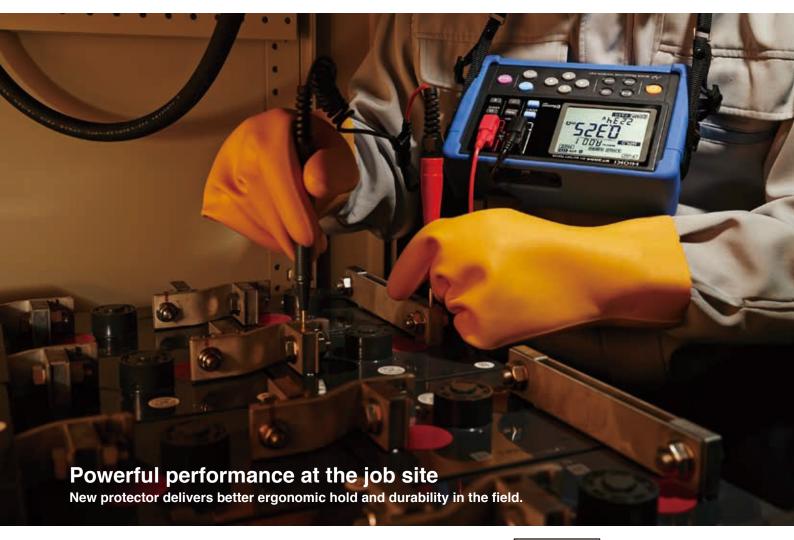


# Even Speedier Diagnosis of the Deterioration of Lead-acid Batteries

Measure and save data in as fast as 2 seconds, a 60% improvement from the legacy 3554 Easily create reports on your tablet or smartphone



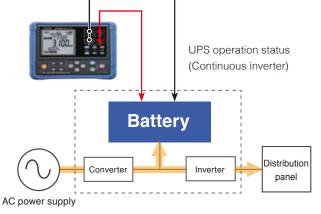
# **Use Noise Reduction Technology**

to Reliably Measure UPS Operation















## Use the New Test Lead for the Back of Distribution Panels and Other Hard-to-reach Places

The innovative L-shape design makes it easier to connect the test lead to electrode terminals, decreasing time spent measuring batteries.

With noise reduction technology





Backlight display that's easy to read, even in dim locations

## Test Leads to Fit your Application

## **PIN TYPE LEAD L2020**



A: 70 mm (2.76 in) (Red), 150 mm (5.91 in) (Black, up to 630 mm (24.8 in)) B: 164 mm (6.46 in), L: 1941 mm (76.42 in) (Red)

**LARGE CLIP TYPE LEAD 9467** 



A: 45 mm (1.77 in) (Red), 105 mm (4.13 in) (Black, up to 515 mm (20.28 in)) B: 176 mm (6.93 in), L: 1883 mm (74.13 in)(Red)

PIN TYPE LEAD 9465-10 (Bundled accessory)

TIP PIN 9465-90

(For the L2020, 9465-10)

#### **PIN TYPE LEAD 9772**



A: 45 mm (1.77 in) (Red), 105 mm (4.13 in) (Black, up to 515 mm (20.28 in)) B: 173 mm (6.81 in), L: 1880 mm (74.02 in)(Red)

REMOTE CONTROL



to hold or save the measurement.

Cable length: Approx. 2 m

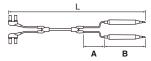
#### **CLIP TYPE LEAD WITH** TEMPERATURE SENSOR 9460

## A: 300 mm (11.81 in) B: 106 mm (4.17 in)



A: 300 mm (11.81 in) B: 116 mm (4.57 in) L: 1360 mm (4.46 in) Large clip diameter: Approx.  $\phi$ 29 mm (1.14 in)

## Regarding probe length



 $\pmb{\mathsf{A}} \text{: Between split to probe, } \pmb{\mathsf{B}} \text{: Probe length, } \pmb{\mathsf{L}} \text{: Total length}$ 

#### 0 ADJ BOARD Z5038 For the L2020, L9465-10, and 9772



Use commercially available hookand-loop fasteners when securing to the carrying case.

