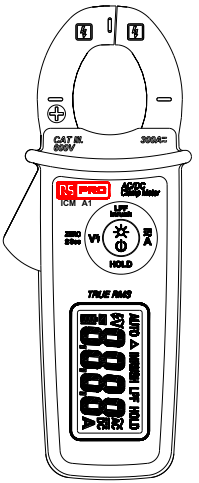
# Instruction Manual
# ICM A1
# AC/DC Clamp Meter

EN



## ⚠ *Read First*

## ⚠ *Safety Information*

- Use the instrument only as specified in this manual or the protection by the instrument might be impaired.
- Always use proper terminals, switch position, and range for measurements.
- Verify the instrument's operation by measure ing a known voltage. If in doubt, have the instrument serviced.
- Do not apply more than the rated voltage, as marked on the instrument.
- To avoid false readings that can lead to electric shock and injury, replace battery as soon as low battery indicator.
- Do not use the instrument around explosive gas or vapor.
- To reduce the risk of fire or electric shock do not expose the instrument to rain or moisture.
- Individual protective equipment should be used if HAZARDOUS LIVE parts in the installation where measurement is to be carried out could be ACCESSIBLE.
- Do not allow fingers to protrude beyond the Tactile Barrier when fitting or removing the instrument from around a Hazardous Live conductor, as this may cause a shock.

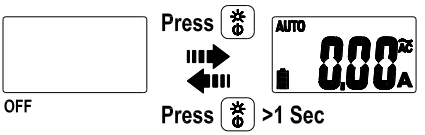
## ⚠ Caution

Do not expose the instrument to extremes in temperature or high humidity.

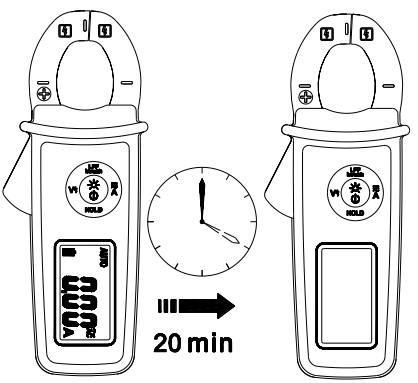
**Symbols as marked on the instrument and instruction manual**

| | |
|---|---|
|  | Risk of electric shock |
|  | See instruction card |
|  | DC measurement |
|  | AC measurement |
|  | Equipment protected by double or reinforced insulation |
|  | Battery |
|  | Earth |
|  | Conforms to EU directives |
|  | Application around and removal from hazardous live conductors is permitted |
|  | Do not dispose this electrical or electronic product in domestic household waste. |

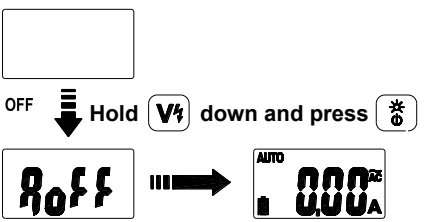
***Power on / off***



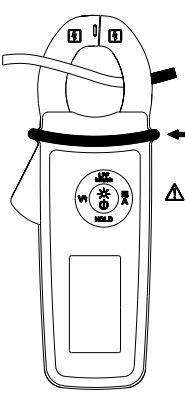

***Auto Power Off***



### *Auto Power Off Disable*




### *ACA & DCA*

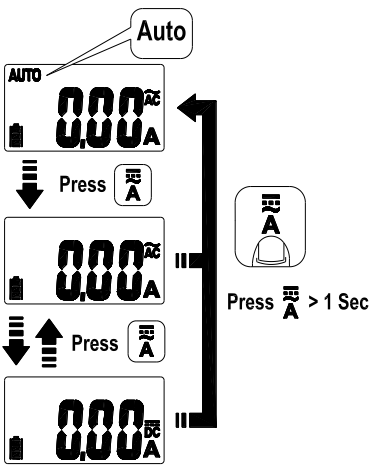


⚠ CAT.Ⅲ600V with respect to earth for the jaw

Barrier for Hand Guard

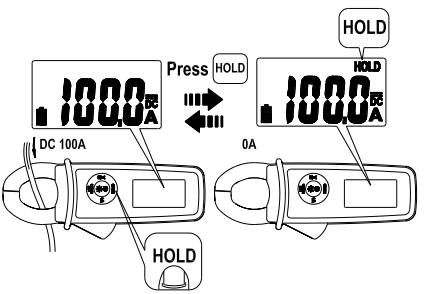
⚠ The barrier on the JAW is indicating the limit of safe access of the hand-held part, do not hold over the barrier when in normal use.

