
Instruction Manual

Current Probe SS-540/SS-550

IWATSU

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Introduction

- Thank you for purchasing this instrument of IWATSU ELECTRIC CO., LTD. We hope that you will enjoy it for years to come.
- Please read this manual carefully before attempting to use the instrument. Store the manual in a safe place so it can be referred to when necessary.




Safety Precautions

Throughout this manual, the symbol  (Warning) and  (Caution) are used to indicate points that must be observed to ensure safety and prevent injury and property damage. Be sure to read these points carefully and observe all precautions. Symbols indicating the need for caution also appear on the instrument itself.

Symbols in this manual (Warning Caution and Note)

 Warning	Indicates that failure to observe this precaution may lead to death or serious injury.
 Caution	Indicates that improper use may lead to injury or damage to the instrument.
Note	Provides instruction or advice regarding unit functions or operation.

Symbols on the instrument

 Warning	Indicates the need to refer to the instruction manual before use in order to prevent injury and equipment damage.
	Indicates that the instrument can be operated with direct current (DC) or alternating current (AC).
	Indicates that the instrument can not be set and detached in the active circuit.

Precautions

- Due to our continuing efforts to improve performance and functions, the information in this manual is subject to change without notice.
- Unauthorized reproduction of the contents of this manual is strictly prohibited.
- If you have any questions about this instrument, contact Iwatsu office or our sales distributors.

Revision History

- April 2021: 1st edition

Read this page to ensure proper safety. (to be continued)

Warnings

- **Do not use this instrument in an environment with explosive gases.**

This may result in explosion.

- **If you notice smoke, foul odor or abnormal noise, immediately turn off the power supply of all equipment with which this instrument is connected, and then detach this instrument from the insulating target conductor to be measured.**

Continued use under these circumstances may result in electric shock or fire. Contact Iwatsu office or our sales distributors for repair. Do not attempt to repair this instrument yourself.

- **Turn off the power to the insulating target conductor to be measured before attaching or detaching sensor head part of this instrument to or from the insulating target conductor to be measured.**

Failure to do so is very dangerous for targets to be measured that use high current.

- **Do not use this instrument to measure exposed conducting lines.**

This may result in electric shock, short-circuiting or equipment damage. (The clamp core and shield casing are not insulated.)

- **Use caution not to wet this instrument or allow entry of water or foreign objects into.**

Continued use under these circumstances may result in an electric shock, fire, or failure. If water, foreign objects, or other substances enter this instrument or the instrument is wet with water, immediately turn off the power supply of all equipment with which this instrument is connected, and then detach this instrument from the insulating target conductor to be measured. After that, contact Iwatsu office or our sales distributors for repair.

Read this page to ensure proper safety. (to be continued)

 **Warnings**

- **Do not handle this instrument if your hands are wet.**
This may result in electric shock, fire or equipment damage.
 - **Do not touch the plug of the power cord if your hands are wet.**
This may result in electric shock.
 - **Be careful not to damage the insulating sheath of the insulating target conductor to be measured.**
 - **Make sure the oscilloscope connected to the BNC output connector on the current probe is used with the protective earth.**
See "1.5.3 Recommended Power Supply and Oscilloscope" on page 21 for our company instruments that fit this description.
 - **Do not use this instrument if the unit case is damaged.**
This may result in electric shock. If the unit case is damaged, contact Iwatsu office or our sales distributors for repair.
 - **Connect only the recommended power unit to this instrument.**
Use of power units not suited may result in fire or equipment damage. See 1.5.3 "Recommended Power Supply and Oscilloscopes" on page 21.
 - **Confirm that any dust does not adhere to the power plug before inserting surely it into the power supply receptacle.**
Dust may result in electric shock, fire, or malfunction.
 - **Do not place this instrument in an area there frequent vibrations or impacts occur.**
If this instrument is dropped or overturned, it may cause a physical injury or a malfunction.
-

Read this page to ensure proper safety. (to be continued)

Warnings

- **When handling power cords and sensor cables:**

This may result in fire, electric shock, or equipment damage. If the power cord is damaged, contact Iwatsu office or our sales distributors for repair.

