Multifunctional Wall Stud Finder & Digital Level TD100

WALL STUD FINDER

This tool has five different scanning modes to detect studs, metal, and live unshielded AC wiring behind wall, floor, and ceiling, as well as detecting rebar in concrete. For safety, in all modes, this tool always detect and indicate the existence of live AC wire.

• Stud ½ inch scan mode: Locates the center and edges of wood and metal studs up to ½ in. (13mm) deep.
• Stud 1 inch scan mode: Locates the center and edges of wood and metal studs up to 1 in. (25mm) deep.
• Stud 1 ½ inches scan mode: Locates the center and edges of wood and metal studs up to 1 ½ in. (38mm) deep.
• Metal Scan mode: Detects metal up to 2 2/5 inches (60mm) deep.
• AC wire Scan mode: Detects live unshielded AC wires up to 2 inches (51mm) deep.

DIGITAL LEVEL

Measuring range of digital display: 4×90°
Resolution of digital display : 0.05°
Precision of digital display : ±0.2° at 0° and 90°, ±0.3° at other angles
Unit of measurement: ° degrees, % percent
Hold function
LCD display with Green color backlight

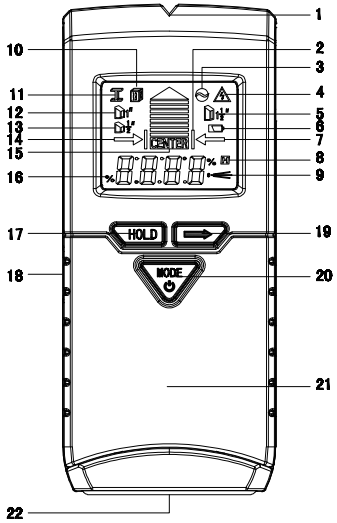
Battery type: 1 x 6F22 9V battery
Working current: <50ma
Standby current: <1ua
Automatic power off: about 3 minutes

INSTALLATION

Open the battery cover, insert a new 9-volt battery, matching the correct positive (+) and negative (-) terminals, push the battery into battery case and replace the cover.
Low Battery Indicator: the low battery indicator icon will display when the battery level is getting low, please replace a new one accordingly.
Press Power button to turn on this tool, press Power button again to choose the Wall Stud Finder mode, Digital Level mode or Wall Stud Finder & Digital Level mode in sequence; press and hold Power button about 2 seconds to turn off this tool.

OPERATION TIPS OF WALL STUD FINDER:

1. Hold this tool properly and move it slowly in one direction to obtain the optimum scanning results.
2. Avoid placing your other hand, or any other part of your body on the surface being scanned, which will interfere with the performance of the scanner.
3. Hold this tool vertically and parallel to the studs, do not rotate. Keep it flat against the wall and do not rock or tilt, also avoid pressing too hard when slowly sliding across the surface being scanned.
4. Make sure that the surfaces you scan are flat and have been fully dried out. Humidity, moisture wall or wallpaper will lead to erratic scanning results.
5. The Stud scan mode can also detect the metal, rebar, pipe or AC wiring behind wall, floor or ceiling, be caution when nailing, cutting, or drilling.
6. Please note the normal width of studs or joists are 1 ½ in. (38mm), and 16 or 24 in. (41 or 61cm) intervals.
7. Always turn off the power supply when working anywhere near electrical wires.



1.The centre pointing locator
2. Stud edge indicator
3. AC wire scan mode
4. AC wire warning icon
5. Stud 1 ½ inches scan mode
6. Low Battery Indicator
7 and 14. Direction indicator
8.HOLD icon
9.Inclination icon
10.Stud Scan mode
11.Metal Scan mode
12.Stud 1 inch scan mode
13.Stud ½ inch scan mode
15.Stud center indicator
16.% icon of measurement unit
17.HOLD button
18.Scan button
19.Mode switch button
20.Power button
21.Battery case(Back of unit)
22.Level measurement base with magnets

