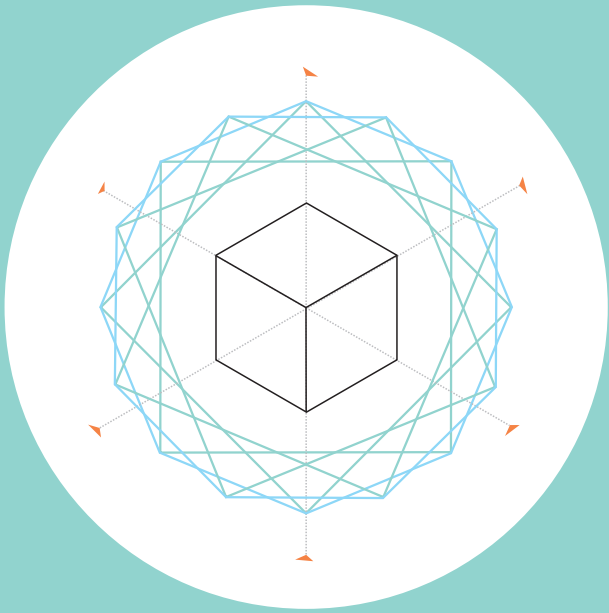


DS211 User Manual

V1.07

Contents

I. Product Overview

DS211 is a digital storage oscilloscope based on an ARM Cortex™-M3 compatible 32-bit platform, equipped with a 320*240 color screen and Micro USD interface which serves as PC connection and charging. Compact size, simple operation, easy to use.It can meet the basic requirements for school experiment, appliance repair and electronic engineering.

II. General Safety Information

- Read carefully all the following safety precautions to avoid personal injury and prevent damage to the device or any products connected to it.In order to avoid possible dangers, be sure to use this product in accordance with the provisions in order to avoid fire or personal injury.

- Use proper power cord.Please use power cord specified for this product and certified for use of your country/region .
- Connect and disconnect properly.Do not connect or disconnect probe or test leads while they are connected to voltage source, disconnect the testing circuit before connecting or disconnecting the probe.
- Observe all the terminal ratings.To avoid fire or shock hazard, please do not measure signals at DC40V or above to avoid damage to the device.Consult the product manual for further rating information before making connections to the device.

- Do not operate in wet/damp conditions.
- Do not operate in a potentially inflammable/explosi environment.
- Please keep the surface of the product clean and dry.

III. Functions

Analog bandwidth	0−200KHz
Maximum sampling rate	1MSa/s
Maximum sample memory depth	8K
Horizontal sensitivity	1uS/Div~2S/Div (1-2-5sequence step)
Vertical sensitivity	20mV/Div~10V/Div(x1probe) 0.2V/Div~100V/Div(x10probe)
Analog input impedance	>500KΩ
Maximum input voltage	40Vpp（x1probe）
Coupling	AC/DC
Synchronous mode	Auto，Normal，Single，Scan
Trigger mode	Rising/Falling edge trigger Ascend/Descend Edge Tirgger Mode
Auto measurement	Signal sequence/cycle/duty ratio, peak voltage/virtual value/ max value/min value/average
Inbuilt signal Generator	10Hz~1MHz (1-2-5sequence step)
Storage:	8MB Flash

IV. Parameters

Weight	66g
Display color	65K
Battery	500mAH
Screen Resolution	320×240
PC Comection	Via micro USB Cable
Recharging	Via micro USB Cable
Screen	2.8'' full color TFT LCD
Size	106mm×55.5mm×11mm

V. Operational Environment

Humidity：

Operating Conditions	HighTemperature:40°C~50°C，0%~60%RH
	LowTemperature:0°C ~ 40°C，10%~90%RH
Non-Operating Conditions	HighTemperature:40°C ~60°C，5%~60%RH
	LowTemperature:0°C ~ 40°C，5%~90%RH

VI. General Inspections

When you get a new DS211 oscilloscope, you are advised to inspect the product by the following steps.
1. Inspect damages caused by shipping.If the packaging carton or the protection pad is seriously damaged, keep the package until the oscilloscope & accessories pass the electrical and the mechanical test.
2. Inspect the product.Please contact the dealer if the following problems occur to DS211: 1) product appearance is damaged, 2) product doesn't work properly, 3) product does not pass performance test.If the damage to DS211 is resulted from shipping, please keep the package.

