KEWTECH KT360 Multifunction Tester Instruction Manual

Contents

KEWTECH KT360 Multifunction Tester

Specifications

- **Model:** KEWTECH KT360
- **Measurement Type:** TRMS Multimeter
- **Digital:** Yes

Product Usage Instructions

Safety Instructions
Before using the product, read the operating instructions carefully and follow them in all respects to ensure safety and proper operation. Some key safety instructions include:

- Avoid working with voltages exceeding specified limits to prevent electric shock.
- Check the device for any damage before and after use.
- Operate the product within specified measurement ranges and categories.
- Do not use the product in wet or rainy conditions.
- Ensure trained users operate the product.

Functions
The KEWTECH KT360 offers various measurement modes and functions:

- **Voltage Measurement:** Measure voltage levels accurately.
- **Resistance Measurement:** Measure resistance in circuits.
- **Continuity Test:** Check for continuity in circuits.
- **Diode Test:** Test diodes for proper functionality.
- **Capacitance Test:** Measure capacitance of components.
- **Frequency Measurement:** Measure frequency of signals.
- **Temperature Measurement:** Measure temperature with the included probe.

- **Current Measurement:** Measure current flow accurately.
- **NCV (Non-Contact Voltage Measurement):** Detect voltage without direct contact.

Maintenance
To ensure the longevity and accuracy of the product, follow these maintenance tips:

- **Cleaning:** Regularly clean the product to prevent dirt build-up.
- **Calibration Interval:** Follow the recommended calibration schedule.
- **Battery Replacement:** Replace batteries as needed to maintain functionality.
- **Fuse Replacement:** Replace fuses when necessary for accurate readings.

Frequently Asked Questions

Q: Can the KEWTECH KT360 be used in wet conditions?
A: No, it is not permitted to use the product during rain or wet conditions to ensure user safety and product integrity.

Q: Who can operate the KEWTECH KT360?
A: The product must be operated by trained users only to ensure proper handling and accurate measurements.

References marked on tester or in this instruction manual

 Warning of a potential danger, comply with instruction manual.

 Reference. Please pay utmost attention.

 **Caution!** Dangerous voltage. Danger of electrical shock.

 Continuous double or reinforced insulation complies with category II DIN EN 61140.

CE Conformity symbol, the instrument complies with the valid directives. It complies with the Low Voltage Directive (2014/35/EU) and its standards EN 61010-1, EN 61010-02-033 and EN 61010-031 are fulfilled. It also complies with the EMC Directive (2014/30/EU) with its standard EN 61326.

 Instrument fulfils the standard (2012/19/EU) WEEE.
This marking indicates that this product should not be disposed with other household wastes throughout the EU. To prevent possible harm to the environment or human health from uncontrolled waste disposal, recycle it responsibly to promote the sustainable reuse of material resources. To return your used device, please use the return and collection systems or contact the retailer where the product was purchased.

They can take this product for environmental, safe recycling.

SAFETY INSTRUCTIONS

- This product has been constructed and tested in accordance with the appropriate safety regulations and has left the factory in a safe and perfect condition.
- The operating instructions contain information and references required for safe operation and use of the product. Before using the product, read the operating instructions carefully and follow them in all respects. Otherwise, protection may be impaired.
- To avoid electric shock, observe the precautions when working with voltages exceeding 120 V (60 V) DC or 50 V (25 V) eff AC. In accordance with DIN VDE these values represent the threshold contact voltages (values in brackets refer to limited ranges, e.g. in agricultural areas).
- Before using the product, ensure that the device is in perfect working condition. Look out e.g. for broken housing parts or similar.
- The product may be used only within the specified measurement ranges.
- The product may be used only in the measuring circuit category it has been designed for.
- It is not permitted to use the product during rain or wet condition.
- Before and after use, always check that the product is in perfect condition (e.g. on a known voltage source).
- If the safety of the user cannot be guaranteed, the product must not be used anymore.
- Safety is no longer guaranteed e.g. in the following cases:
    - obvious damage,
    - broken housing, cracks in housing,
    - stored for too long in unfavorable conditions,
    - damaged during transport.
- Product must be operated by trained users only.
- Never use the product in explosive environment.
- The product may be opened by an authorized service technician only.

