KEAMYA

Multi Material Detector - KY-10

User Manual

[Revision 1.0 March 2019]

READ THIS MANUAL CAREFULLY BEFORE USE – FAILURE TO DO SO MAY RESULT IN INJURY, PROPERTY DAMAGE AND MAY VOID WARRANTY. • KEEP THIS MANUAL FOR FUTURE REFERENCE. • Products covered by this manual may vary in appearance, assembly, inclusions, specifications, description and packaging.

E&OE

Safety

Safety messages are designed to alert you to possible dangers or hazards that could cause death, injury or equipment or property damage if not understood or followed. Safety messages have the following symbols:

You WILL be KILLED or SERIOUSLY INJURED if you do not follow instructions.

You CAN be KILLED or SERIOUSLY INJURED if you do not follow instructions.

You CAN be INJURED if you do not follow instructions or equipment damage may occur.

It is vital that you read and understand this user manual before using the product, including safety warnings, and any assembly and operating instructions. Keep the manual for future reference.

Safety precautions and recommendations detailed here must be fully understood and followed to reduce the risk of injury, fire, explosion, electrical hazard, and/or property damage.

Safety information presented here is generic in nature – some advice may not be applicable to every product. The term "equipment" refers to the product, be it electrical mains powered, battery powered or combustion engine powered.

- **Before Use** - If you are not familiar with the safe operation/handling of the equipment or are in any way unsure of any aspect of suitability or correct use for your application, you should complete training conducted by a person or organization qualified in safe use and operation of this equipment, including fuel/electrical handling and safety.
- Do NOT operate the equipment in flammable or explosive environments, such as in the presence of flammable liquids, gases or dust. The equipment may create sparks or heat that may ignite flammable substances.
- Keep clear of moving parts.
- Equipment may be a potential source of electric shock or injury if misused.
- Do NOT operate the equipment if it is damaged, malfunctioning or is in an excessively worn state.
- Do NOT allow others to use the equipment unless they have read this manual and are adequately trained.
- Keep packaging away from children - risk of suffocation! Operators must use the equipment correctly. When using the equipment, consider conditions and pay due care to persons and property.

General Work Area Safety

- Work areas should be clean and well it.
- Do not operate the equipment if bystanders, animals etc are within operating range of the equipment or the general work area.
- If devices are provided for connecting dust extraction / collection facilities, ensure these are connected and used properly. Dust collection can reduce dust-related hazards.

General Personal Safety

- Wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect from eye and ear injury, poisoning, burns, cutting and crush injuries. Protective equipment such as safety goggles, respirators, non-slip safety footwear, hard hat, hearing protection etc should be used for appropriate equipment / conditions. Other people nearby should also wear appropriate personal protective equipment. Do not wear loose clothing or jewellery, which can be caught in moving parts. Keep hair and clothing away from the equipment.
- Stay alert and use common sense when operating the equipment. Do not over-reach. Always maintain secure footing and balance.
- Do not use the equipment if tired or under the influence of drugs, alcohol or medication.
- This equipment is not intended for use by persons with reduced physical, sensory or mental capabilities.

General Fuel Safety

- Petrol/fuel/gasoline is extremely flammable – keep clear of naked flames or other ignition sources.
- Do not spill fuel. If you spill fuel, wipe it off the equipment immediately – if fuel gets on your clothing, change clothing.
- Do NOT smoke near fuel or when refuelling.
- Always shut off the engine before refuelling.
- Do NOT refuel a hot engine.
- Open the fuel cap carefully to allow any pressure build-up in the tank to release slowly.
- Always refuel in well ventilated areas.
- Always check for fuel leakage. If fuel leakage is found, do not start or run the engine until all leaks are fixed.

General Carbon-Monoxide Safety

- Using a combustion engine indoors **CAN KILL IN MINUTES**. Engine exhaust contains carbon-monoxide – a poison you cannot smell or see.
- Use combustion engines OUTSIDE only, and far away from windows, doors and vents.

