

# Power of Both Analog & Digital



**New**

## VC-6645

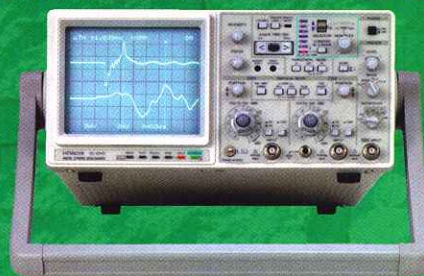
100MS/s(1CH), 50MS/s(2CH simultaneously),  
25MS/s(4CH simultaneously), 100MHz,  
4kw(1CH), 2kw/CH



**New**

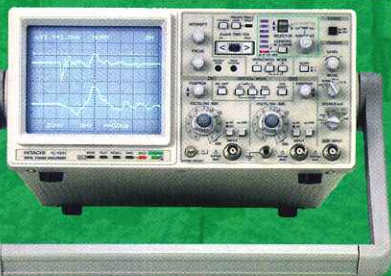
## VC-6555

100MS/s (2CH simultaneously),  
100MHz,  
8kw(1CH), 4kw/CH



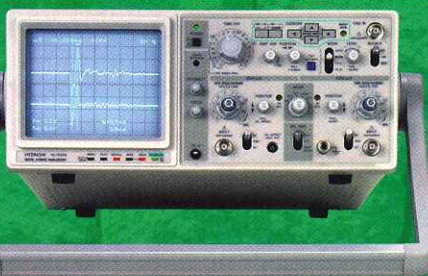
## VC-6545

40MS/s(1CH), 20MS/s(2CH simultaneous)  
100MHz,  
4kw(1CH), 2kw/CH



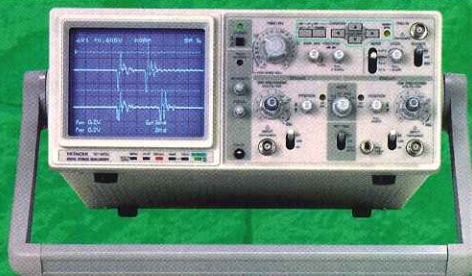
## VC-6525

20MS/s (2CH simultaneously),  
50MHz, 2kw/CH



## VC-6524

20MS/s, 50MHz, 2kw/CH



## VC-6523

20MS/s, 20MHz, 2kw/CH



# Selection Table

	Max. Sampling Rate	No. of CH	Bandwidth	Memory Capacity	Delayed Sweep	Cursors
<b>VC-6645</b>	100MS/s (1CH), 50MS/s (2CH simultaneously) 25MS/s (4CH simultaneously)	4CH	DC to 100MHz	4kw(1CH) 2kw/CH	YES YES	YES YES
<b>VC-6555</b>	100MS/s (2CH simultaneously) 40MS/s (1CH simultaneously)	2CH	DC to 100MHz	8kw(1CH), 4kw/CH	YES	YES
<b>VC-6545</b>	20MS/s (2CH simultaneously)	2CH	DC to 100MHz	4kw(1CH), 2kw/CH	YES	YES
<b>VC-6525</b>	20MS/s (2CH simultaneously)	2CH	DC to 50MHz	2kw/CH	YES	YES
<b>VC-6524</b>	20MS/s	2CH	DC to 50MHz	2kw/CH	—	YES
<b>VC-6523</b>	20MS/s	2CH	DC to 20MHz	2kw/CH	—	YES

	Frequency counter	Sweep time autoranging	Auto trigger level	Trigger lock	DC offset	Alternate Magnifier	Dimensions (W×H×D mm/ins.)	Weight (kg/lbs)
<b>VC-6645</b>	YES	YES	YES	YES	—	—	310 × 130 × 450 / 12.2 × 5.1 × 17.7	9 / 19.8
<b>VC-6555</b>	YES	YES	YES	YES	—	—	275 × 130 × 433 / 10.8 × 5.1 × 17.0	8 / 17.6
<b>VC-6545</b>	YES	YES	YES	YES	—	—	275 × 130 × 360 / 10.8 × 5.1 × 14.1	6.5 / 14.3
<b>VC-6525</b>	YES	YES	YES	YES	—	—	275 × 130 × 360 / 10.8 × 5.1 × 14.1	6.5 / 14.3
<b>VC-6524</b>	—	—	—	—	YES	YES	310 × 130 × 370 / 12.2 × 5.1 × 14.5	8 / 17.6
<b>VC-6523</b>	—	—	—	—	—	—	310 × 130 × 370 / 12.2 × 5.1 × 14.5	8 / 17.6

