

TSURUGA

*Guide to
Measuring Instrument & Tester*



Measuring Instrument & Tester

Tsuruga Electric Corporation, head office located in Osaka, Japan, is a manufacturer of measurement instruments, testers, digital meters, analog meters and environmental monitoring instruments. Since the foundation of Tsuruga Electric Corporation in 1948, Tsuruga Electric is fulfilling the high quality and cost performance Tsuruga Brand Products including customization products for our thousands of esteemed customers inside Japan as well as abroad for their requirement. The company has received ISO 9001 and ISO 14001 certification and strives to maintain or improve quality as well as develop products safe for the environment at our Osaka and Shiga Plants.

INDEX

• Withstand Voltage Testers / Insulation Testers	
8505 Withstand Voltage and Insulation Tester	
8525 Withstand Voltage and Insulation Tester	
8527 Withstand Voltage and Insulation Tester	2
8526 AC/DC Withstand Voltage Tester	
8528 Withstand Voltage Tester	
8522 Withstand Voltage Tester	3
8507 AC W High Speed Tester	
8508 AC W High Speed Tester	
850A AC W/IR Auto Tester	4
3587 MΩ Tester	
356A MΩ Tester	
3567A/3567A-A04 MΩ Tester	5
• Resistance Meters	
3566 AC mΩ Meter	
356E 10kHz AC mΩ Meter	
3569 Portable AC mΩ Meter	6
356G DC Ohm Meter	
3565 DC Ohm Meter	
3568 Portable DC Ohm Meter	7
356H Portable DC Contact Ohm Meter	
356M / 5811-71 AC mΩ Meter with Scanner	
356K 20CH Scanner Built-in DC mΩ Meter	8
• High Voltage Meter / Calibrator	
3514 High Voltage Meter	
3515A Leakage Current Calibrator	
5804 Resistor for the Calibration of Insulation Resistance Tester	9
• Specification List	10
• Accessories	14

8505

Withstand Voltage and Insulation Tester



Dimension/Weight

310(W)X150(H)X380(D)mm/Approx. 10kg

Withstand Voltage with Rise and Fall Time Setting Function

Withstand Test Voltage AC 5kV, Insulation Resistance Test Voltage DC 25V from 1,000V

The model 8505 can perform withstand voltage test without giving unnecessary stress to the test object. It is high speed response type where the test time setting can be set from 0.1 sec for withstand voltage test and from 0.2 for insulation resistance test. The insulation resistance test is equipped with the ability to discharge the electric charge on test object automatically after the end of test.

Characteristics

- Increase of the output voltage of the withstand voltage test/setting possible at the time of fall time
- Emphasis on safety oriented design like Interlock function, key lock function safety etc.
- External control possible with the remote control I/O
- Output of test conditions, results by RS-232C
- Memory function for 16 pattern of test conditions

Specification

- Withstand voltage test
 - Output voltage : AC 0 to 5kV, Output power 100VA (5kV, 20mA)
 - Upper limit leakage current setting : 0.01 to 20.00mA
- Insulation resistance test
 - Output voltage : DC 25/50/100/250/500/1,000V
 - Measurement range : 0 to 9990MΩ
- Judgment method : Upper and lower limit comparator
- Output : Status signals, RS-232C, USB

8525

Withstand Voltage and Insulation Tester



Dimension/Weight

320(W)X150(H)X330(D)mm/ Approx. 15kg

Light and Compact, Cost Performance and Enriched Functions

Test of Withstand Voltage and Insulation Resistant Continuously or Independently

The model 8525 is an automatic continuous tester of withstand voltage and insulation. Highly reliable test result can be obtained by managing and analysing test result equipped with standard RS-232C.

Characteristics

- Very good corresponding to various tests based on the safety standards of electrical appliance
- Safety-oriented design : Interlock etc.
- Memory function having capable of storing 9 types
- Available with status output which displays test conditions and test results
- Large LED to display test conditions and measured values
- RS-232C for obtaining test conditions and results

Specification

- Withstand voltage test
 - Output voltage : AC 0 ~ 2.5kV/0 ~ 5kV (500VA)
 - Setting of upper limit leakage current : 0.1 ~ 110.0mA
 - Judgment method : Upper and lower limit comparator
- Insulation resistance test
 - Test voltage : DC 500V/1000V
 - Measurement Range : 0.1 ~ 2000MΩ
 - Judgment method : Upper and lower comparator
- Output : status signal, RS-232C, Voltage monitor

8527

External Controlable Withstand Voltage and Insulation Tester



Dimension/Weight

320(W)X150(H)X430(D)mm/Approx. 19kg

Raising or Lowering the Test Withstand Voltage by External Control Suitable for Built-in Auto Test Equipment and Combination with PLC

The model 8527 is suitable for the built-in auto test equipment raising or lowering the test voltage of withstand voltage by an external control. Status signals which displays remote control for I/O, test conditions and test results, are standardized in equipment.

Characteristics

- External control for setting test of withstand voltage
- Very good corresponding to various tests based on the safety standards of electrical appliance
- Safety-oriented design : Interlock etc.
- Memory function having capable of storing 9 types
- Status output which displays test conditions and results Remote Control I/O having capable with an external control
- Large LED to display test conditions and measured values
- RS-232C for obtaining test conditions and results

Specification

- Withstand voltage test
 - Output voltage : AC 0 ~ 5kV (500VA)
 - Setting of upper limit leakage current : 0.1 ~ 110.0mA
 - Judgment method : Upper and lower limit comparator
- Insulation resistance test
 - Test voltage : DC 500V/1000V
 - Measurement Range : 0.1 ~ 2000MΩ
 - Judgment method : Upper and lower limit comparator
- Output : status signal, RS-232C, Voltage monitor

8526

AC/DC Withstand Voltage Tester



Dimension/Weight

320(W)X150(H)X430(D)mm/ Approx. 17kg

Withstand Voltage Test Function with AC 5kV and DC 5kV Available with Remote Control Function, Status Output, RS-232C

The model 8526 is an equipment having capability of measuring both AC and DC withstand voltage. Building in AC 5kV (output capacity 500VA) and DC 5kV (output capacity 50W), withstand voltage of electric equipments can be measured based on various safety standards.