General Equipment Use and Care

- The equipment is designed for domestic use only.
- Handle the equipment safely and carefully.
- Before use, inspect the equipment for misalignment or binding of moving parts, loose components, damage or any other condition that may affect its operation. If damaged, have the equipment repaired by an authorised service centre or technician before use.
- Prevent unintentional starting of the equipment - ensure equipment and power switches are in the OFF position before connecting or moving equipment. Do not carry equipment with hands or fingers touching any controls. Remove any tools or other items that are not a part of the equipment from it before starting or switching on.
- Do not force the equipment. Use the correct equipment for your application. Equipment will perform better and be safer when used within its design and usage parameters.
- Use the equipment and accessories etc. in accordance with these instructions, considering working conditions and the work to be performed. Using the equipment for operations different from those intended could result in hazardous situations.
- Always keep equipment components (engines, hoses, handles, controls, frames, housings, guards etc) and accessories (cutting tools, nozzles, bits etc) properly maintained. Keep the equipment clean and, where applicable, properly lubricated.
- Store the equipment out of reach of children or untrained persons. To avoid burns or fire hazards, let the equipment cool completely before transporting or storing. Never place or store the equipment near flammable materials, combustible gases or liquids etc.
- The equipment is not weather-proof, and should not be stored in direct sunlight, at high ambient temperatures or locations that are damp or humid.
- Do not clean equipment with solvents, flammable liquids or harsh abrasives.
- For specific equipment safety use and care, see Equipment Safety.

General Electrical Safety

- Inspect electrical equipment, extension cords, power bars, and electrical fittings for damage or wear before each use. Repair or replace damaged equipment immediately.
- Ensure all power sources conform to equipment voltage requirements and are disconnected before connecting or disconnecting equipment.
- When wiring electrically powered equipment, follow all electrical and safety codes.
- Wherever possible, use a residual current device (RCD).
- High voltage / high current power lines may be present. Use extreme caution to avoid contact or interference with power lines. Electrical shock can be fatal.

General Electrical Safety

- Electrically grounded equipment must have an approved cord and plug and be connected to a grounded electrical outlet.
- Do NOT bypass the ON/OFF switch and operate equipment by connecting and disconnecting the electrical cord.
- Do NOT use equipment that has exposed wiring, damaged switches, covers or guards.
- Do NOT use electrical equipment in wet conditions or in damp locations.
- Do NOT use electrical cords to lift, move or carry equipment.
- Do NOT coil or knot electrical cords, and ensure electrical cords are not trip hazards.

General Service Information

- The equipment must be serviced or repaired at authorised service centres by qualified personnel only.
- Replacement parts must be original equipment manufacturer (OEM) to ensure equipment safety is maintained.
- Do NOT attempt any maintenance or repair work not described in this manual.
- After use, the equipment and components may still be hot – allow the equipment to cool and disconnect spark plugs and/or electrical power sources and/or batteries from it before adjusting, changing accessories or performing repair or maintenance.
- Do NOT adjust while the equipment is running.
- Perform service related activities in suitable conditions, such as a workshop.
- Replace worn, damaged or missing warning/safety labels immediately.

Safety Notes

- **Have the detector repaired only through qualified specialists using original spare parts.** This ensures that the safety of the detector is maintained.
- **Do not operate the detector in explosive environments, such as in the presence of flammable liquids, gases or dusts.** Sparks can be created in the detector which may ignite the dust or fumes.
- **For technological reasons, the detector cannot ensure 100%certainly. To rule out hazards, safeguard yourself each time before drilling, sawing or routing in the walls, ceilings or floors by means of other information sources, such as building plans, pictures from the construction phase, etc.** Environmental influences, such as humidity or closeness to electrical devices, can influence the accuracy of the detector. Surface quality and condition of the walls (e.g., moisture, metallic building materials, conductive wall paper, insulation materials, tiles) as well as the amount, type, size and position of the objects can lead to faulty measuring results.
- Protect the detector against moisture and direct sunlight.
- The detector is intended for the detection of metals (ferrous and non-ferrous metals, e.g., rebar), joists and “live” wires/conductors in walls, ceilings and floors.