## VC-6645/6555 Specifications

CRT	
Type	6-inch, rectangular
Accelerating potential	Approx. 17kV
Z-axis input	DC coupling, positive-going input decreases

VERTICAL SYSTEM	
Inputs	VC-6645: CH1, CH2, CH3, CH4 VC-6555: CH1, CH2
Sensitivity and accuracy	VC-6645 (CH1, CH2): 2mV to 5V/div ±3% (CH3, CH4): 0.1V/div and 0.5V/div ±3% VC-6555: 2mV to 5V/div ±3%
Bandwidth	DC to 100MHz (2mV/div: DC to 20MHz)
Rise time	Approx. 3.5ns (2mV/div: Approx. 17.5ns)
Input withstand voltage	400V (DC+ACpeak at 1kHz)
Input coupling	AC, GND, DC
Input impedance	1MΩ±1.5%, approx. 23pF
Display mode	VC-6645: CH1, CH2, DUAL, CHOP, ADD, QUAD VC-6555: CH1, CH2, DUAL, CHOP, ADD
Polarity inversion	CH2 only

X-Y OPERATION	
X-axis input	VC-6645: X-axis: CH1, CH2, CH3, CH4 (CH1 or CH2 in storage mode) Y-axis: CH1, CH2, CH1 & CH2 (CH3 or CH4 in storage mode) VC-6555: X-axis: CH1, CH2, EXT, EXT±10 (CH1 in storage mode) Y-axis: CH1, CH2, CH1 & CH2 (CH2 in storage mode)
X-axis bandwidth	DC to 500kHz
Phase error	Within 3° from DC to 50kHz

HORIZONTAL SYSTEM	
Sweep time (non storage mode)	A (main) sweep: 50ns/div to 0.5s/div ±3% B (delayed) sweep: 50ns/div to 50ms/div ±3%
Max. sweep rate	5ns/div (×10 mag.) ±4%
Sweep mode	A, ALT (non-storage mode only), B
Delay time	1µs to 5s
Delay jitter	1/20000 or less

TRIGGER SYSTEM																			
Trigger mode	VC-6645: A trigger: AUTO, NORM, TV-V, TV-H, SINGLE B trigger: AUTO, NORM (Trigger source is depending on A) VC-6555: AUTO, NORM, TV-V, TV-H, SINGLE																		
Trigger source	VC-6645: CH1, CH2, CH3, CH4, ALT (CH1/CH2), LINE VC-6555: CH1, CH2, LINE, EXT (AC, DC, DC±10)																		
Trigger slope	+, —																		
Trigger sensitivity	VC-6645: <table border="1"> <thead> <tr> <th></th> <th>DC to 20MHz</th> <th>20MHz to 100MHz</th> </tr> </thead> <tbody> <tr> <td>CH1, CH2</td> <td>0.35div</td> <td>1.5div</td> </tr> <tr> <td>CH3, CH4</td> <td>0.5div</td> <td>1.5div</td> </tr> </tbody> </table> VC-6555: <table border="1"> <thead> <tr> <th></th> <th>DC to 20MHz</th> <th>20MHz to 100MHz</th> </tr> </thead> <tbody> <tr> <td>CH1, CH2</td> <td>0.35div</td> <td>1.5div</td> </tr> <tr> <td>EXT</td> <td>50mV</td> <td>150mV</td> </tr> </tbody> </table>		DC to 20MHz	20MHz to 100MHz	CH1, CH2	0.35div	1.5div	CH3, CH4	0.5div	1.5div		DC to 20MHz	20MHz to 100MHz	CH1, CH2	0.35div	1.5div	EXT	50mV	150mV
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	DC to 20MHz	20MHz to 100MHz																	
CH1, CH2	0.35div	1.5div																	
EXT	50mV	150mV																	
TV trigger sensitivity	INT: Sync pulse more than 1div EXT(VC-6555): Sync pulse more than 200mVp-p																		