Characteristics

- Performs both AC 5kV and DC 5kV of withstand voltage test
- Supports various tests based on the safety standard of Electrical Appliance and Material Safety Law etc.
- Safety oriented design : interlock etc.
- Memory function with 9 types of test condition
- Status output for test condition and result
- Large LED to display test condition and measured value
- Output of Test condition and results are done by RS-232C

Specification

- AC Withstand voltage test
 - Voltage output : AC 0 ~ 2.5kV/0 ~ 5kV (500VA)
 - Setting of upper limit leakage current : 0.1 ~ 110.0mA
 - Judgment method : Upper and lower limit comparator
- DC withstand voltage test
 - Output voltage : DC 0 ~ 2.5kV/0 ~ 5kV (50W)
 - Setting of upper leakage current : 0.1 ~ 11.0mA
 - Judgment method : Upper and lower limit comparator
- Output : Status signal, RS-232C Output

8528

Withstand Voltage Tester



Dimension/Weight

320(W)X150(H)X330(D)mm/Approx. 15kg

Robust Design with High Reliability and Safety RS-232C, External Control I/O Standard Equipment

The model 8528 is a withstand voltage tester having output voltage 5kV and output capacity 500VA. Withstand voltage test of electrical equipments and parts can be done based on various safety standards.

Characteristics

- Very good corresponding to various tests based on the safety standards of electrical appliance
- Safety-oriented design : Interlock etc.
- Equipped with memory function capable of storing 9 types of test conditions
- Status output which displays test conditions and results
- Available with Remote Control I/O having capable with an external control
- Test conditions can be shown in large LED and measured values can be displayed collectively
- RS-232C for obtaining test conditions and results
- Various power supply voltage is available as option (AC 115/200/220/240V)

Specification

- Withstand voltage test
 - Output voltage : AC 0 ~ 2.5kV/0 ~ 5kV (500VA)
 - Setting of upper limit leakage current : 0.1 ~ 110.0mA
 - Judgment method : Upper and lower limit comparator
- Output : status signal, RS-232C, Output voltage monitor

8522

Withstand Voltage Tester



Dimension/Weight

260(W)X110(H)X220(D)mm/Approx. 5.5kg

Light and Compact Withstand Voltage Tester Suitable for Self-inspection based on Electrical Appliance

The model 8522 is a light, compact and simple type of withstand voltage tester having max output of AC 3kV, output capacity of 30VA. The tester is very suitable for self-inspection based on Electrical Appliance. Friendly zero-crossing method is applied for the test object and equipped with upper limit comparator, remote control for the NG judgment of leakage current.

Characteristics

- Suitable for self-inspection based on Electrical Appliance
- Adoption of applied cross method
- Portable, simple, light and compact, simple (Approx 5.5kg)
- Max. output AC 3kV, Output capacity 30VA (3kV, 10mA)
- Available with timer, remote control function
- Available power voltage with AC 110/120/200/220/240V

Specification

- Withstand voltage test
 - Output voltage : AC 0 ~ 3kV (30VA)
 - Setting of upper leakage current : 0.5/1/2/5/10mA
 - Judgment method : Upper limit comparator
- Output : Status signal (TEST/NG)

8507

AC W High Speed Tester



Dimension/Weight

260(W)X110(H)X246(D)mm/ Approx. 4.5kg

Realization of Very Fast Cycle Time 50 ms

AC 1 kV, 10 mA (10 VA)

Leakage Current Measurement by Peak-hold Method

Model 8507 is the high-speed withstand voltage tester which makes the judgement by applying 2 cycles of test voltage. This tester can be used for mass-production like multipin connectors and multi-core harnesses which requires numerous tests. Test can be performed using the test condition out of memorized 8 patterns of test conditions.

Characteristics

- Judgement by 2 cycles, very fast cycle time 50ms
- Leakage current is measured by peak-hold method
- 8 patterns of test condition memories
- Interface RS-232C is included in standard product
- Adoption of bright and visible OLED display
- Available with correction function for fluctuations of test voltage depending on loads

Specification

- Output voltage: AC 0 to 1 kV, Output power 10 VA (1 kV, 10 mA)
- Current measurement
 - Upper limit leakage current setting: 0.01 to 15.00mA
 - Rectification system: Peak value reading
- Judgement method: Upper and lower limit comparator
- Interface: REMOTE I/O, RS-232C

8508

AC W High Speed Tester

with Micro-short Check function



Dimension/Weight

260(W)X110(H)X246(D)mm/Approx. 4.5kg

Available with Micro-short Check

AC 0.6 kV, 10 mA (6 VA)

Leakage Current Measurement by Peak-hold Method

Model 8508 is the high-speed withstand voltage tester which can perform the micro-short test bylow voltage 1V. This tester can absolutely detect even quick leakage by using peak-hold method.

Test can be performed using the test condition out of memorized 8 patterns of test conditions.

Characteristics

- Available with Micro-short check function
- Judgement by 2 cycles, very fast cycle time 50ms
- Leakage current is measured by peak-hold method
- 8 patterns of test condition memories
- Interface RS-232C is included in standard product
- Adoption of bright and visible OLED display
- Available with correction function for fluctuations of test voltage depending on loads

Specification

- Output voltage: AC 0 to 0.6 kV, Output power 6 VA (0.6 kV, 10 mA)
- Current measurement
 - Upper limit leakage current setting: 0.01 to 15.00mA
 - Rectification system: Peak value reading
- Judgement method: Upper and lower limit comparator
- Interface: REMOTE I/O, RS-232C

850A

AC W/IR Auto Tester

(Coming soon!)



