RIGOL

Selection Guide

Electronic Measurement Instruments

SEX01100-1110
2022.08

Mixed Signal/Digital Oscilloscope

Configuration Table

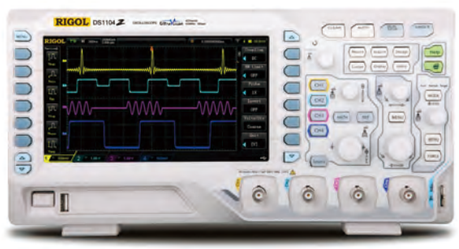
Model	Bandwidth (MHz)															Vertical Resolution	No. of Analog Channels	No. of Digital Channels	Max. Real-time Sample Rate	Max. Memory Depth	Built-in Signal Source	Serial Bus Trigger/ Decoding	LCD
	50	70	100	150	200	300	350	400	500	600	800	1000	2000	3000	5000								
DS1000Z[1]			√		√											8 bits	2	-	1 GSa/s	24 Mpts	-	RS232/ UART, I2C, and SPI	7" 800×480
	√																4	-			-		
		√	√														4	16			-		
		√	√														4	16			2 CH, 25 MHz		
DS2000A[1]			√		√	√											2	-	2 GSa/s	56 Mpts	-	RS232, I2C, SPI, and CAN	8" 800×480
MSO2000A[1]			√		√	√											2	16	2 GSa/s	56 Mpts	-	RS232, I2C, SPI, and CAN	
			√		√	√											2				2 CH, 25 MHz		
MSO5000[2]				√													2	16	4 GSa/s	100 Mpts	1 CH, 25 MHz (opt.)	RS232/ UART, I2C, SPI, CAN, LIN, FlexRay, I2S, and MIL-STD-1553	9" 1024×600
		√	√														2	16	8 GSa/s	200 Mpts (opt.)	2 CH, 25 MHz (opt.)		
		√	√		√		√										4	16	8 GSa/s	200 Mpts (opt.)	2 CH, 25 MHz (opt.)		
DS7000			√		√		√		√								4	-	10 GSa/s	500 Mpts (opt.)	-		10.1" 1024×600

Model	Bandwidth (MHz)															Vertical Resolution	No. of Analog Channels	No. of Digital Channels	Max. Real-time Sample Rate	Max. Memory Depth	Built-in Signal Source	Serial Bus Trigger/ Decoding	LCD
	50	70	100	150	200	300	350	400	500	600	800	1000	2000	3000	5000								
MSO7000			√		√		√		√							8 bits	4	16	10 GSa/s	500 Mpts (opt.)	2 CH, 25 MHz (opt.)	RS232/ UART, I2C, SPI, CAN, LIN, FlexRay, I2S, and MIL-STD-1553	10.1" 1024×600
MSO8000										√		√	√				4	16	10 GSa/s	500 Mpts	2 CH, 25 MHz (opt.)		
DS8000-R[1]							√					√	√				4	-	10 GSa/s	500 Mpts	1 CH, 25 MHz (opt.)		-
DS70000[1]														√	√		4	-	20 GSa/s	2 Gpts (opt.)	-	RS232/ UART, I2C, SPI, CAN, FlexRay, LIN, I2S, MIL-STD-1553, and CAN-FD	15.6" 1920×1080
DHO1000		√	√		√											12 bits	2/4	-	1 GSa/s	100 Mpts (opt.)	-	RS232/ UART, I2C, SPI, CAN, and LIN	10.1" 1280×800
DHO4000					√			√			√						4	-	4 GSa/s	500 Mpts (opt.)	-	RS232// UART, I2C, SPI, CAN, LIN, FlexRay, I2S, and MIL-STD-1553	

Note:

[1]: Bandwidth upgrade option not supported

[2]: Channel upgrade supported



DS1000Z Series Digital Oscilloscope

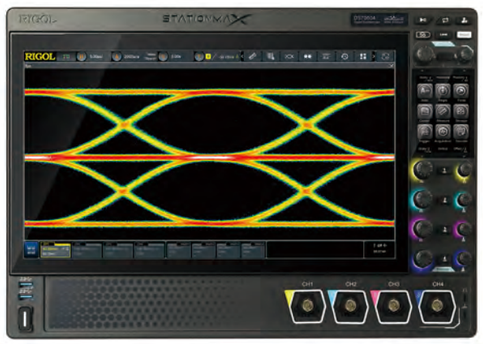
MSO/DS2000A Series Digital Oscilloscope

MSO5000 Series Digital Oscilloscope

MSO/DS7000 Series Digital Oscilloscope

MSO8000 Series Digital Oscilloscope

DS8000-R Series Digital Oscilloscope



DS70000 Series Digital Oscilloscope

DHO1000 Series Digital Oscilloscope

DHO4000 Series Digital Oscilloscope

Six Key Specifications of the Oscilloscope

- **Bandwidth**

  The bandwidth of the oscilloscope determines the frequency range that the oscilloscope can accurately measure. A general rule of thumb is that the oscilloscope bandwidth shall be 5 times higher than the frequency of the signal under test.

- **Sample Rate**

  Sample rate describes the frequency at which the instrument samples the data. The higher sample rate provides better resolution and more details of the signal being captured.

- **Memory Depth**

Memory depth describes the number of points that can be captured and stored. Generally speaking, deep memory depth indicates capturing waveforms of a long period or maintains a higher sample rate in a larger time base range.

- **Digital Channels**

  Mixed signal oscilloscopes (MSO) not only enable you to observe the analog signal of up to 4 channels, but also can capture, trigger, and analyze the signals of up to 16 digital channels at the same time. They also enable you to make an analysis on the parallel bus signal.

- **Serial Trigger & Decode**

  Serial trigger allows you to trigger the oscilloscope based on a specific pattern or address & data found in a serial data stream. The serial decode converts the specified waveforms into a decoded readable format which allows for quick location of problems on a serial bus.

- **Analysis Software**

  Analysis software allows you to link your oscilloscope to an external PC and utilize the acquired data to complete application specific measurement tasks. For example, the Ultra Power Analyzer software allows engineers to use SMPS to make power quality, harmonics, and inrush current measurements.

Function/Arbitrary Waveform Generator

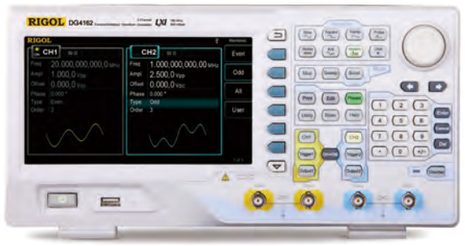
Configuration Table

Model	Max. Frequency (MHz)													No. of Channels	Max. Sample Rate	Arb Memory Depth	Modulation
	10	25	30	35	50	60	70	100	160	200	250	350	5000				
DG800	√	√		√										1/2	125 MSa/s	2 Mpts (8 Mpts opt.)	AM, FM, PM, ASK, FSK, PSK, and PWM
DG900					√		√	√						2	250 MSa/s	16 Mpts	AM, FM, PM, ASK, FSK, PSK, and PWM
DG1000		√												2	100 MSa/s	4 Kpts	AM, FM, PM, and FSK
DG1000Z		√	√			√								2	200 MSa/s	8M/2M (DG1022Z) (16 Mpts opt.)	AM, FM, PM, ASK, FSK, PSK, and PWM
DG2000					√		√	√						2	250 MSa/s	16 Mpts	AM, FM, PM, ASK, FSK, PSK, and PWM
DG4000						√		√	√	√				2	500 MSa/s	16 Kpts	AM, FM, PM, ASK, FSK, PSK, BPSK, QPSK, 3FSK, 4FSK, OSK, and PWM
DG5000							√	√			√	√		1/2	1 GSa/s	128 Mpts	AM, FM, PM, ASK, FSK, PSK, PWM, and IQ
DG70000													√	4	10 GSa/s for real output; 12 GSa/s for complex output	1.5 Gpts	IQ modulation (opt.)

