NEW FUNCTIONS

Waveform Pass/Fail judgment, Auto-measure judgment and Display of a list of measurement results*.
Pass/Fail judgment is performed by numerical data of waveform masking and its parameters, the list of measurement results by parameter logging function is displayed, and all data can be stored in USB memory.
*Available for DS-5500 A series Only

NEW FUNCTIONS

Auto-measure for all cycles captured
All cycles of waveform captured (time axis) are measured automatically, and after capturing the data by high memory length, the variability of max. and min. values of waveforms can be identified.

DS-554A

9 POWER switch
High speed start-up within several seconds after switching on.

10 USB terminal
(Support Hi-Speed saving)
Hard copies, waveforms data, Panel set-up information can be stored in USB memory.

11 INPUT terminals and External Trigger Input
Probe attenuation ratios are automatically calculated when probes fitted with lead out pins are used.
- An external Trigger Input is equipped.

12 CAL terminal
This terminal is used for the phase adjustment of probes.
The output is Square wave form 1kHz, 3Vp-p.
Advanced IWATSU Oscilloscopes

**NEW FUNCTIONS**

**Probe selection function**
The attenuation ratio and the coupling are automatically set up when lwatsu probes are selected.

<table>
<thead>
<tr>
<th></th>
<th>DS-5400 Series</th>
<th>DS-5500A Series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waveform Judgment, Auto-measure</td>
<td></td>
<td>NO</td>
</tr>
<tr>
<td>Judgment and Display of a list of logging entries</td>
<td></td>
<td>YES</td>
</tr>
<tr>
<td>Auto-measure for all cycles captured</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Probe Selection</td>
<td>YES</td>
<td>YES</td>
</tr>
</tbody>
</table>

**Sophisticated Functions**
Fulfilling functions of DS-5500 are succeeded.

**High Memory length**
Waveforms can be saved over long periods of time with high sampling speed.

**Auto-measure**
Parameters of 26 types of waveforms are predefined. This function also supports measurement of the area specified with cursors.

**Waveforms transfer**
You can transfer the captured waveforms to PC quickly, when waveform-display made turned off at LAN option used.

**Speed and ease of use in a compact body**

1. **Touch-screen Display**
   Equips a 7.5 inch color liquid crystal display touch screen and brings intuitive operations.

2. **Touch-screen Area**
   Menu selection by one-touch operation

3. **AUTO SETUP button**
   Vertical axis sensitivity, Time axis, and Trigger conditions are all set automatically by this button, and waveforms can be measured easily

4. **REPLAY knob**
   Display past captured waveforms
   DS-5500A: Max. 2048 waveforms
   DS-5400: Max. 1024 waveforms

5. **MEASURE (Auto-measure) button**
   The followings are available by MEASURE button.
   - Waveform Auto-measure
   - Waveform Masking and Parameter judgment
   - Waveform Logging

6. **CLEAR sweep button**
   This button clears measurements and the calculation results such as Replay waveforms, Averaging, Persistence Auto-measure results (judgment and Logging).

7. **HORIZONTAL (ZOOM) button & knobs**
   This selects and sets range for the horizontal axis, the waveform acquiring function and zoom function.

8. **VERTICAL/MATH buttons and knobs**
   As these buttons and knobs are separately provided for each channel, you can do your operations easily. Trace buttons (CH1 to CH4) light when they are pressed and waveforms are shown on the screen.

**DS-5554ARear panel**

   This terminal supports IEEE488.2.

14. **AUX interface terminal**
   This terminal connects probe power supply optional DS-579 and IE-1226 VGA Video Out interface.

15. **USB/LAN* terminals**
   You can remotely control DS-5500A/5400 series when you connect it with PC. With printers supporting PictBridge you can directly print the screen.
   *Only DS-5500A Series has this feature as standard.
   *DS-5400 series do not have LAN(100Base-TX)interface

16. **AUX I/O terminal**
    (DS-577/DS-578: Factory-installed Optional)
    These terminals support CH outputs and Trigger output.
    • CH1/CH2 output (DS-577), CH1/TRIG output (DS-578)
    *DS-5400 series do not have AUX I/O.
1 Waveform-Judgment and Auto-measure-Judgment

DS-5500A/5400 Series provide a function to judge Pass/Fail in accordance with the masking data or the waveform parameters set in advance;

How it works:
• Stop capturing the waveform
• Save the screen display and the data
• Output the pulse (DS-577/DS-578: Factory-installed optional*) from BNC of the rear panel
• Beep sound

*Only DS-5500A Series has this feature as standard

2 Logging function of Auto-measure (Display a list of log entries)

You can log up-to-four waveform parameters. These data can be saved into USB drives and you can also import the data into EXCEL and easily get histogram of the distribution of variability or calculate trends with Excel's analyzing functions.

