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TECHNICAL DATA SHEET



SEARCH COIL SHOWN MOUNTED ON ROV

RMD-1 TOPSIDE CONTROL UNIT

- DETECTS ALL METALS
- 62 in DEEP x 52 in WIDE DETECTION AREA
- CAN USE ITS OWN CABLE OR THE ROV'S CABLE
- CORROSIVE PROOF MATERIALS
- 2 YEAR WARRANTY



RMD-1 Remote Metal Detector

The RMD-1 is a high performance Pulse Induction metal detector which can be attached to almost any ROV or towed underwater system. Pulse induction technology allows the RMD-1 to detect both ferrous and non-ferrous metal objects under the ocean floor while ignoring mineralization in the salt water seabed. The ROV metal detector locates and tracks underwater pipelines, finds missing tools and dredge parts, locates weapons and unexploded ordnance, and finds lost treasure.

The system employs two coils molded into rugged ABS shells and firmly attached to the underwater vehicle with a corrosive-proof tubular PVC frame. The frame provides a sturdy mount and keeps the coils far enough away from the ROV so as not to be affected by the metal parts. The oval coils produce a detection envelope which extends 3 to 5 feet into the bottom. The sleek, low profile coil design minimizes drag and weight on the ROV.

When the coil senses metal it sends a signal to the RMD-1 "downstairs" electronics unit attached to the underwater vehicle. This downstairs electronics unit can produce RS232 output, 0-5 vdc output, or a proprietary signal used by the JWF topside control/readout unit. The output from the downstairs electronics unit can be transmitted through the ROV's umbilical or a separate cable.

The standard RMD-1 has a topside Control Box which displays the readout with both a meter and audio alarm. The closer the proximity of the metal target, the stronger the reading. The topside unit can use the underwater vehicle's umbilical cable to supply voltage to the downstairs electronics unit and to receive the output signal from the downstairs unit. The RMD-1 can be powered from 120 vac (standard) or 220 vac, or 9 - 18 vdc.

The RMD-1 is easy to operate and readily attaches to most any underwater vehicle. The RMD-1 is covered by a full TWO YEAR WARRANTY.

SPECIFICATIONS

SENSITIVITY (in water or air):

- Piece of eight 10 in.
- Shotgun 28 in.
- 4" diameter pipe 34 in.
- One gallon can 36 in.
- 2' x 4' sheet metal 50 in.
- Maximum range 62 in.

PERFORMANCE/DESCRIPTIONS:

- Max detection area (standard coil) 62 in deep, 52 in wide.
- Input voltage 9 - 18 vdc, or 120 vac, or 220 vac.
- Power consumption 8w
- Output signals Meter, audio, analog, RS232 with GPS. (4,800 or 9,600 baud)

DIMENSIONS/WEIGHT:

- | | <u>Air/Water</u> |
|-----------------------------|---|
| • Coil set | 10" x 16" x 5" H 132/28 ozs |
| • U/W Housing & elect. | 9 1/2" L x 2 1/2" Dia 1.4 lbs/4oz pos |
| electronics alone | 1 7/8" x 7" x 1 1/2" H 5oz. |
| • Surface control Box | 13"L x 13"W x 6"H 7.6 lbs. |
| • Cable | 1/4"Dia x 150-1,000' 4-25 lbs. |
| • Shipping Box | 27"L x 23"D x 12"H 25 lbs. |