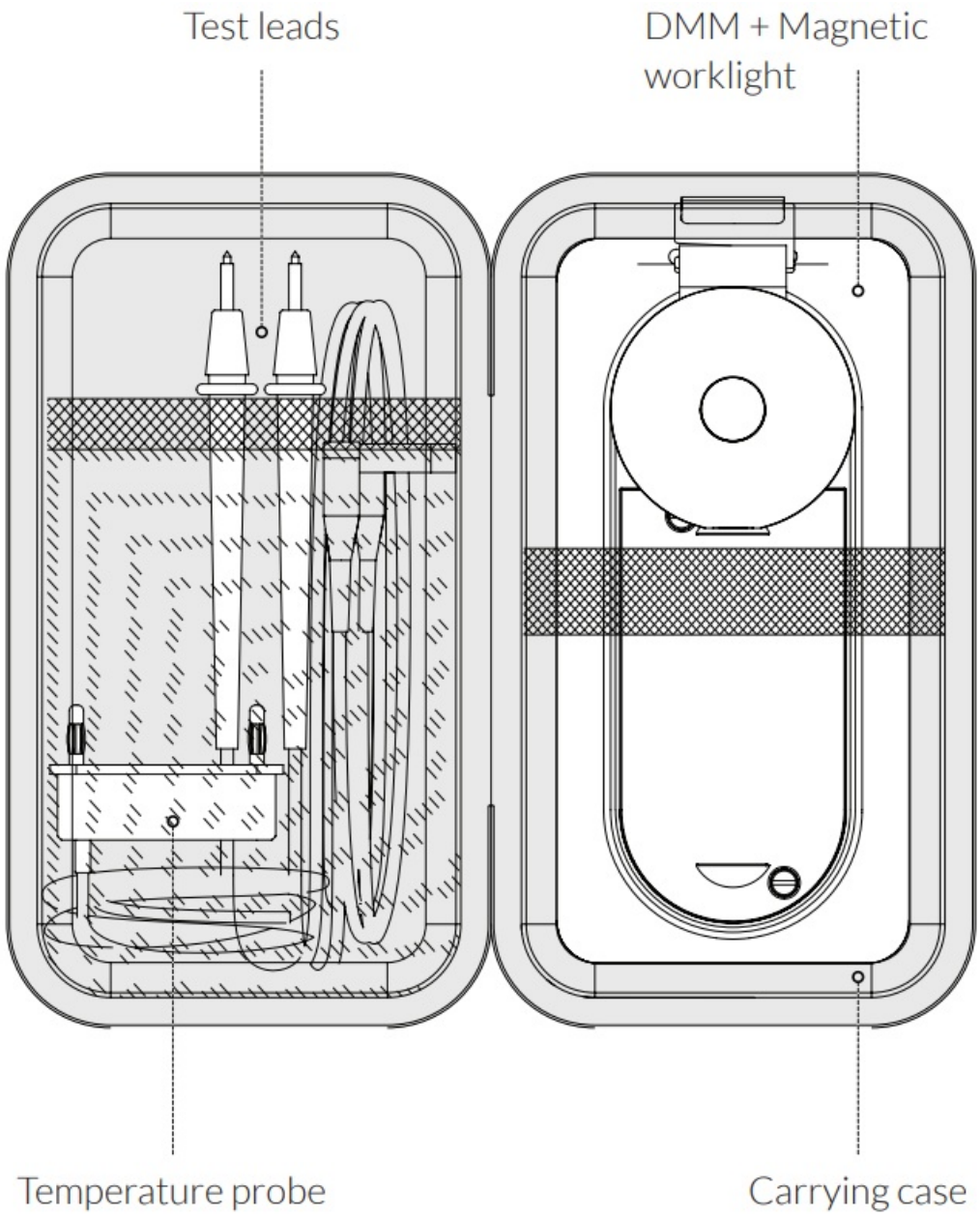
Measurement Category

Instrument complies to Measurement Category CAT IV / 600 V and CAT III / 1.000 V against Earth.

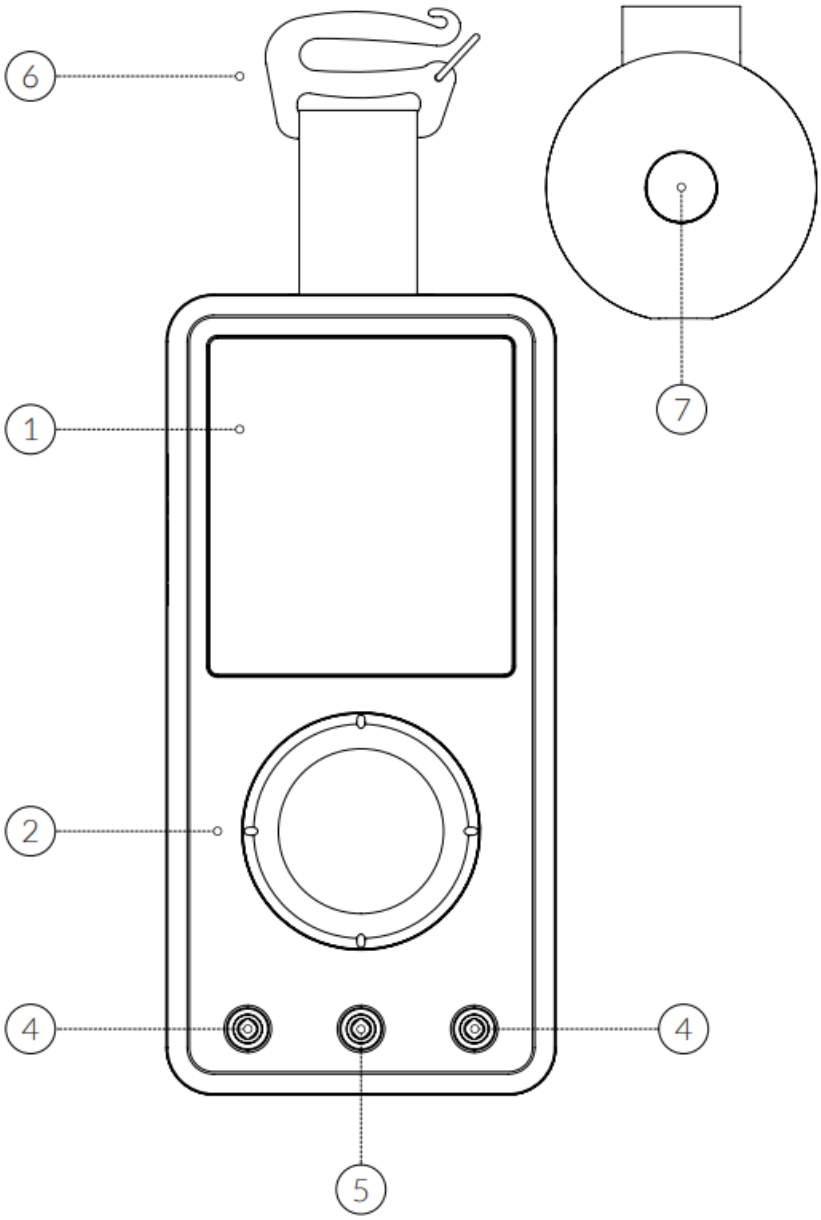
Description:

