RIGOL

Ultra-Portable Family Product Manual

MHO900 Series | DHO900/800 Series | DG900 Pro/800 Pro Series | DM858 Series

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USB Type-C Power Input for Greater Convenience

The Ultra-Portable Family features an advanced USB Type-C power input design, taking portability and flexibility to the next level. With a compatible power bank, users can easily power their instruments on the go, making them ideal for field chip testing, on-site circuit troubleshooting, and other mobile applications.
This design greatly simplifies operation and ensures efficient performance anytime, anywhere, whether in the lab, on the bench, or in the field.

Compact Design for Maximum Convenience

Designed with portability in mind, the Ultra-Portable Family significantly reduces the burden of transporting test equipment, making it an ideal solution for field engineers and on-site applications.
The family is also compatible with VESA-standard monitor mounts, helping optimize workspace utilization and reduce bench clutter. Whether maximizing efficiency in demanding work environments or creating more room for innovation in space-constrained setups, the Ultra-Portable Family empowers engineers to work smarter and more effectively.

Large Display, Enhanced Visibility

Every instrument in the Ultra-Portable Family features a 7-inch color touchscreen with a 1024 × 600 resolution, providing a clear and intuitive interface for viewing waveforms, measurements, and test results.
The spacious display enhances visibility while enabling smooth, responsive operation, helping users navigate functions efficiently and work with greater confidence in both laboratory and field environments.

Comprehensive Connectivity for Flexible Collaboration

The Ultra-Portable Family is equipped with a versatile range of interfaces, including USB, LAN, and HDMI, enabling seamless integration into a wide variety of workflows. Whether for remote instrument control, data sharing, classroom instruction, or technical presentations, these connectivity options provide the flexibility needed for modern test and measurement environments. This versatile connectivity enhances workflow efficiency and simplifies information sharing across instruments, computers, and displays, enabling seamless collaboration in both professional and educational environments.

DHO800 Series Digital Oscilloscope

DHO900 Series Digital Oscilloscope

MHO900 Series Digital Oscilloscope

RIGOL Ultra-Portable Oscilloscopes

—— Redefining Portable Test and Measurement

RIGOL Ultra-Portable High-Resolution Oscilloscopes combine a compact form factor with powerful performance, delivering accessible high-precision measurement capabilities for today's electronics engineers. Designed to support applications ranging from basic troubleshooting to advanced R&D, the series redefines what a portable oscilloscope can achieve.

Outstanding Performance

Standard 12-bit vertical resolution across the entire family, delivering finer waveform detail than traditional 8-bit oscilloscopes.
Bandwidths ranging from 70 MHz to 800 MHz, with up to 4 GSa/s real-time sampling rate (MHO900 Series) for accurate capture of high-speed signals.
Optional memory depth of up to 500 Mpts (MHO900 Series), enabling long-duration signal acquisition and transient event analysis.
Select models integrate 16 digital channels (MSO functionality) and a built-in function generator, providing a true all-in-one test solution.

Key Advantages

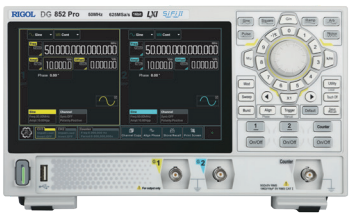
Portable Design: Powered via a USB Type-C interface and compatible with power banks, enabling high-precision measurements wherever they are needed.
High Integration: Combines an oscilloscope, logic analyzer, function generator, and protocol decoding capabilities in a single instrument, reducing both bench space requirements and equipment costs.
User-Friendly Interaction: Features a 7-inch high-resolution touchscreen for an intuitive and efficient user experience.

Application

The Ultra-Portable High-Resolution Oscilloscopes are widely used for embedded system debugging, automotive electronics testing (with CAN-FD and LIN decoding support), power ripple analysis, field maintenance and troubleshooting, and educational laboratory applications.
Whether you are a beginner or an experienced engineer, the RIGOL Ultra-Portable Family is a dependable companion for everyday test and measurement tasks.

Selection Table for Ultra-Portable Family Oscilloscopes

Model	DHO802	DHO804	DHO812	DHO814	DHO914	DHO914S	DHO924	DHO924S	MHO934	MHO954	MHO984
Maximum Bandwidth	70MHz		100MHz		125MHz	125MHz	250MHz	250MHz	350MHz	500MHz	800MHz
Max. Real-time Sample Rate	1.25GSa/s								4GSa/s		
Analog Channels	2	4	2	4	4						
Input Impedance	1MΩ								1MΩ/50Ω		
Max. Memory Depth	25Mpts				50Mpts				Standard100Mpts		
Vertical Resolution	12bit										
Digital Channels	N/A				16 Channels (Optional PLA2216 Logic Probe)						
Built-in Function Generator	N/A				N/A	Standard: 25MHz, 1CH, 14bit	N/A	Standard: 25MHz, 1CH, 14bit	Optional: 50MHz, 2CH, 16bit Optional: 100MHz, 2CH, 16bit		
Protocol Decoding	Standard: Parallel, RS232/UART, I2C, SPI				Standard: Parallel, RS232/UART, I2C, SPI, CAN, LIN				Standard: Parallel, RS232/UART, I2C, SPI, CAN, LIN		
Display	7-inch Touchscreen										
Interfaces	USB2.0 Host&Device, LAN,HDMI										
Power Supply	Type-C, DC15V, 3A								Type-C, DC20V, 5A		