- Do not attempt to fabricate power cord and sensor cable.
- Do not pull power cord and sensor cable by the cable. Always grasp the plug.
- Do not bend power cord and sensor cable.
- Do not heat power cord and sensor cable.
- Do not twist power cord and sensor cable.
- Avoid getting power cord and sensor cable wet.
- Do not bind power cord and sensor cable together.
- Do not place heavy objects on top of power cord and sensor cable.

- **Do not use this instrument in a highly humid environment where condensation may occur.**

If using, an electric shock or fire, or failure may occur.

- **Do not put on this instrument a container that water, medicine, etc. has entered or a small metallic object.**

If not, an electric shock or fire may occur. If this instrument is wet with water, or metal and other objects enter the instrument, immediately turn off the power supply of all equipment with which this instrument is connected, and then detach this instrument from the insulating target conductor to be measured. After that, contact Iwatsu office or our sales distributors for repair.

- **When thunder begins, pull out the power plug of a device or the AC adaptor to which this instrument is connected from the outlet. Then, detach this instrument from the target to be measured, and do not use it.**

Lightning may be a cause of an electric shock, fire, or failure.

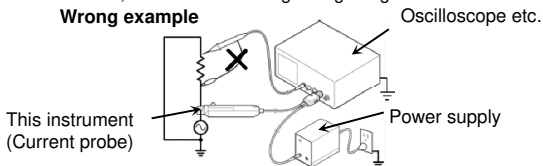
Read this page to ensure proper safety. (to be continued)

Warnings

- **Do not use this instrument when it has failed.**
Using a failed main unit or, cable or AC adaptor may be a cause of an electric shock or fire. In the event of a failure, contact Iwatsu office or our sales distributors for repair.
- **Do not attempt to modify or disassemble the unit.**
This may result in electric shock, fire or equipment damage. Requests to repair the unit may be refused if unauthorized modifications have been made.
- **This instrument SS-540 and SS-550 might not be able to be used at the same time because there are restrictions on power consumption in the probe power on the oscilloscope side according to the measured current.**
Refer to page21 and page27 for details.
- **The BNC ground of this instrument is connected to an electric ground through the power supply such as PS-52 or PS-54 to prevent danger. Use the equipment only for the floating measurement when executing the floating measurement.**

When the ground terminal of the instrument is connected to a ground besides the earth potential, this instrument, the equipment and the circuit to be measured must be damaged because the equipment that connects this instrument is connected to a ground. Moreover, there must be danger of getting an electric shock.

Wrong example



Read this page to ensure proper safety. (to be continued)

 **Cautions**

- **Do not supply current that exceeds the maximum continuous input range.**

The values are derived from the rise in temperature caused when the unit heats up during measurement. Do not input the current that exceeds this. This instrument might be damaged. Moreover, the maximum input range differs depending on the frequency of the current being measured. See Figure 1.5.1 "Instrument Specifications".

- **When current exceeding the maximum continuous input range is supplied, the sensor unit will heat up, triggering an internal protective interlock that will prevent normal output.**

If this happens, cut off the input immediately (either by removing the sensor from the insulating target conductor to be measured or by setting the input current to zero). Then wait for a sufficient amount of time for the unit to cool before resuming normal operation.

- **At high temperatures, the overcurrent protection circuit in the unit may cause the protective interlock to operate at current levels that are below the maximum continuous input range.**

- **Do not subject the instrument to sudden rapid changes in temperature, mechanical stress or shocks.**

This may damage the instrument and the sensor head and result in equipment failure.

- **Keep the sensor head closed unless you are clamping the insulating target conductor to be measured in preparation for measurement.**

Leaving the sensor head open may damage the sensor head.

Read this page to ensure proper safety. (to be continued)

Cautions

- **Before moving this instrument, make sure that the power supply plug is disconnected from the power supply receptacle and that the sensor head, output terminal (BNC) cable and other external connection lines are removed.**

Failure to do so will damage the sensor head or cable, causing an electrical shock, fire, or failure.

