

Automotive Tablet Oscilloscope SATO1000 Series DATASHEET

PRODUCT OVERVIEW

SATO1000 is Micsig's New Generation of Automotive Tablet Oscilloscope, compared with previous ATO1000 series, the SATO1000 adopts integrated touch screen technology and upgraded the hardware and software system, featuring 4 channels, 100MHz bandwidth, has maximum 1G Sa/s sampling rate and up to 70Mpts of memory depth.

The SATO1000 equipped with highly sensitive digital trigger system, and a comprehensive Automotive Diagnostic software preset, able to help mechanics quickly and easily find out all kinds of problem on vehicles, including circuits on Charging/Start up, various Sensors and Actuators, Ignition system, and Networks (CAN, CAN FD, LIN, Flexray, K line) etc. Combined with Micsig's unique touch algorithm patented technology, the SATO1000 presents unparalleled operating experience to users.

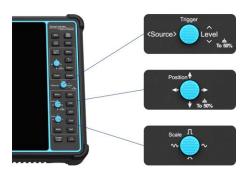


Key Specifications

Model / Ordering Number	SATO1004
Analog Channels	4
Bandwidth	100MHz
Sampling Rate (Max.)	1GSa/S (single channel)
Memory Depth	70Mpts (single channel)
Waveform Capture Rate (Max.)	130,000 wfms/s
Support Tests	Charging/Start Circuits, Sensors, Actuators, Ignition, Networks (CAN, CAN FD,
	LIN, Flexray, K line), Combination Tests
Bandwidth Filter	Full bandwidth, Low pass
Interfaces	Wi-Fi, USB 3.0/2.0 Host, USB Type-C, Grounding, HDMI, Trigger out
Display	Industrial 8" TFT-LCD (800*600), 14*10 grids
Dimension / Net Weight	265*192*50mm / 1.9kg (with battery)
Battery	7.4V, 7500mAh, Li-ion battery

CHARACTERISTICS & FEATURES





 Highly integrated multifunction shortcut keys, deliver quick & accurate control.



Built-in 7500mAh Li-ion battery, up to 5 hours battery life, support Power-off lock, more secure to travel with.



Micsig Universal Probe Interface (UPI), intelligent bi-directional oscilloscope to probe communication, easy to set up attenuation and calibration.





AUTOMOTIVE DIAGNOSTIC PRESETS



▲ SATO able to test the charging circuit and starting circuit to check whether the car charging /start-up circuit is working normally.



▲ SATO support multiple Actuator tests, including Carbon Canister and EGR solenoid valve, Fuel Pump Injectors, Cooling fan, Pressure Regulator, etc.

Micsig	RUN 14M 1GSa/s Ops A J DOV	Д
Charging Start Circuits	CAN H&L CH1 Vol CH2 Vol	5kV = F 5kX
Sensor		л
Actuators	Please connect Ch1 to CAN_H with with BNC-Banana,connect Ch2 to CAN_L with	2
Ignition	BNC-Banana.	
Combination		
Test		
CHx	Fine 11. 1ms 60 111	0554

▲ SATO is capable of acquiring and decoding CAN High /CAN Low, CAN FD, LIN, FlexRay, and K line signals, delivers professional Network communication tests on vehicles.



▲ SATO can directly measure the waveform of the sensors, by comparing with standard waveform, it helps user easily find out possible problem.

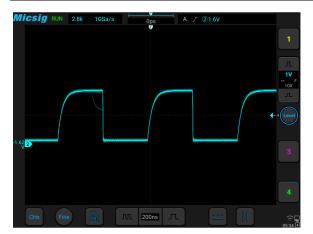
Micsig	RUN 14M	1GSa/s	Ops A	✓ ①0V	Гл
Charging Start Circuits		Voltage(k)	V+) OVoltage		5kV
Sensor	Secondary	© Coil outpu	it test OVoltage		5kX T
Actuators	Primary+ Secondary	⊖Voltage(m			2
Ignition	Secondàry	СНТР			
Networks		CHI -V			
Combination Test		Please conn	ect Ch1 and the probe	of secondary	Lovel
		Ignition.			
СНх		a) m	1ms _L		

▲ The ignition system of a car is usually composed of primary and secondary coils and spark plugs. SATO can test both Primary and Secondary ignition signals, to find out possible malfunction.

