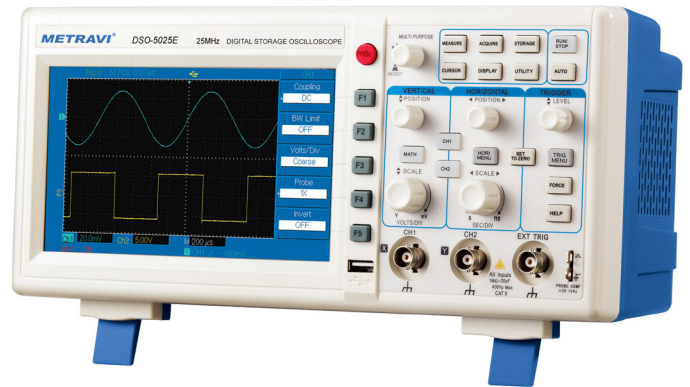


**INTRODUCTION**

The instrument is designed and manufactured strictly according to “Safety Requirements of Electronic Measuring Instrument” (GB4793) and IEC61010-1 Safety Standard. It Conforms to “Insulation Overvoltage Standard” (CAT II o) and Safe Standard with Pollution Level II.

| Series    | Model     | Band Width | Real-Time |
|-----------|-----------|------------|-----------|
| DSO-5000E | DSO-5025E | 25MHz      | 250MS/s   |
|           | DSO-5050E | 50MHz      | 500MS/s   |
|           | DSO-5070E | 70MHz      | 1GS/s     |
|           | DSO-5100E | 100MHz     | 1GS/s     |
|           | DSO-5150E | 150MHz     | 1GS/s     |
|           | DSO-5200E | 200MHz     | 1GS/s     |



DSO-5000E Series Digital Storage Oscilloscope provides simple front panel with clear functions to users for all basic operations. Scale and position of various channels can provide intuitional operation to meet usage habits of traditional instruments, Users can use it skillfully without learning and being familiar with operation for a long time. Users can also press AUTO key directly to accelerate adjustment and facilitate measurement. Appropriate waveform and gear setup can be shown on the instrument panel. DSO-5000E Series Digital Storage Oscilloscope also has high-performance indicators and powerful functions to fulfill measurement tasks quickly besides easy usage. Quicker signals can be observed by DSO-5000E Series Digital Storage Oscilloscope by real-time sampling of 250MS/s or 500MS/s (or 1GS/s) and equivalent sampling of 25GS/s (or 50GS/s). It can capture and analyze waveform easily by powerful trigger and analysis capacity. Users can also observe and analyze signal problems quickly and clearly by clear LCD display and mathematical calculation function. We can see that such series of Digital Storage Oscilloscope can meet your measurement requirements by following performance.

**FEATURES**

- Double Analog Channels
- High-resolution colorful LCD display system with resolution of 400 x 240 (or 800 x 480)
- To support plug and play USB storage instrument to communicate with computer.
- Automatic waveform and status setup.
- Waveform, setup, bitmap storage, waveform and setup reoccurrence.
- Elaborate view window extension function for delicate analysis of waveform details and profile
- Automatic measurement of 28 kinds of waveform parameters
- Automatic cursor tracing and measurement function
- Unique waveform recording and playback functions
- Embedded FFT
- Multiple mathematical calculation functions (including +, -, X, ÷) for waveform
- Edge, video, pulse width and ALT TRIG functions
- Multi-language menu display

\*Technical Specifications & Appearance are subject to change without prior notice

**TECHNICAL SPECIFICATIONS:**

| Sampling      |   |           |            |
|---------------|---|-----------|------------|
|               | Sampling mode   | Real-time | Equivalent |
| Sampling Rate | DSO-5150E/DSO-5200E   | 1GS/s     | 50GS/s     |
|               | DSO-5050E   | 500MS/s   | 25GS/s     |
|               | DSO-5070E/DSO-5100E   | 1GS/s     | 50GS/s     |
| Average Rate  | N can be selected from 2, 4, 8, 16, 32, 64, 128 and 256 after sampling all channels for N times at the same time. |           |            |

