

KINCROME

PROFESSIONAL QUALITY TOOLS

AUTO RANGING DIGITAL MULTIMETER

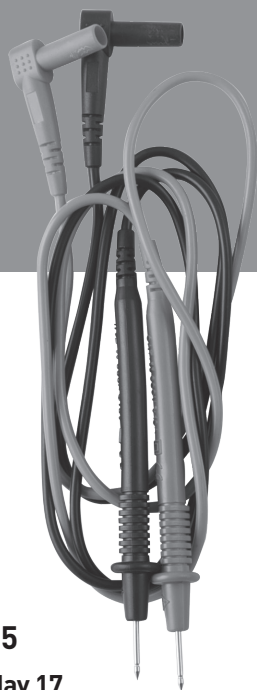
12
MONTH
WARRANTY

LARGE
DIGITAL
DISPLAY

AC/DC
VOLTAGE &
CURRENT
MEASUREMENT

CAT II
SAFETY
RATING

CAT III
TEST LEAD
SAFETY
RATING



K8315

ED1 May 17

Table of Contents

Know Your Product	1
General Safety Instructions	2-3
Multimeter Specifications	4-7
Operation	7-9
Maintenance & Warranty	10

Know your product

1. LCD Digital Display
2. Range Button
3. Function/Range Switch
4. "10A" Jack
5. "mA" Jack (Capacitance)
6. "COM" Jack
7. "VΩHz" Jack
(Voltage, Diode, Resistance)
8. Continuity/Diode Test or AC/DC Select
["⌂"/"⌂" or "⌂/~"]
9. "DATA-H" Button (Hold)
10. Test Leads (CAT III)
11. Multi Function Transistor Adaptor



Model No:	K8315
Analog Display:	42 segments, updates 12.5 times/sec
Digital Display:	3999 Counts, updates 2 times/sec
LCD Size:	65 x 37mm
Polarity Indication:	"-" displayed automatically
Over-range Indication:	"OL" displayed
Low Battery Indication:	"BAT" displayed
Range Select:	Auto/Manual
Operation Temperature:	0°C to 40°C less than 80%RH
Storage Temperature:	-10°C to 50°C less than 85% RH
Battery Type:	9V NEDA 1604, 6F22 equivalent
Dimensions:	190x90x35mm
Weight:	227g

General Safety Warnings



Save all warnings and instructions for future reference.

WARNING! Read all safety warnings and all instructions. Failure to follow the warnings and instructions may result in serious injury.

This manual provides all safety information, operation instruction, specifications and maintenance for the meter, which is compact, handheld, and battery operated. This instrument performs AC/DC voltage, AC/DC Current, Resistance, Audible Continuity, Diode, hFE, and Frequency measurements; it is a 3 3/4 digits, 3999 counts auto ranging DMM. It has the functions of polarity indication, data hold, over range indication and automatic power-off. It can be operated easily and is an ideal instrument tool. K8315 series digital multimeter has been designed according to EN61010-1 oncoming electronic measuring instruments with an over voltage category (CAT II 600V) and Pollution degree 2.



WARNING! To avoid possible electric shock, personal injury and avoid possible damage to the multimeter or the equipment under test, adhere to ALL safety instructions.

- a) Use the Meter only as specified in this manual, or the protection provided by the Meter might be impaired.
- b) Do not use the Meter in wet environments.
- c) Inspect the Meter before using it. Do not use the Meter if it appears damaged.
- d) Inspect the test leads before use. Do not use them if insulation is damaged or metal is exposed. Check the test leads for continuity. Replace damaged test leads before using the Meter.
- e) Verify the Meter's operation by measuring a known voltage before and after using it. Do not use the Meter if it operates abnormally. Protection may be impaired. If in doubt, have the Meter serviced.
- f) Whenever it is likely that safety protection has been impaired, make the Meter inoperative and secure it against any unintended operation.
- g) Have the Meter serviced only by qualified service personnel.
- h) Do not apply more than the rated voltage, as marked on the Meter, between the terminals or between any terminal and earth ground.
- i) Remove test leads from the Meter before opening the case.
- j) Never remove the cover or open the case of the Meter without first removing it from the main power source.
- k) Never operate the Meter with the cover removed or the case open.
- l) Use caution when working with voltages above 30 V ac rms, 42 V ac peak, or 42 V dc.
These voltages pose a shock hazard.
- m) Use only the replacement fuses specified by the manual.
- n) Use the proper terminals, function and range for your measurements.
- o) Do not operate the Meter around explosive gas, vapor or dust.
- p) When using probes, keep your fingers behind the finger guards.
- q) When making electrical connections, connect the common test lead before connecting the live test lead. When disconnecting, disconnect the live test lead before disconnecting the common test lead.
- r) Disconnect circuit power and discharge all high voltage capacitors before testing resistance, continuity, diodes, or capacitance.
- s) Before measuring current, check the Meter's fuses and turn OFF power to the circuit before connecting the Meter to the circuit.
- t) When servicing the Meter, use only specified replacement parts.

