



# Northstar 8000i

## 1 kW Network Sounder





Installation Manual

# **NORTHSTAR**★

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

# 1 **Warning and safety information**

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<b>IMPORTANT SAFETY INFORMATION</b>	
<b>Please read carefully before use</b>	
	This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety measures that follow this symbol to avoid possible injury or death.
	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
	CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, may result in property damage.

 <p>Read and observe the Warnings and Notices in the Northstar 8000i System Installation Manual.</p>
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## **2**      ***Disclaimer***

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As Northstar 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 Northstar 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.

BRUNSWICK NEW TECHNOLOGIES INC. AND ITS SUBSIDIARIES 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. Brunswick New Technologies Inc. and its subsidiaries and affiliates reserve the right to make changes to specifications without notice.

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## **3**      ***Warranty***

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The Northstar Warranty Statement is supplied as a separate document.

It is shipped with the Product Registration Card.

In case of any queries, refer to [www.northstarnav.com](http://www.northstarnav.com).

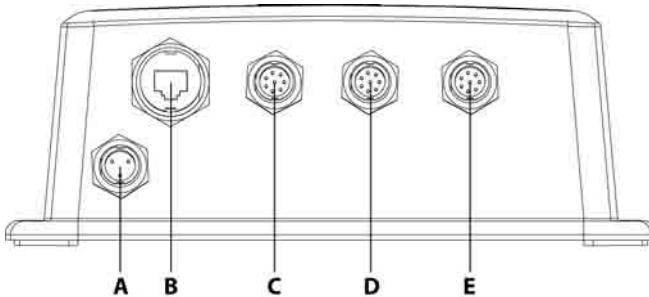
# 4 Northstar 8000i 600 W/1 kW Network Sounder

This manual describes how to install the unit, and must be used with the guides in the Northstar 8000i System Processor Installation Manual and also with the transducer installation manual.

The Northstar 8000i 1 kW / 600 W Network Sounder can connect to these optional sensors:

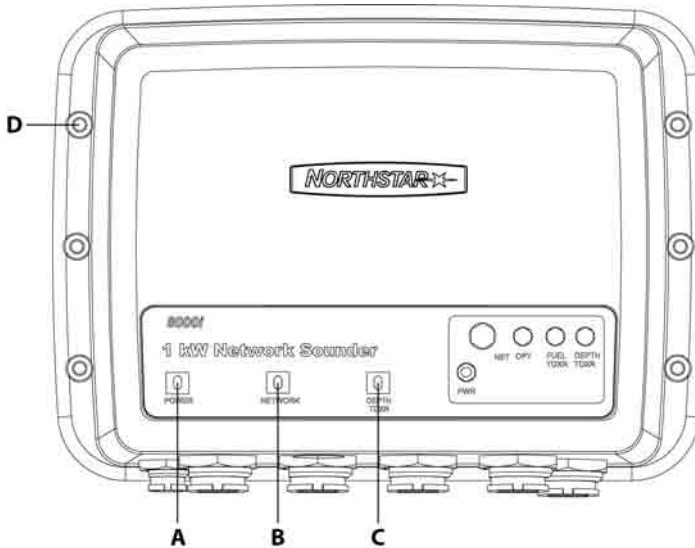
- a variety of Airmar / Radarsonics depth transducer to measure depth and details in the water under the boat (see "Transducer Selection and Installation" page 13)
- petrol/gasoline fuel flow sensors (FUTURE)
- NMEA, NavBus (FUTURE)

### 600 W/1 kW Network Sounder - Front view




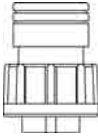


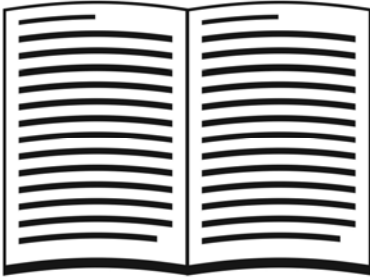

A	Power Connector	Connect to ships Power supply
B	Network Connector	Connect to the Northstar 8000i Network see network section under wiring guidelines in the 8000i system processor installation guide
C	Options Cable Connector	Connect to external devices (FOR FUTURE USE)
D	Fuel Transducer connector	Connect to Northstar Diesel or Gasoline Fuel transducers (FOR FUTURE USE)
E	Sonar Transducer connector	Connect Transducer (Purchase Separately)