Dimension/Weight

320(W)X150(H)X430(D)mm/Approx. 17kg

Available with Rise/Fall Time Setting in Withstand Voltage Test

Withstand Voltage Test: AC 5 kV, 100 mA

Insulation Resistance Test Voltage: DC 500V/1000V

Model 850A enables to perform withstand voltage test at 500VA without giving any stress to the test object. There are 2 ranges of Insulation resistance test voltage (DC500V & 1000V).

The tester is equipped with charge/discharge function and it is possible to discharge after the test. The test can be performed memorizing the test condition saved previously.

Characteristics

- Available with setting rise/fall time of output voltage in withstand voltage test
- Safety design: Interlock / Keylock function
- Available with external control by REMOTE I/O and RS-232C
- 10 memories of test conditions
- Switchable frequency of test voltage (50/60Hz)

Specification

- Withstand voltage test
 - Output voltage: AC 0 to 5 kV, Output power 500 VA (5 kV, 100 mA)
 - Upper limit leakage current setting: 0.01 to 99.99mA
- Insulation resistance test
 - Output voltage: DC 500/1000V (It's possible to change to non-standard voltage)
 - Measuring range: 0 to 9990 MΩ
- Judgement method: Upper and lower limit comparator
- Interface: REMOTE I/O, RS-232C

3587

MΩ Tester



Dimension/Weight

205(W)X64(H)X169(D)mm/ Approx. 1kg

Test Voltage Value Setting with 1V Resolution Available with Connection Check Function

The test voltage of MΩ tester 3587 can be used for the wide range of test from 25 V to 1000 V with 1V resolution. This is widely used for the inspection of various parts and products like Lithium Ion Battery where a wide variety of test voltage are required during the test setting. As this tester possesses the connection check function, a high reliable test can be performed.

Characteristics

- High speed sampling: 50/60 times/sec
- Test voltage can be set with 1V resolution setting range: DC 25 to 1000V
- 10 patterns of program memories
- NG judgement response speed at fixed range mode : Approx. 50ms
- The connection check function can prevent the test result being misjudged by connection error

Specification

- Insulation resistance test
 - Output voltage: DC 25 to 1050V
 - Display range: 0 to 9990MΩ
 - Judgement method: Upper and lower limit comparator
- Response speed (at NG judgement)
 - Fixed range: Approx. 0.05sec.
 - Auto range: Approx. 0.2sec.
- Data output: RS-232C(standard), BCD(option)

356A

MΩ Tester



Dimension/Weight

206(W)X81(H)X179(D)mm/ Approx. 1.2kg

Available in Two Ranges: 500V/2000MΩ and 1000V/2000MΩ Simple Operation, Adoption of Digital Switch Setting in Comparator

The model 356A is a digital MΩ tester designed under JIS standard provided with a comparator function which enables to perform insulation resistance test for domestic electric appliances, electronic apparatus or any part of products based on electric appliances and Material safety law and various foreign regulation.

Characteristics

- Resolution 0.1MΩ, Max. Display 1999.9MΩ
- 0.1 ~ 10 seconds, Variable master timer
- Good or bad judgment rate 0.2 sec of comparator
- Start with reset switch
- Available with remote control function
- Supports with system panel build-in

Specification

- Insulation resistance test
 - Output voltage : DC 500V/1000V
 - Measurement Range : 0 ~ 1999.9MΩ
 - Judgment method : Lower limit comparator

3567A / 3567A-A04

MΩ Tester



Dimension/Weight

206(W)X64(H)X169(D)mm/Approx. 1kg

6 Types of Test Voltage from DC 25V to DC 1000V Memory Available for 10 Pattern of Test Conditions, Emphasize on Operability and Responsiveness

The model 3567A is MΩ tester with a function oriented design which responds with single or embedded system.

The model 3567A-A04 is high speed sampling type which can achieve a response rate approximately 70ms.

Characteristics

- 6 range of test voltage from DC 25V to 1000V
- Front panel display of measured value, test condition at a glance
- Judgment speed is 0.2 sec., reducing tact time
- External control function for auto test instrument
- High quality data output with BCD and serial communication etc.
- High speed sampling : 60 times (60Hz) / 50 times (50Hz) ; -A04
- Response speed : 70ms (when the range is fixed) ; -A04

Specification

- Insulation resistance test
 - Output voltage : DC 25/50/100/250/500/1,000V
 - Measurement Range : 0 to 9990MΩ
 - Upper and lower limit comparator
- Output : BCD, RS-232C, RS-485

3566

AC mΩ Meter



Dimension/Weight

206(W)X64(H)X169(D)mm/ Approx. 1kg

High Resolution 1μΩ by AC Four Terminal Method Measurement of the Internal Resistance and Voltage of the Battery at Same Time

The model 3566 is a high precision digital low resistance meter that has capability of measuring with 6-range from 30mΩ to 3kΩ with high resolution of 1μΩ under AC four terminal method. This instrument is quite suitable for measuring contact resistance of relay, switch and internal resistance of battery etc..

