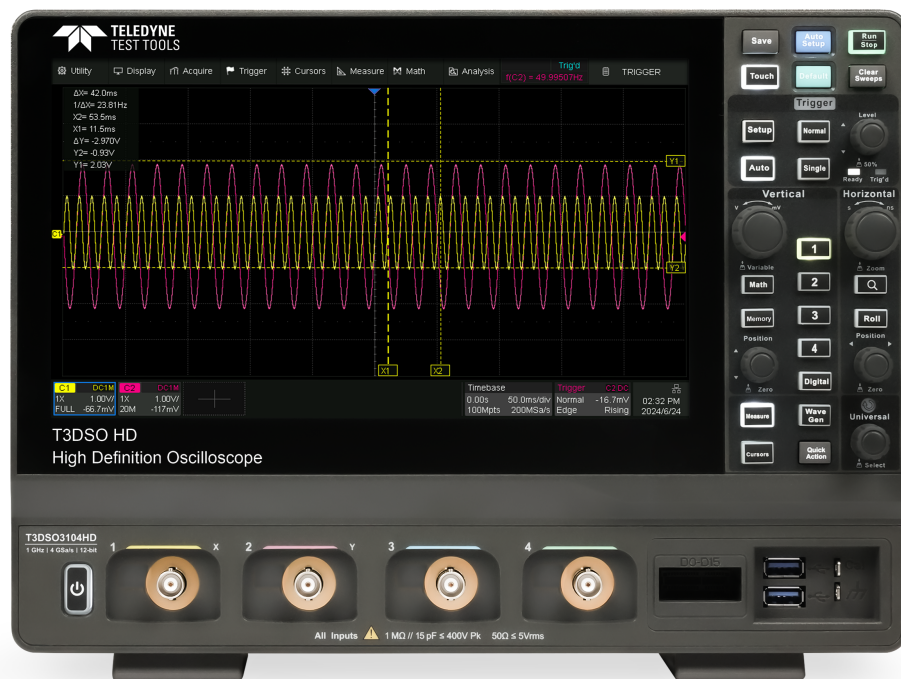


# T3DSO3000HD Data Sheet

## Digital Oscilloscope

**Debug with Confidence**  
**200 MHz – 1 GHz**  
**12-bit High Resolution**



### Tools for Improved Debugging

- |                                                                                                                                                         |                                                                                                                                             |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>● <b>12-bit ADC</b> – combined with low noise front end provides excellent noise performance.</li> </ul>         | <ul style="list-style-type: none"> <li>✓ <b>Get better insight on the signal being measured with minimal noise interference.</b></li> </ul> |
| <ul style="list-style-type: none"> <li>● <b>Long Capture</b> – up to 400 Mpts/Ch</li> </ul>                                                             | <ul style="list-style-type: none"> <li>✓ <b>Capture more time and show more waveform detail.</b></li> </ul>                                 |
| <ul style="list-style-type: none"> <li>● <b>Math and Measure</b> – 9 basic math functions plus FFT and 50+ automatic measurement parameters.</li> </ul> | <ul style="list-style-type: none"> <li>✓ <b>Extract results from waveforms and measurements.</b></li> </ul>                                 |
| <ul style="list-style-type: none"> <li>● <b>Built-in web server</b> – supports remote control over LAN port.</li> </ul>                                 | <ul style="list-style-type: none"> <li>✓ <b>Save data for external analysis and screen images for reports.</b></li> </ul>                   |
| <ul style="list-style-type: none"> <li>● <b>History</b> – record function, the maximum recorded waveform length is 80,000 frames.</li> </ul>            | <ul style="list-style-type: none"> <li>✓ <b>Replay the changing waveform history.</b></li> </ul>                                            |
| <ul style="list-style-type: none"> <li>● <b>Includes Bode Plot and Power Analysis applications as standard.</b></li> </ul>                              | <ul style="list-style-type: none"> <li>✓ <b>Common applications coverage as standard.</b></li> </ul>                                        |
| <ul style="list-style-type: none"> <li>● <b>MSO</b> – Optional 16 Digital Channel Probe available.</li> </ul>                                           | <ul style="list-style-type: none"> <li>✓ <b>Add mixed signal debugging to your Oscilloscope.</b></li> </ul>                                 |

# PRODUCT OVERVIEW

|                    |                   |
|--------------------|-------------------|
| <b>T3DSO3024HD</b> | 4 Channel 200 MHz |
| <b>T3DSO3034HD</b> | 4 Channel 350 MHz |
| <b>T3DSO3054HD</b> | 4 Channel 500 MHz |
| <b>T3DSO3104HD</b> | 4 Channel 1 GHz   |

**Teledyne Test Tools T3DSO3000HD Digital Oscilloscopes are available in bandwidths of 200 MHz, 350 MHz, 500 MHz and 1 GHz, have maximum record length of 400 Mpts/ch, and display 4 analog channels + optional 16 digital channels mixed signal analysis ability.**

The T3DSO3000HD series employs the latest technology which features a maximum waveform capture rate of up to 200,000 wfm/s in normal mode and 890,000 wfm/s in Sequence mode, 256-level intensity grading display function plus a color temperature display mode. It also employs an innovative digital trigger system with high sensitivity and low jitter. The trigger system supports multiple powerful triggering modes including serial bus triggering. Tools such as History waveform recording, Search and Navigate functions, Mask Test, Bode Plot, and Power Analysis allow for extended waveform records

captured, stored, and analyzed. An impressive array of measurement and math capabilities, options for a 50 MHz arbitrary waveform generator, as well as serial decoding are also features of the T3DSO3000HD.

The large 10.1" display capacitive touch screen supports multi-touch gestures, with the addition of user-friendly UI design, can greatly improve the operation efficiency. It also supports mouse control, and remote web control over LAN.

## Key Features

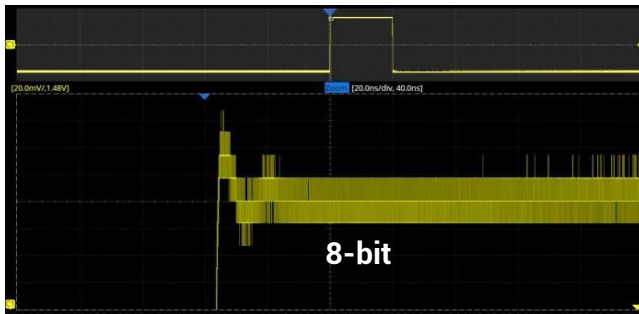
- 12-bit Analog-Digital Convertors with sample rate up to 4 GS/s
- Front ends with 125  $\mu$ Vrms noise floor @ 1 GHz bandwidth and 0.5 % DC gain accuracy
- Four analog channels, up to 1 GHz bandwidth
- Waveform capture rate up to 200,000 wfm/s (normal mode), and 890,000 wfm/s (sequence mode)
- Supports 256-level intensity grading and color temperature display modes
- Up to 400 Mpts/ch record length
- Serial bus triggering and decoder, supports protocols I<sup>2</sup>C, SPI, UART, CAN, LIN, CAN FD, FlexRay, I<sup>2</sup>S, MILSTD-1553B, SENT, Manchester and ARINC429
- MSO – Optional 16 Digital Channel Logic Probe available
- History waveform record (History) function, the maximum recorded waveform length is 80,000 frames
- Automatic measurements on 50+ parameters, supports statistics with histogram, track, trend, Gating measurement, and measurements on Math, History and Ref
- 4 Math traces (4 Mpts FFT, Filter, addition, subtraction, multiplication, division, integration, differential, square root, etc.), supports formula editor
- High Speed hardware-based Average, ERES; High Speed hardware-based Mask Test function, with Mask Editor tool for creating user-defined masks
- Optional 50 MHz waveform generator
- Interfaces include: 2x USB 3.0 Host, 1x USB 2.0 Host, USB 3.0 Device (USBTMC), 1000M LAN ((VXI-11/ Telnet/Socket/LXI)), External Trigger In, Aux Out (Pass/Fail, Trigger Out)
- Built-in web server supports remote control over the LAN port using a web browser. Supports SCPI remote control commands. Supports external mouse and keyboard

