RBD Ink

RBD Instruments, Inc. 2437 NE Twin Knolls Dr., Bend, OR 97701

Main: 541-330-0723 sales@rbdinstruments.com

RBD Instruments' Newsletter Fall, 2011

In This Issue

The World of AES Analysis just got Smaller.....

With the advent of our microCMA the world of AES analysis is both smaller and larger. Weighing in at less than 2 pounds, the microCMA is small enough to mount on a 2.75" (70 mm) flange. But the small size of the microCMA also opens up a whole new world of possible applications, including in-situ analysis on MBE systems and in-line analysis of semiconductors.

Key features of the microCMA

- ***Compact:*** Fits on a 2.75" (70 mm) flange. It is now possible to build an AES system with just a T and a small ion pump!
- ***Proven Design***: The second order focusing of the **C**ylindrical **M**irror **A**nalyzer provides both good transmission and resolution.
- ***Easy to Use***: With a USB interface and an ASCII-based command structure, the control and data-massage software interface is as simple to use as an RGA – point and click.
- ***Powerful***: **A**uger **E**lectron **S**pectroscopy (AES) is a powerful surface sensitive technique that provides you with quantitative information on the first few monolayers of your sample. For more information about AES, click here.

microCMA Shown Above with 1" Diameter Sample Mount

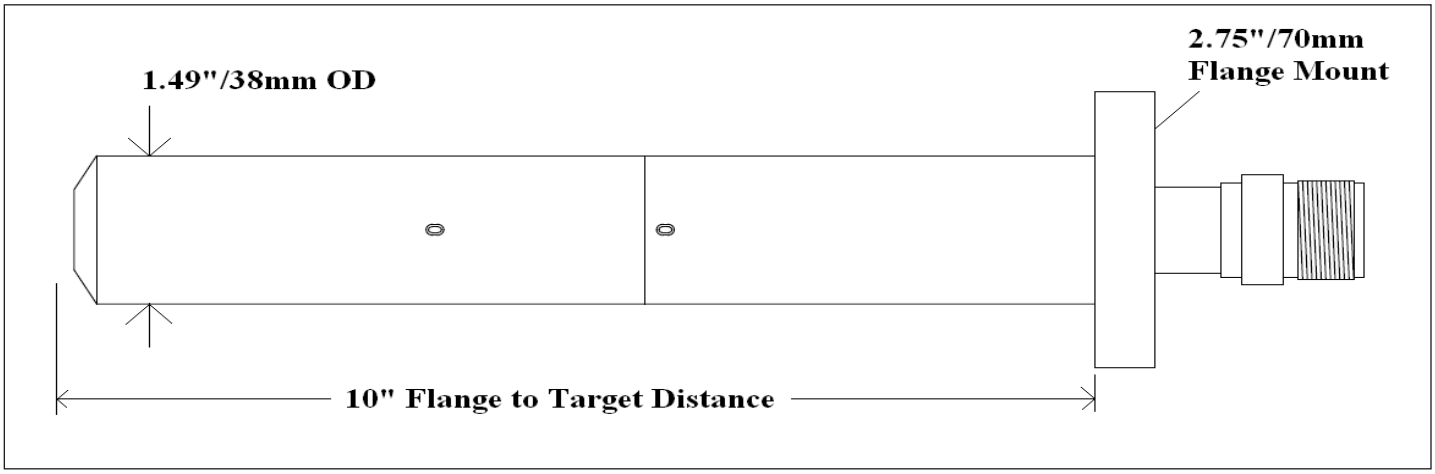
microCMA continued on page 2

microCMA continued from page 1

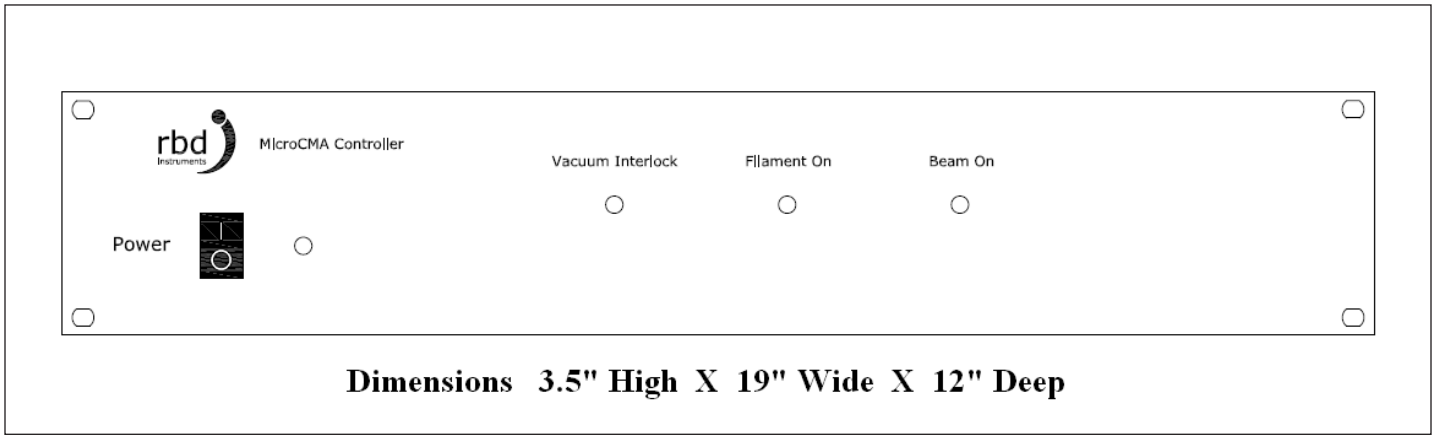
microCMA Specifications

Analyzer Type	Single Pass CMA (Cylindrical Mirror Analyzer)
Analyzer Working Distance	3 mm (0.12")
Energy Resolution	Fixed at .065%
Signal-to-Noise	1500:1 @ 3 kV 5 uA on clean copper.
Electron Multiplier	Extended Dynamic Range Channelltron
Electron Gun	Coaxial 3 kV
Filament	CeBix
Analyzer Mounting	(70 mm) 2.75" CF
Vacuum Integrity	UHV bakeable to 200° C.
Power Supply	USB protocol, software controlled

Analyzer



Control

