RIGOL

DS70000 Series

Digital Oscilloscope

Data Sheet

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DS70000 Series

Digital Oscilloscope



N-in-1 Integrated Digital Oscilloscope

In today's integrated design field, a highly integrated comprehensive digital oscilloscope has become an important tool for design engineers. RIGOL's DS70000 series oscilloscope **integrates 5 independent instruments into 1 including digital oscilloscope, spectrum analyzer, digital voltmeter, high precision frequency counter and totalizer, and protocol analyzer.** The DS70000 series provides a comprehensive instrument that meets your actual test needs.

Digital Oscilloscope

- Bandwidth model: **3 GHz, 5 GHz**
- Up to 20 GSa/s real-time sample rate
- 4 analog channels and 1 EXT channel
- Up to **2 Gpts** memory depth
- Maximum waveform capture rate of 1,000,000 wfms/s

Digital Voltmeter

- 3-digit DC/AC_{RMS}, $AC+DC_{RMS}$ voltage measurement
- Sounds an alarm for reaching or exceeding the limits

High-precision Frequency Counter and Totalizer

- 3 to 8-digit (selectable) high-precision frequency counter
- Supports the statistics on the maximum and minimum values of the frequency
- 48-bit totalizer (standard)

Real-Time Spectrum Analysis Function (Option)

- 1 Mpts FFT (Std.)
- Real-time spectrum analyzer function (Opt.), max. 64 kpts waveform data
- 10,000 hardware accelerated FFTs/s
- Max. frequency range: oscilloscope analog bandwidth
- Up to 4 groups of operations can be displayed at the same time
- Independent FFT color persistence view supported
- Up to 15 peaks available for the peak search function; event table available to be exported

Protocol Analyzer (Option)

- Supports RS232/UART, I2C, SPI, CAN, LIN, I2S, FlexRay, MIL-STD-1553, MIPI-RFFE and USB2.0 serial bus
- Supports analog channel trigger and decoding
- Works with waveform recording and pass/fail mask testing

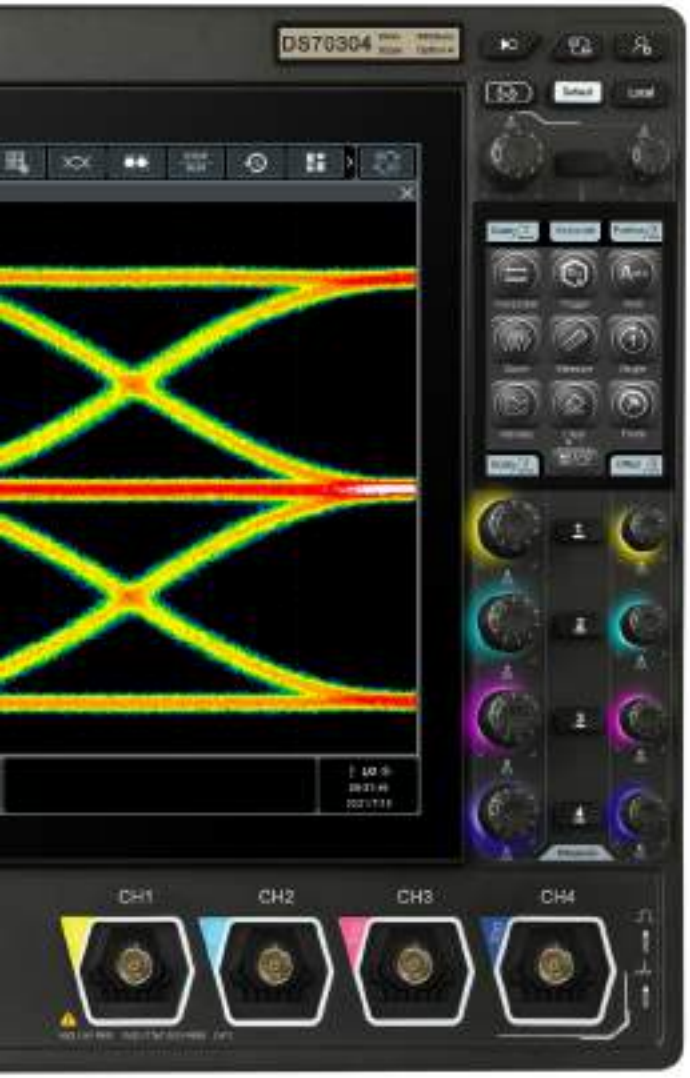
Unique UltraVision III Platform Delivers Industry-leading Performance

With RIGOL's unique UltraVision III platform built on our custom ASIC technology, the DS70000 series digital oscilloscope delivers industry leading performance specifications including **memory depth, waveform capture rate**, and **vertical resolution**. It supports analysis of serial data on computer, embedded, automotive, audio and additional bus types. UltraVision III also enables power integrity analysis as well as multi-domain debugging with simultaneous analysis of time domain and frequency domain signals. The DS70000 series fills an important need in high-speed signal integrity and debugging from R&D to industrial applications with capabilities including:

- **1 million wfms/s** update rate capable of capturing rare signal anomalies that you might otherwise miss.
- **Up to 2 Gpts memory depth** which makes long duration high speed captures possible.
- **8 to 16-bit** adjustable vertical resolution capable of accurately measuring low level signals.
- Real-time spectrum analysis (RTSA) capable of capturing up to **10,000 FFTs** per second so you don't miss small signal artifacts even in the RF domain.

DS70000 Series

Digital Oscilloscope

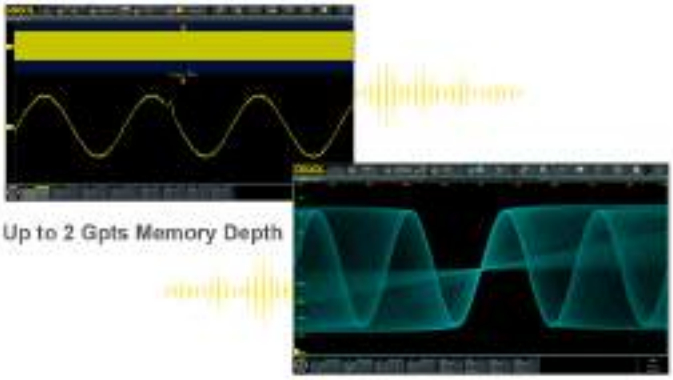


Unique UltraVision III Platform Delivers Industry-leading Performance



16-bit Vertical Resolution

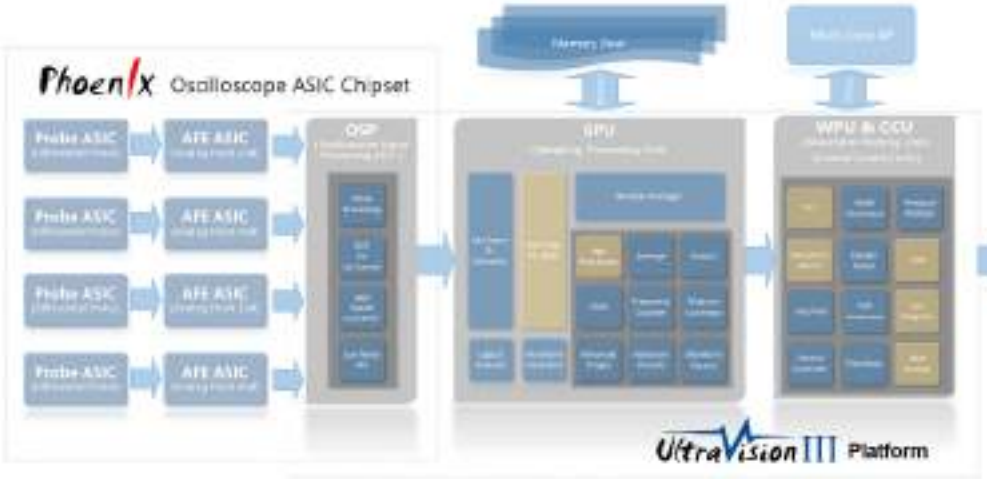
Real-time Spectrum Analysis Function
10,000 Hardware Accelerated FFTs/s



Up to 2 Gpts Memory Depth

1,000,000 wfms/s Capture Rate

ASIC Chip Delivers Higher Bandwidth and Sample Rate





- 20 GSa/s Sample Rate
- 5 GHz Bandwidth

DS70000 series digital oscilloscope is equipped with "Phoenix" chip set, which delivers a max. of **20 GSa/s sample rate** and **5 GHz bandwidth** to better achieve signal fidelity, cover more application scenarios, and cater to the diversified application demands of the complex test system in the industry and R&D fields.

