

LIST OF PRODUCTS

- * Digital Multimeter
- * AC Clamp Adaptor
- * Thermo Anemometer
- * Distance Meter
- * Network Cable Tester
- * Earth Resistance Tester
- * DC Power Supplies
- * Calibrators
- * Frequency Counter
- * Phasing Sticks
- * Waterproof Pen Testers
- * EMF Detector
- * Wood, Paper & Grain Moisture Meter
- * Transistorised Electronic Analog & Digital Insulation Resistance Testers(upto 10 KV)
- * Digital Sound Level Meter & Sound Level Calibrator
- * Digital contact & Non-contact Type Tachometer
- * Digital Non-contact (infrared) Thermometer
- * Maximum Demand Controller/Digital Power Meter
- * Digital Hand Held Temperature Indicators
- * Digital AC & AC/DC Clampmeter
- * AC/DC Current Adaptor
- * Thermo Hygrometer
- * Digital Lux Meter
- * Power Factor Regulator
- * Digital Panel Meters
- * High Voltage Detector
- * Gas Analysers
- * Function Generator
- * Battery Tester
- * Solar Power Meter

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KUSAM-MECO®

AN ISO 9001:2015 COMPANY

AC TRUE RMS DIGITAL MULTIMETER WITH RS-232 COMPUTER INTERFACE



MODEL - KM 5040-T
OPERATION MANUAL

**TAKE MEASUREMENT CAREFULLY AND YOU'LL
SPARE YOUR METER AND YOURSELF, SOME PAIN**

Nearly every electrical engineer has a hand held digital multimeter (DMM). We sometimes take them for granted, until we damage them or "burn them out" if you incorrectly connect your DMM to a circuit or have the DMM on wrong setting, you damage the meter and possibly hurt yourself. You can also get into trouble if you try to measure the voltage across a charged capacitor.

DMM users frequently burn their meters by trying to measure current the same way as they measure voltage, Remember, you measure voltage across a circuit, and current through a circuit. When you use the current input, your DMM becomes a lower impedance circuit element. If you accidentally connect this low impedance path across your circuit, you'll effectively short-circuit it. You can, therefore send high current through your meter and severely damage it. Unless the meter has a fused input, you can even get an explosion or fire.

Even if you correctly insert your DMM into the circuit, you can still damage your meter. Don't try to measure current in excess of your meter's capacity. Handheld DMMs usually have a maximum current rating of 10A or 20A.

If you are measuring current in industrial environment, you can easily exceed those ratings. The best way to avoid damage is to use a clamp meter or to connect a clamp attachment to your DMM.

To prevent excess current from flowing through your meter, always disconnect the test leads from the circuit under test whenever you change DMM functions, Set your meter to the correct function, say current and its highest range for the setting, say 10A. Next, connect the test leads before you apply power to the circuit. To be safe, start by setting your meter to its highest range first.

I. SAFETY :**TERMS IN THIS MANUAL :**

- WARNING** Identifies conditions and actions that could result in serious injury or even death to the user.
- CAUTION** Identifies conditions and actions that could cause damage or malfunction in the instrument.

This manual contains information and warnings that must be followed for operating the instrument safely and maintaining the instrument in a safe operating condition. If the instrument is used in a manner not specified by the manufacturer, the protection provided by the instrument may be impaired. The meter is intended only for indoor use.

The meter protection rating, against the users, is double insulation per IEC/UL/EN61010-1 Ed. 3.0, IEC/EN61010-2-030 Ed. 1.0, IEC/EN61010-2-033 Ed. 1.0, IEC/UL/EN61010-031 Ed. 1.1 and CAN/CSA-C22.2 No. 61010-1-12 Ed. 3.0 to Cat III 1000 Volts AC & DC and Category IV 600 Volts AC & DC.

Terminals (to COM) measurement category:

V / A / mA μ A : Category III 1000 Volts AC & DC, & Category IV 600 Volts AC & DC.

Per IEC61010-1 Measurement Category

Measurement Category IV (CAT IV) is for measurements performed at the source of the low-voltage installation. Examples are electricity meters and measurements on primary over current protection devices and ripple control units.

Measurement Cat III (CAT III) is for measurements performed in the building installation. Examples are measurements on distribution boards, circuit-breakers, wiring, including cables, bus-bars, junction boxes, switches, socket-outlets in the fixed installation, and equipment for industrial use and some other equipment, for example, stationary motors with permanent connection to the fixed installation.

Measurement Category II (CAT II) is for measurements performed on circuits directly connected to the low voltage installation. Examples are measurements on household appliances, portable tools and similar equipment.

