

# BWB FP-PC

## Flame Photometer Software Manual



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# 1. Introduction

BWB FP-PC Software provides a useful interface to the BWB Flame Photometer (FP) facilitating the following operations: -

- Normal calibration
- Report production
- Logging of streaming data for continuous on-line applications. (A 4-20 ma signal can also be output proportional to a calibrated channel on the FP).
- Extraction of data from the flame photometer when operated in automatic or semi-automatic mode with or without auto-sampler/auto-diluter known as Automatic Fluid Handling System (AFHS)
- Calibration manipulation including:
  1. Upload from / download to the FP
  2. Storage / retrieval of calibrations using the PC or system hard drive

These functions are provided by the *Welcome, Calibrate, Report, Logging, AFHS tabs* together with one more (XP-Cal or BIO-Cal) that is dependent on the mode that the FP is being operated in.

If the FP firmware is below v2.46 then operations are limited to the first 4 tabs.

With FP firmware v2.46 onwards the AFHS tab will be activated and either the XP-Cal OR the BIO-Cal tab depending on the mode of operation - see Manual for details.

The PC should be connected to the FP via a standard USB cable.

## a. System Requirements.

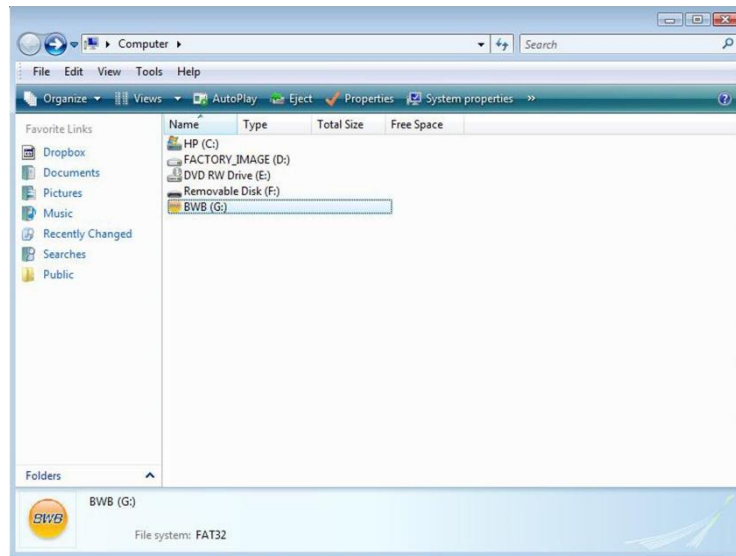
The BWB FP-PC is designed for a PC running on Microsoft Windows. Currently the software supports all versions of MS Windows from XP.

Connection to the PC is via a USB (2 or 3) port.

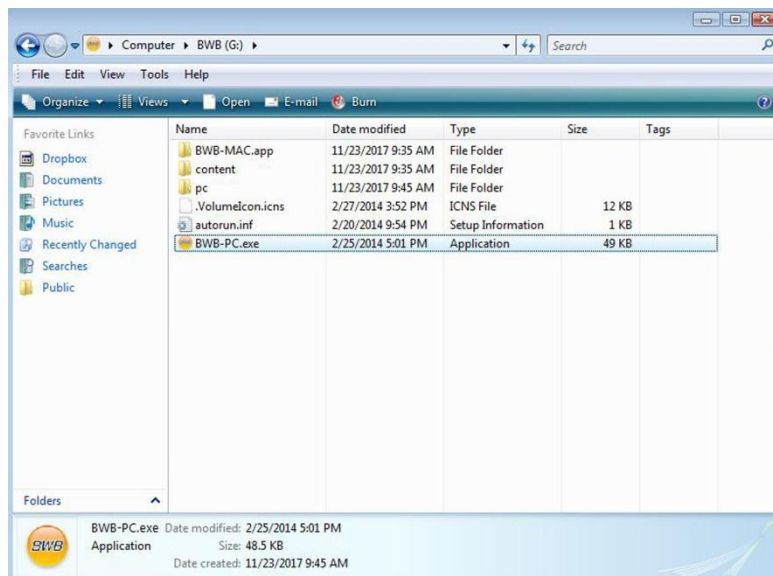
## b. Getting Started.

- Included within the packaging of your flame photometer is a memory stick.
- The memory stick includes an Autorun file that will bring up the FP-PC app.
- This app will allow the user to install the FP-PC software and visit the BWB website.
- Included within the app are all the current Manuals and Paperwork supplied with the Flame Photometer in PDF format.
- Adobe reader is included in the package to enable the user to read the PDF's

If the memory stick does not autorun, navigate to your *Computer* folder and find the drive. The following screenshot depicts the file location and in this instance the BWB app can be found under drive G.

