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DAQ-9600

Data Acquisition System

FEATURES

- Large 4.3" TFT Color Display
- 3-slot Mainframe with Built-in 6 1/2 Digit DMM
- Basic 0.0035% DCV Accuracy
- 5 Selectable Switch Modules
- Up to DC 600V/AC 400V Voltage Measurement (DAQ-909 Module)
- Up to 450 Channel/s Scan Rate
- Up to 100 kilo Points Internal Memory
- Measures and Converts 14 Different Input Signals:
Temperature with Thermocouple, RTDs and Thermistor;
DC/AC Volts; 2- and 4-wire Resistance; Frequency and Period;
DC/AC Current and Capacitance; Direct Strain and Bridge Strain
- Command Compatible with the DAQ970A
- USB Storage Supports to Copy/Log Data in Standalone Operation
- Interface: Digit I/O, LAN, USB Host/Device and Mini GPIB(Optional)
- Free PC Software DAQ-Data Logger, Allows Easy Configuration and Control of Tests

GW INSTEK
Simply Reliable

Expand Your Data Acquisition Tentacles

The DAQ-9600 data acquisition system is a modularized data acquisition system with high flexibility and higher performance. The mainframe is equipped with 3 module slots and a built-in precision 6 1/2 digital DMM is the core of its test and measurement. 5 modules are available to meet different measurement needs. For the research and development of analyzing product characteristics or the production and manufacturing of system testing or fault diagnosis, a data acquisition system with flexibility and high performance can effectively fulfill different measurement requirements by expansion and change that make the overall test simpler, faster and more reliable.

The modular structure of the DAQ-9600 provides 3 module slots and 5 optional modules, including general-purpose modules (DAQ-900/ DAQ-901), multi-function module (DAQ-903), matrix module (DAQ-904) and high-voltage and high-current module (DAQ-909). Users can combine and match arbitrarily according to the measurement needs. Since the DMM is built-in, it will not take up the slot space for maximum flexibility to expand channels to 60 two-wire channels or 120 single-ended channels or 96 matrix crosspoints.

The DAQ-9600 features a 4.3-inch graphic color display and concise function key design, allowing users to quickly and easily configure module channels in an intuitive way. Measurement data is presented in different formats, such as numerical values, bar graphs, trend graph and histogram to quickly check the measurement results. At the same time, the DAQ-9600 can convert 14 input signals, including temperature (RTD/thermocouple/thermistor), voltage (AC/DC), current (AC/DC), resistance (two-wire/four-wire), Strain (direct/bridge), frequency/period, and capacitance. The built-in 6 1/2 digital DMM provides basic accuracy of 0.0035% DC voltage, 0.05% AC voltage, and 0.01% resistance within a one-year calibration cycle.

The DAQ-9600 supports measurement data storage, and the acquired data can be stored in the internal memory or directly recorded to a USB flash drive without connecting to a PC. For remote setting and control of data logging applications, the DAQ-9600 is equipped with LAN, USB and GPIB (optional), and provides free DAQ-Data Logger software to simplify data collection and analysis, allowing users to easily collect data. In addition, the LAN interface can be used to configure measurements, define and execute scan lists through common web browsers (such as Chrome, IE). Users can monitor the measurement results no matter where they are as long as they are connected to the Internet.

The DAQ-9600 can meet the demand for data acquisition. Users can construct flexible signal routing and control functions through a variety of optional modules. With the built-in excellent measurement functions, including resolution, accuracy and speed, 14 different input signals can be easily measured to meet different application requirements. The DAQ-9600 is definitely a perfect combination of price and the test and measurement performance.

PANEL INTRODUCTION



A. CUSTOMIZED CONFIGURATION FOR CHANGING NEEDS



The DAQ-9600 provides 3 module slots, and all of which can be used to install and control selected modules. 5 different modules are available to meet different measurement needs. These modules include general-purpose modules, multi-function modules, matrix module and high-voltage and high-current module. Users can choose, mix and match these modules to obtain the functions as required. The measurement

channels of each module can be configured independently, including measurement function, range, speed and the advanced measurement functions such as offset compensation. The DAQ-9600 can provide up to 60 two-wire measurements, 120 single-ended measurements, or 96 matrix crosspoints in a half-rack, which saves work space and cost when completing complex and diverse measurement tasks.

