

5301 Electromagnet



OVERVIEW

The **5301** is suitable for testing long arrays of magnetic sensors over the magnet field range of $\pm 50\text{mT}$ ($\pm 500\text{G}$). Arrays up to 150mm (6inch) can be accommodated in a volume of 150mm long x 10mm wide in the field direction and 15mm deep, with a field uniformity better than $\pm 2.5\%$.

With a field settling time of $< 0.1\text{sec}$ for 1mT(10G) increments, a full $\pm 50\text{mT}$ B loop can be measured in 20sec.

A B probe located at one end of the uniform field region provides an analog voltage output which tracks the central field to within $\pm 1\%$. This can be used for field stamping of the measured parameters or for closed loop field control.

A clear cross-section between the Pole faces of 25m wide x 55m deep, provides space for an oven around the sensor array to enable sensor testing as a function of temperature.

Continuous operation at maximum field of 50mT requires only 22W power dissipation and the 5301 can be excited by a small, low cost, power amplifier and convection air cooled.

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Applications

- Magnetic Sensor and Read Head Development and Production Test
- Magnetic Switch Threshold and Hysteresis Test

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Model 5301 General Specifications

Mechanical

Pole Length	220mm
Pole Gap	25mm
Dimensions	220mm W x 62.5mm D x 125mm H
Weight	12kg

Field

Field (at max current)	50mT (500G)
Field Uniformity Volume	150 x 15 x 10mm
Field Uniformity	+/-2.5% or 0.5mT
Field Tracking	+/-1% or 0.2mT

Step Settling Time

1.0mT (10G) Step to +/-1%	< 0.1sec
10mT (100G) Step to +/-1%	< 1.0sec

Coils (series connected)

Resistance (20°C)	2.5 Ω
Max Resistance	2.90Ω
Max Power (Convection Air)	2.7A/8.1V (22W)
Self Inductance	
Cooling	Air convection

Power Supply

Power Supply	Kepeco BOP 20-5D. 20V, 5A, bipolar
Power Supply Input	115V, 50/60Hz, single phase, 11A max. (Other AC inputs available.)
Current Cable & Interlock	5A, 5m