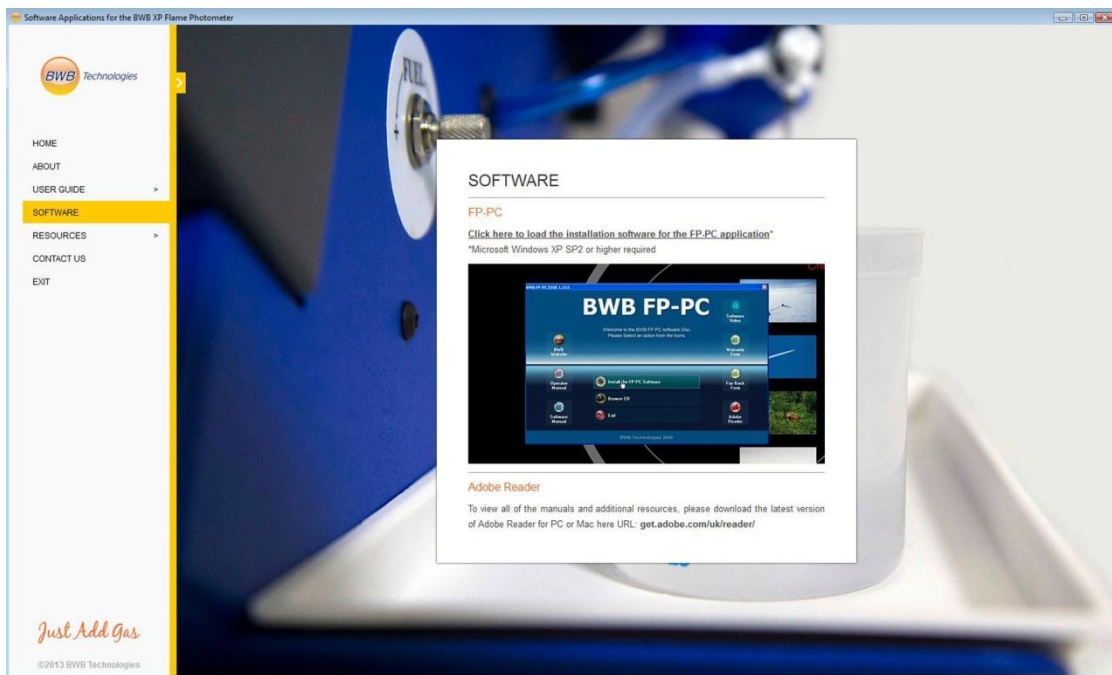


Open the drive and select the BWB-PC file. Double click it to open. Some systems will take up to 30 seconds to load the application so please be patient.

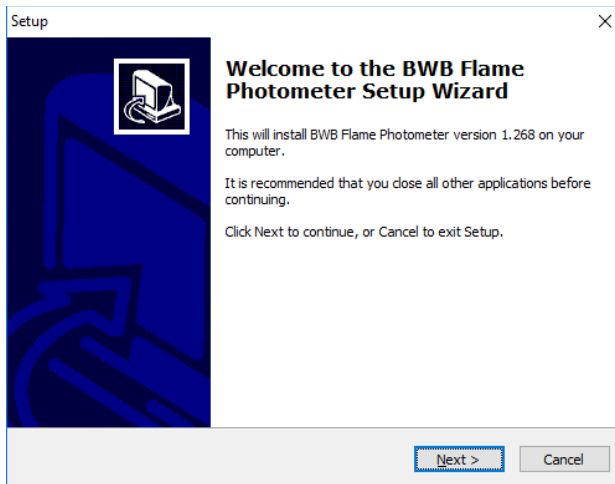


## 2. Installation

With the application open navigate using the banner on the left hand side of the screen to 'Software', the following 2 screenshots depict such.



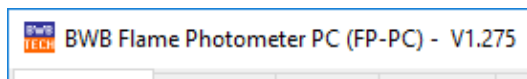
Click on "Click here to load the installation software for the FP-PC application." The installation wizard will open, follow the prompts in order to install the software. The following screenshot depicts the wizard.