Characteristics

- 6 Ranges of Resistance from 30mΩ to 3kΩ are available AC four-terminal measurement method
- 2 Range of Voltage measurements : ±5V and ±50V
- Sampling period : 60 times / sec, fast response of 84ms
- 30 patterns with comparator memory function
- Available data output like GP-IB, RS-232C, RS-485, BCD
- Measurement of internal resistance and voltage of the battery at same time, possible of display
- Analog output standard (DC 0 to 3V)

Specification

- Resistance : 30mΩ to 3kΩ
- Voltage : DC ±5V, ±50V
- Measurement method : AC four-terminal method
- Open terminal voltage : Less than 20mV peak
- Max. allowable applied voltage : All range 60V DC
- Measurement frequency : 1kHz±0.2Hz
- Output : Analog, BCD, RS-232C, RS-485

356E

10kHz AC mΩ Meter



Dimension/Weight

205(W)X64(H)X169(D)mm/Approx. 1kg

10 kHz Frequency for Measurement Resistance of Fuel Cell Measurement of the Internal Resistance and Voltage of the Battery at the Same Time

The model 356E is a low resistance measurement meter at the range of 30mΩ, 300mΩ and 3Ω for 10 kHz frequency with AC four terminal method. This instrument is very suitable for measuring internal resistance of the fuel cell. It is equipped with DC voltage measurement function and can measure internal resistance and voltage of battery at the same time.

Characteristics

- 3 Range of Low Resistances like 30mΩ, 300mΩ, 3Ω are available. AC four-terminal measurement method
- 2 Range of Voltage measurements : ±5V and ±50V
- Sampling period : 60 times / sec, fast response of 84ms, test condition, result can be seen at a glance
- Equipped with analog output standard
- Available with data output like BCD, RS-232C etc.
- Possible of Measurement and display of the internal resistance and voltage of the battery at the same time

Specification

- Resistance : 30mΩ/300mΩ/3Ω
- Voltage : DC ±5V, ±50V
- Measurement method : AC four-terminal method
- Open terminal voltage : Less than 1V peak
- Max. allowable applied voltage : All range 60V DC
- Measurement frequency : AC 10kHz±200Hz
- Output : Analog, BCD, RS-232C, RS-485

3569

Portable AC mΩ Meter



Dimension/Weight

205(W)X64(H)X169(D)mm/Approx. 1kg

Battery Powered Portable Digital AC Low Resistance Meter Compact, Light Weight (1 kg) Design Function of 4 CH Temperature Measurement

The model 3569 is a battery powered low resistance measurement meter having capability of measuring very low amount of current with AC 1kHz without affecting the object under AC four terminal method. It is very suitable for measuring internal resistance of primary and secondary battery of fuel cells.

Characteristics

- Power system : AC adapter and battery
- Adoption of AC four terminal method so that it does not affected by lead wire resistance
- With function of temperature measurement, temperature conversion and temperature compensation
- Possibility of measurement of small current measurement without affecting the object
- Equipped with analog output standard RS-232C
- Measurement possible up to 150V

Specification

- Resistance : 30mΩ/300mΩ/3Ω
- Voltage : DC ±15V, ±150V
- Measurement method : AC four-terminal method
- Open terminal voltage : Less than 20mV peak
- Max. allowable applied voltage : All range 200V DC
- Measurement frequency : AC 1kHz ± 20Hz
- Output : Analog, RS-232C

356G

DC Ohm Meter



Dimension/Weight

205(W)X65(H)X300(D)mm/ Approx. 2.8kg

DC 1A Resistance Meter and 0.1μΩ Range Resolution Product with Standard Output of RS-232C, Available Option with BCD and RS-485 Output

The model 356G is a low resistance meter having capability of 5 measuring resistance ranges from 30mΩ to 300mΩ at DC 1A.

It possesses temperature correction function, ratio display function and 30 types of test conditions storing memory function.

Characteristics

- Display by six digits, Minimum resolution 0.1μΩ
- Output RS-232C is standard instrument
- Available with Data output BCD and RS-485
- Available with temp. measurement function and possible for temp. correction measurement
- Measured value can be output by average value
The average number of data can be set from 2 to 100

Specification

- Resistance : 30mΩ to 300Ω
- Resolution : 0.1μΩ to 10mΩ
- Temperature : -19.9 to +199.9°C
- Measurement method : DC 4 terminal method
- Response speed : Approx. 30ms
- Output : RS-232C, USB (standard), Analog BCD, RS-485(option)

3565

DC Ohm Meter



Dimension/Weight

206(W)X64(H)X169(D)mm/Approx. 1kg

Great Improvement in Measurement of Response Speed Suitable for the Inspection during Mass Production Standard Type of Resistance Meter

The model 3565 is a high speed response type digital resistance meter with response speed 50ms and having sampling period of 100 times/sec. High precision resistance measurement can be achieved with wide range from 300mΩ to 300kΩ and high resolution of 10μΩ.

Characteristics

- Sampling 100 times/sec, response speed 50ms
- 7 Range of resistances from 300mΩ to 300kΩ
- Sampling period : 4, 20 and 100 times/s, 3 stage switching
- 30 patterns comparator memory function
- Equipped with temp. conversion ratio display function etc.
- Available zero adjustment function
- Available with disconnection detection function
- Available with data output RS-232C, RS-485, BCD

Specification

- Resistance : 300mΩ ~ 300kΩ 7 ranges
- Temperature : -19.9 ~ +199.9°C
- Measurement method : DC four-terminal method
- Open terminal voltage : DC 7V Max.
- Max. allowable applied voltage : All range 100V AC/DC
- Response speed : Approx 50ms
- Output : BCD, RS-232C, RS-485

3568

Portable DC Ohm Meter



Dimension/Weight

205(W)X64(H)X169(D)mm/Approx. 1kg

Response Speed of 100ms, 5 Digit Display Wide Range from 300mΩ to 30kΩ, Minimum Resolution 10μΩ

The model 3568 is a battery powered portable type digital resistance meter under DC four terminal method which can be carried to production line easily. It is equipped with data output and long measurement is possible with AC power.