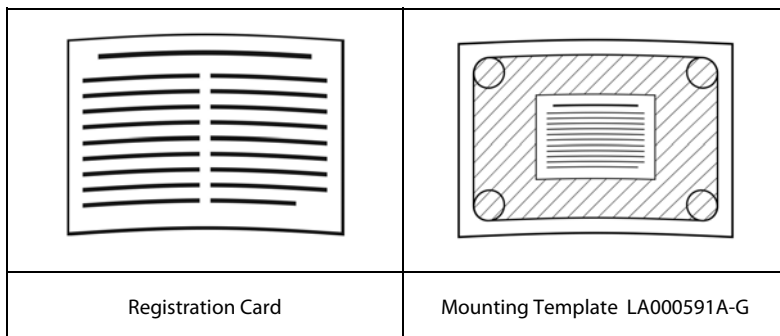
## 600 W/1 kW Network Sounder - Top view



A	POWER LED	Red LED indicates when power is powered on
B	NETWORK LED	Green LED indicates that the network connection is active
C	DEPTH TDXR LED	Green LED Indicates that the transducer is connected and operating
D	Panel Mounting Holes	Provides a way of mounting the unit to a bulkhead

# 5 **What comes with your Northstar 8000i 600 W/1 kW Network Sounder**

	
600 W/1 kW Network Sounder NS004741	
	
Small Protective Caps x 2 MS000333-G	Power Cable NS004800
	
Mounting Screws x 6 HR000087	
	
This Manual MN000614D-G	Warranty



**Also required:**

Depth Transducer, supplied separately, use either of the following transducers

<b>Make and Model</b>	<b>Power</b>	<b>Frequency</b>	<b>Northstar P/N</b>
Airmar B260 Bronze Through Hull	1 kW	50 kHz / 200 kHz	NS002660R
Airmar B258 Bronze Through Hull	1 kW	50 kHz / 200 kHz	AA002020
Airmar TM258 Plastic Transom mount	1 KW	50 kHz / 200 kHz	NS002658R
Airmar P319 Compact plastic thru hull	600 W	50 kHz / 200 kHz	AA002107R
Radarsonics, 210B thru hull	600 W	50 kHz / 200 kHz	AA002108R
Radarsonics 250 Transom mount tri function	600 W	50 kHz / 200 kHz	AA002077R

A network cable to connect to Northstar 8000i network. Choose from the following cable lengths

- NS004810 Network Cable 1.6 ft (0.5 m)
- NS004811 Network Cable 6.5 (2 m)
- NS004812 Network Cable 16.5 ft (5 m)
- NS004813 Network Cable 33 ft (10 m)
- NS04814 0 Northstar 8000i Cable - Ethernet Joiner, male to male
- NS004815 Northstar 8000i Cable - Cross Over Joiner.

## 6 **Network Sounder Installation**

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### **⚠ WARNING**

Read and observe the Warnings and Notices in the 8000i System Processor Installation Manual.

### **⚠ CAUTION**

Follow the 8000i system installation guide in the 8000i System Processor Installation Manual.

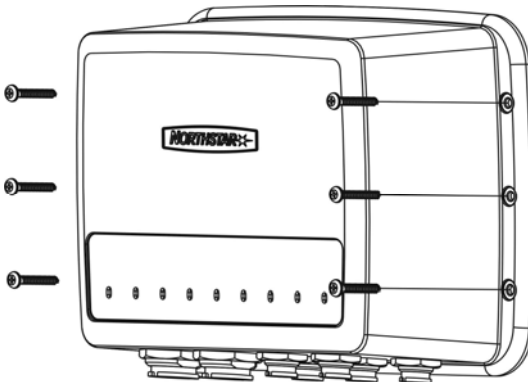
### **⚠ CAUTION**

Find a suitable location for the unit following the Location Guidelines in the 8000i system Processor Installation Manual.

