

## DataSheet

### SHS1000 Series Handheld Digital Oscilloscope

SH1102/SHS1062



### Features & Benefits

- ◆ SHS1000 Series have 2 channels; provide functions as Oscilloscope, Multimeter and Recorder (TrendPlot and waveform Recorder).
- ◆ SHS1000 Series with patent IsolatedChannel technology provide isolation from ground and isolation between channels
- ◆ CATII1000V and CATIII600V between two channels references, between channels reference and earth ground CATII600V and CATIII300V between channels reference and Multimeter input reference
- ◆ CATII300V and CATIII150V input direct  
CATII1000V and CATIII600V input with 10: 1 probe
- ◆ 5.7 inch TFT color LCD display
- ◆ 100MHz Bandwidth, 1GS/s real-time sampling per channel, up to 50GSa/s equivalent sampling rate, 2Mpts memory depth
- ◆ 6000 counts Multimeter, provides measurements of DCV, ACV, DCI, ACI, Resistance, Diode, Capacitance, Continuity
- ◆ Support Scope TrendPlot, Meter TrendPlot and Scope Recorder
- ◆ Automatic and manual trigger modes  
Trigger types: Edge, Pulse, Video, Slope and Alternative
- ◆ 32 automatic waveform measurements, 3 cursor measure modes
- ◆ Digital Filter functions:  
Low pass filter, High pass filter, Band pass filter, Band limit filter

- ◆ Math functions: +, - ×, ÷, FFT operations
- ◆ Multiple Language User Interface
- ◆ Standard setup interface: USB Device, USB Host  
USB storage update, PC communication and PictBridge print are available
- ◆ Rechargeable battery and battery charger / line power adapter included

## Applications

- ◆ Power electronics test, such as Switch mode power supply, Inverter, Converter and Lighting electronics.
- ◆ Wind power, PV power and other new energy equipment test
- ◆ Automotive electronic, electric vehicles test
- ◆ Industrial Power systems strong power test
- ◆ Electrical industrial site commissioning and test
- ◆ Field test
- ◆ Applications from microelectronic circuits to power electronics, in fields floating measurements or locale site measurements needed
- ◆ Education

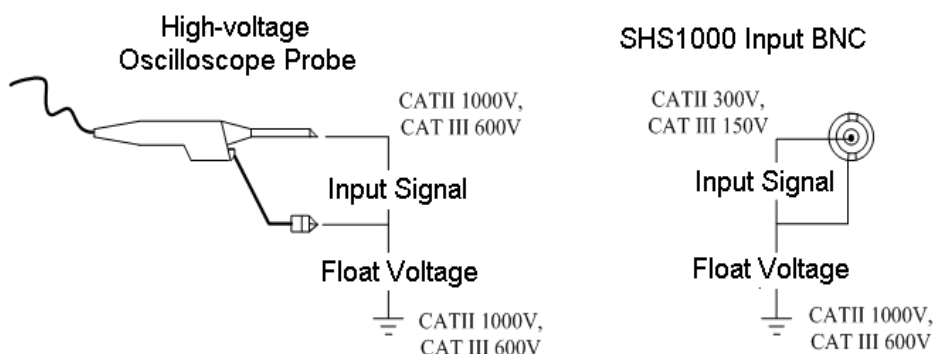
## Introduction

SHS1000 series are dual isolated channel handhold oscilloscopes with patent IsolatedChannel technology. SHS1000 series integrate functions as Oscilloscope, Multimeter and Recorder.

SHS1000 Series provides isolation from ground and isolation between channels allowing you to take floating measurements without worrying about damaging circuitry.

100 MHz Bandwidths, 1GS/s real-time sampling per channel, up to 50GSa/s equivalent sampling rate, 2Mpts memory depth. Support Scope TrendPlot, Meter TrendPlot and Scope Waveform Record, record length up to 7Mpts. 5.7 inch TFT color LCD display. Support USB storage and internal memory. Battery included, handhold available, convenient for outdoor measurement.

