

33017 01151 4465

## Multifunction Wall Scanner TH430

Multifunction wall scanner TH430 features five scanning modes:

- Stud 1/2 in. scan: Locates the center and edges of wood and metal studs up to 1/2 in. (13 mm) deep
- Stud 1 in. scan: Locates the center and edges of wood and metal studs up to 1 in. (25 mm) deep
- Stud 1 1/2 in. scan: Locates the center and edges of wood and metal studs up to 1 1/2 in. (38 mm) deep
- Metal Scan: Detects metal up to 2.36 in. (60mm) deep
- AC Scan: Detects live unshielded AC wires up to 2 in. (51mm) deep

### 1. INSTALLING THE BATTERY

Push in the battery door tab at the bottom of the tool and open the door. Insert a new 9-volt battery, matching the positive (+) and negative (-) terminals to the battery wire.

Snap the battery into place and replace the door.

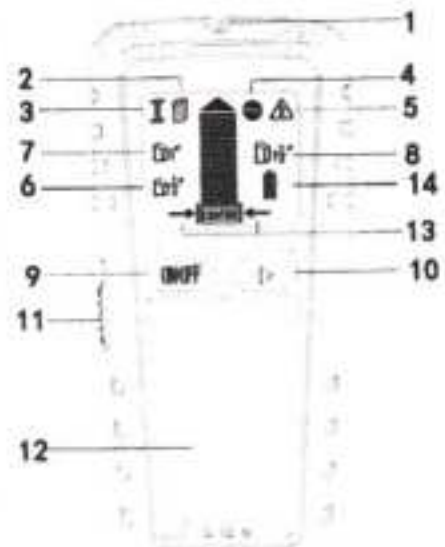
#### Low Battery Indicator:

The Low Battery Indicator icon displays when the battery level is getting low. It's not sufficient to power the tool for proper operation. Please replace the 9-volt battery with a brand new battery immediately.

### 2. OPERATING TIPS

For optimum scanning results, it is important to properly hold the Multifunction wall scanner TH430 and move slowly when scanning. The following tips will provide more accurate scanning results:

- Grasp the handle with your thumb on one side and your fingers on the other side. Make sure your fingertips are resting on the handle and not touching the surface being scanned or the scanning head of the tool.
- Hold the tool straight up and down, parallel to the studs, and do not rotate the tool.
- Keep tool flat against the wall and do not rock, tilt, or press hard when slowly sliding across the surface being scanned.



1. The Center Pointing System
2. Stud Mode Indication
3. Metal Mode Indication
4. AC Mode Indication
5. AC Wire Warning
6. Stud 1/2 in. scan
7. Stud 1 in. scan
8. Stud 1 1/2 in. scan
9. Power Button
10. Mode Switch Button
11. Scan Button
12. Battery (Back of unit)
13. Stud direction Indication
14. Low Battery Indication

NEEDHAM PUBLIC LIBRARY

1139 Highland Avenue  
Needham, Massachusetts 02494

- Avoid placing your other hand, or any other part of your body, on the surface being scanned. This will interfere with the tool's performance.
- If you're receiving erratic scanning results, it may be a result of humidity, moisture within the wall cavity or drywall, or recently applied paint or wallpaper that hasn't fully dried. While the moisture may not always be visible, it will interfere with the tool's sensors. Please allow a few days for the wall to dry out.
- Depending on the proximity of electrical wiring or pipes to the wall surface, the scanner may detect them in the same manner as studs. Caution should always be used when nailing, cutting, or drilling in walls, floors, and ceilings that may contain these items.
- To avoid surprises, remember that studs or joists are normally spaced 16 or 24 in. (41 or 61 cm) apart and are 1 1/2 in. (38 mm) in width. **Anything closer together or a different width may not be a stud, joist, or firebreak. Always turn off power when working near electrical wires.**

#### SCANNING DIFFERENT SURFACES

**Wallpaper:** Multifunction wall scanner TH430 functions normally on walls covered with wallpaper or fabric, unless the materials are metallic foil, contain metallic fibers, or are still wet after application. *Wallpaper may need to dry for several weeks after application.*

**Freshly painted walls:** May take one week or longer to dry after application.

**Lath & plaster:** Due to irregularities in plaster thickness, it is difficult for Multifunction wall scanner TH430 to locate studs in Stud modes. Change to Metal Scan mode to locate the nail heads holding wood lath to the studs. If the plaster has metal mesh reinforcement, Multifunction wall scanner TH430 may be unable to detect through that material.

