

**FEATURES**

- 200 / 100 / 60MHz bandwidth
- 1GSa/s Real Time sample rate
- Large (7.0 - inch) colour display, WVGA (800x480)
- 16 channels Logic Analyzer, 500MSa/s sample rate
- Record length up to 1M
- Trigger mode : edge/pulse width/line selectable video/slop/overtime etc.
- USB host and device connectivity, standard
- Multiple automatic measurements
- Four math functions, including FFTs standard
- VGA Optional

**PARAMETERS**

Model	MSO-5202D	MSO-5102D	MSO-5062D
<b>Acquisition</b>			
Sample Rate	Real-Time Sample: 1GS/s		
<b>Acquisition Modes</b>			
Normal	Normal data only		
Peak Detect	High-frequency and randomglitch capture		
Average	Waveform Average, selectable 4, 8, 16, 32, 64, 128		
<b>Inputs</b>			
Inputs Coupling	AC, DC, GND		
Inputs Impedance	1MΩ±2% ~ 20pF±3pF		
Probe Attenuation	1X, 10X		
Supported Probe Attenuation Factor	1X, 10X, 100X, 1000X		

**THE QUALITY LEADER**

**www.metravi.com**

\*Technical Specifications & Appearance are subject to change without prior notice

**PARAMETERS (Contd.)**

Model	MSO-5202D	MSO-5102D	MSO-5062D
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 300V should be of less than 100ms duration. RMS signal level including all DC components removed through AC coupling must be limited to 300V. If these values are exceeded, damage to the oscilloscope may occur.		
<b>Horizontal</b>			
Sample Rate Range	500MS/s--1GS/s		
Waveform Interpolation	(sin x)/x		
Record Length	1M		
SEC/DIV Range	2ns/div to 40s/div,	8ns/div to 40s/div	
Sample Rate and Delay Time Accuracy	±50ppm (at over any ≥1ms time interval)		
Position Range	2ns/div to 8ns/div; (-8div x s/div) to 20ms;	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		
<b>Vertical System</b>			
Vertical Resolution	8-bit resolution, all channel sampled simultaneously		
Position Range	2mV/div to 10V/div		
Bandwidth	200MHz	100MHz	60MHz
Rise Time at BNC( typical)	1.8ns	3.5ns	5.8ns
Offset Range	2mV/div to 20mV/div, ±400mV 50mV/div to 200mV/div, ±2V 500mV/div to 2V/div, ±40V 5V/div to 10V/div, ±50V		
Math	+, -, *, /, FFT		
FFT	Windows: Hanning, Flat-top, Rectangular, Bartlett, Blackman; 1024 sample point		
Bandwidth Limit	20MHz		
Low Frequency Response (-3db)	≤10Hz at BNC		

**PARAMETERS (Contd.)**

Model	MSO-5202D	MSO-5102D	MSO-5062D
DC Gain Accuracy	±3% for Normal or Average acquisition mode, 10V/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 $N \geq 16$ : ± (3% × reading + 0.1 div + 1 mV) only 10mV/div or greater is selected; When vertical displacement is not zero, and $N \geq 16$ : ± [3% × (reading + vertical position) + 1% of vertical position + 0.2div]; Add 2mV for settings from 2mV/div to 200mV/div; add 50mV for settings from 200mV/div to 10V/div		
Volts Measurement Repeatability, Average Acquisition Mode	Delta volts between any two averages of ≥16 waveforms acquired under same setup and ambient conditions		
<b>Trigger System</b>			
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): 1div from DC to 10MHz; 1.5div from 10MHz to 100MHz; 2div from 100MHz to Full; DC(EXT): 200mV from DC to 100MHz; 350mV from 100MHz to 200MHz; DC(EXT/5): 1V from DC to 100MHz; 1.75V from 100MHz to 200MHz; 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: ±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: 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		

