

Electronic Measurement Instruments Selection Guide



Distribution in the UK & Ireland



Lambda

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RIGOL TECHNOLOGIES, INC.

RIGOL is transforming the Electronics, Life Science, and Chemical Test and Measurement Industry. Our premium line of products includes Digital and Mixed Signal Oscilloscopes, Spectrum Analyzers, RF Sources, Function/Arbitrary Waveform Generators, Sensitive Measurement and Data Acquisition products, HPLC and Spectrophotometers. Our test solutions combine uncompromised product performance, quality, and advanced product features; all delivered at extremely attractive price points. Our solutions span many markets including technical education, embedded design, RF Test, Manufacturing, Food Safety, Pharmaceutical, and Water Quality. Across all markets and products we deliver our customers with unprecedented value for their investment, reduce their overall cost of test, and help speed time to completion of their designs or projects.

RIGOL's Headquarters is in Beijing China with an R&D and Production Facility in Suzhou and three International subsidiaries in Beaverton, OR, United States, Munich, Germany and Tokyo, Japan. Over 400 employees are serving our customers in more than 60 countries and regions worldwide.

Our Vision:

Becomes a world prestigious brand in Test & Measurement industry



Mixed Signal/Digital Oscilloscopes

Oscilloscope Configuration Table

Series	Bandwidth Range(MHz)									Analog Channels	Digital Channels (MSO)	Max. Sample Rate	Max. Memory Depth	Built-in Waveform Gen. (-S)	Serial Bus Trigger	Serial Bus Decoding	Display
	1000	600	500	350	300	200	100	70	50						(Std./Opt.)	(Opt.)	Inch
DS6000	•	•								2 / 4		5 Gsa/s	140 Mpts		RS232/UART,I2C,SPI,CAN,USB,FlexRay	RS232/UART,I2C,SPI,CAN,USB,FlexRay	10.1 WVGA
MSO/DS4000			•	•		•	•			2 / 4	16	4 Gsa/s	140 Mpts		RS232/UART,I2C,SPI,CAN,LIN,USB,FlexRay	RS232/UART,I2C,SPI,CAN,LIN,USB,FlexRay	9 WVGA
DS4000E						•	•			4		2 Gsa/s	14 Mpts				
MSO/DS2000A					•	•	•	•		2	16	2 Gsa/s	56 Mpts	2	RS232,I2C,SPI,CAN,USB	RS232,I2C,SPI,CAN,USB	8 WVGA
MSO/DS1000Z								•	•	4	16	1 Gsa/s	24 Mpts	2	RS232,I2C,SPI	RS232,I2C,SPI	7 WVGA
DS1000B						•	•	•		4		2 Gsa/s	16 Kpts				5.7 QVGA
DS1000D								•	•	2	16	1 Gsa/s	1 Mpts				
DS1000E								•	•	2		1 Gsa/s	1 Mpts				



MSO/DS1000Z Series Digital Oscilloscope



MSO/DS2000A Series Digital Oscilloscope



MSO/DS4000 Series Digital Oscilloscope



DS6000 Series Digital Oscilloscope

Oscilloscope Series Models & Options

	DS1000 Series		DS1000Z Plus Series		DS2000A Series			DS4000E Series		DS/MSO4000 Series			DS6000 Series				
Models	DS1052E	50MHz 2CH	DS1054Z	50MHz 4CH	DS2072A	70MHz 2CH	MSO2072A	70MHz 2+16CH	DS4014E	100MHz 4CH	DS4012	100MHz 2CH	MSO4012	100MHz 2+16CH	DS6062	600MHz 2CH	
	DS1052D	50MHz 2+16 CH	DS1074Z Plus	70MHz 4CH	DS2072A-S	70MHz 2CH+2CH Source	MSO2072A-S	70MHz 2+16CH+2CH Source	DS4024E	200MHz 4CH	DS4014	100MHz 4CH	MSO4014	100MHz 4+16CH	DS6064	600MHz 4CH	
	DS1074B	70MHz 4CH	DS1074Z-S Plus	70MHz 4CH+2CH Source	DS2102A	100MHz 2CH	MSO2102A	100MHz 2+16CH			DS4022	200MHz 2CH	MSO4022	200MHz 2+16CH	DS6102	1GHz 2CH	
	DS1102E	100MHz 2CH	MSO1074Z Plus	70MHz 4+16CH	DS2102A-S	100MHz 2CH+2CH Source	MSO2102A-S	100MHz 2+16CH+2CH Source			DS4024	200MHz 4CH	MSO4024	200MHz 4+16CH	DS6104	1GHz 4CH	
	DS1102D	100MHz 2+16 CH	MSO1074Z-S Plus	70MHz 4+16CH+2CH Source	DS2202A	200MHz 2CH	MSO2202A	200MHz 2+16CH			DS4032	350MHz 2CH	MSO4032	350MHz 2+16CH			
	DS1104B	100MHz 4CH	DS1104Z Plus	100MHz 4CH	DS2202A-S	200MHz 2CH+2CH Source	MSO2202A-S	200MHz 2+16CH+2CH Source			DS4034	350MHz 4CH	MSO4034	350MHz 4+16CH			
	DS1204B	200MHz 4CH	DS1104Z-S Plus	100MHz 4CH+2CH Source	DS2302A	300MHz 2CH	MSO2302A	300MHz 2+16CH			DS4052	500MHz 2CH	MSO4052	500MHz 2+16CH			
			MSO1104Z Plus	100MHz 4+16CH	DS2302A-S	300MHz 2CH+2CH Source	MSO2302A-S	300MHz 2+16CH+2CH Source			DS4054	500MHz 4CH	MSO4054	500MHz 4+16CH			
Options			MEM-DS1000Z	Deep Memory	MEM-DS2000A		Deep Memory		SD-I2C/SPI-DS4000			I2C/SPI Decoding		SD-I2C/SPI-DS6000		I2C/SPI Decoding	
			REC-DS1000Z	Waveform Record	AT-DS2000A		Advanced Trigger		SD-RS232-SD4000			RS232/UART Decoding		SD-RS232-SD6000		RS232/UART Decoding	
			AT-DS1000Z	Advanced Trigger	SA-DS2000A		I2C/SPI/RS232/UART Decoding		SD-AUTO-DS4000			LIN trigger+CAN/LIN Decoding		SD-CAN-DS6000		CAN Decoding	
			SA-DS1000Z	I2C/SPI/RS232/UART Decoding	CAN-DS2000A		CAN Decoding		SD-FlexRay-DS4000			FlexRay Decoding		SD-FlexRay-DS6000		FlexRay Decoding	
					BND-MSO/DS2000A		All above options		BND-MSO/DS4000			All above options					
										BW2T3-MSO/DS4000			BW Upgrade				
									BW2T5-MSO/DS4000			BW Upgrade					
									BW3T5-MSO/DS4000			BW Upgrade					

