RIGOL

Electronic Testing and Measuring Instruments

Selection Guide

About RIGOL

Founded in 1998, RIGOL TECHNOLOGIES CO., LTD. (STAR: 688337.SH), is a global leader in electronic measurement instruments. Our focus lies in spreading the development and breakthroughs of cutting-edge technology in the realm of general electronic measurement instruments. With the mission of "Enabling Technology Exploration, Empowering Possibilities and More", we bring together talented individuals with great potential and visionary aspirations to deliver testing and measuring products and solutions that accelerate technological innovation.

RIGOL steadfastly upholds a commitment to original technology innovation, prioritizing independent research and development of key core technologies. Our brand footprint extends across more than 90 countries and regions worldwide, ensuring customers in the testing and measurement industries have access to RIGOL's versatile electronic measurement products. Our offerings include digital oscilloscopes, RF signal generators, waveform generators, power supplies, electronic loads, multimeters, and data acquisition tools. Continuously innovating our product lines, we provide multi-level solutions at the chip, module, and system levels. These solutions cater to the diverse needs of customers in sectors such as communications, renewable energy, automotive, semiconductors, educational research, and system integration. By empowering our customers with these innovative solutions, we enable them to unlock a realm of possibilities and achieve more in their endeavors.

Headquartered in Suzhou, China, RIGOL has established its research and development centers in Beijing, Shanghai, and Xi'an. Additionally, RIGOL has set up its overseas subsidiaries in Portland (U.S.A), Munich (Germany), Tokyo (Japan), Seoul (Korea), Penang (Malaysia), and Singapore. In alignment with our commitment to meeting the evolving technology challenges faced by our customers, RIGOL has established international marketing representative offices in key cities such as Bangalore, Sao Paulo, and Hanoi, to support our customers better. Through our dedicated local technology experts and partners, RIGOL has demonstrated its commitment to creating value for over 100,000 customers around the globe.

RIGOL holds self-developed core intellectual property rights, continually fortifying our technical prowess in the high-end testing and measuring domain. As of December 31, 2023, we've secured 461 authorized patents, among which 397 are invention patents. Notably, RIGOL's core technology was honored with the 24th China Patent Gold Award. Recognized as one of the fifth batch of "little giant" firms, we've also achieved notable mentions, including appearances on the Top 500 Chinese Enterprise Patent list for 2019, 2020, and 2022. In 2023, we were bestowed the prestigious title of "National Intellectual Property Demonstration Enterprise." Our accolades extend to over 70 prizes, encompassing esteemed recognitions such as the "Second Prize of Science and Technology of China Machinery Industry," "Excellent Prize of Suzhou Patent Award," "R&D100 Awards," "Suzhou Quality Award," and "World Electronics Achievement Awards."

RIGOL also holds various qualifications, including membership in the International Bus LXI Alliance and CNAS certification for our laboratory. Engaging actively in standardization efforts, RIGOL serves as a member of the 5th National Technical Committee for Standardization of Electronic Measuring Instruments. In this capacity, RIGOL has participated in the drafting and formulation of ONE National standard, contributed significantly to leading the drafting and formulation of three industry general specifications

RIGOL Product Line

- Digital Oscilloscope
- Waveform Generator
- Spectrum Analyzer
- RF Signal Generator
- Power Supply and Electronic Load
- Digital Multimeter
- Data Acquisition

Founded in 1998

Dual Driving Strategy Market
Technology Core Strength

4 R&D Centers
Beijing/Suzhou/ Shanghai/Xi'an

Fields with RMB100 billion Market Scale
Communications/ New Energy/ Semiconductors

Technology Self-owned and Controllable
Adhere to Self-reliance and Originality Master Key and Core Technologies