**PARAMETERS (Contd.)**

Model	MSO-5202D	MSO-5102D	MSO-5062D
<b>Video Trigger</b>			
Video Trigger Type	CH1, CH2: 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		
<b>Pulse Width Trigger</b>			
Pulse Width Trigger Mode	Trigger when (< , > , = , or ≠); Positive pulse or Negative pulse		
Pulse Width Trigger Point	<p>Equal: The oscilloscope triggers when the trailing edge of the pulse crosses the trigger level.</p> <p>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.</p> <p>Less than: The trigger point is the trailing edge.</p> <p>Greater than (also called overtime trigger): The oscilloscope triggers when a pulse continues longer than the time specified as the Pulse Width</p>		
Pulse Width Range	20ns ~ 10s		
<b>Slope Trigger</b>			
Slope Trigger Mode	Trigger when (< , > , = , or ≠); Positive slope or Negative slope		
Slope Trigger Point	<p>Equal: The oscilloscope triggers when the waveform slope is equal to the set slope.</p> <p>Not Equal: The oscilloscope triggers when the waveform slope is not equal to the set slope.</p> <p>Less than: The oscilloscope triggers when the waveform slope is less than the set slope.</p> <p>Greater than: The oscilloscope triggers when the waveform slope is greater than the set slope.</p>		
Time Range	20ns ~ 10s		
<b>Overtime Trigger</b>			
Over Time Mode	Rising edge or Falling edge		
Time Range	20ns ~ 10s		
<b>Alternative Trigger</b>			
Trigger on CH1	Internal Trigger: Edge, Pulse Width, Video, Slope		
Trigger on CH2	Internal Trigger: Edge, Pulse Width, Video, Slope		

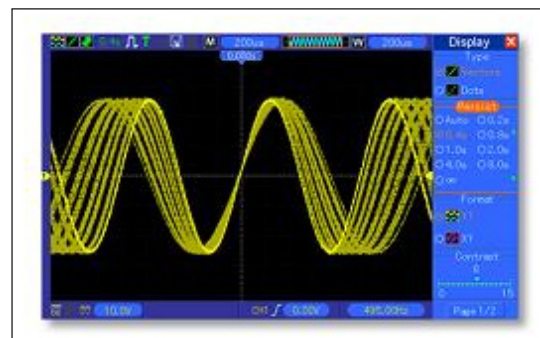
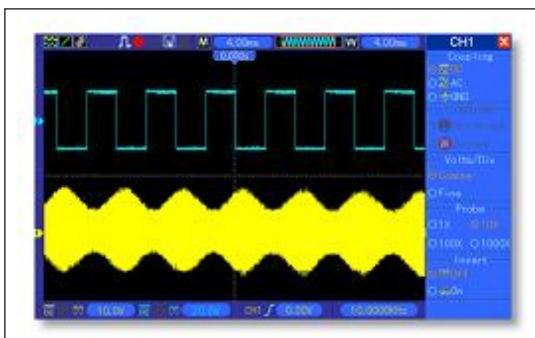
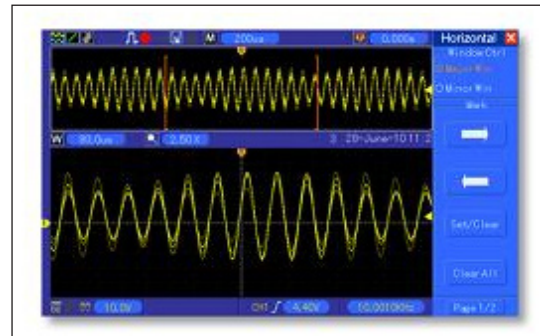
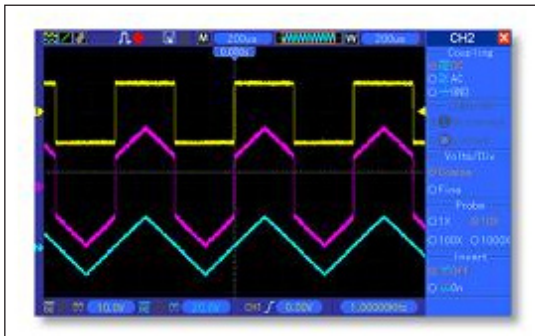
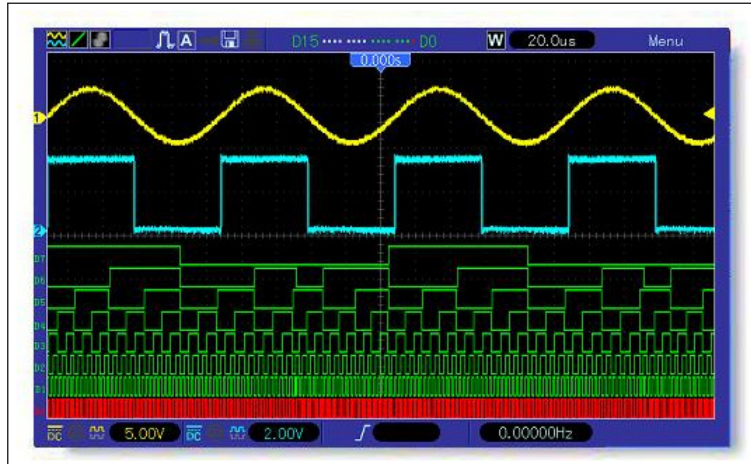
**PARAMETERS (Contd.)**

