HIOKI

BATTERY HiTESTER 3554

Get a Complete Diagnosis of UPS Batteries with a Single Device

- Auto-hold and Auto-data storage
- Enhanced resistance against noise
- Store up to 4800 sets of data
- PC Interface
- User-exchangeable probe tip

WIDE
60V RANGE
Ideal for UPS
Backup Batteries

The New Standard for Assessing Deterioration of Lead-acid Batteries

Repeated recharging of a secondary battery can lead to battery deterioration and increase its internal resistance. Problems can intensify when there is a short-circuit in the internal cell leading to voltage drop, overheating and complete battery malfunction. Worst of all, these problems can cause life-threatening fires and other accidents.

CE

HANDS FREE Data Capture Allows You to Focus on the Testing

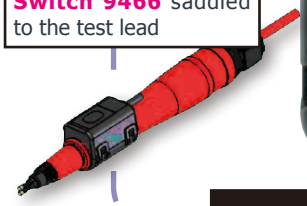
Fully Automatic Data Capture

Tog-gle between 4 different ways to save data

AUTO HOLD & AUTO MEMO — **Automatically save** data as soon as reading is stabilized

AUTO MEMO

Instantaneously save measurement data with one touch using the **Remote Control Switch 9466** saddled to the test lead



TEST & SAVE

Press the **HOLD** then **MEMO** keys whenever you need to save data

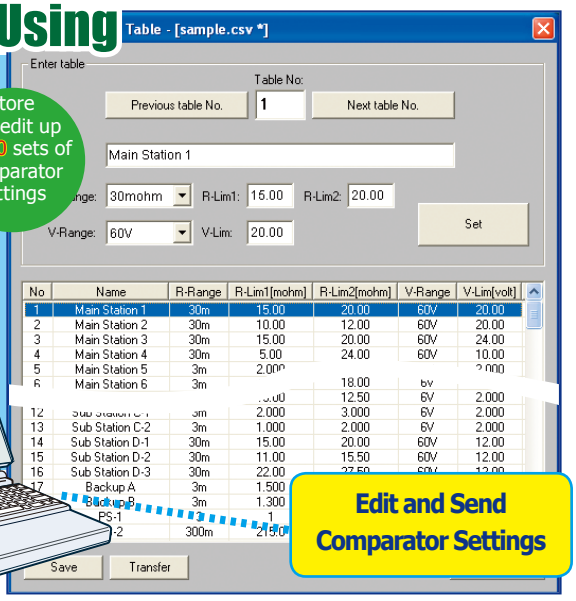
Save up to **4800** Sets of Battery Data

AUTO HOLD — Check stabilized measurement value before saving with the **Remote Control Switch 9466**

Quickly Download Data to a PC via USB Interface - Effortlessly Manage Using Bundled Software

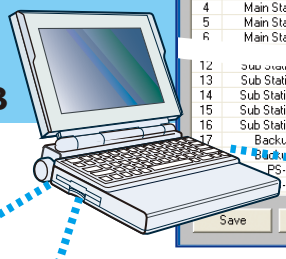
The hassle-free measurement process is extended to data management and processing using the bundled data management software. All 4800 sets of data can be uploaded to the PC quickly and effortlessly via a USB cable, and displayed neatly in table format. Edit comparator tables and send them back to the 3554.

Store and edit up to 200 sets of comparator settings

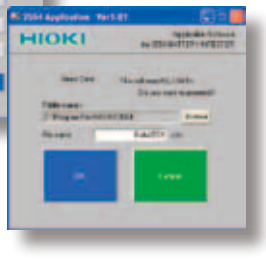


Pencil and Paper Not Required

USB

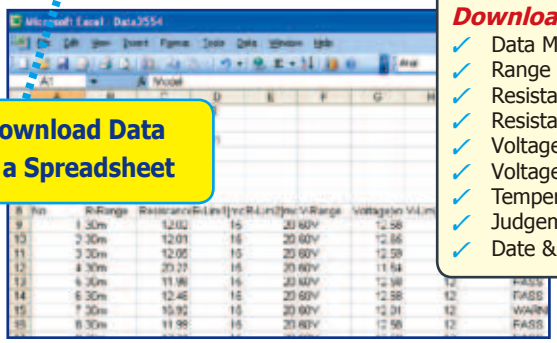


Edit and Send Comparator Settings



Automatically clear data from the 3554

Download Data to a Spreadsheet

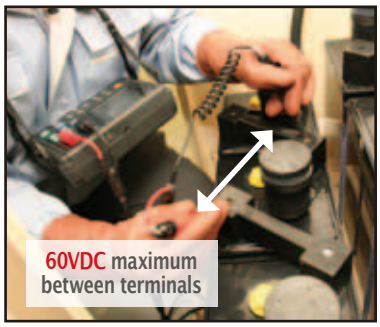


Download:

- ✓ Data Memory Number
- ✓ Range
- ✓ Resistance value
- ✓ Resistance limits
- ✓ Voltage value
- ✓ Voltage limit
- ✓ Temperature
- ✓ Judgement
- ✓ Date & time

Tough Against Noise Plus Wide 60V Range

Trying to measure UPS backup batteries while they are still being used naturally brings about noise coming from the battery's inverter or rectifying circuit. The enhanced measurement current in the 3554 plus fortified circuit design, added with the Averaging Function to handle batteries that have fluctuating measurement values no matter how steady you hold the probe makes the battery tester extra resistant against the adverse effects of noise.