DG800 Pro Series
Function/Arbitrary Waveform Generator

DG900 Pro Series
Function/Arbitrary Waveform Generator

RIGOL Ultra-Portable Function/Arbitrary Waveform Generators

— A Signal Generation Powerhouse in a Compact Form Factor

As key members of the RIGOL Ultra-Portable Family, the DG800 Pro and DG900 Pro Series Function/Arbitrary Waveform Generators combine an exceptionally compact footprint with flagship-level signal generation capabilities. Designed for engineers and educators, they deliver a powerful and portable signal generation solution without compromising performance. Beyond their small size, these instruments offer significant advancements in signal fidelity and functionality.

Outstanding Performance

Standard 16-bit vertical resolution across the series, delivering four times the signal detail of traditional 14-bit generators.
Output frequencies up to 200 MHz (DG900 Pro Series) with sampling rates up to 1.25 GSa/s.
Optional arbitrary waveform memory depth of up to 32 Mpts per channel, enabling the generation of highly complex and high-fidelity waveforms.
Integrated high-precision 7-digit frequency counter across the series, with measurement frequencies up to 1 GHz (DG900 Pro Series), supporting a wide range of test requirements.

Key Advantages

Portable and Flexible: Featuring a compact design and USB Type-C power input, the instruments can be powered by a portable power bank for field applications while fitting easily into space-constrained workbenches.
Professional Performance at an Accessible Price Point: Combining 16-bit high resolution and deep waveform memory in an affordable package, the series sets a new benchmark for performance in entry-level signal generators.
Intuitive Touchscreen Experience: A 7-inch high-resolution touchscreen and graphical user interface make waveform creation, editing, and parameter configuration simple and intuitive.

Applications

RIGOL Ultra-Portable Signal Generators are ideal for analog circuit design and simulation, sensor signal emulation, automotive electronics testing, embedded system clock generation, educational laboratories, and DIY electronics development.
Whether validating a design, simulating real-world signals, or exploring new ideas, they provide a versatile platform for signal generation and testing.

DG800 Pro

Model	DG821 Pro	DG822 Pro	DG852 Pro
Number of Channels	1	2	2
Bandwidth	25MHz	25MHz	50MHz
Maximum Sample Rate	625MSa/s		
Arbitrary Waveform Length	2Mpts/CH(8Mpts/CH opt.)		
Vertical Resolution	16bit		
Output Amplitude (50 Ω)	1mVpp ~ 10Vpp		
Output Amplitude (High-Z)	2mVpp ~ 20Vpp		
Sine Wave Frequency Range	1μHz ~ 25MHz		1μHz ~ 50MHz
Square Wave Frequency Range	1μHz ~ 20MHz		1μHz ~ 40MHz
Square Wave Rise Time	3ns		
Pulse Frequency Range	1μHz ~ 10MHz		1μHz ~ 25MHz
Maximum Frequency Counter Frequency	500MHz		
Frequency Counter Resolution	7 digits		
Modulation Functions	AM、FM、PM、FSK、ASK、PSK、PWM		
Interfaces	USB Host、 USB Device、 LAN		
Displays	7'' color touch screen		
Remote Control Protocols	SCPI Standard		

DG900 Pro

Model	DG902 Pro	DG912 Pro	DG922 Pro
Number of Channels	2	2	2
Bandwidth	70MHz	150MHz	200MHz
Maximum Sample Rate	1.25GSa/s		
Arbitrary Waveform Length	16Mpts/CH(32Mpts/CH opt.)		
Vertical Resolution	16bit		
Output Amplitude (50 Ω)	1mVpp ~ 10Vpp		
Output Amplitude (High-Z)	2mVpp ~ 20Vpp		
Sine Wave Frequency Range	1μHz ~ 70MHz	1μHz ~ 150MHz	1μHz ~ 200MHz
Square Wave Frequency Range	1μHz ~ 60MHz		
Square Wave Rise Time	3ns		
Pulse Frequency Range	1μHz ~ 50MHz		
Maximum Frequency Counter Frequency	1GHz		
Frequency Counter Resolution	7 digits		
Modulation Functions	AM、FM、PM、FSK、ASK、PSK、PWM		
Interfaces	USB Host、USB Device、LAN		
Displays	7'' color touch screen		
Remote Control Protocols	SCPI Standard		

DM858 Series Digital Multimeter

RIGOL Ultra-Portable Digital Multimeters

——Compact Design, Precision Performance

The DM858 Series 5½-Digit Benchtop Digital Multimeters are the precision measurement specialists of the RIGOL Ultra-Portable Family. They combine high-accuracy measurement capabilities with a compact, space-saving design, helping you make the most of your workspace without compromising performance.

Outstanding Performance

The DM858 Series delivers 5½-digit resolution with a DC voltage accuracy of 0.030% (1-year specification), ensuring reliable and dependable measurement results.