B. PRECISE TEST AND MEASUREMENT

	Thermocouple	RTD	Thermistor	AC Voltage	DC Voltage	AC Current
RANGE	-200 °C to 1820 °C	-200 °C to 600 °C	-80 °C to 150 °C	100mV to 400V	100mV to 600V	100µA to 2A
RESOLUTION	0.002 °C to 0.01 °C	0.002 °C	0.01 °C	0.1µV to 1mV	0.1µV to 1mV	100pA to 1µA
ACCURACY	0.2 °C	0.06 °C	0.01 °C	0.05%	0.0035%	0.10%

	DC Current	2W Resistance	4W Resistance	Capacitor	Frequency Period	Strain-Bridge Strain-Direct
RANGE	1µA to 2A	100 Ω to 1000 MΩ	100 Ω to 1000 MΩ	1nF to 100µF	3Hz to 300kHz	
RESOLUTION	1pA to 1µA	0.1 mΩ to 1000 Ω	0.1 mΩ to 1000 Ω	0.0001nF to 0.01µF		
ACCURACY	0.05%	0.01%	0.01%	2%		

The test and measurement core of the DAQ-9600 is a 6 1/2-digit DMM, which has the functions and performance of an industrial-grade DMM. It can measure and convert 14 different input signals. In addition to high resolution, it also provides basic accuracy of 0.0035% DC voltage, 0.05% basic accuracy of AC voltage and 0.01% basic accuracy of resistance (within one-year calibration period). The functions of this DMM can be

used with general-purpose modules (DAQ-900/ DAQ-901), multi-function module (DAQ-903) and high-voltage and high-current module (DAQ-909). All multiplexer modules use "disconnect before connect" scanning to ensure that only one channel (or a pair of channels) is closed at a time.

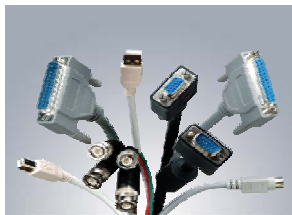
C. BUILT-IN SIGNAL CONDITIONING



Transducer plays an important role in the application of data acquisition system, converting physical quantities into electronic signals, such as temperature measurement (temperature to voltage), and pressure and strain measurement (resistance to voltage). The DAQ-9600 does not rely on external or plug-in signal conditioning modules to handle functions other than DC voltage, which not only greatly reduces noise and errors generated by external wiring from entering the system, and improves reliability. At the same time, it does not have unnecessary cables, wire distribution boxes and signal conditioning components that makes configuration quicker and easier. Taking temperature

measurement as an example, the measurement of thermocouples is often accompanied by the Seebeck effect (the thermoelectric phenomenon in which the temperature difference between two different electrical conductors or semiconductors causes a voltage difference between two substances). All DAQ-9600 modules provide cold junction compensation (except DAQ-904) to ensure maximum accuracy for all channels measuring thermocouples, avoiding the use of temperature extension wires with external cold junctions, which will increase noise and errors generated by external wiring into the system.

D. INTERNAL MEMORY AND USB STORAGE



Variety Interfaces

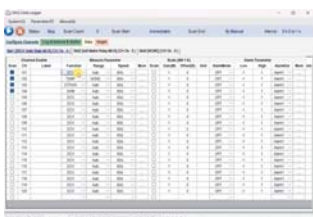
The DAQ-9600 can store the measurement results without connecting to a PC with the non-volatile memory capacity of 100k readings. Users can store the measurement results inside the system first, and then connect to a PC to collect data. In addition, for larger memory capacity, the DAQ-



USB Storage

9600 also supports the USB storage function, which can directly record data to an external USB flash drive, or copy the data of the internal non-volatile memory to the flash drive for follow-up analysis.

E. SIMPLIFY DATA COLLECTION AND ANALYSIS



DAQ-Data Logger


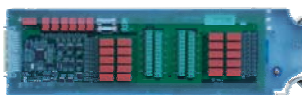

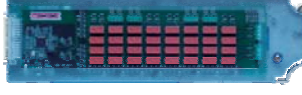
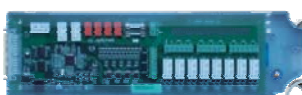
The DAQ-9600 provides LAN, USB and GPIB (optional) to meet the most suitable and customary remote control interface requirements. Users can be benefitted from the free data collection software (DAQ-Data Logger) to easily and quickly set up tests, acquire and store measurement data, and perform real-time observation and analysis during the measurement process. If LAN is used as the



Web Control


interface, it can be easily connected to the company network to collect measurement data and store it in the central database. It can also use a common web browser (such as Chrome, IE) through the built-in graphical web interface to configure test and measurements, define and execute scan lists to reduce the time spent on programming.