3 Auto-measure for all cycles captured*

All cycles captured from a waveform can be measured and displayed automatically. By taking in the data into the high length memory, you can observe the variability of Max/Min values and analyze the values from the calculation between the cursor intervals of time axis.

250pcs of positive pulse width are figured out.

*Display one measured value per sweep on waveform parameter at vertical axis (voltage axis).
4 Probe Selection Menu

When an Iwatsu probe model is selected, the attenuation ratio and the coupling are set automatically. The model number, the bandwidth of Vertical range, and Input coupling are displayed after you selected the model.

Probes supported

<table>
<thead>
<tr>
<th>Type</th>
<th>Models</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current probes</td>
<td>SS-280 series, SS-240A, SS-250, SS-260, SS-270</td>
</tr>
<tr>
<td>Voltage probes</td>
<td>SS-320, SFP-5A, SFP-4A, HV-P30, HV-P60, etc</td>
</tr>
</tbody>
</table>

5 Deskew function between channels

You can adjust the skew between the channels. This function is useful, for example, when you calculate the power waveform which is affected by timing. Adjustment range of time difference between channels is Max. 500ns. When Preference to Deskew is set at Horizontal axis (the numbers of waveforms of Replay function is limited.)

- Differences in power waveform calculations (Graphs below)

6 Four Bandwidth limitation filters

DS-5500A/5400 Series equip Analog Bandwidth limitation filters: 100MHz, 20MHz, 2MHz, 200kHz. The target signal can be measured after removing the noises. Other digital filters are also equipped.

Examples: Measurement of noise reductions by DS-555xA(500MHz) Series

7 CLEAR SWEEP Function

This function is used for Resetting the following calculated data: REPLAY waveform, Averaging, Persistence, Auto-measure, Pass/Fail, Logging, and etc.
1. **High speed transfer of waveforms to remote PC over LAN**

DS-5500A/5400 Series performs Remote-transfer with high speed at 100 times*1 speed comparing with current models. It makes high productivity.

*1: This function is available in case the waveform display mode is OFF when LAN option is used. The value indicated is for your reference only, because the measurement results are under special conditions. The transfer time from the scope may vary based on PC specifications.

2. **Touch-Screen and Independent operations using buttons and knobs**

DS-5500A/5400 Series enable us to operate intuitively with a 7.5 inch color liquid crystal display touch-screen.

DS-5500A/5400 Series provide for comfort by CH/MATH independent keyboard knobs.

Intuitive operations can be done by only touching the screen.

- **Operation of Function Menu**
  - (Settings can be changed by just touching Menu.)

- **Operation CH and MATH menus**
  - (CH or MATH function menu is operated by only touching the label.)

Easy to operate trace-displays by switching ON/OFF of these buttons.

3. **High Memory length 1M points/CH**

DS-5500A Series equips 1M points Memory each channel and can capture waveforms at high sampling speed. Waveform capturing period covers from 100k point to 1M points under the same sampling speed.

**Features of High Memory length**

- **At the same capturing time:**
  - As DS-5500A Series can capture a waveform at 10 times faster than ever, it is excellent in reproducibility of the waveform.

- **At the same sampling speed:**
  - As DS-5500A Series can save a waveform at 10 times longer (Time axis: s/div x 10 div) than ever, you can observe the waveform for sufficient time.
4 Trigger function

DS-5500A/5400 Series provide various triggers. The followings show the examples and these triggers can be set easily by the operation on the touch screen even if you use complex combination of triggers.

- **Trigger types**
  - Edge ALT, Edge OR
  - Cycle, Pulse Width, Dropout
  - Pattern

<table>
<thead>
<tr>
<th></th>
<th>DS-5400</th>
<th>DS-5500A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Edge ALT</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Edge OR</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Cycle</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Pulse Width</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>Dropout</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Pattern</td>
<td>NO</td>
<td>YES</td>
</tr>
</tbody>
</table>

**Examples of Triggers**

- **Edge ALT triggering**
  - (Ex.: Eye pattern of SDRAM data line)

- **Dropout triggering**
  - (Ex.: Detection at the part of flame end of Serial data)

- **Pattern triggering**
  - (Ex.: Logic output signal of a counter)

5 Peak detection function

Noises (pulse width: min. 1ns) hiding in very slow signals can be captured accurately.

