Multiplelabs
Turnkey Laboratories Solutions

Analytical®
Technologies Limited

MSO-3600 Series

Mixed Signal Oscilloscopes

EPCC / PRODUCTS / APPLICATION / SOFTWARE / ACCESSORIES / CONSUMABLES / SERVICES

Analytical Technologies Limited

An ISO 9001 Certified Company

www.analyticalgroup.net

The MSO-3600 Series oscilloscope family features 400 MHz - 4 GHz of bandwidth, 40 GS/s sampling rate, exceptional signal fidelity, and fast operation, helping to get the job done quickly and accurately. The versatile toolset provides every necessity for an engineer to validate a design, debug errors at board bring up, and offer powerful analysis capabilities to characterize an embedded system. The MSO-3600 Series is the ultimate debug machine.

Superior Validation, Debug, Analysis

The MSO-3600 Series defines superiority in a test instrument with a powerful feature set including a wide range of application packages, advanced triggering to isolate events, a user interface developed for quick and easy navigation, a wide range of probing options, and lightning-fast performance.

Most Comprehensive Serial Data Analysis

MSO 3600 Series offers the most tools for serial data analysis. With over 30 trigger, decode, and compliance solutions, MSO-3600 Series can address problems with unique, powerful views and automated tools. The data analysis package performs eye diagram and jitter testing which is ideal for characterization and debug.

Excellent Signal Fidelity

The MSO-3600 Series features a pristine signal path that offers unmatched signal fidelity with low noise, providing accuracy which can be counted on. This performance is augmented by a huge offset and timebase delay adjustment to allow easy signal and amplifier performance assessment and zooming on vertical and horizontal signal characteristics.

MSO 3620M

The MSO-3600 Series model includes some of the most commonly used options as part of the standard configuration, reducing confusion when choosing a powerful toolset for debugging. In addition to the versatile software options, it is equipped with 40 GS/s and 128 Mpts of memory to ensure common debug needs are covered.

Key Features

- 400 MHz - 4 GHz bandwidths
- Up to 40 GS/s sample rate
- 12.1” touch screen display
- Advanced Tools
    - Spectrum Analyzer Mode
    - WaveScan
    - Search and Find
    - LabNotebook Documentation and Report Generation
- Comprehensive set of serial data analysis, debug, validation and compliance tools
- Advanced Triggering with TriggerScan andMeasurement Trigger
- MSO 3620M complete debug bundle available
- 18 digital channels with 2 GS/s
    - Analog and Digital Cross-Pattern Triggering
    - Digital Pattern Search and Find
    - Analog and Digital Timing Measurements
    - Logic Gate Emulation
    - Activity Indicators

MSO-3600 Series combines the power of a fully featured multi- purpose oscilloscope, a dedicated logic analyzer for mixed signal design, and a protocol analyzer for serial data debug.

- Industry leading performance-400 MHz-4 GHz, 40 GS/s,128 Mpts of analysis memory
- 12.1" Widescreen (16x9) high resolution WXGA color touch screen display
- 90º rotating and tilting display for optimal viewing of signals
- Small footprint, only 8.1" deep
- Easy connectivity with two convenient USB ports on the front, two on the side
- USBTMC (Test and Measurement Class) port simplifies programming
- Deepest toolbox with more measurement, more math, more power
- Largest selection of serial triggers and decoders more than 20-available to provide a total system view
- Serial trigger captures signals up to 3 Gb/s
- WavePilot consolidates important oscilloscope debug features in one place. LEDs illuminate to indicate navigation options and active oscilloscope features
- The SuperKnob provides joystick control to easily navigation to key debug and documentation features

- LBUS provides easy connection to the optional mixed signal feature, providing up to 36 digital channels
- Wide array of probes and accessories to accommodate any probing challenge