CRT READOUT FUNCTION	
Setting display	CH1/CH2/SAVE sensitivity, Sweep time, Delay time, sampling mode, aliasing condition, trigger point, smoothing, no. of averages, interpolation
Cursor measurements	Voltage difference (ΔV), time difference (ΔT), frequency (1/ΔT)
Frequency counter	Frequency range: 20Hz to 100MHz No. of digits: 4 digits Accuracy: 1 resolution ±100ppm (15 to 35°C)

STORAGE FUNCTION		
Max. sampling rate	VC-6645: 100MS/s (1-CH operation) 50MS/s (2-CH simultaneously) 25MS/s (4-CH simultaneously) VC-6555: 100MS/s (2-CH simultaneously)	
Max. storage bandwidth	VC-6645: DC to 5MHz (Single shot phenomena) DC to 100MHz (Repetitive phenomena) VC-6555: DC to 25MHz (Single shot phenomena) DC to 100MHz (Repetitive phenomena)	
Memory Capacity	VC-6645: 4000 word (1CH operation and 1µs/div to 50s/div) 2000 word (2CH or 4CH operation and 2µs/div to 50s/div) 1000 word (1CH operation and 50ns/div to 0.5µs/div, 2CH or 4CH operation and 50ns/div to 1µs/div) VC-6555: 8000 word (1CH and 1µs/div to 50s/div, except average mode) 4000 word (1CH and 1µs/div to 0.1s/div, in average mode) (2CH and 1µs/div to 50s/div, except average mode) 2000 word (2CH and 1µs/div to 0.1s/div, in average mode) 1000 word (50ns/div to 0.5µs/div)	
Display memory	1000 word × 4	
Save memory	VC-6645: 1000 word × 4 (with backed-up) VC-6555: 1000 word × 2 (with backed-up)	
Vertical resolution	8 bits	
Horizontal Display resolution	100 points/div	
Storage mode	Normal, Average (4, 16, 64, 256 times), Roll, Hold, Single	
Sweep time	Sampling mode	VC-6645      VC-6555
	Equivalent sampling (A sweep only)	50ns/div to 0.5µs/div or 50ns/div to 1µs/div      50ns/div to 0.5µs/div
	A sweep real-time sampling	1µs/div to 0.1s/div or 2µs/div to 0.1s/div      1µs/div to 0.1s/div
	B sweep real-time sampling	1µs/div to 50ms/div or 2µs/div to 50ms/div      1µs/div to 50ms/div
	Roll (A sweep only)	0.2s/div to 50s/div      0.2s/div to 50s/div
Smoothing	Selectable On/OFF	
Interpolation	Linear or sine (only for magnified display)	
Pre-trigger	VC-6645: Max. 0 to 20div (1CH operation and 1µs/div to 0.1s/div) VC-6555: Max. 0 to 40div (1CH operation and 1µs/div to 0.1s/div)	
Post-trigger	VC-6645: Max. 0 to 10div (1CH operation and 1µs/div to 0.1s/div) VC-6555: Max. 0 to 30div (1CH operation and 1µs/div to 0.1s/div)	
Expanded display	10 times (not possible with respect to saved waveform)	
External I/O	RS-232C interface	
Hardcopy	External plotter output (for HP-GL™ plotter) No. of pens: 6 pens. Plot size: 1, 2, 4 waveforms in A4 size	

OTHERS	
Signal output	Output of the signal selected as the trigger source channel Output voltage: Approx. 25mV/div Frequency response: DC to 10MHz Output impedance: Approx. 50Ω
Power supply	90 to 250V AC, 48 to 440Hz
Ambient temperature	Rated range of use: 10 to 35°C (50 to 95°F) Operating: 0 to 40°C (32 to 104°F) Non-operating: -20 to 70°C (-4 to 158°F)
Ambient humidity	Operation: 45 to 85% Non-operating: 35 to 85% (70 % or less at 50°C (122°F))
EMI protection	Satisfied VDE standard 0871 class B
Power consumption	VC-6645: approx. 80W    VC-6555: approx. 70W
Dimensions	VC-6645: approx. 310(W) × 130(H) × 450(D)mm, 12.2 × 5.1 × 17.7 ins. VC-6555: approx. 275(W) × 130(H) × 433(D)mm, 10.8 × 5.1 × 17.0 ins.
Weight	VC-6645: approx. 9kg, 19.8 lbs. VC-6555: approx. 8kg, 17.6 lbs.