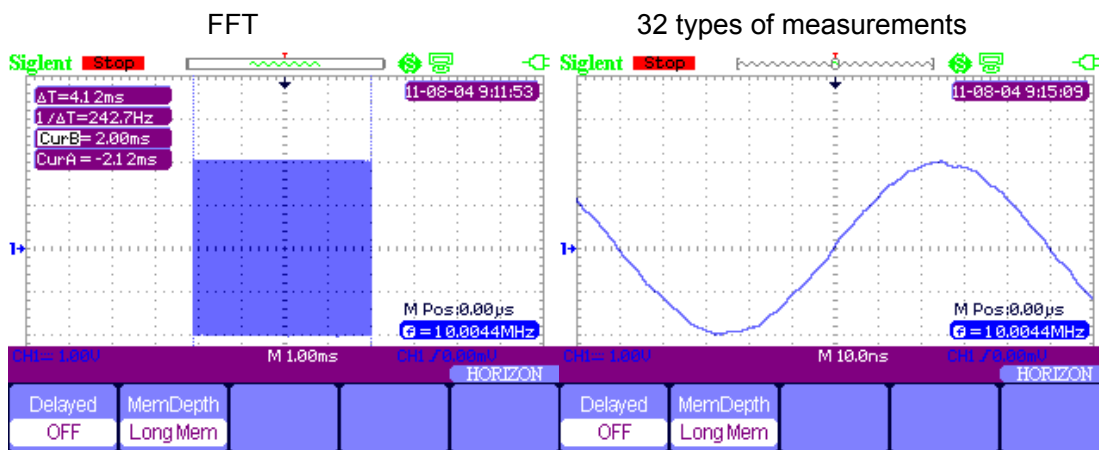
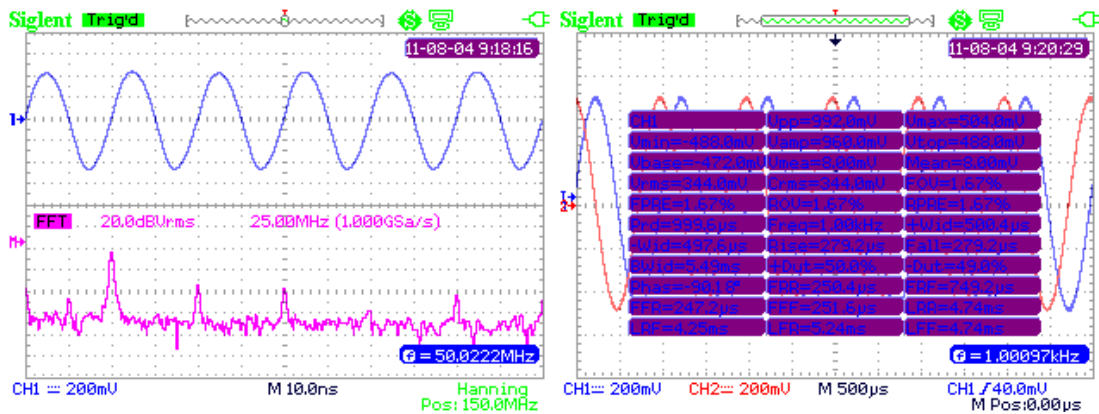
## Isolated input, make measurements in security



- ◆ Patent IsolatedChannel technology used in SHS1000 series oscilloscopes, dual channel, and 100MHz bandwidth.
- ◆ CATII300V and CATIII150V maximum BNC input voltage direct, CATII1000V and CATIII600V with standard 10:1 probe.
- ◆ CATII1000V and CATIII600V maximum voltage between two channels references.
- ◆ CATII600V and CATIII300V maximum voltage between channels reference and Multimeter input reference.