DS70000 Series

Digital Oscilloscope

Knob with Photoelectric Encoder Enables Long Service Life

The photoelectric encoder operating knob guarantees more than **100,000 times of pressing operation and 1 million times of rotation operation**, greatly improving the service life of the knob. As a frequently used component, the adjustment knobs are critical to reliability and longevity. With photoelectric encoders, you no longer have to worry about wear, ensuring reliable operation throughout the life of the instrument.



Multiple External Interfaces

The DS70000 series provides a variety of external interfaces that improve usability and data access including **USB 3.0 Host and Device, LAN (LXI), HDMI, AUX OUT, 10 MHz IN, 10 MHz Out and GPIB (option) via the USB-GPIB adaptor**. For remote control over LAN, the DS70000 includes complete web control with web-based screen recording, SCPI command interface, and ftp access to files stored on the instrument. The HDMI output supports use of an external monitor or video display.





Brand New Appearance and User-friendly Design Bring an Extraordinary Human-Machine Interface Experience

The DS70000 series oscilloscope has a 7U full-rack structure that includes **two touch screens**. The main display is a 15.6-inch capacitive high-definition touch screen with one button electronic tilt. Multi-pane windowing supports a variety of simultaneous analysis tools, making it easier to view signals, measurements, and results. Meanwhile, the secondary 3.5-inch touch screen separates menus and functions from signals and analysis with a customized function and shortcut menu.











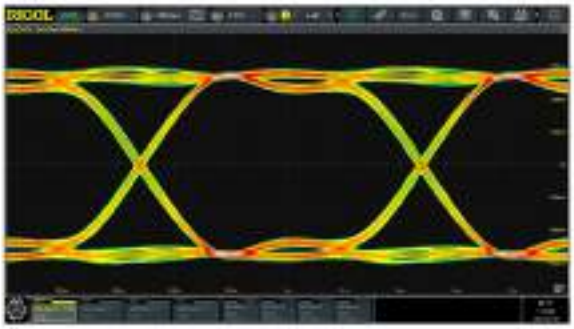
DS70000 Series

Digital Oscilloscope

Excellent Eye Diagram Pre-test and Jitter Analysis

Eye Diagram

Based on the excellent bandwidth and sample rate, DS70000 series oscilloscope provides the real-time eye plot and measurement with the clock recovery function, which can be applied to protocol conformance analysis.
After the DS70000-JITTA option has been purchased and activated, DS70000 series supports the eye measurement for all the analog channels, and also provides measurement for several parameters of the eye diagram: **eye height, eye width, eye amplitude, crossing percentage, and Q Factor.** It also supports various clock recovery methods, eye cursor measurement, and eye template measurement to meet the demands of customers for different application scenarios.



Jitter

DS70000 series oscilloscope provides flexible and convenient jitter measurement and analysis. After purchasing and activating the DS70000-JITTA option, you can accurately and quickly make deterministic jitter measurements for serial clock signals or parallel bus signals.

Support various clock recovery methods, including:

- **Constant: Fully automatic, semi automatic, and manual**
- **First-order PLL**
- **Second-order PLL**
- **Explicit**

To help engineers easily and conveniently resolve the jitter components within their signals, jitter measurements can be analyzed in multiple formats including the trend graph, spectrum graph, and histogram. The jitter analysis function enables **measurement and statistical analysis of uninterrupted bit sequences** to efficiently debug signal jitter on large quantities of data. The jitter trend graph and histogram create a quick view of the nature and source of signal jitter, simplifying the engineer's work.

The jitter analysis is mainly used to measure and analyze the clock jitter. The DS70000 series can accomplish the following jitter analysis items.Among the items,TIE is the most commonly used jitter specification.





Perform TIE measurements on the clock signal with the jitter and analyze the results through the trend graph and histogram.

Electronic Label

The product model and its main parameters are displayed on the electronic label. The parameters will be updated automatically after upgrade to keep the information displayed on the electronic label consistent with that of the current instrument. The label contents can be sustained up to **20 years even at power-off state**. Users can get the updated product information in a timely manner through the electronic label.



Product Features

Product Features

- 4 analog channels, 1 EXT channel
- Max. 5 GHz analog channel bandwidth
- Up to 20 GSa/s sample rate
- Max. 2 Gpts memory depth
- Waveform capture rate: >1,000,000 wfms/s
- Vertical sensitivity range: 1 mV/div~10 V/div (1 MΩ), 1 mV/div~1 V/div (50 Ω)
- Timebase range: 50 ps/div~1000 s/div
- Up to 2,000,000 frames of hardware real-time and ceaseless waveforms recording and playback functions
- Integrates 5 independent instruments into 1, including digital oscilloscope, spectrum analyzer (option), digital voltmeter, 8-digit frequency counter and totalizer, and protocol analyzer (option)
- A variety of triggers: Edge trigger, Pulse trigger, Slope trigger, Video trigger, Pattern trigger, Duration trigger, Timeout trigger, Runt trigger, Window trigger, Delay trigger, Setup/Hold trigger, and Nth Edge trigger, RS232, I2C, SPI, CAN, FlexRay, LIN, I2S, and MIL-STD-1553
- Various serial bus decodings (opt.): RS232/UART, I2C, SPI, LIN, CAN, CAN-FD, FlexRay, I2S, MIL-STD-1553, MIPI-RFFE and USB2.0, 4 decode channels
- Auto measurements of 41 waveform parameters; full-memory hardware measurement
- A variety of math operations: A+B, A-B, A×B, A/B, FFT, A&&B, A||B, A^B, !A, Intg, Diff, Lg, Ln, Exp, Sqrt, Abs, AX+B, LowPass, HighPass, BandPass, BandStop, built-in FFT analysis and peak search function
- Real-time eye diagram and jitter analysis (option)
- Unique UltraVision III technical platform
- Multiple interfaces available: USB HOST&DEVICE, LAN(LXI), HDMI, AUX OUT; Web Control supported
- Main 15.6'' HD capacitive multi-touch screen with one-button electronic tilt; multi-pane windowing
- The photoelectric encoder operating knob prolongs its service life, guaranteeing more than 100,000 times of pressing operation and 1 million times of rotation operation, greatly improving its service life
- Secondary 3.5-inch touch screen separates menus and functions from signals and analysis with a customized function and shortcut menu
- Electronic label display of the model and main parameters of the product, capable to be updated when any option is upgraded, sustaining the display contents up to 20 years
- Support online version upgrade
- 7 GHz active differential probe PVA8700 (option)

Product Features

DS70000 series digital oscilloscope adopts RIGOL's chipset "Phoenix", delivering excellent performance with the maximum sample rate of 20 GSa/s, 5 GHz bandwidth. RIGOL's brand new UltraVison III technical platform guarantees the specifications to reach the advanced level in the industry, with the capture rate up to 1,000,000 wfms/s, 2 Gpts memory depth, and 8 bits to 16 bits adjustable resolution. In addition to the improved hardware specifications, the DS70000 series digital oscilloscope has a main 15.6-inch HD capacitive multi-touch screen with one-button electronic tilt for signal visualization, analysis, and results. Meanwhile, the secondary 3.5-inch touch screen separates menus and functions from signals and analysis with a customized function and shortcut menu. These user-friendly designs bring users extraordinary human-machine interface experience.