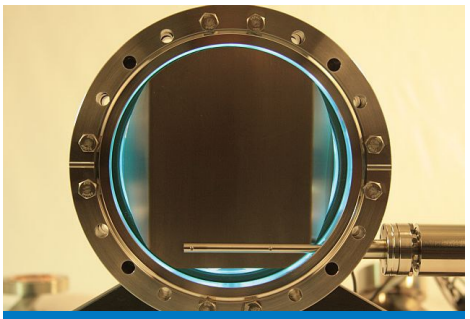


For more information, please contact us by phone at 541-330-0723 x 310 or by email.

Introducing the ZCUVE

Zero Clearance UV Emitter Water Vapor Desorption System

The ZCUVE represents the most recent advance in water vapor desorption technology. The unique design is scalable from 2.75" to 12" flange sizes with a proportionally higher UV power factor with larger flange sizes.



Z800 with Shutter Closed

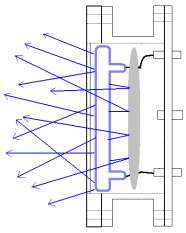
The ZCUVE design enhances water desorption where it is not practicable to have an exposed UV emitter inside vacuum chambers, such as large deposition chambers. Optional off-the-shelf manual and automatic shutters are available to prevent the ZCUVE from becoming coated during deposition processes.

Z800 with Shutter Open

As mentioned, the ZCUVE is scalable from a flange size of 2.75" up to 12.00". Therefore, if you have a small sample introduction chamber the Z275 may work for you. If you have a very large chamber, one or two of the larger sizes (Z800 to Z1200) would be appropriate.

How it Works

An external assembly houses the UV emitter, which is situated just behind a high UV transmission, ultra high vacuum window. A mirror on the back side of the emitter further improves the transmission of 185 nm UV radiation through the window and into the vacuum chamber. The ZCUVE housing is backfilled with an inert gas to prevent ozone production within the housing. Finally, the emitter leads are connected via MHV high voltage connectors to the control.



ZCUVE Concept

For more information on the principles of using UV radiation to desorb water vapor, please go to the UVB-100 page on our website. For technical questions or to obtain a quotation, please contact us at 541-330-0723 x 304 or by email.

The table below provides the model number for the ZCUVE that is specific to the indicated flange. Note that CF flanges are standard; KF flanges are an option.

