DAQ-10600
Data Acquisition System



Expand Your Measuring Tentacles

The DAQ-10600 data acquisition system has ten high-quality modules and a built-in 6 1/2 digit multimeter to provide you with an efficient and accurate data acquisition.

The system measures and converts 14 different input signals: Temperature with thermocouples, RTDs and thermistors; DC/AC voltage; 2-wire and 4-wire resistance; frequency and period; DC/AC current and capacitance; direct strain and bridge strain.

Your data acquisition is controlled by logging and observing results in a variety of display options for easier analysis. A free DAQ software assists you in controlling measurement channels for your specific test configurations from multiple data acquisition units.



DAQ – Data Logger SOFTWARE

GW INSTEK
Simply Reliable

Data Acquisition

| |

Multiplexer



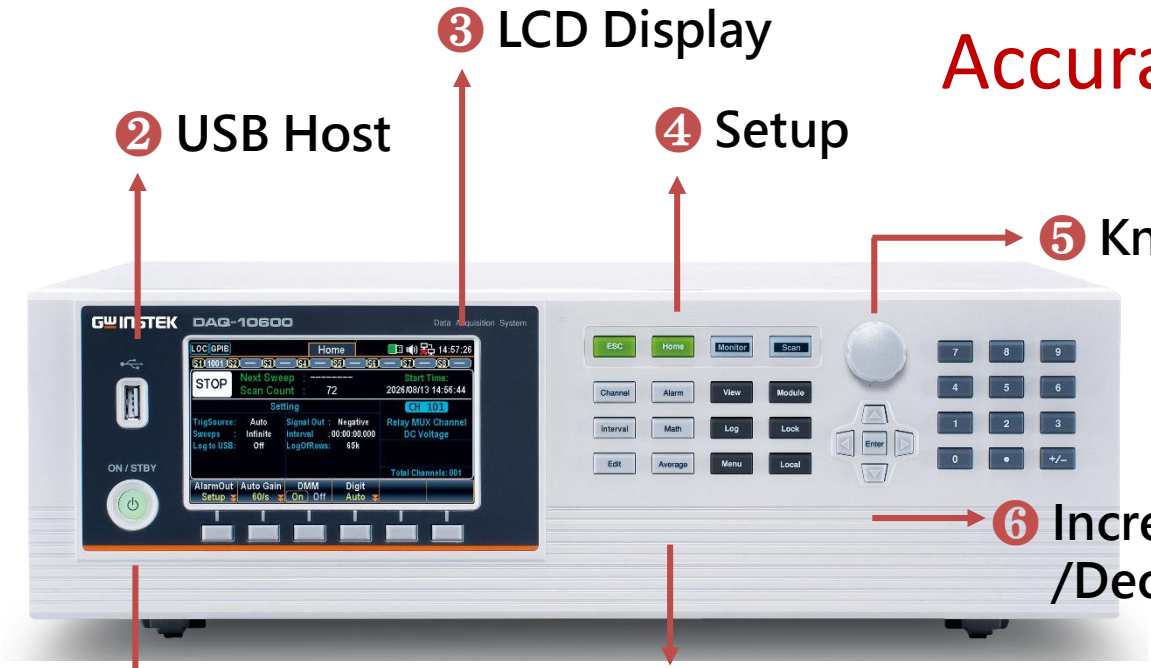
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Mainframe

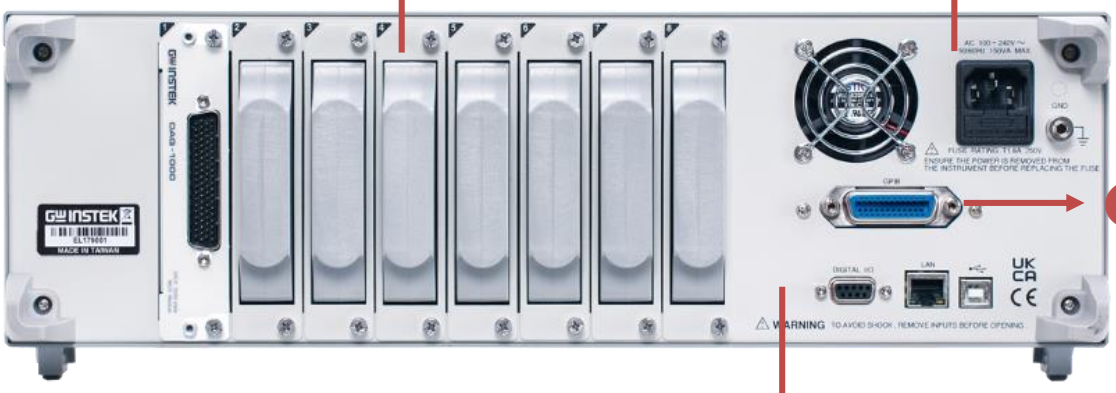


USB Host	USB Device	LAN	Digital IO	GPIB
Standard	Standard	Standard	Standard	Option

6 ½ digits Accuracy



8-slot Mainframe



USB Host	USB Device	LAN	Digital IO	GPIB
Standard	Standard	Standard	Standard	Option



Features (Mainframe)

※ Large 5" TFT color display
※ 8-slot mainframe with built-in 6 ½ digit DMM
※ Basic 0.0035 % DCV accuracy
※ 10 selectable switch modules
※ Up to DC 1000 V Voltage Measurement (DAQ-919 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 and bridge strain
※ USB storage supports copy/log data in standalone operation
※ Interfaces: Digit I/O, LAN, USB host/device and GPIB(optional)
※ Free PC software allows easy configuration and control of tests



Features (Modules)

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 (1 A / 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 3 ms
- ※ 32 2-wire intersections
- ※ 300 V, 1 A switching
- ※ Up to 96 crosspoints (3 slots)

DAQ-907 **Multifunction Module**
- ※ 16 bits of digital input and output
- ※ 100 kHz totalizer input
- ※ Two modes: ± 12 V analog outputs or ± 24 mA outputs

DAQ-908 **20-Channel Actuator/General Purpose Switch**
- ※ SPDT (Form C) latching relays
- ※ 300 V, current 1 A actuation and control

