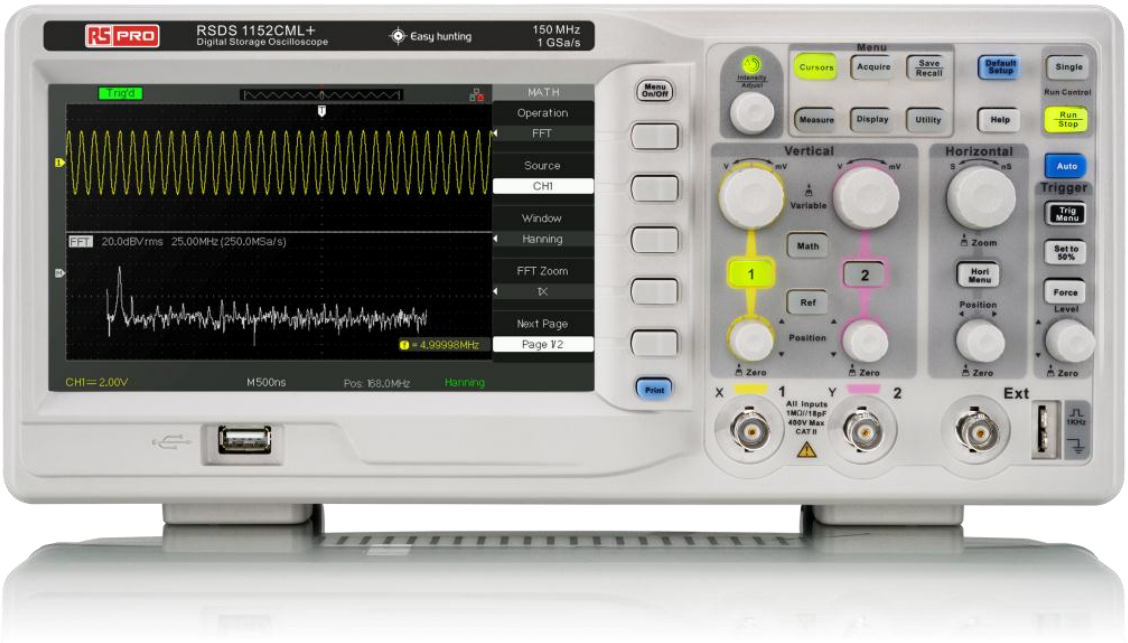
Data Sheet

RSDS1000DL+/CML+ Series Digital Oscilloscope

- RSDS1052DL+
- RSDS1072CML+
- RSDS1102CML+
- RSDS1152CML+



Product overview

RSDS1000DL+/CML+ series is a dual-channel universal digital oscilloscope, available in 50MHz,70MHz, 100MHz and 150MHz bandwidth models. It includes a 2Mpts memory depth that helps to ensure accurate waveform resolution and to capture longer signal lengths. With its 7 inch TFT-LCD (800*480) screen, there is adequate screen space to help better see and analyze waveform details. Along with a 1GSa/s sampling rate, the RSDS1000CML+ supports 32 parameters measurements and common mathematical operations to speed up complex / repetitive measurements.

Features

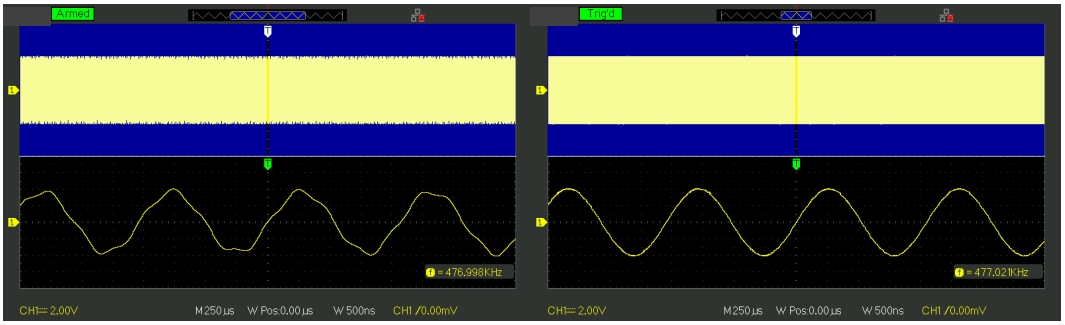
- 150MHz,100MHz,70MHz,50MHz bandwidth models
- Real-time sampling rate up to 1GSa/s, Equivalent-time sampling rate up to 50GSa/s
- Memory Depth up to2Mpts
- Trigger types: Edge, Pulse, Video, Slope, Alternate
- Waveform math functions:+,-,*,/,FFT
- 6 digital frequency counter
- Supports Multi-language display and embedded online help
- Screensaver from 1 minute to 5 hours
- Digital filter and waveform recorder function
- Shortcut storage function key
- 7 inch TFT-LCD display with 800 * 480 resolution
- Multiple interfaces: USB Host, USB Device (USBTMC), LAN (VXI-11), Pass / Fail