Safety Symbols

The product may have safety warning labels attached to it, explained below. Understand the symbols on your product and their meanings. If any stickers become unreadable, unattached etc., replace them.

 **Flammable Material Hazard** Flammable liquids, gases or substances etc may present. Avoid ignition sources and open flames. Danger of fire.	 **Read User Manual** Read and fully understand product safety warnings, operation, procedures etc before using the product.	 **Use Hand Protection** Wear appropriate hand protection and take due care as the product or use of the product may present hand hazards.	 **Carbon-Monoxide Hazard** Do not use the product in confined areas or without adequate ventilation. Carbon-monoxide poisoning can be fatal.
 **Electrocution / Electrical Shock Hazard** High voltage or high current electricity may be present or required by the product. Take due care when handling electrical products, cables, plugs and leads. Electrical shock can be fatal.	 **Toxic Fumes / Dust Hazard** Using the product or by-products from use may produce fumes, smoke or particles that could be harmful if inhaled. Wear appropriate breathing protection and have adequate ventilation.	 **Explosive Material Hazard** Combustible liquids, gases or substances etc may be present. Avoid ignition sources and open flames. Danger of explosion.	 **Cutting / Amputation Hazard** The product may have blades, edges or mechanical devices that can cause severe cut injury to fingers, limbs etc. Take due care when handling and using the product.
 **Crush Hazard** The product may have blades, edges or mechanical devices that can cause severe crush injury to fingers, limbs etc. Take due care when handling and using the product.	 **Single Operator Only** The product must be operated by a single person only. More than one person operating the product may introduce additional hazards.	 **Use Face Protection** Wear appropriate full-face protection and take due care as the product or use of the product may present face and eye hazards.	 **Use Foot Protection** Wear appropriate foot protection and take due care as the product or use of the product may present foot hazards.
 **Use Eye / Ear / Head Protection** Wear appropriate eye and / or ear and / or head protection and take due care as the product or use of the product may present eye, hearing and head hazards.	 **Running Hazard** Do not run on or near the product as doing so may present a fall hazard.	 **Diving Hazard** Do not dive into the product as doing so may present a neck / head injury hazard.	 **Adult Supervision Required** Always supervise children and other users of a product to prevent drowning or injury.
 **Skin Penetration / Puncture Hazard** The product may produce pressure, emit liquids or objects that can cause severe injury to fingers, limbs, blood etc. Take due care when handling and using the product.	 **Hot Surface Hazard** Be aware that the product may produce high temperatures and hot surfaces that can cause burn injuries.	 **Flying Debris Hazard** Be aware that the product or use of the product may present hazards produced by flying debris. Wear appropriate clothing and protective devices.	 **Moving Parts Hazard** Be aware that the product contains or uses mechanical devices that move or rotate. Always wait for moving parts to stop fully before handling the product, adjusting, maintenance etc.