DAQ-909 **8+2 Channels High Voltage High Current Multiplexer**
- ※ The scanning speed up to 60 channels per second
- ※ DC voltage 600 V, current 2 A
- ※ 2-wire and 4-wire scanning
- ※ Additional 2 channels can directly measure current (2 A / per channel)

DAQ-919 **8-Channel DC 1000 V High Voltage Multiplexer**
- ※ DC voltage measurement only
- ※ The scanning speed up to 60 channels per second
- ※ Up to 1000 Vdc

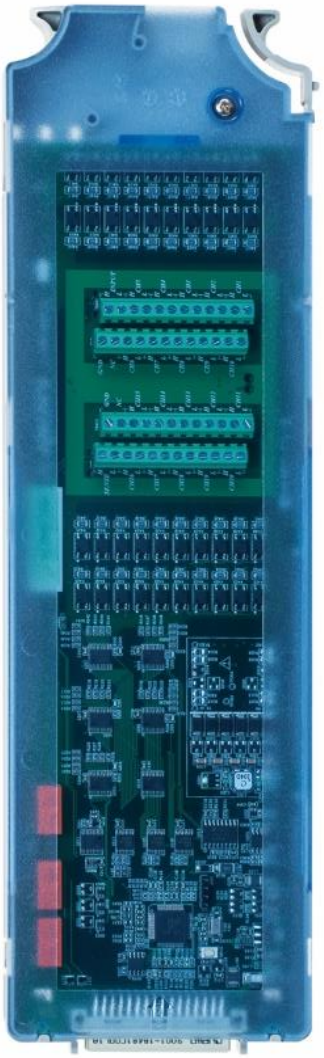
DAQ-1000 **30-Channel Universal Multiplexer (Solid State Relay)**
- ※ Scanning speed up to 450 channels per second
- ※ 2-wire and 4-wire scanning
- ※ 120 V switching

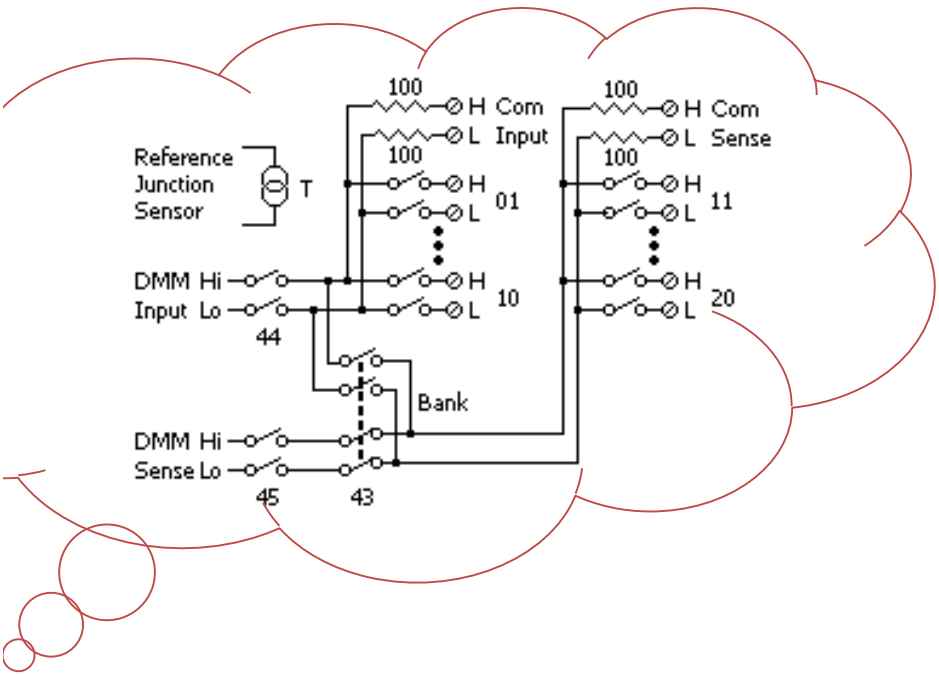
DAQ-1001 **30-Channel Universal Multiplexer (Armature Relay)**
- ※ The scanning speed can reach 80 channels per second
- ※ 2-wire and 4-wire scanning
- ※ 300 V Switching

DAQ-900 (suitable models: DAQ-10600/9600)

