



SolaRaft-iQC™ Ultrasonic Remediation for Water Clarifiers 40SF-15V30-075 Series



General Product Specifications

Model Number	Description
40SF-15V30A075B02	SolaRaft with Quattro-DB Globe
40SF-15V30M075B02	SolaRaft with Quattro-DB Globe and LoRa Comm Bluetooth Communications standard with all models



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Product Manuals section at:
www.Hydro-Bioscience.com

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1. SAFETY INFORMATION

Safety Symbols and Terms

Safety Symbols

The following symbols may appear on the product:

	Direct current (DC)		Caution, risk of danger
	Alternating current (AC)		Warning, risk of electric shock
	Both direct & alternating current		Risk of explosion
	Ground terminal		Recycle lithium-ion batteries
	Chassis ground		Do not incinerate
	Power on/off		Power port
	Battery/cell power connection		Battery/cell power connection
	Communication port		Solar panel port
	Repair/service		AC connection port
	Navigation light connection		MyQuattro App communication
	Conforms to European Union directives		
	Complies to the Federal Communications Commission		
	Complies with the Restriction of Hazardous Substances Directive (2002/95/EC)		
	This product complies with the WEEE Directive (2002/96/EC) marking equipment. The affixed product label indicates that you must not discard this electrical/electronic product in domestic household waste.		

Safety Terms

Terms in this manual:

 **Warning/Caution:** BE ALERT – YOUR SAFETY IS INVOLVED. If you do not follow these safety instructions, personal injury, loss of life, and/or property damage may occur.

Terms on the product:

Danger: Indicates an immediate hazard that will result in death or serious injury.

Warning: Indicates a hazard which may result in death or serious injury.

Caution: Indicates a hazard which may result in minor or moderate injury.

 **WARNING - Read this manual thoroughly before using the SolaRaft.**

User Safety and General Product Precautions

1. Locate/route all cords where they will not be tripped over or damaged by equipment with cutting blades, such as lawn mowers and hedge clippers, and away from vehicle/boat traffic to prevent being driven over.
2. When deploying, follow all equipment and vehicle (such as boats, rafts) operator safety manual instructions.
-  3. Installation and working in and around water always requires 2 or more individuals for safety.
4. If wildlife such as beavers, minks, nutria, otters, muskrats, turtles, etc., present a problem, additional cable protection is recommended, such as a nylon or polyester braided sheath from the surface down to about 2 meters (6 feet) depth.
5. Other manuals included with this manual, such as battery, solar controller/charger, Sonic Head, and SolaRaft manuals, must be read fully. Comply with all safety precautions in those manuals. This manual contains only assembly excerpts from these other manuals. **Visit our website www.hydro-bioscience.com to locate these manuals. Alternatively, find and locate the white label affixed to the inner wall of the side panel and download the manuals using the QR Codes printed on that label.**

Precautions While Working with Batteries

1. Risk of fire, explosion, and burns. Do not subject the battery to heat above 100°C (212°F) or incinerate.
2. Keep away from children and pets. NEVER put batteries in your mouth.
3. Swallowing may lead to serious injury or death. If ingested, immediately contact your physician or a poison control center.
4. Use only DPI or HBS-branded and approved battery chargers.
5. Do not touch or connect the terminals of the battery to each other.
6. Do not subject the battery to a short circuit.
7. Do not place the battery near fire, in direct sunlight, or in high-temperature locations.
8. Do not disassemble or modify the battery.

9. Do not crush, step on, or subject the battery to strong impact.
10. Do not smoke around or near the battery.
11. Immediately discontinue use of the battery if it emits an unusual smell, feels hot, expands, or appears abnormal in any way.
12. Inspect battery for any damage before using. Do not use battery if it has been damaged in any way.
13. Dispose of used batteries promptly according to local recycling or waste regulations.

