

# **NORTHSTAR**

Take the Lead



## **Marine Electronics**

PRODUCT CATALOG 2009

# Welcome to Northstar

## Marine Electronics product catalog for 2009

### WELCOME TO NORTHSTAR

We've been in the Marine Navigation business for over 38 years, and in that time the Northstar name has always been synonymous with best-in-class, high-performance navigation solutions. Northstar is part of the Navico group, the world leader in marine electronics. Now the combined strength of Navico and Northstar provides the drive for continuous improvement and preservation of our Northstar values.

Northstar's values of innovation, prestige and reliability are the foundation of our heritage. Our conviction for developing products with ease-of-use continues with the 2009 range of products.

### RELIABILITY THAT'S BUILT-IN AND A WARRANTY TO MATCH

Northstar warrants that the products will be free from defects in materials or workmanship under normal use for two (2) years from the date of purchase.

In the event that you damage the product or if it needs to be serviced, our global support team, backed by Northstar offices in Europe, USA, Australia and New Zealand is standing ready to provide assistance.

We look forward to serving and exceeding all of your navigation and communication needs, and hope you have an enjoyable year on the water.



## EARTHTRACE:

### NORTHSTAR, PARTNER TO THE BIGGEST CHALLENGES, ACHIEVEMENTS AND SUCCESSES

The goal of Earthrace was to set a new world record for a powerboat to circumnavigate the globe, running 100% renewable biodiesel fuel, and with a net zero carbon footprint. Equipped with Northstar instruments, they broke the world record in just 60 days 23 hours and 49 seconds.

What they have said about Northstar:

"The Northstar radar and GPS systems we put in Earthrace were perfect. They worked 100% through big seas, sweltering humidity and constant vibration. That they never failed is testament to their rugged nature and tough construction."

**Pete Bethune, Earthrace Skipper**

"I am especially happy how easy it was to use the GPS and Radar units from Northstar. That really made the trip much safer under many of the stressful situations we faced around the world."

**Adam Carlson, Earthrace Navigator**

**More information about Earthrace :** [www.earthrace.net](http://www.earthrace.net)



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





# Suggested Systems

## Powerboating Guide

Safety at sea and maximum enjoyment on the water.

FOR POWERBOATS UP TO 6M / 20FT



### POWERBOATS: up to 6m / 20ft

1. Explorer 660, 657, or 650 GPS Chartplotter and Sounder
2. Explorer 710 Marine VHF Radio
3. Fuel Management Kit

FOR POWERBOATS UP TO 9M / 30FT



### POWERBOATS: up to 9m / 30 ft

1. M Series Multifunction Display
2. Explorer AP380 Autopilot system
3. Explorer 725 Marine VHF Radio
4. Fuel management kit
5. AIS (Automatic Identification System)
6. 2 kW High Definition Digital Radar

Locate a Northstar dealer at: [www.northstarnav.com/Dealer-Locator](http://www.northstarnav.com/Dealer-Locator)





Our suggested systems are based on typical helm sizes and boating needs. Consult your Northstar dealer for the best system for your boat.

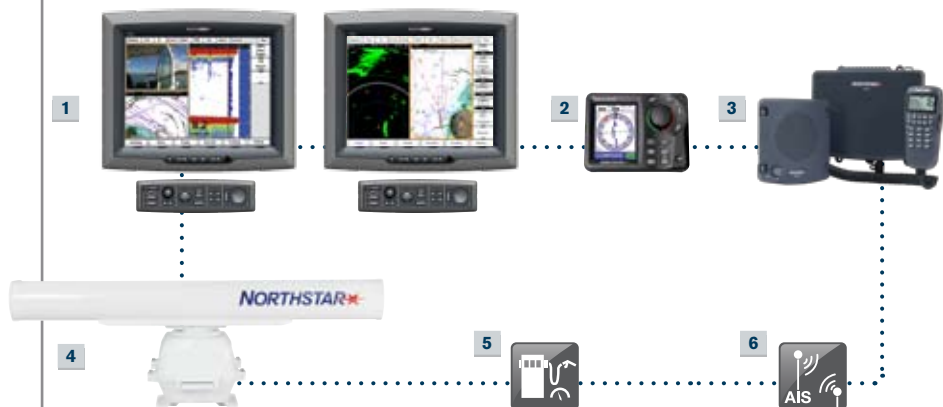
#### FOR POWERBOATS UP TO 9M / 30FT



#### POWERBOATS: up to 9m / 30 ft

1. 8000i 12-inch touch-screen network display or Classic 6100i 12-inch Network Display
2. Explorer AP380 Autopilot system
3. NS100 Single Station Marine VHF Radio
4. Fuel management kit
5. AIS (Automatic Identification System)
6. 4 kW High Definition Digital Radar

#### FOR POWERBOATS OVER 9M / 30FT



#### POWERBOATS: over 9m / 30 ft

1. Two 8000i 15-inch touch-screen displays or two 15-inch 6100i classic displays
2. Explorer AP380 Autopilot system
3. NS100 Dual Station Marine VHF Radio
4. 6 kW High Definition Digital Radar
5. Fuel management kit
6. AIS (Automatic Identification System)

For more information on the ultimate marine electronics experience, see the *Building a Northstar 8000i System* section.

# Suggested Systems

## Sailboat Guide

Safety at sea and maximum enjoyment on the water.

FOR SAILBOATS UP TO 7.5M / 25FT



### SAILBOATS: up to 7m / 25 ft

1. Explorer 557 Chartplotter
2. AIS (Automatic Identification System)
3. Explorer 710 Marine VHF Radio
4. Explorer W310 Wind Instrument
5. Explorer M310 Multi Instrument

FOR SAILBOATS UP TO 9M / 30FT



### SAILBOATS: up to 9m / 30 ft

1. M Series Multifunction display
2. AIS (Automatic Identification System)
3. Explorer 725 Marine VHF Radio
4. Explorer AP380 Autopilot system
5. Explorer W310 Wind Instrument
6. Explorer M310 Multi Instrument
7. Explorer R310 Repeat Instrument

Locate a Northstar dealer at: [www.northstarnav.com/Dealer-Locator](http://www.northstarnav.com/Dealer-Locator)



Our suggested systems are based on typical helm sizes and boating needs. Consult your Northstar dealer for the best system for your boat.