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



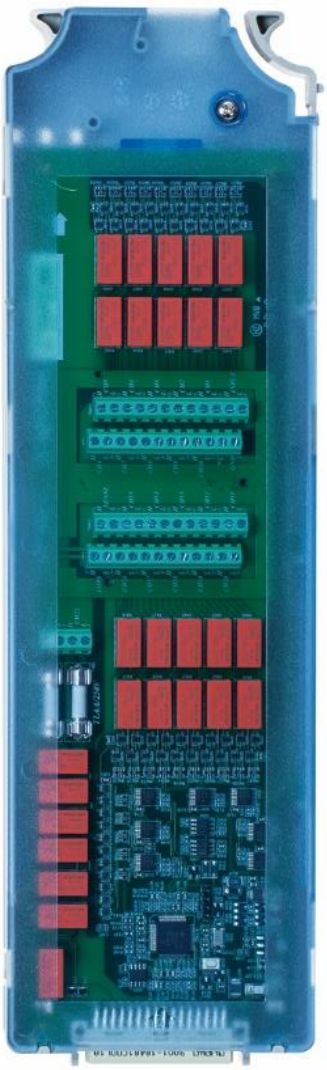


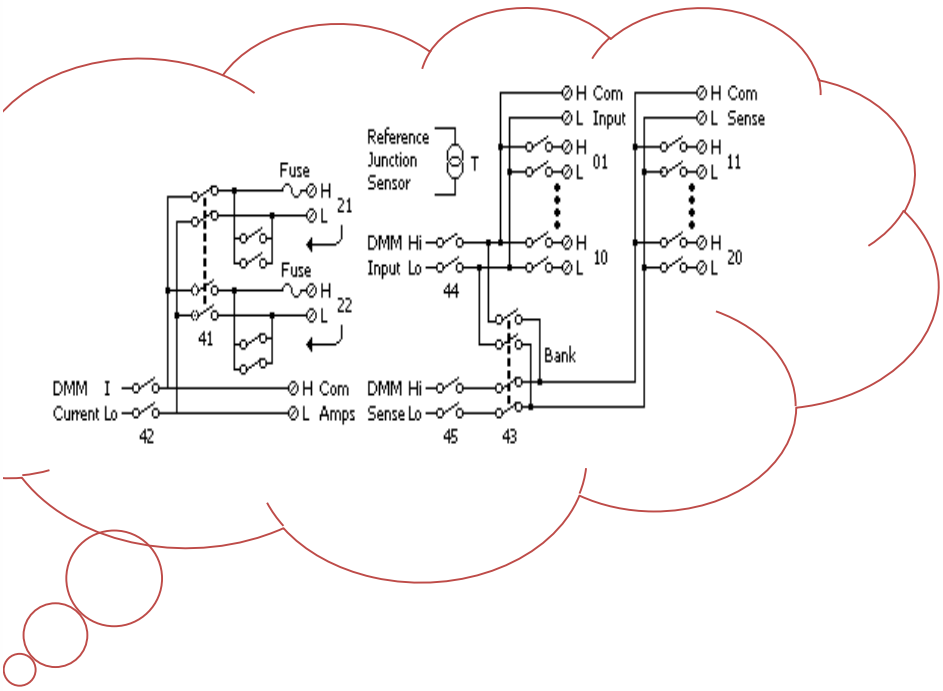
DAQ-900 is a solid state relay module that provides two groups (A/B) of 10 2-wire channels each. All 20 channels are switchable to high (HI) and low (LO) inputs, providing fully isolated inputs for the built-in digital meter or external instruments. During 4-wire resistance measurements, the channels 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

DAQ-901 (suitable models: DAQ-10600/9600)

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 (1 A/each channel)





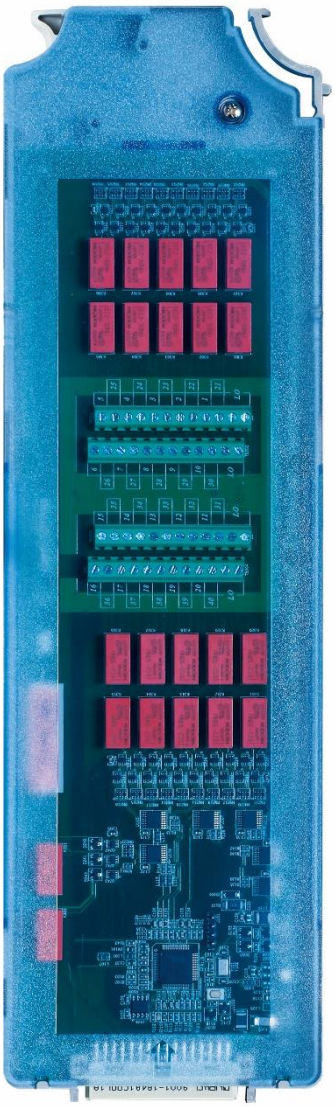
DAQ-901 is a comprehensive multiplexer for general scanning. The same module can mix 2-wire and 4-wire channels; at the same time, the additional 2 current input channels can be used for AC and DC current measurement without external shunt resistors (maximum 1 A per channel).

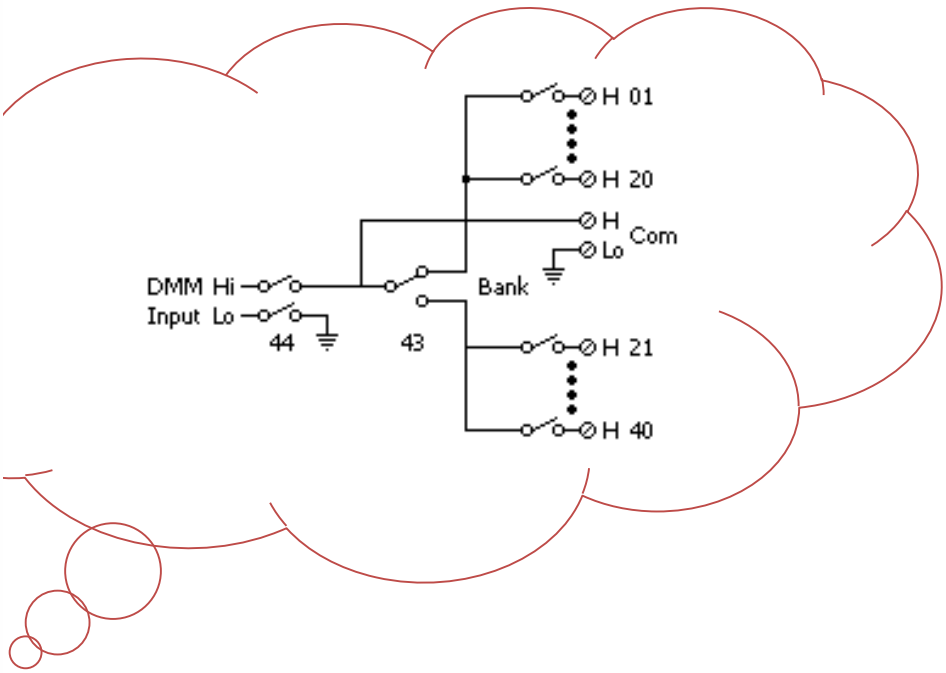
DAQ-901, a total of 22 channels, intensive multi-function switching and a scan rate of up to 80 channels per second, is suitable for various data acquisition applications.

