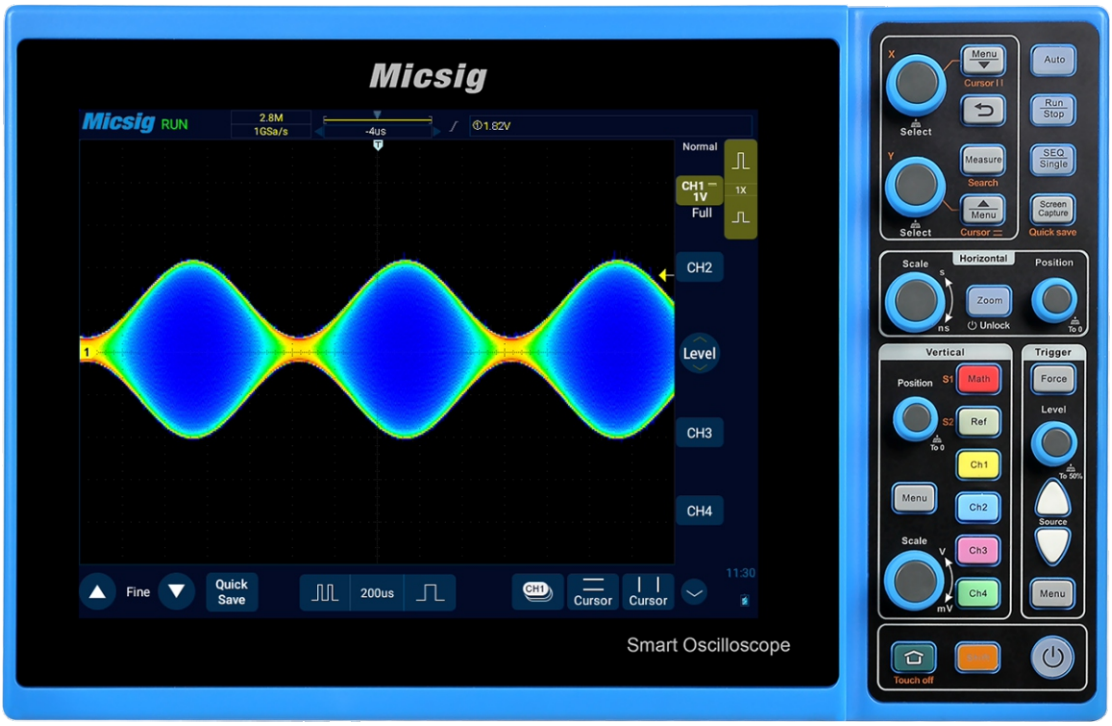
Micsig




## STO1000C Series Smart Oscilloscope

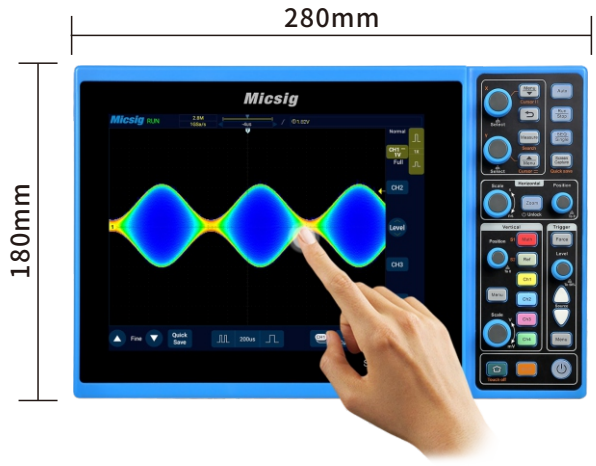
# DATA SHEET

- Android system, rapid operation respond
- 2/4 channels, 100MHz / 150MHz bandwidth
- 1G Sa / S real-time sample rate, 28Mpts memory depth
- Up to 80,000 times/s waveform capture rate
- 8'' industrial LCD, 800 * 600 resolution multi-point capacitive touch screen
- Optional lithium battery, battery life up to 5 hours
- Support LAN, WiFi, USB2.0, USB Device, HDMI, Trigger out, Pass / Fail out ports
- Support Bus trigger and decoding (UART,I2C,SPI,CAN,LIN)
- Support PC software, APP(iOS and Android mobile phone) to remote control oscilloscope
- Built-in 8G storage support various types waveform and video record