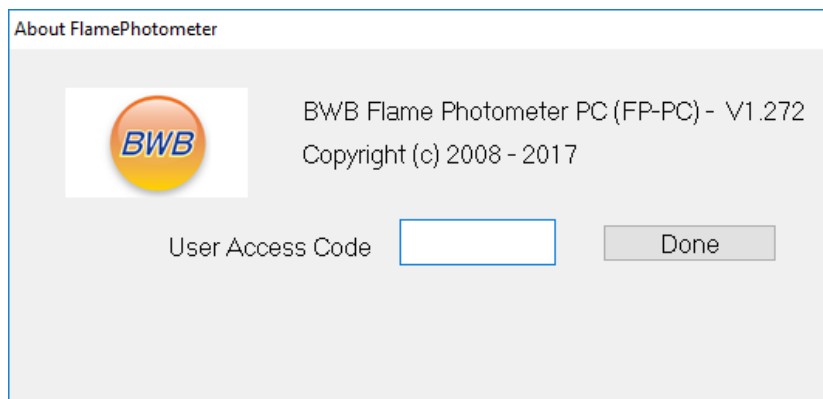
### 3. Password Protection

From the release of version 1.272 a new feature has been added to enable a password to be set in order to limit access to authorised users.

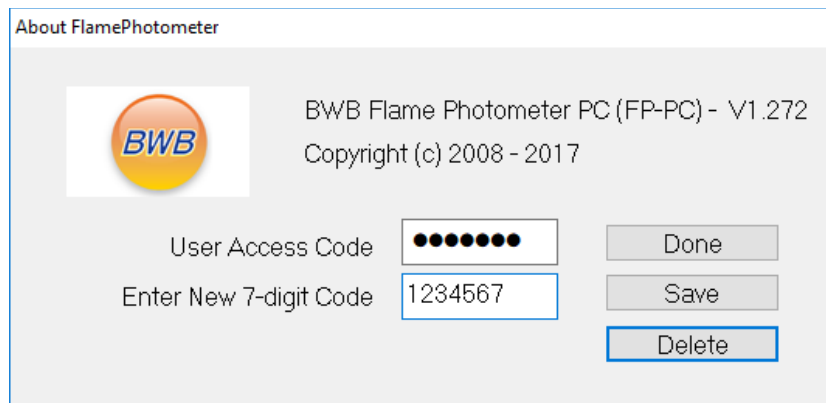
To set the password, single click on the BWB logo at the top left corner. Click on '*About Flame Photometer*'.



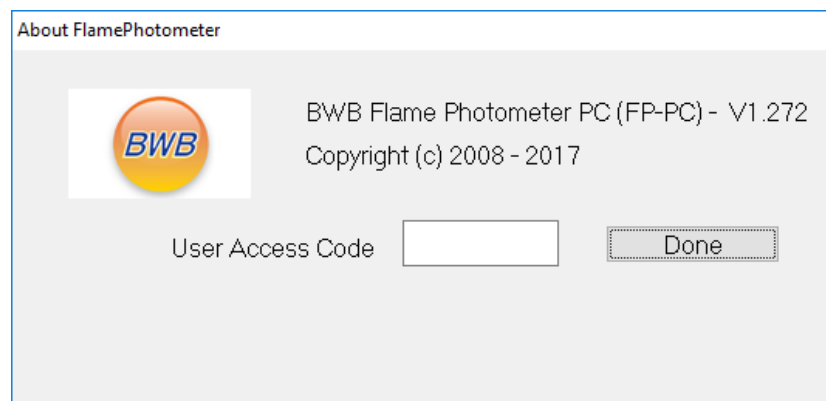
- a. Enter the master service code (this can be obtained from your distributor).



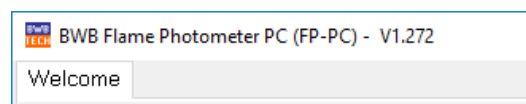
- b. Enter a new code and click save.



- c. The next time you try to open the software you'll be asked for the code.

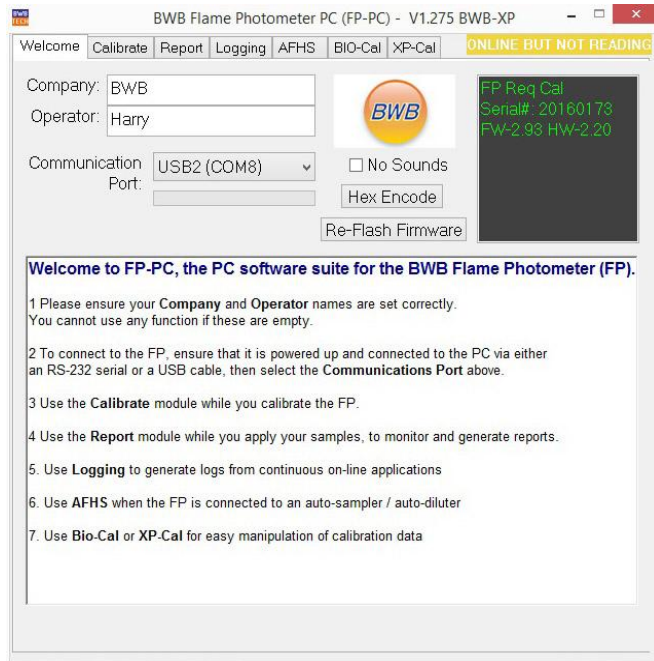


- d. If the code is not entered or is incorrect you will only have access to the "Welcome" tab on the software.



