

**LOWRANCE®**



# **HDS Series**

Installation manual

# Preface

## Disclaimer

As Navico is continuously improving this product, we retain the right to make changes to the product at any time which may not be reflected in this version of the manual. Please contact your nearest distributor if you require any further assistance.

It is the owner's sole responsibility to install and use the instrument and transducers in a manner that will not cause accidents, personal injury or property damage. The user of this product is solely responsible for observing safe boating practices.

NAVICO HOLDING AS AND ITS SUBSIDIARIES, BRANCHES AND AFFILIATES DISCLAIM ALL LIABILITY FOR ANY USE OF THIS PRODUCT IN A WAY THAT MAY CAUSE ACCIDENTS, DAMAGE OR THAT MAY VIOLATE THE LAW.

Governing Language: This statement, any instruction manuals, user guides and other information relating to the product (Documentation) may be translated to, or has been translated from, another language (Translation). In the event of any conflict between any Translation of the Documentation, the English language version of the Documentation will be the official version of the Documentation.

This manual represents the product as at the time of printing. Navico Holding AS and its subsidiaries, branches and affiliates reserve the right to make changes to specifications without notice.

## Copyright

Copyright © 2010 Navico Holding AS.

## Feedback from you

Your feedback is important and helps Navico ensure that this manual is a valuable resource for all marine technicians. E-mail your comments or suggestions about this manual to the following address: [tech.writing@navico.com](mailto:tech.writing@navico.com)

## Warranty

- The warranty card is supplied as a separate document.
- It is shipped with the product registration card.
- In case of any queries, refer to the brand web site of your display or system.

[www.lowrance.com](http://www.lowrance.com)

## Declaration of Conformity

<b>GB</b>	Hereby, Navico Holding AS declares that this HDS is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
<b>FI</b>	Navico Holding AS vakuuttaa täten että HDS tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
<b>NL</b>	Hierbij verklaart Navico Holding AS dat het toestel HDS in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
<b>FR</b>	Par la présente, Navico Holding AS déclare que ce HDS est conforme aux exigences essentielles et aux autres dispositions de la directive 1999/5/CE qui lui sont applicables.
<b>SE</b>	Härmed intygar Navico Holding AS att denna HDS står i verensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
<b>DK</b>	Undertegnede Navico Holding AS erklærer herved, at følgende udstyr HDS overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/ EF.
<b>DE</b>	Hiermit erklärt Navico Holding AS, dass sich dieses SE8, in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet. (BMWi)
<b>GR</b>	Με την παρούσα Navico Holding AS δηλώνει ότι HDS συμμορφώνεται προς τις ουσιοδεις απαιτησεις και τις λοιπες σχετικες διαταξεις της οδηγιας 1999/5/EK.
<b>IT</b>	Con la presente Navico Holding AS dichiara che questo HDS è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
<b>ES</b>	Por medio de la presente Navico Holding AS declara que el HDS cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
<b>PT</b>	Navico Holding AS declara que este HDS está conforme com os requisitos essenciais e outras provisões da Directiva 1999/5/CE.

The equipment named in this declaration, is intended for use in international waters as well as coastal sea areas administered by countries of the E.U. and E.E.A. A full Declaration can be obtained from [www.lowrance.com](http://www.lowrance.com)

## Disposal



Waste Electrical and Electronic Equipment (WEEE) The use of the WEEE Symbol indicates that this product may not be treated as household waste. By ensuring this product is disposed of correctly, you will help protect the environment. For more detailed information about the recycling of this product, please contact your local authority, your household waste disposal service provider or the shop where you purchased the product.

# Contents

- Preface.....1**
  - Declaration of Conformity.....2
  - Disposal .....2
  
- Introduction.....5**
  - About this Manual .....5
  - Important Safety and Warning Information.....5
  - Check the Parts.....6
  - Overview.....7
  
- Display Installation .....9**
  - Mounting location.....9
  - Panel Mount.....11
  - Bracket Mount .....12
  
- Transducer Installation .....14**
  - Recommended Tools and Supplies .....14
  - Skimmer Installation Instructions.....15
  
- System Architecture.....28**
  
- Wiring the HDS.....29**
  - Wiring Guidelines.....29
  - Power/Data Cable .....30
  - NMEA 0183 Wiring Table.....31
  - NMEA 0183 wiring .....31
  - NMEA 2000 wiring .....32
  - Ethernet.....33
  - HDS-8 & HDS-10 Data Bridging.....34
  - Single Station.....35
  - Dual & Multi Station .....36
  - Connecting HD Radar.....37
  - Connecting BR24 Radar.....38
  - Commissioning Check List.....39
  - Sonar .....41



**Dimensional Drawings.....43**  
HDS5 .....43  
HDS7 .....44  
HDS8 .....45  
HDS10 .....46

**NMEA Information.....47**  
NMEA 2000 PGN List.....47  
Supported NMEA 0183 sentences .....49

# Introduction

## About this Manual

- This manual is a reference guide for installing a Lowrance HDS System.
- The information in this manual at the time of printing is correct to the best of our knowledge. Navico can not be liable for any inaccuracies or missing information.
- Due to the constant improvement of Navico's products, Navico cannot be liable for changes between the product and the manual. Refer to [www.lowrance.com](http://www.lowrance.com) for the latest manuals and addendum's.

## Important Safety and Warning Information

Please read carefully before use.



When navigating the vessel, use the Lowrance HDS system only as a navigational aid. Proper navigation of the vessel is the sole responsibility of the vessel operator.



The electronic chart used by the HDS System is an aid to navigation only and is designed to supplement, not replace, official government charts. Only official government charts supplemented by notices to mariners contain the information required for safe and prudent navigation. Always supplement the electronic information provided by the Lowrance HDS with other plotting sources such as observations, depth soundings, radar and hand compass bearings. Should the information not agree, the discrepancy must be resolved before proceeding any further.



Never operate the HDS in Simulate Mode while you are underway. It is the user's responsibility to ensure that Simulate Mode is used only in safe situations such as when you are moored in a marina.



The Global Positioning System (GPS) is operated by the US Government which is solely responsible for its operation, accuracy and maintenance. The GPS system is subject to changes which could affect the accuracy and performance of all GPS equipment anywhere in the world.

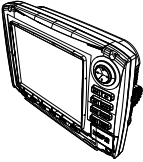
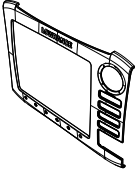
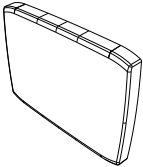
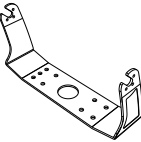
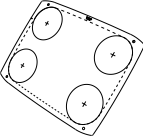
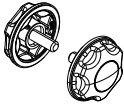


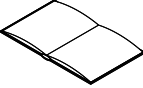
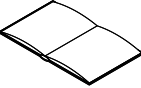
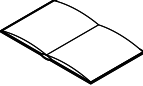


The accuracy of the Sonar depth display can be limited by many factors, including the type of transducer, the location of the transducer, and water conditions. Ensure that the transducer is installed correctly and the Sonar is used correctly.



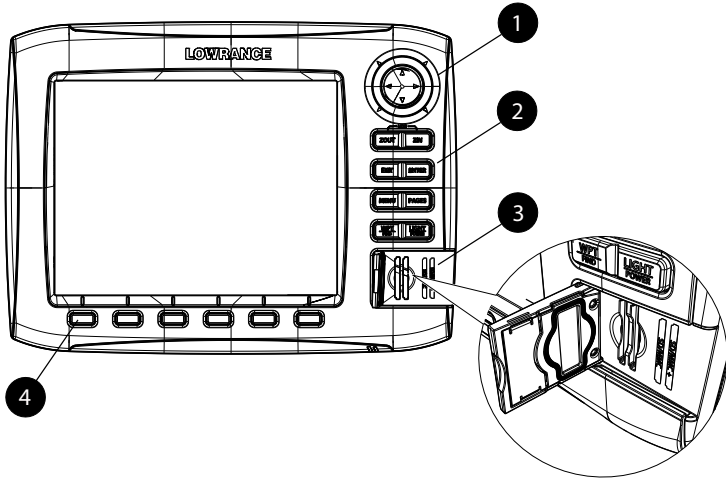
HDS units intended for sale and operation in the America's region DO NOT include full functionality outside of the America's, defined as 30 degrees west longitude and 180 degrees west longitude. Units are restricted to operate in English language only with imperial (non-metric) units only.

For full use around the globe an International unit must be purchased from outside of the America's region.

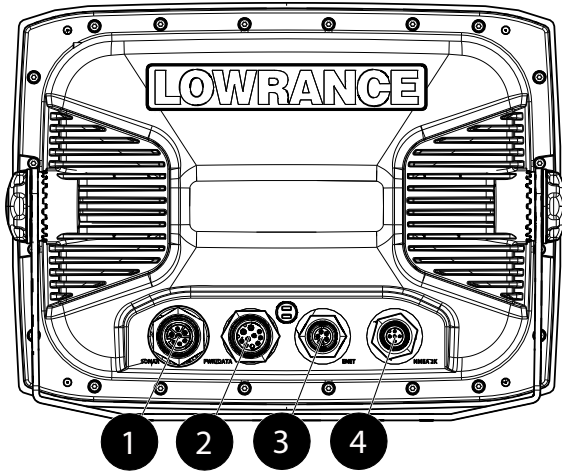
# Check the Parts

Packaged Parts List			
HDS Head Unit Models: 5", 7", 8" or 10"		HDS Bezel	
HDS Dust Cover		HDS Mounting Bracket	
HDS Cut-out Template		HDS Bracket Knobs	
HDS Power/Data Cable		HDS Connector Caps	
HDS Installation Manual		HDS Operation Manual	
HDS Quick start guide			
HDS 4 x SCREW #10 3/4 PAN HEAD SS SELFTAP		HDS 4 x SCREW NO. 6X1.5 PANHEAD PHILLIPS TP1	

# Overview



Key	Description
1	<p><b>CURSOR CONTROL:</b> Move the cursor, scroll through menus, adjust features, view sonar/GPS history. 8 &amp; 10 models also have a fly wheel to aid scrolling.</p>
2	<p><b>CONTROL KEYS</b></p> <p><b>ZOUT:</b> Zoom out to see more of the map with less detail</p> <p><b>ZIN:</b> Zoom in to see less of the map with more detail.</p> <p>Pressing ZOUT &amp; ZIN at the same time will activate Man Overboard mode.</p> <p><b>ENTER:</b> Finalize menu selections; shortcut key for functions like saving a waypoint at cursor position.</p> <p><b>MENU:</b> Opens Content &amp; Settings menu.</p> <p><b>LIGHT/POWER:</b> Controls backlight level &amp; turns the unit on/off.</p> <p><b>EXIT:</b> Cancels entries, closes menus &amp; windows; toggles between cursor position and chart location on Chart page.</p> <p><b>PAGES:</b> Press to open Pages menu; press and hold to select the active panel of the display.</p> <p><b>WPT/FIND:</b> Saves a waypoint at current position; accesses searching tools.</p>
3	<p><b>MMC/SD Card slot:</b> Insert MMC/SD and high-detail mapping cards here.</p>
4	<p><b>SOFT KEYS:</b> Controls commonly used features and functions. Only available on 8 &amp; 10" units.</p>



Key	Description
1	Sonar (Not available on HDS5M, 7M, 8M or 10M units)
2	Power/Data
3	ENET (Ethernet)
4	NMEA2K (NMEA2000) Network

# Display Installation

## Mounting location

Choose the mounting locations carefully before you drill or cut. The display should be mounted so that the operator can easily use the controls and clearly see the display screen.

Be sure to leave a direct path for all of the cables. The display screen is high-contrast and anti-reflective, and is viewable in direct sunlight, but for best results install the display out of direct sunlight. The chosen location should have minimal glare from windows or bright objects.

Ensure that any holes cut are in a safe position and will not weaken the boat's structure. If in doubt, consult a qualified marine electronics installer.

