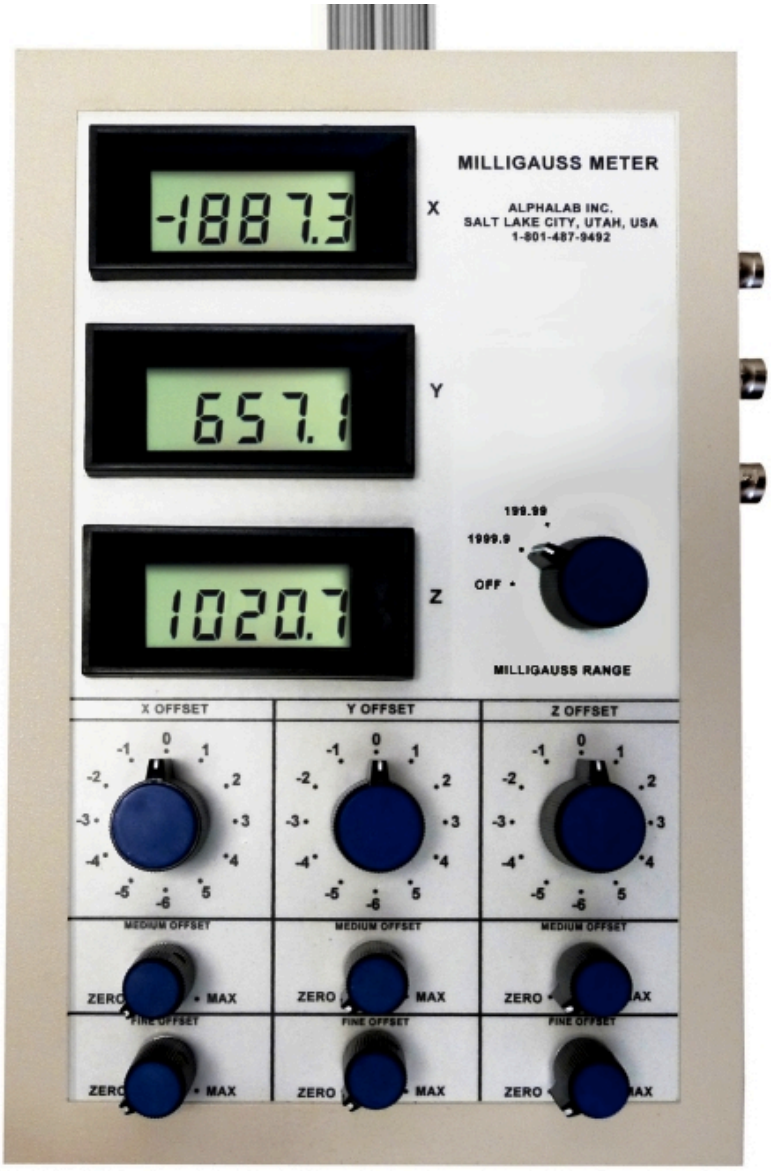
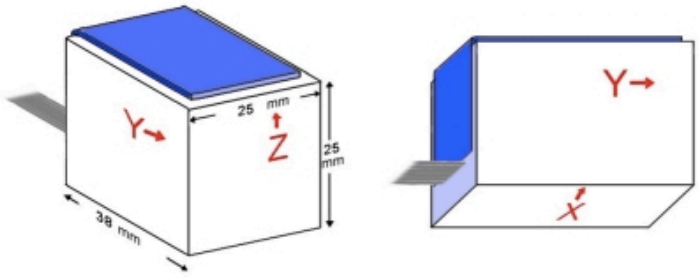
DC Milligauss Meter 3 Axis

(AlphaLab, USA)





Probe Diagram

Avaliable Options: 1/10° Alignment.

An improvement on the flux gate magnetometer, the AlphaLab DC Milligauss Meter measures magnetic fields (technically “flux density”) up to several times the strength of the Earth field. It has a resolution of 0.01 milligauss (1 nanotesla) and a range of +/-2000 milligauss (200 microteslas). The meter's three magnetoresistive sensors are a major improvement over an uncompensated fluxgate magnetometer both in cost and stability. In fact, the sensors approach a proton precession magnetometer in temperature stability.

Each of the three displays has an extra digit compared with most portable magnetometers. Each is 4 ½ digits and displays in two ranges: +/- 1999.9 and +/- 199.99 milligauss. Update is three per second. Because the Earth's field is typically about 500 milligauss, nine “offset” controls (three for each of X,Y,Z) allow you to add or subtract up to 600 milligauss with precision of .01 milligauss. Therefore, the Earth's field can be subtracted out when required. If reading in the more sensitive 199.99 range, this field neutralization feature is often necessary, because the field is usually stronger than 200 milligauss.

The wide dynamic range of the displays (19,999 count; both polarities), along with the large range of offset (+/- 600 milligauss) and high stability of the meter (+/- .01 milligauss), allow for stable detection of small changes in a large background field. On the higher sensitivity range, changes of .01 milligauss can be reproducibly measured in up to +/- 800 milligauss of background field. On the lower sensitivity range, absolute field of .1 milligauss can be measured in up to +/- 1999.9 milligauss of background field.

The sensor is a 25 mm (one inch) cube at the end of cable that is normally four feet long, but other custom lengths are available. Each axis reads negative when pointing toward the south pole of a magnet and positive toward north.

At fixed temperature, reproducibility is +/- 0.01 milligauss (1 nT) and the temperature coefficient of the offset is less than 0.01 milligauss/°C. The temperature coefficient for gain is less than .0015%/°C. As shipped, gain accuracy is +/-0.5% and the meter offset is +/- 0.5 milligauss with all offset knobs set at zero. All specifications are at temperatures 0 to 45°C. X,Y,Z are aligned with the cube edges to accuracy one degree unless you specify 1/10 degree in the drop-down box below.

MGM3AXIS Output Jack Description:

The outputs are an analog voltage, with 1 Volt = 1 Gauss +/- 0.5%. Range is +/- 2 gauss (= +/- 2V). Normally, it is a "slow-moving" DC voltage (valid DC to 3 Hz), but a higher bandwidth can be specified (DC to 300 Hz at the 3 dB point) at no extra cost. The X, Y and Z outputs each has a separate BNC output with a single common ground.

The meter comes with a NIST-traceable certificate of calibration, and an AC adaptor (it does not operate on batteries), so the meter is complete and ready to use.