Electrical Safety Tester

GPT-9600 Series

QUICK START GUIDE

GW INSTEK PART NO. 82PT-96030MA1

ISO-9001 CERTIFIED MANUFACTURER

GW INSTEK

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

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SAFETY INSTRUCTIONS

This chapter contains important safety instructions that you must follow during operation and storage. Read the following before any operation to ensure your safety and to keep the instrument in the best possible condition.

Safety Symbols

These safety symbols may appear in this 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
	Frame or Chassis Terminal
	Earth (ground) 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.

Safety Guidelines

General Guideline CAUTION	• Do not place any heavy object on the instrument. • Avoid severe impact or rough handling that leads to damaging the instrument. • Do not discharge static electricity to the instrument. • Use only mating connectors, not bare wires, for the terminals. • Do not block the cooling fan opening. • Do not disassemble the instrument unless you are qualified. (Measurement categories) EN 61010-1:2010 specifies the measurement categories and their requirements as follows. The GPT-9600 Series does not fall under category II, III or IV. • Measurement category IV is for measurement performed at the source of low-voltage installation. • Measurement category III is for measurement performed in the building installation. • Measurement category II is for measurement performed on the circuits directly connected to the low voltage installation.
Power Supply WARNING	• AC Input voltage range: 100-120/220-240VAC ±10% • Frequency: 50Hz/60Hz • To avoid electrical shock connect the protective grounding conductor of the AC power cord to an earth ground. • Connect the Earth terminal on rear panel to an earth ground.

Cleaning the GPT-9600	• Disconnect the power cord before cleaning. • Use a soft cloth dampened in a solution of mild detergent and water. Do not spray any liquid. • Do not use chemicals containing harsh material such as benzene, toluene, xylene, and acetone.
Operation Environment	• Location: Indoor, no direct sunlight, dust free, almost non-conductive pollution (Note below) • Relative Humidity: ≤ 70% (no condensation) • Altitude: < 2000m • Temperature: 0˚C~40˚C (Pollution Degree) EN 61010-1:2010 specifies the pollution degrees and their requirements as follows. The GPT-9600 Series falls under degree 2. Pollution refers to "addition of foreign matter, solid, liquid, or gaseous (ionized gases), that may produce a reduction of dielectric strength or surface resistivity". • Pollution degree 1: No pollution or only dry, non-conductive pollution occurs. The pollution has no influence. • Pollution degree 2: Normally only non-conductive pollution occurs. Occasionally, however, a temporary conductivity caused by condensation must be expected. • Pollution degree 3: Conductive pollution occurs, or dry, non-conductive pollution occurs which becomes conductive due to condensation which is expected. In such conditions, equipment is normally protected against exposure to direct sunlight, precipitation, and full wind pressure, but neither temperature nor humidity is controlled.
Storage environment	• Location: Indoor • Temperature: -10°C to 70°C • Relative Humidity: ≤ 85% (no condensation)

Power cord for the United Kingdom

When using the safety tester in the United Kingdom, make sure the power cord meets the following safety instructions.

NOTE: This lead/appliance must only be wired by competent persons

WARNING: THIS APPLIANCE MUST BE EARTHED

IMPORTANT: The wires in this lead are coloured in accordance with the following code:

Green/ Yellow:	Earth
Blue:	Neutral
Brown:	Live (Phase)

As the colours of the wires in main leads may not correspond with the coloured marking identified in your plug/appliance, proceed as follows:

The wire which is coloured Green & Yellow must be connected to the Earth terminal marked with either the letter E, the earth symbol ⏚ or coloured Green/Green & Yellow.

The wire which is coloured Blue must be connected to the terminal which is marked with the letter N or coloured Blue or Black.

The wire which is coloured Brown must be connected to the terminal marked with the letter L or P or coloured Brown or Red.

If in doubt, consult the instructions provided with the equipment or contact the supplier.

This cable/appliance should be protected by a suitably rated and approved HBC mains fuse: refer to the rating information on the equipment and/or user instructions for details. As a guide, a cable of 0.75mm^2 should be protected by a 3A or 5A fuse. Larger conductors would normally require 13A types, depending on the connection method used.

Any exposed wiring from a cable, plug or connection that is engaged in a live socket is extremely hazardous. If a cable or plug is deemed hazardous, turn off the mains power and remove the cable, any fuses and fuse assemblies. All hazardous wiring must be immediately destroyed and replaced in accordance to the above standard.

INTRODUCTION

This Quick Start Guide is intended as a fast introduction to operating the GPT-9600 Series Safety Testers. This Quick Start Guide assumes that the user is familiar with safety testers.

For comprehensive instructions on the GPT-9600 Series, please see the User Manual, located on the accompanying CD.

