



GW Insteek DAQ-9600

Data Acquisition System

[DAQ-908 Module New Product Announcement](#)

This document allows GW Insteek's partners to quickly grasp product's main features, FAB and ordering information.

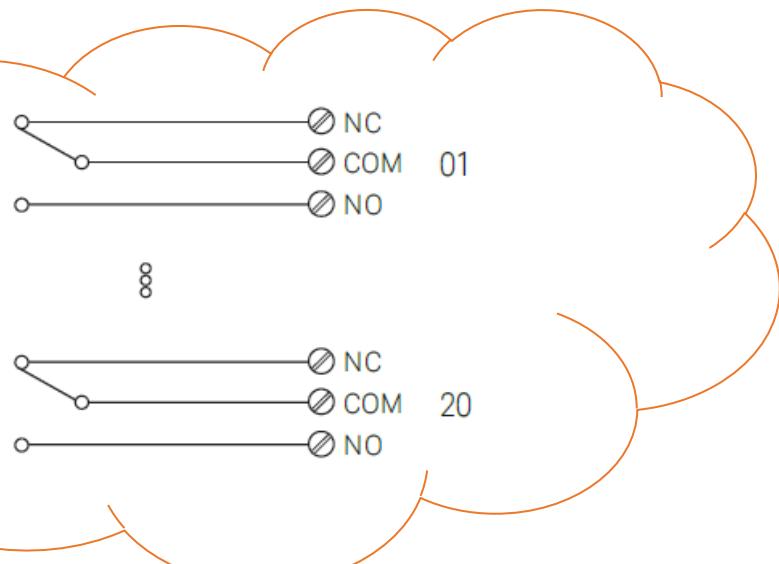
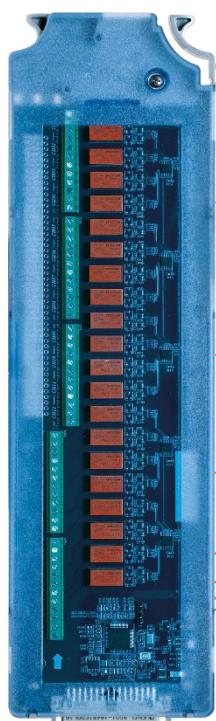
DAQ-9600 Data Acquisition System

DAQ-908 Module New Product Announcement

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. 6 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.

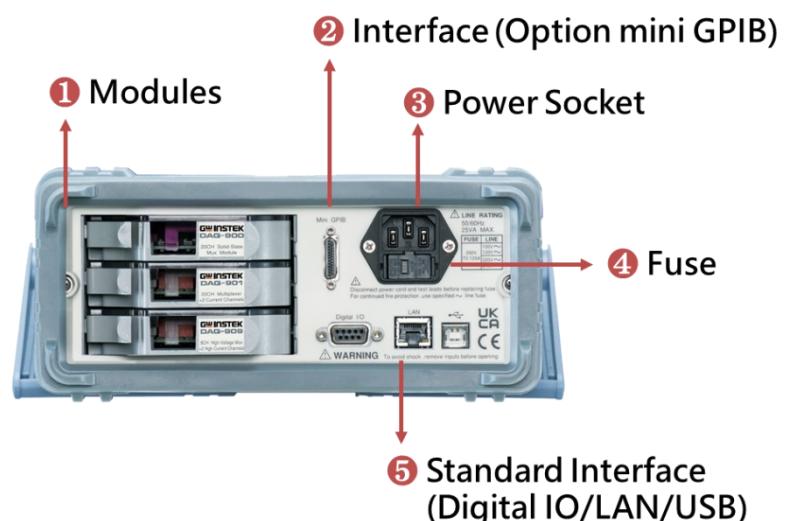
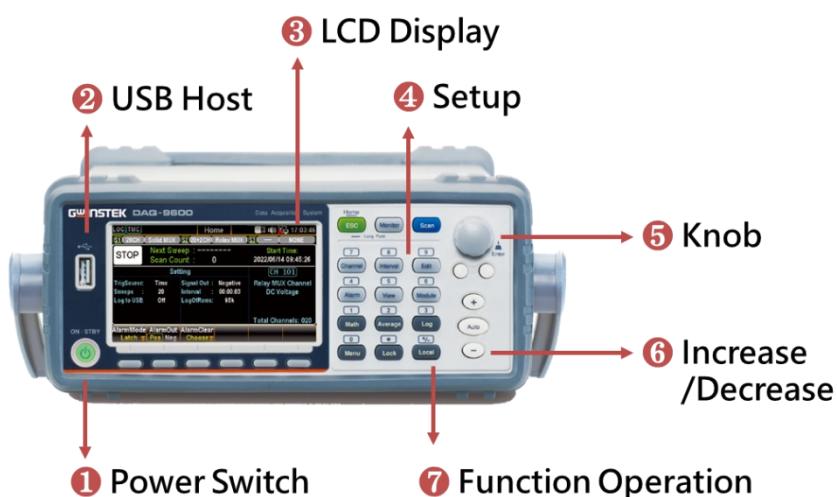
The modular structure of the DAQ-9600 provides 3 module slots and 6 optional modules, including general-purpose modules (DAQ-900/ DAQ-901), multi-function module (DAQ-903), matrix module (DAQ-904), switch module (DAQ-908) and high-voltage and high-current module (DAQ-909). Users can combine and match 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-908 is a general purpose switch module with 20 independent single pole double throw (SPDT) relays, can be used for power cycling in DUTs, control indicator lights and status lights. DAQ-908 can also activate external power relays and solenoid valves. While combining DAQ-908 with matrix and multiplexer modules, switching systems can be customized. 300 V and 1 A contact can handle up to 50 W, which is sufficient for multiple powerline switching applications.