The mounting location should be at least 100 mm (4") away from the compass, at least 300 mm (12") away from any radio transmitter and at least 1.2 m (4 ft) away from any antenna.

Before cutting a hole in a panel, make sure that there are no hidden electrical wires or other parts behind the panel.

Do not mount any part where it could be used as a hand hold, where it might be submerged or where it will interfere with the operation, launching or retrieving of the boat.

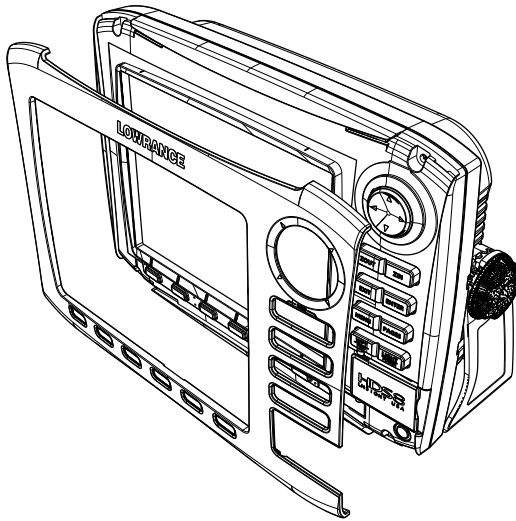
If bracket mounting, chose a flat area where the display will not be subjected to excessive vibration.

Leave sufficient clearance space behind the display to connect all relevant cables.

Good ventilation is required behind the mounting panel. Poor ventilation may cause the display to overheat. The display is designed to operate in temperatures from -15° C to +55° C (+5° F to +131° F).

For overall width and height requirements, please see the drawings at the back of this manual.

## Bezel Removal



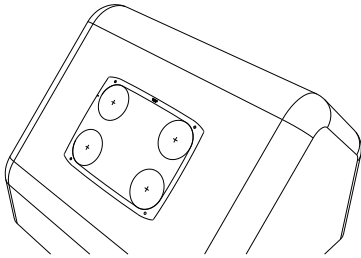
- 1:** To removing the bezel from the 5 and 7-inch models the card slot door must be open
- 2:** To remove the bezel use a flat head screwdriver.
- 3:** Insert screwdriver into the bezel release slots and pry out and away from the unit. The bottom of the bezel will release from the unit. Push up to release the top bezel catches.

### For 8 and 10-inch models

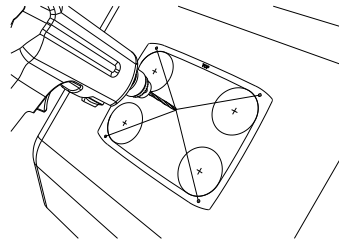
- 1:** While pulling the lower left or right corner of the bezel toward the outside of the unit
- 2:** Push up towards the top of the unit to release the top bezel catches.

**Note:** All models have four adhesive strips behind the bezel. These strips should be kept free of dust and other foreign material when the bezel is not attached to the unit.

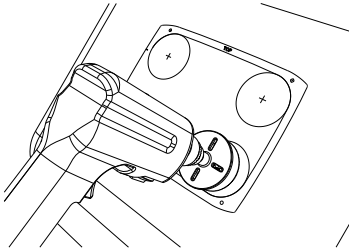
## Panel Mount



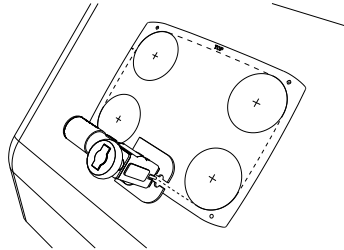
**1:** Attach the flush mounting template to the selected mounting position using adhesive tape.



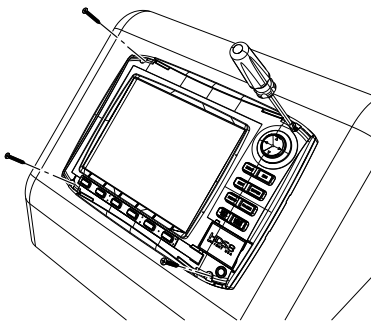
**2:** Drill pilot holes for the four hole saw cuts and for the four self tapping screws used to secure the display.



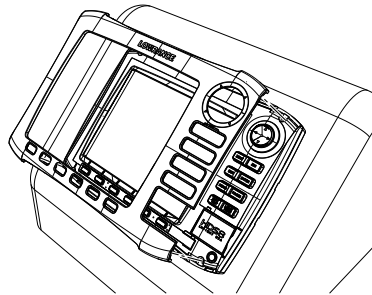
**3:** Use a hole saw to cut the four corner radius



**4:** Cut along the dotted line and remove the shaded area.



**5:** Connect all cables to the rear of the unit before placing the unit into the console. Secure using the four provided #6-20 x 1-1/2" screws

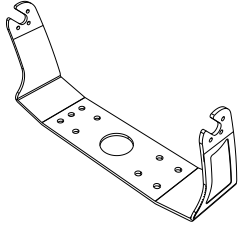
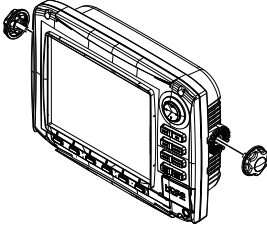


**6:** To finish off the installation firmly clip the front bezel in place



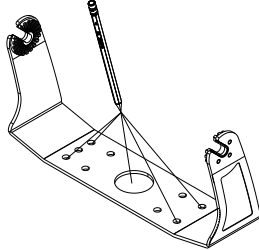
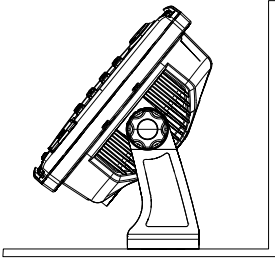
# Bracket Mount

An alternative to flush mounting the HDS display is to bracket mount the unit. This method has the advantage that the display can be easily removed when not in use and may be tilted to achieve the best possible viewing angle.



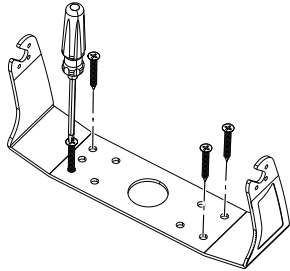
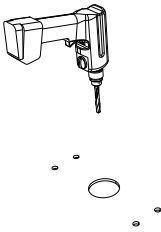
**1:** Loosely screw securing knobs to the Display unit.

**2:** Temporarily mount the display unit in the bracket



**3:** Make sure the display can be adjusted to the correct angle without interfering with the surrounding. Allow space for cables attached to the rear of the unit

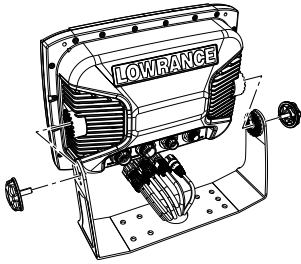
**4:** Remove the display unit and use the mounting bracket as a template to mark the four positions of the screw holes and optional center cable hole.



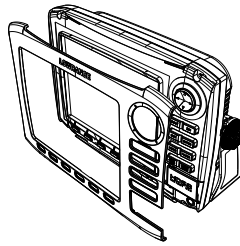
**5:** Drill a pilot hole for the four screws and an optional hole large enough for the cables to emerge from.

**6:** Secure the bracket to the surface

**7:** Connect the cables.



**8:** Slide the display into the mounting bracket and secure in place with the bracket knobs.



**9:** Attach the bezel. Firmly clip the front bezel in place.

# Transducer Installation

## Recommended Tools and Supplies

### Tools and Supplies (not included)

If you plan to route the transducer cable through the transom, you will need either a 1" drill bit or a 5/8" drill bit depending on the size of the transducer cable connector. Each transom mount requires a high quality, marine grade above- or below-waterline sealant/adhesive compound. The following installations also call for these recommended tools and supplies.

### One-piece Bracket Transom Installation

**Tools:** two adjustable wrenches or socket wrench, drill, #29 (0.136") drill bit, screwdriver.  
**Supplies:** none.

### Two-piece Bracket Transom Installation

**Tools:** two adjustable wrenches or socket wrench, drill, #20 (0.161") drill bit, screwdriver.  
**Supplies:** four, 1" long, #12 stainless steel wood screws.

### TMB-S Bracket Trolling Motor Installation

**Tools:** two adjustable wrenches or socket wrench, screwdriver. **Supplies:** plastic cable ties.

### Skimmer Transducer Shoot-through Hull Installation

**Supplies:** alcohol wipes, 60 and 160 grit sandpaper, and marine grade above- or below-waterline epoxy adhesive.

### Pod Transducer Shoot-through Hull Installation

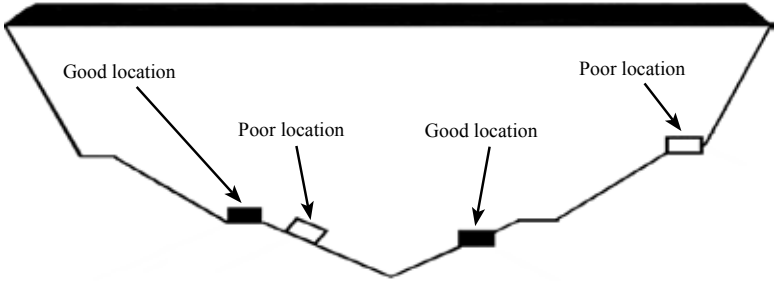
**Supplies:** alcohol wipes, 60 and 160 grit sandpaper, and marine grade above- or below-waterline epoxy adhesive.

# Skimmer Installation Instructions

Transducer location and installation is one of the most critical steps in sonar installation.

## Select a transducer location

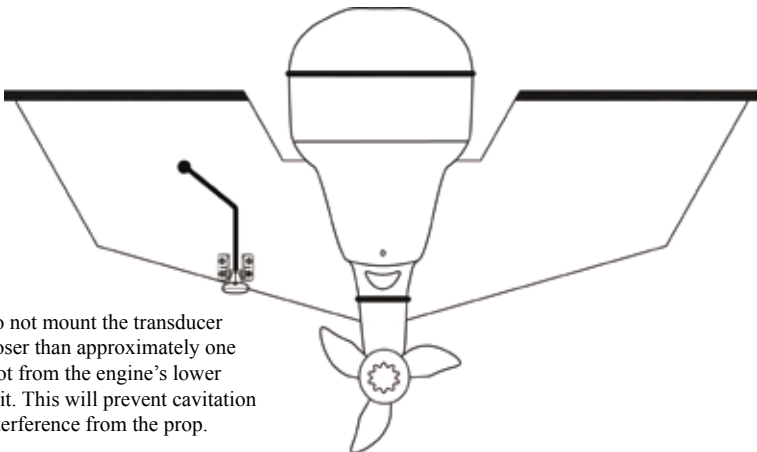
To function properly the Skimmer transducer must be in the water at all times and in a location that has a smooth flow of water when the boat is moving.



**Note:** Aluminum boats with strakes or ribs on the hull can create large amounts of turbulence at higher speeds. A good transducer location on these types of boats is between the ribs closest to the engine.

If the transducer is not placed in a smooth flow of water, interference caused by bubbles and turbulence may show on-screen in the form of random lines or dots. The unit also could lose bottom signal when the boat is on a plane.

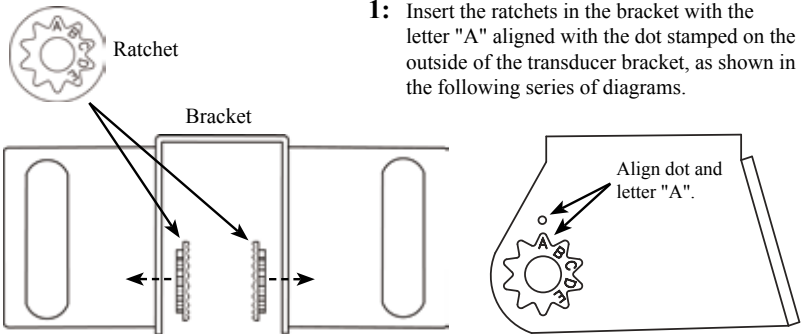
**Note:** When mounting the transducer, make sure it does not interfere with the hauling of the boat.



