

AC/DC CLAMP ADAPTER

Model LAD-20

INSTRUCTION MANUAL

Thank you very much for selecting our model LAD-20
AC/DC Clamp Adapter

Before use the instrument, read this instruction manual
completely and familiarize yourself thoroughly with all
functions.

Keep this instruction manual carefully to take out
whenever you need.

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SAFETY SUMMARY

observe by all means

- To use this instrument safely, read this "SAFETY SUMMARY" carefully and apply the instrument correctly.
- The CAUTIONs and WARNINGs which appear on the following pages are stated to prevent the operator & other people from the dangers and their properties from the damages beforehand.

- △ WARNING : This symbol indicates the contents "Possibilities of the death or the serious wound can be supposed" caused from mis-operations.
- △ CAUTION : This symbol indicates the contents "Possibilities of the injury or only the material damage can be supposed" caused from mis-operations.

△ WARNING

POSSIBLE ELECTRICAL SHOCK

- This instrument is for the use of low voltage circuit.
Do not make measurements of power lines carrying more than AC/DC 300V.
Before use, check and confirm the voltage of circuit to be measured.
- Apply only the coated cables and do not clamp bare cables.
- Do not make measurement, in case that CT case or body case are damaged and that battery cover is off.
- Do not use this instrument under the condition of raindrops and of humidity condensation and or with the wet hand.

DO NOT DISASSEMBLE

- Do not disassemble this instrument, except for our technical or repairing service staffs.

CAUTION

- Do not use this instrument with the battery cover off.
- Do not apply the excess current than the measuring range.
- Do not use nearby the explosive gas, as there is possibility of ignition.
- In case of finding troubles, inform to the dealer or to us without fail.

1. GENERAL

This instrument is clamp-on type CT sensor for measuring DC current as well as AC current (up to 100KHz) and can be used by connecting with oscilloscope, etc. by BNC connector, as a current probe.

2. SPECIFICATIONS

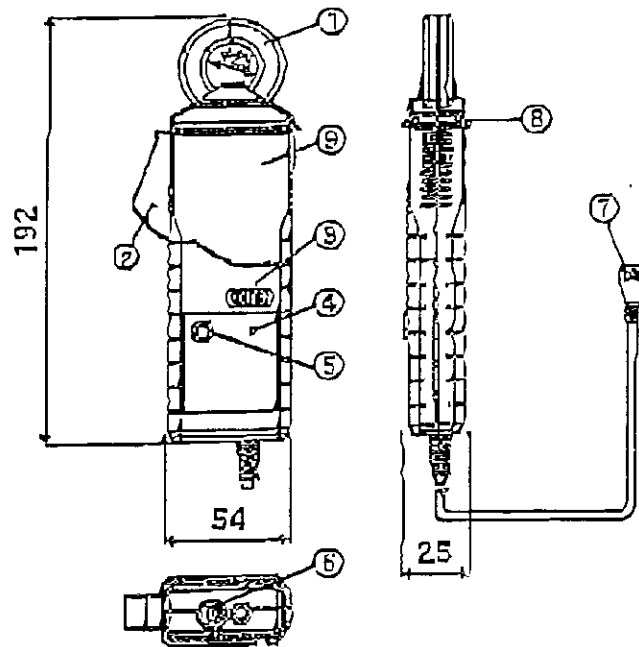
2. 1. ELECTRICAL SPECIFICATIONS

- 1) Measuring Method: Clamp CT
- 2) Current Detection: Magnetic Inequilibrium Method
- 3) Measuring Range: AC 0~20A (RMS), DC 0~±30A
- 4) Output Voltage: 100mV/A
- 5) Accuracy: $\pm 1\% \text{rdg} \pm 5\text{mA}$ (DC ~ 100KHz) (Surrounding Temp.: $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$)
- 6) Frequency Characteristic: -1.5dB (DC ~ 100KHz)
- 7) Loading Impedance: less than 100pF at more than 10K Ω
- 8) Influence of Conductor Position: less than $\pm 1\%$
- 9) Output Temperature Coefficient: $\pm 0.01\%/^{\circ}\text{C}$
- 10) Zero Adjustment for DC: by adjustment switch knob

2. 2. GENERAL SPECIFICATIONS

- 1) Power Supply: (1) 9V Alkaline Battery (2) AC Adaptor (option)
- 2) Current Consumption: approx. 20mA
- 3) Output Connector: BNC connector
- 4) Output Cable: shielded wire (2m)
- 5) Circuit Voltage: less than AC/DC 300V
- 6) Operation Temperature: $-10^{\circ}\text{C} \sim 60^{\circ}\text{C}$ RH15~85% (w/o condensation)
- 7) Storage Temperature: $-20^{\circ}\text{C} \sim 85^{\circ}\text{C}$ less than RH80% (w/o condensation)
- 8) Withstanding Voltage: AC 3700V/1 minute (in case of not using AC adaptor)
- 9) Standard Conformity: RoHS
- 10) Dimension & Weight: 54(W)x193(H)x25(D)mm, 270g

