

Digital Storage Oscilloscopes -DS-8814/8812-

Digital Oscilloscope

The image features two digital storage oscilloscopes (DSOs) from the BRINGO™ series. The top oscilloscope is the DS-8814, which has a yellow callout bubble listing its specifications: 100MHz, 4CH, Max. 400MS/s(2CH), Max. 200MS/s(4CH), and Max. 100k-word/CH. The bottom oscilloscope is the DS-8812, which has a pink callout bubble listing its specifications: DS-8812, 2CH, Max. 500MS/s, and Max. 100k-word/CH. Both oscilloscopes have a color LCD screen displaying waveforms and a control panel with various buttons and knobs. The background is a light blue gradient with the word 'BRINGO™' in large, stylized letters.

DS-8814
100MHz, 4CH
Max. 400MS/s(2CH)
Max. 200MS/s(4CH)
Max. 100k-word/CH

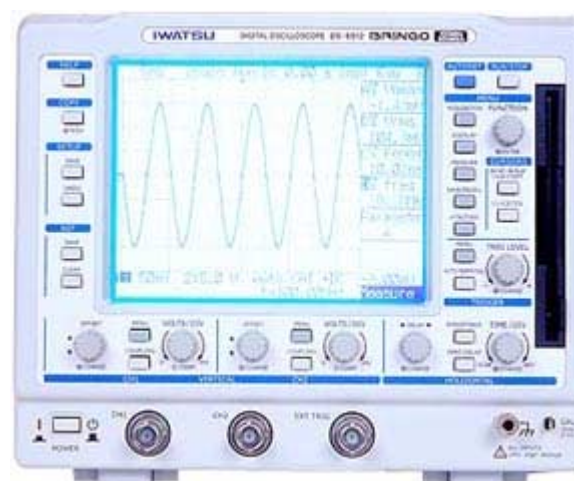
BRINGO™

DS-8812
DS-8812, 2CH
Max. 500MS/s
Max. 100k-word/CH

Photos **BRINGO™** Series



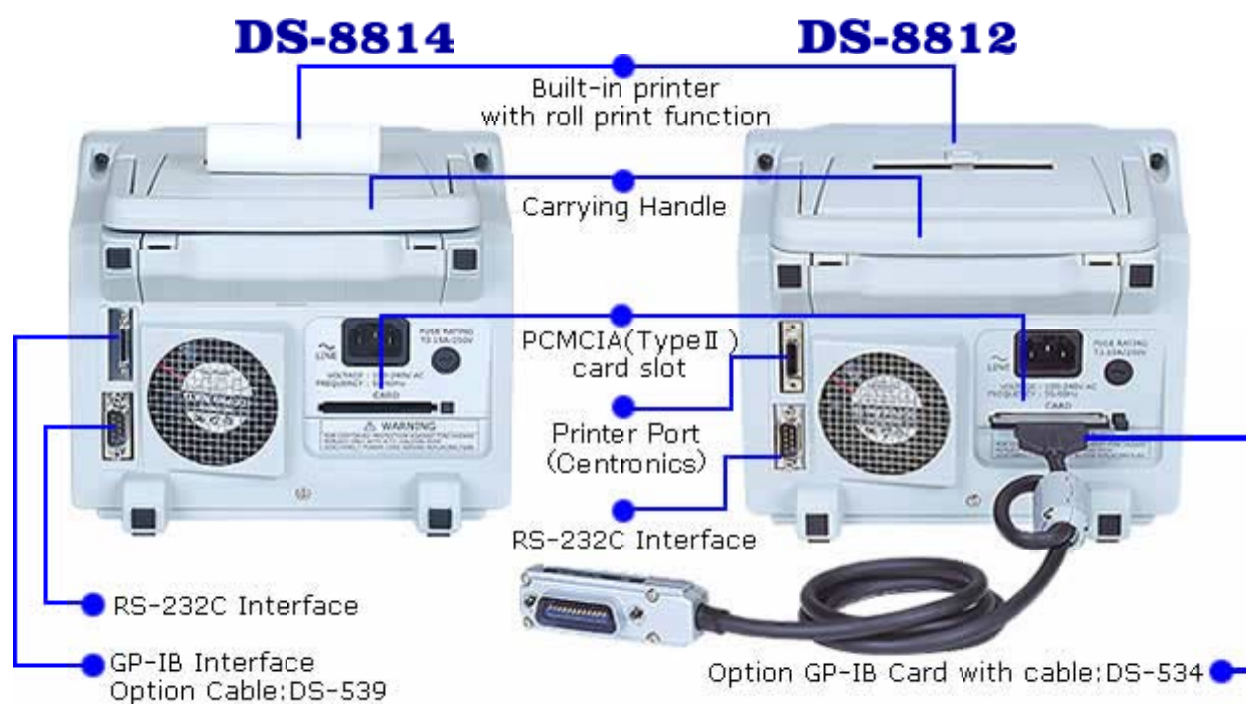
DS-8814



DS-8812

Rear Panel

■Versatile interface for versatile data processing



Specifications

LCD			
Type	5.8-inch LCD display (backlit EL), Blue color		
Size	320x240dots (approx. 115x 86mm)		
Contrast	Auto adjust (manual setting available)		
Vertical deflection system (Y axis)			
Common to CH1/CH2/CH3/CH4 for DS-8814			
Common to CH1/CH2 for DS-8812			
Sensitivity	2mV/div - 10V/div(1-2-5 steps), accuracy 2%		
Frequency Bandwidth	DS-8814	5mV/div - 10V/div	DC-100MHz -3dB
		2mV/div	DC-100MHz -3.5dB
	DS-8812	2mV/div - 10V/div	DC-100MHz -3dB
*Lower limitation for AC coupling is 10Hz			
Rise time	approx 3.5ns		
Input coupling	AC, DC, GND		
Input RC	1M Ω \pm 1.5%/20pF \pm 2pF		
Max. input voltage	\pm 400V (DC+AC peak)		