DAQ-903 (suitable models: DAQ-10600/9600)

40-Channel Single-Ended Multiplexer

※ The scanning speed can reach 80 channels per second
※ Single-wire switching is suitable for common-low applications
※ 2-wire scanning (except current)





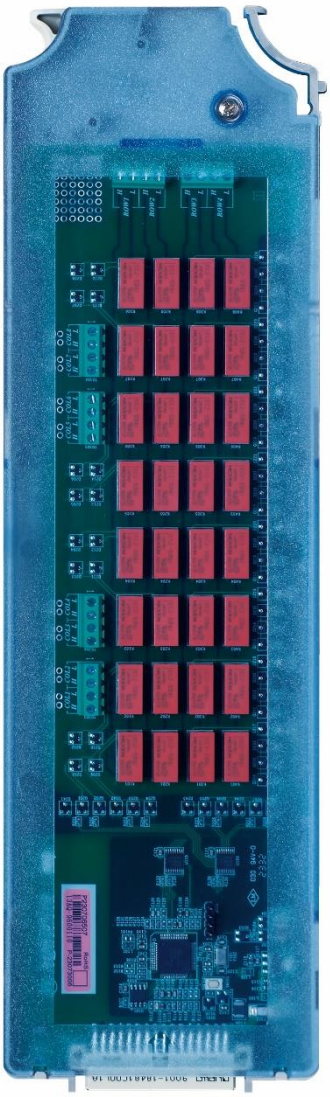
DAQ-903 can switch 40 single-wire inputs per module. It can be used for common-low applications such as battery testing, component characterization and desktop testing. The low-voltage connection is isolated from ground and can be floated up to 300 V.

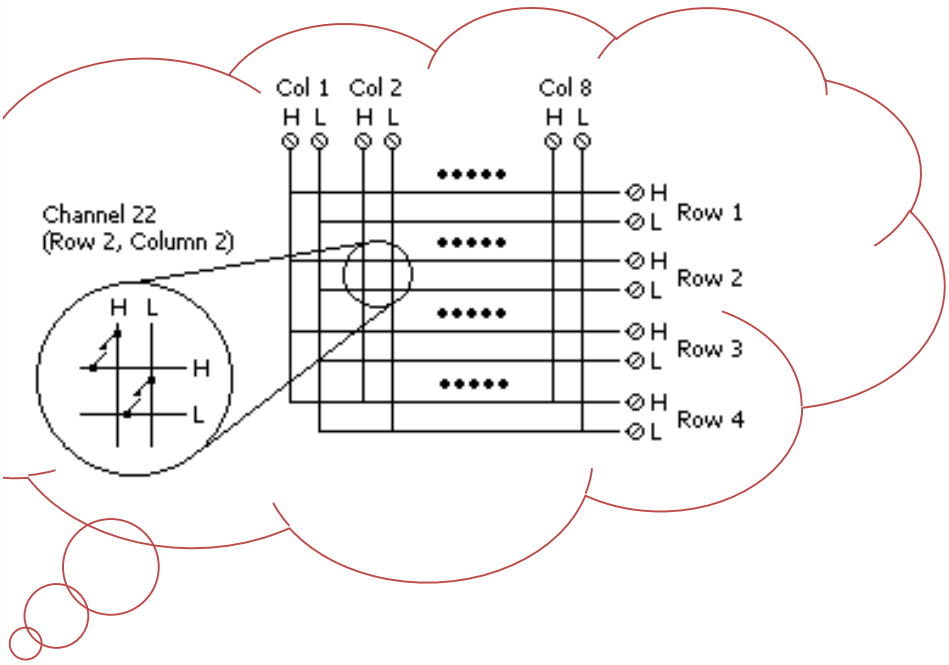
DAQ-903 also supports all 2-wire internal measurements except current.

DAQ-904 (suitable models: DAQ-10600/9600)

4 x 8 2-Wire Matrix

※ The switching speed 3ms
※ 32 2-wire intersections
※ 300 V, 1 A switching
※ Up to 96 crosspoints (3 slots)





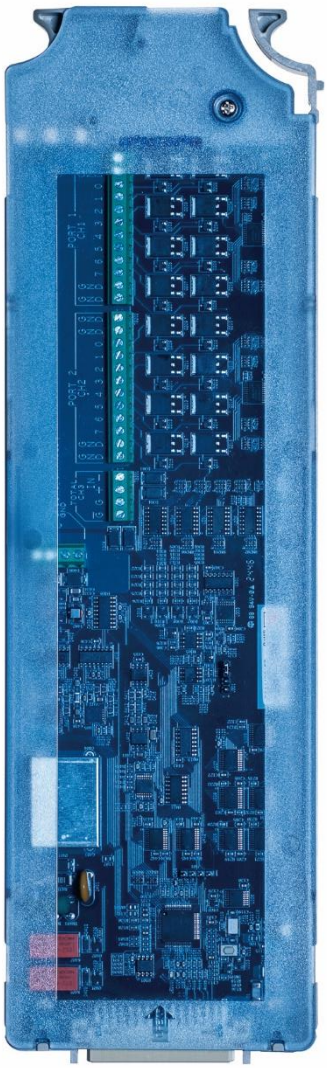
DAQ-904 module can provide the most flexible connection path between your DUT and the test system, allowing different test instruments to be connected to multiple points on the DUT at the same time.

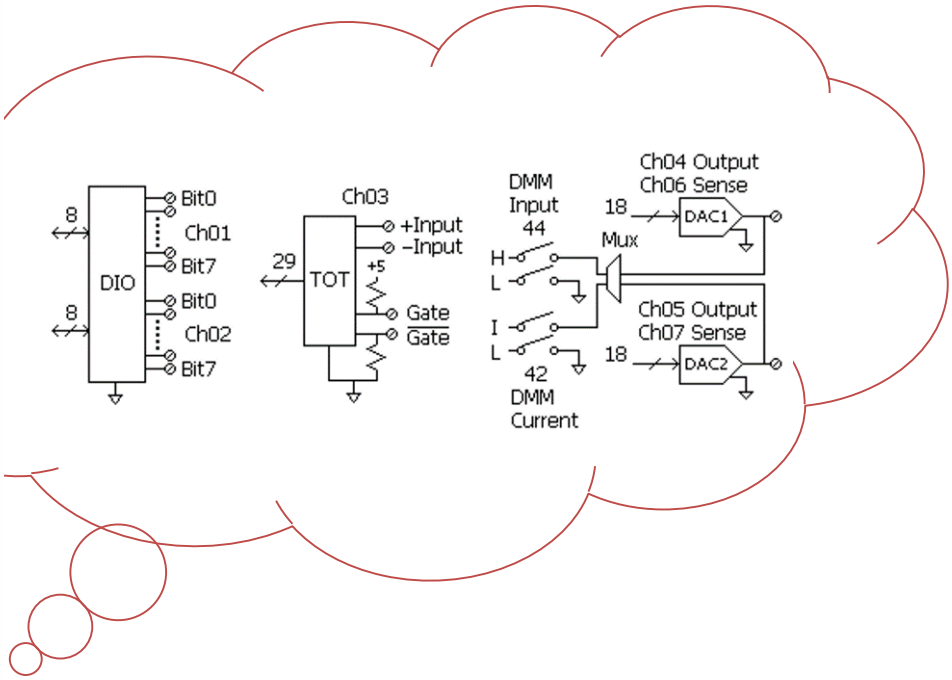
DAQ-904 can connect the rows and columns of multiple modules to build larger matrices, such as 8 x 8, 4 x 16...etc. Up to 96 crosspoints can be built in a single instrument.

