



JW FISHERS MFG INC

1953 COUNTY ST.
E. TAUNTON, MA 02718 USA

(508) 822-7330; (800) 822-4744; FAX (508) 880-8949
Email: info@jwfishers.com WEB: www.jwfishers.com

TECHNICAL DATA SHEET



SYSTEM COMES COMPLETE AND READY TO GO

- LOW COST, HIGH PERFORMANCE
- ONE GAMMA SENSITIVITY
- 1500 FT. DETECTION RANGE
- LCD READOUT AND TARGET ALARM
- BUILT-IN PRINTER (OPTIONAL)
- GAMMA PRINTOUT
- LORAN GPS COORDINATES PRINTOUT
- RS232 OUTPUT AVAILABLE
- 150-1,000 FOOT CABLE
- 2 YEAR WARRANTY

PROTON 4 Magnetometer

The PROTON 4 is a fourth generation proton magnetometer from JW Fishers. It is a top performing microprocessor driven marine magnetometer detection system. With a one gamma sensitivity, it has the maximum usable sensitivity for a towed magnetometer. A two second cycle time gives a strong return signal and is fast enough to detect even small iron/steel targets. The PROTON 4 features a triaxial noise-cancelling sensor that allows omnidirectional towing without heading error or dead zone. The system is fully digitized and displays its output on an easy to read 5 digit LCD that is backlit for night operations. The optional built-in printer creates a permanent record of the mag readouts. The gamma reading is printed out on each cycle and, with input from a GPS receiver, the target's position is also printed out. An alarm informs the operator when the readout changes. An RS232 output and software package are also available. The Fish has excellent hydrodynamic characteristics moving smoothly through the water at tow speeds up to 10 knots. A 2-3 knot tow speed is recommended for small targets. With the optional Altimeter, precise distance off the bottom can be maintained. For deep water towing, the Fish is towed behind a downrigger. The Fish can be towed at almost any speed, but should be towed slow to locate small targets or when towing the Fish deep. A sensitivity switch allows easy pinpointing of targets. Modular construction allows easy field repair, should it ever be necessary. The PROTON 4 is covered by a full TWO YEAR WARRANTY.

DETECTION RANGES

OBJECT	NEAR RANGE	FAR RANGE
1 gal can		2 gamma at 12'
5 gal can		2 gamma at 18'
55 gal can		2 gamma at 45'
Sm. plane	25 gamma 20'	2 gamma at 50'
1 ton iron	40 gamma at 30'	2 gamma at 80'
6" pipe line	200 gamma at 20'	2 gamma at 100'
12" pipe line	350 gamma at 20'	2 gamma at 175'
Lg. anchor	500 gamma at 50'	2 gamma at 200'
Med ship	1500 gamma at 100'	2 gamma at 1000'
Lg. ship	2000 gamma at 100'	2 gamma at 1500'



SPECIFICATIONS

DIMENSIONS/WEIGHTS:

- Fish 52'L x 6"Dia 48 lbs.
- Control Box 14"L x 10"W x 6"H 5 lbs.
- Tow Line75"D x 150'-1,000' 30-200 lbs.
- Carrying case 59"L x 18"D x 22"H 80 lbs.
- Total Shipping 59"L x 18"D x 22"H 170/320 lbs.

PERFORMANCE/DESCRIPTIONS:

- Sensitivity (switch adjustable) resolves 1 gamma
- Maximum detection distance 1,500 feet
- Cycle time (switch adjustable) 2-4 seconds
- Tow speed 1-10 MPH
- Maximum operating depth (standard unit) 200 feet
- Input voltage (two car batteries) 24 vdc
- Power consumption 40 Watt

MATERIALS/COLOR:

- Fish High impact PVC, stainless/yellow
- Control Box High impact case/black
- Cable 8 conductor in polypropylene/yellow

OPTIONS

- Built-in printer
- Loran / GPS interface
- RS232 output interface
- Software display package
- Altimeter
- Downrigger
- 300 foot cable
- 500 and 1,000 foot depth versions

GENERAL

Magnetometers are precision electronic instruments that measure and display the strength of the earth's magnetic field in an area. If ferrous metal is present, the earth's magnetic field is altered and the readout of the magnetometer changes accordingly.



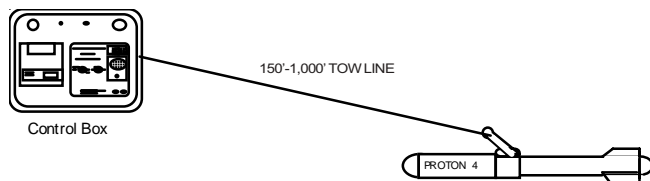
Since the 1940's, almost every major wreck find was made with a magnetometer. Metal hulled ships and barges are easy targets and can be detected hundreds of feet away. The Spanish galleons laden with gold and silver (metal not detectable by magnetometer) were also found with mags by detecting the ship's anchors, cannons, cannon balls, or ballast stones (magnetite was often used as ballast).

PROTON MAGNETOMETER

In the 1960's, the proton magnetometer (as we know it today) was invented. Since that time the proton magnetometer has dominated the field, both in the scientific community and in salvage work. It is both a rugged and sensitive instrument. Its claim to fame is, unlike flux-gate mags, the direction of the sensor head does not alter the output reading as it is being towed. Once it has been tuned to an area, no further adjustments are necessary.

