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Find the *Panasonic VP-8132A* at our website: *Click HERE*

# Versatile seven model lineup includes a new DDS signal generator. Four models feature electronic attenuation.

280 MHz Synthesized Signal Generator

New With DDS (Direct Digital Synthsizer) Signal Source

Electronic ATT DDS

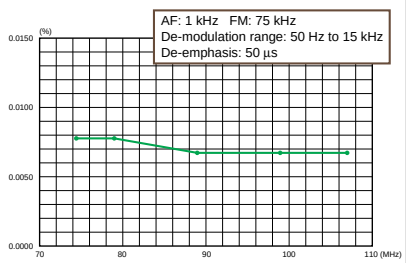
Direct digital synthesizer for enhanced frequency response measurements.

## VP-8133A

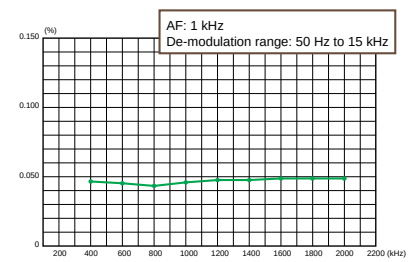


## Typical data of performance

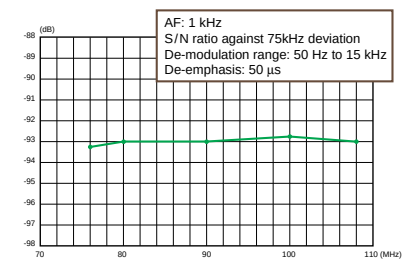
FM modulation distortion of 0.01 % or less



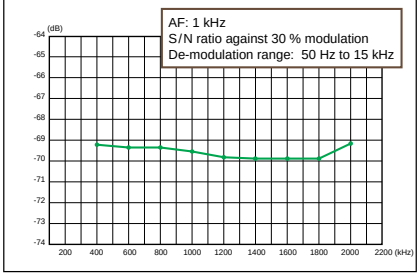

AM modulation distortion of 0.1 % or less



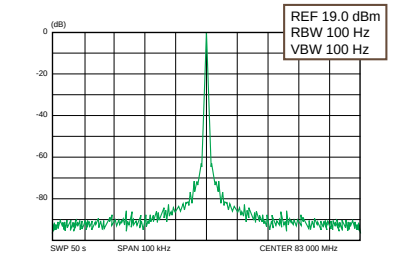

AM modulation distortion of 0.1 % or less



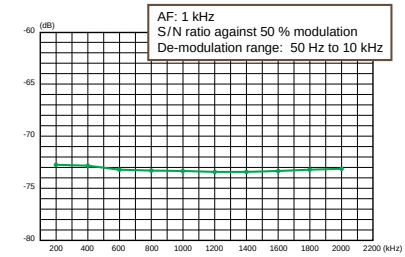

AM residual modulation(S/N) of 65 dB or more




Spurious




AM stereo residual distortion(S/N) MAIN(VP-8122B)




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## Multi-purpose standard model

High purity signal and 19 dBm output covers 0.01 to 280 MHz range (broadcast band), Basic Model.

Electronic ATT




## With FM stereo modulator

Additional FM stereo modulation with 60 dB or more stereo separation, based on VP-8130A/VP-8120B.

Electronic ATT




## With FM/AM stereo modulator

Additional High performance signal generator with FM and AM stereo (C-QUAM) modulation, based on VP-8130A/VP-8120B.

Electronic ATT




New

| | Electronic ATT | F M | A M | FM stereo | AM stereo | DDS |
|---|---|---|---|---|---|---|
| VP-8130A | ● | ● | ● | | | |
| VP-8131A | ● | ● | ● | ● | | |
| VP-8132A | ● | ● | ● | ● | ● | |
| VP-8133A | ● | ● | ● | ● | | ● |
| VP-8120B | | ● | ● | | | |
| VP-8121B | | ● | ● | ● | | |
| VP-8122B | | ● | ● | ● | ● | |

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# VP-8120 Series • VP-8130 Series

## FEATURES

### 1 Low FM modulation distortion, low spurious, high purity source for all basic performance tests

- Covers wide range from LW to VHF.
- Supports hi-fi receiver tests with low –60 dBc spurious and 90 dB or more S/N ratio.