## Models and Key Specification

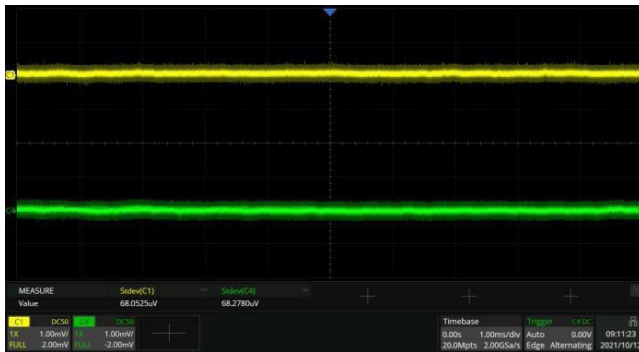
| Model                        | T3DSO3024HD                                                                                                                                                                            | T3DSO3034HD | T3DSO3054HD | T3DSO3104HD                              |
|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|------------------------------------------|
| Analog channels              | 4 + EXT                                                                                                                                                                                |             |             |                                          |
| Bandwidth                    | 200 MHz                                                                                                                                                                                | 350 MHz     | 500 MHz     | 1 GHz (800 MHz in non-interleaving mode) |
| Sample rate (Max.)           | 4 GS/s (interleaving mode), 2 GS/s (non-interleaving mode)                                                                                                                             |             |             |                                          |
| Memory depth (Max.)          | 400 Mpts/ch (interleaving mode: single-channel), 200 Mpts/ch (interleaving mode: dual-channel), 100 Mpts/ch (non-interleaving mode)                                                    |             |             |                                          |
| Waveform capture rate (Max.) | Normal mode: 200,000 wfm/s;<br>Sequence mode: 890,000 wfm/s                                                                                                                            |             |             |                                          |
| Vertical resolution          | 12-bit. Up to 16-bit in ERES mode                                                                                                                                                      |             |             |                                          |
| Trigger type                 | Edge, Slope, Pulse width, Window, Runt, Interval, Dropout, Pattern, Video, Qualified, Nth edge, Setup/hold, Delay, Serial                                                              |             |             |                                          |
| Serial trigger and decode    | I <sup>2</sup> C, SPI, UART, CAN, LIN, CAN FD, FlexRay, I <sup>2</sup> S, MIL-STD-1553B, SENT, Manchester (decode only), ARINC429                                                      |             |             |                                          |
| Measurement                  | 50+ parameters, statistics, histogram, trend, and track supported                                                                                                                      |             |             |                                          |
| Math                         | 4 traces<br>4 Mpts FFT, +, -, x, ÷, fdt, d/dt, √, Identity, Negation, Absolute, Sign, ex, 10x, ln, lg, Interpolation, MaxHold, MinHold, ERES, Average, Filter. Supports formula editor |             |             |                                          |
| Data analysis                | Search, Navigate, History, Mask Test, Digital Voltmeter, Counter, Waveform Histogram, Bode plot, and Power Analysis                                                                    |             |             |                                          |
| Digital channel (optional)   | 16-channel; maximum sample rate up to 1 GS/s; record length up to 100 Mpts                                                                                                             |             |             |                                          |
| USB AWG module (optional)    | One channel, 50 MHz, sample rate of 125 MHz, wavelength of 16 kpts, isolated output                                                                                                    |             |             |                                          |
| I/O                          | USB 3.0 Host x2, USB 2.0 Host x1, USB 3.0 Device, 10M/100M/1000M LAN, External trigger, Auxiliary output (TRIG OUT, PASS/FAIL)                                                         |             |             |                                          |
| Probe                        | Four 500 MHz passive probes                                                                                                                                                            |             |             |                                          |
| Display                      | 10.1 TFT-LCD with capacitive touch screen (1024*600)                                                                                                                                   |             |             |                                          |

# FUNCTIONS & CHARACTERISTICS

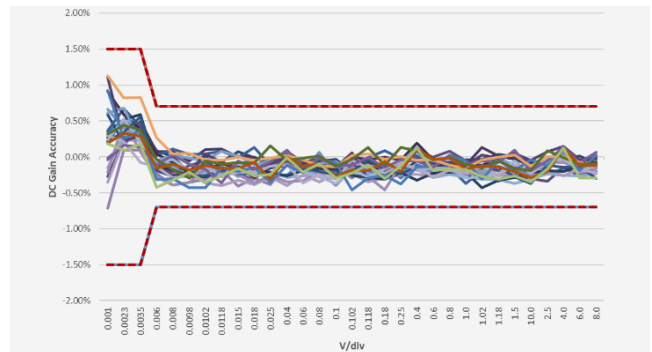
## 12-bit High Resolution



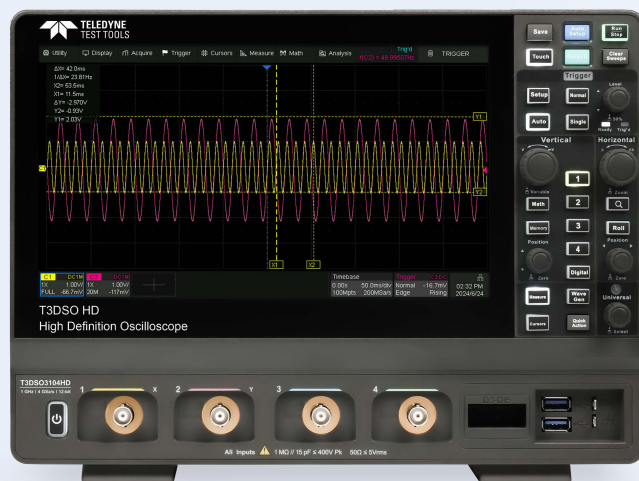
12-bit resolution shows you more details and less noise on the waveform.



Low noise floor: Only 125  $\mu$ Vrms at 1 GHz bandwidth



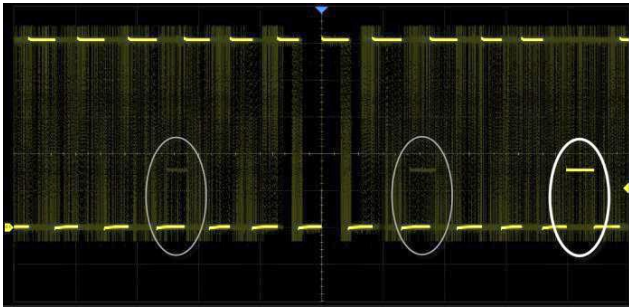
0.5 % DC gain accuracy



## Excellent User Interface and User Experience

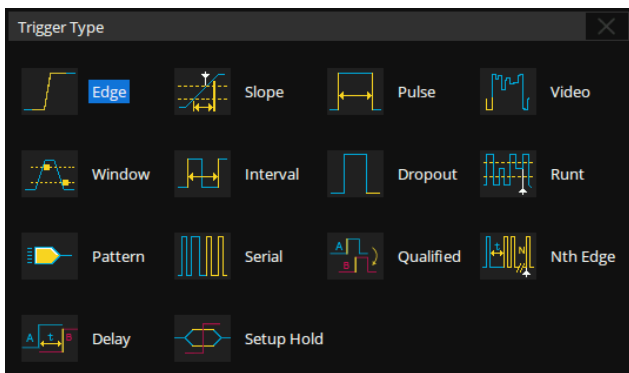
- 10.1" display with 1024 x 600 resolution
- Capacitive touch screen, supporting multi-touch gestures, can move or scale the waveform traces quickly by fingertouch movements, which greatly improves the operation efficiency
- Built-in WebServer supports remote control on a web page over LAN
- Supports external mouse and keyboard

## High Waveform Update Rate



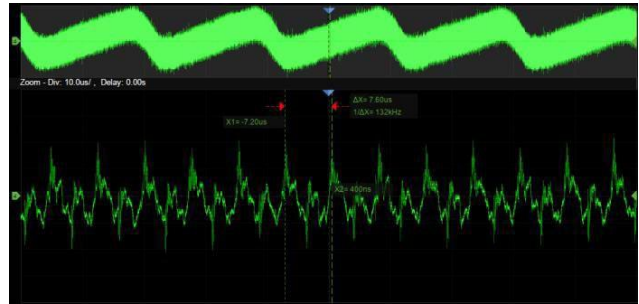
With a waveform update rate of up to 200,000 wfms/s, the oscilloscope can easily capture unusual or low probability events. In Sequence mode, the waveform capture rate can reach 890,000 wfms/s.

## Multiple Trigger Functions



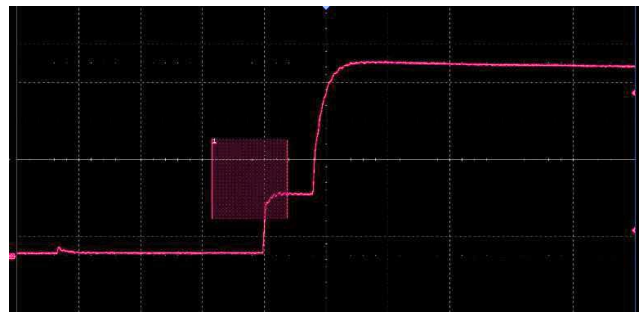
Edge, Slope, Pulse, Video, Windows, Runt, Interval, Dropout, Pattern, Qualified, Nth edge, Setup/hold, Delay, and serial trigger.

