

# SENTINEL

2 in 1 Base Station Magnetometer



*For land & subsea deployment  
One million reading storage capacity  
Battery life exceeds several months  
Ultra-high 0.015nT sensitivity  
Omnidirectional - no orientation required*

**Marine Magnetics**  
[www.marinemagnetics.com](http://www.marinemagnetics.com)

# LAND SENTINEL



SENTINEL is a complete self-contained long-term magnetic monitoring station. It contains a battery pack and a low-power omnidirectional Overhauser magnetometer all sealed in a pressurized housing. SENTINEL comes with accessories that allow it to be deployed on land on any terrain, above ground suspended from tree branches or overhangs, and underwater to depths of 1000m or more. SENTINEL can be stationed virtually anywhere on the surface of the Earth.

SENTINEL incorporates advanced design with ease of use. Powerful features allow it to operate unattended for months at a time. For instance, SENTINEL only needs to be programmed once, in your lab or office before it is sent into the field. Marine Magnetics' BaseLINK software for Windows (included) allows the user to easily set the clock and the sample rate with the touch of a key. Non-volatile memory ensures that SENTINEL remembers its settings, and automatically places itself in low-power standby when not in use.

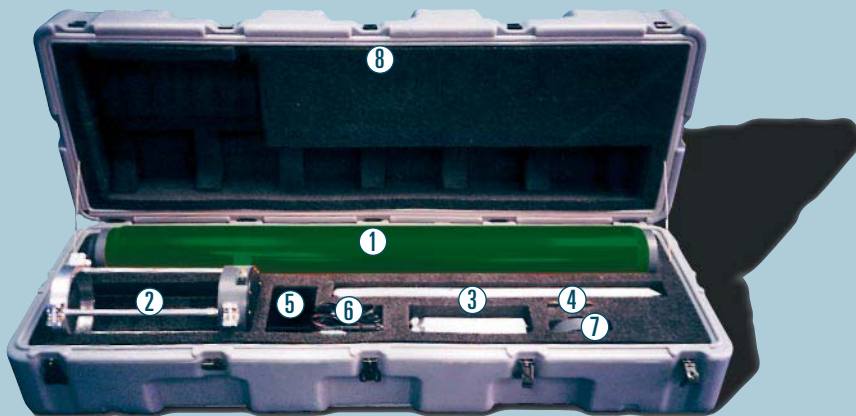
## Deployment on Land

To deploy SENTINEL on land, assemble the all-aluminum tripod base using the supplied thumbscrews (no tools required). Place the tripod in the desired location, and then insert SENTINEL into the base. When

# SUB-SEA SENTINEL

Deploying SENTINEL on the bottom of the ocean is just as easy as setting it up on land. Program SENTINEL once in your office or lab, as you would if deploying on land. When you have reached your deployment spot, just flip the switch, attach the heavy-duty brass seal, and hook on an acoustic release with a concrete anchor.

Attach your buoy to the top of the SENTINEL tube, and throw the whole assembly overboard. SENTINEL will not start acquiring data while on the deck of the ship. It will know when conditions become quiet enough for measurement, and will automatically begin sampling when it is out of range of the ship.



## A SENTINEL System Includes:

1. SENTINEL housing complete with electronics module & Overhauser sensor
  2. rugged aluminum base
  3. aluminum legs for attachment to base
  4. thumbscrews to secure the legs to base
  5. Universal AC power supply
  6. RS-232 cable
  7. Cap to seal the housing for subsea deployment
  8. Custom rotomolded Hardigg Case
  9. BaseLINK software (not shown)
- The entire system only weighs 40kgs

you feel the click of the housing connecting, SENTINEL will automatically perform a self-test. Note that SENTINEL's sensor is omnidirectional and therefore requires no orientation.

### Self-diagnostics

When SENTINEL is turned on, it performs a 5 second test to determine whether the survey site is in a magnetically noisy area. If the area is unsuitable, the red LED located on the base will flash for a few seconds. SENTINEL will then power itself down, and wait to be moved to another location, or wait for the source of the noise or high gradient to be removed.



When the green LED flashes, you know the diagnostic tests have passed, and that SENTINEL is located in a good area. The green LED will then flash briefly every time a reading is taken to assure the operator at a glance that SENTINEL is operating. It's that simple.

When your survey is completed, remove SENTINEL from the tripod base. SENTINEL will automatically stop acquiring data and power itself down until it is reactivated.

Although SENTINEL is perfectly comfortable working alone, you can monitor its performance at any time by plugging your PC's COM port into the tripod base. SENTINEL reports readings through its serial port in real time, in addition to automatically storing them in its nonvolatile memory. At the same time, SENTINEL's battery can be recharged through the same connector on the base, without disturbing data acquisition.

