



Model #050013  
Component #692543

# ELECTRONIC WALL SENSOR

## INSTRUCTION MANUAL



THIS MANUAL CONTAINS IMPORTANT INFORMATION REGARDING SAFETY, OPERATION, MAINTENANCE AND STORAGE OF THIS PRODUCT. BEFORE USE, READ CAREFULLY AND UNDERSTAND ALL CAUTIONS, WARNINGS, INSTRUCTIONS AND PRODUCT LABELS. FAILURE TO DO SO COULD RESULT IN SERIOUS PERSONAL INJURY AND/OR PROPERTY DAMAGE.

IF YOU SHOULD HAVE ANY QUESTIONS OR EXPERIENCE A PROBLEM WITH YOUR ALLTRADE PRODUCT, DO NOT RETURN THIS PRODUCT TO THE STORE. PLEASE CALL OUR CUSTOMER SERVICE DEPARTMENT AT **1-800-423-3598**. BEFORE YOU CALL, HAVE THE FOLLOWING INFORMATION AVAILABLE: MODEL No., DATE PURCHASED AND STORE LOCATION. AN ALLTRADE REPRESENTATIVE CAN RESOLVE YOUR PROBLEM OVER THE PHONE. IF YOU WOULD LIKE TO MAKE A SUGGESTION OR COMMENT, GIVE US A CALL OR EMAIL US AT: [INFO@ALLTRADETOOLS.COM](mailto:INFO@ALLTRADETOOLS.COM). YOUR FEEDBACK IS VITAL TO US.

## TABLE OF CONTENTS

INTENDED USE .....	1
GENERAL SAFETY RULES .....	1-2
RECOGNIZE SAFETY SYMBOLS, WORDS AND LABELS .....	1
IMPORTANT SAFEGUARDS .....	2
SAFETY WARNINGS FOR WALL SENSORS .....	2
SERVICE .....	2
FUNCTIONAL DESCRIPTION .....	3-4
LCD INDICATIONS AND ICONS .....	3
BUTTON FUNCTIONS .....	3
INDICATIONS .....	4
BATTERY SYMBOL STATUS .....	4
BATTERY INSTALLATION/REPLACEMENT .....	4
OPERATING INSTRUCTIONS .....	5-8
DEPTH DETECTION TABLE .....	5
DETECTING METALS & CALIBRATION .....	6
DETECTING METALS & DEPTH DETECTION .....	6
DETECTING WOOD & CALIBRATION .....	7
DETECTING LIVE WIRES & CALIBRATION .....	7-8
TROUBLESHOOTING .....	8
MAINTENANCE & CLEANING .....	9
SPECIFICATIONS .....	9
1-YEAR LIMITED WARRANTY .....	10
FCC INFORMATION .....	10

## INTENDED USE

This tool is intended for consumer use only. Indoor/outdoor use in dry locations. The tool is intended for the detection of wood (studs /joists), metals (ferrous and non-ferrous), and live wires/conductors in walls, ceilings and floors.

## GENERAL SAFETY RULES



### WARNING

**READ AND UNDERSTAND ALL INSTRUCTIONS.** Failure to follow all instructions in this manual may result in severe personal injury or death. Keep this manual and refer to it for safety instructions and operating procedures.

## SAVE THESE INSTRUCTIONS FOR FUTURE REFERENCE.

## RECOGNIZE SAFETY SYMBOLS, WORDS AND LABELS



### WARNING

**WARNING** indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



### CAUTION

**CAUTION** indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

## IMPORTANT SAFEGUARDS

### **WARNING**

**WARNING:** This product can expose you to chemicals known by the State of California to cause cancer and birth defects or other reproductive harm. ***Wash hands after handling.***

## SAFETY WARNINGS FOR WALL SENSORS

### **WARNING**

**READ AND UNDERSTAND ALL INSTRUCTIONS.** Failure to follow all instructions listed below may result in electric shock, fire and/or serious personal injury.

**DO NOT TAKE ANY ACTION THAT COULD BE DANGEROUS IF THE WALL CONTAINS A LIVE ELECTRICAL WIRE, GAS OR WATER PIPE.** Once object is detected, always turn off the electrical power, gas and water supplies before drilling hole or driving nail/screw into the wall. Failure to follow these instructions may result in electrical shock, fire and/or serious injury.