## Deep Record Length



Using hardware-based Zoom technique and record length of up to 400 Mpts, users can select a slower time-base without compromising the sample rate, and then quickly zoom in to focus on the area of interest.

## Trigger Zone

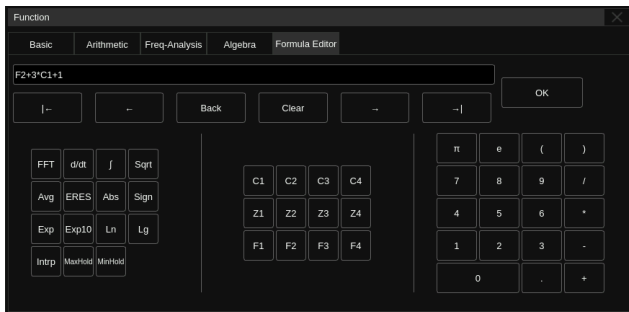


Trigger Zone is available for advanced triggering. Combine spatial triggering with common trigger mode to isolate signals of interest.



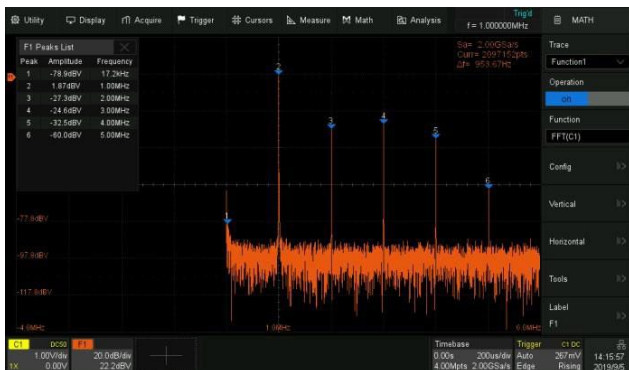
# FUNCTIONS & CHARACTERISTICS

## Advanced Math Function



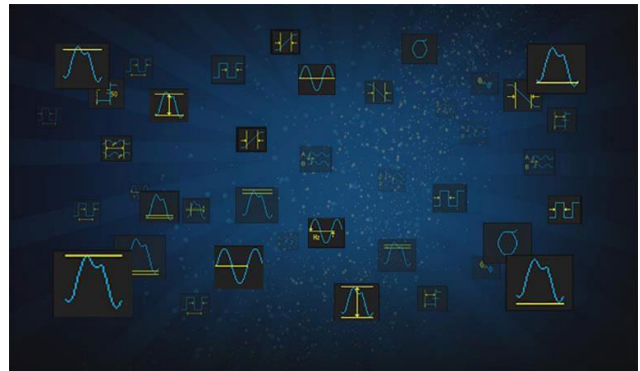
In addition to the traditional (+, -, X, /) operations, FFT, integration, differential, square root, and more are supported. Formula Editor is available for more complex operations. 4 math traces are available.

## Deep Memory FFT



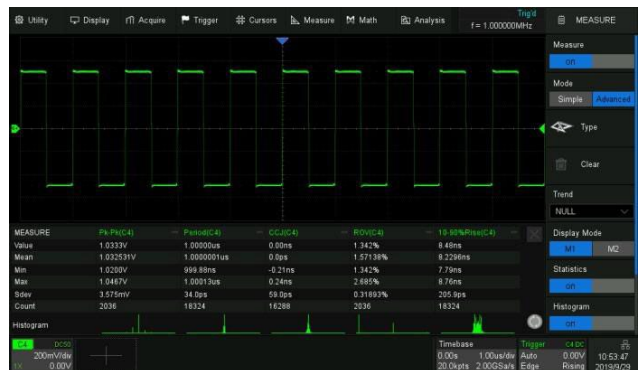
Hardware-accelerated FFT supports up to 4 Mpts operation. This provides high-frequency resolution with a fast refresh rate. The FFT function also supports a variety of window functions so that it can adapt to different spectrum measurement needs. Three modes (Normal, Average, and Max hold) can satisfy different requirements for observing the power spectrum. Auto peak detection and markers are supported.

## Measurements of a Variety of Parameters



Parameter measurements include 4 categories: horizontal, vertical, miscellaneous, and CH delay providing a total of 50+ different types of measurements. Measurements can be performed within a specified gate period. Measurements on Math, Reference, and History frames are supported.

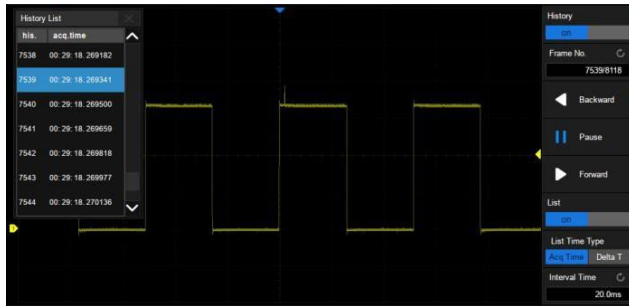
## Parameter Statistics Function



Statistics show the current value, maximum value, minimum value, standard deviation, and mean value of up to 12 parameters simultaneously. A histogram is available to show the probability distribution of a parameter. Trend and Track are available to show the parameter value vs. time.

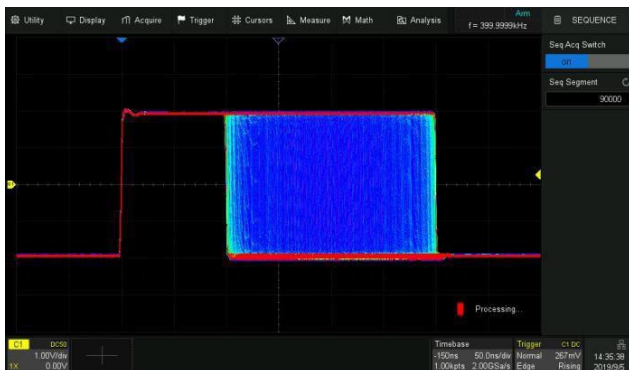
For horizontal parameters such as period, all results are extracted from a frame, instead of just calculating the first one. This accelerates statistics on horizontal measurements much more and enables distribution observation in a frame using Histogram and Track.

## History Mode



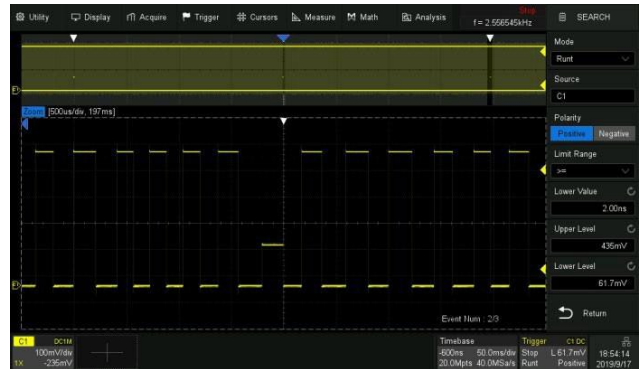
History function can record up to 80,000 frames of waveforms. The recording is executed automatically so that the customer can playback the history waveforms at any time to observe unusual events and quickly locate the area of interest using the cursors or measurements. The failed frames of the Mask Test can be stored as history.

## Sequence Mode



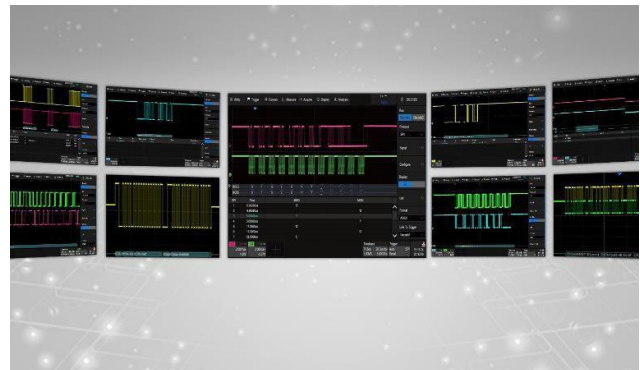
Segmented memory collection will store the waveform into multiple memory segments (up to 80,000) and each segment will store a triggered waveform as well the dead time information. The interval between segments can be as small as 2  $\mu$ s. All of the segments can be played back using the History function.

## Search and Navigate



The oscilloscope can search events specified by the user in a frame. Events flagged by the Search can be recalled automatically using Navigate. It can also navigate by time (delay position) and history frames.