# STO1000C Series Smart Oscilloscope

As Micsig's newest portable smart oscilloscope, STO1000C's bandwidth upto 150MHz,1GSa/s sample rate, 28Mpts memory depth, 2 & 4 Channels, and 80,000 wfm/s waveform capture rate.Support serial bus trigger and decoding; it also equipped with various measurements and mathematical functions; 256-level waveform grayscale display and color temperature display; compatible with ports like LAN, Wi-Fi, USB 2.0, USB Device, HDMI, Trigger out; 800 * 600 8-inch capacitive touch screen Support three operation modes: Full screen-touch, Knob panel, and mixed Touch + Panel.

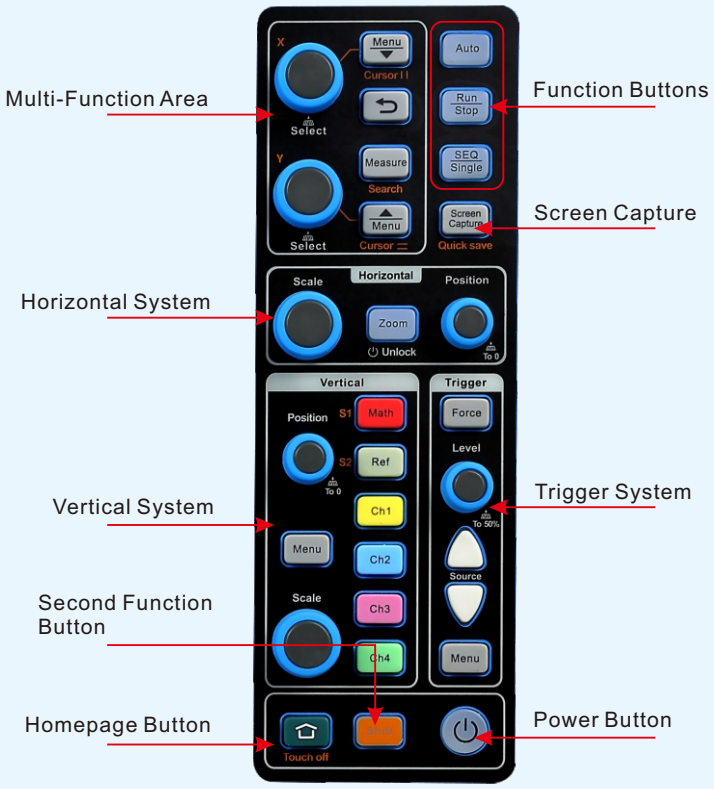
## Product appearance





Weight: 4CH Oscilloscope 1425g  Battery 320g

## Independent Control Panel




# Technical Features


## Ultra-high Waveform Capture Rate

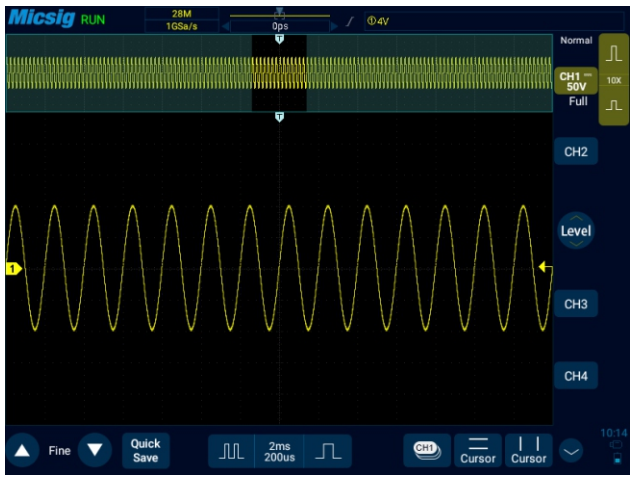
Maximum 80,000wfm/s capture rate.By increasing the waveform capture rate, you see a more complete picture of what is going on with the signal.