- **CAT II:** Measurement Category II is applicable to test and measuring circuits connected directly to utilization points (socket outlets and similar points) of the low-voltage MAINS installation.
- **CAT III:** Measurement Category III is applicable to test and measuring circuits connected to the distribution part of the building’s low-voltage MAINS installation.
- **CAT IV :** Measurement Category IV is applicable to test and measuring circuits connected at the source of the building’s low-voltage MAINS installation.

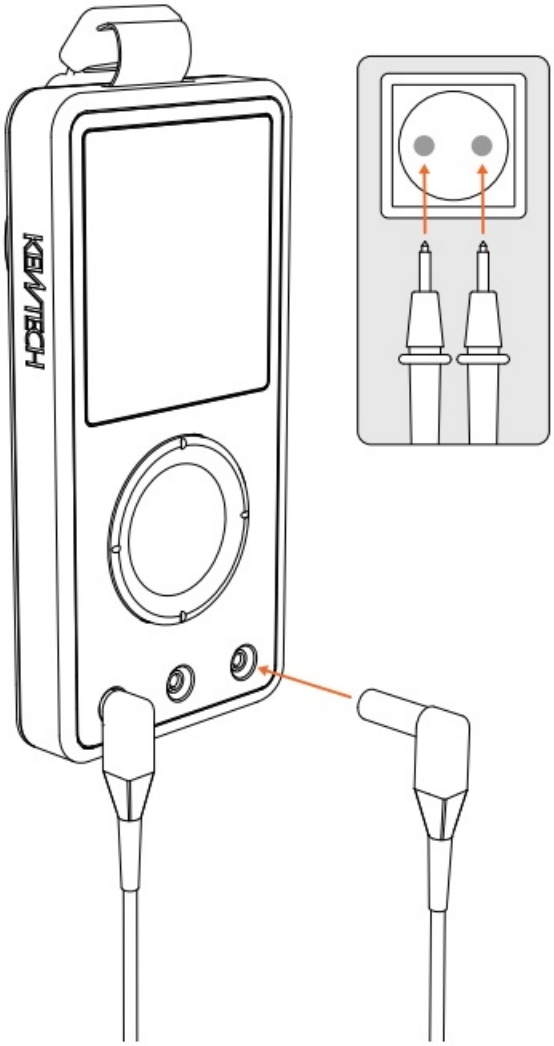
Operation elements and connections



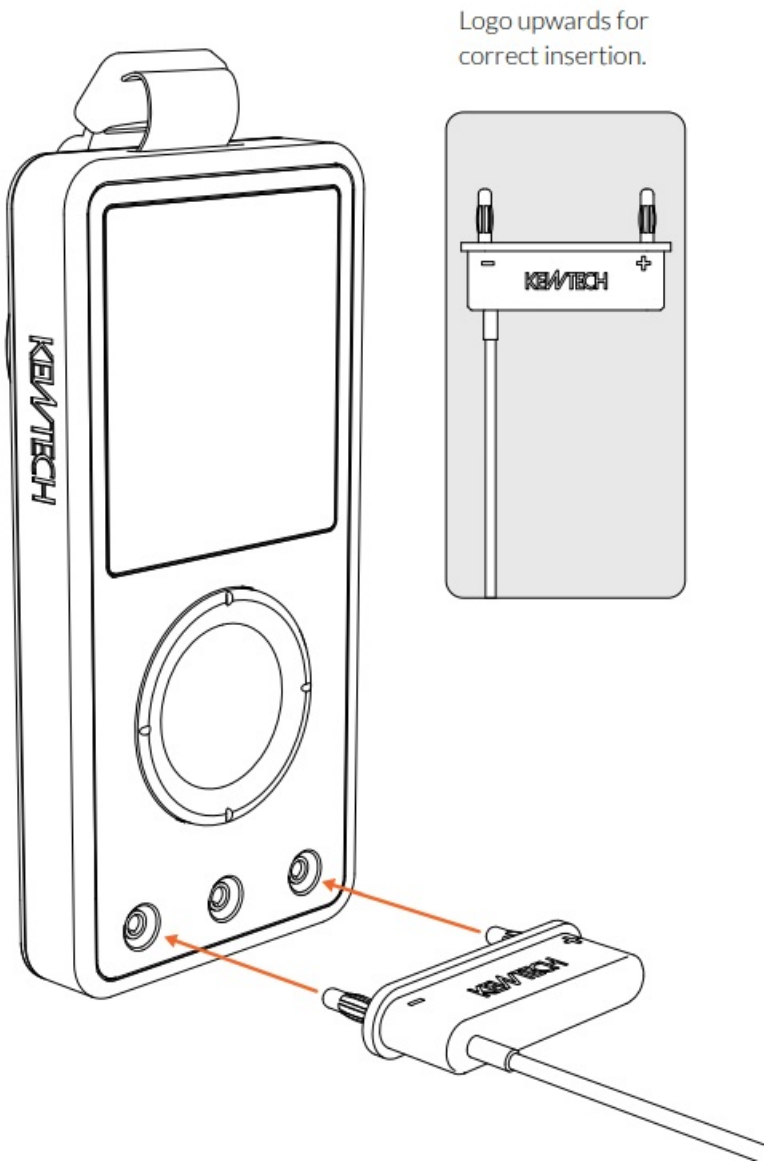
1. LC-display with backlight
2. Measurement Function Selection by rotary dial
3. Input Sockets for all measurement ranges except current measurement 10A
4. Ground connection for all measurement ranges
5. Input socket for current measurement range 10A
6. G-hook strap buckle
7. Magnetic worklight



