ORTEC®

Ultra Detectors

Storage, Handling, and Cleaning Instructions

- Store the detectors at room temperature in clean air.
- Protect them from dust and corrosive fumes. The corrosive fumes will damage the external as well as the internal parts. Electrical contacts are very critical to the normal operation of the detector. Corrosion can form high-resistance paths in these contacts and ruin the detector.
- Avoid mechanical shocks and protect from mechanical damage.
- Wear protective latex or polyethylene gloves when handling the detectors. Finger grease and body salts can destroy the integrity of electrical contacts.
- Keep the protective cap in place when the detector is not in use. This will protect the fragile front surface from accidental damage. This is especially important when the detector is being installed, removed, or transported to other sites.
- After prolonged use, it is normal for the detector to require cleaning of the front, critical surface, especially if the detector surface is suspected of being contaminated, causing higher background. Use "fluffed" cotton swabs wetted with methanol to gently rub the surface. Change the swabs frequently to avoid redepositing the contaminants. DO NOT FLOOD THE DETECTOR SURFACE WITH METHANOL. THE CONDUCTIVE ELASTOMER CAN SWELL AND ELECTRICAL CONTACT COULD BE LOST, RESULTING IN NOISE AND SEVERELY COMPROMISED RESOLUTION.
- Blow clean, dry nitrogen to dry the surface. Do not use filter paper to dry the surface. Although the implanted contact is "buried" under the surface, it is very shallow and can be easily damaged. **The slightest damage to even a small area will ruin the detector.**

If a detector must be sent back to ORTEC, it should be properly packaged with the PROTECTIVE CAP installed. Use the packaging that the detector was shipped in, to avoid damage during transit. Improper handling or packaging may void the warranty.

804558B / 0405
Printed in USA

AMETEK
Advanced Measurement
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Quality Assurance Data Sheet

ULTRA™ Alpha Detector

Performance Specifications

Model No. BU-013-050-1000-S Serial No. 40-015 A12

Date Shipped 6-13-07

Bias Voltage 115 volts (positive)

Noise 6.9 keV (FWHM)

Warranted Alpha Resolution 13 keV (FWHM)

Special Notes (if any)

Data Certified By: *[signature]*

Handling

Wear protective latex or polyethylene gloves when handling the detectors. Finger grease and body salts can destroy the integrity of the electrical contacts.

The ULTRA series detector has a thin (500 Å), ion-implanted contact immediately under the silicon surface. The contact is, thus, more rugged than that formed by an evaporated gold layer. If the silicon surface is scratched, however, the detector will be damaged. Reasonable precautions should therefore be taken when handling these detectors.

If a detector must be sent back to ORTEC, it should be properly packaged with the **PROTECTIVE CAP** installed. Use the packaging that the detector was shipped in to avoid damage during transit. Improper handling or packaging may void the warranty.

Application of Bias

The detector connector's central electrode should be provided with positive bias and produces a negative output signal. The recommended operating voltage is given in the performance specifications. This bias voltage is carefully selected to provide optimum field strength and should not be exceeded.

Environmental Considerations

Although there are no epoxies or rings to absorb moisture, it is essential that the detector be dry during operation. Moisture can cause both high leakage current and low breakdown voltage. To remove condensed water or condensed organic vapors, the detector should be placed in vacuum for a short time before applying bias.

Cleaning

If contaminated, the detector surface can be cleaned with a cotton swab moistened with methanol. Genlty rub the detector surface with the swab. Repeat with fresh methanol. Blow dy with dry nitrogen gas. Before applying bias, leave the detector under vacuum for 30 minutes to remove all moisture from the surface.

Measurement of Alpha Resolution

The measurement of alpha particle resolution must be performed in vacuum with a uniform, ultra-thin source located at a source-to-detector distance of 1-1/2 times the detector diameter.

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AMETEK®

Quality Assurance Data Sheet

ULTRA™ Alpha Detector

Performance Specifications

Model No. BU-013-050-1000-S Serial No. 40-015 A11

Date Shipped 6-13-07

Bias Voltage	115	volts (positive)
Noise	6.9	keV (FWHM)
Warranted Alpha Resolution	13	keV (FWHM)

Special Notes (if any)

Data Certified By: R. [signature]

Handling

Wear protective latex or polyethylene gloves when handling the detectors. Finger grease and body salts can destroy the integrity of the electrical contacts.