DAQ-907 (suitable models: DAQ-10600/9600)

Multi-function Module

※ 16 bits of digital input and output
※ 100 kHz totalizer input
※ Two analog modes: ± 12 V outputs or ± 24 mA outputs





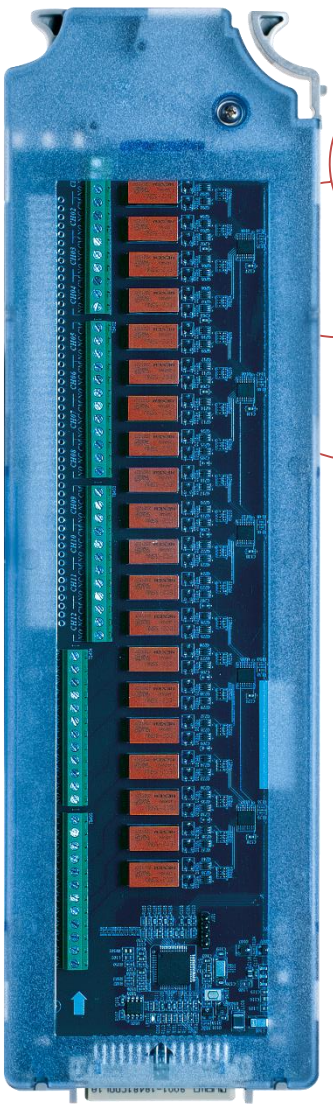
DAQ-907 provides great flexibility for various sense and control applications. It engages two 8-bit digital input and output ports, a 100 kHz gated totalizer, and two ± 12 V or ± 24 mA analog outputs—all on a single earth-referenced module. The digital inputs and totalizer input may be included in a scan. Alarm limits for the digital and totalizer inputs are evaluated continuously, capturing and logging alarm conditions even between scans.

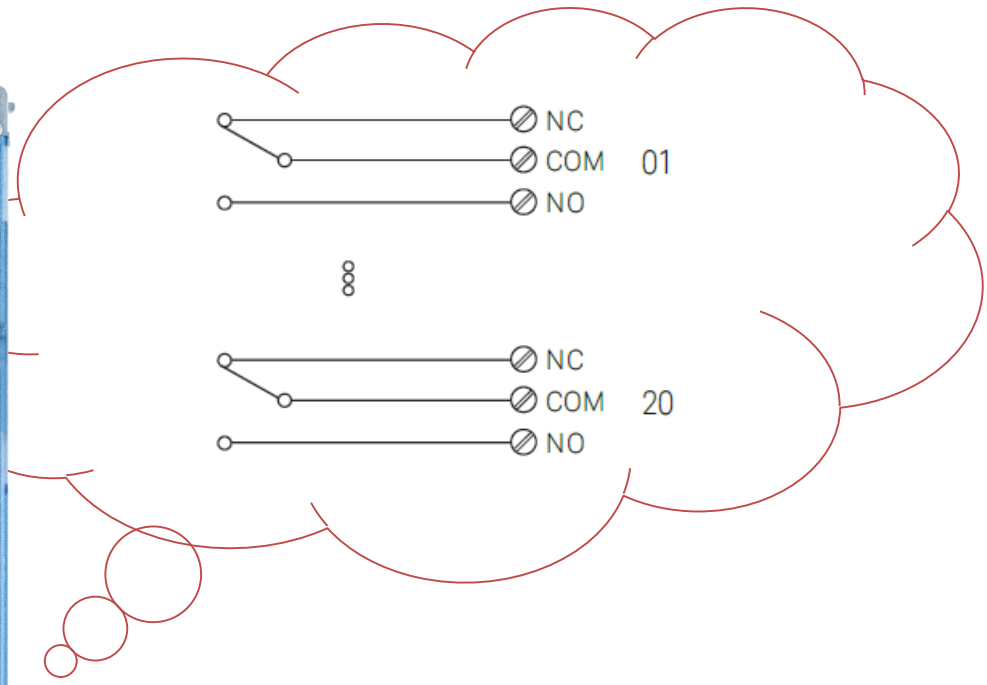
In addition, it has two additional channels (DMM INPUT and DMM CURRENT) that can sense output current when sourcing voltage or output voltage when sourcing current.

DAQ-908 (suitable models: DAQ-10600/9600)

