



APPLICATION NOTE

KETEK VITUS Silicon Drift Detector (SDD)

Handling and Operating Instructions for KETEK VITUS SDDs with Be window


1. Warranty

KETEK GmbH warrants to the original purchaser this instrument to be free from defects in materials and workmanship for a period of one year from shipment. KETEK GmbH will, without charge, repair or replace (at its option) a defective instrument upon return to the factory. This warranty does not apply in the event of misuse or abuse of the instrument or unauthorized alterations or repair. KETEK GmbH shall not be liable for any consequential damages, including without limitation, damages resulting from the loss of use due to failure of this instrument. All products returned under the warranty must be shipped prepaid to the factory with documentation describing the problem and the circumstances under which it was observed. Additionally the statement of contamination must be filled out completely and returned with the product. KETEK must be notified prior to return shipment. The instrument will be evaluated, repaired or replaced, and promptly returned if the warranty claims are substantiated. A nominal fee will be charged for unsubstantiated claims. Please include the model and serial number in all correspondence with KETEK.

2. Care Instructions

Do not clean the SDD under any circumstances. Do not use any alcoholic, acid or rubbing cleaning agents.

3. ESD Caution

 <p>ATTENTION OBSERVE PRECAUTIONS FOR HANDLING ELECTROSTATIC SENSITIVE DEVICES</p>	<p>ESD (Electrostatic Discharge) sensitive device.</p> <p>Charged devices and circuit boards can discharge without detection. Although this product features patented or proprietary protection circuitry, damage may occur on devices subjected to high energy ESD. Therefore, proper ESD precautions should be taken to avoid performance degradation or loss of functionality.</p>
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4. Safety

It is strongly recommended to read this user manual carefully and completely before installing or activating the SDD. Please keep this user manual always with the system for that any operator can get this important information. In case of resale – even when second hand – or in case of scrapping at the end of lifetime this manual has to be given along with the system. Please handle the attached documents “Beryllium Material Data Sheet” and “Statement of contamination...” the same way.



Rev. 0

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	<p>WARNING!</p> <p>The detector contains a thin, fragile Be window. If this window is damaged, the detector will be destroyed and cannot be repaired.</p> <p>Be windows damaged due to improper handling are not covered under warranty.</p> <p>This product uses – a very small amount - of toxic beryllium material at the inner side of the detector foil. Beryllium is preferred as an entrance window coating because it provides a light-tight seal and, further, does not introduce spurious peaks in the measured spectrum. In normal operation there is no danger to get in contact with any toxic materials. If the SDD window was destroyed by accident, follow our safety instructions.</p>
	<p>Scrapping at end of lifetime has to be done according to the (local) legal requirements. Make the “Beryllium Material Data Sheet” available to your waste disposal contractor. Do not scrap the SDD to your domestic waste.</p>
	<p>Due to the very thin window foil you should take care neither to touch it with fingers nor to bring other things or materials under test too near to it.</p>
	<p>Keep away excessive dust particle streams from the SDD window.</p>
	<p>Excessive electrostatic discharge might destroy the window. Take care ESD is well bled off in your application.</p>
	<p>Some of the SDD types are evacuated. A damaged entrance window may implode scattering small beryllium particles in the immediate vicinity of the SDD. In this case, rigorously clean the SDD and its surrounding area following all the precautions mentioned in the “Beryllium Material Safety Data Sheet”.</p>
	<p>Always keep the SDD protection cap with the system, even if fixed mounted. It's necessary for cleaning, service and shipping to be able to protect the beryllium window.</p>
	<p>CAUTION!</p> <p>High voltages need to be applied to the detector for use. To prevent electrical shock, do not touch the detector.</p> <p>Do not drop or cause mechanical shock to the detector. Components inside the detector are mechanically fragile and may be damaged if the unit is dropped.</p> <p>Avoid temperature shocks. If the detector is out of allowed temperature range, make sure to acclimate slowly.</p> <p>Avoid air pressure shocks. Especially in evacuated applications take care to ventilate slowly.</p> <p>Let the protection cap be mounted at the SDD as long as the system isn't mounted in its end application. Your end application has to be designed that way to make unexpected, damaging contact with the SDD window impossible. Make sure your samples under test might never touch the SDD window.</p> <p>Do not remove the protective cap from the detector until data is to be taken. The detector window is made from thin beryllium which is extremely brittle and can shatter very easily. Do not have any object come in contact with the window. Do not touch the detector because the oil from the fingers will cause it to oxidize. Use gloves. The window cannot be repaired. If the window is damaged the detector assembly must be replaced. Be windows damaged due to improper handling will not be covered under warranty. Keep the protective cover nearby at all times and cover the detector when the instrument is not in use.</p> <p>Radiation damage to the detector will occur if it is exposed to a high flux environment. Synchrotron Radiation Beams should be modified with attenuators before they are allowed to strike the detector or the fluorescence target. Damage to the detector will be permanent if the flux from an X-Ray Tube, a strong nuclear radiation source, or an accelerator is not attenuated.</p> <p>No user serviceable parts inside the units. Refer servicing to KETEK GmbH. To prevent electrical shock, do not remove covers.</p> <p>Keep the device dry and clean!</p>

5. General Restrictions and Recommendations

- **do not use detector without heat sink connection. Overheating will destroy the module**
- do not solder the pins or any other part of the detector module
- avoid touching the detector module
- use gloves to avoid corrosion
- avoid touching the entrance window of the detector module. It contains hazardous materials

Revision History

12/03 – Revision 0: Initial Version

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