VII. Functional Inspections

Make a quick inspection of functions to ensure the device is working soundly.Please perform following steps:
1.Turn on power and access to the homepage of the oscilloscope.
2. Place in the standard signal (e.g. square wave 1 KHz, Vpp=5V), Insert X1 probe's MCX end to CH A or CH B, and the probe to "WAVE OUT".Connect the oscilloscope with standard signals (e.g. square wave1KHz, Vpp=5V), plug oscilloscope probe to the Input Channel, set the switch on probe tip as 1X, connect the oscilloscope probe to the Input Channel, align the probe slot with the socket and then plug in.

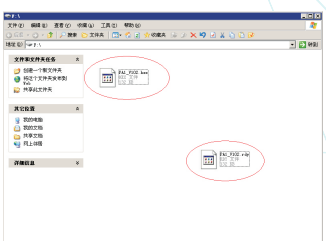
VIII. Battery Charging Instructions

When the battery voltage status turns to " " or display brightness is relatively dim, please charge the battery in time; charging is workable in both power-on and off mode.

IX. Firmware Upgrading

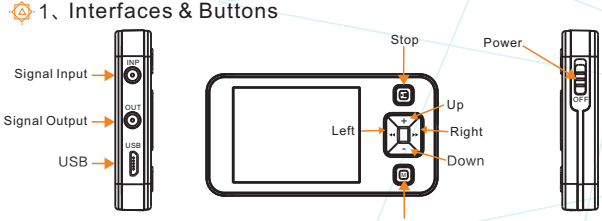
To upgrade the firmware of oscilloscope, please carry out the operationfollow the steps below:

1. Open web browser to visit www.minidso.com, download the newest firmware appropriate toof your oscilloscope to your PC.
2. Press “—” button on DS211 and switch on the Power to enter into DFU firmware upgrading mode.
3. Use USB data cord to connect DS211 to your PC, and a removable hard disk named：“DFU V3_60_D” will appear on your PC; copy the hex firmware to the root directory of that disk, after the extension of the firmware changes from “hex” to “rdy”,restart DS211, and then the upgrading process is finished.



X. Getting Familiar with Device

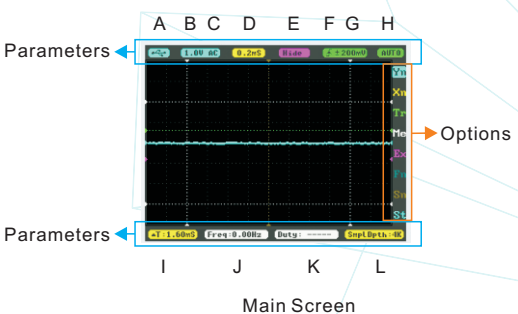
1、Interfaces & Buttons



See below for functions of each button:

⏵II	Run/pause button Save parameter
+	Slide Up
–	Slide Down
I<<	Set parameter(Reduce,Slide Left)
>>I	Set parameter(Increase,Slide Right)
M	On/Off Sub-menu Save BMP(long press) Auto Fit(double press)

2、Main Screen Introduction



Note that each item's color in Parameter Area is the same as that in Measurement Area.

