

MODEL MTB-2 Multi-Turn B-Dot Sensor

The PRODYN model MTB-2 is a multi-turn free-field B-Dot sensor that produces a voltage output in response to a time variant B-field and is equivalent to the AFWL model MTL-2. This sensor was designed to have greater sensitivity in relation to its size. Its 10 turn loop configuration has the same equivalent area as model B-20 with a significant size reduction. The electrostatic shield minimizes E-field drive and the internal loop resistors dampen high frequency resonances. The sensor output is differential and can be used with an appropriate balun.

This sensor can be ordered with either an axial or radial output direction (see outline below). The standard output connector is GR twinaxial but other connector types can be ordered. Please consult factory for options.

The equation pertinent to this sensor is:

$$V_o = A_{eq} \cdot \frac{dB}{dt} = \text{sensor output (in volts)}$$

Where

A_{eq} = sensor equivalent area (m²)

B = magnetic flux density vector (teslas)

The sensor is a passive device, therefore, an external power source is not required.

ELECTRICAL SPECIFICATIONS

Equivalent Area (A_{eq})	$1 \times 10^{-2} \text{ m}^2$
Frequency Response (3 db point)	$> 12.7 \text{ MHz}$
Risetime (t_r 10-90)	$< 28 \text{ ns}$
Maximum Output (peak)	$\pm 5 \text{ kV}$
Output Connector	GR TCC (twinax)