1) Work Area

- a. **Keep the work area clean and well lit.** Cluttered benches and dark areas increase the risks of electric shock, fire, and injury to persons.
- b. **Keep bystanders, children, and visitors away while operating the tool.** Distractions are able to result in the loss of control of the tool.
- c. **Keep children and bystanders away while operating any powered products.** Distractions may result in electrical shock.

2) Personal Safety

- a. **Stay alert. Watch what you are doing and use common sense when operating the tool.** Do not use the tool while tired or under the influence of drugs, alcohol, or medication. A moment of inattention while operating the tool increases the risk of injury to persons.
- b. **Dress properly. Do not wear loose clothing or jewellery.** Contain long hair. Keep hair, clothing, and jewellery away from live parts.
- c. **Do not overreach.** Keep proper footing and balance at all times. Proper footing and balance enables better control of the tool in unexpected situations.
- d. **Always wear eye protection.** Wear approved safety eye protection.

3) Service

- a. **Tool service must be performed only by qualified repair personnel.**
- b. **When servicing a tool, use only identical replacement parts. Use only authorized parts.**

4) Know Your Product Expanded

- 1. **LCD Digital Display** - Displays Reading
- 2. **"Range Button"** - Selects the range by cycling through the options. Press and Hold for 3 seconds to toggle Auto Range ON/OFF.
- 3. **Function/Range Switch** - Selects both mode and current range.
- 4. **"10A" Jack** - 10 Amp fuse protected socket used for 10A current range measurements.
- 5. **"mA" Jack (Capacitance)** - 500mA fuse protected socket used for transistor testing, micro amps, milliamps range and capacitance measurements.
- 6. **"COM" Jack** - Common terminal, used for all testing.
- 7. **"VΩHz" Jack** - Active terminal used for testing all voltages, diode, continuity and frequency testing.
- 8. **"Continuity/Diode Test"** - Selects between continuity or diode junction voltage mode. Also selects between AC or DC current modes.
- 9. **"DATA-H" Button** - Freezes current display reading. Press to toggle ON/OFF.
- 10. **Test Leads** - Used to probe the object being measured. There is a + Positive and a - Negative lead.
- 11. **Multi Function Capacitance Transistor** - Used to provide easy test connects to transistors, diodes and capacitors.

5) Description of Safety Symbols

The following symbols could be shown on the Multimeter and instruction manual:

	Read the instruction manual before use.		Risk of Explosion
	DC (Direct Current)		Wear Eye Protection
	AC (Alternating Current)	AUTO	Auto Range
	DC or AC		Warning
	Dangerous voltage may be present		Earth Ground
	Low Battery		Fuse
	Diode		Continuity Test
	Conforms to European Union Directive		Double Insulated

6) Multimeters Function Table

Model	DCV	ACV	DCA	ACA	Ω			hFE	CAP	Hz
K8315	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

8) Multimeter Product Specifications

The Kincrome K8315 Auto Ranging Multimeters accuracy is guranteed for 12 months, 23°C±5 °C less than 80% RH.