**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 in. (406 mm) or 24 in. (610 mm) stud spacing practices.

**Do not use on a ladder or unstable support.** Stable footing on a solid surface enables better control of the tool in unexpected situations.

**Do not disassemble.** Have your product serviced by a qualified repair person using only identical replacement parts. This will ensure that the safety of the product is maintained.

**Do not attempt to modify this product or create accessories not recommended for use with this product.** Any such alteration or modification is misuse and could result in a hazardous condition leading to possible serious personal injury.

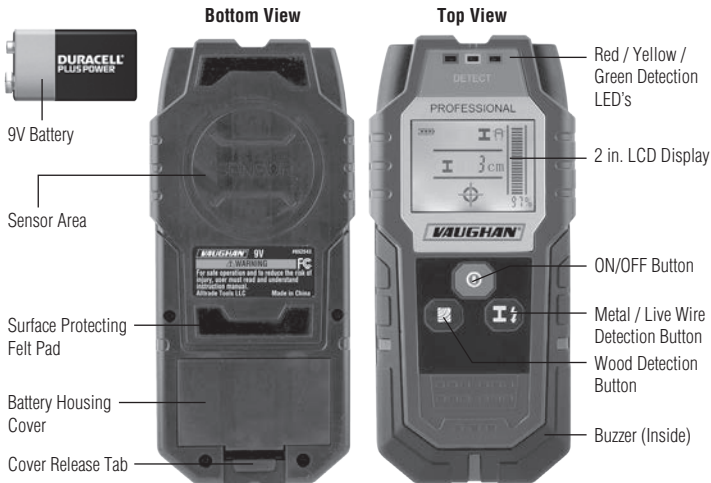
**Maintain labels and nameplates on the housing.** These carry important information.

## SERVICE

### **WARNING**

**When servicing the product, use only identical replacement parts. Follow instructions in the Maintenance section of this manual.** Use of unauthorized parts or failure to follow Maintenance instructions may create a risk of shock or injury.

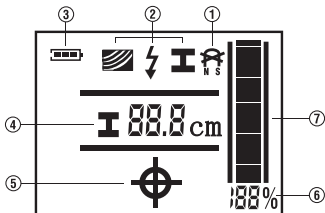
## FUNCTIONAL DESCRIPTION



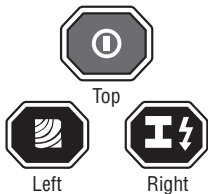
**NOTE:** Protective Pouch Not Shown

## LCD INDICATIONS AND ICONS

1. Magnetic/non-magnetic Metal
2. Detection Modes (Wood/Live Wire/Metal)
3. Battery Status
4. Metal Detecting Depth
5. Detected Object Centerline (Cross-hair)
6. Signal Detection Strength (%)
7. Signal Detection Strength (Bar)



## BUTTON FUNCTIONS



**Red Button (Top):** Press once to turn On and press again to turn Off sensor.

**Black Button (Left):** Press to set sensor for "Wood" (stud/joist) detection mode.





**Black Button (Right):** Press once to set sensor for "Metal" and press again for "Live wire" detection mode.

## INDICATIONS

Mode	Sensing Indications						
	LED's Red - Strong Yellow - Average Green - Weak	Internal Buzzer Sound	Cross- Hair	Signal Strength (%)	Signal Strength (Bar)	Depth (cm)	Ferrous/ Non-Ferrous
Wood	On	Constant	Yes	0 -100	Min-Max	No	No
Metal	On	Constant	Yes	0 -100	Min-Max	Yes	Yes
Live Wire	Blinking	Repeating	Yes	0 -100	Min-Max	No	No*

\*Large size wires in excess of 6 AWG can be detected as Ferrous/Non-Ferrous metal under ideal conditions.

## BATTERY SYMBOL STATUS

-  "Battery Full"
-  "Battery 2/3 Full"
-  "Battery Low": Batteries MAY be replaced.
-  "Battery Empty": Batteries MUST be replaced.

