

# EN ZIRCON SuperScan™ M4 Advanced Wall Scanner

## BEFORE YOU BEGIN

ZIRCON® STUD FINDERS WORK BY SENSING DENSITY CHANGES BEHIND THE WALL. OTHER OBJECTS CAN BE DETECTED, ESPECIALLY IF THEY ARE VERY CLOSE TO THE WALL. **DO NOT ASSUME THAT EVERYTHING DETECTED IS A STUD.**

- Always use a new 9V alkaline battery with an extended expiration date at least 3 years beyond the current date. Match battery direction to the image inside of battery cavity.

- Do not rely exclusively on the scanner to locate items behind a surface. Use other information to help locate such items before penetrating the surface, including construction plans, visible points of entry of pipes, wiring into walls such as in a basement, and standard stud-spacing practices.

- Always start your scan in Target Control™ (TC™) mode, which scans through standard single layer drywall up to ¾" (19 mm) deep.

- Always scan for studs at several different heights on the wall and mark the location of every target indicated by the stud finder. This is called "mapping the wall." Pipes and other objects will likely not give consistent readings from floor to ceiling, as a stud would.

- Studs normally run from floor to ceiling, except above and below windows and above doors.

- Readings should always be consistent and repeatable.

- Zircon® wall scanners are recommended for interior use only.

- Other objects commonly contained in walls, floors, or ceilings are water pipes (plastic and metal), gas lines, firestops, and electrical wiring.

- Sensing depth and accuracy can vary depending on scanning environment conditions, such as mineral content, moisture, texture, and consistency of the wall materials.

- Depending on the proximity of electrical wiring or pipes to the wall surface, scanner may detect them in the same manner as studs.

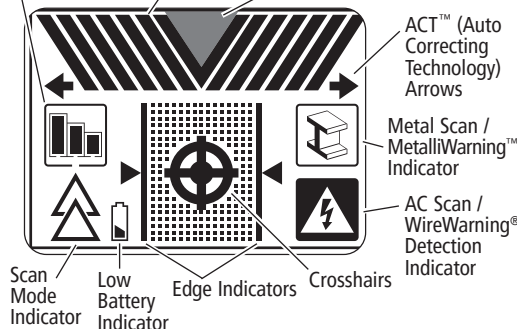
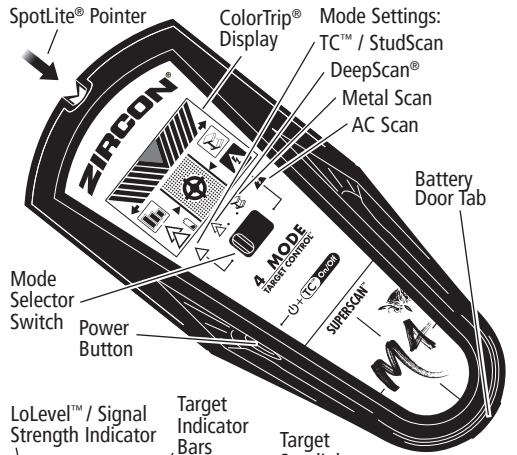
**Caution should always be used when nailing, cutting, or drilling in walls, floors, and ceilings that could contain these items. Use extreme caution under these circumstances or whenever live AC wiring is present.**

- Studs are normally spaced 16" or 24" (40 cm or 60 cm) apart on center, are normally 1½" (38 mm) wide, and may be separated by firestops. Anything closer together, or of a different width, may not be a stud.

**IMPORTANT: Trust but Verify** is a technique that can help indicate "safe-to-drill" zones to minimize hitting existing metals on a stud, such as nails, screws, and protector plates. When the Crosshairs show in TC™ mode, run scanner vertically up and down the stud. The stud indicators (Crosshairs, Edge Indicators, Target Indicator Bars, Target Spotlight, and SpotLite® Pointer) will turn off over screws and other metal, then turn on again when the stud is free from metal. The "safe-to-drill" zones are typically between adjacent drywall screws, nails, or protector plates, assuming the builder properly installed metal protector plates on the stud, and over plumbing and electrical. If stud indicators do not disappear when running vertically up and down the object in TC™ mode, the absence of drywall screws, nails, and protector plates indicates this could be a non-metallic object such as plastic plumbing or PEX tubing, and should not be mistaken for a stud.