Personal Precautions While Working with Solar Panels

1. Follow all safety precautions recommended by the solar panel supplier, including safe installation practices.
2. Solar panels produce an open circuit voltage of less than 43.2Vdc.
3. Necessary precautions include:
 - a. Avoid short circuits which can produce energy arcing which can cause severe burns and/or property damage.
 - b. Avoid touching bare wires which can cause personal harm, and even death – DC currents can be lethal.
 - c. Use a minimum of one-gauge larger conductor than the appropriate rated wire for solar panel's Short Circuit Ampacity rating.

Uses

This single-use product is specifically designed for use in Water Clarifiers found in water treatment processes.

DOT Shipping Regulations

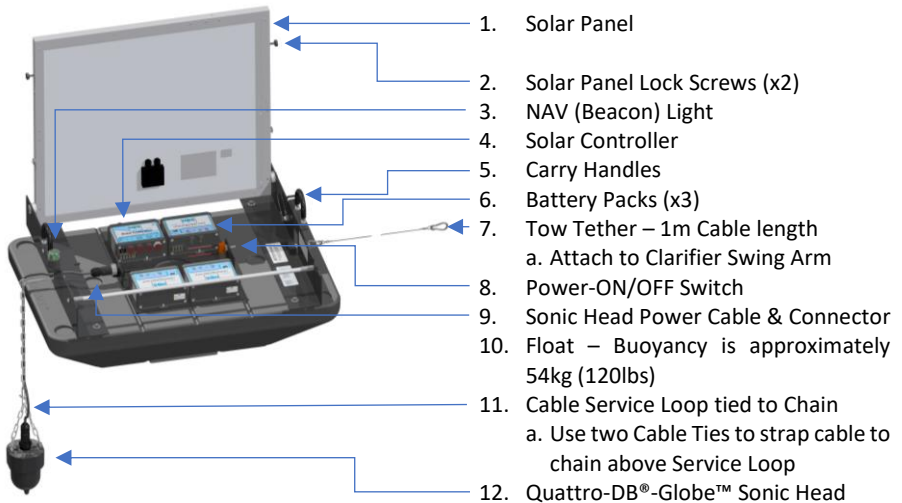
This battery ships Class 9. It cannot be carried by a passenger aircraft.

Limitations and Disclaimers

Due to environmental and manmade conditions contributing to excessive nutrient loading and many other factors, varying degrees of product efficacy should be expected and therefore, there is no guarantee regarding the total prevention or eradication of algae or algal blooms. HBS Algae Remediation products do not treat any body of water to produce potable or drinkable water. HBS Algae Remediation Products do not treat for other bacterium, pollution, viruses, toxins, micro-organisms, or other matter which may be present, and other methods of treatment may be needed to provide prevention, remediation, or elimination of such. HBS Algae Remediation Products are not a replacement for other water treatment methods, including, but not limited to, aeration, chlorination, oxidation, skimming, or other treatments meant to prevent, reduce, or eliminate other bacterium, pollution, viruses, toxins, micro-organisms, or other matter which may be present. HBS Algae Remediation Products are not to be utilized for off-label or unintended uses. Such off-label or unintended use may void the product's warranty and/or cause damage to persons or property.

2. INSTALLATION

Product Features and Assembly



Product Feature Assembly Notes:

- Lateral Stabilizing Bar: Do not suspend objects or use to support anchors, sonic head attachments, or SONDE probes.
- Solar Panel: Develops more than enough energy to power the Algae Remediation Sonic Head, while charging battery packs.
- Solar Panel Lock Screws (x2): Keeps solar panel locked in place
- Lithium-Ion Battery Packs (x3): Used to store and provide continual power to the Solar Controller. Battery packs are waterproof and rated at IP68. Refer to instruction manual located at www.hydro-bioscience.com.
- Solar Controller: Takes in solar power and charges battery packs, controls power to the Sonic Head via Channels One or Two, powers NAV (beacon) light, and communicates via Bluetooth and serial communications for the MyQuattro™ app. Solar Controller is waterproof and rated at IP68. Refer to instruction manual located at www.hydro-bioscience.com. A MyQuattro™ App is available free for use on Android smartphones to communicate via Bluetooth connection.
- Telemetry/Modem Module (not shown): Optional, purchased separately. Refer to its instruction manual located at www.hydro-bioscience.com. The modem can provide LoRa for SCADA applications.