6 Replay function

Replay function is useful for reconfirming the abnormal waveforms you captured before.

- DS-5500A: Max. 2048 waveforms, DS-5400: Max. 1024 waveforms

7 Rescaling function

The output voltage signals, which were measured by current probes, shunt resistors, various sensors and others, can be converted to other units and read them directly.

\[
\text{Conversion formula: } a \times \text{Input Voltage} + b
\]

- **Conversion formula:**
  - \(a\): Magnification ratio of vertical range
  - \(b\): Offset

When current converted:

- \(2: 100nA\)
- \(2: 4.000A\)

The unit is selectable (V, A, W, °C, No unit)
Auto-measure by waveform parameters  
(Max. 4 types of waveforms parameters among 26 types [Refer to the specifications on page 10 and 11] can be displayed. The results of Timing Measurement between two signals and Max/Min values can be stored, and Auto-measure within the area between two cursors is available. Moreover, Judgment functions and logging function expand variety of your analysis.

[Application examples]
- Temporal variability, Monitoring and Trend analysis

<table>
<thead>
<tr>
<th>PWM modulated waveforms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carrier Frequency: 1 kHz</td>
</tr>
<tr>
<td>Modulation Frequency: 100Hz</td>
</tr>
</tbody>
</table>

A: Carrier Frequency  
B: Duty Cycle  
C: Positive Pulse width  
D: Numbers of Positive Pulse

Skew (Time difference) Measurement between two signals:  
The time difference between the logic signals of CH1 (rising) and CH2 (falling) is measured. Rising and falling signals between two signals or arbitrary level can be set.

Waveform calculation  
(NEW: DS-5500A Series supports differential and integral calculations)

DS-5500A/5400 Series can perform not only addition, subtraction and multiplication of two waveforms, but frequency analysis (FFT) of waveforms in each channel.  
DS-5500A Series supports differential and integral calculations. The calculated waveforms can be saved as data and used for the source of parameters of Auto-measure.

[Examples of Usages]
- Addition/Subtraction: Evaluation of differential signals  
- Multiplication: Evaluation of Power waveforms resulted by Voltage x Current  
- FFT: Analysis of cyclic noises or vibrations in frequency domain.

Reference features

You can compare newly captured waveforms with the reference waveforms displayed on the screen. Reference function is useful for saving and reading the past setting conditions.  
[Maximum five kinds of conditions are supported.]

[Examples]
- Comparison measurement of transient waveforms  
- Repetitive measurements under defined multiple conditions
Remote Control

DS-5500A/5400 Series can collect various data easily and perform a high level analysis on PC.

Scope Viewer (Refer to Iwatsu Test Instruments Tools in ITIC Web page)

Please access ITIC Web page and download free IwatsuTest Instruments Tools. The utility software of ViewGo II Remote control will be provided for easy operation. Remote control function includes:

- Operation of Oscilloscopes, Cursor measurement, Output waveform data to files, Hardcopy of screen, Print, etc.

Scope Viewer

Toolbar
You can do quick operations.

Waveforms display area
Waveform each CH and the setting information are displayed. Cursor operations by a Mouse is also available.

Cursor measurement results
All CH results measured by cursors (X/Y axis are displayed.

Operation Panel
You can operate oscilloscope settings.

Left pane
The left pane displays the information of available functions for the selected window.

Sample of ViewGo II Remote Control software

Please access ITIC Web page and download a sample of ViewGo II Remote control software. For some software, we provide the source codes so that you can customize them yourselves. Scope Controller, included in Iwatsu Test Instruments Tools, provides remote-control feature through USB/LAN interface. Using this component, you can build your application that runs on Excel, or an application that runs on .NET Framework with Visual C#.

Software for loading of Screen data and CSV data

Function:
Automatic transferring and saving of waveforms (CSV data, png image) synchronized with trigger signals to PC

Mask making tool

Mask Creator (Included in Iwatsu Test Instruments Tools)

This is an application for creating, editing, and save the mask data to be used for Pass / Fail judgment. (Compatible models DS-5500A, DS-5500)

For “Iwatsu Test Instruments Tools” software, please refer to the download site from our web site. (http://www.iti.iwatsu.co.jp/en/download/index.html)
### DS-5500A Series, DS-5400 series by function comparison table