#### FOR SAILBOATS UP TO 12M OR 40FT



#### SAILBOATS: up to 12m / 40 ft

1. 8000i 12-inch touch-screen network display
2. AIS (Automatic Identification System)
3. 2 kW High Definition Digital Radar
4. NS100 Single Station Marine VHF Radio
5. Explorer AP380 Autopilot system
6. Explorer W310 Wind Instrument
7. Explorer M310 Multi Instrument
8. Explorer R310 Repeat Instrument
9. Explorer S310 Speed Instrument

#### FOR SAILBOATS OVER 12M / 40FT



#### SAILBOATS: over 12m / 40 ft

1. Two 8000i 12-inch touch-screen network displays
2. AIS (Automatic Identification System)
3. 4 kW High Definition Digital Radar
4. NS100 Dual Station Marine VHF Radio
5. Explorer AP380 Autopilot system
6. Explorer S310 Speed Instrument
7. Explorer W310 Wind Instrument
8. Explorer M310 Multi Instrument
9. Explorer R310 Repeat Instrument
10. Explorer D310 Depth Instrument









# navigate...

## Navigation systems

Navigate in style with Northstar's Classic 6100i or 8000i infrared touch screen navigation systems: all-in-one solutions for discerning boat owners that demand the very best in marine electronics.



# Northstar 8000i

## Premier Integrated Touch Screen System

Sleek & elegant. Tough & durable. Integrating the finest in navigation technology with the latest in entertainment functionality, the 8000i maintains Northstar's legendary ease-of-use while turning heads with an exciting stylish design and slim profile. Suitable for single or multi screen installations, the 8000i is designed for boat owners unwilling to settle for anything less than the best in navigation systems.



## NORTHSTAR 8000i



12" Inch Display



15" Inch Display



Touchscreen



Marine Network System



GPS Chartplotter



Fishfinder



Radar



AIS Compatible



C-MAP MAX PRO



Waterproof to IPX6 Standards



VGA Output



Instrument Gauges



Multimedia Playback



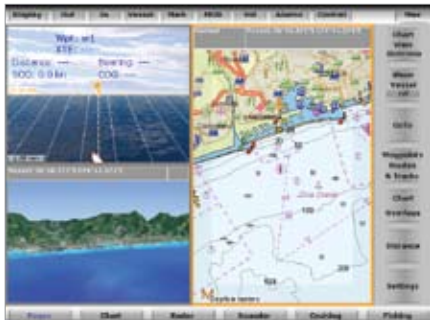
Video input





## 8000i Features:

### ▼ CHART SPLIT SCREENS



### FULLY NETWORKED SYSTEM

The 8000i is a comprehensive networked system capable of supporting multiple screens simultaneously. Data transfer between units is instantaneous with each device able to independently display and control all data. All components in an 8000i system are fully marinized and built to last.

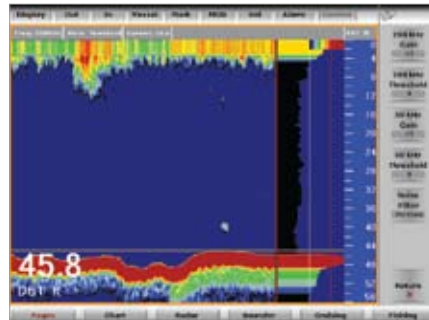
### ▼ CHARTPLOTTER



### CARTOGRAPHY

The 8000i delivers Northstar's legendary lightning fast redraw and the latest C-Map MAX Pro vector cartography, providing your boat with a charting system similar to those used on commercial vessels. The entire chart library is contained on the 8000i hard drive, eliminating the need for keeping track of chart cards.

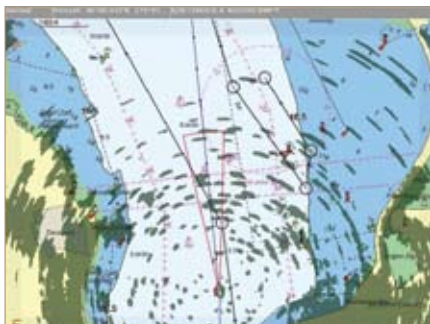
### ▼ SOUNDER



### SOUNDER

Northstar's newest 1 kW networked sounder technology delivers the performance and features you expect, with a range of high performance transducers available.

### ▼ HIGH DEFINITION DIGITAL RADAR



### HD DIGITAL RADAR

Northstar's high definition digital radar offers industry leading target discrimination as well as radar/ chart overlay (with an optional heading sensor). Networked radar means that any Northstar compatible display in the network can access and control the radar system.

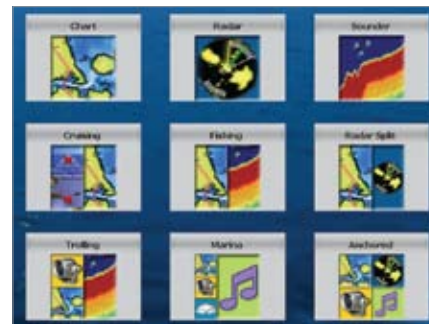
### ▼ DVD, VIDEO AND CAMERA INPUT



### ENTERTAINMENT

The Northstar 8000i is a completely self-contained entertainment system. Users can store media files directly on the device's hard drive, allowing access to video and audio libraries from any display on the network. The 8000i plays DVDs and CDs. Users can load their digital music from other locations with a memory USB stick.

### ▼ CUSTOMIZABLE DISPLAY OPTIONS



### CUSTOMIZABLE

Fully customizable display. Save your favorite displays for quick access to navigation, vessel information, fishing or entertainment.

### COMPLETE CONTROL

Infrared Touch screen like you've never experienced before. Zoom in and out, set and edit waypoints and routes with one finger operation. Easy and intuitive in all screen options. Don't consider other brands until you've used the 8000i interface.