- **When handling the sensor head, be sure to observe the following precautions:**

- The contact end of the sensor head is precision-polished. Handle the unit carefully to avoid damaging this surface. Scratches on the surface may adversely affect performance.
- The end of the sensor head must be kept clean, as dirt on the surface will adversely affect performance. If the surface becomes dirty, wipe it clean with a soft cloth or the like.

- **When removing the connector from the output terminal, first unlock the connector, grasp the connector and pull to remove.**

Failure to remove the connector in this manner may damage the terminator.

- **Do not store or use this instrument in direct sunlight or in environments that are subject to high temperatures, high humidity or condensation.**

Use or storage at other than the rated conditions may result in warping due to heat, impaired insulation, or unit failure.

The proper temperature and humidity levels for use and storage are listed below.

- Operating temperature: 0 to +40°C, no dew condensation
- Operating humidity: below the moisture amount of 80%RH
- Storage temperature: -10 to +50°C, no dew condensation
- Storage humidity: below the moisture amount of 80%RH

Read this page to ensure proper safety. (to be continued)



Cautions

- **For your safety, when this instrument is not used for a long time, remove the power plug of this instrument from the power supply receptacle.**
 - **Do not leave this instrument in wet or dusty environments.**
This may result in electric shock, fire or equipment damage.
 - **Do not leave this instrument in a place exposed to lamp soot or steam generated by counters, humidifiers, etc.**
If not, an electric shock, fire, or failure may occur.
 - **Securely insert the power plug into the power supply receptacle.**
 - **Hold the power plug part when removing the power supply cord from the power supply receptacle.**
Pulling on the power cord will damage the cord. This may be a cause of an electric shock, fire, or failure.
 - **For your safety, remove the power plug of this instrument from the power supply receptacle, make sure that the sensor head, output terminal (BNC) cable and other external connection lines are removed before maintenance. In addition, wipe off with a dry cloth when water droplets are attached.**
If not, an electric shock or failure may occur.
-

Read this page to ensure proper safety.



Cautions

- **Before transporting this instrument, house this instrument in the accessory soft (for SS-540) or hard (for SS-550) case, and then pack the housed instrument in the packing material used at the time of purchase, or the packing material or better.**

This instrument may fail if a large vibration or impact is applied during transportation, possibly causing a fire. If you do not have a proper packing or shock-absorbing material for transportation, contact Iwatsu office or our sales distributors. If transportation is to be handled by a forwarding agent, display "Contains a precision machine" on each side of the packing box.

- **We recommend to order Iwatsu office or our sales distributors for periodical inspection and calibration once a year or so.**
-

Note

An accurate measurement can not be likely to be done in the vicinity the generation of a strong magnetic field and strong electric fields such as the transformer, the large current circuits, and the wireless machines.

Checking packed materials

When receiving this instrument, check the packed materials while referring to the following "Components." If there is a missing item or an item damaged during transportation, immediately contact Iwatsu office or our sales distributors.

Components

- Main unit1
- Accessories (See the accessories table below.)

Accessories table

Items	Quantities (SS-540)	Quantities (SS-550)
Hard case	-	1
Soft case	1	-
Instruction Manual (this document)	1	1
Sheet for China RoHS	1	1
Cable tie	1	1

Management of instrument

When disposing of this instrument, it must be recycled or disposed of properly in accordance with local laws or regulations. When disposing of it, request a recycling company to dispose of it in accordance with local laws or regulations.

Repair and sending instrument to be repaired

If a failure occurs, send the instrument to Iwatsu office or our sales distributors.

When sending an instrument to be repaired, clearly write the instrument name, serial number (in the label on the rear of this instrument), description of the failure, and the name, division, and telephone number of the responsible person.

Cleaning of instrument

When you take the dirt of this instrument, wipe with a soft and dry cloth or wipe with a dry cloth after you wipe with a soft cloth etc. to contain water, and the soapless soap.

Never use neither medicines of thinner, benzine, acetone, ether, ketone, alcohol, and the gasoline system, etc. nor the detergents that contain them.

This instrument is likely to transform, and to discolor.

