

## SC24 Wideband DC Magnetic Field Sensor

- 3-axis magneto-resistive magnetic field sensor
- Optimised for AC & DC magnetic field cancelling with the SC24 control unit
- May be used for AC & DC field measurements with the SC11/SI laptop based analysis system
- Low noise and drift for long term field cancelling and measurements
- Automatic reset to current ambient field level in one second
- Field Ok indicator (green)
- Out of range indicator (flashing red)



### Overview

This 3-axis magneto-resistive DC magnetic field sensor was developed at Spicer Consulting for the SC24 generation of field cancelling systems. It is the result of ten years continuous improvement and has lower drift, lower noise levels and faster reset than previous models.

Because of its wide bandwidth, this sensor can be used for DC and AC magnetic field cancelling or measurement, without the need for an auxiliary AC field sensor.

Use this sensor and the SC24 Control Unit with SEMs, TEMs and EBeam lithography tools to stop beam disturbances from AC line fields and DC fields due to trains, trams, elevators, traffic and daily changes in the Earth's field.

The sensor contains 3 orthogonal magneto-resistive sensors inside a 3 axis bias coil which is used to offset the effect of the background DC field. The offset process is automatic and initiated by a reset signal from the control unit. The sensor should be reset each time it is moved to a new location. If the ambient magnetic field is too large, the out of range indicator flashes.

### Specifications

Weight:	650 g
Dimensions:	120 x 70 x 65 mm
Axes:	3 Cartesian (X, Y, Z)
Sensor type:	Magneto-resistive
Compatible with:	SC24 field cancelling system SC11 sensor interface Not designed for use separately
Measurement range:	$\pm 20$ mG ( $\pm 2.0$ $\mu$ T)
Ambient field range:	$\pm 2000$ mG ( $\pm 200$ $\mu$ T)
Bandwidth:	DC - 13 kHz (-3 dB)
Warm-up drift:	$\pm 0.1$ mG ( $\pm 10$ nT) in 2 hours (typ) $\pm 0.25$ mG ( $\pm 50$ nT) in 2 hours (max)
Long term drift:	$\pm 20$ $\mu$ G ( $\pm 2$ nT) in 24 hours
Noise level:	7 $\mu$ G (0.7nT) RMS (0 - 10 kHz)
Reset time:	1 s