<table>
<thead>
<tr>
<th>DS-5400 Series</th>
<th>DS-5500A Series</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency bandwidth</strong></td>
<td></td>
</tr>
<tr>
<td>100MHz</td>
<td>○</td>
</tr>
<tr>
<td>200MHz</td>
<td>○</td>
</tr>
<tr>
<td>350MHz</td>
<td>—</td>
</tr>
<tr>
<td>500MHz</td>
<td>—</td>
</tr>
<tr>
<td><strong>Memory Length</strong></td>
<td>500kpoint</td>
</tr>
<tr>
<td><strong>Frequency bandwidth limits (Analog form)</strong></td>
<td></td>
</tr>
<tr>
<td>100MHz</td>
<td>—</td>
</tr>
<tr>
<td>20MHz</td>
<td>○</td>
</tr>
<tr>
<td>2MHz</td>
<td>—</td>
</tr>
<tr>
<td>200kHz</td>
<td>—</td>
</tr>
<tr>
<td><strong>Remote interface</strong></td>
<td></td>
</tr>
<tr>
<td>AUX IO Interface</td>
<td>—</td>
</tr>
<tr>
<td>DM-1500A/02B 2</td>
<td>—</td>
</tr>
<tr>
<td><strong>Waveform math function</strong></td>
<td></td>
</tr>
<tr>
<td>Addition (+)</td>
<td>—</td>
</tr>
<tr>
<td>Subtraction (-)</td>
<td>—</td>
</tr>
<tr>
<td>Multiplication (×)</td>
<td>○</td>
</tr>
<tr>
<td>FFT</td>
<td>○</td>
</tr>
<tr>
<td>Differential</td>
<td>—</td>
</tr>
<tr>
<td>Integral</td>
<td>—</td>
</tr>
<tr>
<td><strong>Judgment function</strong></td>
<td></td>
</tr>
<tr>
<td>Waveform mask judgment</td>
<td>—</td>
</tr>
<tr>
<td>waveform parameters judgment (One of the four parameters)</td>
<td>—</td>
</tr>
<tr>
<td><strong>Logging function of Auto-measure</strong></td>
<td></td>
</tr>
<tr>
<td>Search Features</td>
<td>—</td>
</tr>
<tr>
<td><strong>AUX IO Interface</strong></td>
<td></td>
</tr>
<tr>
<td>CH1/CH2 Output(DS-577)</td>
<td>—</td>
</tr>
<tr>
<td>CH1/TrigOutput(DS-578)</td>
<td>—</td>
</tr>
<tr>
<td><strong>Remote interface</strong></td>
<td></td>
</tr>
<tr>
<td>Ethernet</td>
<td>—</td>
</tr>
<tr>
<td>USB</td>
<td>Standard</td>
</tr>
<tr>
<td>GPB</td>
<td>Factory option</td>
</tr>
</tbody>
</table>