F. THE INTRODUCTION OF MODULES

<p>DAQ-900</p> 	<p>20-Channel Universal Multiplexer (Solid State Relay)</p> <ul style="list-style-type: none"> * Scanning speed up to 450 channels per second * 2-wire and 4-wire scanning * Built-in temperature cold junction reference * 120 V switching 	<p>DAQ-900 is a solid state relay module that provides two groups (A/B) of 10 2-wire channels each. All 20 channels are switchable to high (HI) and low (LO) inputs, providing fully isolated inputs for the built-in digital meter or external instruments. During 4-wire resistance measurements, the channels of group A are automatically paired with the channels of group B to provide power and sense connections. The module has a built-in cold junction reference, which can greatly reduce errors caused by thermal gradients when measuring thermocouples.</p>
<p>DAQ-901</p> 	<p>20+2 Channels Universal Multiplexer (Armature Relay)</p> <ul style="list-style-type: none"> * The scanning speed can reach 80 channels per second * 2-wire and 4-wire scanning * Built-in temperature cold junction reference * 300 V switching * The extra 2 channels can directly measure the current (1A/per CH) 	<p>DAQ-901 is a comprehensive multiplexer for general scanning. The same module can mix 2-wire and 4-wire channels; at the same time, the additional 2 current input channels can be used for AC and DC current measurement without external shunt resistors (maximum 1A per channel). DAQ-901, a total of 22 channels, intensive multi-function switching and a scan rate of up to 80 channels per second, is suitable for various data acquisition applications.</p>
<p>DAQ-903</p> 	<p>40-Channel Single-Ended Multiplexer</p> <ul style="list-style-type: none"> * The scanning speed can reach 80 channels per second * Single-wire switching is suitable for common-low applications 	<p>DAQ-903 can switch 40 single-wire inputs per module. It can be used for common-low applications such as battery testing, component characterization and desktop testing. The low-voltage connection is isolated from ground and can be floated up to 300 V. DAQ-903 also supports all 2-wire internal measurements except current.</p>
<p>DAQ-904</p> 	<p>4 x 8 2-Wire Matrix</p> <ul style="list-style-type: none"> * The switching speed 3ms * 32 2-wire intersections * 300 V, 1A switching * Up to 96 crosspoints (3 slots) 	<p>DAQ-904 module can provide the most flexible connection path between your DUT and the test system, allowing different test instruments to be connected to multiple points on the DUT at the same time. DAQ-904 can connect the rows and columns of multiple modules to build larger matrices, such as 8 x 8, 4 x 16...etc. Up to 96 crosspoints can be built in a single instrument.</p>
<p>DAQ-909</p> 	<p>8+2 Channels High Voltage High Current Multiplexer</p> <ul style="list-style-type: none"> * The switching speed 3ms * DC 600V / AC 400Vrms voltage , current 2A * 2-wire and 4-wire scanning * Additional 2 channels can directly measure current (2A/per channel) 	<p>DAQ-909 is a multiplexer specially designed for high voltage, providing 8 channels for DC 600V / AC 400Vrms voltage measurement. The additional 2 current input channels can be used for AC and DC current measurement, external shunt resistors are not required (maximum 2A / per channel).</p>