#### FM/AM high purity signals

- Low FM (0.01% or less) and AM (0.1% or less) modulation distortion with –60 dBc non-harmonic spurious for testing hi-fi receivers.
- Residual distortion of better than 90 dB (FM) and 65 dB (AM).

#### High 2 V output (19 dBm)

- High output from –133 to +19 dBm (50 Ω).
- 0.1 dB attenuator setting resolution for all ranges.
- Results can be celected in 7 units.
- Built-in output level sweep function.

#### High 10 Hz RF resolution (10 kHz to 140 MHz)

- Frequency range of 0.01 to 280 MHz covers LW, AM, FM and VHF TV bands to allow testing of anything from hi-fi tuners, car audio and pagers to communications equipment.
- 8-digit high resolution setting:
  20 Hz (140.00002 to 280.00000 MHz) and 10 Hz (below 140 MHz).
- Frequency sweep function provided as standard.

### 2 VP-8130 series features long-life electronic attenuator for all bands

- RF section employs electronic attenuator to achieve the zreliable long life required for high speed automated testing systems.

#### Built-in direct digital synthesizer (VP-8133A)

- The VP-8133A features a DDS in addition to 400 Hz/1 kHz internal oscillators to allow 1 Hz step frequency response measurements from 20 Hz to 20 kHz.

### 3 Space saving design simplifies measurements

- Built-in AM/FM stereo modulation (VP-8132B/VP8122A) makes it easy to configure measurement instruments and set up optimal measurement conditions. Switching signals and connecting instruments is greatly simplified.

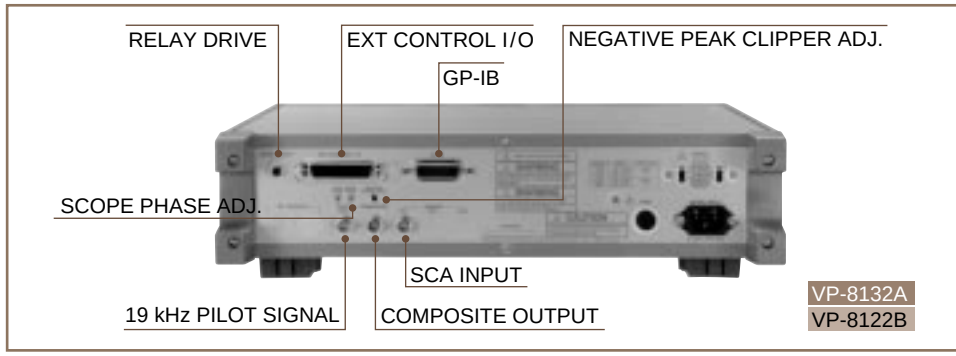
#### High-speed frequency settling, GP-IB interface

- Standard GP-IB interface with fast 70 ms frequency settling time supports high-speed system automation.

#### Flexible memory and interfaces

- An auto sequence function makes it simple to create an automatic measurement system by combining the SSG with a Panasonic audio analyzer, etc. No external PC or controller is required. Standard memory can hold up to 100 combinations of panel settings.
- External control of other instruments and automated test system peripherals is supported by a 2-port, 8-bit TTL I/O external control interface.

## Rear Panel




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## Common Specification

### Frequency

| | |
|---|---|
| Frequency range: | 0.01 to 280 MHz |
| Display/Resolution: | 0.01000 to 280.00000 MHz |

| Band | RF frequency | Resolution |
|---|---|---|
| 4 | 140.00002 to 280.00000 | 20 |
| 3 | 70.00001 to 140.00000 | 10 |
| 2 | 35.00001 to 70.00000 | 10 |
| 1 | 0.01000 to 35.00000 | 10 |
| VP-8132A/8122B AM ST | 0.010000 to 2.000000 | 1 |

| | |
|---|---|
| Switching speed: | To be within 100 Hz to final frequency<br>Processing time: ≤ 15 ms<br>Settling time: ≤ 55 ms |
| Accuracy: | ± 2 x $10^{-6}$ ± 1 digit |
| Aging rate: | ± 2 x $10^{-7}$/week |
| Temperature coefficient: | ± 2 x $10^{-6}$ / (10 to 35 ˚C) |