## High-performance oscilloscope

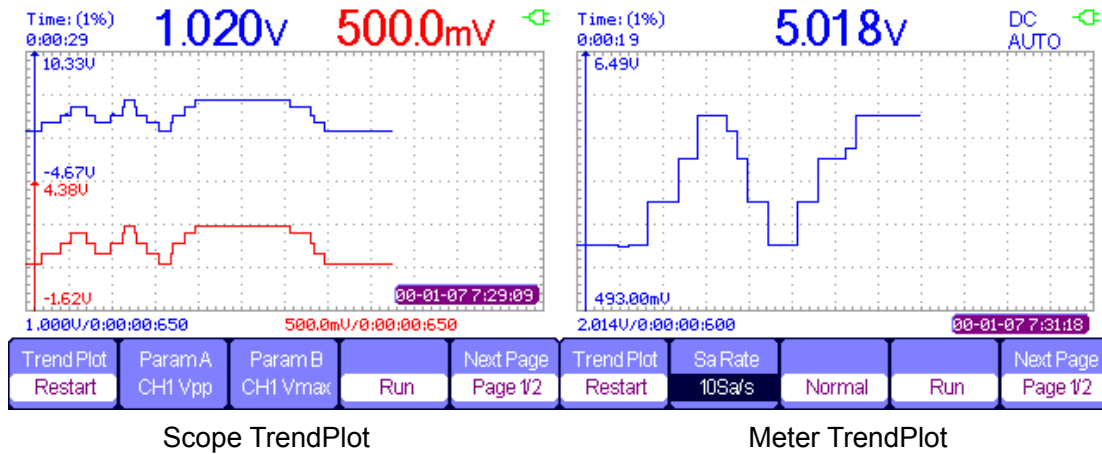
- ◆ The SHS1000 series channels are isolated from each other; real-time sampling rate is up to 1GSa/s per channel, equivalent sampling rate up to 50GSa/s
- ◆ 2Mpts memory depth
- ◆ Dynamic and broad input voltage range, 5mV/div~100V/div direct input
- ◆ Math functions: +, -, ×, ÷, and FFT
- ◆ Digital Filter functions:
  - Low pass filter, High pass filter, Band pass filter, Band limit filter
- ◆ 32 types of automatic waveform measurements, 3 cursor measure modes
- ◆ Automatic and manual trigger modes
  - Trigger types: Edge, Pulse, Video, Slope and Alternative
- ◆ Support EasyScope software
- ◆ Standard SPCI command collections, support telecommuting
- ◆ Multiple Language User Interface, support Multilingual help system online



Long Memory

## TrendPlot

- ◆ Scope TrendPlot records scope measurement data in scan mode, 800K points capacity, more than 24 hours recording time
- ◆ Meter TrendPlot records multimeter measurement data, 1.6M points recording depth, at 0.5GSa/s, recording time 8120 hours
- ◆ Recording results export available, convenient for further analysis
- ◆ Two kinds of display mode, 'ALL' and 'NORMAL'; support zoom and cursor
- ◆ Support recording real time

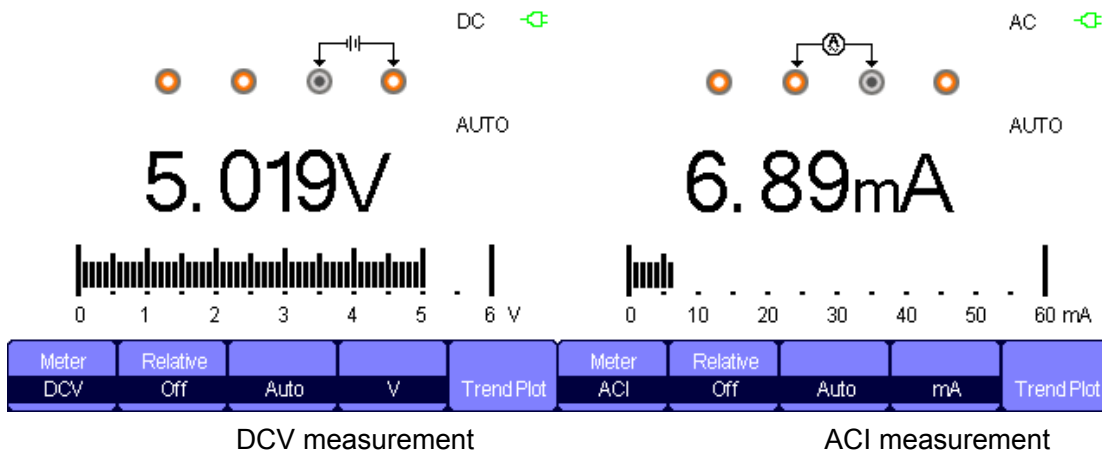


## Scope Recorder

- ◆ Recording scope waveform continually in scan mode
- ◆ Support recording, replay and zoom function
- ◆ 7M points memory depth, 18 hours recording time
- ◆ 4GB in USB storage mode, 3000hours recording time

## Multimeter

- ◆ 6000 counts high performance Multimeter
- ◆ Providing measurements of DCV, ACV, DCI, ACI, Resistance, Diode, Capacitance, Continuity



