



bladewerxTM
Cutting-Edge Technology for Instruments and Measurement Applications



EpeéBZM

Quick Start Guide

What's in the Box?

EpeéBZM

The Bladewerx EpeéBZM is a continuous air monitor that detects alpha and beta emitting particulates while compensating for radon background in real time. It can be configured to measure the presence of specific isotopes and then alarm at a preset level. Measurements are made by pulling air through a filter monitored by the detector. When the captured particulates decay, the emitted alpha and/or beta particles are detected and the EpeéBZM records the isotope of interest particles and their energies. Over the course of several hours, three naturally-occurring peaks will emerge in the alpha energy spectrum. Using the Alpha Peak Fitting Software, the EpeéBZM subtracts the counts from the naturally-occurring Radon and performs alarm determinations and data reporting for a specific isotope.

Get It Running!

Plug It In

Begin charging the EpeeBZM by plugging in the A/C Adapter. The Charger LED will be red to indicate the battery is charging. The light is off when it is not plugged in. You can experiment with it while it is charging.

Check the Filter

I know you want to turn it on, but check if a filter has been installed first. On the radial head at the end of the umbilical, twist the Filter Holder until the indents on the cap line up with the screws and pull it out. A screw-on cap retains the filter. You should see a white filter—not the black filter support indicating a missing filter! Now just push the filter holder in and twist it an eighth-turn, locking it under the screws.

Turn It On

Now you can go ahead and push the power button! The red and green LEDs will come on immediately. It will take 30 seconds to warm up and then you will hear the wonderful hum of the pump. When you hear the EpeeBZM report “Starting Dose Measurement”, it has begun collecting data.

Install PC Software

While you wait for the counts to accumulate, install the *EpeeBZM Calibration Interface* program file from the customer CD onto the computer. The Setup file is located in the ***EpeeBZM Calibration Client*** folder.

Transferring Log Data to PC

There are two ways to retrieve log data off the EpeeBZM: by inserting a USB jump drive into the USB port on the EpeeBZM, and by attaching the EpeeBZM via the micro-USB cable and retrieving the data manually using your Window File Manager.

- After inserting a USB thumb drive in the EpeeBZM, the software will recognize it and automatically copy all log files to the drive. Voice output announces “Copying log files” and “Copy complete” when finished.
- Using the mini USB cable, plug the EpeeBZM into the PC. Windows Mobile Device Center will automatically open and sync to device. If Windows Mobile Device Center does not start, or if it is not loaded on your PC, a copy of the 32-bit and 64-bit installers is located on the CD. ***[It may take several minutes to connect the first time while Microsoft Windows downloads the appropriate drivers.]*** Once connected, use the Windows File Manager to browse the contents of your device. It will show up under Devices and Drives as BWEPCAM_XXXX (where XXXX is the serial number). Open the BWEPCAM_XXXX folder, click the root symbol “\” and then open the My Documents folder. Transfer appropriate log files to the location needed. Use the *Microsoft Excel* worksheets included in the *Burn-in Data* folder on the CD to import the log data text and view the spectrum growth, and the DAC-h chart.

Run Overnight

Leave the EpeeBZM running overnight to collect a sample for custom calibration. In the morning, run the *Calibration Client* and connect to the EpeeBZM using the micro-USB cable. Check the spectrum and peak fit curve under the *Calibrate—Alpha Energy...* menu to verify the peak markers are properly located. If they are not, move the red markers to the height of each peak. When looking at the spectrum, the red peak fit curve should closely match the spectrum histogram counts.

Leave the EpeeBZM plugged into the A/C Adapter when doing overnight sampling.

Set Up the EpeeBZM for the Isotope(s)-of-Interest

Using the Calibration Client, under **Monitor—Instrument Options...** set up your EpeeBZM for monitoring the alpha isotope-of-interest on the **Iso 1** tab. A second alpha Ioi can be defined on the **Iso 2** tab

Your EpeeBZM is ready to go!

Filter Change Procedure

In order to minimize the possibility of air leakage around the filter in the EpeeBZM, lubrication of the mating surface between the filter holder and the sample head is necessary. Bladewerx recommends that the O-rings on the filter holder be regularly coated with a thin **layer of vacuum grease** (such as Dow Corning high vacuum grease).

The photo below shows the O-rings that requires lubrication.



Parts of your EpeeBZM

Radial Entry Head:

There are three parts to the radial-entry sampling head:

Detector Side – encloses the detector with face exposed to filter

Filter Side – receives the filter holder and positions at appropriate distance from detector

Filter Holder – removable holder for filters with a screw-on cap to retain filter



Buttons:

Power – Turns pump on and off, begins recording data

Alarm Acknowledge – 1st press silences alarm, 2nd press clears alarm, Hold down for 10 seconds resets the instrument and starts a new spectrum.

Volume Up and Down – Changes the volume of the voice and earbud output

LED Indicators:

Trouble – *yellow* – (solid yellow) the BZM is out of calibration and is not sampling correctly. (Blinking yellow) Flow is out of range or other non-fatal error)

Normal – *green* – the BZM is sampling correctly and counts are at an acceptable level (Blinking green indicates an insufficient sampling time to meet alarm levels.

Alarm – *red* – at least one reading is above the acceptable level

Charger – *red* – charging; *off* – not plugged in

Ports:

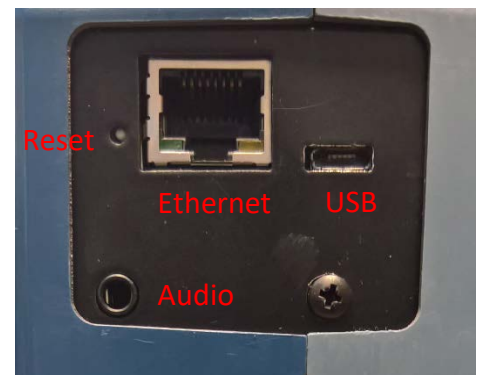
Power – (back face) for A/C Adapter to wall outlet to charge the unit

Ethernet – used to connect to a Local Area Network.

Micro USB – for micro USB cable to PC – used to download data directly to the PC. When used with the USB Adapter cable, a USB memory stick can be used to download data in the field

Audio – for headphones – used to report data and alarm in noisy environments

Reset – used for a hard reset of the instrument



Accessories:

A/C Adapter – to charge the internal battery or for continuous use

Micro USB cable – to connect BZM to PC for configuration, calibration and pulling data

Micro USB to USB Adapter cable – to attach a USB memory stick

Shoulder Strap – to carry when used as a personal breathing-zone-monitor (BZM)

Software CD (one per order) – to install software and view manual

Flow Cal Aid (one per order) – to calibrate the air flow of the BZM

Filters (sold separately) – to catch the alpha/beta particulates in front of detector