**Note:** Real-time sampling rate is 250MS/s without equivalent sampling for DSO-5025E.

| Input                             |  |
|-----------------------------------|--|
| Input Coupling                    | DC , AC , GND  |
| Input Impedance                   | DSO-5150E/DSO-5200E: 1±2% MΩ for parallel connection to 21±3pF                         |
|                                   | DSO-5025E/DSO-5050E/DSO-5070E/DSO-5100E:<br>1±2% MΩ for parallel connection to 24±3pF; |
| Probe Attenuation Coefficient     | 1 x, 10 x, 100 x and 1000 x  |
| The Maximum Input Voltage         | 400V (DC + AC peak value and input impedance of 1MΩ)                                   |
| (Typical) delay between ChannelsI | 150ps  |

| Horizontal  |  |
|---|--|
| Waveform Interpolation                                    | Sin (x) / x  |
| Record Length   | Sampling point of 2 x 521k   |
| Storage Depth   | 25k  |
| Scanning Scope  | DSO-5070E/DSO-5100E/DSO-5150E/DSO-5200E: 2ns/div-50ns/div<br>DSO-5050E: 5ns/div-50s/div<br>DSO-5025E: 10ns/div-50s/div                 |
| Precision of sampling rate and delay time                 | ± 50ppm (for any interval of at least 1ms)   |
| Measurement precision (full band width) for interval (ΔT) | Single mode: ±(1 Sampling interval + 50ppm x reading +0.6ms)<br>> 16 average values: ± ( 1 Sampling interval + 50ppm x reading +0.4ms) |

| Vertical   |   |
|--|---|
| Analog digital converter (A/D)   | 8-bit resolution with synchronous sampling for 2 channels   |
| Scope of deflection coefficient (V/div)                                    | DSO-5150E/DSO-5200E: 2mV/div~5V/div (in input BNC);<br>DSO-5025E/DSO-5050E/DSO-5070E/DSO-5100E: 1mV/div (in input BNC)  |
| Displacement Scope   | ± 10div   |
| (Typical) optional band width limitation                                   | 20 MHz  |
| Low-frequency response (AC coupling, -3dB)                                 | ≤ 10Hz (in BNC)   |
| DC gain precision (by adopting sampling or sampling mode of average value) | DSO-5150E/DSO-5200E:<br>±4% if vertical Sensitivity is 2mV/div or 5mV/div<br>±3% if vertical Sensitivity is 10mV/div or 5mV/div<br>DSO-5025E/DSO-5050E/DSO-5070E/DSO-5100E:<br>±5% if vertical Sensitivity is 1mV/div or 2mV/div<br>±4% if vertical Sensitivity is 5mV/div<br>±3% if vertical Sensitivity is 10mV/div or 20mV/div |
| DC measurement precision (by adopting average sampling mode)               | DSO-5150E/DSO-5200E:<br>if vertical displacement is not 0 and N ≥ 16;<br>±(4% x reading +0.1 grid +1mV) by selecting 2mV/div or 5mV/div;<br>±(3% x reading +0.1 grid +1mV) by selecting 10mV/div or 5mV/div;<br>if vertical displacement is not 0 and N ≥ 16;   |

\*Technical Specifications & Appearance are subject to change without prior notice

| Vertical (Cont.)  |   |
|---|---|
| DC measurement precision (by adopting average sampling mode)  | $\pm [(3\% \times (\text{reading} + \text{vertical displacement reading}) + (1\% \times \text{vertical displacement reading}))]$<br>To add 2mV when setting from 2mV/div to 200mV/div; To add set value by 50mV when setting from 200mV/div to 5V/div ;<br>DSO-5025E/DSO-5050E/DSO-5070E/DSO-5100E:<br>If vertical displacement is 0 and $N \geq 16$ :<br>$\pm (5\% \times \text{reading} + 0.1 \text{ grid} + 1\text{mV})$ by selecting 1mV/div or 2mV/div;<br>$\pm (4\% \times \text{reading} + 0.1 \text{ grid} + 1\text{mV})$ by selecting 5mV/div;<br>$\pm (3\% \times \text{reading} + 0.1 \text{ grid} + 1\text{mV})$ by selecting 10mV/div to 20V/div;<br>if vertical displacement is not 0 and $N \geq 16$ ;<br>$\pm [(3\% \times (\text{reading} - \text{vertical displacement reading}) + (1\% \times \text{vertical displacement reading})) + 0.2\text{div}]$ ;<br>To add 2mV when setting from 5mV/div to 200mV/div : To add set value by 50mV when setting from 200mV/div to 20V/div; |
| Measurement precision of voltage difference ( $\Delta V$ ) (by adopting sampling mode of average value) | Voltage difference between any 2 points all the waveform after calculating average value for at least 16 captured waveform under the same setup and environment conditions:<br>$\pm (3\% \times \text{reading} + 0.05\text{div})$   |