Characteristics

- Power system : AC adapter and battery
- Adoption of DC 4 terminal method
- Available function of temp. measurement, conversion etc.
- Available with data output BCD, RS-232C
- Memory board can be attached
- Light weight (1kg) and portable with handle

Specification

- Resistance : 300mΩ ~ 30kΩ
- Temperature : -19.9 ~ +199.9°C
- Measurement method : DC four terminal method
- Open terminal voltage : DC 4V Max.
- Max. allowable applied voltage : All range 100V AC/DC
- Response speed : Approx 100ms
- Output : BCD, RS-232C

356H

Portable DC Contact Ohm Meter



Dimension/Weight

206(W)X64(H)X169(D)mm/ Approx. 1kg

5 Digit Large LED Display

Range 30mΩ to 3Ω, Minimum Resolution 1μΩ

The model 356H is a portable DC contact resistance meter operating under DC four terminal method. The contact resistance can be measured without destroying the oxide layer of the contact surface.

Characteristics

- Power system : AC adapter and battery
- Adoption of DC four terminal method without affect by lead wire resistance
- Equipped with standard analog output, RS-232C
- Light weight (1kg) and portable with handle
- Function available to switch in current measurement method

Specification

- Resistance : 30mΩ/300mΩ/3Ω
- Measurement method : DC four terminal method
- Open terminal voltage : Less than ±20mV peak
- Max. allowable applied voltage : All range 10V
- Response speed : Approx 3.2 sec
- Output : Analog, RS-232C

356M / 5811-71

AC mΩ Meter with Scanner



Dimension/Weight

205(W)X64(H)X169(D)mm/Approx. 1kg

Multiple CH for Low Resistance and Voltage, Promotion for Automation Scan Measurement of Each Cell Resistance and the Battery Voltage of Inner Fuel Cell Stack

The model 356M is a compact sized AC mΩ tester having internal scanner of 20CH, reduces the measurement steps as well as space for use.

Expansion up to 40 CH is possible with the combination of expansion unit 5811-71.

Characteristics

- Possibility of Max. 40 CH scanner expansion (5 CH Each)
- Comparison judgment output with two points
- Effectiveness resistance is measured in the same period by adopting rectification method (synchronization method)
- No need to connect with constant AC current source, rated current load device and impedance tester
- Data collection is possible with the accessory of utility software
- Possible of automatic scan measurement at specified CH by communicating with PC

Specification

- Resistance : 30mΩ/300mΩ/3Ω
- Resolution : 1μΩ/10μΩ/100μΩ
- Measurement : AC 4 terminal method
- Frequency : 1kHz±20Hz
- Open terminal voltage : Peak 20mV
- Interface : RS-232C

356K

20CH Scanner Built-in DC mΩ Meter



Dimension/Weight

205(W)X64(H)X169(D)mm/Approx. 1kg

Multiple Point Resistance Measuring by Using DC 4 Terminal Method Max. 20 Points of Resistance can be Measured with the Scanner Built-in and Data can be Saved Easily.

The model 356K is a compact sized DC mΩ tester operated under DC 4 terminal method having 20 CH built-in scanner. It is very suitable for resistance measurement of harness and connectors that require multi point measurement. Measurement results can be saved very easily.

Characteristics

- 20CH scanner built-in (expansion in 5CH units)
- Upper and lower limit comparison judgment output
- 6 Resistance measurement ranges, temp. function
- Available Temp. correction function
- Data collection by utility software
- Possible of automatic scan measurement at specified CH by communicating with PC

Specification

- Resistance : 300mΩ to 30kΩ, Range
- Resolution : 1μΩ to 1Ω, 0.1°C
- Measurement method : DC 4 terminal method
- Open terminal voltage : Max. DC 5V
- Interface : USB

3514

High Voltage Meter



Dimension/Weight
120(W)X162(H)X250(D)mm/ Approx. 2.4kg

High Voltage Measurement, Maximum 10kV High Impedance Measurement of Input Resistance 1000MΩ

The model 3514 is a digital high voltage tester having capability of high accuracy measurement of AC or DC Max. up to 10kV. In AC measurement, Effective Value Calculation Method is used so that it can measure distorted waves. It is ideal for the calibration of output voltage of input resistance 1000MΩ, Withstand voltage Tester, insulation tester.

Characteristics

- High impedance design having input resistance 1000MΩ
- Suitable for output voltage calibration of withstand voltage tester, insulation tester <3514-1>
- Measurement possible up to max. high voltage 10kV (AC/DC) with resolution 1V
- High precision measurement, DC measurement : ±0.3%, AC measurement : ±0.5% <3514-2>
- Measurement of max. high voltage up to 10kV(AC) with resolution 10V
- Measurement of high precision : ±0.5%

Specification

- <3514-1>
- Measurement Range : DC/±(0.500 ~ 10.000kV)
AC/0.500 ~ 10.000kV(50 ~ 60Hz)
 - Accuracy : DC/±(0.3% rdg +5digit)
AC/±(0.5% rdg +5digit)
Crest factor : Approx 2
- <3514-2>
- Measurement Range : AC/0.50 ~ 10.00kV(50 ~ 60Hz)
 - Accuracy : ±(0.5% rdg +3digit)

3515A

Leakage Current Calibrator



Dimension/Weight
150(W)X198(H)X275(D)mm/Approx. 3kg

Characteristics

- Possibility of speedy leakage current calibration
- Adoption of ammeter with peak hold function
- Measurement of high precision measurement : ±0.3%
- Manufacturing possible with non standard rated voltage and rated current

Specification

- <Sensitivity setting section>
(With Set current adjustment function)
- Rated voltage, available in 2 ranges : AC 1500/3000V
 - Rated current, available in 2 ranges : AC 5mA/10mA
- <Ammeter part>
- Measurement range : AC 0 ~ 12.99mA