Multi-level Solutions
System/Module /Chip Levels

DS and MSO Series Oscilloscope Table

Model	Max. Bandwidth (MHz)														No. of Analog Channels	No. of Digital Channels	Max. Real-time Sample Rate	Vertical Resolution	Max. Memory Depth	Built-in Signal Source	LCD
	50	70	100	150	200	350	500	600	750	1000	1500	2000	3000	5000							
DS70000													•	•	4	N/A	20 GSa/s	8-bit	2 Gpts (Opt.)	N/A	15.6-inch 1920×1080
DS8000-R						•				•		•			4	N/A	10 GSa/s	8-bit	500 Mpts	1-CH, 25 MHz (Opt)	N/A
MSO8000A									•		•	•			4	16	10 GSa/s	8-bit	500 Mpts	2-CH, 25 MHz (Opt.)	10.1-inch 1024×600
MSO8000								•		•		•			4	16	10 GSa/s	8-bit	500 Mpts	2-CH, 25 MHz (Opt.)	10.1-inch 1024×600
MSO7000			•		•	•	•								4	16	10 GSa/s	8-bit	500 Mpts (Opt.)	2-CH, 25 MHz (Opt.)	10.1-inch 1024×600
DS7000			•		•	•	•								4	N/A				N/A	
MSO5000				•											2	16	4 GSa/s	8-bit	100 Mpts	1-CH, 25 MHz (Opt.)	9-inch 1024×600
		•	•												2		8 GSa/s		200 Mpts (Opt.)	2-CH, 25 MHz (Opt.)	
		•	•		•	•									4						
DS1000Z			•		•										2	N/A	1 GSa/s	8-bit	24 Mpts	N/A	7-inch 800×480
	•														4						
		•	•													16					
		•	•																	2-CH, 25 MHz	

High-Resolution Digital Oscilloscope Selection Table

Model	Max. Bandwidth (MHz)							No. of Analog Channels	No. of Digital Channels	Max. Real-time Sample Rate	Vertical Resolution	Max. Memory Depth	Built-in Signal Source	LCD
	70	100	125	200	250	400	800							
DHO4000				•		•	•	4	N/A	4 GSa/s	12-bit	500 Mpts (Opt.)	N/A	10.1-inch 1280×800
DHO1000	•	•		•				2	N/A	2 GSa/s	12-bit	100 Mpts (Opt.)	N/A	10.1-inch 1280×800
	•	•		•				4						
				•				2				50 Mpts		
				•				4						
DHO900			•		•			4	16	1.25 GSa/s	12-bit	50 Mpts	N/A	7-inch 1024×600
			•		•								1-CH, 25 MHz	
DHO800	•	•						2	N/A	1.25 GSa/s	12-bit	25 Mpts	N/A	7-inch 1024×600
	•	•						4						

Five Key Specifications for Oscilloscope Selection

Bandwidth	Sample Rate	Vertical Resolution	Memory Depth	Digital Channel
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 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.	The vertical resolution determines the instrument's ability to accurately display and measure small voltage changes within a signal. The higher the vertical resolution, the more detailed voltage variation of the signal can be accurately displayed.	Memory depth describes the number of points that can be captured and stored. Generally speaking, a deeper memory depth allows for the capturing of waveforms over longer periods or maintains a higher sample rate across a wider time base range.	Mixed signal oscilloscopes (MSOs) not only allow you to observe analog signals up to 4 channels but also enable the capturing, triggering, and analysis of signals up to 16 digital channels simultaneously. Additionally, they facilitate analysis of parallel bus signals.

