

## Product Brochure

### Gaussmeter Model GM09 -1

The GM09-1 gaussmeter features a touch-screen interface and rechargeable Li-ion battery compatible with the extensive range of Hirst Hall single-axis sensor probes. Built-in Application "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 appears as a USB mass storage device.



GM09, Single axis gaussmeter with touch screen display

### Key features

- A hand-held touch-screen general purpose gaussmeter (for determining magnetic field strength) with a range of built in application modes to make routine testing more user-friendly.
- GM09 appears as a USB mass storage device when connected to a computer or device and no software is needed to access the stored (time stamped data) in standard .CSV file formats.
- Application modes include (dependant on probes used):
  - Magnet testing - pass/ fail within user defined bands with polarity.
  - Magnetic Field testing – for standard and stringent safety levels or user defined pass / fail criteria.
  - Residual magnetism testing – for standard levels or user defined pass / fail criteria.
  - Fit-to-Fly testing for magnetic materials against IATA (and FAA guidelines) tests, this requires a High Sensitivity probe.
  - Food Magnet Extractor testing with standard settings (8, 10, 12 kG) plus user defined pass / fail criteria.
  - 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 up to 6kHz.
- Rechargeable Lithium-ion battery with USB-C compatible charging (wall-plug or computer charging)
- Easy to operate 3.5" multi-colour touch screen 320x480 px with backlight.
- Intuitive easy to use menus with on-screen help and a dedicated knowledge base support website.

### Applications

Some example applications include:

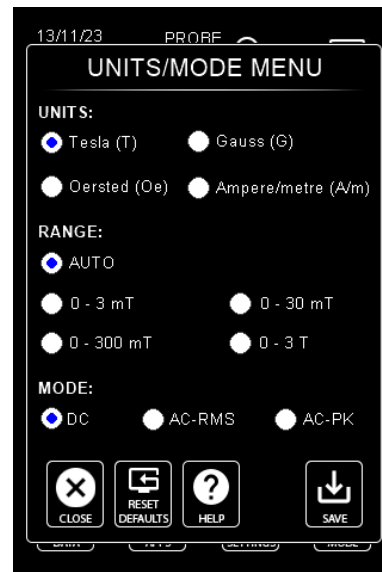
- Magnet polarity measurements (North / South), magnet strength testing. Testing Magnet calibrations.
- Production testing : computer disk drive actuators testing, loudspeaker air gaps, electric motor air gaps.
- Transformer Stray Field measurements.
- Magnetic field strength testing for food industry separators.
- Verifying compliance with IATA, IACO and FAA regulations on magnetism from packages to be shipped by air (High sensitivity probes only).
- Goods inward and Quality Assurance Inspection.

## Display

The GM09 features a clear 3.5" multi-colour touch screen with intuitive menus and on-screen help.



General measurement screen



Measurement units, range, and mode



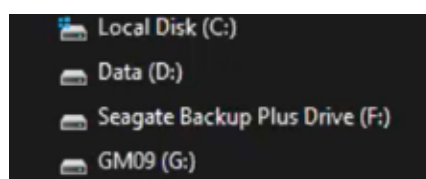
Probe information and calibration status



Application selection with settings and help

## Communications

The GM09 features a USB mass-storage interface to allow the downloading of measurements data to computers via the USB-C connector and cable provided with the GM09. Simply connect the GM09 to any computer, phone or device that can read a standard USB memory flash drive. The GM09 appears as a mass storage device on your computer with all stored measurement files accessible.



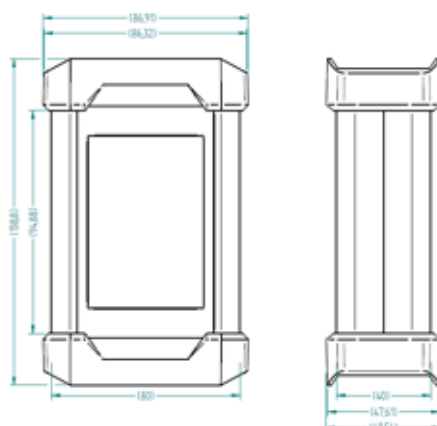
The GM09 also includes a real-time clock and time stamped measurements can be stored as required. The stored data can be download via the USB mass storage interface. Data is stored in a .CSV format file giving import capabilities into most software packages.

## GM-00000

#GM09 GAUSSMETER Data-log									
#Creation date: 2023-12-18 / 16:59:09									
#Gaussmeter SN: GM09-9001									
#Probe Type: Transverse / Probe SN: 12141 / Probe Null: 0.000000000 mT (0.000000000 G)									
#Gaussmeter Calibration: 11/12/23 - 14:54 / Probe Calibration: 3/11/18									
#GENERAL PURPOSE									
#									
#Timestamp (s)	Date	Time	Mode	Range	Value (mT)	Value (G)	Value (Oe)	Value (kA/m)	Polarity (N/S)
1702918749	2023-12-18	16:59:09	DC	Auto	0.021	0.213	0.213	0.017	N
1702918750	2023-12-18	16:59:10	DC	Auto	-0.025	-0.247	-0.247	-0.020	S
1702918751	2023-12-18	16:59:11	DC	Auto	0.030	0.301	0.301	0.024	N
1702918752	2023-12-18	16:59:12	DC	Auto	-0.058	-0.578	-0.578	-0.046	S
1702918756	2023-12-18	16:59:16	DC	Auto	-59.129	-591.289	-591.289	-47.053	S
1702918757	2023-12-18	16:59:17	DC	Auto	-3.098	-30.979	-30.979	-2.465	S
1702918758	2023-12-18	16:59:18	DC	Auto	-3.551	-35.509	-35.509	-2.826	S
1702918758	2023-12-18	16:59:18	DC	Auto	-3.786	-37.865	-37.865	-3.013	S