Models and Key Specifications

Model	RSDS1052DL+	RSDS1072CML+	RSDS1102CML+	RSDS1152CML+
Bandwidth	50MHz	70MHz	100MHz	150MHz
Sampling Rate(Max.)	500MSa/s	1GSa/s		
Channels	2+EXT			
Memory Depth(Max.)	32Kpts	2Mpts		
Trigger Types	Edge, Pulse, Video, Slope, Alternate			
I/O	USB Host, USB Device, LAN, Pass/Fail			
Probe(Std)	2 pcs passive probe, 70MHz		2 pcs passive probe, 100MHz	2 pcs passive probe, 200MHz
Display	7 inch TFT LCD(800x480)			
Net Weight	2.5Kg			

Function & Characteristic

MemoryDepth up to2Mpts

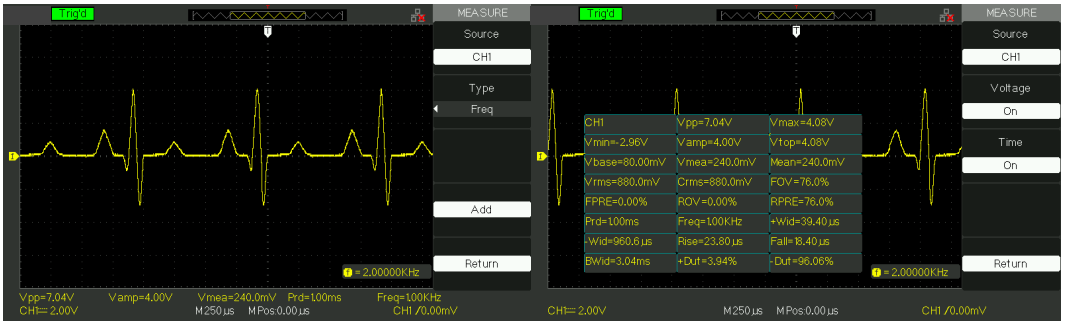


Normal Memory（40Kpts）Long Memory（2Mpts）

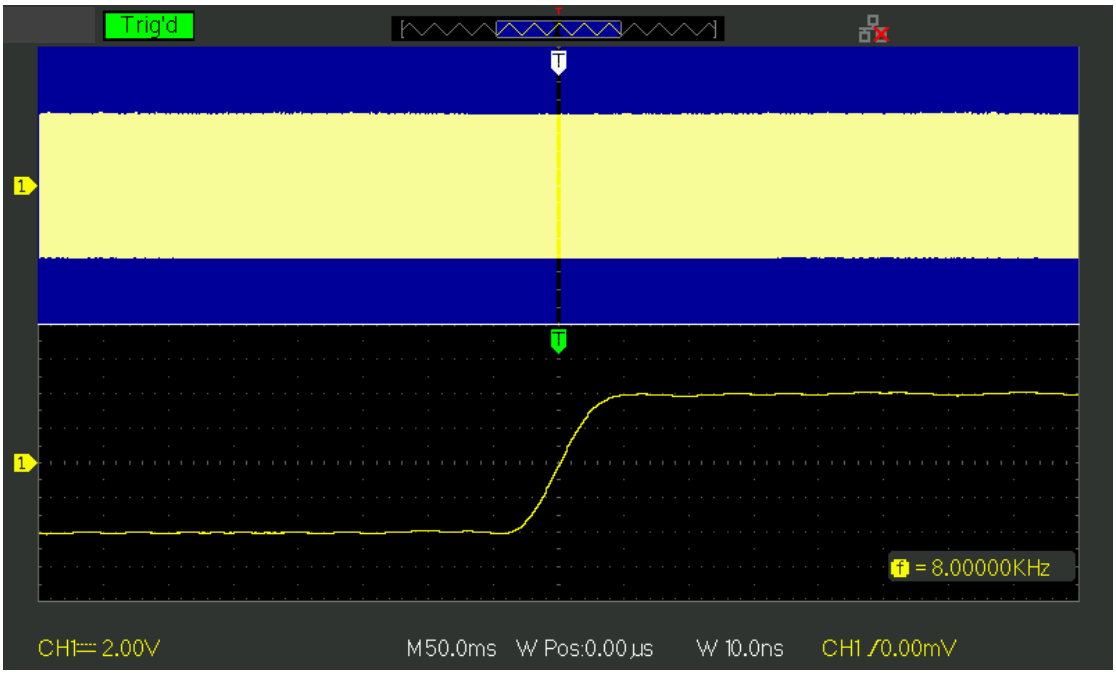
Using the long memory mode, users are able to use a higher sampling rate to capture more of the signal, and quickly zoom to focus on the area of interest.

