

# Bidirectional Ultrasonic Distance Measurement

Model: KC-200

Operation Manual



# **Bidirectional Ultrasonic Distance Measurement**

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### **OVERVIEW**

KC-200 bidirectional ultrasonic distance measurement determines the distance to the object through electronic signals with high speed. The tool with built-in computer chip has the function of calculation of room area, volume and so on.

The tool with excellent design owns multinomial patents. Its unique bidirectional dynamic measurement technology makes the effective measurement distance can reach to 30 meters. The tool has the function of long distance measurement. And it is easy to operate and clear to display. It is an ideal tool for building, decoration industries (for example, land agents, upholstery designers and craftsmen, etc)

KC-200 bidirectional ultrasonic distance measurement is the Class II laser tool conforming to EN60825-1 safety rule.

### **SAFETY INSTRUCTIONS**

Failure to follow the instructions listed below may cause personal injury.

- Read and understand all instructions prior to any operation.
- Do not remove any labels from the tool.
- Do not operate the tool with the presence of flammable/explosive gases.
- Do not operate the laser tool around the children or allow children to operate the laser tool, failure to do so will injure eyes of children.
- Do not stare into the laser beam.
- Do not project the laser beam directly into the eyes of others.
- Do not set up the tool at eye level or operate the tool on or near a reflective surface, as the laser beam could be projected into your eyes or the eyes of others.
- Do not observe the laser beam by using optical tools such as binoculars and magnifying glass.
- Remove the battery when storing the tool for an extended period of time in case of the deterioration of battery and its damage to the tool.
- Warning

#### **DANGER**

Class II Laser Product  
Maximum Power Output < 1mW  
Wavelength: 630-660nm  
**Do not stare into beam!**  
**Avoid direct eye exposure!**  
**This tool emits a laser radiation!**

## Battery Safety Instructions

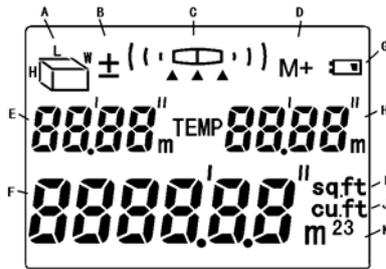
- Please remove the batteries when clean the product.
- Remove the batteries before long term storage
- Please install the batteries properly as the instructions of the positive and negative charges
- Please dispose the batteries properly. High temperature will cause explosions and do not burn the batteries. Strap insulated tape around the battery charges to avoid unsafe contacts with other objects. Many countries have regulations regarding battery disposal. Please follow the local regulations of battery disposing.

## TOOL COMPONENTS



- A. Ultrasonic sensor aperture
- B. Laser pointer
- C. Two row LCD---the data of upper line is the current measuring result, and the data of lower line is the memory/computing result
- D. **BASE** key: measurement base selection key. Keep pressing this key for 2s to shut the tool.
- E. **M** key: memory function key, memory the measurement result
- F. **MODE** key: mode transform key. Three circulation transform patterns: The length, area, volume, and the default state is length measurement. The unit will display environment temperature when keep pressing the key for 2 seconds.
- G. **RM** key: recall the memory data. Keep holding the key for more than 2 seconds to select measurement unit: British unit or the Metric unit. (the original unit is Metric unit)
- H. **READ** key: start and measuring key
- I. **+/=** key: addition key
- J. level vials

## ILLUSTRATION OF DISPLAY SCREEN



- A. Length/area/volume mode indication (L=length; W=width; H=height)
- B. Plus
- C. Measuring base
- D. Memory
- E. Left measuring result
- F. Memory、compute result
- G. Display when lack of electric quantity
- H. Right measuring result
- I. Square foot
- J. Cubic foot
- K. Meter/square meter/cubic meter

## OPERATION GUIDE

### Battery installation

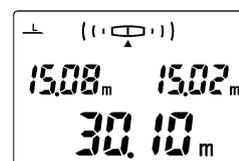
Open the battery compartment door on the back of the tool, and plug one 9 Volt block battery onto the battery connector and put the battery back to the compartment and close the door.