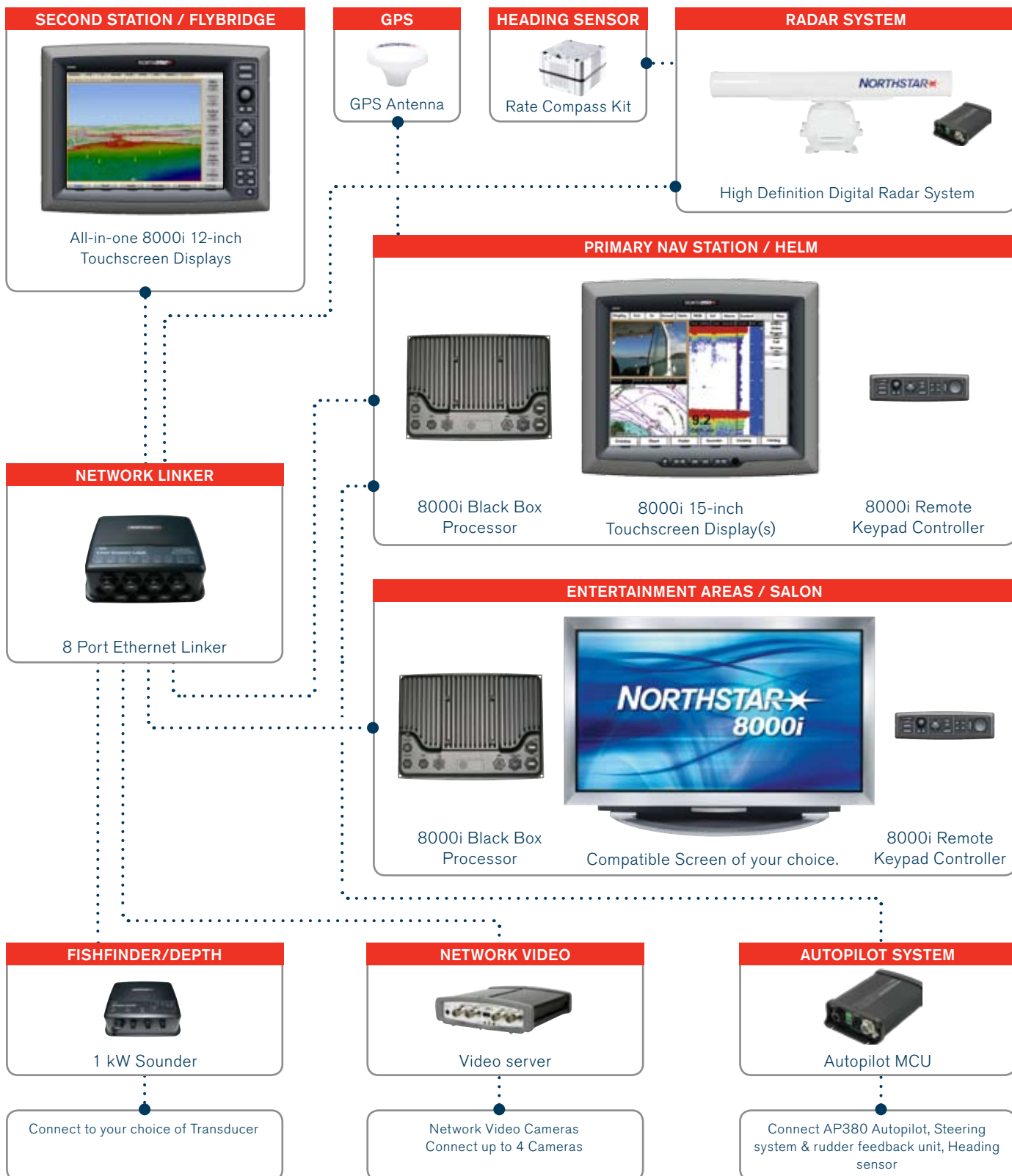


# Building a Northstar 8000i System

## Endless configuration possibilities...

The 12" is an all in one unit, the 15" option separates the processor, screen and keyboard into components. This allows you to mount your system exactly the way you want.

Note: This diagram is intended to show how the various 8000i components add functionality to the system – it is not a wiring diagram.





## Northstar 8000i the power behind the best charts available

**When we developed the 8000i we demanded the best electronic charts that C-Map could provide and MAX Pro was born. MAX Pro is the first chart format for leisure craft that meets ISO 19379 certification and provides the same levels of accuracy and quality as those found on SOLAS class vessels.**

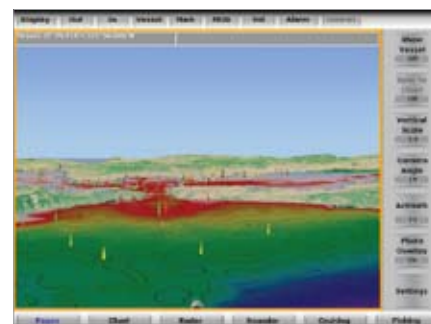
Every 8000i has the complete set of MAX Pro vector charts embedded on its hard drive. Simply choose your area of interest, purchase then enter a license code. Whether sports fishing in Florida or bluewater cruising around the world, MAX Pro charts will give you all the information that you could possibly need, including

- ❑ Looks and feels like a raster chart. But with the intelligence of a C-Map vector chart
- ❑ 3D, Satellite Image Overlay
- ❑ C-Marina pilot book database, detailed bathymetric charts, immediate chart unlocking, worldwide tidal database
- ❑ Keep your MAX Pro charts up to date with C-Map's unique 24/7 "Real-time" updating service
- ❑ Guardian technology automatically detects and highlights potential charted hazards in front of your vessel

25,000 coastal charts, worldwide tidal database, detailed C-Marina port information, high resolution bathymetric charts, satellite imagery and aerial photos. MAX Pro charts also highlight potential charted hazards in front of your vessel.



▲ 3D CHART SPLIT SCREEN FROM MAX PRO



▲ BATHYMETRIC CHART FROM MAX PRO





# Northstar 6100i

## Integrated Navigation System

**N2 Technology** is Northstar 6100i's method for moving information around your boat - a network of information. Add a radar to your 6100i, and all units can display and control radar. Insert a **Navionics®** chart card in the master unit and N2 makes that chart data available to all other units on the boat (as though the card were plugged into each unit).

Combine your Northstar 6100i with the Northstar Weather Module and you can get real-time graphical weather information. Add the Northstar 491 Sounder with the 6100i navigation and radar functions, the performance is truly amazing.

N2



**NORTHSTAR 6100i** Available in: 6.4", 8.4", 10.4", 12.1" & 15.1" Displays.



GPS Chartplotter



Fishfinder



Radar



Marine Network System



Navionics® Chart Compatible



Waterproof to IPX6 Standards



Compatible with Mercury Smartcraft®



Fuel Computer



Instrument Gauges



Sirius® Marine Weather



VGA Output

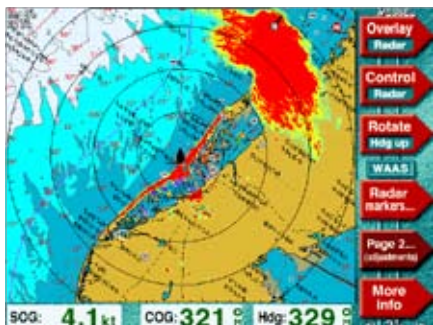


Video input



## 6100i Features:

### ▼ PLOTTER SCREEN

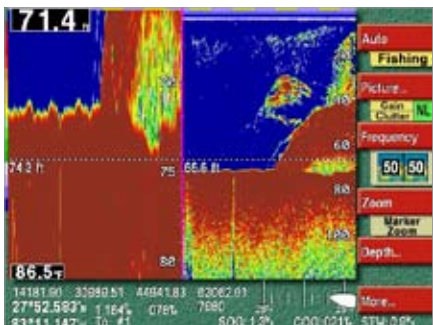


### PLOTTER

The Northstar 6100i chartplotter is the core of the integrated navigation system. Concise, crystal-clear Navionics® Platinum cartography presented on full-color displays with blindingly fast speed, with award winning Platinum cartography available on the 6100i, all at the touch of a single key.