GPT-9600 Series Overview

The GPT-9600 Series Safety Testers are AC/DC withstanding voltage and insulation resistance safety testers. The GPT-9603 is an AC/DC withstanding and insulation resistance safety tester. The GPT-9602 is an AC/DC withstanding safety tester. The GPT-9612 is an AC withstanding and insulation resistance safety tester, while the GPT-9601 is purely an ACW tester.

Note: Throughout this quick start guide, the terms ACW, DCW and IR refer to AC Withstanding, DC Withstanding and Insulation Resistance, respectively. GPT-9600 refers to any of the GPT-96XX models.

Main Features

Performance	• ACW: 5kVAC • DCW: 6kVDC • IR: 50V, 100V, 250V, 500V, 1000V
Features	• Timer control • Safety discharge • Over temperature, voltage and current protection • Pass, Fail, Test, High Voltage and Ready indicators • PWM output (increased reliability) • Interlock (configurable)
Interface	• Remote control start/stop interface terminal • Signal I/O port for pass/fail/test monitoring and start/stop control/interlock

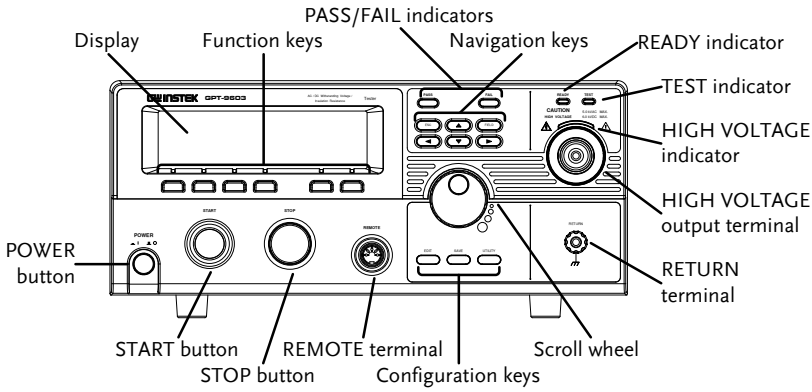
Accessories

Standard Accessories	Part number	Description
	N/A	GPT-96XX unit.
	N/A	User manual CD
	N/A	Quick start guide
	GHT-114 x1	Test lead
	Region dependent	Power cord
	N/A	Remote terminal male plug
	N/A	Interlock key
	N/A	CTC (Calibration Traceable Certificate)

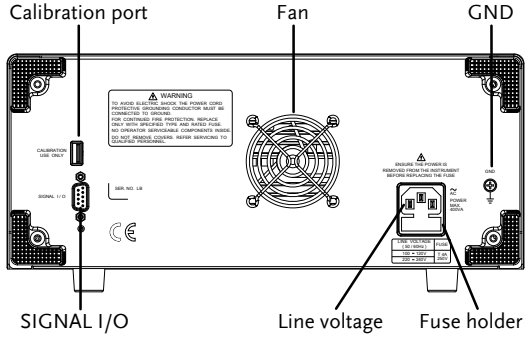
Optional Accessories	Part number	Description
	GHT-205	High Voltage Test Probe
	GHT-113	High Voltage Test Pistol
	GRA-417	Rack mount kit

Panel Overview

Front Panel



Rear Panel

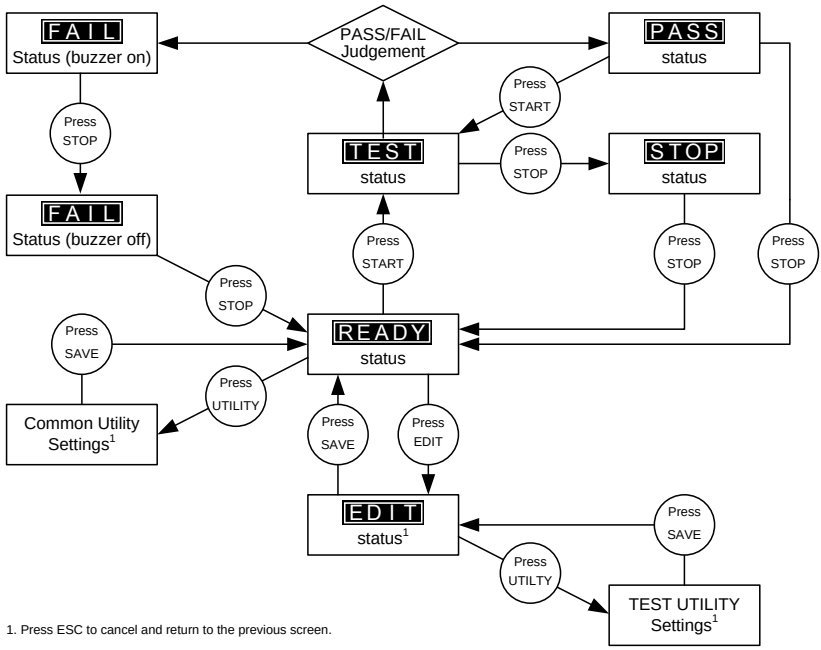


OPERATION

Status Modes

This section describes the overall structure of the operating modes for the GPT-9600 Series safety testers. The testers have 6 status modes: (EDIT, READY, TEST, STOP, FAIL, PASS). The flow chart below describes how to navigate from mode to mode.