32 parameters auto measurements and 5 parameters display

The RSDS1000DL+/CML+ support voltage, time and delay measurement types, with a total of 32 different parameters. The user is able to select five measurements to display on the screen. All measurement parameterscan also be displayed simultaneously.

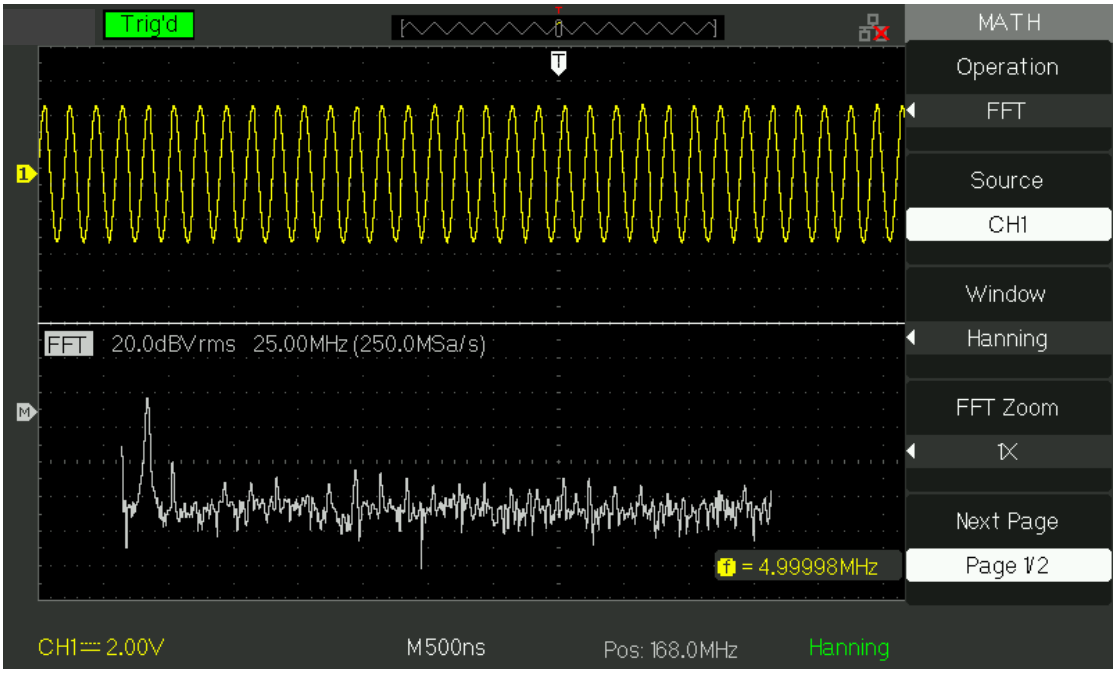


Zoom Function



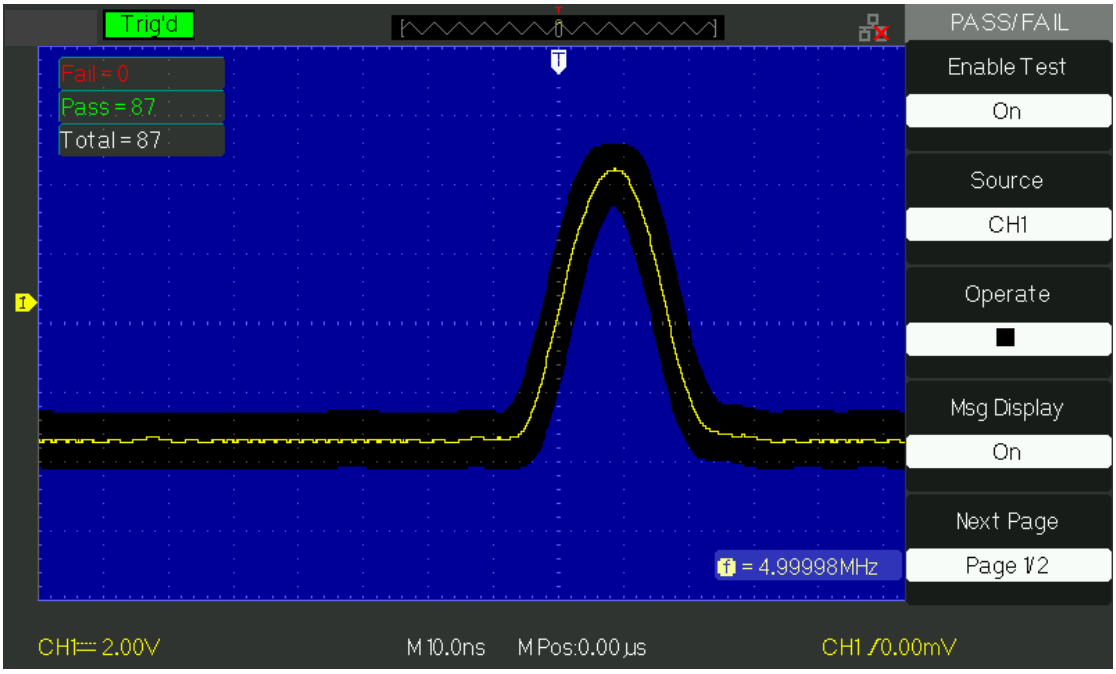