WARNING








To reduce the risk of fire or electric shock, do not expose this product to rain or moisture. To avoid electrical shock hazard, observe the proper safety precautions when working with voltages above 60 VDC or 30 VAC rms. These voltage levels pose a potential shock hazard to the user. Do not touch test lead tips or the circuit being tested while power is applied to the circuit being measured. Keep your fingers behind the finger guards of the test leads during measurement. Inspect test leads, connectors, & probes for damaged insulation or exposed metal before using the instrument. If any defects are found, replace them immediately. Do not measure any current that exceeds the current rating of the protection fuse. Do not attempt a current measurement to any circuit where the open circuit voltage is above the protection fuse voltage rating. Suspected open circuit voltage should be checked with voltage functions.

Never attempt a voltage measurement with the test lead inserted into the $\mu\text{A}/\text{mA}$ or A input jack. Only replace the blown fuse with the proper rating as specified in this manual. Only use the test lead provided with the equipment or UL Listed Probe Assembly rated CAT III 1000V or better.

CAUTION

Disconnect the test leads from the test points before changing functions. Always set the instrument to the highest range and work downward for an unknown value when using manual ranging mode.

INTERNATIONAL ELECTRICAL SYMBOLS :

	Caution ! Refer to the explanation in this Manual.
	Caution ! Risk of electric shock.
	Earth (Ground)
	Double Insulation or Reinforced insulation
	Fuse
	AC--Alternating Current
	DC--Direct Current

2) CENELEC DIRECTIVES

The instruments conform to CENELEC Low-voltage directive 2006/95/EC and Electromagnetic compatibility directive 2004/108/EC

GENERAL SPECIFICATIONS

- * **Sensing** : AC True RMS
- * **Display** : 3-4/5 digits 5000 counts LCD display
- * **Update Rate** : Fast data : 5 / second nominal;
52 Segment Bar-graph : 60 per second nominal.
- * **Operating Temperature** : 0°C to 45°C
- * **Relative Humidity** : Maximum 80% R.H. for Temperature upto 31°C
decreasing linearly to 50% R.H. at 45°C
- * **Storage Temperature** : -20°C to 60°C, 80% R.H. (With battery removed)
- * **Pollution degree** : 2
- * **Altitude** : Operating below 2000m
- * **Temperature Coefficient** : Nominal 0.15 x (specified accuracy) / °C
@ (0°C ~ 18°C or 28°C ~ 45°C), or otherwise specified.
- * **Power Consumption** : 4.3mA typical
- * **Low Battery** : Below approx. 7V
- * **APO Timing** : Idle for 17 minutes.
- * **APO Consumption** : 50µA typical
- * **Power Supply** : Single 9V battery.
- * **Dimension** : Approx.186(L)mm x 87(W)mm x 35.5(H)mm;
198(L)mm x 97(W)mm x 55(H)mm with holster
- * **Weight** : Approx.340gm, Approx. 430gm with holster.

● **ACCESSORIES :**

Test leads (pair), Holster, Battery, User's Manual, Bkp60 banana plug K Type Thermocouple.

● **OPTIONAL ACCESSORIES :**

BRUA-85Xa PC interface Kit (BC - 85Xa RS232 optical adapter cable + Software CD + BUA-2303 USB - to - Serial adaptor) Bkb32 banana plugs to K-type socket plug adaptor.

SAFETY

- **Safety** : Double insulation per IEC / UL / EN61010-1 2nd Ed., 3.0, IEC / EN61010-2-030 Ed. 1.0, IEC / EN61010-2-033 Ed. 1.0, IEC / UL / EN61010-031 Ed. 1.1 & CAN / CSA-C22.2 No.61010-1-12 Ed. 3.0 to CAT III 1000V AC & DC and CAT IV 600V AC & DC.
- **E. M. C.** : Meets EN61326-1:2013
In an RF field of 3V/m :
Capacitance function is not specified.
Other function ranges : Total Accuracy = Specified Accuracy + 100 digits
Performance above 3V/m is not specified.
- **Transient Protection** : 8kV lightning surge (1.2/50µs)
- **Terminals (to COM) Measurement Category** :
V / A / mAµA : CAT III 1000 Volts AC & DC, & CAT IV 600 Volts AC & DC.
- **Overload Protections** :

µA & mA	: 0.44A/1000V, IR 10kA, F fuse;
A	: 11A/1000V, IR 20kA, F fuse
V	: 1100V DC/AC rms
mV, Ω & Others	: 1000V DC/AC rms

SPECIAL FEATURES :

