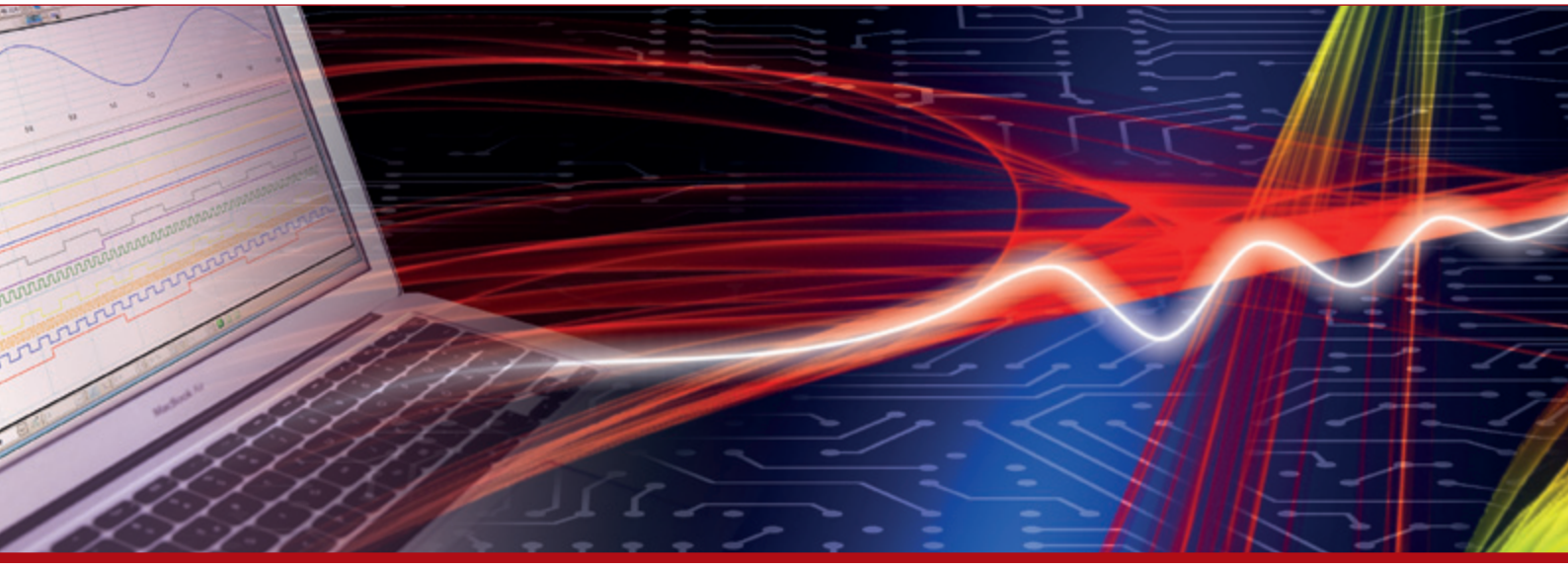
Product Datasheet - Technical Specifications