## 31 Types of Auto Measurements

31 automatic measurements. Various automatic measurements can meet different measurement demand. It can be display all in one page.

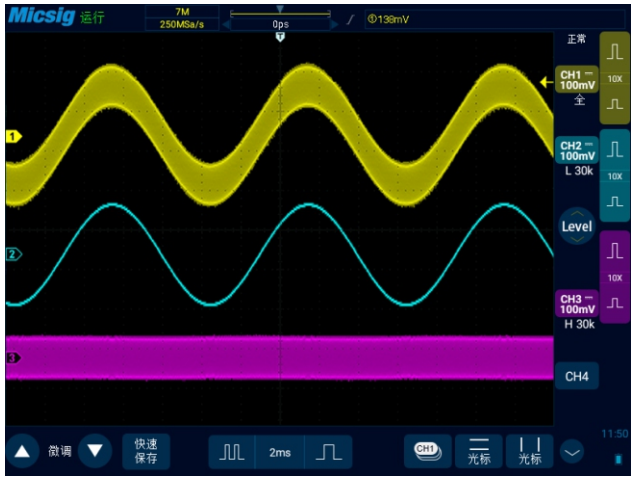

## Powerful Trigger Functions

Support Edge, Pulse width, Short pulse (Underthrow), Logic, Video, Overtime, N_Edge, Slope and other triggers. Simple and intuitive settings, swift trigger source switching mode, make the difficult part of oscilloscope application extremely easy.




## Super Memory Depth

Up to 28Mpts memory depth ,Zoom into a selected part of the captured waveforms to get more details.

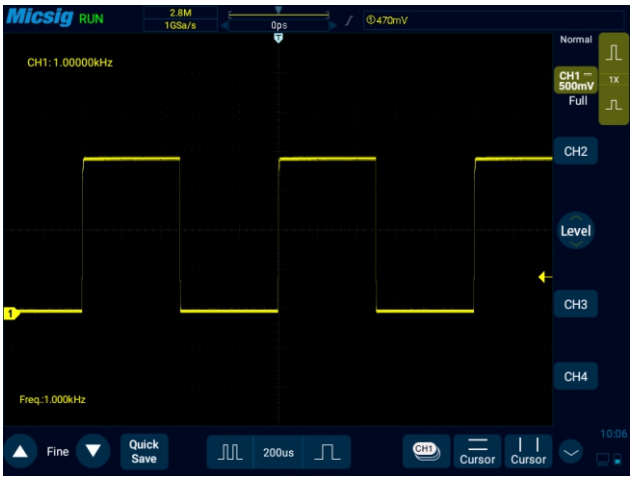



## Hardware High-pass / Low-pass Digital Filtering

Most engineers focus on the details of a certain frequency band of asignal. Filtering out insignificant frequency to eliminate interfer ence, realizes a better judgement of the signal

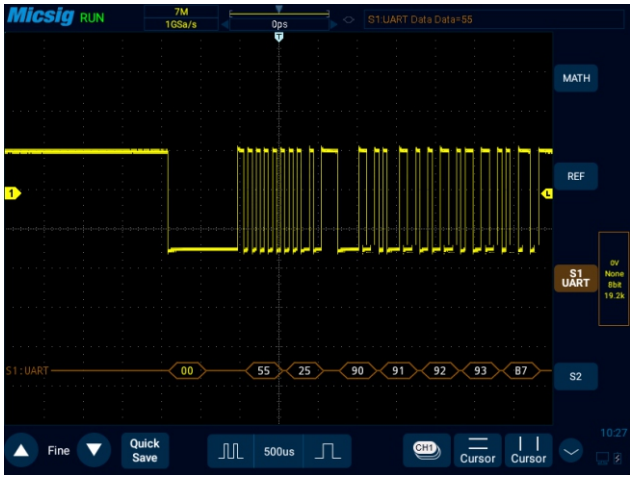

## Autoranging

STO1000C supports automatic measurements. The scope can adjust the amplitude and horizontal time base in real time, ensures the waveform is always displayed with a suitable size on the screen, more convenient and accurate, avoids complicated manual adjustments.




