



X2

USER GUIDE



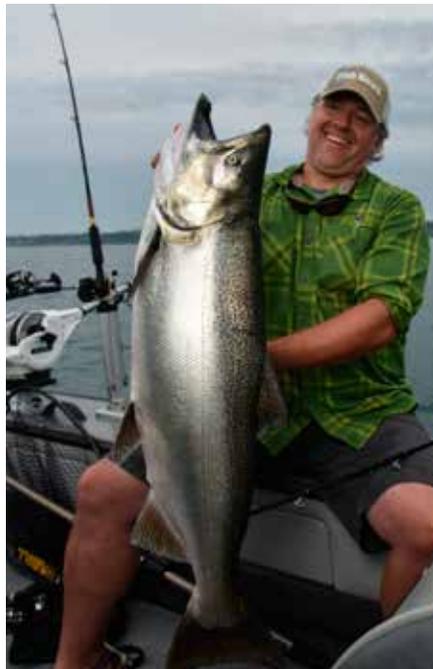
Thank you for your purchase. For over 40-years anglers have relied on Fish Hawk Electronics to give them accurate water temperature and speed information. Helping them find and catch more fish!

Our customers are our best sales people. Our mission is to build products that you happily recommend to your fishing friends.

We've built a reputation around personalized customer service. No call centers here! If you have a question or problem with your Fish Hawk, please contact us immediately. We'll help you figure it out and do what needs to be done.

Remember, Trolling Without a Fish Hawk is Just Boating!

Trevor Sumption
President
Fish Hawk Electronics



USE PREFERRED WATER TEMP TO FIND FISH

Each species of fish lives in a preferred water temperature range. The chart below shows the preferred water temperature range for the most popular freshwater game fish and baitfish species in Fahrenheit.

Preferred Water Temperature Ranges (shown in Fahrenheit)			
Species	Lower Limit	Optimum	Upper Limit
Brown Trout	44	60	75
Chinook Salmon	42	50	60
Coho Salmon	44	54	60
Crappie	60	70	75
Kokanee		55	
Lake Trout	42	50	
Largemouth Bass	50	65	75
Atlantic Salmon		54	
Rainbow Trout	44	55	75
Smallmouth Bass	50	65	73
Steelhead	38	55	62
Walleye	50	67	75
Alewife	48	54	72
Cisco		53	
Emerald Shiner		61	
Gizzard Shad		69	
Rainbow Smelt	43	50	57
Spottail Shiner		54	

Fish suspend in the water column by water temperature. Using your Fish Hawk will allow you to find them. With the Fish Hawk you can create a temperature profile of the water column by lowering the probe close to the bottom and observing the water temperature as you slowly raise the probe to the surface. This will allow you to find the correct water temperature for the species you are targeting.

WHAT'S THE RIGHT TROLLING SPEED?

Understanding subsurface currents is critical to trolling success. On large bodies of water, wind and bottom structure work together to create underwater currents. The collision of warm and cold water also creates current.

Without a speed probe like the Fish Hawk, knowing what sub-surface currents are doing is nearly impossible. Newcomers to big water trolling often underestimate the effect on their lures. Trolled against the current, lures can wobble too fast or "burn out." Trolling with the current can leave your lure dead in the water!

The Fish Hawk Probe relays important speed information from the depths to the angler. When trolling against the current, the angler must slow the boat down to keep the lure working at optimal speed; trolling with a current, the angler needs to speed up.

Allow the fish to tell you what the right trolling speed is. Once you've identified a probe speed that is getting strikes on a particular day, adjust the boat speed accordingly to get back to that number. Repeatability is the key to maximizing your catch!