Zoom can extend a partial segment of the waveform, giving the user not only an overview of the whole signal but also a detailed view of the zoomed-in segment. The Zoom feature is a convenient way to locate a specific segment of a signal while zooming in to see the details.

Math Function



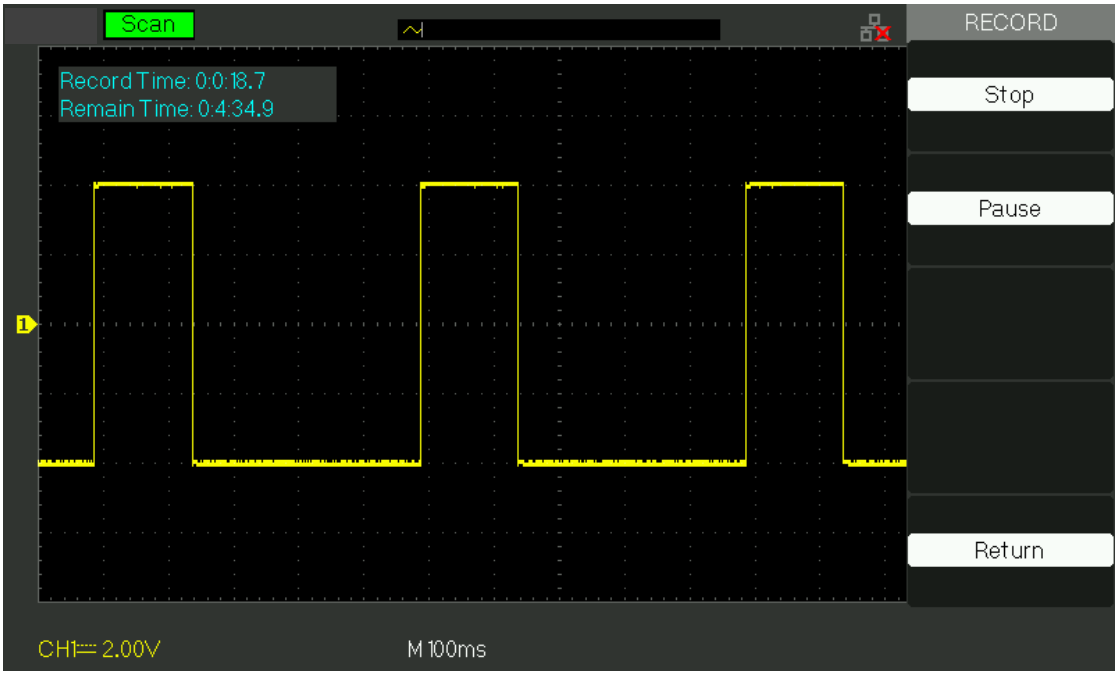
RSDS1000DL+/CML+ provides 5 kinds of math operation: +, -, *, /, FFT, supporting channel waveform and FFT waveform in either split display windows or both signals appearing on the full screen.