Chapter 1 Overview

1.1 Summary

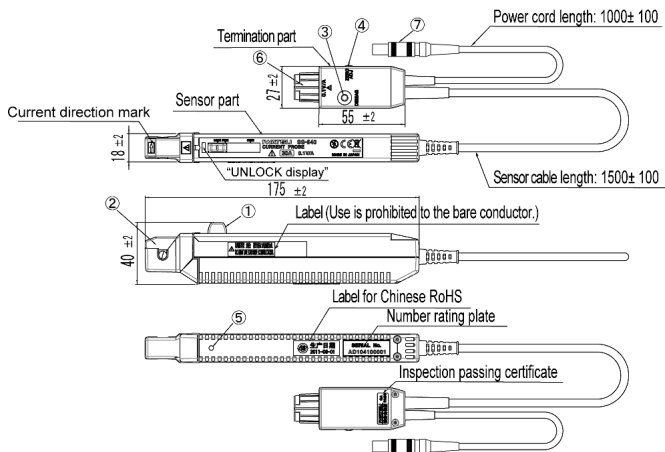
This instrument is connected directly to the BNC input terminal on an oscilloscope or other waveform monitoring unit. This makes it easy to measure current waveforms by simply clamping it onto an insulating target conductor to be measured.

1.2 Features

- Highly accurate current detection
- Easy current measurement
- Broadband frequency bandwidth
 - SS-550 : DC - 100MHz
 - SS-540 : DC - 50MHz
- Compact unit capable of measuring low current
- Simple protection function from excessive input
- Unique development by using thin film Hall element

1.3 Part Names

• External View



1.4 Part Functions

- ① **Open-close lever**
Used to open and close the sensor head. Be sure to use this lever to open and close the sensor head.
- ② **Sensor head**
Clamps the insulating target conductor to be measured and detects the current level. The sensor head is made up of a molded part, ferrite, Hall element and other parts that have been precision-machined and assembled. Be sure to handle the sensor head carefully, as it may be damaged by

sudden violent changes in ambient temperature, mechanical stress, shocks and so on.

- ③ Demagnetizing switch (DEMAG)
Used to eliminate magnetization from the magnetic core generated when the power is turned on and off or caused by excessive input. Be sure to do this before starting measurement.
- ④ Zero adjustment dial (ZERO ADJ)
Used to compensate for offset voltage, temperature drift and the like with this instrument.
- ⑤ Rough-adjustment trimmer
Used only when adjustment with the zero adjustment dial is not possible.
- ⑥ Output connector
Outputs the measured current waveform at a steady rate (0.1 V/A). The connector is plugged into the BNC input terminal on the oscilloscope.
- ⑦ Power plug
This plug is inserted into the power supply receptacle of the PS-52 or PS-54 power supply and the like to provide power to the sensor and terminator.

1.5 Specifications

1.5.1 Instrument specifications

Table1, Figure1 and Figure2 indicate SS-550 instrument specifications. Table2, Figure3 and Figure4 indicate SS-540 instrument specifications.

The following values indicate unit performance 30 minutes after the power has been turned on in an ambient environment of $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$.

Table 1. SS-550 Instrument specifications

Frequency bandwidth	DC to 100 MHz (−3 dB)
Rise time	3.5 ns or less
Waveform response	Sag: 3 % or less (for 1kHz rectangular waveform) Overshoot: Within ± 20 % (for the step waveform in rise time of 0.8 ns)
Maximum continuous input current range	30 Arms (See Figure1 Derating by Frequency.)
Maximum peak current value	50 A peak (in the non-continuum)
Output voltage rate	0.1 V/A
Amplitude accuracy	± 1.0 % rdg. ± 1 mV : to 30 Arms ± 2.0 % rdg. : 30 Arms to 50 Apeak (for DC or within the range of AC 45 to 66 Hz)
Noise	2.5 mArms or less. (for measuring instrument with 20 MHz bandwidth)
Power consumption	5.3 VA or less
Power supply voltage	DC ± 12 V ± 0.5 V
Temperature/humidity range (operating)	0 °C to +40 °C (no dew condensation), below the moisture of 80 % RH
Temperature/humidity range (stored)	−10 °C to +50 °C (no dew condensation), below the moisture of 80 % RH
Location for use (operating)	Indoor use, Pollution Degree 2 and at the altitude of 2000 meters or less
Accuracy warranty period	1 year (Opening/Closing up to 10,000 times)
Product warranty period	1 year
Temperature characteristic of sensitivity	Within ± 2 % (for the input of 50 Hz and 30 Arms within the range of 0 °C to +40 °C)
External magnetic field	Equal to 5 mA or less (for DC, 60 Hz and 400 A/m of AC magnetic field)
Measurable conductor	Only for insulated target conductor
Measurable conductor diameter	ϕ 5 mm or less
Cable or cord lengths	Sensor cable 1.5 m ± 0.1 m Power cord 1.0 m ± 0.1 m
External dimensions	Sensor part: 175 (W) \times 18 (H) \times 40 (D) mm (± 2 mm) Terminator part: 27 (W) \times 55 (H) \times 18 (D) mm (± 2 mm)
Weight	240 g \pm 20 g
Accessories	Instruction manual (1), Hard case (1) Sheet for China RoHS (1), Cable tie (1)

