GDM-8261

6 ½ Digit Dual Measurement Multimeter

FEATURES

- 6 1/2 Digit Display : 1,200,000 Counts
- DCV Basic Accuracy : 0.0035%
- Dual Measurements to Perform Two Selected Measurements Simultaneously
- Bright Vacuum Fluorescent Display (VFD)
- 11 Measurement Functions & 10 Math Functions
- High Resolution : Up to 100pA Resolution with DCI and 1nA with ACI Measurements
- Temperature Measurement (RTD & Thermocouple) From -200°C ~ +1820°C
- High Data Transmission Speed : Up to 2,400 Readings/s Through USB Interface
- Standard Interfaces : USB, RS-232C, Digital I/O
- Optional Interfaces : GPIB or LAN
- Optional Scanner Card : GDM-SC1 (V ch x16, I ch x 2)
- Free PC Software : DMM-Viewer, LabVIEW Driver

GW INSTEK
Simply Reliable

Boost Your Measurement Speed & Efficiency

The GDM-8261 is a high precision 6 ½ digit Digital Multimeter with dual measurement displays, 11 measurement functions and 10 math functions at high accuracy (35ppm DC voltage accuracy) to accommodate the most frequently performed parameter measurements in various application fields today.

The GDM-8261 adopts a scanner card, which carries 16 V-Channels and 2 I-Channels, to facilitate the measurements of multiple-test points on either a device or multiple devices all at a press of a button. With this multi-point measurement capability, the GDM-8261 can be used as a semi-auto ATE System to increase the throughput of manufacturing test or as a data logger to perform long term monitoring or characterization of a DUT. A PC Software, DMM-Viewer, is available with GDM-8261 to support multi-channel panel setting and data logging of the scanner card. Besides, a LabVIEW driver is also supported to help user create his/her own virtual instrument on the PC screen for easy programming. For ATE system measurements or remote control applications, both USB and RS-232C Interfaces are provided as standard, and either GPIB or LAN can be selected as optional interface for the GDM-8261.

A. IDEAL FOR BENCH ASSIGNMENTS

The GDM-8261 includes all the basic measurement functions that are required for engineers to handle design, development and testing jobs for electronic circuits or products. The basic measurement functions include voltage, current, resistance, diode, continuity, frequency and temperature. Remarkably, the current measurement function covers a very wide range from 100uA to 10A for DC current (in 6 ranges) and from 1mA to 10A for AC current (in 5 ranges). In addition, the GDM-8261 features 10 Math functions (dBm, dB, compare and other mathematical operations) to accommodate specific measurement requirements and complex measurement applications.

B. DUAL MEASUREMENTS WITH DUAL DISPLAYS

1st Display	2nd Display					
	ACV	DCV	ACI	DCI	Hz/P	2W/4W*
ACV	✓	✓	✓	✓	✓	-
DCV	✓	✓	✓	✓	✓	-
ACI	✓	✓	✓	✓	✓	-
DCI	✓	✓	✓	✓	✓	-
Hz/P	✓	✓	✓	✓	✓	-
2W/4W*	-	-	-	-	-	✓

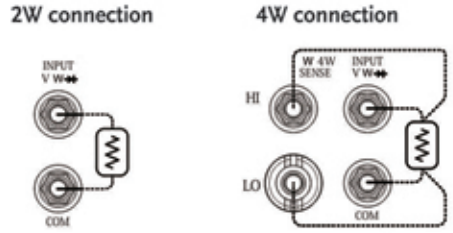
Unlike most of the "dual display" digital multimeters, which show test result on the primary display and range information on the secondary display, the GDM-8261 is able to perform two measurement functions simultaneously and shows the test results on primary display and secondary display respectively. The GDM-8261 supports an almost unlimited number of measurement combinations of dual measurement functions, besides the normal test result and range information displays, greatly increases the test speed of multi-function measurement tasks.

C. HIGH MEASUREMENT RESOLUTION & HIGH SAMPLING RATE

Mode	Resolution	DCV/DCI/Resistance Measurement Speed
Fast	4½ digits	2,400 readings/second
Medium	5½ digits	600 readings/second
Slow	6½ digits	30 readings/second

The GDM-8261 offers an exceptionally high resolution of 0.1 μ V for voltage measurement, 100pA for DC current measurement, 1nA for AC current measurement, and 100 μ Ω for Resistance measurement. This level of resolution and accuracy becomes a must for the precision measurements in specific applications. In addition, the GDM-8261 is capable of acquiring 30 measurement readings/s at the display resolution of 4 ½ digits and 2,400 readings/s at the display resolution of 6 ½ digits. The fast acquisition rate of the GDM-8261 adequately meets today's measurement demands.

