

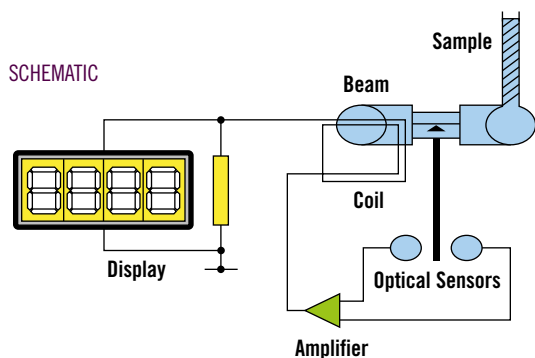


For applications requiring the measurement of the magnetic susceptibility of powders, liquids and solutions.

- The Magnetic Susceptibility Balance (MSB) determines the magnetic properties of solids and liquids. Johnson Matthey's MSB is based on the original patented design of Professor Evans of the Imperial College of London. It can be used to measure a wide range of paramagnetic and diamagnetic materials.

Theory of Operation

Johnson Matthey's MSB design employs a stationary sample and two pairs of moving magnets. The magnets are fixed at opposite ends of a beam to place the system in balance. The sample is positioned between the poles of one pair of magnets to produce a deflection of the beam, which is registered by optical sensors. A current is passed through a coil mounted between the poles of the other pair of magnets to produce a force equal and opposite to that exerted by the sample, returning the system to a position of equilibrium. The current through the coil is proportional to the force exerted by the sample and can be measured as a voltage drop. The only installation requirement of this easy-to-use balance is to plug it into a 120 volt power supply.



With applications in industrial chemistry, research and education, Johnson Matthey's MSB offers a number of significant advantages over the traditional methods for measuring magnetic susceptibility.

Johnson Matthey offers two MSB models, the **Mark I** and the **Auto**. The economical Mark I is ideal for teaching applications, and has become a fixture in hundreds of inorganic chemistry labs throughout the world.

Features—Mark I MSB

- Ease and speed of use. Place the sample tube in the balance and get an immediate digital read-out.
- The mass susceptibility is easily calculated using a simple equation.
- Measurement can be made on a wide range of diamagnetic and paramagnetic materials.
- The fixed sample tube allows susceptibility measurement of solids, liquids and gases.
- The technique has comparable sensitivity and is as accurate as traditional methods of measurement.
- The cost of the balance is significantly lower than a complete Gouy balance system.
- Small sample size—the balance normally works with a sample weight of around 250mg, but by using a thin-bore sample tube, as little as 50 mg is required to give an accurate measurement.
- The equipment is compact, lightweight and hence easily portable. Only a 120V power supply is required.
- Includes software to compile data and cable that connects MSB analog output to serial port on your PC.



The Mark I MSB

Magnetic Susceptibility Balances (MSB)



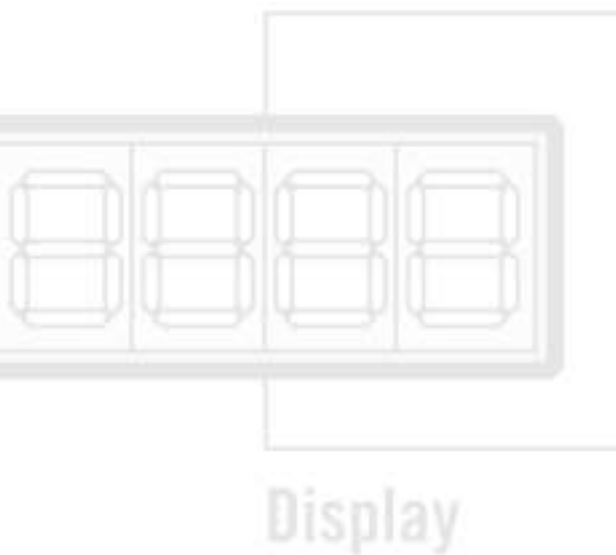
MARK I & AUTO

Features—Auto MSB

- Retains all the advantages of the Mark I but is two orders of magnitude more sensitive than the Mark I.
- Utilizes an 8951 microprocessor.
- Has an auto tare feature which allows the empty tube to be eliminated from all readings.
- The unit directly displays the volume susceptibility of the sample in c.g.s. units.
- Mass susceptibility can be read directly by entering the sample length and weight.
- In addition to the direct digital readout, the Auto has an analog output for chart recorder, as well as an RS232 computer interface.
- Range 0.001×10^{-7} to 1.99×10^{-4} c.g.s. volume susceptibility units.
- Data can be transferred directly to a serial printer (no computer required).
- Includes software for compiling and analyzing data.

SPECIFICATIONS	MARK I	AUTO
Size:	8 3/4"(w) x 11 3/4"(d) x 5 1/4"(h)	a. Sample handling detector 7"(w) x 9 1/4"(d) x 12 3/4"(h) b. Control unit 4"(w) x 7"(d) x 6 3/4"(h)
Weight:	7 1/4 lbs. (3.3 kg)	a. 5 lbs. b. 1 lb.
Power Requirements:	120V*	External Supply: 120V* (with built-in battery charger) Battery: 4 x AA cells rechargeable only; full charge gives eight hours of operation
Output:	Analog	Analog (RS232 interface)

*240V available upon request



The Auto MSB



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