BWB Technologies

AFHS

BWB AFHS and Printer

Simple, robust & reliable Automated Fluid Handling System that works seamlessly with BWB's range of Flame Photometers.

BWB customers rely on our instrumentation that may run throughout the day processing tens or even hundreds of samples. Until now this operation has been a manual process and requires an operator present to introduce each sample. Many organisations are striving for greater efficiency and automation of their laboratory processes and in response BWB have a solution. The new Automatic Fluid Handling System (AFHS), which for the first time offers fast, reliable and effective automation of the flame photometry process.

New "Auto Read" Technology is the foundation for automation

The goal of an automated system is to perform tasks accurately, reliably and autonomously without the need for human intervention. By clever software/firmware handling of the input from our multiple channel detectors, stability of readings are analytically determined and no longer a subjective user decision.

Printer

This ultra reliable thermal printer sits atop the main flame photometer enclosure for footprint reduction in valuable lab space. The printer is supplied with print stock derived from recycled paper, has a 10 year shelf life and comes with soy based ink as standard. The dimensions of the unit were also designed to offer compatibility with standard calculator print paper available globally from any high street.

Autosampler

The BWB auto sampler is available as an optional extra for all the latest models of the BWB flame photometer.

Autodiluter

BWB has introduced a 10:1 and 100:1 auto-diluter for the latest models of the BWB flame photometer.

+ FEATURES

- BUILT AROUND BWB'S PROPRIETARY "AUTO READ" TECHNOLOGY
- "IRS" (INTERNAL REFERENCE STANDARD) AVAILABLE
- COMPATIBLE WITH ALL 2014 BWB FLAME PHOTOMETER MODELS
- 5 USER SELECTABLE TRAY CALIBRATION CORRECTION POINTS
- USER SELECTABLE DILUTION RATIO
- PURPOSE BUILT AUTO DILUTER
- ON DEMAND PRINTING OF KEY ANAYLSIS DATA WITH BWB'S INTEGRATED PRINTER
- A SINGLE SHARED POWER SOURCE FOR THE AUTO SAMPLER AND AUTO DILUTER
- OTHER DILUTIONS ASIDE FROM THE STANDARD OF 100:1 AND 10:1 ARE AVAILABLE WITH THE SAME AUTO DILUTER. ASK THE FACTORY ON TECHNICALSUPPORT@BWBTECH.COM FOR SPECIFIC INFORMATION.
- UP TO 89 SAMPLES
- INTERCHANGEABLE SAMPLE TRAY

Just Add Gas

(ES) Equipements Scientifiques SA - Département Bio-Tests & Industries - 127 rue de Buzenval BP 26 - 92380 Garches
Tél. 01 47 95 99 90 - Fax. 01 47 01 16 22 - e-mail: bio@es-france.com - Site Web: www.es-france.com

BWB BIO with AFHS Technical Data

Just Add Gas

Sample rate
4ml/min

Tubing materials
Translucent PTFE and Tygon®

Amount of fluid used per sample based on Dilution Ratios,
DR1 - 5ml
DR10 - 0.5ml
DR100 - 0.05ml

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

Required desk space for Instrument
50cm (H) x 65cm (W) x 63cm (D)
*BIO Flame photometer with BWB Recommended set up positioning. For Safety reasons the Flame photometer requires 1m of unobstructed space above to allow dissipation of heat from the chimney.

Instrument size
BIO Flame Photometer
51cm (H) x 38cm (W) x 41cm (D)
(20in x 14in x 16in)
Auto Diluter
30cm (H) x 30cm (W) x 43cm (D)*
(12in x 12in x 17in)
Auto Sampler
30cm (H) x 18cm (W) x 11cm (D)**
(12in x 7in x 4in)
Shipping
62cm (H) x 55cm (W) x 47cm (D) x 2 boxes
(24in x 22in x 19in)
*Inclusive of Cannula operating arm.
** Excluding Dilution Reservoir.