All 6100i displays come standard with GPS and WAAS. Cartography is optional.

### ▼ SPLIT ZOOM SOUNDER DISPLAY



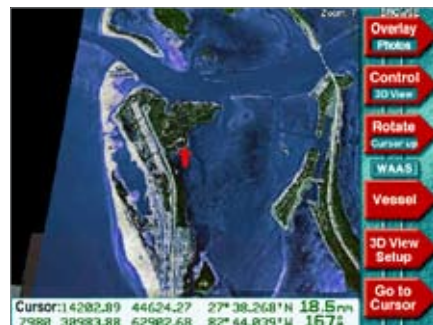
### SOUNDER

Razor-sharp screen clarity gives you all the information you need. Mark a fish? The unique SoundTrac™ feature, lets you scroll back in "history" and navigate back to the exact spot with the touch of a button. Standard features include:

Dual-frequency (50/200 kHz). Four zoom modes: bottom, bottom lock, bottom lock center, and marker zoom. Nine different screen color sets.

Adjustable fish, bottom, and temperature alarms. Depth in feet, fathoms, or meters, speed through-the-water and water temperature are available.

### ▼ NAVIONICS PLATINUM



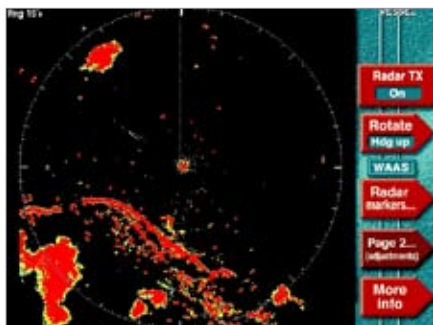
### NAVIONICS® CARTOGRAPHY

XL, XL3 and XL9 Size Coverage for both Fresh and Saltwater  
Great detail: 3D View, Satellite Photo Overlay, Panoramic Pictures, Port Services & Points-of-Interest, Tides & Currents, Coast Pilot Books Easy to use: Plug-and-play cartridge is ready to use, no CDs, downloads or unlock codes required.

Concise, crystal-clear Navionics® cartography presented on full-color displays with blindingly fast speed, with award winning Platinum cartography available on the 6100i.

Navionics® Platinum, Platinum+, Silver, Gold, Gold+.

### ▼ RADAR

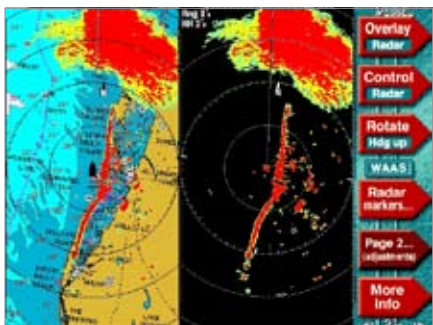


### HD DIGITAL RADAR

Radar was designed to be part of the 6100i integrated navigation system.

Night or day, use the image in chart-overlay or split-screen mode and even the most daunting passages become a snap. RangeRider™, a Northstar exclusive, automatically saves your tuning adjustments for each range. When you go back to a range, the settings you've made are already there.

### ▼ RADAR/CHART OVERLAY



Radar data can be presented in North Up, Course up, Leg Up and Heading up and of course you can overlay the radar on the charts.

Multiple Power & Size Array and Radome Scanners (2 kW, 4 kW, 6 kW, 10 kW, 25 kW).

### ▼ NTSC/PAL VIDEO OVERLAY



### VIDEO

The 6100i integrated system has NTSC and PAL video input and VGA output. Perfect for docking, engine monitoring, underwater cameras, DVD and TV. Just press the video key. Football next to the sounder display in the cockpit. Radar displayed on the TV, or any external monitor/display. Giving you sizeable video from any source on the boat.

Search: 6100i

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



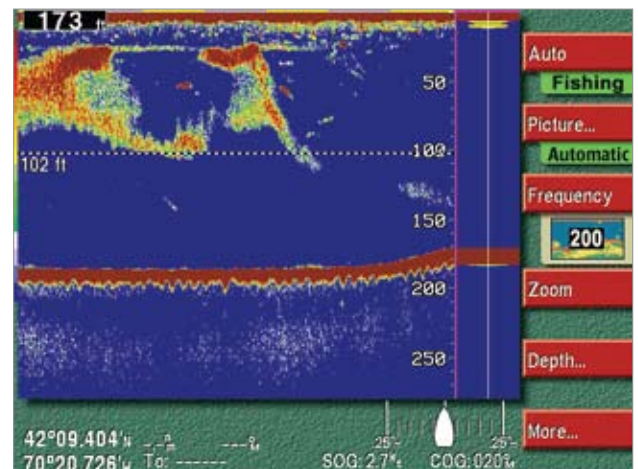
# 491 Sounder Module For 6100i

This unit offers you the same easy to use functionality and screen clarity for under-the-water information that you would expect from Northstar's unmatched chartplotter, GPS and radar. The 491 is loaded with enhanced target discrimination results. This gives you precise distinction between bait fish and larger fish.



## THE SERIOUS ANGLER'S SOUNDER

- ❑ Northstar's SoundTrac™ gives you the ability to go to a target and rename the place to save it permanently in the fish's history and easily navigate to it. The Northstar 491 is feature rich: 50/200kHz. 600/1000W. Bottom Lock. A Scope. White Line. Alarms for depth, fish and temperature.
- ❑ There are four zoom modes: bottom zoom, bottom lock, bottom lock center and marker zoom:
  - "Bottom zoom" zooms in on the sea-bed.
  - "Bottom Lock Zoom" flattens out the bottom and shows echoes just above it.
  - Bottom Lock Center does the same as Bottom Lock, but the sea-bed is in the middle of the zoom display (allowing you to see below the sea-bed).
  - Marker zoom allows you to move the marker on the normal view mode, and the zoom display follows the depth of the marker. You also can select the zoom level (as with all zoom modes).