Micsig	RUN 14M 1GSa/s	Ops A 1	DOV	л
Charging Start Circuits		CH1-Vol CH2+	-Vol	5kV F
Sensor	Crankshaft+ Primary Ignition			л.
Actuators	Primary Ignition+ Injector Vol	Please connect Ch1 to Cranksha signal with BNC-Banana,and		2
Ignition	Crankshaft+ Camshaft+Injector Vol+Secondary Ignition	connect Ch2 to Camshaft signal BNC-Banana.	with	
Networks	Vol+Secondary Ignition			Level
				15:57

▲ The electronic faults can be complicated, use SATO to perform combination tests, by comparing the collected various waveforms, it helps users judge faults by analyzing the timing and quantitative relationships between waveforms.





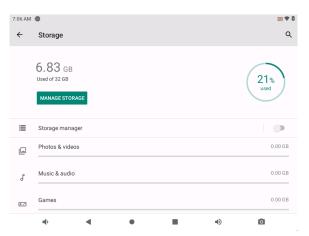
▲ High Waveform Update Rate

With a waveform update rate of up to 130,000 wfm/s, the SATO series can easily capture unusual or low probability events.



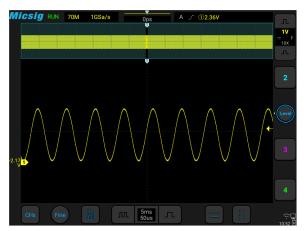
▲ Powerful Trigger Functions

Support Edge, Pulse, Logic, N Edge, Runt, Slope, Timeout, Video and Serial trigger, most intuitive trigger settings, fast and easy trigger source switching.



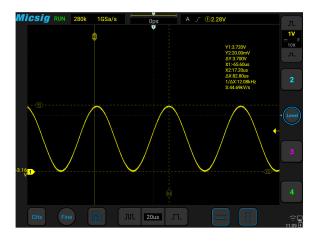
▲ Large 32GB Internal Storage

user can wirelessly access/view mass files like pictures, videos of the oscilloscope via PC or mobile phone.



▲ Ultra-deep Memory

Using hardware-based Zoom technique and memory depth of up to 70Mpts, users to move and browse waveforms much easier and quickly zoom in to focus on the area of interest.



▲ Convenient Cursor Measurement

One touch to open horizontal and vertical cursors, each cursor can be moved separately or simultaneously, brings unmatched user experience.



Remote Control and Demonstration

Support PC software + Mobile App (Android / iOS) remote control, able to access internet for online upgrade, it also can be connected to HDMI port for training and education demonstrations.