Pass/Fail Function

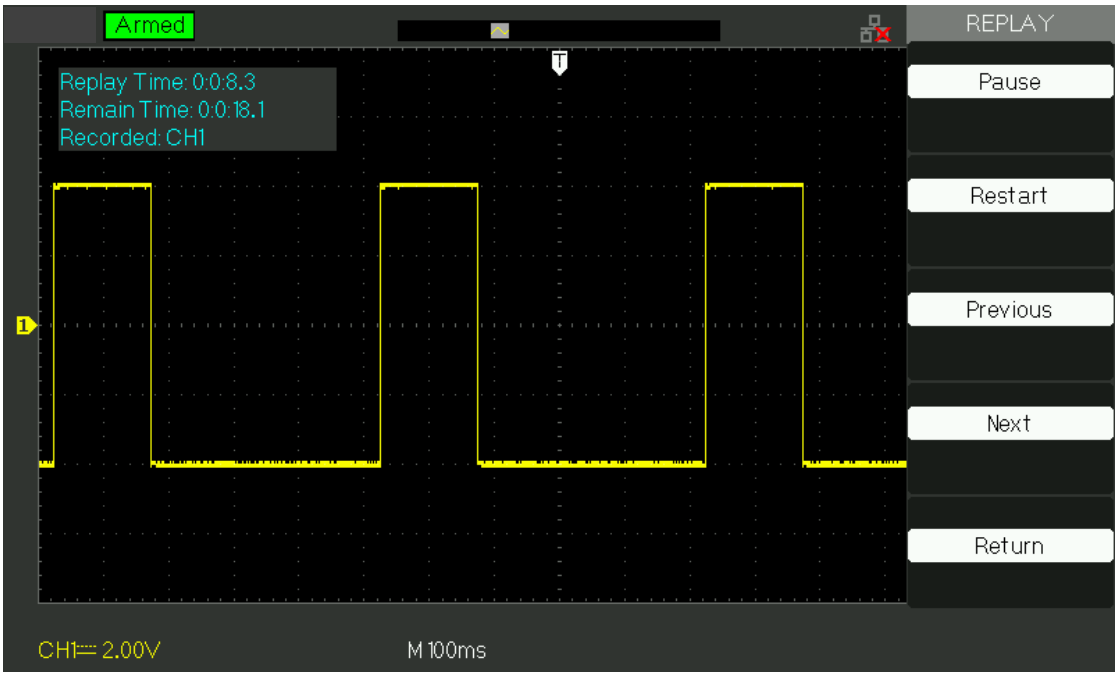


With easy to generate user-defined test templates, the RSDS1000DL+/CML+ compares the current measured trace to the template mask trace making it suitable for long-term signal monitoring or automated production line testing.

Digital Recorder



The digital recorder is able to record data in real-time and without any dead time. RSDS1000DL+/CML+ supply 7M of memory for the recorder and support a USB disk.



Replaying the data for user to observe and analyze.

Embedded Online Help

Supports Multi-language display and embedded online help, familiarizes the user with all the functions of in a short time.

