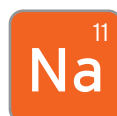


## The New Digital BWB Flame Photometer Range

Innovative, World Leading Technologies





A totally digital, microprocessor based instrument  
bringing flame photometry into the 21st century.



**Flame photometers that  
push the boundaries of low  
temperature flame analysis.**

Introducing the next generation  
of flame photometers.

*Just Add Gas*





Not just better than the other flame photometers  
- BWB offers a cost effective, accurate and reliable  
alternative to other technologies...

### A flame photometer better than ICP, AAS and ISE analysers

Not just better than the other flame photometers - BWB offers a cost effective, accurate and reliable alternative to other technologies such as Inductively Coupled Plasma (ICP) and Atomic Absorption Spectrophotometers (AAS) and Ion Selective Electrode (ISE) Analysers.

Many of our customers already own an AAS or ICP, but choose to measure Lithium, Sodium, Potassium, Calcium and Barium with their BWB flame photometer rather than the more expensive and complex instruments. This decision saves them time & money as well as increasing the accuracy and reliability of their results.

### What is a flame photometer?

BWB flame photometers are used for measuring Lithium, Sodium, Potassium, Calcium & Barium in many different industries including:

• Cement • Beverage • Pharmacies in Clinics • Medical Schools • Petrochemical • Paper • Fertiliser • Wine • Food • Nuclear Power Stations • Salt and Potassium Mines • Sugar Industry.

### Common BWB flame photometer features

**All BWB products are built around the same innovative product design and world leading technologies, sharing the same core features across the range.**

#### Just add gas!

BWB have revolutionised the flame photometry market by offering an instrument with all accessories supplied as standard. This means that the process of ordering a BWB flame photometer is incredibly simple. There are no complex product codes, accessory lists or ordering requirements. When you order a BWB flame photometer it will arrive with all the accessories you need.

#### Up to 5 channels of simultaneous detection and display

The ability to measure and calibrate up to 5 different ions at the same time offer huge advantages over more traditional instrumentation. As the BWB is the first and only flame photometer to offer simultaneous detection and display, our customers do not need to waste valuable time changing filters and re-calibrating when a different measurement is required.

#### Built-in air compressor

Greatly reduces noise and laboratory footprint while increasing instrument stability, accuracy and reproducibility.

#### Advanced calibration system

The ability to store calibration data and perform multi-mode calibrations reduces analysis time significantly.

#### Interfaces

Connect to your PC using either USB or RS232. A 0-1 volt output is available for a chart recorder, or for process control, a 4-20mA output can be made available.

#### User selectable units of measure

ppm, mmol/l, mg/l and meq/l

#### New modern technology offers increased accuracy and reliability

Introduced in 2005, the BWB flame photometer was designed from the ground up, using new, innovative and modern technology to give unsurpassed levels of accuracy, usability and reliability. With clean lines and contemporary bright colour schemes, the instrument looks exceptionally modern and will fit into any laboratory. The instrument has a large LCD display which can be easily viewed from any angle.

#### Computer connectivity as standard!

The FP-PC software package, included with every purchase, has been written with GLP compliance in mind and facilitates the creation of data and reports in PDF format. Data can be downloaded in a .csv file format for spreadsheet functionality.

#### Ease of use

A clear liquid backlit crystal display guides users with exceptional ease through analysis using simple, logical, menu driven options. The display, used in conjunction with a comprehensive membrane switch panel ensures that accurate and reliable results can be obtained with minimal training. As modern businesses may experience a large turnover of staff, laboratory managers will appreciate the comprehensive training DVD supplied with every BWB flame photometer.

#### Long term savings

Excellent value for money and very low total cost of ownership.