Model Number	Flange Size
Z275	2.75" / 40 CF
Z450	4.5" / 63 CF
Z600	6.0" / 100 CF
Z800	8.0" / 160 CF
Z1000	10.0" / 200 CF
Z1200	12.0" / 250 CF

System Bakeout Temperature

Have you ever wondered how hot your vacuum chamber actually gets during a radiant bakeout? You could connect a number of thermocouples to monitor the temperature, but that is not always possible.

PTC Instruments offers one-time use temperature labels in a variety of ranges. Priced at about $43.00 for a pack of 10, these labels are an inexpensive way of determining the maximum temperature reached on your vacuum chamber.

The table below shows the model number vs. the ranges of temperature available.

612 Series Four Spot Temperature Labels Package of 10

Model	Range F	Range C	Increments
612.1	120°F 140°F 160°F 180°F	48°C 60°C 71°C 82°C	20°F
612.2	150°F 160°F 170°F 180°F	65°C 71°C 76°C 82°C	10°F
612.3	160°F 180°F 200°F 220°F	71°C 82°C 93°C 104°C	20°F
612.4	200°F 220°F 240°F 260°F	93°C 104°C 115°C 126°C	20°F
612.5	310°F 320°F 330°F 340°F	154°C 160°C 165°C 171°C	10°F
612.6	100°F 120°F 140°F 160°F	37°C 48°C 60°C 71°C	20°F
612.7	270°F 280°F 290°F 300°F	132°C 137°C 143°C 148° C	10°F
612.8	360°F 380°F 400°F 420°F	182°C 193°C 204°C 215° C	20°F
612.9	435°F 450°F 465°F 490°F	223°C 232°C 240°C 254° C	15°F

For more information, please go to the PTC Instruments website.

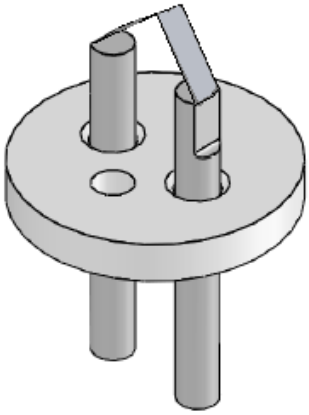
PTC Instruments
2301 Federal Avenue
Los Angeles CA. 90064-1482
Phone 310-478-1134; Fax 310-312-0826

Monthly Web Specials

Starting this past summer, RBD Instruments introduced monthly specials on our website. These specials range from consumables to optics rebuilds to, well, just about anything. The specials will be up on our website home page on or near the first of each month and will run for the month. The specials expire at the end of the day on the last day of each month. So, please check our website out at the beginning of each month to see what the monthly special is!

C75-010 Filament Discounts

As many of you know, we have been rebuilding the C75-010 filaments since we started our company more than 20 years ago. Now that we make the C75-010 as ***new,*** you have a choice of rebuilding your old filament to save some money or buying a brand new filament for much less than what it costs from other companies. In addition, we now offer a trade in discount for your old filament. So, if you buy a new filament for $455.00 and send us your old filament back, we will give you a $100.00 discount for a net price of $355.00 for a new C75-010.



The C75-010 filament is used in these PHI optics units:

Analyzers	Electron Guns
10-155 Cylindrical Mirror Analyzer	04-015 Electron Gun
15-255G Cylindrical Mirror Analyzer	06-110 Electron Gun
15-110 Cylindrical Mirror Analyzer	10-110 Electron Gun
25-260/270 Cylindrical Mirror Analyzer	

But wait, there's more! We also offer the following quantity discounts:

2 @ 10% discount
3 to 9 @ 20% discount
10 or more @ 30% discount

For more information about our C75-010 filaments, please email us or call us at 541-330-0723 x 310.

Used or Refurbished, What's the Difference?

When it comes to "experienced" systems, the difference between used and refurbished has an impact on your budget. Used systems, besides the fact that they are no longer new, are sold "Used; As-Is," and they may or may not work properly and do not include a warranty. If we list a used system and know that, in fact, it is not operational, then we will list it as "Used; For Parts Only."