### DS-5400 Series Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>DS-5424</th>
<th>DS-5422</th>
<th>DS-5414</th>
<th>DS-5412</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency bandwidth (-3dB)</strong></td>
<td>200MHz</td>
<td>100MHz</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Rise time (Typical)</strong></td>
<td>1.75ns</td>
<td>3.5ns</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Input Channel</strong></td>
<td>4</td>
<td>2</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td><strong>Maximum Sampling Speed</strong></td>
<td>1GS/s (for CH1)</td>
<td>2GS/s (Channel combined)</td>
<td>1GS/s</td>
<td></td>
</tr>
<tr>
<td><strong>Equivalent Sampling Rate</strong></td>
<td>100GS/s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Averaging</strong></td>
<td>2 to 256 times</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum Memory Length</strong></td>
<td>500kpts/ch (for all CHs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vertical Resolution</strong></td>
<td>8-bit</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Input voltage range</strong></td>
<td>2mV/div - 10V/div (10x)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Offset voltage</strong></td>
<td>2mV/div - 50mV/div: ±1V</td>
<td>50mV/div - 500mV/div: ±10V</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DC gain accuracy</strong></td>
<td>±1.5% + (0.5% of fullscale)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Maximum Input Voltage</strong></td>
<td>±400peak CAT I (10x)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Band-limiting filter</strong></td>
<td>Analog type: 20MHz, 2MHz, 200kHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Input coupling</strong></td>
<td>GND, DC 100MHz, AC 10MHz</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Input Impedance</strong></td>
<td>10MΩ ± 1.5% / 20Ω</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Probe sense</strong></td>
<td>Automatic: 1:1, 10:1, 100:1, 1000:1</td>
<td>5:1, 10:1, 20:1, 50:1</td>
<td>100:1, 200:1, 500:1, 1000:1, 2000:1</td>
<td></td>
</tr>
<tr>
<td><strong>Timebase (Clock) accuracy</strong></td>
<td>±50ms/div - 50s/div (100kS/s, max.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Roll mode</strong></td>
<td>50ms/div - 50s/div (100kS/s, max.)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Timebase (Check) accuracy</strong></td>
<td>±50ns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TV mode / Line number / Field sequence</strong></td>
<td>NTSC, PAL, Custom / upto 3,000 / 1, 2, 4 &amp; 8 fields</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pulse Count Trigger</strong></td>
<td>1 to 9,999 events</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pulse Width Trigger</strong></td>
<td>15ms to 50s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Period Trigger</strong></td>
<td>40ns to 50s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dropout Trigger</strong></td>
<td>50ns to 50s</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Pattern Trigger</strong></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Trigger Source</strong></td>
<td>Input Chs, Line, EXT(+/-5V), EXT10(+/-50V)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Trigger Slope / Coupling</strong></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Display size / resolution</strong></td>
<td>7.5inch color TFT-LCD with Touch screen / VGA(640*480pixels)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Display mode</strong></td>
<td>Y-T, XY, XY(Trigger)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Vector Display Method</strong></td>
<td>Interpolation on sample points or Dots</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Analog persistence mode</strong></td>
<td>Monochrome grayscale or Color Spectrum</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Persistence time setting</strong></td>
<td>100ms, 200ms, 500ms, 1s, 2s, 5s, 10s &amp; infinite</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reference waveform memory (Waveforms)</strong></td>
<td>5settings for Internal memory or USB memory</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parameter measurement, Cursor, Zoom, Calculation, Replay</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Parameter measurement</strong></td>
<td>Maximum, Minimum, Peak-Peak, RMS, Cycle RMS, Mean, Cycle Mean, Top, Base, Top-Base, +, Overhought, -Overhought, Tr 20-80%, Tr 10-90%, Tr 90-10%, Free, Period, «+Peak Count, -Peak Count, «Peak Width, -Peak Width, Duty Cycle, Integral, Slope (+/), Slope at level**</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Concurrent number of measurements / statistics display</strong></td>
<td>Four parameter maximum / Maximum, Minimum, Num (Number of the total waveforms)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Logging item, destination</strong></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Pass / Fail</strong></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Zoom</strong></td>
<td>Time, Amplitude, Time and Amplitude, Value at cursor</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td><strong>Auxiliary Interface</strong></td>
<td>—</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

### Options

- **DS-577 AUX IO CH1/CH2 output**
- **DS-578 AUX IO CH1/Trig output**
- **DS-576 GPIB interface**
- **DS-579 probe power supply options**

### Waveform Data Storage

- USB memory for Binary, ASCII, Mathcad, Calculation(ASCII), & Calculation(Mathcad)

### Hardcopy Output

- Output to USB memory in TIFF, BMP & PNG format or Output to PictBridge Printers

### Calibration signal output

- Square wave 1kHz, 3Vp-p

### Dimensions (mm) / Weight

- Approx. 330x190x1240 / Approx. 3.7kg

### Performance guarantee temperature

- +10°C to -35°C

### Operation temperature and humidity / Altitude conditions

- Deg. to +40°C at 5% to 80%RF <30°C and 55%RH or less at 40°C non-condensation / 2,000m or lower

### Storage temperature

- -20°C to +60°C

---

**Model**

- **DS-5412**
- **DS-5414**
- **DS-5422**
- **DS-5424**
- **DS-5512A**
- **DS-5514A**
- **DS-5522A**
- **DS-5524A**
- **DS-5532A**
- **DS-5534A**
- **DS-5552A**
- **DS-5554A**

**Attached probe Quantity**

- 2
- 4
- 2
- 4
- 2
- 4
- 2
- 4
- 2
- 4
- 2
- 4
- 2

**Accessories**

- **SS-0130R**
- **SS-101R**

---

**Options**

- Power cord:1
- Front panel cover:1
- CD:1 (Contains: Instruction Manual (PDF data), Remote Control Manual (PDF data), Readme)
- User’s Guide:1
- GPIB: IEEE488.2 (factory option)
- USB 2.0 (Host & Device, GPIB (Factory option: DS-576))
- AUX connector for External options

---

** remotely interface**

- 2 systems
- 6 systems
- 2 systems
- 4 systems
- 4 systems
- 4 systems
- 4 systems
- 4 systems
- 4 systems
- 4 systems
- 4 systems
- 4 systems