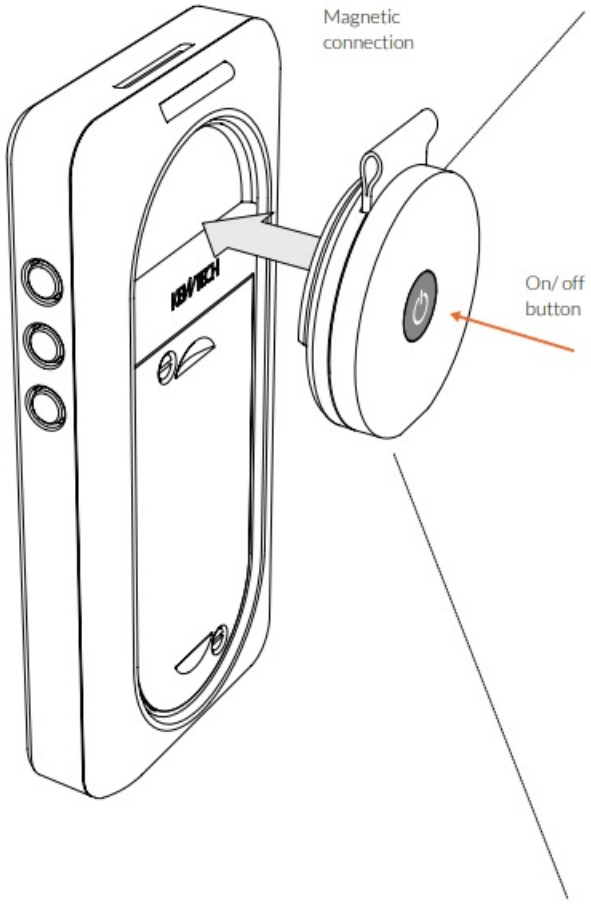
Test leads



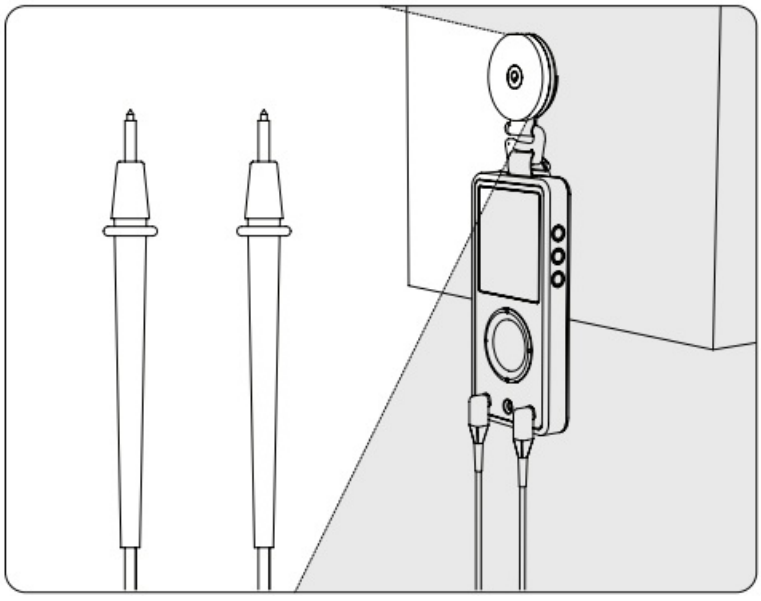
Temperature probe



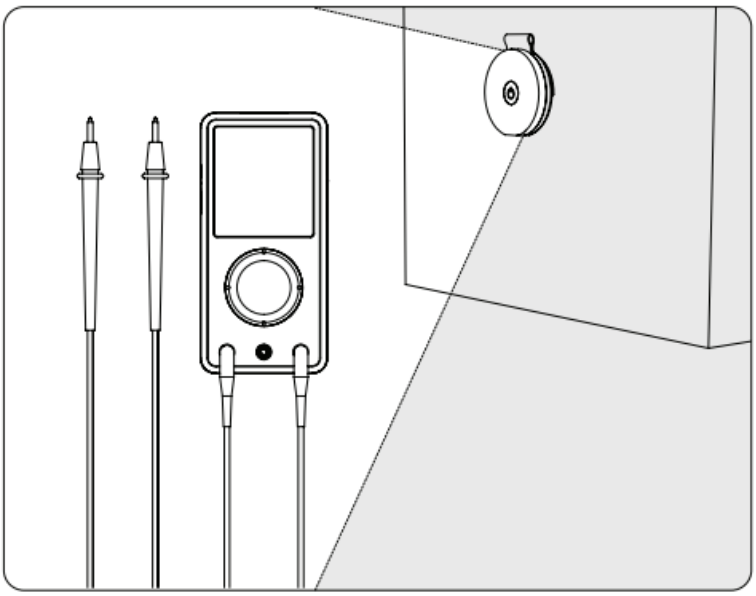
Magnetic worklight



Attach the DMM to a (ferrous) metal surface.

