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TBS
A Division of General Data Healthcare

Pub No.: OM WB-1
June 2013, Version 1.5
FWS-L -120 – 220; FWS-S -120 – 220
TFB-L -120 -220; TFB-S – 120 -220

Histology Innovation for a NEW Generation

Operator's Manual

Flotation Work Station

Catalog #s

FWS-L-120, FWS-L-220
FWS-S-120, FWS-S-220
TFB-L-120, TFB-L-220
TFB-S-120, TFB-S-220



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INTRODUCTION

Congratulations on your purchase of a TBS Flotation Work Station or Tissue Flotation Bath. This system offers you the most full-featured tissue flotation instrument available. This next generation instrument has been developed utilizing the same proven critical components that made earlier generations so reliable; however, several new innovative enhancements were added.

A summary of the enhancements include:

- A front panel LED has been added to show when the heat is applied (blinking red) and when the set temperature of the bath has been reached (solid red).
- A Real Time Clock chip provides time and date stamps for audit logging and future individual day on/off capabilities.
- A new generation of digital temperature sensors that does not require user calibration.
- USB connection added for future use with the new TBS IMS software.
- Internal memory to record temperatures for CALI record keeping.

Using microprocessor technology, water temperature can be closely controlled to +/- 1°C. By simply pressing the appropriate key, digital-readouts of the actual temperature of the bath, dryer, or histo-orientator (if applicable) can be monitored. A new and improved water bath temperature sensor probe utilizes durable hinged rotation and a magnetic position detection system for high reliability and resistance to wear and tear.

UNPACKING AND INSTALLATION

Be certain to inspect the shipping container carefully for any signs of damage to the outer carton. In the event of apparent mishandling, note the damage accordingly on the bill of lading and take pictures for future reference. Save the shipping carton and all packing material for proof of noted damage and / or for future shipment of the instrument back to the manufacturer for any future service needs. Failure to document external damage to the carton may limit your ability to obtain compensation for damage.

Remove the equipment from the shipping carton carefully. Notify the carrier immediately if there is any visible damage to the contents.

Contents

Flotation Bath
Bowl
Power Cord
Manual

1. Fill the glass dish with water to the desired level. It is recommended to fill to approximately 3/8" (.5 cm) from the top of the bowl. To ensure sensor accuracy, a minimum of 1" of water should cover the probe.

   NOTE: If cold tap water is added while the unit is at its operating temperature, it could cause the unit to detect an error. Depressing any key will clear the error.

   NOTE: Never leave a dry dish in the bath area with the heater on. If the water level is below the sensor, the controller will stop heating the water bath and indicate an error.

3. Properly seat the dish into the Flotation Bath.

4. Plug the Flotation Bath into a properly grounded 120V AC outlet (or 230V for the International model).

   NOTE: If your unit was shipped outside of the U.S., check the label on the rear of the instrument for the electrical requirements.

5. Turn the instrument on in the back by depressing the I/0 button next to the power cord connection. The unit will go through its initialization sequence. During initialization, it will display the firmware version on the 4 digit screen (e.g. V1.05). It will then display the current time and the default setting of 42C in the 2 digit display.

Note: If a malfunction is detected, an error condition is indicated by ERRx (where 'x' is an integer or letter). See the **ERROR CODE** section for a definition of specific error codes. Depressing any key will clear the error. Pressing any key will clear the error but if the underlying condition is not fixed as well, the error may reoccur.

6. Rotate the temperature probe into the water. Turn the heater on by pressing the Bath On/Off switch. The front panel LED will begin blinking to indicate that the heaters are on but not yet at the set-temperature. The temperature probe is connected to a safety cut-off switch which is monitored by the temperature control system. The probe must be in the water or the bath heater will remain off.

   NOTE: The bright white LEDs illuminating the bath can be turned on and off independently by pressing the 'LIGHT' button.

7. The clock was pre-set at the factory for the correct time in the US Eastern Time Zone. To adjust the time, press the 'HOURS' or 'MINUTE' button until your local time is displayed. Holding the 'HOUR' or 'MINUTE' button down scrolls the digit faster.

