GW INSTEK

QUICK START GUIDE

DAQ-9600

EN

The information in this Quick Start Guide was correct at the time of printing. However, Good Will continues to improve products and reserves the rights to change specification, equipment, and maintenance procedures at any time without prior notice.

SAFETY INSTRUCTIONS

Safety Symbols

These safety symbols may appear in the user manual or on the instrument.

 Warning	Warning: Identifies conditions or practices that could result in injury or loss of life.
 Caution	Caution: Identifies conditions or practices that could result in damage to the instrument or to other properties.
	DANGER High Voltage
	Attention Refer to the Manual
	Protective Conductor Terminal
	Do not dispose electronic equipment as unsorted municipal waste. Please use a separate collection facility or contact the supplier from which this instrument was purchased.

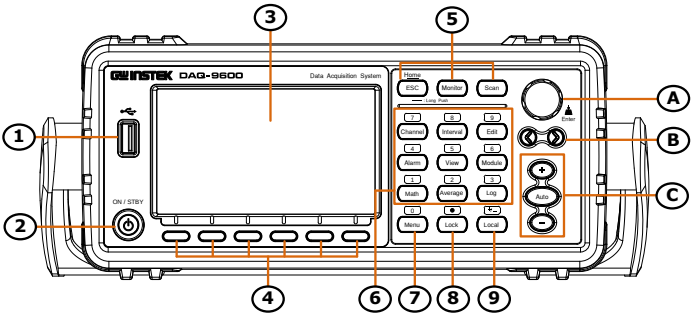
GETTING STARTED

Main Features

Performance	• The highest DCV accuracy: 35ppm • The highest current:2A • The highest voltage: 600VDC,400VAC • The highest ACV frequency response: 300 kHz • The fastest sampling rate: 38.4K Readings /sec • Internal memory:100k read memory • Data Logging to USB
Features	• 3-Slot mainframe with built-in 6½ digit DMM • Multi functions: ACV, DCV, ACI, DCI, 2W/4W R, Hz, Temp, Strain, Diode, Period, Capacitance test, REL, dBm, Hold, MX+B, 1/X, REF%, dB, Compare and Statistics. • Manual or Auto ranging • AC true RMS • Up to 3 temperature measurements: • RTD, Thermistor and Thermocouples (Built-in Cold-Junction Compensation) • Graph Display: BarMeter, TrendChart, Histogram
Interface	• USB device/LAN for remote control / • GPIB(factory install) • 9-pin Digital I/O port • USB device port supports USBCDC and USBTMC • USB Host
Software	• DAQ-Data Logger

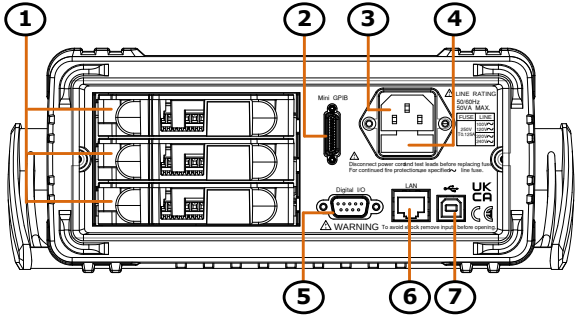
Appearance

Front Panel Overview



Description	
1. USB host prot	2. Power switch
3. Main display	4. Function keys (F1 through F6, functions vary per modes)
5. Operation menus keys for measurement	6. Configuration menus keys for parameters (also the numerical keypad functions)
7. Menu key (also the numerical keypad function)	8. Lock key (also the numerical keypad function)
9. Local key (also the numerical keypad function)	A. Knob key
B. Arrow keys (Speed selection keys)	C. Range keys

Rear Panel Overview

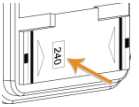


Description	
1. Slots for Modules Installation	2. Mini GPIB Connector
3. AC Mains Input (Power Cord Socket)	4. AC Mains Line Voltage Selector and Fuse Socket
5. Digital I/O Connector	6. LAN Connector
7. USB Interface Connector (B Type)	

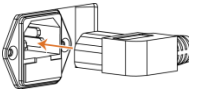
START UP

Power Up

1. Ensure the correct line voltage is clearly shown on the fuse socket (240V in the right figure for example).



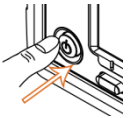
2. Connect the power cord to the AC Voltage input.