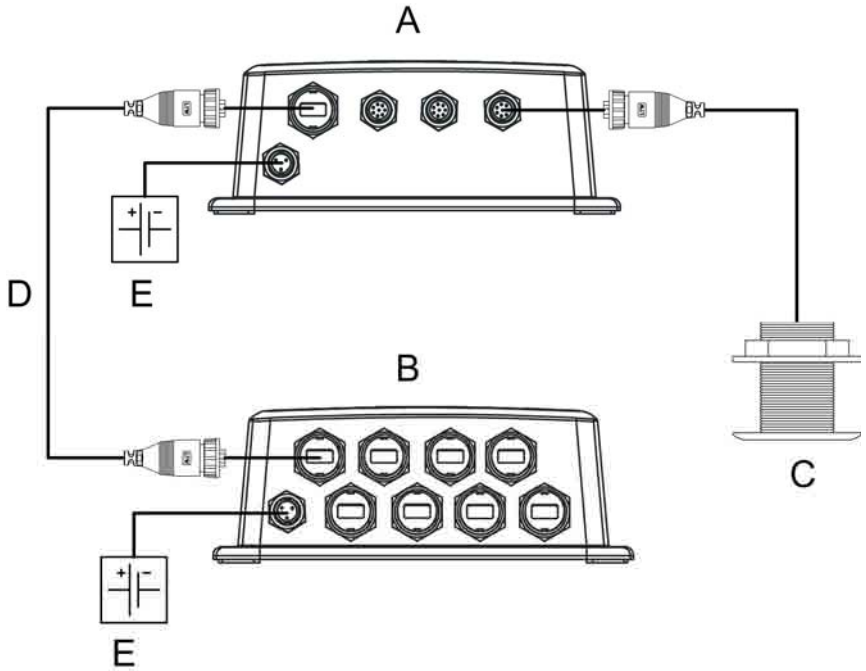
#### **Find a suitable location for the unit.**

The unit is best mounted onto a vertical panel with the connectors facing down and any cables made with drip loops. The unit and all connectors are waterproof. The unit screws to a vertical panel with the connectors facing down.

Use the screws supplied to secure the enclosure to the panel.



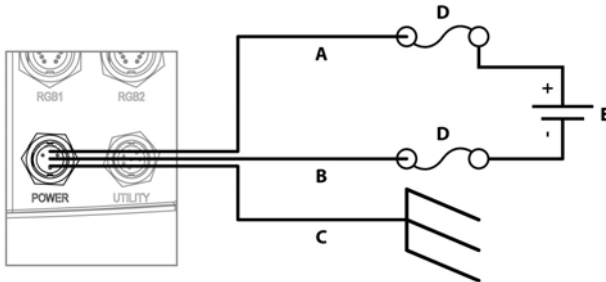
## Connecting the sounder



A	Northstar 8000i 1 kW / 600 W Network Sounder NS004741
B	Northstar 8000i 8 Port Network Linker NS004721
C	Transducer
D	Network Cable
E	DC power : Use a 5 Amp fuse

## Connect Power

Connect to power source using the supplied power cable making sure a 5 Amp fuse is used



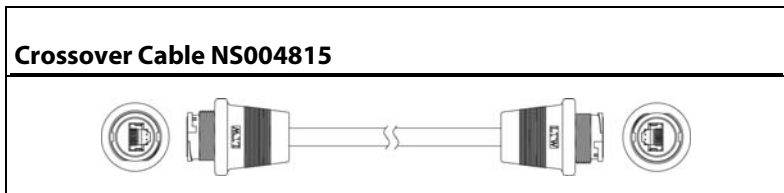
A	Red	Battery Positive
B	Black	Battery Negative
C	Brown	Ships Ground
D	Fuse	Use a 5 Amp fuse or breaker
	Battery	12 V DC or 24 V DC Nominal

## Connect to the 8000i network

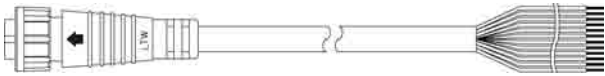
Connect the Sounder processor to the 8000i network by using one of the following 8000i network cables, connect one end to the sounders network port and the other to the 8000i Network linker.

