

8. Temperature measurement (°C) (See Figure 10)

- To set knob.
To place function knob to "°C"
- To select functions.
- To connect load.

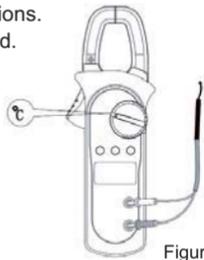


Figure 10

1) LCD will display "OL" if failing to insert temperature sensor. Clamp meter will display current indoor temperature after user inserting temperature sensor.

2) The protection for the temperature range is 1KΩ resistor(R59). any conductor with voltage present cannot be inserted into input jack to avoid.

9. DC current measurement (A) (See Figure 11)

- To set knob.
To place function knob to "40A" or "600A"
- To select functions.
The meter defaults at DC Current Mode.
- To connect load.

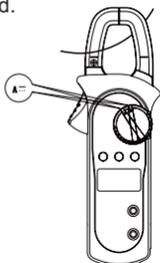


Figure 11

Please do not loosen trigger suddenly. As a sensitive device, Hall element will be sensitive to heat and mechanical stress to different extents in addition to magnetic sensitivity. Collision will cause short-term reading variation. Please open the clamp head by pressing trigger then fetch measured conductor by clamp head and loosen trigger slowly until it is closed completely. Please check if measured conductor is in the middle of clamp head or not. Additional error may be caused if failing to place it in the middle of clamp head. Clamp meter can measure a current conductor once and measurement reading error may be caused if measuring two or more current conductors at the same time.

10. AC current measurement (A) (See Figure 12)

- To set knob.
To place function knob to "40A" or "600A"
- To select functions.
To press SELECT key for AC current measurement;
- To connect load.

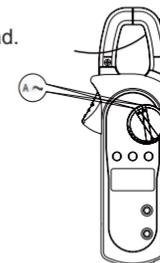


Figure 12

Please do not loosen trigger suddenly. As a sensitive device, Hall element will be sensitive to heat and mechanical stress to different extents except magnetic sensitivity. Collision will cause short-term reading variation. Please open the clamp head by pressing trigger then fetch measured conductor by clamp head and loosen trigger slowly until it is closed completely. Please check if measured conductor is in the middle of clamp head or not. Additional error may be caused if failing to place it in the middle of clamp head. Clamp meter can measure a current conductor once and measurement reading error may be caused if measuring two or more current conductors at the same time.

IX. Technical Indicators

1. General specification

LCD display: 4000 counts;
Polarity display: Automatic display;
Overload display: To display "OL" or "-OL",
Low Battery Indication: "BAT" shows as battery voltage is less than required working voltage.
Sampling rate: 3 times/second;
Sensor category: Hall effect sensor for DC/AC measurement;
Error of testing position: $\pm 1.0\%$ of additional reading error may be caused if failing to place measured source to center of clamp head during current measurement;
Shock-resistant: pass 1m drop test;
Max. clamp Opening: 28mm diameter;
Max. Tested Conductor: 26mm diameter;
Influence of electromagnetic field: Device used near electromagnetic field may display unstable or incorrect reading;

2. Environment limitation

Indoor use
The altitude height: 2,000m
Safety rules: ICE 1010-1 CAT.II 600V
CAT.III300V
Pollution degree: 2
Operation temperature & humidity: 0°C to 30°C (not more than 80%R.H.)
30°C to 40°C (not more than 75%R.H.)
40°C to 50°C (not more than 45%R.H.)
Storage temperature & humidity: -20°C to +60°C (not more than 80%R.H.)

3. Electrical specification

Accuracy: $\pm (a\% \text{ readings} + b \text{ digits})$
Calibration period for 1 year
Ambient temperature: 23°C $\pm 5^\circ\text{C}$
Ambient humidity: Not more than 80% R.H.
Temperature coefficient: 0.1*precision/1°C

(1) DC voltage (V)

Range	Resolution	Accuracy	Overload protection
400.0mV	0.1mV	$\pm (0.8\%+3)$	600V DC/AC
4.000V	1mV	$\pm (0.8\%+1)$	
40.00V	10mV		
400.0V	100mV		
600V	1V		

Input impedance: 10MΩ

(2) AC voltage (V)

Range	Resolution	Accuracy	Overload protection
4.000V	1mV	$\pm (1\%+5)$	600V DC/AC
40.00V	10mV		
400.0V	100mV		
600V	1V		

Input impedance: 10MΩ //not less than 100pF

Frequency response: 40Hz~400Hz

AC conversion type:

AVG response, RMS value for sinewave input.