Refurbished systems and components are completely reconditioned to original condition and are guaranteed to meet or exceed original specifications. They also come with a one-year warranty. The additional parts and labor that are involved with the refurbishment process result in a higher price than that for a simply "used" system but a price that is still considerably lower than that of a "new" system.

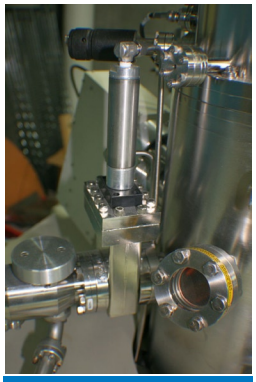
RBD Instruments lists both used and refurbished systems and components on our website at these links:
Refurbished and Used Systems
Electronics Components
Optics Components

Tech Tip - How to Repair a Leaky Gate Valve

A common problem with gate valves on vacuum system is that the seal can become dirty and the valve will not seal properly. This typically shows up as a higher pressure in the system when the intro is back-filled or when the ion gun differential turbo pump is turned off. Fortunately, this is an easy problem to fix.

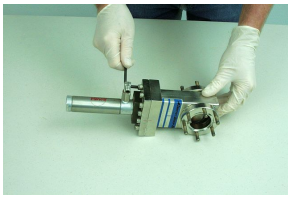
In this procedure we will show you how to replace the seal on a typical V1 gate valve found on many surface analysis systems. This particular vintage of valve is the Torrvac/Innotec brand, but the procedure is basically the same for all valves. The only differences are the size and types of seals used.

Note that this procedure can be performed on the system without removing the valve completely from the system. The steps below show the process for after removing the valve from the system.



V1 Gate Valve on Scanning Auger System

1. Ensure that the system is vented and that the valve is in the open position.
2. Turn off the air to the valve and remove the airlines to the valve. (Note that there are no air lines if the valve is manually operated.)
3. Put on gloves.
4. Remove the screws from the top of the valve flange as shown in the picture to the right.

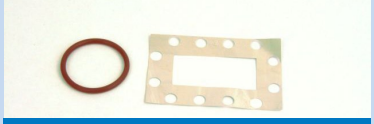


5. **Making sure that the bearings on the side of the valve face do not come off when you pull the valve assembly out of the housing**, slide the valve assembly up and out of the housing.

Slide valve

Hold onto bearings

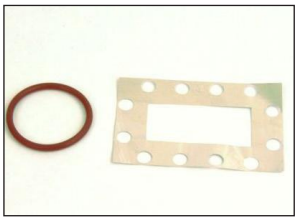
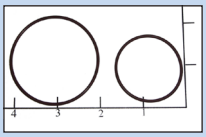
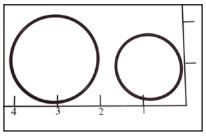
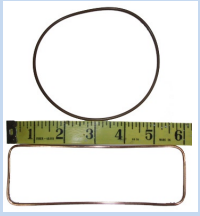
6. Remove the Viton O-ring from the valve face by inserting a tweezers or screwdriver into the slot. **Be careful not to scratch the valve face.**
7. Install the new Viton O-ring. For best results, first coat the O-ring with a small amount of high vacuum grease, then wipe off the grease.



Gate O-ring & Indium Bonnet Gasket

8. Install a new indium gasket on the valve seal and carefully line up the screw holes. Insert the screws.
9. Tighten the screws evenly until the flange is tight.

RBD stocks gaskets for many of the valves used on PHI systems. See the table below for more information.

Valve Type	Where Used	Picture of Valve	RBD Valve Seal Kit PN
Torrvac/Innotec SVB-1.53VA 2.75" CF	PHI 600, 660 AES, Early 5000 series XPS		V1VGKITRE – Gate O-ring & Indium Bonnet Gasket 
HVA 11210-0159 2.75" CF	PHI 660, 670 AES, PHI 5500 to 5600 XPS		1220150GKRE – Bonnet O-ring & Gate O-ring 
Huntington GVAP-150 2.75" CF	PHI 550, 560 ESCA, PHI 545, 590 SAM The valve on the right is shown with the switch assembly used on older PHI 15-720 sample introduction systems.		1220150GKRE – Bonnet O-ring & Gate O-ring 
HVA 11210-9300 4.5" CF	PHI 5600, 5700, and 5800 XPS systems		KSB40MRE – Gate O-ring & Copper Bonnet Gasket 

Thanks for Donating to Our Walk for ALS!

