

Digital Storage Oscilloscope

4 Channels, 80MHz Bandwidth, with AWG

DSO4084C



Accessories



Features

- 2 in 1: 4CH Oscilloscope with 1CH Arbitrary Function Waveform Generator.

Oscilloscope:

- 4CH oscilloscope+EXT+DVM+auto range function.
- 100MHz bandwidth, minimum range 500 μ V /div, 1GS/s sample rate.
- Over 32 types of auto measurement function.
- Over 14 types of trigger function: edge, overtime, pulse, pattern, interval, etc.
- Serial bus triggering and decode, Bus protocol information can be quickly and intuitively displayed in table form.
- Support a variety of SCPI remote control command.

Arbitrary Function Waveform Generator

- 25MHz, 12 bits resolution, 200MHz DDS.
- ARB/square/sine/triangular/trapezoidal/impulse/DC etc.
- Integrated USB Host/Device, convenient to communicate with PC.

Specification

| Model | DSO4084C |
|--|--|
| OSCILLOSCOPE MODE | |
| Bandwidth | 80MHz |
| Horizontal | |
| Sample Rate Range | 1GS/s |
| Waveform Interpolation | (sin x)/x |
| Record Length | Maximum 64K samples per single-channel; Maximum 32K samples per dual-channel (4K, 32K optional) |
| SEC/DIV Range | 2ns/div~100s/div 1, 2, 5 sequence |
| Sample Rate and Delay Time Accuracy | ± 50 ppm |
| Delta Time Measurement Accuracy (Full Bandwidth) | Single-shot, Normal mode $\pm (1 \text{ sample interval} + 100\text{ppm} \times \text{reading} + 0.6\text{ns})$ >16 averages $\pm (1 \text{ sample interval} + 100\text{ppm} \times \text{reading} + 0.4\text{ns})$ Sample interval = s/div $\div 200$ |

Vertical

| | |
|--|---|
| AD Converter | 8-bit resolution, each channel sampled simultaneously |
| VOLTS/DIV Range | 500 μ V/div to 10V/div at input BNC |
| Position Range | 500 μ V/div~20mV/div, \pm 400mV |
| | 50mV/div~200mV/div, \pm 2V |
| | 500mV/div~2V/div, \pm 40V |
| | 5V/div~10V/div, \pm 50V |
| Selectable Analog Bandwidth Limit, typical | 20MHz |
| Low Frequency Response (-3db) | \leq 10Hz at BNC |
| Rise Time at BNC, typical | \leq 4.4ns |
| DC Gain Accuracy | \pm 3% for Normal or Average acquisition mode, 10V/div to 10mV/div |
| | \pm 4% for Normal or Average acquisition mode, 5mV/div to 500 μ V/div |
| | Note: Bandwidth reduced to 6MHz when using a 1X probe. |

Acquisition

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|---------------------------|---|--|
| Acquisition Modes | Normal, Peak Detect, Average and HR | |
| Acquisition Rate, typical | Up to 2000 waveforms per second per channel (Normal acquisition mode, no measurement) | |
| Single Sequence | Acquisition Mode | Acquisition Stop Time |
| | Normal, Peak Detect | Upon single acquisition on all channels simultaneously |
| | Average | After N acquisitions on all channels simultaneously, N can be set to 4, 8, 16, 32, 64 or 128 |

Trigger

| | | |
|---------------|--------------|---|
| Mode | Auto, Normal | |
| Level | CH1~CH4 | \pm 4 divisions from center of screen |
| | EXT | 0~3.3V |
| Holdoff Range | 20ns ~ 10s | |

| | | |
|------------------------|---------|--|
| Trigger Level Accuracy | CH1~CH4 | 0.2div × volts/div within ±4 divisions from center of screen |
| | EXT | ± (6% of setting + 40mV) |

Edge Trigger

| | |
|--------|---------------------------------|
| Slope | Rising, Falling, Rising&Falling |
| Source | CH1~CH4/EXT |