Overview of RIGOL's Medium and High-end Series Products

	MSO5000	MSO/DS7000	MSO8000	DS70000
				
Analog Channel	2/4	4	4	4
Digital Channel	16	16	16	N/A
Analog Bandwidth	70 MHz to 350 MHz	100 MHz to 500 MHz	600 MHz to 2 GHz	3 GHz to 5 GHz
Max. Sample Rate	8 GSa/s	10 GSa/s	10 GSa/s	20 GSa/s
Max. Memory Depth	200 Mpts (option)	500 Mpts (option)	500 Mpts	2 Gpts (option)
Waveform Capture Rate	>500,000 wfms/s	>600,000 wfms/s	>600,000 wfms/s	>1,000,000 wfms/s
Max. Frames of Waveform Recording	450,000	450,000	450,000	2,000,000
LCD	9'' capacitive multi-touch screen	10.1'' capacitive multi-touch screen	10.1'' capacitive multi-touch screen	15.6'' capacitive multi-touch screen with one-button electronic tilt
Hardware Mask Test	Standard	Standard	Standard	Standard
Built-in Digital Voltmeter	Standard	Standard	Standard	Standard
Built-in Hardware Counter	6-digit frequency counter + totalizer	6-digit frequency counter + totalizer	6-digit frequency counter + totalizer	8-digit frequency counter + totalizer
Real-time Eye Diagram	N/A	N/A	Option	Option
Jitter Analysis	N/A	N/A	Option	Option
Serial Protocol Analysis	RS232/UART, I2C, SPI, CAN, LIN, FlexRay, I2S, and MIL-STD-1553	RS232/UART, I2C, SPI, CAN, LIN, FlexRay, I2S, and MIL-STD-1553	RS232/UART, I2C, SPI, CAN, LIN, FlexRay, I2S, and MIL-STD-1553	RS232/UART, I2C, SPI, CAN, CAN-FD, LIN, FlexRay, I2S, MIL-STD-1553, MIPI-RFFE, USB2.0
Waveform Color Persistence	Standard	Standard	Standard	Standard
FFT	FFT, standard	FFT, standard	FFT, standard	FFT, standard
MATH	Displays 4 functions at the same time	Displays 4 functions at the same time	Displays 4 functions at the same time	Displays 4 functions at the same time

	MSO5000	MSO/DS7000	MSO8000	DS70000
Connectivity	Standard: USB, LAN, and HDMI option: USB-GPIB	Standard: USB, LAN, and HDMI option: USB-GPIB	Standard: USB, LAN, and HDMI option: USB-GPIB	standard: USB, LAN, and HDMI option: USB-GPIB

RIGOL Probes and Accessories Supported by the DS70000 Series

RIGOL Passive Probes

Model	Type	Description
 PVP2150	High-impedance Probe	• Attenuation Ratio: 10:1/1:1 • 1X BW: DC to 35 MHz • 10X BW: DC to 150 MHz • Compatibility: All models of RIGOL's digital oscilloscopes
 PVP2350	High-impedance Probe	• Attenuation Ratio: 10:1/1:1 • 1X BW: DC to 35 MHz • 10X BW: DC to 350 MHz • Compatibility: All models of RIGOL's digital oscilloscopes
 RP3500A	High-impedance Probe	• Attenuation Ratio: 10:1 • BW: DC to 500 MHz • Compatibility: MSO/DS4000, DS6000, MSO/DS7000, MSO8000/A, DHO4000/1000, and DS70000/80000 series
 RP5600A	High-impedance Probe	• BW: DC~600 MHz • Compatibility: MSO/DS4000, DS6000, MSO/DS7000, MSO8000/A, and DS70000/80000 series
 RP6150A	Low-impedance Probe	• BW: DC~1.5 GHz • Compatibility: MSO/DS4000, DS6000, MSO/DS7000, MSO8000/A, and DS70000/80000 series

Model	Type	Description
 RP1300H	High-Voltage Probe	• Attenuation Ratio: 100:1 • BW: DC to 300 MHz • CAT I 2000 V (DC+AC) • CAT II 1500 V (DC+AC) • Compatibility: All models of RIGOL's digital oscilloscopes
 RP1010H	High-Voltage Probe	• Attenuation Ratio: 1000:1 • BW: DC to 40 MHz • DC: 0 to 10 kV DC • AC: pulse ≤20 kVp-p • AC: sine ≤7 kV_{rms} • Compatibility: All models of RIGOL's digital oscilloscopes
 RP1018H	High-Voltage Probe	• Attenuation Ratio: 1000:1 • BW: DC to 150 MHz • $DC+AC_{peak}$: 18 kV CAT II • AC_{rms}: 12 kV CAT II • Compatibility: All models of RIGOL's digital oscilloscopes

RIGOL Active&Current Probes

Model	Type	Description
 PVA8700	Bandwidth Differential Probe	• BW: DC to 7 GHz • 30 V peak CAT I • Compatibility: DS70000/80000 series
 PVA7250	Single-ended/ Differential Active Probe	• BW: DC to 2.5 GHz • 30 V peak CAT I • Compatibility: MSO/DS7000, MSO8000/A, DHO4000, and DS70000/80000 series

Model	Type	Description
 RP7150	Single-ended/ Differential Active Probe	• BW: DC to 1.5 GHz • 30 V peak CAT I • Compatibility: MSO/DS4000, DS6000, MSO/ DS7000, MSO8000/A, DHO4000, and DS70000/80000 series
 RP7080	Single-ended/ Differential Active Probe	• BW: DC to 800 MHz • 30 V peak CAT I • Compatibility: MSO/DS4000, DS6000, MSO/ DS7000, MSO8000/A, DHO4000, and DS70000/80000 series
 RP1000D	High-Voltage Differential Probe	• BW: DC to 25 MHz • Max. voltage ≤ 7000 Vpp • Compatibility: All models of RIGOL's digital oscilloscopes
 PHA0150	High-Voltage Differential Probe	• BW: DC~70 MHz • Max. voltage ≤ 1500 Vpp • Compatibility: All models of RIGOL's digital oscilloscopes
 PHA1150	High-Voltage Differential Probe	• BW: DC~100 MHz • Max. voltage ≤ 1500 Vpp • Compatibility: All models of RIGOL's digital oscilloscopes
 RP7150S	Single-ended Active Probe	• BW: DC to 1.5 GHz • 30 V peak CAT I • Compatibility: MSO/DS4000, DS6000, MSO/ DS7000, MSO8000/A, DHO4000, and DS70000/80000 series
 RP7080S	Single-ended Active Probe	• BW: DC to 800 MHz • 30 V peak CAT I • Compatibility: MSO/DS4000, DS6000, MSO/ DS7000, MSO8000/A, DHO4000, and DS70000/80000 series