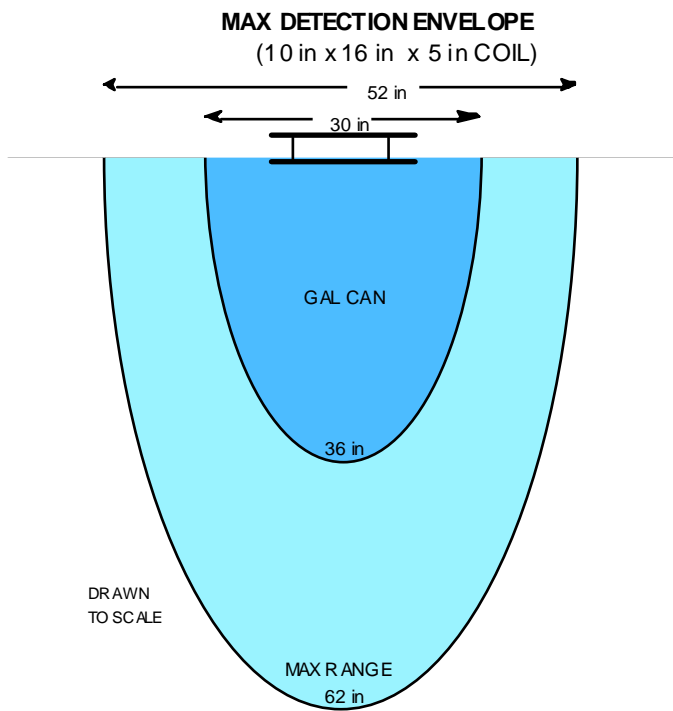
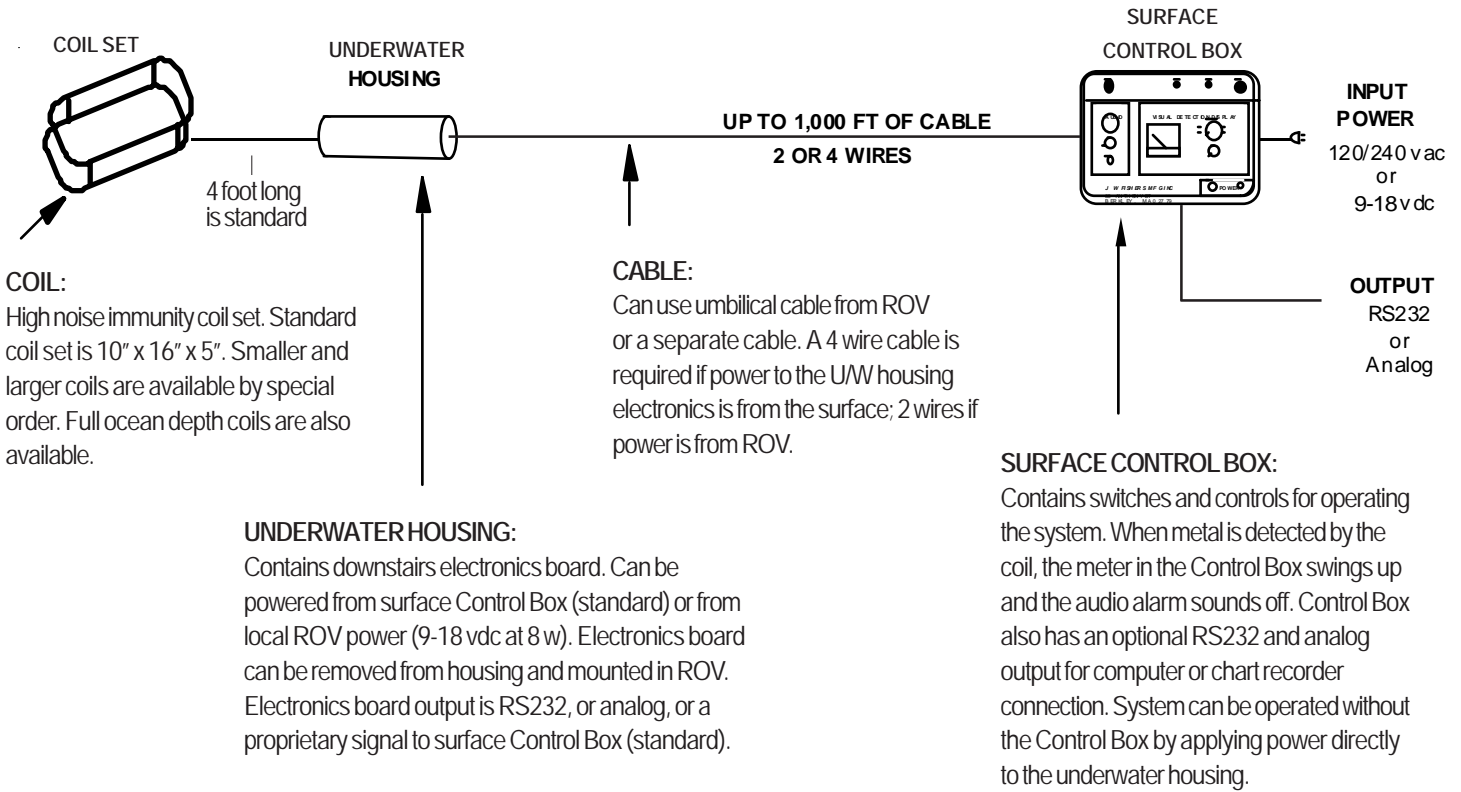
MATERIALS/COLOR:

- Underwater housing High impact PVC, yellow
- Control Box High impact case, PVC/black
- Cable PVC, Chrome
- Coil set High impact epoxy/black

OPTIONS

- 9 to 18 vdc input power for topside box or lower electronics.
- 220 vac to 120 vac transformer (for powering control box from 220 vac).
- Analog output (0-5vdc) for topside box or "downstairs" electronics unit.
- RS232 Output at "downstairs" electronics unit and RS232 input to topside box (used if info is multiplexed in cable).
- RS232 Output at topside box with boat's GPS.
- RS232 is 4800 baud, 9600 baud is available.
- Coil set rated for "full ocean depth".

RMD-1 SYSTEM CONFIGURATION

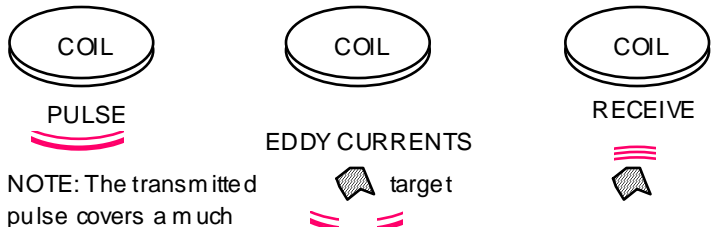


COIL SIZES

The detection range of a pulse metal detector is determined to some degree by the coil size. Larger coils will detect large targets deeper, but have less sensitivity to the smaller targets. The 10 in x 16 in x 5 in coil is an ideal size for detecting both small targets, such as individual coin size objects, and larger targets to 5 ft deep. Special coil sizes can be built for special applications

PULSE DETECTORS - HOW THEY WORK

Pulse metal detectors operate by transmitting a continuous stream of high energy magnetic pulses (one hundred per second) from the coil. After each pulse is transmitted the detector then listens using the coil as the receiving antenna.



NOTE: The transmitted pulse covers a much larger area than shown above.

When the transmitted pulse hits a metal object, a magnetic field is induced in the object. This causes eddy currents to flow in the metal, which in turn generates a second magnetic field. This field is picked up by the coil, amplified and then displayed by the meter and heard in the earphones.

PULSE DETECTORS - GENERAL

Pulse induction metal detectors have had a major impact on underwater metal detecting. Their claim to fame is very simple: they are very sensitive metal detectors that are not affected by minerals in the environment (extreme concentrations may give some reading). Our pulse detectors are able to achieve their high sensitivity on land, or in fresh or salt water without detecting either the water or the minerals in the bottom.