Unpacking And First-Time Deployment

Refer to [PRODUCT FEATURES AND ASSEMBLY](#) figure and related call-out numbers. The call-out numbers are referenced below in parentheses.

Using a two-person team, remove product from its packaging and rest it on a flat surface. Follow these steps to deploy the SolaRaft-iQC:

1. Locate and remove the two Solar Panel Lock Screws (2). Carefully swing open the solar panel (1) until the lanyards support the opened panel. Do not allow the solar panels to drop open.
2. Remove the protective wrap from the Sonic Head (12), Cable and Chain (11), and rest the Sonic Head (12) on the floor beside the SolaRaft-iQC. The Sonic Head Chain (11) is already connected to the Eyebolt and Connector (9) and ensures that the Chain length carries the weight of the Sonic Head (12) and not the Sonic Head Power Cable.
3. Locate the Power ON/OFF Switch (8). Due to shipping regulations, the product must ship with batteries disconnected from the system. This is the purpose of Switch (8). Flip the Switch's lever to the up (ON) position. The NAV Beacon Light (3) will begin to flash.
4. Swing the Solar Panel (1) back into position and secure the panel with the 2 Solar Panel Lock Screws (2).
5. Using the Carry Handles (5), place the SolaRaft-iQC into the body of water in the Clarifier and allow the Sonic Head (12) to drop down into the water. The length of Chain should allow the Sonic Head (12) to be positioned approximately ½ meter below the surface of the water.
6. Attach 1m Tow Tether Cable (7) to Clarify Swing Arm. The positioning of the system at the swing arm should be at point along the length of the arm that would center the path of the SolaRaft-iQC.
7. Methods of physically connecting the loop on the end of the Tow Tether Cable (7) to the swing arm vary and include use of a wood clamp, installing an eyelet bolt, bolt and nut attachment, or other means.

Sonic Head Power Cable Connection

 To avoid a non-warranty claim, follow the installation instructions below when replacing or upgrading a cable or Sonic Head.

Protecting Connector Mating Unions

1. A bag of parts kit contains extra D-Shackles, Cable Tie Straps, and a small Dielectric Grease sachet.
2. The Dielectric Grease Sachet is shown on the left. Anytime two connectors are to be mated, use a very small (sparingly) amount of grease as shown in the image below.
3. Apply 3mm or less diameter spot of dielectric grease to the power supply cable port and ForteConn® Power Plug to aid in the resilience to moisture, dirt, and grime trapped inside the union mating of the plug and receptacle.



If a cable connector is supplied that connects to a power supply, apply a very small 3mm diameter spot or less of dielectric grease to all socket contacts (as shown) – not pins to protect from corrosion, moisture, and dirt when connectors are disconnected or mated. Any dielectric grease or lubricant used must conform to NSF-61 Marine and/or Food Grade standards.

Protection of Cables from Tear and Stress



IMPORTANT – CABLE SERVICE LOOPS

Cables must never be used to pick up Sonic Heads, nor carry the weight of stress created by waves of water bobbing the Floats up and down. The cable jacket may tear at the entry points into the connectors and allow water and contamination into the waterproof connectors!

Product Maintenance

The HBS ultrasonic algae management system is designed to limit calcium carbonate crystal formation on the sound-emitting surfaces, so it forms slowly. Over time, buildup may occur on the Sonic Head depending on how hard the water is where you live. Periodically (monthly), check the Sonic Head for any calcium carbonate buildup. If you see significant crystalline formation, use a calcium lime rust remover to wipe it away. Adjust your cleaning cycle based on how quickly the buildup returns.

It is recommended that the sonic head be wiped or brushed off monthly to remove any accumulated biofilm. A small accumulation of biofilm has not been shown to cause loss of output from the sonic head because ultrasound seems to easily pass through the film (since it is about 99% water), but if left uncleaned, a large buildup of biofilm will cause dampening of ultrasonic frequencies and limit the effectiveness of the device.