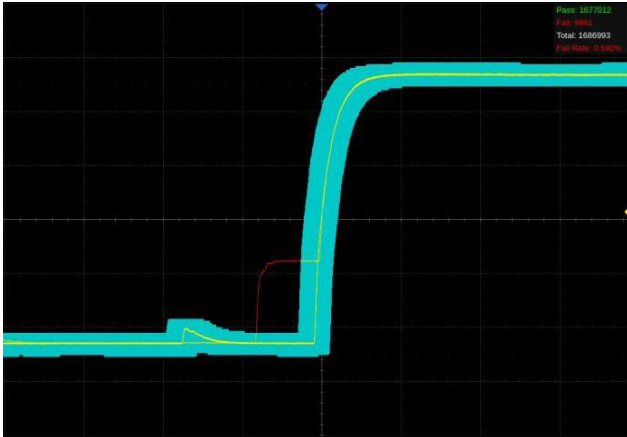
## Serial Bus Decode



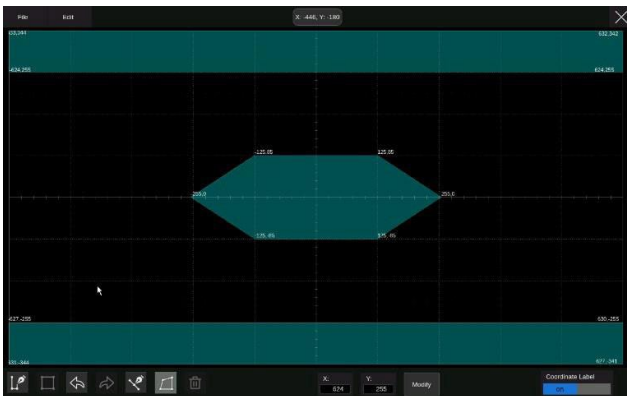
Display the decoded characters through the events list. Bus protocol information can be quickly and intuitively displayed in tabular form. I<sup>2</sup>C, SPI, UART, CAN, LIN, CAN FD, FlexRay, I<sup>2</sup>S, MIL-STD-1553B, SENT, and Manchester are supported.

## FUNCTIONS & CHARACTERISTICS

## Hardware-based High-Speed Mask Test Function

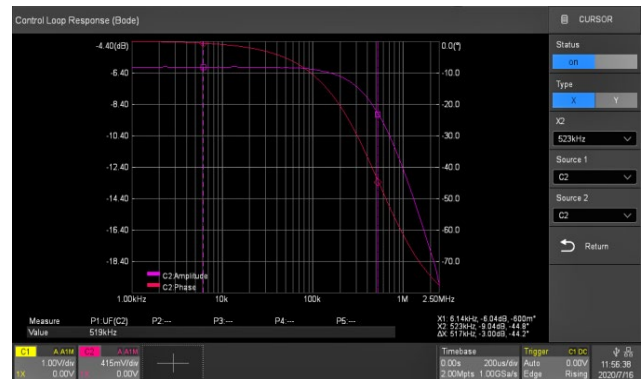


The oscilloscope utilizes a hardware-based Mask Test function, performing up to 28,000 Pass/Fail decisions each second. It is easy to generate user-defined test templates to provide trace mask comparisons, making it suitable for long-term signal monitoring or automated production line testing.



Built-in Mask Editor application helps to create custom masks.

## Bode Plot



The oscilloscope can control the built-in waveform generator or a stand-alone Teledyne Test Tool generator, to scan the amplitude and phase-frequency response of the DUT, and display the data as a Bode Plot. This makes it possible to replace expensive network analyzers in some applications.

## Power Analysis

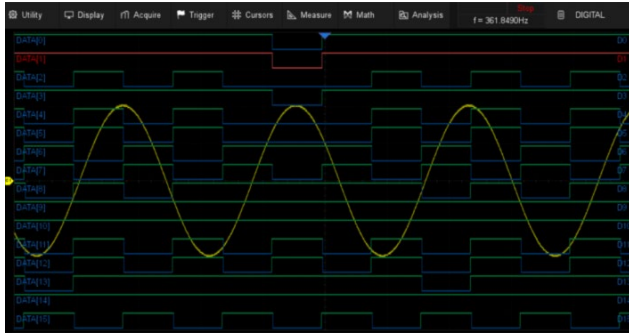


The Power Analysis option provides a full suite of power measurements and analysis, which greatly improve the measurement efficiency in switching power supplies and power devices design.



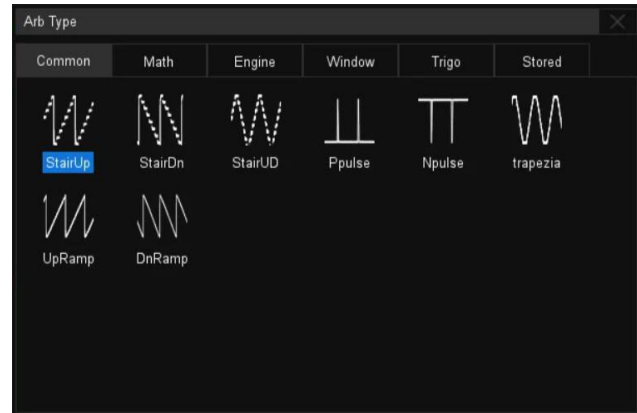
# FUNCTIONS & CHARACTERISTICS

## Digital Channels (T3DS02000-LS)



Four analog channels plus 16 digital channels enable users to acquire and trigger the waveforms then analyze the pattern, simultaneously with one instrument.

## 50 MHz Waveform Generator (optional)



The 50 MHz waveform generator can output waveforms with up to 50 MHz frequency and  $\pm 3$  V amplitude. Six basic waveforms plus multiple types of arbitrary waveforms are built-in.



1x USB 2.0 Host, USB 3.0 Device (USBTMC), 1000M LAN ((VXI-11/Telnet/Socket/LXI)), External Trigger In, Aux Out (Pass/Fail, Trigger Out)

# SPECIFICATIONS

All specifications are not guaranteed unless the following conditions are met:

- The oscilloscope calibration period is current
- The oscilloscope has been working continuously for at least 30 minutes at the specified temperature (18 °C ~ 28 °C)

## Acquire (analog)

|                               |                                                                                                                                     |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Sample rate                   | 4 GS/s (interleaving mode <sup>1)</sup> , 2 GS/s (non-interleaving mode <sup>2)</sup> )                                             |
| Memory depth <sup>3) 4)</sup> | 400 Mpts/ch (interleaving mode, single-channel), 200 Mpts/ch (interleaving mode, dual-channel), 100 Mpts/ch (non-interleaving mode) |
| Memory management mode        | Auto, Fixed sample rate, Fixed memory length                                                                                        |
| Waveform update rate          | Normal mode: up to 200,000 wfm/s<br>Sequence mode: up to 890,000 wfm/s                                                              |
| Intensity grading             | 256-level                                                                                                                           |
| Peak detect                   | 0.5 ns                                                                                                                              |
| Average                       | 4, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096, 8192                                                                                |
| ERES                          | Enhanced bit: 0.5, 1, 1.5, 2, 2.5, 3, 3.5, 4 bits                                                                                   |
| Sequence                      | Up to 80,000 segments, interval between triggers = 1.12 µs min.                                                                     |
| History                       | Up to 80,000 frames                                                                                                                 |
| Interpolation                 | sinx/x, x                                                                                                                           |

<sup>1)</sup> Interleaving mode: only one of C1/C2 and/or only one of C3/C4 activated

<sup>2)</sup> Non-interleaving mode: both C1/C2 and/or both C3/C4 activated

<sup>3)</sup> In Average and ERES modes, the memory depth is 20 Mpts/ch (interleaving mode), 10 Mpts/ch (non-interleaving mode)

<sup>4)</sup> single-channel: only one channel is active; dual-channel: one of C1/C2 and one of C3/C4 activated

| Model | T3DSO3024HD | T3DSO3034HD | T3DSO3054HD | T3DSO3104HD |
|-------|-------------|-------------|-------------|-------------|
|-------|-------------|-------------|-------------|-------------|