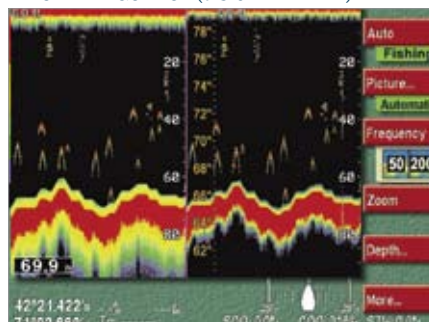


- ❑ Dual Frequency: Display 50 kHz or 200 kHz individually in full screen mode or together on the split screen.
- ❑ 600 W / 1000 W RMS

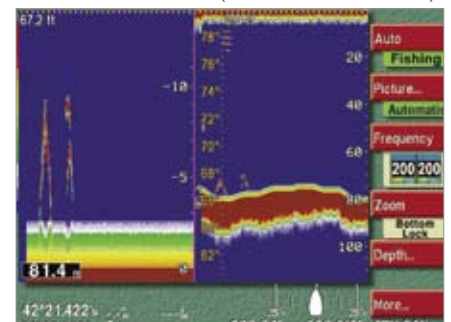
### ▼ ADJUSTING THE GAIN ON YOUR 6100i



### ▼ DUAL FREQUENCY (0 SIGNAL LEVEL)



### ▼ BOTTOM LOCK ZOOM (SEABED IN ZOOM MODE)





# Weather Module for 6100i

Northstar and Sirius Marine Weather teamed up to deliver real-time, graphical weather information directly to your 6100i chart screen.

The Northstar Weather Module Includes:

- ❑ Receiver, antenna and cabling.
- ❑ SIRIUS Marine Weather available anywhere within SIRIUS's satellite footprint, which blankets the 48 contiguous states, and international waters extending hundreds of miles into the Atlantic and Pacific Oceans, the Gulf of Mexico and Caribbean Sea.
- ❑ Weather Features Displayed:
  - Weather Radar
  - Sea Surface Temperature
  - Marine Zone Forecasts
  - Marine Warnings
  - Surface Observations
  - Forecast Wave Height
  - Forecast Winds
  - Animated displays



▲ WEATHER MODULE AND ANTENNA



Marine  
Network  
System



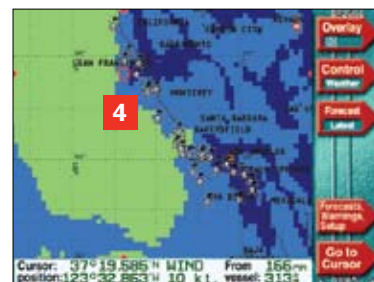
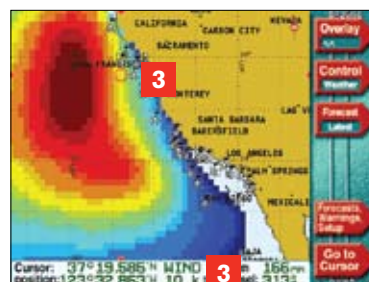
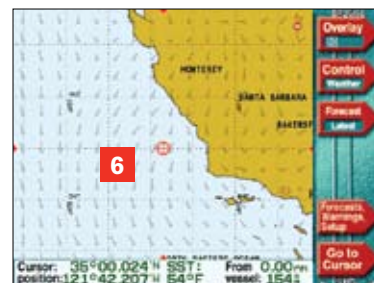
Sirius® Marine  
Weather



Waterproof  
to IPX6  
Standards

## THE NORTHSTAR SATELLITE WEATHER SYSTEM: MAIN CHART GUIDE

- 1 Sea Surface Temperature** You can set high and low values to clearly identify water temperatures.
- 2 Precipitation** Rain and snowfall info.
- 3 Spot Weather** Cursor position reveals spot sea temperature and weather conditions, depending on the overlay choice. Hovering over a surface buoy reveals detailed views (Surface Observations).
- 4 Wind/Wave Info** Wave height and wind speed is indicated by color.
- 5 Animation** To help you analyze weather patterns and sea surface temperature data over a user-defined period is played back.
- 6 Wind Barbs** Indicating direction and speed, these help you identify cyclonic centers and flow patterns.
- 7 Lightning Indicators / Storm track.**



Note: Weather module only available in the U.S.A



Search: 6100i modules

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



# Multifunction Displays

## M Series: M121, M84

What others consider options, Northstar considers standard equipment. HD Digital Radar, AIS & Video functionality. High Definition Digital Radar System, allowing you to detect weather fronts and potential sea hazards. AIS brings boat identification to radar or chart.



NORTHSTAR M121 ▲

◀ NORTHSTAR M84



12 Inch Display



8.4 Inch Display



AIS Compatible



GPS Chartplotter



Optional C-MAP NT-MAX Charting



Fishfinder



Fuel Computer



Navbus Networking



Radar



Compatible with Mercury SmartCraftA



Video input



Waterproof to IPX7 Standards



Instrument Gauges

## CHART

Northstar's embedded background chart gets you started for global navigation, or add C-Map's NT MAX™ card for detailed chart data, value-added port info and land detail.

## HD DIGITAL RADAR

Northstar High Definition Digital Radar brings advanced digital signal processing, better target presentation, better clutter rejection with your optional Northstar Digital Radar system. Combined with C-Map cartography it provides a comprehensive array of navigational aids, including chart overlay (optional heading sensor required).

## SONAR

Equipped with a powerful 1 kW (RMS) sounder that automatically adjusts the output power (1 kW or 600 W) to match the wattage of your transducer. No separate sounder processor is required. Simply plug any compatible transducer and you are up and running.

## AIS (AUTOMATIC IDENTIFICATION SYSTEM)

Optional Automatic Identification System receivers display vital vessel information from registered vessels on the chartplotter screen.

## FUEL MANAGEMENT

On-demand access to your engine's gasoline performance data, as well as SmartCraft™ management for SmartCraft-enabled Mercury, Mariner or MerCruiser engines (optional fuel kit / SmartCraft™ gateway required).

## VIDEO (NTSC/PAL)

Northstar brings video to your helm. Connect a camera for deck monitoring, engine room surveillance, even underwater views. Or connect a composite video source, such as a DVD player or camcorder for entertainment (a separate audio output system is required for sound).