Specifications

Vertical System DC. AC. GND Input Coupling DC. AC. GND Rise Time 3.3 iss Input Impedance 140:21 % [14.5g F:3g F Vertical Resolution 8 bits DC Gain Accuracy (Amplitude Accuracy) <22% (1MD (Input) Input Sensitivity Range 1mV/dw-10V/div (1MD (Input) Of-Ac-Ch Solid Tool C to Musimum Bandvidt MG (100.1) Of-Ac-Ch Solid Tool C to Musimum Bandvidt MG (100.1) Of-Ac-Ch Solid Tool C to Musimum Bandvidt MG (100.1) Of-Ac-Ch Solid Tool C to Musimum Bandvidt MG (100.1) Of-Ac-Ch Solid Tool C to Musimum Bandvidt MG (100.1) Marimum Input Voltage CAT I 300/rms (1MD Input) Horizontal System Time Base Delay Time Range 2msd/ur-18xd/u Musimum Mathod Real-Time Pask Detect Capture narrow gritches at all sweep speeds: CH - 1ns, dual CH - 2ns, four CH - 4ns, four		
Rise Time ≤ 3.5m Input Impedance IMQ21%[14.5pF23pF Vertical Resolution B bits DC Gain Accuracy (Amplitude Accuracy) <22% (1MQ Input) Input Sensitivity Renge MVXdiv-10V/div (MQ Input) Ch-to-Ch Isolation DC to Maximum Bandwidth <24.02 (100.1) Offset Range <22.5V (Probe attenuation X1, <500mV/div), ±120V (Probe attenuation X1, 550mV/div) Maximum Input Voitage CAT I 300.Vrms (1MQ Input) Forizontal System Time Base 2mId/v-1kald/v Time Base 2mId/v-1kald/v Time Base 2mId/v-1kald/v Time Base 2mId/v-1kald/v Time Base Delay Time Range 4d/vstorts > 14/s0 Clock Orft SEEppin J year Sampling Method Real-Time Peak Detect Capture narrow giltches at all sweep speeds: CH = 1ns, dual CH = 2ns, four CH = -4ns Maximum duration at highest sampling rete 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256, - Frigger Mode Auto, Normal, Single Trigger Outget Solame-10s Trigger Outget Positive or n	Vertical System	
Inspit impedance IMC2 1% [14.5pE3pF Vertical Resolution 8 bits DC Gain Accuracy (Amplitude Accuracy) *32% (1MC Input) Input imped Sensitivity Range ImVUde- 100/d/u (1MC Input) Ch-to-Ch Isolation DC to Maximum Bandwithth >4068 (100.1) Offset Range 225 V (Probe attenuation X1. <500mV/dity), ±120V (Probe attenuation X1. ±500mV/dity) Maximum Input Voltage CAT 1 300/Vms (1ML Input) Fortsontal System 235 Prof 1 448 Clock Drift 545 Prof 1 448 Clock Drift 545 Prof 1 448 Clock Drift 545 Prof 1 448 Sampling System 2010 Prof 148 Banging Method Real-Time Peak Detc1 Capture narrow glitches at all sweep speds: CH – 1ns, dual CH – 2ns, four CH – 4ns Maximum duration at highest sampling rate 70ms Proger Selectable from 2, 4, 8, 16, 32, 64, 128, 256, - Trigger Mode Auto, Normal, Single Trigger Coupling Cub.C. Ligh Inspurency reject, noise reject Trigger On width of positive or negative sispe on any channel. Coupling Includes DC, HF reject, LF reject, LF reject, LF reject, and noise reject Trigger Types 200ns-10s	Input Coupling	DC, AC, GND
Vertical Resolution 5 bits DC Gain Accuracy (Amplitude Accuracy) <125% (1MQ Input) Imput Sensitivity Range 1mV/dxv~10V/div (1MQ Input) Ch-to-Ch Isolation DC to Maximum Bandwidth 24068 (100.1) Offset Range 22.5V (1Poble attenuation X1, <500mV/div), ±120V (Probe attenuation X1, ≥500mV/div) Maximum Input Voltage CAT 1 300V/ms (1MQ Input) Horizontal System 2106 (200.1) Time Base Delay Time Range 14 divisions = 14ks Clock Drift 5±5ppm / year Time Base Delay Time Range 14 divisions = 14ks Clock Drift 5±5ppm / year Sampling Method Real-Time Peak Detect Capture narrow glitches at all sweep speeds: CH – 1ns, dual CH – 2ns, four CH – 4ns Maximum duration at highest sampling rate 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256, = Trigger Rouge 200sr–10s Trigger Coupling DC. AC, high frequency reject, low frequency reject, noise reject Trigger Coupling DC. AC, high frequency reject, low requency reject, noise reject Trigger Outoff Range Trigger on widin of positive or negative pulses that are >, <, s, # or within a period of lum of abs =	Rise Time	≤ 3.5ns
C Gain Accuracy (Amplitude Accuracy) <42% (1MQ Input) Input Sensitivity Range ImVidiv-10Vidiv (1MQ Input) Ch4o-Ch Isolation DC to Maximum Bandwidth 240dB (100:1) Offset Range 42.5V (Probe attenuation X1, <500mV/div), ±120V (Probe attenuation X1, <500mV/div), Maximum Input Voltage CAT 1300Vrms (1MQ Input) CAT 1300Vrms (1MQ Input) Horizontal System 2msdtw-1ks/div Time Base 2msdtw-1ks/div Time Base Accuracy 20ppm Sampling System Capture narrow glitches at all sweep speeds: CH - 1ns, dual CH - 2ns, four CH - 4ns Maximum duration at highest sampling rato 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256, = Frigger Mode Auto. Normal. Single Trigger Goupling DC. AC. high frequency reject, noise reject Trigger Types 200ms- 10s Frigger Types Positive or nay logic pattern of the channel changes to >, <, =, #, tor within a period of within the set time range. Any hip (200, 1080P, e., <, =, #, tor within a period of within the set time range. Trigger on widio of pattern of the channel changes to >, <, =, #, tor within a period of within the set time range. Trigger on widio of pattern on clock edges. Defines the assigned mode (AND. OR. NAND. NOR) of all input channels se high, low or inereevant within dispatia value within the set time range. SizeC	Input Impedance	1MΩ±1% 14.5pF±3pF