(3) Resistance (Ω)

Range	Resolution	Accuracy	Overload protection	
400.0Ω	100mΩ	$\pm (1.2\%+2)$	600Vp	
4.000KΩ	1Ω	$\pm (1\%+2)$		
40.00KΩ	10Ω			
400.0KΩ	100Ω			
4.000MΩ	1KΩ			$\pm (1.2\%+2)$
40.00MΩ	10KΩ			$\pm (1.5\%+2)$

(4) Diode test (→|←)

Range	Resolution	Accuracy	Overload protection
	1mV	To display approximate positive pressure drop. (Open circuit voltage is about 1.48V.)	600Vp

(5) Continuity test (•••)

Range	Resolution	Accuracy	Overload protection
	0.1Ω	Buzzer will ring if it is less than or equal to 10Ω. (Open circuit voltage is about 0.45V.)	600Vp

Note: Buzzer will ring or not ring if measured resistance exceeds 10Ω

(6) Capacitance (—|—)

Range	Resolution	Accuracy	Overload protection
4nF	0.001nF	$\pm (4.0\%+3)$	600Vp
40nF	0.01nF		
400nF	0.1nF		
4μF	0.001μF		
40μF	0.01μF		
100μF	0.1μF	$\pm (5.0\%+10)$	

To measure under RELATIVE measurement mode;

(7) Frequency (Hz)

Range	Resolution	Accuracy	Overload protection	
10Hz	0.001Hz	$\pm (0.5\%+3)$	600Vp	
100Hz	0.01Hz			
1kHz	0.1Hz			
10kHz	1Hz			
100kHz	10Hz			
1MHz	100Hz			
10MHz	1kHz			(Reading is only for reference.)

Sensitivity: $\geq 300\text{mV rms}$ if $\leq 100\text{kHz}$;
 $\geq 600\text{mV rms}$ if $> 100\text{kHz}$;
 $\geq 800\text{mV rms}$ if $> 1\text{MHz}$;

(8) Temperature (°C)

Range	Accuracy	Overload protection
-40°C ~ 1,000°C	-40°C~0°C $\pm (8\%+5)$ 0°C~400°C $\pm (2.5\%+3)$ 400°C~1,000°C $\pm (3.0\%+3)$	Plug-in resistance of 1KΩ

Note:

- 1) There is no voltage protection for temperature ranges. It is not allowed to insert electrified conductor into jack to avoid burnout of 1KΩ resistance;
- 2) K type thermocouple (Ni-Cr-Ni-Si) is only suitable to temperature measurement of less than 230°C. Rod type temperature sensor shall be used for temperature measurement of more than 230°C.

(9) DC current (A)

Range	Resolution	Accuracy	Overload protection
40.00A	0.01A	$\pm (2\%+5)$	600A DC/AC
600A	1A		

Note:

Current measurement function must be operated between 0°C and 40°C. Current direction is from bottom to top for positive reading during DC current measurement. (As shown in Figure 11, panel is on the top and bottom cover is on the bottom.) Please do not loosen the trigger suddenly after pressing. As a sensitive device, Hall element will be sensitive to heat and mechanical stress to different extents addition to magnetic sensitivity. Collision will cause short-term reading variation. More correct A measurement can be guaranteed

by following operation methods:

- ① Press the trigger and open clamp head to fetch measured conductor by clamp head then loosen trigger slowly until clamp head is closed completely. Please check if measured conductor is in the middle of clamp head or not. Additional reading error of $\pm 1.0\%$ may be caused if failing to place it in the middle of clamp head;
- ② To remove clamp head away from the current conductor;
- ③ To press REL Δ key for display resetting;
- ④ To repeat step ①;
- ⑤ To gain more correct reading by above measurement steps;

(10) AC current (A)

Range	Resolution	Accuracy	Frequency response	Overload protection
40.00A	0.01A	$\pm (2.5\%+8)$	50Hz~60Hz	600A DC/AC
600A	1A	$\pm (2.5\%+5)$		

Note:

Current measurement function must be fulfilled between 0°C and 40°C. Frequency response: 50Hz~60Hz;

Instable or incorrect inductive reading with less than 10 words may be displayed in AC current gear and it will not influence measurement result. Please do not loosen trigger suddenly. As a sensitive device, Hall element will be sensitive to heat and mechanical stress to different extents in addition to magnetic sensitivity. Collision will cause short-term reading variation.

AC conversion type:

AVG response; RMS value for sinewave input.

X. Maintenance(See Figure 13)

- Warning:** Please remove testing rod before opening bottom cover to avoid electric shock.
1. General maintenance
 - A. The clamp meter must be repaired and served by qualified professional repair personnel or designated repair department.
 - B. To clean the shell periodically by dry cloth. However, it is not allowed to use detergent with abrasive or solvent.

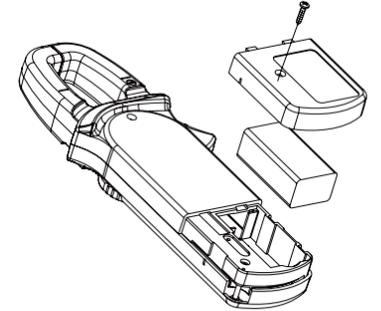


Figure 13

- 2: Battery installation or replacement 16F22 9V battery shall be supplied for the product. Please install or replace the battery by following sequence:
 - a. Please remove testing rod in the input end during shutdown.
 - b. To let panel face downwardly, loosen screws on the cell box, extract cell cover then remove cell box.
 - c. To remove old battery from cell box for installation of new battery according to polarity instructions.
 - d. Please use the same model of battery. Please do not install improper battery.
 - e. To install cell cover and lock screws after installation of new battery.

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