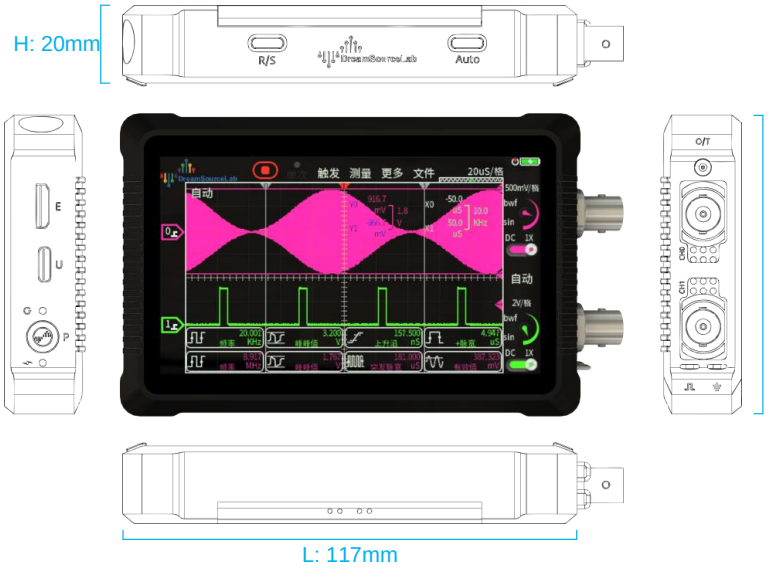
DSTouch DS4T1012

Ultra-portable touchscreen mini digital oscilloscope

Key Features

- Dual channel
- 150MHz analog bandwidth
- Up to 1GSa/s sampling rate
- Maximum 16Mpts storage depth
- FFT spectrum analysis
- Protocol decoders
- Signal generator function
- 4.3-inch IPS capacitive touch screen
- Ultra-portable (117x77x20mm)
- Lithium battery
- 1-year warranty



External Interfaces

- Type-C USB interface (charging / PC connection as a USB disk)
- Mini HDMI (customized function expansion interface, NOT for display expansion)
- 3 buttons (power / start-stop / auto)
- 2 LED indicators (power / charging)
- 1 MCX interface (signal generator)
- 2 BNC interfaces (standard probe interface + Pogo Pin expansion contact)
- Probe compensation test signal (~1KHz square wave + ground)

Charging Requirements

- Charging voltage: 5VDC±5%
- Charging current: maximum 2A

Design Concept

Traditional desktop oscilloscopes meet our signal debugging needs. However, they have some drawbacks. For instance, they require AC power and have restricted measurement grounding, which can introduce safety hazards. They are also bulky, expensive, noisy, and their physical knobs and buttons are easily damaged. This makes them less accessible for entry-level users due to their high cost and learning threshold.

DSTouch maintains or exceeds the performance of desktop oscilloscopes while shrinking to palm-size (117x77x20mm). This makes it ultra-portable and convenient to carry and use anytime, anywhere. The lithium battery power supply design eliminates the constraints of cables and signal grounding, while the all-touch interaction makes it easy to operate. DSTouch also supports advanced features like FFT-based spectrum analysis and real-time protocol decoding, making it an ideal tool for signal analysis.

Technical Specifications

Vertical system

Analog Bandwidth:	150MHz	
Input coupling:	DC or AC	
Input impedance:	1MΩ // ~17pF	
Input sensitivity range:	10mV/Div to 5V/Div	
Vertical resolution:	8bits	
Maximum input voltage:	peaks ≤ 200V	
DC gain accuracy:	±4%	
Vertical position range:	±4 divisions	
Vertical offset ranges:	Volts/Div setting	Range after offset
	10mV/Div ~ 5V/Div	±80mV ~ ±40V/Div
Common mode rejection ratio(CMRR):	--	
Channel-to-channel isolation:	--	

Horizontal system

Maximum sample rate (single channel)	1GSa/s
Maximum sample rate (dual channel)	500MSa/s
Time base range:	1ns/Div to 10s/Div
Maximum duration of time captured at highest sample rate (all channels):	16ms (real-time capture)
Record Length:	8M (dual channel) 16M (single channel)

Trigger system

Trigger mode:	Auto Normal (ch0, ch1)
Trigger position range:	0% ~ 100% of record length
Trigger holdoff range:	0 ~ 1 s
Trigger types:	Edge (rising or falling)
Sensitivity:	0 ~ 0.5 vertical division
Trigger level ranges:	±3.75 vertical division from center screen

Waveform measurements

Cursors:	Pulse Width/Frequency/Period Vertical Amplitude
Automated measurements:	Frequency / Period / +Duty /- Duty / +Count Rise / Fall / +Width / -Width / BrstW Amplitude / High / Low / RMS / Mean Pk-Pk / Max / Min / +Over / -OVer

Waveform display

Time domain:	Real-time waveform Single acquisition
X-Y mode:	Lissajous Figure
Persistence Mode:	2-level dynamic persistence

Waveform analysis

FFT:	Spectrum magnitude Frequency Range: 1Hz ~ 999MHz Vertical scale: Linear RMS or DBV RMS Window: Rectangle, Hann, Hamming, Blackman, Flat_top
Protocol decoding:	Real-time protocol decoding: Supported Protocols: UART / I2C / SPI / … Supported formats: Decimal / Hexadecimal / ASCII

Signal generator

Waveform types:	Sine / Square / Triangle / Sawtooth
Frequency range:	0 – 100KHz (adjustable)
Amplitude range:	0.5V – 3V (adjustable)
Duty Cycle:	10% - 90% (adjustable)

Safety & Precautions

- *DSTouch only supports a charging voltage of 5V. Please do not use any higher voltage to input to the Type-C port.*
- *DSTouch supports charging while in use. When charging via AC power, the grounding terminal of DSTouch is also connected to the grounding terminal of the AC power. In this case, the grounding terminal of the probe should only be connected to the ground point with the same potential, and it is prohibited to connect to any hot ground or other non-equipotential points.*

Revision History

The following table shows the revision history for this document.

Date(DD/MM/YY)	*Version*	*Revision*
04/05/23	*V0.99*	*Initial release (based on DSLFW099.bin firmware)*