DS70000 Series Digital Oscilloscopes

DS8000-R Series Digital Oscilloscopes

MSO8000 Series Digital Oscilloscopes

MSO7000 Series Digital Oscilloscopes

DHO4000 Series Digital Oscilloscopes

DHO900 Series Digital Oscilloscopes

Probe Model

Probe Category				Product Model	Key Specifications	DS70000	DS8000-R	MSO8000/A	MSO/DS7000	MSO5000	DHO900	DHO800	DHO4000	DHO1000	DS1000Z	DS1000Z-E
Voltage Probes	Passive Probes			PVP2150	150 MHz, 10:1/1:1, Passive High-Impedance Probe (single)				●	●	●	●	●	●	●	●
				PVP2350	350 MHz, 10:1/1:1, Passive High-Impedance Probe (single)				●	●	●	●	●	●	●	●
				PVP3150	150 MHz,10:1/1:1, Passive High-Impedance Probe (single)				●	●	●	●	●	●	●	●
				RP3500A	500 MHz Passive High-impedance Probe	●	●	●	●				●			
				RP5600A	600 MHz Passive High-impedance Probe	●	●	●	●							
				RP6150A	1.5 GHz Passive Low-Impedance Probe (500 ohm)	●	●	●	●				●			
				RP1010H	10 kV 50 MHz High-Voltage Probe	●	●	●	●	●	●	●	●	●	●	●
				RP1018H	18 kV 150 MHz High-voltage Probe	●	●	●	●	●	●	●	●	●	●	●
				RP1300H	300 MHz High-Voltage Probe (2 kV)	●	●	●	●	●	●	●	●	●	●	●
	Active Probes	Differential Probes	High-Voltage Differential Probes	PHA0150	High-Voltage Differential Probe, DC-70 MHz, 1500 V	●	●	●	●	●	●	●	●	●	●	●
				PHA1150	High-Voltage Differential Probe, DC-100 MHz, 1500 V	●	●	●	●	●	●	●	●	●	●	●
				PHA2150	High-Voltage Differential Probe, DC-200 MHz, 1500 V	●	●	●	●	●	●	●	●	●	●	●
				RP1025D	25 MHz, 1.3 kV	●	●	●	●	●	●	●	●	●	●	●
				RP1050D	50 MHz, 6.5 kV	●	●	●	●	●	●	●	●	●	●	●
				RP1100D	100 MHz, 6.5 kV	●	●	●	●	●	●	●	●	●	●	●
			Low-Voltage Differential Probes	PVA7250	2.5 GHz Active Differential Probe	●	●	●	●				●			
				RP7080	800 MHz Active Differential Probe	●	●	●	●				●			
				RP7150	1.5 GHz Active Differential Probe	●	●	●	●				●			
				PVA8350	3.5 GHz Active Differential Probe	●	●	●	●							
				PVA8700	7 GHz Active Differential Probe	●										
		Single-ended Probes		RP7080S	800 MHz Active Single-ended Probe	●	●	●	●				●			
				RP7150S	1.5 GHz Active Single-ended Probe	●	●	●	●				●			
	Current Probes			PCA1030	Current Probe: 50 MHz, 30 A	●	●	●	●				●			
				PCA1150	Current Probe: 10 MHz, 150 A	●	●	●	●				●			
				PCA1500	Current Probe: 2 MHz, 500 A	●		●					●			
				PCA2030	Current Probe: 100 MHz, 30 A	●	●	●	●				●			
				RP1000P	4-CH Power Supply	●	●	●	●	●	●	●	●	●	●	●
				RP1001C	300 kHz, 100 ADC	●	●	●	●	●	●	●	●	●	●	●
				RP1002C	1 MHz, 70 ADC	●	●	●	●	●	●	●	●	●	●	●
				RP1003C	50 MHz, 30 A, required to purchase the RP1000P power supply	●	●	●	●	●	●	●	●	●	●	●
				RP1004C	100 MHz, 30 A, required to purchase the RP1000P power supply	●	●	●	●	●	●	●	●	●	●	●
				RP1005C	10 MHz, 150 A, required to purchase the RP1000P power supply	●	●	●	●	●	●	●	●	●	●	●
				RP1006C	2 MHz, 500 A, required to purchase the RP1000P power supply	●	●	●	●	●	●	●	●	●	●	●
Logic Analyzer Probes				PLA2216	16-channel Logic Analyzer Probe					●	●					
				RPL2316	16-channel Logic Analyzer Probe			●	●							
				RPL1116	16-channel Logic Analyzer Probe										●	