D. 2/4 WIRE RESISTANCE MEASUREMENT



The GDM-8261 offers two methods, both 2-wire and 4-wire, for resistance measurements. The 2-wire measurement is most commonly used for resistance measurement in the range from 100Ω to 10kΩ. Whereas the 4-wire connection is normally applied for resistance measurement at a value lower than 100Ω. When applied, 4-wire measurement automatically compensates the test lead resistance and connector contact resistance to get an accurate measurement result.

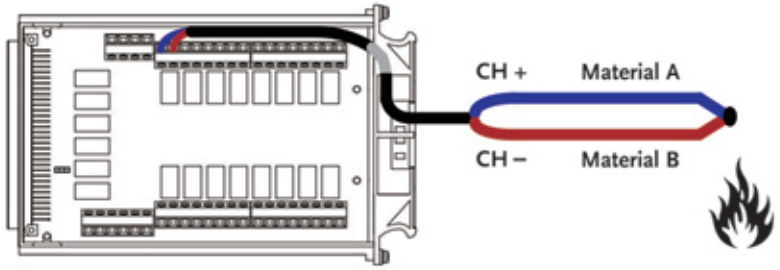
E. STORE / RECALL FUNCTION

The GDM-8261 is able to acquire and record 2 ~ 9999 measurement readings for the "store" and "recall" functions. This allows an immediate observation of the maximum, minimum, average or standard deviation values of all the recorded data whenever the data acquisition stops.

F. MATH MEASUREMENT

The "Math" function of GDM-8261 includes four mathematical operations for measurements: MX+B, 1/X, Percentage and Stats. "MX+B" multiplies the measurement reading (X) by a factor (M) and adds/subtracts an offset value (B) to calculate linear offsets or scales. The "1/X" function divides 1 by the measurement reading (X), calculating the inverse of the reading. The "Percentage" function calculates the ratio of the measured value to a target value using the following equation: (Reading X – Reference)/Reference x 100%. The "Stats" function makes statistical calculations continuously or by a user-defined measurement counts. The statistical calculations include Maximum, Minimum, Average and Standard deviation. With these mathematical operations, the GDM-8261 makes complex measurements quick and easy without the complexity of manual calculations.

G. TEMPERATURE MEASUREMENT

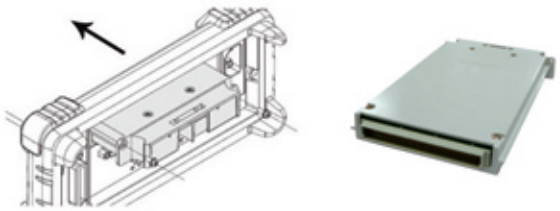


The GDM-8261 performs temperature measurement accommodating a wide range of temperature sensors of either thermocouples or RTD (Resistive Temperature Detectors). For thermocouples, the GDM-8261 uses voltage measurement terminals as the thermocouple input and calculates the temperature from the voltage fluctuation. Most of the popular thermocouple types are supported for temperature measurement on the GDM-8261. For RTD sensors, the GDM-8261 calculates the voltage fluctuation arisen from the resistance variation due to temperature change. Either front panel terminals or scanner card terminals can be used as the input for temperature sensor.

H. VERSATILE INTERFACES WITH FAST TRANSMISSION SPEED

For system applications, the GDM-8261 provides USB interface and RS-232C interface as standard. Up to 2,400 readings/s of data can be transferred over USB in ASCII format. Either GPIB or LAN interface is available as an option to support the ATE systems currently in use.

I. MULTIPOINT SCANNER CARD MEASUREMENT



The optional scanner card, with a field-installable design, is a self-contained multipoint measurement solution. This approach eliminates the complexities of software development for multi-point measurement and data processing. The scanner card allows users to effectively measure multiple channels connected to a single GDM-8261.