- e. The code can be re-set using only the master service code.

## 4. Welcome Tab



When first started the program will open the “Welcome” tab. To begin, both the *Company* and *Operator* boxes must be filled in to access the remaining functions.



The communication port must be set. Make sure that a USB cable is attached between the FP and PC, and that the FP is powered On. From the drop down menu choose which port is desired. The status bar at the upper right hand corner indicates when the FP and PC are linked.

There are two other features available on the “Welcome” Tab.

- No Sounds: Tick on or off if sounds indicating various actions are desired or not.
- When the FP is communicating with the PC, the green bar will show the data activity. The upper right yellow bar will inform the user of the FP status while the box below it will show the FP serial number, Firmware version and Hardware version.





The upper bar will change to green when the FP is set to read mode.

## 5. Calibrate Tab



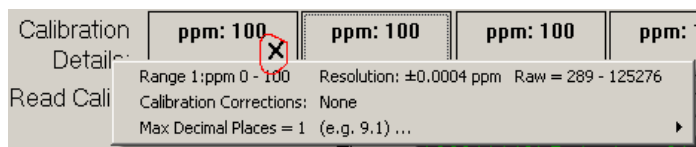
The Calibrate Tab can be used as an aid in calibration of the FP as well as to indicate the quality of the calibration.

At the bottom is a 1-minute real time graph. It provides a visual indication during the calibration process. To activate one or more of the ions, tick its' "Show" box. Different coloured traces will be shown for each ion chosen.

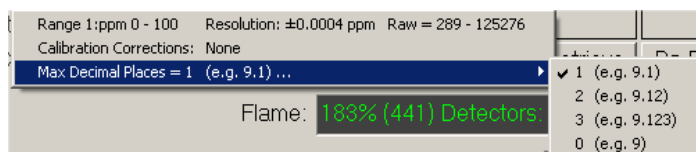
A graph of the calibration data can optionally be displayed in place of the 1 minute graph by hitting the "Graph Type" button.

After each desired ion is calibrated tick its' "Retrieve" box. The calibration data will then be displayed.

- Date: The current date is obtained from the PC. It is re-settable by the operator.
- Time: The current time is obtained from the PC. It is re-settable by the operator.
- Calibration Box: Shows the units and calibration points used during calibration.



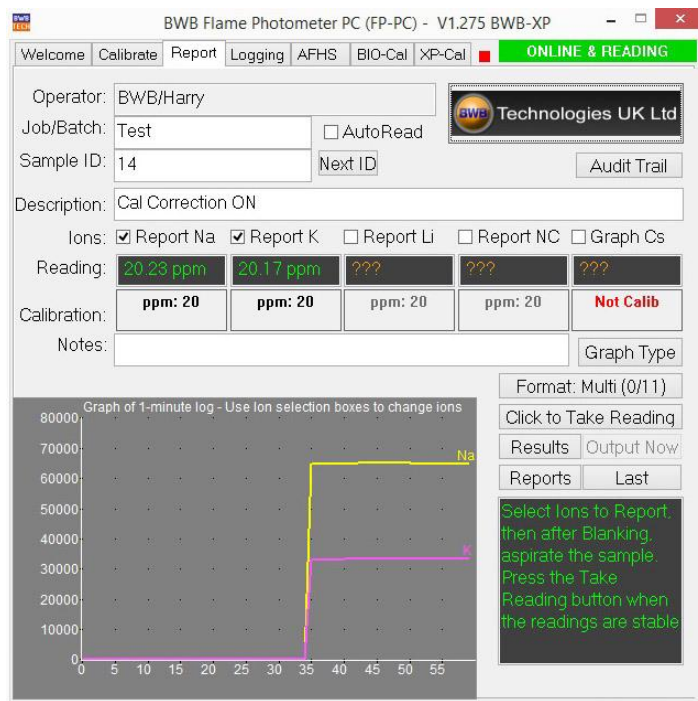
Clicking the box shows each segment of the calibration and the resolution for that segment.



The maximum decimal points can be set from the FP-PC to the instrument. See the Operator Manual for details.

## 6. Report Tab

The Report Tab is the heart of the FP-PC. It aids reading accumulation and generates a report containing all the pertinent information. It is activated only when in the Read Mode on the FP.