## Aligning Ratchets on Transducer bracket

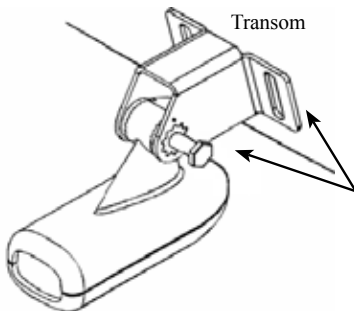
### Aligning ratchets on one-piece bracket:

The one-piece bracket assembly includes two black plastic ratchets. The ratchets are used to align the transducer with the boat hull. Each ratchet has the letters A-E molded into it.



- 1: Insert the ratchets in the bracket with the letter "A" aligned with the dot stamped on the outside of the transducer bracket, as shown in the following series of diagrams.

- 2: Slide the transducer in the bracket and temporarily slide the bolt through the transducer bracket, as shown in the image at right.



- 3: Hold the transducer assembly against the transom. Look at the transducer from the side. Try to adjust the transducer so its face is parallel to the ground. If it does, then the "A" position is correct.

If the transducer will not adjust with its face parallel to the ground, remove the transducer and ratchets from the bracket. Reinsert the ratchets into the bracket, this time with the letter "B" aligned with the dot stamped in the bracket.

Reassemble the transducer and bracket and place it against the transom. Again, check to see if the transducer will adjust so its face is parallel with the ground. Repeat this process until the transducer's face will adjust so that it is parallel with the ground.

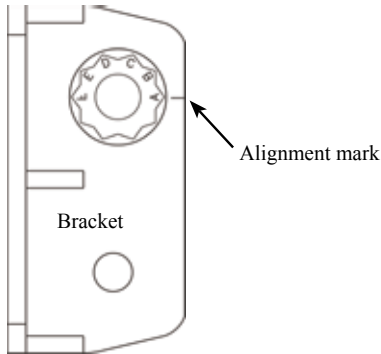
## Aligning ratchets on two-piece bracket

The two-piece bracket includes four black plastic ratchets. The ratchets are used to align the transducer with the boat hull. Each ratchet has the letters A-F molded into it.



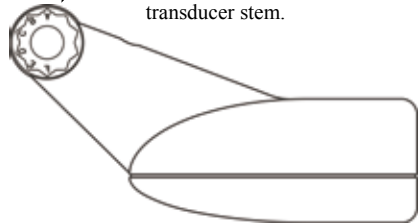
Ratchet

If the transducer will not adjust with its face parallel to the ground.

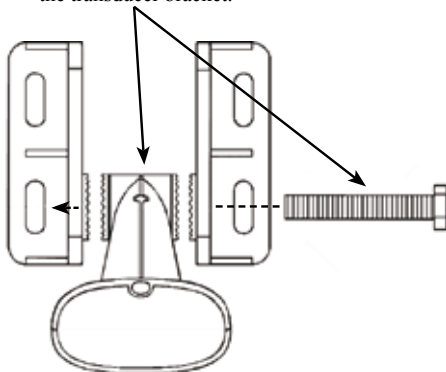


**1:** Place two of the ratchets in each side of the bracket with the letter "A" aligned with the alignment mark molded into each bracket.

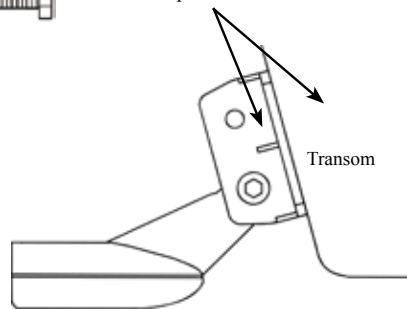
**2:** Now place the other two ratchets on the transducer with the letter "A" aligned in the 12 o'clock position on the transducer stem.



**3:** Slide the transducer in the bracket and temporarily slide the bolt through the transducer bracket.



**4:** Hold the transducer assembly against the transom. Look at the transducer from the side. Try to adjust the transducer so its face is parallel to the ground. If it does, then the "A" position is correct.

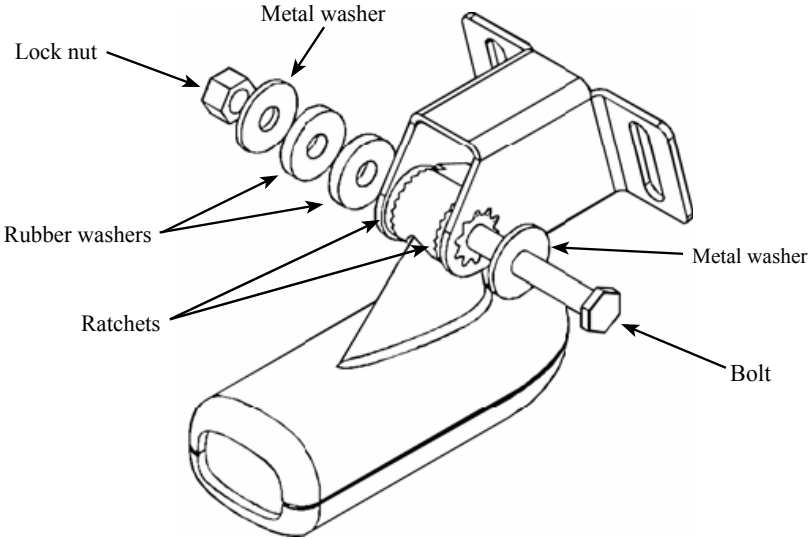


**5:** Remove the transducer and ratchets from the bracket. Reinsert the ratchets into the bracket, this time with the letter "B" aligned with the dot stamped in the bracket. Reassemble the transducer and bracket and place it against the transom. Again, check to see if the transducer will adjust so its face is parallel with the ground. Repeat this process until the transducers face will adjust so that it is parallel with the ground.

## Assembling the Transducer bracket

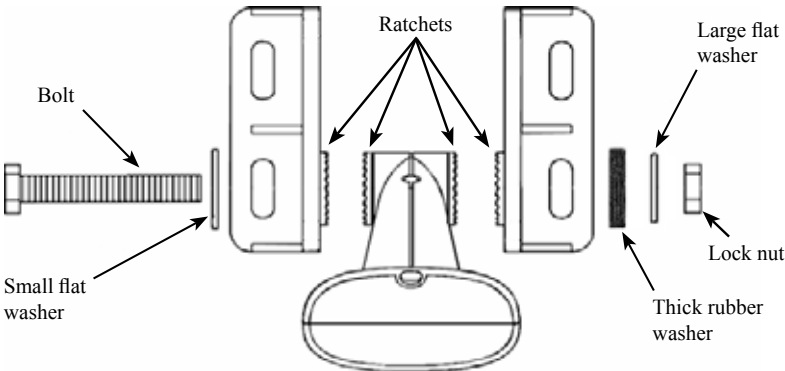
After determining the correct position for the ratchets, loosely assemble the transducer and bracket assembly as shown in one of the two diagrams below.

### One-piece bracket assembly



**Note:** Do not tighten the transducer bracket assembly until you have aligned the transducer and bracket on the transom.

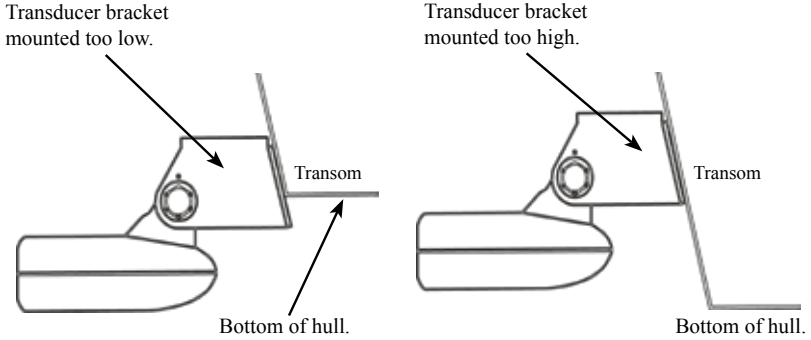
### Two-piece bracket assembly



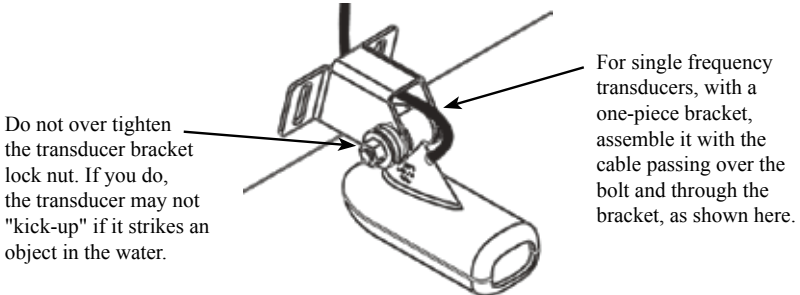
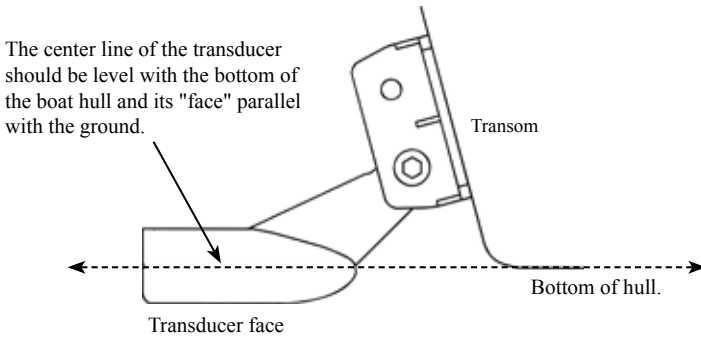
**Note:** Do not tighten the transducer bracket assembly until you have aligned the transducer and bracket on the transom.

## Aligning and Attaching the Transducer

Adjust the transducer so that its "face" is parallel with the ground and its center line is even with the bottom of the boat hull.



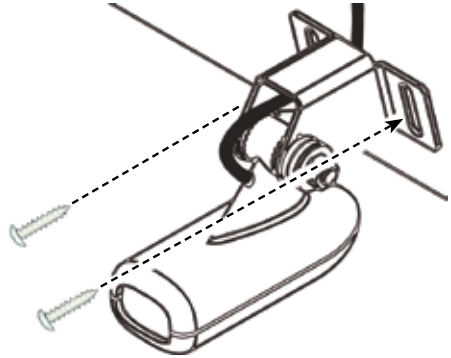
**Note:** When mounting the transducer to the transom, there are two extremes you should avoid, first, do not let the edge of the mounting bracket extend below the bottom of the hull, left image, above. Second, do not let the bottom of the transducer rise above the bottom of the hull, right image, above.



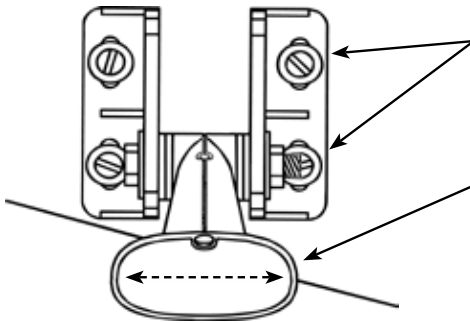


**1:** Hold the transducer and bracket assembly against the transom. When the transducer and bracket are properly aligned mark its position on the hull.

**2:** Drill the mounting holes for the transducer bracket. For the one-piece bracket use a #29 bit (for the #10 screws). For the two-piece bracket use a #20 bit (for the #12 screws).