   NOTE: By repeatedly pressing the TIME button you can toggle back and forth between 12 and 24 hour format.

8. Press the 'TEMP' key to the left of the 'TEMP/TIME' display when continuous monitoring of the bath temperature is desired.

   NOTE: By pressing the TEMP key repeatedly you can toggle back and forth between Fahrenheit and Celsius on the temperature display.

   To increase or decrease the preset bath temperature, press and hold the '+' or '-' key until the desired temperature is displayed in the 'SET TEMP' window. Maximum operating temperature for the bowl is ***60°C***.

9. On Flotation Workstation baths, the 2x2-inch histo-orientator block is factory preset to ***55°C***. The heater is initiated when the *ON* LED is pressed and cannot be turned off independently. To adjust the orientator temperature, press *ORIENT* key. Then press the + or – buttons to adjust the set point. The maximum temperature is ***65°C***. The actual temperature of the heater can then be monitored by pressing the *ORIENT* key.

   The 2x5-inch dryer block is factory preset to ***42°C***.[1] The heater is initiated when the 'BATH' LED is pressed and cannot be turned off independently. To adjust the dryer temperature, press the *DRYER* key. Then press the + or – buttons to adjust the set point the same as the Orientator. The maximum temperature is ***65°C***. The actual temperature of the heater can be monitored by pressing the 'DRYER' key at any time during operation.[2]

