

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

New With DDS (Direct Digital Synthesizer) Signal Source

Electronic
ATT

DDS

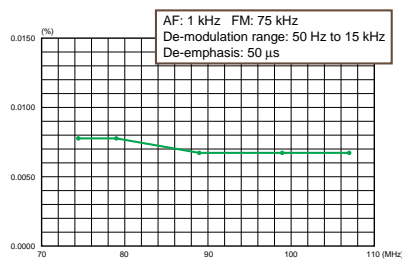
Direct digital synthesizer for enhanced frequency response measurements.

VP-8133A

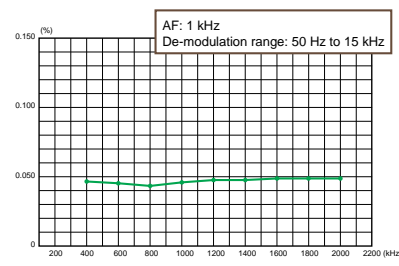


▼ Typical data of performance

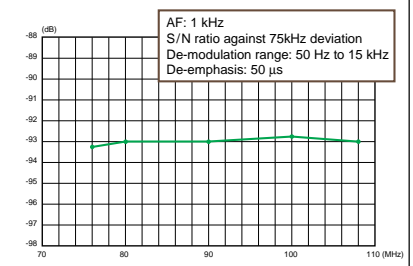
FM modulation distortion of 0.01 % or less



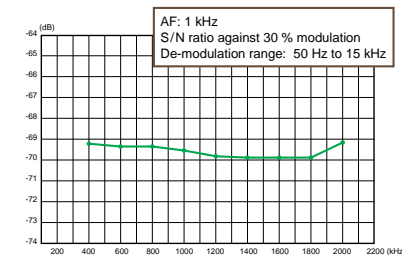
AM modulation distortion of 0.1 % or less



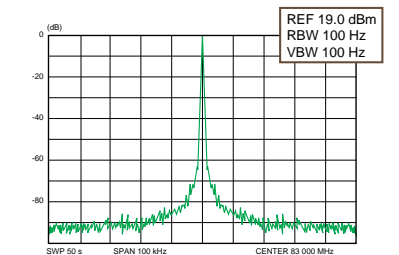
AM modulation distortion of 0.1 % or less



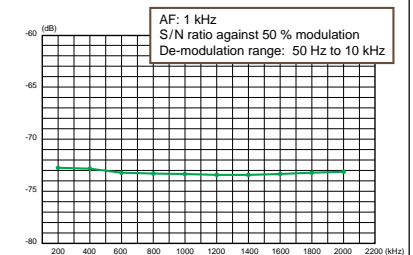
AM residual modulation(S/N) of 65 dB or more



Spurious



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



Multi-purpose standard model

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

Electronic
ATT

VP-8130A



VP-8120B



With FM stereo modulator

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

Electronic
ATT

VP-8131A



VP-8121B



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

VP-8132A



VP-8122B



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		●	●	●	●	

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 selected 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 reliable 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.

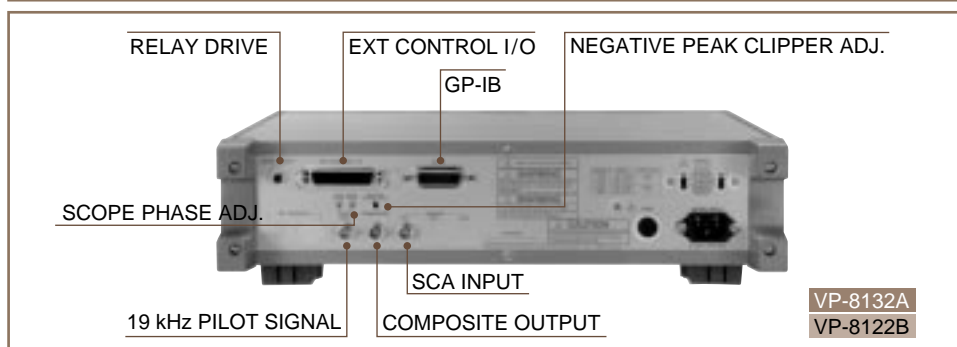
High-speed frequency settling, GP-IB interface