- **Basic DC Voltage Accuracy** : 0.08%
- 50ms record MAX-MIN readings at fast 20/second measurement mode
- 0.8ms Crest (instantaneous Peak-HOLD)
- Data Hold & Range-Hold
- Backlighted Display
- Autoranging
- MAX-MIN readings
- Fire retarded casing.
- Diode & Continuity Test
- Type-K Temperature
- Audible & Visible BeepJack™ Input warning against improper plug in.
- Relative-Zero offset mode
- Zoom 5x Analog pointer at 60/s
- Auto power off
- PC Interface (BRUA-85Xa) (Optional)

ELECTRICAL SPECIFICATIONS : KM 5040-T

Accuracy is \pm (% reading digits + number of digits) or otherwise specified @ 23°C \pm 5°C & less than 75% R.H. TRMS ACV & ACA accuracies are specified from 5% to 100% of range or otherwise specified. Maximum Crest Factor <4.2:1 at full scale & <2.1:1 at half scale, and with frequency spectrums, besides fundamentals, fall within the meter specified AC bandwidth for non-sinusoidal waveforms.

AC VOLTAGE

Range	Resolution	Accuracy
50Hz -- 60Hz		
50.00 mV	10 μ V	$\pm(0.5\%rdg + 3dgts)$
500.0 mV	100 μ V	
5.000 V	1 mV	
50.00 V	10 mV	
500.0 V	100 mV	
1000 V	1 V	
40Hz -- 500Hz		
50.00 mV	10 μ V	$\pm(0.8\%rdg + 3dgts)$
500.0 mV	100 μ V	
5.000 V	1 mV	$\pm(1.0\%rdg + 4dgts)$
50.00 V	10 mV	
500.0 V	100 mV	
1000 V	1 V	

Upto 20 KHz

50.00 mV	10 μV	0.5dB*
500.0 mV	100 μV	
5.000 V	1 mV	3dB*
50.00 V	10 mV	
500.0 V	100 mV	
1000 V	1 V	Unspec'd

*Specified from 30% to 100% of range

Input Impedance : 10MΩ, 16pF nominal
(44pF nominal for 50mV & 500mV ranges)

DC VOLTAGE

Range	Resolution	Accuracy
50.00 mV	10 μV	±(0.12%rdg + 2dgts)
500.0 mV	100 μV	±(0.06%rdg + 2dgts)
5.000 V	1 mV	±(0.08%rdg + 2dgts)
50.00 V	10 mV	
500.0 V	100 mV	
1000 V	1 V	

Input Impedance : 10MΩ, 16pF nominal
(44pF nominal for 50mV & 500mV ranges)

))) AUDIBLE CONTINUITY TESTER

Audible Threshold	Between 20Ω & 200Ω
Fast Response Time	< 100μs

→ DIODE TEST

Range	Resolution	Accuracy
2.000V	0.001 V	±(1.0%rdg + 1dgt)

Test Current: 0.4 mA **Open Circuit Volt :** <3.5V DC

FREQUENCY

Function	Sensitivity (sine Rms)	Range
mV	300 mV	10Hz - 125kHz
5 V	2 V	10Hz - 125kHz
50 V	20 V	10Hz - 20kHz
500 V	80 V	10Hz - 1kHz
1000 V	300 V	10Hz - 1kHz
Ω, Cx, Diode	300 mV	10Hz - 125kHz
μA, mA, A	10% F.S.	10Hz - 125kHz

Accuracy : 0.01% rdg + 2 dgts

RESISTANCE

Range	Resolution	Accuracy
50.00 Ω	0.01 Ω	±(0.3%rdg + 6dgts)
500.0 Ω	0.1 Ω	±(0.1%rdg + 3dgts)
5.000 KΩ	1 Ω	±(0.1%rdg + 2dgts)
50.00 KΩ	10 Ω	
500.0 KΩ	100 Ω	±(0.4%rdg + 3dgts)
5.000 MΩ	1 KΩ	
50.00 MΩ	10 KΩ	

Open Circuit Voltage : <1.3VDC (<3VDC for 50Ω & 500Ω ranges)

TEMPERATURE

Range	Accuracy*
-50°C ~ 1000°C	±(0.3%rdg + 3dgts)
-58°F ~ 1832°F	±(0.3%rdg + 5dgts)

* Thermocouple range & accuracy not included
Accuracies assume meter interior & the ambient have reached the same temperature (Isothermal stage) for a correct junction voltage compensation. Allow enough setting time for a significant change of ambient temperature. It can take upto an hour for changes > 5°C. Supplied Thermocouple suitable for measurement upto 250°C.

