TEKTRONIX

MSO68B

The Tektronix MSO68B is a high-performance 6 Series B Mixed Signal Oscilloscope featuring 8 FlexChannel inputs, expandable bandwidth up to 10 GHz, 12-bit vertical resolution, and a real-time sample rate of up to 50 GS/s.

SPECIFICATIONS

General

Interfaces	USB 3.0 Host, USB 2.0 Host, USB 2.0 Device, LAN (10/100/1000 Base-T, LXI compliant), DisplayPort, HDMI, BNC Aux Out, 10 MHz Ref In, 10 MHz Ref Out
Display	15.6-inch (396 mm) capacitive touch TFT color LCD, 1920 × 1080 (Full HD) resolution

Physical

Power Supply	100 to 240 V AC (±10%) at 50/60 Hz; 115 V AC (±10%) at 400 Hz; 500 W maximum power consumption
Operating Temperature	0 to +50 °C °C
Dimensions (W×H×D)	454 mm × 309 mm × 204 mm mm
Weight	12.88 kg kg

Core Signal and Electrical Performance

Number of Analog Channels	8 FlexChannel inputs
Number of Digital Channels	Up to 64 (8 per FlexChannel using optional TLP058 logic probes)
Frequency Range / Bandwidth	1 GHz, 2.5 GHz, 4 GHz, 6 GHz, 8 GHz, or 10 GHz (upgradable option)
A/D Converter Resolution	12 bits
Resolution in High Res Mode	Up to 16 bits
Maximum Sampling Rate	50 GS/s (on 2 channels with >= 4 GHz options), 25 GS/s (on 4 channels), 12.5 GS/s (on all 8 channels)
Standard Record Length	62.5 Mpoints
Maximum Optional Record Length	1 Gpoints (option-dependent)
Input Impedance	50 Ω ±3%, 1 MΩ ±1% (13.0 pF ±1.5 pF)
Input Coupling	DC, AC
Maximum Rated Input Voltage (50 Ω)	5 Vrms, with peaks <= ±20 V (DF <= 6.25%)
Maximum Rated Input Voltage (1 MΩ)	300 Vrms CAT II, peak voltage ±425 V
Vertical Sensitivity Range (50 Ω)	1 mV/div to 1 V/div in 1-2-5 sequence
Vertical Sensitivity Range (1 MΩ)	500 µV/div to 10 V/div in 1-2-5 sequence
DC Gain Accuracy	±1.0% of full scale
Channel-to-Channel Isolation	>= 100:1 (40 dB) at <= 2 GHz (typical)
Position Range	±5 divisions
Offset Range (50 Ω, 1 mV/div to 99.5 mV/div)	±1 V
Offset Range (50 Ω, 100 mV/div to 1 V/div)	±10 V
Offset Range (1 MΩ, 500 µV/div to 99.5 mV/div)	±1 V
Offset Range (1 MΩ, 100 mV/div to 10 V/div)	±100 V
Timebase Range	40 ps/div to 1,000 s/div

Measurement Capabilities and Timing

Internal Timebase Stability	±0.125 ppm (standard), ±0.015 ppm (with Option 6-OD OCXO)
Annual Aging Rate	±0.1 ppm per year (standard), ±0.0125 ppm per year (with Option 6-OD OCXO)
Maximum Waveform Capture Rate	> 500,000 wfms/s (FastAcq mode)
Trigger Modes	Auto, Normal, Single
Trigger Types	Edge, Pulse Width, Runt, Timeout, Window, Setup and Hold, Rise/Fall Time, Sequence (B-Trigger)
Visual Trigger	Standard (supports area, bounding box, and custom polygon zones)
Automated Measurements	36 standard parameters (Amplitude, Timing, Jitter, Frequency)
Search and Mark Features	Search on Edge, Pulse Width, Runt, Timeout, Window, Setup & Hold, Rise/Fall, and Bus patterns
Waveform Mathematics	Arithmetic, FFT, Filtering, Custom algebraic equations
FFT Window Types	Hanning, Rectangular, Hamming, Blackman-Harris, Kaiser-Bessel, TekExponential
Jitter Analysis	DPOJET basic standard; advanced options available