FISH HAWK X2 SYSTEM COMPONENTS

Your package should include the following:

- Slip-Ducer™ (Patent Pending) with 10' cable
- X2 LCD display
- Gimbal bracket and knobs for LCD
- Fish Hawk X4 Probe
- Protective rubber probe bumper installed



Optional, not-included accessories available at fishhawkelectronics.com:

- Specially designed 35" trolling rod for using the Fish Hawk Probe and Slip-Ducer™
- Vinyl coated ball weights
- Adapter plate for mounting the X2 LCD in track systems



HOW THE FISH HAWK X2 OPERATES

The Fish Hawk X2 can be used with or without a downrigger. The Fish Hawk Probe is fastened to the downrigger cable just above the downrigger ball, or to a probe line spooled on a short rod and reel set-up with a one-pound ball weight.

It has sensors that constantly monitor water temperature and speed as it travels through the water. The probe sends a sonar signal with that information to the Slip-Ducer™ (Patent Pending) which rides on the probe line or downrigger cable. When hooked up to the LCD display, the Slip-Ducer™ sends the data from the probe to the liquid crystal display (LCD) in the boat.

As the water temperature or speed changes, the LCD updates to reflect the new information. To provide a repeatable number, the speed is calculated over a 20-second period.

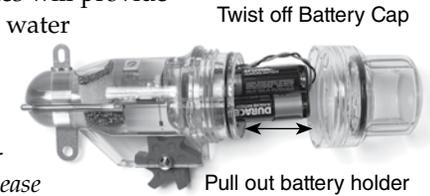


THE FISH HAWK PROBE

Installing the Batteries

The Probe is powered by four AA Alkaline batteries (not included.) Do not use rechargeable batteries. Fresh Alkaline batteries will provide 100+ hours of in-the-water life depending on water temperature. To install the batteries:

Unscrew the probe's battery cap. Carefully pull the battery holder out of the probe. Place the four batteries into the battery holder matching the appropriate +/- terminals. *Please note: pay special attention to the polarity of the batteries because the probe will function if only three of four batteries are correctly installed, but the readings provided may be inaccurate.*



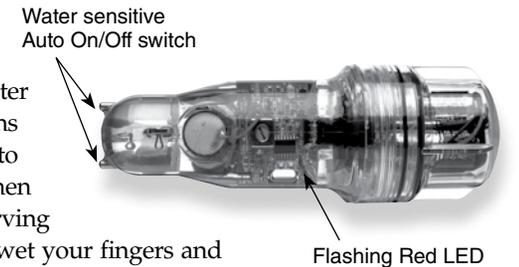
Place the battery holder back into the probe with the battery wires facing the rear of the probe. The wires are encased in nylon-mesh wire tubing to encourage proper orientation of the battery holder. *Please note: if the battery holder is replaced with the wires facing the front of the probe, the wires can be damaged. While this can be repaired by installing a replacement battery holder, it may cause you to lose fishing time with the probe.*

Turn the battery cap back onto the probe and hand-tighten snug. Do not over-tighten. The battery cap has a double O-ring design that does not need to be overly tight to keep water out of the battery compartment.

Keep the O-rings clean and lightly lubricated and loosen the battery cap at the end of each fishing day to relieve any pressure and naturally occurring condensation.

Turning the Probe On and Off

The Fish Hawk Probe features a water activated auto on/off switch that turns the probe on when it is lowered into the water and shuts the probe off when it is removed from the water, conserving battery life. To test the probe, simply wet your fingers and place them across the two activated metal temperature sensors coming out of the front of the probe. A red LED inside the body of the probe will flash approximately every 10-seconds when the probe is on.



Probe Bumper

A clear silicone rubber bumper comes installed on the Fish Hawk Probe. The bumper provides additional protection for the thermistor tubes against accidental damage. For storage, remove the Probe Bumper, insuring that trapped moisture does not turn the probe on when not in use.



USING THE FISH HAWK PROBE

Deploy the Fish Hawk Probe using a downrigger. Or, in place of a downrigger; use a short, stiff action trolling rod equipped with a line-counter reel spooled with 50 to 80lb. test "super-braid" line, with a one-pound ball weight on the end of the line. Place this rod and reel combo in a rod holder. We have designed a 35" heavy action trolling rod for use with the probe that is available for purchase at fishhawkelectronics.com. Or you can fashion a suitable rod for the probe by using the handle section of a two-piece fishing rod. Specialty rods known as "kite rods" are readily available and also work well. The rod you use for the probe need not be fancy or expensive. You just need something that will handle the weight of the probe and ball weight and can be placed in a rod holder.