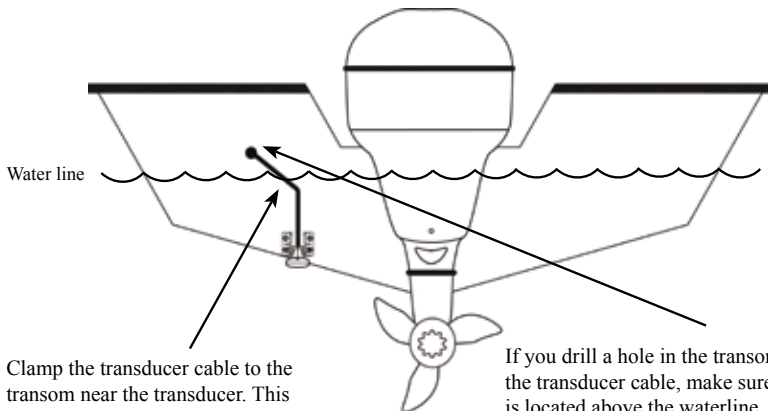


**Note:** Use the provided screws to secure the transducer assembly to the transom.



Be sure to use a below-waterline marine grade sealant on all of the transducer bracket screw holes.

When mounting a Skimmer transducer to a boat with a veehull, make sure the transducer center line is aligned to the bottom of the boat hull, as shown here.



Clamp the transducer cable to the transom near the transducer. This will help keep the cable secure.

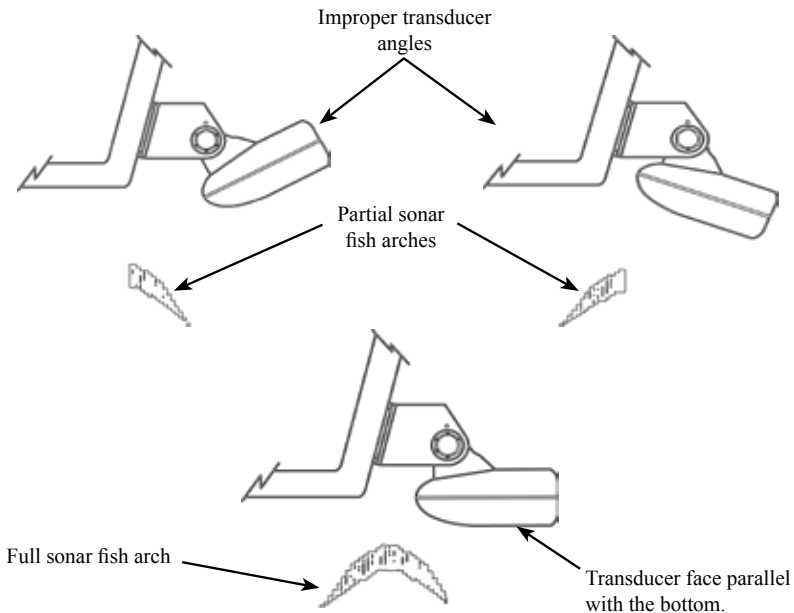
If you drill a hole in the transom for the transducer cable, make sure it is located above the waterline. Seal the hole with an above- or below-waterline marine grade sealant.

If you drill a hole in the transom for the transducer cable, make sure it is located above the waterline. Seal the hole with an above or below waterline marine grade sealant. Route the transducer cable to the sonar unit. Make sure to leave some slack in the cable near the transducer.

Use caution when routing the transducer cable near other wiring and cables. If you need to drill a hole in the transom to pass the connector through, the hole size will depend on the connector on the end of the transducer's cable.

## Make a test run to determine the results

At times you may need to adjust the transducer higher or lower. The slots in the mounting brackets allow you to loosen the screws and slide the transducer up or down.



If the sonar screen is displaying partial fish arches, as shown in the previous top two images, the transducer could be at an improper angle. Check the transducer and make sure its face is parallel with the bottom, as shown in the bottom example. If you frequently lose bottom signal the transducer may be coming out of the water as the boat crosses waves or wakes.

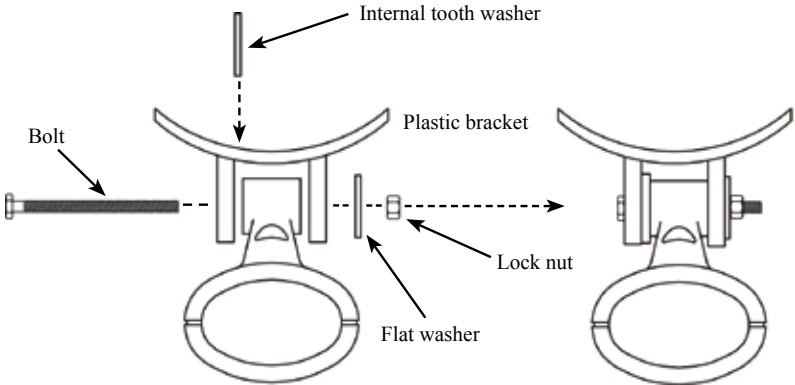
Move the transducer a little lower in the water to see if that improves sonar performance. When fishing around underwater structure the transducer may be kicked up from object strikes. If the transducer is being kicked up too often, try moving it a little higher for more protection.

# TMB-S Trolling Motor Bracket Installation

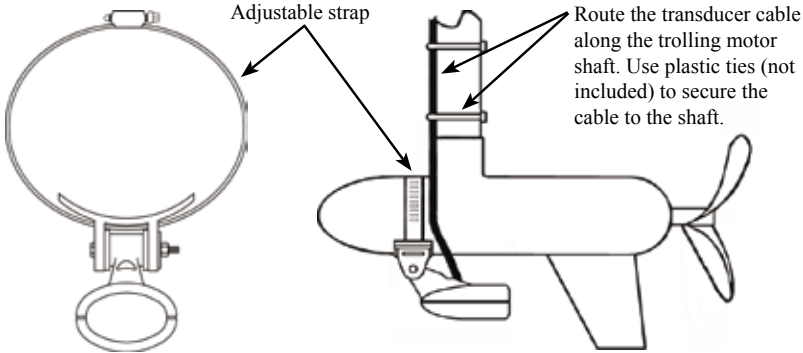
**Note:** The TMB-S bracket is designed for one-piece bracket transducers only.

The TMB-S trolling motor bracket (Part No. 51-45) is an optional accessory and is available through LEI Extras at [www.lei-extras.com](http://www.lei-extras.com).

The TMB-S bracket is used to attach a one-piece bracket transducer to a trolling motor. If you regularly fish in water with a lot of underwater structure, such as rocks, stumps and trees, you may consider using a Pod transducer for trolling motor installation. Pod transducers cannot be “kicked up” by underwater structure.



Using the components supplied with the TMB-S bracket (adjustable strap, internal tooth washer and plastic bracket) attach it to the transducer as shown in the diagram above.

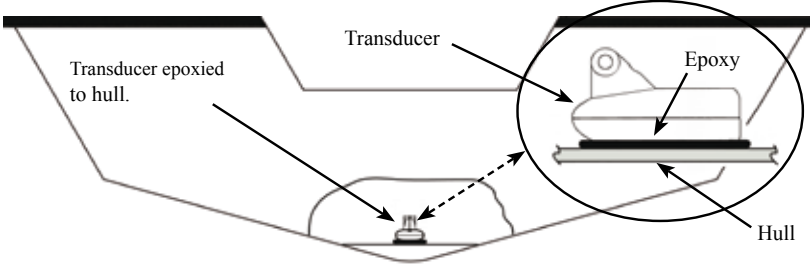


Slide the adjustable strap through the plastic bracket as shown above, left, then slip the strap around the trolling motor as shown in the image, at right. Position the transducer so its “face” is pointing straight down when the trolling motor is in the water. Tighten the adjustable strap securely to the trolling motor. Make sure there is enough slack in the transducer cable for the trolling motor to turn freely.

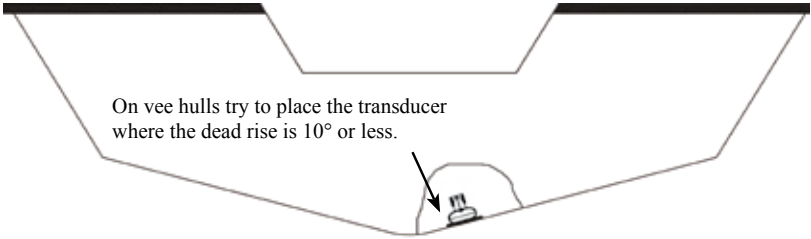
# Skimmer Transducer Shoot-thru-hull Installation

Before attempting any installation on boats with flotation material sandwiched within the hull, consult the boat manufacturer. In a shoot-thru-hull installation the transducer is epoxied to the inside of the boat hull.

**WARNING:** Do not remove any material from the inner hull. Careless grinding or cutting on the hull could damage the integrity of the hull. Contact the boat dealer or manufacturer to confirm hull specifications.



**Note:** The previous image shows a Skimmer transducer epoxied to a flat, solid portion of the boat hull near the transom. The circled image is a close-up view of the transducer epoxied to the hull.

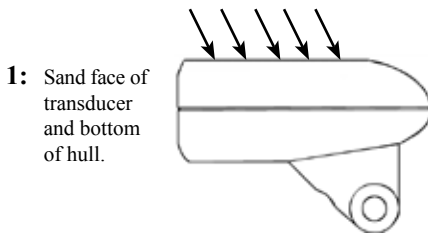


**Note:** While you can epoxy a Skimmer transducer to the inside of a boat hull, we recommend using a Pod transducer for this type of installation. Use care when mounting a transducer inside a boat hull. Once epoxied into position, the transducer can be very difficult to remove.

A transducer can not shoot through wood or metal hulls. Wood and metal hulls require either a transom mount or "thru-hull" installation. For shoot-thru-hull applications many boat hulls have a flat keel pad that offers a good transducer mounting surface.

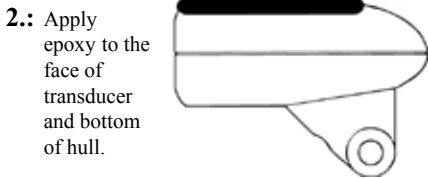
If you are using a Skimmer transducer versus a Pod transducer for this installation, make sure the Skimmer transducer is oriented so the nose of the transducer is facing the bow (front) of the boat. Also, if the transducer has a built in temp sensor, it will only show the temperature of the hull, not the water temp.

Before you epoxy the transducer to the hull, make sure the area is clean, dry and free of oil or grease. The surface of the hull must be flat so the entire transducer face is in contact with the hull. Also, make sure the cable is long enough to reach the sonar unit.



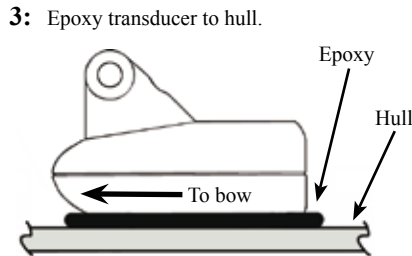
Sand both the inside surface of the hull, where the transducer is to be epoxied, and the face of the transducer.

Start with a rougher grit sandpaper, such as 60 grit, and finish with a smoother grit, such as 160 grit, sandpaper. Sand the inside surface of the hull until it is smooth to the touch.



The sanded area should be about 1-1/2 times the diameter of the transducer. After sanding, clean the hull and face of the transducer with an alcohol wipe to remove any sandpaper grit and dust.

Apply a thin layer of epoxy (about 1-16" or 1.5 mm) on the face of the transducer and the sanded area on the hull. Make sure there are no air pockets in the epoxy layers.



Press the transducer into the epoxy, twisting and turning it to force any air bubbles out from under the transducer face. Stop pressing when it bottoms out on the hull.

Apply pressure to hold the transducer in place while the epoxy sets. Be careful not to move the transducer while the epoxy is setting. Allow the epoxy to set before moving the boat. When finished, the face of the transducer should be parallel with the hull with a minimum amount of epoxy between the hull and transducer. After the epoxy has set, route the transducer cable to the sonar unit.

## Pod Transducer Installation Instructions

The following instructions explain how to install a Pod transducer inside a hull or on a trolling motor. Read the following instructions carefully before attempting any installation. Use extreme care when mounting a transducer inside a boat hull. Once epoxied into position, the transducer can be very difficult to remove.