## Specification

<b>Scope</b>		
Type	SHS1062	SHS1102
Bandwidth	60MHz	100MHz
Rise Time	≤5.8ns	≤3.5ns
Input Impedance	1MΩ±2%, 16pf±3pf	1MΩ±2%, 16pf±3pf
Real Time Sampling Rate	Single Channel: 1GSa/s, Double Channels: 500MSa/s	Single Channel: 1GSa/s, Double Channels: 500MSa/s
Equivalent Sampling Rate	50GSa/s	50GSa/s
Memory Depth	2Mpts	2Mpts
Time Base Range	5 ns/ div – 50s/ div	2.5ns/ div – 50s/ div
Scan Range	100ms/ div ~ 50s/ div	100ms/ div ~ 50s/ div
Vertical Sensitivity	5mV/div – 100V/div(1-2-5 order)	5mV/div – 100V/div(1-2-5 order)
Vertical Resolution	8 bits	8 bits
Trigger Types	Edge, Pulse, Video, Slope, Alternative	Edge, Pulse, Video, Slope, Alternative
Frequency Counter	6 bits	6 bits
Connection	USB Device, USB Host	USB Device, USB Host
Math	+, -, *, /, FFT	+, -, *, /, FFT
Oscilloscope Trend Plot	800K points	
<b>Meter</b>		
Maximum Resolution	6000	
DC Voltage	60mV 600mV—1000V	(±1%±15digit) (±1%±5digit)
AC Voltage	60mV 600mV—750V	(±1%±15digit) (±1%±5digit)
DC Current	60.00mA—600mA 6A—10A	(±1%±5digit) (±1.5%±5digit)
AC Current	60.00mA—600mA 6A—10A	(±1%±5digit) (±1.5%±5digit)
Resistance	600Ω—60MΩ	(±1%±5digit)
Capacitance	40nF 400nF--400uF	(±3%±10digit) (±4%±5digit)
Diode	0—2V	
Continuity	<50Ω Buzzer sounds	
Multimeter Trend Plot	1.6M points	
<b>Isolation Input, Isolation Level</b>		
BNC Directly	CATII 300V	
With 10:1 Probe	CATII 1000V, CATIII 600V	
Max. Input Voltage of Multimeter	DC1000V, AC750V	
Max. Float Voltage between BNC Reference and Earth Ground	CATII1000V, CATIII600V	

Max. Float Voltage between BNC Reference	CATII1000V, CATIII600V
Max. Float voltage between Multimeter Reference and Earth Ground	CATII600V, CATIII300V
<b>General Specification</b>	
Display	5.7 inch TFT color LCD, 320x234 Display
Power Supply	Built-in rechargeable lithium battery: 7.4V4500mAh With DC adapter, 100-240V 50/60Hz input, 9V 24A output
Weight	1.5Kg
Size	163.2x259.5x53.3mm
Accessories	Two Passive Probes, Line Power Adapter, Multimeter Test Leads

## Technical Specifications

### Oscilloscope

<b>Acquisition System</b>	
Sampling Types	Real time, Equivalent
Sampling Mode	Sampling, Peak detection, Average
Average Times	4, 16, 32, 64, 128, 256

<b>Input System</b>		
Input Coupling	AC, DC, GND	
Input Impedance	1MΩ±2%, 16pf±3pf	
Probe Attenuation Factor	10X	
Probe Attenuation Factors Set(V)	1X, 5X, 10X, 50X, 100X, 500X, 1000X	
Probe Attenuation Factors Set(A)	1X, 5X, 10X, 50X, 100X, 500X, 1000X	
MAX. Input Voltage Direct(1:1)	Overvoltage Category	Maximum Voltage
	CAT I&CAT II	300Vrms
	CAT III	150Vrms
MAX. Input Voltage With 10:1 Probe	Overvoltage Category	Maximum Voltage
	CAT I&CAT II	1000Vrms
	CAT III	600Vrms
Max. Floating Voltage From BNC Reference to Earth Ground Between BNC Reference	Overvoltage Category	Maximum Voltage
	CAT I&CAT II	1000Vrms
	CAT III	600Vrms
Max. Floating Voltage From Multimeter Reference to Earth Ground	Overvoltage Category	Maximum Voltage
	CAT I&CAT II	600Vrms
	CAT III	300Vrms



