

## 1108 UNIT HiTESTER

Automatic Testing  
Equipment



Tests multi-sample boards  
with up to 3000 blocks and printed circuit boards

## High-speed pattern testing for fine-pitch boards

### From IC packages to MCMs

The 1108 UNIT HiTESTER is a bare board tester employing a test head (inspection jig) that is suitable for batch inspection and inspection of mass-produced fine-pitch boards. In addition to inspection features for MCM, BGA, FC-PGA, FC-BGA, and CSP high-density boards, the 1108 UNIT HiTESTER also supports inspection of multi-sample boards and printed circuit boards. HIOKI has developed the 1108-01 with one-sided alignment and the 1108-02 with double-sided alignment.



ISO14001  
JQA-E-90091



<http://www.hioki.co.jp/>

HIOKI company overview, new products, environmental considerations and other information are available on our website.

# A robust, high-precision solution for testing high density and fine-pitch boards

The demand for electronic components with increasingly sophisticated functions in response to the miniaturization of electronic products and electrical equipment shows no sign of abating. Printed circuit boards, which are indispensable for making these electronic components, are increasing in density and fineness as the demands for cheaper prices and better reliability also increase.

The 1108 UNIT HiTESTER developed by HIOKI boosts a high-precision alignment function for "high-speed and high-precision" inspection of "high-density and ultra fine-pitch" boards.



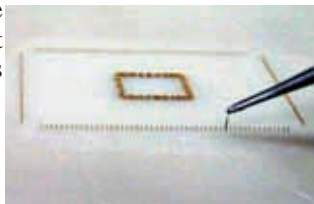
## ■ High precision

Superior position repetition precision within 10  $\mu\text{m}$  ensures accurate testing of fine-pitch boards.

## ■ Simplified user maintenance

Although the probes are minute, the use of pipe-type probes simplifies user maintenance of the test head. Further, the fineness of the probe's L component allows AC measurements to be performed.

(AC measurements are optional.)

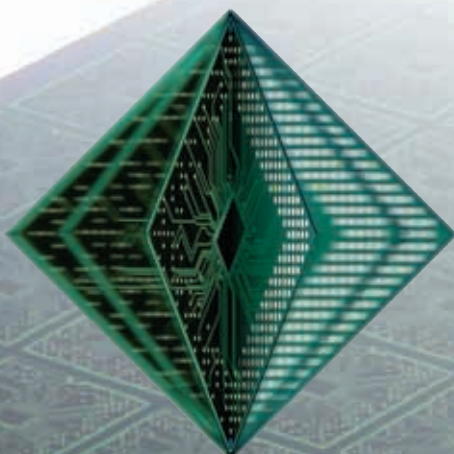


## ■ L, C, R, D measurements

The unit is equipped with an in-circuit test function for inspecting mounted components, allowing inspection of mounted boards and printed pattern resistance testing.

## ■ Insulation test

Insulation tests can be conducted within the test voltage range of DC 1 V to 200 V and the test voltage can be set in 1 V steps.

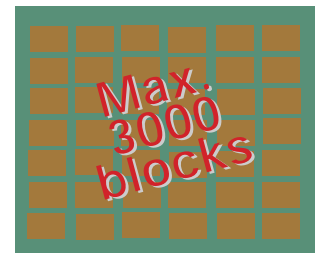


## ■ High-speed measurement

The 1108 can perform high-speed measurements with an inspection time of 0.4 sec/1024 points and a tact time of 3 sec/1 piece (when testing a batch of 16-pieces).

## ■ Multi-sample board testing (Step & Repeat)

A test head for handling multi-sample boards with up to 3000 blocks can be constructed inexpensively using the Step & Repeat method.



## ■ Printed circuit board testing

Printed circuit boards 95 × 95 mm to 510 × 610 mm in size can be tested. The probing area for a single piece is 10 × 10 mm to 50 × 50 mm.

