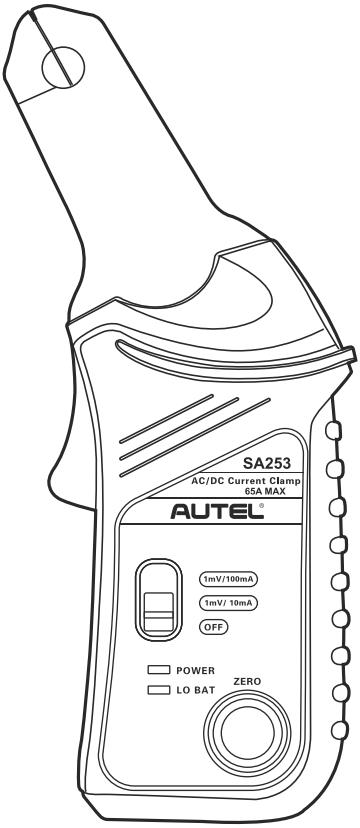
AUTEL®

65A AC/DC CURRENT CLAMP

OPERATOR'S MANUAL



SA253

INTRODUCTION

When measuring AC or DC with the Current Clamp, you can connect it with a multimeter or 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 20 KHz. It works with jaws which open to allow clamping around an electrical conductor. After linking it with a multimeter or an oscilloscope, push down the zero adjustment knob on the clamp until the multimeter or oscilloscope reads zero.

APPLICATION PROCEDURE

1. Connect the BNC connector of the clamp to the input of a multimeter or an 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, please push down the zero adjustment knob on the clamp until the multimeter or oscilloscope reads zero. When using an oscilloscope, set DC coupled mode to measure 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 5 mV and the actual current is 5×100=500mA.

APPLICATOIN 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.

2. In the case of DC measurement, the current clamp 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: 9mm maximum

Low Battery Indicator: Red LED

Operating Temperature: 0℃ to 50℃, 70% R.H.

Storage Temperature: -20℃~+70℃, 80% R.H.

Battery type: 9V DC, NEDA 1604, 6F22, 006P

Battery Life: 100 hours typical with carbon-zinc

Weight: 250 grams

Dimensions: 195 mm (H) x 70 mm (W) x 33 mm (D)

Output: Through a BNC connector

ELECTRICAL (At 23±5℃, 70% R.H. maximum)

Efficient Measure Range:

1mV/10mA: 10mA to 20 A DC or rms AC

1mV/100mA: 100mA to 65 A DC or rms AC

Precision:

System Accuracy: The precision of the current clamp adds to that of the digital multimeter or 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 digital multimeter or 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: 10kΩ

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

SAFETY INFORMATION

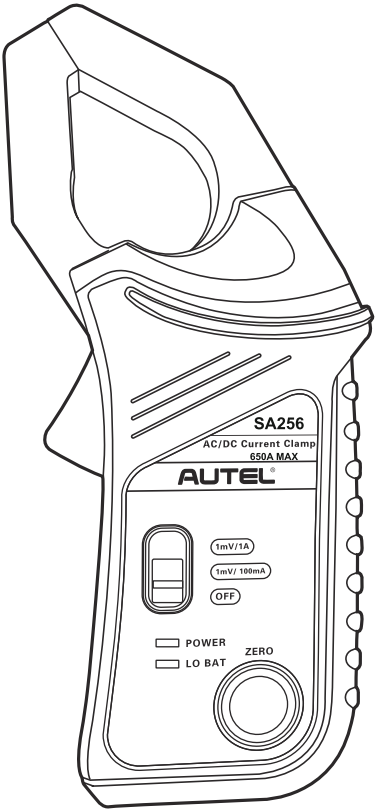
The instrument complies with class II, overvoltage CAT II of EN 61010-1 and EN 61010-2-032. Pollution degree of the current clamp is level 2 in accordance with IEC 664 indoor use. If the equipment is used in a manner not specified, the protection provided by the equipment may be impaired.

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).

AUTEL®

650A AC/DC CURRENT CLAMP

OPERATOR'S MANUAL



SA256

INTRODUCTION

When measuring AC or DC with the Current Clamp, you can connect it with a multimeter or 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 650A, with a frequency up to 400Hz. It works with jaws which open to allow clamping around an electrical conductor. After linking it with a multimeter or an oscilloscope, push down the zero adjustment knob on the clamp until the multimeter or oscilloscope reads zero.