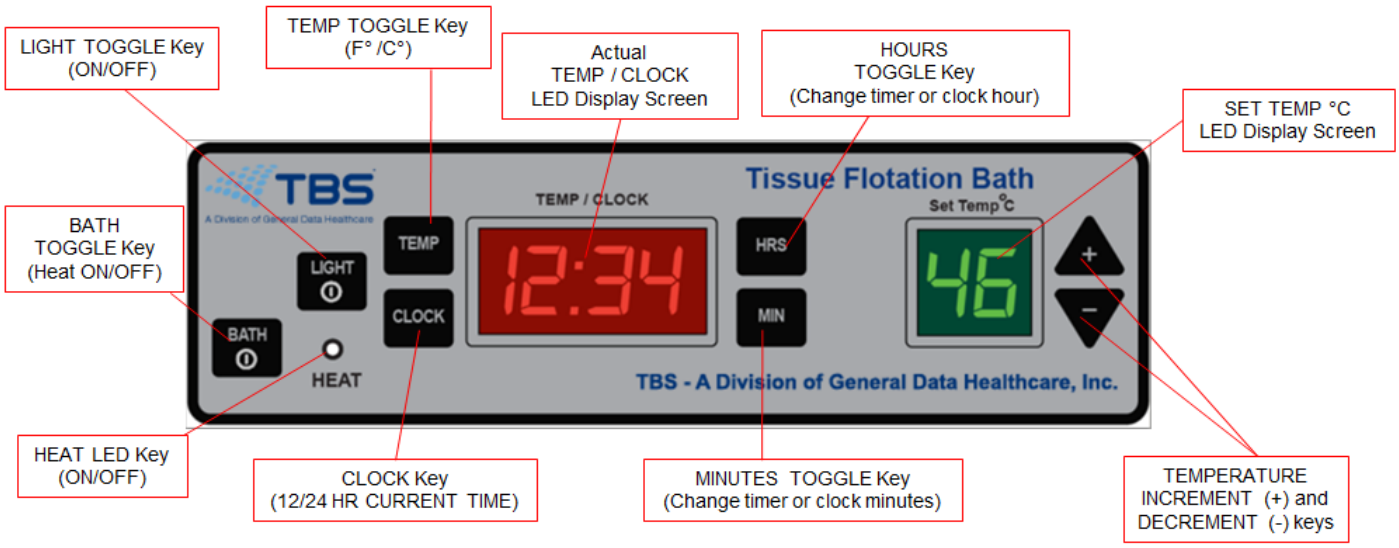
TFB-S



TFB-L



TFB-S & TFB-L CONTROL PANEL

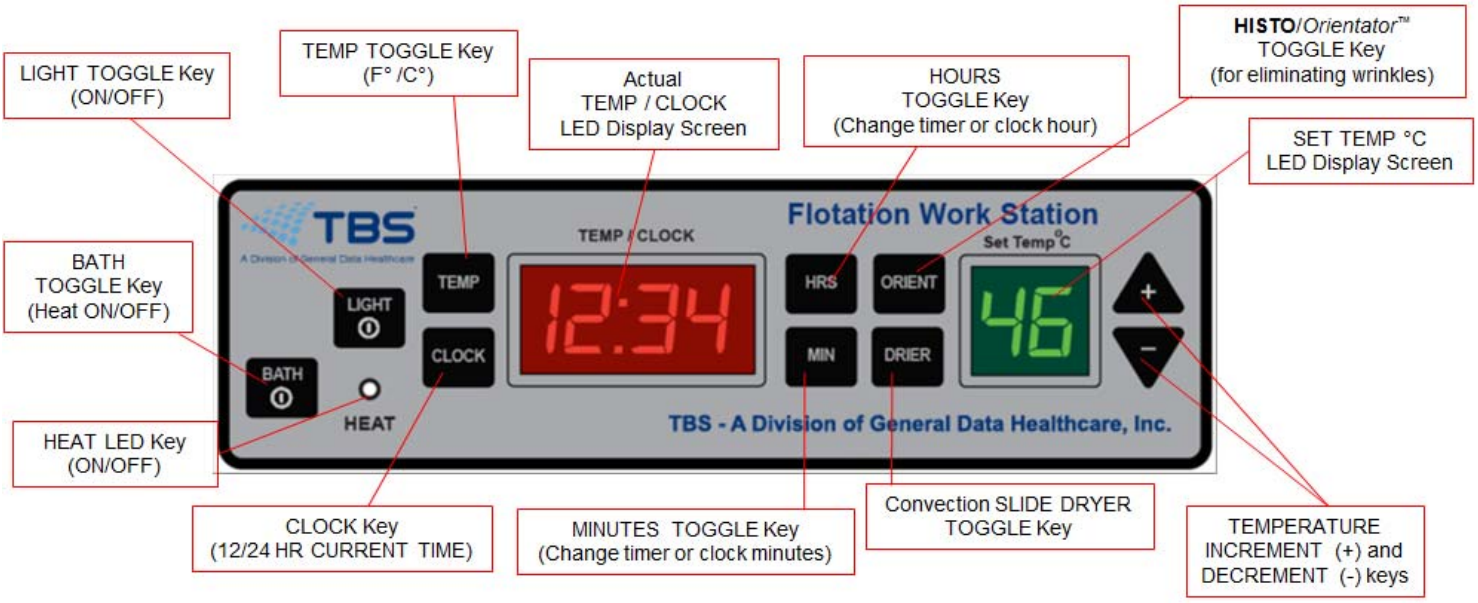


FWS-S


TBS
Flotation Work Station
Triangle Biomedical Sciences

FWS-L


TBS
Flotation Work Station
Triangle Biomedical Sciences



FWS-S & FWS-L CONTROL PANEL

Specifications

North America and Japan

TFB

Specification	TFB-S-120	TFB-L-120
Dimensions	Height 46.99 cm Width 30.73 cm Depth 14.22 cm	Height 47.62 cm Width 38.1 cm Depth 13.97 cm
Voltage	100VAC to 120VAC ± 10% 50/60Hz single phase	100VAC to 120VAC ± 10% 50/60Hz single phase
Operating Current	3.4 A	5 A
Power	420 W	620 W
Fuse	5 A	6.3 A
Factory Default temperature	Bath 42C	Bath 42C
Maximum Temperature	Bath 60C	Bath 60C
Weight	Unit 3.49 kg (7.7 lbs) Shipping 6.67 kg (14.7 lbs)	Unit 4.15 kg (9.15 lbs) Shipping 7.33 kg (16.15 lbs)