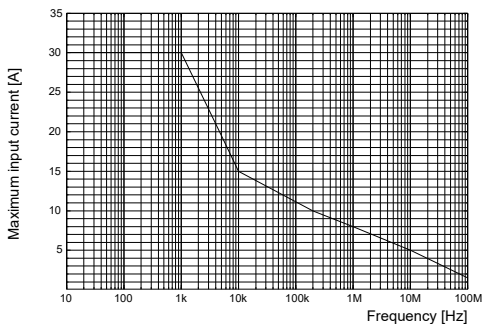


Figure 1. Derating by Frequency (SS-550)

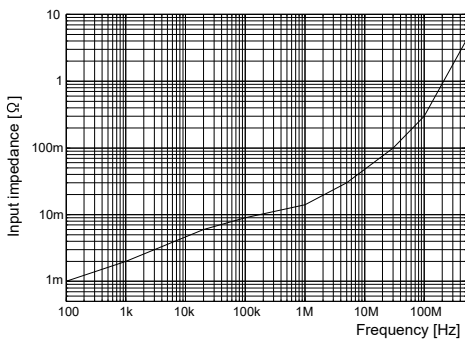


Figure 2. Input Impedance (SS-550, sample characteristics)

Table2. SS-540 Instrument specifications

Frequency bandwidth	DC to 50 MHz (-3 dB)
Rise time	7 ns or less
Waveform response	Sag: 3 % or less (for 1kHz rectangular waveform) Overshoot: Within +10 %/-20 % (for the step waveform in rise time of 3 ns)
Maximum continuous input current range	30 Arms (See Figure3. Derating by Frequency.)
Maximum peak current value	50 A peak (in the non-continuum)
Output voltage rate	0.1 V/A
Amplitude accuracy	± 1.0 % rdg. ± 1 mV : to 30 Arms ± 2.0 % rdg. : 30 Arms to 50 Apeak (for DC or within the range of AC 45 to 66 Hz)
Noise	2.5 mArms or less. (for measuring instrument with 20 MHz bandwidth)
Power consumption	5.6 VA or less
Power supply voltage	DC ± 12 V ± 0.5 V
Temperature/humidity range (operating)	0 °C to +40 °C (no dew condensation), below the moisture of 80 % RH
Temperature/humidity range (stored)	-10 °C to +50 °C (no dew condensation), below the moisture of 80 % RH
Location for use (operating)	Indoor use, Pollution Degree 2 and at the altitude of 2000 meters or less
Accuracy warranty period	1 year (Opening/Closing up to 10,000 times)
Product warranty period	1 year
Temperature characteristic of sensitivity	Within ± 2 % (for the input of 50 Hz and 30 Arms within the range of 0 °C to +40 °C)
External magnetic field	Equal to 20 mA or less (for DC, 60 Hz, and 400 A/m of AC magnetic field)
Measurable conductor	Only for insulated target conductor
Measurable conductor diameter	ϕ 5 mm or less
Cable or cord lengths	Sensor cable 1.5 m ± 0.1 m Power cord 1.0 m ± 0.1 m
External dimensions	Sensor part: 175 (W) \times 18 (H) \times 40 (D) mm (± 2 mm) Terminator part: 27 (W) \times 55 (H) \times 18 (D) mm (± 2 mm)
Weight	230 g \pm 20 g
Accessories	Instruction manual (1), Soft case (1) Sheet for China RoHS (1), Cable tie (1)