AC CURRENT

Range	Resolution	Accuracy	Burden Voltage
50Hz -- 60Hz			
500.0 μ A	0.1 μ A	$\pm(0.6\%rdg + 3dgts)$	0.15mV/ μ A
5000 μ A	1 μ A		0.15mV/ μ A
50.00 mA	0.01 mA		3.3mV/mA
500.0 mA	0.1 mA	$\pm(1.0\%rdg + 3dgts)$	3.3mV/mA
5.000 A	0.001 A	$\pm(0.6\%rdg + 3dgts)$	45mV/A
10.00 A*	0.01 A*		45mV/A
40Hz -- 1kHz			
500.0 μ A	0.1 μ A	$\pm(0.8\%rdg + 4dgts)$	0.15mV/ μ A
5000 μ A	1 μ A		0.15mV/ μ A
50.00 mA	0.01 mA		3.3mV/mA
500.0 mA	0.1 mA	$\pm(1.0\%rdg + 4dgts)$	3.3mV/mA
5.000 A	0.001 A	$\pm(0.8\%rdg + 4dgts)$	45mV/A
10.00 A*	0.01 A*		45mV/A

* 10A continuous, >10A to 20A for 30 seconds max with 5 minutes cool down interval

DC CURRENT

Range	Resolution	Accuracy	Burden Voltage
500.0 μ A	0.1 μ A	$\pm(0.2\%rdg + 4dgts)$	0.15mV/ μ A
5000 μ A	1 μ A		0.15mV/ μ A
50.00 mA	0.01 mA		3.3mV/mA
500.0 mA	0.1 mA		3.3mV/mA
5.000 A	0.001 A		45mV/A
10.00 A*	0.01 A*		45mV/A

* 10A continuous, >10A To 20A for 30 seconds max with 5 minutes cool down interval

CAPACITANCE

Range	Resolution	Accuracy*
50.00 nF	10 pF	$\pm(0.8\%rdg + 3dgts)$
500.0 nF	100 pF	
5.000 μ F	1 nF	$\pm(1.5\%rdg + 3dgts)$
50.00 μ F	10 nF	$\pm(2.5\%rdg + 3dgts)$
500.0 μ F**	100 nF	$\pm(3.5\%rdg + 5dgts)$
9999 μ F**	1 μ F	$\pm(5.0\%rdg + 5dgts)$

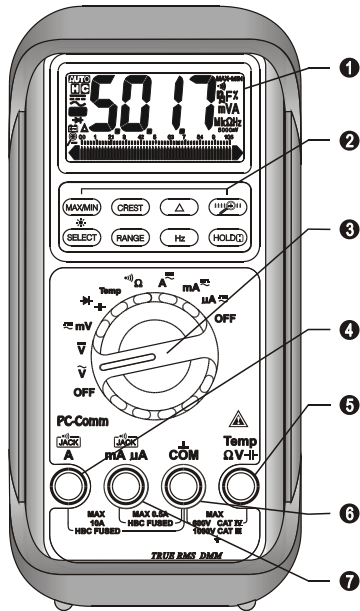
* Accuracies with film capacitor or better.

** In manual-ranging mode, measurements not specified below 45.0 μ F and 450 μ F for 500.0 μ F & 9999 μ F ranges respectively.

CREST MODE FOR V & A FUNCTIONS

Accuracy :
Specified accuracy ± 150 digits
for changes > 0.8ms in duration.

3) PRODUCT DESCRIPTION
Panel Illustration



1) 3-4/5 digits 5000 counts
 LCD display.

2) Push-buttons for special
 functions & features.

3) Selector to turn the
 Power On or Off and
 Select a function.

4) Input Jack for 10A (20A
 for 30sec) current function

5) Input Jack for all
 functions EXCEPT current
 (μ A, mA, A) functions

6) Common (Ground
 reference) Input Jack for all
 functions.

7) Input Jack for milli-amp and micro-amp current functions

Analog bar-graph

The analog bar graph provides a visual indication of measurement like a traditional analog meter needle. It is excellent in detecting faulty contacts, identifying potentiometer clicks, and indicating signal spikes during adjustments.

Average sensing RMS calibrated

RMS (Root-Mean-Square) is the term used to describe the effective or equivalent DC value of an AC signal. Most digital multimeters use average sensing RMS calibrated technique to measure RMS values of AC signals. This technique is to obtain the average value by rectifying and filtering the AC signal. The average value is then scaled upward (calibrated) to read the RMS value of a sine wave. In measuring pure sinusoidal waveform, this technique is fast, accurate and cost effective. In measuring non-sinusoidal waveforms, however, significant errors can be introduced because of different scaling factors relating average to RMS values.

True RMS

True RMS is a term which identifies a DMM that responds accurately to the effective RMS value regardless of the waveforms such as: square, sawtooth, triangle, pulse trains, spikes, as well as distorted waveforms with the presence of harmonics.

