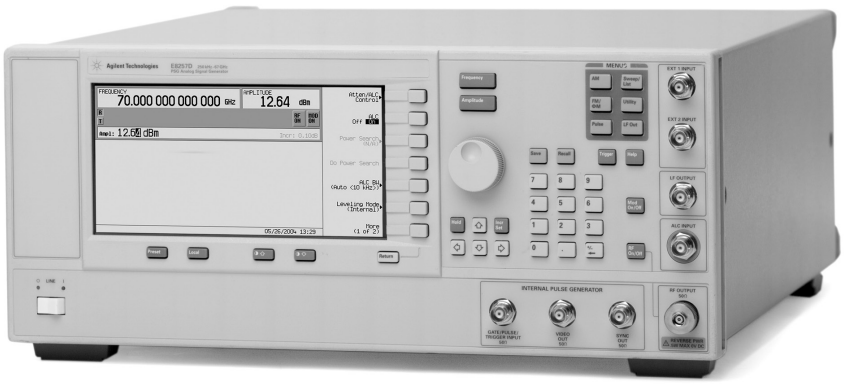
# Agilent E8257D PSG Microwave Analog Signal Generator

## Configuration Guide



**You Can Upgrade!**
Options can be added after initial purchase.

This guide assists in the ordering process of the E8257D PSG microwave analog signal generator.

Agilent Technologies

**Standard product includes installation guide, electronic documentation set (CD-ROM), adapters, and country specific power cord.**

# Agilent PSG Microwave Analog Signal Generator Options

## 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-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<br>Frequency range from 10 MHz to 20 GHz | Selects the frequency range of the ultra-high output power signal generator | |

## 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) | |

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

## Step 6. Choose spectral purity

| Ordering number | Description | Purpose | Requires |
|---|---|---|---|
| Standard | Standard spectral purity | Provides low phase noise. | |
| E8257D-UNX [2] | Ultra-low phase noise frequency offsets ranging from 1 Hz to 10 kHz | Improves phase noise performance close-to-carrier | |
| E8257D-UNY [2] | 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 | |

## 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. | |

## Step 9. Choose custom options [1]

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

| Ordering number | Description | Purpose | Requires |
|---|---|---|---|
| E8257D-H30 | Add internal mixer for upconversion capability in the 20 GHz, 31.8 GHz and 40 GHz models | Enable upconversion of complex modulated signals to frequencies up to 46 GHz | E8257D-1E1 and 520, 532, or 540 |
| E8257D-H60 | Add internal mixer on the rear panel for upconversion capability in the 50 GHz and 67 GHz models | Enable upconversion of complex modulated signals to frequencies up to 65 GHz | E8257D-550 or 567. 1EU is recommended |
| E8257D-H65 | Add internal mixer with doubler on the rear panel for upconversion capability in the 20 GHz, 31.8 GHz, and 40 GHz models; RF 20 to 65 GHz, LO 5 to 30 GHz, IF 1 to 22 GHz | Enable upconversion of complex modulated signals to frequencies up to 65 GHz | E8257D- 520, 532, or 540. 1EU recommended |
| E8257D-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 [3] | 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 [3] | 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 |

1. All specified performance attributes of custom options are tested at 25 °C (±3 °C) unless otherwise noted. For more information contact Agilent Technologies.
2. E8257D-UNX and E8257D-UNY are mutually exclusive. Choose one or the other or neither.
3. Recommended for customers in countries subject to export regulations.