Specifications

Acquire System	
Real-time Sampling Rate	RSDS1052DL+: 500 MSa/s RSDS1072CML+/RSDS1102CML+/RSDS1152CML+ : 1 GSa/s
Memory Depth	RSDS1052DL+: 32 Kpts RSDS1072CML+/RSDS1102CML+/RSDS1152CML+: 40 Kpts (Normal Mode) ; 2 Mpts (Long Memory Mode)
Acquire Mode	Normal, Peak Detect, Average
Average	Averages:4,16, 32,64,128,256
Waveform interpolation	Sinx, X

Input	
Channel	2
Coupling	DC, AC, GND
Impedance	(1MΩ±2%)||（18pF ±3pF）
MaxInput voltage	400V , 1MΩ
Channel Isolation	>100:1
Probe attenuator	1X, 10X, 50X, 100X, 500X , 1000X

Vertical System	
Bandwidth（-3dB）	150MHz (RSDS1152 CML+) 100MHz (RSDS1102 CML+) 70MHz (RSDS1072 CML+) 50MHz (RSDS1052 DL+)
Vertical Resolution	8 bit
Vertical Scale（Probe 1X）	2mV/div - 10V/div(1-2-5)
Offset Range（Probe 1X）	2mV - 200mV: ± 1.6V； 206mV ~ 10V: ± 40V
Bandwidth Limit	20MHz ±40%
Bandwidth Flatness	DC - 10%(BW): ± 1dB 10% - 50%(BW): ± 2dB 50% - 100%(BW): + 2dB/-3dB
Low Frequency Response (AC-3dB)	≤10Hz (at input BNC)
Noise	STDEV≤0.6div（≥ 5mV/div） STDEV≤0.7div（2mV/div）
DC Gain Accuracy	≤±3.0%: 5mV/div ~10V/div ≤±4.0%: ≤2mV/div
DC Measurement Accuracy	± [3%×（|reading|+|offset|）+1%×|offset| +0.2div+2mV] , ≤

	100mV/div ± [3% × (|reading|+|offset|) +1% × |offset| +0.2div+100mV] , >100mV/div
Rise time	< 2.3ns (RSDS1152 CML+, Typ.) < 3.5ns (RSDS1102CML+, Typ.) < 5.0ns (RSDS1072CML+, Typ.) <7.0ns (RSDS1052 DL+, Typ.)
Overshoot(500ps Pulse)	<10%

Horizontal System	
Timebase Scale	150 MHz 2.5ns/div - 50s/div 100 MHz 2.5ns/div - 50s/div 70 MHz 5.0ns/div - 50s/div 50 MHz 5.0ns/div - 50s/div
Channel Skew	<500ps
Display Format	Y-T, X-Y, Roll
Timebase Accuracy	±50ppm
Scan Mode	100ms/div ～ 50s/div

Trigger System	
Trigger Mode	Auto, Normal, Single
TriggerLevelRange	Internal:±6divisions from center of screen EXT: ±1.2V EXT/5: ±6V
Hold off Range	100ns ～ 1.5s
Trigger Coupling	AC、DC、LF Rej, HF Rej
Trigger Sensitivity	1 Divisions: DC-10MHz 1.5 Divisions: 10MHz - Max BW
Trigger Displacement	Pre-trigger：Memory depth/（2*sampling） Delay Trigger: 260div
Edge Trigger	
Slope	Rising, Falling, Rising & Falling
Source	CH1/CH2/EXT/(EXT/5)/AC Line
Slope Trigger	
Slope	Rising, Falling
LimitRange	<，>，=
Source	CH1/CH2
Time Range	20ns ～10s
Pulse Trigger	
Polarity	+wid , -wid
LimitRange	<，>，=

Source	CH1/CH2
PulseRange	2ns -10s
Video Trigger	
Signal Standard	NTSC,PAL/Secam
Source	CH1/CH2
Trigger condition	odd field, even field, all lines, line num

Measure System		
Source	CH1, CH2	
Measurement Parameters (32 Types)		
Vertical（Voltage）	Vmax	Highest value in input waveform
	Vmin	Lowest value in input waveform
	Vpp	Difference between maximum and minimum data values
	Vamp	Difference between top and base in a bimodal signal, or between max and min in an unimodal signal
	Vtop	Value of most probable higher state in a bimodal waveform
	Vbase	Value of most probable lower state in a bimodal waveform
	Mean	Average of all data values
	Vmean	Average of data values in the first cycle(Condition: there is an entire period)
	Vrms	Root mean square of all data values
	Crms	Root mean square of all data values in the first cycle(Condition: there is an entire period)
	FOV	Overshoot after a falling edge;(base-min)/Amplitude
	FPRE	Overshoot before a falling edge;(max-top)/Amplitude
	ROV	Overshoot after a rising edge;(max-top)/Amplitude
	RPRE	Overshoot before a rising edge;(base-min)/Amplitude
Horizontal（Time）	Period	Period for every cycle in waveform at the 50% level ,and positive slope
	Freq	Frequency for every cycle in waveform at the 50% level, and positive slope
	+Wid	Width measured at 50% level and positive slope
	-Wid	Width measured at 50% level and negative slope
	Rise Time	Duration of rising edge from 10-90%
	Fall Time	Duration of falling edge from 90-10%
	Bwid	Time from the first rising edge to the last falling edge, or