- ✓ *Common battery cells: 0 to 12V DC*
- ✓ *Fork lifts and electric vehicles: 48V DC*

Three-rank rating of battery state: Pass, Warning or Fail

Assessment is based on a 6-way combination of comparisons against upper and lower resistance limits and a voltage threshold. Immediately see the judgement result on the bright LCD and beep on your choice of PASS or WARNING/FAIL.

VOLTAGE \ Resistance	Low	In Range	High
High	**Pass**	**Warning**	**Fail**
Low	**Warning**	**Warning**	**Fail**

Voltage threshold value

First resistance limit

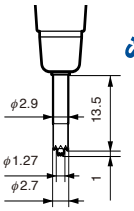
Second resistance limit

10 Hours of Continuous Operation

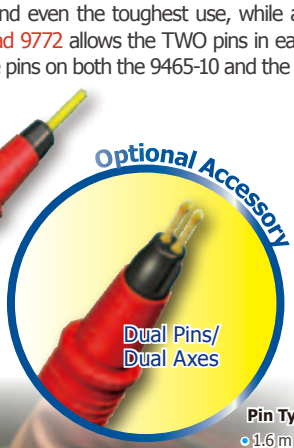
Save time and money with an uninterrupted workflow

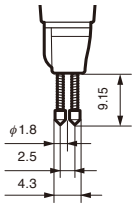
Wide Selection of Tough and Versatile Test Probes

The standard Pin Type Leads 9465-10 with the single test pin on each lead has been fortified to withstand even the toughest use, while a new dual-axis mechanism incorporated in the new Pin Type Lead 9772 allows the TWO pins in each test lead to move independently. Just in case of breakage, the pins on both the 9465-10 and the 9772 can be replaced easily on site.



Pin Type Lead 9465-10
(standard accessory)
- 1.6 m (5.25 ft) between connector and junction
- 25 cm (0.82 ft) between junction and probe tip



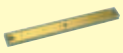


Pin Type Lead 9772
- 1.6 m (5.25 ft) between connector and junction
- 25 cm (0.82 ft) between junction and probe tip

Clip Type Lead with Temperature Sensor 9460
- 1.7 m (5.58 ft) between connector and junction
- 25 cm (0.82 ft) between junction and probe tip

Large Clip Type Leads 9467
- 85 cm (2.79 ft) between connector and junction
- 25 cm (0.8 ft) between junction and probe tip
- Maximum jaw diameter: φ 29 mm (1.14 in)

Remote Control Switch 9466
- 2 m (6.56 ft) between connector and junction



Zero Adjustment Board 9454
(standard accessory)

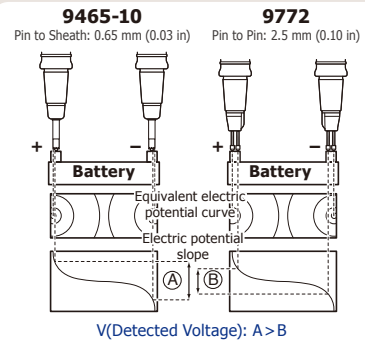
The Advantages of 4-Terminal Measurement

The Quality of Your Test Lead CAN Make a Difference

When measuring certain batteries such as lead-acid cells, the resulting measurement value may differ depending on the test leads used to conduct the measurement. This difference is due to the shape of the probe tip as well as the dimensions of the 4-terminal test leads used for measurement. However, despite a difference in value given by different test leads, it is safe to assume that each specific value reflects the correct value obtainable by the respective test leads.

Based on this principle, when diagnosing battery deterioration in a time series, it is particularly important to use test leads having the same tip shape and dimensions in order to maintain measurement consistency.

The difference in the measurement values obtained by different test leads is a physical phenomenon caused by the difference in distance between the SOURCE and SENSE pins of the test leads. This is more significant when the battery terminal contains a resistance higher than the internal resistance of the battery under test. The figure on the right demonstrates how even minute physical differences between the SOURCE and SENSE pins for two types of test leads can affect the detected voltage level of the battery.

