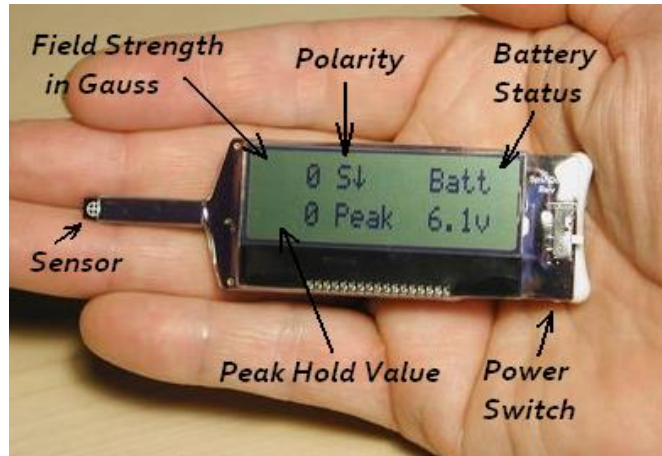


Spin Doctor Magnet Meter



Getting Started

To start with, please do not attempt to remove the clear shrink wrap plastic surrounding the Spin Doctor. It is there to protect the components and prevent shorting of the connections. If it gets dirty it can be cleaned with window cleaner or alcohol on a paper towel. Also, do not press on the display as it is made of glass and can crack if too much pressure is applied.

With the meter at least one foot away from any magnets, switch the device on, using the switch that is on the back of the meter by the battery holder. The gauss value and peak value should auto-zero. If they fail to zero, new batteries are needed.

When no magnet is present, it is normal for the polarity to fluctuate between N (north) and S (south), or even bounce between 0 and 1 gauss occasionally. Sometime the sensor has some “warm-up drift” in the first 10-30 seconds after the meter is switched on, settling at 1 or 2 gauss South. If it does this, you can re-zero the unit by switching it off and then on.

Hold the probe tip on top of the magnet, using the crosshair as a guide, as shown in the photo below. Imagine you are using the crosshair to aim the sensor at the pole face of the magnet. The sensor measures magnetic flux that is perpendicular to its face. You can use your thumb to press the probe against the magnet to hold the sensor steady and flat against the surface.



Measuring the concave surface of a motor magnet.

Peak Value

The peak value tracks the maximum field strength since the gauss value last exceeded 10 gauss. To reset the peak value, move the magnet away for at least one second. This feature allows you to scan an area and find the strongest value in that area.

Range

Although the measurement range of the meter is 1700 gauss, that range can be effectively doubled when using the meter to compare relative strength of two magnets. Do this by placing each magnet *on top* of the probe tip (covering the crosshair), instead of underneath it. This increases the distance between sensor element and magnet from .5mm to 2.5mm, allowing you to compare magnets that would otherwise exceed the Spin Doctor's range. The polarity will be reversed when doing this – north and south are swapped.

If you need to frequently compare magnets that exceed the normal range, you can create a spacer with a small piece of hard material like fiberglass or plastic, and fasten it to the sensor with double-stick foam tape. This avoids the polarity reversal seen when measuring on top of the probe.

Accuracy, Precision, Repeatability

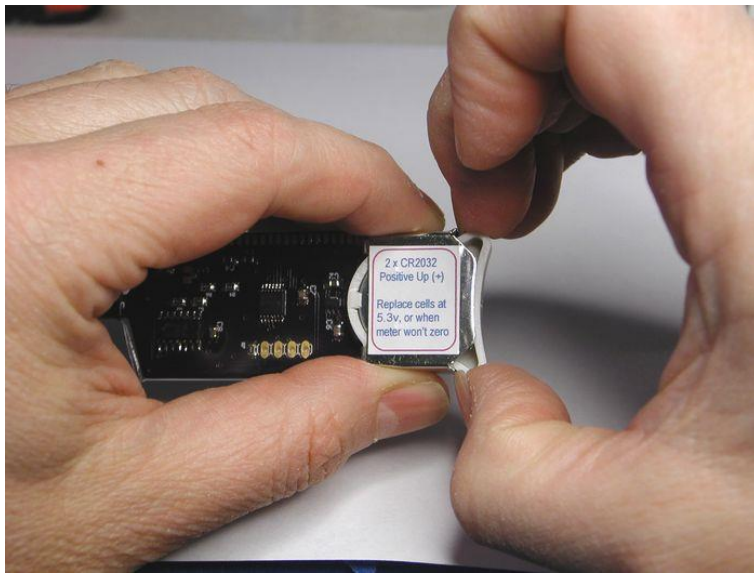
The Spin Doctor is calibrated using a certified reference magnet, so it is accurate to +/- 1%. It is precise to 1 Gauss and repeatable to 1 Gauss, which makes it excellent for matching and balancing multiple magnets. Scientific applications might require precision to .1 gauss or less, but the Spin Doctor is intended for hobby applications where 1 gauss precision is usually more than sufficient.

Battery Life

The Spin Doctor has power conservation features that give a battery life of more than 130 hours of continuous usage. When the battery voltage value falls to around 5.3 volts, it is time to get fresh batteries. The true indication of when batteries *must* be replaced is when the gauss readings do not return to zero when no magnet is nearby, even when the unit is first switched on.

Refer to the photo below for the proper way to remove the battery tray so as to avoid any damage to the meter. Use one hand to hold the sides of the metal battery holder, while avoiding any pressure on the LCD display on the front of the meter. Use your fingernails to pry between the plastic “ears” and the metal holder to lever the tray out. It will be snug, so don't be afraid to exert some force to remove it.

Replace the CR2032 cells with new ones and reinstall the tray with the open side of the tray and the + side of batteries facing away from the circuit board. It is best not to insert an *empty* battery tray, since the spring metal contacts can catch on the edge of the tray and prevent removal.



Removing the Battery Tray



Battery Tray Removed

If the display ever shows random garbage characters, or only works intermittently, you should remove the battery tray and check the negative battery contact on the circuit board for oxidation. The contact can be cleaned with a few swipes with a small piece of fine sandpaper or fine emery board. If this does not fix the problem even with fresh batteries, please contact Gravitas to arrange to have the meter serviced.

FCC Information

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.

Any changes or modifications to this device could void the user's authority to operate the equipment.

Responsible Party: Gravitas Technology
1610 W. Hawthorne St
Pacific, MO 63069

Phone: 480-240-8591

Liability Notice

By purchasing and using this device, the buyer agrees that the manufacturer liability is limited to the purchase price only.

Disposal

The Spin Doctor is made with solder containing lead, and should be disposed of at a facility that properly recycles electronic products.

Document Revisions

Date	Change
6/6/2012	Changed max range to 1700 due to recent batch of sensors being more sensitive Change text about accuracy to reflect calibration with reference magnet
6/15/2012	Elaborated on how to increase range
6/21/2012	Replaced photos of short probe meter with those of long probe meter
12/20/2012	Added photo + text explaining proper way to remove battery holder