ATTACHING THE PROBE TO THE DOWNRIGGER CABLE OR PROBE LINE

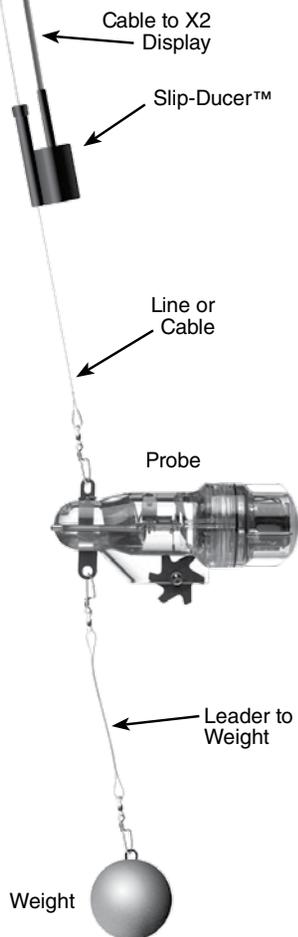
If using a downrigger, terminate your downrigger cable following your downrigger manufacturer's instructions. Attach the snap swivel through the stamped stainless-steel loop on top of the Fish Hawk Probe.

Using the trolling rod and reel method, we recommend choosing 50 to 80lb. test "super-braid" like Power Pro™ as your probe line. Tie a quality ball bearing snap swivel testing at least 100lbs. to the end of your probe line using a Palomar Knot. Attach the snap swivel through the stamped stainless-steel loop on top of the Fish Hawk Probe.

Prior to attaching the probe, it is a good idea to inspect the downrigger cable or probe line for any kinks or frays that might weaken the downrigger cable or probe line, which could cause you to lose your valuable Fish Hawk Probe.

Attaching the Downrigger Ball or Weight to the Probe

For use with a downrigger we suggest the use of shock absorbing downrigger ball "snubbers." Two heavy-duty snap swivels connected back to back with a large



split ring also works well for connecting to a downrigger weight. Attach the top snap swivel to the stamped stainless-steel loop on the bottom of the Fish Hawk Probe, and the bottom snap swivel to the downrigger ball.

Using the trolling rod and reel method, we recommend attaching a one-pound ball weight to the probe on a "dropper line." Make a dropper line by tying two light-duty snap swivels to each end to a 12" length of 12 to 20lb monofilament line (vary the length of line to your preference). Once tied, attach one of the snap swivels to the stamped stainless-steel loop on the bottom of the Fish Hawk Probe and the other to the one-pound ball weight. Should the weight become snagged on the bottom, the lighter weight monofilament line will break before the heavy probe line, saving the Fish Hawk Probe from being lost.

THE SLIP-DUCER™ (PATENT PENDING)

The Slip-Ducer™ rides on the probe line or downrigger cable. Its unique design keeps the probe and receiving element in perfect alignment, regardless of the downrigger cable's or probe line's angle in the water. The Slip-Ducer™ includes 10-feet of cable. The body of the Slip-Ducer™ should be 12" to 24" deep in the water at trolling speeds. Wave conditions and trolling speed will dictate the amount of cable you need to let out. Secure any unused cable inside the boat.



Attaching the Slip-Ducer™ to a Downrigger Cable or Probe Line

Insert the downrigger cable or probe line into the slotted stopper found in the tube on the Slip-Ducer™ body. Twist the stopper 180-degrees to capture the downrigger cable or probe line. The Slip-Ducer™ should slide freely on the downrigger cable or probe line.

Avoiding Potential Sonar Interference

Sonar interference is caused when sonar frequencies within 20 kHz of each other are used in close proximity. The Fish Hawk operates at 70 kHz while most fish finders operate at 200 kHz. Meaning most fish finders will not interfere with the Fish Hawk.