More information in our Web-Shop at ▸ **www.meilhaus.com**

Your contact

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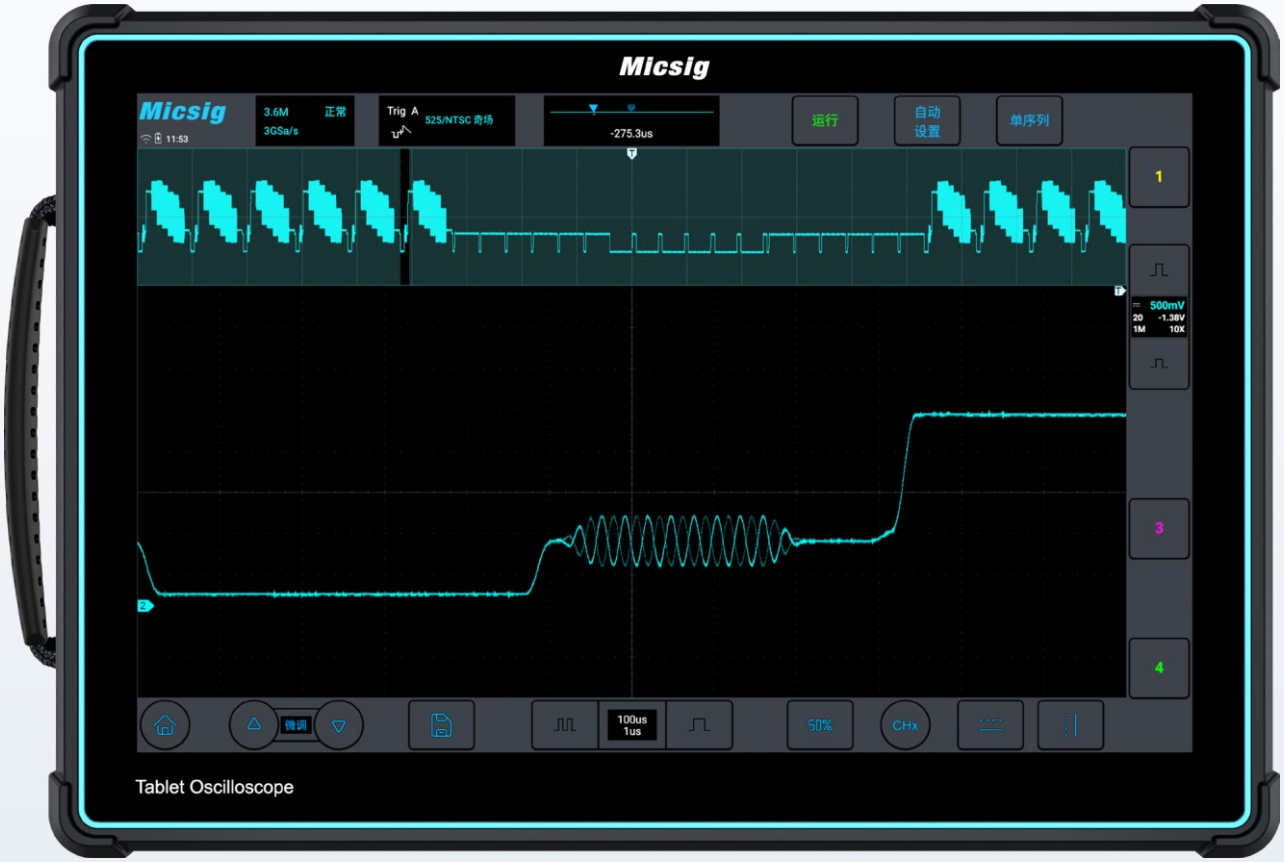
Micsig

Tablet Oscilloscope

ETO Series

- Max. 500 MHz bandwidth, 4CH
- 13500mAh Li-ion battery
- 3 GSa/s sampling, 360 Mpts memory depth
- 14" touch screen, 1920 x 1200 resolution



Overview

As Micsig GEN 5 tablet oscilloscope, the ETO series has up to 500MHz bandwidth, 4 analog channels, up to 3GSa/s sampling rate, and 360Mpts memory depth. Equipped with Micsig SigtestUI™ multi-tasking system, it comes with excellent hardware performance and professional oscilloscope functions. 14-inch ultra-large full touch screen, and built-in large-capacity battery, making it perfect tool whether in laboratory or in the field, bringing engineers excellent oscilloscope operation experience.

Features

- max. 500MHz bandwidth
- Intuitive user interface
- Save multi-channel data simultaneously
- High pass, Low pass bandwidth filter
- Noise < 90μVrms
- Segmented storage function (10,000 events)
- Advanced math and FFT functions
- Up to 230,000wfms/s waveform capture rate
- 14" anti-glare full touch screen, 1920*1200 pixels
- Built-in large battery, easy for lab and field using
- Mic-OPI™ probe interface, auto probe compensation
- Support mobile, PC remote control and SCPI commands
- 32G internal storage to store big data
- Standard RS-232/422/485/UART, CAN, CAN FD, LIN, SPI, I^2C, and ARINC-429, MIL-STD-1553B serial decode

Large battery

Built-in large-capacity battery, perfect to use in the field. Special power lock design prevents accidental startup.

Remote control

Support remote control via PC, mobile app, and HDMI screen projection. Support SCPI programming commands, helping engineers to conduct tests more flexibly and efficiently.

