

**MAGNETIC FIELD SENSORS B
MULTI-GAP TYPE
FREE-FIELD
MODELS B-10, -20, -60, -90, -100**

Description

PRODYN's Models B-10, B-20, B-90 and B-100, are precision "multi-gap" design free-space magnetic field sensors.

The sensor design consists of a conducting cylinder which contains four equally spaced longitudinal gap structures. The voltage developed across each gap is carried on pairs of 200-ohm transmission lines, which at opposite gaps are connected in parallel to 100-ohm cables. These cables in turn are connected to the 100-ohm twinax output cable. This design is effectively a half-turn loop driving the output connector. The gap and wiring configuration used causes any responses to electric fields to be cancelled and the sensor's output signal to result from only magnetic fields.

The equation relating to these sensors is:

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

Where

A_{eq} = sensor equivalent area

B = Magnetic flux density vector (Teslas)

These sensors should be supported by dielectric materials and placed not closer than two sensor diameters from conducting surfaces.

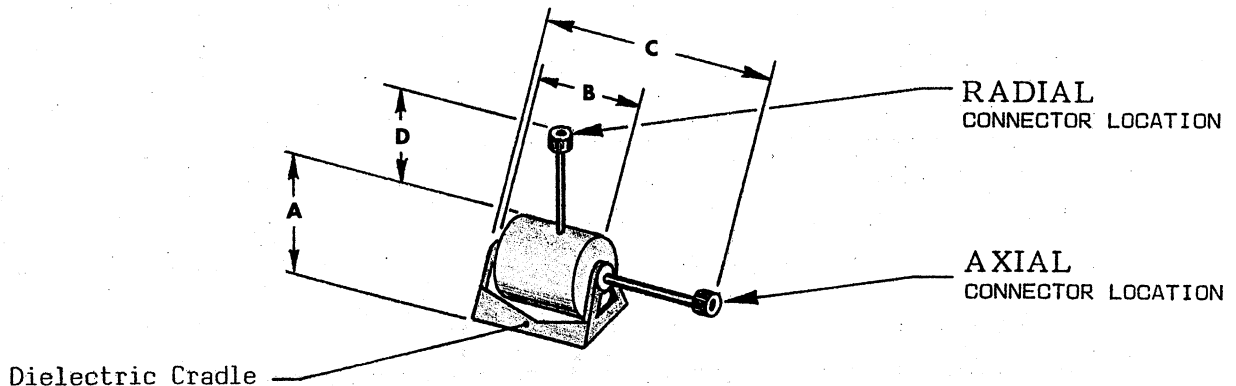
Specifications

ELECTRICAL

	B-10 (*) (***)	B-20 (*) (***)	B-60 (*) (***)	B-90 (R)	B-100 (*) (***)
Equiv. Area (A _{eq})	1 x 10 ⁻¹ m ²	1 x 10 ⁻² m ²	1 x 10 ⁻³ m ²	2 x 10 ⁻⁵ m ²	1 x 10 ⁻⁴ m ²
Freq Resp (3dB Point)	>120 MHz	>300 MHz	>840 MHz	~ 10 GHz	> 2.6 GHz
Risetime (tr10-90)	< 3.0 ns	< 1.2 ns	< .42 ns	≤ .035 ns	< .13 ns
MaxOutput (peak)	± 5 kV	± 5 kV	± 2 kV	± 150 v	± 1.5 kV
Output Connector	100 ohmTwinax (modified GR-874)**	100 ohm Twinax (modified GR-874)**	2 SMA male **	2 SMA male	2 SMA male

PHYSICAL

Mass	36 kg	3.74 kg	550 g	28 g	32 g
Dimen. B (cm)	54.61	18.80	6.99	1.02	2.54
Dimen. A (cm)	53.85	18.10	6.35	.95	2.39
Dimen. C (cm)	85.09	67.56	41.59	N/A	18.42
Dimen. D (cm)	30.48	34.54	30.00	20.80	15.88



Note: Typical configuration. Please see outline drawings for more detail.

* Customer to specify axial (A) or radial (R) version

** Other connector types and output configurations are available. Please consult factory for details.

*** These sensors are equipped with a dielectric holding cradle. Dimensions available upon request.