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.

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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 contitions 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 forI/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 contitions 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

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 vaues can be displayed collectively
- RS-232C for obtaining test contitions 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

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 Availabe 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

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 objectand 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)
- Availabe 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 and lower limit comparator
- Output : Status signal (TEST/NG)

8505

Withstand Voltage and Insulation Tester

(preliminary specification)

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

356A

MΩ Meter

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 Meter

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 rate : 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 that 20mV peak
- Max. allowable applied voltage : All range 60V DC
- Measurement frequency : 1kHz±0.2Hz
- Output : Analog BCD, GP-IB, 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 been seen at a glance
- Equipped with analog output standard
- Available with data output like BCD, RS-232C etc.
- Posible 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, GP-IB, 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 adopter 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, Availabe 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 100times/sec, response speed 50ms
- 7 Range of resistances from 300mΩto 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
- Avialable with data output GP-IB, 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, GP-IB, 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 adopter 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 expantion (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 impedence 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 of Measurement Instruments at a Glance

●: Standard ○: Option

Specification / Model No.				8525	8527	8528	8526	8522
Model Name				Withstand Voltage & Insulation Tester	Withstand Voltage and Insulation Tester	Withstand Voltage Tester	AC/DC Withstand Voltage Tester	Withstand Voltage Tester
General Specification								
W test	AC	Output voltage		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		0.1 ～ 110.0mA	0.1 ～ 110.0mA	0.1 ～ 110.0mA	0.1 ～ 110.0mA	0.5/1/2/5/10mA
		Output capacity		500VA	500VA	500VA	500VA	30VA
	DC	Output voltage		–	–	–	DC 0 ～ 2.5kV/0 ～ 5kV	–
		Upper limt of leakage current setting		–	–	–	0.1 ～ 11.0mA	–
		Output voltage		–	–	–	50W	–
	Judgement method			Upper and lower limit Comparator	Upper and lower limit Comparator	Upper and lower limit Comparator	Upper and lower limit Comparator	Upper and lower limit
I test	Rated voltage			DC 500V ／ 1000V	DC 500V ／ 1000V	–	–	–
	Measurement range			0 ～ 2000MΩ	0 ～ 2000MΩ	–	–	–
	Judgement method			Upper and lower limit Comparator	Upper and lower limit Comparator	–	–	–
Main function	Test mode	W,I ／ W/I	Single test	●	●	●	●	●
			Automatic continuous test	●	●	–	–	–
		Speical test	Double action start mode	●	●	●	●	–
			Good hold mode	●	●	●	●	–
			Momentary Start mode	●	●	●	●	–
			Fail mode	●	●	●	●	–
	Remote control			●	●	●	●	●
	Status output signal			●	●	●	●	●
	GP-IB interface			–	–	–	–	–
	Scan Interface			–	–	–	–	–
	Interlock function			●	●	●	●	–
	Key lock function			●	●	●	●	–
	Protect function			●	●	●	●	–
	Discharge function			●	●	–	–	–
	Program memory function			●	●	●	●	–
	Motor drive voltage setting function			–	●	–	–	–
	Buzzer setting			●	●	●	●	●
	Zero-crossing input switch			●	●	●	●	●
	Timer			●	●	●	●	●
	Back remote terminal			●	●	●	●	●
Output	BCD			–	–	–	–	–
	GP-IB			–	–	–	–	–
	RS-232C			●	●	●	●	–
	RS-485C			–	–	–	–	–
	USB			–	–	–	–	–
	Output voltage monitor			●	●	●	–	–
Utility Software (RS-232C, Japanese)				○	○	○	○	–
Power supply (standard)				AC 100V±10%	AC 100V±10%	AC 100V±10%	AC 100V±10%	AC 100V±10%

●: Standard ○: Option

Specification / Model No.				8505	356A	3567A/3567A-A04
Model Name				Withstand Voltage & Insulation Tester	MΩ Meter	MΩ Meter
General Specification						
W test	AC	Output voltage		AC 0 ～ 5kV	–	–
		Upper limt of leakage current setting		0.01 ～ 20.00mA	–	–
		Output capacity		100VA	–	–
	DC	Output voltage		–	–	–
		Upper limt of leakage current setting		–	–	–
		Output voltage		–	–	–
	Judgement method			Upper and lower limit Comparator	–	–
I test	Rated voltage			DC 25V/50V/100V 250V/500V/1000V	DC 500V/1000V	DC 25V/50V/100V 250V/500V/1000V
	Measurement range			0.1 ～ 9990MΩ	0 ～ 1999.9MΩ	0 ～ 9999MΩ
	Judgement method			Upper and lower limit Comparator	Lower limit Comparator	Upper and lower limit Digital comparator
Main function	Test mode	Single test		●	●	●
		Automatic continuous test		●	–	–
		Speical test	Double action start mode	●	–	–
			Good hold mode	●	–	–
			Momentary Start mode	●	–	–
			Fail mode	●	–	–
	Remote control			●	●	●
	Status output signal			●	–	–
	GP-IB interface			–	–	–
	Scan Interface			–	–	–
	Interlock function			●	–	–
	Key lock function			●	–	●
	Protect function			●	–	–
	Discharge function			●	–	●
	Program memory function			●	–	●
	Motor drive voltage setting function			–	–	–
	Buzzer setting			●	●	●
	Zero-crossing input switch			●	–	–
	Timer			●	●	●
	Back remote terminal			●	–	●
Output	BCD			–	–	○
	GP-IB			–	–	–
	RS-232C			●	–	○
	RS-485C			–	–	○
	USB			●	–	–
	Output voltage monitor			–	–	–
Utility Software (RS-232C, Japanese)				○	–	○
Power supply (standard)				AC 100 ～ 240V	AC 90～132V, AC 180～240V	AC 100V ～ 240V