5804

Resistor for the Calibration of Insulation Resistance Tester



Dimension
75(W)X55(H)X50(D)mm

Specification

- Resistance value
- | Model | Resistance value |
|---------|------------------|
| 5804-11 | 1MΩ |
| 5804-12 | 10MΩ |
| 5804-13 | 100MΩ |
| 5804-14 | 1000MΩ |
| 5804-10 | Other than above |
- Max. circuit voltage : DC 1500V
 - Tolerance : ±1%

Specification List

● : Standard ○ : Option

Specification / Model No.		8505	8525	8527	8526	8528	8522		
Model Name		AC W/IR Tester			AC/DC W Tester	AC W Tester			
Appearance									
General Specification									
W test	AC	Output voltage	AC 0 ~ 5kV	AC 0 ~ 2.5kV/0 ~ 5kV	AC 0 ~ 5kV	AC 0 ~ 2.5kV/0 ~ 5kV	AC 0 ~ 2.5kV/0 ~ 5kV	AC 0 ~ 3kV	
		Upper limit of leakage current setting	0.01 ~ 20.00mA	0.1 ~ 110.0mA	0.1 ~ 110.0mA	0.1 ~ 110.0mA	0.1 ~ 110.0mA	0.5/1/2/5/10mA	
		Output capacity	100VA	500VA	500VA	500VA	500VA	30VA	
	DC	Output voltage	—	—	—	DC 0 ~ 2.5kV/0 ~ 5kV	—	—	
		Upper limit of leakage current setting	—	—	—	0.1 ~ 11.0mA	—	—	
		Output capacity	—	—	—	50W	—	—	
Judgement method		Upper and lower limit Comparator	Upper and lower limit Comparator	Upper limit comparator					
I test	Rated voltage		DC 25V/50V/100V 250V/500V/1000V	DC 500V / 1000V	DC 500V / 1000V	—	—	—	
	Measurement range		0.1 ~ 9990MΩ	0 ~ 2000MΩ	0 ~ 2000MΩ	—	—	—	
	Judgement method		Upper and lower limit Comparator	Upper and lower limit Comparator	Upper and lower limit Comparator	—	—	—	
Main function	Test mode	W/I	Single test	●	●	●	●	●	●
			Automatic continuous test	●	●	●	—	—	—
		Special test	Double action start mode	●	●	●	●	●	—
			GOOD hold mode	●	●	●	●	●	—
			Momentary Start mode	●	●	●	●	●	—
			Fail mode	●	●	●	●	●	—
	Rise/Fall time setting (W)		—	—	—	—	—	—	
	Remote control		●	●	●	●	●	●	
	Status output signal		●	●	●	●	●	●	
	Interlock function		●	●	●	●	●	—	
	Key lock function		●	●	●	●	●	—	
	Protection function		●	●	●	●	●	—	
	Discharge function		●	●	●	—	—	—	
	Program memory function		●	●	●	●	●	—	
	Motor drive voltage setting function		—	●	●	—	—	—	
	Buzzer setting		●	●	●	●	●	●	
Zero-crossing input switch		●	●	●	●	●	●		
Timer		●	●	●	●	●	●		
Rear remote terminal		●	●	●	●	●	●		
Output	BCD		—	—	—	—	—	—	
	RS-232C		●	●	●	●	●	—	
	RS-485		—	—	—	—	—	—	
	USB		●	—	—	—	—	—	
	Output voltage monitor		—	●	●	—	●	—	
Power supply (standard)		AC 100V±10%	AC 100V±10%	AC 100V±10%	AC 100V±10%	AC 100V±10%	AC 100V±10%		
Remarks		—	—	—	—	—	—		

Specification List

● : Standard ○ : Option

Specification / Model No.		8507	8508	850A	3587	356A	3567A/3567A-A04	
Model Name		AC W High Speed Tester		AC W/IR Auto Tester	MΩ Tester			
Appearance								
General Specification								
W test	AC	Output voltage	AC 0.05 ~ 1.00 kV	AC 0.05 ~ 0.60 kV	AC 0.05 ~ 5.00 kV	—	—	
		Upper limit of leakage current setting	0.01 ~ 15.00 mA		0.05 ~ 99.99 mA	—	—	
		Output capacity	10VA	6VA	500 VA	—	—	
	DC	Output voltage	—		—	—	—	
		Upper limit of leakage current setting	—		—	—	—	
		Output capacity	—		—	—	—	
Judgement method		Upper limit: Peak value comparison, Analog & Digital comparator Lower limit: Digital comparator		Upper and lower limit Comparator	—	—		
I test	Rated voltage	—		DC 500V / 1000V	DC 25 ~ 1050V	DC 500V/1000V	DC 25V/50V/100V 250V/500V/1000V	
	Measurement range	—		0 ~ 9990MΩ	0 ~ 9999MΩ	0 ~ 1999.9MΩ	0 ~ 9999MΩ	
	Judgement method	—		Upper and lower limit Comparator	Upper and lower limit Comparator	Lower limit Comparator	Upper and lower limit Digital comparator	
Main function	Test mode	Single test	●	●	●	●	●	
			Automatic continuous test	—	●	—	—	—
		Special test	Double action start mode	—	●	—	—	—
			GOOD hold mode	—	●	—	—	—
			Momentary Start mode	—	●	—	—	—
	Fail mode	—	●	—	—	—		
	Rise/Fall time setting (W)	—	●	—	—	—		
	Remote control	●	●	●	●	●		
	Status output signal	●	●	—	—	—		
	Interlock function	●	●	—	—	—		
	Key lock function	●	●	●	—	●		
	Protection function	—	●	—	—	—		
	Discharge function	—	●	●	—	●		
	Program memory function	●	●	●	—	●		
	Motor drive voltage setting function	—	—	—	—	—		
	Buzzer setting	●	●	●	●	●		
	Zero-crossing input switch	●	●	—	—	—		
Timer	●	●	●	●	●			
Rear remote terminal	●	●	●	—	●			
Output	BCD	—	—	○	—	○		
	RS-232C	●	●	●	—	○		
	RS-485	—	—	—	—	○		
	USB	—	—	—	—	—		
	Output voltage monitor	—	—	—	—	—		
Power supply (standard)		AC 100 ~ 240V		AC 100 ~ 240V	AC 100 ~ 240V	AC 90 ~ 132V, AC 180 ~ 240V	AC 100V ~ 240V	
Remarks		—	Micro-short check: DC1V, 1mA	—	—	—	—	