20 Channels Actuator/General Purpose Switch

※ SPDT (Form C) latching relays
※ 300 V, current 1 A actuation and control





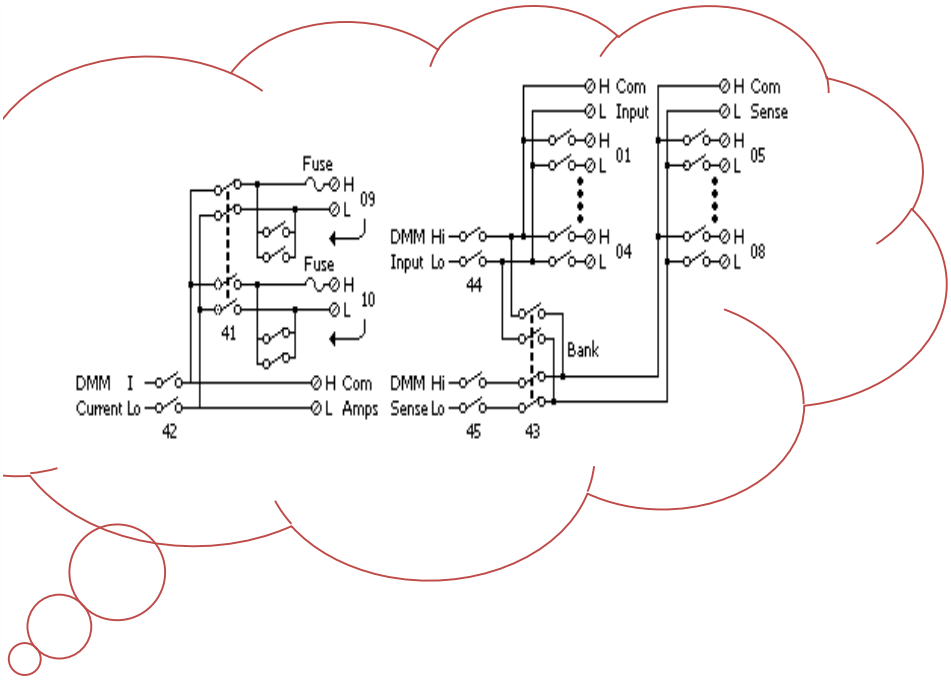
DAQ-908, a general purpose switch module with 20 independent single pole double throw (SPDT) relays, can be used for power cycling in DUTs, control indicator lights and status lights. DAQ-908 can also activate external power relays and solenoid valves. While combining DAQ-908 with matrix and multiplexer 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.

DAQ-909 (suitable models: DAQ-10600/9600)

8+2 Channels High Voltage High Current Multiplexer

※ The scanning speed reaches 60 channels per second
※ DC voltage 600 V, current 2 A
※ 2-wire and 4-wire scanning
※ Additional 2 channels can directly measure current (2 A/each channel)



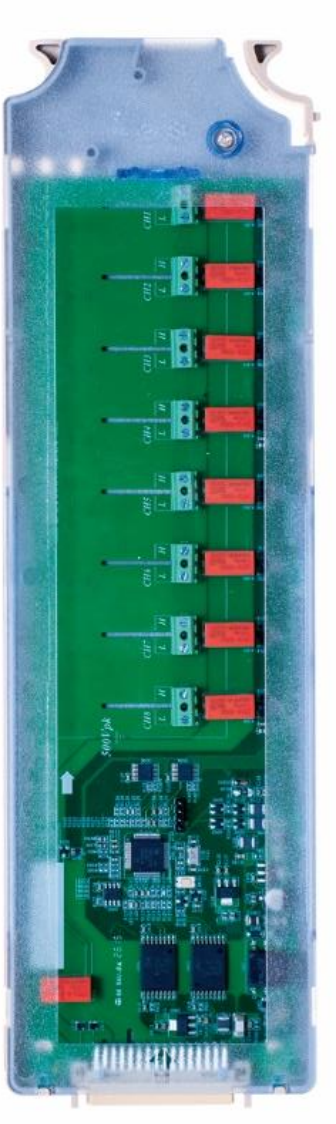


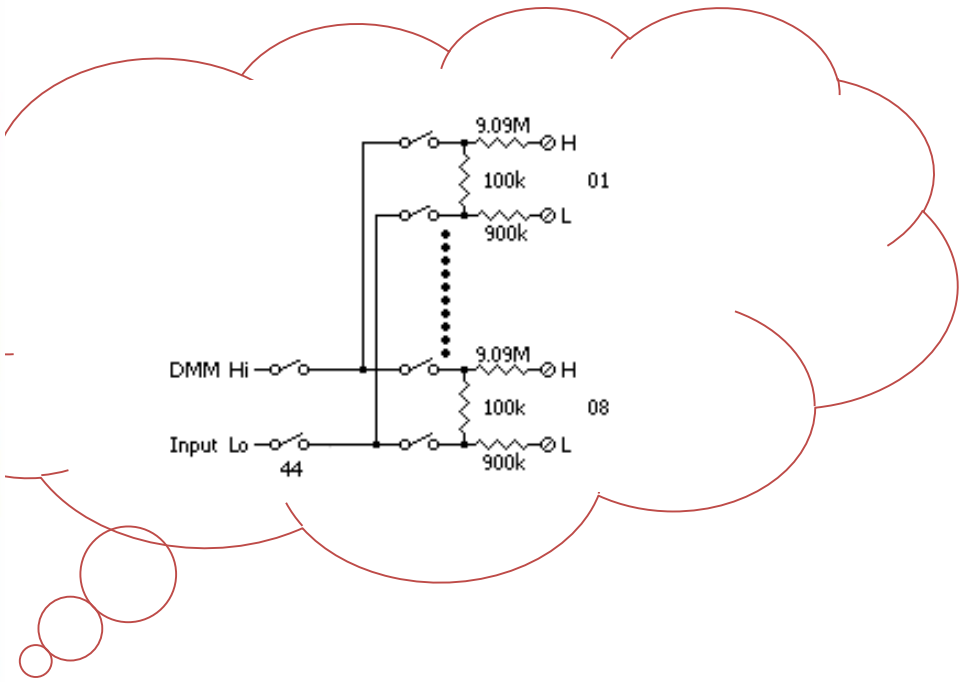
DAQ-909 is a multiplexer specially designed for high voltage, providing 8 channels for DC 600 V / AC 400 Vrms voltage measurement. The additional 2 current input channels can be used for AC and DC current measurement, external shunt resistors are not required (maximum 2 A / per channel).