- 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



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 Processing time: ≤ 15 ms 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) – 134.8 to + 17.2 dBm (75 Ω)
Resolution:	0.1 dB
Accuracy:	± 1 dB (≥ – 113 dBm: 50 Ω) ± 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) ≥ 90 dB (10.7 ± 1/76 to 108 MHz) ≥ 80 dB (0.3 to 280 MHz) (BW 50 Hz to 15 kHz) (De-emphasis 50 μs)
AM component:	(AF 1 kHz, AM 30 %) ≥ 65 dB (0.4 to 1.7 MHz) ≥ 60 dB (0.15 to 280 MHz) (BW 50 Hz to 15 kHz) (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 impedance:	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) ± (Reading x 0.04 + 2) % (≤ 80 %) ± (Reading x 0.06 + 2) % (≤ 80 %)		
(0.4 to 1.7 MHz)			
(0.15 to 280 MHz)			
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 (Ref.: 1 kHz RF ≥ 0.3 MHz) (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) ≤ 0.01 % (10.7 ± 1/76 to 108 MHz) ≤ 0.1 % (0.3 to 140 MHz) ≤ 0.5 % (140.000 02 to 280 MHz)
Stereo separation:	(AF 1 kHz 67.5 kHz deviation 76 to 108 MHz) ≥ 60 dB
Incidental AM:	(AF 1 kHz FM 75 kHz) ≤ 0.5 % (10.7 ± 1/76 to 108 MHz)
Ext. modulation frequency response:	MONO mode (20 Hz to 100 kHz, 1 kHz ref.) ≤ ± 0.3dB (76 to 108 MHz) ≤ ± 1dB (0.3 to 280 MHz) Other than MONO mode (20 Hz to 15 kHz, 1 kHz ref.) ≤ ± 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) ≥ 65 dB (BW 50 Hz to 10 kHz) (AF 1 kHz, Sub ch. 50 % modulation) ≥ 54 dB (BW 50 Hz to 10 kHz)
PM component:	

Main • Sub ch. modulation:	Mode	Modulation signal	Contents
	OFF	—	Pilot signal only
	L=R L R L= − R	INT/EXT R	Setero modulation by single signal
	MONO	INT/EXT R	Monophonic modulation
	EXT L,R	Lch: EXT L 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) ≤ 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) ≤ 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) ≤ 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) ≥ 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:	2.00001 to 280 MHz																			
Modulation mode:	<table><tr><th>Mode</th><th>Modulation signal</th><th>Contents</th></tr><tr><td>OFF</td><td>–</td><td>Pilot signal only</td></tr><tr><td>L=R L R L= – R</td><td>INT L, EXT L</td><td>Setero modulation by single signal</td></tr><tr><td>MONO</td><td>INT/EXT L</td><td>Monophonic modulation</td></tr><tr><td>INT L EXT R</td><td>Lch: INT L Rch: EXT R</td><td>Stereo modulation by Int. & Ext.</td></tr><tr><td>EXT L,R</td><td>Lch: EXT L Rch: EXT R</td><td>Stereo modulation by Ext. two signals</td></tr></table>	Mode	Modulation signal	Contents	OFF	–	Pilot signal only	L=R L R L= – R	INT L, EXT L	Setero modulation by single signal	MONO	INT/EXT L	Monophonic modulation	INT L EXT R	Lch: INT L Rch: EXT R	Stereo modulation by Int. & Ext.	EXT L,R	Lch: EXT L Rch: EXT R	Stereo modulation by Ext. two signals	
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Signal level ratio (M + S variable)

Range: 0 to 114 % (Other than Monophonic)
0 to 127 % (MONO)

Resolution: 1 %

Accuracy: $\pm 5\%$

Pre-emphasis: 25 μ s/50 μ s/75 μ s/OFF

Pilot Signal

Frequency/Accuracy: 19 kHz ± 1 Hz

Level setting/Resolution: 0 to 19.9 %/0.1 %

Accuracy: $\pm 1\%$

Composite output (Against the internal modulation)

Level: 0 to 9.99 V [p-p] Open end $\pm 5\%$

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 k Ω

SCA signal

Frequency range: 20 to 99 kHz ± 1 dB (57 kHz ref.)

Input level: 0.56 V [p-p] (0.2 V [rms])

Equivalent to 10 % level ratio

Input impedance : Approx. 10 k Ω

Preset function

Assorted preset: 100 data (Panel condition, I/O condition, Output level)

Interface

GP-IB: Listener/talker, Listen only, Talk only,
Remote/local, Device clear
SH1, AH1, T7, L3, SR0, RL1,
PP0, DC1, DT0, C0

External control interface: (1) Sequential recall (Up/Down/Clear)
(2) Modify (Freq./Level)
(3) Direct recall
(4) 8 bits TTL control
(5) Print out of memory contents
(6) 8 bits data read
(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

Approx. 15 kg

Accessories: Output cable, GP-IB connector shield cap, Power cable,
Spare fuse, Operation manual