| Band Width |           |                   |                           |           |
|------------|-----------|-------------------|---------------------------|-----------|
| Series     | Model     | Analog Band Width | Single Channel Band Width | Rise Time |
| DSO-5000E  | DSO-5025E | 25MHz             | 25MHz                     | 14ns      |
|            | DSO-5050E | 50MHz             | 50MHz                     | 7ns       |
|            | DSO-5070E | 70MHz             | 70MHz                     | 5ns       |
|            | DSO-5100E | 100MHz            | 100MHz                    | 3.5ns     |
|            | DSO-5010E | 150MHz            | 100MHz                    | 2.3ns     |
|            | DSO-5200E | 200MHz            | 100MHz                    | 1.8ns     |

| Trigger  |  |  |
|--|--|--|
| Trigger Sensitivity  | $\leq 1 \text{ div}$   |  |
| Trigger level Scope  | Internal   | $\pm 5\text{div}$ away from screen center  |
|  | EXT  | $\pm 3V$   |
| (Typical) precision of trigger level for signal of which Rise Time or Descend Time is not less than 20ns | Internal   | $\pm (0.3\text{div} \times V/\text{div})$ (within scope of $\pm 4\text{div}$ from screen center) |
|  | EXT  | $\pm (6\% \text{ of set Value} \pm 40\text{mV})$   |
| Pre-trigger ability  | Normal mode/scanning mode, pre-trigger/delay trigger with adjustable pre-trigger depth |  |
| Inhibition scope   | DSO-5150E/DSO-5200E/100ns-1.5s<br>DSO-5025E/DSO-5050E/DSO-5070E/DSO-5100E: 80ns-1.5s   |  |
| (Typical) level set to 50%   | Operation if frequency of input signal is not less than 50Hz                           |  |

| Edge Trigger |                                   |
|--------------|-----------------------------------|
| Edge Trigger | Ascend, descend, ascend & descend |

| Pulse width Trigger |   |
|---------------------|---|
| Trigger mode        | To be more than , less than or equivalent to positive/negative pulse width; |
| Pulse width scope   | 20ns - 10s  |

\*Technical Specifications & Appearance are subject to change without prior notice

| Video Trigger*  |   |                    |
|---|---|--------------------|
| Trigger Sensitivity<br>(typical video trigger)              | Internal  | Peak value of 2div |
|   | EXT   | 400mV              |
|   | EXT / 5*  | 2V                 |
| Signal system and row/ field frequency (Video trigger type) | To support standard NTSC and PAL; Scope of row quantity IS 1-525 (NTSC) and 1-625 (PAL) |                    |
| ALT TRIG  |   |                    |
| CH 1 trigger  | Edge, pulse width and video   |                    |
| CH 2 trigger  | Edge, pulse width and video   |                    |

Note : DSO-5025E/DSO-5050E/DSO5070E/DSO-5100E has no EXT/5 function.

Only DSO-5025E/DSO-5150E/DSO-5200E has video trigger function.