Model	Type	Description
 PCA1030	Current Probe	• BW: DC to 50 MHz (-3 dB) • Max. continuous input range: 30 A_{rms} • Max. peak-peak current value: 50 A peak, non-continuous • Compatibility: MSO/DS4000, DS6000, MSO/DS7000, MSO8000/A, DHO4000, and DS70000/80000 series
 PCA2030	Current Probe	• BW: DC~100 MHz (-3 dB) • Max. continuous input range: 30 A_{rms} • Max. peak-peak current value: 50 A peak, non-continuous • Compatibility: MSO/DS4000, DS6000, MSO/DS7000, MSO8000/A, DHO4000, and DS70000/80000 series
 PCA1150	Current Probe	• BW: DC to 10 MHz (-3 dB) • Max. continuous input range: 150 A • Max. peak-peak current value: 300 A (non-continuous), 500 A (pulse width ≤ 30 μs) • Compatibility: MSO/DS4000, DS6000, MSO/DS7000, MSO8000/A, DHO4000, and DS70000/80000 series
 RP1001C	Current Probe	• BW: DC to 300 kHz • Maximum Input AC: ±100 A AC P-P: 200 A AC RMS: 70 A • Compatibility: All models of RIGOL's digital oscilloscopes
 RP1002C	Current Probe	• BW: DC to 1 MHz • Maximum Input AC: ±70 A AC P-P: 140 A AC RMS: 50 A • Compatibility: All models of RIGOL's digital oscilloscopes

Model	Type	Description
 RP1025D	High-Voltage Differential Probe	• BW: DC to 25 MHz • Max. voltage ≤ 1400 Vpp (DC + AC P-P) • Compatibility: All models of RIGOL's digital oscilloscopes
 RP1050D	High-Voltage Differential Probe	• BW: DC to 50 MHz • Max. voltage ≤ 7000 Vpp (DC + AC P-P) • Compatibility: All models of RIGOL's digital oscilloscopes
 RP1100D	High-Voltage Differential Probe	• BW: DC to 100 MHz • Max. voltage ≤ 7000 Vpp (DC + AC P-P) • Compatibility: All models of RIGOL's digital oscilloscopes

Specifications

All the specifications are guaranteed except the parameters marked with "Typical" and the oscilloscope needs to operate for more than 30 minutes under the specified operation temperature.

Overview of the DS70000 Series Technical Specifications

Overview of the DS70000 Series Technical Specifications		
Model	DS70504	DS70304
Analog Bandwidth (50 Ω, -3 dB)[1]	5 GHz	3 GHz
Analog Bandwidth (1 MΩ, -3 dB)	500 MHz	500 MHz
Calculated Rising Time under 50 Ω (Half-channel[1]10%-90%, typical)	≤108 ps	≤130 ps
No. of Input Channels	4 analog channel inputs 1 EXT channel input	
Sampling Mode	Real-time sampling	
Max. Sample Rate of Analog Channel	half-channel[1]: 20 GSa/s full-channel[2]: 10 GSa/s	
Max. Memory Depth	Standard: 500 Mpts Option: 2 Gpts (half-channel[1]), 1 Gpts (full-channel[2])	
Max. Waveform Capture Rate[3]	>1,000,000 wfms/s	
Vertical Resolution	8-16 bits (selectable)	
Hardware Real-time Waveform Recording and Playing	Max. 2,000,000 frames (half-channel[1])	
Peak Detection	Captures 200 ps glitches	
LCD Size and Type	main display: 15.6'' capacitive multi-touch screen with one-button electronic tilt Secondary display: 3.5'' capacitive multi-touch screen with user-defined shortcut key menu, supporting quick-responsive touch operation with vibration	
Display Resolution	Main display: 1920x1080; secondary display: 480x320	

Vertical System Analog Channel

Vertical System Analog Channel		
Input Coupling	DC, AC, or GND	
Input Impedance	1 MΩ ± 1%, 50 Ω ± 2.5%	
Input Capacitance	17 pF ± 3 pF	
Probe Attenuation Coefficient	Probe Ratio	0.001X, 0.002X, 0.005X, 0.01X, 0.02X, 0.05X, 0.1X, 0.2X, 0.5X, 1X, 2X, 5X, 10X, 20X, 50X, 100X, 200X, 500X, 1000X, 2000X, 5000X, 10000X, 20000X, and 50000X
	Attenuation	Defined by users, ranging from 0.001X to 50000X
Probe Recognition	Auto-recognized RIGOL probe	
Maximum Input Voltage	1 MΩ	$30V_{rms}$ or ±40 V_{max}(DC + V_{peak})
	50 Ω	$5V_{rms}$
	Remarks	The probe allows a higher voltage test technically. The standard probe RP3500A 10:1 supports 300 V_{rms} or ±400 V_{max}(DC + V_{peak}). Whether the probe is used, the 50 Ω or 1 MΩ route does not allow transient overvoltage to occur. Please use the instrument dedicated for the specified measurement category (not applicable to CAT II, III, and IV)
Vertical Resolution		8 bits 9-16 bits (selectable) (high-resolution mode)
Vertical Sensitivity Range[4]	1 MΩ	1 mV/div to 10 V/div
	50 Ω	1 mV/div to 1 V/div
Offset Range	1 MΩ	± 1 V (1 mV/div ~ 50 mV/div) ± 30 V (51 mV/div ~ 260 mV/div) ± 100 V (265 mV/div ~ 10 V/div)
	50 Ω	±1 V (1 mV/div~100 mV/div) ±4 V (102 mV/div~1 V/div)
Dynamic Range		±5 div (8 bits)

Vertical System Analog Channel		
Bandwidth Limit (Typical)	1 MΩ	20 MHz, 250 MHz
	50 Ω[5]	20 MHz, 250 MHz, 1 GHz or 2 GHz
DC Gain Accuracy[4]		± 2% of full scale
DC Offset Accuracy		≤200 mV/div (±0.1 div ± 2 mV ± 1.5% of offset value)
		>200 mV/div (±0.1 div ± 2 mV ± 1.0% of offset value)
Channel-to-Channel Isolation		≥100:1 (from DC to 1 GHz), ≥30:1 (> 1 GHz)
ESD Tolerance		±8 kV

Noise Floor

Noise floor at 50Ω		
	5 GHz	3 GHz
1 mV/div	500 μV_{rms}	400 μV_{rms}
2 mV/div	500 μV_{rms}	400 μV_{rms}
5 mV/div	800 μV_{rms}	600 μV_{rms}
10 mV/div	900 μV_{rms}	680 μV_{rms}
20 mV/div	2mV_{rms}	1.4mV_{rms}
50 mV/div	5mV_{rms}	3.5mV_{rms}
100 mV/div	8mV_{rms}	5.6mV_{rms}
200 mV/div	20mV_{rms}	15mV_{rms}
500 mV/div	40mV_{rms}	28mV_{rms}
1 V/div	60mV_{rms}	35mV_{rms}
Noise floor at 1MΩ		
1 mV/div	500 μV_{rms}	
2 mV/div	500 μV_{rms}	
5 mV/div	600 μV_{rms}	

Noise floor at 1MΩ	
10 mV/div	900 μV_{rms}
20 mV/div	2mV_{rms}
50 mV/div	4mV_{rms}
100 mV/div	8mV_{rms}
200 mV/div	25mV_{rms}
500 mV/div	30mV_{rms}
1 V/div	60mV_{rms}
2 V/div	110mV_{rms}
5 V/div	300mV_{rms}
10 V/div	600mV_{rms}

Horizontal System--Analog Channel

Horizontal System--Analog Channel			
Range of Time Base		50 ps/div to 1 ks/div	100 ps/div to 1 ks/div
		Fine	
Time Base Resolution		0.5 ps	
Time Base Accuracy		±0.5 ppm ± 1 ppm/year	
Time Base Delay Range	Pre-trigger	≥1/2 of the screen width	
	Post-trigger	1 s or 100 div, whichever is greater	
Time Interval (ΔT) Measurement (using Cursor)		±(Time Base Accuracy x Readout) ± (0.001 x Screen Width) ± 20 ps	
Inter-channel Offset Correction Range		Inter-channel Offset Calibration Range ±100 ns, Accuracy±1 ps	
Analog Channel-to-Channel Delay (Typical)		≤50 ps [6]	

Horizontal System--Analog Channel		
Horizontal Mode	YT	Default
	XY	CH1/CH2/CH3/CH4
	SCAN	Time base ≥ 200 ms/div
	ROLL	Time base ≥ 50 ms/div, available to enter or exit the ROLL mode by adjusting the horizontal timebase knob