### Output Level

| | |
|---|---|
| Output level range: | – 133 to + 19 dBm (50 Ω)<br>– 134.8 to + 17.2 dBm (75 Ω) |
| Resolution: | 0.1 dB |
| Accuracy: | ± 1 dB (≥ – 113 dBm: 50 Ω)<br>± 1.5 dB (< – 113 dBm: 50 Ω) |
| Flatness: | ± 1 dB or less (Output level: + 8 dBm, 50 Ω) |
| Output impedance: | 50 Ω/75 Ω |
| VSWR: | ≤ 1.2 (Output level ≤ + 3 dBm: 50 Ω) |
| Radiation interference: | ≤ 1 µV (25 mm apart from the main body) |
| Unit: | dBm, dBµV, dBµV [emf], V, mV, µV, V [emf], mV [emf], µV [emf] |
| Attenuator contact: | |
| VP-8120B series | Mechanical contact |
| VP-8130A series | Semiconductor contact |

### Signal purity

| | |
|---|---|
| Spurious: | |
| Harmonics: | |
| RF: 0.01 to 35 MHz | ≤ – 30 dBc (Output > +13dBm: 50 Ω) |
| RF: 0.01 to 35 MHz | ≤ – 40 dBc (Output ≤ +13dBm: 50 Ω) |
| RF: 35.000 1 to 280 MHz | ≤ – 30 dBc (Output ≤ +13dBm: 50 Ω) |
| Non-harmonics: | ≤ – 60 dBc (± 10 kHz offset from carrier) |

### Residual modulation

| | |
|---|---|
| FM component: | (AF 1 kHz, FM 75 kHz)<br>≥ 90 dB (10.7 ± 1/76 to 108 MHz)<br>≥ 80 dB (0.3 to 280 MHz)<br>(BW 50 Hz to 15 kHz)<br>(De-emphasis 50 µs) |
| AM component: | (AF 1 kHz, AM 30 %)<br>≥ 65 dB (0.4 to 1.7 MHz)<br>≥ 60 dB (0.15 to 280 MHz)<br>(BW 50 Hz to 15 kHz)<br>(Except beat element) |

### Modulation

| | |
|---|---|
| Internal modulation signal: | |
| RC oscillator: | 400 Hz, 1 kHz ≤ ± 3 % |
| DDS: | VP-8133A only |
| Frequency range/Accuracy: | 20 Hz to 20 kHz/± 0.01 % |
| Resolution: | 1 Hz |
| Flatness: | Same as ext. modulation frequency response |
| Ext. modulation input inpedance: | Approx.10 kΩ |
| Ext. modulation input voltage: | Approx.1V [peak] |

### Amplitude modulation

| | |
|---|---|
| Modulation depth: | 0 to 100 % (Output level ≤ + 13 dBm, RF ≥ 0.15 MHz) |
| Resolution: | 0.5 % (0 to 100 %) |
| Accuracy: | (AF 1 kHz) |
| (0.4 to 1.7 MHz) | ± (Reading x 0.04 + 2) % (≤ 80 %) |
| (0.15 to 280 MHz) | ± (Reading x 0.06 + 2) % (≤ 80 %) |
| Distortion: | (BW 50 Hz to 15 kHz, AF 1 kHz: RC) |

| Modulation: | 0 to 30 % | 30 to 60 % | 60 to 80 % |
|---|---|---|---|
| Band 1: 0.4 to 1.7 MHz | ≤ 0.1 % | ≤ 0.5 % | ≤ 1 % |
| All band: 0.15 to 280 MHz | ≤ 1 % | ≤ 2 % | ≤3 % |

(Except beat element)