Operation Flow Chart



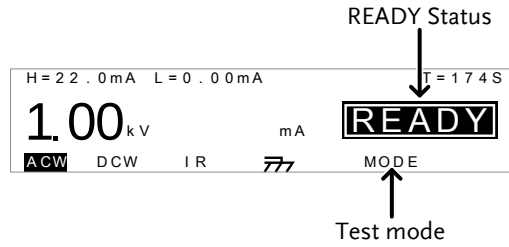
1. Press ESC to cancel and return to the previous screen.

READY Status

Description

When the tester is in READY status, it is ready to begin testing. Pressing the START button will begin testing and put the tester into TEST status. Pressing the EDIT key will put the tester into the EDIT status. Pressing the UTILIY key will enter the Common Utility settings.

The READY status can also be used to set the testing mode. The testing mode can be set to run a single test at a time or to run two different tests sequentially.



Set the Testing Mode

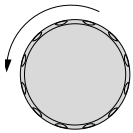
- Press the MODE soft-key to toggle between MODE (single test) and each of the Auto Modes. (AC-IR, IR-AC, DC-IR, IR-DC)
- The Auto Mode function sets two different test functions and the order that will they run. I.e., AC-IR means an ACW test is performed followed by an IR test.
- When the unit is in TEST status, the Test Mode determines whether a single test is run or if two tests are run sequentially.

Go to EDIT Status

- Press the EDIT key.

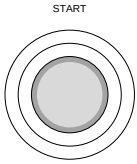
Set the Test Voltage

- When in the READY mode, turn the scroll wheel knob to set the test voltage.



Start Testing

- Press the START button to begin testing.
- The tester will go into TEST status.



WARNING

If Double Action is active, the START button must be pressed within 500ms after the STOP button was pressed to be able to start testing.

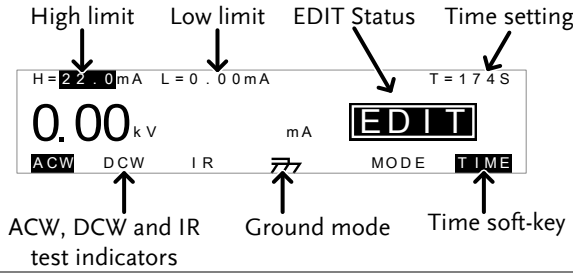
WARNING

If INTERLOCK is set to ON and the interlock key is not connected to the SIGNAL I/O port, INTERLOCK OPEN will be displayed on the screen, preventing the test from starting. See page 19 for the Common Utility settings.

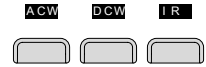
EDIT Status

Description

EDIT status is used to edit the test parameters (excluding the test voltage). Pressing the SAVE key will save any changes and return to the READY status. Pressing the ESC key will cancel any changes and return to the READY status. Pressing the UTILITY key will enter the TEST Utility settings.

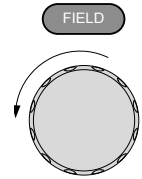


Choose Test Function



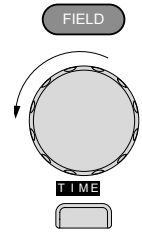
- Use the ACW, DCW or IR soft-keys to choose a test function.

Choose High/Low limits



- Use the FIELD key to bring the cursor to the H or L setting.
- Use the scroll wheel to edit the setting.

Test Time



- Use the FIELD key to select the T setting.
- Use the scroll wheel to edit the time.
- Press the TIME soft-key to toggle the test time ON/OFF. Note that the test time cannot be edited with the scroll wheel when the test time is set to OFF.

Save the test settings and return to READY Status

- Press the SAVE key. The current test is saved in memory.
- The tester reverts back to READY status.

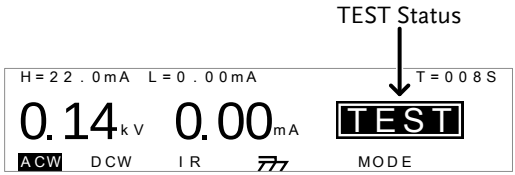
Exit EDIT status and Return to READY Status

- Press the ESC key.
- The tester does not save and returns back to READY status.