**Extremely textured walls or acoustic ceilings:** When scanning a ceiling or wall with an uneven surface, place thin cardboard on the surface to be scanned and scan over the

cardboard in Stud 1 1/2 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, or gypsum drywall over plywood**

**sheathing:** Use Stud 1 1/2 in. scan mode and move the tool slowly. The Signal Strength Indicator may only display limited

bars when the tool locates a stud through thick surfaces.

Multifunction wall scanner TH430 cannot scan for wood studs and joists through concrete or carpet and padding. In problematic situations, try using Metal Scan to locate nails or screws that may line up vertically where a stud or joist is positioned.

*Note: Sensing depth and accuracy can vary due to moisture, content of materials, wall texture, and paint.*

#### WARNING

Do not rely exclusively on the detector to locate items behind the scanned surface. Use other information sources to help locate items before penetrating the surface. Such additional sources include construction plans, visible points of entry of pipes and wiring into walls, such as in a basement, and in standard 16 and 24 in. (41 and 61 cm) stud spacing practices.

### 3. SELECTING THE MODE

Press the mode switch button to the desired mode: Stud 1/2 in. scan for finding wood or metal studs within 1/2 in.; Stud 1 in. scan for scanning walls within 1 in. thick; Stud 1 1/2 in. scan for scanning walls within 1 1/2 in. thick; Metal Scan for locating metal; or AC Scan for locating live AC wiring. The ON/OFF button should be pressed once to power on the detector before other operation.

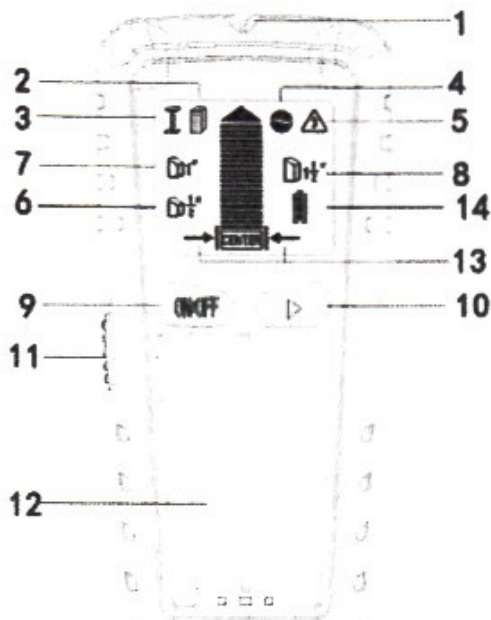
### 4. TURNING ON/CALIBRATING THE TOOL

Multifunction wall scanner TH430 can be calibrated anywhere on the wall.

- Place Multifunction wall scanner TH430 against the wall before pressing the ON/OFF button.
- Press the power button, the LCD always displays in Stud 1/2 in. scan mode. Press the Scan button to start calibration, the decreasing bars will disappear and buzzer will beep one time and the calibration is completed. (keep the tool flat against the wall and begin scanning.)

*Note: It is important to wait for calibration to complete (2-3 seconds) every time before moving the scanner.*





1. The Center Pointing System
2. Stud Mode Indication
3. Metal Mode Indication
4. AC Mode Indication
5. AC Wire Warning
6. Stud 1/2 in. scan
7. Stud 1 in. scan
8. Stud 1 1/2 in. scan
9. Power Button
10. Mode Switch Button
11. Scan Button
12. Battery (Back of unit)
13. Stud direction indication
14. Low Battery Indication