Function/Arbitrary Waveform Generators

Configuration Table

Model	Max. Frequency (MHz)												CH	Max. Sample Rate	Arb Memory Depth	Waveform Generation Technology	Modulation
	25	30	50	60	70	100	150	160	200	250	350	5000					
DG70000												•	2/4	10 GSa/s for real output 12 GSa/s for complex output	1.5 Gpts	SiFi III	IQ Modulation (Opt.)
DG5000					•	•				•	•		1/2	1 GSa/s	128 Mpts	DDS	AM, FM, PM, ASK, FSK, PSK, PWM, IQ
DG4000				•		•		•	•				2	500 MSa/s	16 kpts	DDS	AM, FM, PM, ASK, FSK, PSK, BPSK, QPSK, 3FSK, 4FSK, OSK, PWM
DG2000			•		•	•							2	250 MSa/s	16 Mpts	SiFi II	AM, FM, PM, ASK, FSK, PSK, PWM
DG1000Z	•	•		•									2	200 MSa/s	8 Mpts/2 Mpts (DG1022Z) (16 Mpts opt.)	SiFi	AM, FM, PM, ASK, FSK, PSK, PWM
DG900 Pro					•		•		•				2	1.25 GSa/s	16 Mpts (32 Mpts opt.)	SiFi II	AM, FM, PM, ASK, FSK, PSK, PWM, SUM
DG800 Pro	•		•										1/2	625 MSa/s	2 Mpts (8 Mpts opt.)	SiFi II	AM, FM, PM, ASK, FSK, PSK, PWM, SUM

Models and Options

	DG70000 Series		DG5000 Series		DG4000 Series		DG2000 Series		DG1000Z Series		DG900 Pro		DG800 Pro	
Option	DG70000-3RL	1.5 G Sample Points/CH Upgrade Option	PA1011	Power Amplifier	PA1011	Power Amplifier	UltraStation Adv.	Advanced Arbitrary Waveform Editing Software	PA1011	Power Amplifier	DG900Pro-3RL	32 Mpts/CH Memory Depth Upgrade Option	DG800Pro-3RL	8 Mpts/CH Memory Depth Upgrade Option
	DG70000-SEQ	Complex Sequence Function	UltraStation Adv.	Advanced Arbitrary Waveform Editing Software	UltraStation Adv.	Advanced Arbitrary Waveform Editing Software			Arb16-MDG1000Z	16 Mpts Memory Option			DG800Pro-DCH	Two-channel Upgrade Option (for DG821 Pro only)
	DG70000-DC	DC Amplifier Output							UltraStation Adv.	Advanced Arbitrary Waveform Editing Software				
	DG70000-DIGUP	Digital Up Converter (DUC) and IQ Modulation												

Spectrum Analyzers

Model	Frequency Band								RBW	Real-time/ Analysis Bandwidth	VSA	EMI	Advanced Meas.	ASK/FSK	EMI	VSWR	Tracking Generator	VNA	Preamp	OCXO
	0.5	1	1.5	3	3.2	4.5	6.5	7.5												
RSA5000N					•		•		1 Hz ~ 10 MHz	25 MHz (Opt. 40 MHz)	RSA5000-VSA	RSA5000-EMI	RSA5000-AMK	RSA5000-VSA	Std.	Std.	Std.	Std.	RSA5000-PA	OCXO-C08
RSA5000/-TG					•		•								Std.	Std.	-TG Model	N/A		
RSA3000N			•	•		•			1 Hz ~ 3 MHz (Opt. 10 MHz)	10 MHz (Opt. 25/40 MHz)	N/A	RSA3000-EMI	RSA3000-AMK	N/A	RSA3000-EMC	Std.	Std.	Std.	RSA3000-PA	OCXO-C08
RSA3000/-TG				•		•										Std.	-TG Model	N/A		
RSA3000E/-TG			•	•					1 Hz ~ 3 MHz	10 MHz		RSA3000E-EMI	RSA3000E-AMK	RSA3000E-ASK/FSK	RSA3000E-EMC	Std.		N/A	RSA3000E-PA	
DSA800/-TG			•		•			•	10 Hz ~ 1 MHz	N/A	N/A	S1220	AMK-DSA800	S1220	EMI-DSA800	VSWR-DSA800	-TG Model	N/A	Built-in, Std.	N/A
DSA800E/-TG					•					N/A								N/A		
DSA700	•	•							100 Hz ~ 1 MHz	N/A	N/A	N/A	AMK-DSA800	N/A	EMI-DSA800	N/A	N/A	N/A	Built-in, Std.	N/A