## Vertical (analog)

|                                                               |                                                                                 |         |         |                                                                  |
|---------------------------------------------------------------|---------------------------------------------------------------------------------|---------|---------|------------------------------------------------------------------|
| Channel                                                       | 4 + EXT                                                                         |         |         |                                                                  |
| Bandwidth (-3 dB) @ 50 Ω                                      | 200 MHz                                                                         | 350 MHz | 500 MHz | Interleaving mode:<br>1 GHz<br>Non-interleaving<br>mode: 800 MHz |
| Rise time @ 50 Ω (typical)                                    | 1.7 ns                                                                          | 830 ps  | 610 ps  | Interleaving mode:<br>450 ps<br>Non-interleaving<br>mode: 570 ps |
| Bandwidth (-3 dB) @ 1 MΩ                                      | 200 MHz                                                                         | 350 MHz | 500 MHz | 500 MHz                                                          |
| Bandwidth limit                                               | Hardware Bandwidth limit:<br>20 MHz: 20 MHz (±20 %)<br>200 MHz: 200 MHz (±20 %) |         |         |                                                                  |
| Resolution                                                    | 12-bit                                                                          |         |         |                                                                  |
| ENOB <sup>5)</sup> (typical)                                  | 8.7-bit                                                                         | 8.5-bit | 8.4-bit | 8.2-bit                                                          |
| Noise floor <sup>6)</sup><br>(rms, @ 50 Ω, typical, 1 mV/div) | 56 µV                                                                           | 70 µV   | 90 µV   | 125 µV                                                           |
| Range                                                         | 8 divisions                                                                     |         |         |                                                                  |

<sup>5)</sup> 50 Ω input impedance, 50 mV/div, 4 GS/s, 24.9943 MHz/-1 dBFS input

<sup>6)</sup> Use the Stdev (also known as ACrms) measurement

# SPECIFICATIONS

| Model                                                       | T3DSO3024HD                                                                                                                                                                                                                                                                                                                                                            | T3DSO3034HD                                | T3DSO3054HD                                | T3DSO3104HD                                                     |
|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|--------------------------------------------|-----------------------------------------------------------------|
| Vertical scale (probe 1X)                                   | 1 M $\Omega$ : 0.5 mV/div – 10 V/div<br>50 $\Omega$ : 0.5 mV/div – 1 V/div<br>1 M $\Omega$ : 0.5 mV/div – 10 V/div<br>2 $\mu$ V/div – 10 V/div (Zoom mode)<br>50 $\Omega$ : 0.5 mV/div – 1 V/div<br>2 $\mu$ V/div – 1 V/div (Zoom mode)                                                                                                                                |                                            |                                            |                                                                 |
| DC gain accuracy                                            | 0.5 mV/div ~ 4.95 mV/div: $\pm 1.5\%$ ;<br>5 mV/div ~ 10 V/div: $\pm 0.5\%$ typical, $\pm 1.0\%$ maximum                                                                                                                                                                                                                                                               |                                            |                                            |                                                                 |
| Offset accuracy                                             | $\pm (1\%$ of the offset setting + $0.5\%$ of full scale + $0.02\%$ maximum offset + 1 mV)                                                                                                                                                                                                                                                                             |                                            |                                            |                                                                 |
| Offset range (probe 1X)                                     | <b>1 M<math>\Omega</math>:</b><br>0.5 mV/div ~ 5 mV/div: $\pm 1.6\text{ V}$ ;<br>5.1 mV/div ~ 10 mV/div: $\pm 4\text{ V}$ ;<br>10.2 mV/div ~ 20 mV/div: $\pm 8\text{ V}$ ;<br>20.5 mV/div ~ 100 mV/div: $\pm 16\text{ V}$ ;<br>102 mV/div ~ 200 mV/div: $\pm 80\text{ V}$ ;<br>205 mV/div ~ 1 V/div: $\pm 160\text{ V}$ ;<br>1.02 V/div ~ 10 V/div: $\pm 400\text{ V}$ |                                            |                                            |                                                                 |
| Low frequency response (AC coupling -3 dB)                  | 6 Hz (typical)                                                                                                                                                                                                                                                                                                                                                         |                                            |                                            |                                                                 |
| Overshoot (100 mV/div, 150 ps edge @ 50 $\Omega$ , typical) | 3 %                                                                                                                                                                                                                                                                                                                                                                    | 7 %                                        | 10 %                                       | 18 %                                                            |
| Coupling                                                    | DC, AC, GND                                                                                                                                                                                                                                                                                                                                                            |                                            |                                            |                                                                 |
| Impedance                                                   | 1 M $\Omega$ : (1 M $\Omega \pm 2\%$ )    (15 pF $\pm 3\%$ )<br>50 $\Omega$ : 50 $\Omega \pm 1\%$                                                                                                                                                                                                                                                                      |                                            |                                            |                                                                 |
| Max. input voltage                                          | 1 M $\Omega \leq 400\text{ Vpk}$ (DC + AC), DC ~ 10 kHz<br>50 $\Omega \leq 5\text{ Vrms}$                                                                                                                                                                                                                                                                              |                                            |                                            |                                                                 |
| SFDR                                                        | $\geq 45\text{ dBc}$                                                                                                                                                                                                                                                                                                                                                   |                                            |                                            |                                                                 |
| CH to CH Isolation (@ 50 $\Omega$ )                         | 60 dB up to 200 MHz                                                                                                                                                                                                                                                                                                                                                    | 60 dB up to 200 MHz<br>50 dB up to 350 MHz | 60 dB up to 200 MHz<br>50 dB up to 500 MHz | 60 dB up to 200 MHz<br>50 dB up to 500 MHz<br>40 dB up to 1 GHz |
| Probe Attenuation                                           | 1X, 10X, 100X, custom                                                                                                                                                                                                                                                                                                                                                  |                                            |                                            |                                                                 |

## Horizontal

|                    |                                                                                                                                |                       |                        |                        |
|--------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------|------------------------|------------------------|
| Time scale         | 1 ns/div – 1000 s/div                                                                                                          | 1 ns/div – 1000 s/div | 500 ps/div – 1000s/div | 200 ps/div – 1000s/div |
| Range              | 10 divisions                                                                                                                   |                       |                        |                        |
| Display mode       | Y-T, X-Y, Roll                                                                                                                 |                       |                        |                        |
| Roll mode          | $\geq 50\text{ ms/div}$                                                                                                        |                       |                        |                        |
| Skew (C1 ~ C4)     | < 100 ps                                                                                                                       |                       |                        |                        |
| Time base Accuracy | $\pm 2\text{ ppm}$ initial (0 ~ 50 $^{\circ}\text{C}$ ); $\pm 0.5\text{ ppm}$ 1st year aging; $\pm 3\text{ ppm}$ 20-year aging |                       |                        |                        |

# SPECIFICATIONS

## Trigger

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |                      |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|----------------------|
| Mode                      | Auto, Normal, Single                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                 |                      |
| Level                     | Internal: $\pm 4.1$ div from the center of the screen<br>EXT: $\pm 0.61$ V<br>EXT/5: $\pm 3.05$ V                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                 |                      |
| Ext Trigger input voltage | 1 M $\Omega$ $\leq$ 42 Vpk<br>50 $\Omega$ $\leq$ 5 Vrms                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                 |                      |
| Hold off range            | By time: 8 ns ~ 30 s (8 ns step)<br>By event: 1 ~ 10 <sup>8</sup>                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                 |                      |
| Coupling                  | <b>C1 ~ C4</b><br>DC: Passes all components of the signal<br>AC: Blocks DC components and attenuates signals below 15 Hz<br>LFRJ: Attenuates the frequency components below 2.4 MHz<br>HFRJ: Attenuates the frequency components above 1.3 MHz<br>Noise RJ: Increases the trigger hysteresis<br><b>EXT</b><br>DC: Passes all components of the signal<br>AC: Blocks DC components and attenuates signals below 18 Hz<br>LFRJ: Attenuates the frequency components below 7.5 kHz<br>HFRJ: Attenuates the frequency components above 250 kHz |                                                                 |                      |
| Accuracy (typical)        | C1 ~ C4: $\pm 0.2$ div<br>EXT: $\pm 0.3$ div                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 |                      |
| Sensitivity               | CH1 ~ CH4:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <b>Noise RJ = OFF</b>                                           | <b>Noise RJ = ON</b> |
|                           | >10 mV/div:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | $\pm 0.26$ div                                                  | $\pm 0.33$ div       |
|                           | 5 mV/div ~ 10 mV/div:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | $\pm 0.26$ div                                                  | $\pm 0.33$ div       |
|                           | $\leq 2$ mV/div:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | $\pm 0.5$ div                                                   | $\pm 0.5$ div        |
|                           | EXT:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 200 mVpp, DC ~ 10 MHz<br>300 mVpp, 10 MHz ~ bandwidth (300 MHz) |                      |
|                           | EXT/5:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1 Vpp, DC ~ 10 MHz<br>1.5 Vpp, 10 MHz ~ bandwidth (300 MHz)     |                      |
| Jitter                    | C1 ~ C4: < 10 ps rms (typical), $\geq 6$ div Vpp sine, 2.5 mV/div ~ 10 V/div EXT:<br>< 200 ps rms                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                 |                      |
| Displacement              | Pre-Trigger: 0 ~ 100 % memory<br>Delay-Trigger: 0 ~ 10,000 div                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                 |                      |
| Zone                      | Up to 2 zones<br>Source: C1~C4<br>Property: Intersect, Not Intersect                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                 |                      |
| Edge Trigger              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |                      |
| Source                    | C1 ~ C4 / EXT / (EXT/5) / AC Line / D0 ~ D15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 |                      |
| Slope                     | Rising, Falling, Rising & Falling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                 |                      |
| Slope Trigger             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |                      |
| Source                    | C1 ~ C4                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                 |                      |
| Slope                     | Rising, Falling                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |                      |
| Limit range               | <, >, in range, out of range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 |                      |
| Time range                | 2 ns ~ 20 s, Resolution = 1 ns                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                 |                      |
| Pulse Width Trigger       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                 |                      |
| Source                    | C1 ~ C4 / D0 ~ D15                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                 |                      |
| Polarity                  | +width, -width                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                 |                      |
| Limit range               | <, >, in range, out of range                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                 |                      |
| Time range                | 2 ns ~ 20 s, Resolution = 1 ns                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                 |                      |