- Avoid placing your other hand, or any other part of your body, on the surface being scanned. This will interfere with the tool's performance.
  - If you're receiving erratic scanning results, it may be a result of humidity, moisture within the wall cavity or drywall, or recently applied paint or wallpaper that hasn't fully dried. While the moisture may not always be visible, it will interfere with the tool's sensors. Please allow a few days for the wall to dry out.
  - Depending on the proximity of electrical wiring or pipes to the wall surface, the scanner may detect them in the same manner as studs. Caution should always be used when nailing, cutting, or drilling in walls, floors, and ceilings that may contain these items.
  - To avoid surprises, remember that studs or joists are normally spaced 16 or 24 in. (41 or 61 cm) apart and are 1 1/2 in. (38 mm) in width. **Anything closer together or a different width may not be a stud, joist, or firebreak.**
- Always turn off power when working near electrical wires.**

#### SCANNING DIFFERENT SURFACES

**Wallpaper:** Multifunction wall scanner TH430 functions normally on walls covered with wallpaper or fabric, unless the materials are metallic foil, contain metallic fibers, or are still wet after application. *Wallpaper may need to dry for several weeks after application.*

**Freshly painted walls:** May take one week or longer to dry after application.

**Lath & plaster:** Due to irregularities in plaster thickness, it is difficult for Multifunction wall scanner TH430 to locate studs in Stud modes. Change to Metal Scan mode to locate the nail heads holding wood lath to the studs. If the plaster has metal mesh reinforcement, Multifunction wall scanner TH430 may be unable to detect through that material.

#### **Extremely textured walls or acoustic ceilings:**

When scanning a ceiling or wall with an uneven surface, place thin cardboard on the surface to be scanned and scan over the cardboard in Stud 1 1/2 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, or gypsum drywall over plywood**

**sheathing:** Use Stud 1 1/2 in. scan mode and move the tool slowly. The Signal Strength Indicator may only display limited

bars when the tool locates a stud through thick surfaces.

Multifunction wall scanner TH430 cannot scan for wood studs and joists through concrete or carpet and padding. In problematic situations, try using Metal Scan to locate nails or screws that may line up vertically where a stud or joist is positioned.

*Note: Sensing depth and accuracy can vary due to moisture, content of materials, wall texture, and paint.*

**WARNING** Do not rely exclusively on the detector to locate items behind the scanned surface. Use other information sources to help locate items before penetrating the surface. Such additional sources include construction plans, visible points of entry of pipes and wiring into walls, such as in a basement, and in standard 16 and 24 in. (41 and 61 cm) stud spacing practices.

### 3. SELECTING THE MODE

Press the mode switch button to the desired mode: Stud  $\frac{1}{2}$  in. scan for finding wood or metal studs within  $\frac{1}{2}$  in.; Stud 1 in. scan for scanning walls within 1 in. thick; Stud  $1\frac{1}{2}$  in. scan for scanning walls within  $1\frac{1}{2}$  in. thick; Metal Scan for locating metal; or AC Scan for locating live AC wiring. The ON/OFF button should be pressed once to power on the detector before other operation.

### 4. TURNING ON/CALIBRATING THE TOOL

Multifunction wall scanner TH430 can be calibrated anywhere on the wall.

- Place Multifunction wall scanner TH430 against the wall before pressing the ON/OFF button.
- Press the power button, the LCD always displays in Stud  $\frac{1}{2}$  in. scan mode. Press the Scan button to start calibration, the decreasing bars will disappear and buzzer will beep one time and the calibration is completed. (keep the tool flat against the wall and begin scanning.)

*Note: It is important to wait for calibration to complete (2–3 seconds) every time before moving the scanner.*

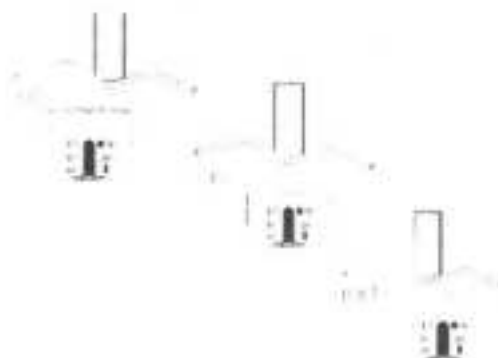
### 5. FINDING A STUD

**Align on Stud  $\frac{1}{2}$  in.** scan with the scanner placed flat against the wall. Press the mode switch button to the mode selected, place the tool flat against the wall, then press the Scan Button. Wait for the reducing bars disappeared and beep to confirm calibration has completed before moving scanner.

