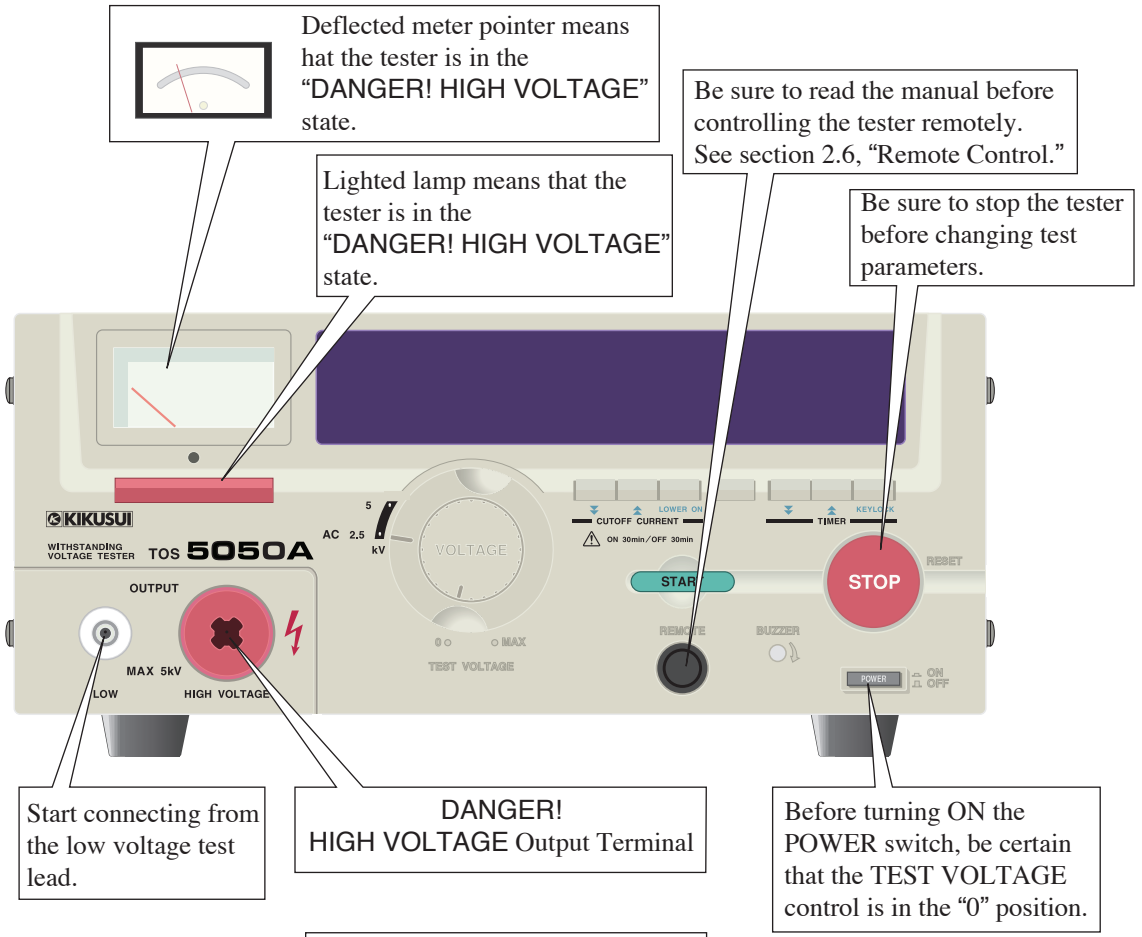
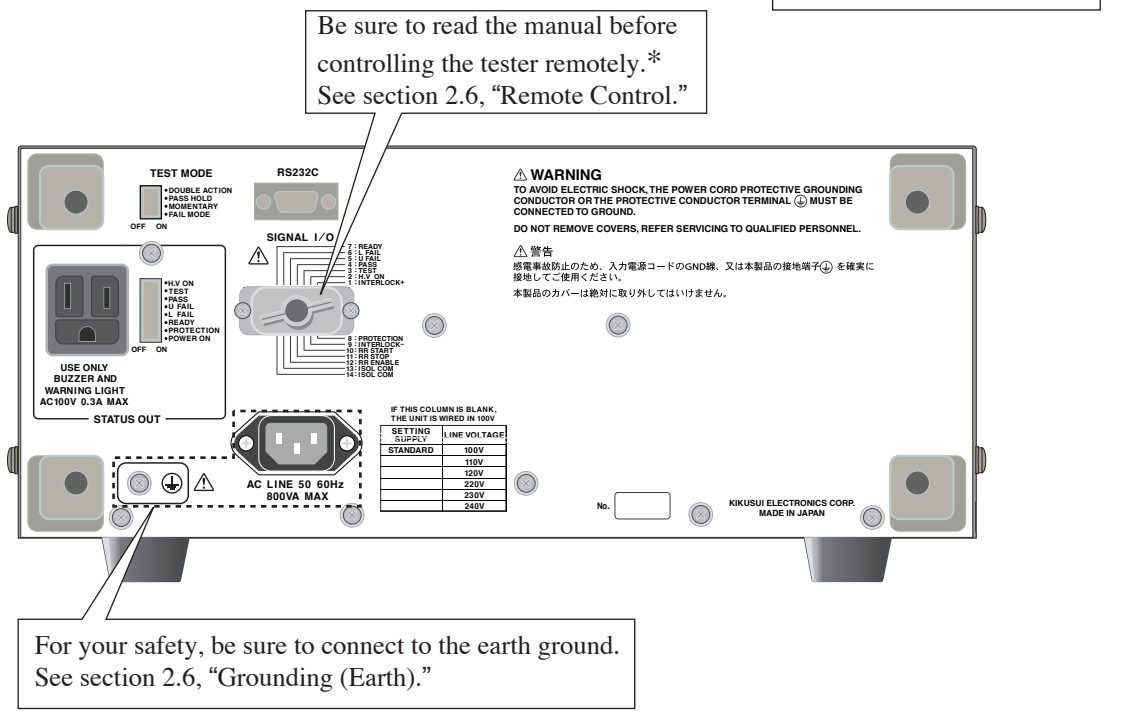
Front Panel and Rear Panel