***Auto ACA&DCA Detection / ACA&DCA***



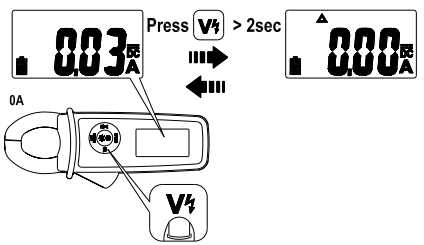

Due to the high sensitivity of the instrument, perform DCA Zero in the same direction as measurement to avoid interference by an external magnetic field.

***Data Hold***

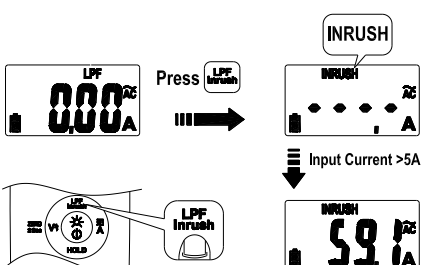



The display will flash continuously if the measured signal is larger by 50counts than the display reading. However, it cannot detect across the AC and DC Current.

***DCA ZERO***

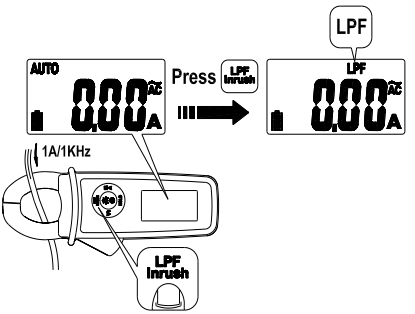



***Inrush Current***



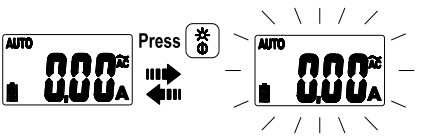

The instrument calculates the RMS value for 100ms as detecting a more than 5A current.

***Low Pass Filter***

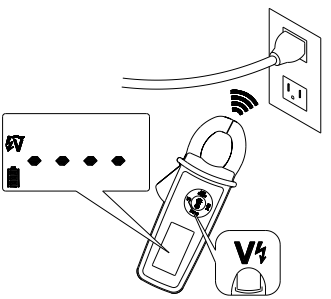



The cut -off frequency of the low pass filter is about 160Hz with attenuation characteristic of approx-24db/octave.

***Backlight on/off***

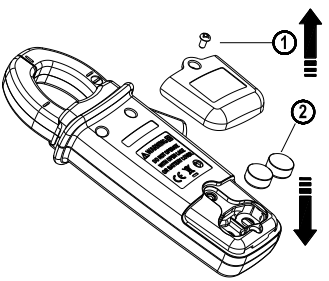


***Voltsense***



The number of dashes displaying on the LCD indicates the electric field intensity.
If no indication, voltage could still be present.

### *Battery Replacement*




### *Maintenance*

Do not attempt to repair this instrument. It contains no user-serviceable parts. Repair or servicing should only be performed by qualified personnel.

### *Cleaning*

Periodically wipe the case with a dry cloth and detergent. Do not use abrasives or solvents.

