



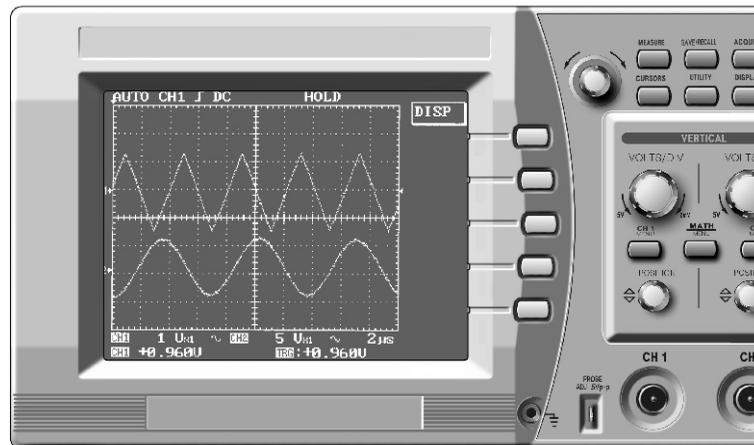
# Digital Oscilloscope

**Test Equipment  
Depot**  
  
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99 Washington Street  
Melrose, MA 02176  
Fax 781-665-0780  
TestEquipmentDepot.com

## DS-1000 Series

### Digital Oscilloscope Operation Manual



 **EZ Digital Co., Ltd.**

# WARRANTY

This instrument is warranted against defects in workmanship and materials. If any failure, resulting from a defect in either workmanship or material should occur under normal use within a year from the original date of purchase, such failure will be corrected free of charge to the purchaser by repair or replacement of the defective part or parts. When the failure is a result of user's neglect, natural disaster or accident, we charge for repairs regardless of the warranty period.

**This warranty is subject to the following conditions and limitations.**

The warranty is void and inapplicable if the defective product is not brought or sent prepaid to our authorized service center or sales outlet within a warranty period. Defective product is, on EZ Digital Co., Ltd.'s sole judgement, indemnified at a purchased price, replaced with new one or repaired without charge or with charge.

In the event warranty service is needed, purchaser should get in touch with the service center or sales outlet, or properly pack and return the product to the service center or sales outlet at his or her own expense. A returned product must be accompanied by a written description of the defect. We return the product to the purchaser at his or her own expense.

In case the warranty does not cover the product on EZ Digital Co., Ltd.'s sole judgement, we repair the product after obtaining prior permission from the purchaser who received pro forma statement about repairing charges. In such a case, EZ Digital Co., Ltd. bears the transportation expenses required to send back all the repaired products temporarily, and then repair and transportation expenses will be charged against the purchaser by the statement of accounts.

When the authorized sales agents sell our product, they must notify the purchaser of the warranty contents, but have no right to stretch the meaning of original warranty contents or offer additional warranty. EZ Digital Co., Ltd. does not provide any other promise or suggestive warranty and holds no liability for the damage caused by negligence, abnormal use or natural disaster. EZ Digital Co., Ltd. is not responsible for damages though it was notified about the danger in advance.

For more information on service or overall repairs and maintenance of old and decrepit products, be sure to contact our service center or sales outlet.

# PRODUCT CONTENTS

## OSCILLOSCOPE

- Set            1 set

## SUPPLIED ACCESSORIES

- Operation manual
- Power cord
- 100MHz probes x1/x10                            2EA (Only DS-1100)

## OPTIONAL ACCESSORIES

- RS-232C thermal printer (Printy2™ with RS-232C Cable)
- Test probes
  - 150MHz probes x1/x10
  - 250MHz probes x1/x10
- Service manual
- PC Software kit(RS-232C Cable, USB Cable, PC interface Program)
- Interface Card Type A (RS-232C, Centronics, USB)
- Interface Card Type B (RS-232C, Centronics)

## 3-1. SPECIFICATIONS

VERTICAL SYSTEM	SPECIFICATION		
	DS-1100	DS-1150	DS-1250
Bandwidth Ch.1 and Ch.2	DC~100MHz (40MHz at 2mV/div)	DC~150MHz (40MHz at 2mV/div)	DC~250MHz (60MHz at 2mV/div)
Input R & C	1M $\Omega$ $\pm$ 1.5% , approx. 16 pF		
Dynamic range	More than 8 div at maximum bandwidth		
Sensitivity (per division) Ch.1 and Ch.2	2mV/div ~ 5V/div		
Accuracy	$\pm$ 3%		
Input coupling	AC, DC, GND		
Maximum input	400V (DC + AC PEAK) (AC<1kHz)		
square waveform rising time	Approx. 3.5 ns	Approx. 2.3 ns	Approx. 1.4 ns
Input coupling Offset	$\pm$ 0.2div at 5mV/div~5V/div $\pm$ 0.5 div at 2mV/div		
Cross Talk(Channel Isolation)	Less than 0.3div at 50MHz		
CH1,CH2 Balance(ATT BAL)	$\pm$ 0.2div at 5mV/div~5V/div $\pm$ 0.5 div at 2mV/div		
Drift	$\pm$ 0.3div/h		