- When accessing the panels, be sure to read chapter 3, “Handling Precautions.”





* The SIGNAL I/O connector on this tester is not compatible with that on the old model TOS5050/5051 (different pin assignments). For details, refer to section 6.3.2 Remote Control through the SIGNAL I/O Connector and 6.3.3 Interlock Function.

1.1 Overview

The TOS5051A/5050A is a tester for carrying out withstanding voltage tests on electronic devices and electronic parts. The TOS5051A is capable of carrying out both AC tests and DC tests; the TOS5050A is capable of carrying out AC tests.

This tester integrates new ideas and technologies with the conventional, consistent philosophy of providing the highest safety, reliability, and operability to the operator.

⚠WARNING

- The tester is equipped with various safety features to protect the operator from hazards. However, when the tester is in use, high voltage is applied to the DUT. Inadvertently touching the DUT, test leads, probes, and output terminals can cause electric shock.
- Be sure to provide full protective measures around the tester and DUT to prevent electric shock--such as to enclose the test area with rope fences to prevent access.

1.2 Features

1. Tests complying with major industrial standards

The tester can carry out withstanding (dielectric strength) tests on electronic devices and electronic parts in compliance with JIS, UL, CSA, BS, and other major electrical standards and ordinances.

2. Transformer capacity of 500 VA

The tester is equipped with a transformer, rated 500 VA.

3. Rational layouts of keys and switches

The keys have a slant-plane for easy viewing and convenient operation. The switch for AC/DC select and test voltage range select and the control for test voltage adjustment are installed concentrically, allowing you to operate them conveniently with two concentric knobs. For the adjustment of the pass/fail-judgment limit current and timer, dedicated increment/decrement keys are provided. These keys and switches, together with the large display easy to view, are laid out rationally and will assist you to conduct your tests accurately and efficiently.

4. A large color display

The tester has a large color vacuum fluorescent display. The wide viewing angle and high intensity indicates information in clearly. Various information including test conditions, instrument status, measured values, and result of pass/fail judgment are indicated using large letters and color assisting you to conduct your tests accurately and efficiently.