Note

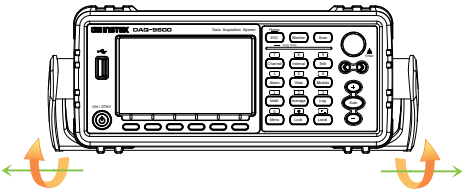
Make sure the ground connector on the power cord is connected to a safety ground. This will affect the measurement accuracy.

3. Push the power button until click to turn on the main power switch on the front panel.



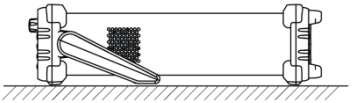
4. The screen firstly shows the logo brand of GWINSTEK followed by the message “Load the Parameter [Last] is Ok” indicating the previous parameter is loaded in the initial startup.

Set Up



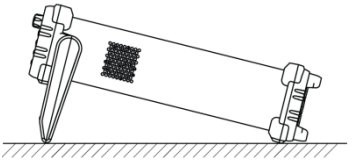
Pull out the handle sideways and rotate clockwise for the applications below.

Horizontal



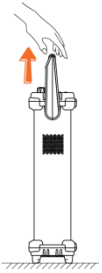
Place the unit horizontally.

Tilt



Rotate the handle for tilt stand.

Vertical



Place the handle vertically for hand carry.

MODULE OVERVIEW

Modules List

Backgroud

The DAQ-9600 is available for a series of plug-in modules to provide user with measurements, switching as well as control capabilities. Each module owns specific microprocessor, which efficiently shares loading from the processor of mainframe and thus lessens, in order to faster throughput, backplane communications. There are up to 7 different plug-in modules available for DAQ-9600. See the detailed info with spec below.

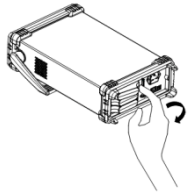
- DAQ-900 20-Channel Solid-state multiplexer
- DAQ-901 20-Channel Armature multiplexer
- DAQ-903 40-Channel single-ended multiplexer
- DAQ-904 4 x 8 Two-wire matrix switch
- DAQ-909 8-Channel high voltage multiplexer
- DAQ-908 20-Channel Actuator/General Purpose Switch
- DAQ-907 Multifunction DIO/Totalizer/DAC

Module Slot Cover Removing

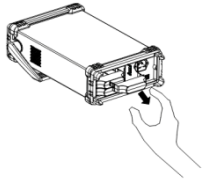
Background Prior to module installation, follow the steps below for how to remove a module slot cover from DAQ-9600 unit.

Steps

1. First release inner hook by pressing on curve area from either right or left side on slot cover. Use finger to subtly shake the curve area so as to make inner hook unleashed from DAQ-9600 unit.



2. Use 2 fingers to grip curve areas of both right and left sides on slot cover and gently pull outward so as to remove slot cover from DAQ-9600 unit.



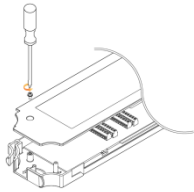
Note Press and shake curve area from either right or left side alternately when it is difficult to release inner hook in one side.

Module Installation

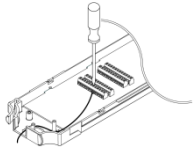
Background Follow the steps below for how to connect wire to a module and install it to a slot from the rear panel of DAQ-9600 unit.

Steps

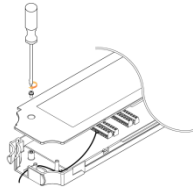
1. Use a Phillips-head screwdriver to loose the screw from the top of a module followed by taking away the upper cover from module.



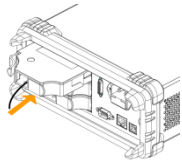
2. With help of a Phillips-head screwdriver, connect the wire to the terminal followed by routing the wire to the end port of module.