DIFFERENT SCANNING SURFACES

• Wallpaper: may need to be dry for several weeks after application.
• Freshly painted walls: may take one week or longer to dry after application.
• Lath & Plaster: Due to the irregularities thickness of plaster, maybe it is difficult for this tool to locate studs in Stud scan modes, change it to Metal Scan mode to locate the metal nail on the stud to estimate the stud position; If the plaster has metal mesh reinforcement, this tool may be unable to detect through this material.
• Thickly textured walls or ceilings: When scanning a ceiling or wall with an uneven surface, place a thin cardboard on the surface to be scanned and scan over the cardboard in Stud 1 ½ in. scan mode. If irregular scanning results are received, switch to Metal Scan mode to locate nails or drywall screws that line up vertically where a stud or joist is positioned.
• Wood flooring, subflooring plastered wall or plywood sheeting: Use Stud 1½ inches scan mode and move the tool slowly. The signal strength Indicator may only display limited bars when the detector locates a stud through thick surfaces.

This tool cannot scan for wood studs and joists through concrete or carpet and padding. In these situations try using Metal scan mode to locate nails or screws that may have been used and should line up vertically where a stud or joist is positioned.
Note: Sensing depth and accuracy maybe vary due to different moisture, content of materials, wall texture and paint.
Do not rely exclusively on this tool to locate items behind the scanned surface. Consult other information to help locating items before penetrating the surface. The information include construction plans, visible points of entry of pipes and wiring into walls and generally there is a standard 16 and 24 inches (41 and 61cm) stud spacing practices.

MODE SELECTION

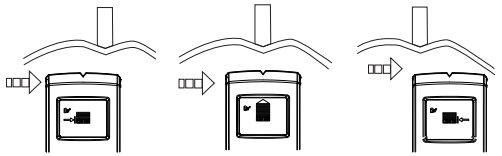
Press Power button, the LCD displays all icons 1 second, and press Mode switch button to choose the desired mode: Stud ½ inch, 1 inch or 1½ inches scan mode to find wood or metal studs within these depths. You can also use Metal scan mode for locating metal or AC scan mode for locating live AC wiring.

CALIBRATION (Wall Stud Finder)

After selecting the desired mode, place this tool flat against the wall, press Scan button to start calibration, the decreasing bars will disappear and buzzer will beep, indicates the calibration is completed.
Continue to keep the tool flat against the wall and begin scanning.
Note: It is important to wait for the calibration to complete (2-3 seconds) every time before moving the scanner.

STUD SCAN MODE

Press Power button, the LCD displays all icons 1 second, press Mode switch button to choose Stud ½ inch scan mode,then press the Scan button after placing this tool flat against the wall. Wait the reducing bars to disappear and a beep to confirm calibration has completed before moving this tool.
Slowly slide this tool across surface, an Arrow & Edge indication will illuminate, indicating the stud edge is approaching, continue sliding this tool, a full bars Arrow with CENTER words will display, and beep sounds after locating the center of the stud. Try this operation again on another direction to confirm the center of the stud.
Choose Stud 1 inch or Stud 1½ inches scan mode to locate the deeper studs.
If the thickness of the surface is unknown, you can start with Stud 1½ inches scan mode first, and then choose a more suitable Scan Mode to improve the accuracy.



AC WIRE WARNING

AC Warning detecting function works continuously in Stud ½ inch Stud 1 inch or Stud 1½ inch scan, and Metal scan mode. When live AC voltage is detected, the AC warning indicator will appear. Take extra care under these circumstances or wherever live AC wiring exists.
If wires are deeper than 2 in. (51mm) from the scanned surface, or wires in concrete, encased in conduit, behind a plywood wall or metallic wall, or the environment and scanned surface are high-humidity, this tool can not detect live AC wires.

WARNING

Do not assume there are no live electrical wires in the wall. Do not take any actions that could be dangerous if the wall contains a live electrical wire.
Always turn off the electrical power, gas and water supplies before drilling into any surface.
Failure to follow these instructions may result in electric shock, fire and serious injury and possible property damage. Always turn off the power supply when working anywhere near electrical wires.