5. An analog voltmeter and a digital voltmeter

The tester is equipped with an analog voltmeter (±5 % FS) and a digital voltmeter (±1.5 % FS)--the former for quick grasp of the voltage and the latter for more accurate readout--assisting you to conduct your tests rapidly but accurately.

6. A digital ammeter

The digital ammeter can be used to measure the current that flows through the DUT (device under test).

7. A window comparator for pass/fail judgment

The tester has a window comparator for pass/fail judgment with reference to both upper (U) and lower (L) criteria (cutoff current). The comparator generates a FAIL signal when the measured current that flows through the DUT is greater than the preset upper limit criterion or when it is less than the preset lower limit criterion. The L FAIL detection function contributes to improve the test reliability by detecting open-circuits and bad contacts of the test leads. The tester has a separate indicator and signal output for each type of failure (U type and L type). This allows you to immediately find out whether the failure is a withstand voltage failure or an open-circuit/bad-contact failure.

You can preset the upper limit and lower limit currents (cutoff currents) independently, within the ranges shown in the following table.

Model	Preset range of upper and lower limits	
TOS5051A	0.1 mA to 110 mAAC	200 steps
	0.1 mA to 11 mADC	101 steps
TOS5050A	0.1 mA to 110 mAAC	200 steps

8. A digital timer

The timer allows you to preset the period during which the test voltage is to be applied to the DUT. The preset range is 0.5 to 999 seconds (in 1895 steps). When the timer function is ON, the preset period is decreased and the timer indicates the remaining period; when it is OFF, time is increased and the timer indicates the elapsed period.

9. Remote control function

The tester has functions for remote start/stop control operation. That is, it has a 5-pin DIN connector (for the optional remote control box or high voltage test probe) on its front panel and a 14-pin Amphenol connector on its rear panel. The remote control function, together with the status signal function, will help you conduct efficient automatic labor-saving tests.

10.Status signals

The tester delivers seven status signals--namely, H.V ON, TEST, PASS, U FAIL, L FAIL, READY, and PROTECTION--through its 14-pin Amphenol connector (shared with the remote control signals) on the rear panel. The signal form is open collector. The tester can deliver a 100 VAC output in response to one of eight states--namely, H.V ON, TEST, PASS, U FAIL, L FAIL, READY, PROTECTION, and POWER ON. Used in conjunction with the remote control function, these status signals will help you to conduct still more efficient automatic labor-saving tests.

11.Compact and light

The tester is compact and light as shown below.

Model	Overall dimensions	Weight
TOS5051A	320 mm (W) × 132 mm (H) × 300 mm (D)	16 kg
TOS5050A		15 kg

12.Memory backup function

When you turn the tester OFF, the tester stores its existing test state in its nonvolatile memory. When you turn the tester ON the next time, the tester recalls the stored information and restores the test state that existed when you turned OFF the power last time.

13.A safer high voltage output terminal

The lead insertion portion of the high voltage output terminal is structured with a restriction for safer connection.

14.A DANGER lamp

The tester has a large and bright DANGER lamp. This lamp lights when electric charge is remaining on the output terminal, warning you of a possible electric shock hazard.

15.Interlock function

The tester has an interlock function that shuts down the output voltage in synchronization with the external device. When this function is activated, the output is shut down and keeps tests from being executed.

The interlock function operates even if there is open-circuit or bad contact in the signal line, thereby enhancing further the operation safety.

16.Keylock function

The tester has a keylock function to disable all keys (except the START/STOP keys) to guard against inadvertent key operation by the operator or an unauthorized person. This improves the reliability of tests.

17.Switches for safer operation

A rotary switch is used for AC/DC test mode selection and test voltage range selection. The START switch is of a recessed type. These features, together with the keylock function, enhance operation reliability and safety.

18.Noise-resistant circuits

The internal circuits of the tester are designed to be highly resistant against noise, thereby enhancing the operation reliability.

19.Automatic discharge function (TOS5051A only)

When the DC test output voltage is turned off, the output circuit is automatically discharged, thereby discharging the charge in the device under test (DUT). This feature, together with the DANGER lamp, enhances the test operation safety.

20.A DC/DC converter for quality DC test voltage (TOS5051A only)

The tester has a DC/DC converter which generates a quality test voltage of high stability with less ripple.

