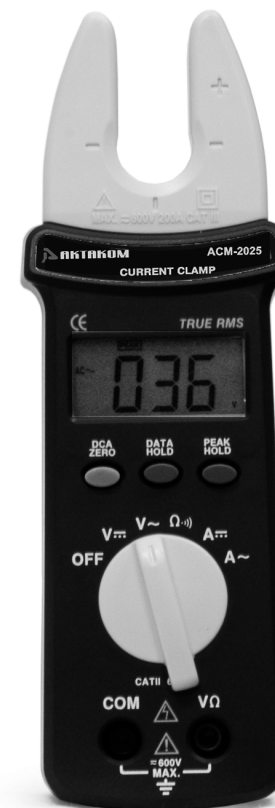# AC/DC FORK CURRENT TESTER

AKTAKOM   Model : ACM-2025

Your purchase of this AC/DC FORK CURRENT TESTER marks a step forward for you into the field of precision measurement. Although this FORK CURRENT TESTER is a complex and delicate instrument, its durable structure will allow many years of use if proper operating techniques are developed. Please read the following instructions carefully and always keep this manual within easy reach.

www.tmatlantic.com

OPERATION MANUAL

Caution Symbol
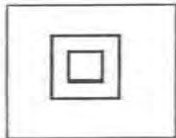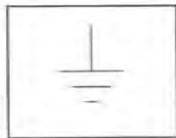
Caution :

* Risk of electric shock !

Caution :
* Do not apply the overload voltage, current to the input terminal !
* Remove test leads before open the battery cover !
* Cleaning - Only use the dry cloth to clean the plastic case !

* Double insulation

* Function earth

Environment Conditions

* Jaw Section : CAT III 600 V, 600 A.
* Terminal : CAT II 600 V.
* Pollution Degree 2.
* Altitude up to 2000 meters.
* Relative humidity 80% max.

TABLE OF CONTENTS

1. FEATURES

* Use the fork current sensing structure, when make
  current measurement it not necessary to open
  the jaws as the traditional clamp meter, easy operation.
* 200 Amp ACA, DCA for fork current measurement
* Design meet IEC 1010 CATIII 600V safety requirement.
* 2000 counts, multi-functions.
* Measurement for ACA, DCA, ACV, DCV, Ohms,
  Continuity beeper.
* True RMS measuring reading for ACV and ACA function.
* Data hold.
* Peak hold.
* Overload protection circuit is provided for all range.
* LSI circuit provides high reliability and durability.
* Pocket & slim housing case, easy carryout.
* Compact & heavy duty ABS housing fireproof plastic case.

2. SPECIFICATIONS

2-1 General Specifications

Display	12.2 mm (0.48") LCD, 3 1/2 digits, Max. indication 1999.
Measurement Range	ACA, DCA, ACV, DCV, Ohms, Continuity beeper.
Polarity	Automatic Switching, " - " indicates negative polarity.
Current Sensor	Hall effect sensor.
Zero adjustment	DCA : Push bottom adjustment. Other ranges : Automatic adjustment.

| Over-input	Indication of " OL ".
Sampling Time	Approx. 0.35 second.
Battery	006P DC 9V battery.
Operating Temperature	0 to 50 ℃ (32 to 122 ℉).
Operating Humidity	Less than 80% RH.
Weight	205 g/0.45 LB (including battery).
Dimension	HWD : 176 x 60 x 41 mm (6.9 x 2.4 x 1.6 inch)
Max. Fork Jaw Open Size	15 mm (0.59 inch) Dia.
Accessories Included	Operation manual.................. 1 PC. Test lead (red & black)............ 1 PC.
Optional Accessories	Carrying case, CA-52A

2-2 Electrical Specifications (23± 5 ℃)

Function	Range	Reso-lution	Accuracy	Overload Protection
DCV ACV (true rms)	600 V	1 V	DCV : ± (0.8 % + 1d) ACV : ± (1 % + 2d)	⚠ AC/DC 600V
DCA ACA (true rms)	200 A ACA : 0.5 to 200A	0.1 A	DCA ± (2 % + 5d) ACA ± (2 % + 8d)	⚠ AC/DC 200A
Remark	* True RMS measuring reading for ACV and ACA function. * Input impedance for ACV & DCV range is 9 Meg ohm. * ACA, ACV frequency response is from 40 to 1 KHz. * ACA, ACV specification be tested on sine wave 50/60 Hz.			