Bandwidth limit	DS-8814 : DC - 10MHz -3dB (CH1/CH2/CH3/CH4 individual setting available) DS-8812 : DC-10MHz -3dB (CH1/CH2 individual setting available)		
Offset	2mV/div - 50mV/div : \pm 1V 100mV/div - 500mV/div : \pm 10V 1Vdiv - 10V/div : \pm 100V		
Probe attenuation	1:1, 10:1, 100:1, 1000:1 (1:1, 10:1, 100:1 are automatically recognized)		
Triggering			
Trigger mode	Edge, Event, TV		

Signal source	DS-8814	CH1, CH2, CH3, CH4, LINE	
	DS-8812	CH1, CH2, EXT, LINE	
Coupling	DC, AC, HF-Rej, LF-Rej		
Polarity	+ (Positive), - (Negative)		
Trigger level range	±5div		
Trigger delay	Memory Length	Sweep time	setting range
	Short	5ns/div - 1ms/div	-5div - +10ms
		2ms/div - 50s/div	-5div - +500s
	Long	5ns/div - 20ms/div	-5div - +200ms
50ms/div - 50s/div		-5div - +500s	
Hold off	200ns-2s, OFF(DS-8812:only available when Edge mode is selected)		
EXT trigger input (DS-8812 only)			
Sensitivity	100mV/div (Fixed)		
Input coupling	DC		
Input RC	1MΩ ±1.5%/20pF ±2.5pF		
Max. Input voltage	±400V (DC+AC peak)		
Minimum Trigger level	Frequency bandwidth	DS-8814:CH1,CH2,CH3,CH4	-
		DS-8812:CH1,CH2	EXT
	DC - 10MHz	0.5div	50mVp-p
	10MHz - 100MHz	1.5div	150mVp-p
TV Trigger			
Format	NTSC, PAL(SECAM)		
TV-V	Odd, Even, Both (line number selectable)		
TV-H			
Event trigger	COUNT, BURST, EXTRA, MISSING		
Horizontal deflection system (X axis)			
Sweep time	5ns - 50s/div (1-2-5 steps)		
Sweep mode	Auto, Normal, Single		
Clock accuracy	±0.005%		
Acquisition function			
A/D converter			
Resolution	8bits		
Maximum sampling rate	DS-8814	CH1,CH3 only : 400MS/s	
		4CH simultaneous : 200MS/s	
	DS-8812	500MS/s	
Acquisition memory	DS-8814	Short memory : 1k-word/CH	
		Long memory : 100k-word/CH	