Vesa mounting

75mm x 75mm standard VESA mount interface, flexible to move and space-saving on the desk.

Various Interfaces

Power supply, Grounding, USB3.0/2.0, HDMI, USB-C, Power lock (switch to ON before use)

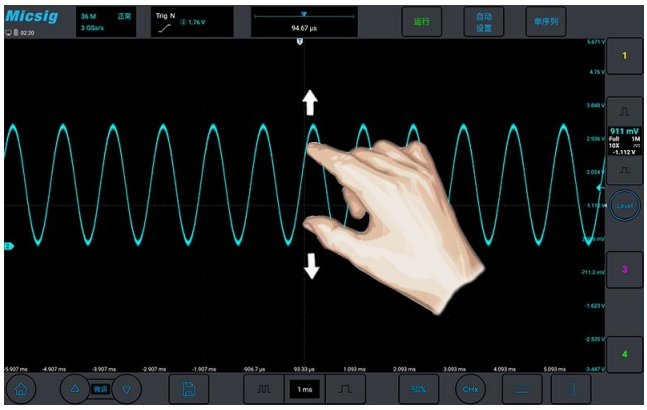
Mic-OPI™ probe interface

Mic-OPI™ probe interface, easy to plug, automatically match probe attenuation and compensation. Also comes with BNC adapter to use on all oscilloscopes.

Key Specifications

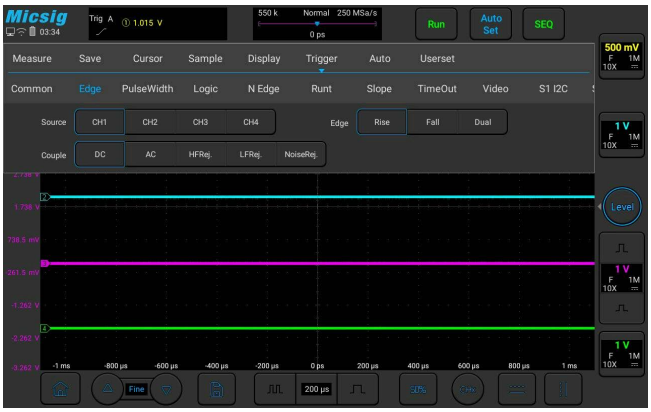
Model	ETO5004	ETO3504
Bandwidth	500MHz	350MHz
Analog channels	4CH	
Max. Sampling rate	3GSa/s	
Max. Memory depth	360Mpts	
Max. waveform capture rate	230,000 wfms/s	
Noise	＜90μVrms	
Trigger types	Edge, Pulse Width, Logic, Nth Edge, Runt, Slope, Time Out, Video, Serial	
Bus decoding	RS-232/422/485/UART, CAN, CAN FD, LIN, SPI, I²C, ARINC-429, MIL-STD-1553B	
Interfaces	USB 3.0/2.0 Host, USB type-C, Ground, HDMI, Trigger out	
Display	14" integrated TFT LCD screen, 1920*1200 resolution	
Battery	7.4V / 13500mAh Li-ion Battery	
Dimensions / Net weight	353*245*56 mm / 3.6kg (with battery)	

Features



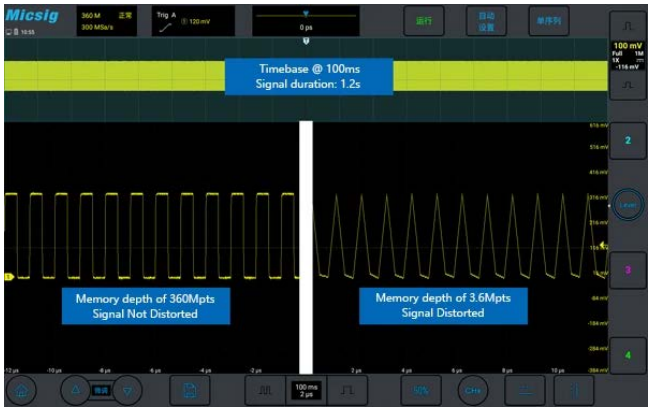
▲ Smooth touch control

The ETO has a 14" full-touch integrated display, all operations can be completed by touch, more intuitive and efficient than ever before.