Function	Range	Reso-lution	Accuracy	Overload Protection
Ohms	200 ohm	0.1 ohm	± (1 % + 2d)	⚠ AC/DC 400V
Continuity	If measuring resistance is less than 10 ohm, the beeper will sound .			
Peak Hold	Acquisition Time: Approx. 800 ms. Application: Use for measuring transient signal for current.			

Remark :

*Spec. tested under the environment RF Field Strength less than 3 V/M & frequency less than the 30 MHz only.

3. FRONT PANEL DESCRIPTION
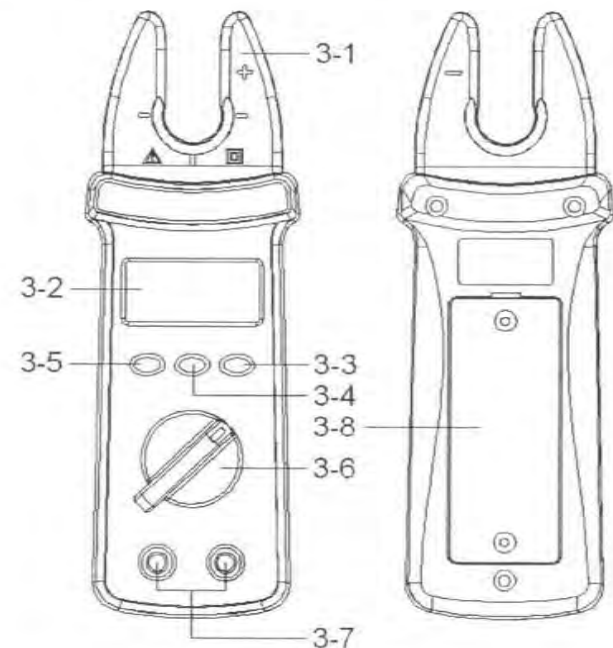
Fig. 1

3-1 Current Sense Fork Jaw
3-2 Display
3-3 Peak Hold Button
3-4 Data Hold Button
3-5 DCA Zero Button
3-6 Function Rotary Button
3-7 Input Terminals
3-8 Battery compartment/Cover

4. PRECAUTIONS & PREPARATIONS FOR MEASUREMENT

1) Ensure that the DC 9V battery are connected with the right polarity and placed in the battery compartment correctly.
2) Place the Red & Black Test Leads into the proper input terminal before making measurement.
3) Remove either of the test leads from the circuit when changing the measurement function.
4) Except operate the " Data Hold " function, it should cancel the " Data Hold " function, otherwise the display reading will freeze permanently.
5) Do not exceed the maximum rated voltage to the input terminal.
6) Always switching the " Function Rotary Switch " to the " OFF " position when the instrument is not operation.
7) Remove the battery if the instrument is not to be used in a long period of time.
8) Though the most ranges build the overload protection circuit, however it is prohibited to apply any voltage to input terminal when making the measurement.
9) For safety consideration, when change the new test leads, it should use the replace test leads that already approval of " CATIII-600V " at least.

5. MEASURING PROCEDURE

5-1 Symbols & units of display

Symbols / Units	Descriptions
AC $\sim$	Appears when selecting ACV & ACA mode.
H	Appears when the " Data hold " function is operated.
⊏⁺⁻⊐	Battery voltage is under the low condition already.
•)))	Appears when execute the ohm function and the measuring resistance < 3 ohm.
V	Units for voltage measurements.
Ω	Units for resistance measurements.
──	Appears when measuring a DCV or DCA value is negative.
A	Units for " Current " measurement.
PEAK	Appears when the " Peak Hold " function is operated.

5-2 DCV, ACV Measurement

1) Connect BLACK test lead into " COM " terminal.
2) Connect RED test lead into " V Ω " terminal.
3) If measure " DCV ", select the " Function rotary switch " (3-6, Fig. 1) to the " V $===$ " position
4) If measure " ACV ", select the " Function rotary switch " (3-6, Fig. 1) to the " V $\sim$ " position, the display (3-2, Fig. 1) will show the " AC $\sim$ " indicator.