Input Sensitivity Range ImV/div (IMQ input) Ch-to-Ch Isolation DC to Maximum Bandwidth >40dB (100.1) Offset Range 25V (Probe attenuation X1, <500mV/div), ±120V (Probe attenuation X1, 2500mV/div), Maximum Input Voltage CAT I 300Vrms (IMQ Input) CAT I 300Vrms (IMQ Input) Horizontal System 2m/div-1kk/div Time Base 2m/div-1kk/div Time Base Accuracy 200pm Sampling System 2m/div-1kk/div Reak Detect Capture narrow glitches at all sweep speeds: CH - 1ns, dual CH - 2ns, four CH - 4ns Maximum duration at highest sampling rato 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256 Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ~ Trigger Node Auto, Normal, Single Trigger Node Auto, Normal, Single Trigger Ocupiling DC: AC, high frequency reject, noise reject. Trigger Ocupiling Trigger on with of positive or negative slope on any channel. Coupling includes DC, HF reject. EF reject. Logic Trigger on any logic pattern of the channel changes to >, < =, #, true value, false value within the set line torse. Video Trigger on any logic pattern of the signal and the tigger level. In thigger segnet	Vertical Resolution	8 bits
Cheboth isolation DC to Maximum Bandwidth 240dB (100:1) Offset Range 42.5V (Probe attenuation X1, <500mV/div), £120V (Probe attenuation X1, <500mV/div), Maximum Input Voltage	DC Gain Accuracy (Amplitude Accuracy)	<±2% (1MΩ Input)
Offset Range ±2.5V (Probe attenuation X1, <500mV/div), ±120V (Probe attenuation X1, <500mV/div)	Input Sensitivity Range	1mV/div~10V/div (1MΩ Input)
Maximum Input Voltage CAT 1 300Vrms (1MΩ Input) Horizontal System Znsidiv~1ks/div Time Base Znsidiv~1ks/div Time Base Delay Time Range 14 divisions ~ 14ks Clock Drift S±5pm / year Time Base Accuracy ±20ppm Sampling System Capture narrow glitches at all sweep speeds: CH - 1ns, dual CH - 2ns, four CH - 4ns Maximum duration at highest sampling rate Real-Time Peak Detect Capture narrow glitches at all sweep speeds: CH - 1ns, dual CH - 2ns, four CH - 4ns Maximum duration at highest sampling rate 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ° Trigger System CAC, high frequency reject, noise reject Trigger Coupling DC, AC, high frequency reject, low frequency reject, noise reject Trigger Node Auto. Normal. Single Trigger Toldoff Range 200ns-10s Fuege Paite or negative sippe on any channel. Coupling includes DC, HF reject, LF reject, LF reject, LF reject, Cardive or negative sippe on any logic pattern of the channel changes to >, < =, #, true value, false value within the set time range. Logic Trigger on with of positive or negative signes stat are >, < =, # or within a period of tim of dars 10000, fold in put channel changes to >,	Ch-to-Ch Isolation DC to Maximum Bandwidth	≥40dB (100:1)
Horizontal System Time Base 2ns/div~1ks/div Time Base Delay Time Range 14 divisions ~ 14ks Clock Drift 545pm / year Time Base Accuracy ±20pm Sampling System 5 Sampling Method Real-Time Peak Detect Capture narrow glitches at all sweep speeds: CH – 1ns, dual CH – 2ns, four CH – 4ns Maximum duration at highest sampling rate 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ~ Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ~ Trigger System 70ms Trigger Touge DC, AC, high frequency reject, low frequency reject, noise reject Trigger Touge DC, AC, high frequency reject, low frequency reject, noise reject. Trigger Touges 200ns-10s Trigger Types Edge Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns - 10s.	Offset Range	±2.5V (Probe attenuation X1, <500mV/div), ±120V (Probe attenuation X1, ≥500mV/div)
Time Base 2nk/div~1kk/div Time Base Delay Time Range 14 divisions ~ 14ks Clock Drift 5±5ppm / year Time Base Accuracy ±20ppm Sampling System 5 Sampling Method Real-Time Peak Detect Capture narrow glitches at all sweep speeds: CH – 1ns, dual CH – 2ns, four CH – 4ns Maximum duration at highest sampling rate 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256, * Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, * Trigger System 200ns~10s Trigger Toylong DC, AC, high frequency reject, low frequency reject, noise reject Trigger Toylong DC, AC, high frequency reject, low frequency reject, noise reject. Trigger Types Selectable or any logic pattern of the channel changes to >, < =, #, for within a period of time of 8ns ~ 10s.	Maximum Input Voltage	CAT I 300Vrms (1MΩ Input)