APPLICATION PROCEDURE

1. Connect the BNC connector of the clamp to the input of a multimeter or an oscilloscope with an input impedance of at least 10k ohms.

2. When the current is no greater than 200A, set the current clamp to the range of 1mV/10mA, otherwise to 1mV/1A. The green LED lights, indicating that the clamp is switched on.

3. Before measuring DC, please push down the zero adjustment knobs on the clamp until the multimeter or oscilloscope reads zero. When using an oscilloscope, set DC coupled mode to measure DC.

4. Clamp the jaws around the electrical conductor.

5. When the current clamp is set to 1mV/100mA, the actual current value is one hundred times of the measured data whose unit is mV. For example, the measured data is 10 mV and the actual current is 10×100=1000mA.

6. When the current clamp is set to 1mV/1A, the actual current is one thousand times of the measured data whose unit is mV. For example, the measured data is 5 mV and the actual current is 5×1000=5000mA.

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.

2. In the case of DC measurement, the current clamp 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: 30mm maximum

Low Battery Indicator: Red LED

Operating Temperature: 0℃ to 50℃, 70% R.H.

Storage Temperature: -20℃~+70℃, 80% R.H.

Battery type: 9V DC, NEDA 1604, 6F22, 006P

Battery Life: 100 hours typical with carbon-zinc

Weight: 250 grams

Dimensions: 195 mm (H) x 70 mm (W) x 33 mm (D)

Output: Through a BNC connector

ELECTRICAL (At 23±5℃, 70% R.H. maximum)

Efficient Measure Range:

1mV/100mA: 100mA to 200A DC or rms AC

1mV/1A: 1A to 650A DC or rms AC

Precision:

System Accuracy: The precision of the current clamp adds to that of the digital multimeter or oscilloscope.

For example, if the conductor carries 1A current, the current clamp is set to 1mV/100mA and the output is 10mV. If the precision is 1.5%, the output is between 9.85mV and 10.15mV.

If the digital multimeter or oscilloscope connected with current clamp is set to 200mV and the precision is 0.5%, the readings is between 9.80mV and 10.20mV.
(10.15mV×(1+0.5%)=10.20mV, 9.85mV×(1-0.5%)=9.80mV)

Accuracy:

DC: 1mV/100mA

±(1.5%±50m A) 100mA to 200A

DC: 1mV/1A

±(2%±0.5 A) 1A to 200 A,

±(4%±2 A) 200A to 650 A

AC (50 Hz to 400 Hz): 1mV/100mA

±(3%±0.5A) 100mA ~ 100A

±(8%±1A) 100A ~ 150A

AC (50 Hz to 400 Hz): 1mV/1A

±(3%±2A) 1A ~ 500A

±(6%±2A) 500A ~ 600A

±(8%±2A) 600A ~ 650A

Load Resistance: 10kΩ

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

SAFETY INFORMATION

The instrument complies with class II, overvoltage CAT II of EN 61010-1 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).

AUTEL®

COIL ON PLUG (COP) PROBE

OPERATOR'S MANUAL

SA271

Features

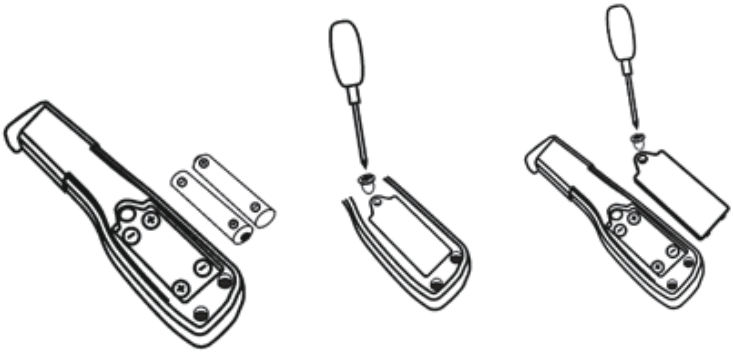
- COP Probe can catch the ignition waveform of automobile engine easily. The ignition waveform is a window, through which we can see what happened in the engine combustion chambers. It determines whether the ignition plug needs to be replaced or cleaned. Does fuel injector in electronic fuel injection system work well? Is there any problem in the leakproofness of air cylinder? Does the gap between ignition plugs get larger? Does the electrode shape of ignition plug become sharp? Is there too much oil pollution or carbon deposition on the ignition plugs? Does the insulating property of ignition plug get worse? Is there any problem in the power supply system of storage battery?
- It can be used with normal oscilloscope. Special anti-interference design, high accuracy of measurement.
- Ergonomic design, can be arbitrary curved.
- Highlight LED which is convenient to operate at night or in dark condition.