---

**Calibration signal output**

- Square wave 1kHz, 3Vp-p

---

**Power /power consumption**

- AC 90Vrms to 132Vrms, 380Hz to 420 Hz
- 400Vpeak CAT I (1MΩ)
- 400Vpeak CAT I (1MΩ)
- 400Vpeak CAT I (1MΩ)
- 400Vpeak CAT I (1MΩ)

---

**Dimensions (mm) / Weight**

- Approx. 330x190x1240 / Approx. 3.7kg

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**Performance guarantee temperature**

- +10°C to -35°C

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**Operation temperature and humidity / Altitude conditions**

- Deg. to +40°C at 5% to 80%RF <30°C and 55%RH or less at 40°C non-condensation / 2,000m or lower

---

**Storage temperature**

- -20°C to +60°C
DS-5500A Series Specifications

**AUX Interface**

AUX connector for External options

- **USB 2.0(Host&Device), LAN(100Base-TX), GPIB(Factory option: DS-576)**

**Display size/ resolution**

- **±**

**Trigger function**

- **Edge, Edge ALT, Edge OR, Pulse Count, Pulse Width, Period, Dropout, TV, OR, NOR, AND, NAND**

**±**

**Roll mode**

- **50ms/div - 50s/div (100kS/s, max.)**

**Standard probe**

- **SS-101R (multi-channel) SS-0130R (multi-channel)**

**Timebase**

- **Automatic 1:1, 10:1, 100:1, 1000:1, Manual 1:1, 5:1, 10:1, 20:1, 50:1, 100:1, 200:1, 500:1, 1000:1, 2000:1**

**Probe sense**

- **1M GND, DC 1M**

**Input coupling**

- **Band-limiting filter**

**Maximum Input Voltage**

- **±400peak CAT I (1MΩ), 5Vrms (50Ω)**

**Input Impedance**

- **1MΩ ±1% / 16F, 50Ω ±1% 1MΩ ±1.5% // 20pF**

**Probe sense**

- **Automatic 1:1, 10:1, 100:1, 1000:1, Manual 1:1, 5:1, 10:1, 20:1, 50:1, 100:1, 200:1, 500:1, 1000:1, 2000:1**

**Timebase**

- **500ps/div - 50s/div 1ns/div - 50s/div 2ns/div - 50s/div 5ns/div - 50s/div**

**Standard probe**

- **SS-101R (multi-channel) SS-0130R (multi-channel)**

**Roll mode**

- **50ms/div - 50s/div (100ks/s, max.)**

**Timebase (Clock) accuracy**

- **±1mopm**

**Trigger function**

- **Edge, Edge ALT, Edge OR, Pulse Count, Pulse Width, Period, Dropout, TV, OR, NOR, AND, NAND**

**TV mode / Line number / Field sequence**

- **NTSC, PAL, Custom / upto 3,000 / 1, 2, 4 & 8 fields**

**Pulse Count Trigger**

- **1 to 9,999 events**

**Pattern Trigger**

- **OR, NOR, AND, NAND**

**Trigger source / Status / Threshold level setting**

- **All channels / High, Low, Don’t Care / All channels set independently**

**Trigger Source**

- **Input CHs, Line, EXT(+/-0.5V), EXT10(+/-5.0V)**

**Trigger Slope / Coupling**

- **+/- / AC, DC, RF, RF, LF, RF, Noise Rej**

**Display size / resolution**

- **7.5inch color TFT-LCD with Touch screen / VGA(640*480pixels)**

**Display mode**

- **Y-X, Y-Y, XY (Triggered)**

**Vector Display Method**

- **Interpolation on sample points or Dots**

**Analog persistence mode**

- **Monochrome grayscale or Color Spectrum**

**Persistence time setting**

- **100ms, 200ms, 500ms, 1s, 2s, 5s, 10s & Infinite**

**Reference waveform memory**

- **5 waveforms**

**Panel setting memory**

- **5 settings for Internal memory or USB memory**

**Parameter measurement, Cursor, Zoom, Calculation, Replay**

**Parameter measurement**

- **Maximum, Minimum, Peak-Peak, RMS, Cycle RMS, Mean, Cycle Mean, Top, Base, Top-Base, +Overshoot, -Overshoot, Tr 20-80%, Tr 80-20%, Tr 10-90%, Tr 90-10%, Freq., Period, +Pulse Count, +Pulse Count, +Pulse Width, -Pulse Width, Duty Cycle, Integral, Skew, +, -, Skew at level**