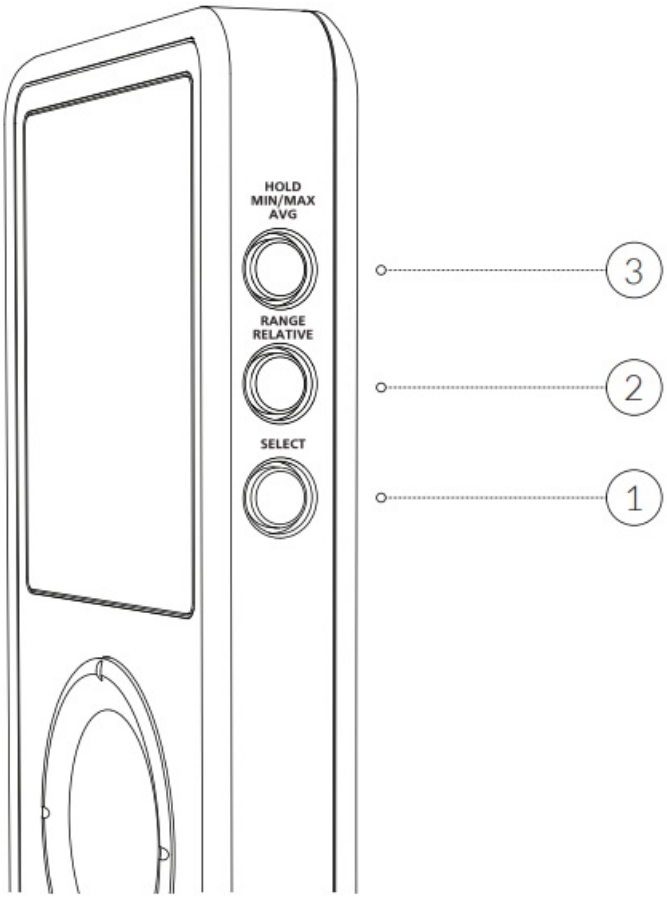


Attach the magnetic work light to a (ferrous) metal surface.



Buttons

1. SELECT button
2. RANGE and RELATIVE button
3. HOLD and MIN/MAX/AVG button



Press the buttons short (< 1 s) for main function and toggle/cycle through the options (you hear 1 beep sound).
Press the buttons long (> 1 s) to switch to the subfunction (you hear 2 beep sounds).

Functions of the buttons

Select
Use SELECT button to cycle through different measurement modes of the measurement functions:

- AC/DC Voltage Measurement (in V and mV modes)
- Resistance, Continuity, Diode, Capacitance
- Temperature scales: ∞C or ∞F
- AC/DC Current Measurement (in 10A, mA and µA modes)

To select desired measurement mode, apply short press on the SELECT button.

Range
Use RANGE/RELATIVE button to toggle between Auto Range and Manual Range modes and cycle through different Manual Ranges as described below:

- When in Auto Range, short press on RANGE/RELATIVE button will switch Multimeter to Manual Range.
- When in Manual Range, short press on RANGE/RELATIVE button will cycle through different Manual Ranges.
- When in Manual Range, long press on RANGE/RELATIVE button will switch back to Auto Range.

Relative
Use RANGE/RELATIVE button to activate or deactivate the Relative function. The Multimeter MUST be in Auto Range mode before applying Relative function, unless it is in mV, Continuity, Diode or Temperature measurement, which operate in Manual Range mode only.

- When in Auto Range, long press on RANGE/RELATIVE button activates Relative function (and at the same time Manual Range mode).
- When in Relative mode, long press on RANGE/RELATIVE button will exit Relative function and set Multimeter back to Auto Range mode.

Hold
Use HOLD button to activate/deactivate Hold function. This freezes the last measured value on the display:

- Short press on HOLD/MIN/MAX/AVG button activates Hold function.
- Next short press on HOLD/MIN/MAX/AVG button deactivates Hold function.

Minimum/Maximum/Average (MIN/MAX/AVG) Measurement

Use HOLD/MIN/MAX/AVG button to activate/deactivate and cycle through Minimum, Maximum and Average measurement.

- Long press on HOLD/MIN/MAX/AVG button activates Minimum, Maximum and Average functions and starts storing these values in the Multimeter. The LCD shows the minimum value that has been measured. Whenever a new minimum value is detected and shown on the LCD, it is also indicated by a short beep.
- Next short press on HOLD/MIN/MAX/AVG button shows the Maximum value that has been measured. Whenever a new Maximum value is detected and shown on the LCD, it is also indicated by a short beep.
- Next short press on HOLD/MIN/MAX/AVG button shows the average value that has been measured.
- Each next short press on HOLD/MIN/MAX/AVG button cycles through the MIN, MAX and AVG measurements.
- Long press on HOLD/MIN/MAX/AVG button deactivates Minimum, Maximum and Average functions.

APO (Automatic Power Off)

- When on, the APO function will power down the Multimeter after 15 minutes of inactivity. Means: The APO timer will reset to zero with each new rotary dial switch or button press.
- The APO function can be deactivated and activated again at any time by a long press of RANGE/RELATIVE and SELECT buttons at the same time.
- When APO is active you see the APO symbol on the display. If APO is deactivated the APO symbol disappears.
- After APO powered down the Multimeter, switch the rotary dial back to the OFF position and back to the needed measurement function to power on the unit again.

