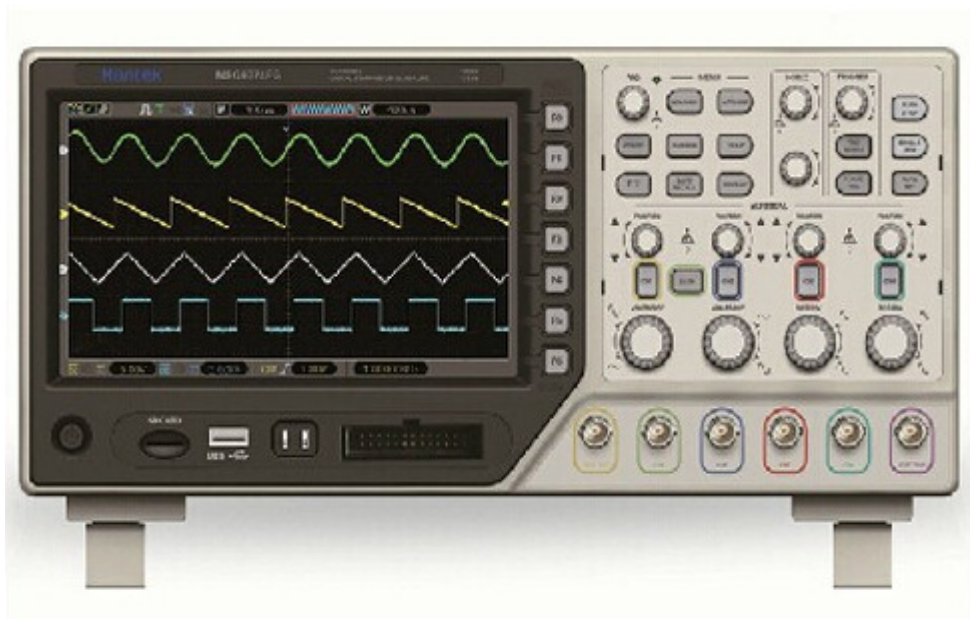# 8 Channel Logic Analyzer

Feature

- 4 Channel Oscilloscope+8 Channel Logic Analyzer + 25MHz Arb. Waveform Generator(MSO5074FG).
- Abundant Trigger type: Video, Edge, Slope, Pluse Width, Overtime, Alternative, Code-type, Duration, Queue, Repeat trigger.
- Large 7 inch 64K color Display, WVGA: 800*480.
- USB host and device connectivity, standard.
- Ultrathin desigh, handy volume, easily portable.

Oscilloscope
- 1Gsa/s Real Sample Rate;
- 4 Channels Oscilloscope;
- 40MHz Bandwidth, 1MRecord Length;
- 32 automotive measurement and FFT Analysis for Simplified Waveform Abalysis.

Logic Analyzer
- 8 Channles Logic Analyzer;
- 500MHz Sample Rate
- 1MRecord Length

Arb. Waveform Generator
- 25MHz Arb. Waveform Generator Output(Sine wave up to 75MHz)
- 200MSa/s Sample Rate;
- 12bit Pattern Generator
- 50MHz Frenquery Counter

Model	MSO5054FG	
Acquisition		
Sample Rate	Real-Time Sample: 1GS/s	
Acquisition Modes		
Normal	Normal data only	
Peak Detect	High-frequency and randon glith capture	
Average	Wavefom Average, selectable 4,8,16,32,64,128	
Inputs		
Inputs Coupling	AC, DC, GND	
Inpits Impendance	1MΩ±2% ‖20pF±3pF	
Probe Attenuation	1X, 10X	
Supported Probe Attenuation Factor	1X, 10X, 100X, 1000X	
Maximum Input Voltage	CAT I and CAT II: 300VRMS (10×), Installation Category; CAT III: 150VRMS (1×); Installation Category II: derate at 20dB/decade above 100kHz to 13V peak AC at 3MHz* and above. For non-sinusoidal waveforms, peak value must be less than 450V. Excursion above	
Horizontal		
Sample Rate Range	1GS/s	
Waveform Interpolation	(sin x)/x	
Record Length	1M	
SEC/DIV Range	4ns/div to 40s/div, in a 2, 4, 8 sequence,	
Sample Rate and Delay Time Accuracy	±50ppm（at over any ≥1ms time interval)	
Position Range	20ns/div to 80us/div; (-8div x s/div) to 40ms; 200us/div to 40s/div; (-8div x s/div) to 400s;	
Delta Time Measurement Accuracy (Full Bandwidth)	Single-shot, Normal mode:± (1 sample interval +100ppm × reading + 0.6ns); >16 averages:± (1 sample interval + 100ppm × reading + 0.4ns); Sample interval = s/div ÷ 200	
Vertical		
Vertical Resolution	8-bit resolution, all channel sampled simultaneously	
Position Range	2mV/div to 200mV/div, ±2V 200mV/div to 5V/div, ±50V	
Bandwidth	40MHz;	
Rise Time at BNC(typical)	8.8ns;	

