OmniBlast™ *Water*
Operation Manual
Revision 1.0

CONTENTS

1 SPECIFICATIONS

An OmniBlast^{TM} *Water* (OBW) sensor with the the locations of the underwater and in-air blast sensor locations is shown in **Figure 1**. A customizable holder with various attachment methods may enclose the body of the sensor; **Figure 1** shows the sensor removed from the holder. The omnidirectional underwater blast sensing element is at the exposed tip of the sensor, and the sensor also integrates a single air blast sending element. Data transfer and recharging can be achieved by the USB-C port or over Bluetooth low energy (BLE). **Table 1** summarizes the key specifications of the OmniBlast Water™ sensor.

Figure 1. OmniBlast^{TM} *Water* sensor.

Table 1. OmniBlast^{TM} *Water* Generation 01 Description

Battery Life	Sampling Rate	Blast Event Capacity	Pressure Range	Trigger Pressure (minimum)	Event Recording Duration
24 hours continuous	667kHz	5,000 events	0.5 – 100 psi (Channel 1) 0.5 – 1,000 psi (Channel 2) 0.5-100 psi for in-air sensor (Channel 3)	2.5 psi underwater	25 s

2   OPERATION GUIDE

This section provides instructions for using an OmniBlast^{TM} *Water* sensor.

2.1   TURNING ON

To turn an OmniBlast^{TM} *Water* sensor on from "button sleep" which is used for shipping or times when the user does not want the sensor to wake up upon movement, ***click the power button once***. The sensor will go through the boot sequence with a solid green light while it calibrates for 5-15 seconds.

2.2   CHARGING

To charge the sensor, access the USB-C port by opening the port door. To open the port door, follow the steps below:

1.   Pull the latch to the right.

2.   Unhook the latch from the door.

3.   Swing the door open

2.3   SLEEP AND WAKE-UP

Inactivity sleep

The sensors will automatically enter a low-power sleep mode when no movement is detected for longer than the sleep timer. ***The sensors are shipped with a 60-minute sleep timer***, but this is configurable, or the sensors can be set to never sleep. If sleeping via inactivity sleep mode, when movement is detected, the sensors will wake up and show a green light for 5 seconds while booting up.

Button Sleep

The sensors can be forced to sleep, called "button sleep", by clicking the power button 10times within 5 seconds for three seconds or more. In "button sleep" mode, the sensors can only be woken up by holding the button. When forcing the sensors to sleep, they will flash the battery ***level color while the button is held, then followed by Cyan three times. Hold the button until the Cyan light blinks three times then let go to force the sensor to sleep.***

2.4   BOOTING

When the sensor wakes up from "button sleep" or from inactivity sleep (no movement detected for longer than the defined sleep threshold), ***Upon powering up, the indicator will be green for 5-15 seconds*** as the sensor self-calibrates. ***If the sensor detects the clock/date (the real time clock (RTC)) is out of sync, the sensor will blink yellow twice after the green*** calibration light.

2.5   STATUS LIGHT

When the status light is enabled, after calibration, the status light will blink every 10 seconds to indicate the battery level and that the sensor is on.

If the RTC is out of sync, there will be a double yellow light blink after each ten-second battery level indicator status light.   If the RTC is out of sync, the sensor must be connected and disconnected to the OmniBlast™ Sensor Manager (see section 2) to sync the time. If the time is not synced, the sensor will perform as usual, only the timestamps on events will be inaccurate.

2.6   TIME SYNCING (OPTIONAL)

After waking up and calibration, the sensor may blink yellow twice. This indicates that the sensor has detected that the clock/date (the real-time clock (RTC)) is out of sync. <u>Connecting the sensor to the mobile application will correct the date/time.</u>

Connect to the sensor using the OmniBlast Sensor Management mobile app. After opening the app, select search for devices. Select the serial number that matches the number on this device and connect to it. Once connected, the time will sync. Disconnect from there.

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2.7 BUTTON COMMANDS AND STATUS LIGHTS

The following tables define the button commands (**Table 2**) and the status lights (**Table 3**) for OmniBlast *Water*.

Note: If the lighting mode is turned off, most lights will never show. When the lighting mode is off, lights will only show on button clicks/holds, and/or when rebooting (Red 0.5 seconds).

Table 2. Button Commands.