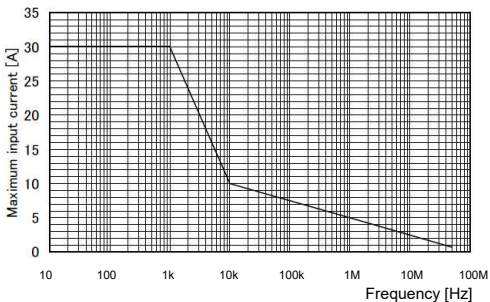


Figure 3. Derating by Frequency (SS-540)

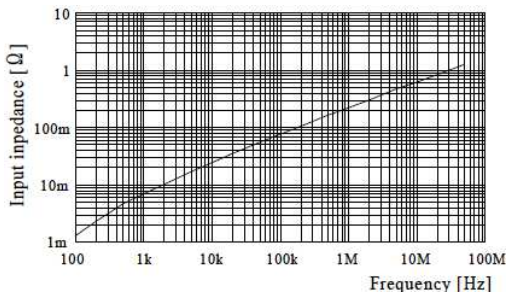


Figure 4. Input Impedance (SS-540, sample characteristics)

1.5.2 Certification standards

Safety EN61010-2-032

EMC EN61326-1

1.5.3 Recommended Power Supply and Oscilloscopes

The following Iwatsu Instruments are recommended for use with this instrument:

- Power Supply
 - PS-52, PS-54
- Recommended Oscilloscopes
 - Probe power PS-52 or PS-54 becomes unnecessary if Probe power option DS-579 (Total current consumption of the current probe can be used within the range of 750mA or less.) of product of our company that can be used as power supply for probe, Digital oscilloscope ViewGoll series that can attach DS-579, and power connector conversion cable are used together, and it is possible to use them slimly and compactly.

If you have any questions about this instrument, contact Iwatsu office or our sales distributors.

Chapter 2 Operation

2.1 Preparations for Measurement

1. Prepare this instrument and the recommended power supply and oscilloscope or other waveform monitoring instrument.

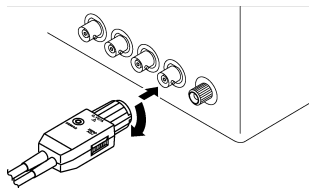
Note

- This instrument output is terminated internally. It should be used with an oscilloscope whose input impedance is $1\text{ M}\Omega$ or greater. Measurement accuracy cannot be guaranteed if the input impedance is 50Ω .
2. Set the switch of the recommended power supply to the OFF position and connect the power cord.
 3. Insert the power plug for this instrument into the power supply receptacle on the recommended power supply.
 4. Set the recommended power supply switch to the ON position and check to make sure that the power lamp on the front panel lights up.

2.2 Demagnetizing and Zero Adjustment

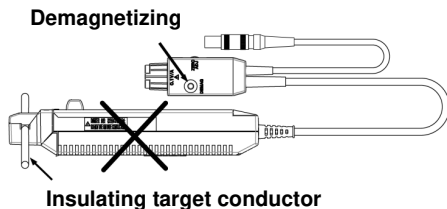
Notes

- Immediately after the power is turned on, this instrument will heat up, in some cases causing considerable offset voltage drift. This should stabilize almost completely in about thirty minutes.
 - When conducting continuous measurement, please note that the offset voltage will drift due to the ambient temperature, etc.
1. Set the oscilloscope input to GND and adjust the trace to the zero position.
 2. Set the oscilloscope input coupling to DC.
 3. Plug the output connector on this instrument into the input terminal on the oscilloscope and check to make sure it is locked securely in position.