Function	Range (2)	Resolution	Input Resistance etc.	24 Hour TCAL± 1°C	90 Day TCAL± 5°C	1 Year TCAL± 5°C	Temperature Coefficient 0°~ 18°C/28°~ 55°C	
DC Characteristics								
Accuracy : ± (% of reading + % of range)								
DC Voltage *1	100.0000 mV	0.1μV	10MΩ or >10GΩ	0.0030 + 0.0050	0.0040 + 0.0060	0.0050 + 0.0060	0.0005 + 0.0005	
	1.000000 V	1μV	10MΩ or >10GΩ	0.0020 + 0.0006	0.0035 + 0.0007	0.0048 + 0.0007	0.0005 + 0.0001	
	10.00000 V	10μV	10MΩ or >10GΩ	0.0015 + 0.0004	0.0020 + 0.0005	0.0035 + 0.0005	0.0005 + 0.0001	
	100.0000 V	0.1mV	10MΩ±1%	0.0020 + 0.0006	0.0035 + 0.0006	0.0050 + 0.0006	0.0005 + 0.0001	
	600.000 V	1mV	10MΩ±1%	0.0025 + 0.0020	0.0040 + 0.0020	0.0050 + 0.0020	0.0005 + 0.0001	
Resistance *1 *3	100.0000 Ω	100μΩ	1mA	0.003 + 0.0030	0.008 + 0.004	0.010 + 0.004	0.0008 + 0.0005	
	1.000000 kΩ	1mΩ	1mA	0.002 + 0.0005	0.008 + 0.001	0.010 + 0.001	0.0008 + 0.0001	
	10.00000 kΩ	10mΩ	100μA	0.002 + 0.0005	0.008 + 0.001	0.010 + 0.001	0.0008 + 0.0001	
	100.0000 kΩ	100mΩ	10μA	0.002 + 0.0005	0.008 + 0.001	0.010 + 0.001	0.0008 + 0.0001	
	1.000000 MΩ	1Ω	5μA	0.002 + 0.0010	0.008 + 0.001	0.010 + 0.001	0.0010 + 0.0002	
	10.00000 MΩ	10Ω	500nA	0.015 + 0.0010	0.020 + 0.001	0.040 + 0.001	0.0030 + 0.0004	
	100.0000 MΩ	100Ω	500nA//10MΩ	0.300 + 0.0100	0.800 + 0.010	0.800 + 0.010	0.1500 + 0.0004	
	1.000000 GΩ	1kΩ	500nA//10MΩ	2.500 + 0.0500	3.500 + 0.050	3.500 + 0.050	1.0000 + 0.0040	
	DC Current *1	1.000000 μA	1pA	< 0.015 V	0.025 + 0.050	0.050 + 0.050	0.050 + 0.050	0.002 + 0.003
10.00000 μA	10pA	< 0.15 V	0.020 + 0.010	0.040 + 0.025	0.050 + 0.025	0.002 + 0.003		
100.0000 μA	100pA	< 0.020 V	0.010 + 0.020	0.040 + 0.025	0.050 + 0.025	0.002 + 0.003		
1.000000 mA	1nA	< 0.20 V	0.007 + 0.006	0.030 + 0.006	0.050 + 0.006	0.002 + 0.001		
10.00000 mA	10nA	< 0.15 V	0.007 + 0.020	0.030 + 0.020	0.050 + 0.020	0.002 + 0.002		
100.0000 mA	100nA	< 0.7 V	0.010 + 0.004	0.030 + 0.005	0.050 + 0.005	0.002 + 0.001		
2.000000 A	1μA	< 0.8 V	0.180 + 0.020	0.200 + 0.020	0.200 + 0.020	0.005 + 0.001		
Diode Test *1 *4	5.00000 V	10μV	1 mA	0.002 + 0.030	0.008 + 0.030	0.01 + 0.030	0.001 + 0.002	
AC Characteristics								
Accuracy : ± (% of reading + % of range)								