## High-precision Frequency Meter

Supports 6-bit hardware frequency meter, the accuracy is much higher than the soft solution frequency measurement, show more accurate measurement results.

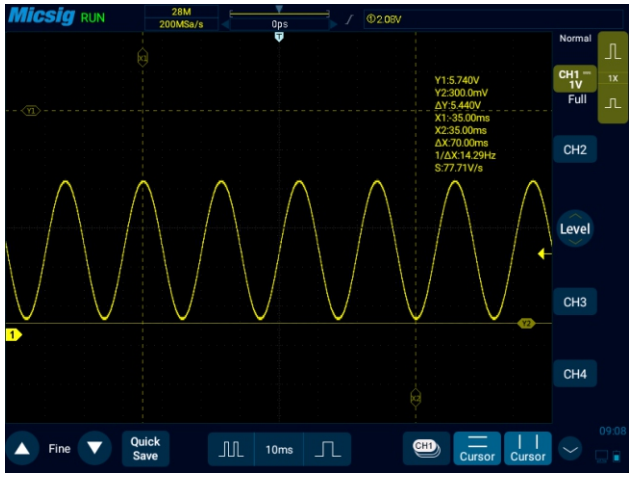



## Serial Bus Decoding and Analysis (optional)

Support serial triggering and decoding (I2C, SPI, RS232/UART,CAN, LIN)


## Decode Text Mode

Supports bus text decoding mode, able to store or export data for further analysis.

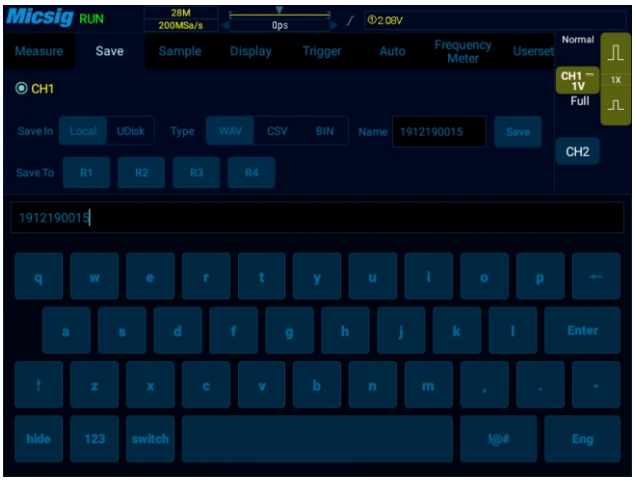



## Convenient Cursor Measurement

One soft touch to initiate horizontal and vertical cursors, each cursor can be moved independently. Simple two-point touch to track down the cursors, efficiency increased by 80%! No more traditional "anti-human" cursor operations!