⚠ Cautions

- When removing the output connector, release the lock and then grasp the connector and pull to remove. Never try to forcibly remove the connector without first releasing the lock. Also, never pull the cable, as this may damage the terminator.
- When connecting this instrument to an input terminal that is not a BNC terminal, make sure that the polarity is correct.
- Do not demagnetize while this instrument is clamping an insulating target conductor to be measured. Demagnetizing causes current to flow into the insulating target conductor to be measured, which may damage parts in the circuit to be measured.



- Check that the insulating target conductor to be measured is not clamped when supplying power to this instrument for the same reason. Demagnetized waveforms may generate when supplying electric power.

4. Without clamping this instrument to the insulating target conductor to be measured, press the open/close lever until the "UNLOCK" marking disappears. Then check to make sure that the sensor head is securely closed.
5. Press the DEMAG switch on the terminator. The process takes about one second. A demagnetizing waveform is output while demagnetizing is in progress.
6. Turn the zero adjust dial on the terminator and adjust the trace to the zero position.
7. If you were not able to adjust the trace to the zero position in the previous procedure 6, turn the rough adjustment trimmer and adjust the trace so it is within the adjustment range of the zero adjustment dial.

2.3 Measuring methods

1. Check to make sure that all safety requirements have been satisfied and all preparations for measurement (as described in the previous section) are complete.
2. Pull the open/close lever on the sensor unit to open the sensor head.
3. Make sure the arrow on the sensor head showing the direction of current flow matches the direction of the current flow to be measured. Then clamp the insulating target conductor to be measured so the conductor is in the center of the clamp window.
4. Press the open/close lever on the sensor head unit until the "UNLOCK" marking is not visible. Check to make sure that the open/close lever is locked securely and the sensor head is tightly closed.
5. You may now monitor the current waveform on the oscilloscope. The output sensitivity of this instrument is 0.1 V/A. Convert the voltage sensitivity values on the oscilloscope to current sensitivity values. For example, if the voltage sensitivity on the oscilloscope is 10 mV/div, the current sensitivity will be 100 mA/div.

Notes

- When using this instrument, note that these two instruments may not be used simultaneously with the PS-52 POWER SUPPLY, depending on the current to be measured.
- The current consumption of this instrument depends on the current value to be measured. Use the instrument within the range where the total of the current consumption of it is 600mA or less. Refer to Figure 5 (for SS-540) or Figure 6 (for SS-550).

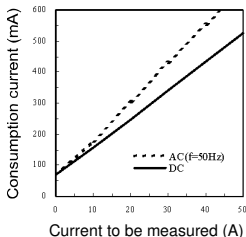


Figure 5. Current consumption* vs. current to be measured (typical for SS-540)

*The sum total of a positive and negative current consumption

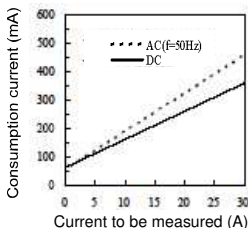


Figure 6. Current consumption* vs. current to be measured (typical for SS-550)

*The sum total of a positive and negative current consumption

 **Cautions**

- The maximum continuous input range is determined by the temperature rise when this instrument heats up during measurement. Do not apply current that exceeds this range, as this may damage this instrument.
- The maximum continuous input range will differ depending on the frequency of the measured current. See the graphs in section 1.5.1 "Instrument Specifications" (on page 16).
- When current in excess of the maximum continuous input range is applied, the sensor will heat up, triggering the internal protective interlock and preventing normal output. If this happens, immediately cut off the input (either by removing the sensor from the insulating target conductor to be measured or by setting the input current to zero). Then wait a sufficient amount of time for the unit to cool before resuming normal operation.
- At high temperatures, the overcurrent protection circuit in the unit may cause the protective interlock to operate at current levels that are below the maximum continuous input range.

Cautions

- When it keeps inputting the electric current that exceeds the range of the continuous maximum input or the protection function is frequently operated, this instrument might be damaged.
- In addition to the maximum continuous input range, there is a value listed under "During non-continuous input" in the Instrument Specifications:

SS-550 / SS-540

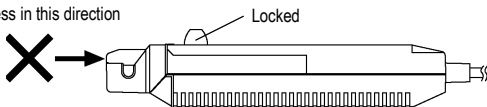
Maximum continuous input range: 30 Arms

During non-continuous input: 50 Apeak

When using this instrument, make sure the effective value does not exceed the maximum continuous input range. The specifications during non-continuous input indicates that the upper limit for the response is 50 Apeak.