### Distance measurement

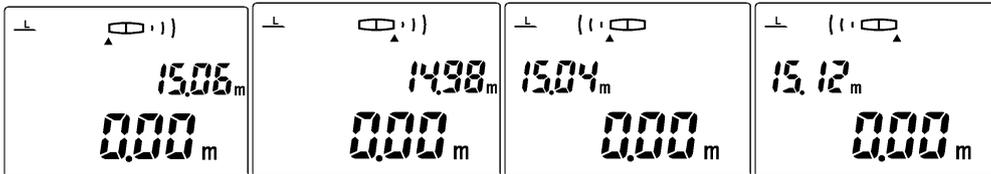
- Make the induction hole of the tool face against the measured object (e.g. the wall) and keep the tool vertical to the measured object; make sure the point of the level vial stands between the two lines of the level vial by adjusting the position of the unit.



- Press the **READ** key to start the tool, the instrument is ready to work.
- Press the **READ** key again to get the measured distance. There are left measuring and right measuring result respectively on the upper row. The addition of left measuring result and right measuring result will display on the lower portion meantime. The laser beam indicates the measured surface.



- Keep pressing the **READ** key and move the tool to get the dynamical readings, and the measured distance will be displayed on upper portion of the screen
- Press the **BASE** key once to transform measurement base. Press the key every time and the base point are the following five ways in turn: starting from the middle then do bidirectional measurement、starting from the left then measure to the right、starting from the right then measure to the right , starting to the left then measure to the left、 starting from the right then measure to the left. The default state is for bidirectional measurement .



- Midpoint indication: At the mode of bidirectional measurement, when the unit detects the midpoint ( the distance of two sides is equal), the buzzer will sound. Meanwhile the central base symbol and two ultrasonic symbols on the display will twinkle.
- Unit transform: Keep pressing **RM** key for 2 seconds to select measurement unit: British unit or the Metric unit. (the original unit is Metric unit)
- Shut the tool: Keep pressing the **BASE** for 2s to shut the tool. And if there's no action in 60s, the tool will turn off automatically.

Tips: A. The measured object must be a normative horniness surface and without barrier.

- B. To ensure exact measurement, the measured surface should be smooth, bigger area and of homogeneity.
- C. If the measured surface is too small, abnormality or the surface is soft, a board should be placed on the surface of measured object.
- D. The unit can't measure through the glass.
- E. When measuring, the tool should keep a distance away from the measured object at least 2 feet (50cm).
- F. To ensure exact measurement, the temperature of the tool should be same with the temperature of environment
- G. If the tool has been off automatically or by hand, just restart the tool after 5s.

### Addition (W/O using M memory)

- Press **READ** key for measurement and the measured value is displayed on upper portion of the screen (note: when bidirectional measurement,the addition of left measurement result and right measurement result will display on the lower portion of the screen);

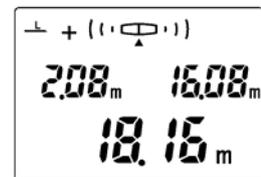


- Press **+/-** key to enter the addition mode, and the “+” icon will appear on upper portion of the screen. At the same time, the addition of primary data on lower portion and measurement result now is displayed on the lower side of the display.



- Notes: 1. When enter “+” operation for the first time, the primary data will be seemed as “0” to do addition.  
 2. Pressing  $\boxed{+/\equiv}$  key will be of no effect, when the tool with no any measurement (the data is 0.00m on the upper portion).  
 3. If the data is continuous dynamic measuring result, the last display data will enter into the “+” operation.

- Press  $\boxed{\text{READ}}$  key again for second time measurement, the measured value is displayed on the screen;



- Press  $\boxed{+/\equiv}$  key again to display the new sum on the lower portion of the screen;



Note: If continuously press the  $\boxed{+/\equiv}$  key for 2 times, the addition operation will be canceled, all the anterior computation result will clear away.

- Repeat the steps:3~4 above can continue accumulation.

### Addition (using M memory)

- Press the  $\boxed{\text{M}}$  key to save the first measured result, and the “M+” will appear on the right portion of the screen.



- Press the  $\boxed{\text{READ}}$  key for new measurement and display the result.



- Press the  $\boxed{\text{RM}}$  key to recall previous measurement for the addition (displayed on the bottom of the display), and at the same time, the “M+” icon disappears and the stored memories will be automatically eliminated;



- Press  $\boxed{+/-}$  key for accumulation, the result of memory data and measurement data will display on the lower portion of the screen. At the same time, "+" icon will display on the upper portion of the screen.



- Notes: 1. If continuously press the  $\boxed{+/-}$  key twice, the addition operation will be canceled, all the anterior computation result will clear away.  
2. At this moment, if pressing  $\boxed{M}$  key again, the tool will memory the result on the bottom of the display. The tool will add with accumulation.