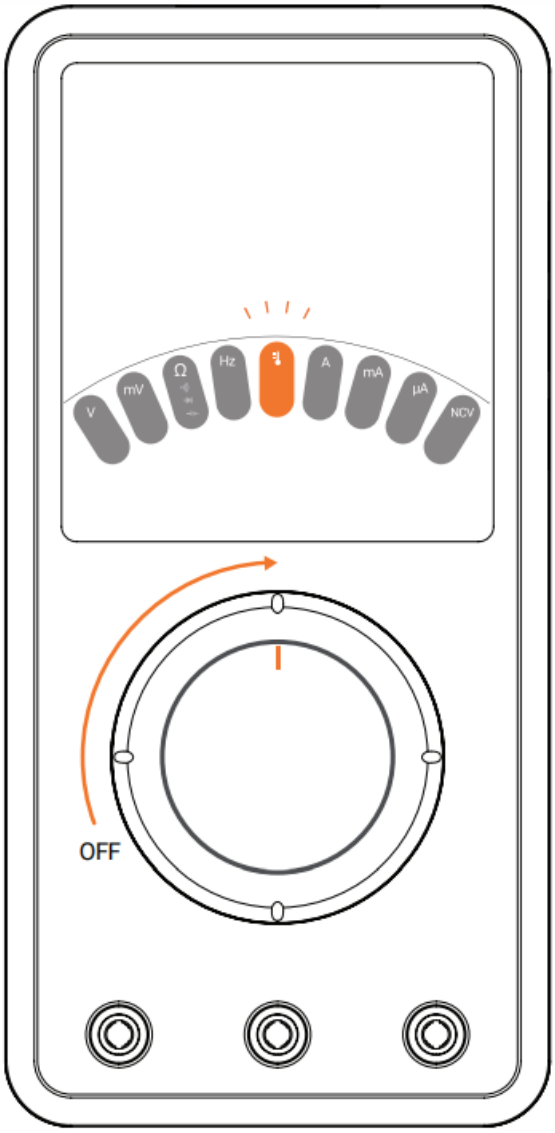
Functions

Battery Indicator
Battery indicator shows the status of the battery:

- No indicator displayed – battery is full.
- Indicator displayed – battery is low.
- Indicator flashing – battery is empty. DMM will turn off soon.

Bluetooth Communication
The Multimeter is equipped with a Bluetooth communication capability. Use the smartphone application to communicate with Multimeter and display measurement results. The smartphone application is described in the separate user guide.

Overview Measurement Modes



Set the desired measurement by turning the rotary dial. The position of the dial will be shown on the display. Power off the Multimeter by positioning the dial to OFF at the counterclockwise end position. The functions of the dial positions are as follows:

OFF	Multimeter is turned off.
	**V SCAN –** Automatic AC/DC Detection and Measurement. In **V SCAN** mode Multimeter automatically detects whether AC or DC voltage is present across the probes and performs the correct type of voltage measurement. Proper AC/DC recognition is valid for the voltages greater than 0.3V. In this mode **SCAN** symbol will appear on the display.
	**V AC/DC** – Manual selection of the type of voltage measurement. Use **SELECT** button to toggle between AC and DC measurement modes. In this mode **SCAN** symbol is not shown.
	**mV** measuring mode. Use **SELECT** button to toggle between AC and DC measurement modes.
	**Resistance, Continuity, Diode and Capacitance** measurements. Use the **SELECT** button to cycle through these measurement modes.
	**Frequency** measurement
	**Temperature** measurement in °C or °F scale. Use **SELECT** button to toggle between °C and °F measurement scales.
	**Current** measurement in **10A** range. Use SELECT button to toggle between AC and DC measurement modes. → use 10 A terminal
	**Current** measurement in **mA + µA** range. Use **SELECT** button to toggle between AC and DC measurement modes. → use **mVΩµmA°CHz⊣•))►|** terminal
	**Non-Contact Voltage** mode indicates the strength of an AC Electric Field.

Voltage Measurement

To avoid electrical shock, the valid safety measures and VDE directives strictly have to be met concerning excessive contact voltage when working with voltages exceeding 120 V (60 V) DC or 50 V (25 V)rms AC. The values in brackets are valid for limited areas (such as e.g. medicine, agriculture).

AC Voltage Measurement

- Select VAC or VSCAN measurement mode via measurement function selection switch.
- Connect the black test lead to the COM socket and the red test mVlead to the **mVΩµmA°CHz⊣•))►|** socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

DC Voltage Measurement

- Select VDC or VSCAN measurement mode via measurement function selection switch.
- Connect the black test lead to the COM socket and the red test mVlead to the **mVΩµmA°CHz⊣•))►|** socket.
- Connect test leads to UUT.

- Read the measurement result displayed on the display.

AC mV Voltage Measurement

- Select mV measurement mode via measurement function selection switch.
- Multimeter will automatically enter in mV AC mode
- Connect the black test lead to the COM socket and the red test mVlead to the mVΩµmA°CHz socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

DC mV Voltage Measurement

- Select mV measurement mode via measurement function selection switch.
- Press “Select” button once to enter mV DC measurement mode
- Connect the black test lead to the COM socket and the red test mVlead to the mVΩµmA°CHz socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

Resistance Measurement

Prior to any resistance measurement it has to be ensured that the resistor to be tested is not live. Failure to comply with this prescription can lead to dangerous corporal user injuries or cause instrument damage. Additionally, foreign voltages falsify the measurement result.

- Select Ω measurement mode via measurement function selection switch.
- Multimeter will automatically enter in Ω mode
- Connect the black test lead to the COM socket and the red test lead to the mVΩµmA°CHz socket.
- Connect the test leads to UUT.
- Read the measurement result displayed on the display.

