



GLC-9000 Leakage Current Tester

New Product Announcement

GW Instek is presenting a rich- featured Leakage Current Tester, GLC-9000, to the market. This is the first product among whole GW safety tester family that meets the Leakage Current measurement requirements in the safety test field. Besides AC/DC Withstanding Voltage Test, Insulation Resistance Test and Ground Bound Test, Leakage Current Test has been performed by the manufacturers of medical electrical equipment and general electric & electronic devices to ensure that the products are designed and built in compliance with the safety regulations. With GLC-9000 joining the family, GW Instek now has a broader coverage of the safety tester market.



The GLC-9000 Leakage Current Tester, is designed to fulfill the requirements of leakage current (or touch current) tests for the compliance of various standards including EN 60601-1 (IEC 60601-1) for medical electrical equipment, and EN 60990 (IEC 60990) for most of the IT products, home appliances and other electric and electronic devices. As medical equipment is mostly used in direct contact with the patient over a long period of time, a high standard of human body protection must be provided and seriously checked during both product design and manufacturing phases. The general electric and electronic devices normally have to comply with the leakage current test regulations by “type testing”. Some manufacturers, however, tend to perform leakage current test during manufacturing process to ensure a higher safety level with their products. The home appliances being used in the wet environment, like refrigerator, air-conditioner and wash-machine are the typical products needing leakage current test in the manufacturing. Please see the most popular safety standards applied to various product categories as follows:

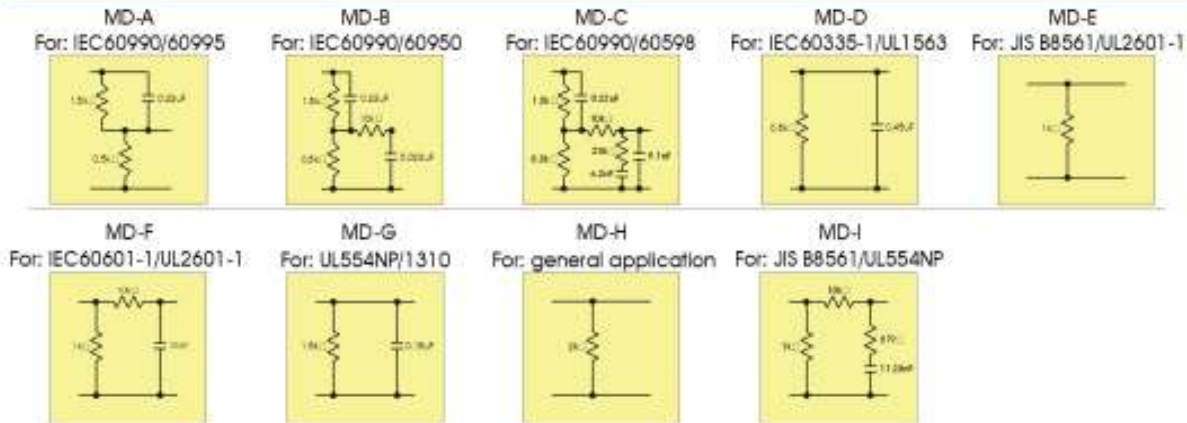
Standard No.	Applicable Electrical Equipment
IEC 60950	Information Technology Equipment
IEC 60335	Household and Similar Electrical Appliances
IEC 60065	Audio, Video and Similar Electrical Appliances
IEC 60745	Hand-held Motor-Operated Electric Tools
IEC 60598	Luminaries
IEC 61010	Electrical Equipment for Measurement, Control, and Laboratory Use

Each of the above IEC safety standards includes a paragraph of leakage current test regulation, which refers to IEC 60990 standard. IEC 60990, in the sense, is the supplement of Leakage Current Test