Analog Bandwidth in Normal and Average modes at BNC or with probe, DC Coupled	2mV/div to 20mV/div, ±400mV 50mV/div to 200mV/div, ±2V 500mV/div to 2V/div, ±40V 5V/div, ±50V
Math	+, -, *, /, FFT
FFT	Windows： Hanning、Flatop、Rectamgular、Bartlett、Blackman; 1024 sample point
Bandwidth Limit	20MHz
Low Frequency Response (-3db)	≤10Hz at BNC
DC Gain Accuracy	±3% for Normal or Average acquisition mode, 5V/div to 10mV/div; ±4% for Normal or Average acquisition mode, 5mV/div to 2mV/div
DC Measurement Accuracy, Average Acquisition Mode	When vertical displacement is zero, and N ≥16:± (3% × reading + 0.1div + 1mV) only 10mV/div or greater is selected; When vertical displacement is not zero, and N≥16: ± [3% × (reading + vertical position) + 1% of vertical position + 0.2div]; Add 2mV for s
Volts Measurement Repeatability, Average Acquisition Mode	Delta volts between any two averages of ≥16 waveforms acquired under same setup and ambient conditions
Trigger System	
Trigger Types	Edge, Video, Pulse, Slope, Over time, Alternative
Trigger Source	CH1, CH2, EXT, EXT/5, AC Line
Trigger Modes	Auto, Normal, Single
Coupling Type	DC, AC, Noise Reject, HF Reject, LF Reject
Trigger Sensitivity (Edge Trigger Type)	DC(CH1,CH2, CH3, CH4): 1div from DC to 10MHz;1.5div from 10MHz to Full; DC(EXT): 200mV from DC to Full; DC(EXT/5):1V from DC to Full; AC: Attenuates signals below 10Hz HF Reject: Attenuates signals above 80kHz ; LF Reject: Same as the DC-coupled limits for frequencies above 150kHz; attenuates signals below 150kHz
Trigger Level Range	CH1, CH2, CH3, CH4: ±8 divisions from center of screen; EXT: ±1.2V; EXT/5:±6V
Trigger Level Accuracy(typical)Accuracy is for signals having rise and fall times ≥20ns	CH1, CH2, CH3, CH4: 0.2div × volts/div within ±4 divisions from center of screen; EXT: ± (6% of setting + 40mV); EXT/5: ± (6% of setting + 200mV);
Set Level to 50%(typical)	Operates with input signals ≥50Hz
Video Trigger	
Video Trigger Type	CH1, CH2, CH3, CH4: Peak-to-peak amplitude of 2 divisions; EXT: 400mV; EXT/5: 2V
Signal Formats and Field Rates, Video Trigger Type	Supports NTSC, PAL and SECAM broadcast systems for any field or any line
Holdoff Range	100ns ~ 10s

Pulse Width Trigger	
Pulse Width Trigger Mode	Trigger when (< , >, = , or ≠); Positive pulse or Negative pulse
Pulse Width Trigger Point	Equal: The oscilloscope triggers when the trailing edge of the pulse crosses the trigger level. Not Equal: If the pulse is narrower than the specified width, the trigger point is the trailing edge. Otherwise, the oscilloscope triggers when a pulse continues longer than the time specified as the Pulse Width. Less than: The trigger point is the trailing edge. Greater than (also called overtime trigger): The oscilloscope triggers when a pulse continues longer than the time specified as the Pulse Width
Pulse Width Range	20ns ~ 10s
Slope Trigger	
Slope Trigger Mode	Trigger when (< , > , = , or ≠); Positive slope or Negative slope
Slope Trigger Point	Equal: The oscilloscope triggers when the waveform slope is equal to the set slope. Not Equal: The oscilloscope triggers when the waveform slope is not equal to the set slope. Less than: The oscilloscope triggers when the waveform slope is less than the set slope. Greater than: The oscilloscope triggers when the waveform slope is greater than the set slope.
Time Range	20ns ~ 10s
Overtime Trigger	
Over Time Mode	Rising edge or Falling edge
Time Range	20ns ~ 10s
Alternative Trigger	
Trigger on CH1	Internal Trigger: Edge, Pulse Width, Video, Slope
Trigger on CH2	Internal Trigger: Edge, Pulse Width, Video, Slope
Trigger Frequency Counter	
Readout Resolution	6 digits
Accuracy (typical)	±30ppm (including all frequency reference errors and ±1 count errors)
Frequency Range	AC coupled, from 4Hz minimum to rated bandwidth
Signal Source	Pulse Width or Edge Trigger modes: all available trigger sources The Frequency Counter measures trigger source at all times, including when the oscilloscope acquisition pauses due to changes in the run status, or acquisition of a single shot event has completed. Pulse Width Trigger mode: The oscilloscope counts pulses of significant magnitude inside the 1s measurement window that qualify as triggerable events, such as narrow pulses in a PWM pulse train if set to < mode and the width is set to a relatively small time. Edge Trigger mode: The oscilloscope counts all edges of sufficient magnitude and correct polarity. Video Trigger mode: The Frequency Counter does not work.
Measurement	