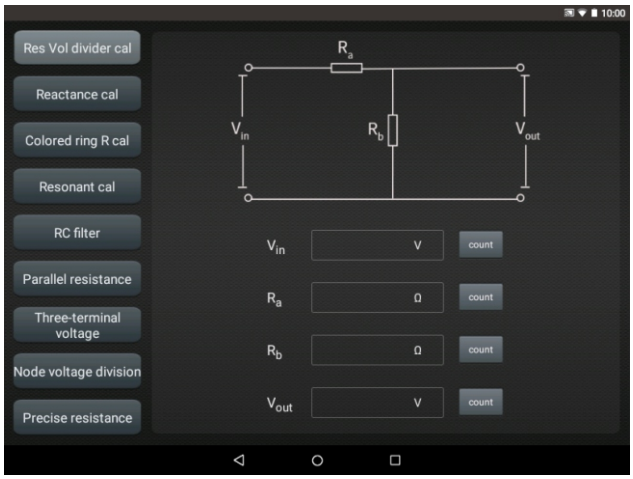

## Screenshot inverse and Timestamp

STO1000C supports adding time stamp and inverse color to screenshots, waveform are more concise and prominent, easy to record, meet the demands of our users to collect and organize.

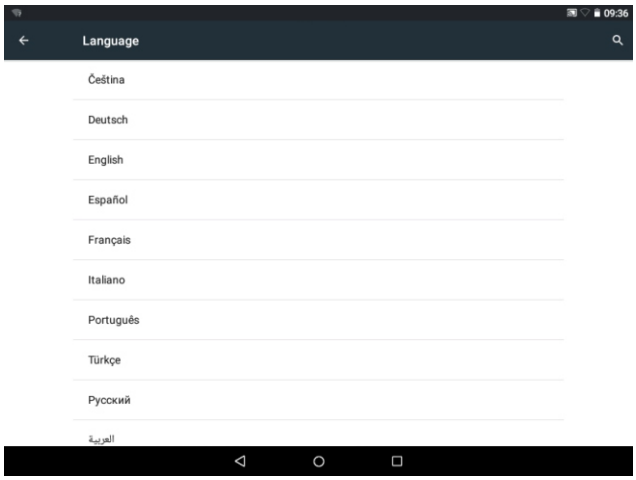



## Soft Keyboard Input

When entering the name, IP, and special characters, ordinary oscilloscopes can only be selected one by one through the knobs, while Micsig's can easily Input by clicking on the soft keyboard,increasing efficiency by 90%.




Electronic Calculation Tool Function




Support Simplified / Traditional Chinese, English


Unique oscilloscope mobile APP and PC software via Wi-Fi, USB, Wi-Fi LAN and LAN connection. Support transfer data from scope to PC via Wi-Fi and USB. Support Micro HDMI to connect scope and display directly.

# Product model

| | STO1102C | STO1152C | STO1104C |
|---|---|---|---|
| Bandwidth | 100MHz | 150MHz | 100MHz |
| Channels | 2 | 2 | 4 |
| Rise time(calculated) | ≤3.5ns | ≤2.33ns | ≤3.5ns |
| Real time sampling rate(1 Ch) | 1G Sa/S | 1G Sa/S | 1G Sa/S |
| Real time sampling rate (2Ch) | 500M Sa/S | 500M Sa/S | 500M Sa/S |
| Real time sampling rate (4Ch) | / | / | 250M Sa/S |
| Peak mode(1 Ch) | 1ns | 1ns | 1ns |
| Peak mode(2 Ch) | 2ns | 2ns | 2ns |
| Peak mode (4 Ch) | / | / | 4ns |
| Memory depth(1 Ch) | 28M | 28M | 28M |
| Memory depth(2 Ch) | 14M | 14M | 14M |
| Memory depth(4 Ch) | / | / | 7M |