Network Cable 1.6 ft (0.5 m) NS004810
Network Cable 6.5 ft (2 m) NS004811
Network Cable 16.5 ft (5 m) NS004812
Network Cable 33 ft (10 m) NS004813
NS004817 Unterminated Cable 328 ft (100 m) (Use NS4816 Network Connector Field Terminating Kit)

If the sounder is part of network that has only two (2) network devices use a crossover cable as below



### Options Port (FUTURE)

<b>Options Cable NS004801</b>		
		
1	Purple	RS-422 out +
2	Pink	RS-422 out -
3	Yellow	NMEA out +
4	Black	Ground (NMEA output -)
5	Black/White	RS422 -
6	White	RS422 +
7	Orange	NavBus +
8	Blue	NavBus -
9	Dark Green	External alarm
10	Brown/White	Remote power on (Inverted)
11	Gray	N/C
12	Light Green	Remote power on

### Fuel Port (Future)

<b>Fuel Port Connector (Future)</b>	
1	Ground
2	+9 V Fuel
3	
4	Fuel B Input Single/ Port
5	
6	Fuel A Input Twin/ Starboard
7	NavBus Fuel
8	

## 7 **Transducer Selection and Installation**

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### **WARNING**

Be sure to turn the power off before starting the installation. Further, it is highly recommended that you keep power off while you're performing the installation. If power is left on or turned on during the installation, fire, electrical shock, or other serious injury may occur. Be sure to ground the equipment to prevent electrical shock and mutual interference. Be sure the transducer outputs are tied together before handling to avoid electrical charge build-up.

### **WARNING**

Be sure to use a 5 Amp fuse. Using the incorrect fuse can result in fire or damage to the Network Sounder

### **CAUTION**

Mounting the transducer requires drilling holes through the hull; make sure the installation does not cause the vessel to leak.

A thru-hull installation should be performed by a professional installer. Do not attempt this unless you are fully qualified. Do not perform a thru-hull installation of the transducer when the vessel is actually in the water.

**Immediately** after installing the transducer, be sure to check for leaks, and don't leave the vessel in the water for more than three hours before checking it again.

Northstar assumes no responsibility for improper or incorrect installation of a transducer.

### **WARNING**

The following basic setup information is not a substitute for the installation instructions provided by the transducer's manufacturer. To ensure that you meet all critical installation parameters, be sure to read and follow all of the requirements in their instructions. Northstar assumes no responsibility for improper installation.

<b>Selecting a transducer</b>			
<b>Make and Model</b>	<b>Power</b>	<b>Frequency</b>	<b>Northstar P/N</b>
Airmar B260 Bronze Through Hull	1 kW	50 kHz / 200 kHz	NS002660R
Airmar B258 Bronze Through Hull	1 kW	50 kHz / 200 kHz	AA002020
Airmar TM258 Plastic Transom mount	1 KW	50 kHz / 200 kHz	NS002658R
Airmar P319 Compact plastic thru hull	600 W	50 kHz / 200 kHz	AA002107R
Radarsonics, 210B thru hull	600 W	50 kHz / 200 kHz	AA002108R
Radarsonics 250 Transom mount tri function	600 W	50 kHz / 200 kHz	AA002077R

### **AIRMAR B260 NS002660R**

#### **Application**

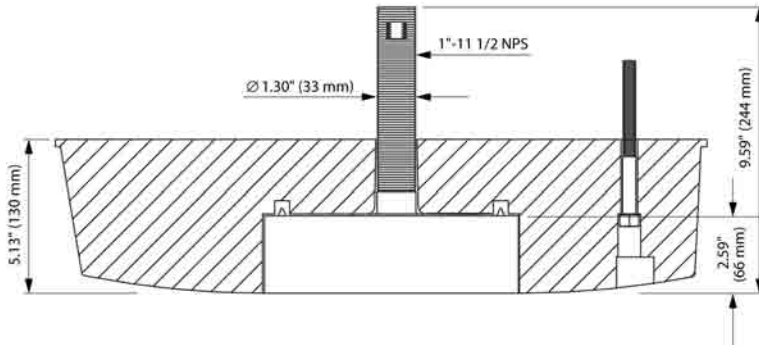
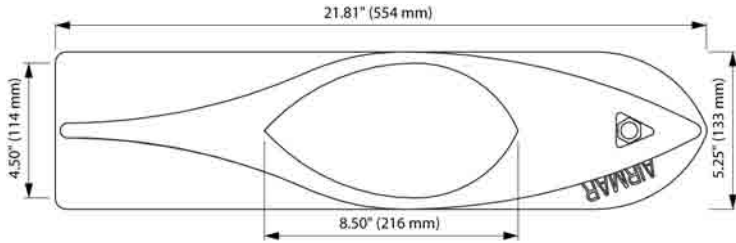
Sport fishing boats above 26 ft (8 m)

- small to midsize commercial fishing boats

Includes high performance fairing reduces drag and directs smooth water over the transducer's face for excellent echo sounder performance at all speeds

- includes temperature sensor
- robust bronze housing and nut.