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

## Dimensions



## Technical Specifications

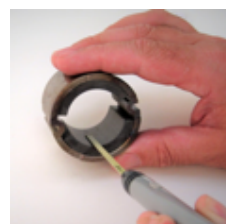
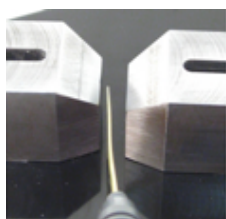
Maximum field sensed	±3T (dependant on probe in use)
Number of sensors	Single channel, 1-axis sensor probes
Standard cable length	1.5m
Repeatability	Better than 0.5%
Accuracy	Better than ±1%, calibrated to standards traceable to the NPL National Physical Laboratory (UK)
Measurement ranges	AUTO, ±3 mT, ±30mT, ±300mT, ±3.000T
Units	Tesla, Gauss, Oersted (Oe), A/m (1mT = 10 Gauss (Oe) = 0.7967 kA/m)
Resolution	2 microTesla, 0.02 Gauss (Oe), 1.6A/m
Frequency range	Static field (DC) and AC measurements (10Hz to 6kHz)
Measurement modes	DC (with Min and Max), AC-Peak (with AC-Peak-Max), AC-RMS (with AC-RMS-Max)
Display Rate	3 readings per second

Display	3.5" multi-colour touch screen 320x480 px plus backlight
Temperature Coefficient	Better than $\pm 0.1\%$ of reading/ $^{\circ}\text{C}$ including probe
Optimum Operating Temperature	20 $^{\circ}\text{C}$ – 40 $^{\circ}\text{C}$
Optimum Storage Temperature	0 $^{\circ}\text{C}$ – 50 $^{\circ}\text{C}$
Colours and materials	Anodised Aluminium with plastic end caps
Dimensions / Weight	139x88x49mm / 390g
Time	Real time clock with time and date - Battery back-up >3 years
Power	Li-ion battery 3500mAh capacity, USB-C chargeable (computer or mains charger) battery life >4-hour continuous measurement time with sleep mode and auto power-off.
Connectivity	USB-C compatible port for charging and data retrieval via mass storage device interface (like a USB flash memory stick with data saved in time-stamped .CSV format)

## Standard GM09-1 kit

The GM09-1 kit contains:-

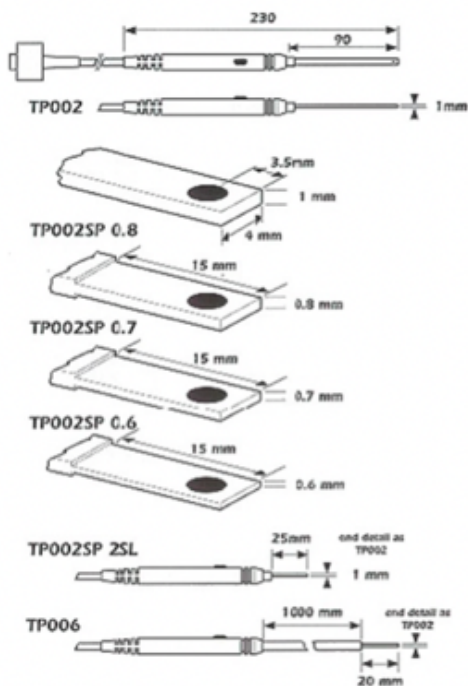
- GM09-1 (Single Axis) touch screen gaussmeter.
- Transverse probe – TP02 (calibrated).
- GM09-1 Calibration certificate.
- Zero flux chamber.
- USB-C charging / computer connection cable.
- Carry case.



## Accessories and options

The GM09-1 gaussmeter uses standard Hirst GM07/8 Hall effect based gaussmeter probes :

- AP002 Standard axial probe (1.5m cable length)
- AP002HS High Sensitivity Axial probe (1.5m cable length) -optional
- TP002 Standard Transverse Hall probe (1.5m cable length)
- TP002SP0.6 Extra slim Transverse Hall probe (1.5m cable length)
- TP002HS High Sensitivity Transverse Hall probe (1.5m cable length) - optional
- TP002R Rugged Transverse Hall probe (1.5m cable length)



Transverse Probes (above)



Axial probes (above)

## Warranty and Calibration

Supplied calibrated with 1 year warranty. A calibration required is every year to maintain the highest levels of performance. The GM09-1 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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