Single Channel Common Mode Rejection, typical	>1000:1 50MHz
Channel-to-Channel Isolation	>35dB

Horizontal System				
Real time Sample Rate	Single Channel :50Sa/s~1GSa/s Double Channels: 500MSa/s			
Equivalent Sample Rate	50GSa/s			
Interaction Mode	Line, (Sinx)/x			
Memory Depth	Channel Mode	Sample Rate	Normal	Deep
	Single Channel	1Gsa/s	40kpts	nonsupport
	Single Channel	≤ 500MSa/s	20kpts	2Mpts
	Double Channels	≤ 500MSa/s	20kpts	1Mpts
Display Mode	MAIN, WINDOW, ZOOM, SCAN, X-Y			
Time Base Accuracy	±50ppm (measured over 1ms interval)			
Horizontal Scan Range	2.5ns/div – 50s/div(SHS1000) Scan mode: 100ms/div ~ 50s/div (1-2.5-5 order )			

Vertical System	
Vertical Sensitivity	5mV/div – 100V/div(1-2-5 order )
Channel Voltage Offset Range	5mV-200mV: ±1.6V 206mV-10V: ±40V 20.6V-100V: ±400V
Vertical Resolution	8 bit
Channels	2
Analog Bandwidth	100MHz (SHS1102) 60MHz(SHS1062)
Single Bandwidth	100MHz (SHS1102) 60MHz(SHS1062)
Lower Frequency(AC-3dB)	≤10Hz (at input BNC)
DC Gain Accuracy	5mv/div-100v/div:±3%
DC Measurement Accuracy≤100mv/div	±[3.0%X(  reading  +  offset  )+1% X  offset +0.2div+2mV]
DC Measurement Accuracy > 100mv/div	±[3.0%X(  reading  +  offset  )+1% X  offset +0.2div+100mV]
Rise Time	<3.5ns (SHS1102) <5.8ns (SHS1062)
Vertical Input Coupling	AC, DC, GND
Math Operation	+, -, *, /, FFT
FFT	Window Mode: Hanning, Hamming, Blackman, Rectangular
	Sampling: 1024 points
Bandwidth Limiter	20MHz (-3dB)

<b>Trigger System</b>	
Trigger Types	Edge, Pulse Width, Video, Slope, Alternative
Trigger Source	CH1, CH2
Trigger Modes	Auto, Normal, Single
Trigger Coupling	AC, DC, LF rej, HF rej
Trigger Level Range	CH1, CH2: $\pm 6$ divisions from center of screen
Trigger Displacement	Pre-trigger: (Memory depth/(2*sampling)), Delay Trigger: 260div
Holdoff Range	100ns – 1.5s
Edge Trigger	Edge Type: Rising, Falling, Rising and Falling
Pulse Width Trigger	Trigger Modes: (>, <, =) Positive Pulse Width, (>, <, =) Negative Pulse Width
	Pulse Width Range: 20ns – 10s
Video Trigger	Support Signal Formats: PAL/SECAM, NTSC
	Trigger Condition : Odd Field, Even Field, All Lines, Line Num
Slope Trigger	(>, <, =) Positive slope, (>, <, =) Negative slope
	Time: 20ns-10s
Alternative Trigger	CH1 Trigger Type: Edge, Pulse, Video, Slope
	CH2 Trigger Type: Edge, Pulse, Video, Slope

<b>X-Y Mode</b>	
X-Pole Input /Y-Pole Input	Channel 1 (CH1) / Channel 2 (CH2)
Phase Error	$\pm 3$ degrees
Sample Frequency	XY mode has a breakthrough that trad oscilloscopes restrict sampling rate at 1MSa/s and supports 5KSa/s~500MSa/s:

<b>Measure System</b>	
Auto Measure (32 Types)	Vpp, Vmax, Vmin, Vamp, Vtop, Vbase, Vavg, Mean, Crms, Vrms, ROVShoot, FOVShoot, RPREShoot, FPREShoot, Rise time, Fall time, Freq, Period, + Wid, -Wid, +Dut, -Dut, BWid, Phase, FRR, FRF, FFR, FFF, LRR, LRF, LFR, LFF
Cursor Measure	Manual mode, Track mode and Auto mode

<b>Control Panel Function</b>	
Auto Set	Auto adjusting the Vertical, Horizontal system and Trigger Position
Save/Recall	Support 2 group referenced waveforms, 10 group setups, 10 group captured waveforms internal storage/recall function and USB flash driver storage function.