### (VP-8120 series: + 13 dBm, VP-8130 series: + 8 dBm)

| | |
|---|---|
| Incidental FM: | (AF 1kHz AM 30 %) |
| (0.4 to 1.7 MHz) | ≤ 75 Hz |
| (0.15 to 280 MHz) | ≤ 200 Hz |
| Ext. modulation frequency response: | ≤ ± 1 dB: 20 Hz to 10 kHz<br>(Ref.: 1 kHz RF ≥ 0.3 MHz)<br>(Max. modulation frequency is up to 2 % of carrier frequency at 30 % AM.) |

### Frequency modulation

| Frequency deviation range: | 0 to 9.99 kHz | 10 to 99.9 kHz | 100 to 999 kHz |
|---|---|---|---|
| Resolution: | 10 Hz | 100 Hz | 1 kHz |

(Max. FM deviation is up to 25 % of carrier frequency)

| | |
|---|---|
| Accuracy: | ± (Reading x 0.08+1digit) |
| Distortion: | (BW 50 Hz to 15 kHz, AF 1 kHz: RC FM 75 kHz)<br>≤ 0.01 % (10.7 ± 1/76 to 108 MHz)<br>≤ 0.1 % (0.3 to 140 MHz)<br>≤ 0.5 % (140.000 02 to 280 MHz) |
| Stereo separation: | (AF1 kHz 67.5 kHz deviation 76 to 108 MHz)<br>≥ 60 dB |
| Incidental AM: | (AF 1 kHz FM 75 kHz)<br>≤ 0.5 % (10.7 ± 1/76 to 108 MHz) |
| Ext. modulation frequency response: | MONO mode (20 Hz to 100 kHz, 1 kHz ref.)<br>≤ ± 0.3dB (76 to 108 MHz)<br>≤ ± 1dB (0.3 to 280 MHz)<br>Other than MONO mode (20 Hz to 15 kHz, 1 kHz ref.)<br>≤ ± 1dB (2.000 01 to 280 MHz) |
| FM • AM simultaneous modulation: | 4 kinds |

## VP-8132A/VP-8122B (VP-8132A: +8 dBm, VP-8122B: +13 dBm)

### AM stereo

| | |
|---|---|
| AM stereo: | C-QUAM (Motorola system) |
| RF frequency: | 0.200000 to 2.000000 MHz |
| Resolution: | 1 Hz |

### Residual modulation

| | |
|---|---|
| AM component: | (AF 1 kHz, Main ch. 50 % modulation)<br>≥ 65 dB (BW 50 Hz to 10 kHz) |
| PM component: | (AF 1 kHz, Sub ch. 50 % modulation)<br>≥ 54 dB (BW 50 Hz to 10 kHz) |

Main • Sub ch. modulation:

| Mode | Modulation signal | Contents |
|---|---|---|
| OFF | – | Pilot signal only |
| L=R<br>L<br>R<br>L= – R | INT/EXT R | Setero modulation by single signal |
| MONO | INT/EXT R | Monophonic modulation |
| EXT L,R | Lch: EXT L<br>Rch: EXT R | Stereo modulation by Ext. two signals |

Specification of monophonic modulation mode is based on the common specification of this series.

### Main channel modulation

| | |
|---|---|
| Modulation: | AM |
| Range: | 0 to 100 % |
| Resolution: | 1 % |
| Accuracy: | ± (Reading x 0.05 + 2)% (0 to 99 %) |
| Distortion: | (AF 1 kHz BW 50 Hz to 10 kHz)<br>≤ 0.2 % (50 % modulation) |

### Sub channel modulation

| | |
|---|---|
| Modulation: | PM |
| Range: | 0 to 100 % (100 %: ± 45 ˚) |
| Resolution: | 1 % |
| Accuracy: | ± (Reading x 0.05 + 2)% |
| Distortion: | (AF 1 kHz BW 50 Hz to 10 kHz)<br>≤ 1 % (50 % modulation) |

