



**INSTRUCTION MANUAL**  
**MT300**  
**MULTIFUNCTION WALL SCANNER**





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## 1. SAFETY WARNING

- Please read this instruction manual carefully. This ensures the correctness of the measurement parameters and maintains the life of the equipment.
- Don't use this meter in flammable and explosive environments
- Used batteries for instrument replacement and discarded instruments cannot be disposed of with household waste. Please handle according to relevant national or local laws
- When there is any quality problem with the instrument or when there is a question about using the instrument. You can contact Major Tech online customer service. We will solve it for you as soon as possible

## 2. PRODUCT OVERVIEW

### 2.1. Function Introduction

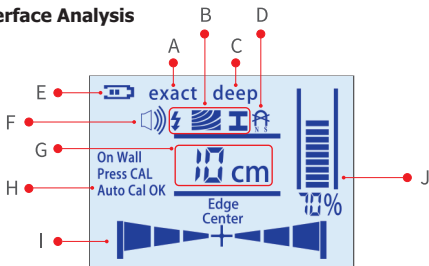
This detector can detect metal in walls and ceilings and floors. Such as steel bars, copper pipes, cables. It can also detect wooden beams, metal, cables under plasterboard.

### 2.2. Key Function

- 1 - Display interface
- 2 - Yellow indicator
- 3 - Red indicator
- 4 - Center of detection area  
(Position can be marked by center hole)
- 5 - Green indicator
- 6 - Metal/Cable Detection Button
- 7 - Foreign object detection button (Long press to switch Exact mode/Deep mode)
- 8 - Type-C charging port ("③ red indicator" is on when charging; "⑤ green indicator" is on when fully charged)
- 9 - On/Off button
- 10 - Reset hole



### 2.3. Interface Analysis



- A - Precise mode in "Foreign Object Detection" mode  
(The maximum detection depth is 20mm in Precise mode)
- B - Arranged in order as alternating current, foreign objects  
(generally refers to wooden stalls) and metal
- C - Depth mode in Foreign Object Detection mode  
(The maximum detection depth in depth mode is 38mm)
- D - Magnetic/Nonmagnetic Icon
- E - Battery percentage
- F - Sound icon (Press the "⑦ Foreign Object Detection" & "⑥ Metal/Cable Detection" buttons at the same time to turn off or turn on the sound)
- G - Metal detection depth display (refers to the distance from the center of the detection area to the object to be measured)
- H - Timber Detection Preparation Tips  
(Wall calibration ~ calibration completed)
- I - Indicates the distance from the edge of the object to be measured to the center of the detector. Only the Center icon is displayed in metal mode
- J - Detection signal strength display area

### 3. PRECAUTIONS

- Please use the interface as Type-C. It can be charged by a charger with a voltage output of 5V and a current of  $\geq 500\text{mA}$ . The company is not responsible for accidents caused by the charger
- Before starting the detector. Make sure there is no moisture on the detection area. Dry the detector with a cloth if necessary
- Don't allow moisture to penetrate into the detector. Don't let sunlight directly shine on the detector for a long time
- If the detector is exposed to extreme temperature differences. Please wait for the temperature of the detector to decrease and/or before starting the detector.

- Using or operating transmitting equipment such as microwave ovens near the detector can affect the detection results
- In the detection and use of the equipment, the detection results will be affected by the surrounding environmental factors to some extent.
- For example: ① Is the instrument close to a machine that generates a strong magnetic or electromagnetic field; ② Moisture/metallic building materials/aluminum-clad insulating materials/wallpapers with very good conductivity/carpets or tiles with conductivity will affect the detection results.
- Do not work if the wall contains electrical/gas/water pipes. Before penetrating the wall surface, such as drilling or nailing. Please check first and turn off power/gas/water
- For best scanning results, avoid wearing jewelry such as rings or watches when using the detector, metal may cause inaccurate detection; move the tool evenly on the wall surface, do not lift it or change the applied pressure
- When detecting foreign objects, the tool must always be in contact with the wall surface during the scan
- Make sure the fingers of the hand holding the tool do not touch the surface being scanned
- Do not touch the detector or the scanned surface with your other hand or any other part of your body
- Always detect slowly for maximum accuracy and sensitivity

## 4. DETECTION TYPES AND USE

### 4.1. Detection Of metal Objects (Rebar, Wires, Copper Pipes)

#### 4.1.1. Basic Information and Operation

- After the detector is turned on, it will enter the "metal detection" mode by default. At this time, if there is no metal interference, there is a signal on the display. This indicates that calibration is required.
- Calibration method: place the detector in an environment free of metal and strong magnetic field interference (eg: lift the detector into the air, etc.). Press and hold the "⑥ Metal/Cable Detection" button again. Until the signal display returns to zero and the green light turns on. Release the button at this point, the calibration is complete.
- The maximum detection depth of metal is 120mm.
- When detecting metal objects. Press the metal detection button to enter the detection metal state. At this time, the pattern of metal detection will appear on the display, and the green indicator will light up.
- Place the detector on the object surface and move the instrument left or right towards the same horizontal direction. When the instrument gets closer to the metal object, the scale on the signal strength display area of the display will gradually increase. At the same time, the intensity percentage will gradually increase.