DAQ-919 (suitable models: DAQ-10600/9600)

8-Channel DC 1000 V High Voltage Multiplexer

※ DC voltage measurement only
※ The scanning speed reaches 60 channels per second
※ Up to 1000 Vdc



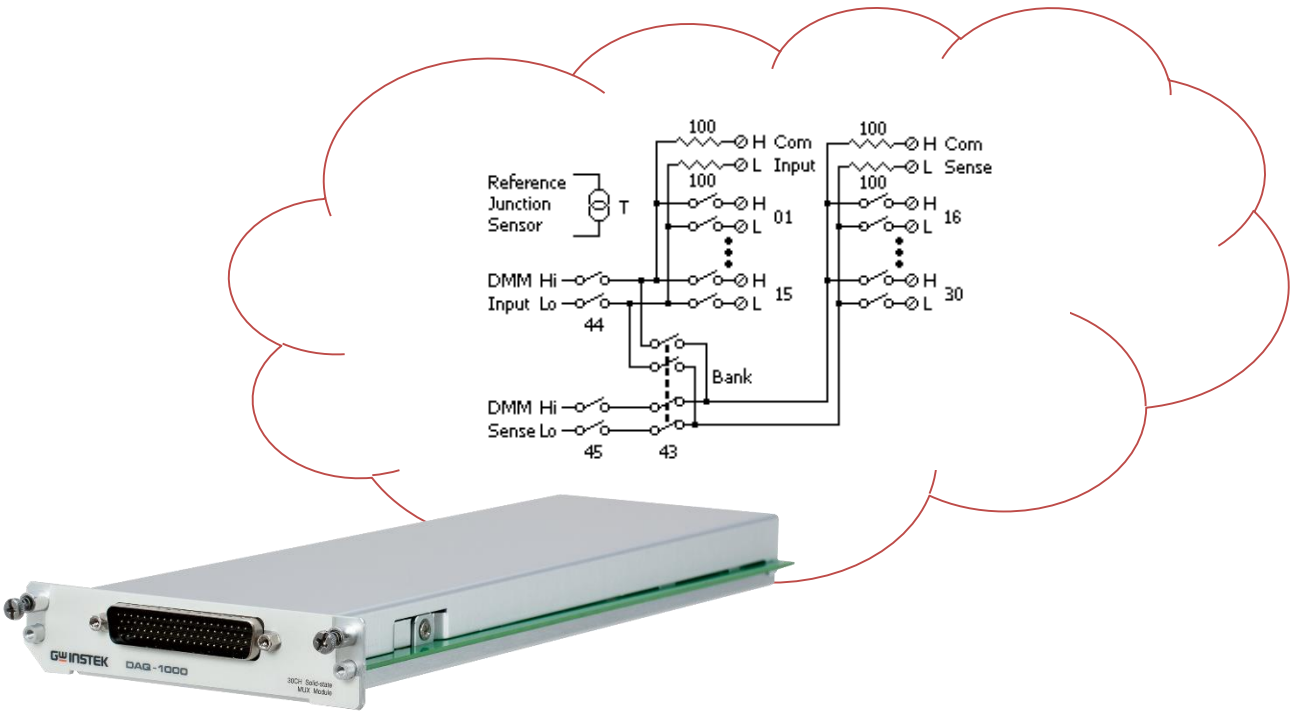


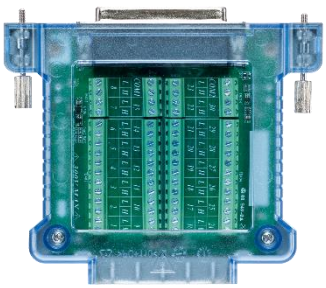
DAQ-919 is a multiplexer specifically designed for DC voltage measurement, providing 8 channels for DC 1000 V voltage measurement; suitable for applications such as ±400 V or 800 V AI server power measurement in charging piles.

DAQ-1000 (suitable model: DAQ-10600)

30-Channel Universal Multiplexer (Solid State Relay)

※ Scanning speed up to 450 channels per second
※ 2-wire and 4-wire scanning
※ 120 V switching
※ Optional junction box (DAQ-1000T) contents temperature cold junction reference





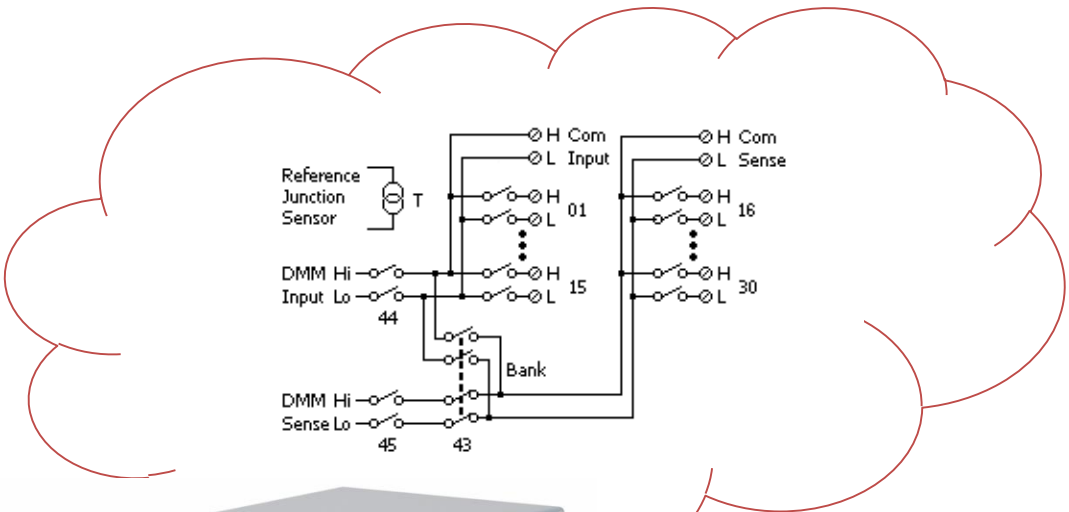
DAQ-1000T
(Optional)

DAQ-1000 is a solid state relay module that provides two groups (A/B) of 15 2-wire channels each. All 30 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 junction box (DAQ-1000T) has a built-in cold junction reference, which can greatly reduce errors caused by thermal gradients when measuring thermocouples

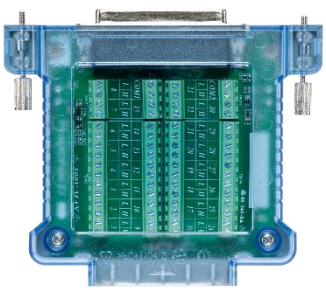
DAQ-1001 (suitable model: DAQ-10600)

30-Channel Universal Multiplexer (Armature Relay)

※ The scanning speed can reach 80 channels per second
※ 2-wire and 4-wire scanning
※ 300 V switching
※ Optional junction box (DAQ-1001T) contents temperature cold junction reference







DAQ-1001T
(Optional)

DAQ-1001 is a comprehensive multiplexer for general scanning. The same module can mix 2-wire and 4-wire channels; at the same time, DAQ-1001, a total of 30 channels, intensive multi-function switching and a scan rate of up to 80 channels per second, is suitable for various data acquisition applications. The junction box (DAQ-1001T) contents cold junction reference

Modules Characteristics

A single mainframe can insert three modules (in any combinations). The built-in digital multimeters of DAQ-9600, except DAQ-904, DAQ-907 and DAQ-908, can be connected and used via DAQ-900, DAQ-901, DAQ-903, DAQ-909, DAQ-919, DAQ-1000 and DAQ-1001 multiplexers.

