



How do I measure a field with an EP Probe?

EP Probe AC Magnetic Field Evaluator Probe Calculation Example

Note: AC Magnetic Field Evaluator Probes are intended for magnetic field measurements at low frequencies only. They do not measure fields generated by DC current flow or permanent magnet fields. They are useful from 10 to approximately 3000 Hertz, and are typically used to measure magnetic fields from 50 or 60 Hertz frequency power sources.

To use the probe:

- » Connect it to a digital voltmeter (DVM) or oscilloscope. Be sure to connect the ground (GND) side of the connector to the ground or common terminal of the instrument.
- » Set the instrument to read AC millivolts.
- » Orient the probe body in various directions to obtain the highest reading at the measurement location. This indicates the magnitude of the field.
- » Record the readings in millivolts.

For an example calculation, assume that a reading of 4.2 millivolts is recorded while making measurements on a 60 Hertz (power line) circuit. Consulting the label on the probe, the Calibration Number is found to be 16.6

The probe formula is:

$$60 * E(\text{peak mv}) / \text{Calibration number} * f(\text{Hz}) = \text{Gauss}$$

Note that for instruments reading rms voltage (such as DVM's), the meter reading must be multiplied by 1.414 to get Peak millivolts before using the formula.

$$\text{Substituting, } 60 * (4.2 * 1.414) / 16.6 * 60 = \text{Gauss}$$

Solving, the magnetic field intensity is 0.358 Gauss, or 358 milligauss.