

Quick Start Guide

Three Axis Gaussmeter Model: GM09-3

A three-axis gaussmeter featuring touch-screen interface and rechargeable Li-ion battery compatible with the extensive range of Hirst Hall sensor probes. Built-in "App" modes ensure standard tests and measurements can be carried out with ease and minimal effort. Data-logging features allow the retrieval of data using a simple USB interface, no additional software is needed as the GM09-3 appears as a USB mass storage device.



GM09-3, three axis gaussmeter with touch screen display

How to use the GM09-3

The GM09 Handheld Gaussmeter and 3 axis probe is used to measure Magnetic Flux Density or Magnetic Field Strength.

There are two key parts to the GM09-3:

1. The Probe that senses the Magnetic Field and produces an electrical signal which uses a 3 axis Hall sensor element. There is a data capture / hold button on the probe as shown below.



2. The GM09 Instrument itself, that then processes these electrical signals to display measurements that the user can read off the display or capture.



Above is the top of the GM09 showing the Power On/Off button, an LED indicator (solid Blue when the unit is on and not illuminated when the GM09 is turned off) and the Hall Probe Connector. Plug the probe into the connector above and power on the GM09 by pressing the button for >1 second. The Blue power on indicator LED slowly flashes when the unit is in Sleep mode (to save power), simply touch the screen to turn the GM09 back on.

Start up sequence

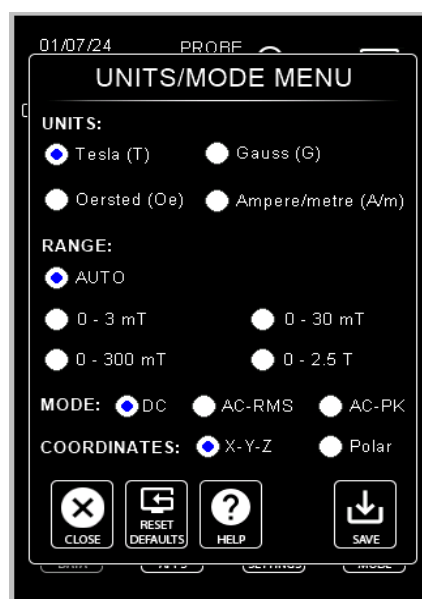
Ensure the probe is connected to the GM09-3 before powering on the gaussmeter. To power on the GM09 - press and hold the Power On/Off button. Once the start-up sequence is completed, the GM09 will display the main measurement screen, on first start up this will be the General purpose gaussmeter mode. However, the GM09 will remember its previously used settings. To get back to General purpose mode from a given application simply select this from the menu when displayed.

The GM09 features a clear 3.5" multi-colour touch screen with intuitive menus and on-screen help so its easy to use without resorting to a manual. In addition, on help screens there are QR codes allowing the user to find out more information about a given measurement or feature of the GM09 using a smart phone or tablet.

Below are some of the basic screens of the GM09-3



General measurement screen



Measurement units, range, and mode



Probe information and calibration status



Application selection with settings and help

Applications

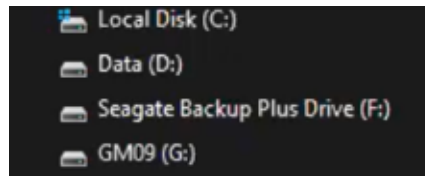
To make using the GM09 as easy as possible it contains a number of Applications modes to set the GM09 up for specific measurement tasks Application modes include :

- o Magnet testing - pass/ fail within user defined bands with polarity.
- o Magnetic Field testing – for standard and stringent safety levels or user defined pass / fail criteria.
- o Residual magnetism testing – for standard levels or user defined pass / fail criteria.
- o Food Magnet Extractor testing with standard settings (8, 10, 12 kG) plus user defined pass / fail criteria.
- o Occupational safety mode testing based on 1998 ICNIRP guidelines with DC testing using standard probes and AC testing using high sensitivity probes for AC fields 3Hz up to 350Hz.

Communications and data access

The GM09 features a USB mass-storage interface to allow the downloading of measurements data to computers or USB devices. Simply connect the GM09 to any computer, phone or device that can read a standard USB memory flash drive and press the Data Transfer button on the Application selection screen. Note If the button is greyed out or not selectable this is because the GM09 is not connected to the computer via the USB-C cable. Note data can be accessed from the GM09 even if not connected to a probe (useful if the probe is mounted in a test rig), by connecting the GM09 to a computer via USB and powering up the GM09.

This is how the GM09 connection will be displayed on your computer or device :



The GM09 also includes a real-time clock and time stamped measurements can be stored as required. The stored data can be download via the USB mass storage interface. Data is stored in a .CSV format file giving import capabilities into most software packages.

MF-0000

File/Stamp [s]	Date	Time	Value (mT)	Value (G)	Priority (mT)	Magnet N Limit Low (mT)	Magnet N Limit High (mT)	Magnet S Limit Low (mT)	Magnet S Limit High (mT)	Magnet N Limit Low (G)	Magnet N Limit High (G)	Magnet S Limit Low (G)	Magnet S Limit High (G)	Pass/Fail
170894087	2023-12-18	18:17:47	-64.288	-64.288	0	40.000	80.000	40.000	80.000	400.000	400.000	400.000	400.000	PASS
170894079	2023-12-18	18:17:58	-43.818	-43.818	0	40.000	80.000	40.000	80.000	400.000	400.000	400.000	400.000	PASS
170894080	2023-12-18	18:18:00	-49.503	-49.503	0	40.000	80.000	40.000	80.000	400.000	400.000	400.000	400.000	PASS
170894082	2023-12-18	18:18:02	-64.888	-64.888	0	40.000	80.000	40.000	80.000	400.000	400.000	400.000	400.000	FAIL
170894083	2023-12-18	18:18:13	-59.911	-59.911	0	40.000	80.000	40.000	80.000	400.000	400.000	400.000	400.000	PASS

The GM09 retains its last setting when powered off - so once set up the unit can be powered on and is ready to go.

Charging the GM09

The GM09 is equipped with rechargeable Li-ion battery with a 3500mAh USB-C chargeable (computer or mains charger provided) battery life >4-hour use with sleep mode and auto power-off. The GM09-1 is supplied with a USB-A to USB-C cable to allow connection to computers for either data transfer or charging. The GM09-1 is not supplied with a mains charger but many third-party chargers can be used.



The power supply / mains USB charger must be a BC1.2 type, this means the D+/D- pins of the USB port are shorted together. Most Apple iPhone / iPad compatible mains chargers can be used as they are BC1.2 type.

Accessories and options

The GM09-3 gaussmeter uses only the 3 axis standard Hirst gaussmeter probe and is not compatible with the range of Hirst single axis probes.

Warranty and Calibration

Supplied calibrated with 1 year warranty. A calibration required is every year to maintain the highest levels of performance The GM09-3 is calibrated to standards traceable to the National Physical Laboratories (London UK).



Hirst Magnetic Instruments has been providing world class solutions for 60 years in magnetics and magnetic measurement. Hirst manufacture precision hand-held gaussmeters, large industrial magnetiser machines, as well as production line equipment for characterising high performance magnetic materials.

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