Specifications
North America and Japan
FWS

Specification	FWS-S-120	FWS-L-120
Dimensions	Height 46.99 cm (”) Width 30.73 cm (”) Depth 14.22 cm (”)	Height 47.62 cm (”) Width 38.1 cm (”) Depth 13.97 cm (”)
Voltage	100VAC to 120VAC ± 10% 50/60Hz single phase	100VAC to 120VAC ± 10% 50/60Hz single phase
Operating Current	3.7 A	5.4 A
Power	452 W	652 W
Fuse	5 A	6.3 A
Factory Default temperature	Bath 42C Orientator 55C Dryer 42C	Bath 42C Orientator 55C Dryer 42C
Maximum Temperature	Bath 60C Orientator 65C Dryer 65C	Bath 60C Orientator 65C Dryer 65C
Weight	Unit 3.99 kg (8.8 lbs) Shipping 7.17 kg (15.8 lbs)	Unit 4.63 kg (10.2 lbs) Shipping 7.98 kg (17.6 lbs)

Specifications
International
TFB

Specification	TFB-S-220	TFB-L-220
Dimensions	Height 46.99 cm Width 30.73 cm Depth 14.22 cm	Height 47.62 cm Width 38.1 cm Depth 13.97 cm
Voltage	220VAC to 240VAC ± 10% 50/60Hz single phase	220VAC to 240VAC ± 10% 50/60Hz single phase
Operating Current	1.7 A	2.4 A
Power	420 W	620 W
Fuse	3.15 A	4 A
Default temperature	Bath 42C	Bath 42C
Maximum Temperature	Bath 60C	Bath 60C
Weight	Unit 3.49 kg (7.7 lbs) Shipping 6.67 kg (14.7 lbs)	Unit 4.15 kg (9.15 lbs) Shipping 7.33 kg (16.15 lbs)

Specifications
International
FWS

Specification	FWS-S-220	FWS-L-220
Dimensions	Height 46.99 cm Width 30.73 cm Depth 14.22 cm	Height 47.62 cm Width 38.1 cm Depth 13.97 cm
Voltage	220VAC to 240VAC ± 10% 50/60Hz single phase	220VAC to 240VAC ± 10% 50/60Hz single phase
Operating Current	1.9 A	2.5 A
Power	452 W	652 W
Fuse	3.15 A	4 A

Default temperature	Bath 42C Orientator 55C Dryer 42C	Bath 42C Orientator 55C Dryer 42C
Maximum Temperature	Bath 60C Orientator 65C Dryer 65C	Bath 60C Orientator 65C Dryer 65C
Weight	Unit 3.99 kg (8.8 lbs) Shipping 7.17 kg (15.8 lbs)	Unit 4.63 kg (10.2 lbs) Shipping 7.98 kg (17.6 lbs)

Symbols and Conventions

Important Notice



Hot Surface



OPERATING INSTRUCTIONS

1. Fill the glass dish with water to the desired level.

2. Properly seat the dish into the flotation bath.

3. Place the temperature probe into the bath.

4. Turn the heaters on by pressing the **Bath** button on the control panel.

5. Allow flotation bath to reach preset temperatures before use.

6. After use, ensure heaters are turned off using the **Bath** button on the control panel. Empty water from the dish, clean with mild soap and water, then dry.

1. For your safety and the safety of those working near you, never place a dry glass bowl in the bath when the heaters are on. The glass bowl will become very hot and could cause burns if touched.
2. Always immerse the temperature probe in the water bath while the unit is in operation, assuring that at least one inch of the probe is underwater. If the probe is not seated properly in the glass bowl, the **HEAT** LED on the control panel will be off indicating that the heater is *not* initiated.
3. It is not necessary to unplug the flotation bath when it is not being utilized. It is recommended that the heaters be turned off when the bath is not in use for extended periods of time to minimize evaporation of water from the bowl.

Loading/Updating the Waterbath Application Firmware

Periodically, updates will be made available for the waterbath firmware. Follow the instructions below to load and update your waterbath unit.