21.Equipped with a RS-232C interface for outputting test data and test results

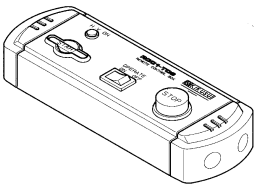
The measurement results can be output to a PC or printer.

1.3 Options

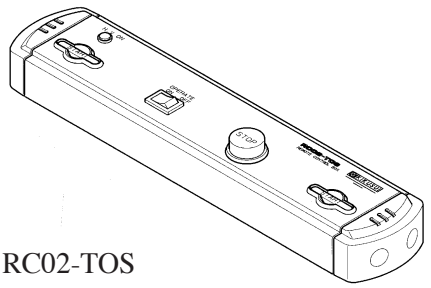
Model RC01-TOS/RC02-TOS remote control box

Model RC01-TOS or RC02-TOS remote control box is used to remotely control the start/stop of test operation of the tester. Connect the Control Box to the REMOTE connector on the front panel of the tester. The RC01-TOS has one START switch; RC02-TOS has two START switches. The test starts when you press both switches at the same time, thereby enhancing the operating safety.

Description of the RC01-TOS/RC02-TOS function	
OPERATE switch	This switch enables (when ON) or disables (when OFF) the START switch or switches.
START switch	The test starts when you press this switch (or switches) if the OPERATE switch is ON and the tester is in the READY status.
STOP switch	This switch terminates the test (cuts off the test voltage or resets the tester from the FAIL or other particular status--its functions are the same with those of the STOP switch on the front panel of the tester.



RC01-TOS
200(W) × 70(H) × 39(D) mm

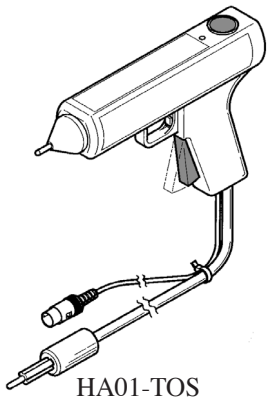


RC02-TOS
330(W) × 70(H) × 39(D) mm

Model HP01A-TOS/HP02A-TOS high voltage test probe

The high voltage test probe renders a three-fold operating safety. The test voltage is not delivered unless you squeeze with one hand the slide lever of the grip of the probe and pull the trigger while you press with the other hand the switch on top of the probe. If you release your hand, the probe immediately delivers a STOP signal to cut off the test voltage.

Model	Voltage rating	Cable length
HP01A-TOS	4 kVAC (rms), 50/60 Hz 5 kVDC	Approx. 1.8 m
HP02A-TOS		Approx. 3.5 m



HA01-TOS

⚠WARNING

- The maximum voltage rating of the probe is 4 kVACrms or 5 kVDC. Never apply voltages exceeding the voltage rating.
- Do not connect the probe to or disconnect it from the DUT while the test voltage is being delivered. If you do, the DUT may be damaged. If you disconnect the probe from the DUT while the test voltage is being delivered, the DUT will remain charged at the high test voltage. Before connecting the probe to the DUT, be sure that the test voltage is OFF (the LED on top of the probe is OFF); before disconnecting the probe from the DUT, be sure that the test voltage is OFF (the LED is OFF).

NOTE

- If you need to perform a test in compliance to the UL Standard by using the probe, turn the FAIL MODE switch (DIP switch on the rear panel) of the tester to ON. If this switch is ON, the tester behaves in the following manner and you can accurately confirm the FAIL status. When a test is terminated due to a failure, the FAIL status on the tester is not reset even when you release the probe. To reset the FAIL status, you must press the STOP switch on the tester. For details, refer to Section 6.5.4, “FAIL MODE Switch” (page 6-30).

Model PL01-TOS warning light unit

This unit indicates that the tester is in the TEST-ON status (delivering the test voltage).

Model BZ01-TOS buzzer unit

This unit may be used when the sound generated by the buzzer housed in the tester is insufficient. This unit can be driven by the FAIL status signal of the tester.

High Voltage test leads

Model	Voltage rating	Cable length	Remarks
TL01-TOS	5 kVAC (rms), 50/60 Hz 5 kVDC	Approx. 1.5 m	Tester accessory
TL02-TOS		Approx. 3.0 m	