

# QL40MGS-1000 MAGNETIC SUSCEPTIBILITY

The QL40MGS-1000 (Bartington BSS-02A) borehole magnetic susceptibility tool operates with the Matrix Console and is typically used in mining and lithology applications; in particular it's used in the delineation of kimberlite deposits. All electronic circuitry resides in a high strength non-magnetic enclosure and features a wide measuring range from 10<sup>-5</sup> to 10<sup>-1</sup> cgs and will resolve strata down to 25 mm.

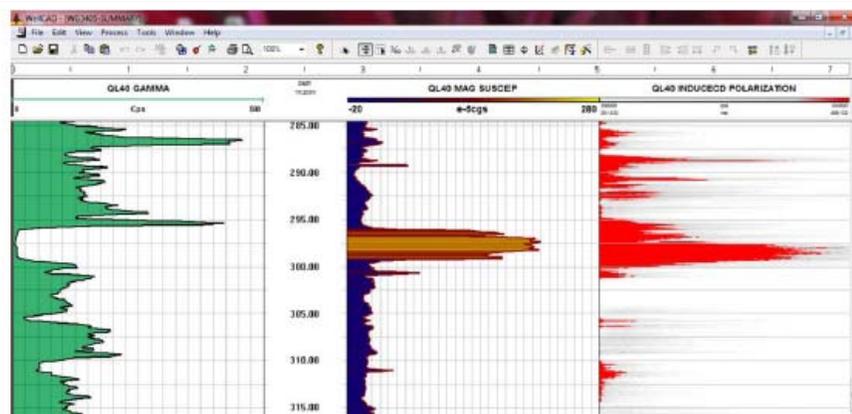
## Technical Specifications:

**Principle of Operation:** AC induction frequency discrimination  
**Operating Frequency:** 1.439 KHz  
**Sensing Coil Type:** Focused Dual Coil

### Borehole Diameter Effect:

Diameter mm	Response Centralized	Response De-Centralized
70	0.75	0.725
80	0.275	0.5
100	0.009	0.45

**Calibration:** Record 1 x 10<sup>-5</sup> cgs directly in 50 mm borehole  
**Sensor Location:** 16 cm from probe bottom  
**Diameter:** 40 mm Sensor diameter 44mm  
**Length:** 86 cm  
**Operating Temp.** up to 120 C  
**Operating Pressure** 340 Bar (5000 PSI)  
**Weight** 4.75 Kg



WellCAD screenshot QL40MGS + QLIP showing mineralization Central China

Modem & electronics

Sensor Electronics

Detector coil in silicon oil

Diaphragm



## QL40MGS-1000 MAGNETIC SUSCEPTIBILITY

### Features

The QL40MGS-1000 (Bartington BSS-02A) probe is intended to be used for prospection of magnetic minerals and stratigraphic correlation to depths of 6000m. The operating frequency is chosen to be sufficiently low to avoid interference from rock conductivities and the circuitry is temperature compensated to minimize thermally induced drift. The region of detection is situated 160mm from the tip of the pressure-equalized housing. The detector features a single focused coil arrangement to achieve a single response to strata. The detection region has a full-width-half-maximum response of 25mm and measurements are digitized at a rate of approximately 20 per second giving a theoretical maximum logging rate of 0.5m per second. The tool is calibrated for operation in 50mm diameter unclad boreholes. Larger diameter holes can be logged where the angle of the borehole assures de-centralization. The BSS-02B is calibrated in the cgs system. To convert to SI units multiply the cgs value by  $4\pi$ .

For example:  $1 \times 10^{-5}$  cgs  $\equiv 1.26 \times 10^{-4}$  SI

### Advantages

Possibility to quantify data with empirical calibration

### QL Stack Possibilities

QL40GR (gamma) + QL40IP + QL40MGS (Magnetic susceptibility): mining, exploration

QL40GR (gamma) + QL40MGS: lithology, glacial till characterization

### Recommended Spares

QL40GO4-1000 or Q40MS1-1000, probe top

Spanner wrenches, 40-42 mm

Diaphragm oil