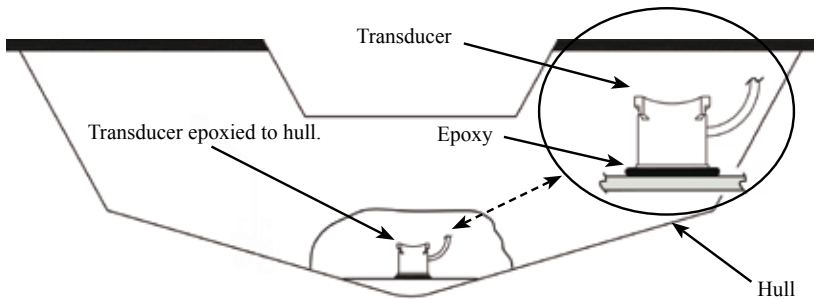
**Note:** Transducer location and installation is one of the most critical steps in sonar installation.

### Pod Transducer shoot-thru-hull installation

Before attempting any installation on boats with flotation material sandwiched within the hull, consult the boat manufacturer.

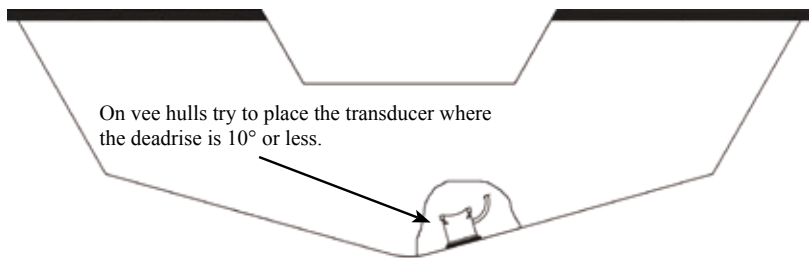
**WARNING:** Do not remove any material from the inner hull. Careless grinding or cutting could damage the integrity of the hull. Contact the boat dealer or manufacturer to confirm hull specifications.

A transducer can not shoot through wood or metal hulls. Wood and metal hulls require either a transom mount or “thru-hull” installation. For shoot-thru-hull applications many boat hulls have a flat keel pad that offers a good transducer mounting surface.

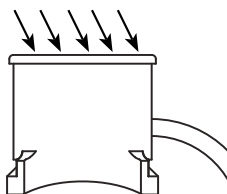


**Note:** The previous image shows a Pod transducer epoxied to a flat, solid portion of the boat hull near the transom. The transducer should be installed as close to the transom as possible, close to the center line.

Before you epoxy the transducer to the hull, make sure the area is clean, dry and free of oil or grease. The surface of the hull must be flat so the entire transducer face is in contact with the hull. Also, make sure the cable is long enough to reach the sonar unit before the transducer is epoxied into place.



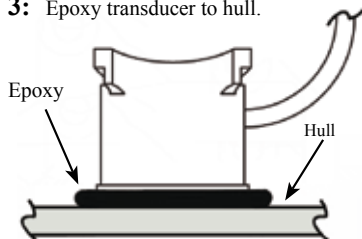
- 1:** Sand face of transducer and bottom of hull.



- 2:** Apply epoxy to face of transducer and bottom of hull.



- 3:** Epoxy transducer to hull.



**Note:** After the epoxy has set, route the transducer cable to the sonar unit.

Sand both the inside surface of the hull, where the transducer is to be epoxied, and the face of the transducer.

You may want to start with a rougher grit sandpaper, such as 60 grit, and finish with a smoother grit, such as 160 grit, sandpaper. Sand the inside surface of the hull until it is smooth to the touch.

The sanded area should be about 1-1/2 times the diameter of the transducer. After sanding, clean the hull and face of the transducer with an alcohol wipe to remove any sandpaper grit and dust.

Apply a thin layer of epoxy (about 1-16" or 1.5 mm) on the face of the transducer and the sanded area on the hull. Make sure there are no air pockets in the epoxy layers.

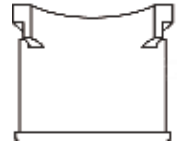
Press the transducer into the epoxy, twisting and turning it to force any air bubbles out from under the transducer face. Stop pressing when it bottoms out on the hull.

Apply pressure to hold the transducer in place while the epoxy sets. Be careful not to move the transducer while the epoxy is setting. Allow the epoxy to set before moving the boat.

When finished, the face of the transducer should be parallel with the hull with a minimum amount of epoxy between the hull and transducer.

## Pod Transducer Trolling Motor Installation

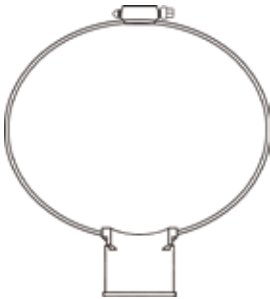
The top of the transducer is curved to fit the contour of the trolling motor.



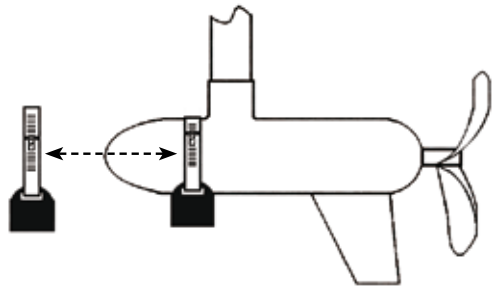
You will need a hose clamp large enough to fit over the trolling motor. The hose clamp is NOT included with the Pod transducer.

Before you attach the transducer to the trolling motor, make sure there is enough slack in the transducer cable for the trolling motor to turn freely.

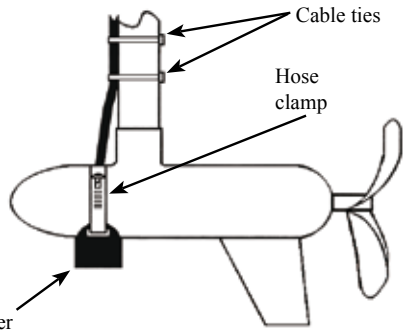
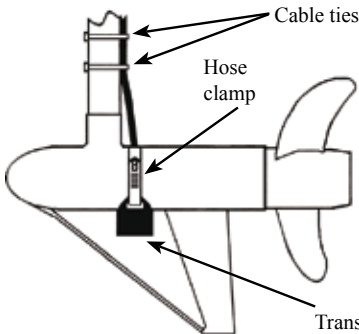
**1:** Slide the hose clamp through the Pod transducer brackets, as shown below.



**2:** Slip the clamp around the trolling motor, as shown below. Tighten the hose clamp securely to the trolling motor.



**Note:** The transducer should be mounted ahead of the trolling motor fin. Position the transducer so its face is pointing straight down when the trolling motor is in the water.



Route the transducer cable along the trolling motor shaft. Use plastic ties (not included) to secure the cable to the shaft.



# System Architecture

This section explains how the HDS connects to other devices as part of a system. The HDS has a highly scalable system architecture. A system can consist of a basic stand alone fishfinder or chart plotter, or expand to a networked, multi-display system connected to a wide range of accessories.

## Networking, Data Interfacing

The HDS display can connect to other devices in the system by Ethernet, NMEA 2000 or NMEA 0183.

### Ethernet: (NETWORK Ports)

HDS uses an Ethernet network for the transfer of high bandwidth data between other HDS displays and from network modules such as Radar and weather modules.

Each HDS display has an Ethernet network port.

Ethernet does not transfer navigation data such as position, heading etc. This is handled either by NMEA 0183 or NMEA 2000. However navigation and display settings are synchronized over Ethernet.

### NMEA 2000

NMEA 2000 is an industry standard for marine communications for transfer of navigation data such as wind, Position, AIS, etc between all NMEA 2000 devices on a network.

NMEA 2000 is lower bandwidth than the Ethernet network, but is 50 times faster than NMEA 0183

### NMEA 0183

NMEA 0183 is a point to point connection using RS422 or RS232 protocol.

HDS5" & 7" displays have one NMEA 0183 port enabling them to output to one NMEA 0183 "Listener" and receive from one NMEA 0183 "Talker", (RS422)

HDS8" & 10" displays have two NMEA 0183 ports enabling them to output to two NMEA 0183 "Listeners" and receive from two NMEA 0183 "Talkers" This can be configured to either 1 x RS422 port or 2x RS232,

**Note:** The Baud rate setting for transmit and receive is fixed for each port. ie. 38400 in, 38400 out.

# Wiring the HDS

## Wiring Guidelines

Most installation problems are caused by shortcuts taken with system cables. When wiring the HDS follow the guidelines below.

Don't do this	Do this
Don't make sharp bends in the cables	Do make drip and service loops
Don't run cables in a way that allows water to flow down into the connectors	Do tie-wrap all cables to keep them secure
Don't route the data cables in areas adjacent to radar, transmitter, or large current carrying cables	Do leave room at the back to install and remove cables



Before starting the installation, be sure to turn electrical power off. If power is left on or turned on during the installation, fire, electrical shock, or other serious injury may occur. Be sure that the voltage of the power supply is compatible with the HDS display.

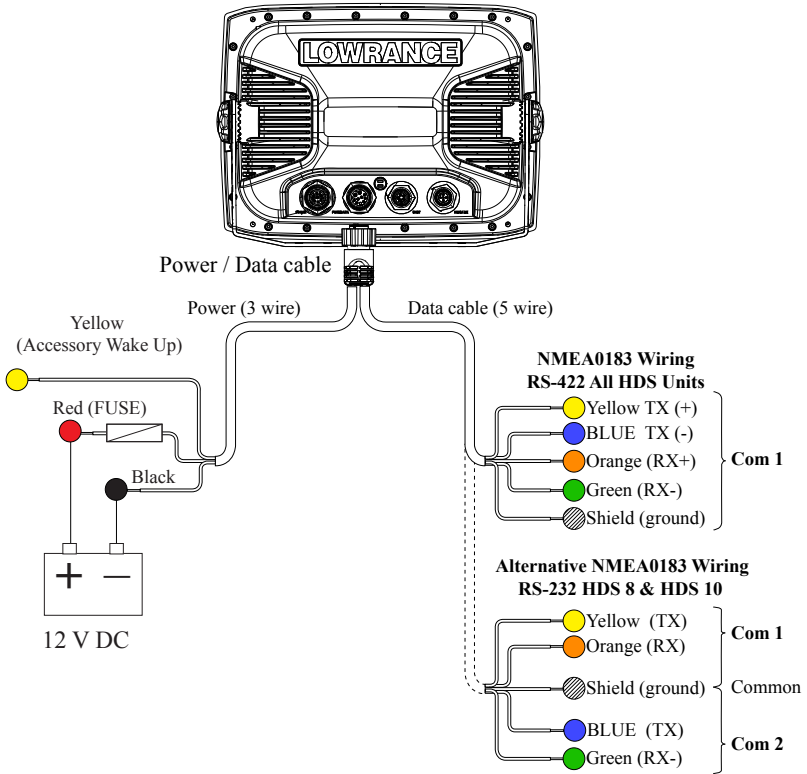


The HDS has a voltage rating of 10-19V DC.



The red wire should always be connected to (+) DC V using a fuse or thermal breaker (10 Amp)

# Power/Data Cable



The power cable from each device contains a yellow wire. The yellow wire is the accessory wake up line. Connect the yellow wires together. When the accessory wake up line is used to connect units with the accessory wake up feature, you can power up certain connected devices from one location, including StructureScan and expansion ports.

The Data cable wires are used for the NMEA 0183 and RS-422 hook up; also, RS-232 and RS-422 for HDS-8 and HDS-10 models.