Thanks to all of you who donated to our Walk for ALS earlier this fall. Because of your generosity, our team was able to help our Bend-area walkers raise over $55,000 — above our aggressive goal of $50,000 — to help find a cure for ALS! .

Walk to Defeat ALS
The ALS Association
because you can

AVS 58th International Symposium and Exhibition in Nashville, Tennessee

Stop by booth #308 at the AVS 58th International Symposium & Exhibition in Nashville, TN, to learn about some of the exciting products that RBD has created and is in the process of developing.

The Symposium dates are from October 30th through November 4th, 2011. The exhibit hall is open from Tuesday, November 1st through Thursday, November 3rd, 2011.

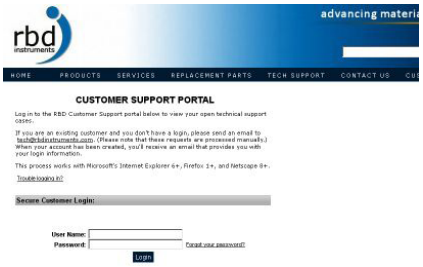
Click here for more information about the event. If you would like to preregister for the AVS symposium click here. Preregistration gets you into the Exhibit Hall for free and includes lunch, which means that in this case, there is such a thing as a free lunch!

Exhibit Hall Hours:

Tuesday, November 1st - 10:00 AM to 5:30 PM
Wednesday, November 2nd - 10:00 AM to 4:30 PM
Thursday, November 3rd - 10:00 AM to 2:00 PM

We look forward to seeing you there! Click here to see other shows we are attending in 2012.

RBD Customer Portal Improvements



We are striving to continually expand the Solutions Database in our Customer Support Portal. The goal is to provide you with another great reason to use the portal for service and support issues.

In additional to free troubleshooting information, the portal also provides these benefits:

- 24/7 access to case information
- Case information can be accessed by all of RBD's support staff, providing you with a faster response
- Case comments provide you with a history of the system's problems and solutions

It's free! All you need to do is log into our Customer Support Portal. If you don't already have a login name, please send an email to our sales department with the following information:

- Your company name
- Your first and last name
- Your email address
- Your mailing address
- Your phone number

We'll verify the information you send us with the information in our database, update our database if necessary, then send you a notification from our system providing you with your login information.

RBD Expands Sales and Service Network

During the last few months we have added a number of new distributors and sales reps to our world-wide network for sales and service of RBD Instruments' products. In addition to the listed agents below and on the following page, we will be expanding our network in other international locations in the first part of next year.

We invite you to contact the RBD representative in your region directly for information on our products. Having representation worldwide will enable us to provide a fast response to sales inquiries as well as local sales and service support. (RBD Instruments handles all sales and service for the United States and Canada.)

Country/Region	Company	Contact
Australia & New Zealand  	**Scitek Australia Pty Ltd** www.scitek.com.au Unit 4/ 12 Chaplin Drive Lane Cove West NSW 2066 Sydney, Australia	**Ko Ko Aung** koko@scitek.com.au contact@scitek.com.au Tel: +61 2 9420 0477 Fax: +61 2 9418 3540 Mob: +61 4 1375 6228
Germany 	**PC-Service** www.pcs-gerstl.de Veltenstr. 18 85221 Dachau Germany	**Wilhelm Gerstl** gerstlwilhelm@pcs-gerstl.de Tel: ++49 (0)8131 86952 Fax: ++49 (0)8131 85801 Cell: ++49 (0)172 856 4668
India 	**MACK International** www.mack.in 5/1A, Grants Building, Arthur Bunder Road, Colaba, Mumbai 400 005 India	**Darius Patel** darius@mack.in Tel:+91 (0) 22 22855261/22834962 Mob: +91 9820776611 Fax: +91 (0) 22 22852326
Japan 	**Technical Labo, Inc.** www.technicallabo.com Dai-ni Yamada Bldg. 3F 5-5 Tourismachi Kawagoe-shi Saitama-Ken Japan 350-0044	**Yuji Hareyama** hare@kf7.so-net.ne.jp Tel: +81-49-227-0010 Fax: +81-49-225-6961