Cursor Measurement	Manual: Voltage difference between cursors: ∆V
	          Time difference between cursors: ∆T
	          Reciprocal of ∆T in Hertz (1/∆T);
	Tracing: The valtage and time at a waveform point;

Auto Measuerment	Frequency, Period, Mean, Pk-Pk, Cycli RMS, Minimum, Maximum, Rise time, Fall Time, +Pulse Width, -Pulse Width, Delay1-2Rise, Delay1-2Fall, +Duty, -Duty, Vbase, Vtop, Vmid, Vamp, Overshoot, Preshoot, Preiod Mean, Preiod RMS, FOVShoot, RPREShoot, BWIDTH, FRF
Display	
Display Type	7 inch 64K color TFT (diagonal liquid crystal)
Display Resolution	800 horizontal by 480 vertical pixels
Display Contrast	Adjustable (16 gears) with the progress bar
Logic Analyzer Specifications	
Channels	8 Channels
Max. Input Impendence	200K(C=10p)
Input Voltage Range	0V~3V
Logic Threshold Range	0V~3V
Max. Sample Rate	500MHz
Compatible Input	TTL, CMOS, ECL
Sample Depth	1M
Trigger	
Edge Trigger	D0-D7 select slope (rising or falling edge)
Pulse Width	D0-D7 select pulse polarity (positive or negative pulse), trigger when (=, ≠, >, <), trigger pulse width
Code-type	D0-D7 select code-type (H, L, X)
Duration	D0-D7 select persist time and trigger when (data terminate, data start, and data delay)
Queue	D0-D7 select specific data index (0-3) and code-type (H, L, X)
Repeat	D0-D7 select code-type (H, L, X) and repeat times
Arb. Waveform Generator Specifications (MSO5054FG)	
Wave frequency	DC~25MHz
DAC clock	2K~200MHz adjustable
Waveform Length	4KSa
Vertical Resolution	12 bit
Frequency stabilization	<30ppm
Amplitude	±3.5V Max.
Output impedance	50 Ω
Output current	50mA Ipeak=50mA
System Bandwidth	25M
Wave distortion	-50dBc(1KHz), -40dBc(10KHz)
Frequency area	DC~50MHz
Input Amplitude	400mVpp~18Vpp
Coupling	DC
Frequency precision	±Time Base Error ±1 Count
input impedance	> 100KΩ

Pattern Generator	12Bit
Probe Compensator Output	
Output Voltage(typical)	About 5Vpp into ≥1MΩ load
Frequency(typical)	1kHz
General Features	
Supply Voltage	100-120VACRMS(±10%), 45Hz to 440Hz, CATⅡ 120-240VACRMS(±10%), 45Hz to 66Hz, CATⅡ
Power Consumption	<30W
Fuse	2A, T rating, 250V
Temperature	Operating: 32°F to 122°F (0℃ to 50℃); Nonoperating: -40°F to 159.8°F (-40℃ to +71℃)
Cooling Method	Convection
Humidity	+104°F or below (+40℃ or below): ≤90% relative humidity; 106°F to 122°F (+41℃ to 50℃): ≤60% relative humidity
Altitude	Operating: Below 3,000m (10,000 feet); Nonoperaring: Below 15,000m(50,000 feet)
Size	Length 385mm; Width 200mm; Height 245mm
Weight	3.5KG(with Packing); 2.08KG(without Packing）

Function Picture