Some dual frequency finders have a 50 or 83 kHz frequency option that could potentially interfere with the Fish Hawk if the transducers are too close together. You can opt not to use the 50 or 83 kHz frequency in your fish finder's settings, or simply use the Fish Hawk's Slip-Ducer™ in a location further away from your fish finder's transducer.

THE FISH HAWK X2 LIQUID CRYSTAL DISPLAY(LCD)

The Fish Hawk X2 Display is divided into a top and bottom section. The top number is water temperature at the probe. The bottom half of the display shows the mechanical speed at the probe. If the probe signal is not detected, dashes will appear for both the probe temperature and speed. To indicate that the probe is functioning correctly, every time a new signal is received the decimal points on the screen will flash.



Locating the Display In the Boat

The X2 LCD can be fixed mounted or used as a portable unit and moved from boat to boat. The LCD requires that the Slip-Ducer™ be plugged into the connector on the back of the case. Place the LCD in a visible location inside the boat that is within 5-feet of the downrigger or rod holder you plan to use the Slip-Ducer™ on. For maximum versatility, the X2 LCD includes a gimbal bracket and is fitted with a threaded 1/4"-20 insert, which is compatible with the popular 1" RAM® Ball mounting system. An adapter plate for use with track systems is also available at fishhawkelectronics.com.

The X2 LCD is weatherproofed to IP54 standards to protect from boat spray and rain events. It is not submersible.

Powering the LCD

The X2 LCD requires two AA batteries. Quality Duracell® Quantum Alkaline™ or Energizer® Ultimate Lithium™ Batteries are recommended for maximum battery life. Expect a minimum of 40-hours of continuous use depending on ambient temperature and back light use. The battery holders are located in the rear of the LCD case and require the removal of two small screws to access.

Low Battery Warning

When the LCD's batteries are low a LOW BAT sign will appear on the LCD display. When the LOW BAT sign is present you have approximately 8-hours of run time remaining.

Adjusting the Angle of the Display

You can adjust the angle of or remove the LCD by loosening the thumbscrews on the sides of the gimbal bracket.

Activating the LCD Backlight

The display is equipped with a backlight for low-light conditions. Enable the backlight by pressing the UP arrow or turn the backlight off by pressing the DOWN arrow

Operating the Fish Hawk X2 Display

The display has four screen settings. To access each setting press the SET button. Each time the SET button is pressed the display will move to the next screen setting.

- Screen#1 - Set the GAIN (sensitivity) with a range of 0-25. The default setting is 15. Use the UP and DOWN arrows to adjust. Increasing the gain allows probe readings to be received from greater distances. Lower gain settings reduce the possibility of sonar interference, and also may be necessary in shallow water
- Screen#2 - Select the temperature unit of measure to Fahrenheit or Celsius. The default is Fahrenheit. Use the UP and DOWN arrows to adjust.
- Screen #3 - Select the speed unit of measure to MPH, KNOTS, or KPH. The default is MPH. Use the UP and DOWN arrows to adjust. The Fish Hawk X2 will display speeds from .8 MPH to 11 MPH.
- Screen #4 - Allows you to calibrate the probe's temperature and speed readings. Use the UP and DOWN arrows to adjust. Exit these screens by pressing the POWER button at any time. All changes are saved at that point. NOTE: Calibration is not necessary. No two boats will read speed exactly the same. Most of the time factory default settings* will yield the best (and most importantly) repeatable results.

*Factory default values for water temperature and speed are denoted for each sensor by a missing decimal point. If you wish to go back to the factory settings press and hold the SET button down *before* turning the power on. Continue holding the SET button. You will eventually see a screen with your offsets and the decimal points will flash 10-times. Release the SET button and press power once to restore factory settings.