DC Voltage (Auto Ranging)

Range	Resolution	Accuracy
400mV	0.1mV	± (0.8% of rdg + 5dgts)
4V	1mV	± (0.5% of rdg + 2dgts)
40V	10mV	
400V	100mV	
600V	1V	± (1.0% of rdg + 5dgts)

Input Impedance: 10M Ω

Overload Protection: 600V DC/AC rms

Maximum Input Voltage: 600V DC

AC Voltage (Auto Ranging)

Range	Resolution	Accuracy
400mV	0.1mV	$\pm (1.2\% \text{ of rdg} + 5\text{dgt})$
4V	1mV	$\pm (1.2\% \text{ of rdg} + 3\text{dgt})$
40V	10mV	
400V	100mV	
600V	1V	$\pm (1.2\% \text{ of rdg} + 8\text{dgt})$

 Input Impedance: 10M Ω

Frequency Range: 40Hz~400Hz

Maximum Input Voltage: 600V DC/AC rms

Max Input Voltage: 600V AC rms

Transistor hFE Test

Range	hFE	Test Current	Test Voltage
PNP & NPN	0 ~ 1000	I _b ≈2 μ A	V _{ce} ≈1V

DC Current

Range	Resolution	Accuracy
400 μ A	0.1 μ A	$\pm (0.8\% \text{ of rdg} + 5\text{dgt})$
4000 μ A	1 μ A	
40mA	10 μ A	
400mA	100 μ A	
4A	1mA	$\pm (1.5\% \text{ of rdg} + 3\text{dgt})$
10A	10mA	


Caution: For measurements greater than 5A, 10 seconds is the maximum probing time.
You must wait 15 minutes before reusing the multimeter.

Overload Protection:

"mA" jack: F0.5A/600V Fuse

"10A" jack: F10A/600V Fuse

Max Input Current:

"mA" jack: 400mA

"10A" jack: 10A

 Voltage Drop: 400 μ A, 40mA and 4A ranges: 20mV

 4000 μ A, 400mA and 10A Ranges: 200mV

AC Current

Range	Resolution	Accuracy
400 μ A	0.1 μ A	$\pm (1.0\% \text{ of rdg} + 5\text{dgt})$
4000 μ A	1 μ A	
40mA	10 μ A	
400mA	100 μ A	
4A	1mA	$\pm (1.5\% \text{ of rdg} + 7\text{dgt})$
10A	10mA	



Caution: For measurements greater than 5A, 10 seconds is the maximum probing time.

You must wait 15 minutes before reusing the multimeter.

Overload Protection:

"mA" jack: F0.5A/600V Fuse

"10A" jack: F10A/600V Fuse

Max Input Current:

"mA" jack: 400mA

"10A" jack: 10A

Voltage Drop: 400 μ A, 40mA and 4A ranges: 20mV

4000 μ A, 400mA and 10A Ranges: 200mV

Frequency Range: 40Hz ~ 400Hz



Resistance (Auto Ranging)

Range	Resolution	Accuracy
400 Ω	0.1 Ω	$\pm (1.5\% \text{ of rdg} + 3\text{dgt})$
4K Ω	1 Ω	
40K Ω	10 Ω	
400K Ω	100 Ω	
4M Ω	1K Ω	
40M Ω	10K Ω	

Open Circuit Voltage: about 0.25V

Overload Protection: 250V DC/AC rms

Diode and Continuity

Range	Introduction	Remark
	The approximate forward voltage drop will be displayed	Open circuit voltage: approx 1.5V
	1. The built-in buzzer will sound if the resistance is less than about 30Ω.	Open circuit voltage: approx 0.5V

Overload Protection: 250V DC/AC rms

For Continuity Test: When the resistance is between 30Ω and 100Ω, the buzzer may sound or may not sound. When the resistance is more than 100Ω, the buzzer won't sound.

Capacitance

Range	Resolution	Accuracy
40nF	10pF	± (8% of rdg + 10dgts)
400nF	100pF	± (5% of rdg + 5dgts)
4uF	1nF	
40uF	10nF	
400uF	100nF	
4000uF	1uF	± (8% of rdg + 10dgts)

Overload Protection: F0.5A/600V fuse

Open Circuit Voltage: approx. 0.5V

Frequency (Auto Ranging)

Range	Accuracy
10/100/1K/10K/100K/1M/10Mhz	± (0.1% + 5)

Overload Protection: 250V DC/AC rms

8) Operation

Measuring Voltage




WARNING! To avoid electrical shock and/or damage to the instrument, do not attempt to take any voltage measurements which may exceed 600V DC or 600V AC rms. Do not apply more than 600V DC or 600V AC rms between the common terminals and the earth ground.