	DS-8812	Short memory : 5k-word/CH Long memory : 100k-word/CH
Acquisition mode		
Roll	Short memory : 100ms/div - 50s/div Long memory : 2s/div - 50s/div	
Normal Sampling	Short, Long memory : 5ns/div - 50s/div	
Peak detect	DS-8814	Short memory : 1 μ s/div - 50s/div
		Long memory : 100 μ s/div - 50s/div
	DS-8812	Short memory : 2 μ s/div - 50s/div
		Long memory : 50 μ s/div - 50s/div
Equivalent Sampling	DS-8814	5ns/div - 200ns/div Short memory only
		Time resolution : Max. 100ps (10GS/s)
	DS-8812	5ns/div - 500ns/div Short memory only
		Time resolution : Max. 40ps (25GS/s)
Average	2 - 256 times (Short memory only)	
Persistence	Available	
Display function		
X-Y Display	DS-8814	X1 : CH1, Y1 : CH2 Fixed display
		X2 : CH3, Y2 : CH4 Fixed display
	DS-8812	X : CH1, Y : CH2 Fixed display
Joint	Dot / joint	
Expansion		
Y axis	within specified volt/div range	
Zoom	within 2.5times of specified volt/div range	
X-axis	Expand by center of screen	
Trace	DS-8814	Max.6-trace(CH1, CH2, CH3, CH4, Arithmetic1, Arithmetic2) + Max. 8-trace (Reference waveform)
	DS-8812	Max.3-trace (CH1, CH2, Arithmetic) + Max.10-trace (Reference waveform)
Waveform arithmetic		
Arithmetic	DS-8814	CH1+CH2, CH1-CH2, CH1xCH2, CH3+CH4, CH3-CH4, CH3xCH4, FFT
	DS-8812	CH1+CH2, CH1-CH2, CH1xCH2 FFT (DS-8812 : Option)
Scale type	Grid, Axis, Flame	
Help function	Japanese, English, Chinese(Simplified, Traditional)	
Comment	Available	

Max. character input	30 letters	
Clock function	Year, Month, Date, Time, Minute	
Status display	Counter, Time, Auto measurement, Comment selectable	
Cursors and Automatic measurement		
Cursor measurement items $\Delta V, \Delta T, 1/\Delta T, V$ at t		
Automatic measurement		
Channels	DS-8814	CH1, CH2, CH3, CH4
	DS-8812	CH1, CH2
Items	DS-8814	Tr, Tf, Vrms, Vmean, freq, Period, +PW, -PW, Duty, +Peak, -Peak, P-P, Top, Base, T-B, Δt , Skew
	DS-8812	Tr, Tf, Vrms, Vmean, freq, Period, +PW, -PW, Duty, +Peak, -Peak, P-P, Skew
Simultaneous	Four (4) items	
Frequency counter		
Display	5-digit, $\pm 0.01\%$	
Frequency range	1Hz - 100MHz	
Interface		
RS-232C		
Baud rate	2.4k, 4.8k, 9.6k, 19.2k, 38.4k, 57.6k, 115.2k	
Data length	7,8bit	
Parity	None (Fixed)	
Delimiter	LF, CR/LF selectable	
GP-IB	(DS-8814:with DS-539 GP-IB cable option) (DS-8812:with DS-534 GP-IB card option) IEEE488.2	
Address	0 - 30	
Delimiter	LF, CR/LF selectable	
Save and recall		
SETUP	SAVE/UNDO function Store/Recall of Panel Setting	
REF	SAVE/CLEAR function Store/Recall of Reference waveform	
SAVE/RECALL function		
Media	ATA card, floppy disk (3.5-inch)	
Data type	DS-8814	Setup data, waveform(CH1,CH2,CH3,CH4)
	DS-8812	Setup data, waveform(CH1,CH2)
Record format	Binary/ASCII formats are available for waveform data	
	ATA card : Max. 9999 for each format	