## TROUBLESHOOTING & CONSTRUCTION TIPS

SITUATION	LIKELY CAUSE	SOLUTION
Scanner detects objects other than studs in StudScan mode or finds more objects that look like studs than should be there.	Electrical wiring and metal or plastic pipes may be near, or touching, the back of the wall surface.	<ul style="list-style-type: none"><li>Scan the area in Metal Scan to determine if metal is present.</li><li>Check for other studs equally spaced to either side at 16" or 24" (40 cm or 60 cm) and check for the same stud at spots directly above or below the first scan area.</li><li>Standard studs measure approximately 1½" (38 mm) between edges. Anything smaller or larger is likely not a stud (unless near a door or window).</li></ul>
Difficulty detecting metal.	Metal object is too deep or too small.	<ul style="list-style-type: none"><li>Try calibrating in another location.</li><li>Scan in both horizontal and vertical directions. Metal sensitivity is increased when metal object is parallel to the sensor (located under the Zircon® logo).</li></ul>
Metal object reading appears wider than actual size.	Metal has a greater density than wood.	To reduce sensitivity in Metal Scan mode, recalibrate scanner over either of first two marks (see steps under REFINE METAL SCAN).
Studs are continuously detected near windows and doors.	Multiple studs are in use.	Double and triple studs are sometimes used around doors and windows. Headers are used above them. Detect outer edges so you know where to begin.
Electrical wires suspected but none detected.	Wires are shielded by a metal conduit, braided wire, or metallic wall covering.	Use Metal Scan mode to scan for metal, wire, or metal conduit.
	Wires deeper than 2" (50 mm) from the surface might not be detected.	If there is an outlet switch, turn it to ON position while scanning, but turn OFF when working near the wires. Use extra caution if the area has plywood, thick wood backing behind drywall, or walls that are thicker than normal.
	Wires may not be live.	Plug a lamp into the outlet and turn it on to test whether wires are live.
LCD screen flashes continuously when trying to find stud.	Scanner is experiencing oversaturation of exposure to metal.	Switch to TC™ or StudScan mode to lessen sensitivity to metal. <b>NOTE:</b> Scanner may not beep over studs 1" (25 mm) or deeper when doing this.
Low Battery Indicator on.	Low battery.	Install a new 9V alkaline battery with an extended expiration date.
Low Battery Indicator flashes and scanner does not operate.	Dead battery.	Install a new 9V alkaline battery with an extended expiration date.



## Featuring Revolutionary Target Control™ (TC™) Technology

TC™ technology is tuned to find wood studs while filtering out (rejecting) metallic or low signal false positive objects such as plumbing, conduit, straps, brackets, or plastic water pipes. With TC™ mode, users can utilize **Trust but Verify** technique to help identify "safe-to-drill" zones between adjacent drywall screws, nails, and protector plates.

### Five scanning modes:

- **Target Control™ (TC™)** locates center, edges, and direction of wood studs (while ignoring metal) up to ¾" (19 mm) deep. **LCD will be backlit with a pale blue light.** In TC™ mode, LoLevel™ Indicator indicates low (weak) signal objects, such as plastic water pipes, plastic sewer drains, or studs deeper than ¾" (19 mm). When compared to stud signals, the LoLevel™ Indicator may help differentiate studs from false positives.
- **StudScan** locates center, edges, and direction of both wood and metal studs up to ¾" (19 mm) deep. **LCD will not be backlit in this mode.** In StudScan mode, the Signal Strength Indicator uses the same icon as the LoLevel™ Indicator. When TC™ is off, a strong signal is indicated by full signal strength bars.
- **DeepScan®** locates center, edges, and direction of studs (wood and metal) up to 1½" (38 mm) deep. **LCD will be backlit with a green light.**
- **Metal Scan** locates ferrous (magnetic) metal, such as steel, up to 3" (75 mm) deep, and non-ferrous (non-magnetic) metal, such as copper, up to 1½" (38 mm) deep. **LCD will be backlit with a dark blue light.**
- **AC Scan** locates live, unshielded AC wires behind drywall up to 2" (50 mm) deep. **LCD will be backlit with a red light.**