Frequencies	Beam With (@-3dB)	Rated RMS Power: (W)	Figure of Merit	Q	Depth range	
50 kHz-AE	19°	1 kW	-14	8	1800 ft – 2500 ft	529 m – 735 m
200 kHz AWlg	6°	1 kW	-15	10	700 ft – 1000 ft	206 m – 294 m
Acoustic Window	Urathane					
Weight	16 lb (7.3 kg)					
Hull Dead rise Angle	Up to 28 Degrees with fairing block					
Hole Diameter	1 inch (26 mm)					

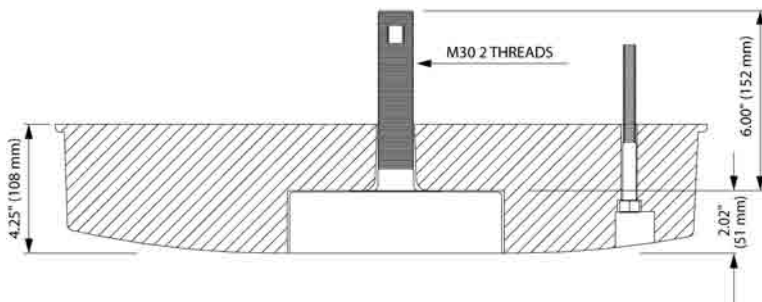
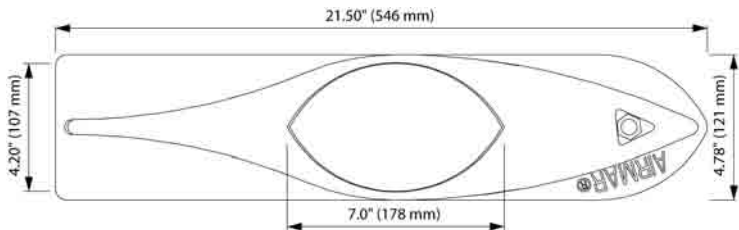


### AIRMAR B258 AA002020

Included high performance fairing reduces drag and directs smooth water over the transducer's face for excellent echo sounder performance at all speeds

- includes temperature sensor
- robust bronze housing and nut

Frequencies	Beam With (@-3dB)	Rated RMS Power: (W)	Figure of Merit	Q	Depth range	
50 kHz-AE	15°x21°	1 kW	-17	9	1500 ft – 2200 ft	441 m – 647 m
200 kHz AWlg	3°x5°	1 kW	-9	15	700 ft – 1000 ft	206 m – 294 m
Acoustic Window	Urethane					
Weight	7.9 lb (3.6 kg)					
Hull Dead rise Angle	Up to 25 Degrees with fairing block					
Hole Diameter	1 inch (26 mm)					