- When the instrument is slowly moving away from the object, the scale on the signal strength display area of the display will gradually decrease. At the same time, the intensity percentage will gradually decrease.
- When the program determines that the signal received by the instrument reaches the maximum. This indicates that the metal object is just below the center of the detector. The center icon (Center) appears on the display
- The yellow or red indicator light of the detector will light up when metal material is detected
- When the metal substance and AC signal are detected at the same time, the red indicator light of the detector will flash, and the detector will beep continuously.
- When the detector displays a non-magnetic metal symbol, it means that the current measured object is generally a wire or copper pipe
- When the detector displays a magnetic metal symbol, it means that the measured object is generally a steel bar.
- When the detector does not display magnetic or non-magnetic metal symbols, it means that the measured object is generally an alloy.
- When the AC symbol on the instrument flashes, it means there is an AC signal nearby.

#### **4.1.2. Detection Note**

- When detecting metal, the displayed depth of detection value on the display is synchronized with the detection operation. The accuracy of the depth value is related to the shape and material of the measured metal, the distribution of the measured object relative to the detector, and the properties of the surrounding medium of the measured object, etc.
- When the measured object is a standard steel bar or copper pipe with a diameter of 18mm, the accuracy of the depth value is the best. If on the contrary, then the depth value can only be used as a rough reference value at this time.

## **4.2. Foreign Object Detection Mode (Generally Refers to Wood Material)**

### **4.2.1. Basic Information**

- Maximum detection depth: Precise mode: 20mm/Depth mode: 38mm. Long press the button to switch exact mode/deep mode.
- The foreign object detection mode will detect objects in gypsum drywall, plywood sheathing, bare wood floors, coated wood walls.
- Foreign Object Detection Mode will not detect objects in concrete, mortar, blocks, bricks, carpets, foil-faced materials, metal surfaces, tiles, glass or any other dense material.
- Sensing depth and accuracy will vary due to moisture, material content, wall texture and paint.

- The foreign object detection mode actually detects more than just wood materials. It can also detect metals and other dense materials. For example: water-filled pipes and plastic pipes near the back of a wall or ceiling surface.
- To help identify wood materials, a metal scan is first performed and the location of any detected metal items is marked. Then scan in foreign object detection mode, items detected in foreign object detection mode but not detected in metal detection mode may be wooden studs.

#### **4.2.2. Operation Introduction**

- Press the "Foreign Object Detection" button to enter the foreign object detection mode. At this time, the foreign object detection (Generally refers to wood material) icon will appear on the display screen.
- When detecting foreign objects, the instrument must be vertically attached to the wall, and then briefly press the "Foreign Object Detection" button, keep the instrument still for 1-3 seconds, wait for the calibration of the instrument to complete (the green light will be on at this time), and then perform the detection.
- Place the detector on the surface of the object and move the instrument evenly and slowly to the left or right in the same direction. Don't lift the instrument or apply additional pressure.
- When the instrument is close to the edge of the measured object. The display will show the signal percentage synchronously. Boundary icons in the same direction are gradually displayed.
- When the instrument is at one of the boundaries of the gear, the instrument will display the boundary character (Edge). And the corresponding half of the border icon will be displayed.
- Continue to move the instrument in the same direction, the edge character (Edge) goes out. The other half of the border icon is gradually displayed. When the instrument is in the middle of the gear, the center character (Center) will appear on the display. And the border icons on both sides will all be displayed, the red light will be on, and the buzzer will emit a long repetitive beep. Signal percentage reaches maximum
- At this time, keep moving in the same direction, the center cross icon and characters will go out, the buzzer will stop sounding, and the border icon will gradually go out as the instrument leaves.
- When the instrument is at the other edge of the wooden fence, the edge character (Edge) will be displayed on the instrument and the edge icon corresponding to the half will be displayed, and the display screen will simultaneously display the signal percentage.
- Continue to move the instrument until it is far away from the wooden stop, the signal percentage gradually decreases, and the boundary icon gradually disappears, until the green light of the instrument turns on and the instrument cannot detect the gear stop, and the detection operation is completed.



## Operation Tips

- The position will be more accurate after repeated detection.
- When a foreign object is detected and an alternating current is detected. The AC symbol on the instrument will flash. The instrument will make a short repetitive beep.
- In "Foreign Object Detection" mode. When only alternating current is detected. The instrument only flashes the AC symbol on the display.