Time Base Delay Time Range 14 divisions ~ 14ks Clock Drift ≤s5ppm / year Time Base Accuracy ±20ppm Sampling System Real-Time Sampling Method Real-Time Peak Detect Capture narrow glitches at all sweep speeds: CH – 1ns, dual CH – 2ns, four CH – 4ns Maximum duration at highest sampling rato 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256 Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ~ Trigger System Auto, Normal, Single Trigger Coupling DC, AC, high frequency reject, low frequency reject, noise reject Trigger Mode Auto, Normal, Single Trigger Types 200ns-10s Edge Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Puise Width Ting or on widt of positive or negative puises that are >, <, =, # or within a period of time for ans ~ 10s.	Horizontal System	
Clock Drift 545ppm / year Time Base Accuracy ±20ppm Sampling System Each Time Peak Detect Capture narrow glitches at all sweep speeds: CH – 1ns, dual CH – 2ns, four CH – 4ns Maximum duration at highest sampling rate 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256 Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ∞ Trigger System Trigger Coupling Trigger Forded Auto, Normal, Single Trigger Point 200ms-10s Trigger Types Edge Edge Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and negative slope on any channel. Coupling includes DC, HF reject, LF reject, and negative slope on any channel. Coupling includes DC, HF reject, LF reject, and negative slope on any channel. Coupling includes DC, HF reject, LF reject, and negative slope on any channel. Coupling includes DC, HF reject, LF reject, and negative slope on any channel. Coupling includes DC, HF reject, LF reject, and negative slope on any channel. Coupling includes DC, HF reject, LF reject, and negative slope on any channel. Coupling includes DC, HF reject, LF reject, and negative slope on any channel. Coupling includes DC, HF reject, LF reject, and negative slope on any channel. Coupling includes DC, HF reject, LF reject, and negative slope and slope. Non. NAND, NORN PAR, NEGORSZ, TORP. NAND, NORN PAR, Schoope. Non. NAND, NORN PAR, NEGORSZ, TORP. NAND, NORN PAR, NEGORSZ, TORP. NAND, NORN PAR, NEGORSZ, TORP. NAND, NORN PAR, and NEGOR	Time Base	2ns/div~1ks/div
Time Base Accuracy ±20pm Sampling System Each Time Sampling Method Real-Time Peak Detect Capture narrow glitches at all sweep speeds: CH - 1ns, dual CH - 2ns, four CH - 4ns Maximum duration at highest sampling rate 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256 Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, = Trigger System Trigger Coupling Trigger Coupling DC, AC, high frequency reject, low frequency reject, noise reject Trigger Toyos 200ns-10s Trigger Typos Edge Pulse Width Trigger on width of positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, LF reject, LF reject, LF reject, Card noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns - 10s.	Time Base Delay Time Range	14 divisions ~ 14ks
Sampling System Sampling Method Real-Time Peak Detect Capture narrow glitches at all sweep speeds: CH – 1ns, dual CH – 2ns, four CH – 4ns Maximum duration at highest sampling rate 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256 Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ~ Trigger System Trigger System Trigger Coupling DC, AC, high frequency reject, low frequency reject, noise reject Trigger Holdoff Range 200ns~10s Trigger Types Edge Edge Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, < =, ≠ or within a period of time of 8ns ~ 10s.	Clock Drift	≤±5ppm / year
Sampling Method Real-Time Peak Detect Capture narrow glitches at all sweep speeds: CH – 1ns, dual CH – 2ns, four CH – 4ns Maximum duration at highest sampling rate 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256 Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ~ Trigger System Trigger System Trigger Coupling DC, AC, high frequency reject, low frequency reject, noise reject Trigger Holdoff Range 200ns~10s Trigger Types Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns ~ 10s.	Time Base Accuracy	±20ppm