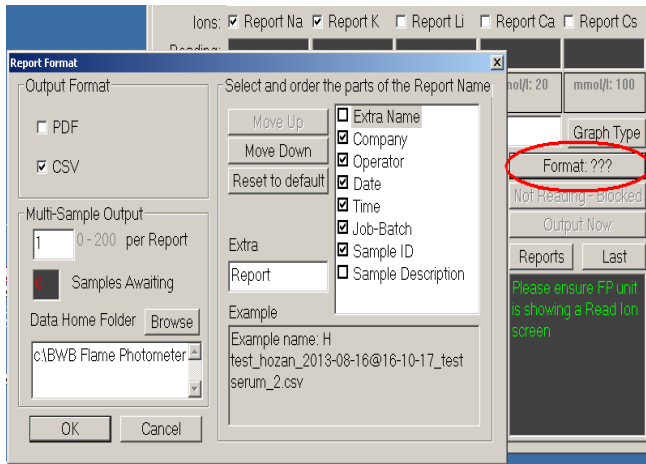
The “Job/Batch”, “Sample ID”, and “Description” fields must be filled to take a reading. To the right of Sample ID is the “Next” box. If the Sample ID has a numeric value clicking the box will increase the number by one.

For example, if the sample is “Grab sample 1” it will become “Grab sample 2”. The “Sample ID” must be changed for the next sample to be read.

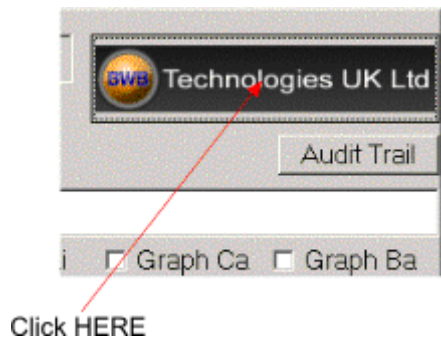
The “Notes” field is optional and allows any other information to be entered into the report.

At the bottom is a 1-minute graph that provides a visual indication during the sample reading or a plot of the current calibration data for the ions selected. One or all of the ions can be graphed but only those ions that have been calibrated and retrieved (from the Calibrate Tab) can be reported.

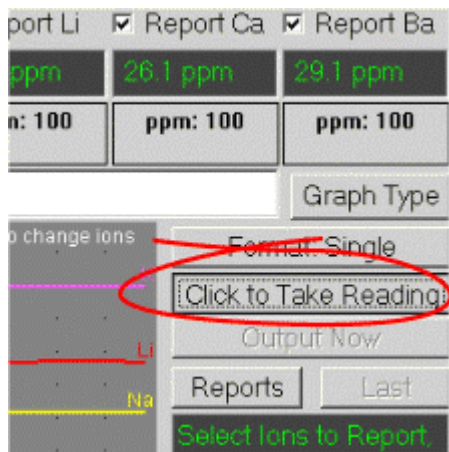
With the “Graph Type” button the “Reading” display shows the real time value of the sample. The “Calibration” display is the same as on the Calibrate Tab and should be checked that the data is current. Readings can be taken by running the FP in continuous “Reading” mode and then clicking on the “Take Reading” box when satisfied that the graph plot is stable, OR by ticking the “AutoRead” check box and running the FP in AutoRead mode. Reports can be generated as .PDF files or .csv files for direct import to Excel. Reports are saved at DataHomeDirectory\Reports. DataHomeDirectory can be changed by the user (see next section).



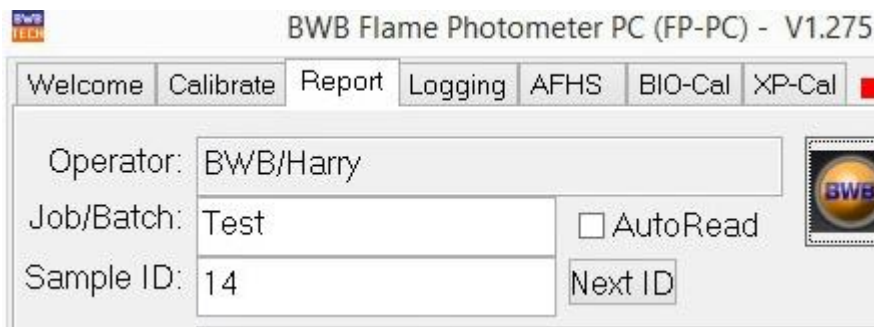
Clicking on the “Format” button will open up an options page where the user can select the type of report output and set the number of readings stored onto a single report. This allows the user to save multiple readings to a single file. On the right hand side of the options menu the user can set the information used in the name format of the saved files. The location for storage of reports can also be set here.



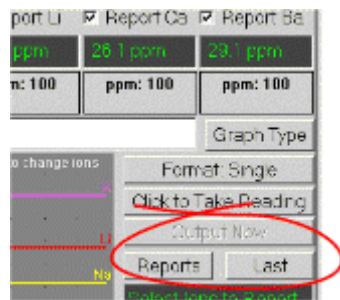
Clicking the Logo will allow the operator to select a company logo for the PDF reports.