Harmonics may cause :

- 1) Overheated transformers, generators and motors to burn out faster than normal
- 2) Circuit breakers to trip prematurely
- 3) Fuses to blow
- 4) Neutrals to overheat due to the triplen harmonics present on the neutral
- 5) Bus bars and electrical panels to vibrate

Crest Factor

Crest Factor is the ratio of the Crest (instantaneous peak) value to the True RMS value, and is commonly used to define the dynamic range of a True RMS DMM. A pure sinusoidal waveform has a Crest Factor of 1.4. A badly distorted sinusoidal waveform normally has a much higher Crest Factor.

NMRR (Normal Mode Rejection Ratio)

NMRR is the DMM's ability to reject unwanted AC noise effect that can cause inaccurate DC measurements. NMRR is typically specified in terms of dB (decibel). This series has a NMRR specification of >60dB at 50 and 60Hz, which means a good ability to reject the effect of AC noise in DC measurements.

CMRR (Common Mode Rejection Ratio)

Common mode voltage is voltage present on both the COM and VOLTAGE input terminals of a DMM, with respect to ground. CMRR is the DMM's ability to reject common mode voltage effect that can cause digit rolling or offset in voltage measurements. This series has a CMRR specifications of >60dB at DC to 60Hz in ACV function; and >120dB at DC, 50 and 60Hz in DCV function. If neither NMRR nor CMRR specification is specified, a DMM's performance will be uncertain.

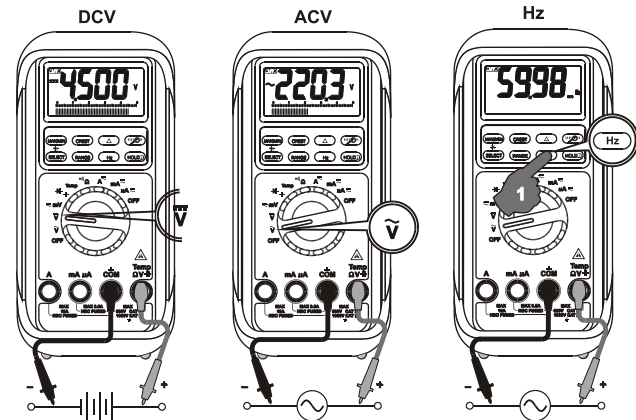
4) OPERATION

CAUTION

Before and after hazardous voltage measurements, test the voltage function on a known source such as line voltage to determine proper meter functioning.

DC Voltage, AC Voltage, & Hz Frequency functions

mV function defaults at DC. Press **SELECT** button momentarily to select AC. Press the Hz push-button momentarily to activate or to exit Hz.

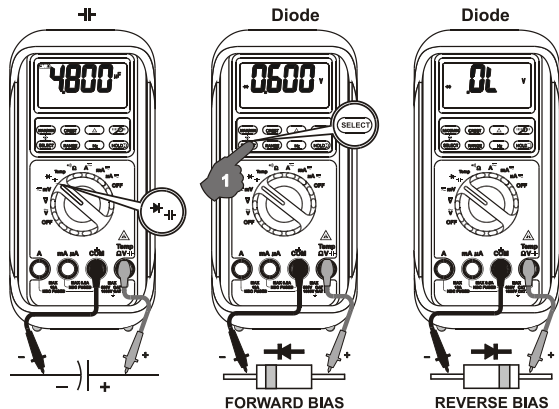


Note: Input sensitivity varies automatically with function range selected before activating the Hz function. mV function has the highest (300mV) and the 1000V range has the lowest (300V). It is recommended to first measure the signal voltage (or current) level

then activate the Hz function in that voltage (or current) range to automatically set the most appropriate trigger level. You can also press the **RANGE** button momentarily to select another trigger level manually. If the Hz reading becomes unstable, select lower sensitivity to avoid electrical noise. If the reading shows zero, select higher sensitivity.

⚡ Capacitance, ⚡ Diode test function

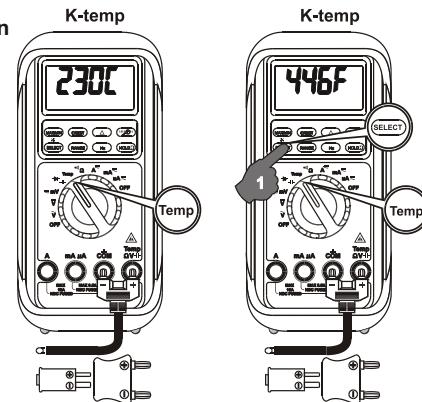
Default at **⚡**. Press **SELECT** button momentarily to select **⚡** Diode test function.