Product Features (Mainframe)

- ※ Large 4.3" TFT color display
- ※ 3-slot mainframe with built-in 6 ½ digit DMM
- ※ Basic 0.0035% DCV accuracy
- ※ 6 selectable switch modules
- ※ Up to DC 600V / AC 400V Voltage Measurement (DAQ-909 Module)
- ※ Up to 450 channels/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
- ※ Commands compatible with the DAQ970A
- ※ USB storage supports copy/log data in standalone operation
- ※ Interfaces: Digit I/O, LAN, USB host/device and mini GPIB(optional)
- ※ Free PC software DAQ-Data logger, allows easy configuration and control of tests



Caution

To be able to operate the DAQ-908 Actuator/General Purpose Switch well, please update firmware

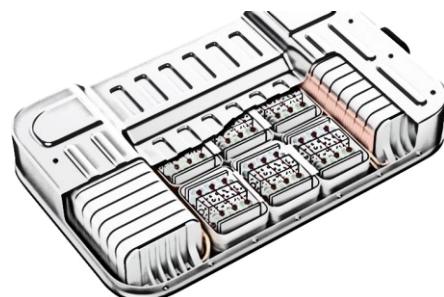
- DAQ-9600 Mainframe ~ Master to V1.04, Slave to V1.01 at least
- DAQ-Data Logger PC Software ~ V1.06 at least

Product Features (Module)

	DAQ-900	20-Channel Universal Multiplexer (Solid State Relay)
	※	Scanning speed up to 450 channels per second
	※	2-wire and 4-wire scanning
	※	Built-in temperature cold junction reference
	※	120 V switching
	DAQ-901	20+2 Channels Universal Multiplexer (Armature Relay)
	※	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 channel)
	DAQ-903	40-Channel Single-Ended Multiplexer
	※	The scanning speed can reach 80 channels per second
	※	Single-wire switching is suitable for common-low applications
	DAQ-904	4 x 8 Matrix
	※	The switching speed 3ms
	※	32 2-wire intersections
	※	300 V, 1A switching
	※	Up to 96 crosspoints (3 slots)
NEW	DAQ-908	20-Channel Actuator/General Purpose Switch
	※	SPDT (Form C) latching relays
	※	300V, current 1A actuation and control
	DAQ-909	8+2 Channels High Voltage High Current Multiplexer
	※	The switching speed 3ms
	※	DC voltage 600V, current 2A
	※	2-wire and 4-wire scanning
	※	Additional 2 channels can directly measure current (2A/per channel)