Specification / Model No.		3566	356E	3569	356G	3565	
Model Name		AC mΩ Meter	10kHz AC mΩ Meter	Portable AC mΩ Meter	DC Ohm Meter	DC Ohm Meter	
Appearance							
General Specification							
Resistance	AC	Measurement method	AC four-terminal method	AC four-terminal method	AC four-terminal method	—	—
		Measurement range	30mΩ ~ 3kΩ 6 range resistance measurement	30mΩ ~ 3Ω 3 range resistance measurement	30mΩ ~ 3Ω 3 range resistance measurement	—	—
	DC	Measurement method	—	—	—	DC four-terminal method	DC four-terminal method
		Measurement range	—	—	—	30mΩ ~ 300Ω 5 range resistance measurement	300mΩ ~ 300kΩ 7 range resistance measurement
	Accuracy(During sampling period SLOW)		±(0.5% rdg. +8digit)	±(1.0% rdg. +15digit)	±(0.5% rdg. +8digit)	±(0.08% of rdg. + 25digit)	±(0.08% rdg. +3digit)
	Open terminal voltage		Peak Less than 20mV	Peak Less than 1V	Peak Less than 20mV	DC 6V Max.	DC 7V Max.
Volt	Measurement range	DC ±5V/±50V	DC ±5V/±50V	DC ±15V/±150V	—	—	
	Accuracy	±(0.05% rdg. +5digit)	±(0.05% rdg. +5digit)	±(0.05% rdg. +5digit)	—	—	
Temp.	Measurement range	—	—	Depends on temp. sensor	-19.9 ~ +199.9°C	-19.9 ~ +199.9°C	
	Accuracy	—	—	±(0.1% rdg. +0.5°C) etc.	±(0.2% rdg. +0.2°C)	±(0.2% rdg. +0.2°C)	
	Sensor	—	—	Thermocouple K, J, T	Pt100Ω (Exclusive sensor)	Pt100Ω (Exclusive sensor)	
Display	Color of letter/ Height of letter		Green/14.2mm	Green/14.2mm	LCD Display	LCD Display	Green/14.2mm
	Resistance measurement and display digit		35000	35000	35000	350000	35000
	Voltage measurement and display digit		50000	50000	15000	—	—
	Temperature measurement and display digit		—	—	1999.9	1999	1999
	Zero suppression function		●	●	●	●	●
	Sampling	SLOW(50Hz/60Hz)	1.56/1.88 times/sec.	1.56/1.88 times/sec.	2 times/sec.	5 times/sec.	4 times/sec.
		MEDIUM	6.25/7.52 times/sec.	6.25/7.52 times/sec.	—	20 times/sec.	20 times/sec.
		FAST	50/60 times/sec.	50/60 times/sec.	10 times/sec.	80 times/sec.	100 times/sec.
	Response	SLOW(50Hz/60Hz)	Approx. 1.92s/Approx. 1.60s	Approx. 1.92s/Approx. 1.60s	Approx. 1.60s	Approx.500ms	Approx.500ms
MEDIUM		Approx.800ms/ Approx.667ms	Approx.800ms/ Approx.667ms	—	Approx.100ms	Approx.100ms	
FAST		Approx.100ms/Approx. 84ms	Approx.100ms/Approx. 84ms	Approx.667ms	Approx. 30ms	Approx. 50ms	
Main function	Program memory function		●	●	—	●	●
	Temperature correction function		—	—	—	●	●
	Temperature conversion function		—	—	—	—	●
	Ratio display function		●	●	—	●	●
	Comparison function		●	●	—	●	●
	Zero adjustment function		●	●	●	●	●
	Disconnection detection function		●	—	—	●	●
	Buzzer function		●	●	—	●	●
Output	External control of input and output		●	●	—	●	●
	Analog		●	●	●	○	—
	BCD		○	○	—	○	○
	RS-232C		○	○	●	●	○
	RS-485		○	○	—	○	○
	USB		—	—	—	●	—
Power supply	AC Power	AC 100V ~ 240V	AC 100V ~ 240V	AC 100/200V(AC Adofter)	AC 100V ~ 240V	AC 100V ~ 240V	
	Battery	—	—	AA-size alkaline batteries:6 pcs.	—	—	