# SPECIFICATIONS

|                          |                                                                             |
|--------------------------|-----------------------------------------------------------------------------|
| <b>Video Trigger</b>     |                                                                             |
| Source                   | C1 ~ C4                                                                     |
| Standard                 | NTSC, PAL, 720p/50, 720p/60, 1080p/50, 1080p/60, 1080i/50, 1080i/60, Custom |
| Synchronization          | Any, Select                                                                 |
| Trigger Condition        | Line, Field                                                                 |
| <b>Window Trigger</b>    |                                                                             |
| Source                   | C1 ~ C4                                                                     |
| Window type              | Absolute, Relative                                                          |
| <b>Interval Trigger</b>  |                                                                             |
| Source                   | C1 ~ C4 / D0 ~ D15                                                          |
| Slope                    | Rising, Falling                                                             |
| Limit range              | <, >, in range, out of range                                                |
| Time range               | 2 ns ~ 20 s, Resolution = 1 ns                                              |
| <b>Dropout Trigger</b>   |                                                                             |
| Source                   | C1 ~ C4 / D0 ~ D15                                                          |
| Timeout type             | Edge, State                                                                 |
| Slope                    | Rising, Falling                                                             |
| Time range               | 2 ns ~ 20 s, Resolution = 1 ns                                              |
| <b>Runt Trigger</b>      |                                                                             |
| Source                   | C1 ~ C4                                                                     |
| Polarity                 | Positive, Negative                                                          |
| Limit range              | <, >, in range, out of range                                                |
| Time range               | 2 ns ~ 20 s, Resolution = 1 ns                                              |
| <b>Pattern Trigger</b>   |                                                                             |
| Source                   | C1 ~ C4 / D0 ~ D15                                                          |
| Pattern Setting          | Don't Care, Low, High                                                       |
| Logic                    | AND, OR, NAND, NOR                                                          |
| Limit range              | <, >, in range, out of range                                                |
| Time range               | 2 ns ~ 20 s, Resolution = 1 ns                                              |
| <b>Qualified Trigger</b> |                                                                             |
| Type                     | State, State with Delay, Edge, Edge with Delay                              |
| Qualified Source         | C1 ~ C4 / D0 ~ D15                                                          |
| Edge Trigger Source      | C1 ~ C4 / D0 ~ D15                                                          |
| <b>Nth Edge Trigger</b>  |                                                                             |
| Source                   | C1 ~ C4 / D0 ~ D15                                                          |
| Slope                    | Rising, Falling                                                             |
| Idle time                | 8 ns ~ 20 s, Resolution = 1 ns                                              |
| Edge Number              | 1 ~ 65535                                                                   |
| <b>Delay Trigger</b>     |                                                                             |
| Source A                 | C1 ~ C4 / D0 ~ D15                                                          |
| Source B                 | C1 ~ C4 / D0 ~ D15                                                          |
| Slope                    | Rising, Falling                                                             |
| Limit range              | <, >, in range, out of range                                                |
| Time range               | 2 ns ~ 20 s, Resolution = 1 ns                                              |



# SPECIFICATIONS

## Serial Trigger

|                  |                                                                                                         |
|------------------|---------------------------------------------------------------------------------------------------------|
| Source           | C1 ~ C4 / D0 ~ D15                                                                                      |
| Protocol         | I <sup>2</sup> C, SPI, UART, CAN, LIN, CAN FD, FlexRay, I <sup>2</sup> S, MIL-STD-1553B, SENT, ARINC429 |
| I <sup>2</sup> C | Type: Start, Stop, Restart, No Ack, EEPROM, Address & Data, Data Length                                 |
| SPI              | Type: Data                                                                                              |
| UART             | Type: Start, Stop, Data, Parity Error                                                                   |
| CAN              | Type: All, Remote, ID, ID+Data, Error                                                                   |
| LIN              | Type: Break, Frame ID, ID+Data, Error                                                                   |
| CAN FD           | Type: Start, Remote, ID, ID+Data, Error                                                                 |
| FlexRay          | Type: TSS, Frame, Symbol, Errors                                                                        |
| I <sup>2</sup> S | Type: Data, Mute, Clip, Glitch, Rising Edge, Falling Edge                                               |
| MIL-STD-1553B    | Type: Transfer, Word, Error, Timing                                                                     |
| SENT             | Type: Start, Slow channel, Fast channel, Error                                                          |
| ARINC429         | Type: Word Start, Word End, Label, Label + Data, Error, Any Bit, Any Bit of 0, Any Bit of 1             |

## Serial Decoder

|              |                |
|--------------|----------------|
| Decoders     | 2              |
| Threshold    | -4.1 ~ 4.1 div |
| List         | 1 ~ 7 lines    |
| Decoder type | Full duplex    |

### I<sup>2</sup>C

|         |                    |
|---------|--------------------|
| Source  | C1 ~ C4 / D0 ~ D15 |
| Signal  | SCL, SDA           |
| Address | 7-bit, 10-bit      |

### SPI

|             |                                        |
|-------------|----------------------------------------|
| Source      | C1 ~ C4 / D0 ~ D15                     |
| Signal      | CLK, MISO, MOSI, CS                    |
| Edge Select | Rising, Falling                        |
| Chip select | Active high, Active low, Clock timeout |
| Bit Order   | LSB, MSB                               |

### UART

|              |                              |
|--------------|------------------------------|
| Source       | C1 ~ C4 / D0 ~ D15           |
| Signal       | RX, TX                       |
| Data Width   | 5-bit, 6-bit, 7-bit, 8-bit   |
| Parity Check | None, Odd, Even, Mark, Space |
| Stop Bit     | 1-bit, 1.5-bit, 2-bit        |
| Idle Level   | Low, High                    |
| Bit Order    | LSB, MSB                     |

### CAN

|        |                    |
|--------|--------------------|
| Source | C1 ~ C4 / D0 ~ D15 |
|--------|--------------------|

### LIN

|             |                                                                    |
|-------------|--------------------------------------------------------------------|
| LIN Version | Ver 1.3, Ver 2.0                                                   |
| Source      | C1 ~ C4 / D0 ~ D15                                                 |
| Baud Rate   | 600 bps, 1200 bps, 2400 bps, 4800 bps, 9600 bps, 19200 bps, Custom |

# SPECIFICATIONS

## CAN FD

|                   |                                                               |
|-------------------|---------------------------------------------------------------|
| Source            | C1 ~ C4 / D0 ~ D15                                            |
| Nominal Baud Rate | 10 kbps, 25 kbps, 50 kbps, 100 kbps, 250 kbps, 1 Mbps, Custom |
| Data Baud Rate    | 500 kbps, 1 Mbps, 2 Mbps, 5 Mbps, 8 Mbps, 10 Mbps, Custom     |

## FlexRay

|           |                                   |
|-----------|-----------------------------------|
| Source    | C1 ~ C4 / D0 ~ D15                |
| Baud Rate | 2.5 Mbps, 5 Mbps, 10 Mbps, Custom |

## I²S

|               |                               |
|---------------|-------------------------------|
| Source        | C1 ~ C4 / D0 ~ D15            |
| Signal        | BCLK, WS, DATA                |
| Audio Variant | Audio-I²S, Audio-LJ, Audio-RJ |
| Start Bits    | 0 ~ 31                        |
| Data Bits     | 1 ~ 32                        |

## MIL-STD-1553B

|        |         |
|--------|---------|
| Source | C1 ~ C4 |
|--------|---------|

## SENT

|        |                    |
|--------|--------------------|
| Source | C1 ~ C4 / D0 ~ D15 |
|--------|--------------------|

## Manchester

|           |                  |
|-----------|------------------|
| Source    | C1 ~ C4          |
| Baud Rate | 500 bps ~ 5 Mbps |