# Product parameters

| Vertical system | |
|---|---|
| Bandwidth limitation | 20MHz |
| Hardware Filtering | High pass (30KHz~ maximum bandwidth)/Low pass (maximum bandwidth ~30KHz) |
| Input coupling | DC、AC、GND |
| Input impedances | 1MΩ±1%\|\|14.5pF±3pF |
| Vertical resolution | 8 bit |
| DC gain accuracy (Amplitude accuracy) | ＜±2%（1MΩ input) |
| Vertical scale factor | ⩾40dB（100:1） |
| Channel-to-channelisolation DC tomaximum bandwidth | 1mV/div~10V/div（1MΩ input) |
| Offset range | ± 2.5V (with probe multiple X1, <500mV/div), ±120V (with probemultiple X1, ⩾500mV/div) |
| Noise | ⩽1mV |
| Maximum input voltage | CAT I 300Vrms（1MΩ input) |
| **Sampling system** | |
| Sampling mode | Real time sample rate |
| Peak sampling | All the sampling glitches in scanning rate are narrow to single channel |
| Sample rate 1G Sa/s | 1 ns, dual channel 2 ns .four channel 4ns |
| Maxduration in the max sampling rate | |
| Sample rate 1G Sa/s | 28ms |
| Sample rate500M Sa/s | 56 ms /28ms |
| Sample rate 250M Sa/s | 112ms/56/28ms |
| Average | Average of sampling for N times N is chosen from 2, 4, 8, 16, 32, 64, 128, 256 |
| Envelope | Envelope of sampling for N times N is chosen from 2, 4, 8, 16, 32, 64, 128, 256,∞ |
| **Automatic** | |
| Auto setting | Automatically turns on/off channels, threshold level setting, and automatically sets the trigger source |
| Auto range | Vertical gear automatic, horizontal time base automatic, trigger level automatic |

## Trigger system

| | |
|---|---|
| Trigger mode | Normal,Auto,and Single |
| Trigger coupling | DC,AC,HF reject(＞50KHz),LF reject(＜50KHz),noise reject |
| Trigger holdoff range | 200ns~10s |
| Trigger level ranges | ±10 grids from the center of the screen |
| Trigger type | |
| Edge | Positive, negative, or either slope on any channel input. Coupling includes DC, AC, HF reject, LF reject, and noise reject. |
| Pulse Width | Trigger on width of positive or negative pulses that are＞,＜, ＝, ≠, or inside/outside a specified period of time (8ns~10s). |
| Logic | Trigger when any logical pattern of channels goes false or stays true for specified period of time (8ns~10s). Any input can be used as a clockto look for the pattern on a clock edge. Pattern (AND, OR, NAND,NOR) specified for all input channels defined as High, Low, or Don'tCare |
| Runt | By setting high and low thresholds, triggering pulses that span a level that does not cross another level captures positive and negative pulses |
| Time out | Starting from the intersection of the signal and the trigger level,Trigger when the trigger level is above (or below) the duration and reaches theset time |
| Slope | Trigger when the waveform's time from one level to another matches the set time condition |
| Video trigger | The triggering method for video signals is different depending on the video format. Generally, there are PAL/625, SECAM, NTSC/525, 720P,1080I, 1080P, etc. |
| Nth edge | Trigger on the Nth rising/falling edge of the waveform |
| Bus(optional) | Trigger for the set bus, including UART, I2C, SPI, CAN, LIN, 1553B,429 bus<br>**UART**: start bit, stop bit, data, 0: data, 1: data, x: data, parity error<br>**I2C**: start condition, stop condition, acknowledge loss, restart, address field no acknowledgement, frame type 1, frame type 2, EEPROM data read and write, 10-bit write frame<br>**SPI**: CS, data, X data<br>**CAN**: frame start, remote frame ID, data frame ID, remote/data frame ID, data frame ID and data, error frame, all errors, acknowledgment errors, overload frames<br>**LIN**: Synchronous rising edge, frame ID, frame ID and data<br>**1553B**: instruction/status word sync header, data word sync header,instruction/status word, remote terminal address, Manchester code error, data word, odd parity error, all errors<br>**429**: word start, word end, LABEL, SDI, DATA, SSM, LABEL+SDI, Label+Data, Label+ SSM, word error, word gap error, check error, all errors, all 0 bits, all 1 bit |

## Horizontal system

| | |
|---|---|
| Time base range | 2ns/div~1ks/div |
| Time base delay range | -14divisions to 14ks |
| Clock drift | ≤±5ppm/year |
| Time base accuracy | ±20ppm |
| Rollmode | 200ms/div~1ks/div |