RF Signal Generators

Model	Frequency Band								CH	Amplitude Range	Reference Clock Stability	Phase Noise	Modulation	OCXO	Pulse Train	IQ Modulation	IQ PC Software
	1.5	2.1	3	3.6	6.5	12	13.6	20									
DSG5000						•		•	2/4/6/8	-30 dBm ~ +25 dBm	<0.5 ppm <5 ppb (with option OCXO-D08)	-133 dBc/Hz @ 1 GHz, 10 KHz offset (typ.)	AM, FM, ØM, Pulse	OCXO-D08	DSG5000-PUG	N/A	N/A
DSG3000B-IQ					•		•		1	-110 dBm ~ +20 dBm (-110 dBm to +13 dBm for 13.6G model)	<1 ppm <5 ppb (with option OCXO-B08)	-116 dBc/Hz @ 1 GHz, 20 KHz offset (typ.)	AM, FM, ØM, Pulse, IQ	OCXO-B08	DSG3000B-PUG	Std.	Ultra IQ Station
DSG3000B					•		•		1	-110 dBm ~ +20 dBm			AM, FM, ØM, Pulse			N/A	N/A
DSG800A		•		•					1	-110 dBm ~ +13 dBm	<2 ppm <5 ppb (with option OCXO-B08)	-112 dBc/Hz @ 1 GHz, 20 KHz offset (typ.)	AM, FM, ØM, Pulse, IQ	OCXO-B08	DSG800-PUG	Std. for DSG800A model	Ultra IQ Station
DSG800	•		•						1	-110 dBm ~ +13 dBm			AM, FM, ØM, Pulse			N/A	N/A

DG70000 Series
Arbitrary Waveform Generator

DG1000Z Series
Function/Arbitrary Waveform Generator

DG900 Pro Series
Function/Arbitrary Waveform Generator

RSA5000 Series
Spectrum Analyzer

RSA3000 Series
Spectrum Analyzer

DG5000 Series
Microwave Signal Generator

DSG3000B Series
RF Signal Generator

Programmable DC Electronic Loads

Model	Power	Voltage	Current	Freq.	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 (opt., 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						

Digital Multimeters

Model	Resolution	Accuracy	Measurement Function	Interface
DM858E	5.5 digits	600 ppm	DCV, DCI, ACV, ACI, Resistance, Capacitance, Period, Frequency, Diode, Continuity, Temperature, and Any Sensor	USB Host, USB Device, LAN
DM858	5.5 digits	300 ppm		USB Host, USB Device, RS232
DM3058E	5.5 digits	150 ppm	DCV, DCI, ACV, ACI, Resistance, Capacitance, Period, Frequency, Diode, Continuity, Temperature, and Any Sensor	USB Host, USB Device, RS232
DM3058	5.5 digits			USB Host, USB Device, RS232, GPIB, LAN
DM3068	6.5 digits	35 ppm	DCV, DCI, ACV, ACI, Resistance, Capacitance, Period, Frequency, Diode, Continuity, Temperature, and Any Sensor	

Programmable Linear DC Power Supplies

Model	CH	Output Range	Max. Power	Ripple & Noise	High Resolution	Monitor & Analyzer	Timer	Trigger Input/Output Channel	Interface
DP711	1	30 V/5 A	150 W	<500 μVrms	HIRES-DP700	N/A	TIMER-DP700	N/A	RS232
DP712	1	50 V/3 A	150 W						
DP811	1	20 V/10 A or 40 V/5 A	200 W	≤ 350 μVrms	HIRES-DP800	AFK-DP800	Std.	DIGITALIO-DP800	USB Host, USB Device, RS232/LAN (opt. 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/3A	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, 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						
DP932E	3	30 V/3 A || 30 V/3 A || 6 V/3 A	198 W	≤ 350 μVrms	DP900-HIRES	Std.	-	-	USB Host, USB Device, LAN, Digital IO
DP932U	3	32 V/3 A || 32 V/3 A || 6 V/3 A	210 W		DP900-HIRES		1 s (std.), 100 ms (with the option DP900-ARB)	DP900-DIGITALIO	USB Host, USB Device, LAN, 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, 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, and three rear-panel output terminals

DL3000 Series Programmable DC Electronic Load

DM3000 Series Digital Multimeter

DP800 Series Programmable Linear DC Power Supply

DP2000 Series Programmable Linear DC Power Supply

Boost Smart World and Technology Innovation

- 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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SEW01100-5350-2024-04