# NMEA 0183 Wiring Table

RS-422	
HDS	Device
Green RX (-)	Transmit (-)
Orange RX (+)	Transmit (+)
Shield (Ground)	Ground
Yellow TX (+)	Receive (+)
Blue TX (-)	Receive (-)

RS-232 HDS-8 & 10 Only — (COM 1)	
HDS	Device
Yellow TX	Receive
Orange RX	Transmit
Shield (Ground)	Ground

RS-232 HDS-8 & 10 Only — (COM 1)	
HDS	Device
Blue TX	Receive
Green RX	Transmit
Shield (Ground)	Ground

## NMEA 0183 wiring

### HDS-5 & HDS-7 Data Cable

To exchange NMEA 0183 data, the HDS-5 and HDS-7 units have a NMEA 0183 version 2.0 (RS-422) communication port. Serial Communications Port one can be used to transmit or receive NMEA format data. The five wires for the serial communications ports (Data cable) are combined with the Power cable to form the Power/Data cable.

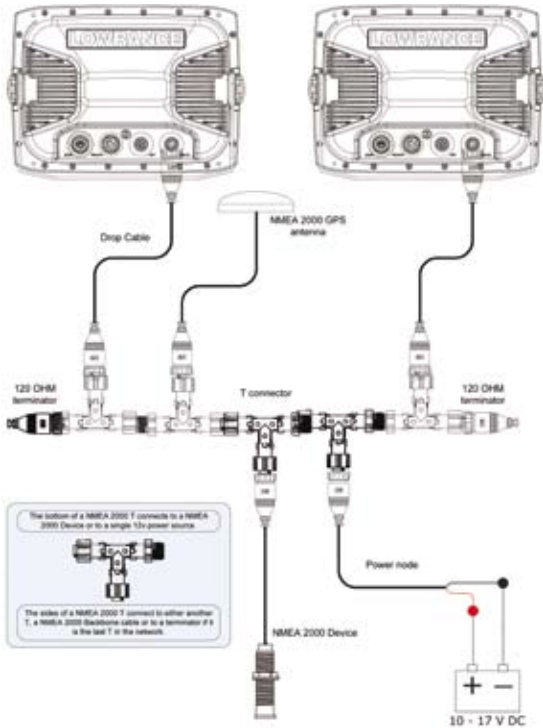
### HDS-8 & HDS-10 Data Cable

To exchange NMEA 0183 data, the HDS-8 and HDS-10 units have either one NMEA0183 version 2.0 (RS-422) communication port, or two NMEA 0183 (RS-232) communication ports. The five wires for the serial communications ports (Data cable) are combined with the Power cable to form the Power/Data cable.

# NMEA 2000 wiring

All NMEA 2000 systems must consist of 12V power, two (2) 120 Ohm terminators (one on each end of the network), T joiners and NMEA 2000 Devices.

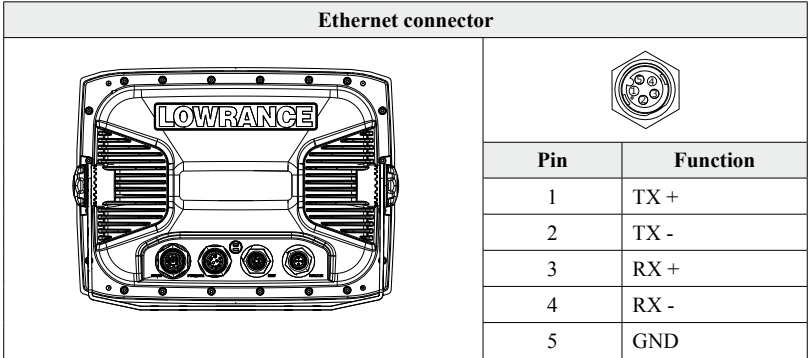
Lowrance offers a NMEA 2000 starter kit (000-0124-69) that includes two (2) terminators, two (2) T connectors, one (1) 2ft extension/drop cable, one (1) 15ft extension cable and one (1) power node.



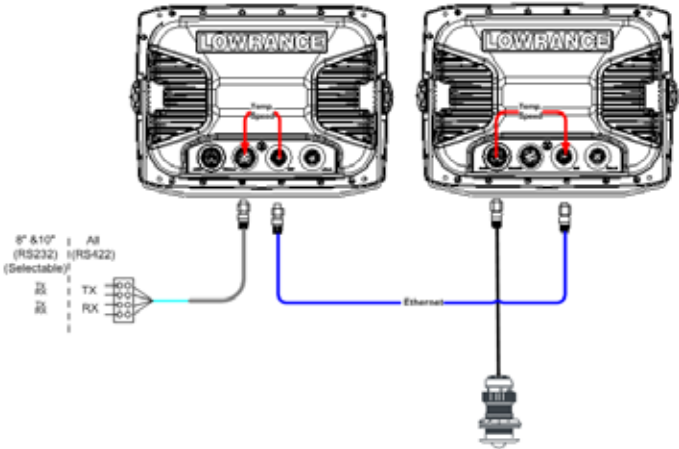
# Ethernet

The HDS system uses an Ethernet network to interconnect high bandwidth devices such as other HDS displays, radar and sonar. Each HDS display has one network port with 5 pin connector. Ethernet network has orange connectors that are retained by a bayonet type locking collar.

If more than two network devices need to be connected, use the optional Network Expansion Port (NEP), which will allow for the connection of up to five ethernet devices or a StructureScan module which will allow for the connection of up to three ethernet devices.



The Ethernet connection carries sonar, Structurescan and radar data between two or more displays. Sonar data (water, speed, depth and temperature) is bridged onto the Ethernet bus. Sonar data is only bridged if network sonar is turned on. Below is an example of sonar data being shared between two displays.

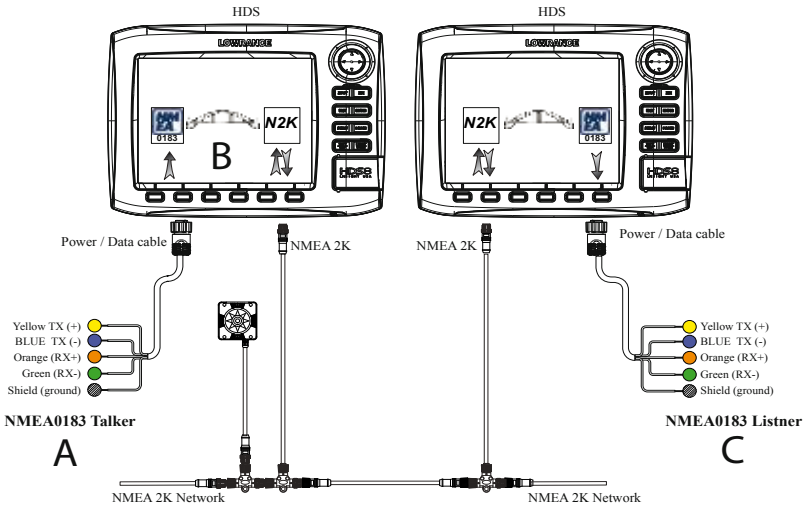


# HDS-8 & HDS-10 Data Bridging

Supported NMEA0183 sentences entering the system are bridged (converted) to NMEA2000 and distributed on the Lowrance backbone for all other displays to use.

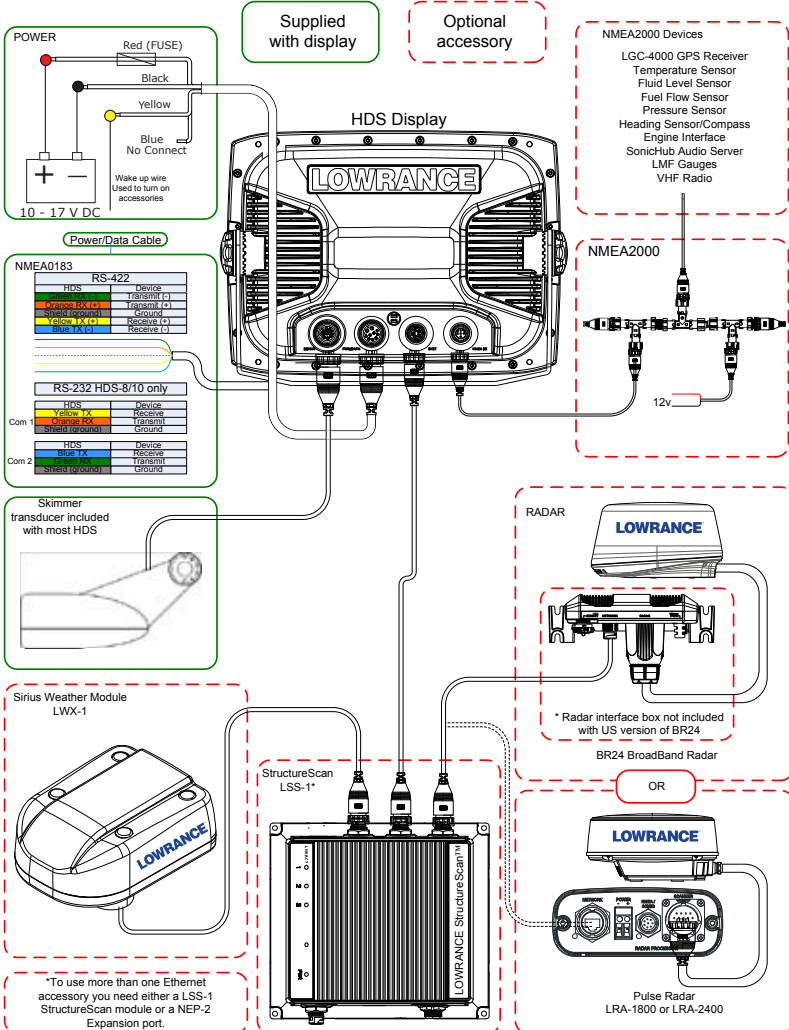
Certain NMEA2000 PGNs (messages/sentences) are bridged across to NMEA0183 to be available as an output from any HDS display.

Refer to the NMEA 0183 table in the back of this manual to view bridgable sentences.



# Single Station

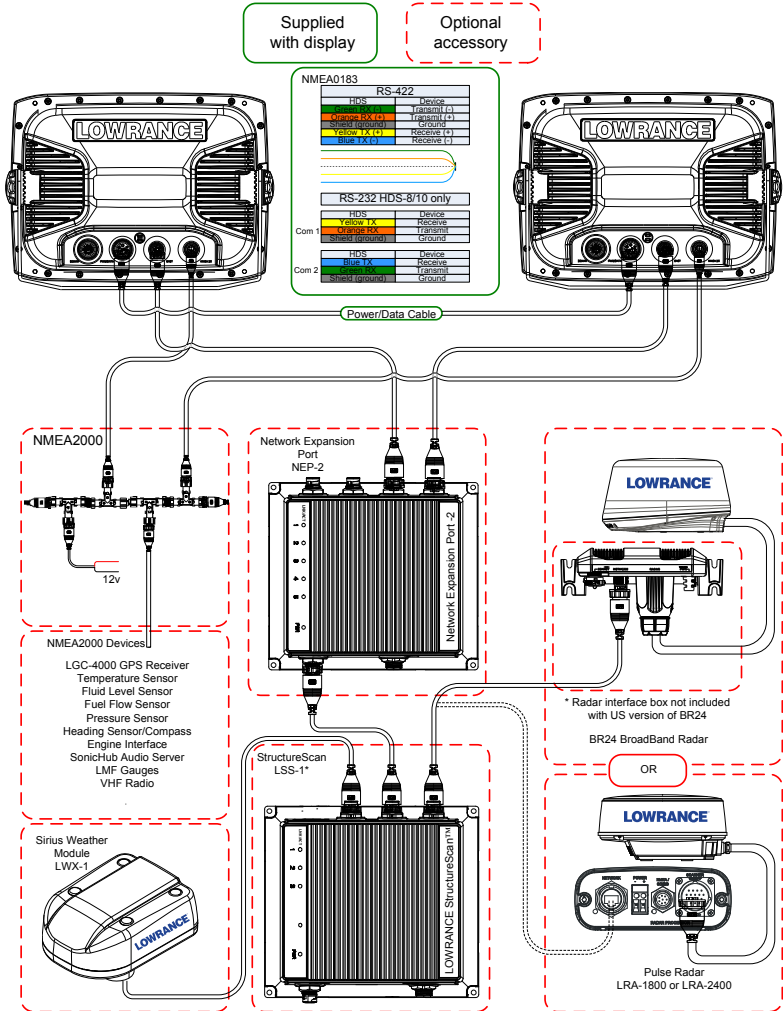
## Single station configuration possibilities



