TEKTRONIX

MSO46

The Tektronix MSO46 is a 6-channel Mixed Signal Oscilloscope from the 4 Series MSO family. It features 6 FlexChannel inputs, each capable of functioning as one analog channel or eight digital channels (with the optional TLP058 probe), providing up to 48 digital channels. The MSO46 offers configurable bandwidth from 200 MHz up to 1.5 GHz, an advanced 12-bit analog-to-digital converter, and a large 13.3-inch HD capacitive touch display, making it an extremely versatile instrument for embedded system debug, power analysis, and complex mixed-signal troubleshooting.

SPECIFICATIONS

General

Display	13.3-inch (338 mm) TFT liquid crystal display, HD (1920 x 1080) resolution, capacitive touch
Operating System	Embedded Linux

Physical

Power Supply	100 to 240 V ±10% at 50/60 Hz; 115 V ±10% at 400 Hz; 400 W maximum
Operating Temperature	0 to +50 °C
Dimensions (W×H×D)	450 × 249 × 155 mm
Weight	7.3 kg

General Performance Overview

Bandwidth	200 MHz, 350 MHz, 500 MHz, 1 GHz, or 1.5 GHz (option dependent)
Analog Channels	6 FlexChannel inputs
Digital Channels	Up to 48 (8 per FlexChannel with optional TLP058 probes)
Analog Sample Rate	6.25 GS/s (all channels)
Digital Sample Rate	6.25 GS/s
Standard Record Length	31.25 Mpoints
Maximum Optional Record Length	62.5 Mpoints
Waveform Capture Rate	> 500,000 wfms/s

Vertical System - Analog Channels

Input Coupling	DC, AC
Input Impedance	1 MΩ ±1% or 50 Ω ±1%
Input Sensitivity Range	500 µV/div to 10 V/div (1 MΩ); 500 µV/div to 1 V/div (50 Ω)
Vertical Resolution	12-bit ADC (up to 16-bit in High Res mode)
Maximum Input Voltage	300 VRMS (1 MΩ); 5 VRMS (50 Ω)

Horizontal System

Time Base Range	200 ps/div to 1,000 s/div
Time Base Accuracy	±2.5 ppm over 1st year, ±1 ppm/year aging

Trigger System

Trigger Modes	Auto, Normal, Single Sequence
Standard Trigger Types	Edge, Pulse Width, Runt, Timeout, Window, Logic, Setup & Hold, Rise/Fall Time, Parallel Bus, Sequence

Acquisition System

Acquisition Modes	Sample, Peak Detect, High Res, Envelope, Average, FastAcq

Arbitrary/Function Generator (Optional)

Arbitrary/Function Generator	Optional (50 MHz)
AFG Function Types	Sine, Square, Pulse, Ramp/Triangle, DC, Noise, Sin(x)/x, Gaussian, Lorentz, Exponential Rise/Fall, Haversine, Cardiac
AFG Sample Rate	250 MS/s

Digital Voltmeter and Frequency Counter

DVM Measurement Types	DC, AC+DC RMS, AC RMS
DVM Resolution	4 digits
Frequency Counter Resolution	8 digits

Display System

Display Type	13.3-inch (338 mm) TFT liquid crystal display
Display Resolution	1920 x 1080 pixels (HD)
Touch Interface	Capacitive touch screen

Environmental and Compliance

Non-operating Temperature	-30 °C to +70 °C
Operating Altitude	Up to 3,000 m (9,842 ft)
Non-operating Altitude	Up to 12,000 m (39,370 ft)

Display

Display Size	13.3 in. (33.8 cm) diagonal

Acquisition & Analysis

Spectrum View	Standard feature with independent controls for frequency and time domains (dedicated RF DDC per channel)
Standard Math Functions	Basic arithmetic, advanced equation editor, and standard FFT
Serial Bus Decode & Trigger Options	I2C, SPI, I3C, RS-232/422/485/UART, SPMI, CAN, CAN FD, LIN, FlexRay, SENT, USB 2.0, Ethernet, Audio, MIL-STD-1553, ARINC 429, SpaceWire (by option)
Advanced Analysis Options	Power analysis, 3-Phase Inverter Motor Drive Analysis (by option)

Connectivity

Network Interface	10/100/1000BASE-T Ethernet port (RJ45)
Video Output	HDMI port

Power

AC Line Voltage	100 to 240 V ±10% (50/60 Hz); 115 V ±10% (400 Hz)
Power Consumption	400 W maximum

Environmental

Operating Humidity	5% to 90% relative humidity up to +40 °C; 5% to 60% relative humidity above +40 °C up to +50 °C (non-condensing)
Non-operating Humidity	5% to 90% relative humidity up to +60 °C (non-condensing)

Inputs & Outputs

Probe Interface	TekVPI
External Reference Input	10 MHz
Auxiliary Output	Trigger Out

Digital System

Digital Probe Minimum Pulse Width	1 ns (with optional TLP058 probe)
Digital Probe Input Impedance	100 kΩ || 3 pF (with optional TLP058 probe)
Digital Threshold Range	±40 V (with optional TLP058 probe)

Arbitrary/Function Generator

AFG Vertical Resolution	13 bits (with AFG option)
AFG Sine Wave Max Frequency	50 MHz (with AFG option)

Analysis & Math

Cursor Types	Waveform, V Bars, H Bars, V&H Bars

TECHNOLOGY

Mixed Signal Oscilloscope (MSO)

APPLICATIONS

Embedded system design and debug, power analysis, serial protocol analysis, analog/digital design troubleshooting