

# MATELECT ISM-6A INDUCED SIGNAL MONITOR



## ISM-6A FEATURES

- Induced Current and/or Voltage options. Through use of dedicated current or voltage preamplifier units.
- Internal bias source with range  $-100\text{V}$  to  $+100\text{V}$ . Allows biasing of a sample to a resolution of up to  $0.1\text{mV}$ .
- Large back-off current range from  $-20\text{mA}$  to  $+20\text{mA}$ . Digitally displayed with resolutions ranging from  $1\mu\text{A}$  to  $0.1\text{pA}$
- Wide bandwidth.  $3\text{kHz}$  bandwidth at  $0.1\text{pA}$  resolution and  $320\text{kHz}$  at  $100\text{nA}$  resolution.
- Complete microprocessor control, with interface to PC via Labview drivers.
- Intuitive interface with adjustable backlight control for use in reduced ambient conditions.

## Applications

- Characterization & observation of junction areas
- Failure analysis (FA) of semiconductor devices.
- Locating areas of ESD (Electrostatic Discharge) damage.
- Detecting subsurface damage or defects.
- Quality control and assurance (QA) of semiconductors.
- Process design and validation.
- Can also be used for OBIC, EBIV, SOMSEM, and CL (transmitted or emitted) studies.

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## ISM-6A SPECIFICATIONS

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INDUCED CURRENT AMPLIFIER (ICA-1)					
Range	F.S.D.	Resolution	Accuracy	Bandwidth	Noise (r.m.s.)
1	2 nA	0.1 pA	1 pA	3 kHz	2.5 pA
2	20 nA	1 pA	10 pA	6 kHz	2 pA
3	200 nA	10 pA	100 pA	24 kHz	2 pA
4	2 uA	100 pA	1 nA	70 kHz	1 pA
5	20 uA	1 nA	10 nA	100 kHz	1 pA
6	200 uA	10 nA	100 nA	150 kHz	1 pA
7	2 mA	100 nA	1 uA	230 kHz	1 pA

INDUCED VOLTAGE AMPLIFIER (IVA-1)				
Range	F.S.D.	Resolution	Accuracy	Bandwidth
1	2 mV	100 nV	1 uV	The bandwidth performance for the IVA-1 depends on sample impedance.
2	20 mV	1 uV	10 uV	
3	200 mV	10 uV	100 uV	
4	2 V	100 uV	1 mV	

BEAM CURRENT MONITOR IN ICA-1 AND IVA-1					
Range	F.S.D.	Resolution	Accuracy	Bandwidth	
1	2 nA	0.1 pA	1 pA	200 Hz	
2	20 nA	1 pA	10 pA	6 kHz	
3	200 nA	10 pA	100 pA	24 kHz	
4	2 uA	100 pA	1 nA	70 kHz	
5	20 uA	1 nA	10 nA	100 kHz	
6	200 uA	10 nA	100 nA	150 kHz	
7	2 mA	100 nA	1 uA	230 kHz	

BACK-OFF CURRENT				
Range	Resolution	Range	Resolution	
0-2 nA	0.1 pA	0-20 uA	1 nA	
2-20 nA	1 pA	20-200 uA	10 nA	
20-00 nA	10 pA	0.2-1 mA	100 nA	
0-200 uA	10 pA	0-2 mA	100 nA	
0.2-2 uA	100 pA	2-20 mA	1 uA	

BIAS VOLTAGE		SHORT-CIRCUIT TRIGGER LEVELS	
Range	Resolution	Range	Resolution
0-2V	0.1mV	0.1, 0.5, 1 and 10mA	5%
2-100V	1mV		

### DIMENSIONS

Head amp: 110mm x 160mm x 30mm (W\*D\*H)  
 Main unit: 450mm x 280mm x 130mm (W\*D\*H)

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