Pulse Width

| | |
|-----------------|--------------------|
| Polarity | Positive, Negative |
| Condition(When) | <, >, ≠, = |
| Source | CH1~CH4 |
| Width Range | 8ns ~ 10s |
| Resolution | 8ns |

Video Trigger

| | |
|-----------------|---|
| Signal Standard | NTSC, PAL |
| Source | CH1~CH4 |
| Sync | ScanLine, LinrNum, OddField, EvenField and AllField |

Slope Trigger

| | |
|-----------------|-----------------|
| Slope | Rising, Falling |
| Condition(When) | <, >, ≠, = |
| Source | CH1 ~ CH4 |
| Time Range | 8ns ~ 10s |
| Resolution | 8ns |

Overtime Trigger

| | |
|------------|--------------------|
| Source | CH1~CH4 |
| Polarity | Positive, Negative |
| Time Range | 8ns ~ 10s |
| Resolution | 8ns |

Window Trigger

| | |
|--------|---------|
| Source | CH1~CH4 |
|--------|---------|

Pattern Trigger

| | |
|---------|--------------------------------|
| Pattern | 0: Lower level; 1: High level; |
| Level | CH1~CH4 |

Interval Trigger

| | |
|-------|-----------------|
| Slope | Rising, Falling |
|-------|-----------------|

| | |
|-----------------|------------|
| Condition(When) | <, >, ≠, = |
| Source | CH1~CH4 |
| Time Range | 8ns ~ 10s |
| Resolution | 8ns |

Under Amp

| | |
|-----------------|--------------------|
| Polarity | Positive, Negative |
| Condition(When) | <, >, ≠, = |
| Source | CH1~CH4 |
| Time Range | 8ns ~ 10s |
| Resolution | 8ns |

UART Trigger

| | |
|-----------------------|---|
| Condition(When) | Start, Stop, Data, Parity Error, COM Error |
| Source(RX/TX) | CH1~CH4 |
| Data format | Hex |
| Condition(When) | <, >, ≠, = |
| Data Length | 1 byte |
| Data Length | 5 bit, 6 bit, 7 bit, 8 bit |
| Parity Check | None, Odd, Even |
| Idle Level | High, Low |
| Baud Rate(Selectable) | 110/300/600/1200/2400/4800/9600/14400/19200/38400/57600/115200/230400/380400/460400 bit/s |
| Baud Rate (Custom) | 300bit/s~334000bit/s |

LIN Trigger

| | |
|------------------------|---|
| Condition(When) | Interval Field, Sync Field, Id field, Sync Id Error, Identifier, Id and Data |
| Source | CH1~CH4 |
| Data format | Hex |
| Baud Rate (Selectable) | 110/300/600/1200/2400/4800/9600/14400/19200/38400/57600/115200/230400/380400/460400 bit/s |
| Baud Rate (Custom) | 300bit/s~334000bit/s |

CAN Trigger

| | |
|-----------------|--|
| Condition(When) | Start Bit, Remote Frame, Data Frame Id, Frame Id, DataFrame Id A, Error Frame, All Error, Ack Error, Overload Fram |
| Source | CH1~CH4 |
| Data format | Hex |

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|------------------------|--|
| Baud Rate (Selectable) | 10000, 20000, 33300, 500000, 62500, 83300, 100000, 125000, 250000, 500000, 800000, 1000000 |
|------------------------|--|

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|--------------------|-----------------|
| Baud Rate (Custom) | 5kbit/s~1Mbit/s |
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SPI Trigger

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|----------------------|---------|
| Source (CS/CLK/Data) | CH1~CH4 |
|----------------------|---------|

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|-------------|-----|
| Data format | Hex |
|-------------|-----|

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|-------------|------------------|
| Data Length | 4, 8, 16, 24, 32 |
|-------------|------------------|

IIC Trigger

| | |
|------------------|---------|
| Source (SDA/SCL) | CH1~CH4 |
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|-------------|-----|
| Data format | Hex |
|-------------|-----|

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|------------|-----|
| Data Index | 0~7 |
|------------|-----|