Download the current update file from the Service link on the TBS website

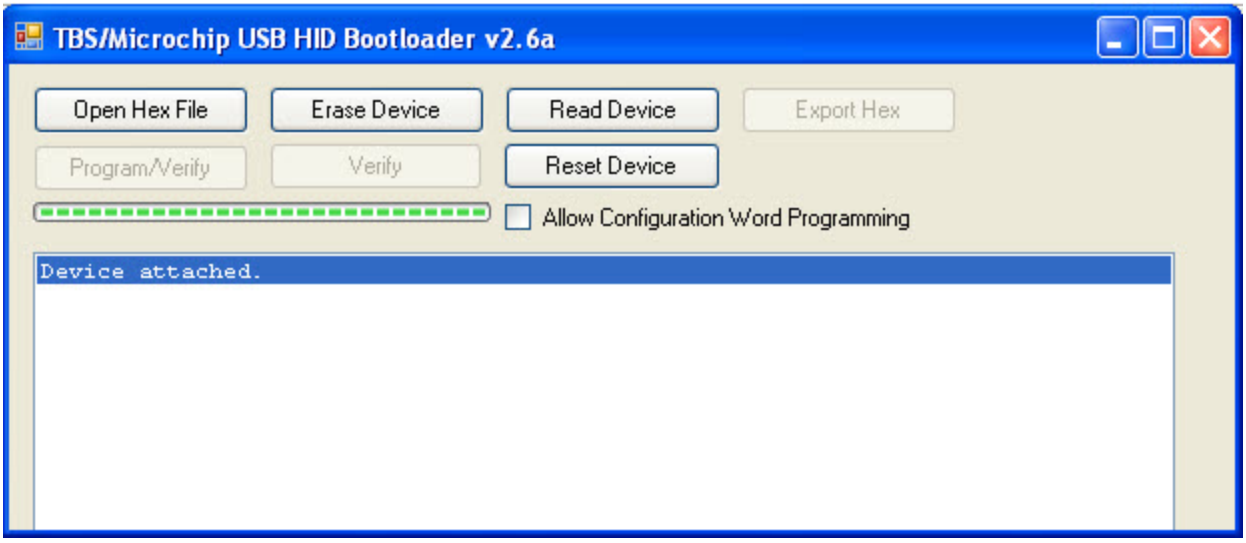
www.trianglebiomedical.com.

1. Connect waterbath to the PC via a USB 2.0 type-A to type-mini B connection cable.

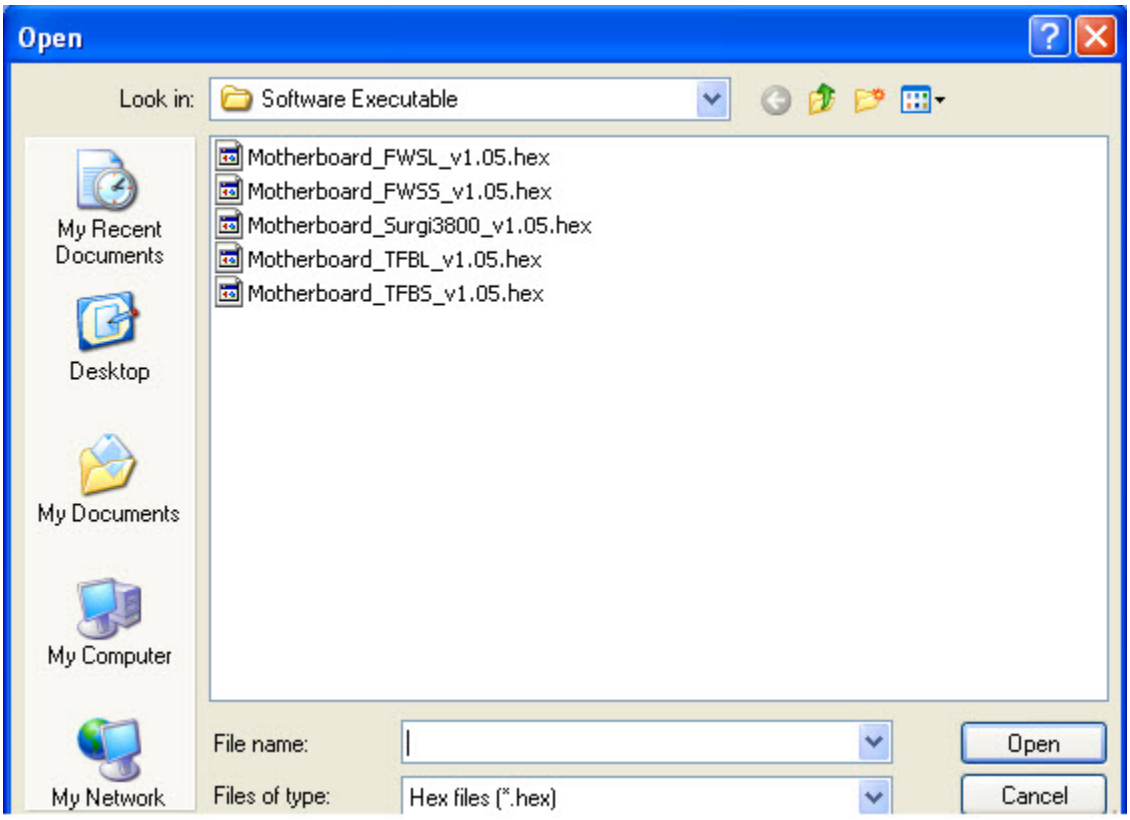
2. While holding any display panel button down, turn the waterbath on utilizing the rear main power switch. This should place the unit in bootloader mode. Periods will flash in the Set Temp display on the display panel.