		the first falling edge to the last rising edge at the 50% crossing
	+Dut	Ratio of positive width to period
	-Dut	Ratio of negative width to period
Delay	Phase	Calculates the phase difference between two edges(Condition: there is an entire period)
	FRR	Time between the first rising edges of the two channels
	FRF	Time from the first rising edge of channel A ,to the first falling edge of channel B
	FFR	Time from the first falling edge of channel A ,to the first rising edge of channel B
	FFF	Time from the first falling edge of channel A ,to the first falling edge of channel B
	LRR	Time from the first rising edge of channel A ,to the last rising edge of channel B(Condition: there is an entire period)
	LRF	Time from the first rising edge of channel A, to the last falling edge of channel B (Condition: there is an entire period)
	LFR	Time from the first falling edge of channel A, to the last rising edge of channel B(Condition: there is an entire period)
	LFF	Time from the first falling edge of channel A, to the last falling edge of channel B
Cursors	Manual mode, Track mode and Auto mode	
Counter	Hardware Counter（Resolution1Hz）	

Math Function	
Operation	+, -, *, /, FFT
FFT	Rectangular, Blackman, Hanning, Hamming
FFT display	Full Screen, Split

Save/Recall	
Type	Setting, Waveform, Bmp, CSV
	2 refs, 20 settings, 10waveformsinternal
	Save to USB disk

I/O	
Standard I/O	USB Host, USB Device, LAN, Pass/Fail
Pass/Fail	3.3V TTL Output

Display(Screen)	
Display Type	7 inch TFT-LCD
Display Resolution	800×480
Display Color	24 bit
Contrast(Typical)	500:1
Backlight	300nit
Wave display range	8 x 16div
Wave Display Mode	Dots, Vectors
Persist	Off, 1s, 2s, 5s, Infinite
Menu Display	2 sec, 5 sec, 10 sec, 20 sec, Infinite
Screen-Saver	Off,1min,2min,5min,10min,15min,30min,1hour,2hour,5hour
Color mode	Normal, Invert
Language	English, Simplified Chinese, Traditional Chinese, Arabic, French, German, Russian, Portuguese Spanish, Japanese, Korean, Italian

Environments	
Temperature	Operating: 10℃～ +40℃
	Non-operating: -20℃～ +60℃
Humidity	Operating: 85%RH, 40℃, 24 Hours
	Non-operating: 85%RH, 65℃, 24 Hours
Height	Operating: ≤3000m
	Non-operating: ≤15,266m

Power Supply	
Input	100 ～ 240 Vrms 50/60Hz
	100 ～ 120 Vrms 400Hz
Power	50W Max

Mechanical	
Dimensions	Length 323.1mm
	Width 135.6mm
	Height 157mm
Weight	N.W:2.5Kg

Ordering information

Description	Model
50MHz, 2CH, 500MSa/s（Max.）, 32Kpts, 7inch（800*480）LCD	RSDS1052DL+
70MHz, 2CH, 1GSa/s（Max.）, 2Mpts, 7inch（800*480）LCD	RSDS1072CML+
100MHz, 2CH, 1GSa/s（Max.）, 2Mpts, 7inch（800*480）LCD	RSDS1102CML+
150MHz, 2CH, 1GSa/s（Max.）, 2Mpts, 7inch（800*480）LCD	RSDS1152CML+
Standard Accessories	
USB Cable -1	
Quick Start -1	
Certificate of Calibration -1	
Passive Probe -2	
Quality Certificate -1	
Power Cord -1	
CD（Included User Manual and EasyScopeX software）-1	

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