Scope Considerations

Bandwidth	Sample Rate	Record Length	Digital Channels	Serial Trigger & Decode	Analysis Software
Oscilloscope Bandwidth determines the frequency range that the oscilloscope can accurately measure. A general rule of thumb is you want scope bandwidth to be 5 times the highest frequency you wish to measure.	Sample Rate describes the frequency at which the instrument samples the data. Higher the sample rate provides better resolution and finer detail of the signal being captured.	Record Length describes the number of points that can be captured and stored. Generally speaking larger record length provides for longer captures. The time duration is directly related to the sample rate with higher sample rates consuming more memory resulting in shorter time capture.	Mixed Signal Oscilloscopes (MSO's) allow users to not only look at the analog behavior of up to 4 channels but also trigger, capture, and analyze the behavior of up to 16 digital channels at the same time.	Serial Trigger allows the user to trigger the oscilloscope based on a specific pattern or word found in a serial data stream. Serial Decode allows the user to convert the waveform into a decoded readable format which allows for quick determination of problems on a serial bus.	Analysis Software allows the user to link their oscilloscope to an external PC and utilize the acquired data to complete application specific measurement tasks such as Ultra Power Analyzer software for engineers designing SMPS who need to make power quality, harmonics, and inrush current measurements.

Function/Arbitrary Waveform Generators

Function/Arbitrary Waveform Generator Configuration Table

	Max. Frequency (in MHz)											Output Channels	Max Sample Rate	Arb Memory Depth	Technology	Modulations
	20	25	30	60	70	100	160	200	250	350						
DG1000	●	●										2	100 MSa/s	4 K	DDS	AM,FM,PM,FSK
DG1000Z			●	●								2	200 MSa/s	8 M 16 M (opt.)	SiFi	AM,FM,PM,ASK,FSK,PSK,PWM
DG4000				●		●	●	●				2	500 MSa/s	16 K	DDS	AM,FM,PM,ASK,FSK,PSK,BPSK,QPSK,3FSK,4FSK,OSK,PWM
DG5000					●	●			●	●		1/2	1 GSa/s	128 M	DDS	AM,FM,PM,ASK,FSK,PSK,PWM,IQ



DG1000Z Series
Function/Arbitrary Waveform Generator

Function/Arbitrary Waveform Generator Models & Options

Models	DG1000 series		DG1000Z series		DG4000 series		DG5000 series	
		DG1022	20 MHz 2 CH	DG1032Z	30 MHz 2 CH	DG4062	60 MHz, 2 CH	DG5071/2
	DG1022A	25 MHz 2 CH	DG1062Z	60 MHz 2 CH	DG4102	100 MHz, 2 CH	DG5101/2	100M, 1CH/2CH
					DG4162	160 MHz, 2 CH	DG5251/2	250M, 1CH/2CH
					DG4202	200MHz, 2 CH	DG5351/2	350M, 1CH/2CH
Options	PA1011	Power Amplifier	PA1011	Power Amplifier	PA1011	Power Amplifier	PA1011	Power Amplifier
			MEM-DG1000Z	16 M Arb Memory	UltraStation Adv.	Advanced PC Software	UltraStation Adv.	Advanced PC Software
			UltraStation Adv.	Advanced PC Software			DG-POD-A	16 CH Digital Generator
							FH-DG5000	Frequency Hopping Module



