SURFACE CURRENT DENSITY ($\dot{q}_s$)

MODELS SD-S10, SD-S30

DESCRIPTION

The PRODYN Models SD-S10 and SD-S30 sensors are $\dot{q}_s$ or $\dot{D}$ sensors that are equivalent to the AFWL Models HSD-S1 and HSD-S3 respectively. These sensors can be used as D-dot sensors or they can be used to measure the time rate-of-change of surface current density. The sensor consists of a hemispherical dome supported above a metal mounting surface by a dielectric ring.

The equation pertinent to this device is:

$$V_o = R\ Aeq \frac{dqs}{dt} = \text{sensor output (in volts)}$$

where

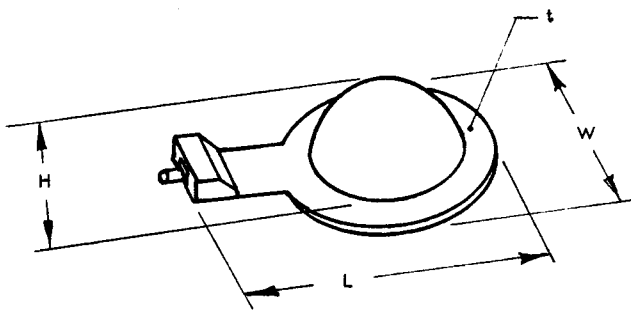
R = load resistance (50Ω)

Aeq = sensor equivalent area

qs = surface current density (coul/m^2)

The sensors are passive devices, therefore, an external power source is not required. The sensors are equipped for purging with a gas such as dry air, nitrogen or SF_6.

SPECIFICATIONS



Electrical

	SD-S10	SD-S30
Equivalent Area (A_{eq})	$1 \times 10^{-1} m^2$	$1 \times 10^{-2} m^2$
Frequency Response (3 dB point)	>130MH_z	>350MH_z
Risetime (t_r 10 - 90)	-> 2.7 ns	< 1.0 ns
Maximum output (peak)	± 4kv	± 4kv
Output Connector(s)	GR 874-L-50	GR 874-L-50

Physical

Mass		1.6 kg	1.4 kg
Dimensions	L (cm)	36.8	22.1
	H	10.4	3.6
	W	28.2	13.7
	t	0.3	0.2