

Digital Storage Oscilloscope

2 Channels, 70MHz Bandwidth, 40K Memory Depth with 1CH AWG

DSO4072C



Accessories



Features

2CH Oscilloscope + 1CH Arbitrary/Function Waveform Generator

Oscilloscope

- 70MHz bandwidths.
- 1GSa/s Real Time sample rate.
- Record length up to 40K.
- Large (7.0-inch) color display, WVGA(800x480).
- Multiple automatic measurements.
- Four math functions, including FFTs standard.
- Trigger mode: edge/pulse width/line selectable video/slop/overtime etc.
- USB host and device connectivity, standard.
- Provides software for PC real-time analysis.

Arbitrary/Function Waveform Generator

- DC-25MHz (Sine wave up to 75M)
- Vertical resolution 12bit

Specification

Model	DSO4072C
Acquisition	
Sample Rate	Real-Time Sample: 1GS/s Equivalent Sample: 25GS/s
Acquisition Modes	
Normal	Normal data only
Peak Detect	High-frequency and random glitch capture
Average	Waveform Average, selectable 4,8,16,32,64,128
Inputs	
Inputs Coupling	AC, DC, GND
Inputs Impedance	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 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.

Horizontal

Sample Rate Range	500MS/s--1GS/s
Waveform Interpolation	(sin x)/x
Record Length	40K
SEC/DIV Range	4ns/div to 40s/div
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	70MHz
Rise Time at BNC(typical)	5ns
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, Rectangular, 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 $N \geq 16: \pm (3\% \times \text{reading} + 0.1\text{div} + 1\text{mV})$ only 10mV/div or greater is selected; When vertical displacement is not zero, and $N \geq 16: \pm [3\% \times (\text{reading} + \text{vertical position}) + 1\% \text{ of vertical position} + 0.2\text{div}]$; Add 2mV for settings from 2mV/div to 200mV/div; add 50mV for settings from 200mV/div to 5V/div
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): 1div from DC to 10MHz; 1.5div from 10MHz to 100MHz; DC(EXT): 200mV from DC to 100MHz; DC(EXT/5): 1V from DC to 100MHz; 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: $\pm 1.2\text{V}$; EXT/5: $\pm 6\text{V}$
Trigger Level Accuracy(typical)Accuracy is for signals having rise and fall times $\geq 20\text{ns}$	CH1/CH2: $0.2\text{div} \times \text{volts/div}$ within ± 4 divisions from center of screen; EXT: $\pm (6\% \text{ of setting} + 40\text{mV})$; EXT/5: $\pm (6\% \text{ of setting} + 200\text{mV})$;
Set Level to 50%(typical)	Operates with input signals $\geq 50\text{Hz}$
Video Trigger	
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

Pulse Width Trigger	
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
Slope Trigger	
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
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	<p>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.</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 < 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>

Measure

Cursor Measurement	<p>Voltage difference between cursors: ΔV</p> <p>Time difference between cursors: ΔT</p> <p>Reciprocal of ΔT in Hertz ($1/\Delta T$)</p>
Auto Measurement	<p>Frequency, Period, Mean, Pk-Pk, Cycle 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, RPREShoot, BWIDTH, FRF, FFR, LRR, LRF, LFR, LFF</p>

Arb. Waveform Generator

Waveform Impedance	DC-25MHz
Sample Rate	200MHz DDS
Output Waveform	Arbitrary wave/square wave/sine wave/triangle wave/trapezoidal wave/pulse wave/DC
Frequency Resolution	0.1%
Waveform Depth	2KSa
Vertical Resolution	12bit
Frequency Stability	<30ppm
Waveform Range	-3.5V~+3.5V

Output Impedance	50Ω
Output Current	50mA I _{peak} =100mA
System BW	25M
Harmonic Distortion	-50dBc (1KHz) , -40dBc (10KHz)

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

Probe Compensator Output

Output Voltage(typical)	About 5Vpp into ≥1MΩ load
Frequency(typical)	1kHz

Power Supply

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

Environmental

Temperature	Operating: 32°F to 122°F (0°C to 50°C); Nonoperating: -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); Nonoperating: Below 15,000m(50,000 feet)

Mechanical

Size	Length 385mm, Width 200mm, Height 245mm
Weight	3.5KG(with Packing); 2.08KG(without Packing)