## Bus setup and decoding

| | |
|---|---|
| Display model | Graphic mode, list mode |
| Decoding type | UART,I2C,SPI,CAN,LIN,1553B,429 |
| List mode | For uninterrupted decoding of collected data and can be saved |
| UART | RX: Ch1, Ch2 , Ch3 , Ch4 |
| | Idle level: high and low |
| | Check: no, odd, even |
| | Bits: 5, 6, 7, 8, 9 |
| | Baud rate: 1.2K~8Mbps |
| | Display mode: hexadecimal, binary, ASC II code |

| | |
|---|---|
| I2C | Data: Ch1 , Ch2 , Ch3, CH4 |
| | Clock:Ch1 , Ch2 , Ch3, Ch4 |
| SPI | Clock: rising edge / falling edge Ch1 , Ch2 , Ch3, Ch4 |
| | Data: High/Low Ch1 , Ch2 , Ch3, Ch4 |
| | CS: High/Low Ch1 , Ch2 , Ch3, Ch4 |
| | Bits : 4 ,8 ,16 , 24 , 32 |
| CAN | Source: Ch1 , Ch2 , Ch3, Ch4 |
| | Signal type: CAN_H,CAN_L,H_L,L_H,Rx,Tx |
| | Baud rate : 2.4K~625Kbps |
| LIN | Source :Ch1 , Ch2 , Ch3, Ch4 |
| | Idle level: high level / low level |
| | Baud rate : 2.4K~625Kbps |
| 1553B | Source :Ch1 , Ch2 , Ch3, Ch4 |
| | Display:binary, hexadecimal |
| 429 | Source :Ch1 , Ch2 , Ch3, Ch4 |
| | Format:LABEL_DATA , L+D+SSM , L+SDI+D+SSM |
| | Display : binary, hexadecimal |
| | Baud rate : 12.5Kbs/100Kbps |

## Display system

| | |
|---|---|
| Display type | 8"TFT LED Multi point touchable capacitive screen,24bit |
| Display resolution | 800*600 |
| Max touch point on touch screen | 5 |
| Operation way | Touch, button, touch + button |
| Afterglow time | Automatic,10ms~10s,∞ |
| Time base format | YT、XY、Roll、Zoom |
| Expansion bench mark | Center, Trigger Position |
| Color temperature display | Support |
| Waveform display | Point, line, adjustable brightness |
| Grid | 14*10 grid, adjustable brightness |
| Grey level | 256levels |
| Waveform refresh rate | 80,000wfms/s |
| Time | Real time, user adjustable |
| Language | English,Chinese(standard),German, French, Czech, Korean, Spanish,Italian(Options) |

## Storage

| | |
|---|---|
| Storage format | Local,UDisk |
| Built-in storage | 8G |
| Storage format | Csv,wav,Bin |
| Waveform storage number | Unlimited |
| Waveform storage name | Support |
| Display the reference waveform quantity | 4 pcs |
| Screenshot | Support |
| Video recording and playback | Support |
| User setting number storage | 10 |
| User name setting | Support |
| Flash format | Support |