- Always use the open/close lever to open the sensor head. Pushing up the top core with the sensor head locked may damage the open/close mechanism.
- Do not apply pressure to the sensor head in the direction shown in the figure below.

Do not press in this direction

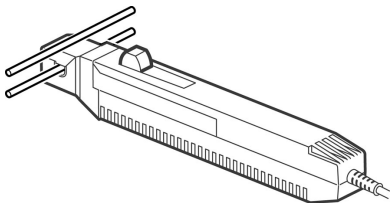


Note 1

- Do not place any unclamped conductor with an electric current of a frequency of 10 kHz or more near the sensor head.

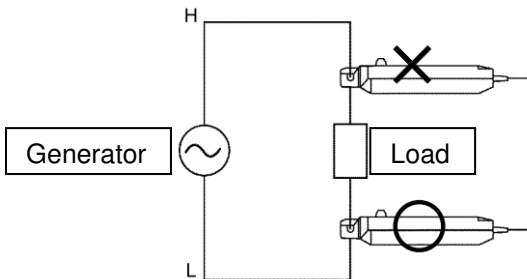
Current flowing in the conductor nearby may heat up the sensor head and cause its temperature to rise, leading to damage to the sensor.

For example, when one side of a go-and-return conductor is clamped and the other side is also placed near the sensor head as shown in the diagram, even if the electric current is lower than the consecutive maximum current, electric currents in both sides will heat up the wires and raise the temperature, thereby causing damage to the sensor.



Note 2

- Resonance may be generated depending on the frequency of the current being measured. This will not affect measurement.
- In some cases, the position of the insulating target conductor to be measured in the clamp window may affect measurement. Make sure the insulating target conductor to be measured is in the center of the clamp window.
- When measuring signals containing high frequency components, the measurements may be affected if the side of the cable with high potential is clamped. Always clamp the low potential side.



- Accurate measurements may not be obtained near transformers, cables carrying strong current and other objects that generate a strong magnetic field, or near radio transmitters or other equipment that generates a strong electrical field.

Chapter 3 Daily check and calibration

3.1 Maintenance

- Cleaning

If the exterior becomes dirty, gently wipe away the dirt with a soft cloth moistened with water or a diluted neutral detergent. Be careful not to use the solvents and cleaners listed below, as this may cause discoloration or other damage.

You may use the following:

- Water or (diluted) neutral detergent

Do not use the following:

- Alcohol, gasoline, acetone, lacquer, ethyl alcohol, paint thinner, or solvents containing ketones

If the sensor head gets dirty, gently wipe away the dirt with a (dry) soft cloth or the like.

3.2 Periodic Calibration

This instrument must be inspected and calibrated periodically to ensure that signals are measured correctly. For periodical calibration, contact Iwatsu office or our sales distributors. We recommend that this instrument is calibrated about once a year.

3.3 Inspection

1. Set the oscilloscope input to GND and adjust the trace to the zero position.
2. Set the oscilloscope input coupling to DC.
3. With the sensor head on the current probe completely closed, connect this instrument (SS-540 or SS-550) to the oscilloscope and press the DEMAG switch. Immediately after the switch is pressed, a sine wave of approximately 300 mVp-p will be output, gradually becoming attenuated and stopping after a few seconds. Check to make sure that this occurs.
4. Turn the zero adjustment dial and check to make sure that the trace is at the zero position.

IWATSU ELECTRIC CO., LTD.

Contact Us

Overseas Sales Sect., Sales Dept. No.2

Address : 1-7-41 Kugayama, Suginami-ku,
Tokyo 168-8501, Japan

Phone : +81 3 5370 5483

Facsimile : +81 3 5370 5492

Web Site : http://www.iti.iwatsu.co.jp/index_e.html

E-mail : info-tme@iwatsu.co.jp