Weight
BIO Flame Photometer 15.3kg
Auto Diluter 3.75kg
Auto Sampler 6.9kg
Shipping - BIO Flame Photometer 25kg
AFHS unit 17kg

Optimal range
Multi-point calibration
Na - 0.2 - 300mmol/l*
K - 0.2 - 200mmol/*
Li - 0.2 - 20mmol/l*
Ca - 1 - 20mmol/l*
*With required Dilution Ratios

Reproducibility
<1% Coefficient of variability for 10 consecutive samples within optimal range. (After instrument stabilisation).

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

LOD	LOQ
Na - 0.0013mmol/l	Na - 0.0043mmol/l
K - 0.0005mmol/l	K - 0.0013mmol/l
Li - 0.003mmol/l	Li - 0.0072mmol/l
Ca - 0.0075mmol/l	Ca - 0.025mmol/l

Time to stability
Less than 15 seconds after sample is introduced into the flame

Single sample time
With Auto Diluter: 130 Seconds including Sample Preparation, Acquisition and flush
Without Auto Diluter: 80 Seconds including Acquisition and flush

Amount of samples measured per hour
With Auto Diluter: 25
Without Auto Diluter: 40

Ions measured
Serum Na and K or Li and Ca
Urine Na and K or Li and Ca

Dilution reservoir size
2.5L with inbuilt low level control
Optional 5L tank available

Amount of Samples per Dilution Reservoir
2.5L - 120* 5L - 240*
*dependant on idle times between trays and sample set-ups.

Amount of samples per tray
89 with additional interchangeable trays to speed up sampling time.

Calibration concentrations

URINE

Point 1	Point 2	Point 3
Na 25mmol/l	Na 50mmol/l	Na 100mmol/l
K 25mmol/l	K 50mmol/l	K 100mmol/l
Li 2.5mmol/l	Li 5mmol/l	Li 10mmol/l
Ca 2.5mmol/l	Ca 5mmol/l	Ca 10mmol/l

Point 4	Point 5
Na 200mmol/l	Na 300mmol/l
K 150mmol/l	K 200mmol/l
Li 15mmol/l	Li 20mmol/l
Ca 15mmol/l	Ca 20mmol/l

SERUM

Point 1	Point 2	Point 3
Na 120mmol/l	Na 130mmol/l	Na 140mmol/l
K 3mmol/l	K 4mmol/l	K 5mmol/l
Li 0.5mmol/l	Li 0.5mmol/l	Li 1mmol/l
Ca 1.5mmol/l	Ca 2mmol/l	Ca 2.5mmol/l

Point 4	Point 5
Na 150mmol/l	Na 160mmol/l
K 6mmol/l	K 7mmol/l
Li 1.5mmol/l	Li 2mmol/l
Ca 3mmol/l	Ca 3.5mmol/l

Recommended minimum warm up time based on ambient temperature
21°C - 40 minutes

Power requirements
100V - 250V AC at 50 or 60Hz

Fuel requirement
Propane, Butane or Natural Gas*
regulated to 19Bar. Flow rate of0.4l/min
*with modifications. BWB Technologies recommends either Propane or Butane for optimum results.

Readout
LCD, four line, alpha numeric, back lit.

+ WHAT'S IN THE BOX*

- PC Leads USB and RS232
- Selection of 3 Power cables to suit all regions
- Gas Hose
- Aspiration Kit
- Manuals covering all aspects of the BIO FP including the XP manual for background information
- Quick Start guides
- Warranty Registration Form
- Certificates of analysis for all provided Fluids
- Material Safety Data Sheets for all provided Fluids
- IQ, OQ, PQ On-line Documentation. Certificate of Compliance will be issued upon completion of the PQ testing.
- The FP-PC Software installation CD
- 1L of BWB recommended cleaning solution
- Complete set of calibration fluids including Diluent Concentrate
- 250 x 5ml AFHS screw top sample Vials
- 100ml conical flask with screw lid
- 100 disposable sample cups
- 1L of De-Ionised water
- 2m of waste tube
- Set of spare fuses
- 10 x 10ml pipettes
- 10 x 1ml pipettes