#### Selective analysis

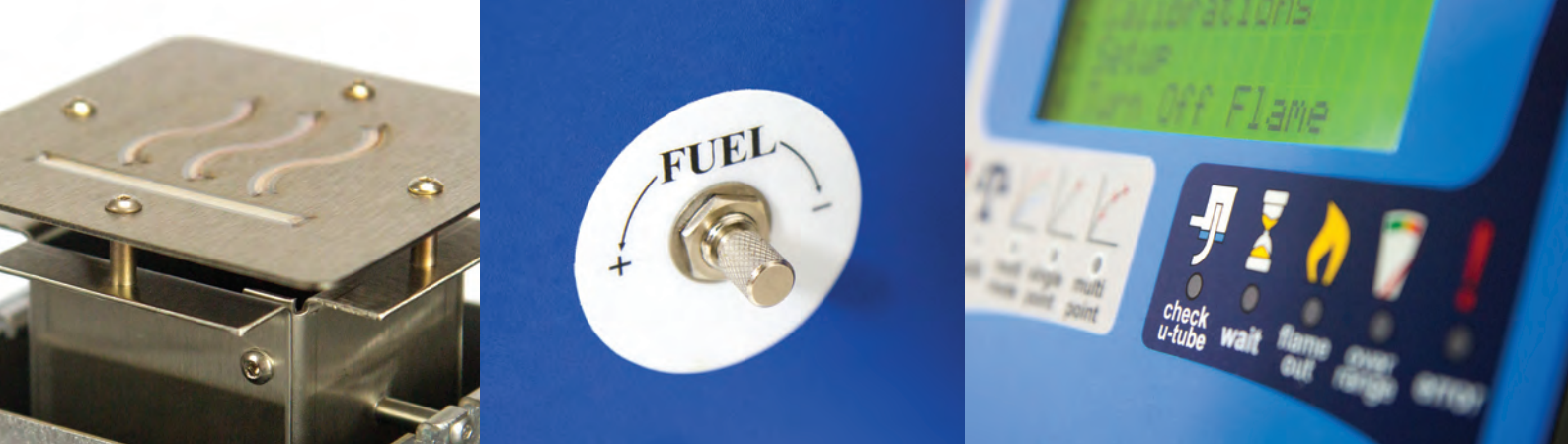
Flame photometry excludes most elements which means very little interference.

#### Reliable & simple

An adjustment of the flame is all the operator can "fiddle" with.

#### Fast!

Once the instrument has stabilised it takes just a matter of seconds to obtain results.



## The BWB flame photometer family



### The award winning BWB XP

#### General purpose flame photometer

The BWB XP is the first and only 5 channel flame photometer with simultaneous detection and display of all 5 elements. A high quality and high performance instrument, the BWB XP employs modern technology to improve both accuracy and stability while significantly reducing analysis time.

**The greatest advance in flame photometry for 30 years!**



NEW



### BWB XP Plus

#### A five channel digital flame photometer

The new for 2016 XP PLUS grew from the demand of Biologicals Manufacturers who use either Lithium or Cesium additions in their qualifications standards. The BWB addition of either Li or Cs is both novel and of keen interest to the world market. The BWB PLUS also features enhanced calcium detection.



### BWB BIO

#### Flame photometer for biological samples

The BWB BIO has been created for measuring biological solutions and is modernised for today's research work, routine quick measurements of, especially, lithium and calcium with high accuracy of the traditional sodium and potassium elements.

Our recent release is the combination of several "wish lists" from PhDs in Germany, USA and Canada principally in renal research, diabetes and alzheimer research. Our connection to a PC creates .csv files and data presentations to answer the requests of our clients over several years across the globe.



NEW



### BWB BIO AV

#### An offshoot of the popular BWB BIO

A simplified menu structure and enhanced Li detection make it a welcome addition to the BWB family. The ability to calibrate and measure Sodium, Potassium, and Lithium at the same time with the same dilution (from 1:6 to 1:100) streamlines throughput in many laboratories. We have retained the ability to enter and store two user-defined calibration curves should the user wish to readily measure differing sample types.



## BWB SUGAR

### Flame photometer for the sugar industry

In keeping with the published papers from 1977 forward, potassium detection is afforded with up to 4 channels of detection for extreme accuracy along the range of potassium control. Alternatively a combination of sodium, lithium, calcium and potassium is offered as standard for the researcher as well as the production processor.

This powerful and growing global industry now has the attending facilities for Synthetic Fuels or Bio-Fuels production as well from the harvest of the beet or cane. For this derivative product BWB Technologies offers a hybridised Flame Photometer we have named SynFuels. Depending on the portion of the bio conversion that is desired to measure, special chemical resistant tubing comes standard on the BWB FP.



## BWB NUCLEAR

### Flame photometer for the nuclear industry

The measurement of lithium at low concentrations within nuclear power stations has been identified as an application perfectly addressed by a new specialty flame photometer - The BWB Nuclear.

**The most accurate and advanced lithium flame photometer ever manufactured!**

The BWB flame photometer has always been renowned for super stable and accurate lithium measurement. Now this winning formula has been improved with a novel adaptation and optimisation of the proprietary BWB optical array detection systems which allows four channels of lithium measurement. This latest configuration has been specifically designed to specification laid out by leading experts within the nuclear power industry.



## BWB WINE

### Flame photometer for the wine industry

With our new "Light Pipe Technology" and multiple calcium detectors system, we are now able to meet the rigid standards of calcium detection in wine as this additive is blended in and then removed out in processing. Of course our potassium and sodium channels are also specified for this important industry as well.

The BWB Wine flame photometer not only offers a superior analytical instrument for the industry but is also a vital tool for optimising product quality through early detection and measurement of these key elements.