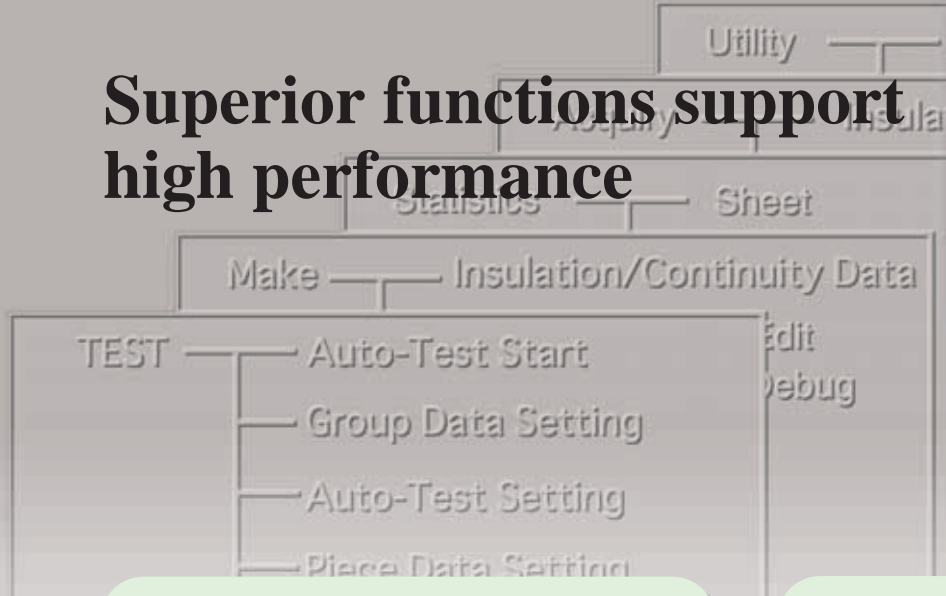
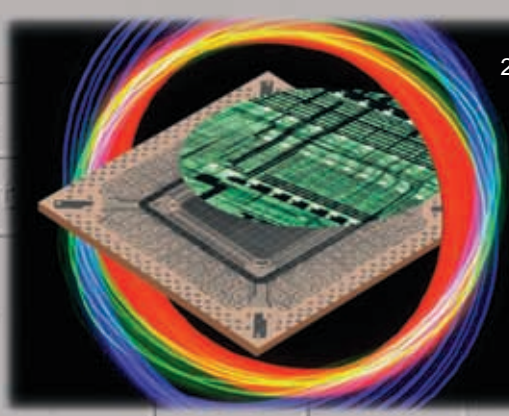
## ■ Inspection of up to 8192 points

The standard number of inspection points is 1024. This can be increased in 128-point units until the maximum 4096 points are reached. Further, up to 8192 points can be supported with the optional expandable SCANNER RACK installed.

The upper and lower test heads contain 2048 pins each (a total of 4096 pins). However, if the amount of points to be inspected exceeds 2048 points on either the upper or lower test heads, the optional Scanner Rack must be installed.

Upper	Max.2048 points	Expandable scanner rack
Lower	Max.2048 points	Expandable scanner rack

# Superior functions support high performance



### ● Self-diagnostics

Self-testing is performed automatically at startup to prevent erroneous judgement if a malfunction has occurred. This function also simplifies maintenance.

### ● Password protection

Test data can be password protected to prevent accidental changes by unauthorized personnel.

### ● On-line help

Explanations of basic operations can be viewed on a monitor so operations can be performed without referring to the manual.

### ● Automatic backup

Data is periodically saved during testing and editing to avoid loss due to unexpected events such as power outages.

### ● Automatic data collection

Allows automatic collection of conforming product data and automatic setting of optimum guard points. It also enables automatic collection of insulation, stray capacitance and wiring resistance data.

### ● Quality statistics

Test results can be statistically processed, displayed and printed out. Various data acquisition criteria (such as all, by inspection step, or by block and group) are provided, allowing relevant statistics to be acquired for quality control or feedback to upstream processes.

### ● Re-inspection functions

These prevent erroneous judgement due to improper probe contact caused by corrosion of pattern surface or pattern displacement. A variety of functions, including the re-test and re-try functions are available.

### ● 1932 C-SCAN (optional)

This performs inspections without touching the board when probing cannot be performed on "ultra fine-pitch" boards, or when the board must not be marked. Please inquire for details.

## Test head copes with 150 µm pitch



Test head Upper	<b>Test head</b> Probing area: 10×10 mm to 50×50mm No. of pins: Max. 4096 pins on each surface Probe interval pitch: Min. 150 µm
Test head Lower	<b>Applicable test boards</b> Applicable board sizes: 95×95 mm to 510×610 mm No. of pieces: Max. 3000

## ■ Specifications

### [Mechanism part]

#### ■ XY axis unit

Test board dimensions : 95 × 95 mm to 510 × 610 mm (including the clamp area)  
 Work area : 85 × 85 mm to 500 × 600 mm  
 Board thickness : 0.3 mm to 3.2 mm (a special jig may be required when testing thin boards)  
 Measurement range : 10 × 10 mm to 50 × 50 mm (test head)  
 Travel resolution : 1.25 μm  
 Position repetition : Within ±10 μm  
 Loading height : 930 mm ±10 mm