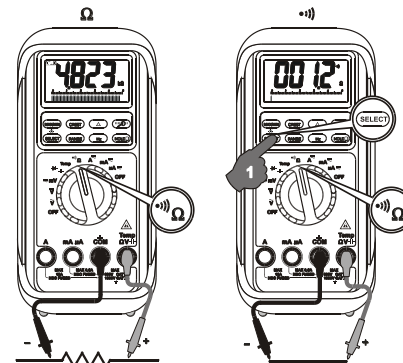
Normal forward voltage drop (forward biased) for a good silicon diode is between 0.400V to 0.900V. A reading higher than that indicates a leaky diode (defective). A zero reading indicates a shorted diode (defective). An OL indicates an open diode (defective). Reverse the test leads connections (reverse biased) across the diode. The digital display shows OL if the diode is good. Any other readings indicate the diode is resistive or shorted (defective).

Temperature function

Press **SELECT** button momentarily to toggle between °C and °F readings, and the new setting will be saved automatically in the non-volatile memory as power up default.



Note: Be sure to insert the banana plug K-type temperature bead probe Bkp60 with correct + - polarities. You can also use a plug adapter Bkb32 (Optional purchase) with banana pins to K-type socket to adapt other standard K type mini plug temperature probes.



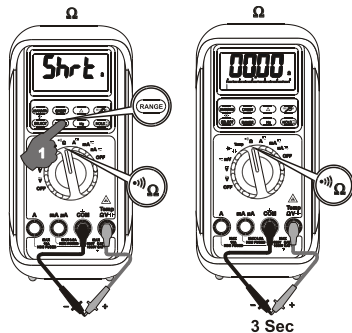
Ω Resistance, \llcorner Continuity functions

Default at Ω. Press **SELECT** button momentarily to select

\llcorner Continuity function that is convenient for checking wiring connections and operation of switches. A continuous beep tone indicates a complete wire.

CAUTION

Using resistance and continuity function in a live circuit will produce false results and may damage the instrument. In many cases the suspected component must be disconnected from the circuit to obtain an accurate reading.



Auto leads resistance calibration

When entering the 50Ω range *manually* by **RANGE** button for high precision low resistance measurement, this feature will prompt you to short the inputs for calibration. The display shows "Shrt". Simply short the leads for about 3 seconds until the display shows zero, then the resistance in the leads and in the internal protection circuitry of the meter is compensated automatically. The compensation value can be as much as 5Ω. If you need a compensation value that is higher than that, Relative mode is recommended.

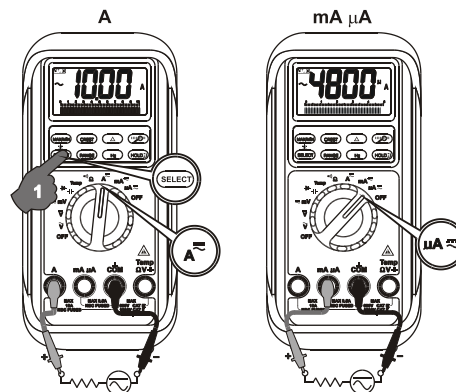
The shortcut is to short the test leads in auto-ranging resistance mode until the meter enters the lowest 50Ω range automatically, press the **RANGE** button momentarily to get the "Shrt" prompt, then wait about 3 more seconds until the display shows zero.

Note: The calibration stays until you change ranges, functions, or go back to auto-ranging mode.

μA, mA, and A Current functions

Default at DC. Press **SELECT** button momentarily to select **AC**.

***Note:** When measuring a 3-phase system, special attention should be taken to the phase-to-phase voltage which is significantly higher than the phase-to-earth voltage. To avoid exceeding the voltage rating of the protection fuse(s) accidentally, always consider the phase-to-phase voltage as the working voltage for the protection fuse(s).

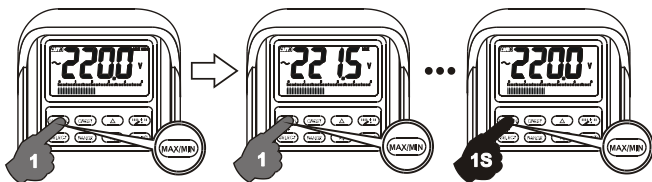


PC-COMM computer interface capabilities

The instrument equips with an optical isolated interface port at the meter back for data communication. Optional purchase PC interface kit BRUA-85Xa (BC-85Xa RS232C optical adapter cable + Bs8151X software CD + BUA-2303 USB-to-Serial adaptor) is required to connect the meter to the PC computer. The Bs8151X Data Recording System software equips with a digital meter, an analog meter, a comparator meter, and a Data Graphical recorder. Refer to the README file in the interface kit for further details.