3. Start the PC bootloader application by double clicking the file labeled "HIDBootLoader.exe".

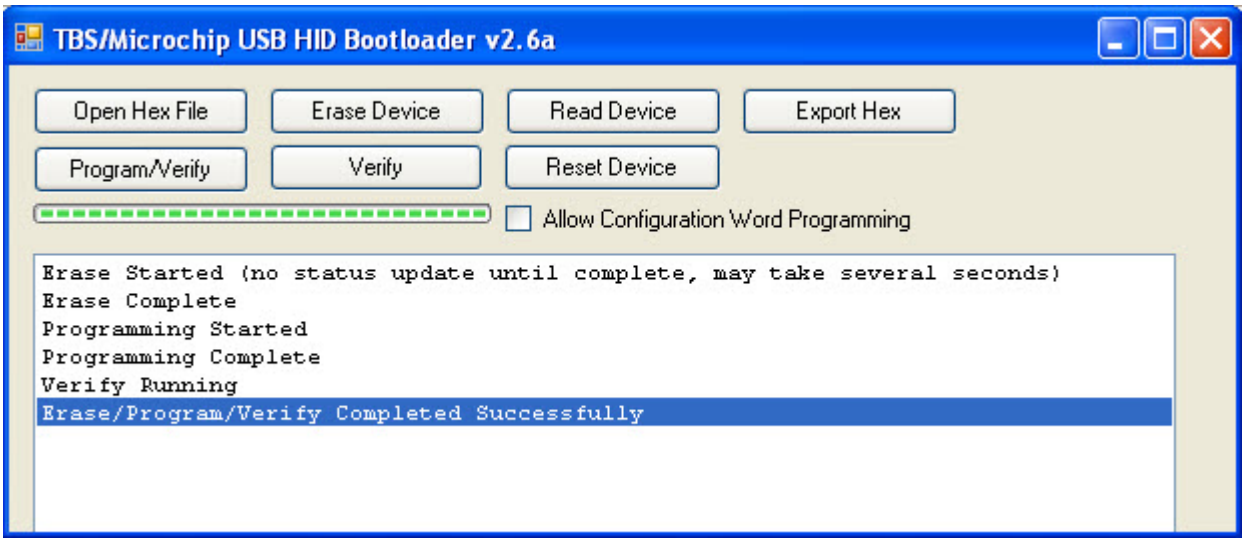
4. Verify status window says "Device attached". If you do not see the view below with the words “Device attached”, there is a connection problem. Check the USB connection on both ends and make sure the bath is in boot loader mode with the periods flashing.