| | |
|---|---|
| **Power source** | |
| Power source voltage | 100~240V AC,50/60Hz |
| Power consumption | ＜60W |
| Fuse | 12V DC，5A |
| Built-in Battery | 7.4V , 7500mAh |
| **Waveform measurements** | |
| Cursor | Horizontal, vertical, cross |
| Auto measurements | 31, of which up to five can be displayed on-screen at any one time.Measurements include: Period, Frequency, Rise Time, Fall Time,Delay, Positive duty Cycle, Negative Duty Cycle, Positive Pulse Width,Negative Pulse Width, Burst Width, Positive Overshoot, Negative Overshoot, Phase, Peak to Peak, Amplitude, High, Low, Max, Min,Mean, Cycle Mean, RMS, Cycle RMS. |
| Frequency counter | 6 |
| Waveform math | |
| Dual Waveform | + - * / |
| FFT | Spectral magnitude. Set FFT Vertical Scale to Linear RMS or dBVRMS,and FFT Window to Rectangular, Hamming, Hanning, or Blackman-Harris. |
| **Interface** | |
| USB2.0interface | Support 1 USB mass storage devices, can read and write |
| Micro USB2.0interface | 1,support read and write |
| DCinterface | 1,Oscilloscope power supply |
| Probe calibration port | 1KHz,2Vpp |
| LAN | Support |
| HDMI | 1.4 |
| WIFI | Support |
| Android APP | Support |
| IOS APP | Support |
| Computer software | Support |
| **Environment** | |
| Temperature | |
| Operating | 0℃~45℃ |
| Npn-operating | -40℃~60℃ |
| Humidity | |
| Operating | 5%to 85%,25℃ |
| Non-operating | 5%to 90%,25℃ |
| Altitude | |
| Operating | ＜3000m |
| Non-operating | ＜12000m |
| **Physical characteristics** | |
| Dimensions | 280*180*50mm |
| Weight | |
| Net | |
| 2CH Bare | 1340g |
| 4CH Bare | 1425g |
| Shipment | |
| 2CHBare | 2745g |
| 4CHBare | 2930g |

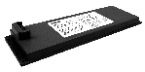
# Accessory

## Standard accessories

| Model | Product | Parameters |
|---|---|---|
|  P130A | Passive probe | Bandwidth:100MHz (One per channel) |
|  | BNC cap | BNC cap (One per channel) |

| Model | Product | Parameters |
|---|---|---|
|  | Adapter | 12V DC，5A |
|  | Power cable | Dedicated Oscilloscope Power cable |

## Optional Accessories

| Model | Product | Parameters |
|---|---|---|
|  | Lithium Ion Battery | 7.4V 7500mAh |
|  | Dedicated Carry Strap | Leather Carry Strap |
|  | Dedicated protective film | Anti-slip and anti-reflective |
|  | Oscilloscope handbag | Wear-resistant canvas material |
|  | HDMI Cable | 1.6m |
|  T3100 | high voltage probe | Test current range: 0.1A-1000A<br>Operation frequency: 10Hz-100KHz |

| Model | Product | Parameters |
|---|---|---|
|  DP10013 | High-voltage differential probe | Bandwidth :100MHz<br>Maximum input differential voltage(DC+AC PK-PK): 1300V |
|  DP20003 | High-voltage differential probe | Bandwidth :100MHz<br>Maximum input differential voltage(DC+AC PK-PK): 5600V |
|  CP2100A | AC/DC current probe | Bandwidth : 800KHz<br>Vertical scale: 10A/100A |
|  CP2100B | AC/DC current probe | Bandwidth : 2.5MHz<br>Vertical scale: 10A/100A |
|  AC1000 | AC current probe | Test current range: 0.1A-1000A<br>Operation frequency: 10Hz-100KHz |

# Ordering information

Step 1,Select STO1000C series basic models

| STO1000 family | |
|---|---|
| STO1102C | Tablet touch digital oscilloscope,100MHz 2 analog channels, single channel sampling rate 1G Sa/s,28Mpts |
| STO1152C | Tablet touch digital oscilloscope,150MHz 2 analog channels, single channel sampling rate 1G Sa/s,28Mpts |
| STO1104C | Tablet touch digital oscilloscope,100MHz 4 analog channels, single channel sampling rate 1G Sa/s,28Mpts |

Step 2: Configure your STO1000C by adding instrument options

| Instrument option | | |
|---|---|---|
| All STO1000C series instruments can be pre-configured with the following options at the factory: | | |
| Software option | | |
| UART | function | Suitable for all models |
| SPI | bus decoding | Suitable for all models |
| I2C | bus decoding | Suitable for all models |
| CAN | bus decoding | Suitable for all models |
| LIN | bus decoding | Suitable for all models |
| 1553B | bus decoding | Suitable for all models |
| 429 | bus decoding | Suitable for all models |



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