INDUCTIVE CURRENT PROBES (I DOT SENSORS)
RID-200 SERIES

DESCRIPTION

The RID-200 I Dot sensors are 2- or 4-turn toroidal mutual inductance current probes designed to measure the first time derivative of the total current through the toroid aperture. Applications include measurement of the current in a wire, structure or other conductor passing through the aperture, or a free space current such as a charged particle beam. The standard configuration is a fixed aperture with a differential 100 ohm output, but a split version and other output and connector options can be provided on special order. Optional radiation hardened models are also available.

The output of the sensor is proportional to the time rate of change of the aperture current. The pertinent equation for this device is:

$$V = M \frac{dI}{dt}$$

where

V = Sensor Output (volts)

M = Sensor Mutual Inductance, (Henries)

I = Total current through aperture (Amperes)

Model	RID -210	-220	-230	-240	-250	-260	-265	-270	-290
ELECT. SPECS.									
M (nanoHenries)	2.0	2.5	10.0	0.5	10.0	10.0	5.0	10.0	10.0
Freq Resp (3dB MHz)	>700	>350	>700	>1400	>300	>1400	>1000	>1400	>280
Risetime (ns)	<0.5	<1	<0.5	<0.25	<0.3	<0.25	<0.20	<0.25	<1.25
Max Output (kV)	5	5	5	5	5	5	2	5	5
Output imp (ohms)	100	100	100	50	100	100	100	100	100
Output	Diff	Diff	Diff	Sgl End	Diff	Diff	Diff	Diff	Diff
Output connector	TCC	TCC	TCC	Type N	TCC	TCC	SMA	TCC	TCC
PHYS. SPECS.									
Aperture Dia (cm)	9.70	19.10	10.01	9.83	19.10	3.81	3.18	1.91	49.99
Overall Dia (cm)	15.24	34.93	17.78	15.24	34.93	8.26	6.99	6.35	66.04
Height (cm)	3.00	6.53	7.62	3.18	6.53	5.08	3.18	3.81	12.07
Stem Projection (cm)	5.72	5.72	5.72	3.18	5.72	5.72	N/A	5.72	5.72
Mass (kg)	1.55	12.49	1.63	5.50	12.49	1.00	0.12	0.75	5.45