METAL SCAN MODE

Note: When scanning for studs, choose Stud ½ inch or Stud 1 inch and Stud 1½ inches scan mode on thicker walls to quickly locate the center of studs. Choose Metal scan mode to determine whether the previous reading in Stud scan mode was a wood stud, metal stud, or pipe etc. In Metal scan mode, only metal drywall screws will be found in wood studs, while metal will be indicated everywhere on a metal stud or pipe.
Metal scanning has interactive calibration to adjust its sensitivity to metal, which can be used to find the precise location of metal objects in wall, floor, and ceiling. Maximum sensitivity is ideal for quickly finding the approximate location of metal. However, sensitivity can be reduced by calibrating the tool closer to metal. With reduced sensitivity, the area where metal is indicated will be smaller. But in both cases, the metal target is in the center of the area where the tool indicates metal is present.

1. Press Mode switch button to choose Metal scan mode. For maximum metal sensitivity, turn on the tool in the air by pressing the Scan button. This will ensure that it calibrates away from any metal objects. This tool can only be calibrated off the wall in Metal scan mode.
2. (Figure A) After pressing the Scan button, place the tool flat against the wall and slowly slide the scanner across the surface. Mark the point where you get the highest metal indication (the CENTER indication will all show and the buzzer will sound). Continue in the same direction until display bars reduce. Reverse direction and mark the spot where the display bars peak form the reversed direction. The midpoint of the two marks is the location of the center of the metal object.
If the tool indicates metal over a large area, you can refine the scanning area more accurately to locate the metal target by following step 3 and 4 below.
3. (Figure B) To further pinpoint the location of the metal target, scan the area again. Press the Scan button, this time starting on the wall over one of the previous marks. It will reset the tool to a lower sensitivity and narrow the scanning area.

4. (Figure C) Continue to reduce sensitivity and further refine the scanning area, repeat step 3.
This procedure can be repeated multiple times to narrow the field.

Note: If any bars display on the screen, metal is present.
Small targets or targets deep inside the surface may only illuminate few of the bars and no center line or audio tone.
In this case, use the highest indication to determine the metal position.

Figure A

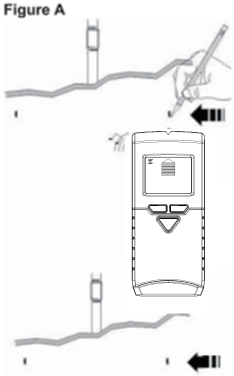


Figure B

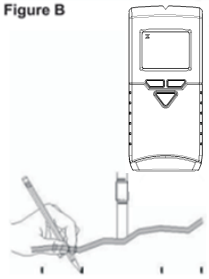
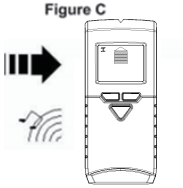


Figure C



AC SCAN MODE

As with Metal scan mode, AC scan mode has interactive calibration and works in the same manner.
1.(Figure A) Press Mode switch button to choose AC scan mode. Place the tool flat against the wall, then press the Scan button. Wait for the beep to confirm calibration has completed before moving the tool.
Once calibration has completed, slowly slide this tool across the surface. Mark the location where you get the highest AC indication (the CENTER indication will all show and the buzzer will sound).
Continue in the same direction until display bars reduce. Reverse direction and mark the spot where the display bars peak form the reversed direction.
The midpoint of the two marks is the location of the center of the live AC wiring.
If the tool indicates live electricity over a large area, you can reduce the sensitivity of the tool to refine the scanning area more accurately to locate the live AC wiring by following step 2 and 3 below.
2. (Figure B) To further pinpoint the location of the live AC wiring, scan the area again. Press the Scan button, this time starting on the wall over one of the previous marks. It will reset the tool to a lower sensitivity and narrow the scanning area.
3. (Figure C) Scan in both directions as step 2. The area indicated should become smaller so you can more precisely identify the location of live AC wires. This procedure can be repeated to narrow the field .
Note: AC scan mode will only detect live (hot) unshielded AC wiring.