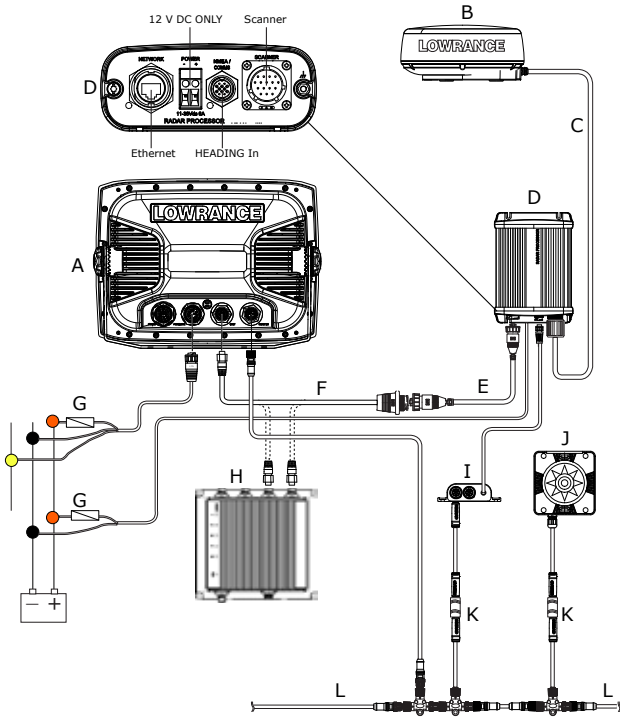


# Dual & Multi Station

Dual station configuration possibilities

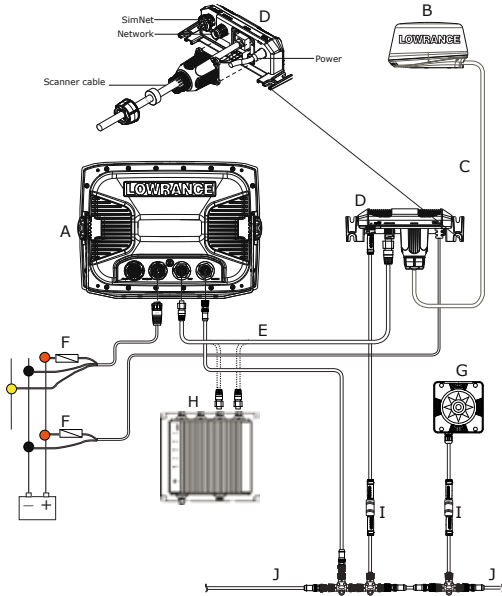


# Connecting HD Radar



Key	Description
A	HDS Display.
B	LRA1800 & LRA2400 HD radar system for HDS. Includes parts C,D and E. 2kw & 4 kw Radome.
C	Scanner cable. 15 m (50 ft) An Optional 20 m (65ft) cable is available
D	HD Radar Processor
E	Ethernet cable RJ45 (male/male). Available in 2, 5 and 10 m, (6.5, 16.5 & 33 ft)
F	Ethernet Adapter cable. Yellow 5 pin (Male) to RJ45 (female) 2 m (6 ft). The HD radar can be connected directly to HDS or via a Network Expansion Port (H).
G	HDS and Radar Power. Make sure a fuse is used. See radar installation manual for radar fuse size
H	Optional NEP (Network Expansion port) (000-0132-031) For Chart overlay or MARPA the following are required:
I	AT10HD Fast heading NMEA2000 to NMEA0183 converter. (24006694)
J	RC42 Compass (Heading)
K	SimNet to NMEA2000 adapter kit (000-0127-45)
L	NMEA 2000 Backbone

# Connecting BR24 Radar



Key	Description
A	HDS Display.
B	BR24 BroadBand™ Radar system for HDS. Includes parts B, C and D (not included in US) and E (2 m 6ft)
C	Scanner cable. 10 m (33 ft) : Optional 20 m (65 ft) and 30 m (98 ft).
D	RI10 Radar interface box (Used with MARPA) (Not included with US version)
E	Ethernet cable. BR24 comes with a 2 m (6.5 ft) 5 pin cable and a RJ45 cable (US only) The BR24 can be connected directly to HDS or via a Network Expansion Port (G)
F	Power control bus: In this case BR24 is connected to Power Control Bus. BR24 is turned on when the HDS is powered on. Note the yellow wire must be connected to either the power control bus or to 12 V DC supply)
G	RC42 Compass
H	LSS1 - StructureScan black box
I	SimNet drop cable: (0.3 m 1ft, 2 m 6ft or 5 m 15ft ) The RI10 interface box and HDS are connected to the NMEA2000 backbone. BR24 requires heading at 10 hz to calculate MARPA
J	SimNet to NMEA2000 adapter kit (000-0127-45)
K	NMEA2000 Backbone

# Commissioning Check List

Commissioning your system will improve the functionality and operation of your unit.

The following pages will give you an overview of the minimum settings we recommend you set up before you start operating your HDS.

Please refer to the HDS operations guide for more information on how to change these settings.

## Language

Select the language used on menus and dialog boxes. The default language is English.

## Units

Select which unit type you would like the HDS to display data in.

## Time

Change local time to offset differences in time zone and to select the way time and date will be displayed.

**Note:** The time and date will automatically set itself via the internal GPS antenna upon initial startup, or reset.

## Data Source

An advanced feature that allows you to use data from a network data source or data from a sensor connected to your unit.

If, for example, you do not want to use your unit's internal GPS antenna, you could use an external GPS antenna connected to an ethernet or NMEA 2000 network.

## Sonar Setup

To ensure proper sonar operation you need to select the proper transducer from the sonar installation menu. This helps the HDS determine what settings and features will be available in order to properly work with your transducer. To do this press Menu-Menu-Installation-Transducer type- then select the appropriate transducer.

The HDS comes with either a 83/200kHz HST-WSBL, 50/200kHz HST-DFSBL, or if you purchased a unit with no transducer select the appropriate one off of the drop down list.

The next step to ensure that your sonar is set up properly is to select the appropriate fishing mode for the depth of water you operate in and the type of fishing that you are doing. These fishing modes set the HDS to use different ping speeds, bottom search ranges and color pallets to optimize it for your type of fishing.

## Selecting a Fishing Mode

Fishing modes enhance the performance of your unit by providing preset packages of sonar settings geared to specific fishing conditions.

To select a fishing mode: Press Menu twice. Select Sonar and press enter. Highlight Fishing Mode and press enter. Select the desired fishing mode and press enter.

Fishing Mode	Depth	Settings	Palette
General Use	≤1,000 ft	50% Ping speed	Bottom brown/ blue background
Shallow Water	≤ 60 ft	75% Ping speed	bottom brown/white background
Fresh Water	≤ 400 ft	50% Ping speed	bottom brown/white background
Deep Water	≥ 1,000 ft	50% Ping speed	Deep Blue
Slow Trolling	≤ 400 ft	50% Ping speed	Bottom brown/white background
Fast Trolling	≤ 400 ft	Lower chart speed	Bottom brown/white background
Clear Water	≤ 400 ft	50% Ping speed	Bottom brown/white background
Brackish Water	≤ 400 ft	Higher ASP; Lower chart speed	Bottom brown/blue background

## Entering Letters in Text Boxes

This unit has some features and functions that may require you to enter data in a text box. To enter data in a text box:

Highlight the text box and press ENTER. A keyboard will appear on the screen. Use the keypad to highlight the first character and press ENTER. Repeat this step until all characters have been entered. Highlight OK and press enter.

## Datum

A model of the earth's surface based on a network of surveyed ground features (points). This unit's default datum is WGRS-84.

## Coord System

Controls the coordinate system used when position coordinates are entered and displayed.

# Magnetic Variation

Converts magnetic north data to true north, increasing the accuracy of navigation information. The Magnetic Variance Auto setting, automatically converts magnetic north to true north.

**Note:** When using manual mode, you will have to input the magnetic variance.

# Satellites

Monitors the location of satellites in view and the quality of the unit's satellite lock-on. The Satellite page has two display options.

The Satellite screen displays a circular graphic that shows where satellites are located and a bar graph that monitors the strength of satellites within range of your unit. Your unit is locked on to satellites shown with blue bars.

# Sonar

## Depth offset

Is a value that can be entered to make the depth on the Sonar page represent either depth below the transducer or depth below the surface.

The depth offset can be found via Menu, Settings, Sonar, Installation.

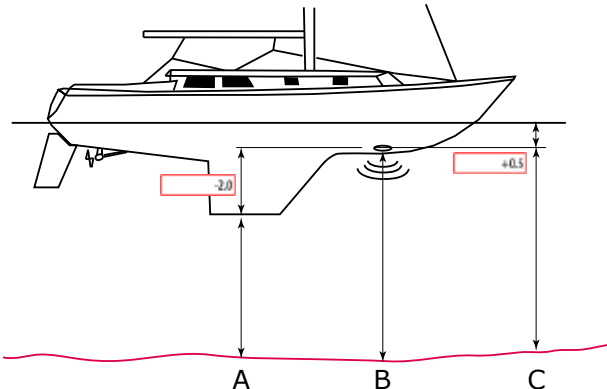
**A:** Depth below Keel value: Is the distance from transducer to the keel.

Enter a negative value.

**B:** Depth Below Transducer: no offset required.

**C:** Depth Below Surface (waterline) value: Is the distance from transducer to the surface.

Enter a positive value.



## Water speed off set

Water speed calibration is used to adjust the speed value from the paddle wheel to match the actual speed. This can be measured either from the GPS speed over ground (SOG) or by timing the boat over a known distance. Water speed calibration should be performed with as little wind and current movement as possible.

Select Auto correct to match water speed to ground speed

Manual calculation. If in average the water speed reads 8.5 knots and SOG records 10 knots. Increase the offset to 117%. The calculation is:

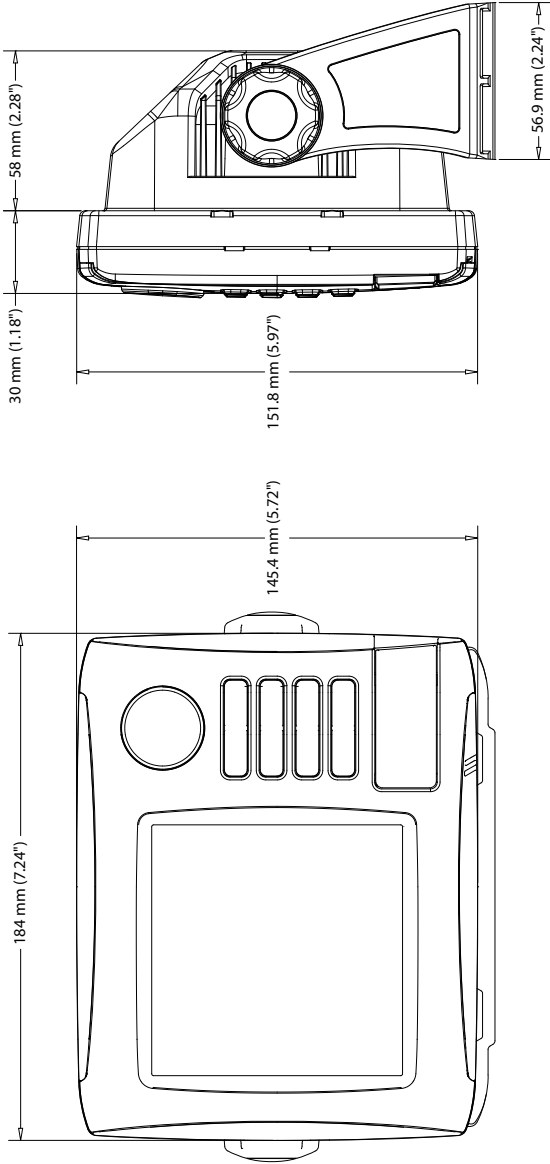
$$\frac{\text{Difference in speed}}{\text{Paddle wheel speed}} \times 100.$$

If water speed is lower than SOG then increase the calibration value.