## Area

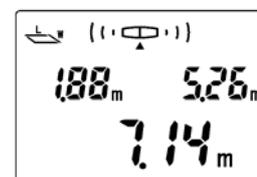
- Press  $\boxed{\text{MODE}}$  key to enter area mode, and the " $\frac{L}{W}$ " will appear on the display.



- The length character " $\frac{L}{W}$ " on the display will blink with the frequency of 2Hz showing the length measurement you will be firstly taking. Press  $\boxed{\text{READ}}$  key to take length measurement and display on the screen. (Step 1);



- The width character " $\frac{L}{W}$ " on the display will blink showing the next measurement to take. Press  $\boxed{\text{READ}}$  key to take width measurement and display on the screen (Step 2);



- Then the area character " "on the display will blink, Pressing **READ** key to take the area result and display on the lower portion of the screen. At this moment, the " " icon won't blink again. (Step 3);



- Press the **READ** key again will toggle back and forth between the length and width, area measurement result and corresponding icon " " " " and " " will display and blink with the frequency of 2Hz on the screen, meanwhile the measurement won't work.
- Press **MODE** key again to clear the data on the portion of the screen, then can begin the new calculation of area.

### Addition of area under area mode:

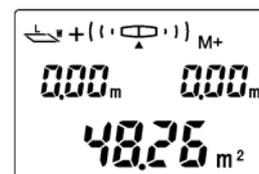
- Press the **M** key to save the calculated area on the lower portion of the screen, at the same time, the "M+" icon appears on the screen;



- Press **MODE** key again to begin the second time measurement and computation (follow step 1, 2 and 3 under the area section);



- After getting the desired area of the second time computation, press **+/=** to enter the addition mode. A "+" icon would appear on LCD.



Note: If continuously press the **+/=** key for 2 times, the addition operation will be canceled and the icon **+/=** will disappear (Press **+/=** key shortly for one time will enter into addition, Press **+/=** key

shortly for two times will cancel the operation. Then press again will toggle back and forth between: add---cancel---add).

- Press **RM** key to recall the first calculated area and display on the lower portion of the screen for the addition. The “M+” icon will disappear and the stored memory will be automatically cleared;



- Press **+/=** key again, the sum of both areas is shown on the lower portion of the screen;



- Repeat the steps above to keep adding the measured area.
- Repeat the steps:1~5 above can continue accumulation.

## Volume

- Press **MODE** key to enter volume mode, and the "  " will appear on the display.



- The length character " L " on the screen will blink with the frequency of 2Hz showing length measurement will be taking. Press **READ** key to take length measurement, the result will be displayed on the screen. (Step 1)



- The width character " W " on the screen will blink showing the next measurement to take. Press **READ** key to take width measurement, the result will be displayed on the screen. (Step 2)



- The height character “H” on the screen will blink showing the next measurement to take. Press **READ** key to take height measurement, the result will be displayed on the screen. (Step 3);



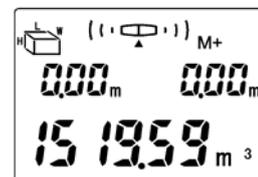
- The volume character "  " on the display will blink, Pressing **READ** key to take the volume result and display on the lower portion of the screen. At this moment, the "  " icon won't blink again. (Step 4);



- Press the **READ** key again will toggle back and forth between the length and width, height, volume measurement result and corresponding icon " L " "  " " H | " and "  " will display and blink with the frequency of 2Hz on the screen, meanwhile the measurement won't work.
- Press **MODE** key to clear the data on the screen, and then can begin the new calculation of volume;

### Addition of volumes under volume mode:

- Press **M** key to save the calculated volume on the lower portion of the screen, and the “M+” icon will appear on LCD;



- Press **MODE** key again to begin the second time measurement and computation (Follow step 1,2, 3 an 4 under the volume section).



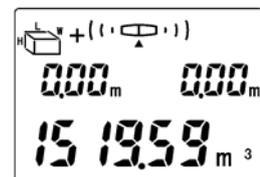
- After getting the calculated volume of second time, press **+/-** key to enter the addition mode. A

“+” icon would appear on LCD;



Note: If continuously press the  $\boxed{+/-}$  key for 2 times, the addition operation will be canceled and the icon  $\boxed{+/-}$  will disappear (Press  $\boxed{+/-}$  key shortly for one time will enter into addition, Press  $\boxed{+/-}$  key shortly for two times will cancel the operation. Then press again will toggle back and forth between: add----cancel----add).