## **FUSE SET Z5050**



Replacement fuse set (5 pieces)

# Quickly Save Data and Create Reports Right in the Field

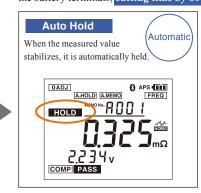
Just connect the test lead to the terminal

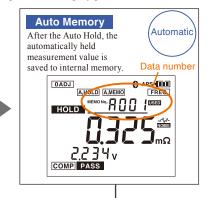


Connect to the voltage terminal and measure



When the measured value stabilizes, save it automatically without having to operate the switch. Wait time can be as short as only 2 seconds to auto-save from when the test leads make contact with the battery terminals, cutting time by 60% compared to the legacy product.





Next measurement

## Instantly submit loaded data

## Create reports on-site

## Data transfer

**Dedicated** application available In addition to viewing measurement data downloaded from the BT3554-01 or BT3554-11 in a tabular format on a tablet, smartphone, or PC, you can graph data to assess conditions on a cubicle-by-cubicle basis (up to 500 values). Then, instantly create reports on-site.



## Graph display



## Report display



## How to download the application:

• Tablet or smartphone

Download it from the App Store® for iPhone® or iPad®, or download it from the Google  $Play^{TM}$  Store for Android $^{TM}$  devices.

Just search for "GENNECT Cross"

■ Data can be downloaded to tablets and smartphones using Hioki's dedicated apps available from the Google Play or App Store. Search for "HIOKI" and download the "GENNECT Cross" app.



nation about countries and regions where wireless operation is currently supported, please visit the Hioki website.

Bundled CD-R, Download from our homepage.

## Interface specifications

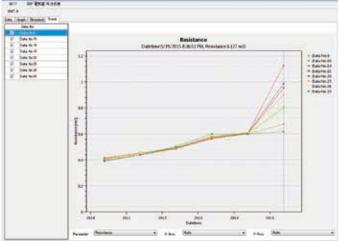
interface specifications		
USB	Transmission speed: USB 2.0, Connector: USB mini-B	
	Bluetooth® 4.0LE	
	Transmission distance: Approx. 10 m (32.81 ft), line-of-sight	
Bluetooth®	Supported OS: Android <sup>TM</sup> 4.3 or later, iOS 10 or later	
(BT3554-01 only)	Supported Android™ devices:  Bluetooth® low energy enabled devices Supported iOS devices:  Bluetooth® low energy enabled devices	

## Trend display for past data

# Analyze in the office

Graphically display the trend of one cubical (max. 500 batteries) or the condition of selected batteries.

#### [Example of data displayed for selected batteries]



\*Trend display is only available with a PC application.

## Model: BATTERY TESTER BT3554

Model No. (Order Code)	Built in Bluetooth®Wireless technology	Standard leads
BT3554	<u>-</u>	9465-10
BT3554-10	_	L2020

#### Model: BATTERY TESTER BT3554-01

Model No. (Order Code)	Built in Bluetooth®Wireless technology	Standard leads
BT3554-01	✓	9465-10
BT3554-11	✓	L2020

## Accuracy specifications

Accuracy guaranteed for 1 year, Post-adjustment accuracy guaranteed for 1 year

Temperature and humidity for guaranteed accuracy: 23°C ±5°C (73°F ±9°F), 80% RH or less, Warm-up time: None (Unnecessary), after zero-adjustment

#### Resistance measurement accuracy

Measurement current frequency: 1 kHz ±30 Hz, With function for avoiding noise frequency enabled: 1 kHz ±80 Hz

Measurement current accuracy: ±10%

Range	Max. display	Resolution	Measurement accuracy	Measurement Current
3 mΩ	3.100 mΩ	1 μΩ	±1.0% rdg. ±8 dgt.*	160 mA
30 mΩ	31.00 mΩ	10 μΩ		160 mA
300 mΩ	310.0 mΩ	100 μΩ	±0.8% rdg. ±6 dgt.	16 mA
3 Ω	3.100 Ω	1 mΩ		1.6 mA

<sup>\*</sup> If zero-adjustment was not performed, add the following values: When model L2020 is used:  $\pm 5$  dgt. / When model 9465-10 is used:  $\pm 6$  dgt. When model 9772 is used:  $\pm 1$  dgt. / When model 9460 is used:  $\pm 16$  dgt. When model 9467 is used:  $\pm 5$  dgt.

