 513 and 520 instruments ship with a precision APC-3.5 mm (m) RF output connector on the front panel. Option 532 and 544 instruments ship with a precision 2.4 mm (m) RF output connector on the front panel.

Ordering number	Description	Purpose	Requires
Standard with E8267D-513 and E8267D-520	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 E8267D-532 and E8267D-544	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 31.8 GHz and 44 GHz models to connect to 2.4 mm (m) and 2.9 mm (m)	
E8267D-1ED <sup>8</sup>	Type-N (f) RF output connector	Type-N (m) to 3.5 mm (f) adapter set is included with the purchase of the type-N (m) connector.	E8267D-513 or E8267D-520
E8267D-1EM	Moves all front panel connectors to the rear panel	Simplifies cable management in rack mount environments	
E8267D-003	PSG digital output connectivity with N5102A		E8267D-602, N5102A
E8267D-004	PSG digital input connectivity with N5102A		E8267D-602, N5102A

<sup>8</sup> E8267D-1ED is not compatible with the 31.8 GHz or 44 GHz models.

## Step 10. 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	
N5102A	Baseband studio digital signal interface module	Provides digital I/Q and digital IF inputs/outputs to/from E8267D PSG vector signal generator	E8267D-602, E8267D-003, E8267D-004
U3035P	Distribution network - PSG	Distribute master LO signal to multiple signal generators for phase coherent applications	E8267D-HCC

## Step 11. 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 12. Choose documentation

Standard products ship with an installation guide.

Ordering number	Description
E8267D-ABA	Printed copy of the English documentation set (user's guide, programming guide, SCPI reference, key reference, and data sheets)
E8267D-AB2	Printed copy of the Chinese User's Guide
E8267D-ABJ	Printed copy of the Japanese User's Guide

## Step 13. Choose a calibration plan

Ordering number	Description
E8267D-UK6	Commercial calibration certificate with test data
E8267D-A6J	ANSI Z540-1-1994 calibration
E8257D-AMG (Opt 513, 520, and 532 only)	Keysight Cal + Uncertainties + Guardbanding (accredited cal)
E8267D-1A7 (Opt 532 and 544 only)	Keysight Cal + Uncertainties + Guardbanding (compliant cal)
R-50C-011-3	Calibration Plan, Return-to-Keysight, 3 years
R-50C-011-5	Calibration Plan, Return-to-Keysight, 5 years
R-50C-011-7	Calibration Plan, Return-to-Keysight, 7 years
R-50C-011-10	Calibration Plan, Return-to-Keysight, 10 years
R-50C-011-MU-3	Keysight Calibration + Uncertainties, 3 years
R-50C-011-MU-5	Keysight Calibration + Uncertainties, 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 14. Choose start-up assistance options

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

# Upgradeable Options

For complete upgrade details, including firmware, visit: [www.keysight.com/find/E8267d\\_upgrade](http://www.keysight.com/find/E8267d_upgrade)

Customer-installable and service center-installable upgrade kits are available for the E8267D 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 contents	Additional requirements	Incompatible with
E8267DK-003	Digital output connectivity with N5102A	Customer installable - License key	E8267D-602	None
E8267DK-004	Digital input connectivity with N5102A	Customer installable - License key	E8267D-602	None
E8267DK-005	6 GB internal hard drive	Customer installable - License key	S/N prefix < xx4829	S/N prefix ≥ xx4829
E8267DK-007	Fully synthesized analog frequency and power ramp sweep	Customer installable - License key	None	None
E8267DK-009	Removable flash memory (8 GB)	Customer installable - License key	S/N prefix ≥ xx4829	S/N prefix < xx4829
E8267DK-016	Wide band external I/Q inputs	Customer installable - License key	S/N prefix ≥ xx4722	S/N prefix < xx4722
E8267DK-403	Calibrated noise, AWGN	Customer installable - License key	E8267D-602	None
E8267DK-409	GPS personality	Customer installable - License key	E2867D-602	None
E8267DK-423	Add scenario generator for MS-GPS personality	Customer installable - License key	E8267D-009, 409, E8267D-602	None
Not upgradeable	Frequency range from 250 kHz to 13 GHz	n/a	n/a	n/a
Not upgradeable	Frequency range from 250 kHz to 20 GHz	n/a	n/a	n/a
Not upgradeable	Frequency range from 250 kHz to 31.8 GHz	n/a	n/a	n/a
Not upgradeable	Frequency range from 250 kHz to 44 GHz	n/a	n/a	n/a
E8267DK-602	Internal baseband generator, 64 MSa memory	Customer installable - hardware, License key	None	None

Ordering number	Description	Upgrade contents	Additional requirements	Incompatible with
E8267DK-1ED	Type-N (f) RF output connector	Customer installable - hardware, License key	520	31.8 GHz or 44 GHz models
E8267DK-1EH	Improved harmonics below 2 GHz	Customer installable - License key	S/N prefix < xx5042	S/N prefix ≥ xx5042
E8267DK-2EH	Improved harmonics below 2 GHz	Customer installable License key	S/N prefix ≥ xx5042	S/N prefix < xx5042
E8267DK-3EU <sup>9</sup>	Adds 5 to 7 dB more output power < 3.2 GHz for S/N prefix ≥ xx4805 and < xx5042	Factory installation only	S/N prefix ≥ xx4805 and < xx5042	S/N prefix < xx4805 and ≥ xx5042
Not upgradeable	Wideband modulation less than 3.2 GHz	n/a	n/a	n/a
E8267DK-R2C	Core instrument firmware enhancements	Customer installable - License key	None	None
E8267DK-SP1	Kit to provide Signal Studio for Jitter Injection connectivity	Customer installable - License key	None	None
E8267DK-UNT	AM, FM, phase modulation, and LF output	Customer installable - License key	None	None
E8267DK-UNU	Pulse modulation	Customer installable - License key	None	Option UNW
E8267DK-UNW	Narrow pulse modulation	Customer installable - hardware, License key	S/N prefix < xx5042	S/N prefix ≥ xx5042, H18
E8267DK-2NW	Narrow pulse modulation	Customer installable - License key	S/N prefix ≥ xx5042	S/N prefix < xx5042
E8267DK-UNX (kit number E8251- 60417 for serial prefix < US4805/ MY4805 & kit number E8251- 60980 for serial prefix ≥ xx4805)	Ultra-low phase noise performance	Customer installable - hardware, License key	None	None
E8267DK-UNY <sup>10</sup>	Enhanced ultra low phase noise	Service center installable hardware, license key	S/N prefix ≥ xx5042	S/N Prefix < xx5042

<sup>9</sup> Keysight factory installation only. Requires an additional factory installation and calibration charge (E8267DK-700).

<sup>10</sup> Keysight service center installation only.

# Web Resources

- For additional product information, visit: [www.keysight.com/find/psg](http://www.keysight.com/find/psg)
- For accessory information, visit: [www.keysight.com/find/accessories](http://www.keysight.com/find/accessories)

# Related Keysight Literature

Publication name	Publication number
Keysight Microwave Signal Generators - Brochure	5991-4876EN
E8267D PSG Vector Signal Generator - Data Sheet	5989-0697EN
E8257D PSG Microwave Analog Signal Generator – Data Sheet	5989-0698EN
E8257D PSG Microwave Analog Signal Generator – Configuration Guide	5991-1325EN
E8663D PSG RF Analog Signal Generator - Data Sheet	5990-4136EN
E8663D PSG RF Analog Signal Generator - Configuration Guide	5990-4137EN

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