**NOTE:** TC™ and StudScan use the same switch setting but function differently. StudScan detects both wood and metal studs during scanning, while TC™ detects only wood studs and ignores metal. You can distinguish between the two modes by the pale blue backlight on LCD in TC™ mode. StudScan is not backlit. **MetalliWarning™ Indicator** will display when metal is detected or dangerously close in TC™, StudScan, and DeepScan® modes.

## WIREWARNING® DETECTION

The Zircon® **WireWarning® Detection** continuously detects and alerts for live, unshielded AC (alternating current) wires in any mode. When live AC voltage is detected, warning indicator appears and screen starts flashing red until scanner is moved sufficiently away from the live wire. When calibration begins over an AC wire in any mode, AC icon will flash. **Use extreme caution under these circumstances or whenever live AC wiring is present.**

**⚠ WARNING** Scanner may not detect AC activity if wires are more than 2" (50 mm) behind the scanned surface, in concrete, encased in conduit, behind a plywood shear wall or metallic wall covering, or if moisture is present in the environment or scanned surface.

## INSTALL 9-VOLT BATTERY

Always use a new 9V alkaline battery with an extended expiration date at least 3 years beyond current date. Match battery direction to image inside battery cavity.

**⚠ WARNING** Do not rely exclusively on scanner to locate items behind a surface. Use other information to help locate items before penetrating the surface, including construction plans, visible points of entry of pipes and wiring into walls, such as in a basement, and standard stud-spacing practices.

## SELECT MODE / POWER UP

Move Mode Selector Switch to desired mode: TC™ / StudScan, DeepScan®, Metal Scan, or AC Scan. To activate scanner, press and hold Power Button. Device shuts off 1–2 seconds after Power Button is released.

## FIND A CLEAN WOOD STUD IN TARGET CONTROL™ (TC™) MODE

TC™ is designed to detect wood studs during scanning. For best results, hold scanner as shown and move slowly when scanning. **Do not touch surface during calibration or scan.**

1. Set mode to TC™ / StudScan switch.
2. Hold scanner flat against wall, then press and hold Power Button. Device will calibrate in 1–2 seconds. Proper calibration is confirmed by a short beep, a flicker of SpotLite® Pointer, and a flash of icons. If a calibration error occurs, all icons will flash continuously.

**NOTE: Screen will have a pale blue backlight in TC™ mode. DO NOT MOVE SCANNER DURING CALIBRATION.**

3. While holding down Power Button, slide scanner slowly along wall. When scanner finds edge of a stud, Edge Indicator shows. **(Figure A)**

4. Continue sliding. When scanner finds center of a stud, Crosshairs show and SpotLite® illuminates. **(Figure B)** Mark spot where stud was found.

5. Scanner automatically recalibrates when in use. If the two ACT™ arrows appear on LCD, scanner was calibrated over a stud, then moved away. This is ACT™ (Auto Correcting Technology) in action. **(Figure C)**

**NOTE:** LoLevel™ Indicator will display rapidly cascading bars when device senses a sustained weak signal, indicating a false positive object may be present.

6. Use the **Trust but Verify** technique for finding drywall screws or nails up and down stud to confirm that you have located a wood stud. Other objects, such as plastic plumbing pipes, do not contain nails or drywall screws. (See important note under BEFORE YOU BEGIN for more information on this procedure.)