Default is 100 % with ability to calibrate to +/-20%.

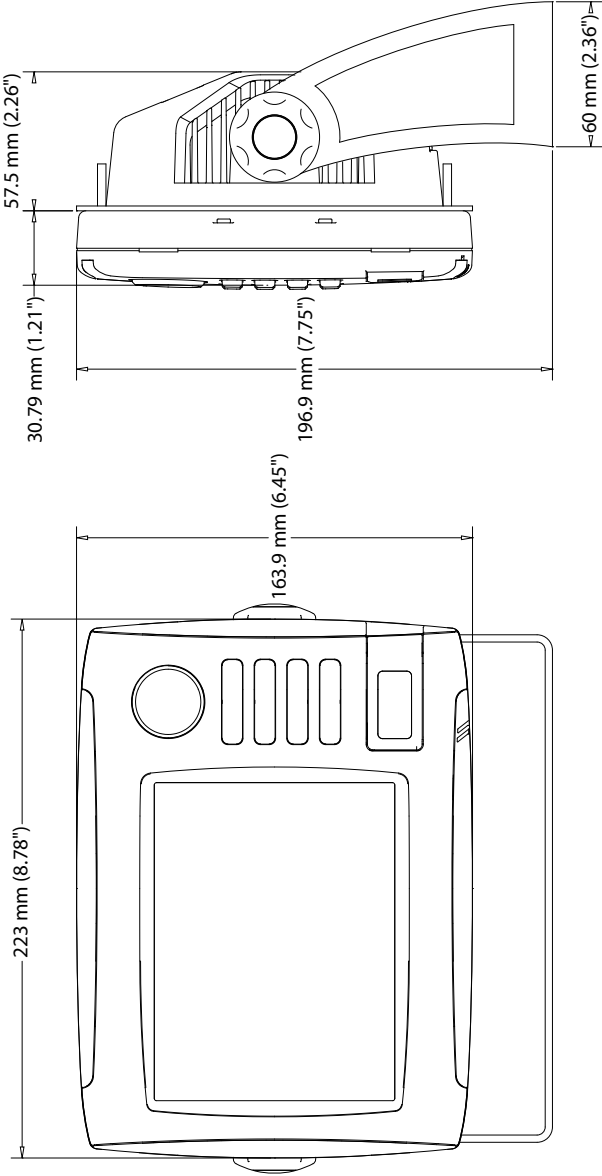
# Dimensional Drawings

## HDS5

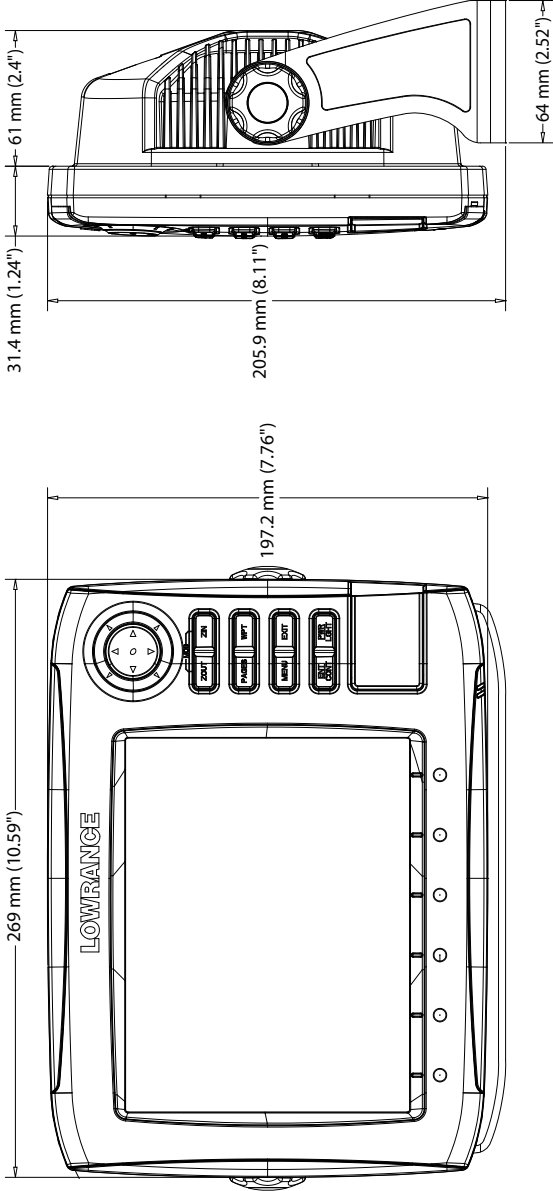




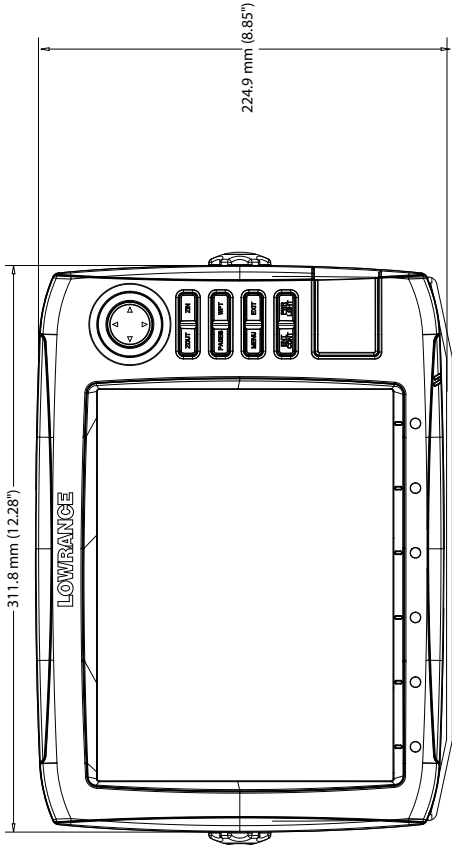
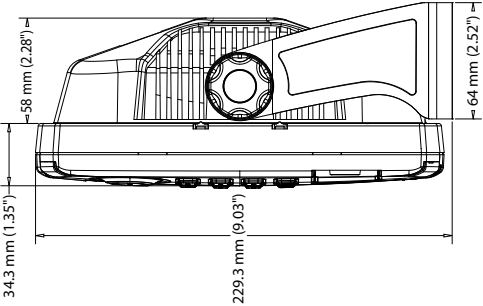
# HDS7



# HDS8



# HDS10



# NMEA Information

## NMEA 2000 PGN List

### NMEA 2000 PGN Transmit

126208	ISO Command Group Function	65293	LGC-2000 Configuration
126992	System Time	130818	Reprogram Data
126996	Product Info	130819	Request Reprogram
127237	Heading/Track Control	130828	Set Serial Number
127250	Vessel Heading	130831	Suzuki Engine and Storage Device Config
127258	Magnetic Variation	130835	Set Engine And Tank Configuration
128259	Speed, Water referenced	130836	Fluid Level IHDSct Configuration
128267	Water Depth	130837	Fuel Flow Turbine Configuration
128275	DistanceLog	130839	Pressure IHDSct Configuration
129025	Position, Rapid Update	130845	“Weather and Fish Prediction and Barometric Pressure History”
129026	COG & SOG, Rapid Update	130850	Evinrude Engine Warnings
129029	GNSS Position Data		
129283	Cross Track Error		
129284	Navigation Data		
129539	GNSS DOPs		
129540	GNSS Sats in View		
130074	Route and WP Service - WP List - WP Name & Position		
130306	Wind Data		
130310	Environmental Parameters		
130311	Environmental Parameters		
130312	Temperature		
130577	Direction Data		
61184	Parameter Request/Command		
130840	Data User Group Configuration		
130845	Parameter Handle		
130850	Event Command		
65287	Configure Temperature IHDScts		
65289	Trim Tab IHDSct Calibration		
65290	Paddle Wheel Speed Configuration		
65292	Clear Fluid Level Warnings		

## NMEA 2000 PGN Receive

59392	ISO Acknowledgement	129802	AIS Safety Related Broadcast Message
59904	ISO Request		
60928	ISO Address Claim	129808	DSC Call Information
60928	ISO Address Claim	130074	Route and WP Service - WP List WP Name & Position
126208	ISO Command Group Function		
126992	System Time	130306	Wind Data
126996	Product Info	130310	Environmental Parameters
127237	Heading/Track Control	130311	Environmental Parameters
127245	Rudder	130312	Temperature
127250	Vessel Heading	130313	Humidity
127251	Rate of Turn	130314	Actual Pressure
127257	Attitude	130576	Small Craft Status
127258	Magnetic Variation	130577	Direction Data
127488	Engine Parameters, Rapid Update	61184	Parameter Request/Command
127489	Engine Parameters, Dynamic	65323	Data User Group Request
127493	Transmission Parameters, Dynamic	65325	Reprogram Status
		65341	Autopilot Mode
127505	Fluid Level	65480	Autopilot Mode
127508	Battery Status	130840	Data User Group Configuration
128259	Speed, Water referenced	130842	SimNet DSC Message
128267	Water Depth	130845	Parameter Handle
128275	DistanceLog	130850	Event Command
129025	Position, Rapid Update	130851	Event Reply
129026	COG & SOG, Rapid Update	65285	Temperature with Instance
129029	GNSS Position Data	65292	Clear Fluid Level Warnings
129033	Time & Date	65293	LGC-2000 Configuration
129038	AIS Class A Position Report	130817	Product Info
129039	AIS Class B Position Report	130820	Reprogram Status
129040	AIS Class B Extended Position Report	130831	Suzuki Engine and Storage Device Config
129283	Cross Track Error	130832	Fuel Used - High Resolution
129284	Navigation Data	130834	Engine and Tank Configuration
129539	GNSS DOPs	130835	Set Engine And Tank Configuration
129540	GNSS Sats in View		
129794	AIS Class A Static and Voyage Related Data	130838	Fluid Level Warning
		130839	Pressure IHDSet Configuration
129801	AIS Addressed Safety Related Message	130843	Sonar Status, Frequency and DSP Voltage

# Supported NMEA 0183 sentences

<b>TX / RX</b>	<b>GPS</b>							
Receive	GGA	GLL	GSA	GSV	VTG	ZDA		
Transmit	GGA	GLL	GSA	GSV	VTG	ZDA		
	<b>Navigation</b>							
Receive	RMC							
Transmit	AAM	APB	BOD	BWC	BWR	RMC	RMB	XTE
	<b>Echo</b>							
Receive	DBT	DPT	MTW	VLW	VHW			
Transmit	DBT	DPT	MTW	VLW	VHW			
	<b>Compass</b>							
Receive	HDG	HDT	HDM					
Transmit	HDG							
	<b>Wind</b>							
Receive	MWV	MWD						
Transmit	MWV							
	<b>AIS / DSC</b>							
Receive	DSC	DSE	VDM	AIS sentences are not bridged				
	<b>MARPA</b>							
Transmit	TLL	TTM	These are only out put sentences					



Visit our website:

***[www.lowrance.com](http://www.lowrance.com)***



© Copyright 2011  
All Rights Reserved  
Navico Holding AS



## Free Manuals Download Website

<http://myh66.com>

<http://usermanuals.us>

<http://www.somanuals.com>

<http://www.4manuals.cc>

<http://www.manual-lib.com>

<http://www.404manual.com>

<http://www.luxmanual.com>

<http://aubethermostatmanual.com>

Golf course search by state

<http://golfingnear.com>

Email search by domain

<http://emailbydomain.com>

Auto manuals search

<http://auto.somanuals.com>

TV manuals search

<http://tv.somanuals.com>