

# HMI-1 EMF Survey Meter

Designed and manufactured in Australia by:

## HMI SYSTEMS

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## General description

The HMI-1 is a small, 120mm x 60mm x 25mm, self-contained instrument for measuring power frequency magnetic fields. The HMI-1 has a number of sophisticated features: it performs a harmonic analysis on the magnetic field and also collects statistical information on the field values measured while the HMI-1 is switched on.

The instrument measures the magnetic field in three axes and automatically calculates the resultant field. The instrument is auto-ranging and can measure resultant fields up to 6000mG. True RMS quantities are used for all readings. In addition to broadband measurements, the HMI-1 calculates fundamental power frequency and third harmonic components of the field, as well as the totality of fundamental and power frequency harmonics. The displayed reading updates once per second.

The HMI-1 uses a 16x2 character LCD alphanumeric display. A push button switch on the front of the instrument cycles the display through six screens. This allows a great deal of information to be displayed to the user.

While the instrument is primarily a survey meter and has no external connections, the HMI-1 collects statistics on the field while the instrument is switched on. The percentage distribution of the broadband resultant RMS field readings in eight "bins", (0-4mG, 4-10, 10-30, 30-100, 100-300, 300-1000, 1000-3000, 3000-6000), is collected and displayed on one screen. Also minimum, maximum, average and standard deviation values of the field during the time the meter is switched on are recorded. This statistical data is retained under low battery voltage condition.

The instrument uses a standard 9 volt alkaline battery and the average (over one second) current drain is less than 10 mA.

## Specification

**Measurements:** True RMS magnetic flux density in three axes and resultant.

**Accuracy:**  $\pm 2\% \pm 1$  digit typical for a 50 Hz sinusoidal field.

**Frequency response:** 30 Hz – 1000 Hz (+1dB, -3dB relative to 50 Hz response)

**Autorange** between three measurement ranges:

- 0-99.9 mG                      0.1 mG resolution
- 100-999 mG                    1 mG resolution
- 1000-6000 mG                1 mG resolution

**Resolution of broadband field into:**

- power harmonics
- fundamental (50 Hz) frequency component
- third harmonic (150 Hz) frequency component

**Calculation of statistics of broadband field readings since switch on:**

- Min, Max of broadband RMS values
- Mean and Standard Deviation of broadband RMS field values
- Records percentage of broadband RMS field values in eight ranges:

0 – 4 mG	4 – 10 mG	10 – 30 mG	30 – 100 mG
100 – 300 mG	300 – 1000 mG	1000 – 3000 mG	3000 – 6000 mG

- Elapsed time since switch-on

**Provision for retention of statistical data under low battery condition.**

**Battery life:** Greater than 48 hours continuous use from a standard 9 volt alkaline battery. Battery current consumption is less than 10 mA (averaged over one second).

**Operating Environment:** -5°C to +50°C, up to 90% RH

**Size:** 120mm x 60mm x 25mm

**Weight:** 95 grams (without battery)