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|-----------------|---|
| When(Condition) | Start, Stop, No Ack, Address, Data, Restart |
|-----------------|---|

Inputs

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|----------------|---------------|
| Input Coupling | DC, AC or GND |
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|-----------------------------|-------------------|
| Input Impedance, DC coupled | 20pF±3 pF, 1MΩ±2% |
|-----------------------------|-------------------|

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| Probe Attenuation | 1X, 10X |
|-------------------|---------|

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|-------------------------------------|----------------------|
| Supported Probe Attenuation Factors | 1X, 10X, 100X, 1000X |
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|----------------------|-------------|
| Overvoltage Category | 300V CAT II |
|----------------------|-------------|

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|-----------------------|---------------------------|
| Maximum Input Voltage | 300V _{RMS} (10X) |
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Measurements

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| Cursors | Voltage difference between cursors: ΔV Time difference between cursors: ΔT Reciprocal of ΔT in Hertz ($1/\Delta T$) |
|---------|---|

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|------------------------|--|
| Automatic Measurements | Frequency, Period, Average, Pk-Pk, RMS, PeriodRms, Min, Max, RiseTime, FallTime, + Width, - Width, + Duty, - Duty, Vbase, Vtop, Vmid, Vamp, Overshoot, Preshoot, PeriodAvg, FOVShoot, RPREShoot, BWidth, FRR, FFF, FRF, FFR, LRR, LRF, LFR and LFF |
|------------------------|--|

General Specifications

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| Display | |
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| Display Type | 7 inch 64K color TFT (diagonal liquid crystal) |
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| Display Resolution | 800 horizontal by 480 vertical pixels |
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| Display Contrast | Adjustable |
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Probe Compensator Output

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|-------------------------|---|
| Output Voltage, typical | About 2Vpp into $\geq 1\text{M}\Omega$ load |
| Frequency, typical | 1kHz |

Power Supply

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|-------------------|---|
| Supply Voltage | 100-120VACRMS($\pm 10\%$), 45Hz to 440Hz, CAT II 120-240VACRMS($\pm 10\%$), 45Hz to 66Hz, CAT II |
| Power Consumption | <30W |
| Fuse | T, 3.15A, 250V, 5x20mm |

Environmental

| | | |
|-----------------------|---|---|
| Operating Temperature | 0~50 °C (32~122 °F) | |
| Storage Temperature | -40~+71 °C (-40~159.8 °F) | |
| Humidity | $\leq +104^{\circ}\text{F}$ ($\leq +40^{\circ}\text{C}$): $\leq 90\%$ relative humidity | |
| | $106^{\circ}\text{F} \sim 122^{\circ}\text{F}$ ($+41^{\circ}\text{C} \sim 50^{\circ}\text{C}$): $\leq 60\%$ relative humidity | |
| Cooling Method | Convection | |
| Altitude | Operating and Nonoperating | 3,000m (10,000 feet) |
| | Random Vibration | 0.31g _{RMS} from 50Hz to 500Hz, 10 minutes on each axis |
| Mechanical Shock | Nonoperating | 2.46g _{RMS} from 5Hz to 500Hz 10 minutes on each axis |
| | Operating | 50g, 11ms, half sine |

Mechanical

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|-----------|-------------------------------|
| Dimension | 318 x 110 x 150mm (L x W x H) |
| Weight | 2900g |

ARBITRARY WAVEFORM GENERATOR MODE

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|----------------------|---|
| Waveform Frequency | Sine: 0.1Hz ~ 25MHz Square: 0.1Hz ~ 10MHz Ramp: 0.1Hz ~ 1MHz EXP: 0.1Hz ~ 5MHz |
| Amplitude | 5mV ~ 3.5Vp-p (50 Ω) 10mV ~ 7Vp-p (High impedance) |
| DAC | 2K ~ 200MHz adjustable |
| Frequency Resolution | 0.001 |
| Channel | 1CH waveform output |
| Waveform Depth | 4KSa |
| Vertical Resolution | 12 bit |
| Frequency Stability | <30ppm |
| Output Impedance | 50 Ω |