3. NAME OF PART & EXPLANATION



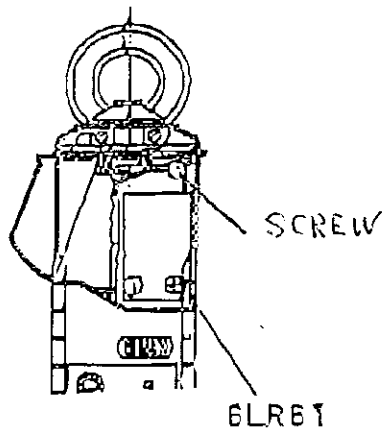
- ① Clamp-on Type CT : sensor for detecting current.
- ② Open/Close Lever : push inside and open CT.
- ③ Power On/Off Switch : when power switch on, the indicator lightens.
- ④ Power On Indicator : in case of no lightning, the battery is exhausted.
- ⑤ Zero Adjustment Knob : for DC current measurement, turn this knob to make "0" adjustment.
- ⑥ AC Adapter Terminal : input terminal for AC adaptor
- ⑦ Output Connector : secondary output part with BNC connector
- ⑧ Screw for Battery Cover : on the back side of body case.
- ⑨ Battery Cover : remove this cover to replace the battery.

4. OPERATION PROCEDURE

4-1 Before Measurement (Install the battery)

- ① Confirm the power switch "OFF" and remove the screw of battery cover by ⊕ driver and take off the cover.
- ② Put the battery into the body case, not to err the polarity.

Pull the cover to the
indicated direction



Set ⊕ side of batteries
to become upper.

hole for the screw

△ WARNING

It may cause electric shock.

- After removed the battery cover, absolutely replace it again.
Do not use the instrument, keeping the battery cover off.

CAUTION

It may cause damage

- * In case of not using the instrument for a long time, remove the battery before storage.
It may cause leakage and may cause damage the battery.

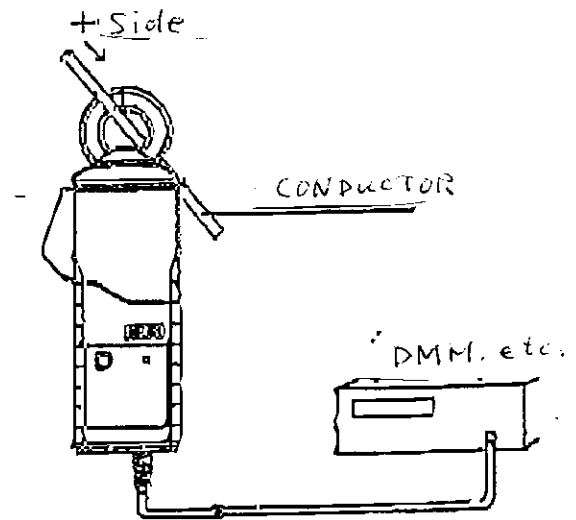
4-2 Measurement

(1) DC Current Measurement

- ① Connect BNC plug to DMM, Oscilloscope, etc.
- ② Set power switch "on".
- ③ Set the measuring mode of DMM, etc. to DC voltage.
- ④ Set the display of DMM, etc. to zero by "0" adjustment switch knob.
- ⑤ Clamp the CT to the direction according to the arrow mark and read the displayed value. (output 1.0V DC at 10A).

(2) AC Current Measurement

- ① Connect BNC plug to DMM, Oscilloscope, etc.
- ② Set power switch "on".
- ③ Set the measuring mode of DMM, etc. to AC voltage.
- ④ Clamp the CT and read the displayed value (output 1.0V AC at 10A).



5. REPAIR SERVICE

When requesting for repair service, please bring the instrument directly to the dealer where you bought.

When mailing the instrument, always pack it in its original or equivalent.

Packing materials to avoid any damage during the transportation and also put together

with documents showing your name, address, phone number and defect point.

6. WARRANTY

This instrument is sent out from our factory after the sufficient internal inspections but if you find any defect due to the fault in our workmanship or the original parts, please contact the dealer where you bought the instrument.

The warranty period is 12 months from the date of purchase and the instrument shall be repaired at free of charge, provided that we judge the cause of defect is obviously resulted from our responsibility.

GURANTEE REGULATIONS

1. This instrument is warranted for the operation under normal use for 12 months from the date of purchase.
2. This warranty does not cover the following defects:
 - a. Defect caused from the improper use and operation.
 - b. Defect caused from the use, operation and storage beyond the original specifications, designs and conditions.
 - c. Defect caused from the renovations or repairs done by someone else than us or our representatives.
 - d. Defect not caused from our responsibilities.