## FIND A STUD IN STUDSCAN MODE (TC™ OFF)

1. Set mode to TC™ / StudScan switch.
2. Hold scanner flat against wall, **press Power Button, release it, then press it again**, holding it down the second time. Device will calibrate in 1–2 seconds. A short beep confirms that calibration is complete. If a calibration error occurs, all icons will flash continuously.
- NOTE: Scanner is in StudScan mode (TC™ off) when LCD backlight is off.** When TC™ mode is off, metal objects may be indicated as a stud and Signal Strength Indicator will have steady strength bars.  
**DO NOT MOVE SCANNER DURING CALIBRATION.**

3. While holding down Power Button, slide scanner slowly along wall. When scanner finds edge of a stud, Edge Indicator shows.
4. Continue sliding. When scanner finds center of a stud, Crosshairs turn on, SpotLite® illuminates, and a beep sounds. Mark spot where stud was found.

5. Scanner automatically recalibrates when in use. If the two ACT™ arrows appear on LCD, scanner was calibrated too close to a stud, then moved away. This is ACT™ (Auto Correcting Technology) in action.

To return to TC™ mode, release and press Power Button again. When the display is backlit pale blue, you are back in TC™ mode.

## SCAN IN DEEPSCAN® MODE

DeepScan® mode is used to scan for deeper studs or for use with thicker walls. It can detect studs up to 1½" (38 mm) deep.

1. Set mode to DeepScan®.
  2. Repeat steps 2–4 under STUDSCAN MODE section.
- NOTE:** When scanning on thicker surfaces, device may not find edges on surfaces thicker than ¾" (19 mm).

## SCAN FOR METAL

Use Metal Scan mode to locate and narrow metal behind walls.

1. Set mode to Metal Scan.
2. Hold scanner flat against wall, then press and hold Power Button. In 1–2 seconds, device will calibrate. A short beep confirms that calibration is complete.

**NOTE:** For maximum sensitivity, hold scanner away from surface, press and hold Power Button until a short beep confirms calibration is complete, then place against surface to be scanned.

3. While continuing to hold Power Button, slide scanner slowly against wall. With a strong read, SpotLite® illuminates and a short beep sounds. Mark spot where largest number of Target Indicator Bars show. **(Figure D)**

4. Continue sliding in same direction until bars reduce, then reverse direction. Mark spot where Target Indicator Bars peak. The midpoint between the two marks is the location of metal object.

**NOTE:** If device indicates a large area of metal, refine scan to narrow area.

## REFINE METAL SCAN

1. Release Power Button, then place scanner over one of the previous marks. **(Figure E)**
2. Press and hold Power Button, then repeat steps 3 and 4 under SCAN FOR METAL. This resets metal calibration to a lower sensitivity and narrows scan area.
3. Repeat as needed. **(Figure F)**

## SCAN FOR AC (ALTERNATING CURRENT)

Use AC Scan mode to find live, unshielded electrical wiring. **ALWAYS TURN OFF POWER WHEN WORKING NEAR ELECTRICAL WIRES (EXCEPT WHEN SCANNING).**

1. Set mode to AC Scan.
2. Hold scanner flat against wall, then press and hold Power Button. A short beep confirms that calibration is complete. **DO NOT MOVE SCANNER DURING CALIBRATION.**
3. While holding Power Button, slide scanner slowly against wall. Mark spot where the most Target Indicator Bars peak. The midpoint between the two marks is the location of the live, unshielded AC wiring. If device indicates live electricity over a large area, reduce sensitivity of scanner to refine scanning area and more accurately locate the live AC wiring.

**NOTE:** AC Scan only detects live (hot) unshielded AC wiring. Refer to the WARNING statement under WIREWARNING® DETECTION for important details and warnings about AC detection.