True RMS AC Voltage *5 *6 *7 *8	100.0000 mV	0.1μV	3Hz - 5Hz	1.00 + 0.03	1.00 + 0.04	1.00 + 0.04	0.100 + 0.004	
			5Hz - 10Hz	0.35 + 0.03	0.35 + 0.04	0.35 + 0.04	0.035 + 0.004	
			10Hz - 20kHz	0.04 + 0.03	0.05 + 0.04	0.06 + 0.04	0.005 + 0.003	
			20kHz - 50kHz	0.10 + 0.05	0.11 + 0.05	0.12 + 0.05	0.011 + 0.005	
			50kHz - 100kHz	0.55 + 0.08	0.60 + 0.08	0.60 + 0.08	0.060 + 0.008	
			100kHz - 300kHz	4.00 + 0.50	4.00 + 0.50	4.00 + 0.50	0.200 + 0.020	
	1.000000 V to 400.000 V	1μV ~ 1mV	3Hz - 5Hz	1.00 + 0.02	1.00 + 0.03	1.00 + 0.03	0.100 + 0.004	
			5Hz - 10Hz	0.35 + 0.02	0.35 + 0.03	0.35 + 0.03	0.035 + 0.004	
			10Hz - 20kHz	0.04 + 0.02	0.05 + 0.03	0.06 + 0.03	0.005 + 0.003	
			20kHz - 50kHz	0.10 + 0.04	0.11 + 0.05	0.12 + 0.05	0.011 + 0.005	
			50kHz - 100kHz	0.55 + 0.08	0.60 + 0.08	0.60 + 0.08	0.060 + 0.008	
			100kHz - 300kHz	4.00 + 0.50	4.00 + 0.50	4.00 + 0.50	0.200 + 0.020	
	True RMS AC Current *5 *7 *9	100.0000 μA	< 0.020 V	3Hz - 5Hz	1.00 + 0.04	1.00 + 0.06	1.00 + 0.06	0.100 + 0.006
				5Hz - 10Hz	0.35 + 0.04	0.35 + 0.06	0.35 + 0.06	0.035 + 0.006
10Hz - 5kHz				0.10 + 0.04	0.10 + 0.06	0.10 + 0.06	0.015 + 0.006	
5kHz - 10kHz				0.18 + 0.04	0.18 + 0.10	0.18 + 0.10	0.035 + 0.006	
3Hz - 5Hz				1.00 + 0.04	1.00 + 0.04	1.00 + 0.04	0.100 + 0.006	
1.000000 mA		< 0.20 V	5Hz - 10Hz	0.30 + 0.04	0.30 + 0.04	0.30 + 0.04	0.035 + 0.006	
			10Hz - 5kHz	0.10 + 0.04	0.10 + 0.04	0.10 + 0.04	0.015 + 0.006	
			5kHz - 10kHz	0.15 + 0.04	0.15 + 0.04	0.15 + 0.04	0.030 + 0.006	
			3Hz - 5Hz	1.00 + 0.04	1.00 + 0.04	1.00 + 0.04	0.100 + 0.006	
			5Hz - 10Hz	0.35 + 0.04	0.35 + 0.04	0.35 + 0.04	0.035 + 0.006	
10.00000 mA		< 0.15 V	10Hz - 5kHz	0.10 + 0.04	0.10 + 0.04	0.10 + 0.04	0.015 + 0.006	
			5kHz - 10kHz	0.18 + 0.04	0.18 + 0.04	0.18 + 0.04	0.030 + 0.006	
			3Hz - 5Hz	1.00 + 0.04	1.00 + 0.04	1.00 + 0.04	0.100 + 0.006	
			5Hz - 10Hz	0.30 + 0.04	0.30 + 0.04	0.30 + 0.04	0.035 + 0.006	
			10Hz - 5kHz	0.10 + 0.04	0.10 + 0.04	0.10 + 0.04	0.015 + 0.006	
100.0000 mA		< 0.7 V	5kHz - 10kHz	0.18 + 0.04	0.18 + 0.04	0.18 + 0.04	0.030 + 0.006	
			3Hz - 5Hz	1.00 + 0.04	1.00 + 0.04	1.00 + 0.04	0.100 + 0.006	