Specifications

Vertical System	MSO 3620	MSO 3620M	MSO 3625	MSO 3640
Analog Bandwidth @ 50 Ω (-3dB)	2 GHz (≥5mV/div)		2.5 GHz (≥5mV/div)	4 GHz (≥5mV/div)
Analog Bandwidth @ 1 Ω (-3dB)	500 MHz (typical)		500 MHz (typical)	500 MHz (typical)
Rise Time (10–90%, 50 Ω)	175 ps (typical)		160 ps (typical)	100 ps (typical)
Rise Time (20–80%, 50 Ω)	130 MHz (typical)		120 MHz (typical)	75 MHz (typical)
Input Channels	4			
Bandwidth Limiters	20 MHz, 200 MHz, 1 GHz		20 MHz, 200 MHz, 1 GHz	20 MHz, 200 MHz, 1 GHz
Input Impedance	50 Ω ±2% or 1 MΩ || 17pF, 10 MΩ || 9.5 pF with supplied Probe			
Input Coupling	1 MΩ: AC, DC, GND; 50 Ω: DC, GND			
Maximum Input Voltage	50 Ω: 5 Vrms ±10 V peak 1 MΩ: 400 V max. (DC + peak AC < 10 kHz)			
Channel-Channel Isolation	> 100:1 up to rated BW			> 100:1 up to 2.5 GHz > 30:1 from 2.5 GHz to rated BW
Vertical Resolution	8-bits; up to 11-bits with enhanced resolution (ERES)			
Sensitivity	50 Ω: 1 mV/div–1 V/div, fully variable 1 MΩ: 1 mV/div 10 V/div, fully variable			
DC Vertical Gain Accuracy (Gain Component of DC Accuracy)	±1% F.S. (typical), offset at 0 V			
Offset tRange	**50 Ω:** ±1.6 V @ 1 mV–4.95 mV/div ±4 V @ 5 mV–9.9 mV/div ±8 V @ 10 mV–19.8 mV/div ±10 V @20 mV–1 V/div **1 Ω:** ±1.6 V @ 1 mV–4.95 mV/div ±4 V @ 5 mV–9.9 mV/div ±8 V @ 10 mV–19.8 mV/div ±16 V @20mV–140mV/div ±80V@142mV–1.4V/div ±160V@1.42V–10V/div		**50 Ω:** **BWL ≤ 1 GHz** ±1.6 V @ 1 mV–4.95 mV/div ±4 V @ 5 mV–9.9 mV/div ±8 V @ 10 mV–19.8 mV/div ±10 V @20 mV–1 V/div **BWL > 1 GHz** ±1.4 V @ 5 mV–122 mV/div ±10 V @124 mV–1 V/div **1 MΩ** ±1.6 V @ 1 mV–4.95 mV/div ±4 V @ 5 mV–9.9 mV/div ±8 V @ 10 mV–19.8 mV/div ±16 V @20 mV–140 mV/div ±80 V @142 mV–1.4 V/div ±160 V @ 1.42 V–10 V/div	
DC Vertical Offset Accuracy	±(1.5% of offset setting +1% of full scale +1% mV) (test limit)			

Horizontal System	MSO 3620	MSO 3620M	MSO 3625	MSO 3640
Timebases	Internal timebase common to 4 input channels; an external clock may be applied at the External input			
Time/Division Range	20 ps/div - 1.6 ks/div with standard memory (up to 3.2 ks/div with -S memory, 6.4 ks/div with -M memory) RIS available at ≤ 10 ns/div; Roll Mode available at ≥ 100 ms/div and ≤ 5 MS/s	20 ps/div - 1.6 ks/div with standard memory (up to 3.2 ks/div with -S memory, 6.4 ks/div with -M memory) RIS available at ≤ 10 ns/div; Roll Mode available at ≥ 100 ms/div and ≤ 5 MS/s	20 ps/div - 1.6 ks/div with standard memory (up to 3.2 ks/div with -S memory, 6.4 ks/div with -M memory) RIS available at ≤ 10 ns/div; Roll Mode available at ≥ 100 ms/div and ≤5 MS/s	
Clock Accuracy	≤ 1.5 ppm +(aging of 0.5 ppm/yr from last calibration)			
Trigger and Interpolator Jitter	≤ 3 psrms (typical) < 0.1 psrms (typical, software assisted)		≤ 2.5 psrms (typical) < 0.1 psrms (typical, software assisted)	≤ 2 psrms (typical) < 0.1 psrms (typical, software assisted)
Channel-Channel Deskew Range	±9x time/div. setting, 100 ms max., each channel			
External Timebase Reference (Input)	10 MHz ±25 ppm via optional LBUS BNC adapter			
External Timebase Reference (Output)	10vMHz 3.5 dBm ±1VdBm,synchronized to reference being used by user (internal or external reference) via optional LBUS BNC adaptor			
External Clock	DC to 100 MHz; (50 Ω/1 MΩ), Ext. BNC input, Minimum rise time and amplitude requirements apply at low frequencies			