NEW



## BWB SOIL

### Highly accurate and cost effective analysis in the lab or 'on the road'

Potassium is essential to plant growth, fertilisers and soil substrates have been analysed using flame photometry for decades. Building upon 2017 research papers conducted by Professor Akiharu Sasaki for the specific use of flame photometer analysis in the agricultural industry over and above other methods of analysis the BWB SOIL Flame Photometer was born.

This unique instrument has been designed and developed in conjunction with various field requests and operational requirements for the specific analysis of fertilisers and soil substrates.





BWB Technologies supply a range of products for our customers to ensure that their flame photometer performs to the highest standards for years to come.



## BWB AFHS

### Intelligent automation with the BWB Automatic Fluid Handling System

Our diversified customers rely on their BWB Flame Photometers for accuracy and reliability. In many modern laboratories and industries there is the need for multiple sample measurement and accurate measurement and recordation of the atoms of interest detected by the BWB FP program.

The BWB AFHS program provides the fluid handling system to match our Award Winning Flame Photometers. Our proprietary "Auto Read" technology has been developed to make intelligent decisions based on exact measurements and drives the AFHS system from sample to sample and is available with all BWB FPs in our program.

### Printer

The BWB Printer provides on demand printing of results from any of the BWB FPs. This device is perched atop the Flame Photometer to preserve our small footprint on the workbench. We utilise a recently developed Environmentally sensitive thermal paper that has a guaranteed 10 year print life. Print characters include: instrument model and serial number, sample number, date, time, results, tray ID (with the AFHS) and calibration data.

### Autosampler

The BWB AutoSampler is available as an option for all Model Year 2014 BWB FPs and features an 89 well sample system with graduated vials of 5ml sizing. User selectable for 5 positions on the tray for calibration correction to compensate for environmental changes in the installation site.

### Autodiluter

This purpose built diluter is set up as a 100:1 and 10:1 diluter and derives it's mains power and commands from the AutoSampler and is a necessary adjunct to the AutoSampler for full automation of the BWB FPs.

### A specialty BWB FP for your organisation?

We would like to discuss your current challenges, analytical applications and have the opportunity to investigate a unique solution for you! Why not contact BWB Technologies today and see if we can provide a unique BWB FP solution for you?

## BWB flame photometer solutions & other consumables

BWB Technologies supply a range of products for our customers to ensure that their flame photometer performs to the highest standards for years to come! We also offer fast delivery.

### The BWB fluids kit

BWB's calibration standards offer convenience and value for money. Delivered in high concentration of 10,000 ppm, the small 150ml bottle delivers 15 litres of top quality calibration standards. Additionally, the high concentrations give our customers the confidence and satisfaction of a long shelf life. Our standard fluids kit contains the

following items; 5 Calibration standards at 10,000ppm, 1 litre Diluent Concentrate and Decon® 90 cleaning agent concentrate.

### Laboratory starter pack

BWB's philosophy of Just Add Gas means our customers enjoy a complete solution that they can set-up within 30 minutes and use straight out of the box. Just Add Gas means that nothing is left out, including the laboratory equipment needed to prepare standards/samples and analyse them with the BWB flame photometer. Many customers appreciate the quality and durability of these components and reorder the laboratory starter pack after the initial items are depleted. The starter pack contains: Pipettes 1ml x 10, Pipettes 10ml x 10, Volumetric Flask 100ml and Sample Cups x 100.