■ Specification List of Measurement Instruments at a Glance

●: Standard ○: Option

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
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)SLOW	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		○	○	—	○	○
	GP-IB		○	○	—	—	○
	RS-232C		○	○	●	●	○
	RS-485C		○	○	—	○	○
	USB		—	—	—	●	—
Utility Software (RS-232C, Japanese)			○	—	○	●	○
Power supply	AC Power		AC 100V ～ 240V	AC 100V ～ 240V	AC 100/200V(AC Adopter)	AC 100V ～ 240V	AC 100V ～ 240V
	Battery		—	—	AA-size alkaline batteries:6 pcs.	—	—

●: 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					Multi-point Testing	Multi-point Testing
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		○	—	—	—
	GP-IB		—	—	—	—
	RS-232C		○	●	●	—
	RS-485C		—	—	—	—
	USB		—	—	—	●
Utility Software (RS-232C, Japanese)			○	○	●	●
Power supply	AC Power		AC 100/200V(AC Adopter)	AC 100/200V(AC Adopter)	AC 100V ～ 240V	AC 100V ～ 240V
	Battery		AA-size alkaline batteries:6 pcs.	AA-size alkaline batteries:6 pcs.	—	—

Specification List of Measurement Instruments at a Glance

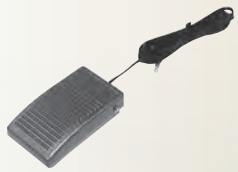
Specification/Model No.			3514-1	3514-2
Model Name			High Voltage Meter	High Voltage Meter
General Specification				
Measurement	AC	Measurement range	0.500 ～ 10.000kV (50 ～ 60Hz)	0.5 ～ 10.00kV (50 ～ 60Hz)
		Accuracy	± (0.5% rdg. + 5 digit)	± (0.5% tds. + 3 digit)
	DC	Measurement range	± (0.500 ～ 10.000kV)	—
		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 1 min
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
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		Between power supply and outer box AC 1500V 1min.
Insulation resistance		More than DC 500V 100MΩ
Power supply		AC 100V±10% 50/60Hz
Power consumption		Less than 10VA

Accessory for measurement instruments

■ Remote control box
(Cable length 2m)
For 8522, 8525, 8526,
8527, 8528 …5858-07

■ Foot switch
(Cable length 2m)
For 8525, 8526,
8527, 8528 …5858-04



■ Lead for 3566
Clip-shaped lead …5811-22
(Cable length 90cm)
Pin-shaped lead …5811-23A
(Cable length 90cm)
Replacement for voltage pin (4 pcs.) …5811-23A-1P
Replacement for current pin (4 pcs.) …5811-23A-1C

■ Kelvin clip
(Cable length 80cm)
For 3565, 3566, 3568, 356H,
3569 …5811-21B

(Cable length 50cm)
For 356E …5811-24B

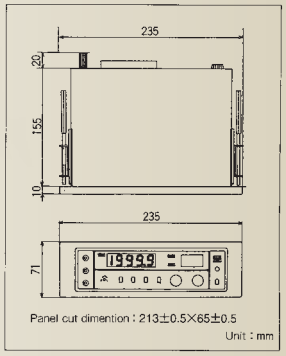
(Cable length 80cm)
For 3565, 3568 …5803-24B

■ Both hands remote control box
(Cable length 2m)
For 8522, 8525, 8526,
8527, 8528 …5858-07W

■ Buzzer unit …5858-05
(Power supply side 2.5m, Tester side 1m)

■ Power cord
For 8505, 8525,
8526, 8527, 8528 …5880-20-025
For 3565, 3566, 3567A, 8522,
356M, 356K …5880-18-030

■ Panel mount escutcheon
For 356A …5870-01



For 3565, 3566, 356M, 356K …5811-31
(Panel mounting bracket)

■ Kelvin clip
(Cable length 80cm)
For 3565, 3568 …5803-24B

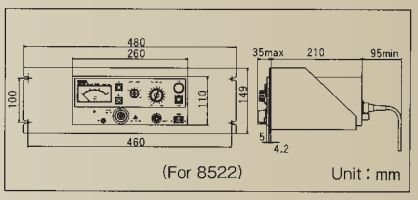
■ High-voltage cable
(Cable length 2m)
For 8522, 8525,
8526, 8527, 8528 …5880-25-020

■ RS-232C for Cable (2m)
For 8525, 8526,
8527, 8528 …5881-11-020

■ Temperature Probe
(Cable length 90cm)
For 3565, 3568, 356G …5803-11

■ Earth wire …5880-17-030

■ Rack mounting bracket
For 8522 …5871-03-011



For 8525, 8528 …5871-03-014
For 8526, 8527 …5871-03-015

Note: Any other change on this guide book may be done without prior notice to our customers.

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