J. CONVENIENT PC SOFTWARE

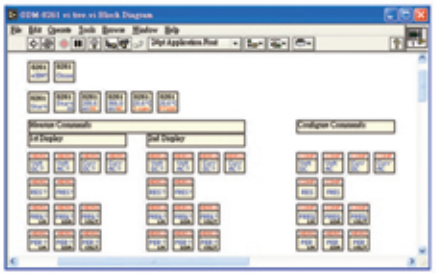
DMM-Viewer

Control & Data Acquisition

Data Reload & Graph

Panel Setting & Data Acquisition for All Scanner Channels

LabVIEW Driver



For the convenience of remote control and long time data acquisition, a free software, DMM-Viewer, is supported with the GDM-8261. This software allows user to remotely control the GDM-8261 without the need to give commands or to develop programming software. DMM-Viewer's human interface resembles the GDM-8261 front panel, which significantly shortens the user's learning time. For the data capture through a PC, the software allows user to continuously observe the measurement results before saving them into a file. Further more,

When GDM-8261 works with scanner card for multi-point measurements, the DMM-Viewer allows user to easily select the measurement function and range for each channel and start acquiring measurement data promptly. The GDM-8261 LabVIEW driver is also available for free download. With this driver, the user is able to create a virtue instrument on the PC for the instrument control. With DMM-Viewer & LabVIEW driver, the GDM-8261 becomes a high value semi-auto ATE system without further

PANEL INTRODUCTION

1. The 11 measurement functions can be selected at a button press; making operations easy and intuitive.
2. Dual VFD displays show the results of two different measurement functions simultaneously
3. Both 2-Wire and 4-Wire resistance measurements are supported. The low current measurement and high current measurement are made through different inputs
4. Two low DC current ranges (100 μ A and 1mA) are available for high resolution measurements down to 100pA detail
5. A number of built-in math functions are included : MX+B, 1/X, % and statistics (max/min/average/ standard deviation)
6. Either GPIB or LAN communication is supported as optional
7. Flexible-sized screw terminals on scanner card to support a wide range of wire gauges for flexible compatibility
8. The Digital I/O port sends out a signal of compare measurement result for external devices control. Additionally, the Digital I/O port can also be used as a power source for TTL & COMS logic.
9. USB and RS-232C communication ports facilitate the high speed communication

CE | RS-232 | USB | GPIB | LAN | Digital I/O | PC Software | LabVIEW Driver

Accuracy : ± (% of reading + % of range)for 1-hour warm-up at 6 ½ digits, slow mode

DC SPECIFICATIONS

FUNCTION	Range (*1)	Resolution	Test Current or etc.	24 Hours 23°C ± 1°C	90 Days 23°C ± 5°C	1 Year 23°C ± 5°C	Temperature Coefficient 0°~18°C /28°~55°C
DC VOLTAGE	100.0000 m V	0.1 μ V	10MΩ or >10GΩ	0.0030 + 0.0030	0.0040 + 0.0035	0.0050 + 0.0035	0.0005 + 0.0005
	1.000000 V	1 μ V	10MΩ or >10GΩ	0.0015 + 0.0004	0.0020 + 0.0005	0.0035 + 0.0005	0.0005 + 0.0001
	10.00000 V	10 μ V	11.11MΩ±1%	0.0020 + 0.0006	0.0030 + 0.0007	0.0040 + 0.0007	0.0005 + 0.0001
	100.0000 V	0.1mV	10.1MΩ±1%	0.0020 + 0.0006	0.0035 + 0.0006	0.0045 + 0.0006	0.0005 + 0.0001
	1000.000 V	1mV	10.1MΩ±1%	0.0020 + 0.0006	0.0035 + 0.0010	0.0045 + 0.0010	0.0005 + 0.0001
RESISTANCE (*2)	100.0000 Ω	100 μ Ω	1 mA	0.030 + 0.030	0.008 + 0.004	0.010 + 0.004	0.0008 + 0.0005
	1.000000 kΩ	1mΩ	1 mA	0.020 + 0.005	0.008 + 0.001	0.010 + 0.001	0.0008 + 0.0001
	10.00000 kΩ	10mΩ	100 μ A	0.020 + 0.005	0.008 + 0.001	0.010 + 0.001	0.0008 + 0.0001
	100.0000 kΩ	100mΩ	10 μ A	0.020 + 0.0051	0.008 + 0.001	0.010 + 0.001	0.0008 + 0.0001
	1.000000 MΩ	1Ω	3.5 μ A	0.020 + 0.0010	0.008 + 0.001	0.010 + 0.001	0.0010 + 0.0002
	10.00000 MΩ	10Ω	350 nA	0.0150 + 0.0010	0.020 + 0.001	0.040 + 0.001	0.0030 + 0.0004
	100.0000 MΩ	100Ω	350 nA//10 MΩ	0.3000 + 0.0100	0.800 + 0.010	0.800 + 0.010	0.1500 + 0.0002
DC CURRENT	100.0000 μA	100pA	< 0.015 V	0.010 + 0.020	0.04 + 0.025	0.05 + 0.025	0.002 + 0.0030
	1.000000 mA	1nA	< 0.15 V	0.007 + 0.005	0.03 + 0.005	0.05 + 0.005	0.002 + 0.0005
	10.00000 mA	10nA	< 0.07 V	0.005 + 0.010	0.03 + 0.020	0.05 + 0.020	0.002 + 0.0020
	100.0000 mA	0.1 μ A	< 0.7 V	0.010 + 0.004	0.03 + 0.005	0.05 + 0.005	0.002 + 0.0005
	1.000000 A	1 μ A	< 0.8 V	0.050 + 0.006	0.08 + 0.010	0.10 + 0.010	0.005 + 0.0010
	10.00000 A	10 μ A	< 0.5 V	0.100 + 0.008	0.12 + 0.008	0.15 + 0.008	0.005 + 0.0008
CONTINUITY	1000.000Ω	0.001Ω	1 mA	0.002 + 0.030	0.008 + 0.030	0.010 + 0.030	0.001 + 0.002
DIODE TEST (*3)	1.000000 V	1 μ V	1 mA (*4)	0.002 + 0.010	0.008 + 0.020	0.010 + 0.020	0.001 + 0.002