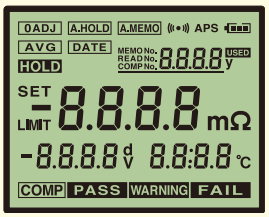


Specifications

Basic Specifications

Measurement items	:	Resistance (AC four-terminal method), voltage, temperature (platinum temperature sensor, only when using 9460 leads)
Display	:	LCD

LCD All Segments Displayed



Sampling rate	:	Once per second
Averaging Function	:	OFF, 4, 8, or 16 times
Input overflow	:	[OF] is displayed
Constant current fault detection	:	[----] is displayed
Open-circuit terminal voltage	:	5 VMax
Auto power off	:	Auto power off after 10 minutes unless during data transmission
Comparator Settings	:	First and second resistance limits, and lower voltage limit
Number of Comparator Settings	:	200 Sets
Comparator Output	:	LCD display of PASS, WARNING, or FAIL. Select beeper to sound on PASS/WARNING or FAIL.
Operating temperature and humidity	:	0 to 40°C (32°F to 104°F), 80% rh or less (no condensation)
Absolute maximum input voltage	:	60V DC, No AC input allowed
Withstand voltage	:	Between input terminals and output terminals (including EXT. HOLD/MEMO, and USB terminals): 1.5 kV AC rms for 15 seconds
Maximum rated power consumption	:	2 VA
Continuous operating time	:	Approx. 10 hours (When using alkaline batteries; may vary depending on conditions of use)
Power supply	:	AA (LR6) Alkaline Batteries x 8

Dimensions and mass	:	Approx. 192 mm (7.56 in) W x 121 mm (4.76 in) H x 55 mm (2.17 in) D, 790 g (27.9 oz) (including batteries)
Accessories	:	PIN TYPE LEAD 9465-10 x 1, USB cable x 1, Application Software CD x 1, Strap x 1, Carrying case x 1, Zero adjustment board x 1, LR6 alkaline batteries x 8, Fuse x 1

The standard 3554 Package comes bundled with one Pin type Lead 9465-10, one USB Cable, data management PC software, tough carrying case, zero-adjustment board, eight AA batteries, and one spare fuse.

Functions

HOLD	:	(1) Pressing the HOLD key (2) Inputting signals to the EXT.HOLD/MEMO terminal (3) Stabilizing measured values (when the auto-hold feature is on)
Data Storage	:	While the measured values are being held, pressing MEMO key will save them to internal memory. When the auto-memory feature is on, measured values will be saved to the instrument's internal memory when held. **Saved items:** Date, time, resistance value, voltage value, temperature, comparator setting values, and comparator judgement. **Maximum storable data:** 4800 sets. **Memory structure:** 400 data sets per unit (12 units)
Reading data	:	Read stored data on instrument or with PC application
PC Interface	:	USB
PC Software Application	:	Windows compatible, using USB interface **PC to 3554:** transfer comparator tables edited on Excel, delete data from 3554, initialize the 3554, make clock settings. **3554 to PC:** transfer data stored in memory (save files on PC in CSV format)

Measurement Accuracy

(Accuracy guaranteed for 6 months, Post-adjustment accuracy guaranteed for 6 months)

Guaranteed Accuracy Conditions : 23°C± 5°C (73°F± 9°F), non-condensating, after zero-adjustment, warm-up time not required

Resistance Measurement

Temperature coefficient : ±0.01 %rdg.±0.8 dgt./°C
Measurement current frequency : 1 kHz±30 Hz
Measurement current reliability : ±10 %

Range	Max. display	Resolution	Measurement Current	Accuracy
3 mΩ	3.100 mΩ	1μΩ	150 mA	±1.0 %rdg.±8 dgt.
30 mΩ	31.00mΩ	10μΩ	150 mA	±0.8 %rdg.±6 dgt.
300 mΩ	310.0 mΩ	100μΩ	15 mA	
3 Ω	3.100 Ω	1 mΩ	1.5 mA	

Voltage Measurement

Temperature coefficient : ±0.005 %rdg.±0.5 dgt./°C

Range	Max. display	Resolution	Accuracy
6 V	±6.000 V	1 mV	±0.08 %rdg.±6 dgt.
60 V	±60.00 V	10 mV	

Temperature Measurement

Measurement Range	Resolution	Accuracy
-10°C to 60°C	0.1°C	±1.0°C

Order Code: 3554

To Our Valued Customers:

The thresholds for determining the pass/fail condition of a battery depends on the specifications and standards of the battery manufacturer, battery type, capacity, etc. It is important and necessary to always conduct battery testing against the internal resistance and terminal voltage of a new or reference battery. In some cases, it may be diffcult to determine the deterioration state of traditional open type (liquid) lead-acid or alkaline batteries which demonstrate smaller changes in internal resistance than sealed lead acid batteries.

Options

Bundled with the standard 3554

Pin-type Lead **9465-10**
Zero Adjustment Board **9454**

Clip-type Lead with Temperature Sensor **9460**
Pin-type Lead **9772**
Remote Control Switch **9466**
Large Clip Type Lead **9467**
Tip Pin **9465-90** *(to replace the tip on Model 9465-10)*
Tip Pin **9772-90** *(to replace the tip on Model 9772)*

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