If you would prefer to keep SENTINEL off the ground, another option at your disposal is to suspend it from an overhanging structure like a tree branch. SENTINEL comes with a detachable eyelet piece that screws into the top of its housing. Securely fasten a rope to the eyelet, pull the system up to the desired height, and SENTINEL will do the rest. Remember that SENTINEL is designed to survive the depths of the ocean, so it will not be affected by wind or rain.

1 Program SENTINEL using BaseLINK on your PC



2 Place SENTINEL in its base. SENTINEL begins taking readings immediately.



SENTINEL is built with premium materials that are designed to withstand years of exposure to the harshest environments. The main housing is high strength fibreglass coated with impact-absorbing polyurethane similar to our proven SeaSPY towed magnetometer system.

### HIGH PERFORMANCE

SENTINEL's sensitivity is state-of-the-art (0.015nT), far superior to most traditional base station magnetometers, and its power requirement is orders of magnitude lower. Couple this with its enormous one million reading nonvolatile memory and you have an instrument that is capable of collecting months of high resolution total field magnetometer data on a single battery charge.

1 Program SENTINEL using BaseLINK on your PC



2 Flip switch to the "ON" position



3 Manually screw on cap



4 Attach an acoustic release and throw overboard



# SENTINEL

## Specifications

### Performance

**Sensitivity:** 0.015 nT  
**Resolution:** 0.001 nT  
**Gradient Tolerance:** > 10,000 nT/m  
**Range:** 18,000 to 120,000 nT  
**External Trigger:** by RS-232  
**Absolute Accuracy:** 0.2 nT  
**Temperature Drift:** NONE  
**Dead Zone:** NONE  
**Heading Error:** NONE  
**Sampling Rates:** 1/Minute to 1Hz  
**Communications:** RS-232, 9600bps

### Operating Parameters

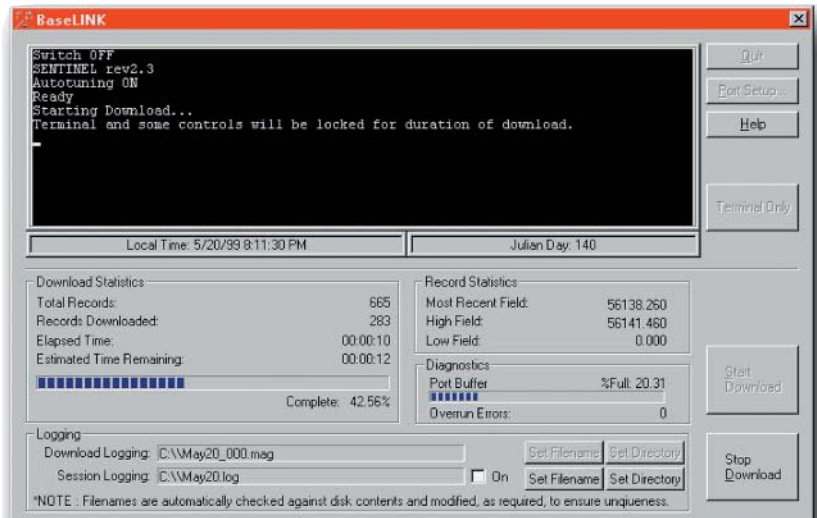
**Magnetometer cylinder weight:** 14kgs  
**Magnetometer cylinder size:** 113cm x 13cm dia  
**Docking base weight:** 5kg  
**Maximum incline angle for deployment in docking base:** 40 degrees  
**Magnetometer cylinder depth rating, with brass seal installed:** 1000m  
**Operating temperature:** -25C to +60C  
**Storage temperature:** -60C to +70C  
**Communication:** Full duplex, 3-wire RS232. 9600bps, 8 data bits, no parity, 1 stop bit  
**Storage capacity:** one million readings  
**Battery pack:** Gel cell 12V, 7Ah  
**Battery charge time:** 5 hours 80% charge. 10 hours full charge. Can charge while sampling.

**SENTINEL** has a storage capacity of one million readings.

The following table provides you with the run time at various sampling rates.

Sample rate	Run time per battery charge	Power consumption
1Hz	80 hours	960mW
0.3Hz	110 hours	700mW
0.2Hz	155 hours	490mW
0.1Hz	540 hours	150mW
Once per minute	>2500 hours	25mW

Interacting with SENTINEL is easy with BaseLINK for Windows 95/98/NT. BaseLINK provides a fast and compact terminal interface that allows you to change SENTINEL's settings with a few simple keystrokes, or lets you download your entire data set with a single mouse click. BaseLINK will remember where you keep your data files, and will automatically name them by date and revision number so you never have to worry about overwriting existing files, or misplacing data. It will even allow you to log, word-for-word, every command and parameter sent to SENTINEL, so you can quality-control your operators' performance in the field, or prove to your boss that you configured the unit correctly. When downloading your data, BaseLINK will let you know how long the transfer will take and it will keep you informed of its progress. BaseLINK is included as standard equipment with every SENTINEL system.



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