			5Hz - 10Hz	0.30 + 0.04	0.30 + 0.04	0.30 + 0.04	0.035 + 0.006	
	10Hz - 5kHz		0.10 + 0.04	0.10 + 0.04	0.10 + 0.04	0.015 + 0.006		
	5kHz - 10kHz		0.15 + 0.04	0.15 + 0.04	0.15 + 0.04	0.030 + 0.006		
2.000000 A	< 0.8 V	3Hz - 5Hz	1.00 + 0.04	1.00 + 0.04	1.00 + 0.04	0.100 + 0.006		
		5Hz - 10Hz	0.35 + 0.04	0.35 + 0.04	0.35 + 0.04	0.035 + 0.006		
		10Hz - 5kHz	0.23 + 0.04	0.23 + 0.04	0.23 + 0.04	0.015 + 0.006		
		5kHz - 10kHz	0.23 + 0.04	0.23 + 0.04	0.23 + 0.04	0.030 + 0.006		
		Frequency and Period Characteristics						
Accuracy : ± (% of reading)								
Frequency/Period *9 *10 *11 *12	100.0000 mV to 400.000 V	—	3Hz - 5Hz	0.1	0.1	0.1	0.1	
			5Hz - 10Hz	0.05	0.05	0.05	0.035	
			10Hz - 40Hz	0.03	0.03	0.03	0.015	
			40Hz -1MHz	0.006	0.006	0.006	0.015	
Temperature Characteristics								
Temperature (RTD) *13	-200 °C ~ -100 °C	0.001 °C	—	—	—	0.09 °C	0.004 °C / °C	
	-100 °C ~ -20 °C	0.001 °C	—	—	—	0.08 °C	0.005 °C / °C	
	-20 °C ~ 20 °C	0.001 °C	—	—	—	0.06 °C	0.005 °C / °C	
	20 °C ~ 100 °C	0.001 °C	—	—	—	0.08 °C	0.005 °C / °C	
	100 °C ~ 300 °C	0.001 °C	—	—	—	0.12 °C	0.007 °C / °C	
	300 °C ~ 600 °C	0.001 °C	—	—	—	0.22 °C	0.009 °C / °C	
Temperature (Thermocouples) *13	-200 to +1000 °C	0.002 °C	E	—	—	0.2 °C	0.03 °C / °C	
	-210 to +1200 °C	0.002 °C	J	—	—	0.2 °C	0.03 °C / °C	
	-200 to +400 °C	0.002 °C	T	—	—	0.3 °C	0.04 °C / °C	
	-200 to +1372 °C	0.002 °C	K	—	—	0.3 °C	0.04 °C / °C	
	-200 to +1300 °C	0.003 °C	N	—	—	0.4 °C	0.05 °C / °C	
	-50 to +1768 °C	0.01 °C	R	—	—	1 °C	0.14 °C / °C	
	-50 to +1768 °C	0.01 °C	S	—	—	1 °C	0.14 °C / °C	
	+350 to +1820 °C	0.01 °C	B	—	—	1 °C	0.14 °C / °C	
Temperature (Thermistor) *13	-80 ° to 150 °C	0.01 °C	—	—	—	0.01 °C	0.003 °C / °C	
Capacitance Characteristics								
Accuracy : ± (% of reading + % of range)								
Capacitance *14	1.000 nF	—	—	2.00 + 2.00	2.00 + 2.00	2.00 + 2.00	0.05 + 0.01	
	10.00 nF	—	—	2.00 + 1.00	2.00 + 1.00	2.00 + 1.00	0.05 + 0.01	
	100.0 nF	—	—	2.00 + 0.40	2.00 + 0.40	2.00 + 0.40	0.05 + 0.01	
	1.000 μF	—	—	2.00 + 0.40	2.00 + 0.40	2.00 + 0.40	0.05 + 0.01	
	10.00 μF	—	—	2.00 + 0.40	2.00 + 0.40	2.00 + 0.40	0.05 + 0.01	
	100.0 μF	—	—	2.00 + 0.40	2.00 + 0.40	2.00 + 0.40	0.05 + 0.01	