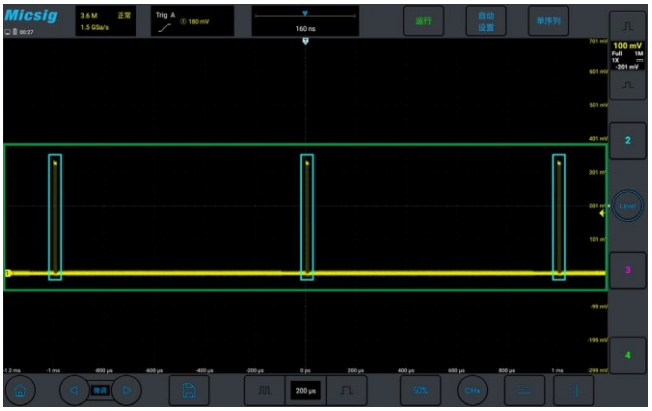
▲ Most friendly UI

With accumulation of 10 years of UI design experience, the ETO simplifies all user interfaces, engineers can quickly get to use in 5 minutes.



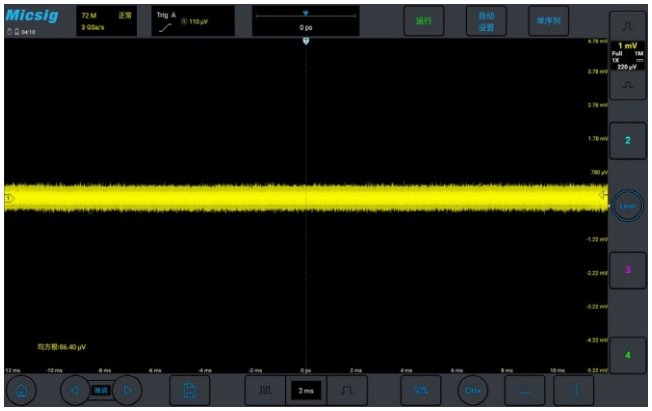
▲ Large memory depth

Insufficient memory depth often leads to distortion when long time base signals are expanded. With memory depth of up to 360Mpts, there is no reduction in performance even with two channels opened at the same time. The signals will still maintain excellent fidelity even at long time base.



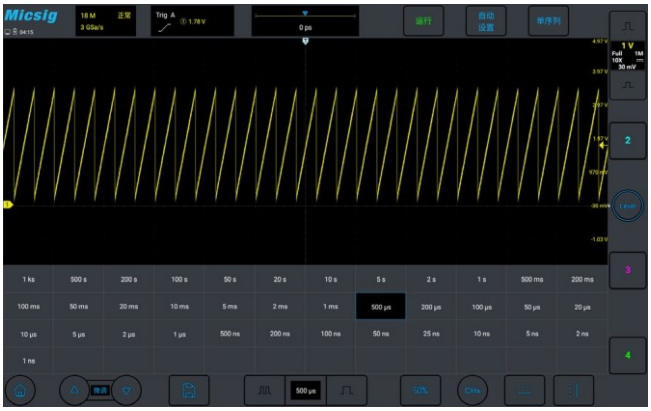
▲ Segmented storage acquisition

Traditional Single acquisitions can only capture signals continuously, wasted storage depth when testing intermittent signals like laser pulses or serial buses, also difficult to trace back captured events. While the segmented storage acquisition can capture the target signal and allows to play back captured ones, effectively captures target signals multiple times over a long period of time.



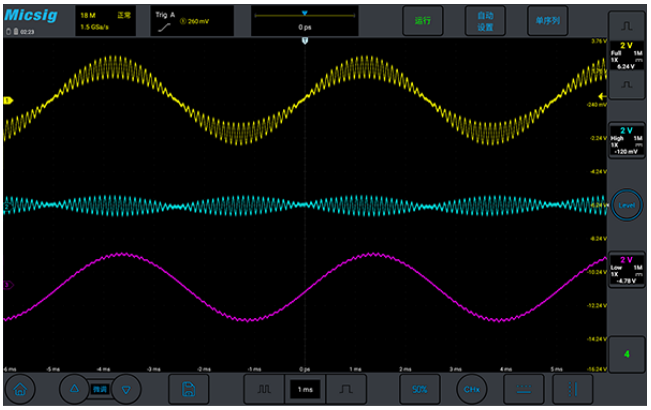
▲ Low noise

Even at its full bandwidth of 500M, the noise floor of the ETO still less than 90μVrms, allow engineers accurately capture weak but important signals during daily circuit debugging and signal analysis.