5-3 Resistance Measurement

1) Connect BLACK test lead into " COM " terminal.
2) Connect RED test lead into " V Ω " terminal.
3) Select the " Function rotary switch " (3-6, Fig. 1) to the " Ω •)) " position, the display (3-2, Fig. 1) will show the " Ω " indicator.

5-4 Continuity Check

1) Connect BLACK test lead into " COM" terminal.
2) Connect RED test lead into " VΩ " terminal.
3) Select the " Function rotary switch " (3-6, Fig. 1) to the " Ω •)) " position.
4) When the resistance value is less than 3 ohm, the beeper sound will be generated, the display (3-2, Fig. 1) will show the " •))) " indicator.

5-5 AC Current Measurement

1) Select the " Function rotary switch " (3-6, Fig. 1) to the " A $\sim$ " position , the display (3-2, Fig. 1) will show the " AC $\sim$ " indicator.

2) Put the electrical wire that intend to make the ACA measurement into the center of " Fork Jaw " (3-1, Fig. 1)


Electrical wire
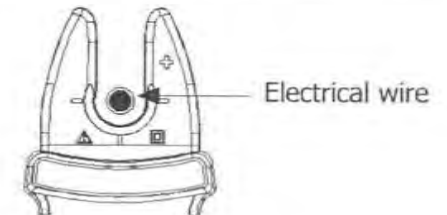
Remark :
No ACA signal input, if the display show few counts (less than 0.5 A, such as 0.2 A, 0.3 A...), it is normal & not effecting the measurement value.

3) The reading that show on the display is the true rms value.

5-6 DC Current Measurement

1) Select the " Function rotary switch " (3-6, Fig. 1) to the " A $===$ " position.
2) Put the electrical wire that intend to make the DCA measurement into the center of : Fork Jaw " (3-1, Fig. 1)

Electrical wire
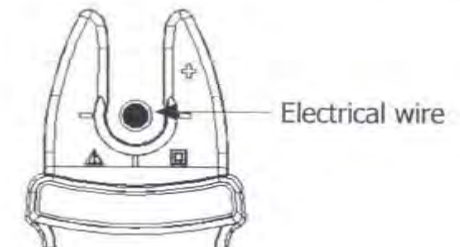
ZERO consideration of DCA measurement

Under DCA measurement, no signal input (not measuring current), if LCD show certain digits (< 10 digits), it is normal.
However we recommend :
1) If the zero value less than 1 A, it may ignore it, if for the general operation.
2) For the precise measurement or the " DCA zero value " large than 1A, then please execute the " DCA ZERO " procedures as :
   * Push the " DCA ZERO Button " (3-5, Fig. 1), display will change to zero value.

5-7 Data Hold Operation

1) During the measurement, pushing the " DATA HOLD Button " (3-4, Fig. 1) once a while will freeze the measured value & the LCD will indicate " $\boxed{H}$ " symbol.
2) Push the " DATA HOLD Button " again to release the data hold function.

5-8 Peak Hold Operation

1) Before the measurement, pushing the " PEAK HOLD Button " (3-3, Fig. 1), then LCD will indicate " $\boxed{PEAK}$ " symbol.
2) After finish the above procedures, then go to make the measurement. During the measurement, the tester will record the max. reading value on LCD.
3) Push the " PEAK HOLD Button " (3-3, Fig. 1) again to release the PEAK HOLD function.

9

6. MAINTENANCE

6-1 Battery replacement

$\boxed{\triangle !}$ Caution : Remove test leads before opening the battery cover !

1) When the LCD display showing the mark of " $\boxed{+ -}$ ", it is necessary to replace the battery, However in-spec. measurement may still be made for several hours after " Low battery indicator " appears before the instrument become inaccurate.
2) Open the screw of " Battery Cover " (3-8, Fig. 2) by screwdriver, then move the battery.
3) Replace with 9V battery and reinstate the cover.

6-2 Cleaning

$\boxed{\triangle !}$ Caution : Cleaning - Only use the dry cloth to clean the plastic case !

10