Once the quantity of samples required is set, a sample can be run through the FP. When the reading is stable, click the “Take Reading” button to record the information. This will automatically increment the numeric part of the sample ID.



The Sample ID can be further incremented by clicking the “Next ID” button.



Once all the required readings have been taken a report of the selected type will be generated. Clicking the “Output Now” box will generate a report immediately. Clicking the “Last” button will open the last report saved. “Reports” will show the contents of the Reports folder so that the desired report can be selected for viewing.

Test\_Technical1\_2009-07-10@08:46:43\_10709\_Test Example 1-Test Example 3.pdf - Adobe Reader

File Edit View Document Tools Window Help

1 / 1 103% Find

## Test

BWB Flame Photometer - Report

FP Serial#: 20090112 (FW-1.92 HW-1.30) on Communications Port: COM1 Serial

Operator: Technical1  
 Job/Batch: 10709  
 Description:

Calibration:

08:43 / 10 Jul 09	Na-ppm:	100
08:43 / 10 Jul 09	K-ppm:	100
08:43 / 10 Jul 09	Li-ppm:	100
08:43 / 10 Jul 09	Ca-ppm:	100
08:43 / 10 Jul 09	Ba-ppm:	100

Manual Readings:

Time / Date	Sample ID	Na-ppm	K-ppm	Li-ppm	Ca-ppm	Ba-ppm
08:46 / 10 Jul 09	Test Example 1	88.3	89.1	90.0	88.9	87.3
08:46 / 10 Jul 09	Test Example 2	88.7	89.1	90.0	88.9	87.7
08:46 / 10 Jul 09	Test Example 3	88.7	89.1	90.0	88.9	87.7

Notes:

## 7. Logging Tab



The “Logging” tab is designed to give functionality useful when considering continuous on-line applications.

Data are stored in .csv file format suitable for direct input to Excel.

Two logs are produced: - The first is called IonLog.csv and is output regardless of any user selection.

IonLog.csv records all readings for all ions every 1 second.

On entry to the “Logging” tab any data previously stored in the IonLog.csv is displayed but data acquisition is not activated until the user chooses to overwrite any existing data or append new data to any existing. Data continues to be saved for up to 4 hours (this figure may be extended by editing the .ini file for the application).

The lower half of the window displays a trace of the current readings in real time.

The user can select which ions to display and whether to display raw data, concentrations or both.

If the mouse is hovered over the graphical area cursors become visible which enable the user to zoom in on sections of data of particular interest.

The second log produced is user defined. The ions to be logged, Raw, Concentrations or both and the interval for logging are all user selectable.

### **Seeing real time updates.**

It is possible to get updates displayed while the FP-PC is active. The following is using Excel 2007. Other versions may be different. For this example the active logging file is named TestingU812 (this would be entered in the "File Name" text box).

1. Open a new Excel file. Go to the Data Tab and then Get External Data- From Text.
2. Go to where the file TestingU812 is, highlight and click Import. (See previous section on the Report Tab "Report" button.)
3. Follow the dialogue boxes and input Delimited, Comma, General, and click Finish. Start at the desired position.
4. Go to Connections and click Add. Follow the prompts to add TestingU812. At this point clicking on Refresh will update by hand.
5. To set it up for auto update, go back to Connections and for file TestingU812 click on Properties. On the Usage Tab, under Last Refreshed, unclick "Prompt for file name on refresh". Click on "Refresh every \_\_ minutes". Set the minute interval desired (one minute is the minimum).

At the set interval this file will be updated and all the data points that were entered in TestingU812 in the mean time will be entered.

This can be very useful for a continuous process and the BWB Collection Cup option to monitor and record actively.