3. Restore the upper cover back to the module followed by fastening the screw by a Phillips-head screwdriver.



4. Insert the module into one of the module slots from the rear panel of DAQ-9600 unit.

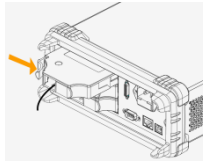


Module Uninstallation

Background	Follow the step below for how to uninstall a module out of a slot on rear panel of DAQ-9600 unit.

Steps

1. First push inward the clip at the rear-left corner of a module followed by pulling module out from a slot on rear panel of DAQ-9600 unit.



Note: To install/uninstall the modules from the slots of rear panel in the midst of power on will reboot the DAQ-9600 unit.

Modules Introduction

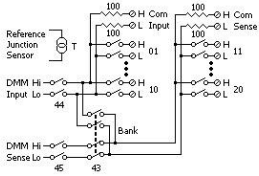
Background	This subchapter introduces each plug-in module with block diagram and schematics available for DAQ-9600 unit.

DAQ-900 20-Channel Solid-State Multiplexer

Background

Partitioned into 2 banks and each bank consists of 10 two- wire channels, this module has up to 20 channels, which switch both Hi and Lo inputs, and it offers fully isolated inputs to an external device or to the internal DMM. Channels of bank A are paired with channels of bank B automatically, in the midst of four-wire resistance measurements, to offer the source and sense connections. In addition, this module can minimize errors, which result from thermal gradients when measurement, by the built-in thermocouple reference junction.

Block Diagram

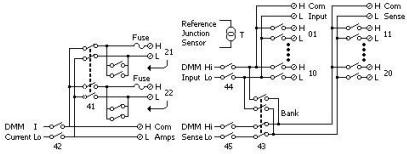


DAQ-901 20-Channel Armature Multiplexer

Background

Partitioned into 2 banks and each bank consists of 10 two- wire channels, this module has two additional fused channels to make direct and calibrated AC or DC current measurement with internal DMM. The 22 channels in total, which switch both Hi and Lo inputs, offer fully isolated inputs to an external device or to the internal DMM. Channels of bank A are paired with channels of bank B automatically, in the midst of four-wire resistance measurements, to offer the source and sense connections. In addition, this module can minimize errors, which result from thermal gradients when measurement, by the built-in thermocouple reference junction.

Block Diagram

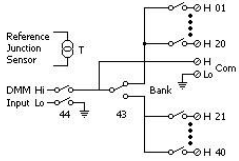


DAQ-903 40-Channel Single-Ended Multiplexer

Background

This module is partitioned into 2 banks and each bank consists of 20 channels. The all 40 channels, with a common Lo for the module, switch Hi only. This module is suitable for applications of high-density switching which are in demand of, with a common Lo, single-wire inputs.

Block Diagram

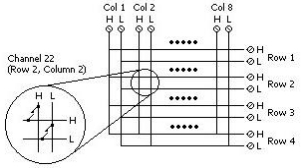


DAQ-904 4 x 8 Two-Wire Matrix Switch

Background

Organized in a 8-column by 4-row configuration, this module consists of 32 two-wire crosspoints. By connecting columns and rows between multiple modules, it is available to build larger matrices with up to 96 crosspoints within a mainframe. Also, user can utilize this module to connect to multiple instruments to multiple points or to any hybrid of outputs and inputs on DUT simultaneously. Since this module is not allowed to connect to the internal DMM, each relay of crosspoint owns an unique channel label which represents the column and row. Take the diagram below for instance, the channels 32 stands for the crosspoint between the row 3 and column 2.

Block Diagram

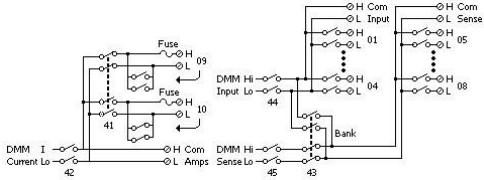


DAQ-909 8-Channel High Voltage Multiplexer

Background

Partitioned into 2 banks and each bank consists of 4 two- wire channels, this module has two additional fused channels to make direct and calibrated AC or DC current measurement with internal DMM. The 10 channels in total, which switch both Hi and Lo inputs, offer fully isolated inputs to an external device or to the internal DMM. Channels of bank A are paired with channels of bank B automatically, in the midst of four-wire resistance measurements, to offer the source and sense connections.