STANDARD ACCESSORIES	
Probe (1:1/10:1 switchable) × 2, AC power cord, Fuse, Operation manual	



# VC-6545/6525/6524/6523 Specifications

<b>CRT</b>	
Type	6-Inch, rectangular
Accelerating potential	VC-6545: Approx. 17kV VC-6525/6524: Approx. 12kV VC-6523: Approx. 2kV
Z-axis input	DC coupling, positive-going input decreases Bandwidth; VC-6545/6525: DC to 5MHz, VC-6524/6523: DC to 2MHz Input withstand voltage: 30V (DC+ACpeak) or 30Vp-pAC at 1kHz

<b>VERTICAL SYSTEM</b>	
Inputs	CH1, CH2
Sensitivity and accuracy	VC-6545/6525: 2mV/div to 5V/div $\pm 3\%$ VC-6524/6523: 5mV/div to 5V/div $\pm 3\%$ (x5: 1mV/div)
Bandwidth	VC-6545: DC to 100MHz (2mV/div; DC to 20MHz) VC-6525: DC to 50MHz (2mV/div; DC to 10MHz) VC-6524: DC to 50MHz (x5: DC to 7MHz) VC-6523: DC to 20MHz (x5: DC to 7MHz)
Rise time	VC-6545: Approx. 3.5ns (2mV/div; Approx. 17.5ns) VC-6525: Approx. 7ns (2mV/div; Approx. 35ns) VC-6524: Approx. 7ns (x5: Approx. 50ns) VC-6523: Approx. 17.5ns (x5: Approx. 50ns)
Input withstand voltage	VC-6545/6525: 400V (DC+ACpeak at 1kHz) VC-6524/6523: 300V (DC+ACpeak at 1kHz)
Input coupling	AC, GND, DC
Input impedance	VC-6545/6525: $1M\Omega \pm 1.5\%$ , approx. 23pF VC-6524/6523: Approx. $1M\Omega$ , approx. 25pF
Display mode	VC-6545/6525: CH1, CH2, DUAL, CHOP, ADD VC-6524/6523: CH1, CH2, ALT, CHOP, ADD
Polarity inversion	CH2 only

<b>X-Y OPERATION</b>	
X-axis input	VC-6545/6525; X-axis: CH1, CH2, EXT, EXT $\times 10$ (CH1 in storage mode) Y-axis: CH1, CH2, CH1 & CH2 (CH2 in storage mode) VC-6524/6523; X-axis: CH1, Y-axis: CH2
X-axis bandwidth	DC to 500kHz
Phase error	Within 3° from DC to 50kHz

<b>HORIZONTAL SYSTEM</b>	
Sweep time (non storage mode)	VC-6545/6525: A (main) sweep: 50ns/div to 0.5s/div $\pm 3\%$ B (delayed) sweep: 50ns/div to 50ms/div $\pm 3\%$ VC-6524/6523: 0.2 $\mu$ s/div to 0.2s/div
Max. sweep rate	VC-6545/6525: 5ns/div (x10 mag.) $\pm 4\%$ VC-6524: 20ns/div (x10 mag.) $\pm 5\%$ VC-6523: 100ns/div (x10 mag.) $\pm 5\%$ (20ns and 50ns/div are uncalibrated)
Sweep mode	VC-6545/6525: A, ALT (non-storage mode only), B VC-6524/6523: A only
Delay time	VC-6524/6525: 1 $\mu$ s to 5s
Delay jitter	VC-6524/6525: 1/20000 or less