## Specifications

### 1-1 General Specifications

**Display Count :** 6000 count
**Overrange Display :** "OL" or "-OL"
**Conversion Rate :** 2 times / second
**Dimensions (W x H x D) :** 60 x 147 x 31.5 mm
**Weight :** 140 g
**Power requirement :**
LR44 Size Button Battery 1.5V x 2
**Battery Life :** 20 hours.
**Maximum Conductor Size :** 22 diameter
**LVD :** EN61010-1, EN61010-2-030,
EN61010-2-032
**EMC :** EN61326-1
**Installation category :** CAT.Ⅲ. 600V.

| CAT. | Application field |
|---|---|
| Ⅰ | The circuits is not connected to mains. |
| Ⅱ | The circuits is directly connected to Low-voltage installation. |
| Ⅲ | The building installation. |
| Ⅳ | The source of the Low-voltage installation. |

## 1-2 Environmental Conditions

Indoor Use.

**Maximum operating altitude :**

2000m (6562 ft)

**Operating temperature :**

0°C ~ 30°C, ≦80%RH

30°C ~ 40°C, ≦75%RH

40°C ~ 50°C, ≦45%RH

**Storage temperature :**

-20 to +60°C, 0 to 80% RH (no batteries).

**Temperature coefficient :**

0.2 x (Specified accuracy) / °C, < 18°C, > 28°C

**Pollution Degree :** 2

**Shock vibration :**

MIL-PRF-28800F for A class 2 Instrument

**Drop Protection :**

4 Feet Drop to hardwood on concrete Floor

## 1-3 Electrical Specifications

Accuracy is given as ±(% of reading + counts of least significant digit) at 23°C ± 5°C,with relative humidity Less than 80% R.H.
ACV and ACA specifications are ac coupled, true R.M.S. The crest factor may be up to 3.0 as 4000 counts.
For non-sinusoidal waveforms, Additional Accuracy by Crest Factor (C.F.) :
Add 3.0% for C.F. 1.0 ~ 2.0.
Add 5.0% for C.F. 2.0 ~ 2.5.
Add 7.0% for C.F. 2.5 ~ 3.0.
Position Error of Clamp: ±1.5% of LCD reading.

**DC Current**

| Range | Resolution | Accuracy |
|---|---|---|
| 60.00A (1) | 0.01A | ±(1.5% +10D) (2) |
| 300.0A | 0.1A | ±(1.5% + 5D) |

All specifications are valid from 5% to 100% of each range.
(1) There is less than 0.3A variation as measuring in different directions.
(2) Add 10D to accuracy in Auto AC & DC Sense Mode.

**AC Current**

| Range | Resolution | Accuracy (50 ~ 100Hz) | Accuracy (100 ~ 400Hz) |
|---|---|---|---|
| 60.00A | 0.01A | ±(1.5% + 5D) | ±(2.5% +5D) |
| 300.0A | 0.1A | | |

All specifications are valid from 5% to 100% of each range.
**Frequency Response :** 50 ~ 400Hz
(Sine Wave)

**Low-pass Filter**

| Range | Resolution | Accuracy (50Hz/60Hz) |
|---|---|---|
| 60.00A | 0.01A | ±(3.5%+5D) |
| 300.0A | 0.1A | ±(3.5%+5D) |

All specifications are valid from 5% to 100% of each range.
**Cut-off Frequency (-3dB) :** Approx. 160Hz
**Attenuation Characteristic :**
Approx. -24dB / Oct

**Inrush Current**

| Range | Resolution |
|---|---|
| 300.0A | 0.1A |

**Integration Time :** 100ms
**Trigger Current :** 5.0A

**VoltSense**

**Voltage Range :** 80V ~ 600V
(At the tip of clamp)

## Limited Warranty

This meter is warranted to the original purchaser against defects in material and workmanship for 3 years from the date of purchase. During this warranty period, RS Components will, at its option, replace or repair the defective unit, subject to verification of the defect or malfunction.
This warranty does not cover fuses, disposable batteries, or damage from abuse, neglect, accident, unauthorized repair, alteration, contamination, or abnormal conditions of operation or handling.
Any implied warranties arising out of the sale of this product, including but not limited to implied warranties of merchantability and fitness for a particular purpose, are limited to the above. RS Components shall not be liable for loss of use of the instrument or Other incidental or consequential damages, expenses, or economic loss, or for any claim or claims for such damage, expense or economic loss. Some states or countries laws vary, so the above limitations or exclusions may not apply to you. For full terms and conditions, refer to the RS website.

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