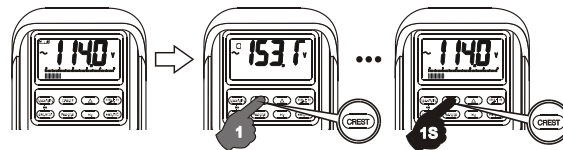
50ms MAX/MIN at fast 20/s measurement mode

Press **MAX/MIN** button momentarily to activate MAX/MIN recording mode. The LCD annunciators "MAX MIN" turn on, & the reading update rate will be increased to 20/second. The meter beeps when new maximum or minimum reading is updated. Press the button momentarily to read throughout the Maximum(MAX), Minimum (MIN), & Maximum minus Minimum (MAX-MIN) readings. Press the button for 1 second or more to exit MAX/MIN mode. Auto Power Off feature will be disabled automatically in this mode.



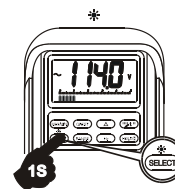
0.8ms CREST capture mode

Press **CREST** button momentarily to activate CREST (Instantaneous Peak-Hold) mode to capture voltage or current signal duration as short as 0.8ms. This mode is available in DCV, ACV, DCA, & ACA functions. The LCD annunciators "C" & "MAX" turn on. The meter beeps when new maximum or minimum reading is updated. Press the button momentarily to read throughout the Maximum (MAX), Minimum (MIN), and Maximum minus Minimum (MAX-MIN) readings. Press the button for 1 second or more to exit CREST capture mode. Auto Power Off feature will be disabled automatically in this mode.



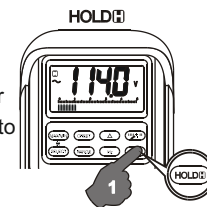
Backlighting display

Press the **SELECT** button for 1 second or more to turn on or off the display backlight function. The backlight will also be turned off auto-matically after 30 seconds to extend battery life.



Hold

The hold function freezes the display for later view. Press the **HOLD** button momentarily to activate or to exit the hold function.



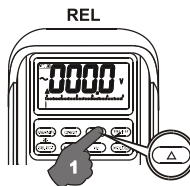
Zoom 5x analog pointer

The Zoom mode analog pointer magnifies up to 5 times the regular analog bar graph resolution to show minute signal changes with a single analog pointer. It is virtually equivalent to the bar graph resolution of $5 \times 50 = 250$ segments.



△ Relative mode

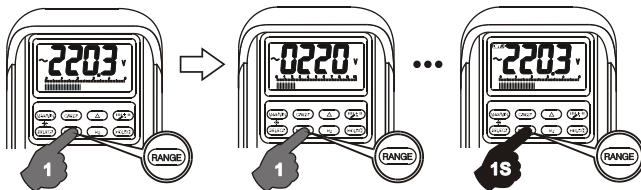
Relative zero allows the user to offset the meter consecutive measurements with the displaying reading as the reference value. Practically all displaying readings can be set as relative reference value including MAX/MIN feature readings. Press the button momentarily to activate and to exit relative zero mode.



Manual or Auto-ranging

Press the **RANGE** button momentarily to select manual-ranging, and the meter will remain in the range it was in, the LCD **AUTO** annunciator turns off. Press the button momentarily again to step through the ranges. Press and hold the button for 1 second or more to resume auto-ranging.

Note: Manual ranging feature is not available in Hz function.



Beep-Jack™ Input Warning

The meter beeps as well as displays "InEr" to warn the user against possible damage to the meter due to improper connections to the μ A, mA, or A input jacks when other function (like voltage function) is selected.

Set Beeper Off

Press the **HZ** button while turning the meter on to disable the Beeper feature.

Auto Power Off (APO)

The Auto Power Off (APO) mode turns the meter off automatically to extend battery life after approximately 17 minutes of no activities. Activities are specified as: 1) Rotary switch or push button operations, and 2) Significant measuring readings of above 10% of range or non-OL Ω readings. That is, the meter will intelligently avoid entering the APO mode when it is under normal measurements. To wake up the meter from APO, press the **SELECT** button momentarily or turn the rotary switch to the OFF position and then turn back on again. Always turn the rotary switch to the OFF position when the meter is not in use

Disabling Auto Power Off

Press the **RANGE** button while turning the meter on to disable the Auto Power Off (APO) feature.

5) MAINTENANCE

WARNING

To avoid electrical shock, disconnect the meter from any circuit, remove the test leads from the input jacks and turn OFF the meter before opening the case. Do not operate with open case. Install only the same type of fuse or equivalent.