## ARINC429

|             |                                            |
|-------------|--------------------------------------------|
| Source      | C1 ~ C4                                    |
| Baud Rate   | 12.5 kbps ~ 100 kbps, tolerance 1 % ~ 20 % |
| Word format | L/SDI/D/SSM, L/D/SSM, L/D                  |

## Math

|           |                                                                                                                                                                                                                                                                                   |
|-----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Trace     | F1 ~ F4                                                                                                                                                                                                                                                                           |
| Source    | C1 ~ C4, M1 ~ M4, F1 ~ F4, Zoom traces                                                                                                                                                                                                                                            |
| Operation | FFT, +, -, x, ÷, [dt, d/dt, √, Identity, Negation,  x , Sign, ex, 10x, ln, lg, Interpolation, Max hold, Min hold, ERES, Average, Filter, Formula Editor                                                                                                                           |
| FFT       | Length: 4 Mpts, 2 Mpts, 1 Mpts, 512 kpts, 256 kpts, 128 kpts, 64 kpts, 32 kpts, 16 kpts, 8 kpts, 4 kpts, 2 kpts<br>Window: Rectangular, Blackman, Hanning, Hamming, Flattop<br>Display: Full Screen, Split, Exclusive<br>Mode: Normal, Max hold, Average<br>Tools: Peaks, Markers |

## Analysis

### Search

|              |                                    |
|--------------|------------------------------------|
| Source       | C1 ~ C4, History                   |
| Mode         | Edge, Slope, Pulse, Interval, Runt |
| Copy setting | Copy from trigger, Copy to trigger |

### Navigate

|      |                                   |
|------|-----------------------------------|
| Type | Search event, Time, History frame |
|------|-----------------------------------|

### Mask Test

|                 |                                              |
|-----------------|----------------------------------------------|
| Source          | C1 ~ C4, Z1 ~ Z4                             |
| Mask creating   | Auto (Create mask), Customized (Mask Editor) |
| Mask test speed | Up to 28,000 frames/s                        |

# SPECIFICATIONS

## DVM

|        |                                               |
|--------|-----------------------------------------------|
| Source | C1 ~ C4                                       |
| Mode   | DC mean, DC RMS, AC RMS, Peak-peak, Amplitude |
| Plot   | Bar, Histogram, Trend                         |
| Gate   | 20 ms                                         |

## Bode Plot

|                          |                                                                                      |
|--------------------------|--------------------------------------------------------------------------------------|
| Source                   | C1 ~ C4                                                                              |
| Supported signal sources | SAG1021I (Connection: USB),<br>SDG series waveform generators (Connection: USB, LAN) |
| Sweep type               | Simple, Vari-level                                                                   |
| Frequency                | Mode: Linear, Logarithmic<br>Range: 10 Hz ~ 120 MHz                                  |
| Measure                  | Upper cutoff frequency, Lower cutoff frequency, Bandwidth, Gain margin, Phase margin |

## Power Analysis

|         |                                                                                                                                                                     |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Measure | Power quality, Current Harmonics, Inrush current, Switching loss, Slew rate, Modulation, Output ripple, Turn on/turn off, Transient response, PSRR, Efficiency, SOA |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Histogram

|        |                            |
|--------|----------------------------|
| Source | C1 ~ C4                    |
| Type   | Horizontal, Vertical, Both |

## Counter

|                      |                                             |
|----------------------|---------------------------------------------|
| Source               | C1 ~ C4                                     |
| Frequency resolution | 7 digits                                    |
| Totalizer            | Counter on edges, supports Gate and Trigger |

## Digital Channels (optional)

|                             |                                                                                                              |
|-----------------------------|--------------------------------------------------------------------------------------------------------------|
| Max. Sampling Rate          | 1 GS/s                                                                                                       |
| Memory Depth                | 100 Mpts/ch                                                                                                  |
| Min. Detectable Pulse Width | 3.3 ns                                                                                                       |
| Level Group                 | D0 ~ D7, D8 ~ D15                                                                                            |
| Level Range                 | -10 V ~ 10 V                                                                                                 |
| Logic Type                  | TTL, CMOS, LVCMOS3.3, LVCMOS2.5, Custom                                                                      |
| Skew                        | D0 ~ D15: $\pm 1$ sampling interval<br>Digital to Analog: $\pm (1 \text{ sampling interval} + 1 \text{ ns})$ |

## USB AWG Module (optional)

|                       |                                                                  |
|-----------------------|------------------------------------------------------------------|
| Channels              | 1                                                                |
| Max. Output Frequency | 50 MHz                                                           |
| Sampling Rate         | 125 MS/s                                                         |
| Frequency Resolution  | 1 $\mu$ Hz                                                       |
| Frequency Accuracy    | $\pm 50$ ppm                                                     |
| Vertical Resolution   | 14 bit                                                           |
| Amplitude Range       | -1.5 V ~ +1.5 V (into 50 $\Omega$ )<br>-3 V ~ +3 V (into High-Z) |
| Waveforms             | Sine, Square, Ramp, Pulse, DC, Noise, 45 Arbitrary               |
| Output Impedance      | 50 $\Omega \pm 2 \%$                                             |
| Protection            | Over voltage protection, Current limit                           |
| Isolated voltage      | $\pm 42$ Vpk                                                     |

# SPECIFICATIONS

## Sine

|                          |                                                                                |
|--------------------------|--------------------------------------------------------------------------------|
| Frequency                | 1 $\mu$ Hz ~ 50 MHz                                                            |
| Offset accuracy (10 kHz) | $\pm(1\% \times \text{offset setting value} + 3 \text{ mVpp})$                 |
| Amplitude flatness       | $\pm 0.3 \text{ dB}$ , compare to 10 kHz, 2.5 Vpp into 50 $\Omega$             |
| SFDR                     | DC ~ 1 MHz      -60 dBc<br>1 MHz ~ 5 MHz   -55 dBc<br>5 MHz ~ 25 MHz   -50 dBc |
| Harmonic distortion      | DC ~ 5 MHz      -50 dBc<br>5 MHz ~ 25 MHz   -45 dBc                            |

## Square/Pulse

|                      |                              |
|----------------------|------------------------------|
| Frequency            | 1 $\mu$ Hz ~ 10 MHz          |
| Duty cycle           | 1% ~ 99%                     |
| Edge                 | < 24 ns (10% ~ 90%)          |
| Overshoot            | < 3% (typical, 1 kHz, 1 Vpp) |
| Pulse width          | > 50 ns                      |
| Jitter (cycle-cycle) | < 500 ps + 10 ppm            |

## Ramp

|           |                                                       |
|-----------|-------------------------------------------------------|
| Frequency | 1 $\mu$ Hz ~ 300 kHz                                  |
| Linearity | < 0.1% of Pk-Pk (typical, 1 kHz, 1 Vpp, 50% symmetry) |
| Channels  | 0% ~ 100%                                             |

## DC

|              |                                         |
|--------------|-----------------------------------------|
| Offset range | $\pm 1.5 \text{ V}$ (into 50 $\Omega$ ) |
| Accuracy     | $\pm 3 \text{ V}$ (into Hi-Z)           |

## Noise

|                   |         |
|-------------------|---------|
| Bandwidth (-3 dB) | >50 MHz |
|-------------------|---------|

## Arbitrary Wave

|                 |                                                                             |
|-----------------|-----------------------------------------------------------------------------|
| Frequency       | 1 $\mu$ Hz ~ 5 MHz                                                          |
| Waveform memory | 16 kpts                                                                     |
| Sample rate     | 125 MS/s                                                                    |
| Wave import     | From EasyWaveX, from U-disk, directly from waveform data of analog channels |

## I/O

|       |                                                                                                                                                                                                                          |
|-------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Front | USB 3.0 Host x2,<br>Calibration Signal: 1 kHz, 3 V Square                                                                                                                                                                |
| Rear  | USB 2.0 Host,<br>USB 3.0 Device,<br>LAN: 10/100/1000M (RJ45),<br>External Trigger, EXT: $\leq 1.5 \text{ Vrms}$ , EXT/5: $\leq 7.5 \text{ Vrms}$ ,<br>Auxiliary Output: TRIG OUT(3.3 V LVCMOS), PASS/FAIL OUT(3.3 V TTL) |

## Display

|                     |                                           |
|---------------------|-------------------------------------------|
| Display Type        | 10.1 TFT LCD with capacitive touch screen |
| Resolution          | 1024 $\times$ 600                         |
| Contrast (typical)  | 500:1                                     |
| Backlight (typical) | 500 nit                                   |