SPECIFICATIONS

GENERAL	 Note	All specifications are ensured only under a single display At least 1 hour of warm-up time is required before applying these specifications MAX DC600V, AC 400V
	Environment	Operating Environment: Full accuracy for 0 °C to 55 °C Full accuracy to 80% R.H. at 40 °C Non-condensing Operating Altitude Up to 2,000 m Storage Temperature -40 to 70 °C
	Line Power	Power Supply: 100 / 120 / 220 / 240 VAC ±10% Power Line Frequency: 50 Hz / 60 Hz ±10% Power Consumption: Max. 50 VA
	Mechanical	Rack Dimensions: 88mm(H) X 220mm(W) X348.6mm(D) (without bumpers) Bench Dimensions: 107mm(H) X 266.9mm(W) X357.8mm(D) (with bumpers) Weight : 4.5 kg (9.92lbs)

NOTE : 1. DC Specifications: In addition to the availability that requires warm-up of 60 minutes, it must be set in 5/s speed rate, A-Zero on.
2. The entire range of measurement will pass the set range by 20% except the tests of 600 V DC, 400 V AC, 2 A DC, 2 A AC and diode.
3. These specifications apply to 4-wire ohms function or 2-wire ohms using math null for offset. Without math null, add 2 Ω additional error in 2-wire ohms function. The 100M and 1G ohm ranges are for 2-wire only.
4. These specification apply to the voltage measured from input terminal. 1 mA test current is the typical value. The change of current source leads to the variation in buck of diode junction.
5. AC Specifications: It will be available after 60 minutes of warm-up, sine wave as well as 1/s speed rate.
6. Specifications are for sinewave input >5% of range. For inputs from 1% to 5% of range and <50 kHz, add 0.1% of range additional error. For 50 kHz to 100 kHz, add 0.13% of range. The measurement range of 400 VAC is limited within the range of 7.5 x 10⁴ Volt-Hz.
7. Three speed settings provided for low-frequency performance: 1/s (3 Hz), 5/s (20 Hz), 20/s (200 Hz). Additional errors will Not occur for the frequency greater than the filter settings.
8. Specifications are for sinewave input >5% of range, and is beyond 10 μA AC. For inputs from 1% to 5% of range, add 0.1% of range additional error.
9. These specifications will be available after 60 minutes of warm-up and sine wave input, unless stated otherwise. These specifications apply to 1s gate time.
10. These specifications are available when both sine wave and square wave input ≥ 100 mV. For the input of 10 mV to 100 mV, the % of reading error needs to be multiplied by 10 times.
11. The amplitude range is from 10% to 120% and is lower than 400 VAC.
12. The input ≥ 60 mV, for 300 k ~ 1 MHz, within 100mV range.
13. The actual measurement range and test lead error will be constrained by the adopted test lead. The test lead accuracy adder covers all errors of measurements and ITS-90 temperature change.
14. Specifications are for film Capacitance inputs that are greater than 10% range.

DAQ MODULES SPECIFICATIONS

Module Description	Type	Speed (CH/sec)	Max (Volts)	Max (Amps)	Bandwidth	Thermal (Offset)	Comments
DAQ-900 20 ch Multiplexer	2-wire solid-state (4-wire selectable)	450	120V		10MHz	< 4 μV	Built-in cold junction reference
DAQ-901 20 ch Multiplexer + 2 ch current	2-wire armature (4-wire selectable)	80	300V	1A	10MHz	< 4 μV	Built-in cold junction reference 2 additional current channels (22 total)
DAQ-903 40 ch Single-Ended Mux	1-wire armature (common low)	80	300V		10MHz	< 1 μV	No four-wire measurements
DAQ-904 4 x 8 Matirx	2-wire armature		300V	1A	10MHz	< 1 μV	
DAQ-909 8 ch HV Multiplexer + 2 ch current	2-wire armature (4-wire selectable)	60	DC 600V AC 400V	2A	10MHz	< 4 μV	2 additional current channels (10 total)

INTERNAL DMM MEASUREMENT FUNCTIONS SUPPORTED

	DAQ-900	DAQ-901	DAQ-903	DAQ-904	DAQ-909
AC/DC Voltage	√ ^{2,3}	√	√		√
AC/DC Current		√			√
Freq./Period	√	√	√		√
2Wire Resistance	√ ¹	√	√		√
4Wire Resistance	√ ¹	√			√
Thermocouple	√	√			√ ⁴
2Wire RTD		√	√		√
4Wire RTD		√			√
Transistor		√	√		√
Capacitance		√	√		√

NOTE:

- For the measurement of 100 Ω and 1 kΩ resistance ranges, it is recommended to use 4-wire resistance. The maximum resistance range of DAQ-900 is 1 MΩ.
- When measuring AC voltage, the input impedance will decrease with frequency. A source impedance of 50 Ω or less will maintain specification over frequency. A source impedance of 50 Ω or less will maintain specification in the 5 kHz range.
- For DC voltage measurement, if the integration time is short and the source impedance is high, more stabilization time may be required.
- Need to use an extension cable moving the cold junction outside the chassis and manually set the reference temperature value.

Specifications subject to change without notice.

DAQ-9600GD1BH_202405

ORDERING INFORMATION

DAQ-9600	Data Acquisition System (USB/LAN/Digital IO)
DAQ-9600 with GPIB	Data Acquisition System (USB/LAN/Digital IO and opt. GPIB)
DAQ-900	20-Channel Universal Multiplexer
DAQ-901	20+2 Channels Universal Multiplexer
DAQ-903	40-Channel Single-Ended Multiplexer
DAQ-904	4 x 8 Matrix
DAQ-909	8+2 Channels High Voltage High Current Multiplexer

ACCESSORIES

Safety Instruction Sheet x 1, Power Cord x 1, Screw Driver x 1, GTL-246 USB Cable

OPTIONAL ACCESSORIES

GRA-454 Rack Mount Kit, 19" 2U size for one or two sets

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