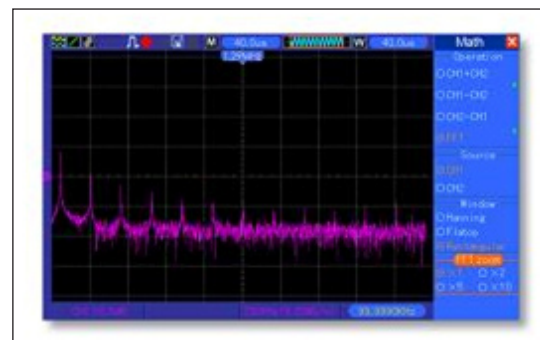
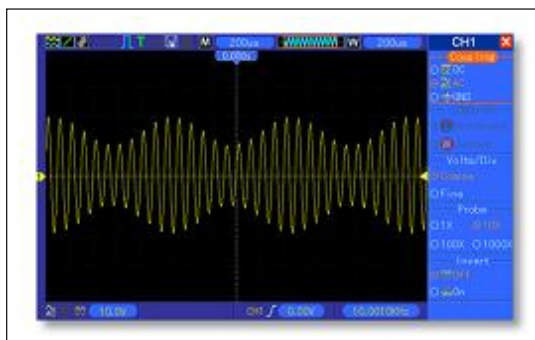
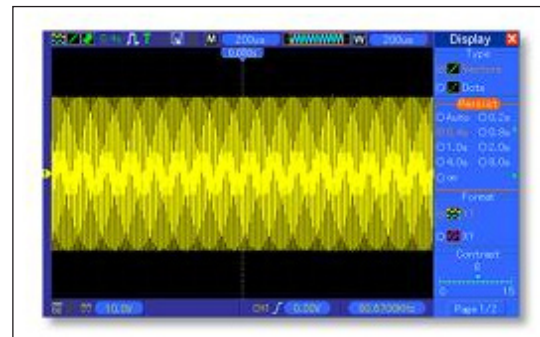
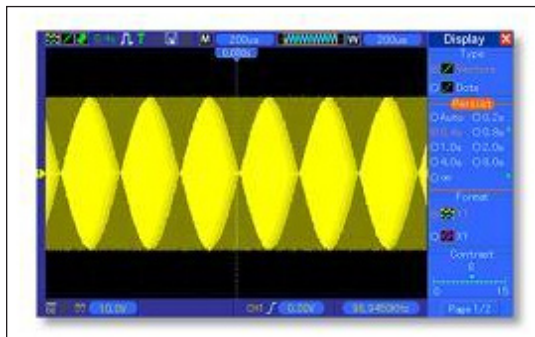
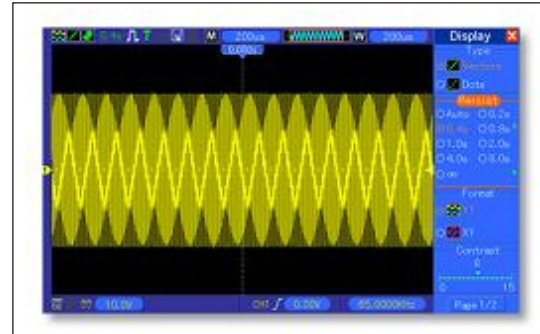
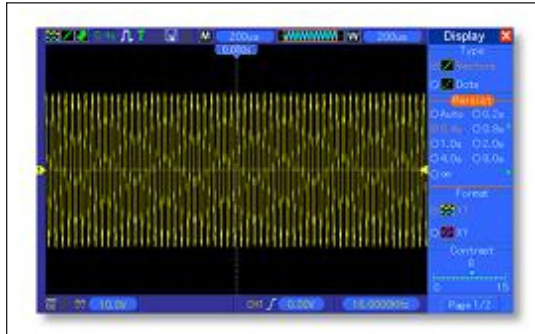
Model	MSO-5202D	MSO-5102D	MSO-5062D
<b>Trigger Frequency Counter</b>			
Readout Resolution	6 digits		
Accuracy (typical)	±30ppm (including all frequency reference errors and ±1 count errors)		
Frequency Range	AC coupled, from 4Hz minimum to rated bandwidth		
Signal Source	<p>Pulse Width or Edge Trigger modes: all available trigger sources</p> <p>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.</p> <p>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 &lt; mode and the width is set to a relatively small time.</p> <p>Edge Trigger mode: The oscilloscope counts all edges of sufficient magnitude and correct polarity.</p> <p>Video Trigger mode: The Frequency Counter does not work.</p>		
<b>Measurement</b>			
Cursor Measurement	<p>Voltage difference between cursors: <math>\Delta V</math></p> <p>Time difference between cursors: <math>\Delta T</math></p> <p>Reciprocal of <math>\Delta T</math> in Hertz (<math>1/\Delta T</math>)</p>		
Auto Measurement	<p>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, Period Mean, Period RMS, FOVShoot, RPRESshoot, BWIDTH, FRF, FFR, LRR, LRF, LFR, LFF</p>		
<b>Logic Analyser Specifications</b>			
Channels	16 Channels		
Max. Input Impedence	200K(C=10p)		
Input Voltage Range	-60V~60V		
Logic Threshold Range	-8V~8V		
Max. Sample Rate	500MHz		
Compatible Input	TTL, CMOS, ECL		
Sample Depth	512K		
<b>Trigger</b>			
Edge Trigger	D0-D15 select slope (rising or falling edge)		