Target Markets

- **SI Power supply products and power supply products SI**
- **Battery**
- **Cloud server, AI server**
- **Application of temperature calibration**
 - Environmental test equipment calibration
 - Calibration of low-temperature delivery express vehicles
 - Cooling tower calibration
- **Household appliances**
 - Air conditioner, humidifier, heater
 - Microwave oven, electric oven, bread oven, electric kettle
 - Refrigerator, freezer, dishwasher
 - Washer/dryer
 - Hair dryer, curling iron
- **Personal electronic devices**
 - Cell phone, laptop
- **Automobile**
 - Air conditioner, heater
 - Electronic control module
 - Automatic windows and seats
 - Engine test
 - Auto meter
- **Consumer electronics**
 - TV, monitor
 - PC, video game console
- **Component**
 - Resistors, capacitors, inductors
 - Transformers, amplifiers
- **Electric machinery**
 - Water pumps, lawn mowers, blowers
 - Drills, chainsaws...
- **Sensor seller**
 - Temperature, humidity
 - Stress, flow rate



Key Dates for Product Announcement (DAQ-908)

1. New product announcement to distributors (sample unit order)—November 8, 2024
2. Global market announcement – November 8, 2024

Service Policy

1. **3-year warranty**
2. **Service Support**

The service instructions in the Service Manual will help distributors repair defective units promptly. Should the board replacement is necessary to fix the defective unit, the board swapping service support is provided by Good Will Instrument to facilitate the repair jobs done at the distributor's site.

3. GW Insteek continuingly provides the after-sales support through its website. The most up-to-date version of service manual and Marcom material of the DAQ-9600 will be posted on the distributor zone of GW Insteek Website at <https://www.gwinstek.com>

Specifications (DAQ-9600 Mainframe)

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)

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
			5Hz - 10Hz	0.35 + 0.03	0.35 + 0.04	0.35 + 0.04
			10Hz - 20kHz	0.04 + 0.03	0.05 + 0.04	0.06 + 0.04
			20kHz - 50kHz	0.10 + 0.05	0.11 + 0.05	0.12 + 0.05
			50kHz - 100kHz	0.55 + 0.08	0.60 + 0.08	0.60 + 0.08
			100kHz -300kHz	4.00 + 0.50	4.00 + 0.50	4.00 + 0.50
True RMS AC Current (5)(7)(9)	1.000000 V to 400.000 V	1µV ~ 1mV	3Hz - 5Hz	1.00 + 0.02	1.00 + 0.03	1.00 + 0.04
			5Hz - 10Hz	0.35 + 0.02	0.35 + 0.03	0.35 + 0.04
			10Hz - 20kHz	0.04 + 0.02	0.05 + 0.03	0.06 + 0.03
			20kHz - 50kHz	0.10 + 0.04	0.11 + 0.05	0.12 + 0.05
			50kHz - 100kHz	0.55 + 0.08	0.60 + 0.08	0.60 + 0.08
		< 0.020 V < 0.20 V	100kHz -300kHz	4.00 + 0.50	4.00 + 0.50	4.00 + 0.50
			3Hz - 5Hz	1.00 + 0.04	1.00 + 0.06	1.00 + 0.06
			5Hz - 10Hz	0.35 + 0.04	0.35 + 0.06	0.35 + 0.06
			10Hz - 5kHz	0.10 + 0.04	0.10 + 0.06	0.10 + 0.06
			5kHz - 10kHz	0.18 + 0.04	0.18 + 0.10	0.18 + 0.10
	10.00000 mA	< 0.15 V	3Hz - 5Hz	1.00 + 0.04	1.00 + 0.04	1.00 + 0.04
			5Hz - 10Hz	0.35 + 0.04	0.35 + 0.04	0.35 + 0.04
			10Hz - 5kHz	0.10 + 0.04	0.10 + 0.04	0.10 + 0.04
			5kHz - 10kHz	0.18 + 0.04	0.18 + 0.04	0.18 + 0.04
			3Hz - 5Hz	1.00 + 0.04	1.00 + 0.04	1.00 + 0.04
		< 0.7 V < 0.8 V	5Hz - 10Hz	0.30 + 0.04	0.30 + 0.04	0.30 + 0.04
			10Hz - 5kHz	0.10 + 0.04	0.10 + 0.04	0.10 + 0.04
			5kHz - 10kHz	0.15 + 0.04	0.15 + 0.04	0.15 + 0.04
			3Hz - 5Hz	1.00 + 0.04	1.00 + 0.04	1.00 + 0.04
			5Hz - 10Hz	0.35 + 0.04	0.35 + 0.04	0.35 + 0.04
Frequency and Period Characteristics				Accuracy : ± (% of reading)		
Frequency / Period (9)(10)(11)(12)	100.0000mV to 400.000V	—	3Hz - 5Hz	0.100	0.100	0.100
			5Hz - 10Hz	0.050	0.050	0.050
			10Hz - 40Hz	0.030	0.030	0.015
			40Hz -1MHz	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							
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