## Stand alone or full system... The choice is yours

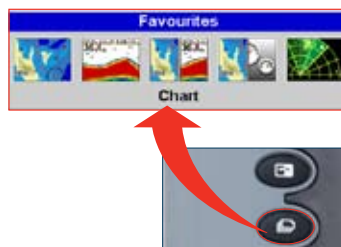
M Series Multifunction: Integrate GPS, radar, sonar, AIS, fuel management, video & VHF communications into a daylight viewable high-resolution 12" or 8.4" screen. Add additional components to tailor the perfect navigation system for you.

Note: This diagram is intended to show how various components add functionality to the M Series – it is not a wiring diagram.

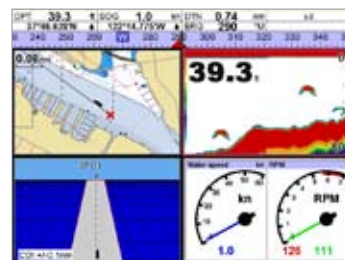


### THE FAVORITES KEY:

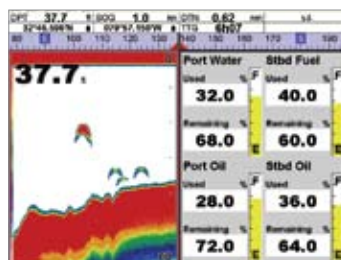
Use the one touch FAVORITES key to easily access five preset or customized screen display settings.



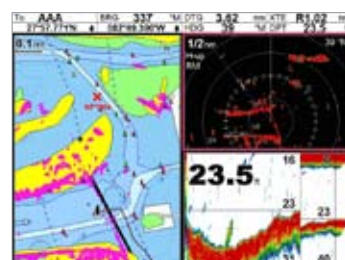
▲ ONE TOUCH SCREEN SELECTION FOR FULL SCREEN OR SPLIT SCREEN FAVORITES



▲ CHART + SMARTCRAFT + SOUNDER + HIGHWAY SPLIT SCREEN



▲ SONAR + FUEL SPLIT SCREEN



▲ CHART/RADAR OVERLAY + RADAR + SONAR SPLIT SCREEN

Search: M121 or M84

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





detect...



## Navigation aids

Because the safe choice in navigation is the right choice, Northstar radar and AIS products are the best selection for detection and collision avoidance.

Combining the latest technology with high performance has always been Northstar's top priority. Our Navigation aids are meticulously designed with your safety in mind. Regardless of the weather or the size of your boat, Northstar has a navigation aid for you to see and be seen.





# HD Digital radar

2 kW / 4 kW / 6 kW / 10 kW / 25 kW

**The right choice.** Radar's primary uses are vessel detection and collision avoidance, particularly in reduced visibility conditions like darkness, fog and rain. Networked radar systems combine high performance scanners and microwave technology with the very latest in digital radar processing.

High Definition Digital Radar means: Exceptional detection of small or distant targets, using advanced digital signal processing. Presents targets better and rejects clutter using 10-bit digital Sensitivity Time Control (STC). Screen-clutter from rough weather is cleared away using sensitivity settings tailored for specific conditions.



Marine  
Network  
System



Radar



## FEATURES

- High Performance Scanners
- Brand New Digital Signal Processing Technology
- Radar/Chart Overlay\*
- Five scanner options: 2 kW, 4 kW, 6 kW, 10 kW, 25 kW
- Automatic Tune, Gain and Sea Clutter Adjustment

\* Optional heading sensor required

## HEADING SENSOR OPTIONS

Heading sensors are for use with all Northstar radars and Multifunction displays to enable the incredibly useful radar/chart overlay display feature.

Both compasses are linked via NMEA 2000® network connection.

### **FC40 Fluxgate Compass kit** (including cables)

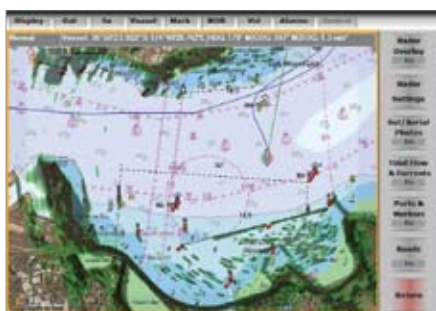
Includes 5M cable

### **RC42 Rate Compass kit** (including cables)

Includes 5M cable

Discuss setup with your Northstar dealer, other parts may be needed.

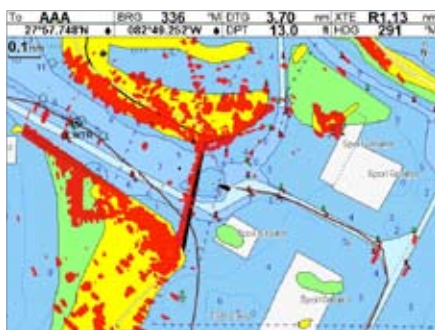




▲ CHART/SATELLITE OVERLAY DISPLAYED ON 8000i

### CHART OVERLAY

With an optional heading sensor, radar brings a wealth of important information to the skipper's attention swiftly and accurately.



▲ CHART OVERLAY DISPLAYED ON M SERIES

### STC CURVES

Digital Sensitivity Time Control (STC) curves reject clutter by setting minimum thresholds that consider return strength and distance.



▲ GUARD-ZONE ALARMS DISPLAYED ON 8000i

### CHOOSING A SCANNER

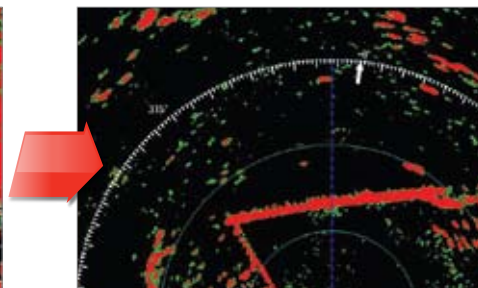
Radomes are compact and lightweight, making them ideal for sail boats and small powerboats where space and power supply are limited.

An open array antenna will deliver better range and detail because of its higher power and narrow beam width.

The effective range of any scanner increases when mounted higher on your boat. The power of a scanner is also an indicator of its range.



▲ HEAVY RAIN WITH NO STC ADJUSTMENTS



▲ HEAVY RAIN WITH STC ADJUSTMENTS



### PREPARING YOUR HIGH DEFINITION DIGITAL RADAR SYSTEM

Adding radar to your existing compatible marine electronics system requires a radar kit including a scanner, a processor and connection cables for your display unit and optional heading sensor. When ordering a radar system, please ensure scanner, processor and cabling are ordered. For information on available heading sensor options please contact your Northstar dealer.





