481
Ion Chamber Survey Meter
Safety Sheet

Go to www.fluke.com to register your product and find more information.

Safety Information

A Warning identifies conditions and procedures that are dangerous to the user.

⚠️⚠️ Warning
To prevent possible electrical shock, fire, or personal injury:
• Read all safety information before you use the Product.
• Use the Product only as specified, or the protection supplied by the Product can be compromised.
• Remove the batteries if the Product is not used for an extended period of time, or if stored in temperatures above 50 °C. If the batteries are not removed, battery leakage can damage the Product.
• The battery door must be closed and locked before you operate the Product.
• Replace the batteries when the low battery indicator shows to prevent incorrect measurements.
• Comply with local and national safety codes. Use personal protective equipment.
• Carefully read all instructions.
• Do not touch voltages >30 V ac rms, 42 V ac peak, or 60 V dc.
• Do not use the Product around explosive gas, vapor, or in damp or wet environments.
• Do not use and disable the Product if it is damaged.
• Do not use the Product if it operates incorrectly.
• Examine the case before you use the Product. Look for cracks or missing plastic.
• Use this Product indoors only.
• Remove all accessories before the battery door is opened.

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• Use care in the handling and storage of the check source. The check source contains radioactive materials used for the verification of the Product operation.

• Each person who uses a product that senses and measures ionizing radiation must:
  o Be approved to do work where there is radiation.
  o Obey all applicable safety procedures and regulations.
  o Be approved to correctly interpret the indications on the product.

The user of this Product must read and strictly obey the instructions and precautions contained in the manuals. If you do not obey the instructions and precautions, there is a risk of injury. If you do not obey the instructions and precautions there is a risk that the Product will show incorrect indications. Before each use, do a battery check and other preoperational checks to make sure that the Product operates correctly.

• Do not put metal objects into connectors.

• Do not operate the Product with covers removed or the case open. Hazardous voltage exposure is possible.

• Use care in handling this assembly during removal and installation. This Product contains lithium cells with a potential voltage of 63 V on the battery assembly.

• Use only specified replacement parts.

• Have an approved technician repair the Product.

• Use care when handling, the surface below the High Voltage Board is conductive!

• Many components on the printed circuit board are static sensitive. Obey all ESD precautions when you touch the printed circuit board assembly.

• Batteries contain hazardous chemicals that can cause burns or explode. If exposure to chemicals occurs, clean with water and get medical aid.

• Do not disassemble the battery.

• Repair the Product before use if the battery leaks.

• Be sure that the battery polarity is correct to prevent battery leakage.

• Do not short the battery terminals together.

• Do not disassemble or crush battery cells and battery packs.

• Do not keep cells or batteries in a container where the terminals can be shorted.

• Do not put battery cells and battery packs near heat or fire. Do not put in sunlight.
For safe operation and maintenance of the product, note the chamber bias from the self-test. If chamber bias is LO, the Product cannot measure high radiation rates accurately. The Product requires service, contact Fluke.

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
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<tbody>
<tr>
<td>△</td>
<td>WARNING. HAZARDOUS VOLTAGE. Risk of electric shock.</td>
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<tr>
<td>△</td>
<td>WARNING - RISK OF DANGER. Consult user documentation.</td>
</tr>
<tr>
<td>⌀</td>
<td>DC (Direct Current)</td>
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<tr>
<td>♦</td>
<td>On/Off button</td>
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Symbols

This product complies with the WEEE Directive marking requirements. The affixed label indicates that you must not discard this electrical/electronic product in domestic household waste. Product Category: With reference to the equipment types in the WEEE Directive Annex I, this product is classed as category 9 "Monitoring and Control Instrumentation" product. Do not dispose of this product as unsorted municipal waste.

This product contains a Lithium-ion battery. Do not mix with solid waste stream. Spent batteries should be disposed of by a qualified recycler or hazardous materials handler per local regulations. Contact your authorized Fluke Service Center for recycling information.

Conforms to European Union directives.

Specifications

Environmental
Operating Temperature....... -20 °C to 50 °C
Relative Humidity Range ... 0 % to 95 % non-condensing
Geotropism.................... less than 1 %
Altitude ....................... 2000 m

Power
Batteries....................... Two 9 volt batteries (NEDA 1604A or 6LR61 or 6AM6)
Three lithium cells provide chamber bias voltage of 63 V (10 year life expectancy)

Battery Life ..................... 200 hours continuous operation.

Safety
General ..................... IEC 61010-1: Pollution Degree 2
Electromagnetic Compatibility (EMC)

International....................... IEC 61326-1: Portable
                        Electromagnetic Environment;
                        IEC61326-2-2 CISPR 11: Group 1,
                        Class A

Group 1: Equipment has intentionally generated and/or uses conductively-coupled radio frequency energy that is necessary for the internal function of the equipment itself.

Class A: Equipment is suitable for use in all establishments other than domestic and those directly connected to a low-voltage power supply network that supplies buildings used for domestic purposes. There may be potential difficulties in ensuring electromagnetic compatibility in other environments due to conducted and radiated disturbances.

Emissions that exceed the levels required by CISPR 11 can occur when the equipment is connected to a test object.

The equipment may not meet the immunity requirements of this standard when test leads and/or test probes are connected.

USA (FCC) ......................... 47 CFR 15 subpart B. This product is considered an exempt device per clause 15.103.

LIMITED WARRANTY AND LIMITATION OF LIABILITY

This Fluke product will be free from defects in material and workmanship for one year from the date of purchase. This warranty does not cover fuses, disposable batteries, or damage from accident, neglect, misuse, alteration, contamination, or abnormal conditions of operation or handling. Resellers are not authorized to extend any other warranty on Fluke’s behalf. To obtain service during the warranty period, contact your nearest Fluke authorized service center to obtain return authorization information, then send the product to that Service Center with a description of the problem.

THIS WARRANTY IS YOUR ONLY REMEDY. NO OTHER WARRANTIES, SUCH AS FITNESS FOR A PARTICULAR PURPOSE, ARE EXPRESSED OR IMPLIED. FLUKE IS NOT LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR LOSSES, ARISING FROM ANY CAUSE OR THEORY. Since some states or countries do not allow the exclusion or limitation of an implied warranty or of incidental or consequential damages, this limitation of liability may not apply to you.

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