

JCI 140 Static Monitor

A compact instrument for easy detection and measurement of static electricity and for assessment of the risks in practical situations



DESCRIPTION: A compact, easy to use instrument for direct non-contact measurement of surface voltage to a volt or better at 100mm.

The high useable sensitivity makes it particularly easy to find even low levels of static charge and to make measurements with confidence of the low voltages of concern in such situations as MR and GMR head manufacture. Readings are displayed on a 3½ digit liquid crystal display.

The frequency response of the standard JCI 140 is about 35Hz. The JCI 140F option provides response to 400Hz.

Analogue output signals are provided for separate display and recording of observations - for example using a multimeter, oscilloscope or paper chart recorder. A 'Picoscope' provides direct data logging and display on a microcomputer. This enable the full bandwidth capability of observations to be available for display and numerical processing via Spreadsheet software.

Attachments are available that enable

the JCI 140 to be used to measure charge (JCI 147), to make electrostatic voltmeter measurements (JCI 148) and to monitor the charge dissipation capability of ionised air (JCI 145).

Why bother about static?

Many materials, in particular plastics, easily become electrostatically charged when rubbed against other materials. Such 'triboelectric' charging causes problems in many areas of industry. It can cause ignition of flammable gases and give shocks to personnel. It can make thin films and light fabrics cling, attract airborne dust and debris, damage semiconductor devices and upset the operation of microelectronic equipment.

The risks and problems arising from static electricity are best avoided by ensuring that static charge can dissipate over and through the surfaces of materials and away to earth more quickly than charge is generated. For normal manual handling and body motion activities this means the charge decay is preferably below ¼ second.

SPECIFICATION

Sensitivity:	<ul style="list-style-type: none">• 2,000 and 20,000 volts full scale at 100mm separation between surface and sensing aperture.• Sensitivity selected via on/off switch or by external control signal
Zero stability:	<ul style="list-style-type: none">• Noise within 1V p-p surface potential. Zero stable ± 10 volts.
Accuracy and linearity:	<ul style="list-style-type: none">• Within $\pm 2\%$FSD
Response:	<ul style="list-style-type: none">• -3dB at 35Hz. (-3dB at 400Hz for JCI 140 F)
Display:	<ul style="list-style-type: none">• 3½ digit liquid crystal display of surface voltage directly in kilovolts at 100mm with polarity and 'LO BATT' indication
Audio alarm:	<ul style="list-style-type: none">• Pulsing audio signal when above user set level
Controls:	<ul style="list-style-type: none">• On/off slide switch: off - range 1 - range 2• Screwdriver set alarm threshold• Screwdriver zero setting adjustment
Power supply:	<ul style="list-style-type: none">• Replaceable PP3 battery• via 8w mini DIN from external floating 12V supply• 2.1mm d.c. power connector for 12V external floating power supply input
External connections:	<ul style="list-style-type: none">• via 8w mini DIN connector:<ul style="list-style-type: none">- analogue output signal ($\pm 2V$ FSD)- sensitivity range indication and external control of sensitivity- earth- external power supply inputs
Earth bonding:	<ul style="list-style-type: none">• Combination 10mm Durable and 4mm bayonet socket earth bonding point. Supplied with Durable Dot earth bonding cord
Dimensions:	<ul style="list-style-type: none">• 142x66x34mm. Weight: 320grams
Calibration option:	<ul style="list-style-type: none">• where measurements may be used with contractual or legal implication the JCI 140 should be formally calibrated. Formal calibration to BS 7506: Part 2: 1996
Option F:	<ul style="list-style-type: none">• provides fast response (-3dB at 400Hz) to enable rapidly changing events to be examined and observations made on 50/60Hz fields



HELP LINE

JCI offers consultancy through which we advise and assist customers who need to assess and overcome problems with static electricity. We also test customer materials for static charge dissipation and capacitance loading performance.

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The business of JCI is the design, development, manufacture and marketing of high quality instruments for electrostatic measurements. JCI also carries out electrostatic testing of materials, consultancy and calibration of JCI instruments to BS 7506: Part 2: 1996.

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