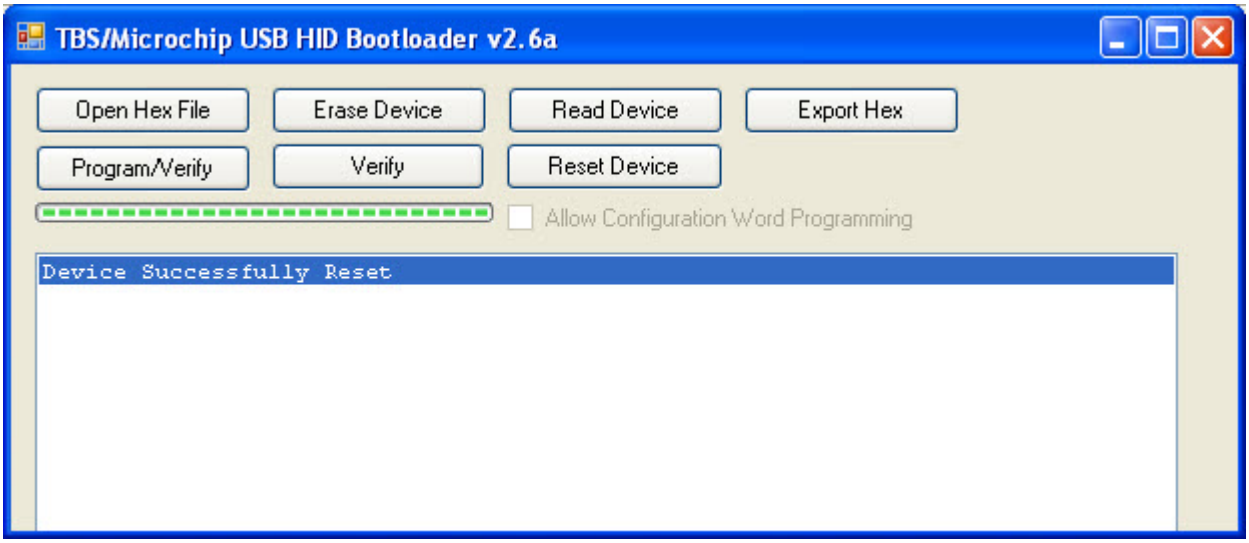
5. Click the "Open Hex File" button, and select the desired firmware update, for example: Motherboard_FWSS_v1.01.0a.hex



6. Click the Program/Verify button. Wait for the message "Erase/Program/Verify Completed Successfully".



7. Click the "Reset Device" button in the bootloader software or reset the waterbath by turning the main power switch off then on. Verify the correct model and firmware version are displayed on the LEDs during reset.



8. Close the HIDBootloader application, and disconnect the USB cable.

ERROR CODES

An error condition exists when the beeper sounds an alarm and the *SET TIME* LED display flashes an error code. The bath will continue to emit 3 beeps once per minute and display the error code until it is cleared. Pressing any key on the keypad will reset the error but if the condition that caused the error is not resolved, the error will reoccur. The error code indicates one of the specific problems as described below:

Error code	**Problem**
ERR0	No Error
ERR1	Bath Bowl Out of Water
ERR2	Bad Bath Temperature Probe
ERR3	Bad Orientator Temperature Probe
ERR4	Bad Dryer Temperature Probe
ERR5	Bath Heater Element or Relay Failure
ERR6	Bath Orientator Element or Relay Failure
ERR7	Bath Dryer Element or Relay Failure
ERR8	Clock Failure
ERR9	Bath Overtemp
ERRA	Orientator Overtemp
ERRC	Dryer Overtemp

REGULATORY COMPLIANCE

The **TBS** Tissue Flotation Baths and Flotation Work Stations have been tested by a registered independent body to rigorous international quality and safety standards, and has been found to be in compliance with the following regulations and specifications:

Emissions – North American and Japan

- US - FCC Class B for the 120VAC version
- US - FCC Class A for the 230VAC version
- US - ISO Standard 17025:2005 (Lab code: 200094-0)
- Canada - ANSI C63.4-2003
- Japan - Regulations for Voluntary Control Measures