Function/Arbitrary Waveform Generator Models & Options

	DG800 Series		DG900 Series		DG1000 Series		DG1000Z Series		DG2000 Series		DG4000 Series		DG5000 Series		DG70000 Series	
Options	DG800-DCH	Dual Channel	UltraStation Adv.	Advanced Arbitrary Waveform Editing Software	PA1011	Power Amplifier	PA1011	Power Amplifier	UltraStation Adv.	Advanced Arbitrary Waveform Editing Software	PA1011	Power Amplifier	PA1011	Power Amplifier	DG70000-3RL	1.5 G Sample Points per Channel Upgrade Option
	DG800-ARB8M	8 Mpts Memory Option					Arb16M-DG1000Z	16 Mpts Memory Option			UltraStation Adv.	Advanced Arbitrary Waveform Editing Software	UltraStation Adv.	Advanced Arbitrary Waveform Editing Software	DG70000-SEQ	Complex Sequence Function
	UltraStation Adv.	Advanced Arbitrary Waveform Editing Software					UltraStation Adv.	Advanced Arbitrary Waveform Editing Software							DG70000-DC	DC Amplifier Output
															DG70000-DIGUP	Digital Up Converter (DUC) and IQ Modulation

DG2000 Series Function/Arbitrary Waveform Generator



DG4000 Series Function/Arbitrary Waveform Generator

DG70000 Series Arbitrary Waveform Generator

Spectrum Analyzer

Configuration Table

Model	Frequency Band								RBW	RTBW	VSA	EMI	Advanced Meas.	ASK/FSK	SSC	EMI	VSWR	Tracking Generator	VNA	Preamp	OCXO
	0.5	1	1.5	3	3.2	4.5	6.5	7.5													
DSA700	√	√							100 Hz to 1 MHz	-	-	-	AMK-DSA800	-	SSC-DSA	EMI-DSA800	-	-	-	Std. Built-in	-
DSA800E/-TG					√				10 Hz to 1 MHz	-	-	S1220		S1220	-	EMI-DSA800	VSWR-DSA800	-TG model	-	Std. Built-in	-
DSA800/-TG			√		√			√		-					-				-		
RSA3000E/-TG			√	√					1 Hz to 3 MHz	10 MHz	-	RSA3000E-EMI	RSA3000E-AMK	RSA3000E-ASK/FSK	Std.	RSA3000E-EMC	Std.	-TG model	-	RSA3000E-PA	OCXO-C08
RSA3000/-TG				√		√			1 Hz to 3 MHz (10 MHz opt.)	10 MHz (opt. 25/40 MHz)		RSA3000-EMI	RSA3000-AMK	-	Std.	RSA3000-EMC	Std.		-	RSA3000-PA	
RSA3000N			√	√		√									Std.		Std.	Std.	Std.		
RSA5000/-TG					√		√		1 Hz to 10 MHz	25 MHz (opt. 40 MHz)	RSA5000-VSA	RSA5000-EMI	RSA5000-AMK	RSA5000-VSA	Std.	Std.	Std.	-TG model	-	RSA5000-PA	
RSA5000N					√		√								Std.	Std.	Std.	Std.	Std.		

RSA5000 Series Spectrum Analyzer

RSA3000 Series Spectrum Analyzer

RF Signal Generator

Configuration Table

Model	Frequency Band								No. of Channels	Amplitude Range	Reference Clock Stability	Phase Noise	Modulation	OCXO	Pulse Train	IQ Modulation	DSG IQ Function PC Software
	1.5	2.1	3	3.6	6.5	12	13.6	20									
DSG800	√		√						1	-110 dBm to +13 dBm	<2 ppm <5 ppb (opt.)	-112 dBc/Hz@1GHz, 20 kHz offset (typ.)	AM/FM/ØM Pulse (opt.)	OCXO-B08	DSG800-PUG	-	-
DSG800A		√		√					1	-110 dBm to +13 dBm						Std.	Ultra IQ Station
DSG3000B					√		√		1	-110 dBm to +20 dBm	<1 ppm <5 ppb (opt.)	-116 dBc/Hz@1GHz, 20 kHz offset (typ.)	AM/FM/ØM/Pulse		DSG3000B-PUG	-	-
DSG3000B-IQ					√		√		1	-110 dBm to +20 dBm			AM/FM/ØM/Pulse/IQ			Std.	Ultra IQ Station
DSG5000						√		√	2/4/6/8	-30 dBm to +25 dBm	<0.5 ppm <5 ppb (opt.)	-133 dBc/Hz@1GHz, 10 kHz offset (typ.)	AM/FM/PM/Pulse (opt.)	OCXO-D08	DSG5000-PUG	-	-