1. Connect the BLACK test lead (10) to the "COM" jack (6) and the RED lead (10) to the "VΩ" jack (7).
2. Set the function switch (3) to V~ or V $\overline{\text{---}}$ range. Select auto range or manual range with the "RANGE" button (2).
3. In manual range, if the voltage magnitude to be measured is unknown beforehand, select the highest range.
4. Connect the test leads (10) across the source or load to be measured.
5. Read LCD display (1). The polarity of the RED lead (10) connection will be indicated when making a DC measurement.

Note:

- a) In small range, the meter may display an unstable reading when the test leads have not been connected to the load to be measured. It is normal and will not affect the measurements.
- b) In manual range mode, when the meter shows the over range symbol "OL", a higher range must be selected.
- c) To avoid damage to the meter, don't measure a voltage which exceeds 600Vdc (for DC voltage measurement) or 600Vac (for AC voltage measurement).


Measuring Current

 **WARNING!** To avoid damage to the meter, use the proper terminals, function and range for your measurement.

1. Connect the BLACK test lead (10) to the "COM" jack (6). If the current to be measured is less than 200mA, connect the RED test lead (10) to the "mA" jack. If the current is between 400mA and 10A, connect the RED test lead (10) to the "10A" jack (4) instead.
2. Set the range switch to desired current (μA , mA or A) range. If the current magnitude to be measured is not known beforehand, set the ranges switch to the highest range position, then reduce it range by range until a satisfactory resolution is obtained.
3. Select DC current measurement or AC current measurement with the \rightarrow / \rightarrow / \rightarrow / \rightarrow button (8).
4. Select auto range or manual range with the "RANGE" button (2). In manual range, if the current magnitude to be measured is not known beforehand, select the highest range.
5. Connect test leads in series with the circuit to be measured.
6. Read the reading on the display. For DC current measurement, the polarity of the RED test lead connection will be indicated as well.

Note: When the display shows the over range symbol "OL" a higher range must be selected.

Measuring Resistance

 **WARNING!** To avoid damage electric shock and/or damage to the instrument, disconnect circuit power and discharge all high-voltage capacitors before measuring resistance.

1. Connect the BLACK test lead (10) to the "COM" jack (6) and RED lead (10) to the "V Ω " jack (7).


Note: The polarity of the RED test lead (10) is positive "+".

1. Set the Range Switch (3) to " Ω " range.
2. Select auto range or manual range with the "RANGE" button (2). In manual range, if the current magnitude to be measured is not known beforehand, select the highest range.
3. Connect the test leads (10) across the load to be measured.
4. Read the reading on the digital display (1).

Note:

- a) For resistance measurements greater than 1M Ω , the meter may take a few seconds to stabilise the reading. This is normal for high-resistance measurements.
- b) When the input is not connected, i.e. at open circuit, the symbol "OL" will be displayed as an over range indicator.
- c) Before measuring in-circuit resistance, be sure that the circuit under test has all power removed and all capacitors are fully discharged.

Continuity Test

 **WARNING!** To avoid electrical shock and/or damage to the instrument, disconnect circuit power and discharge all high-voltage capacitors before testing for Continuity.

1. Connect the BLACK test lead (10) to the "COM" jack (6) and the RED test lead (10) to the "V Ω " jack (7).

Note: The polarity of the RED test lead (10) is positive "+".

2. Set the Range Switch (3) to \rightarrow / \rightarrow range.
3. Press the \rightarrow / \rightarrow / \rightarrow / \rightarrow (8) button to select continuity measurement mode, and the symbol \rightarrow will appear as an indicator.
4. Connect the test leads (10) across the load to be measured.
5. If the circuit resistance is lower than 30 Ω , the built-in buzzer will sound.

Diode Test

WARNING! To avoid electrical shock and/or damage to the instrument, disconnect circuit power and discharge all high-voltage capacitors before testing diodes.