Button Command	Operation	Corresponding Light Sequence	Expected Function
Reset Sensor	Hold the button for 10 seconds	After 5 seconds, a red light will show if the sensor is responsive then keep holding until the red light doesn't show, then release the button. If the sensor is unresponsive, hold the button for 10 seconds and release.	Hard reset procedure for the sensor: <u>With USB power</u>: During boot, the sensor flashes a red light for 5 seconds. If the button is clicked during this period, it boots into "Boot mode" for manual USB firmware flashing; if no button clicks, it boots normally. <u>Without USB power</u>: The sensor shows a solid red light for 0.5 seconds, then boots normally.
Button Sleep	Click button 10 times within 5 seconds	A battery level indicator light per button clicksending with red-red-red – red-red-red sequence indicating button sleep entry.	Put sensor to "button sleep" which means the sensor can only be woken up by clicking the button once.
Button Wakeup	Click button once	Standard boot sequence with a Green light for 5-15 seconds during calibration.	Wake sensor up from button sleep
Status Check	Click button once (anytime when the sensor is sleeping or not)	Shows the battery level color and if in BLE mode, would blink a blue light after the battery level color.	Shows the battery level color Indicates battery level: Green = above 75% battery life Yellow = above 25% battery life Red = below 25% battery life
Toggle Lighting Mode	Click button 5 times within 5 seconds	Shows the battery level for each click, followed by blue-blue when lighting mode is turned on, or followed by red-red when lighting mode is turned off.	Toggle between lighting mode on/off

Table 3. Status Light Definitions.

Status Light Color and Sequence (time in seconds)	Expected Command or Function
Red (0.5)	Booting up from hard reset, no USB power connected
Red (flashing for 5 seconds)	Booting up from hard reset with USB power connected. The sensor displays a red flash sequence for 5 seconds. If you click the button during the red flash sequence, the sensor enters boot mode for manual programming.
Green, yellow, or red light flashes every ten seconds	Indicates battery level: Green = above 75% battery life Yellow = above 25% battery life Red = below 25% battery life
Flickering Green	Recording blast event to memory
Flickering Blue	Compressing blast file
Fading Red	Charging, not connected to a PC (wall charger)
Cyan (solid)	Connected to a PC via USB and fully charged
Fading Cyan	Connected to a PC via USB and charging
Blue (.1) - Blue (.1) – Green (.1)	Connecting to Bluetooth
Blue (.1) – Blue (.1) - Red (.1)	Disconnecting from Bluetooth
Blue (.1) – Blue (.1) - Blue (.1) (repeated once)	Going to sleep from inactivity
Red (.1) – Red (.1) - Red (.1) (repeated once)	Going to button sleep from button sleep sequence or because of a low battery
Purple (solid or blinking)	Sensor error state - crashed or repeated errors (hard reset recommended)

2.8 DATA RETRIEVAL

The sensor will record when a blast event threshold is exceeded. Each file is numbered in the order it was recorded. The Files are in .GZ format (compressed binary files). These must be parsed (converted to readable ASCII text) using AMAD's PC-based OmniBlast™ Explorer (OBE). If you do not have OBE software, the latest version can be downloaded from:

https://www.amadinc.com/support

1) Connect the sensors to a computer with the provided USB-C cable. When the sensors are plugged in, the status light will show cyan to indicate a data connection.
   a. If the light pulses red, the sensor is receiving power but has no data connection. Try to disconnect, reset, and reconnect the sensor.
2) On a Windows PC, the sensor will appear as OMNIBLAST in the file explorer (**2**). Select OMNIBLAST in the file explorer to view the contents of the sensor.
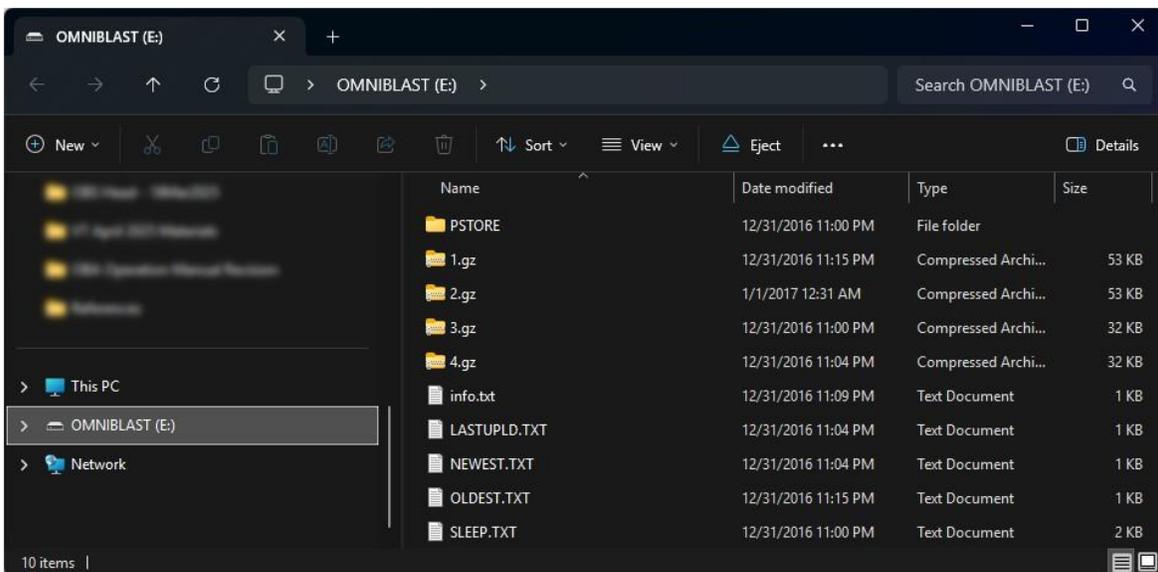
Figure 2. Sample Contents of the OBW Sensor

3) To parse the files, select the .GZ files that needs to be processed in Windows Explorer, as shown in **Figure 3** (15 files selected for this specific example), and drag and drop them onto the OBE window as demonstrated in **Figure 4**. Once you drop the files, OBE will detect the number of files and will ask for a local storage selection, as shown in **Figure 8**. You can select the default option of "Local", or click the settings icon, and generate a user specific local storage option, by pressing on "+" sign, and entering user specific storage name (for example OBW DEMO).
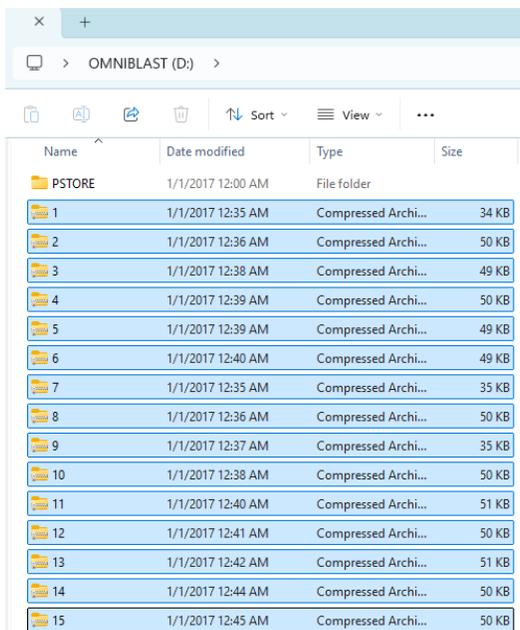