## BATTERY INSTALLATION/REPLACEMENT

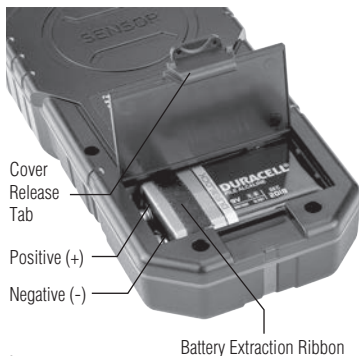
### **⚠ WARNING**

**Do not mix old and new batteries. Do not mix alkaline, standard (carbon-zinc), or rechargeable (ni-cad, ni-mh, etc.) batteries.**

To install or replace the batteries:

1. In the bottom of the sensor, gently push the release tab on battery housing cover forward and remove the cover.
2. Remove old battery and insert a new 9V battery over battery extraction ribbon and according to the battery direction markings inside the battery housing.
3. Reinstall battery housing cover.
4. Properly dispose of old battery in accordance with local regulations.

**Note:** Remove battery when storing for an extended time (more than 3 months) to avoid damage to the tool should the battery deteriorate.



## OPERATING INSTRUCTIONS

### **WARNING**

**READ "SAFETY WARNINGS FOR WALL SENSORS" BEFORE USE.**

### **CAUTION**

Live wires may not be detected if wires are shielded or in conduits or behind thick walls or are more than 2 in. (51 mm) away from the scanned surface, or in concrete, behind a plywood shear wall or metallic wall covering, or if moisture is present in the environment or on scanned surface or on the sensor.

Prior to operating this tool, make sure the area marked "SENSOR" in the bottom of the housing is dry. If required, wipe dry using a dry and clean cloth.

Environmental influences, such as humidity or closeness to electrical devices, can influence the measurement accuracy. Surface quality and condition of the walls (e.g., moisture, metallic building materials, conductive wallpaper, insulation materials and tiles) as well as the amount, type, size and position of the objects can lead to inaccurate measurements.

If the tool has been subjected to an extreme temperature change, allow the sensor to adjust to the ambient temperature before use.

Studs or joists are normally spaced 16 in. (406 mm) or 24 in. (610 mm) apart and are 1 ½ in. (38 mm) in width. Anything closer together or different in width may not be a stud, joist or firebreak.

Depending on the proximity of electrical wiring or pipes to the wall surface, the sensor may detect them as wooden stud.

Due to uneven density of tile work on cement board (used in kitchens, bath/wash rooms) wall sensor may generate false indications.

**Do not expose product to rain or wet conditions or long term exposure to the sun.**

**Do not use in harsh environment.** Use only in temperature range 14° F - 104° F (-10 C° - + 40 C°).

**To increase battery life, turn off the sensor after each use.**

### DEPTH DETECTION TABLE

Object		Depth Detection	Detection Accuracy
Rebar/Copper Tube	20 mm Diam.	80 mm / 60 mm	±10 mm (Variance in accuracy may be higher depending on the condition, material and thickness of the surface and the shape and size of the scanned object)
	16 mm Diam.	70 mm / 60 mm	
	12 mm Diam.	60 mm / 50 mm	
	6 mm Diam.	50 mm / 50 mm	
Live Wire and Cable		50 mm	
Wood (Stud/Joist)		20 mm	

## DETECTING METALS & CALIBRATION

**NOTE:** The default detection mode of the sensor at the startup is "Metal" indicated by I beam icon (I) on LCD display. Calibrate the sensor before use.

1. Press the On/Off (red) button to turn on the sensor. The green LED indicator turns on and followed by a short beeping sound from the internal buzzer.
2. **To calibrate**, hold the sensor in the air and away from metal objects (including personal jewelry such as wrist watch or rings) or strong magnetic field. **DO NOT touch the bottom of the sensor during calibration.**
3. **Press and hold** the metal/live wire (right black) button for a few seconds until the green LED turns off and then turns back on and followed by a beeping sound.
4. Calibration has been completed. Release the button.
5. Place the sensor onto the surface to be scanned and move the sensor side to side. As the sensor approaches/moves away from the metal object under the surface, the signal detection strength bar and % value indicators on LCD display increase/decrease. To locate the object more precisely, slowly move the sensor three times (3x) side to side over the object. When object is located directly below the center of the sensor, indications will be at their max readings accompanied by cross-hair icon ( $\oplus$ ), constant beeping sound of the internal buzzer and illumination of red LED indicator. Mark the location with a pencil.

