KEITHLEY

DAQ6510

The Keithley DAQ6510 is a precision 6½-digit data acquisition and logging multimeter system designed to provide high-speed, accurate multi-channel measurements. Featuring a 5-inch capacitive touchscreen, dual-slot card expansion supporting up to 80 channels, and a built-in 1 MS/s digitizer, it is optimized for high-performance test and automated logging applications.

SPECIFICATIONS

General

Interfaces	USB 2.0 Host (front), USB 2.0 Device (rear), LAN (LXI Compliant), plus optional GPIB, RS-232, or TSP-Link modules
Display	5-inch (12.7 cm) capacitive touchscreen color graphical display (800 x 480)
Standard Warranty	3 years
Warm-up Time	1 hour to rated accuracy
Real-time Clock Battery Life	10 years typical

Physical

Operating Temperature	0 °C to 50 °C °C
Dimensions (W×H×D)	213.8 mm × 88.4 mm × 356.6 mm (without handle and bumpers) mm
Weight	4.54 kg (10.0 lbs) kg

Measurement & Acquisition Performance

Measurement Resolution	6½ digits
Basic 1-Year DC Voltage Accuracy	0.0025% of reading + 0.0005% of range (10 V range)
Digitizer A/D Converter Resolution	16-bit
Maximum Digitizer Sampling Rate	1 MS/s
DC Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 1000 V
DC Current Ranges	10 µA, 100 µA, 1 mA, 10 mA, 100 mA, 1 A, 3 A
Resistance Ranges	10 Ω, 100 Ω, 1 kΩ, 10 kΩ, 100 kΩ, 1 MΩ, 10 MΩ, 100 MΩ
Capacitance Ranges	1 nF, 10 nF, 100 nF, 1 µF, 10 µF, 100 µF, 1000 µF
Thermocouple Types	J, K, T, E, R, S, B, N
RTD Types Supported	PT100, D100, F100, User-defined (2-wire, 3-wire, 4-wire)
Thermistor Types Supported	2.2 kΩ, 5 kΩ, 10 kΩ
Temperature Accuracy (PT100 RTD)	±0.06 °C

Input Channel Specifications

Analog Input Expansion Slots	1 slot (rear panel)
Input Impedance (DCV)	10 MΩ or >10 GΩ (selectable for 100 mV, 1 V, 10 V ranges)
Maximum Direct Input Voltage	1000 V peak (between any terminal and earth ground)
Common Mode Rejection Ratio (CMRR)	140 dB (DC, 50 Hz or 60 Hz with 1 kΩ imbalance in LO lead)

Triggering & Alarm Systems

Trigger Sources	Front panel key, external trigger, software command, TSP-Link, digital I/O, internal timer, analog trigger
External Trigger Input	BNC connector (rear panel)

Connectivity, Interfaces & Integration

Digital I/O Port	9-pin female D-sub with 6 configurable digital I/O lines
LXI Compliance	LXI Version 1.5 Core Device

Data Storage & Recording Modes

Internal Volatile Buffer Capacity	7,000,000 readings
Internal Non-Volatile Flash Capacity	Up to 50 test setups stored
External Storage Support	USB Host (front)

Software & Programming

Programming Languages	SCPI (standard and 2700/2701/2750 emulation modes), TSP (Test Script Processor)
Bundled Software Compatibility	Keithley KickStart Instrument Control Software, Test Script Builder
Web Interface	Built-in virtual front panel and instrument control web page

Physical & Mechanical

Form Factor	Benchtop or standard half-rack 2U rackmount height

Environmental & Compliance

Safety Standards	Conforms to European Union Low Voltage Directive, UL 61010-1
EMC Compliance	Conforms to European Union EMC Directive (EN 61326-1)
Operating Altitude	Up to 2000 meters above sea level
Storage Temperature Range	-40 °C to 70 °C

Expansion Modules & Options

Compatible Expansion Modules	Keithley 7700-series modules (e.g., 7700, 7701, 7702, 7703, 7705, 7706, 7707, 7708, 7709, 7710)

Measurement Ranges

AC Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 750 V
AC Current Ranges	100 µA, 1 mA, 10 mA, 100 mA, 1 A, 3 A
Frequency Measurement Range	3 Hz to 300 kHz
Period Measurement Range	3.33 µs to 333 ms
Digitizer Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 1000 V
Digitizer Current Ranges	100 µA, 1 mA, 10 mA, 100 mA, 1 A, 3 A

Performance

Basic 1-Year AC Voltage Accuracy	0.06% of reading + 0.03% of range (10 Hz - 20 kHz)
Basic 1-Year DC Current Accuracy	0.05% of reading + 0.005% of range (10 mA range)
Basic 1-Year Resistance Accuracy	0.0075% of reading + 0.001% of range (10 kΩ range)
Temperature Measurement Resolution	0.001 °C
Integration Time Range	0.0005 to 15 PLC (60 Hz) / 12 PLC (50 Hz)

Scanning Performance

Maximum Scan Speed (Solid-state)	Up to 800 channels/second
Maximum Scan Speed (Electromechanical)	Up to 110 channels/second

Power Supply

Line Frequency	50 Hz / 60 Hz / 400 Hz (automatically sensed)

Measurement Performance

Maximum Common Mode Voltage	500 Vpeak (LO to earth ground)
Overrange Capability	120% (on DCV, DCI, and Ohms, except 1000 V and 3 A ranges)
Continuity Threshold Range	1 Ω to 1000 Ω
Diode Test Current Sources	10 µA, 100 µA, 1 mA
Mathematical Functions	mX+b, Percent, Reciprocal (1/X), Logarithmic (10log), dB, dBm, Limits

Environmental

Operating Humidity Range	5% to 80% RH at up to 35 °C (non-condensing)

TECHNOLOGY

Data Acquisition / Digitizer Multimeter

APPLICATIONS

Multi-channel data logging, automated environmental test, burn-in testing, and precision benchtop multimeter measurements

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