Country/Region	Company	Contact
Korea 	**PHI Asia Service** 5FL Jae Kyoung BLD , #412 - 4 Dokok - dong, Kangnam - gu Seoul Korea	**Casey Choi** caseyc@naver.com Tel: +82-02-3463-4050 Fax: +82-02-3463-3197
Mexico & **Latin America**  Includes the following countries: Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Uruguay	**Intercovamex** www.intercovamex.com Subida del Club 62 Col. Reforma 62260 Cuernavaca, Morelos Mexico	**Humberto Torres** jhtorres@intercovamex.com Phones +52 777 313260 x 109 Mobile: +52 55 10195759 **Jean-Marc Zisa** jmzisa@intercovamex.com Phones: 52 (777) 3132260 52 (777) 3114083 52 (777) 3132087
Singapore, Malaysia, Thailand, & SE Asia   	**Research Instruments** www.ri.com.sg 26 Ayer Rajah Crescent #03-10 Singapore 139944	**Graham Bennett** graham@ri.com.sg Tel: +65 6571 0888 DID: +65 6571 0893 Mob: +65 93821401 Fax: +65 6571 0868
Taiwan 	**Omega Scientific** www.omega-cana.com.tw 13F.-3, No.415, Sec. 4, Xinyi Rd. Xinyi Dist. Taipei City 110 Taiwan (R.O.C.)	**Steve Wang** steve.wang@omega-cana.com.tw Tel: 886-2-8780-5228 Fax: 886-2-8780-5225

Actuel Software Update

During the 4th quarter of 2011 we will be releasing an upgraded version of our Actuel software, which is used with the 9103 USB Picoammeter (with or without the bias). In addition to the features listed below, we also now have a LabVIEW driver available. We will notify all 9103 users when the upgrade is posted to our website.

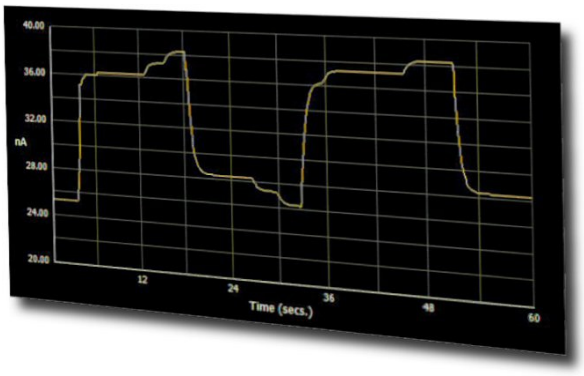
Planned new features include:

Data Recording	• Option to record every "n" data points • Option to average every "n" data points • Synchronized start of recording/sampling
Data Export	• Option to export with real-time time-stamp for recorded data (local and UTC) • Option to export with relative time • Export/copy delimiter options: comma (.csv), tab, or space
Graph Options	• Recall last set of graphing options
Interface	• Hotkeys for faster access to a variety of features

The following is an example of exported 9103 data:

```
10/3/2011 3:16:56 PM,0.0171 nA
10/3/2011 3:16:57 PM,0.0172 nA
10/3/2011 3:16:58 PM,0.0172 nA
10/3/2011 3:16:59 PM,0.0158 nA
10/3/2011 3:17:00 PM,0.0160 nA
10/3/2011 3:17:01 PM,0.0154 nA
10/3/2011 3:17:02 PM,0.0136 nA
10/3/2011 3:17:03 PM,0.0160 nA
10/3/2011 3:17:04 PM,0.0159 nA
10/3/2011 3:17:05 PM,0.0163 nA
10/3/2011 3:17:06 PM,0.0165 nA
```


```
0 S,0.0171 nA
1 s,0.0172 nA
2 s,0.0172 nA
3 s,0.0158 nA
4 s,0.0160 nA
5 s,0.0154 nA
6 s,0.0136 nA
7 s,0.0160 nA
8 s,0.0159 nA
9 s,0.0163 nA
10 s,0.0165 nA
```



New Product – 1402 High Performance Low Energy Ion Source Package

The 1402 is a high-performance, low energy ion source package that can be used as a neutralizer on high-end scanning Auger systems such as the PHI 660 through 690 series instruments. The 1402 can provide as much as 150 nA of current with as little as 10 eV beam energy, which allows you to balance the electron charge without sputtering into the sample. But wait, there's more! The 1402 is priced at about half of what similar packages cost.