 **Carbon-Monoxide Hazard** Do not use the product in confined areas or without adequate ventilation. Carbon-monoxide poisoning can be fatal.	 **Pull Hazard** Be aware that the product contains or uses mechanical devices that can pull in objects and can cause severe injury to fingers, limbs etc. Take due care when handling and using the product.	 **Slope / Fall Injury Hazard** Be aware that using the product on sloping surfaces or in slippery conditions may present additional dangers from falls and contact with blades, moving parts, hot surfaces etc.	 **"Slam Dunk" Warning** Do NOT attempt "slam dunk" manoeuvres as this may result in severe injury due to falling, product breakage or collapse etc.
 **Electrocution / Electrical Shock Hazard - Outdoor** High voltage or high current electricity may be present or required by the product. Do NOT use in rain, damp or wet conditions. Electrical shock can be fatal.	 **Electrocution / Electrical Shock Hazard - Disconnect** High voltage or high current electricity may be present or required by the product. Always disconnect the product from the electrical supply before handling the product, adjusting, maintenance etc.	 **Power Line Electrocution Hazard** High voltage / high current power lines may be present. Use extreme caution to avoid contact or interference with power lines. Electrical shock can be fatal.	 **"Kick-Back" Hazard** High level of "kick-back" hazard that can cause the machine to suddenly rotate towards operator. Kick-back injury can be fatal.
 **Winch Operator Position Hazard** Do NOT stand between winch and load. Do NOT use winch to move people.	 **Winch Lift Hazard** Do NOT LIFT load vertically. Use machine to PULL only.	 **Cable Hazard** Ensure that load bearing cable is not kinked or knotted.	 **Winch Cable Hazard** Ensure that there is a minimum number of cable coils on winching mechanism.
 **Winch Hook Hazard** Carry hook to load – do NOT throw or run.	 **Flash / Blinding Hazard** Wear appropriate eye protection for welding. Direct exposure to weld arcs may cause permanent eye injury.	 **Laser Hazard** Laser may be in use – do NOT look directly at laser or allow others to.	

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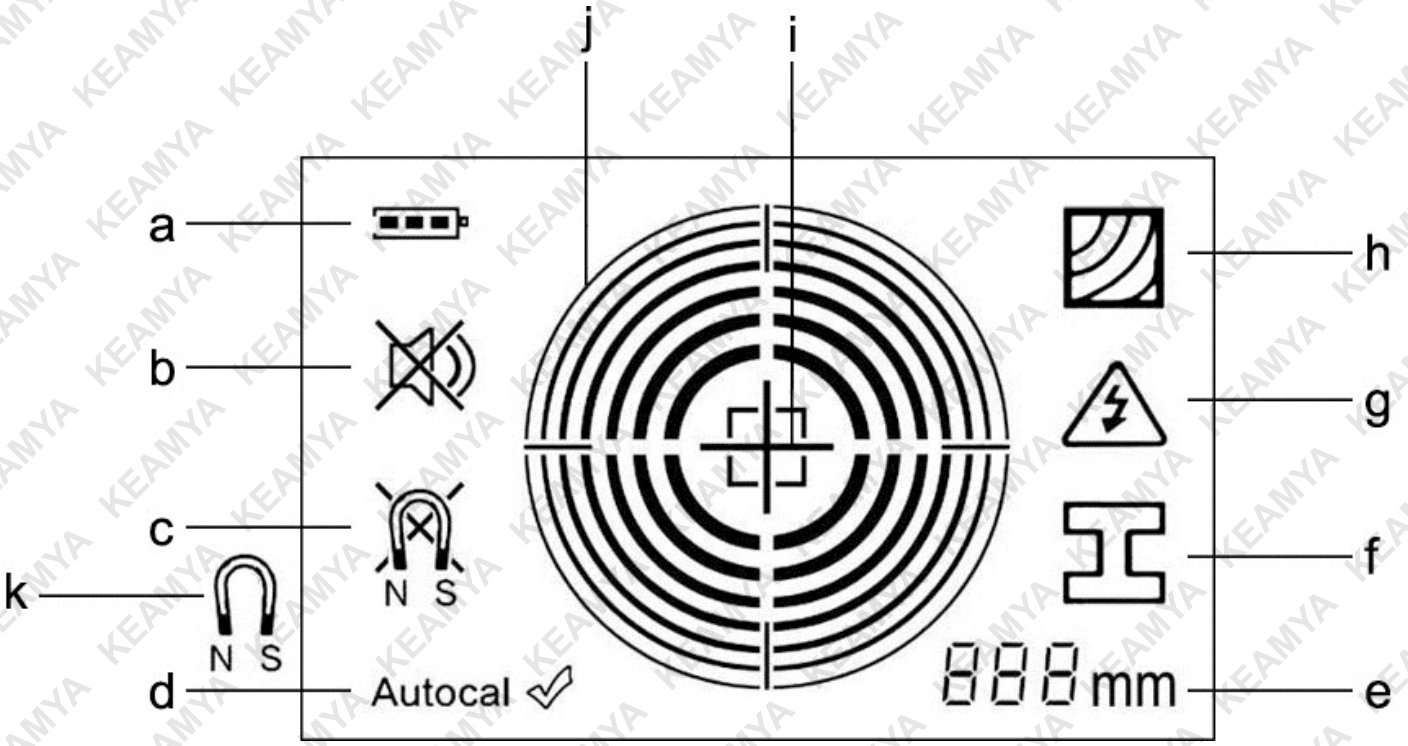
Parts Identification