Routinely check solar panels for dust, debris, or garbage accumulation and clean solar panels using a soft cloth and general-purpose, environmentally appropriate glass cleaner.

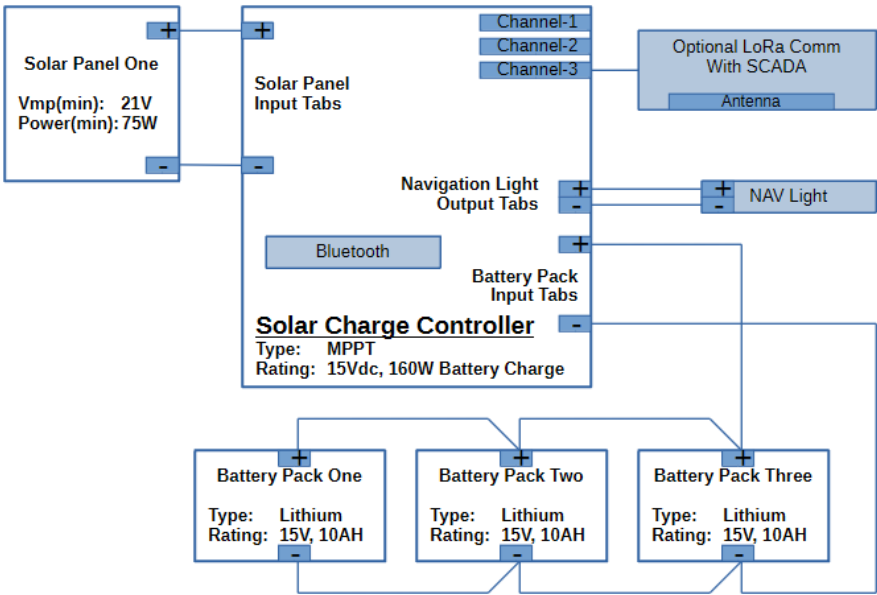
SolaRaft-iQC™ Storage and Redeployment

Winterization: If during the winter, there is a risk of thick icing over, you may consider removing the unit and stowing away. The only risk of leaving the unit in the cold is that thick ice may stress the cable.

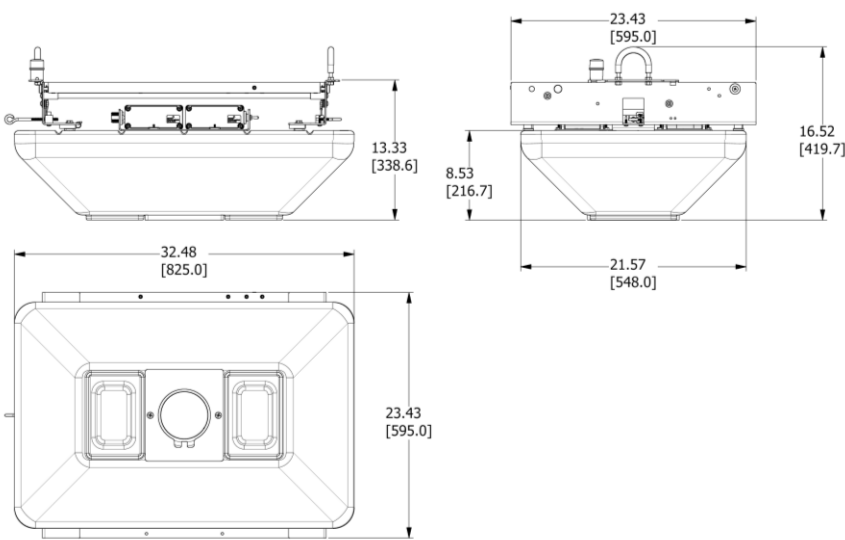
1. Pull SolaRaft0iQC back onto a stable deck, remove the 2 Solar Panel Lock Screws, and gain access to the Power Switch
2. Push the Power Switch lever down to the 'OFF' position
3. Lower Solar Panel and Lock with the 2 Lock Screws.
4. The SolaRaftiiQC battery pack may now be left in storage for a year.
5. To redeploy, follow steps 1 to 3, except now lift the lever of the Power Switch up to 'ON' position.