**NOTE:** Magnetic/non-magnetic (Ferrous/non-ferrous) icon on LCD display indicates the type of metal object under the surface. Magnetic metals include iron and steel identified by (I) icon. Non-magnetic metals include aluminum, copper, brass, lead, etc. identified by (II) icon.



## DETECTING METALS & DEPTH DETECTION

**NOTE:** Use the depth value only as a general reference.

When scanning for metal objects, depth indicator displays the distance (in cm) between the bottom of the sensor and the top of the object. The accuracy of the displayed distance depends on the shape and position of metal objects. The accuracy is at the optimum level when the object is a standard 20 mm diameter rebar and is in parallel relative to the sensor.



## DETECTING WOOD & CALIBRATION

**NOTE:** The default detection mode of the sensor at startup is "Metal" indicated by I beam icon (I) on LCD display. Calibrate the sensor before use.

1. Press the On/Off (red) button to turn on the sensor. The green LED indicator turns on and followed by a short beeping sound from the internal buzzer.
2. **To calibrate**, hold the bottom of the sensor close to the surface to be scanned. **DO NOT touch the bottom of the sensor during calibration.**
3. **Press and hold** the Wood (left black) button for a second until the green LED turns off and then turns back on and followed by a beeping sound. Wood icon (🌲) will appear in LCD display.
4. Calibration has been completed. Release the button.
5. Place the sensor onto the surface to be scanned and move the sensor side to side. As the sensor approaches/moves away from the wooden object under the surface, the signal detection strength bar and % value indicators on LCD display increase/decrease. To locate the object more precisely, slowly move the sensor three times (3x) side to side over the object. When object is located directly below the center of the sensor, indications will be at their max readings accompanied by cross-hair icon (⊕), constant beeping sound of the internal buzzer and illumination of red LED indicator. Mark the location with a pencil.



**NOTE:** When sensor detects an imperfection or defect in the wood such as burl, cracks, voids and inclusions, buzzer beeps repeatedly including blinking red or yellow LED indicator. If such condition occurs, relocate the sensor to other areas of the surface and resume scanning.

## DETECTING LIVE WIRES & CALIBRATION

**NOTE:** The default detection mode of the sensor at the startup is "Metal" indicated by I beam icon (I) on LCD display. Calibrate the sensor before use.

1. Press the On/Off (red) button to turn on the sensor. The green LED indicator turns on and followed by a short beeping sound from the internal buzzer.
2. **To calibrate**, hold the sensor in the air and away from metal objects (including personal jewelry such as wrist watches or rings) or strong electric or magnetic field. **DO NOT touch the bottom of the sensor during calibration.**
3. Press the metal/live wire (right black) button to select live wire detection. High Voltage icon (⚡) will appear in LCD display.
4. **Press and hold** the metal/live wire (right black) button for a few seconds until a beeping sound is heard. Green LED remains turned on during the calibration.
5. Calibration has been completed. Release the button.



6. Place the sensor onto the surface to be scanned and move the sensor side to side. As the sensor approaches/moves away from the live wire under the surface, the signal detection strength bar and % value indicators on LCD display increase/decrease. To locate the live wire more precisely, slowly move the sensor three times (3x) side to side over the live wire. When live wire is located directly below the center of the sensor, indications will be at their max readings accompanied by cross-hair icon (⊕), repeating beeping sound of the internal buzzer and blinking of yellow or red LED indicator. Mark the location with a pencil.



#### NOTES:

- The sensor can detect voltage range 110 – 380 volts (AC), 50/60 Hz.
- Human body has some effect on sensor's sensitivity in live wire mode. Proper calibration as discussed above can reduce such effect.
- Dead wires (not connected to power) may be detected using "Wood" setting. "Metal" setting can only detect large size dead cables (6 AWG or higher).