HORIZONTAL SYSTEM	SPECIFICATION
Resolution	Approx. 80ps
Time / div	Equivalent: 2ns/div~0.1 $\mu$ s/div Real time : 0.25 $\mu$ s/div~0.1s/div Roll mode : 0.2s/div~5s/div
Pre trigger	Max 10div
Position movement	10 div
Accuracy	0.01%
Magnification	Zoom In / Out

Acquisition system	SPECIFICATION	
Max Sample rate	200MS/s for one channel 100MS/s per channel 25GS/s per channel in equivalent sampling range	
Sampling resolution	8bit	
Single shot BW	MAX 20MHz	
Peak detect	10ns (5 $\mu$ s/div ~ 5s/div)	
Record length	MAX. 10kBytes / ch	MAX. 32kBytes / ch
Average	Number of averages selectable / 2 ~ 128	
Persistence	Real time mode only	

TRIGGER SYSTEM	SPECIFICATION		
Sensitivity Ch.1 and Ch.2	<b>Freq.</b>	<b>5mV~ 5V/div</b>	<b>2mV/div</b>
	DC ~ 10MHz	0.5div	0.5div
	10MHz~ 80MHz	1.5div	1.5div (at 10MHz~60MHz)
	80MHz~MAX. BW	2.0div	
Trigger Type	Edge, TV		
Trigger mode	AUTO, NORM, SINGLE		
Trigger slope	Positive Edge, Negative Edge		
Trigger source	Ch1, CH2, EXT, LINE		
Trigger couple	AC, DC, LF-Reject, HF-Reject		
Trigger sync	Line, Field		
Trigger Level Extent	INT : $\pm$ 3div, EXT : $\pm$ 35% of 4 Vpk		
Set Level to 50%	$\pm$ 0.2div		
External trigger sensitivity	0.2Vpp(DC~150MHz ), 0.5V <sub>p-p</sub> (150MHz~250MHz)		
External Trigger input maximum input	400V(DC+AC PEAK) (AC < 1kHz )		
External trigger input R	About 1M ohm		

DISPLAY SYSTEM	SPECIFICATION
Display	5.7 inch LCD with CCFL Backlight
Resolution	320 X 240 pixels
Controls	Front-panel intensity control

PROBE ADJ	SPECIFICATION
Frequency	1kHz $\pm$ 20%
Voltage	1V $\pm$ 4%

ADVANCED FUNCTIONS	SPECIFICATION
Automatic Measurements	Amplitude (Pk-Pk, RMS, Mean) Frequency, Rise time, Falling time, period Pulse width (positive, negative), Duty ratio
FFT	Rectangular, Hanning, Hamming window
Utility	System condition Self Calibration
Save/Recall	10 waveforms 10 front panel setups
Math (Ch.1 Ch.2)	Addition, subtraction, inversion
Auto Setup	50Hz ~ max. BW at more than 60mVpk, typical
External I/O (option)	RS-232C, SPP <sup>1</sup> , USB
Hard Copy	Hard copy through the SPP or RS-232C
Supported Printer	Desk Jet™, Laser Jet™ <sup>2</sup> with PCL level 3
	Printy 2™ <sup>3</sup> , (RS-232C thermal printer)

1. SPP is standard parallel Port.
2. DeskJet™ and LaserJet™ is registered trademark of HP.
3. Printy2™ is registered trademark of SANEI Electric Inc.

GENERAL	SPECIFICATION
Power Requirement	90VAC ~ 250VAC 48Hz ~ 440Hz
Power Consumption	MAX. 35W
Ambient Temperature Specification guaranteed Operating Storage	10 °C ~ 35 °C (when automatic calibration is performed in the range of 25±5 °C) 0 °C ~ 40 °C -10 °C ~+60 °C
Humidity Operating Storage	45 ~ 80%RH 35 ~ 85%RH
EMC	CE(EN 61326)
Size	370 X 167 X 338 (unit mm)
Weight	5.5kg
Warranty	1 year
Safety	CE(EN 61010-1), C-UL(UL 3111-1/CSA 1010-1) CAT II Pollution degree II

## 3-2 FACTORY DEFAULTS

ITEM	FACTORY SETTING
CH1 Display	ON
CH1 Input Coupling Mode	DC Coupling
CH1 Volts/div	20mV
CH1 Vertical Position	+ 2 div
CH1 Probe Attenuation Setting	1x
CH2 Display	ON
CH2 Input Coupling Mode	DC Coupling
CH2 Volts/div	20mV
CH2 Vertical Position	- 2 div
CH2 Probe Attenuation Setting	1x
Time Base	0.1ms
Trigger Mode	AUTO
Trigger Source	CH1
Trigger Coupling	DC
Trigger Slope	Rising Slope
Trigger Level	0 div
Run/Stop	RUN
Cursor Mode	OFF
Display Grid	Full
Display Format	YT
Display Type	Vectors
Display Persistence	OFF
Acquire Average	OFF
Acquire Peak Detect	OFF
LCD Contrast	50 %
RS-232C Baud rate	19200
RS-232C Parity	None
RS-232C Data bit	8 bit
Measure	OFF
Math Display	OFF
Recall Display	OFF