Peak Detect Capture narrow glitches at all sweep speeds: CH – 1ns, dual CH – 2ns, four CH – 4ns Maximum duration at highest sampling rate 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256 Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ~ Trigger System Trigger System Trigger Mode Auto, Normal, Single Trigger Coupling DC, AC, high frequency reject, low frequency reject, noise reject Trigger Holdoff Range 200ns~10s Trigger on width of positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns ~ 10s. Logic Trigger on video (AND, OR, NANDN, ONG) of all input channels as high, how or irrelevant doe (AND, OR, NANDN, ONG) of all input channels as high, how or irrelevant doe (AND, OR, NANDN, ONG) of all input channels as high, how or irrelevant dwen the duration above (or below) the trigger level, the trigger is generated when the duration above (or below) for the trigger is generated when the duration above (or below) the trigger level, the trigger is generated when the duration above (or below) the trigger level meets the set time condition Runt Pulse (Runt) Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again.	Sampling System	
Maximum duration at highest sampling rate 70ms Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256 Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, « Trigger System Trigger System Trigger Mode Auto, Normal, Single DC, AC, high frequency reject, low frequency reject, noise reject 200ms~10s Trigger Holdoff Range 200ms~10s Trigger Types Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ms ~ 10s.	Sampling Method	Real-Time
Average Selectable from 2, 4, 8, 16, 32, 64, 128, 256 Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ~ Trigger System Trigger System Trigger Mode Auto, Normal, Single Trigger Coupling DC, AC, high frequency reject, low frequency reject, noise reject Trigger Holdoff Range 200ns~10s Trigger Types Edge Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns ~ 10s. Logic Trigger on any logic pattern of the channel changes to >, <, =, ≠, true value, false value within the set time range. Any input can be used as a clock to find patterns on clock edges. Defines the assigned mode (AND, OR, NAND, NOR) of all input channels as high, low or irrelevant Video Starting from the intersection of the signal and the trigger level, the trigger is generated when the duration above (or below) the trigger level exercises the set time condition Stoppe Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again.	Peak Detect	Capture narrow glitches at all sweep speeds: CH – 1ns, dual CH – 2ns, four CH – 4ns
Envelope Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ∞ Trigger System Trigger Node Auto, Normal, Single DC, AC, high frequency reject, low frequency reject, noise reject Trigger Coupling DC, AC, high frequency reject, low frequency reject, noise reject Trigger Holdoff Range 200ns~10s Trigger Types Trigger on regative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns ~ 10s.	Maximum duration at highest sampling rate	70ms
Trigger System Trigger Mode Auto, Normal, Single Trigger Coupling DC, AC, high frequency reject, low frequency reject, noise reject Trigger Holdoff Range 200ns~10s Trigger Types Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8n s ~ 10s.	Average	Selectable from 2, 4, 8, 16, 32, 64, 128, 256
Trigger Mode Auto, Normal, Single Trigger Coupling DC, AC, high frequency reject, low frequency reject, noise reject Trigger Holdoff Range 200ns~10s Trigger Types Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns ~ 10s. Logic Trigger on any logic pattern of the channel changes to >, <, =, ≠, true value, false value within the set time range. Any input can be used as a clock to find patterns on clock edges. Defines the assigned mode (AND, OR, NAND, NOR) of all input channels as high, low or irrelevant Video Trigger on video signals varies according to different video formats, generally PAL/625, SECAM, NTSC/525, 720P, 1080I, 1080P, etc. Stope Trigger on the time of the waveform from one level to another level meets the set time condition Runt Pulse (Runt) Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again.	Envelope	Selectable from 2, 4, 8, 16, 32, 64, 128, 256, ∞
Trigger Coupling DC, AC, high frequency reject, low frequency reject, noise reject Trigger Holdoff Range 200ns~10s Trigger Types Edge Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Preject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns ~ 10s.	Trigger System	
Trigger Holdoff Range 200ns~10s Trigger Types Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns ~ 10s.	Trigger Mode	Auto, Normal, Single
Trigger Types Edge Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns ~ 10s.	Trigger Coupling	DC, AC, high frequency reject, low frequency reject, noise reject
Edge Positive or negative slope on any channel. Coupling includes DC, HF reject, LF reject, and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns ~ 10s. Logic Trigger on any logic pattern of the channel changes to >, <, =, ≠, true value, false value within the set time range. Any input can be used as a clock to find patterns on clock edges. Defines the assigned mode (AND, OR, NAND, NOR) of all input channels as high, low or irrelevant Video Trigger on video signals varies according to different video formats, generally PAL/625, SECAM, NTSC/525, 720P, 1080I, 1080P, etc. Slope Trigger on the time of the waveform from one level to another level meets the set time condition Runt Pulse (Runt) Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again.	Trigger Holdoff Range	200ns~10s