No.	Name	No.	Name
1	LED indicator light	a	Battery indicator
2	Display	b	Switched-off audio signal indicator
3	“ON/OFF button	c	Non-magnetic metal indicator
4	Wood detection button	d	“Autocal” calibration indicator
5	Metal/live wire detection button	e	The metal detecting depth indicator
6	Sensor area	f	Metal detection indicator
7	Felt pad	g	“Live” wire indicator
8	Product label area	h	Wood detection indicator
9	Battery lid	i	The object’s centre indicator
10	The strap	j	Measuring indicator
		k	Magnetic metal indicator

Assembly

Inserting/Replacing the Battery

Please use only 9V battery.

Insert the supplied battery. Ensure that the polarity is correct.

The battery indicator (**a)** always indicates the current battery status:

- Battery is fully charged
- Battery has 2/3 of its capacity or less
- Battery has 1/3 of its capacity or less
- Please change the battery

When you open the detector, the display will not show anything and then powers OFF. This means that the battery has no power left. Battery then needs to be replaced.

If the detector will not be used for an extended period of time, the battery must be removed first. The battery can corrode or discharge itself over long periods.

Operation

Do not subject the detector to extreme temperatures or variations in temperature. In case of large variations in temperature, allow the detector to adjust to the ambient temperature first before switching it ON. In case of extreme temperatures or variations in temperature, the accuracy of the detector and the display indication can be impaired.

Use or operation of transmitting systems, such as WLAN, UMTS, radar, transmitter masts or microwaves in close proximity can influence the measuring functions.

Initial Operation

Switching ON and OFF

- Before switching ON the detector, ensure that there are no traces of moisture on the sensor area (**6**). If needed, dry the detector first using a soft, clean cloth.
- If the detector was subjected to extreme temperature changes, allow it to adjust to the ambient temperature first before switching it ON.
  - To switch ON the detector, press the “ON/OFF” button (**3**).
  - To switch OFF the detector, press the “ON/OFF” button (**3**) again.
- When none of the detector buttons are pressed for approx. 5 minutes and when no objects are directed, the detector automatically switches OFF to save the battery life.

Switching the Audio Signal ON/OFF

- Press the wood detection button (**4**) and metal/live wire detection button (**5**) at the same time to switch ON/OFF the audio signal. When the audio signal is switched OFF, the switched-off audio signal indicator (**b**) will appear on the display.

Detecting Objects

- Using the detector can find objects below the detection area (**6**).
- Always move the detector in a straight line over the surface, applying slight pressure and without lifting it off or changing the pressure. While measuring, the contact pads (**7**) must always be in contact with the surface.

Detecting Metal Objects

When scanning for metal objects, press the metal detection button (**5**). At this time, the metal detection indicator symbol (**f**) is indicated in the display and the LED indicator (**1**) will light up green.

1. Position the detector onto the surface to be scanned and move it sideways. When the detector comes close to a metallic object, the amplitude of the measuring indicator (**j**) will increase, a steady “dididi” sound.
2. Move the detector over the surface repeatedly to find the center of the scanned object. At the position of maximum amplitude, the metallic object is located below the center of the sensor. With this, the time indicator (**i**) on the display will be indicated, a steady “dididi” sound, and the LED indicator (**1**) will light up red. When it moves away from the object, the amplitude decreases.
3. If the metallic object found is a non-magnetic metal (e.g. copper), the indicator for non-magnetic metals (**c**) is displayed. If the metallic object found is a magnetic metal (e.g. iron), the indicator (**k**) for magnetic metals will be displayed.
4. If the metallic object is too deep or too small, the detector LED light (**1**) will light up yellow.