PROUDLY MANUFACTURED AND ENGINEERED IN THE UNITED KINGDOM

www.bwbtech.com

Manufactured in Newbury, County of Berkshire, England.
Registered office: BWB Technologies UK Ltd. 3 Warners Mill Silks Way Braintree, Essex CM7 3GB England

*Subject to change without notice based on local regulations and distributor

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BWB XP with AFHS Technical Data

Just Add Gas

Sample rate
4ml/min

Tubing materials
Translucent PTFE and Tygon®

Amount of fluid used per sample based on Dilution Ratios,
DR1 5.0ml
DR10 0.5ml
DR100 0.05ml

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

Required desk space for Instrument
50cm (H) x 65cm (W) x 63cm (D)*
*XP Flame photometer with BWB Recommended set up positioning. 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)
Auto Diluter
30cm (H) x 30cm (W) x 43cm (D)*
(12in x 12in x 17in)
Auto Sampler
30cm (H) x 18cm (W) x 11cm (D)**
(12in x 7in x 4in)
Shipping
62cm (H) x 55cm (W) x 47cm (D) x 2 boxes
(24in x 22in x 19in)
*Inclusive of Cannula operating arm.
** Excluding Dilution Reservoir.

Weight
XP Flame Photometer - 15.3kg (33.7lbs)
Auto Diluter 3.75kg
Auto Sampler 6.9kg
Shipping – XP Flame Photometer 25kg
AFHS unit 17kg

Optimal range
Single point calibration
Na 0.1 – 60ppm
K 0.05 -100ppm
Li 0.05 – 50ppm
Ca 1.0 – 100ppm
Ba 5 -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 10 consecutive samples within optimal range. (After instrument stabilisation).

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

LOD	LOQ
Na - 0.1ppm	Na - 0.3ppm
K - 0.05ppm	K - 0.15ppm
Li - 0.05ppm	Li - 0.15ppm
Ca - 1ppm	Ca - 3ppm
Ba - 5ppm	Ba - 15ppm

Time to stability
Less than 15 seconds after sample is introduced into the flame

Single sample time
With Auto Diluter: 130 Seconds including Sample Preparation, Acquisition and flush
Without Auto Diluter: 80 Seconds including Acquisition and flush.

Amount of samples measured per hour
With Auto Diluter: 25
Without Auto Diluter: 40

Dilution reservoir size
2.5L with inbuilt low level control standard.
5.0L (4.0L useable) available.

Amount of Samples per Dilution Reservoir
2.5L – 120* 5L – 240*
*dependant on idle times between trays and sample set-ups.

Amount of samples per tray
89 with additional interchangeable trays to speed up sampling time.

Recommended minimum warm up time based on ambient temperature
89 with additional interchangeable trays to speed up sampling time.

Interfaces
USB
0-1 volt output (based on sample concentration linked to element of users choice)
Optional 4-20mA output in place of the above
Optional integrated printer
.csv and .pdf generated reports and files via FP-PC software

Recommended minimum warm up time based on ambient temperature
21°C – 40 minutes

Power requirements
100V – 250V AC at 50 or 60Hz

Fuel requirement
Propane, Butane or Natural Gas*
regulated to 19Bar. Flow rate of 0.4l/min
*with modifications. BWB Technologies recommends either Propane or Butane for optimum results.

Readout
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- Material Safety Data Sheets for all provided Fluids
- The FP-PC Software installation CD
- 1L of BWB recommended cleaning solution
- Complete set of calibration fluids including Diluent Concentrate
- 250 x 5ml AFHS screw top sample Vials
- 100ml conical flask with screw lid
- 100 disposable sample cups
- 1L of De-Ionised water
- 2m of waste tube
- Set of spare fuses
- 10 x 10ml pipettes
- 10 x 1ml pipettes

Options
- Printer
- IQ, OQ, PQ On-line Documentation. Certificate of Compliance will be issued upon completion of the PQ testing
- Collection Cup for process monitoring

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