Edge and noise reject. Pulse Width Trigger on width of positive or negative pulses that are >, <, =, ≠ or within a period of time of 8ns ~ 10s.	Trigger Types	
Puise Width time of 8ns ~ 10s. Logic Trigger on any logic pattern of the channel changes to >, <, =, ≠, true value, false value within the set time range. Any input can be used as a clock to find patterns on clock edges. Defines the assigned mode (AND, OR, NAND, NOR) of all input channels as high, low or irrelevant Video Trigger on video signals varies according to different video formats, generally PAL/625, SECAM, NTSC/525, 720P, 1080I, 1080P, etc. Time Out Starting from the intersection of the signal and the trigger level, the trigger is generated when the duration above (or below) the trigger level reaches the set time condition Runt Pulse (Runt) Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again.	Edge	
Logicwithin the set time range. Any input can be used as a clock to find patterns on clock edges. Defines the assigned mode (AND, OR, NAND, NOR) of all input channels as high, low or irrelevantVideoTrigger on video signals varies according to different video formats, generally PAL/625, SECAM, NTSC/525, 720P, 1080I, 1080P, etc.Time OutStarting from the intersection of the signal and the trigger level, the trigger is generated 	Pulse Width	
Video SECAM, NTSC/525, 720P, 1080I, 1080P, etc. Time Out Starting from the intersection of the signal and the trigger level, the trigger is generated when the duration above (or below) the trigger level reaches the set time Slope Trigger on the time of the waveform from one level to another level meets the set time Runt Pulse (Runt) Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again.		
Time Out when the duration above (or below) the trigger level reaches the set time Slope Trigger on the time of the waveform from one level to another level meets the set time condition Runt Pulse (Runt) Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again.	Logic	within the set time range. Any input can be used as a clock to find patterns on clock edges. Defines the assigned
Stope condition Runt Pulse (Runt) Trigger on a pulse that crosses one threshold but fails to cross a second threshold before crossing the first again.		within the set time range. Any input can be used as a clock to find patterns on clock edges. Defines the assigned mode (AND, OR, NAND, NOR) of all input channels as high, low or irrelevant Trigger on video signals varies according to different video formats, generally PAL/625,
before crossing the first again.	Video	 within the set time range. Any input can be used as a clock to find patterns on clock edges. Defines the assigned mode (AND, OR, NAND, NOR) of all input channels as high, low or irrelevant Trigger on video signals varies according to different video formats, generally PAL/625, SECAM, NTSC/525, 720P, 1080I, 1080P, etc. Starting from the intersection of the signal and the trigger level, the trigger is generated
N Edge Trigger on the Nth rising/falling edge of the waveform	Video Time Out	 within the set time range. Any input can be used as a clock to find patterns on clock edges. Defines the assigned mode (AND, OR, NAND, NOR) of all input channels as high, low or irrelevant Trigger on video signals varies according to different video formats, generally PAL/625, SECAM, NTSC/525, 720P, 1080I, 1080P, etc. Starting from the intersection of the signal and the trigger level, the trigger is generated when the duration above (or below) the trigger level reaches the set time Trigger on the time of the waveform from one level to another level meets the set time
	Video Time Out Slope	 within the set time range. Any input can be used as a clock to find patterns on clock edges. Defines the assigned mode (AND, OR, NAND, NOR) of all input channels as high, low or irrelevant Trigger on video signals varies according to different video formats, generally PAL/625, SECAM, NTSC/525, 720P, 1080I, 1080P, etc. Starting from the intersection of the signal and the trigger level, the trigger is generated when the duration above (or below) the trigger level reaches the set time Trigger on the time of the waveform from one level to another level meets the set time condition Trigger on a pulse that crosses one threshold but fails to cross a second threshold