[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 AAC 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 7.5×10^7 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 µAAC. 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 \geq 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 \geq 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.

Specifications (DAQ Modules)

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 Matrix	2-wire armature		300V		10MHz	< 1 µV	
DAQ-908 (NEW) 20 ch Actuator/General Purpose Switch	SPDT / form C		300V		10MHz	< 4 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

NEW

	DAQ-900	DAQ-901	DAQ-903	DAQ-904	DAQ-908	DAQ-909
AC/DC Voltage	✓ ^{2,3}	✓	✓			✓
AC/DC Current		✓				✓
Frequency/Period	✓	✓	✓			✓
2Wire Resistance	✓ ¹	✓	✓			✓
4Wire Resistance	✓ ¹	✓				✓
Thermocouple	✓	✓				✓ ⁴
2Wire RTD		✓	✓			✓
4Wire RTD		✓				✓
Transistor		✓	✓			✓
Capacitance		✓	✓			✓

1. 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.

2. When measuring AC voltage, the input impedance will decrease with frequency. A source impedance of 5 Ω or less will maintain specification over frequency. A source impedance of 50 Ω or less will maintain specification in the 5 kHz range.

3. For DC voltage measurement, if the integration time is short and the source impedance is high, more stabilization time may be required.

4. Need to use an extension cable moving the cold junction outside the chassis and manually set the reference temperature value.

Ordering information

“BLUE” means new-add

Mainframe

DAQ-9600	Data Acquisition System (USB / LAN / Digital IO)	
	Part Number: 01AQ960000GT	EAN Code: 4711458120139
DAQ-9600 with GPIB	Data Acquisition System (USB / LAN / Digital IO and opt. GPIB)	
	Part Number: 01AQ960010GT	EAN Code: 4711458120146

Modules

DAQ-900	20-Channel Universal Multiplexer	
	Part Number: 11AQ-90000101	EAN Code: 4711458120528
DAQ-901	20+2 Channels Universal Multiplexer	
	Part Number: 11AQ-90100101	EAN Code: 4711458120535
DAQ-903	40-Channel Single-Ended Multiplexer	
	Part Number: 11AQ-90300101	EAN Code: 4711458120702
DAQ-904	4 x 8 Matrix	
	Part Number: 11AQ-90400101	EAN Code: 4711458120719
DAQ-908	20-Channel Actuator/General Purpose Switch	
	Part Number: 11AQ-90800101	EAN Code: 4711458122331
DAQ-909	8+2 Channels High Voltage High Current Multiplexer	
	Part Number: 11AQ-90900101	EAN Code: 4711458120542

Rack Mounts

GRA-455	Rack Mount Kit, 19" 2U size for one or two sets	
	Part Number: 01RA4550000T	EAN Code: 4711458122355

Standard Accessories

Safety Instruction Sheet x 1, Power cord x 1, Screw driver x 1

Optional Accessories

GRA-455 Rack Mount Kit, 19" 2U size for one or two sets

Should you have any questions on the DAQ-9600 announcement, please don't hesitate to contact us.