| Measurement            |   |  |
|------------------------|---|--|
| Cursor                 | Manual mode   | Voltage difference ( $\Delta V$ ) between cursors;<br>Time difference ( $\Delta T$ ) between cursors;<br>Reciprocal of $\Delta T$ ( $1/\Delta T$ ) |
|                        | Tracing mode  | Voltage and time of wavetorm point   |
|                        |   | It is allowed to display cursor during automatic measurement.  |
| Automatic measurement  | Peak value, amplitude, the maximum value, the minimum value, top value, bottom value, middle value, average value, root-mean-square, overshoot, preshoot, frequency, cycle, RiseTime, Descend Time, positive pulse width, negative pulse width, positive duty cycle, negative duty cycle and delay. |  |
| Mathematical operation | +, -, X, ÷  |  |
| FFT                    | Window  | Hanning, Hamming, Blackman, Rectangle  |
|                        | Sampling point  | 1024 points  |
| Lissajous's figure     | Phase location difference   | ± 3 degrees  |

| Trigger Frequency Meter     |                   |
|-----------------------------|-------------------|
| Reasing Resolution          | 6-bit             |
| Trigger Sensitivity         | ≤ 30 Vrms         |
| (Typical) Precision         | ± 51ppm (+1 word) |
| General Technical Dimension |                   |

| Display                      |  |  |
|------------------------------|--|--|
|                              | DSO-5150E / DSO-5200E                          | DSO-5025E / DSO-5050E / DSO- 5070E / DSO-5100E             |
| Display type                 | Diaazonal with diagonal of 145mm (5.7 inches)  | Diagonal with diagonal of 178mm (7 inchcs)                 |
| Display Resolution           | 320 (horizontal) x RGB x 240 (vertical pixels) | 800 (400) (horizontal) x RGB x 480 (240) (vertical pixels) |
| Display Color                | Colorful                                       |  |
| Waveform Brightness          | Adjustable (color)                             |  |
| (Typical) backlight strength | 300nit   |  |
| Category of display language | Multilingual selection                         |  |

| Probe Compensator Output |  |
|--------------------------|--|
| (Typical) Output Voltage | About 3V if peak value is not less than 1 MΩ |
| (Typical) Frequency      | 1kHz   |

\*Technical Specifications & Appearance are subject to change without prior notice

| Interface function     |   |
|------------------------|---|
| Standard Configuration | DSO-5150E / DSO-5200E: 1 USB(D); 1 USB(H)<br>DSO-5025E / DSO-5050E / DSO-5070E / DSO-5100E: 1 USB OTG |
| Optional fittings      | DSO-5150E / DSO-5200E: LAN  |

| Power             |  |
|-------------------|--|
| Power Voltage     | 100-240VACRMS, 45-440Hz, CAT II                          |
| Power Consumption | To be less than 30Va                                     |
| Fuse              | F1.6AL 250V;<br>Fuses are on power board in the machine. |

| Environment       |  |
|-------------------|--|
| Temperature Scope | Operation: 0°C~ +40°C                        |
|                   | Non-operation: -20°C~ +60°C                  |
| Cooling Method    | Forced cooling by fan                        |
| Humidity Scope    | < 35°C : ≤90%RH                              |
|                   | +35°C ~ +40°C : ≤60%RH                       |
| Altitude          | Operation elevation of less than 3,000m      |
|                   | Non-operation elevation of less than 15,000m |

| Machine Dimension |                        |                        |  |
|-------------------|------------------------|------------------------|--|
|                   |                        | DSO-5150E<br>DSO-5200E | DSO-5025E / DSO-5050E<br>DSO-5070E / DSO-5100E |
| Dimension         | Width                  | 320mm                  | 306mm  |
|                   | Height                 | 150mm                  | 147mm  |
|                   | Depth                  | 130mm                  | 122mm  |
| Weight            | Not containing package | 2.5kg                  | 2.2kg  |
|                   | Containing package     | 4.0kg                  | 3.3kg  |

| IP protection |  |
|---------------|--|
| ip2X          |  |

| Adjustment Interval                     |  |
|---|--|
| Suggested calibration period is 1 year. |  |

**Standard Accessories:**

- 2 inactive probes of 1.2m and 1:1 (10: 1);
- 1 power chord to meet national standards;
- 1 "Operation Manual";
- 1 "Warranty Certificate";
- Communication control software of DSO-5000E Oscilloscope
- USB connecting Cables:
  - DSO-5150E / DSO-5200E :06
  - DSO-5025E / DSO-5050E / DSO-5070E / DSO-5100: D05

**Optional Accessories:**

DSO-5150E / DSO-5200E: LAN module:MO1

\*Technical Specifications & Appearance are subject to change without prior notice