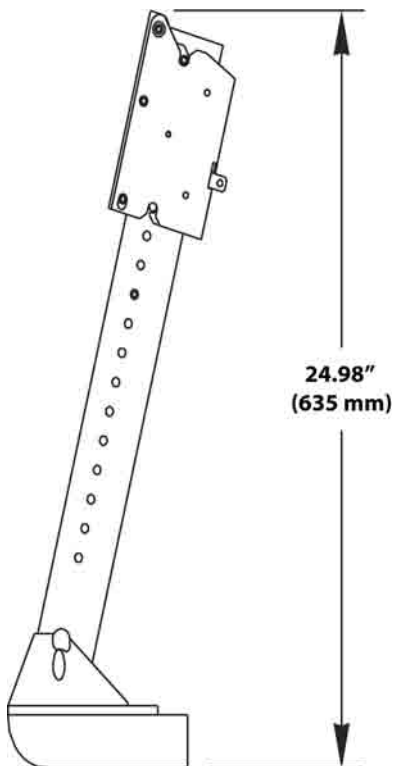


### AIRMAR TM 258 NS002658R

#### Applications

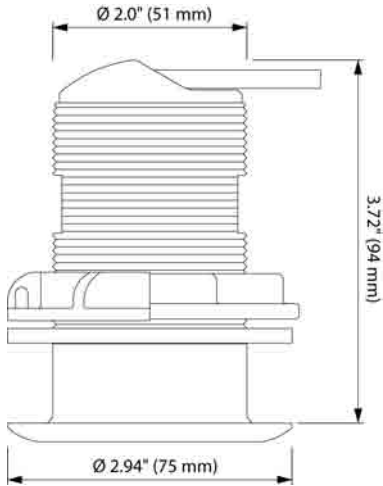
- single or multiple outboard boats
- center console boats
- small trailer boats
- bass boats

Frequencies	Beam With (@-3dB)	Rated RMS Power: (W)	Figure of Merit	Q	Depth range	
50 kHz-AE	15° x 21°	1 kW	-17	9	1500 ft – 2200 ft	441 m – 647 m
200 kHz AWlg	3° x 5°	1 kW	-9	15	700 ft – 1000 ft	206 m – 294 m
Acoustic Window	Urathane					
Weight	7.9 lb (3.6 kg)					
Hull Dead rise Angle	Up to 25 Degrees with fairing block					
Hole Diameter	1 inch (26 mm)					



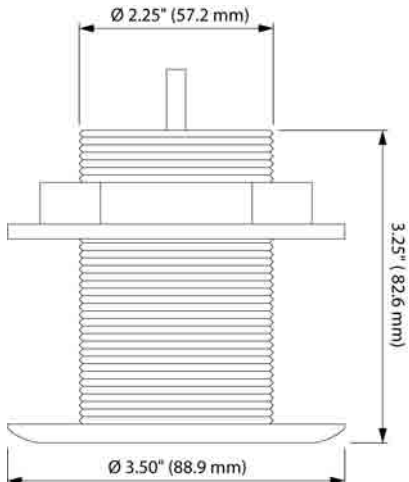
**Airmar P319 AA002107R**

Frequencies	Beam With (@-3dB)	Rated RMS Power: (W)	Figure of Merit	Q	Depth range	
50 kHz-AE	45°	600 W	-31	28	800 ft – 1200 ft	235 m – 353 m
200 kHz AWlg	12°	600 W	-21	31	700 ft – 1000 ft	118 m – 206m
Acoustic Window	Urethane					
Weight	7.9 lb (3.6 kg)					
Hull Dead rise Angle	0°-12° optimum 20° Maximum					
Hole Diameter	2 inch (51 mm)					



**Radarsonics 210B AA002108**

Frequencies	Beam With (@-3dB)	Rated RMS Power: (W)
50 kHz-AE	45	600 W
200 kHz AWlg	11	600 W
Acoustic Window	Urathane	
Weight	3.1 lbs (1.4 kg)	
Hole Diameter	2.25" (57.1 mm)	



 **WARNING**

The following basic setup information is not a substitute for the installation instructions provided by the transducer's manufacturer. To ensure that you meet all critical installation parameters, be sure to read and follow all of the requirements in their instructions.

Northstar assumes no responsibility for improper installation.

### Selecting the best location for the transducer

The two most common problems with echo sounder installations stem from electrical noise and cavitation. Either of these situations can produce poor performance.

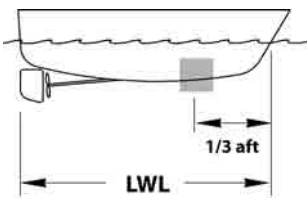
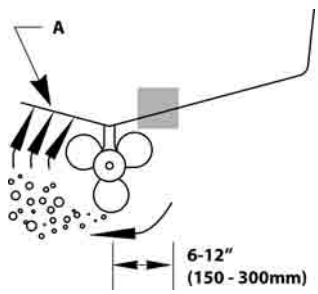
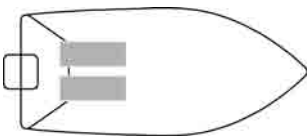
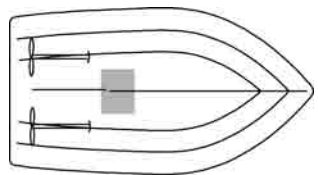
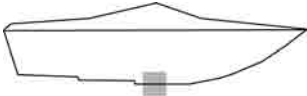
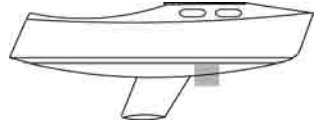
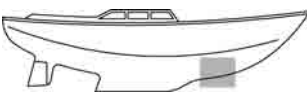