Numbers of data	Floppy disk : Max. 200 for each format
Time stamp	Available
Auto Save function	Waveform data can be automatically stored when the waveform is triggered
Step function	Stored data rate is selectable from 1, 2, 4, 8, 16, 32, 64, 128.
Hard Copy	
Data output	DS-8814 Built-in printer, floppy disk, ATA card
	DS-8812 Built-in printer, floppy disk, ATA card, Centronics
Output Source	Display, Setup conditions
Auto copy	Waveform data can be automatically output when the waveform is triggered (ATA card, floppy disk, built-in printer)
Built-in printer	Type : Line thermal printer
Paper size	80mmx48φ 75μ Thermal paper
Feed function	Available
Roll print	Available
Floppy, ATA card	
Output format	TIFF, BMP
Numbers of data	ATA card : Max. 9999 for each format Floppy disk : Max. 200 for each format
Centronics	
Output format	DPU-414, ESC-P09, PC-PR201, TIFF, BMP
Calibration signal	
Waveform	Square wave
Output voltage	0.6V ±1%
Frequency	1kHz ±0.01%
FFT function	(DS-8814: Standard, DS-8812: FFT Option DS-538)
Points	1024, 4096
Channel	CH1, CH2, CH3, CH4 : DS-8814 CH1, CH2 : DS-8812
Window	Rectangler, Hanning, Flat top
Range	X:0.48Hz/div - 24MHz/div 1.22GHz/div (Equivalent Sampling) Y:-124.8dBm - +35.2dBm 1, 2, 5, 10 20dBm/div
Other functions	
Auto setup	Automatically setup V, H range and trigger level for repetitive signal, UNDO function available

Auto Calibration	Calibrates offset of 2mV/div - 5mV/div	
Self Calibration	Calibrates sensitivity, offset, trigger level	
LCD reverse display	White back, Blue back	
Power supply		
Voltage range	AC 100-240V \pm 10%	
Frequency	50/60Hz	
Power consumption		
With printer operation	DS-8814	110VA max. (100W max.)
	DS-8812	90VA max. (75W max.)
Without printer operation	DS-8814	95VA max. (80W max.)
	DS-8812	75VA max. (59W max.)
Stand by	less than 1VA	
Dimensions & weigh		
Weight	Approx. 3.0kg excluding accessories	
Dimensions	Approx. 215(W) x 170(H) x 166(L)mm	
Environmental conditions (in house use only)		
Temperature range for guaranteed accuracy 10°C - 35°C		
Operation	0°C- 40°C, less than 80%RH (40°C)	
Storage	-10°C - 60°C, less than 80%RH (60°C)	
Altitude		
Operation	2,000m, Atmospheric pressure approx. 79kPa	
Preheating time	Specifications on the catalog guaranteed after 30mitutes preheating.	
CE standard(DS-8812 only)	conform to EMC 89/336/EEC and LOW VOLTAGE 73/23/EEC	
Accessories	Probe(DS-8814/4pcs, DS-8812/2pcs), Power cable(1), Fuse(2), Operation manual(1), Thermal paper TP80-1(1)	

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