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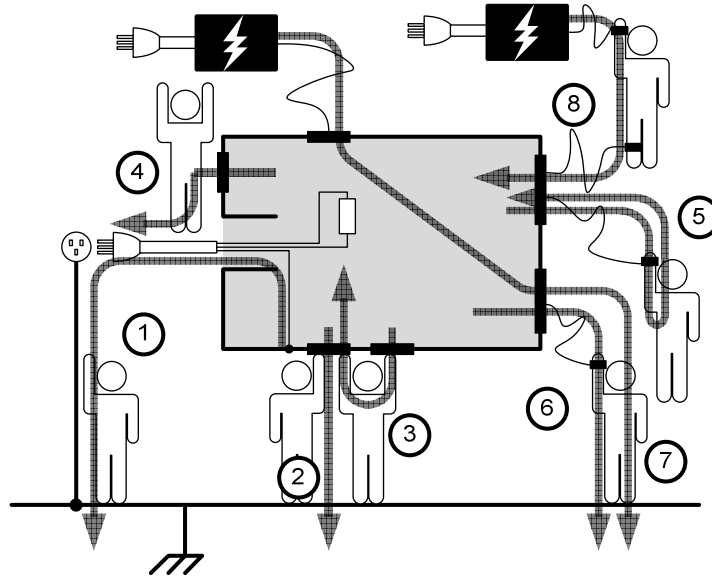
regulation of all these safety standards. As Leakage Current Test is the only item among all the safety test regulations that needs to be done under the device-power-on condition, GLC-9000, with a universal power socket installed in the front panel, is able to accommodate the test for various products with different power standards. According to Leakage Test standards, a measurement network (or Measuring Device, MD) should be used as the human body impedance simulation while the EUT (equipment under test) is taking the leakage current test. GLC-9000 provides 9 measurement networks in compliance with IEC 60601-1, IEC 60990 and various safety standards and regulations such as UL and JIS etc.

MEASUREMENT NETWORK (MD)



To simulate the flow path of leakage current under different conditions as specified by different regulations, GLC-9000 provides 8 measurement modes to comply with most of the popular standards:

1. Earth leakage current (current flows from protective grounding wire of the device through human body to earth)
2. Enclosure to earth leakage current (current flows from enclosure of the device through human body to earth)
3. Enclosure to enclosure leakage current (current flows through human body between two isolated parts of the enclosure of the device)
4. Enclosure to line leakage current (current flows from enclosure of the device through human body to power line terminal)
5. Patient auxiliary current (current flows through one terminal of the applied part of device to human body and then to another terminal of the same applied part of device)
6. Patient leakage current I (current flows through an applied part of a device to human body and then to the ground)
7. Patient leakage current II (current flows through an applied part of a device, which is under single-fault operation, to human body then to the ground)
8. Patient leakage current III (current flows through an applied part of a device, which is under single-fault operation, to human body then to an F type applied part of the same device)



The GLC-9000 is equipped with a 5.6" TFT LCD touch panel to provide a user-friendly operation environment. The on-screen soft-keys, the measurement setting information and the test result can be displayed on the LCD simultaneously. 50 sets of front panel setting, which conform to IEC 60990 and other popular standards, are stored in the memory for easy recall and operation. In addition, 30 sets of empty memory are available for the storage of user defined settings.

A Meter mode, which uses the front panel measurement terminal (T1/T2) to measure voltage like an ordinary voltmeter does, is also available with GLC-9000. Since the voltage measurement of SELV (Safety Extra Low Voltage for double insulation against electric shock), is necessary for the compliance of some standards, GLC-9000 provides SELV measurement feature to fulfill the requirement.

RS-232, GPIB, USB Host/Device are provided as standard for GLC-9000. The programmability and all the features coming along with GLC-9000 make this product a professional tool for the leakage current measurement in the market today.

Key Features

- Accommodate the Leakage Current Measurements for Medical Equipment and General Electrical and Electronic Devices.
- 5.6" Touch panel TFT LCD display to give an intuitive operation environment
- 9 Measurement Networks (or Measuring Devices) to simulate Human Body Impedance.
- 8 Measurement Modes to comply with the most popular standards for Medical Equipment and General Electrical and Electronic Devices.
- Various Leakage Current measurement modes: DC, AC, AC+DC, and AC Peak



- 50 sets of front panel setting stored to comply with the test procedures of IEC 60990 and other standards; 30 sets of memory for user-defined settings.
- Upper and Lower Limits for Pass/Fail judgment
- Standard Interfaces: RS-232, GPIB, USB Host/Device and EXT I/O.