DG4000 Series
Function/Arbitrary Waveform Generator

Spectrum Analyzer

Models	Frequency Range						Software Options				Hardware Options		Others
	0.5 GHz	1 GHz	1.5 GHz	3 GHz	3.2 GHz	7.5 GHz	Advanced Meas	SSC	EMI	VSWR	Tracking Generator	Preamplifier (Preamp)	
DSA705	●						AMK-DSA800	SSC-DSA	EMI-DSA800			Std.	TX1000 RF Demo Kit(Transmitter) RX1000 RF Demo Kit(Receiver) VB1020 1M-2GHz VSWR bridge VB1032 1M-3.2GHz VSWR bridge VB1040 800M-4GHz VSWR bridge VB1080 2GHz-4GHz VSWR bridge NFP-3 Near Field Probe Ultra Spectrum PC Software S1210 EMI PC Software
DSA710		●					AMK-DSA800	SSC-DSA	EMI-DSA800			Std.	
DSA815/-TG			●				AMK-DSA800	SSC-DSA	EMI-DSA800	VSWR-DSA800	-TG model	Std.	
DSA832E/-TG					●		AMK-DSA800		EMI-DSA800	VSWR-DSA800	-TG model	PA-DSA832	
DSA832/-TG					●		AMK-DSA800		EMI-DSA800	VSWR-DSA800	-TG model	PA-DSA832	
DSA875/-TG						●	AMK-DSA800		EMI-DSA800	VSWR-DSA800	-TG model	PA-DSA875	
DSA1030A/-TG				●			Std.		Std.		-TG model	Std.	
DSA1030/-TG				●			AMK-DSA1000		Std.		-TG model	PA-DSA1030	

DSA1030/1030A/-TG Discontinued, recommend the DSA832E.



DSA800/DSA800E/DSA700 Series
Spectrum Analyzer

RF Signal Generator

	Frequency			Amplitude Level	Reference Clock Stability	SSB Phase Noise	Modulation	OCXO	Pulse Train Generator	I/Q Modulation, Baseband Output	Power Meter Controller	DSG IQ Function PC Software
	1.5 GHz	3 GHz	6 GHz									
DSG815	●			-110 dBm - +13 dBm	<2 ppm <5 ppb (opt. B08)	<-105 dBc/Hz@1 GHz, 20 KHz offset (typical)	AM/FM/PM Pules/ Pules Train (opt.)	OCXO-B08	DSG800-PUG	N/A	N/A	N/A
DSG830		●										
DSG3030			●		<0.5 ppm <5 ppb (opt. A08)	<-110 dBc/Hz@1GHz, 20 KHz offset (typical)	AM/FM/PM/Pulse I/Q (opt.)	OCXO-A08	PUG-DSG3000	IQ-DSG3000	PMC-DSG3000	Ultra IQ Software
DSG3060			●									



DSG800 Series RF Source



DSG3000 Series RF Source

Data Acquisition /Switch System

Main Frame		Modules		Software
M300	M300 Mainframe 5 Slots, 320 CH Max.	MC3065	DMM Module (6.5 digits)	UltraAquirePro Advanced Data Logging Software
M301	M300+MC3065	MC3120	20 CH 2 wire MUX	
M302	M300+MC3065+MC3120+M3TB20	MC3132	32 CH 2 wire MUX	
		MC3164	64 CH 1 wire MUX	
		MC3324	20 CH MUX + 4 Current CH	
		MC3416	16 CH Actuator	
		MC3534	Multifunction	
		MC3648	4x8 Matrix Switch	

Mainframe and modules are needed for a whole system

Digital Multimeter

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

Programmable Linear DC Power Supply

Model	Outputs	Output Range	Max. Power	Ripple & Noise	High resolution option	Monitoring & analysis	Timing Output
DP711	1	30V/5A	150W	<500 μ Vrms			
DP712	1	50V/3A	150W	<500 μ Vrms	HIRES-DP700	NA	TIMER-DP700
DP811	1	20V/10A or 40V/5A	200W	<350 μ Vrms			
DP821	2	8V/10A 60V/1A	140W	<350 μ Vrms			
DP832	3	30V/3A 30V/3A, 5V/3A	195W	<350 μ Vrms	HIRES-DP800	AFK-DP800	Standard
DP831	3	8V/5A 30V/2A, -30V/2A	160W	<350 μ Vrms			
DP811A	1	20V/10A or 40V/5A	200W	<350 μ Vrms			
DP821A	2	8V/10A 60V/1A	140W	<350 μ Vrms	Standard	Standard	Standard
DP832A	3	30V/3A 30V/3A, 5V/3A	195W	<350 μ Vrms			
DP831A	3	8V/5A 30V/2A, -30V/2A	160W	<350 μ Vrms			



DM3000 Series
Digital Multimeter



DP800 Series
Programmable Linear DC
Power Supply



DP700 Series
Programmable Linear DC
Power Supply



M300 Series
Data Acquisition/
Switch System

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