Acquisition System

Acquisition System		
Max. Sample Rate of Analog Channel	20 GSa/s (half-channel[1]), 10 GSa/s (full-channel[2])	
Max. Memory Depth of Analog Channel	Standard: 500 Mpts Option: 2 Gpts (half-channel[1]), 1 Gpts (full-channel[2])	
Acquisition Mode	Normal	Default
	Peak Detection	Captures 200 ps glitches
	Average Mode	2, 4, 8, 16...65536 are available for you to choose
	High Resolution	9-16 bits

Vertical Resolution

Vertical Resolution						
Resolution		9 bits	10 bits	12 bits	14 bits	16 bits
Bandwidth	20 GSa/s	2 GHz	1 GHz	500 MHz	200 MHz	100 MHz
	10 GSa/s	1 GHz	500 MHz	250 MHz	100 MHz	50 MHz

Trigger System

Trigger System	
Trigger Source	Analog channel (1~4), EXT TRIG, AC Line
Trigger Mode	Auto, Normal, Single

Trigger System		
Trigger Coupling	DC	DC coupling trigger
	AC	AC coupling trigger
	High Frequency Rejection	High frequency rejection, cut-off frequency~75 kHz (internal trigger only)
	Low Frequency Rejection	Low frequency rejection, cut-off frequency~75 kHz (internal trigger only)
Noise Rejection		Increases delay for the trigger circuit (internal trigger only), On/Off
Holdoff Range		8 ns to 10 s
Trigger Bandwidth	Internal Trigger	Analog Bandwidth
	External Trigger	200 MHz
Trigger Sensitivity	Internal Trigger	0.5 div, ≥50 mV/div 0.7 div (with noise rejection enabled)
	External Trigger	200 mVpp, DC~100 MHz 500 mVpp, 100 MHz~200 MHz
EXT TRIG	Input Impedance	1MΩ±1%, SMA connector
	Trigger Jitter (Typical)	<200 ps_{RMS} Normal acquisition, Edge trigger, trigger level located near 50% of EXT input signal
Trigger Level Range	Internal Trigger	± 5 div from the center of the screen
	External Trigger	±5 V
	AC Line	fixed 40%-60%

Trigger Type

Trigger Type	
Trigger Type	Standard: Edge trigger, Pulse trigger, Slope trigger, Video trigger, Pattern trigger, Duration trigger, Timeout trigger, Runt trigger, Window trigger, Delay trigger, Setup/Hold trigger, Nth Edge trigger Option: RS232/UART, I2C, SPI, CAN, FlexRay, LIN, I2S, and MIL-STD-1553
Edge	Triggers on the threshold of the specified edge of the input signal. The edge types can be Rising, Falling, or Either. Source channel: CH1 to CH4, EXT, or AC Line
Pulse	Triggers on the positive or negative pulse with a specified width. The pulse width is greater or smaller than a certain value or within a certain time range. Source channel: CH1 to CH4
Slope	Triggers on the positive or negative slope of the specified time. The slew time is greater or smaller than a certain value or within a certain time range (200 ps~10 s). Source channel: CH1 to CH4
Video	Triggers on all lines, specified line, add field, or even field that conforms to the video standards. The supported video standards include NTSC, PAL/SECAM, 480p/60Hz, 576p/50Hz, 720p/60Hz, 720p/50Hz, 720p/30Hz, 720p/25Hz, 720p/24Hz, 1080p/60Hz, 1080p/50Hz, 1080p/30Hz, 1080p/25Hz, 1080p/24Hz, 1080i/60Hz, and 1080i/50Hz. Source channel: CH1 to CH4
Pattern	Identifies a trigger condition by searching for a specified pattern. The pattern is a combination of multiple selected channel sources. The logic pattern of each channel is H, L, X, Rising, or Falling. Source channel: CH1 to CH4
Duration	Triggers when the specified pattern meets the specified duration condition. The pattern is a combination of multiple selected channel sources. The logic pattern of each channel is H, L, and X. The duration is greater or smaller than a certain value, or within a certain time range, or outside a certain time range. Source channel: CH1 to CH4
Timeout	Triggers when duration of a certain event exceeds the specified time (200 ps~10 s). The event can be specified as Rising, Falling, or Either. Source channel: CH1 to CH4
Runt	Triggers when the pulses pass through one threshold but fail to pass through another threshold. Source channel: CH1 to CH4

Trigger Type	
Window	Triggers in a specified window state when the rising edge of the signal crosses the upper threshold or the falling edge crosses the lower threshold. The window state can be Enter, Exit, or Time. Source channel: CH1 to CH4
Delay	Triggers when the time difference between the specified edges of Source A and Source B meets the preset time. The duration is greater or smaller than a certain value, or within a certain time range, or outside a certain time range. Source channel: CH1 to CH4
Setup/Hold	When the setup time or hold time between the input clock signal and the data signal is smaller than the specified time (200 ps~10 s). Source channel: CH1 to CH4
Nth Edge	Triggers on the Nth edge that appears after the specified idle time. The edge can be specified as Rising or Falling. Source channel: CH1 to CH4
RS232/UART (Option)	DS70000-EMBDA option Triggers on the Start, Error, Check Error, or Data frame of the RS232/UART bus (up to 20 Mb/s). Source channel: CH1 to CH4
I2C (Option)	DS70000-EMBDA option Triggers on the Start, Stop, Restart, MissedACK, Address (7 bits, 8 bits, or 10 bits), Data, or Address Data of the I2C bus. Source channel: CH1 to CH4
SPI (Option)	DS70000-EMBDA option Triggers on the specified pattern of the specified data width (4~32) of SPI bus. CS and Timeout are supported. Source channel: CH1 to CH4
CAN (Option)	DS70000-AUTOA option Triggers on the start of a frame, end of a frame, Remote ID, Overload, Frame ID, Frame Data, Data&ID, Frame Error, Bit Fill, Answer Error, Check Error, Format Error, and Random of the CAN signal (up to 5 Mb/s). The supported CAN bus signal types include CAN_H, CAN_L, TX/RX, and DIFF. Source channel: CH1 to CH4
FlexRay (Option)	DS70000-AUTOA option Triggers on the specified position (TSS End, FSS_BSS End, FES End, DTS End), frame (null, Syn, Start, All), symbol (CAS/MTS and WUS), error (Head CRC Err, Tail CRC Err, Decode Err, and Random Err) of the FlexRay signal (up to 10 Mb/s). Source channel: CH1 to CH4

Trigger Type	
LIN (Option)	DS70000-AUTOA option Triggers on the Sync, ID, Data (width settable), Data&ID, Wakeup, Sleep, and Error of the LIN bus signal (up to 20 Mb/s). Source channel: CH1~CH4
I2S (Option)	DS70000-AUDIOA option Triggers on 2's complement data of audio left channel, right channel, or either channel (=, ≠, >, <, <>, ><). The available alignment modes include I2S, LJ, and RJ. Source channel: CH1 to CH4
MIL-STD-1553 (Option)	DS70000-AEROA option Triggers on Sync (Data Sync, Cmd/Status Sync, and All Sync), Data, RTA, RTA +11Bit, and Error (Sync Error and Check Error) of the MIL-STD-1553 bus. Source channel: CH1 to CH4

Waveform Measurement

Waveform Measurement		
Cursor	Number of Cursors	2 pairs of XY cursors
	Manual Mode	Voltage deviation between cursors (ΔY) Time deviation between cursors (ΔX) Reciprocal of ΔX (Hz) (1/ΔX)
	Track Mode	Fix Y-axis to track X-axis waveform point's voltage and time values Fix X-axis to track Y-axis waveform point's voltage and time values
	Auto Measurement	Allows to display cursors during auto measurement
	XY Mode	Measures the voltage parameters of the corresponding channel waveforms in XY time base mode. X = Channel 1, Y = Channel 2