Waveform Measurements		
Cursors	Horizontal, Vertical, Cross	
Automated Measurements	31 types, of which up to 10 types can be displayed on-screen at any time. Including: 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, Maximum, Minimum, RMS, Cycle RMS, Mean, Cycle Mean	
Hardware Frequency Meter	6 digits	
Waveform Math		
Dual Waveform	Add, Subtract, Multiply, Divide	
FFT	Spectral magnitude. Set FFT vertical scale to linear RMS or decibel dBV RMS, set FFT window to Rectangular, Hamming, Hanning or Blackman-Harris	

Display System	
Display Type	8-inch TFT LCD multi-point capacitive touch screen
Display Resolution	800*600 pixels
Operation Method	Touch, Button, Touch + Button
Persistence Duration	Auto, 10ms~10s, ∞
Time Base Mode	YT, XY, Zoom, Roll (scroll waveforms right to left across the screen at sweep speeds slower than or equal to 200 ms/div)
Expand Benchmark	Center, Trigger position
Waveform Display	Vectors, Line, brightness adjustable
Graticules	14 x 10, brightness adjustable
Waveform Update Rate	130,000 wfms/s
Clock	Real time, user adjustable
Language	English, Chinese, German, French, Czech, Korean, Spanish, Italian, etc.

Storage	
Storage Medium	Local, USB drive
Internal Storage	32G
Waveform Storage Format	csv, wav, bin
Store Waveform Quantity	Unlimited
Stored Waveform Rename	Support
Reference Waveform Display	4 internal waveforms
Quick Screenshot	Support
User Setting Storage	10 internal setups
User Settings Rename	Support
USB Flash Drive	Support industry standard flash drives

Input / Output Ports	
USB3.0 Port	Support one USB mass storage device, read and edit
USB2.0 Port	One, read and edit
USB Type-C	One, read and edit
DC Port	One
Probe Compensator	1KHz, 2Vpk-pk
НОМІ	HDMI 1.4
Wi-Fi	Support
Android/iOS Remote Control Application	Support



Power Source	
Power Voltage Range	100~240VAC, 50/60Hz
Power Consumption	< 60W
Adapter Output	12V DC, 4A
Battery	7.4V, 7500mAh Li-ion battery

Environment	
Temperature	
Operating	0°C ~ 45°C
Non-operating	-40°C ~ 60°C
Humidity	
Operating	5% ~ 85%, 25°C
Non-operating	5% ~ 90%, 25°C
Altitude	
Operating	< 3000m
Non-operating	< 12000m

Physical Characteristics	
Dimensions (W x H x D)	265*192*50mm
Weight	Net: 1.9kg (with battery), Shipping: 4.5kg

Standard Accessories	
Passive Probe	Measuring voltage: 10X: < 600V AC pk, one per channel
Power Adapter	One (Localized)
Power Cord	One
Warranty	Three-year warranty for Base Unit only, probes, battery and related accessories are valid for 180 days

Instrument Options	
Customized Battery (Standard)	7.4V, 7500mAh Li-ion battery
Bus Decoding	Standard: UART, LIN, CAN, SPI, I ² C; Optional: ARINC-429, MIL-STD-1553B
Recommended Accessory	Customized nylon handbag, hard shell suitcase, screen protective mask