**Concurrent number of measurements / statistics display**

- **Four parameter maximum /Max (Maximum), Min (Minimum), Num (Number of the total waveforms)**

**Logging item, destination**

- **Time and parameter measurement results (conditions A, B, C, D), Pass/Fail judgment results When recording: Pop-up window, internal memory (up to 86400 entries), After recording: USB memory**

**Pass / Fail**

- **Judgment mode: Select between Parameter judgment and Mask judgment, Judgment result: Save waveform (USB memory) / Beep / Pulse output (when equipped with DS-576 option) / Logging, Page search function: Select any of Fail or Pass, you can search forward or backward**

**Cursor**

- **Time, Amplitude, Time and Amplitude, Value at cursor**

**Zoom**

- **Zoom key enable display at individual grid area**

**Calculation**

- **Addition, Subtraction, Multiplication, FFT(1k points maximum, RECTANGULAR, HANNING, FLATTOP)**

**Rescaling / Unit conversion**

- **a*b*c/d: input voltage at User defined a and b / Volt, Ampere, Watt, degree and unit-less**

**Replay**

- **Automatic waveform recording upto 1024 waveforms, History Replayable**

**Counter**

- **6-digit**

**Interface (standard)**

- **USB 2.0(Hoster/Device), LAN(100Base-TX), GPIB(factory option: DS-576)**

**AUX Interface**

- **AUX connector for External options**

**Options**

- **DS-577 AUX IO CH1/CH2 output**

**DS-578 AUX IO CH1/TRIG output**

**DS-576 GPIB interface**

- **GPIB: EEE-488.2 (factory option)**

**DS-579 probe power supply options**

- **Our active probe power supply (2 systems)**

**Waveform Data Storage**

- **USB memory for Binary, ASCII, Mathcad, Calculation/ASCII & Calculation/Mathcad**

**Hardcopy Output**

- **Output form front panel USB port to USB memory in TIFF, BMP & PNG format or Output to PictBridge Printers**

**Calibration signal output**

- **Square waveform at 1kHz, 30p-**

**Power / power consumption**

- **AC 90Vrms to 240Vrms, 4kHz to 63kHz, AC 90Vrms to 132Vrms, 380Hz to 420 Hz, 95VA max (60W max)**

**Dimensions (mm) / Weight**

- **Approx. 330W × 190H ×124 / Approx. 3.7kg**

**Performance guarantee temperature**

- **+10℃ to +35℃**

**Operation temperature and humidity / Altitude conditions**

- **0deg. to +40℃ at 5 to 80%(RH<+30℃) and 55%RH or less at 40℃ non-condensation / 2,000meter or lower**

**Storage temperature**

- **-20℃ to +60℃**
### Standard Probes

**SS-0130**
- **Freq. Bandwidth:** DC-200MHz
- **Input RC:** 10MΩ/125pF
- **Att. Ratio:** 10:1
- **Length:** 1.5m

**SS-101R**
- **Freq. Bandwidth:** DC-500MHz
- **Input RC:** 10MΩ/125pF
- **Att. Ratio:** 10:1
- **Length:** 1.2m

### High Voltage Probes

#### PH/PHS Series

<table>
<thead>
<tr>
<th>Model</th>
<th>Bandwidth</th>
<th>Length</th>
<th>Attenuation Ratio</th>
<th>Maximum Input Voltage</th>
<th>DC-AC pk.</th>
<th>Impulse peak</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHV7000-10</td>
<td>400MHz</td>
<td>2m</td>
<td>100:1</td>
<td>1kV</td>
<td>6kV</td>
<td></td>
</tr>
<tr>
<td>PHV-644-LRO</td>
<td>300MHz</td>
<td>2m</td>
<td>100:1</td>
<td>3kV</td>
<td>4kV</td>
<td></td>
</tr>
<tr>
<td>PHV-642-LRO</td>
<td>300MHz</td>
<td>2m</td>
<td>100:1</td>
<td>3kV</td>
<td>4kV</td>
<td></td>
</tr>
<tr>
<td>PHV-643-LRO</td>
<td>150MHz</td>
<td>3m</td>
<td>100:1</td>
<td>4kV</td>
<td>6kV</td>
<td></td>
</tr>
<tr>
<td>PHV-661-LRO</td>
<td>120MHz</td>
<td>1.2m</td>
<td>100:1</td>
<td>3kV</td>
<td>4kV</td>
<td></td>
</tr>
<tr>
<td>PHV-662-LRO</td>
<td>300MHz</td>
<td>2m</td>
<td>100:1</td>
<td>4kV</td>
<td>6kV</td>
<td></td>
</tr>
<tr>
<td>PHV-663-LRO</td>
<td>300MHz</td>
<td>2m</td>
<td>100:1</td>
<td>4kV</td>
<td>6kV</td>
<td></td>
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<tr>
<td>PHV-664-LRO</td>
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<td>3m</td>
<td>100:1</td>
<td>4kV</td>
<td>6kV</td>
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</tr>
<tr>
<td>PHV-662-LRO</td>
<td>400MHz</td>
<td>2m</td>
<td>100:1</td>
<td>4kV</td>
<td>6kV</td>
<td></td>
</tr>
<tr>
<td>PHV-663-LRO</td>
<td>250MHz</td>
<td>3m</td>
<td>100:1</td>
<td>4kV</td>
<td>6kV</td>
<td></td>
</tr>
</tbody>
</table>