Electrical noise occurs when the transducer cable is routed too closely to noise-producing electronics, such as alternators, AC generators, radars, etc. To avoid problems with noise, route the transducer cable by itself (not in a bundle) and away from other wires or cables and the engine.

Cavitation can occur at high speeds. During cavitation, bubbles form between the transducer and the water. When this happens, the transducer can't get its energy into the water properly and won't be able to detect any echoes. To avoid cavitation, choose a mounting location with good water flow all around it at all speeds.

Before any drilling or cutting takes place, carefully choose a mounting location for the transducer that meets the following criteria, depending on the type of vessel:

- the transducer is more than four feet away from the Northstar navigator and other similar equipment, to prevent mutual electrical and magnetic interference
- the transducer and its cable are as far as possible from other electrical cables
- there is space above the transducer for the transducer's stem, housing, and cable
- the path for running the transducer's cable is reasonably direct—keep in mind that the transducer cable is 33 feet long (10 meters). To prevent damage, coil any excess cable and secure it
- water turbulence and noise are minimal, decreasing the amount of bubbles passing over the transducer face
- the transducer isn't behind hull irregularities or near eroding paint; both indicate areas subject to turbulence
- the transducer is as far as possible from the engine or propellers, and inboard of the lifting strakes
- the transducer always remains submerged and parallel to the water surface
- the transducer is easily accessible from inside the vessel for adjustments and maintenance

- the transducer's ultrasonic beams aren't obstructed by the keel, propeller shafts, or any other part of the vessel the hull thickness falls within the limits in Table 3 below (all dimensions are perpendicular to the waterline):

Best Location for the Transducer	
	
Displacement hull. A - Pressure waves	
	
Planing hull - Outboard and I/O	Planing hull - Inboard
	
Stepped hull	Fin keel sailboat
	
Full keel sailboat	

A flat-bottom hull provides the best environment for mounting the transducer:

It provides a horizontal surface and a constant water flow over the transducer, with little turbulence (see Figure 2 for the recommended transducer incline angle). If the vessel has a deadrise angle greater than 5 degrees, mount the transducer on a fairing

block to create a horizontal surface and keep the transducer perpendicular to the waterline. You must order the fairing block, if needed, from the transducer's manufacturer.

## 8 Maintenance

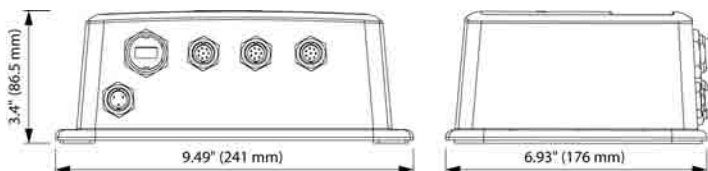
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Follow the Maintenance Guidelines in the Northstar 8000i System Installation Manual.

## 9 Specifications

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Power supply:	10 V DC to 35 V DC. 6 W maximum.
Operating temperature:	5°F to 131°F (-15°C to 55°C).
Environment:	The case and cables are waterproof to IPX6.

## **10 *Technical support, service and repairs***

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Northstar products are manufactured and serviced by BNT Marine Electronics.

The product is covered by a warranty which is supplied as a separate document.

If you need technical support, or answers to other questions after you've followed the instructions in this manual, you can:

- contact your Northstar distributor or
- see the inside back cover of the manual or
- visit [www.northstarnav.com](http://www.northstarnav.com).

Before you make contact, be sure to have:

- the serial number of the hardware (usually shown on the faceplate of the unit).

When you describe the problem, be as complete and as accurate as possible.

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***NORTHSTAR*** 

**Northstar 8000i**  
**1 kW Network Sounder**

Installation Manual