## Step 10. Choose instrument connector configuration and accessories

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

| Ordering number | Description | Purpose | Requires |
|---|---|---|---|
| Standard with E8257D-520 and -521 | 3.5 mm (f) to 3.5 mm (f) connector adapter | Adapter is included with the purchase of the 20 GHz models to connect to 3.5 mm (m) | |
| Standard with E8257D-532, -540, and -550 | 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 [1] | 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 [2] | 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 environments | E8257D-1EM |
| E8257D-1CM | Rackmount flange kit | Provides a flange kit to mount the signal generator into a standard EIA 19" rack | |
| E8257D-1CN | Front handle kit | Provides front handles for carrying the instrument (not for rack mount) | |
| E8257D-1CP | Rackmount kit with front handles | Provides front handles and a flange kit to mount the signal generator into a standard EIA 19" rack | |
| E8257DS15 | OML Inc. [3] model number S15MS-AG at +8 dBm | Millimeter source module, 50 GHz to 75 GHz | E8257D-1EU |
| E8257DS12 | OML Inc. [3] model number S12MS-AG at +6 dBm | Millimeter source module, 60 GHz to 90 GHz | E8257D-1EU |
| E8257DS10 | OML Inc. [3] model number S10MS-AG at +5 dBm | Millimeter source module, 75 GHz to 110 GHz | E8257D-1EU |
| E8257DS08 | OML Inc. [3] model number S08MS-AG at –5 dBm | Millimeter source module, 90 GHz to 140 GHz | E8257D-1EU |
| E8257DS06 | OML Inc. [3] model number S06MS-AG at –9 dBm | Millimeter source module, 110 GHz to 170 GHz | E8257D-1EU |
| E8257DS05 | OML Inc. [3] model number S05MS-AG at –15 dBm | Millimeter source module, 140 GHz to 220 GHz | E8257D-1EU |
| E8257DS03 | OML Inc. [3] model number S03MS-AG at –25 dBm | Millimeter source module, 220 GHz to 325 GHz | E8257D-1EU |
| E8257DS02 | OML Inc. [3] model number SM02MS-AG at –27 dBm | Millimeter source module, 325 GHz to 500 GHz | E8257D-1EU |
| E8257DV10 [4] | VDI model number WR10 SGX | Millimeter frequency extension module, 75 to 110 GHz at +14 dBm | |
| E8257DV08 [4] | VDI model number WR8.0 SGX | Millimeter frequency extension module, 90 to 140 GHz at +9 dBm | |
| E8257DV05 [4] | VDI model number WR5.1 SGX | Millimeter frequency extension module, 140 to 220 GHz at +4 dBm | |
| E8257DV03 [4] | VDI model number WR3.4 SGX | Millimeter frequency extension module, 220 to 330 GHz at –2 dBm | |
| E8257DV02 [4] | VDI model number WR2.2 SGX | Millimeter frequency extension module, 325 to 500 GHz at –10 dBm | |
| E8257DV1B [4] | VDI model number WR1.5 SGX | Millimeter frequency extension module, 500 to 750 GHz at –21 dBm | |
| E8257DV01 [4] | VDI model number WR1.0 SGX | Millimeter frequency extension module, 750 to 1100 GHz at –23 dBm | |
| U3035P | Distribution network - PSG generators for phase coherent applications | Distribute master LO signal to multiple signal | E8257D-HCC |

1. Option 1ED is not compatible with frequency options E8257D-532, -540, -550, or -567.
2. Not compatible with Option 1SM (scan modulation).
3. Oleson Microwave Labs, Inc.
4. E8257DVxx frequency extension modules require an N5262VDI-175 external power supply.

## Step 11. Choose documentation

Standard products ship with an installation guide and an electronic documentation set (CD-ROM). The CD-ROM includes: user's guide, installation guide, programming guide, service guide, SCPI command reference, error messages, key reference, data sheets, and additional product literature.

| Ordering number | Description |
|---|---|
| E8257D-CD1 | CD-ROM containing the English documentation set |
| 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 |
| E8257D-0BW | Printed copy of the assembly-level service guide |

## Step 12. Choose a warranty plan

| Ordering number | Description |
|---|---|
| Included | Warranty Assurance Plan, Return to Agilent, 3 years, standard |
| R-51B-001-5C | Warranty Assurance Plan, Return to Agilent, 5 years |