Connectivity, Ports, and Interfaces

Primary RF Connector Type	TekVPI probe interface (supports BNC and active probes)
USB Interface Details	8 × USB Host (4 on front, 4 on rear), 1 × USB 3.0 Device (on rear)
LAN Interface	1 × RJ-45, 10/100/1000 Mb/s Ethernet, LXI Class C compliant
External Video Ports	1 × HDMI, 1 × DisplayPort
Auxiliary Output Port	BNC connector, output event signal or 10 MHz reference
External Reference Input	BNC connector, 10 MHz ±10 ppm

User Interface and Software Control

Display Type and Size	15.6-inch TFT Color Active Matrix LCD with capacitive touchscreen
Display Resolution	1920 × 1080 (Full HD)
Operating System Options	Closed Embedded OS (standard) or Windows 10 (optional via removable SSD)
Programming Language Compatibility	SCPI (Standard Commands for Programmable Instruments)
Software Drivers	IVI-C, IVI-COM, LabVIEW
Image Export Formats	PNG, BMP, JPG

Power and Electrical Specifications

AC Input Voltage Range	100 to 240 V AC ±10%
Line Frequency Range	50 to 60 Hz (100 to 240 V), 400 Hz (115 V)
Power Consumption (Maximum)	500 W

Physical and Mechanical Attributes

Form Factor	Benchtop (rackmountable)
Rackmount EIA Unit Height	7U
Cooling Method	Forced air cooling with variable-speed fan

Environmental and Compliance Standards

Storage Temperature Range	-20 °C to +60 °C
Maximum Operating Altitude	3,000 meters (9,843 feet)
Maximum Storage Altitude	12,000 meters (39,370 feet)
Safety Standards	UL61010-1, CAN/CSA-C22.2 No. 61010-1, EN61010-1, IEC61010-1
EMC/EMI Conformity	EC Council Directive 2004/108/EC, EN61326-1 Class A, EN61326-2-1
Recommended Calibration Interval	1 year

Configurations, Options, and Accessories

Included Passive Probes	TPP1000 1 GHz passive probes (8 probes included with 1 GHz models)
Logic Probe Compatibility	TLP058 8-channel logic probe (optional accessory)

Acquisition System

FlexChannel Technology	Each FlexChannel input supports either 1 analog channel or 8 digital channels (with TLP058 probe)
Hardware Bandwidth Limits	20 MHz, 250 MHz (and option-dependent low-pass filters)
Optional Record Length Options	125 Mpoints, 250 Mpoints, 500 Mpoints, or 1 Gpoints (option-dependent)

Inputs & Outputs

Probe Interface	TekVPI

Signal Generator

Optional AFG Waveforms	Sine, Square, Pulse, Ramp, Triangle, DC, Noise, Sin(x)/x, Exponential Rise, Exponential Decay, Gaussian, Lorentz, Haversine, Cardiac, Arbitrary
Optional AFG Maximum Frequency	50 MHz (Sine)
Optional AFG Sampling Rate	250 MS/s
Optional AFG Vertical Resolution	14 bits

Measurements

Digital Voltmeter (DVM) Resolution	4-digit
Digital Voltmeter (DVM) Measurement Types	AC RMS, DC, DC+AC RMS
Trigger Frequency Counter Resolution	8-digit

Frequency and Bandwidth Options

Bandwidth Options	1 GHz, 2.5 GHz, 4 GHz, 6 GHz, 8 GHz, or 10 GHz (option-dependent)

Sampling System

Maximum Sample Rate (1 or 2 channels)	50 GS/s
Maximum Sample Rate (3 or 4 channels)	25 GS/s
Maximum Sample Rate (5 to 8 channels)	12.5 GS/s

System & Storage

Removable Storage	512 GB SSD (standard), optional 1 TB SSD
Processor	Intel Core i5

Arbitrary Function Generator (Optional)

AFG Sine Wave Frequency Range	0.1 Hz to 50 MHz
AFG Square/Pulse Frequency Range	0.1 Hz to 25 MHz
AFG Arbitrary Waveform Length	128 kpoints

TECHNOLOGY

Mixed Signal Oscilloscope

APPLICATIONS

High-Speed Digital Design, Power Integrity, Jitter Analysis, Embedded Systems Debugging, and RF Analysis

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