<b>Hard Ware Frequency Counter</b>	
Reading Resolution	6 Bytes
Range	DC Couple, 10Hz to MAX Bandwidth
Signal Types	Satisfying all Trigger signals(Except Pulse width trigger and Video Trigger)



**Multimeter**

Maximum Resolution	6000 counts
Measure Function	DCV, ACV, DCI, ACI, Resistance, Diode, Capacitance, Continuity
Max Input Voltage	AC(Vrms): 750V (AC frequency :20Hz~1kHz)DC :1000V
Max Input Current	AC (Vrms) : 10A (AC frequency :20Hz~1kHz)DC : 10A
Impedance	10MΩ

**Recorder**

<b>Scope TrendPlot</b>	
Display	All, Normal
Record Size	800K points, more than 24 hours
Record Channel	2 channels
Cursor, Zoom	Yes
Manual Mode	Yes

<b>Meter TrendPlot</b>	
Display	All, Normal
Record Size	1.6M points
Record Channel	1 channel
Cursor, Zoom	Yes
Manual Mode	Yes

<b>Scope Record</b>	
Function	Record scope waveforms, Replay recorded waveforms
Acquisition Mode	Scan Mode
Time	Record mode: recording time Replay mode: replay time
Sets	Viewer: full screen, split screen Record mode: continuous, single Replay mode: point, frame Save mode: Internal memory
Default	Viewer: split screen Record mode: continuous Replay mode: point Save mode: Internal memory
Record Size	Total: 7M points Single channel: 7M points single channel Double channels: 3.5M points per channel At different time base, get max record time , e.g. time base 100ms, each point counts 0.04ms, Total Time = 7000000*0.04ms = 4.6min
Record Manual	Start, Pause, Stop, Continue
Replay Manual	Start, Pause, Stop, Continue, Previous, Next,

## Generic Specification

Display System	
Display Mode	5.7 inch TFT color LCD
Resolution	320 horizontal by 234 vertical pixels
Display Color	64K color
Display Contrast (Typical state)	150:1
Backlight Intensity(Typical state)	300nit
Waveform Display Range	8 x 12 div
Waveform Display Mode	Point, Vector
Persist	Off, 1 sec, 2 sec, 5 sec, Infinite
Menu Display	2 sec, 5 sec, 10 sec, 20 sec, Infinite
Screen-Saver	Off, 1min, 2min, 5min, 10min, 15min, 30min, 1hour, 2hour, 5hour
Skin	Classical, Modern, Tradition, Succinct
Waveform Interpolation	Sin(x)/x, Linear
Color model	Normal , Invert
Language	Simplified Chinese, Traditional Chinese, English, Arabic, French, German, Russian, Spanish, Portuguese,Japanese, Korean, Italian

Power		
Line Power Adapter	Input voltage	100V-240V 50/60Hz
	Output voltage	9V 4A
Battery	7.4VDC, 4500mAh, persisting about 3 hours	

Environments		
Temperature	Operating	0~45℃
	Storage	-20℃~70℃
Cooling	Internal fan used	
Humidity	85%RH, 40℃	
Height	3000m	

Mechanical		
Size	length	259.5mm
	width	163.2mm
	height	53.3mm
Weight	1.5Kg	

## Type Selections:

### NAME:

SHS1000 series Handheld Digital Oscilloscope

### TYPE:

SHS1102 100MHz

SHS1062 60MHz

### Standard accessories:

A 9V, 3A, power adapter

Two special 10: 1, CATII 1000V, CATIII 600V, 100MHz oscilloscope probes

Two test leads for multimeter

A USB data transmitting cable

User Manual

A service warranting card

A CD of Easyscope used for PC control

## Contact us

If you need any technical support or other help, you can contact SIGLENT service department directly.

Siglent Technologies Co., Ltd

Add: 3/F, Building 4, Antongda industry area, 3<sup>rd</sup> LiuXan Rd, Baona District, ShenZhen, China.

Tel: 0086 755 3661 5186

E-mail: [sales@siglent.com](mailto:sales@siglent.com)

To get latest product and service information please log in <http://www.siglent.com>