TEST Status

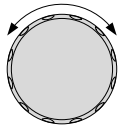
Description

TEST status is active when a test is running. Pressing STOP will cancel the test and put the tester into the STOP status. Waiting for the test to complete will result in a PASS or FAIL judgment.



Set the Test Voltage

- For ACW and DCW mode, the scroll wheel can be used to set the test voltage when the test is running.
- Clockwise increases the voltage.
- Anti-clockwise reduces the voltage.

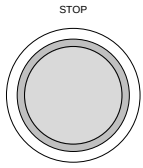


Get Test Results

- Wait for the test to finish.

Abort Test

- Press the STOP button
- The tester will go into STOP status.



NOTE

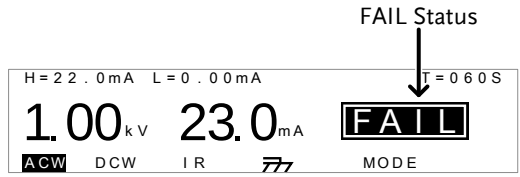
When in STOP status all panel keys are locked except for the STOP key.

PASS/FAIL Result

Results

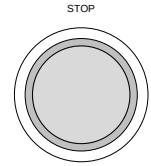
When the tester is allowed to run to completion, the test result is shown as a PASS or FAIL. When the PASS or FAIL results are shown on the screen, the PASS or FAIL indicators will also light up.

Results



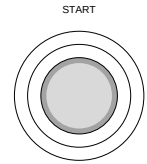
Return to READY Status

- Press the STOP button once for a PASS judgment, or twice for a FAIL judgment.



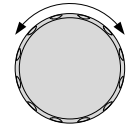
Restart the Test

- After a PASS judgment, the test can be re-run by pressing the START button.



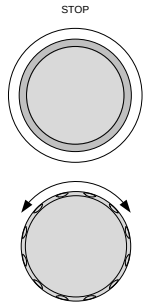
View PASS Auto Mode Test Results

- For a PASS result, turn the scroll wheel left or right to view test results. Press the STOP button to return to READY status.



View FAIL Auto Mode Test Results

- For a Fail Judgment, press the STOP button once to turn off the buzzer tone. Then turn the scroll wheel left or right to view test results. Pressing the STOP button again will return the tester to READY status.



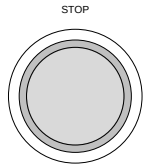
STOP Status

Description

STOP status is shown when a test does not finish running and has been stopped by the operator. When in STOP status, pressing STOP will return the tester to READY status.

Return to READY Status

- Press the STOP button



Common Utility Settings

Description

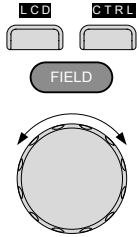
The Common Utility menu is accessed by pressing the UTILITY key when the tester is in READY status. This utility controls the LCD and control settings. These settings are system wide.

The Common Utility settings include:
LCD: LCD Contrast, LCD Brightness
CTRL: Start Ctrl (FRONT PANEL, SIGNAL I/O, REMOTE CONNECT), Double Action, Key Lock, Interlock

Utility selection

Select a Utility Setting.

- Choose a utility by pressing the LCD or CTRL soft-key under the LCD bezel.
- The chosen utility will be displayed.
- Use the FIELD key to highlight a setting.
- Use the scroll wheel to choose or edit a parameter for the setting.



NOTE

The INTERLOCK function is set to OFF by default in the Common Utility>CTRL menu. To increase safety, set INTERLOCK to ON and use the accompanying Interlock key to enable testing.

Save the Common Utility Setting

- To save any changes, press the SAVE key.

The tester will return to READY status.

Cancel and Exit the Common Utility Menu

- To exit and cancel any changes, press the ESC key.

The tester will return to READY status.

TEST Utility Settings

Description

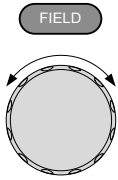
The TEST Utility menu is accessed by pressing the UTILITY key when the tester is in EDIT status.

The TEST Utility settings are configured for each test function (DCW or ACW) separately.

The settings include: ARC MODE (ACW, DCW), and FREQUENCY (ACW).

Select a Setting.

- Use the FIELD key to highlight a test setting.
- Use the scroll wheel to choose a parameter for the setting.



Save the TEST Utility Settings

- To save any changes, press the SAVE key.

The tester will return to EDIT status.

Cancel and Exit the TEST Utility Menu

- To exit and cancel any changes, press the ESC key. 

The tester will return to EDIT status.