### L,R modulation

| | |
|---|---|
| Range: | 0 to 80 % |
| Resolution: | 1 % |
| Accuracy: | ± (Reading x 0.05 + 2)% |
| Distortion: | (AF 1 kHz BW 50 Hz to 10 kHz)<br>≤ 1 % (50 % modulation) |
| Cross talk: | (AF 1kHz 50 % modulation) |
| Main to Sub ch: | ≥ 40 dB |
| Sub to main ch: | ≥ 46 dB |
| Separation: | ≥ 36 dB (BW 400 Hz to 4 kHz)<br>≥ 26 dB (BW 100 Hz to 7.5 kHz) |

### Pilot signal

| | |
|---|---|
| Frequency: | 25 Hz |
| Frequency accuracy: | ± 1 % |
| Range: | 0 to 10 % (Display: 0 to 12.5 %) |
| Resolution: | 0.1 % |
| Modulation accuracy: | ± (Reading x 0.05 + 2)% |

### Negative peak clipper

| | |
|---|---|
| ON-OFF control: | |
| Variable range: | ≥ (95 % ± 5 %) |

## VP-8133A/VP-8132A/VP-8131A/VP-8122B/VP-8121B

### FM stereo

Frequency range: 2.000 01 to 280 MHz

Modulation mode:

| Mode | Modulation signal | Contents |
|---|---|---|
| OFF | – | Pilot signal only |
| L=R<br>L<br>R<br>L= – R | INT L, EXT L | Setero modulation by single signal |
| MONO | INT/EXT L | Monophonic modulation |
| INT L<br>EXT R | Lch: INT L<br>Rch: EXT R | Stereo modulation by Int. & Ext. |
| EXT L,R | Lch: EXT L<br>Rch: EXT R | Stereo modulation by Ext. two signals |

Specification of monophonic modulation mode is based on the common specification of this series.

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| Signal level ratio (M + S variable) | |
|---|---|
| Range: | 0 to 114 % (Other than Monophonic)<br>0 to 127 % (MONO) |
| Resolution: | 1 % |
| Accuracy: | ± 5 % |
| Pre-emphasis: | 25 µs/50 µs/75 µs/OFF |

| Pilot Signal | |
|---|---|
| Frequency/Accuracy: | 19 kHz/± 1 Hz |
| Level setting/Resolution: | 0 to 19.9 %/0.1 % |
| Accuracy: | ± 1 % |

| Composite output (Against the internal modulation) | |
|---|---|
| Level: | 0 to 9.99 V [p-p] Open end ± 5 % |
| Output impedance: | Approx. 75 Ω |
| Stereo separation: | ≥ 60 dB, 90 % level ratio (AF: 1 kHz) |
| Distortion: | 0.01 % (RC oscillator) |
| S/N: | ≥ 90 dB, 100 % level ratio |
| 38 kHz sub carrier leakage: | ≥ – 50 dB |

| 19 kHz output signal | |
|---|---|
| Level: | Approx. 1 V [rms] |
| Impedance: | Approx. 1 kΩ |

| SCA signal | |
|---|---|
| Frequency range: | 20 to 99 kHz ±1 dB (57 kHz ref.) |
| Input level: | 0.56 V [p-p] (0.2 V [rms])<br>Equivalent to 10 % level ratio |
| Input impedance : | Approx. 10 kΩ |

| Preset function | |
|---|---|
| Assorted preset: | 100 data (Panel condition, I/O condition, Output level) |

| Interface | |
|---|---|
| GP-IB: | Listener/talker, Listen only, Talk only,<br>Remote/local, Device clear<br>SH1, AH1, T7, L3, SR0, RL1,<br>PP0, DC1, DT0, C0 |
| External control interface: | (1) Sequential recall (Up/Down/Clear)<br>(2) Modify (Freq./Level)<br>(3) Direct recall<br>(4) 8 bits TTL control<br>(5) Print out of memory contents<br>(6) 8 bits data read<br>(7) Relay drive (Dummy antenna switching) |

| Others | |
|---|---|
| Power requirement: | AC100/120/220/230 V |
| Frequency: | 50 Hz/60 Hz |
| Power consumption: | Approx. 90 VA |
| Mass • Dimension: | W 426 x H 99 x D 400 mm<br>Approx. 15 kg |
| Accessories: | Output cable, GP-IB connector shield cap, Power cable,<br>Spare fuse, Operation manual |

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