XI. Measurement Instructions

1、Parameters Introduction

Menu	Options	Functions (Press or ⏮ to ⏭ operate)
A		Battery supply/USB charging
B	20mV—10V（1-2-5stepping）	Ordinate unit amplitude
C	AC/DC	AC/ DC coupling method
D	1uS—2S（1-2-5stepping）	Abscissa unit amplitude
E	-Inp/Data/-Data/Inp+D/ D-Inp/Inp-D	Double waveform calculation (Inp refers to current waveform; D/Data refers to waveform saved previously)
F		Trigmode：Rising/ falling edge
G	±40mV—±3.9V	Trigger accuracy
H	AUTO/NORM/SINGL/SCAN	Automatic/Normal/Single/Scan
I	▲V:10.0V/ ▲T:1.6mS/ Sub-item parameters	Vertical cursor parameters / horizontal cursor parameters / sub item parameter
J	Freq	Signal frequecy
K	Freq/Duty/ Vrms/Vavg/ Vp-p/Vmax/ Vmin	Signal frequency/Duty/ Root Mean Square voltage/ Average voltage/Min voltage Peak-to-peak voltage/ Max voltage
L	SmplDpth：4K/Save001.BMP	Storage depth/File manage

2、Options Introduction

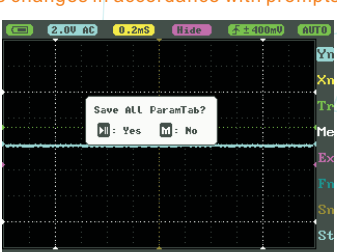
Options	Parameter Notes
Yn	Y-axis function setting (See P9)
Xn	X-axis function setting (See P9)
Tr	Trigger function setting (See P10)
Me	Measurement function setting (See P10)
Ex	Waveform calculation function setting (See P11)
Fn	Saving and loading function setting (See P12)
Sn	Waveform output parameter setting (See P13)
St	System function setting (See P13)

3、Specific Parameter Introduction

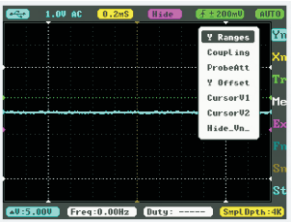
Option Setting Method

Use the "+" or "-" key to choose the options on the sliding option area, press “M” to unfold option setting menu; use the "+" or "-" key to select the parameter option you need and change the current parameter value at blinking cursor via the “⏭” or “⏮”key.

Note: After all the changes to setting are finished, long press “ ⏯” to save the changes in accordance with prompts.



1）Yn Parameter Notes

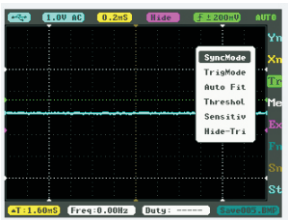


Y Ranges	Ordinate unit amplitude
Coupling	Coupling method
ProbeAtt	Probe multiple choice X1/X10
Y Offset	Wave adjustment Y axis
CursorV1	measurement cursor V1
CursorV2	measurement cursor V2
Hide_Vn	Show/hide measurement cursor

2）Xn Parameter Notes

TimeBase	Abscissa unit amplitude
ViewPosi	Move horizontally to check waveform
SmplDpth	（1k～8k）storage depth
CursorT1	Time measurement cursorT1
CursorT2	Time measurement cursorT2
Hide_Tn_	Show/hide measurement cursor

3）Tr Parameter Notes

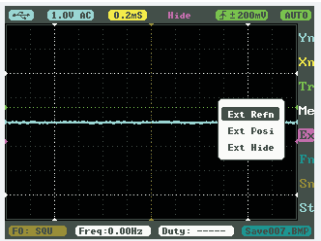


SyncMode	Synchronous mode AUTO/NORM/SINGL/SCAN
TrigMode	trigger mode: Rising/falling edge
Auto Fit	Automatic adjustment(Icon "F" will appear when open, doublr click Button M to auto fit.
Threshol	Horizontal Triggering Position Level)
Sensitiv	Horizontal Triggering accuracy
Hide_Tri	Display/Hide Horizontal Triggering Position Level