# Automatic Identification System

See and be seen... Avoid collisions at sea

**Transmit & Receive Class-B AIS system. The NAIS-300 is a completely autonomous unit that allows the owner's vessel to be seen by other AIS enabled vessels within VHF range.**

When connected to an AIS enabled chartplotter, the NAIS-300 presents all received data on the display head, providing the owner visibility of all surrounding vessels.



AIS  
Compatible



NMEA 2000®  
Networking



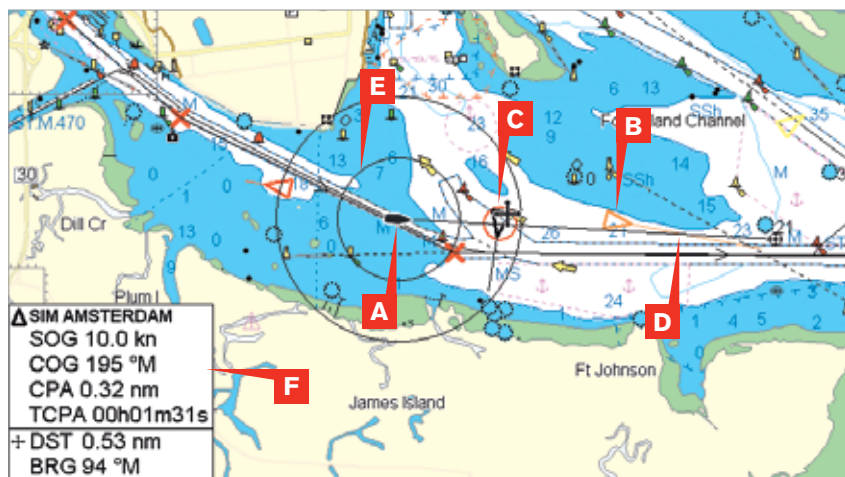
Waterproof  
to IPX6  
Standards



**NEW!**

## NAIS-300

- ❑ Black Box Class-B AIS Transponder System with integrated GPS receiver
- ❑ NMEA-2000/SimNet/NMEA-0183 (high Speed) Interface
- ❑ AIS Transmit & Receive function (AIS Class-B)
- ❑ Integrated GPS receiver



## AIS ON SCREEN

A typical screen showing & displaying various AIS information received from nearby vessels.

- A** Your Vessel
- B** AIS Transmitting Vessel
- C** Dangerous Vessel
- D** Projected Course of Vessel
- E** Range Rings
- F** Data Box

## BE SEEN

Pleasure boats can easily go undetected by the radar systems on large commercial vessels

Large commercial vessels are required to carry AIS transponders; which is a good thing, because smaller vessels in close proximity to a large ship can easily go undetected by the ships radar system, because the radar's line-of-sight is blocked by the super structure of the ship. This risk is easily mitigated by installing an NAIS-300 system on your boat.



## WHAT IS AIS?

Automatic Identification System or AIS is a way of identifying another vessel's position, course and speed (along with other details like name and freight). This information is displayed on your chartplotter.

## HOW DOES AIS WORK?

AIS information is transmitted over VHF by vessels equipped with an AIS transponder. The NAIS-300 receiver listens to those transmissions and displays appropriate AIS data on your Northstar display. Class B devices such as the NAIS-300 also transmit your boat's data to other AIS equipped vessels.

\*Note: AIS range is line of sight (Typically about 20 nautical miles)

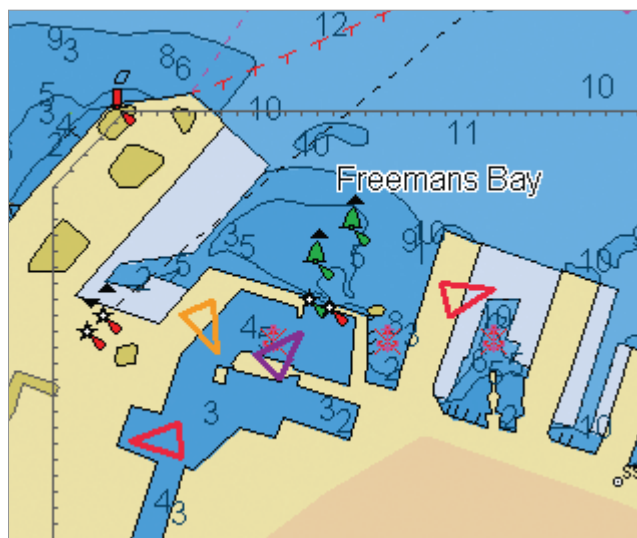
## WHY DO I NEED TO RECEIVE AIS INFORMATION?

Due to VHF's longer wavelength, AIS has particular use in identifying targets that may be obscured by poor visibility, or behind larger targets like low islands and large ships that radar can't penetrate.

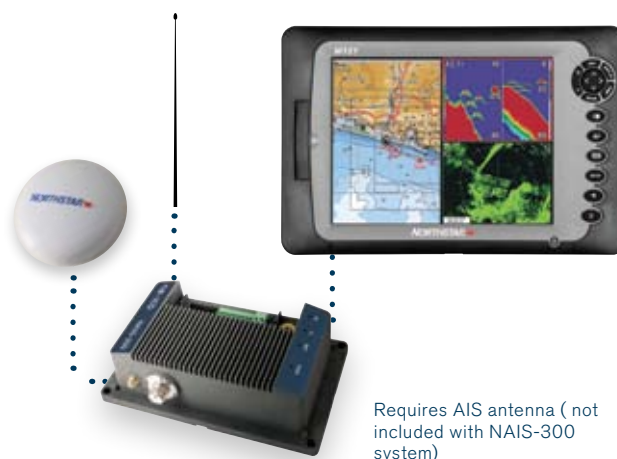
## WHAT INFORMATION DO I TRANSMIT AND RECEIVE?

- Vessel Name, Size & Call sign
- MMSI number (Maritime Mobile Service Identity number)
- Vessel Type (for example Cargo Ship, Tanker, Sail boat)
- Time to closest point of approach
- Course, Speed and Heading

## NAIS-300 + M Series : The perfect combination



AIS targets appear as colored triangles on Chart Plotter screen. Move the cursor and pan chart to show vessels nearby.