	Multiplexer	Multiplexer	Multiplexer	Matrix	Multifunction	Switch	Multiplexer	Multiplexer	Multiplexer	Multiplexer
	DAQ-900	DAQ-901	DAQ-903	DAQ-904	DAQ-907	DAQ-908	DAQ-909	DAQ-919	DAQ-1000	DAQ-1001
CH No.	20	20+2	40	4 x 8		20	8+2	8	30	30
Speed (Scan)	450 CH/s	80 CH/s	80 CH/s				60 CH/s	60 CH/s	450 CH/s	80 CH/s
Internal DMM measurement functions supported										
AC/DC Voltage	√ [2,3]	√	√				√	DC only	√ [2,3]	√
AC/DC Current		√					√			
Freq./Period	√	√	√				√		√	√
2Wire Resistance	√ [1]	√	√				√		√ [1]	√
4Wire Resistance	√ [1]	√					√		√ [1]	√
Thermocouple	√	√					√[5]		√	√
2Wire RTD		√	√				√			√
4Wire RTD		√					√			√
Thermistor		√	√				√			√
Capacitance		√	√				√			√
Characteristics – typical: Input										
Voltage (DC, AC rms)	120 V	300 V	300 V	300 V	±12 V	300 V	DC 600 V AC 400 V	DC 1000 V	120 V	300 V
Current (DC, AC rms)		1 A			±24 mA		2 A			
Isolation (DC) (CH-CH, CH-Earth)	> 10 G	> 10 G	> 10 G	> 10 G	Non-Isolated	> 10 G	> 10 G	> 10 G	> 10 G	> 10 G
Characteristics – typical: Others										
T/C CRJ Accuracy	0.8 °C	0.8 °C							0.8 °C	0.8 °C
Lifetime (No Load)	see [4]	10 M	10 M	10 M	10 M	10 M	100 M	10 M	see [4]	10 M
Lifetime (Rated Load)	see [4]	100 k	100 k	100 k	100 k	100 k	100 k	100 k	see [4]	100 k

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. The module has an armature backplane and 2-wire/4-wire relays with a life of 100 M cycles (unlimited life cycle within FET Bank)
5. Need to use an extension cable moving the cold junction outside the chassis and manually set the reference temperature value.

Datasheet

Switch Modules

Model Name	Model description	Type	Speed (Scan)	Max volts	Max amps	Comments
DAQ-900	20 ch Multiplexer	2-wire solid state (4-wire selectable)	450	120 V		Built-in cold junction reference
DAQ-901	20 ch Multiplexer + 2 current channels	2-wire armature (4-wire selectable)	80	300 V	1 A	Built-in cold junction reference 2 additional current channels (22 total)
DAQ-903	40 ch Single-Ended Mux	1-wire armature (common low)	80	300 V		No four-wire measurements
DAQ-904	4x8 Two-Wire Matrix	2-wire armature		300 V		
DAQ-907	Multifunction Module	16 bits of digital input and output		42 V		Open drain
		100 kHz totalizer input		42 V		Input threshold selectable
		Two 18-bit analog output		±12 V	±24 mA	Max 40 mA total output per frame
DAQ-908	20-Channel Actuator /General-Purpose Switch	SPDT/form C		300 V		
DAQ-909	8 ch Multiplexer + 2 current channels	2-wire armature (4-wire selectable)	60	DC 600 V AC 400 V	2 A	High voltage / high current channels
DAQ-919	8 ch Multiplexer	2-wire armature	60	DC 1 kV		Attenuates to 10 V max
DAQ-1000	30 ch Multiplexer	2-wire solid state (4-wire selectable)	450	120 V		Built-in cold junction reference (DAQ-1000T)
DAQ-1001	30 ch Multiplexer	2-wire armature (4-wire selectable)	80	300 V		Built-in cold junction reference (DAQ-1001T)

SPECIFICATIONS

DISPLAY	5" Color TFT LCD		
SLOT	8		
Internal memory	100 k_Sample (nonvolatile)		
Measurement Characteristics			
	Range	Resolution	Accuracy (*)
DC Voltage	100 mV to 600 V	0.1 µV to 1 mV	0.0035 %
AC Voltage	100 mV to 400 V	0.1 µV to 1 mV	0.05 %
Resistance	100 Ω to 1000 MΩ	0.1 mΩ to 1000 Ω	0.01 %
Frequency	3 Hz to 300 kHz		0.01 %
DC Current	1 µA to 2 A	1 pA to 1 µA	0.05 %
AC Current	100 µA to 2 A	100 pA to 1 µA	0.10 %
Capacitance	1 nF to 100 µF	0.000 1nF to 0.01 µF	2 %
Temperature (TC)	-200 °C to 1820 °C	0.002 °C to 0.01 °C	0.2 °C
Temperature (TM)	-80 °C to 150 °C	0.01 °C	0.01 °C
Temperature (RTD)	-200 °C to 600 °C	0.002 °C	0.06 °C
General Information			
USB storage	Available		
Interface	Digital I/O, LAN and USB host/device		
Optional Interface	GPIB		
Power Source	AC 100 V to 240 V, 50 Hz/ 60 Hz		
Power Consumption	Approx. 150 VA max.		
Dimensions (W x H x D)	430 mm x 145 mm x 485 mm		
Weight	Approx. 7.35 kg		

* : The accuracy is based on the value measured with DAQ-901.

Specifications subject to change without notice.

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