Continuity Test

Prior to any continuity test, it must be ensured that the resistance to be measured is not live. Failure to comply with this prescription can lead to dangerous corporal user injuries or cause instrument damage. Additionally, foreign voltages falsify the measurement result.

- Select Ω measurement mode via measurement function selection switch.
- Press “Select” button once to enter continuity ( ) mode
- Connect the black test lead to the COM socket and the red test lead to the mVΩµmA°CHz socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

Acoustic indication by signal sound if resistance < 30 Ω

Diode Test

Prior to any diode test, it must be ensured, that the diode to be tested is not live. Failure to comply with this prescription can lead to dangerous corporal user injuries or cause instrument damage. Additionally, foreign voltages falsify the measurement result.

Resistors and semiconductor paths in parallel to the diode cause false measurement results.

- Select measurement mode via measurement function selection switch.
- Press “Select” button twice to enter diode measurement ( ) mode
- Connect the black test lead to the COM socket and the red test lead to the socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

Capacitance Test

Prior to any capacity test, it must be ensured, that the capacity to be tested is not live. Failure to comply with this prescription can lead to dangerous corporal user injuries or cause instrument damage. Additionally, foreign voltages falsify the measurement result.

Resistors and semiconductor paths in parallel to the capacity cause false measurement results.

- Select measurement mode via measurement function selection switch.
- Press “Select” button thrice to enter continuity ( ) mode
- Connect the black test lead to the COM socket and the red test lead to the socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

Frequency Measurement

- Select Hz measurement mode via measurement function selection switch.
- Connect the black test lead to the COM socket and the red test lead to the socket.
- Connect the test leads to UUT.
- Read the measurement result displayed on the display

Temperature Measurement

Prior to any temperature measurement it has to be ensured that the surface to be measure is not live. Failure to comply with this prescription can lead to dangerous corporal user injuries or cause instrument damage.

To avoid burns only touch UUT by means of the thermocouple.

- Select measurement mode via measurement function selection switch.
- Connect the minus pole to the COM socket and the plus pole lead to the socket.
- Temperature probe leads to UUT.

- Read the measurement result displayed on the display.

Current Measurement

- Ensure that the measurement circuit is not live when connecting the measurement instrument.
- The instruments may only be used in current circuits protected with 16A up to a nominal voltage of 1000V.
- The nominal cross section of connecting line has to be respected and a safe connection has to be ensured.
- After instruments fuse tripping eliminate the cause for the tripping prior to fuse replacement

Current Measurement

Current Measurement A AC

- Select A measurement mode via measurement function selection switch.
- Connect the black test lead to the COM socket and the red test lead to the 10A socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

Current Measurement A DC

- Select A measurement mode via measurement function selection switch.
- Press “Select” button once to enter DC mode.
- Connect the black test lead to the COM socket and the red test lead to the 10A socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

Current Measurement mA AC

- Select mA measurement mode via measurement function selection switch.
- Multimeter will automatically enter mA AC mode
- Connect the black test lead to the COM socket and the red test mVlead to the mVΩμmA℃CHz socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

Current Measurement mA DC

- Select mA measurement mode via measurement function selection switch.
- Press “Select” button once to enter DC mode
- Connect the black test lead to the COM socket and the red test mVlead to the mVΩμmA℃CHz socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

Current Measurement μA AC

- Select mA measurement mode via measurement function selection switch.
- Multimeter will automatically enter µA AC mode.
- Connect the black test lead to the COM socket and the red test mVlead to the mVΩµmA℃CHz socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

Current Measurement

Current Measurement µA DC

- Select mA measurement mode via measurement function selection switch.
- Press “Select” button once to enter DC mode.
- Connect the black test lead to the COM socket and the red test mVlead to the mVΩµmA℃CHz socket.
- Connect test leads to UUT.
- Read the measurement result displayed on the display.

NCV (Non-Contact Voltage Measurement)

- Select NCV measurement mode via measurement function selection switch. The display shows “EF”.
- Point the top of the Multimeter towards the source of the electric field (power cable, power socket or light switch).
- Read the measurement result displayed on the display (stronger the electric field Multimeter detects, more horizontal lines will appear on the LCD and faster beeping will be heard)

Maintenance

When using the instrument in compliance with the instruction manual, no special maintenance is required. Should operational problems occur during daily use, our consulting service (phone +49(0)7684 / 907 200) will be at your disposal, free of charge. If functional errors occur after expiration of warranty, our sales service will repair your instrument without delay.

Cleaning
If the instrument is dirty after daily usage, it is advised to clean it by using a humid cloth and a mild household detergent. Prior to cleaning, ensure that instrument is switched off and disconnected from external voltage supply and any other instruments connected (such as UUT, control instruments, etc.). Never use acid detergents or dissolvent for cleaning.

Calibration Interval

The instrument has to be periodically calibrated by our service department in order to ensure the specified accuracy of measurement results. We recommend a calibration interval of two years.

Battery Replacement
Prior to battery replacement, disconnect the instrument from any connected test leads. Only use batteries as described in the technical data section!

- Switch off instrument. Disconnect test leads.
- Loosen the screws of the battery cover on the instrument rear. Lift the battery cover.

- Remove discharged batteries.
- Insert new batteries 1,5V IEC LR03.
- Replace the battery cover and retighten the screws.

Please consider your environment when you dispose of your one-way batteries or accumulators. They belong in a rubbish dump for hazardous waste. In most cases, the batteries can be returned to their point of sale.