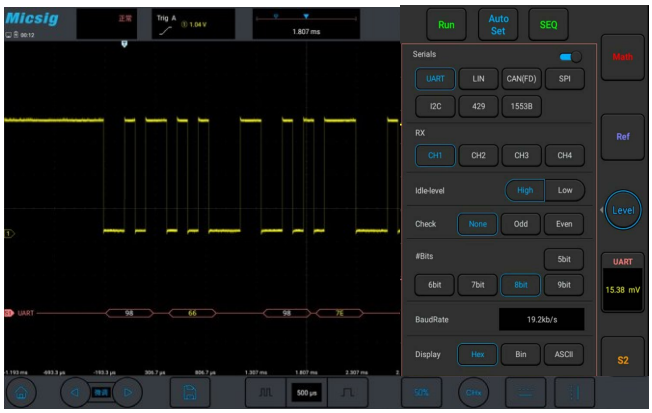
▲ Faster time base selection

Traditional oscilloscopes need to step in a sequential manner when adjusting the time base. In addition to traditional sequential steps, the ETO series also has a time base matrix, allows user to reach any time base in one click.



▲ Hardware digital filtering

Digital filtering can selectively allow or block signal components within specific frequency ranges.

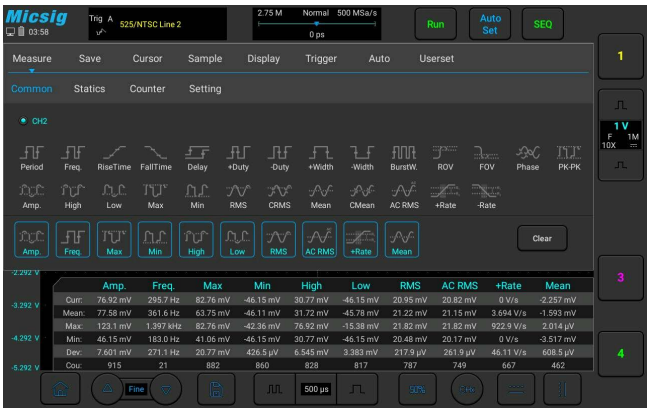


▲ Serial bus decoding and analysis

The ETO comes standard with 8 types of serial bus decodes: RS-232/422/485/ UART, CAN, LIN, CAN FD, SPI, I²C, ARINC429, 1553B. With the TXT decoding text mode, the data can be transferred to CSV format.

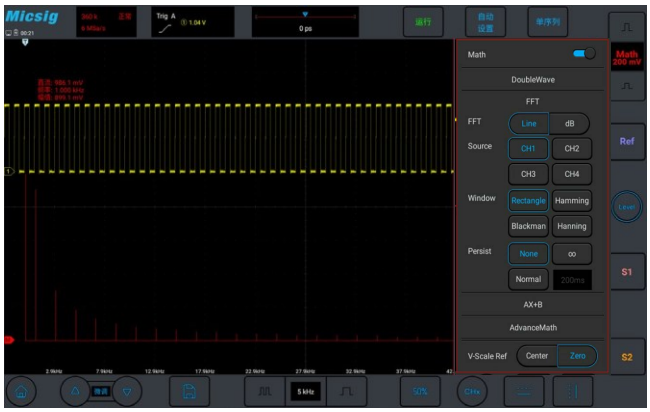
▲ Multiple Trigger Functions

The ETO series provides multiple triggers, including edge, pulse width, logic, Nth edge, Runt, slope, bus decoding, etc. Whether you need to capture specific edge transitions, or observe duration and frequency of the target signal, it meets your requirement at ease.