4）Me Parameter Notes

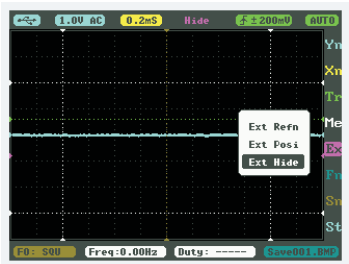
Freq	Signal frequency
Duty	duty ratio
Vrms	effective voltage value
Vavg	average value
Vp-p	peak-to-peak value
Vmax	maximum value
Vmin	minimum value

5）Ex Parameter Notes

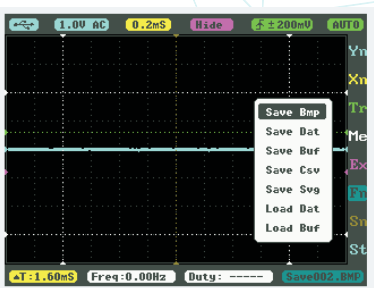


Ext Refn	−Inp/Data/−Data/Inp+D/D−Inp/Inp−D
Ext Posi	Signal position
Ext Hide	Show/hide signal calculation

Hide the two waveform computation line (purple line):
Position the cursor on "EX" option, press "M" to pop-up window, select "Ext Hide" option, and change the parameter value at the blinking cursor to “Hide” via “ ⏭ ” or “ ⏮ ”, then the two waveform computation line (purple line) will be hidden, as shown in the following figure.

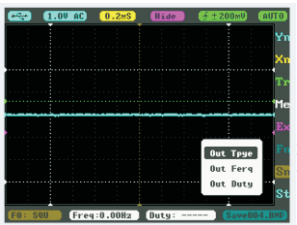


6)Fn Parameter Notes



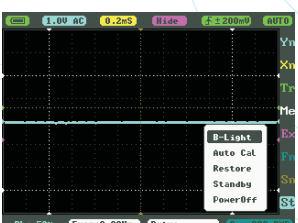
Save Bmp	Save bmp file (waveform figure) into flash disk
Save Dat	Save dat file into flash disk
Save Buf	Save buf file (sampling buffer data) into flash disk
Save Csv	Save csv file (export sampling buffer data) into flash disk
Save Svg	Save svg file (sampling buffer figure) into flash disk
Load Dat	Load Dat file
Load Buf	Load Buf file

7）Sn Parameter Notes



Out Type	Output signal type
Out Freq	Output signal frequecy
Out Duty	Output signal duty cycle

8）St Parameter Notes



B-Light	Adjust backlight brightness(Press⏮or⏭to adjust brightness)
Auto Cal	Calibrate Zero(Press▶ to auto calibrate, save setting per prompt)
Restore	Restore Data(Press▶ to auto calibration, save setting per prompt)
Standby	Adjust standby time(Press⏮or⏭to choose a standby time of 0-60 mins)
PowerOff	Adjust power off time(Press⏮or⏭to choose a power-off timeof 0-60 mins) When connected to PC via USB data cord, it will not activate auto power-off.

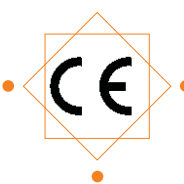
XII. Certification Marks

FCC compliance statement

This device is complied with the regulation in the 15th part of FCCregulation. Operation is subject to the following two conditions:

(1)This device may not cause harmful interference.

(2)This device must accept any interference received, including theinterference that may cause undesired operation.



The CE mark is a registered trademark of European Community.

This CE mark shows that the product complies with all the relevant European Legal Directives.

Do not dispose in domestice household waste

- This device complies with the WEEE Directive (2002/96/EC)

marking requirement. This affixed product label indicates that you must not discard this electrical or electronic product in domestichousehold waste.

- Disposal and recycling: you must dispose the mini oscilloscope according to local law and regulations. As the oscilloscope contains electronic building brick and battery, you must dispose it respectively with garbage.
- Please dispose the battery in accordance with local environmental regulations.