Note : (*1) 20% overrange on all ranges, except 1000 Vdc/750Vac, 10A range and Continuity.
(*2) Specifications are for 4-wire ohms function, or 2-wire ohms using REL function.
(*3) Accuracy specifications are for the voltage measured at the input terminals only.
(*4) Variation in the current source will create some variation in the voltage drop
(*5) Specifications are for sinewave input >5% of range.
(*6) 750 Vac range limited to 100 kHz
(*7) Typically 30% of reading error at 1 MHz.
(*8) Input > 100 mV. For 10 mV to 100 mV inputs, multiply % of reading error x10.

AC SPECIFICATIONS

FUNCTION	Range (*1)	Resolution	Frequency or etc.	24 Hours 23°C ± 1°C	90 Days 23°C ± 5°C	1 Year 23°C ± 5°C	Temperature Coefficient 0°~18°C /28°~55°C
TRUE RMS AC VOLTAGE (*5)	100.0000mV	0.1 μV	3Hz~5Hz 5Hz~10Hz 10Hz~20kHz 20kHz~50kHz 50kHz~100kHz 100kHz~300kHz(*7)	1.00 + 0.03 0.35 + 0.03 0.04 + 0.03 0.10+ 0.05 0.55 + 0.08 4.00+ 0.50	1.00+ 0.04 0.35 + 0.04 0.05 + 0.04 0.11 + 0.05 0.60+ 0.08 4.00+ 0.50	1.00+ 0.04 0.35 + 0.04 0.06+ 0.04 0.12+ 0.05 0.60+ 0.08 4.00 + 0.50	0.100 + 0.004 0.035 + 0.004 0.005 + 0.004 0.011 + 0.005 0.060 + 0.008 0.200 + 0.020
	1.000000V~ 750.000V(*6)	1 μV~ 1mV	3Hz~5Hz 5Hz~10Hz 10Hz~20kHz 20kHz~50kHz 50kHz~100kHz 100kHz~300kHz(*7)	1.00+ 0.02 0.35 + 0.02 0.04 + 0.02 0.10+ 0.04 0.55 + 0.08 4.00+ 0.50	1.00+ 0.03 0.35+ 0.03 0.05 + 0.03 0.11 + 0.05 0.60+ 0.08 4.00+ 0.50	1.00+ 0.03 0.35 + 0.03 0.06 + 0.03 0.12+ 0.05 0.60+ 0.08 4.00+ 0.50	0.100 + 0.003 0.035 + 0.003 0.005 + 0.003 0.011 + 0.005 0.060 + 0.008 0.200 + 0.020
TRUE RMS AC CURRENT (*5)	1.000000 mA	1nA	3Hz~5Hz 5Hz~10Hz 10Hz~5kHz 5kHz~10kHz	1.00+0.04 0.30+0.04 0.10+0.04 0.20+ 0.25	1.00+ 0.04 0.30+ 0.04 0.10+ 0.04 0.20+0.25	1.0+ 0.04 0.3+ 0.04 0.1+0.04 0.2+ 0.25	0.100 + 0.006 0.035 + 0.006 0.015 + 0.006 0.030 + 0.006
	10.00000 mA	10nA	3Hz~5Hz 5Hz~10Hz 10Hz~5kHz 5kHz~10kHz	1.10+0.06 0.35+0.06 0.15+0.06 0.35+0.70	1.10+0.06 0.35+ 0.06 0.15+0.06 0.35+0.70	1.10+ 0.06 0.35+0.06 0.15+ 0.06 0.35+ 0.70	0.200 + 0.006 0.100 + 0.006 0.015 + 0.006 0.030 + 0.006