Block Diagram



DAQ-908 20-Channel Actuator/General Purpose Switch

Background

This module features 20 independent Single-Pole Double-Throw (SPDT) latching relays, also known as Form C relays. Each relay can switch up to 300 V and 1 A, with a maximum switching power of 50 W. The module is equipped with screw terminals that provide access to the Normally-Open, Normally-Closed, and Common contacts for each of the 20 relays. It is designed to interface with your Device Under Test (DUT) or to actuate external devices but does not connect to the internal Digital Multimeter (DMM). This module is ideal for applications demanding high-integrity contacts or reliable connections for non-multiplexed signals.

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

Block Diagram

Background

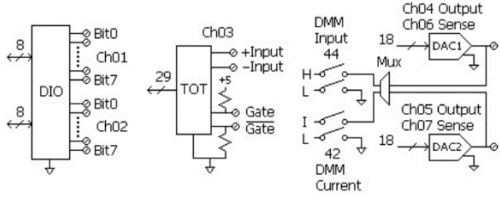
The DAQ-907 multifunction module, which consists of up to 7 available channels, expands the capabilities of DAQ system by providing majorly three functions described below in a neatly single module, making it ideal for automated testing and versatile signal measurements.

- Up to 16-bit Digital Input/Output: Allows for controlling external devices or reading digital signals.
- 29-bit Totalizer: Counts pulses at a 100 kHz rate, also counting on the rising or falling edge of the input signal.
- Analog DAC Output: Generates dual DAC voltage or current outputs for controlling other devices.

This module is particularly useful for applications requiring a mix of digital control, analog signal output, and event counting, making it suitable for laboratory testing, industrial automation, and data logging environments.

Channel Number	Channel Function
01	8-bit Digital I/O channel
02	8-bit Digital I/O channel
03	Totalizer channel
04	DAC Output channel
05	DAC Output channel
06	DAC Output Sense channel
07	DAC Output Sense channel

Block Diagram



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 measuring voltage DC600V, AC400V.
Line Power	• Power Supply: 100 / 120 / 220 / 240 VAC ±10% • Power Line Frequency: 50 Hz / 60 Hz ±10% • Power Consumption: Max. 50 VA
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
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)
Display	• 4.3" color WQVGA (480x272) with LED backlight • Supports basic number, bar meter, trend chart and histogram views
Temperature Coefficient	• Increment of one coefficient per one degree Celsius when the range is beyond TCAL ± 5 ˚C.
Accuracy Specification	• It is relevant to the calibration standard.
Real-Time Clock/Calendar	• Set and read, year, month, day, hour, minute, seconds • Battery CR-2032 coin-type, replaceable

Internal DMM measurement functions supported

	DAQ-900	DAQ-901	DAQ-903	DAQ-909	DAQ-904/908/-907
AC/DC Voltage	√ [2,3]	√	√	√	
AC/DC Current		√		√	
Freq./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 measurSement, 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.

Declaration of Conformity

We
GOOD WILL INSTRUMENT CO., LTD.
declare that the below mentioned product
satisfies all the technical relations application to the product within the scope of council:
Directive: EMC; LVD; WEEE; RoHS
The product is in conformity with the following standards or other normative documents

◎ **EMC**	
EN 61326-1 :	Electrical equipment for measurement, control and laboratory use — EMC requirements
Conducted & Radiated Emission EN 55011 / EN 55032	Electrical Fast Transients EN 61000-4-4
Current Harmonics EN 61000-3-2 / EN 61000-3-12	Surge Immunity EN 61000-4-5
Voltage Fluctuations EN 61000-3-3 / EN 61000-3-11	Conducted Susceptibility EN 61000-4-6
Electrostatic Discharge EN 61000-4-2	Power Frequency Magnetic Field EN 61000-4-8
Radiated Immunity EN 61000-4-3	Voltage Dip/ Interruption EN 61000-4-11 / EN 61000-4-34
◎ **Safety**	
EN 61010-1 :	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements

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