LEVEL MEASURING

Press Power button to turn on the tool, press Power button again to choose the Digital Level mode (the Wall Stud Finder mode, Digital Level mode or Wall Stud Finder & Digital Level mode in sequence).
This tool must be performed on a flat and smooth surface, otherwise “Err” will display on LCD.

MEASUREMENT UNIT SELECTION (° degrees, % percent)

By pressing the Mode switch button you can change the measurement unit from degree (°) to percent (%).

INCLINATION ICON

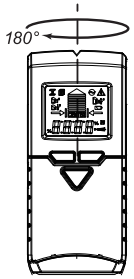
The 0 icon indicates the current angle’s position, either up or down away from the horizontal or vertical position.

HOLD FUNCTION

If you need to move this tool to read the display, press HOLD button to freeze the measurement value. The H icon will display. Press HOLD button again, the previous measuring mode will be reactivated.

CALIBRATION (Digital Level)

The tool is calibrated in the factory but may be recalibrated by the user if felt necessary.
a). Put this tool on a flat and smooth surface with the tilt less than 5°, if it exceeds 5°, “Err” will display on the LCD screen.
b). Turn off this tool, in the shutdown status, press and hold Mode switch button, then press Power button, and the LCD screen will display “CAL” and current angle.
c). Keep it still for a few seconds and press the Mode switch button, then “CAL1” will be shown on the LCD screen.
d). Rotate the tool 180° in the same location (see the figure), then press the Mode switch button – the “CAL2” will show on the LCD screen with a beep sounds, and all icons will display 1 second, it indicates that the calibrating is completed, the LCD screen will show the current angle in high-accuracy display.



Note: During calibrating, the tool can not be beveled or moved.
After calibration completed, the original factory default will be replaced.

HELPFUL HINTS

Situation	Probable Cause	Solution
Detects other objects besides studs in Stud Scan mode. Find more targets than there should be.	• Electrical wiring and metal/plastic pipes maybe near or touching back surface of wall.	• Scan the area in Metal Scan and AC Scan mode to determine whether metal or hot AC is present. • Check for other studs equally spaced to either side 12, 16, or 24 in. (31, 41, or 61 cm) apart or for the same stud at several places directly above or below the first scan area. • A stud that far away from a door or window normally 1 1⁄2 in. (38 mm) wide, anything larger or smaller than it maybe not a stud.
Area of voltage appears much larger than actual wire (AC only).	• Voltage detection can spread on drywall as much as 12 in. (31 cm) laterally from each side of an actual electrical wire.	• To narrow the scanning area, turn the tool off and on again at the edge of where wire was first detected and scan it again.
Difficulty detecting metal.	• Tool calibrated over metal object. • Metal targets too deep or too small.	• The scanner may have been calibrated over a metal object, reducing sensitivity. Try calibrating in another location. • Scan in both horizontal and vertical directions. Metal sensitivity is increased when metal object is parallel to sensor, located under item.
Image of metal object appears wider than actual size.	• Metal has greater density than wood.	• To reduce sensitivity, recalibrate the tool over either of first two marks(Metal scan mode only).
Constant readings of studs near windows and doors.	• Double and triple studs are usually found around doors and windows. Solid headers are among them.	• Detect the outer edges where you know.
Suspect there are electrical wires, but do not detect any.	• Wires are shielded by metal conduit, a braided wire layer, metallic wall covering, plywood wall, or other dense material. • Wires deeper than 2 in. (51mm) from surface might not be detected. • Maybe wires without electricity.	• Try Metal scan mode to check whether there are metal, wire, or metal conduit. • Be extra caution if the area has plywood, thick wood backing behind drywall, or thicker than normal walls. • If a switch controls an outlet, make sure it is ON for detection, but turned off it when working near electrical wires. ***CAUTION when nailing, sawing, or drilling into walls, floors, and ceilings where these items may exist.***
Low Battery Indicator and tool not operating.	• Battery level low for proper operation.	• Replace with brand new 9V battery.
No bars shown on the screen during scanning.	• The calibration is no correct. • The Stud is deeper beyond the scan mode	• Select the deeper scan mode to scan again. • Move and calibrate the tool again on a different place.