Slowly slide tool across surface. A bottom pointed arrow and EDGE indication will illuminate, indicating location of the stud edge.

Continue sliding tool. When the center of a stud is located, the full bars on the Signal Strength Indicator, the pointed arrow on the top of the bars, the CENTER indication will all show and the buzzer will sound.

In cases of deeper studs (thicker walls), when the center of the stud is located, not full bars will show on the screen. If you still cannot locate a stud, try Stud 1 in. Or Stud  $1\frac{1}{2}$  in. Scan mode.



### 6. AC WIRE WARNING

AC WARNING detection feature works continuously in Stud  $\frac{1}{2}$  in., Stud 1 in., Stud  $1\frac{1}{2}$  in. scan, and Metal Scan modes. When live AC voltage is detected, the AC detection warning indicator will appear in the display. If scanning begins over a live AC wire, the AC Wire Warning will show continuously. Use extreme caution under these circumstances or whenever live AC wiring is present.

**WARNING** Electrical field locators may not detect live AC wires if wires are more than 2 in. (51 mm) from the scanned surface, in concrete, encased in conduit, present behind a plywood shear wall or metallic wall covering, or if moisture is present in the environment or scanned surface.



**WARNING**

**DO NOT ASSUME THERE ARE NO LIVE ELECTRICAL WIRES IN THE WALL. DO NOT TAKE ACTIONS THAT COULD BE DANGEROUS IF THE WALL CONTAINS A LIVE ELECTRICAL WIRE. ALWAYS TURN OFF THE ELECTRICAL POWER, GAS, AND WATER SUPPLIES BEFORE PENETRATING A SURFACE. FAILURE TO FOLLOW THESE INSTRUCTIONS MAY RESULT IN ELECTRIC SHOCK, FIRE, AND/OR SERIOUS INJURY OR PROPERTY DAMAGE.**

***Always turn off power when working near electrical wires.***

## 7. SCANNING IN METAL MODE

*Note: When scanning for studs, use Stud 1/2 in. scan mode (or Stud 1 in., Stud 1 1/2 in. scan mode on thicker walls) to quickly locate the center and edges. Use Metal Scan to determine if the previous reading in Stud scan was a wood stud, metal stud, or pipe. In Metal Scan, only metal drywall screws will be found in wood studs, while metal will be indicated everywhere on a metal stud or pipe.*

Metal Scan has interactive calibration to adjust to its sensitivity to metal, which can be used to find the precise location of metal objects in walls, floors, and ceilings. 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 Metal Scan mode. For maximum metal sensitivity, turn the tool on in the air by pressing and holding the Scan button. This will ensure that it calibrates away from any metal objects.

2. **(Figure A)** Press 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 most Middle bars on the screen). If it is a strong target, the top indicated arrow will show, and a steady beep will sound. Continue in the same direction until display bars reduce. Reverse direction and mark the spot where the display bars peak from the reversed direction. The midpoint of the two marks is the location of the center of the metal object.

If the unit indicates metal over a large area, you can refine the scanning area to more accurately locate the metal target by following steps 3 and 4 below.

3. **(Figure B)** To further pinpoint the location of the metal target, scan the area again. Release the Scan button and then turn the unit back on, this time starting on the wall over one of the previous marks. This will reset the tool to a lower sensitivity and narrow the scan area.

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

Figure A

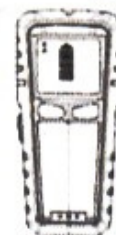


Figure B



Figure C



*Note: If any bars display on the screen, metal is present. Small targets or targets deep within the surface may only illuminate some of the bars and not the center line or audio tone. In this case, use the highest indication to determine the metal position.*

## **8. SCANNING IN AC 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 AC Scan mode. Press 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 the scanner across the surface. Mark the location where you get the highest AC indication (the most Middle bars on the screen). If it is a strong target, the top indicated arrow will show, and a steady beep will sound. Continue in same direction until display bars reduce. Reverse direction and mark the spot where the display bars peak from the reversed direction. The midpoint of the two marks is the location of the center of the live AC wiring. If the unit indicates live electricity over a large area, you can reduce the sensitivity of the tool to refine the scanning area and more accurately locate the live AC wiring by following steps 2 and 3 below.