Warning

- To avoid injury, keep the probe away from moving parts, such as the alternator drive belt and cooling fans.
- To present electric shock, do not use if the probe's sensor plate's insulation shows signs of damage.

Battery

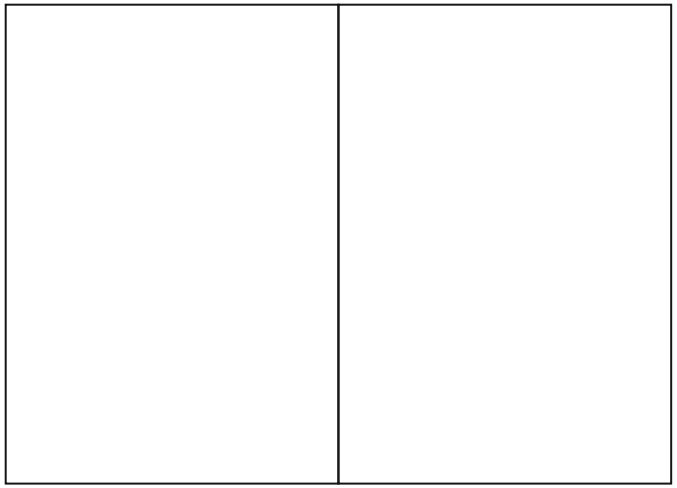
Pay attention to the positive and negative polarity, as shown below.



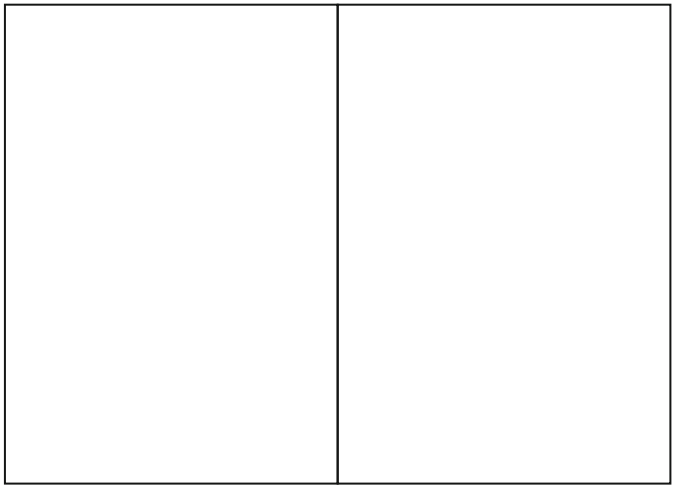
图号

REV	POSITION	DATE	DESCRIPTION

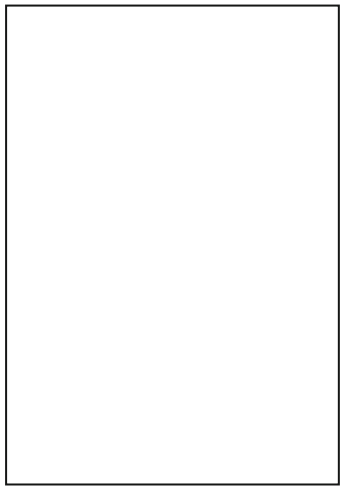
三款机型：



65A AC/DC CURRENT CLAMP　为折页款



650A AC/DC CURRENT CLAMP　为折页款



COIL ON PLUG（COP） PROBE
为折页款

颜色

PANTONE BLACK

DIM	Sheetmetal	Machining
0~6	0.10	0.05
6~30	0.15	0.10
30~120	0.25	0.15
120~300	0.35	0.20
300~600	0.50	0.25
600~1200	0.60	0.30
>1200	0.80	0.50
ANG.	1 ~	30'

AUTEL 道通科技股份有限公司
Autel Intelligent Technolog Corp.Ltd.

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PROJ

DRAW: 张贝贝
CHKD: 阳岳喜
STAD:
APPD: 廖岳龙
SHEET: 1 OF 1

TITLE: 快速指引
UNIT'S: 132x190 mm
FINISH:
MASS(Kg):
SCALE:
PRODUCT: 电流钳独立点火探头
DWG NO.: AUT82060064
PART NO.: 500004278
REV: V1
Material: 120g书纸

RELEASE LEVEL: &PROJ_RELEASE
FILE NAME: MODEL NAME