#### ■ Upper Theta axis unit

Travel resolution : ±2 sec.  
 Position repetition : Within ±1 μm  
 Rotation range : ±3° (during measurement)

#### ■ Upper and lower Z axis units

Travel stroke : 5 mm (automatic inspection mode)  
 Position repetition : ±15 μm

#### ■ Tact time

When testing : 3 sec/1 piece (insulation inspection 1024 points, 1 a batch of 16 pieces pattern/2 points, conforming article measurement)

#### ■ Test head

Probing area : 10 × 10 mm to 50 × 50 mm  
 Max. number of pins: Max. 4096 pins for each surface (Max. total for upper and lower surfaces: 8192 pins)  
 Probe interval pitch : Min. 150 μm (Consultation is required for 150 μm or lower)

### [Measuring unit]

No. of test points : Standard 1024 pins (expandable up to 4096 pins)  
 Max. 8192 pins (optional)  
 No. of test steps : Component test data max. 5000 steps (only data equivalent to 1 piece is held as test data)  
 Test pieces : Max. 3000 pieces  
 Insulation test : Insulation test (FAIL when LEAK)  
 Resolution can be set in 1 V units  
 DC 0.1 V/ 1Ω to 200 V/ 200 MΩ  
 : Continuity test (FAIL when OPEN)  
 Test voltage: DC 0.1 V  
 Measurement range: 4 Ω to 400 kΩ  
 : Measurement time: 0.4 sec/1024 points (1 pattern/2 points, conforming article measurement, insulation test; 200 V/ 20 MΩ, continuity test; 50 mA/ 100 Ω)

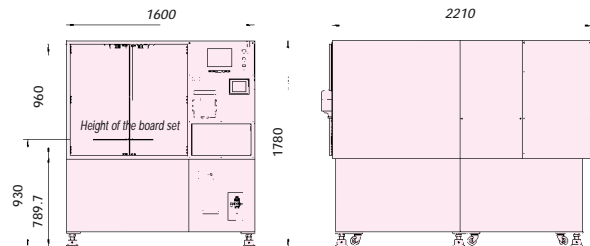
Component test : Insulation test  
 DC 0.1 V/ 1Ω to 200 V/200 MΩ  
 : Continuity test  
 Rated voltage measurement: 4 Ω to 400 kΩ/0.1 V  
 Rated current measurement: 0.1 MΩ/100 mA to 1 MΩ/1 mA  
 : Resistance: 0.4 Ω to 40 MΩ  
 : Capacitance: 10 pF to 400 mF  
 : Coil: 1 μH to 400 H  
 : Diodes, transistors: 0.1 V to 25 V  
 : Zener diodes: 0.1 V to 25 V  
 : Measurement time  
 From approximately 1.7 msec/step

### [General specifications]

Power supply : AC 200 V ±10% (single phase) 50/60 Hz  
 Power consumption: 4 kVA  
 Pneumatic system : Primary pressure: 0.6 to 0.99 MPa (dry air)  
 Setting pressure (secondary side): 0.5 ±0.1 MPa  
 Operating environment : Operating temperature and humidity:  
 23°C ±3°C, 60% rh max. (no condensation)  
 : Storage temperature and humidity:  
 10°C to 43°C, 80% rh max. (no condensation)  
 (same as for using the test heads)  
 : Atmosphere: Avoid use in an atmosphere where dust, vibrations or corrosive gases may occur.  
 : Floor strength: 500 kg/m<sup>2</sup> or higher  
 Insulation resistance: 100 MΩ or higher  
 (DC 500 V between power supply and cabinet)  
 Withstand voltage : AC 2.2 kV RMS  
 Accessories : PC accessories (such as a keyboard), 40-character width thermal printer, printer cable, printer buffer, leveling jacks, and maintenance tool set

Main unit dimensions: Approx. 1600 (W) × 1780 (H) × 2210 (D) mm (excluding protruding parts)  
 Mass : Approx. 1500 kg

#### External dimensions



1108-01 UNIT HiTESTER  
(ONE-SIDED ALIGNMENT)

1108-02 UNIT HiTESTER  
(DOUBLE-SIDED ALIGNMENT)

#### ● Options

1138 SCANNER BOARD (128-pin units)

1932 C-SCAN

EXPANDABLE SCANNER RACK

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