- Press  $\boxed{RM}$  key to recall the first calculated volume and display on the lower portion for the addition. The “M+” icon will disappear and the stored memory will be automatically cleared;



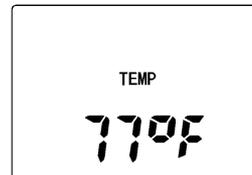
- Press  $\boxed{+/-}$  key again, the sum of both volumes is shown on the lower portion of the screen;



- Repeat the steps:1~5 above can continue accumulation.

## Temperature display

Press and hold  $\boxed{MODE}$  key for 2 seconds, the environment temperature will appear on the lower portion of screen (the unit is °C if the distance unit is M, while the unit is °F if the distance unit is ft/in), and press the  $\boxed{READ}$  key again to return the measuring state.



## OPERATION INSTRUCTION

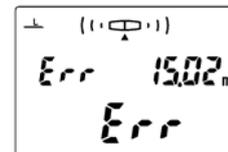
If restart the tool immediately after turning off the tool ( the interval time is less than 5s ), may cause the following result: no reaction after pressing the key or disordered phenomena of the screen. Please take off the battery and put it for another time to come back to the original condition.

Inaccurate measurement may result from the following:

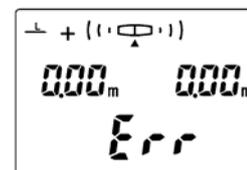
- When the battery runs out: at this time, the “” icon will continuously appear on LCD to remind you to replace the battery.



- When the measured distance is out of the specified range: the effective range is 2'~53' (0.5~16m).



- When the calculated result is out of the specified range: at this time, an error message “Err” will be displayed on the lower line of the screen.



- When addition of different parameters (e.g. length plus area), the “+” will be ignored and the screen will keep the same read as the unit was operated before.
- When another ultrasonic source or high frequency noise is nearby: leave or shut down the noise resource when taking measurement.
- When barriers appear between the tool and the measured surface.
- When the measured surface is not smooth: the measured surface should be smooth, hard and of homogeneity.
- When the measuring environment is not good: the temperature and humidity will affect the accuracy of measurement, and take measurement under environment of no wind, and temperature of the unit should be same with temperature of the circumstance, especially for long distance measuring (between 40' to 53' / 12m to 16m), the relative humidity should be above 48%, and the size of measured surface should be at least 10ft. by 10ft./3m by 3m.
- When measuring, ultrasonic sensor aperture should straightly face to the measured surface.

#### **Cautions**

- Handle with care and do not let the tool drop down.
- Do not disassemble the tool to avoid failure.
- Keep the tool dry and clean.
- Store the tool in a box when not in use.
- Avoid dust and water, which may stain the lens.
- Check battery regularly to avoid deterioration.
- Remove the battery when not in use for an extended period of time.

## TECHNICAL SPECIFICATIONS

Name		Bidirectional ultrasonic distance measurement
Type		KC-200
Recommended use		Indoor
Range of effective measurement	Measurement for single direction	0.5~16m
	Measurement for bidirectional direction	1~32m
Distance of limit measurement		40m (under the standard test environment)
Accuracy		±1%±1 digit
Basement select		Left edge, midpoint, right edge
Calculation range	Length	9999' 11" (9999.99m)
	Area	99999.9 sq ft (99999.9 m <sup>2</sup> )
	Volume	999999 cu ft (999999m <sup>3</sup> )
Resolution		0.01m
Wavelength of laser		630~660nm
Temperature range		0°C to +40°C
Laser Class		Class II
Power supply		One 9V battery
Backlight automatic off		The backlight will be automatically off if there's no action in 15 seconds.(press any key to start the backlight)
Automatic off		The tool will be automatically off if there's no action 60 seconds.
Power supply		One 9V battery
Power consumption		<80mA
Operating temperature		0°C to 40°C
Operating humidity		30%~70%RH
Storage environment		-20°C~+60°C, ≤85% (w/o battery)
Size		180mm×82mm×49mm
Weight		About 190g (battery not included)

## WARRANTY

The product is warranted to be free from defects in materials and workmanship for a period of one year from the date of purchase on the basis of providing relevant card.

### Notice:

The warranty does not apply to the following conditions

- Disassembling the laser tool will void the warranty.
- Any damage resulting from, but not limited to wear, water, being dropped or repairs attempted by others.

Tips:Most parts of the product could be recycled, please refer to your local regulations for disposing of them instead of throwing into the dustbin.