

## JCI 140 / JCI 140F Static Monitor

*The JCI 140 is a compact instrument for easy detection and measurement of static electricity and for assessment of risks in practical situations.*

### INTRODUCTION

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 lead to ignition of flammable gases, vapours and powders, 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  $\frac{1}{4}$  second.



JCI 140 Static Monitor

The JCI 140 Static Monitor is a compact, easy to use instrument for direct non-contact measurement of surface voltage. From a distance of 100 mm the  $3\frac{1}{2}$  digit liquid crystal display indicates surface voltage to an accuracy of 1 Volt. This makes it particularly easy to find even low levels of static charge and to make measurements with confidence of the low voltages that are of concern in such situations as MR and GMR head manufacture. The frequency response of the standard JCI 140 is about 120 Hz. The JCI 140F option provides response to 400 Hz. Analogue output signals are provided for separate display and recording of observations - for example using a multimeter, oscilloscope, data logger or paper chart recorder.

A 'Picoscope' can be used for direct data logging and display on a microcomputer. This enables the full bandwidth capability of observations to be available for display and numerical processing via spreadsheet software.

The JCI 148 is a voltmeter adapter for use with the JCI 140. It allows measurement of voltages on conductors using a probe. The very high input resistance of this system eliminates the loading effects suffered by many high voltage voltmeters and high voltage adaptors for multimeters.

The JCI 147 is a Faraday Pail adaptor for use with the JCI 140. It allows the direct measurement of charge (in Coulombs) on items placed in the Faraday Pail.

### **SPECIFICATION FEATURES**

- Sensitivity:** 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
- Zero Stability:** Within  $\pm 10$  volts on 2000V range
- Signal Noise:** Within 4mV pk-pk on analogue output (equivalent to 4V pk-pk at 100mm on 2000V range). 10-15mV pk-pk for fast response (JCI 140F) instruments.
- Accuracy & linearity:** Within +2%FSD
- Response:** -3dB at 120Hz. (-3dB at 400Hz for JCI 140 F)
- Display:** 3½ digit liquid crystal display of surface voltage directly in kilovolts at 100mm with polarity and 'LO BATT' indication
- Audio alarm:** Pulsing audio signal when above user set level
- Controls:** On/off slide switch: off - range 1 - range 2  
Screwdriver set alarm threshold  
Screwdriver zero setting adjustment
- Power supply:** 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:** Via 8w mini DIN connector:

- analogue output signal (+2V FSD)
- sensitivity range indication and external control of sensitivity
- earth
- external power supply inputs

**Earth bonding:** Combination 10mm Durable and 4mm bayonet socket earth bonding point. Supplied with Durable Dot earth bonding cord

**Dimensions:** 142x66x34mm. Weight: 320grams

**Calibration option:**

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:** Provides fast response (-3dB at 400Hz) to enable rapidly changing events to be examined and observations made on 50/60Hz fields

*JCI Chilworth is part of Chilworth Global. JCI Chilworth carries out calibration of JCI instruments to BS 7506: Part 2: 1996 and also provides a repair and service facility for JCI instruments. Chilworth Global offers a wide range of testing services for materials including static charge decay and capacitance loading performance for textiles, powders and liquids. A consultancy service is also available to help assess and solve problems and hazards associated with static electricity.*

*Chilworth Global brings together leading expert consultants in the field of process safety with GLP compliant laboratories to provide a single point of contact for process safety needs. Our laboratories provide material properties data relating to fire and explosion hazards, chemical reaction hazards and regulatory testing.*

**Contact Information ►**

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