With measurement rates of up to 125 readings per second and 500,000-point data logging memory, it can capture and record subtle changes in voltage, current, resistance, capacitance, and other parameters over extended periods.

Comprehensive measurement capabilities include ranges up to 1000 V DC voltage and 10 A DC current, along with capacitance, frequency, diode testing, and other commonly used measurement functions.

Key Advantages

Space-Efficient Design: Its slim profile and flexible mounting options help maximize valuable bench space while remaining highly portable for field service and maintenance applications.

Modern User Experience: A 7-inch color touchscreen provides clear, intuitive readings and supports graphical displays such as trend charts and histograms, making data analysis straightforward. Complex statistical calculations can be performed directly on the instrument without the need for a PC.

Convenient Connectivity: Powered via a USB Type-C interface and compatible with mainstream power banks, the DM858 Series also includes USB and LAN interfaces as standard, along with Web Control functionality for remote operation and seamless integration into automated test systems.

Applications

The DM858 Series is widely used in automated production testing, electronics R&D and validation, component screening and testing, field maintenance, and educational laboratories.

Combining accuracy, efficiency, and portability, it is an ideal measurement solution for a wide range of applications.

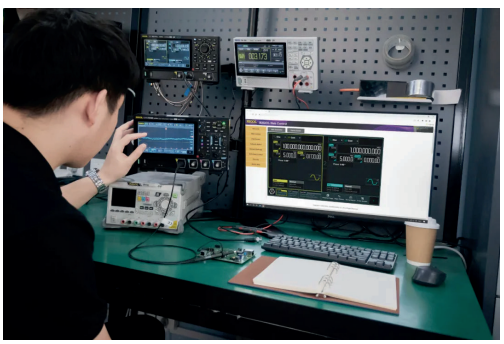
DM858

Model		DM858	DM858E
DC Voltage Accuracy (1-Year)		0.030%	0.060%
Reading Rate		125 Readings/s	80 Readings/s
Data Logging Memory		500,000 Points	20,000 Points
Measurement Functions	DCV	1000V	
	DCI	10A	3A
	Resistance	50MΩ	
	Continuity Test	100MΩ	
	Diode Test	2V	
	ACV	750V	
	ACI	10A	3A
	Frequency	100kHz	
	Capacitance	10mF	1mF
	Temperature Sensor	Built-in Thermocouple Cold Junction Compensation (CJC)	
Math Functions		dBm, dB, Relative, Statistics (Maximum/Minimum/Average/Standard Deviation), Limit, Histogram, Bar Chart, and Trend	
Remote Control Response Time		10ms	
Displays		7'' color touch screen	
Interfaces		USB Device, USB Host, LAN	
Remote Control Protocols		SCPI Standard	
Web Control		Web Control Supported	

08 Diverse application scenarios of ultra-portable family products

Introductory Teaching Laboratories

"The compact form factor frees up valuable bench space and helps create a cleaner, more efficient learning environment. Lightweight and easy to deploy across classrooms, the Ultra-Portable Family simplifies equipment management and improves teaching flexibility.
Despite its small footprint, it delivers professional-grade measurement performance, providing students with hands-on experience using tools and workflows aligned with real-world engineering practice."

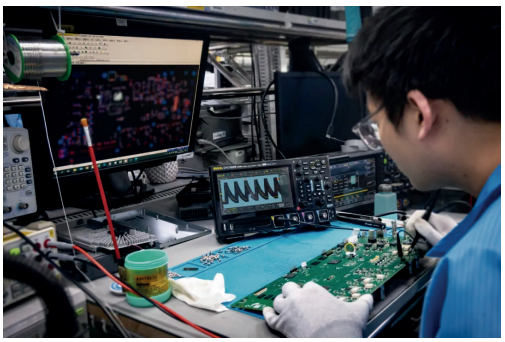


Maker & Personal Electronics Benches

"The pocket-sized form factor provides makers and hardware enthusiasts with a dedicated test solution that minimizes bench space requirements without compromising capability.
Powered via USB Type-C, it enables testing virtually anywhere without dependence on wall power. Despite its compact size, it delivers benchtop-class signal fidelity and deep memory performance. Its small footprint and exceptional value help overcome both space and budget constraints, making it an ideal fit for personal electronics workbenches."

Power Supply Production Testing

"The ultra-compact footprint helps reduce bench congestion and maximize available workspace in power supply test environments.
With low-noise front-end hardware and high vertical resolution, the Ultra-Portable Family accurately captures microvolt-level ripple and transient events, enabling high-fidelity analysis of switching losses and power integrity in a compact test platform."



Automotive Field Testing

"Designed for in-vehicle measurements and testing in confined spaces.
Powered by a portable power bank via USB Type-C, it eliminates the need for AC power connections and can be handheld or mounted directly inside the vehicle. High-bandwidth, multi-channel acquisition enables simultaneous monitoring of CAN/LIN bus activity and analog sensor signals within a single instrument.
Its compact and flexible design makes it easy to deploy in real-world test environments where traditional bench instruments may be impractical, helping engineers perform accurate measurements wherever they are needed."

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