Acquisition System	MSO 3604	MSO 3606	MSO 3610
Single-Shot Sample Rate/Ch	10 GS/s on 4 Ch 20 GS/s on 2 Ch		
Random Interleaved Sampling (RIS)	200 GS/s for repetitive signals (20 ps/div to 10 ns/div)		
Maximum Trigger Rate	1,000,000 waveforms/second (in Sequence Mode, up to 4channels)		
Intersegment Time	1 µs		
Standard Memory (4Ch / 2Ch / 1Ch) (Number of Segments)	16M / 32M / 32M (5,000)		
Memory Options (4Ch / 2Ch / 1Ch) (Number of Segments)	S-32 Option: 32M / 64M / 64M (15,000) M-64 Option: 64M / 128M / 128M (15,000)		
Acquisition Processing			
Averaging	Summed averaging to 1 million sweeps; continuous averaging to 1 million sweeps		
Enhanced Resolution (ERES)	From 8.5- to 11-bits vertical resolution		
Envelope (Extrema)	Envelope, floor, or roof for up to 1 million sweeps		
Interpolation	Linear or Sin x/x		

Triggering System	MSO 3604	MSO 3606	MSO 3610
Modes	Normal, Auto, Single, and Stop		
Sources	Any input channel, Ext, Ext/10, or line; slope and level unique to each source (except line trigger)		
Coupling Mode	DC, AC, HFRej, LFRej		
Pre-trigger Delay	0 - 100% of memory size (adjustable in 1% increments or 100 ns)		
Post-trigger Delay	0 - 10,000 divisions in real time mode, limited at slower time/div settings or in roll mode		
Hold-off by Time or Events	From 2 ns up to 20s or from 1 to 99,999,999 events		
Internal Trigger Range	±4.1 div from center (typical)		
Trigger Sensitivity with Edge Trigger (Ch 1- 4)	2 div @ < 400 MHz 1.5 div @ < 200 MHz 0.9 div @ < 10 MHz (DC, AC, and LFRej coupling)	2 div @ < 600 MHz 1.5 div @ < 300 MHz 1 div @ < 200 MHz 0.9 div @ < 10 MHz (DC, AC, and LFRej coupling)	2 div @ < 1 GHz 1.5 div @ < 500 MHz 1 div @ < 200 MHz 0.9 div @ < 10 MHz (DC,AC and LFRej coupling)
External Trigger Sensitivity, (Edge Trigger)	2 div @ 1 GHz 1.5 div @ < 500 MHz 1 div @ < 200 MHz 0.9 div @ < 10 MHz (DC, AC, and LFRej coupling)		
Max. Trigger Frequency, SMART Trigger	400 MHz @ ≥ 10 mV/div 1.9 ns (minimum triggerable width 1.9 ns)	600 MHz @ ≥ 10 mV/div 1.2 ns (minimum triggerable width 1.2 ns)	1.0 GHz @ ≥ 10 mV/div (minimum triggerable width 750 ps)
External Trigger Input Range	Ext (±0.4 V); Ext/10 (±4 V)		
Basic Triggers			
Edge	Triggerswhen signal meets slope (positive, negative, or either) and level condition		
Window	Triggerswhen signal exits a window defined by adjustable thresholds		
TV-Composite Video	Triggers NTSC or PAL with selectable line and field; HDTV (720p, 1080i, 1080p) with selectable framerate (50 or 60 Hz) and Line; or CUSTOM with selectable Fields (1–8), Lines (up to 2000), Frame Rates (25, 30, 50, or 60 Hz), Interlacing (1:1, 2:1, 4:1, 8:1), or Synch Pulse Slope (Positive or Negative)		

Regulatory compliances

Corporate Social Responsibility

Analytical Foundation is a nonprofit organization (NGO) found for the purpose of:

1.Research & Innovation Scientist's awards/QC Professional Award : Quality life is possible by innovation only and the innovation is possible by research only, hence ANALYTICAL FOUNDATION is committed to identify such personallities for their contributions across various field of Science and Technology and awarding them yearly. To participate for award, send us your details of research / testing / publication at Info@analyticalfoundation.org

2. Improving quality of life by offering YOGA Training courses, Work shops/Seminars etc.

3. ANALYTICAL FOUNDATION aims to DETOXIFY human minds,souls and body by means of yoga, Meditation, Ayurveda, Health Care, Awards, Media, Events, Camps etc.

Reach us @

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