3. APPENDIX

Typical SolaRaft Circuit Connection



Product Dimensions



Patent And Patent Pending List Declaration

The various products described in this manual are protected by one or more of the patents and pending patent applications below. In addition to this list, other patent-pending applications are in progress.

Algae, biofilm control mimicking turbulence	US 11,299,406
Algae control by sweeping ultrasonic frequencies	PCT/US2024/049457
BMS for multicell batteries	US 9,876,367
Enhanced algae control system transducer	US 12,330,964
Full coverage algae control transducer	PCT/US2025/050747
High-density packaging system	CA 3,244,900
High-density packaging system	US 2025/0066110
Local algae control for submerged equipment	US 2024/0124332
Multi-range ultrasonic algae control	US 2025/0100904
Performance monitor for ultrasonic transducer	US 2024/0418550
Performance monitor for ultrasonic transducer	CA 3,241,638
Resonant frequency detection for algae control system	PCT/US2025/014056
(Round) Float for Water Quality Equipment	US D1,081,432
Solar Powered raft	US D1,005,933
Solar Powered Water Quality Raft	US D1,053,779
Ultrasonic algae control	CA 3,022,970
Ultrasonic algae control	CA 3,246,435
Ultrasonic algae control	EP 3,451,828 UP
Ultrasonic algae control	Greece 3,451,828
Ultrasonic algae control	India 497,341
Ultrasonic algae control	Ireland 3,451,828
Ultrasonic algae control	Korea KR 10-2454500
Ultrasonic algae control	Norway EP 3,451,828
Ultrasonic algae control	Poland PL 3,451,828
Ultrasonic algae control	Spain ES 2,947,635T3
Ultrasonic algae control	UK 3,451,828 GB
Ultrasonic algae control	US 10,399,867

4. GENERAL WARRANTY

Hydro BioScience, LLC (HBS) warrants that the product will be free from defects in materials and workmanship for a period of 3 years (1 year for accessories) from the date of purchase of the product by the original purchaser from HBS. This warranty only applies to the original purchaser and is not transferable to a third party.

If the product proves defective during the warranty period, HBS will either repair the defective product without charge for parts and labor or will provide a replacement in exchange for the defective product. Parts, modules, and replacement products used by HBS for warranty work may be new or reconditioned to like-new performance. All replaced parts, modules, and products become the property of HBS.

To obtain service under this warranty, Customer must notify HBS of the defect before the expiration of the warranty period. Customer shall be responsible for packaging and shipping the defective product to the service center designated by HBS, with a copy of customer's proof of purchase. Customer must ensure that an RMA (Return Material Authorization) number has been received from HBS. This RMA number must be printed on the outside of the return packaging.

This warranty shall not apply to any defect, failure, or damage caused by improper use or improper or inadequate maintenance and care. HBS shall not be obligated to furnish service under this warranty:

- a) repair damage resulting from attempts by personnel other than HBS representatives to install, repair, or service the product;
- b) repair damage resulting from improper use or connection to incompatible equipment;
- c) to repair any damage or malfunction caused by the use of a non-HBS Power Supply;
- d) to service a product that has been modified or integrated with other products when the effect of such modification or integration increases the time or difficulty of servicing the product.

Please contact the nearest HBS Sales and Service Offices for services. For better after-sales service, please visit www.hydro-bioscience.com and register the purchased product online. Warranty may also be requested online, along with obtaining an RMA, automatically.

Excepting the after-sales services provided in this summary or the applicable warranty statements, HBS will not offer any guarantee for maintenance declared or hinted, including but not limited to the implied guarantee for marketability and special-purpose acceptability. HBS will not take any responsibility for any indirect, special, or consequent damages.

For Customer Service, and to request an RMA or obtain Return Information, please call Hydro Bioscience, LLC at 888-500-5011.

For all returns, clearly mark the RMA # on the outside of the packaging and send to:

Hydro Bioscience, LLC

414 Century Court

Piney Flats, TN 37686

RMA Number: _____