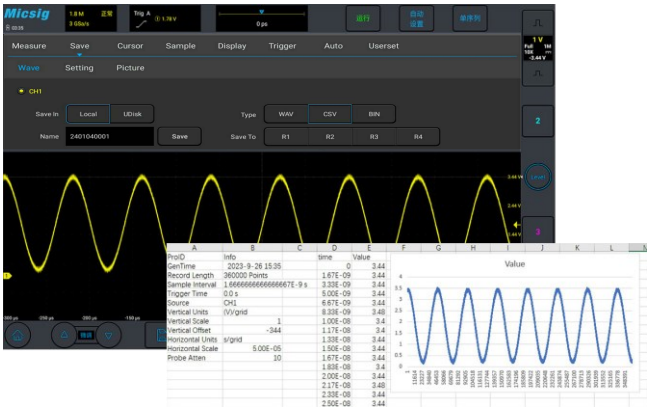
▲ Statistics Measurement

Simultaneously calculate the average, maximum, minimum, and root mean square of 10 measurement items, with a max count of up to 10,000, every waveform data is accurately recorded, provide more accurate and comprehensive readings.



▲ Advanced Math functions

Support various mathematical calculations: addition, subtraction, multiplication, division, integration, differentiation, etc.
Support custom function formula for advanced signal analysis. Also support FFT (Fast Fourier Transform) for real-time spectral analysis of collected waveform signals.



▲ Diverse file saving

Users can save waveforms and measurement results as binary (BIN) or CSV format files for data analysis using Matlab or Excel. Also support saved as WAV format, direct open & analysis inside the oscilloscope. Additionally, user can save waveforms as images or record videos.

Specifications

Vertical system	
Bandwidth filter	20MHz, High pass / Low pass
Coupling	DC, AC, GND
Input Impedance and Accuracy	1MΩ±1% || 50Ω±1%
Vertical resolution	8 bits
Vertical divisions	10 divs
Vertical scale factor	1mV/div~10V/div (1MΩ)，1mV/div~1V/div（50Ω）
DC Gain accuracy	5mV/div~10V/div：≤±2.0%； ≤2mV/div：≤±3.0%
Vertical offset range(1MΩ / 50Ω)	±2.5V (@probe 1X, ﹤500mV/div), ±125V (@probe 1X, ≥ 500mV/div)
Noise	≤ 1.1mVpp (1mV/div，1MΩ)
Max. input voltage	CAT I 300Vrms 400Vpk（1MΩ），5Vrms（50Ω）
Channel isolation	＞40dB（≤ 100MHz），＞35dB（＞ 100MHz）
Vertical expansion datum	Screen center, channel zero point
Probe attenuation ratio	1mX~10kX, 1-2-5 sequence, support customization

Horizontal system	
Horizontal scale	1ns/div~1ks/div
Roll scale	200ms/div~1ks/div
Time base accuracy	20ppm
Horizontal divisions	12div
Time base delay time range	-12 div ~ 12ks, resolution: 1 pixel

Trigger System	
Trigger mode	Auto, Normal, Single
Trigger level range (analog)	±5div from screen center, analog channel
Hold off range	200ns~10s
Trigger coupling and frequency (analog channel)	DC, AC(110Hz), low frequency (58kHz), high frequency (58kHz), noise (18MHz)
Trigger Types	Edge, Pulse Width, Logic, Nth Edge, Runt Pulse (Runt), Slope, Time Out, Video, Serial Bus
Bus decoding	RS-232/422/485/UART, CAN, CAN FD, LIN, SPI, I^2C, ARINC-429, MIL-STD-1553B

Sampling System	
Sampling rate (real time)	3G Sa/s （Either one of CH1 & CH2 is open, and either one of CH3 & CH4 is open); 1.5G Sa/s（Both CH1 and 2CH, or both CH3 and CH4 are open）
Memory depth	360Mpts/36M/3.6M/360K/36K/3.6K/ Auto（Either one of CH1 & CH2 is open, and either one of CH3 & CH4); 180Mpts/18M/1.8M/180K/18K/1.8K/ Auto（Both CH1 and 2CH, or both CH3 and CH4 are open)
Peak sampling interval	single channel 333ps, dual channel 666ps
Average	2,4,8,16,32,64,128,256
Envelope	2,4,8,16,32,64,128,256, ∞