Waveform Measurement		
Auto Measurement	Number of Measurements	41 auto measurements; and up to 14 measurements can be displayed at a time.
	Measurement Source	CH1-CH4, Math1-Math4
	Measurement Mode	Normal (realized by software) and Precision (W); for Precision, only supported by analog channel
	Measurement Range	Main, Zoom,Cursor,Full memory
	All Measurement	Displays 41 measurement items for the current measurement channel; the measurement results are updated continuously; you can switch the measurement channel.
	Vertical	Vmax, Vmin, Vpp, Vtop, Vbase, Vamp, Vupper, Vmid, Vlower, Vavg, VRMS, Per. VRMS, Overshoot, Preshoot, Area, and Period Area.
	Horizontal	Period, Frequency, Rise Time, Fall Time, +Width, -Width, +Duty, -Duty, Positive Pulse Count, Negative Pulse Count, Rising Edge Count, Falling Edge Count, Tvmax, Tvmin, +Slew Rate, and -Slew Rate
	Others	Delay(A↑-B↑), Delay(A↑-B↓), Delay(A↓-B↑), Delay(A↓-B↓), Phase(A↑-B↑), Phase(A↑-B↓), Phase(A↓-B↑), and Phase(A↓-B↓)
	Statistics	Items: Current, Average, Max, Min, Standard Deviation, Count Statistical times settable
Histogram	Measurement Type	Histogram data or measurement data
	Measurement Item	Type, Sum, Peaks, Max, Min, Pk_Pk, Mean, Median, Mode, Bin width, Sigma, XScale, μ±σ, μ±2σ, and μ±3σ.

Waveform Calculation

Waveform Calculation	
No. of Math Functions	4 math functions available to be displayed at a time

Waveform Calculation		
Operation		A+B, A-B, A×B, A/B, FFT, A&&B, A||B, A^B, !A, Intg, Diff, Sqrt, Lg, Ln, Exp, Abs, AX+B, LowPass, HighPass, BandPass, and BandStop
Color Grade		Supports FFT
FFT	Record Length	Max. 1 Mpts
	Window Type	Rectangular, Blackman-Harris, Hanning (default), Hamming, Flattop, and Triangle.
	Peak Search	A maximum of 15 peaks, determined by the user-defined threshold and offset threshold

Waveform Analysis

Waveform Analysis		
Waveform Recording		Stores the signal under test in segments according to the trigger events, that is, saves all the sampled waveform data as a segment to the RAM for each trigger event. The maximum number of the sampled segments reaches 2 million.
	Source	All enabled analog channels
	Analysis	Supports playing frame by frame or continuous playing; calculates, measures, and decodes the played waveforms
	Waveform Export	Saves the recorded frames of waveforms and exports the waveform files in the format of "*.bin" or "*.csv".
Pass/Fail Test		Compares the signal under test with the user-defined mask to provide the test results: the number of successful tests, failed tests, and the total number of tests. The pass/fail event can enable immediate stop, beeper, and the screenshot.
	Source	Any analog channel

Waveform Analysis		
Histogram		The waveform histogram provides a group of data, showing the number of times a waveform hits within the defined region range on the screen. The waveform histogram not only shows the distribution of hits, but also the ordinary measurement statistics.
	Source	Any analog channel
	Type	Horizontal, Vertical
	Measure	Sum, Peaks, Max, Min, Pk_Pk, Mean, Median, Mode, Bin width, Sigma, XScale, μ±σ, μ±2σ, and μ±3σ
Color Grade		Provides a dimensional view for color grade waveforms, color grade >16, 256-level color scale display
	Source	Any analog channel
	Color Theme	Temperature and intensity
	Mode	Supports all modes
Real-time Eye Diagram (Option)	Source	Any analog channel
	Clock Recovery	Clock recovery for software, constant clock, first-order PLL, second-order PLL, and explicit clock
	Type	Fully automatic, semi automatic, and manual
	Data Rate	1 Mpts
	Eye Diagram Cursor	Supports measuring the time and voltage parameters
	Eye Measurement Item	one level, zero level, eye height, eye width, eye amplitude, crossing percentage, Q Factor, DCD (duty cycle distortion), rise time, fall time, bit rate, etc.
	Eye Template	Standard Template, Import Template, or Edit a user-defined template Failure action includes "Screenshot", "Beeper", and "Stop Fail".

Waveform Analysis		
Jitter Analysis (Option)		Makes measurements for the clock or data signal over time and analyzes the variance of the technical specifications.
	Source	Any analog channel
	Clock Recovery	Constant, PLL, and Explicit
	Type	Fully automatic, semi automatic, and manual
	Jitter Analysis	Jitter separation, including TJ (Total Jitter), RJ (Random Jitter), DJ (Deterministic Jitter), PJ (Periodic Jitter), DDJ (Data Dependent Jitter), DCD (Duty Cycle Distortion), ISI (Inter-symbol Interference), BR (Bit Ratio), and TIE.
	Measurement Display	Meas trend, meas histogram, and jitter spectrum

Real-Time Spectrum Analysis Function

Real-Time Spectrum Analysis Function (Option)	
Record Length	Max. 64 Kpts
FFT Capture Rate	10,000 wfms/s
RBW	Manual/Auto Set
Window Type	Rectangular, Blackman-Harris, Hanning (default), Hamming, Flattop, and Triangle.
Peak Search	A maximum of 15 peaks, determined by the user-defined threshold and offset threshold

Serial Decoding

Serial Decoding	
Number of Decodings	4 protocol types can be decoded and enabled at the same time
Decoding Type	Standard: Parallel Option: RS232/UART, I2C, SPI, LIN, CAN, CAN-FD, FlexRay, I2S, MIL-STD-1553, MIPI-RFFE and USB2.0

Serial Decoding	
Parallel	Up to 4 bits of Parallel decoding, supporting any analog channel Supports user-defined clock and auto clock settings. Source channel: CH1 to CH4
RS232/UART	DS70000-EMBDA option Decodes the RS232/UART (up to 20 Mb/s) bus's TX/RX data (5-9 bits), parity (Odd, Even, or None), and stop bits (1-2 bits) Source channel: CH1 to CH4
I2C	DS70000-EMBDA option Decodes the address (with or without the R/W bit) of the I2C bus, data, and ACK. Source channel: CH1 to CH4
SPI	DS70000-EMBDA option Decodes the MISO/MOSI data (4-32 bits) of the SPI bus. The available mode includes "Timeout" and "CS". Source channel: CH1 to CH4
LIN	DS70000-AUTOA option Decodes the protocol version (1.X or 2.X) of the LIN bus (up to 20 Mb/s). The decoding displays sync, ID, data, and check sum. Source channel: CH1 to CH4
CAN	DS70000-AUTOA option Decodes the remote frame (ID, byte number, CRC), overload frame, and data frame (standard/extended ID, control domain, data domain, CRC, and ACK) of the CAN bus (up to 5 Mb/s). The supported CAN bus signal types include CAN_H, CAN_L, TX/RX, and DIFF. Supports 10 Mb/s CAN-FD baud. Source channel: CH1 to CH4
FlexRay	DS70000-AUTOA option Decodes the frame ID, PL (payload), Header CRC, Cycle Count, Data, Tail CRC, and DTS of the FlexRay bus (up to 10 Mb/s). The supported signal types include BP, BM, and RX/TX. Source channel: CH1 to CH4