So whether you need a low energy ion source for charge neutralization or other applications such as ion scattering static SIMS, the 1402 is worth looking at. Please contact us for more information and a quotation at 541-330-0723 x 310 or by email.

Basic Specifications

Beam Energy	5 eV to 3 keV continuously variable (5 keV optional)
Beam Current	5 µA maximum @ 2 keV Beam
Spot Size (FWHM)	1.5 mm @ 1.0 µA, 20 eV 1.0 mm @ 2.0 µA, 40 eV 0.2 mm @ 3.0 µA, 1 kV 20 mm Working Distance
Electrical	115/220 V, 50/60 Hz Auto-select
Flanges	2.75" (70 mm) CF for mounting 1.33" (34 mm) CFF gas inlet

For more information, please click here to view the complete 1402 datasheet.

Additional AVS Exhibitions in 2012

In addition to the AVS symposium in Nashville, we'll be attending and exhibiting at the following symposia in 2012.

- February 22, 2012: NCCAVS 32nd Annual Vacuum Equipment Exhibition in San Jose, CA
- April 23rd - 27th (exhibit April 24th - 25th), 2012: 39th ICMCTF Exhibit in San Diego, CA
- April 28th - May 3rd (exhibit May 1st - 2nd), 2012: SVC/TechCon 2012 in Santa Clara, CA
- June 20th - 21st, 2012: Pacific Northwest Chapter Symposium and Vendor Exhibit in Richland, WA, home of EMSL

Please see our website for more information and updates to the list of symposia we are attending.

We look forward to seeing you there!

Congratulations to our Newsletter Naming Contest Winner!

We had a Newsletter Naming Contest in our last newsletter. As you can tell from the first page of this issue, there was a winner! The name of our newsletter is now *RBD Ink*. (Personally, the Editor of the newsletter *loves* the new inkwell-and-pen logo.)

Our Happy Winner

As promised, we're announcing the winner's name here: Tony Firth with Intermolecular, Inc. Thank you, Tony, for your winning entry. Also as promised, Tony will be receiving an RBD 9103 Picoammeter as a token of our thanks.

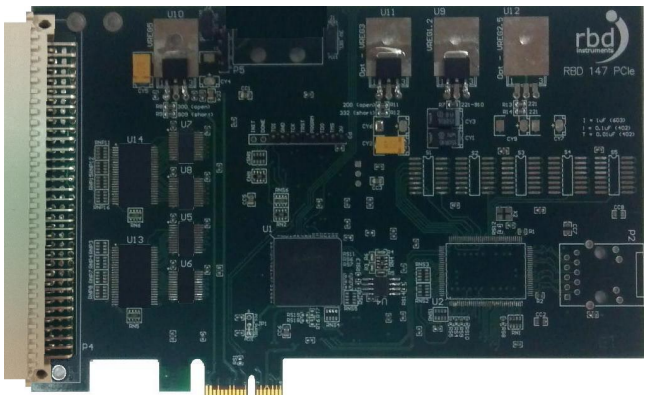
As many of you may remember, we are changing the name of our newsletter to bring focus to our company's transition from being predominately a service-oriented company into a company that also provides scientific instrumentation for the materials science industry. While we are still servicing older PHI systems and components more than 20 years later, we now also provide other products to the materials science market. (Don't worry, we're not going into the printing business.)

You can still expect to see valuable tech tips on PHI systems and components, and references to useful website and publications. Updates on new product development and application notes for existing RBD products will also be provided.

We hope that you will enjoy *RBD Ink* as much as you have enjoyed *The Service Detail*! Thanks for reading.

RBD PCIe Card Update

The card design is now complete and we will start shipping our new PCIe card during the 4th quarter of 2011.



The PCIe interface card is pin-for-pin compatible with the PCI version. The only difference is that it fits into a full sized PCIe slot rather than a PCI slot. In the last year it has become more difficult to buy a new PC with a PCI slot in it, and we anticipate that PCI will be obsolete and unavailable within a couple of years.

So, when you need to replace your old PC with a state-of-the-art PC, our PCIe card will allow you to continue to use your RBD software upgrade on your PHI surface analysis system. The 32-bit and 64-bit versions of the Windows 7 operating system are now supported.