When using test leads that are not listed above, or test leads whose length has been extended, accuracy is guaranteed only after zero-adjustment is performed.

#### Voltage measurement accuracy

_			
Range	Max. display	Resolution	Measurement accuracy
6 V	±6.000 V	1 mV	.0000/ rda .6 dat
60 V	±60.00 V	10 mV	±0.08% rdg. ±6 dgt.

#### Temperature measurement accuracy

•	-		
Measurement range	Max. display	Resolution	Measurement accuracy
-10 to 60°C	60°C	0.1°C	±1.0°C

#### Comparator function

Compares setting values (Resistance: 2 levels, Voltage: 1 level) and measured values Determination method: Following chart, beeping sound, red backlight lights up with beeping sound

Savable settings: 200 tables

Value for warning Value for failure

Value for warning

		Resistance	Resistance	Resistance
		(low)	(medium)	(high)
<b>&gt;</b>	Voltage (high)	PASS	WARNING	FAIL
	Voltage (low)	WARNING	WARNING	FAIL

## General specifications

		1		
Measurement types		ent types	Internal resistance measurement for batteries (AC four-terminal method) Terminal voltage measurement for batteries (DC voltage) Temperature measurement (when using the 9460)	
- 1	Display upd	ate rate	Approx. 3 times/s	
-	Absolute ma input voltage		±60 V DC max (No AC input allowed)	
-	Operating e	nvironment	Indoors, pollution degree 2, altitude up to 2000 m (6562 ft)	
- 1	Operating to and humidit		0°C to 40°C (32°F to 104°F), 80% RH or less (no condensation)	
	Storage temperature and humidity		-10°C to 50°C (14°F to 122°F), 80% RH or less (no condensation)	
	Power suppl	у	AA (LR6) Alkaline Batteries x 8	
	Continuous operating time  Auto power save  Dielectric strength		Approx. 8.5 hours (When using alkaline batteries)	
			Auto power off after 10 minutes unless during data transmission	
			1.5 kV AC for 1 minute, between all measurement terminals and the USB terminal	
	Applicable	Safety	EN 61010	
	standards	EMC	EN 61326	
Dimensions			Approx. 192 mm (7.56 in) W x 121 mm (4.76 in) H x 55 mm (2.17 in) D, With protector attached	
	Mass		BT3554, BT3554-10:	
			PIN TYPE LEAD 9465-10 (Bundled with BT3554, BT3554-01), PIN TYPE LEAD L2020 (Bundled with BT3554-10, BT3554-11), ZERO ADJUSTMENT BOARD, PC Software Application CD, Power-on option sticker, Neck strap, AA (LR6) alkaline batteries x 8, Fuse, USB cable, Carrying case, Instruction manual, Protector, Cautions for using radio waves (BT3554-01, BT3554-11)	

#### **Functions**

Tanotions			
HOLD	(1) Hold measured value by pressing the HOLD key or when shorting the EXT. HOLD terminal     (2) Automatically hold measured value after it stabilizes		
Memory storage	Saving, loading, and deleting measured values Saved items: Date, resistance, voltage, temperature, comparator threshold, judgment Storable data: 6000 sets (500 data sets per unit) Memory structure: 500 data sets per unit (12 units)		
Auto-Memory function	Automatically saves measured values to memory when they are held		
Memory loading	Load stored data on instrument or with PC application in order		

\*The thresholds for determining the pass/fail condition of a battery depend 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 difficult 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.

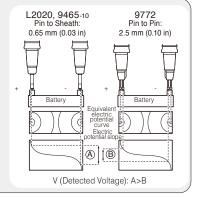
# The Advantages of 4-Terminal Measurement The Quality of Your Test Lead CAN Make a Difference

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.

#### -Explanation-

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.



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