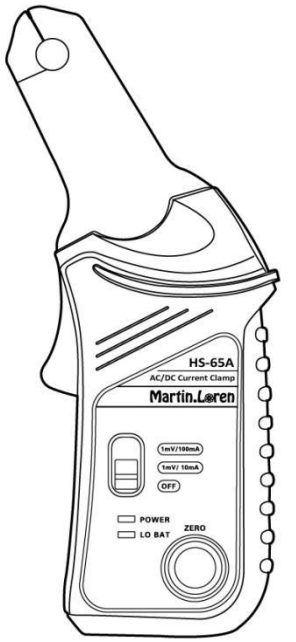
Martin.Loren®

HS-65 / HS-65A
AC/DC CURRENT CLAMP
OPERATOR'S MANUAL



INTRODUCTION

When measuring AC or DC with the Current Clamp, you can connect it with an oscilloscope to directly read the current value without the need to make physical contact with the conductor, or to disconnect it for insertion through the probe. The Current Clamp measures a maximum current of 65A, with a frequency up to 1.1 MHz (only for HS-65A model). It works with jaws which open to allow clamping around an electrical conductor. After linking it with an oscilloscope, push down the zero adjustment knob on the clamp until the oscilloscope reads zero.

APPLICATION PROCEDURE

1. Connect the BNC connector of the clamp to the input of your oscilloscope with an input impedance of at least 10k ohms.
2. When the current is no greater than 20A, set the current clamp to the range of 1mV/10mA, otherwise to 1mV/100mA. The green LED lights, indicating that the clamp is switched on.
3. Before measuring DC, push down the zero adjustment knob on the clamp until the oscilloscope reads zero. When using an oscilloscope, set the input coupling mode to DC.
4. Clamp the jaws around the electrical conductor.
5. When the current clamp is set to 1mV/10mA, the actual current value is ten times of the measured data whose unit is mV. For example, the measured data is 10 mV and the actual current is 10×10=100mA.
6. When the current clamp is set to 1mV/100mA, the actual current is one hundred times of the measured data whose unit is mV. For example, the measured data is 5mV and the actual current is 5×100=500mA.

APPLICATION NOTES

1. In the case of DC measurement, the output is positive when the current flows from the upside to the underside of the clamp (verse is indicated on the top of the jaw).
2. In the case of DC measurement, the current camp may not be zeroed, due to the hysteresis effect. To eliminate its influence, open and close the jaws several times before zeroing the current clamp.

APPLICATION SAFETY

1. The voltage of the conductor measured cannot exceed 300V DC or 240V rms AC.
2. You cannot measure a piece of conductor whose insulation is broken or worn to avoid possible electric shock.

GENERAL SPECIFICATIONS

Conductor Diameter:	9 mm maximum
Low Battery Indicator:	Red LED
Operating Temperature:	0°C to 50°C, 70% R.H.
Storage Temperature:	-20°C~+70°C, 80% R.H.
Battery Type:	9V DC, NEDA 1604, 6F22, 006P
Battery Life:	100 hours typical with carbon-zinc
Rechargeable Battery:	supported, filtered against battery generated noise
Weight:	250 grams
Dimensions:	195 mm(H) × 70 mm (W) × 33 mm (D)
Output:	BNC connector

ELECTRICAL (at 23±5°C, 70% R.H. maximum)

Efficient Measure Range:

1mV/10mA: 10mA to 20ADC or rms AC
1mV/100mA: 100mA to 65ADC or rms AC

Precision:

System Accuracy: The precision of the current clamp adds to that of the oscilloscope.
For example, if the conductor carries 100 mA of current, the current clamp is set to 1mV/10mA and the output is 10mV. If the precision is 1.5%, the output is between 9.85mV and 10.15mV.
If the oscilloscope connected with the current clamp is set to 200mV and the precision is 0.5%, the reading is between 9.80mV and 10.20mV (10.15mV×(1+0.5%) = 10.20mV, 9.85mV×(1-0.5%) = 9.80mV)

Accuracy:

DC: 1m/10mA
±(1.5%±5mA)10mA~20A

DC: 1mV/100mA
±(2%±20mA)100mA~40A
±(4%±0.3A)40A~65A

AC: 1mV/10mA
±(2%±30mA)100mA~10A (40Hz~2KHz)
±(4%±30mA)100mA~10A (2KHz～10KHz)
±(6%±30mA)100mA~10A(10KHz～20KHz) ±(8%±30mA)10A~15A(40Hz~20KHz)

AC: 1mV/100mA
±(2%±30mA)100mA~40A(40Hz~1KHz)
±(4%±30mA)100mA~40A(1KHz~2KHz)
±(6%±30mA)100mA~40A(3KHz~5KHz)

±(8%±0.3A)40A~65A(40Hz～20KHz)

Load Resistance: 10k ohm

Temperature coefficient: 0.1×(defined accuracy) per degree (0°C to 18°C, 28°C to 50°C)

BANDWIDTH (only for HS-65A model)

1mV/10mA: 90 kHz (signal up to 1A peak-peak)
1mV/100mA: 1.1 MHz

SAFETY INFORMATION

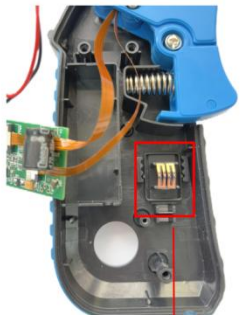
The instrument complies with Class II, overvoltage CAT II of EN61010-1 and EN 61010-2-032. Pollution degree of the current clamp is level 2 in accordance with IEC 664 indoor use. If the equipment is used in a manner not specified,the protection provided by the equipment may be impaired.

This product complies with the requirements of the following European Community Directives: 89/336/EEC(Electromagnetic Compatibility) and 73/23/EEC (Low voltage) as amended by 93/68/EEC (CE marking).

How to replace the switch button (all models)

1. Remove the five screws shown in the figure, and open the casing.

2. Remove the screw on the PCB and take it off.



3. Remove the old contacts

5. Place the switch back on its original position.

4. Place the new contacts,as shown in the picture.

Note:

- When installing the PCB board, both the yellow wires and battery wire need to be placed into the correct slot before closing the equipment case.
- Pay attention to keep the rubber ring under the round button.