ROUTINE MAINTENANCE

Your Fish Hawk requires simple maintenance to keep it working properly. Use the following schedule to keep your Fish Hawk in top working order:

Item	Check	Action	Interval
Liquid Crystal Display	Check for dirt and water spots on the screen.	Clean with soft cloth.	Daily
Transducer Cable	Check for abrasion on the cable jacket.	Contact Customer Service.	Daily
Downrigger Cable/Probe Line	Check for kinks or fraying.	Replace cable or cut off section of damaged line	Daily
Probe Batteries	Check for power.	Replace if LED is not flashing inside the probe.	Daily
Probe O-Rings	Check for dirt and lubrication.	Clean and apply a light coating of silicone lubricant if dry. Do not over-lubricate.	Weekly
Probe	Check for condensation in battery cap	Loosen battery cap at the end of each day	Daily
Probe	Batteries	Remove batteries for extended storage	Seasonally

TROUBLE SHOOTING

Please refer to the following table to help you identify and correct some of the more common troubleshooting scenarios we encounter.

Problem	Possible Cause	Solution
Display won't turn on	Batteries are not installed or do not have enough power	Install two, high quality AA alkaline or lithium batteries
No probe data appears on the display	The probe is out of the water The batteries in the probe are low on power The Slip-Ducer™ is not in the water The GAIN setting is too low	The probe is only on when in the water. Replace the batteries with high quality alkaline AA batteries. The Slip-Ducer™ must be in the water to receive. Let out more cable to keep the Slip-Ducer™ 12" below the surface at all times. Press the SET button and use the Up-arrow button to increase the GAIN. 15 is the default value. You may find a need to increase the GAIN for deep or rough water use.
The probe temperature shows on the display as 3.8 – 4.0	The thermistor tubes on the probe have been damaged	Unfortunately, the thermistor tubes can not be repaired. Contact Customer Support for evaluation. To prevent the problem, always use the supplied Probe Bumper and do not allow the probe to remain on a downrigger cable when not in use.
Probe readings on the display are wildly erratic	Possible sonar interference	The fastest way to eliminate this is to turn off the 50 kHz or 83 kHz beam on your fish finder. You can also try reducing the Gain setting on the Fish Hawk display by pressing the SET button and then the arrow down key, or separating transducer cables if tied together. The permanent solution is relocating the transducer away from other 50 or 83 kHz transducers on the transom.

SERVICE

"HELP! I can't fish without my Fish Hawk!" Many customers tell us that their Fish Hawk is so important to their fish catching success that they won't fish without it!

We make getting service simple to get you back on the water as quickly as possible.

WARRANTY

All Fish Hawk Products come with a one-year standard warranty protecting against defects in parts or workmanship. If you have a warranty issue, we'll arrange to repair or replace the product at no cost to you.

If your Fish Hawk product is in need of warranty service, please visit the Support/Request Service page at fishhawkelectronics.com. Please have a copy of your sales receipt available.

OUT OF WARRANTY SERVICE

If your Fish Hawk is out-of-warranty we will repair it for a fee. If it can't be repaired, we'll replace it for the flat rate shown below. Return shipping is \$10 inside the Continental U.S. Actual shipping charges plus applicable taxes, duties and brokerage apply for international shipping.

FLAT RATE REPLACEMENT CHARGES

Model	Flat Rate Charge
X4 Probe	\$210
X2 LCD	\$250
Slip-Ducer	\$75

If your Fish Hawk product is in need of service, please visit the Support/Request Service page at fishhawkelectronics.com.

Return Address

Fish Hawk Service
Grayden Outdoor LLC
7845 Briars Way
Brainerd, MN 56401

Contact Information:

Phone (218) 454-4760

Website: fishhawkelectronics.com

Office hours: 8:00 AM to 4:30 PM CST, Monday through Friday.

SERVICE ADVICE

- Please consult the Troubleshooting page on our website before sending your product in.
- It is best to send your probe and display in together to be tested as a set.
- If you think you have a problem with the transom mount transducer, contact us prior to removing it. Rarely is the transducer the culprit.
- Ship products back using FedEx, UPS, or Priority Mail and keep the tracking number.
- Stick an address label on each part you send back to us.
- Please print the Service Request Form confirmation e-mail and include it with the product being returned for service.

NOTES:



Made in the U.S.A.

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