Figure 3. To analyze data, select the desired files in Windows explorer.
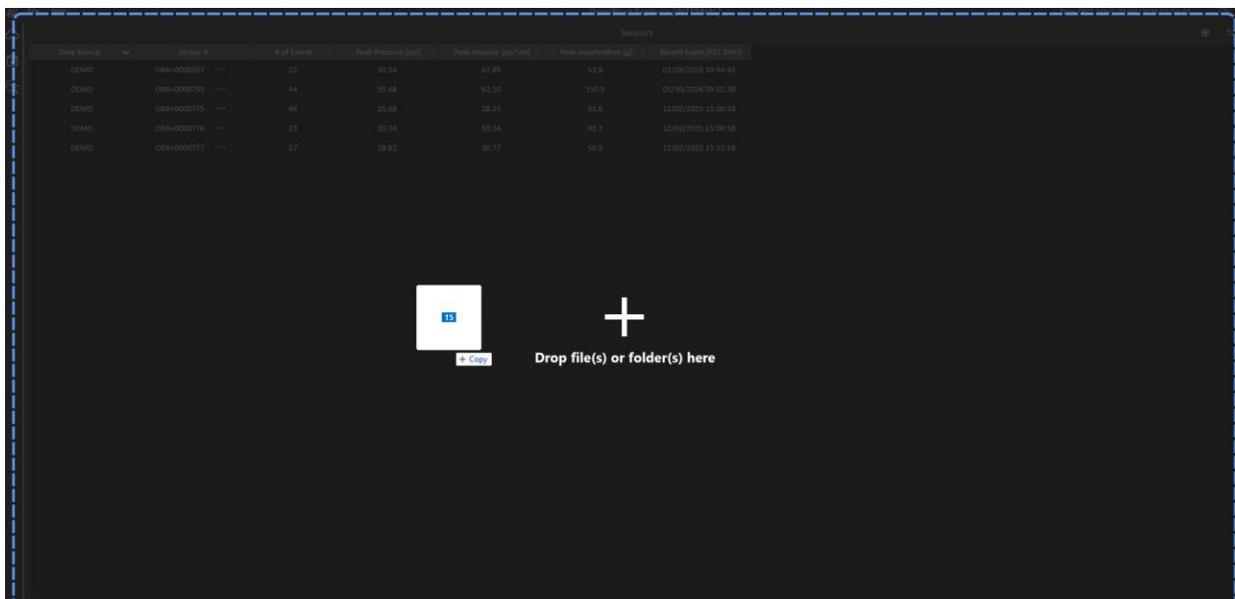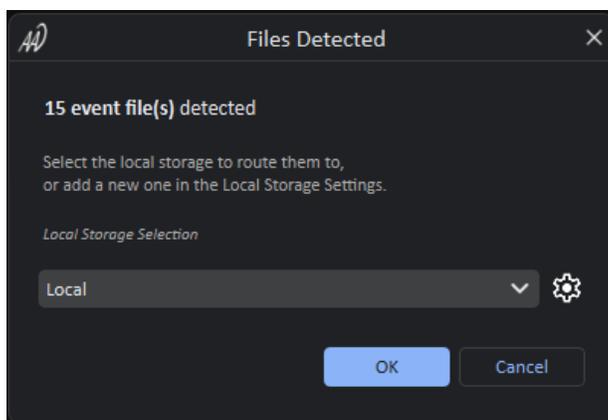
Figure 4. Once dragged from Windows explorer, the desired files can be dropped on OBE window.

(a)

Click these signs to add (+) or remove (-) local storage.

(b)
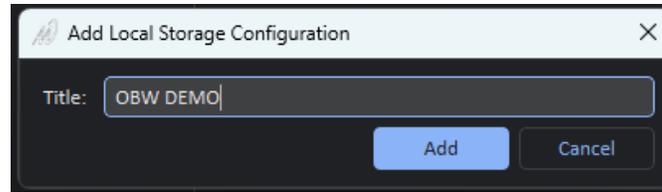
(c)

Figure 5. Local storage manager options: (a) initial window once new files are dropped, (b) local storage manager window, (c) how to generate and add a new local storage.

Once the above steps are completed, follow the provided Quick Start Guide on OmniBlast Explorer to view and analyze the recorded blast events.

3   TROUBLESHOOTING

I. The sensor does not turn on:
    a. Click the user button to ensure the sensor is not in "button sleep" mode.
    b. If (a) is not successful, plug the sensor into a wall power charger and look for a fading red light. If a fading red light is observed, let the sensor charge. Then unplug the sensor and see if the ten-second status light occurs.
    c. If (a) or (b) do not work, reset the sensor and see if a successful boot sequence occurs.
II. Sensor shows solid color light, and will not stop:
    a. Press (click) the button once.
    b. If the button click does not solve it, reset the device (*Table* **3**).
III. Sensor repeatedly blinks purple light
    a. Reset the device (*Table* **3**).
IV. Date-time is not accurate in events as indicated by a Yellow-yellow light flash after each 10 second indicator light.
    a. Update the sensors' time by connecting them with the OmniBlast™ Sensor Manager (OSM). The OSM will automatically update the time for the sensor. Disconnect from the OSM and reset the device.

4 CONTACT INFORMATION

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5 REVISION HISTORY

Table 4. OmniBlast Operation Manual Revision History.

Revision	Date	Description
1.0	03/04/2026	Initial OmniBlast™ Water Operation Manual release.