DSG3000B Series RF Signal Generator

DSG5000 Series Microwave Signal Generator

Programmable DC Electronic Load

Configuration Table

Model	Power	Voltage	Current	Frequency	High Frequency Option	Current Slew Rate	High Slew Rate Option	Voltage Readback Resolution	Current Readback Resolution	Readback Resolution Option	Interface	PC Software
DL3021	200 W	150 V	40 A	15 kHz	FREQ-DL3	2.5 A/us	SLEWRATE-DL3	0.1 mV	1 mA	HIRES-DL3	USB Host, USB Device, RS232, LAN (Option LAN-DL3)	Ultra Load
DL3031	350 W		60 A									
DL3021A	200 W		40 A	30 kHz	Std.	3.0 A/us	Std.		0.1 mA	Std.	USB Host, USB Device, RS232, LAN	
DL3031A	350 W		60 A			5.0 A/us						

DL3000 Series Programmable DC Electronic Load

Digital Multimeter

Configuration Table

Model	Resolution	Accuracy	Measurement Function	Interface
DM3058E	5.5 digits	150 ppm	DCV, DCI, ACV, ACI, 4WR, 2WR, Capacitance, Period, Frequency, Diode, CONT, Sensor	USB Host, USB Device, and RS232
DM3058	5.5 digits			USB Host, USB Device, RS232, GPIB, and LAN
DM3068	6.5 digits	35 ppm	DCV, DCI, ACV, ACI, 4WR, 2WR, Capacitance, Period, Frequency, Diode, CONT, Temperature, Sensor	

DM3000 Series Digital Multimeter

Programmable Linear DC Power Supply

Configuration Table

Model	No. of Channels	Output Range	Maximum Power	Ripple & Noise	High Resolution	Monitor & Analyzer	Timer	Trigger Input/ Output Channel	Interface
DP711	1	30 V/5 A	150 W	<500 uVrms	HIRES-DP700	-	TIMER-DP700	-	RS232
DP712	1	50 V/3 A	150 W						
DP811	1	20 V/10 A or 40 V/5 A	200 W	≤350 uVrms	HIRES-DP800	AFK-DP800	Std.	DIGITALIO-DP800	USB Host, USB Device (RS232, LAN, Option INTERFACE-DP800)
DP813	1	8 V/20 A or 20 V/10 A	200 W						
DP821	2	8 V/10 A||60 V/1 A	140 W						
DP822	2	20 V/5 A||5 V/16 A	180 W						
DP832	3	30 V/3 A||30 V/3 A, 5 V/3 A	195 W						
DP831	3	8 V/5 A||30 V/2 A, -30 V/2 A	160 W						
DP811A	1	20 V/10 A or 40 V/5 A	200 W		Std.	Std.	Std.	Std.	USB Host, USB Device, RS232, and LAN
DP813A	1	8 V/20 A or 20 V/10 A	200 W						
DP821A	2	8 V/10 A||60 V/1 A	140 W						
DP822A	2	20 V/5 A||5 V/16 A	180 W						
DP832A	3	30 V/3 A||30 V/3 A, 5 V/3 A	195 W						
DP831A	3	8 V/5 A||30 V/2 A, -30 V/2 A	160 W						

Model	No. of Channels	Output Range	Maximum Power	Ripple & Noise	High Resolution	Monitor & Analyzer	Timer	Trigger Input/ Output Channel	Interface
DP932E	3	30 V/3 A||30 V/3 A||6 V/3 A	198 W	≤350 uVrms	DP900-HIRES	Std.	-	-	USB Host, USB Device, and LAN
DP932U	3	32 V/3 A||32 V/3 A||6 V/3 A	210 W		DP900-HIRES		1 s (standard), available to upgrade to 100 ms (DP900-ARB)	DP900-DIGITALIO	USB Host, USB Device, LAN, and Digital IO
DP932A	3	32 V/3 A||32 V/3 A||6 V/3 A	210 W		Std.		Std.	Std.	USB Host, USB Device, LAN, and Digital IO (DP900-DIGITALIO)
DP2031	3	32 V/3 A||32 V/3 A||6 V/5 A	222 W		Std.		Std.	Std.	USB Host, USB Device, LAN, RS232, GPIB (DP2000-GPIB), and three rear-panel output terminals

DP700 Series Programmable Linear DC Power Supply

DP800 Series Programmable Linear DC Power Supply

DP900 Series Programmable Linear DC Power Supply

DP2000 Series Programmable Linear DC Power Supply

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