## Step 13. Choose a calibration plan

| Ordering number | Description |
|---|---|
| E8257D-UK6 | Commercial calibration certificate with test data |
| E8257D-A6J | ANSI Z540-1-1994 calibration |
| E8257D-AMG | Agilent Cal + Uncertainties + Guradbanding (accredited cal) |
| E8257D-1A7 (Opt 550 and 567 only) | Agilent Cal + Uncertainties + Guradbanding (compliant cal) |
| R-50C-011-3 | Calibration Assurance Plan, Return-to-Agilent, 3 years |
| R-50C-011-5 | Calibration Assurance Plan, Return-to-Agilent, 5 years |
| R-50C-016-3 | Agilent Calibration + Uncertainties + Guardbanding, 3 years |
| R-50C-016-5 | Agilent 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 | Daily productivity assistance |
| PS-T10-ASG | Signal generator and source basics; .5 day, max. 8 students on site |
| PS-X10 | Custom services to be qualified by Agilent |

# Upgradeable Options

For complete upgrade details, including firmware, visit: **www.agilent.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 Agilent representative about our customized upgradeable options.

| Product | Order number | Description | Upgrade contains | Additional requirements | Incompatible with |
|---|---|---|---|---|---|
| 007 | E8257DK-007 | Enables fully synthesized continuous analog frequency and power sweeps | Customer installable - License key | None | None |
| 008 | E8257DK-008 | Adds 8 GB removable flash memory | Customer installable - License key | S/N ≥ 4928 | S/N < 4928 |
| 1E1 | 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 |
| 1EA | E8257DK-1EA | Provides increased output power performance up to 67 GHz | Customer installable - License key | S/N < 4928 | Option 1EU or S/N ≥ 4928 |
| 1ED | 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 520 | Frequency options other than 520 |
| 1EH | 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 |
| 2EH | 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 |
| 1EU | 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 |
| 2EU | 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 |
| 3EU | 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 |
| UNX | 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 |
| UNT | 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 |
| UNU | E8257DK-UNU | Adds standard pulse modulation; see data sheet for details | Customer installable - License key | None | Option UNW |
| 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 |
| 2NW | 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 |
| UNY | E8257DK-UNY[1] | Add enhanced ultra-low phase noise | Customer installable - harware, License key | S/N ≥ 5042 | S/N < 5042 |
| 2NY | E8257DK-2NY[2] | Add enhanced ultra-low phase noise | Customer installable - harware, License key | S/N = 4928 | S/N ≥ 5042 |
| R2C | E8257DK-R2C | Core instrument firmware enhancements | Customer installable - License key | None | None |

1. *Agilent service center installation only.*
2. *Agilent factory installation only. Requires an additional factory installation and calibration charge (E8257DK-700).*

## Web Resources

For additional product information, visit: **www.agilent.com/find/psg**

For information about renting, leasing or financing Agilent's latest technology, visit: **www.agilent.com/find/buyalternatives**

For accessory information, visit: **www.agilent.com/find/accessories**

## Related Agilent Literature

*Agilent PSG Microwave Signal Generators*
Brochure, Literature number 5989-1324EN

*E8257D PSG Microwave Analog Signal Generator*
Data Sheet, Literature number 5989-0698EN

*E8267D PSG Microwave Vector Signal Generator*
Data Sheet, Literature number 5989-0697EN
Configuration Guide, Literature number 5989-1326EN

*E8663D PSG RF Analog Signal Generator*
Data Sheet, Literature number 5990-4136EN
Configuration Guide, Literature number 5990-4137EN

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| Korea | 080 769 0800 |
| Malaysia | 1 800 888 848 |
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| Other AP Countries | (65) 375 8100 |

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| Netherlands | 31 (0) 20 547 2111 |
| Spain | 34 (91) 631 3300 |
| Sweden | 0200-88 22 55 |
| United Kingdom | 44 (0) 118 927 6201 |

*For other unlisted countries:*
**www.agilent.com/find/contactus**
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