# SPECIFICATIONS

## Display Setting

|                      |                                                                                                                   |
|----------------------|-------------------------------------------------------------------------------------------------------------------|
| Range                | 8 x 10 grid                                                                                                       |
| Display Type         | Dot, Vector                                                                                                       |
| Persistence Time     | OFF, 0.1 s, 0.2 s, 0.5 s, 1 s, 5 s, 10 s, 30 s, infinite                                                          |
| Color Display        | Normal, Color; Supports customer trace color                                                                      |
| Language             | Simplified Chinese, Traditional Chinese, English, French, Japanese, German, Spanish, Russian, Italian, Portuguese |
| Built-in Help System | Simplified Chinese, English                                                                                       |

## Environmental

|                               |                                                                                                                                                                                                                                                                      |                              |                                                                                                                                                               |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature                   | Operating: 0 °C ~ 50 °C<br>Non-operating: -30 °C ~ 70 °C                                                                                                                                                                                                             |                              |                                                                                                                                                               |
| Humidity                      | Operating: 5 % ~ 90 % RH up to 30 °C, derates linearly to 50 % RH at 50 °C<br>Non-operating: 5 % ~ 95 %                                                                                                                                                              |                              |                                                                                                                                                               |
| Altitude                      | Operating: ≤ 3,000 m, 25 °C<br>Non-operating: ≤ 15,000 m                                                                                                                                                                                                             |                              |                                                                                                                                                               |
| Electromagnetic Compatibility | Meets EMC directive (2014/30/EU), meets or exceeds EN IEC 61326-1:2021, EN IEC 61326-2-1:2021 (Basic)                                                                                                                                                                |                              |                                                                                                                                                               |
|                               | Conducted disturbance                                                                                                                                                                                                                                                | CISPR 11/EN 55011            | CLASS A group 1<br>150 kHz – 30 MHz                                                                                                                           |
|                               | Radiated disturbance                                                                                                                                                                                                                                                 | CISPR 11/EN 55011            | CLASS A group 1<br>30 MHz – 1 GHz                                                                                                                             |
|                               | Electrostatic discharge (ESD)                                                                                                                                                                                                                                        | IEC 61000-4-2/EN 61000-4-2   | 4.0 kV (Contact), 8.0 kV (Air)                                                                                                                                |
|                               | Radio-frequency electromagnetic field Immunity                                                                                                                                                                                                                       | IEC 61000-4-3/EN 61000-4-3   | 10 V/m (80 MHz to 1 GHz);<br>3 V/m (1.4 GHz to 2 GHz);<br>1 V/m (2.0 GHz to 2.7 GHz)                                                                          |
|                               | Electrical fast transients (EFT)                                                                                                                                                                                                                                     | IEC 61000-4-4/EN 61000-4-4   | 2 kV (Input AC Power Ports)                                                                                                                                   |
|                               | Surges                                                                                                                                                                                                                                                               | IEC 61000-4-5/EN 61000-4-5   | 1 kV (Line to line)<br>2 kV (Line to ground)                                                                                                                  |
|                               | Radio-frequency continuous conducted Immunity                                                                                                                                                                                                                        | IEC 61000-4-6/EN 61000-4-6   | 3 V, 0.15 – 80 MHz                                                                                                                                            |
|                               | Voltage dips and interruptions                                                                                                                                                                                                                                       | IEC 61000-4-11/EN 61000-4-11 | Voltage Dips:<br>0 % UT during 1 cycle;<br>40 % UT during 10/12 cycles;<br>70 % UT during 25/30 cycles<br>Voltage interruptions: 0 % UT during 250/300 cycles |
| Safety                        | TUV Certified. Conforms to: UL 61010-1:2012/R: 2018-11; UL 61010-2-030:2018 CAN/CSA-C22.2 No. 61010-1:2012/A1:2018-11; CAN/CSA-C22.2 No. 61010-2-030:2018<br>Meets Low Voltage Directive (2014/35/EU). Conforms to: EN 61010-1:2010+A1:2019; EN IEC 61010-2-030:2021 |                              |                                                                                                                                                               |
| RoHS                          | EU 2015/863                                                                                                                                                                                                                                                          |                              |                                                                                                                                                               |

## Power Supply

|                           |                                                       |
|---------------------------|-------------------------------------------------------|
| Input Voltage & Frequency | 100 ~ 240 Vrms 50/60 Hz                               |
| Power consumption         | 120 W max., 80 W typical, 4 W typical in standby mode |

## Mechanical

|            |                                                                                                   |
|------------|---------------------------------------------------------------------------------------------------|
| Dimensions | Length × Height × Width = 317.2 mm × 236.0 mm × 149.0 mm<br>(including knobs and supporting legs) |
| Weight     | Net Weight 4.1 kg, Gross Weight 5.6 kg                                                            |

All T3DSO3000HD Series Oscilloscopes come with a 3 year Teledyne LeCroy warranty.

# ORDERING INFORMATION

## T3DS03000HD Series Probes

| Probe type     | Model           | Picture                                                                           | Description                                                                                                                                            |
|----------------|-----------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Passive        | PP026-1         |  | 500 MHz bandwidth, 10 MΩ, 10X Probe, 1 supplied per channel. Replacement probe for the T3DS3000HD Series Oscilloscope.                                 |
| Logic Probe    | T3DS02000-LS    |  | Optional 16 Channel Logic Probe.                                                                                                                       |
| USB AWG Module | T3DS0-FGMOD     |  | Output Sine, Square, Ramp, pulse, Noise, DC and 45 built-in waveforms. The arbitrary waveforms can be accessed and edited by the EasyScope PC software |
| Rackmount      | T3DS0HD-RACK    |  | The rackmount occupies a height of 5U. Support the oscilloscope for rack installation.                                                                 |
| Soft Case      | WS4KHD-SOFTCASE |  | Oscilloscope Soft Carrying Case.                                                                                                                       |

## Ordering information

|                      |                                                                                        |                        |
|----------------------|----------------------------------------------------------------------------------------|------------------------|
| Description          | 12-bit, 200 MHz, 4 GS/s, 4-CH, 400 Mpts/ch memory depth, 10.1" capacitive touch screen | <b>T3DS03024HD</b>     |
|                      | 12-bit, 350 MHz, 4 GS/s, 4-CH, 400 Mpts/ch memory depth, 10.1" capacitive touch screen | <b>T3DS03034HD</b>     |
|                      | 12-bit, 500 MHz, 4 GS/s, 4-CH, 400 Mpts/ch memory depth, 10.1" capacitive touch screen | <b>T3DS03054HD</b>     |
|                      | 12-bit, 1 GHz, 4 GS/s, 4-CH, 400 Mpts/ch memory depth, 10.1" capacitive touch screen   | <b>T3DS03104HD</b>     |
| Standard Accessories | Passive Probe x 4                                                                      |                        |
|                      | USB Cable                                                                              |                        |
|                      | Power Cord                                                                             |                        |
|                      | Wireless mouse                                                                         |                        |
|                      | Quick Start Guide                                                                      |                        |
|                      | Certificate of Calibration                                                             |                        |
| Optional Accessories | 16 Channel MSO Probe                                                                   | <b>T3DS02000-LS</b>    |
|                      | 500 MHz Passive Probe, 10:1, 10 MΩ                                                     | <b>PP026-1</b>         |
|                      | USB AWG Module                                                                         | <b>T3DS0-FGMOD</b>     |
|                      | Rackmount                                                                              | <b>T3DS0HD-RACK</b>    |
|                      | Soft Case                                                                              | <b>WS4KHD-SOFTCASE</b> |

# ABOUT TELEDYNE TEST TOOLS



## Company Profile

Teledyne LeCroy is a leading provider of oscilloscopes, protocol analyzers and related test and measurement solutions that enable companies across a wide range of industries to design and test electronic devices of all types. Since our founding in 1964, we have focused on creating products that improve productivity by helping engineers resolve design issues faster and more effectively. Oscilloscopes are tools used by designers and engineers to measure and analyze complex electronic signals in order to develop high-performance systems and to validate electronic designs in order to improve time to market.

The Teledyne Test Tools brand extends the Teledyne LeCroy product portfolio with a comprehensive range of test equipment solutions. This new range of products delivers a broad range of quality test solutions that enable engineers to rapidly validate product and design and reduce time-to-market. Designers, engineers and educators rely on Teledyne Test Tools solutions to meet their most challenging needs for testing, education and electronics validation.

## Location and Facilities

Headquartered in Chestnut Ridge, New York, Teledyne Test Tools and Teledyne LeCroy has sales, service and development subsidiaries in the US and throughout Europe and Asia. Teledyne Test Tools and Teledyne LeCroy products are employed across a wide variety of industries, including semiconductor, computer, consumer electronics, education, military/aerospace, automotive/industrial, and telecommunications.

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T3 stands for Teledyne Test Tools.