

KEYSIGHT TECHNOLOGIES (AGILENT HP)

34972A

The Keysight 34972A is a high-performance Data Acquisition and Switch Unit featuring a built-in 6.5-digit digital multimeter (DMM). Equipped with modern USB 2.0 and 10/100 LAN interfaces, it provides flexible remote connectivity, built-in LXI Web interface, and direct data-logging capabilities to a USB flash drive without requiring a PC connection.

SPECIFICATIONS

General

Interfaces	USB 2.0 (Device), LAN (10/100 Base-T, LXI Class C), USB Host (Front panel)
Display	Vacuum fluorescent display (VFD)

Physical

Operating Temperature	0 °C to 55 °C °C
Weight	3.6 kg kg

Mainframe System Characteristics

Number of Card Slots	3
Built-in DMM Resolution	6.5 digits
Maximum Scan Rate	250 channels/s
Internal Memory Capacity	50,000 readings (with timestamp in non-volatile memory)
Non-volatile Memory Retention	10 years (battery-backed)
Internal Clock and Calendar Accuracy	Battery-backed real-time clock
USB Flash Drive Port Support	Yes (front panel USB 2.0 port)

Internal DMM Measurement Functions

DC Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 300 V
DC Voltage Best Resolution	100 nV
AC Voltage Ranges	100 mV, 1 V, 10 V, 100 V, 300 V (AC-coupled True RMS)
AC Voltage Frequency Range	3 Hz to 300 kHz
DC Current Ranges	10 mA, 100 mA, 1 A
AC Current Ranges	10 mA, 100 mA, 1 A
2-wire Resistance Ranges	100 Ω , 1 k Ω , 10 k Ω , 100 k Ω , 1 M Ω , 10 M Ω , 100 M Ω
4-wire Resistance Ranges	100 Ω , 1 k Ω , 10 k Ω , 100 k Ω , 1 M Ω , 10 M Ω , 100 M Ω
Frequency and Period Range	3 Hz to 300 kHz
Thermocouple Types Supported	B, E, J, K, N, R, S, T
RTD Types Supported	PT100, D100, F100 (α = 0.00385 or 0.00392)
Thermistor Types Supported	2.2 k Ω , 5 k Ω , 10 k Ω
Maximum Input Voltage Rating	300 V peak on any channel (module dependent)
Input Impedance (DC Voltage)	10 M Ω or > 10 G Ω (selectable for 100 mV, 1 V, 10 V ranges)
Shunt Resistance (Current Ranges)	5 Ω (for 10 mA, 100 mA), 0.1 Ω (for 1 A)

System Speed and Throughput

Scan Speed to Internal Memory	up to 250 channels/s
Scan Speed to LAN Port	up to 250 channels/s
Scan Speed to USB Port	up to 250 channels/s
Single Channel Measurement Rate	up to 600 rdgs/s (to internal memory)

Supported Plug-In Modules and Switching

Multiplexer Module Options	34901A (20-ch), 34902A (16-ch high speed), 34908A (40-ch single-ended)
Matrix Module Options	34904A (4x8 matrix)
General Purpose Switch / Actuator Modules	34903A (20-ch SPDT)
RF and Microwave Multiplexer Modules	34905A (Dual 1:4 2 GHz 50 Ω), 34906A (Dual 1:4 2 GHz 75 Ω)
Multifunction Modules	34907A (Digital I/O, D/A, Totalizer)
Maximum System Channel Capacity	120 single-ended channels (using three 34908A modules)
Maximum Voltage Switching Capacity	300 V (module dependent)

Connectivity and Instrument Control

LAN Interface Speed	10/100 Base-T
Built-in Web Server Interface	Yes (Graphical Web Interface for monitoring and control)
Command Language Compatibility	SCPI-1991, Agilent 34970A compatible
Virtual Front Panel Support	Yes (via web browser)

Triggering and Synchronization

Alarm Relay Output Interface	4 physical TTL alarm outputs on rear panel
Channel-to-Channel Delay Range	0 to 60 seconds (1 ms resolution)

Physical Characteristics

Rack Mount Kit Availability	Optional (34190A, 34191A, 34194A)
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Environmental Specifications

Operating Temperature Range	0 °C to 55 °C
Storage Temperature Range	-40 °C to 70 °C

Safety and Regulatory Standards

Electrical Safety Standards	Conforms to CSA C22.2 No. 61010-1, EN 61010-1, UL 61010-1
Electromagnetic Compatibility (EMC)	Conforms to EN 61326-1, IEC 61326-1

Measurement Technology

A/D Converter Type	Multi-slope III
Input Bias Current	< 30 pA at 25 °C
AC Crest Factor	5:1 at full scale

Noise Rejection

Normal Mode Rejection (NMRR)	60 dB at 50/60 Hz ± 0.1% (for 1 PLC or greater)
Common Mode Rejection (CMRR)	140 dB at DC; 70 dB at 50/60 Hz (with 1 kΩ LO lead unbalance)

Measurement Accuracy

DC Voltage 10 V Range 1-Year Accuracy	±(0.0035% of reading + 0.0005% of range)
AC Voltage 10 Hz - 20 kHz 1-Year Accuracy	±(0.06% of reading + 0.03% of range)
Resistance 10 kΩ Range 1-Year Accuracy	±(0.010% of reading + 0.001% of range)

Environmental & Safety

Pollution Degree	Pollution Degree 2
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Measurement Capabilities

DC Current Best Resolution	10 nA
Resistance Best Resolution	100 μΩ

Software & Control

Included Software	Keysight BenchLink Data Logger
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TECHNOLOGY

Data Acquisition & Switching

APPLICATIONS

Precision multi-channel temperature logging, automated electronic test, and system monitoring