2. **(Figure B)** To further pinpoint the location of the live AC wiring, scan the area again. Release the Scan button and then turn the unit back on, this time starting on the wall over one of the previous marks. This will reset the tool to a lower sensitivity and narrow the scan area.

3. **(Figure C)** Scan in both directions as in 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 even further.

***Note: AC Scan will only detect live (hot) unshielded AC wiring. Please refer to the WARNING statement in number 6, AC WARNING Detection, for more important details and warnings about AC detection.***



## 9. HELPFUL HINTS (See also number 2, Operating Tips)

Situation	Probable Cause	Solution
Detects other objects besides studs in Stud Scan mode. Finds more targets than there should be.	<ul style="list-style-type: none"> <li>• Electrical wiring and metal/plastic pipes may be near or touching back surface of wall.</li> </ul>	<ul style="list-style-type: none"> <li>• Scan the area in Metal Scan and AC Scan to determine if metal or hot AC is present.</li> <li>• 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.</li> <li>• A stud reading would measure approximately 1½ in. (38 mm) apart from each edge; anything larger or smaller is most likely not a stud if not near a door or window.</li> </ul>
Area of voltage appears much larger than actual wire (AC only).	<ul style="list-style-type: none"> <li>• Voltage detection can spread on drywall as much as 12 in. (31 cm) laterally from each side of an actual electrical wire.</li> </ul>	<ul style="list-style-type: none"> <li>• To narrow detection, turn unit off and on again at the edge of where wire was first detected and scan again.</li> </ul>
Difficulty detecting metal.	<ul style="list-style-type: none"> <li>• Tool calibrated over metal object.</li> <li>• Metal targets too deep or small.</li> </ul>	<ul style="list-style-type: none"> <li>• The scanner may have been calibrated over a metal object, reducing sensitivity. Try calibrating in another location.</li> <li>• Scan in both horizontal and vertical directions. Metal sensitivity is increased when metal object is parallel to sensor, located under the top side of the back.</li> </ul>
Image of metal object appears wider than actual size.	<ul style="list-style-type: none"> <li>• Metal has greater density than wood.</li> </ul>	<ul style="list-style-type: none"> <li>• To reduce sensitivity, recalibrate the tool over either of first two marks (Metal mode only).</li> </ul>
Constant readings of studs near windows and doors.	<ul style="list-style-type: none"> <li>• Double and triple studs are usually found around doors and windows. Solid headers are above the m.</li> </ul>	<ul style="list-style-type: none"> <li>• Detect outer edges so you know where to begin.</li> </ul>
You suspect electrical wires, but do not detect any.	<ul style="list-style-type: none"> <li>• Wires are shielded by metal conduit, a braided wire layer, metallic wall covering, plywood shear wall, or other dense material.</li> <li>• Wires deeper than 2 in. (51 mm) from surface might not be detected.</li> <li>• Wires may not be live.</li> </ul>	<ul style="list-style-type: none"> <li>• Try Metal Scan mode to see if you can find metal, wire, or metal conduit.</li> <li>• Use extra caution if the area has plywood, thick wood backing behind drywall, or thicker than normal walls.</li> <li>• If a switch controls an outlet, make sure it is ON for detection, but turned off when working near electrical wires.</li> </ul> <p><i>Use CAUTION when nailing, sawing, or drilling into walls, floors, and ceilings where these items may exist.</i></p>
Low Battery Indicator and tool not operating.	<ul style="list-style-type: none"> <li>• Battery level low for proper operation.</li> </ul>	<ul style="list-style-type: none"> <li>• Replace with brand new 9 V battery.</li> </ul>
No bars shown on the screen, during scanning	<ul style="list-style-type: none"> <li>• The calibration is not correct</li> <li>• The stud is deeper beyond the scan mode</li> </ul>	<ul style="list-style-type: none"> <li>• Move the tool on a different place to calibrate again.</li> <li>• Select the deeper scan mode to calibrate and scan again.</li> </ul>