<b>TRIGGER SYSTEM</b>																																	
Trigger mode	VC-6545/6525: AUTO, NORM, TV-V, TV-H, SINGLE VC-6524/6523: AUTO, NORM, TV-V, TV-H																																
Trigger source	VC-6545/6525: CH1, CH2, LINE, EXT (AC, DC, DC $\times 10$ ) VC-6524/6523: INT (CH1, CH2, V-MODE), LINE, EXT																																
Trigger slope	+, -																																
Trigger sensitivity	<table border="1"> <tr> <td>VC-6545</td> <td>DC to 20MHz</td> <td>20MHz to 100MHz</td> </tr> <tr> <td>VC-6525</td> <td>DC to 10MHz</td> <td>10MHz to 50MHz</td> </tr> <tr> <td>CH1, CH2</td> <td>0.35div</td> <td>1.5div</td> </tr> <tr> <td>EXT</td> <td>50mV</td> <td>150mV</td> </tr> </table> <table border="1"> <tr> <td>VC-6524</td> <td>20Hz to 5MHz</td> <td>5MHz to 40MHz</td> <td>40MHz to 50MHz</td> </tr> <tr> <td>VC-6523</td> <td>20Hz to 2MHz</td> <td>2MHz to 20MHz</td> <td>—</td> </tr> <tr> <td>INT(CH1, CH2)</td> <td>0.5div</td> <td>1.5div</td> <td>2.0div</td> </tr> <tr> <td>INT(V-MODE)</td> <td>2.0div</td> <td>3.0div</td> <td>3.5div</td> </tr> <tr> <td>EXT</td> <td>200mV</td> <td>800mV</td> <td>1V</td> </tr> </table>	VC-6545	DC to 20MHz	20MHz to 100MHz	VC-6525	DC to 10MHz	10MHz to 50MHz	CH1, CH2	0.35div	1.5div	EXT	50mV	150mV	VC-6524	20Hz to 5MHz	5MHz to 40MHz	40MHz to 50MHz	VC-6523	20Hz to 2MHz	2MHz to 20MHz	—	INT(CH1, CH2)	0.5div	1.5div	2.0div	INT(V-MODE)	2.0div	3.0div	3.5div	EXT	200mV	800mV	1V
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INT(CH1, CH2)	0.5div	1.5div	2.0div																														
INT(V-MODE)	2.0div	3.0div	3.5div																														
EXT	200mV	800mV	1V																														
TV trigger sensitivity	INT: Sync pulse more than 1div EXT: Sync pulse more than 200mVp-p																																

<b>CRT READOUT FUNCTION</b>	
Setting display	CH1/CH2/SAVE sensitivity, Sweep time, Delay time (except VC-6524/6523), sampling mode, aliasing condition, trigger point, smoothing, no. of averages, interpolation
Cursor measurements	Voltage difference ( $\Delta V$ ), time difference ( $\Delta T$ ), frequency (1/ $\Delta T$ )
Frequency counter (except VC-6524/6523)	Frequency range; VC-6545: 20Hz to 100MHz, VC-6525: 20Hz to 50MHz No. of digits: 4 digits Accuracy: 1 resolution $\pm 100$ ppm (15 to 35°C)