When scanning for metallic objects, the indicator (**e**) (detection depth value) in the display will be displayed following the scanning for metallic objects. There is a relationship with the shape and position of the metallic objects with the accuracy of the depth value. When the measured object is the standard steel bar of diameter 20mm, and the steel bar is relatively parallel to the detector, the accuracy of the depth value is best. The depth value only as a general reference value.

For reinforced steel mesh and steel in the examined base material, an amplitude is indicated over the complete surface of the measuring indicator (**i**). For reinforced steel mesh ,it is typical that the symbol (**k**) for magnetic metal is indicated on the display directly above the iron rods, whereas between the iron rods, the symbol (**c**) for non-magnetic metal will appear.

Switching ON the detector after a brief self-check, the detector is ready for operation. If detector has the following condition, the detector needs to be calibrated:

- The detector automatically enters the function model of the detected metallic object. If the detector is in a no-metal interference environment ,but the buzzer is always making a“dididi” sound and the red or yellow light is always flashing, the detector needs to be calibrated.
- In case of extreme temperatures or variations in temperature, the accuracy of the detector will be compromised and it will need to be calibrated.

Calibration Method: Position the detector on a surface with no metallic objects and/or strong magnetic fields. Press the metal button (**5**) for about 2 seconds, then the detector will start to briefly self-check itself. LED indicator (**1**) will then light up green to indicate that it has finished calibrating.

Scanning for Live Wires

Live wire can be detected in any operating mode. The detector can detect 50 – 60Hz live wires.Other wires cannot be detected.

1. Press the metal/live wire detection button (**5**) twice to enter into live wires scanning mode. At this time, the live wire indicator (**g**) will appear on the display and the LED indicator (**1**) will light up green.
2. Position the detector onto the surface and move it around. When the detector comes very close to a live wire, the amplitude of the measuring indicator (**j**) will increase (the signal tone will sound off in rapid sequence).
3. Move the detector over the surface repeatedly to find the centre of the scanned object. At the position of maximum amplitude, the live wire is located below the centre of the sensor. At this time, the indicator (**i**) on the display will show, the signal tone will sound off with a rapid tone sequence and the LED indicator (**1**) will light up red. When it moves away from the live wire ,the amplitude will decrease.

Live wires/conductors can be detected easier when power consumers (e.g. lamps, appliances) are connected to the wire/conductor being sought and switched ON. Wires/conductors with 110V, 220V and 380V (three-phase current) are detected with about the same scan capacity.

Under certain conditions (such as under metallic surfaces or behind surfaces with high water content), live conductors cannot be securely detected.The signal strength of a live conductor depends on the position of the cable.Therefore ,apply further measurement in close proximity or use other information sources to check if a live conductor is present.

- Moving the detector repeatedly over the area will localise the live conductor more precisely.
- Static electricity can lead to inaccurate indication of the electric lines over a large range. To improve the indication, place your free hand flat on the wall next to the detector in order to remove the static electricity.
- Quickly moving the detector will cause static electricity. Please move slowly when searching for live wires.

Detecting Wooden Objects

1. When scanning for wooden objects, position the detector onto the surface being scanned and press the wood detection button (**4**).
2. When the detector has finished calibrating, the LED indicator (**1**) will light up green.The wood detection indicator symbol (**h**) will appeared on the display.
3. Position the detector onto the surface to be scanned and move it sidewards.When the detector comes close to a wooden object, the amplitude of the measuring indicator (**j**) will increase (a steady “dididi”sounds).
4. Move the detector over the surface repeatedly to find the centre of the scanned object. At the position of maximum amplitude,the wooden object is located below the center of the sensor. With this, the centre indicator (**i**) on the display will light up, a steady tone and the LED indicator (**1**) will light up red. When it moves away from the object, the amplitude decreases.
5. When the wooden object is too deep or too small, the detector LED light (**1**) will show yellow.