## Detection Note

- Sometimes due to various environmental factors. The instrument may not automatically calibrate, and there may be false alarm signals, please re-calibrate manually. The calibration method is to briefly press the foreign object detection mode button until the green light turns on again.
- If the instrument has just been calibrated on the wooden gear. Then you need to move the tool outside the range of the wooden gear. And it can only be detected when the wooden gear is detected again.
- If you receive erratic scan results, it may be due to moisture in the wall cavity or drywall, or paint or wallpaper that is not fully dry. While moisture may not be visible, it can interfere with the sensor. Please wait for the wall to dry.
- For certain environmental factors or uneven surfaces, it is difficult to detect wooden dowels using the foreign object detection mode. Use the metal detection mode to locate the nails that hold the material to the dowels, making it easier to find these items.
- Depending on how close the wires or pipes are to the wall. Instruments can detect them in the same way they detect foreign objects. Use construction safety precautions when nailing, cutting or drilling holes in walls, floors and ceilings that may contain these items.

## 4.3. Detection of Live Cables

### 4.3.1. Basic Information and Operation

- Maximum detection depth: 50mm (220V@50Hz/110V@60Hz).
- Press the "Detect Live Cable button" to enter live cable detection. The AC icon will appear on the display. At this time, if the signal strength percentage is displayed on the display screen of the entire measured surface, it means that it needs to be reset to zero. The way to return to zero is to press and hold the "Detect live cable button" on the surface to be detected. The calibration is completed until the signal percentage on the display returns to zero and the green light is on. At this time, release the button to detect the live cable.
- Place the detector on the surface of the object and move the instrument left or right in the same direction. When the instrument is getting closer to the live cable, the scale on the signal strength display area of the

display will gradually increase and the strength percentage will gradually increase. As the instrument moves away from the live cable, the scale will slowly decrease again and the intensity percentage will gradually decrease.

- When the program determines that the signal received by the instrument reaches the maximum, it means that the live cable is located just below the center of the detector. The center icon (Center) appears on the display. At the same time, the yellow or red indicator light of the detector will light up, and the buzzer will make a short beep sound.

### **Detection Note**

- Under certain conditions (such as behind metallized or conductive surfaces, shielded in metal conduits, or behind surfaces with high water content/humidity), "live" wires/conductors cannot be detected with certainty. Concrete, brick and ceramic surfaces have a shielding effect on the electric field signal from the live wire, so the depth of detection of the live wire is also affected when testing on these surfaces.
- Easier detection of live AC lines when the consumer is connected to the desired conductor and turned on.
- The signal from the "live" wire will spread from both sides of the actual wire, so sometimes the area where the "live" wire alerts appears to be much larger than the actual wire.
- Occasionally the instrument will sound an alarm when a live wire is detected. This is due to high humidity or strong static electricity on the wall, you can calibrate the instrument by long pressing the detection cable button on the wall at the current location until the green light is on and the signal strength percentage is zero, then release the button to continue detection. If the signal strength percentage is still not zero after the calibration operation, it means that the humidity or static electricity is too high, or the surrounding electromagnetic radiation is too high (for example, if there are a lot of electrical appliances around), and the tool cannot accurately detect the live wire. You need to wait for the humidity to drop or turn off the appliance before trying to detect.
- Static electricity can cause inaccurate wire detection. It may also help to put your hand on the wall next to the detector and measure again to help remove static.
- The signal strength of a "live" wire depends on the location of the cable. So take further measurements nearby, or use other information to check for "live" wires.
- Wires that are not "live" may be detected as metallic objects or may not be detected. This includes solid copper cables, but stranded copper

## 5. INSTRUMENT MAINTENANCE

- Use a dry, soft cloth to wipe dirt off the instrument. Don't use detergents or solvents.
- Before the detector is prohibited. Put any labels or nameplates on the detection area on the back two sides.
- Please do not stick on any metal nameplates.
- Please use the included protective case to store and carry the detector
- Please recycle and reuse damaged detectors, accessories and packaging materials in an environmentally friendly manner.

## 6. SPECIFICATIONS

### 6.1. Basic Parameters

Function	Range
Battery capacity	3.7V 300mAH
Continuous working time	About 2 hours
Auto shutdown time	About 5min
Equipment size	138 x 68 x 22mm

### 6.2. Maximum Detection Depth

Function	Range
With iron metal	120mm
Non-ferrous metal(Copper)	100mm
Alternating current	50mm
Single-strand copper wire ( $\geq 4\text{mm}^2$ )	40mm
Foreign body (Generally refers to wood material)	Exact mode 20mm / Deep mode 38mm

### 6.3. Temperature and Humidity Range

Function	Range	
Working humidity	In metal mode	0~85%RH
	In foreign body mode	0~60%RH
	In AC mode	0~30%RH
Operating temperature	-10°C to 50°C	
Stored temperature	-20°C to 70°C	



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