Emissions – European Community

- EN 61326-1:2006 Product Family Standard Immunity
- EN 61326-1:2006 Product Family Standard Emissions
- EN 55011:2007
- EN 55011:2007
- EN61000-3-2:2006
- EN61000-3-3:1995 +A1:2001 +A2:2005
- EN61000-4-2:1995 +A1:1999 + A2:2001
- EN61000-4-3:2006
- EN61000-4-4:2004
- EN61000-4-5:2005
- EN61000-4-6:2007
- EN61000-4-8:1993 +A1:2001
- EN61000-4-11:2004

Safety

- UL 61010A
- CSA 61010-1
- CE EN61010-1

SERIAL NUMBER LABELS

TBS A Division of General Data Healthcare	**TBS – A Division of General Data Healthcare** 3014 CROASDAILE DRIVE • DURHAM, NC 27705-2507 • USA 919.384.9393 • FAX 919.384.9595 www.trianglebiomedical.com	**Model**	**Tissue Flotation Bath**
CAUTION: NO USER SERVICABLE PARTS INSIDE – REFER SERVICING TO QUALIFIED SERVICE PERSONNEL ONLY. TO PREVENT ELECTRIC SHOCK DO NOT REMOVE ANY ENCLOSURE PARTS.		**CAT #**	TFB-L
AT THE DATE OF ITS MANUFACTURE, THIS INSTRUMENT OR DEVICE HAS BEEN TESTED AND FOUND IN FULL COMPLIANCE WITH THE FOLLOWING STANDARDS:		**Serial Number**	
TUV Rheinland of North America, Inc. C US Made in USA FC		xxxxx-TFBLxxxx-xx	
		Rev. #	03
		MFG	July 2009
		Volts	100-120
		Amps	5
		Hz	50/60

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AT THE DATE OF ITS MANUFACTURE, THIS INSTRUMENT OR DEVICE HAS BEEN TESTED AND FOUND IN FULL COMPLIANCE WITH THE FOLLOWING STANDARDS:		**Serial Number**	
TUV Rheinland of North America, Inc. C US Made in USA FC		xxxxx-TFBSxxxx-xx	
		Rev. #	03
		MFG	July 2009
		Volts	100-120
		Amps	3.4
		Hz	50/60

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TUV Rheinland of North America, Inc. US Made in USA FC		xxxxxFWSLxxxx-xx	
		Rev. #	03
		MFG	July 2009
		Volts	100-120
		Amps	5.4
		Hz	50/60

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TUV Rheinland of North America, Inc. US Made in USA FC		xxxxx-FWSSxxxx-xx	
		Rev. #	03
		MFG	July 2009
		Volts	100-120
		Amps	3.7
		Hz	50/60

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AT THE DATE OF ITS MANUFACTURE, THIS INSTRUMENT OR DEVICE HAS BEEN TESTED AND FOUND IN FULL COMPLIANCE WITH THE FOLLOWING STANDARDS:		**Serial Number**	
TUV Rheinland of North America, Inc. C US Made in USA CE		xxxxx-TFBLxxxx-xx	
		Rev. #	03
		MFG	July 2009
		Volts	220-240
		Amps	2.4
		Hz	50/60

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TUV Rheinland of North America, Inc. C US Made in USA CE		xxxxx-TFBSxxxx-xx	
		Rev. #	03
		MFG	July 2009
		Volts	220-240
		Amps	1.7
		Hz	50/60

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		Rev. #	03
		MFG	July 2009
		Volts	220-240
		Amps	2.5
		Hz	50/60

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		Rev. #	03
		MFG	July 2009
		Volts	220-240
		Amps	1.9
		Hz	50/60

CONTACT INFORMATION

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Product Service questions	productservice@trianglebiomedical.com
All other inquiries	tbs@trianglebiomedical.com

Please visit us at
http://www.trianglebiomedical.com

More Information

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General Data Healthcare helps labs enhance productivity and improve workflow with innovative products, solutions and support that focus on delivering better patient safety & care.

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TBS
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