Please, comply with the respective valid regulation regarding the return, recycling and disposal of used batteries and accumulators.

If an instrument is not used over an extended time period, the accumulators or batteries must be removed. Should the instrument be contaminated by leaking battery cells, the instrument has to be returned for cleaning and inspection to the factory.

Fuse Replacement

Prior to fuse replacement, ensure that Multimeter is disconnected from external voltage supply and the other connected instruments (such as UUT, control instruments, etc.)

Only use fuses as described in the technical data section!

- Fuse (A): FF 630mA 1000 V Ceramic 6.3×32 mm
- Fuse (A): F 10 A 1000 V Ceramic 10×38 mm

Using auxiliary fuses, in particular short-circuiting fuse holders is prohibited and can cause instrument destruction or serious bodily injury of operator.

To replace a fuse:

- Switch off the instrument. Disconnect all test leads.
- Loosen the screws on the instrument rear.
- Lift the case cover.
- Remove the defect fuse.
- Insert new fuse.
- Replace the case cover and retighten the screws.

Technical Data

- **Display:** 3¾ digit, LC display
- **Total Display:** 6000 Digits
- **Polarity display:** Automatically
- **Measurement Category:** CAT IV/ 600V; CAT III / 1000V
- **Pollution Degree:** 2
- **Power Supply:** Batteries, 3 x 1,5V IEC LR03, AAA
- **Dimensions:** 170 x 82 x 26 mm
- **Weight:** 280 g

Ambient Conditions

- **Operation Temperature:** 0…50°C (0…80% rel. humidity)
- **Storage Temperature:** -10…60°C (0…80% rel. humidity) (without batteries)
- **Height above sea level:** up to 2000 m

Overload Protection

- **Fuse (A):** F 630mA 1000 V Ceramic 6.3×32 mm
- **Fuse (A):** F 10 A / 1000 V Ceramic 10 x 38 mm

Features

- Data HOLD
- RELATIVE Value Measurement
- MIN/MAX/AVG Measurement
- Auto/Manual RANGE Selection
- DMM Battery LOW Indication
- NCV (Non-contact AC Electric Field Detection)
- TRUE RMS
- Backlight

Specifications

Function	Measuring range	Resolution	Basic Accuracy
DC Voltage	600 mV	0.1 mV	±(0.5% of m.v. + 3D)
	6.000 V	1 mV	
	60.00 V	10 mV	
	600.0 V	100 mV	
	600 V	1V	
	1000V	1V	
AC Voltage	600 mV	0.1 mV	± (1% of m.v. + 5D)
	6.000 V	1 mV	
	60.00 V	10 mV	
	600.0 V	100 mV	
	600 V	1V	
	1000V	1V	
DC Current	600.0µA	0.1µA	± (1% of m.v. + 5D)
	6000µA	1µA	
	60.00 mA	10 µA	
	600.0 mA	100 µA	
	6.000 A	1 mA	
	10.00 A	10 mA	
AC Current	600.0µA	0.1µA	± (1.2% of m.v. + 5D)
	6000µA	1µA	
	60.00 mA	10 µA	
	600.0 mA	100 µA	
	6.000 A	1 mA	
	10.00A	10 mA	

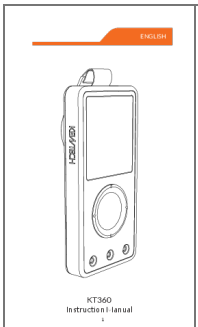
Function	Measuring range	Resolu-tion	Basic Accuracy
Resistance	60.00 Ohm	0.01 Ω	± (1% van m.v. + 3D)
	600.0 Ohm	0.1 Ω	
	6.000 kOhm	1 Ω	
	60.00 kOhm	10 Ω	
	600.0 kOhm	100 Ω	
	6.000 Mohm	1 kΩ	
	60.00 MOhm	10 kΩ	
	200.0 MOhm	100 k Ω	± (1.5% of m.v. + 5D)
Continuity Buzzer	< 30 Ohm		
Diode Test	up to 2V		
Capacitance	6.000 nF	0.001 nF	± (10% of m.v. + 25D)
	60.00 nF	0.01 nF	± (2% of m.v. + 10D)
	600.0 nF	0.1 nF	± (1.5% van m.v. + 5D)
	6.000 µF	1 nF	
	60.00 µF	10 nF	
	600.0 µF	100 nF	± (2% of m.v. + 5D)
	6.000 mF	1 µF	± (10% of m.v. + 25D)
	60.00 mF	10 µF	
Frequency	600.0 Hz	0.1 Hz	+/- 0.1% + 1D
	6.000 kHz	1 Hz	
	60.00 kHz	10 Hz	
	600.0 kHz	100 Hz	
	6.000 MHz	1 kHz	
	60.00 MHz	10 kHz	
Temperature Mea-surement	-200 tot 1350°C		+/-(1% van m.v. + 8D)

Technical Data refer to 23°C ± 5°C at < 80% rel. Humidity
Temperature Coefficient 0,15 x specified Accuracy per 1°C (<18° and > 28°C)

Note:

- The lowest ranges are specified from 10% of the range.
- AC Voltage and AC Current ranges are specified for 50/60Hz. As the frequency increases (over 60 Hz), the accuracy deteriorates with coefficient 0,05 x specified accuracy per 10Hz (>60Hz).
- Capacitance measurement is only specified for values >2nF

Documents / Resources



KEWTECH KT360 Multifunction Tester [pdf] Instruction Manual
KT360, KT360 Multifunction Tester, KT360, Multifunction Tester, Tester

References

- **User Manual**