## 8. AFHS Tab

The screenshot shows the AFHS tab interface. At the top, there are navigation tabs: Welcome, Calibrate, Report, Logging, AFHS (selected), BIO-Cal, and XP-Cal. A status bar indicates 'ONLINE BUT NOT READING'. The main area is titled 'AFHS - AUTOMATIC FLUIDS HANDLING SYSTEM' and 'AFHS ENABLED'. It is divided into three main sections: 'AutoSampler Tray Settings', 'Auto-Sampler Tray Results', and 'AutoRead Stored Results'. The 'AutoSampler Tray Settings' section contains several input fields: 'Tray ID (0-99)' with value 1, 'Tray Reference' with text 'AV with OTA zero III no Cs IR', 'Size (0-89)' with value 5, 'Start at Sample' with value 1, 'Dilution Ratio Override (0-100, 0 = OFF)' with value 100, and 'Re-calibration positions (0-89, 0 = OFF)' for positions 1 through 5, each with a value of 0. There are two buttons: 'SEND Tray Settings to FP' and 'RETRIEVE Tray Settings'. The 'Auto-Sampler Tray Results' section includes a 'Vial No' dropdown menu set to '01', a 'Sample Notes' text field, and buttons for 'CLEAR Tray Results', 'RETRIEVE Tray Results', 'LIST Tray Results', 'Output Report (PDF)', 'Output Report (CSV)', and 'Previous Reports'. Below these are input fields for elements Na, K, Li, NC, and Cs. The 'AutoRead Stored Results - Audit Trail ... Ions Selected on Report Tab will be included in Report Output' section has buttons for 'Retrieve AutoRead Results', 'Review', and 'Report (CSV)'. At the bottom, there is a 'Comments:' text field.

The auto-sampler / auto-diluter is controlled directly by the FP (a PC is not required to take a tray of readings).

The AFHS tab provides means to upload the current FP Tray configuration by clicking the “*RETRIEVE Last Settings*” button (ID, size, dilution ratio and re-calibration positions) and a set of results when the Tray is complete (“*GET TRAY RESULTS*”).

This information can then be reviewed (*LIST TRAY RESULTS*) and used to generate a report in PDF or .csv format (“*OUTPUT REPORT PDF / CSV*”).

A tray reference can be added to the report and sample notes for each sample as necessary.

The report names are in the same format as that chosen in the Report Tab and reports are stored in the DataHomeDirectory folder.

Tray configuration can also be downloaded to the FP (“*SEND Tray Settings*”).

See AFHS manual for detailed use of auto-sampler / auto-diluter.

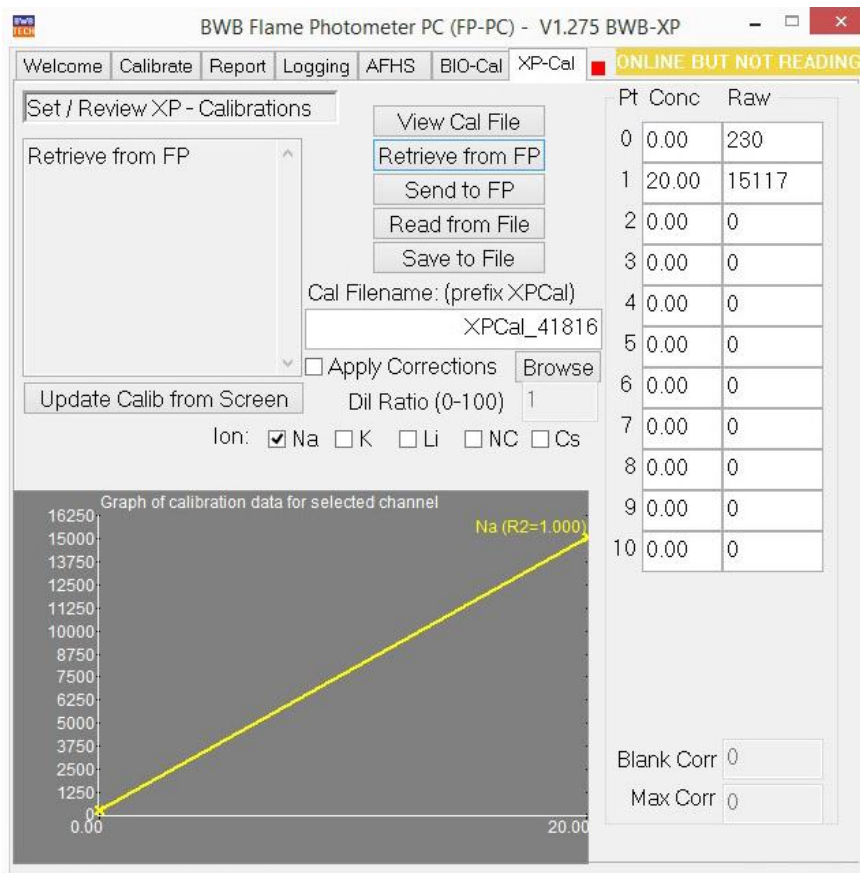
Note:

**FP firmware version 2.46 or higher is required for AFHS.**

**The send and retrieve functions will only become active if AFHS is enabled in the FP.**

The lower section of window is used for retrieval of historical AutoRead readings. These may be reviewed and or saved as PDF or .csv reports as above.

## 9. XP-Cal / BIO-Cal Tab



XP-Cal tab

**The BIO-Cal or XP-Cal tabs will only be enabled with FP version 2.46 or higher.**

If the FP is being run in BIO mode then the BIO-Cal tab will be displayed otherwise XP-Cal will be displayed.