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AMETEK

ORTEC®
Princeton Applied Research
SIGNAL RECOVERY
Solartron Analytical
E.I.N. #62-1369733

Advanced Measurement Technology, Inc.
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Oak Ridge, TN 37831-0895
Tel: (865) 482-4411
Fax: (865) 483-2279

SALES ORDER NO.	PRINTED ON	PAGE
0171459	06/11/07	
ORDER DATE	EXPORT LICENSE OR LETTER OF CREDIT	
05/16/07		
CUSTOMER PURCHASER ORDER NUMBER		
07-P1139		

SHIPPING DOCUMENT

SHIPMENT NO.	DATE SHIPPED	BILL OF LADING NO.
0174002		271084
METHOD OF SHIPMENT	FREIGHT TERMS	WAREHOUSE
BEST WAY	FOB DEST	USM

RRC 6/13/07 E3

SHIP TO: JEFFERSON LAB
12000 JEFFERSON AVE.
NEWPORT NEWS, VA 23606

SHIP TO CUSTOMER ▶ 1TJNAF-01

BILL TO: JEFFERSON SCIENCE ASSOCIATES
(JSA) JEFFERSON LAB (JLAB)
ATTN: ACCT. PAYABLE
628 HOFSTADTER ROAD
NEWPORT NEWS, VA
23606

BILL TO CUSTOMER ▶ 1TJNAF

LINE	PRODUCT NUMBER	PRODUCT DESCRIPTION/SERIAL NUMBER	CURRENT QTY. BACKORDERED	QTY. SHIPPED	NEW QTY. BACKORDERE
		PRICE INCLUDES 1.5% FOB DESTINATION FEE.			
1	142A	PREAMPLIFIER 7152253 7152257	2.00	2	
2	U-OFSTD	OFFSTANDARD ULTRA DETECTOR BU-013-050-1000-S 40-015A11, 40-015A12	2.00	2.0	0

CUSTOMER PACKING LIST

JSA, LLC / JEFFERSON LAB
ATTN: PROCUREMENT/(757)269-7238
628 HOFSTADTER ROAD
SUITE 5
NEWPORT NEWS, VA 23606

Purchase Order: 07-P1139

RRC 6/13/0783

Date Printed: 05/15/200

Order To: ADVANCED MEASUREMENT TECHNOLOGY INC. ADVMEA
801 SOUTH ILLINOIS AVE.
OAK RIDGE, TN 37831-0895

Ship To: JSA, LLC / JEFFERSON LAB
EEL BLDING
12000 JEFFERSON AVE.
NEWPORT NEWS, VA 23606

Contact: AMY Ph: 800-251-9750 Fax: 865-483-0396

ORDER DATE	BUYER	TERMS	FOB	SALES ORDER	SHIP VIA	DELIVER TO
05/15/07	ESTELLE SEELEY	NET 30	DESTINATION		BEST WAY	R SULEIMAN/5A

LINE	ITEM/DESCRIPTION	REV	U/M	DUE DATE	DESIRED DATE	QUANTITY	NET UNIT COST	EXTENDED COST
	CONFIRMATION							
1	PREAMPLIFIER MODEL 142A: INPUT CAPACITANCE 0-1 00 PF.		EA	06/15/07	06/15/07	2.0000	1,169.8300	$2,339.66
	Req: 262438 NSN: 2-10-1-1-X-X-X							
	AOP: 6043-029 1.CS.002.0003.07 000001.04.03.002.012.001							
2	ORTEC DETECTOR MODEL BU-013-050-1000 ULTRA ION-IMPLANTED SILICON DETECTOR WITH B-MOUNT.		EA	06/15/07	06/15/07	2.0000	971.8200	$1,943.64
	Req: 262438							
	AOP: 6043-029 1.CS.002.0003.07 000001.04.03.002.012.001							

THE ATTACHED TERMS AND CONDITIONS, TC-1 SUP - COMMERCIAL SUPPLIES ARE HEREBY MADE A PART OF THIS PURCHASE ORDER.

FOR FASTENERS, CIRCUIT BREAKERS, OR OTHER ITEMS SUBJECT TO COUNTERFEITING, THE OFFICE OF INSPECTOR GENERAL MAY BE ASKED TO INVESTIGATE IF DELIVERED PRODUCTS FAIL TO PASS RECEIPT INSPECTION TESTS. FASTENERS SHOULD NOT HAVE HEAD MARKINGS THAT ARE ON THE U.S. CUSTOMS SERVICE LIST OF SUSPECT/COUNTERFEIT FASTENERS.

SHIPPING AND RECEIVING HOURS: MONDAY-FRIDAY 8 A.M. - 5 P.M EXCLUDING HOLIDAYS.