Specification List

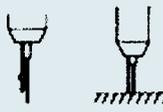
● : Standard ○ : Option

Specification / Model No.		3568	356H	356M/5811-71	356K	
Model Name		Portable DC Ohm Meter	Portable DC Contact Ohm Meter	AC mΩ Meter with Scanner	20CH Scanner Built-in DC mΩ Meter	
General Specification						
Resistance	AC	Measurement method	—	—	AC four-terminal method	—
		Measurement range	—	—	30mΩ ~ 3Ω 3 range resistance measurement	—
	DC	Measurement method	DC four-terminal method	DC four-terminal method	—	DC four-terminal method
		Measurement range	300mΩ ~ 30kΩ 6 range resistance measurement	30mΩ ~ 3Ω 3 range resistance measurement	—	300mΩ ~ 30kΩ 6 range resistance measurement
	Accuracy (During sampling period SLOW)		±(0.08% rdg. +3digit)	± (0.5% rdg. +8digit)	± (0.5% rdg. +8digit)	± (0.08% rdg. +3digit)
	Open terminal voltage		DC 4V Max.	Peak Less than ±20mV	Peak Less than 20mV	DC 5V Max.
Volt	Measurement range	—	—	DC ±5V/±50V	—	
	Accuracy	—	—	± (0.05% rdg. +5digit)	—	
Temp.	Measurement range	-19.9 ~ +199.9°C	—	—	-19.9 ~ +199.9°C	
	Accuracy	±(0.2% rdg. +0.2°C)	—	—	± (0.2% rdg. +0.2°C)	
	Sensor	Pt100Ω (Exclusive sensor)	—	—	Pt100Ω (Exclusive sensor)	
Display	Color of letter/ Height of letter		LCD Display	LCD Display	LCD Display	LCD Display
	Resistance measurement and display digit		35000	35000	35000	35000
	Voltage measurement and display digit		—	—	50000	—
	Temperature measurement and display digit		199.9	—	—	199.9
	Zero suppression function		●	●	●	●
	Sampling	SLOW(50Hz/60Hz)	4 times/sec.	2.5 times/sec.	10 times/sec.	20 times/sec.
		MEDIUM	—			
		FAST	20 times/sec.			
	Response	SLOW(50Hz/60Hz)	Approx.500ms	Approx. 3.2sec.	Approx. 670ms	Approx. 400ms
MEDIUM		—				
FAST		Approx.100ms				
Main function	Program memory function		—	—	—	—
	Temperature correction function		●	—	—	●
	Temperature conversion function		●	—	—	—
	Ratio display function		●	—	—	—
	Comparison function		●	—	●	●
	Zero adjustment function		●	●	—	—
	Disconnection detection function		●	●	—	—
	Buzzer function		●	—	—	—
Output	External control of input and output		●	—	—	—
	Analog		—	●	—	—
	BCD		○	—	—	—
	RS-232C		○	●	●	—
	RS-485		—	—	—	—
	USB		—	—	—	●
Power supply	AC Power	AC 100/200V(AC Adofter)	AC 100/200V(AC Adofter)	AC 100V ~ 240V	AC 100V ~ 240V	
	Battery	AA-size alkaline batteries:6 pcs.	AA-size alkaline batteries:6 pcs.	—	—	

Specification/Model No.			3514-1	3514-2
Model Name			High Voltage Meter	High Voltage Meter
Appearance				
			General Specification	
Measurement	AC	Measurement range	0.500 ~ 10.000kV (50 ~ 60Hz)	0.5 ~ 10.00kV (50 ~ 60Hz)
		Accuracy	± (0.5% rdg. + 5 digit)	± (0.5% rdg. + 3 digit)
	DC	Measurement range	± (0.500 ~ 10.000kV)	—
		Accuracy	± (0.3% rdg. + 5 digit)	—
Input	Rated input		DC voltage AC voltage (50 ~ 60Hz) 10kV	AC voltage (50 ~ 60Hz) 10kV
	Input resistance		1000MΩ	1000MΩ
	Input format		Single end input	Single end input
	Range switching		Push button switch	—
	Overload		20kV peak	20kV Peak
Display	Color of letter Height of letter		LED (15×10mm) 7 Segment red	LED (15×10mm) 7 Segment red
	Display range		0.500 ~ 10.000kV	0.50 ~ 10.00kV
Resolution			1V	10V
Sampling period			Approx.2.5/sec.	Approx.2.5/sec.
Response time			Approx.2sec.	Approx.2sec.
Withstand voltage			Between Power supply and outer box AC 1500V 1min	Between Power supply and outer box AC 1500V 1min
Insulation resistance			More than DC 500V 50MΩ	More than DC 500V 50MΩ
Powersupply voltage			AC 100V±10% 50/60Hz	AC 100V±10% 50/60Hz
Power consumption			Approx.5VA	Approx.3VA
Operating ambient temperature			0 ~ 40°C	0 ~ 40°C

Specification/Model No.		3515A
Model Name		Leakage Current Calibrator
Appearance		
		General Specification
Sensitivity setting	Rated voltage	2 Range AC 1500/3000V
	Rated current	2 Range AC 5mA/10mA (With setting current adjustment function)
	Range switching	Switching to rotary switch
Ammeter part	Measurement range	AC 0 ~ 12.99mA (0mA display when less than 0.09mA)
	Display	Red LED display Letter height 15mm With Zero suppression function
	Resolution	10μA
	Accuracy	± (0.3% rdg. +3digit)
	Coeff. of temp.	±300ppm/°C (0 ~ 50°C)
	Sampling period	2 times/sec.
	Rectification	Actual value operation method
	Input response	Approx. 500ms
	Peak hold function	Standard equipment (With ON/OFF switching function)
	Withstand voltage	
Insulation resistance		More than DC 500V 100MΩ
Power supply		AC 100V±10% 50/60Hz
Power consumption		Less than 10VA

Accessories

Model Name	Appearance	Model No.	Corresponding Instruments (in blue: provided with the products)	
			Standard	Possible to use
Kelvin Clip (Cable length: 90cm)		5803-24B	—	3565, 3568, 356G
		5811-21B	3565, 3566, 3568, 3569, 356G, 356H	—
		5811-24B	356E	(3566, 3569)
Clip Lead (Cable length: 90cm)		5811-22	—	3565, 3566, 3568, 3569, 356G, 356H
Pin Lead (Cable length: 90cm)		5811-23A	—	3565, 3566, 3568, 3569, 356G, 356H



TSURUGA TSURUGA ELECTRIC CORPORATION

1-3-23, Minami Sumiyoshi, Sumiyoshi, Osaka 558-0041, Japan

Tel +81-6-6692-6700 Fax +81-6-6609-8115

E-Mail: ft.info@tsuruga.co.jp

URL <http://www.tsuruga.co.jp/>