<b>STORAGE FUNCTION</b>																														
Max. sampling rate	VC-6545: 40MS/s (1-CH operation) 20MS/s (2-CH simultaneously) VC-6525: 20MS/s (2-CH simultaneously) VC-6524/6523: 20MS/s																													
Max. storage bandwidth	VC-6545: DC to 5MHz (Single shot phenomena) DC to 100MHz (Repetitive phenomena) VC-6525/6524: DC to 5MHz (Single shot phenomena) DC to 50MHz (Repetitive phenomena) VC-6523: DC to 5MHz (Single shot phenomena) DC to 20MHz (Repetitive phenomena)																													
Memory Capacity	VC-6545: 4000 word (1CH operation and 2.5 $\mu$ s/div to 50s/div) 2000 word (2CH operation and 2.5 $\mu$ s/div to 50s/div) 1000 word (50ns/div to 2 $\mu$ s/div) VC-6525: 2000 word (5 $\mu$ s/div to 50s/div) 1000 word (50ns/div to 2 $\mu$ s/div) VC-6524/6523: 2000 word (5 $\mu$ s/div to 20s/div) 1000 word (0.2 $\mu$ s/div to 2 $\mu$ s/div)																													
Display memory	1000 word $\times$ 4																													
Save memory	VC-6545/6525: 1000 word $\times$ 2 (with backed-up) VC-6524/6523: 1000 word $\times$ 2																													
Vertical resolution	8 bits																													
Horizontal display resolution	100 points/div																													
Storage mode	Normal, Average (4,16, 64, 256 times), Roll, Hold, Single																													
Sweep time	<table border="1"> <tr> <th colspan="3">Sampling mode</th> </tr> <tr> <td rowspan="4">VC-6545</td> <td>Equivalent sampling (A sweep only)</td> <td>50ns/div to 2<math>\mu</math>s/div</td> </tr> <tr> <td>A sweep real-time sampling</td> <td>2.5<math>\mu</math>s/div to 0.1s/div</td> </tr> <tr> <td>B sweep real-time sampling</td> <td>2.5<math>\mu</math>s/div to 50ms/div</td> </tr> <tr> <td>Roll (A sweep only)</td> <td>0.2s/div to 50s/div</td> </tr> <tr> <td rowspan="4">VC-6525</td> <td>Equivalent sampling (A sweep only)</td> <td>50ns/div to 2<math>\mu</math>s/div</td> </tr> <tr> <td>A sweep real-time sampling</td> <td>5<math>\mu</math>s/div to 0.1s/div</td> </tr> <tr> <td>B sweep real-time sampling</td> <td>5<math>\mu</math>s/div to 50ms/div</td> </tr> <tr> <td>Roll (A sweep only)</td> <td>0.2s/div to 50s/div</td> </tr> <tr> <td rowspan="2">VC-6524</td> <td>Equivalent sampling</td> <td>0.2<math>\mu</math>s/div to 2<math>\mu</math>s/div</td> </tr> <tr> <td>real-time sampling</td> <td>5<math>\mu</math>s/div to 0.2s/div</td> </tr> <tr> <td rowspan="2">VC-6523</td> <td>Roll</td> <td>0.5s/div to 20s/div</td> </tr> </table>	Sampling mode			VC-6545	Equivalent sampling (A sweep only)	50ns/div to 2 $\mu$ s/div	A sweep real-time sampling	2.5 $\mu$ s/div to 0.1s/div	B sweep real-time sampling	2.5 $\mu$ s/div to 50ms/div	Roll (A sweep only)	0.2s/div to 50s/div	VC-6525	Equivalent sampling (A sweep only)	50ns/div to 2 $\mu$ s/div	A sweep real-time sampling	5 $\mu$ s/div to 0.1s/div	B sweep real-time sampling	5 $\mu$ s/div to 50ms/div	Roll (A sweep only)	0.2s/div to 50s/div	VC-6524	Equivalent sampling	0.2 $\mu$ s/div to 2 $\mu$ s/div	real-time sampling	5 $\mu$ s/div to 0.2s/div	VC-6523	Roll	0.5s/div to 20s/div
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VC-6523	Roll	0.5s/div to 20s/div																												
	Smoothing	Selectable On/OFF																												
Interpolation	Linear or sine (only for magnified display)																													
Pre-trigger	VC-6545: Max. 0 to 20div VC-6525/6524/6523: Max. 0 to 10div																													
Post-trigger	VC-6545: Max. 0 to 10div																													
Expanded display	10 times (not possible with respect to saved waveform)																													
External I/O	RS-232C interface																													
Hardcopy	External plotter output (for HP-GL™ plotter) No. of pens: 6 pens. Plot size: 1, 2, 4 waveforms in A4 size																													

<b>OTHERS</b>	
Signal output	Output of the signal selected as the trigger source channel Output voltage: Approx. 25mV/div Frequency response: DC to 10MHz Output impedance: Approx. 50 $\Omega$
Power supply	VC-6545/6525: 90 to 250V AC, 48 to 440Hz VC-6524/6523: 100/120/220/240V AC $\pm 10\%$ , 50/60/400Hz
Ambient temperature	Rated range of use: 10 to 35°C (50 to 95°F) Operating: 0 to 40°C (32 to 104°F) Non-operating: -20 to 70°C (-4 to 158°F) Operation: 45 to 85% Non-operating: 35 to 85% (70 % or less at 50°C (122°F))
Ambient humidity	Satisfied VDE standard 0871 class B
EMI protection	Approx. 50W
Power consumption	VC-6545/6525: Approx. 275(W) $\times$ 130(H) $\times$ 360(D)mm, 10.8 $\times$ 5.1 $\times$ 14.2 ins. VC-6524/6523: Approx. 310(W) $\times$ 130(H) $\times$ 370(D)mm, 12.2 $\times$ 5.1 $\times$ 14.6 ins.
Dimensions	VC-6545/6525: approx. 6.5kg, 14.3 lbs. VC-6524/6523: approx. 8kg, 17.6 lbs.
Weight	

<b>STANDARD ACCESSORIES</b>	
Probe (1:1/10:1 switchable) $\times$ 2, AC power cord, Fuse, Operation manual	

# HITACHI DENSHI (Europa) GmbH

**Weiskircher Str. 88**  
**63110 Rodgau, Germany**  
**T. 06106-6992-0**  
**Fax 06106-16906**

*Specifications and outer appearance are subject to change without prior notice*