Target Market

- Safety Standard Compliance Lab.
- R&D, Manufacturing and QC of Medical Equipment with max power/current below 1500VA/10A.(Compliance with IEC 60601-1/UL 60601-1 for Medical Equipment)
- R&D and Manufacturing of Refrigerator, Air-conditioner, and Wash Machine.
- R&D and Manufacturing of General Electrical & Electric Devices with max power/current below 1500VA/10A.(Compliance with IEC 60950/UL 60950 for IT Products, IEC 60065/UL 60065 for Video Products and IEC 60335-1 for Household Appliances)

Product Position among Competitors

(Hioki 3156 & Extech 7611/7623)

- Provide highest number of MD(Medical Devices) to comply with the Leakage Current Test Standards of IEC 60601-1 for Medical Equipment, IEC 60990 for General Electrical & Electronic Devices and other popular Safety Standards like UL and JIS.
- Color TFT LCD panel with touch screen operation.
- 50 sets of front panel setting based on the test procedures of IEC 60990 and other popular standards
- Meter mode to do SELV test

Warranty Policy

1. Instek test equipment is warranted against manufacturer defects in workmanship and materials for a period of two years with the exclusion of handheld instruments - one year warranty. Instek reserves the right to repair or replace all such defective products. Products must be returned to Instek with transportation charges prepaid and Instek will cover return shipping back to the customer only within the USA. All return products must be accompanied by a copy of the sales invoice and a return authorization number. This warranty does not apply to batteries, fuses and test leads/probes).

Specifications



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General	Display Operation Measurement Device	5.6" Color TFT LCD Touch panel 9 kinds
DC	Ranges Resolution Accuracy	50uA/500uA/5mA/25mA 0.01uA/0.1uA/1uA/10uA $\pm 1.0\% \text{ fs}/\pm(0.2\% \text{ rdg}+3\text{dgt})$
AC/AC+DC	Ranges Resolution Accuracy	50uA/500uA/5mA/25mA 0.01uA/0.1uA/1uA/10uA $\pm 2.0\% \text{ fs}/\pm(2.0\% \text{ rdg}+6\text{dgt}) -- 10\text{Hz}<f \leq 100\text{kHz}$ $\pm 2.0\% \text{ fs}/\pm(2.0\% \text{ rdg}+10\text{dgt}) -- 100\text{kHz}<f \leq 1\text{MHz}$
AC peak	Ranges Resolution Accuracy	500uA/1mA/10mA/75mA 0.1uA/1uA/10uA/100uA $\pm 4.0\% \text{ fs}/\pm 2.5\% \text{ fs}/\pm(2.0\% \text{ rdg}+6\text{dgt})$ -- $20\text{Hz}<f \leq 1\text{kHz}$ $\pm 5.0\% \text{ fs}/\pm 5.0\% \text{ fs}/\pm(5.0\% \text{ rdg}+10\text{dgt})$ -- $1\text{kHz}<f \leq 10\text{kHz}$
Meter Mode	AC/DC/AC+DC AC peak SELV function	10.0~300.0V 15.0~430.0V Available
EUT	Voltage range Current range	85V ~ 300V 0.5A ~ 10A
Memory	Empty sets Preset sets	30 sets 50 sets (conform to IEC 60990)
Interfaces	Front panel Rear panel	USB host RS-232C/GPIB/EXT I/O/USB device
Power Source	For GLC-9000 For EUT	AC 100V/120V/220V/230V $\pm 10\%$, 50/60Hz AC 85V~250V , 50/60Hz
Dimensions		330 (W) x 150 (H) x 350 (D) mm
Weight		Approx. 5kg

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Ordering Information

GLC-9000 Leakage Current Tester

Standard Accessories

User manual x 1

Power cord x 2

Foil probe x 1

Test lead GTL-117 x 2

Alligator clip x 4 (Red x 2/Black x 2)



Sincerely Yours;



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