PROTON 4

The PROTON 4 is a proton magnetometer that was specially designed for underwater salvage work. The system consists of a Control Box, a 150-1,000' cable and a towfish.



FISH - The Fish is 52 inches long and has a watertight compartment that contains the sensors and the electronics necessary for processing the signal before sending to the control box. The Fish has four fins for stability and is weighted for negative buoyancy. The materials used in the construction of the Fish were specifically selected for high impact resistance and low maintenance.

CABLE - The 150-1,000' tow cable consists of multi-paired and coax cables encased inside a braided polypropylene rope. The combination results in a highly abrasion-resistant tow cable.

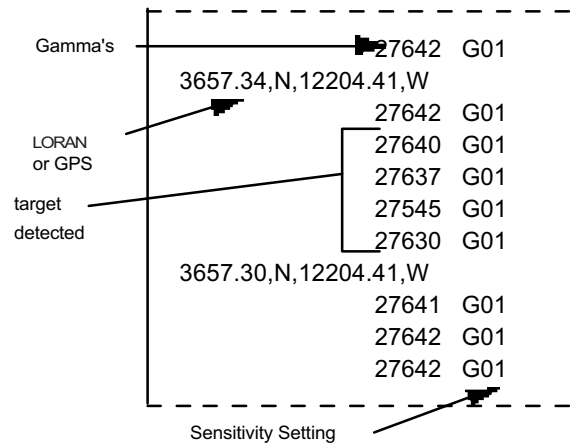
CONTROL BOX - The Control Box receives signals from the fish and does additional processing for display on the digital readout. On the face of the Control Box are the following controls and displays:

- Readout** - A five digit LCD readout displays the gamma reading. The readout is backlit for nighttime viewing.
- Sensitivity Switch** - A four position switch allows the sensitivity to be reduced once a target area is located, so the target can be accurately pinpointed.
- Pol Time** - A three position switch controls the cycle time. 2.5 ,3, or 4 seconds can be selected.
- Alarm** - A seven position switch sounds an alarm if the readout changes beyond the selected gamma amount.
- Printer (option)** - A 24 column printer prints out the gamma reading and sensitivity switch setting each cycle and prints out the LORAN or GPS coordinates after every fifth cycle.

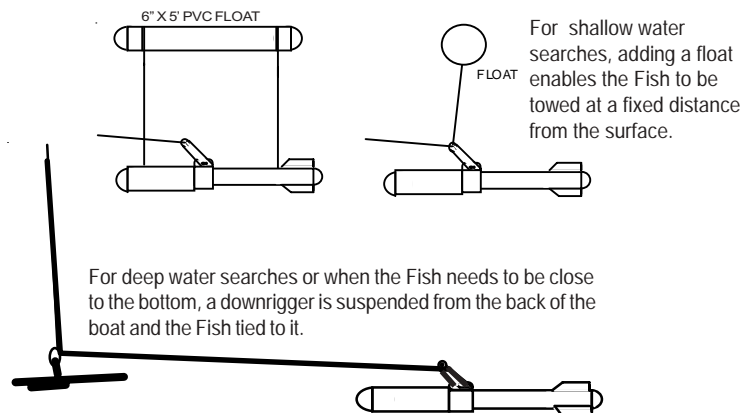
OPERATION AND USE

When you receive your PROTON 4, it has been tuned at the factory and is ready to operate; all you need are two 12v batteries (car or marine type) for power. Included with the PROTON 4 is a large world map. The map shows the gamma reading for different parts of the world; e.g. 61,000 for the North Pole area (magnetic field is strongest), to 24,000 in Ecuador, S.A. (magnetic field is weakest). You check the map for the reading in your area; e.g. Boston, Mass. = 55,000; Miami, Florida = 48,000. The tuning switches in the Fish is set to the position that covers this frequency (each switch position covers a broad band of frequencies). At this point, the PROTON 4 is "tuned" and ready to go. The Power On switch on the Control Box is turned on and the unit automatically begins cycling. The gamma reading and LORAN or GPS coordinates will be printed. With the optional RS232 output interface the information can be output to any computer or software program.

PRINTOUT (Actual Size)



When towing the Fish, as you approach a ferromagnetic (steel) target, the readout number will decrease; the amount of decrease will depend on the size of the target and how close the Fish passes to it. A change of several thousand can be expected for a very large target. The PROTON 4 can easily pinpoint wrecks.



OPTIONS

- Printer** - A 24 column dot matrix printer that prints out the gamma reading, sensitivity setting, and LORAN or GPS coordinates. Printer is built-in.
- LORAN / GPS Interface** - Provides input interface for a LORAN or GPS receiver.
- RS232 Output Interface** - Provides an output to any computer.
- Software program** - Windows compatible. Stores and displays data in digital and analog format for real time viewing, printing, and storage.
- Altimeter** - Tells operator how far the Fish is above the bottom.
- 300' Cable** - The PROTON 4 can be ordered with a 300' cable (150' standard).
- Downrigger** - A depressor wing used for deep water towing.
- 500' and 1,000' Versions** - Deeper depth rated versions are available.

WARRANTY

The PROTON 4 is covered by a TWO YEAR WARRANTY.