See appropriate manual for details on BIO and XP operations.

The BIO-Cal / XP-Cal tab is designed to enable calibrations to be sent to and received from the FP, reviewed, manually adjusted, stored and retrieved from hard storage.

The BIO-Cal and XP-Cal Tabs provide the same functionality but are laid out differently to take account of the different calibration points available.

The name of a calibration file to be loaded may be entered in the "Calibrations File Name" text box or the "Browse" button can be clicked to navigate to and open the desired file.

**Note: Only files with the prefix BIOCal will be selectable if in BIO mode or XPCal if in XP mode.**

Once a file has been opened the calibration concentrations and raw data will be displayed.

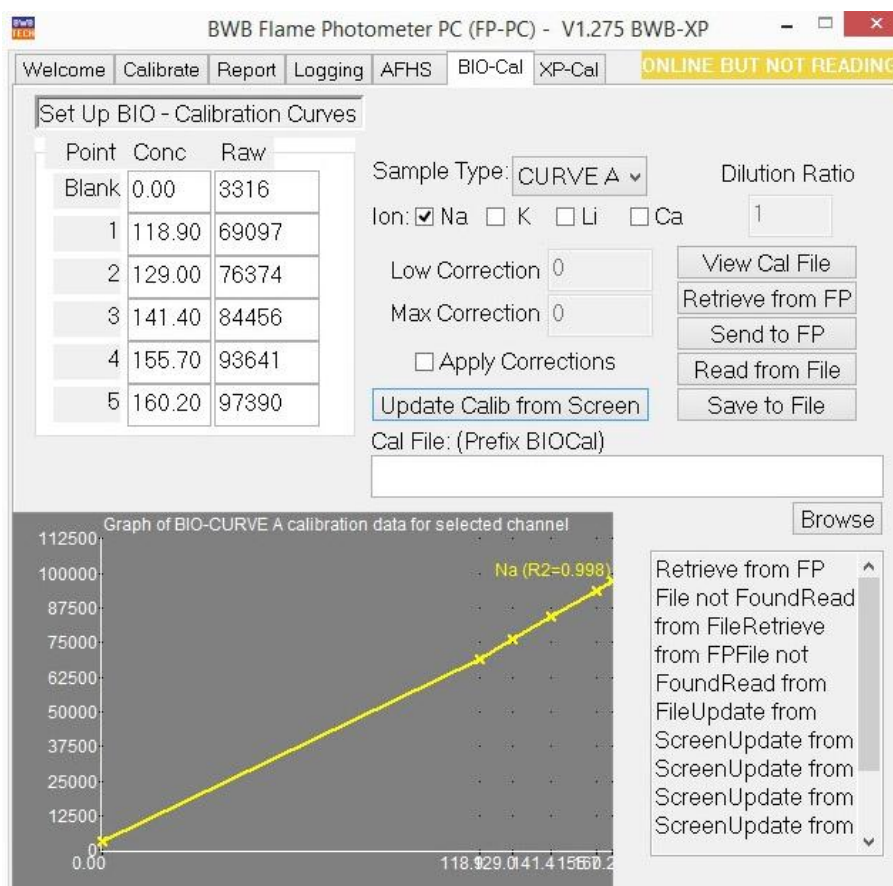
These values may be edited and applied using the "Update Calib from Screen" button.

The new data may be sent to the FP by clicking the "Send to FP" button or re-saved to hard disk by clicking "Save to File" - the file can be saved under a different name.

The file thus saved is a csv file which may be edited using Excel by clicking on the “View Cal File” button.

Any existing calibrations in the FP can also be uploaded using the “Retrieve from FP” button. This data can then be manipulated saved and re-sent to the FP as required.

The calibration information that is transferred and saved is uncorrected – the current blank and high-point corrections can be applied by checking the “Apply Corrections” checkbox.



Bio-Cal tab

The main differences between BIO-Cal and XP-Cal are:

- In BIO only 5 calibration locations are defined whereas in XP mode there are 10.
- BIO has two independent sets of calibration points: Serum and Urine for the regular BIO or Curve A and Curve B for BIO-AV. With XP there is only one set.

The BIO-Cal tab is particularly useful since there are a large number of calibrations to be performed and it is periodically necessary to enter new calibration concentrations (eg. when new standards are used). Together with the automatic calibration of the FP in BIO mode this takes away a large amount of the labour content in recalibration of the instrument.

The XP-Cal tab may be useful where the FP is used for a number of different applications that have different calibration requirements. It is possible to upload the current calibration for application 1, recalibrate (or download a previously saved calibration), perform application 2, and then reinstate the original. It is then only necessary to do the normal regular corrections as required.