### High Voltage Probes

**PHV-P30**
- **50kV or DC+AC peak, Single Pulse 40kV**

**PHV-P60**
- **300kV or DC+AC peak, Single Pulse 80kV Voltage**

**Specifications and performance**

- **Current probe (Clamp type)**
  - **Model:** SS-281
    - **Frequency Bandwidth:** DC to 1MHz
    - **Maximum input range:** 30A rms
    - **Maximum peak current:** 30A peak
    - **Measurable wire diameter:** ø 8mm
  - **Model:** SS-282
    - **Frequency Bandwidth:** DC to 1MHz
    - **Maximum input range:** 60A rms
    - **Maximum peak current:** 60A peak
    - **Measurable wire diameter:** ø 8mm
  - **Model:** SS-283
    - **Frequency Bandwidth:** DC to 1MHz
    - **Maximum input range:** 120A rms
    - **Maximum peak current:** 120A peak
    - **Measurable wire diameter:** ø 8mm
  - **Model:** SS-284
    - **Frequency Bandwidth:** DC to 1MHz
    - **Maximum input range:** 300A rms
    - **Maximum peak current:** 300A peak
    - **Measurable wire diameter:** ø 8mm
  - **Model:** SS-285
    - **Frequency Bandwidth:** DC to 1MHz
    - **Maximum input range:** 600A rms
    - **Maximum peak current:** 600A peak
    - **Measurable wire diameter:** ø 8mm
  - **Model:** SS-286
    - **Frequency Bandwidth:** DC to 1MHz
    - **Maximum input range:** 1200A rms
    - **Maximum peak current:** 1200A peak
    - **Measurable wire diameter:** ø 8mm

- **Rogowski Coil Current Probe (Clamp type)**
  - **Model:** CS(EB)1212-830-3-00
    - **Frequency Bandwidth:** DC to 100MHz
    - **Maximum input range:** 500Vrms
    - **Maximum peak current:** 10kA peak
    - **Measurable wire diameter:** ø 8mm

### Optional accessories

- **DS-576**
  - **GPIB Interface**
  - **AUX I/O (2 ways optional for Probe Power supply)**

- **DS-579**
  - **AUX I/O Optional**
  - **(Outputs: CH1/CH2)**

- **DS-577**
  - **AUX I/O Optional**
  - **(Outputs: CH3/CH4)**

- **DS-578**
  - **AUX I/O Optional**
  - **(Outputs: CH1/CH2)**

### Probes and accessories

- **High Voltage Differential Probe SS-320**
  - **DC-100MHz (1kVrms)**

- **Power supply PS-26**
  - **for DS-5550A/5450A/5500 series only**
  - **Input voltage AC100V/120V/200V/240V**

- **DS-579**
  - **DS-5500A/5400A/5500 series only**
  - **for SS-250/SS-240A/SS-270/SS-260**

### Memory Length (for all CH)

- **1Mpts**
- **1Mpts**
- **1Mpts**
- **1Mpts**
- **1Mpts**
- **1Mpts**
- **1Mpts**
- **1Mpts**
- **500kpts**
- **500kpts**
- **500kpts**
- **500kpts**

- **Maximum Sampling Speed**
  - **4CH**
  - **2CH**
  - **4CH**
  - **2CH**
  - **4CH**
  - **2CH**
  - **4CH**
  - **2CH**

### Carrying bags

- **Support model**
  - **DS-5500A Series**
  - **DS-5550 Series**
  - **DS-5400 Series**

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