For more information, please contact us at 541-330-0723 x 310 or by email.

University of Dayton Short Courses

A Comprehensive Set of Courses on AES and XPS/ESCA including Data Processing April 16th through 20th, 2012

The University of Dayton will be hosting a set of short courses on AES and XPS/ESCA including Data Processing, 16-20 April 2012. The AES course is two days and the XPS/ESCA course is three days, and the courses can be taken individually or as a package. The short courses include data processing procedures rather than having a separate 1-day data processing course. Perhaps you or a colleague might be interested in attending one or both of these courses at the University.

The five-day set of short courses on the two major electron spectroscopy techniques, Auger Electron Spectroscopy (AES) and X-ray Photoelectron Spectroscopy (XPS/ESCA), is designed for scientists, engineers, technicians, and students who would like a detailed understanding of the techniques and use of AES, XPS/ESCA, and Data Processing for surface analysis and depth profiling. As mentioned above, these courses can be taken as a 5-day package or they can be taken individually. A comprehensive set of notes on AES and/or XPS/ESCA will be provided for each course participant. You may also order an optional copy of the 900 page book "Surface Analysis by Auger and X-ray Photoelectron Spectroscopy," edited by D. Briggs and J.T. Grant, 2003.

The courses will be held at the University of Dayton's new River Campus at 1700 South Patterson Blvd. Registration fees include copies of the notes (in color), continental breakfast, lunch, coffee breaks and snacks, and parking at the University's River Campus. The nearby Marriott hotel is offering free shuttle service from the hotel to the short course location if you do not get a rental car. Classes will be held from 8:30 AM to 5:00 PM each day. CEUs (continuing education units) will be awarded by the University of Dayton for those interested.

Click on these links for more information:

Detailed information on the AES and XPS/ESCA courses

Registration information

Printable registration form (showing all fees)

Online registration

Schedule:

Days and Dates	Topics Covered
Monday-Tuesday, April 16th - 17th 2012	Auger Electron Spectroscopy (AES) including Data Processing
Wednesday-Friday, April 18th - 20th, 2012	X-ray Photoelectron Spectroscopy (XPS/ESCA) including Data Processing

For more information about registering for the event, or if you have any questions, please email Denise Quillen, Special Programs and Continuing Education, or call her at 937-229-2347. For questions regarding the course content, please email John Grant.

Tech Tip – Intermittent EMO Box Switches

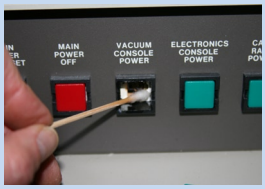
Many PHI surface analysis systems use an EMO (Emergency OFF) box to control the main power to the electronic and vacuum consoles, and to the card rack power supply. Over time, these switches can become sticky and cause intermittent system problems.

The following procedure describes how to clean the EMO box switches:

1. Make sure that all valves are closed on the AVC.
2. Turn off the turbo pump(s).
3. Turn off the card rack power and all electronic units, including the ion gauge and ion pump controls.
4. Hit the red EMO button. That will turn off all power to the system. (This is something good to test once in a while anyway).
5. Pull the switch cap off of the Vacuum console switch. You will need an X-ACTO™ knife or small screwdriver to get it off. Note the position of the little tabs inside the cover because the switch will need to go back in the same way.

6. Remove the CM85 lamp using a needle-nose pliers. (RBD provides CM85 lamps; they burn out after a year or two).

7. Use a cotton swab that is wet with a contact cleaner and work it into the switch thoroughly. Use a clean cotton swab to remove any excess contact cleaner.



8. Reinsert the CM85 lamp (or insert a new lamp).
9. Replace the switch cap and verify that the switch moves in an out properly.
10. Repeat the procedure for all switches.
11. Once finished, make sure that all switches are in the OFF (out) position.
12. Press the Yellow Reset button to reset the main power.
13. Press the Electronics and Vacuum Console buttons to turn the power back on.
14. Start the ion pumps and turn on the ion gauge.
15. Make sure that the AVC main power is on.
16. Turn the turbo pump(s) back on.

The system is now ready to use. (The RBD part number for the CM85 lamp is 612655RE.)

Is my Credit Card Protected from Fraud?

Yes! We destroy all credit card data once your order has been processed. This is why we ask you for your credit card data when you place a new order.