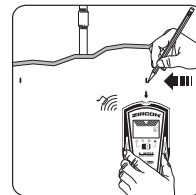


Figure D

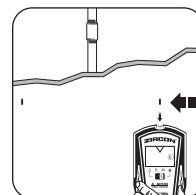


Figure E

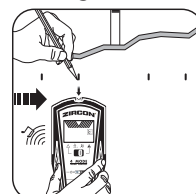


Figure F

## REFINE AC SCAN

1. Release Power Button, then position scanner over one of the previous marks. This will reset to a lower sensitivity and narrow the scan area.
2. Press and hold Power Button, then repeat steps 3 and 4 under SCAN FOR AC.
3. Repeat as needed for increased accuracy.

**⚠ 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, 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.

## WORKING WITH DIFFERENT MATERIALS

**Wallpaper** Scanner 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** It may take a week or longer to dry after application. If it is difficult to locate a stud in StudScan mode on dry or freshly-dried paint, switch to Metal Scan mode to locate the nails or drywall screws holding drywall to the studs.

**Lath and plaster** Due to irregularities in plaster thickness, it is difficult for this scanner to locate studs in any stud-scanning mode. Switch mode to Metal Scan to locate the nail heads holding wood lath to the studs. If the plaster has metal mesh reinforcement, the scanner will be unable to detect studs through that material.

**Highly 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 DeepScan® mode.

**Wood flooring, subflooring, or gypsum drywall over plywood sheathing** Use DeepScan® mode and move the scanner slowly. This scanner cannot scan for wood studs and joists through carpet and padding.

**NOTE: Sensing depth and accuracy can vary depending on scanning environment conditions such as mineral content, moisture, texture, and consistency of the wall materials.**

**Electrical wiring and pipes** Depending on the proximity of electrical wiring or pipes to the wall surface, 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.**

**Studs** Studs are normally spaced 16" or 24" (40 cm or 60 cm) apart on center and are 1½" (38 mm) wide. Anything closer together, or of a different width, may not be a stud.

## LIMITED LIFETIME WARRANTY

Zircon Corporation ("Zircon") warrants to the original purchaser (or original user by gift) that this product will be free from defects in materials and workmanship for its useful life (not to exceed twenty years from date of purchase). This warranty is limited to the electronic circuitry of the product, and specifically excludes consumable parts, including batteries, and software, even if packaged with the product. Defects caused by abuse, modification, handling contrary to these instructions, other unreasonable use, or neglect are not covered under this warranty. No liability is accepted for normal wear and tear and minor defects which do not detract from the function of the product. **THIS LIMITED LIFETIME WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT WILL ZIRCON BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM POSSESSION, USE, OR MALFUNCTION OF THIS PRODUCT. NO OTHER REPRESENTATIONS OR CLAIMS OF A SIMILAR NATURE WILL BIND OR OBLIGATE ZIRCON.**

Some states do not allow limitations on certain implied warranties and/or the limitation on incidental or consequential damages, so the above limitations and exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. This Limited Lifetime Warranty applies only to products purchased within the United States of America (USA) and Canada. For warranty applicable to products purchased in all other geographical areas, see [www.zircon.com/warranty](http://www.zircon.com/warranty).

**Any in-warranty defective product returned to Zircon, freight prepaid, along with dated purchase receipt and \$10.00 to cover shipping and handling, will be repaired or replaced, at Zircon's option. If the returned product is no longer available, Zircon may replace the product with a similar product of similar function. This is your sole and exclusive remedy for breach of this Limited Lifetime Warranty. To return product, call the Zircon Customer Service number below to request an RMA number and return product with shipment tracking to:**

**Zircon Corporation  
Attn: Returns Department  
1580 Dell Avenue  
Campbell, CA 95008-6992 USA**

**Include your name, return address, RMA number, and package tracking number. Allow 4–6 weeks for delivery.**

**If you do not agree to the terms of this Limited Lifetime Warranty, you may not use this product and must promptly return it to the retailer, along with a dated purchase receipt within 30 days of purchase for a refund of the purchase price.**

**Customer Service: 1-800-245-9265 or 1-408-963-4550  
Monday–Friday, 8:00 a.m.–5:00 p.m. PST**

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FCC Part 15 Class B Registration Warning: This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