Calibration

Periodic calibration at intervals of one year is recommended to maintain meter accuracy. Accuracy is specified for a period of one year after calibration.

If self-diagnostic message "rE-O" is being displayed while powering on, the meter is re-organizing internal parameters. Do not switch off the meter then, and it will be back to normal measurement shortly. However, if self-diagnostic message "C_Er" is being displayed while powering on, some meter ranges might be largely out of specifications. To avoid mis-leading measurements, stop using the meter and send it for re-calibration. Refer to the LIMITED WARRANTY section for obtaining warranty or repairing service.

Cleaning and Storage

Periodically wipe the case with a damp cloth and mild detergent; do not use abrasives or solvents. If the meter is not to be used for periods of longer than 60 days, remove the battery and store it separately

Trouble Shooting

If the instrument fails to operate, check battery, fuses, leads, etc., & replace as necessary. Double check operating procedure as described in this user's manual. If the instrument voltage-resistance input terminal has subjected to high voltage transient (caused by lightning or switching surge to the system) by accident or abnormal conditions of operation, the series fusible resistors will be blown off (become high impedance) like fuses to protect the user and the instrument. Most measuring functions through this terminal will then be open circuit. The series fusible resistors and the spark gaps should then be replaced by qualified technician. Refer to the WARRANTY section for obtaining warranty or repairing service.

Battery and Fuse replacement

Battery use:

Single 9V battery NEDA1604, JIS006P or IEC6F22;
or 9V alkaline battery NEDA1604A, JIS6AM6 or IEC6LF22

Fuses:

Fuse (FS1) for μ A mA current input:

0.44A/1000V, IR 10kA or better, F fuse; Dimension: 10 x 38 mm

Fuse (FS2) for A current input:

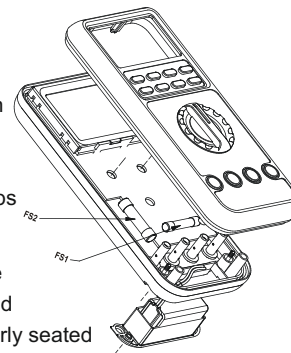
11A/1000V, IR 20kA or better, F fuse; Dimension: 10 x 38 mm

Battery replacement for models with battery access door:

Loosen the 2 screws from the battery access door of the case bottom. Lift the battery access door and thus the battery compartment up. Replace the battery. Re-fasten the screws.

Fuse replacement (and also Battery replacement for splash proof version without battery access door): Loosen the 4 screws from the case bottom. Lift the end of the case bottom nearest the input jacks until it unsnaps from the case top.

Replace the blown fuse(s) and/or the battery. Replace the case bottom, and ensure that all the gaskets are properly seated and the two snaps on the case top (near the LCD side) are engaged. Re-fasten the screws.



MUMBAI

TEST CERTIFICATE**AC TRMS DIGITAL CLAMPMETER**

This Test Certificate warrants that the product has been inspected and tested in accordance with the published specifications.

The instrument has been calibrated by using equipment which has already been calibrated to standards traceable to national standards.

MODEL NO. **KM 5040-T**

SERIAL NO. _____

DATE: _____

**ISO 9001
REGISTERED****WARRANTY**

Each "KUSAM-MECO" product is warranted to be free from defects in material and workmanship under normal use & service. The warranty period is one year (12 months) and begins from the date of despatch of goods. In case any defect occurs in functioning of the instrument, under proper use, within the warranty period, the same will be rectified by us free of charges, provided the to and fro freight charges are borne by you.

This warranty extends only to the original buyer or end-user customer of a "KUSAM-MECO" authorized dealer.

This warranty does not apply for damaged IC's, fuses, burnt PCB's, disposable batteries, carrying case, test leads, or to any product which in "KUSAM-MECO's" opinion, has been misused, altered, neglected, contaminated or damaged by accident or abnormal conditions of operation or handling.

"KUSAM-MECO" authorized dealer shall extend this warranty on new and unused products to end-user customers only but have no authority to extend a greater or different warranty on behalf of "KUSAM-MECO".

"KUSAM-MECO's" warranty obligation is limited, at option, free of charge repair, or replacement of a defective product which is returned to a "KUSAM-MECO" authorized service center within the warranty period.

THIS WARRANTY IS BUYER'S SOLE AND EXCLUSIVE REMEDY & IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. "KUSAM-MECO" SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, INCLUDING LOSS OF DATA, ARISING FROM ANY CAUSE WHATSOEVER.

All transaction are subject to Mumbai Jurisdiction.