Measurements	
Auto measurements	Period, frequency, rise time, fall time, delay, positive duty cycle, negative duty cycle, positive pulse width, negative pulse width, burst pulse width, positive overshoot, negative overshoot, phase, peak-to-peak, Amplitude, High, Low, Maximum, Minimum, RMS, C RMS, Average, C Average, AC RMS, Positive Slope, Negative Slope *C represents the first period, indicating a certain value in the first period of the waveform
Hardware frequency counter & resolution	Support each analog channel, 6bit, 2Hz~max. bandwidth, pk-pk > 0.8div
Cursors	Horizontal, vertical, Cross
Cursor resolution	1 pixel
Math	
Dual waveform	+, -, *, /, Analog channel
FFT	Points: max. 360k; Source: Analog channel; Window: Rectangular, Hamming, Blackman, Hanning
AX+B	A: ±1k, Min. Resolution 1p or 4it B: ±1k, Resolution 1p or 5bit X: Analog channel
Advance math	Advanced equation, including: +, -, *, /, <, >, ≤, ≥, ==, !=, &&, ||, (,) , !(, sqrt, abs, deg, rad, exp, diff, ln, sin, cos, tan, intg, lg, asin, acos, atan

Display	
Display	14" capacitive TFT, 1920*1200 resolution, 12*10 Divisions
Persistence	Auto, 10ms~10s, ∞
Time base mode	YT, XY, Roll, Zoom
Expand base	center, trigger position
Waveform Display	Dot, line, adjustable brightness
Waveform Update Rate	230,000 wfms/s

Storage	
Storage media	Local, USB drive
ROM storage	32G
Storage format	WAV, CSV, BIN
Quantity of stored waveforms	No limit
Stored waveform rename	Chinese, English
REF waveforms display	4
Quick screenshot	Support
Quantity of user settings	10
User settings rename	Support
Flash memory	Industry standard
Screenshot, video recording	Support

System	
Self-calibration	Support
Languages	English, Chinese, German, French, Czech, Korean, Spanish, Italian, etc
Operating System	Android
Built-in app	App Store, Browser, Oscilloscope, Calendar, Clock, Gallery, Calculator, User Guide, Electronic Tools, File Manager
Warranty	Three-year for mainframe. Probes and accessories are not covered. * Please refer to the data sheet of each probe and accessory for the respective warranty terms. (contact us for extended warranty)

Interfaces	
USB3.0 Port	1, read and edit
USB2.0 Port	2, read and edit
USB Type-C	1, read and edit
DC Port	1, Supply power to oscilloscope
Probe calibration signal	1kHz, 2Vpk-pk
HDMI	HDMI 1.4
PC	Support
Android/iOS remote control APP	Support
SCPI	Support

Power Source	
Adapter input	100~240VAC, 50/60Hz
Power consumption	<84W
Adapter output	12VDC, 7A
Power cord plug	Local

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

Physical	
Dimensions	353*245*56mm
Net weight	3.6kg（with battery）

Standard Accessories

Model	Standard Accessories
ETO Series	Passive Probe * 4
	MSP-BNC Adapter * 4
	Power adapter * 1
	Power cord * 1
	Battery * 1 (built-in)
	Side handle * 1 (pre-installed)
	Calibration certificate * 1
	Quick Guide * 1
	Packing list * 1
	User Instructions *1

Optional instruments

Optical-fiber Isolated Probe	
SigOFIT series	Bandwidth: up to 1GHz, Common mode voltage: 85kVpk, DC gain accuracy: 1%, CMRR: up to 180dB

High Voltage Differential Probe	
MDP series	Bandwidth: up to 500MHz; Differential voltage (DC+AC PK) Max.3000V; Accuracy: ±2%

Current Probes	
HF AC/DC current probe CP series	Bandwidth: up to 100MHz, Range: 6A/30A, Accuracy: ±1%
LF AC/DC current probe CP2100 series	Bandwidth: up to 2.5MHz, Range: 10A/100A
Rogowski AC current probe RCP series	Bandwidth: 10Hz - 30MHz, Range: 200mApk-600Apk, Accuracy: 1%
AC Current Probe ACP1000	Bandwidth: 10Hz -100KHz, Range: 0.1Apk-1000Apk

Handbag & Suitcase	
Micsig handbag	Black nylon, suitable for all Micsig oscilloscopes
Micsig Suitcase	Anti-fall, anti-seismic, anti-pressure, dust-proof, moisture-proof