**PARAMETERS (Contd.)**

Model	MSO-5202D	MSO-5102D	MSO-5062D
Pulse Width	D0-D15 select pulse polarity (positive or negative pulse), trigger when (=, ≠, >, <), trigger pulse width		
Code-type	D0-D15 select code-type (H, L, X)		
Duration	D0-D15 select persist time and trigger when (data terminate, data start, and data delay)		
Queue	D0-D15 select specific data index (0-3) and code-type (H, L, X)		
Repeat	D0-D15 select code-type (H, L, X) and repeat times		
<b>General Features</b>			
<b>Display</b>			
Display Type	7 inch 64K colourTFT (diagonal liquid crystal)		
Display Resolution	800 horizontal by 480 vertical pixels		
Display Contrast	Adjustable (16 gears) with the progress bar		
<b>Probe Compensator Output</b>			
Output Voltage( typical)	About 5Vpp into ≥1MΩ load		
Frequency(typical)	1kHz		
<b>Power Supply</b>			
Supply Voltage	100-120VACRMS(±10%), 45Hz to 440Hz, CAT II 120-240VACRMS(±10%), 45Hz to 66Hz, CAT II		
Power Consumption	<30W		
Fuse	2A, T rating, 250V		
<b>Environmental</b>			
Temperature	Operating: 32°F to 122°F (0°C to 50°C); Non-operating: -40°F to 159.8°F (-40°C to +71°C)		
Cooling Method	Convection		
Humidity	+104°F or below (+40°C or below): ≤90% relative humidity; 106°F to 122°F (+41°C to 50°C): ≤60% relative humidity		
Altitude	Operating: Below 3,000m (10,000 feet); Non-operating: Below 15,000m(50,000 feet)		
<b>Size &amp; Weight</b>			
Size	385mm x 200mm x 245mm		
Weight	2.08KG(without Packing)		



**FUNCTION PICTURE**



This device is running Linux, for more detail see (S/N<15000)

This device is running Linux, for more detail see (S/N>15000)