1. Connect the BLACK test lead (10) to the "COM" Jack (6) and the RED test lead (10) to the "VΩ" jack (7).

Note: The polarity of the RED test lead (10) is positive "+".

2. Set the Range Switch (3) to "⎓" " range.
3. Press the "⎓"/"⎓"/"⎓"/"⎓" Button (8) to select the diode measurement mode, and the symbol "⎓" will appear as an indicator.
4. Connect the RED test lead (10) to the anode of the diode to be tested and the BLACK lead (10) to the cathode.
5. The meter will show the approximate forward voltage of the diode. If the connections are reversed, "OL" will be shown on the display.

Transistor Test

WARNING! To avoid electrical shock and/or damage to the instrument, before attempting to insert transistors for testing, always be sure that the test leads have been disconnected from any measurement circuits.

1. Set the Range Switch (3) to hFE range.
2. Connect the Multi Function Capacitance Transistor (11) to the "COM" Jack (6) and the "mA" jack (5). Ensure the writing on the Multi Function Capacitance Transistor (11) is correctly orientated. Identify whether the transistor is NPN or PNP type and locate Emitter, base and collector lead. Insert the leads of the transistor to be tested into the proper holes of the Capacitance Transistor (11).
3. LCD display (1) will show the approximate hFE value.

Capacitance Measuring

WARNING! To avoid electrical shock and/or damage to the instrument, disconnect circuit power and discharge all high-voltage capacitors before measuring capacitance.

1. Connect the BLACK test lead (10) to the "COM" Jack (6) and the RED test lead to the "mA" jack (5).
2. Set the Function Switch (3) at to the capacitance mode; nF or μF (nano farad or micro farad).
3. Connect test leads (10) across the capacitor under measure and be sure the polarity of connection is observed.

Note: When the capacitance under measure is above 100μF, it needs at least 30 seconds to make the readings stable.

Frequency Measuring

1. Set the function range switch to the required "Hz" position.
2. Connect the BLACK test lead (10) to the "COM" jack (6) and the RED test lead (10) to the "VΩ" jack (7).
3. Connect the test leads (10) across the load to be measured.

Note: Do NOT apply more than 250V rms to the input.


10) Care, Maintenance & Storage

Auto Power Off

If you don't operate the Kincrome K8315 Multimeter for about 15 minutes, it will turn OFF automatically. To turn it on again, just rotate the range switch or press a button.

Note: If you press the “ ” button to turn on the meter, the automatic power-off function will be disabled.

Battery Replacement

If the sign “ ” appears on the display, it indicates that the batteries should be replaced. Remove the screws and open the back case, replace the exhausted battery with new batteries (NEDA 1604, 6F22 or equivalent).

Fuse Replacement

Fuse rarely needs replacement and is often caused as a result of operators error. To replace the fuses, remove the testing leads (10) from the power source, open the battery cover and replace the damaged one with a new fuse of the specified rating. Reinstall the battery cover and lock the cover.

11) Spare Parts

Part No	Description	Quantity
K8315-1	Storage Bag	1
K8315-2	Test Leads (10)	1
K8315-3	Multi Function Adaptor (11)	1
K8315-4	Fuse	1

*** Please Note:** Kincrome reserve the right to change spare parts at any time without notice.

11) Warranty

Warranty given by Kincrome Australia Pty Ltd of 3 Lakeview Drive, Caribbean Park, Scoresby, Victoria (Tel 1300 657 528).

The applicable warranty period (12 months) commences on the date that the product is purchased. If this product has materials or workmanship defects (other than defects caused by abnormal or non warranted use) you can, at your cost, send the product to place of purchase, an authorised Kincrome service agent or one of Kincromes addresses for repair or replacement. Your rights under this warranty are in addition to any other rights you have under the Australian Consumer Law or other applicable laws. Our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. For further details please visit www.kincrome.com.au or call us. Due to minor changes in design or manufacture, the product you purchase may sometimes differ from the one shown on the packaging..

IMPORTANT! If the tool fails to operate correctly, call customer service on 1800 657 528 for advice on the best resolution for your situation. If a resolution cannot be achieved over the phone please take the tool and all related accessories to an authorised service centre or place of purchase showing proof of purchase for assistance.

Notes:



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