### TROUBLESHOOTING

Problem	Cause	Solution
The sensor does not turn on; or if it turns on, it operates intermittently or erratically.	Battery is low.	Replace with new battery.
Battery life seems to be too short.	Wrong battery type was used. Sensor was left on for too long.	For best result, use 9V <u>Alkaline</u> battery. Turn off sensor as soon as scanning is completed.
Sensor detects other objects besides studs.	Electrical cables and pipes may be near or touching back of the scan area.	Scan directly above or below the first scan area. Note that studs are equally spaced at 16 or 24 in. (406 or 610 mm).
Sensor does not detect as expected.	Detection has some limitations.	See CAUTION box in OPERATING INSTRUCTION section.
In live wire mode, the sensor's indications change when hand is removed from the sensor.	Human body has some effect on the sensor's sensitivity in live wire mode.	Proper calibration as discussed in instruction manual can reduce such effect.

## MAINTENANCE & CLEANING

Clean the housing using only a soft cloth or cotton swab with water or medical alcohol. Do not use cleaning agents or solvents. Do not let any liquid enter the housing area. Allow the tool to fully dry before use.

Avoid storing the sensor in extreme temperature conditions. Do not store below  $-4^{\circ}\text{F}$  ( $-20^{\circ}\text{C}$ ), or where the radiant temperature may exceed  $140^{\circ}\text{F}$  ( $60^{\circ}\text{C}$ ). For maximum accuracy, allow the temperature of the meter to reach room temperature ( $70^{\circ}\text{F}$ ) ( $21^{\circ}\text{C}$ ) before use.

Always purchase the correct size and grade of battery most suitable for the intended use.

Clean the battery contacts and also those of the device prior to battery installation.

Remove batteries if consumed or if product is to be left unused for a long time.

Store and carry the tool inside the supplied protective case.

## SPECIFICATIONS

Operating Environment:	Indoor/Outdoor, Dry Locations
Maximum Scanning Depth:	
Ferrous Metals (Steel):	80 mm ( $\pm 10$ mm accuracy*)
Non-ferrous Metals (Copper):	60 mm ( $\pm 10$ mm accuracy*)
Copper Conductors (live):	50 mm ( $\pm 10$ mm accuracy*)
Wood:	20 mm ( $\pm 10$ mm accuracy*)
Auto-off Delay Time:	6 min.
Battery:	9V, Alkaline
Battery Operating Lifetime:	6 hrs. approx.
Working Temperature:	$14^{\circ}$ to $104^{\circ}\text{F}$ ( $-10^{\circ}$ to $40^{\circ}\text{C}$ )
Storage Temperature:	$-4^{\circ}$ to $140^{\circ}\text{F}$ ( $-20^{\circ}$ to $60^{\circ}\text{C}$ )

\* **IMPORTANT:** Variance in accuracy may be higher depending on the condition, material and thickness of the surface and the shape and size of the scanned object.

## 1-YEAR LIMITED WARRANTY

### Express and Exclusive Limited Warranty to Original Retail Buyer

Every ALLTRADE® product is inspected before leaving the factory. This product is warranted to be free of defects in material and workmanship for a period of one year from the date of original purchase. If a defect appears within one year after the date of purchase, the purchaser may return the item, together with a purchase receipt or other appropriate proof of purchase to the place of purchase. Upon receipt of the item(s), the place of purchase will, at its option, replace the defective item or refund your money. This warranty shall not apply when the product has been used for commercial or rental purposes, has been tampered with, when repairs or attempted repairs have been made by unauthorized persons, or where the item has been subjected to misuse, abuse, accident or damage in transit. No charges will be accepted for unauthorized parts, repairs or services.

### IN NO EVENT SHALL ALLTRADE BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Some states and provinces do not allow limitations on how long an implied warranty lasts and some states and provinces do not allow the exclusion or limitation of the incidental or consequential damages, so part or all of the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights, and you may also have other rights, which vary from province to province.

## FCC INFORMATION

**Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.**

**NOTE:** This equipment has been tested and found to comply with the limits for Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the 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.

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