## BWB support services

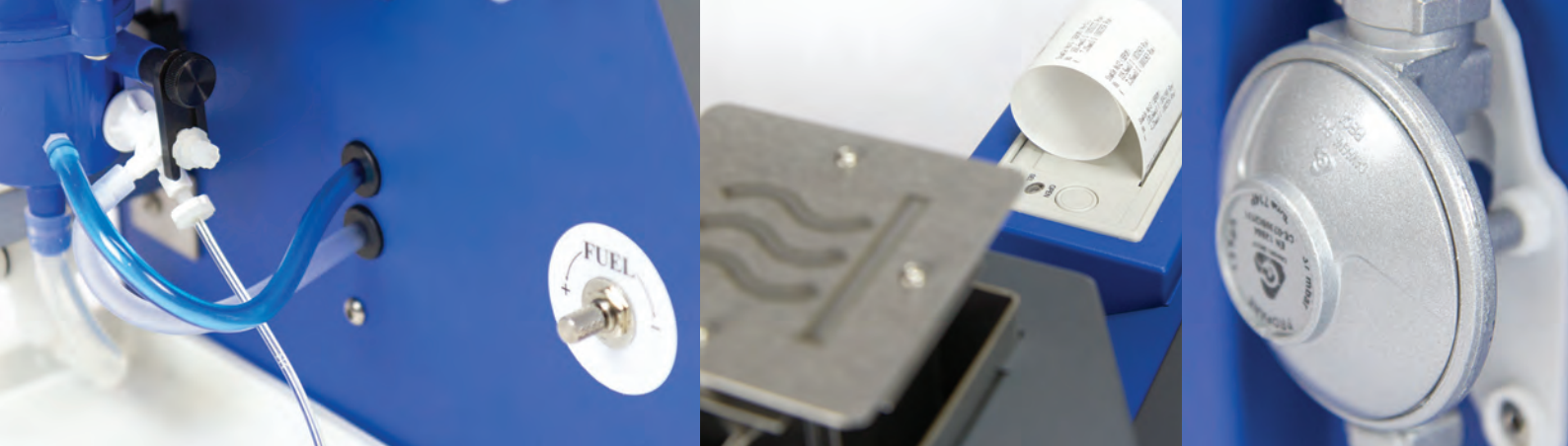
BWB Technologies are proud to manufacture award winning, market leading flame photometers, but our customer service does not stop after we make a sale! We offer a unique on-line IQ OQ PQ programme for system validation and certification as well as extended warranty options.

**BWB provides excellent support to our customers and distributors which is second to none!**

## International support network

An independently owned private company with manufacturing in the United Kingdom under strict ISO control protocols. BWB is a global company with a sales and support network covering Europe, America and the Middle East and a world-wide network of high quality distributors. We offer unsurpassed levels of technical support available 24/7 and employ real experts in flame photometry.

From our manufacturing plant in Newbury, England, BWB Technologies have introduced our series of flame photometer products, and accessories, which exceed existing expectations in terms of specification, usability, accuracy, reporting, build quality and value for money.



## Specifications

**Sample rate**  
3.5 – 5ml/min

**Tubing materials**  
Silicone and Tygon®

**Required desk space for Instrument**  
50cm (H) x 45cm (W) x 45cm (D)\*

For Safety reasons the Flame photometer requires 1m of unobstructed space above to allow dissipation of heat from the chimney.

### Instrument size

XP Flame Photometer  
51cm (H) x 38cm (W) x 41cm (D)  
(20in x 14in x 16in)

Shipping  
62cm (H) x 55cm (W) x 47cm (D)  
(24in x 22in x 19in)

### Weight

XP Flame Photometer – 15.3kg (33.7lbs)  
Shipping – 25kg (55.1 lbs)

### Optimal range

Single point calibration

Na 0.1 – 60ppm  
K 0.05 – 100ppm  
Li 0.05 – 50ppm  
Ca 1.0 – 100ppm  
Ba 1.6 – 100ppm

Multi Point Calibration

Na 0.1 – 1000ppm  
K 0.05 – 1000ppm  
Li 0.05 – 1000ppm  
Ca 1.0 – 1000ppm  
Ba 5.0 – 3000ppm

### Reproducibility

<1% Coefficient of variability for 20 consecutive samples over ten minutes at concentrations of 100ppm or less. (After instrument stabilisation).

### Specificity

Na/K/Li = <0.5% to each other when equal in concentration at <100ppm

**Limit of detection (LOD) and limit of quantification (LOQ)**

| LOD          | LOQ          |
|--------------|--------------|
| Na – 0.03ppm | Na – 0.1ppm  |
| K – 0.02ppm  | K – 0.05ppm  |
| Li – 0.02ppm | Li – 0.05ppm |
| Ca – 0.3ppm  | Ca – 1ppm    |
| Ba – 1.6ppm  | Ba – 5.0ppm  |

### Time to stability

Less than 15 seconds after sample is introduced into the flame

### Ions measured

Simultaneous measurement of Na, K, Li, Ca, Ba

### Interfaces

USB

0-2.5 volt output (based on sample concentration linked to element of users choice)

Optional 4-20mA output in place of the above

Optional integrated printer

Optional external compressor

Resistance spray chamber nebulizer suitable for acidized samples

.csv and .pdf generated reports and files via FP-PC software

Organic samples

Special for better detection (5x same detector)

Low due point due air, due to special design.

**Recommended minimum warm up time based on ambient temperature**

21°C – 40 minutes

### Power requirements

100V – 250V AC at 50 or 60Hz  
automatically selecting

### Fuel requirement

Propane, Butane or Natural Gas\*  
regulated to 19 mBar. Flow rate of 0.4l/min

\*with modifications. BWB Technologies recommends either Propane or Butane for optimum results.

### Readout

LCD, four line, alpha numeric, back lit.



CE

### BWB UK

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Proudly Engineered  
and Manufactured  
in England