Serial Decoding	
I2S	DS70000-AUDIOA option Decodes I2S audio bus left channel data and right channel data, supporting 4-32 bits. The alignment modes include I2S, LJ, and RJ. Source channel: CH1 to CH4
MIL-STD-1553	DS70000-AEROA option Decodes the MIL-STD-1553 bus signal's data word, command word, and status word (address+last 11 bits). Source channel: CH1 to CH4
MIPI-RFFE	DS70000-RFFEA option MIPI-RFFE is the protocol standard for the control of the mobile terminal RF front-end. It is applicable to various front-end devices. Source channel: CH1 to CH4
USB2.0	DS70000-USBA option USB2.0 protocol is used to realize information transfer between the host and the device. All the transactions are transferred via packets, which include SYNC, PID, and other field types. Source channel: CH1 to CH4

Protocol Compliance Analysis

Protocol Compliance Analysis (Option)		
Protocols	USB 2.0	DS70000-USBC Option Test Item: sync width, EOP width, signal rate, rise time, fall time, edge monotonicity, rise edge rate, fall edge rate, paired JK jitter, paired KJ jitter, consecutive jitter, eye diagram
	100Base-T	DS70000-ENETC Option Test Item: Output Voltage, Amplitude Symmetry, Rise/Fall Time, Rise/Fall Time Symmetry, Overshoot, Distortion Based on Duty Cycle, Eye, and Jitter
	1000Base-T	DS70000-ENETC Option Test Item in Test Mode1: Template/Volt/Droop Test Item in Test Mode2: Master Mode Jitter Test Item in Test Mode3: Slave Mode Jitter Test Item in Test Mode4: Transmitter Distortion and Common-mode Output Voltage
	100/1000 Base-T1	DS70000-AENETC Test Item: Transmitter Output Droop, Transmit Clock Frequency, Master Timing Jitter, Slave Timing Jitter, Transmitter Distortion, MDI Return Loss, MDI Output Jitter, Power Spectral Density, MDI Common Mode Emission, MDI Mode Conversion Loss, and Peak Differential Output
Report	Measurement data include: test item, test results, data range, reference standards, pass/fail test results; supporting exporting the report in HTML format	

Auto

Auto	
AutoScale	Min voltage greater than 10 mVpp, duty cycle 1%, frequency over 35 Hz

Digital Voltmeter

Digital Voltmeter	
Source	Any analog channel
Function	DC, AC+DC_{RMS}, AC_{RMS}
Resolution	ACV/DCV: 3 bits

Digital Voltmeter	
Limits Beeper	Sounds an alarm when the voltage value is within or outside of the limit range
Range Measurement	Displays the latest measurement results in the form of a diagram, and display the extrema over the last 3 seconds; supports Trend

High-precision Frequency Counter

High-precision Frequency Counter		
Source		Any analog channel and EXT
Measure		Frequency, period, totalizer
Counter	Resolution	3-8 digits, user-defined
	Max. Frequency	Max. analog bandwidth
Totalizer		48-bit totalizer
		Counts the number of the rising edges
Time Reference		Internal reference

Command Set

Command Set	
Common Commands Support	IEEE488.2 Standard
Error Message Definition	Error messages
Support Status Report Mechanism	Status Reporting
Support Syn Mechanism	Synchronization

Display

Display	
LCD	15.6-inch capacitive multi-touch screen with one-button electronic tilt, supports gesture-enabled operation
Resolution	1920×1080 (Screen Region) 16:9
Graticule	(10 horizontal divisions) x (8 vertical divisions)
Persistence	Off, Infinite, variable persistence (100 ms to 10 s)
Brightness	256 intensity levels (LCD, HDMI)

Processor System

Processor System	
Processor	Dual-core Cortex-A72 up to 1.8 GHz
System Memory	4 GB RAM
Operating System	Android
Internal Non-volatile Memory	128 GB

I/O

I/O		
USB3.0 Host		4 (2 on the front panel and 2 on the rear panel)
USB3.0 Device		1 on the rear panel
LAN		1 on the rear panel, 10/100/1000 Base-T, supporting LXI-C
Web Remote Control		Supports Web Control interface (input the IP address of the oscilloscope into the Web browser to display the operation interface of the oscilloscope)
AUX Out		SMA output on the rear panel Vo (H)≥2.5 V open circuit, ≥1.0 V 50 Ω to GND Vo (L)≤0.7 V to load ≤4 mA, ≤0.25 V 50 Ω to GND
	TrigOut	Outputs a pulse signal when the oscilloscope is triggered
	Pass/Fail	Outputs a pulse signal when a pass/fail event occurs. Supports user-defined pulse polarity and pulse time (10 ns to 10 ms)
	Rise Time	≤1 ns
10 M In/Out	Input Interface	1, SMA connector on the rear panel
	Output Interface	1, SMA connector on the rear panel
	Input Interface	50 Ω, with the amplitude 130 mVpp to 4.1 Vpp (-10 dBm, 20 dBm), frequency 10 MHz ± 10 ppm
	Output Interface	50 Ω, 1.5 Vpp sine waveform
HDMI Video Output		1 on the rear panel, HDMI 1.4, A plug. It is used to connect to an external monitor or projector.

I/O	
Probe Compensation Output	1 kHz frequency, 0.3 V amplitude, Square

Power

Power Supply	
Power Voltage	100 V-240 V, 45 Hz-440 Hz
Power	Max. 500 W (connect to various interfaces, USB, active probes)
Fuse	3.15 A, T degree, 250 V

Environment

Environment		
Temperature Range	Operating	0℃~+50℃
	Non-operating	-30℃~+70℃
Humidity Range	Operating	below +30℃: ≤90% RH (without condensation)
		+30℃ to +40℃, ≤75% RH (without condensation)
		+40℃ to +50℃, ≤45% RH (without condensation)
	Non-operating	below 65℃: ≤90% RH (without condensation)
Altitude	Operating	below 3,000 meters
	Non-operating	below 15,000 meters

Warranty and Calibration Interval

Warranty and Calibration Interval	
Warranty	Three years for the mainframe, excluding the probes and accessories.
Recommended Calibration Interval	18 months

Regulations

Regulations		
Electromagnetic Compatibility	Compliant with EMC DIRECTIVE 2014/30/EU, compliant with or higher than the standards specified in IEC 61326-1:2013/EN 61326-1:2013 Group 1 Class A	
	CISPR 11/EN 55011	
	IEC 61000-4-2:2008/EN 61000-4-2	±4.0 kV (contact discharge), ±8.0 kV (air discharge)
	IEC 61000-4-3:2002/EN 61000-4-3	3 V/m (80 MHz to 1 GHz); 3 V/m (1.4 GHz to 2 GHz); 1 V/m (2.0 GHz to 2.7 GHz)
	IEC 61000-4-4:2004/EN 61000-4-4	1 kV power line
	IEC 61000-4-5:2001/EN 61000-4-5	0.5 kV (phase-to-neutral voltage); 1 kV (phase-to-earth voltage); 1 kV (neutral-to-earth voltage)
	IEC 61000-4-6:2003/EN 61000-4-6	3 V, 0.15-80 MHz
	IEC 61000-4-11:2004/EN 61000-4-11	Voltage dip: 0% UT during half cycle; 0% UT during 1 cycle ; 70% UT during 25 cycles short interruption: 0% UT during 250 cycles
Safety	EN 61010-1:2019 EN 61010-031:2015 IEC 61010-1:2016 IEC 61010-2-030:2017 UL 61010-1:2012 R7 UL 61010-2-31:2017 R2 CAN/CSA-22.2 No. 61010-1-12:2017 CAN/CSA-22.2 No. 61010-2-30:2018 CAN/CSA-22.2 No. 61010-031-07:201	
Vibration	Meets GB/T 6587; class 2 random Meets MIL-PRF-28800F and IEC60068-2-6; class 3 random	

Regulations	
Shock	Meets GB/T 6587-2012; class 2 random Meets MIL-PRF-28800F and IEC 60068-2-27; class 3 random In non-operating conditions: 30 g, half-sine wave, 11 ms duration, 3 shocks along the main axis, total of 18 shocks