To detect wooden objects, the buzzer will sound off and indicator will flash red or yellow when positioning the detector on the base material being detected. If the above conditions happen, press the button (4) on the base material detected.The LED indicator (1) will light up green to show that it has finished calibrating.

When the detector scans for the wooden objects again or at a different wall or surface, press the button (4) again after a brief self-check. The LED indicator (1) will light up green to show that it has finished calibrating.Then you can start measuring again.

The measuring value can be impaired through certain ambient conditions.These include: proximity of other equipment that produce strong magnetic or electromagnetic fields, moisture, metallic building materials, foil-laminated insulation materials or conductive wallpaper or titles.Therefore, please also refer to other information sources (e.g. construction plans) before drilling, sawing or routing into walls, ceilings or floors.

Maintenance

- When the measuring indicator (**j**) continuously shows an amplitude even though there is no metallic object in the vicinity of the detector, it can be calibrated manually.
  a. Remove all objects in the vicinity of the detector (including wrist watches or metallic objects) and hold the detector up in an environment with no metals and strong magnetic fields.
  b. Press the metal button (**5**) again until the red, yellow and green lights ligh-up at the same time, then release the button. After a few seconds, the light will turn green, indicating the the calibration process was successful.
- Wipe away dirt and debris with a dry, soft cloth. Do not use cleaning agents or solvents.
- In order not to affect the measuring function, decals/stickers or name plates, (especially metallic ones) should not be attached onto the sensor area (**6**) on the front or back side of the detector.
- Store and transport the detector only in its supplied protective case.

Specifications

Battery	9V
Scanning Modes	Aluminium, Steel, Copper, AC Live Wire, Wood
LCD	2.4"
Weight	0.18kg
Detection Sound	Yes
Felt pads	Yes
Auto-shutdown	5 min
Approx. Battery Duration	4h
Depth Indication	Yes
Maximum Scanning Depth	Ferrous metals 10cm, Non-ferrous metals (Copper) 7cm, Live Cables 5cm, Wood 2cm.

Some experts believe that the incorrect or prolonged use of almost any product may cause serious injury or death. To help reduce your risk of serious injury or death, refer to the information below. For more information, see www.datastreamserver.com/safety

- Consult all documentation, packaging and product labelling before use. Note that some products feature documentation available online. It is recommended to print and retain the documentation.
- Before each use, check the product for loose/broken/damaged/missing parts, wear or leaks (if applicable). Never use a product with loose/broken/damaged/missing parts, wear or leaks.
- Products must be inspected and serviced (if applicable) by a qualified technician every 6 months. This is based on average residential use by persons of average size and strength, and on a property of average metropolitan size. Use beyond these recommendations may require more frequent inspections/servicing.
- Ensure that all users of the product have completed a suitable industry recognised training course before being allowed access to the product.
- The product has been supplied by a general merchandise retailer that may not be familiar with your specific application or description of application. Be sure to attain third-party approval from a qualified specialist for your application before use, regardless of any assurances from the retailer or its representatives.
- This product is not intended for use where fail-safe operation is required. As with any product (for example, automobile, computer, toaster), there is the possibility of technical issues that may require the repair or replacement of parts, or the product itself. If the possibility of such failure and the associated time it may take to rectify could in any way inconvenience the user, business or employee, or financially affect the user, business or employee, then the product is not suitable for your requirements. This product is not intended for use where incorrect operation or a failure of any kind, including but not limited to, a condition requiring product return, replacement, parts replacement or service by a technician may cause financial loss, loss of employee time or an inconvenience requiring compensation.
- If this product has been purchased in error when considering the information presented here, contact the retailer directly for details of their returns policy, if required.

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