	100.0000 mA	100nA	3Hz~5Hz 5Hz~10Hz 10Hz~5kHz 5kHz~10kHz	1.00+0.04 0.30+0.04 0.10+0.04 0.20+0.25	1.00+ 0.04 0.30+0.04 0.10+ 0.04 0.20+0.25	1.00+0.04 0.30+0.04 0.10+0.04 0.20+0.25	0.100 + 0.006 0.035 + 0.006 0.015 + 0.006 0.030 + 0.006
	1.000000 A	1μA	3Hz~5Hz 5Hz~10Hz 10Hz~5kHz 5kHz~10kHz	1.00+0.04 0.30+0.04 0.10+ 0.04 0.35+0.70	1.00+0.04 0.30+0.04 0.10+ 0.04 0.35+0.70	1.00+0.04 0.30+0.04 0.10+ 0.04 0.35+ 0.70	0.100 + 0.006 0.035 + 0.006 0.015 + 0.006 0.030 + 0.006
	10.00000 A	10μA	3Hz~5Hz 5Hz~10Hz 10Hz~5kHz 5kHz~10kHz	1.10+0.06 0.35+0.06 0.15+0.06 0.35+0.70	1.10+ 0.06 0.35+0.06 0.15+0.06 0.35+ 0.70	1.10+ 0.06 0.35+0.06 0.15+ 0.06 0.35+ 0.70	0.100 + 0.006 0.035 + 0.006 0.015 + 0.006 0.030 + 0.006
FREQUENCY (*8) PERIOD	100.0000 mV~ 750.000 V(*6)	–	3 Hz~5 Hz 5 Hz~10 Hz 10 Hz~40 Hz 40 Hz~300 kHz	0.1 0.05 0.03 0.006	0.1 0.05 0.03 0.01	0.1 0.05 0.03 0.01	0.005 0.005 0.001 0.001
TEMPERATURE(RTD)(*9)	-200 °C~600 °C	0.002°C	–	–	–	0.06°C (typical)	–
TEMPERATURE (THERMOCOUPLES)(*9)	-200 ~+1372 °C -50 ~+1870 °C	0.003°C 0.01°C	(J/K/N/T/E Type) (R/S/B Type)	–	–	0.2°C (typical) 1.0°C	0.004 °C / °C (typical) 0.14 °C/ °C
DISPLAY	VFD, Two Colors Display						
INTERFACE	RS-232C, USB, Digital I/O						
POWER SOURCE	AC 100V/120V/220V/240V±10%, 45 Hz ~ 66 Hz and 360 Hz ~ 440 Hz						
DIMENSIONS & WEIGHT	265(W) x 107(H) x 350(D) mm, Approx. 3.1 kg						

Specifications subject to change without notice. DM-8261GD18H

ORDERING INFORMATION

GDM-8261 6 ½ Digit Dual Measurement Multimeter

* Three-year warranty, excluding accessories.

ACCESSORIES

Quick star guide x 1, Power cord x 1, Test lead GTL-117 x 1, USB cable GTL-247 x 1, CD x 1 (including complete user manual, upgrade program and PC software DMM-Viewer), Calibration key GDM-01 x 1 (for firmware upgrade)

OPTION

Opt. 01 GDM-SC1 Scanner Card (V ch x 16, I ch x 2)
Opt. 02 GPIB Card
Opt. 03 LAN Card

* Either GPIB or LAN can be installed on each GDM-8261.

OPTIONAL ACCESSORIES

GTL-108A 4W Type test lead
GTL-232 RS-232C Cable, 9-pin female to 9-pin, null modem for computer, Approx. 2m
GTL-248 GPIB Cable, Approx. 2m

FREE DOWNLOAD

PC Software DMM-VIEWER, RS-232C/USB Interface Supported
LabVIEW Driver, RS-232C/USB/GPIB Interface Supported
Driver USB Driver