Mechanical Characteristics

Mechanical Characteristics	
Dimensions	439mm (W) x 310 mm (H) x 491 mm (D)
Rack Mount Kit	7U
Weight[7]	Package excluded: <22.5 kg
	Package included: <29.5 kg

Non-volatile Memory

Non-volatile Memory		
Data/File Storage	Setup/Image	setup (*.stp), image (*.png, *.bmp, *.jpg)
	Waveform Data	waveform data (*.csv, *.bin, *.dat), list data (*.csv), and reference waveform data (*.ref, *.csv, *.bin)
	SMB Storage	Performs network storage for the setup, image, and waveform data files.
Internal Capacity		125 GB
Reference Waveform		Displays 10 internal waveforms
Setting		Storage is limited by the capacity
USB Capacity		Supports the USB storage device that conforms to the industry standard

NOTE:

[1]: 5 GHz bandwidth is only applicable to half-channel mode; 4 GHz for full-channel mode. CH1 and CH2 are considered as a group; CH3 and CH4 are considered as another group. If one of the two channels in each group is enabled, it is called half-channel mode.

[2]: CH1 and CH2 are considered as a group; CH3 and CH4 are considered as another group. If two channels in either one group or four channels are all enabled, it is called full-channel mode.

[3]: Maximum value. Half channel, 5 ns horizontal time base, set a sine wave signal with 1 kpts memory depth, 4 div input amplitude, 10 MHz frequency. Others are default settings.

[4]: 1 mV/div and 2 mV/div are a magnification of 4 mV/div setting. For vertical accuracy calculations, use full scale of 32 mV for 1 mV/div and 2 mV/div sensitivity setting.

[5]: Under 50 Ω and scale <4 mV, the available bandwidth limits are 20 MHz and 250 MHz.

[6]: For any channel, under the same input impedance with DC-coupled, the Volts/div setting is the same for 100mV/div and 200mV/div.

[7]: Standard configuration.

Order Information and Warranty Period

Order Information

Order Information	Order No.
Model	
3 GHz, 20 GSa/s, 500 Mpts, 4CH digital oscilloscope	DS70304
5 GHz, 20 GSa/s, 500 Mpts, 4CH digital oscilloscope	DS70504
Standard Accessories	
Power Cord Conforming to the Standard of the Destination Country	— —
USB Cable	— —
4 Passive HighZ Probes (500 MHz)	RP3500A
Recommended Accessories	
Active Differential Probe (3.5 GHz BW)	PVA8350
Active Differential Probe (7 GHz BW)	PVA8700
Current Probe (50 MHz, 30 A)	PCA1030
Current Probe (100 MHz, 30A)	PCA2030
Current Probe (10 MHz, 150A)	PCA1150
High-Voltage Differential Probe (70 MHz, 1500 V)	PHA0150
High-Voltage Differential Probe (100 MHz, 1500 V)	PHA1150
USB-GPIB Adaptor	USB-GPIB
Bandwidth Upgrade Option	
2 Gpts Memory Depth Upgrade Option	DS70000-RL-20
Serial Protocol Analysis Option	
Embedded Serial Bus Trigger and Analysis (RS232/UART, I2C, and SPI)	DS70000-EMBDA
Auto Serial Bus Trigger and Analysis (CAN, CAN-FD, LIN, FlexRay)	DS70000-AUTOA
Audio Serial Bus Trigger and Analysis (I2S)	DS70000-AUDIOA
MIL-STD-1553 Serial Bus Trigger and Analysis	DS70000-AEROA
MIPI-RFFE Serial Bus Decoding and Analysis	DS70000-RFFEA
USB2.0 Serial Bus Decoding and Analysis	DS70000-USBA
Measurement Application Option	
Advanced Eye Diagram and Jitter Analysis (Option)	DS70000-JITTA
Pre-compliance Test Software	
USB2.0 Compliance Test	DS70000-USBC

Order Information	Order No.
100M/1000M Ethernet Compliance Test	DS70000-ENETC
100M/1000M Automotive Ethernet Compliance Test	DS70000-AENETC
Real-Time Spectrum Analysis (RTSA)	
Real-Time Spectrum Analysis Function	DS70000-RTSA

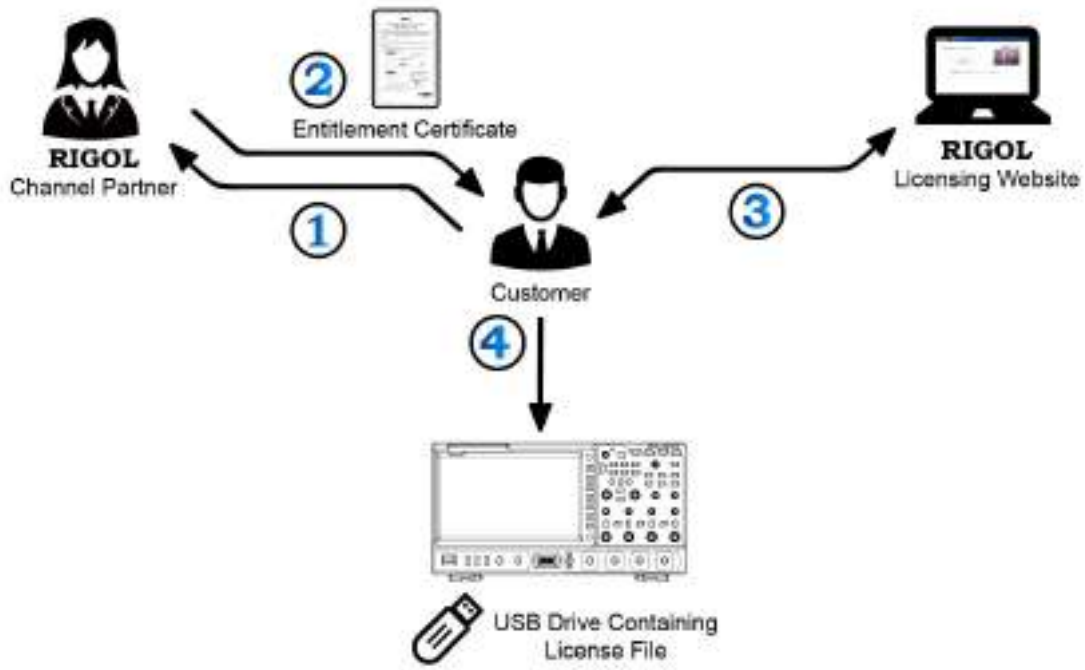
NOTE:

For all the mainframes, accessories, and options, please contact the local office of RIGOL.

Warranty Period

Three years for the mainframe, excluding the probes and accessories.

Option Ordering and Installation Process



1. According to the usage requirements, please purchase the specified function options from **RIGOL Sales Personnel**, and provide the serial number of the instrument that needs to install the option.
2. After receiving the option order, the **RIGOL** factory will mail the paper software product entitlement certificate to the address provided in the order.
3. Log in to **RIGOL** official website for registration. Use the software key and instruments serial number provided in the entitlement certificate to obtain the option license code and the option license file.
4. Download the option license file to the root directory of the USB storage device, and connect the USB storage device to the instrument properly. After the USB storage device is successfully recognized, the **Option install** menu is activated. Press this menu key to start installing the option.

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System Integration





New Energy

- Cellular-5G/WIFI
- UWB/RFID/ ZIGBEE
- Digital Bus/Ethernet
- Optical Communication

- Digital/Analog/RF Chip
- Memory and MCU Chip
- Third-Generation Semiconductor
- Solar Photovoltaic Cells

- New Energy Automobile
- PV/Inverter
- Power Test
- Automotive Electronics

Provide Testing and Measuring Products and Solutions for Industry Customers

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