▲ Hold the cursor over the target for popup of AIS details. Press ENTER for more information about the vessel



▲ Select the AIS display from the DISPLAY MENU

Vessels					Safety margin (n)	
US1 (nm)	SOG (kn)	BRG (°)	MMSI (TM)	Name	CPA (nm)	TCPA (h:mm:ss)
0.06	0.0	84	31900000	MY ULYSSES	0.01	00h00m43s
0.33	0.0	83	31900000	MY ULYSSES	0.09	04h02m30s
0.38	0.0	82	318867000	MY ANDIAMO	0.23	04h07m18s
0.46	0.0	86	310050000		0.25	09h01m59s
0.68	0.0	82	309913000		0.41	08h26m37s
1.23	0.0	73	477470000	CAPE SPENCER	0.55	17h14m59s
1.26	0.0	75	477860000	TASMAN MARINER	0.83	18h10m10s
1.37	0.0	75	233777000	MAHABANK	0.56	19h27m16s
1.55	0.2	75	304717000		1.55	00h08m51s

▲ Show all targets within range and sort depending on preference





## Explorer series

Looking for a chartplotter, a fishfinder, or Combo? Suitable for boats of any size, Northstar Explorer Series Combos, Fishfinders and Chartplotters are a pleasure to use for every boater from first time users to qualified skippers.

The Northstar Explorer range was designed with the aim of being a fully featured, very easy to use, durable and high performance range of marine electronics.



A white Starliner Explorer Series boat is shown from a side profile, moving through blue water. The boat's hull is white with a dark stripe along the bottom. The water is a deep blue with white foam from the boat's wake. The sky is a mix of orange, yellow, and light blue, indicating sunset or sunrise. The boat's name "STARLINER" is visible on the side. The word "explore..." is written in large white letters at the bottom of the image.

explore...



# Combo Units

657, 650, 660

Compact and powerful, Northstar's Explorer Series Combo Function Units are user-friendly versatile on-board information systems.



## EXPLORER 657



5 Inch Display



AIS Compatible

### MORE FEATURES:

- High Resolution 640 x 480 pixel screen
- Dual Frequency 50 / 200 kHz
- 600 W RMS (4800 W peak to peak)
- Depth Range\*\* (with supplied transducer) : 0.6 - 600 m (2-2000 ft)
- Track-Your-Buddy (with Explorer 725)
- Weather Watch (with Explorer 725)

## EXPLORER 650



5 Inch Display

### MORE FEATURES:

- 320 x 234 pixel screen
- Dual Frequency 50 / 200 kHz
- 600 W RMS (4800 W peak to peak)
- Depth Range\*\* (with supplied transducer) : 0.6 - 600 m (2-2000 ft)
- Track-Your-Buddy (with Explorer 725)
- Weather Watch (with Explorer 725)

## TRACK-YOUR-BUDDY

When connected with the Explorer 725 VHF, you can automatically plot the position of your DSC radio-equipped boating buddies.

## FISH LIKE THE PROS

High vertical pixel count plus 100X zoom functions mean you can see bottom structure detail like never before. Fish inshore or offshore with the dual frequency sounder equipped with 600 Watts of output power.

## FUEL MANAGEMENT

Explorer Chartplotter/Fishfinder Combos are the perfect devices for managing important fuel consumption and economy information to help you get optimum vessel performance year after year.

## C-MAP FOR ALL

All Northstar Explorer Combo units run C-Map NT MAX™ cartography, with enhanced port details, tidal overlays, location photos and comprehensive chart info.



## ■ EXPLORER 660



7 Inch Display

### MORE FEATURES:

- 800 x 480 pixel screen
- Dual Frequency 50 / 200 kHz
- 600 W RMS (4800 W peak to peak)
- Depth Range\*\* (with supplied transducer) : 0.6 - 600 m (2-2000 ft)
- Track-Your-Buddy (with Explorer 725)
- Weather Watch (with Explorer 725)

\* Requires optional fuel kit / SmartCraft™ gateway

\*\* Depth capabilities depend on type of transducer used, installation and water clarity. Depth to 3300 ft (1000 m), may be achieved under optimal conditions and using a 1000 W dual element transducer. Refer to transducer section for information on maximizing your transducer performance.

† Requires AIS receiver



Search: Northstar 657, 650 or 660

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





# Chartplotters

567, 557, 550(i), 538(i)

A simple-to-use menu structure and superb daylight viewable screen means you can enjoy your voyage whether it's across the bay or across an ocean. Rugged and waterproof, the Northstar Explorer is a brilliant choice for your navigation needs.

## 538, 550, 557, 567 CHARTPLOTTERS LOADED WITH FEATURES:



GPS  
Chartplotter



Optional  
C-MAP NT-MAX  
Charting



Waterproof  
to IPX7  
Standards



Navbus  
Networking



Fuel  
Computer \*



Instrument  
Gauges



Compatible  
with Mercury  
Smartcraft® \*

## EXPLORER 567



6.4 Inch  
Display



AIS  
Compatible

### MORE FEATURES:

- ❑ 640 x 480 pixel screen
- ❑ Split-screen View
- ❑ Bracket or bulkhead mount
- ❑ Tracklogs (1 x 2000 and 4 x 500 waypoints)
- ❑ 25 Routes (50 waypoints each).  
3000 Alpha-numeric waypoints
- ❑ Multilingual menu option
- ❑ Weather Watch (see VHF section) \*\*

## EXPLORER 557



5 Inch  
Display



AIS  
Compatible

### MORE FEATURES:

- ❑ 640 x 480 pixel screen
- ❑ Split-screen View
- ❑ Bracket or bulkhead mount
- ❑ Tracklogs (1 x 2000 and 4 x 500 waypoints)
- ❑ 25 Routes (50 waypoints each).  
3000 Alphanumeric waypoints
- ❑ Multilingual menu option
- ❑ Weather Watch (see VHF section) \*\*

\* Requires optional fuel kit/SmartCraft™ gateway; see the Fuel Management section for details.

\*\* Requires input from Explorer 725; see VHF section for details

‡ Products with integrated antennas can only be bracket mounted

† Requires AIS receiver.

## READY-TO-GO AIS CAPABILITY

Automatic Identification System (AIS) is ready-to-go on the 567 and 557, allowing you to identify and avoid AIS-transmitting vessels in hazardous visibility conditions. See the AIS section for more information.

To enable AIS you will need an AIS receiver.

## FUEL MANAGEMENT

Every Northstar Explorer series chartplotter has a built-in fuel computer. Just purchase the optional fuel kit to display fuel management data such as fuel flow, fuel remaining, estimated range and fuel economy.

A graphical fuel gauge complements this digital information.

## SMARTCRAFT - READY PRODUCTS

Northstar Explorer series chartplotters come ready with SmartCraft™: a fantastic feature for boats with compatible Mercury, MerCruiser and Mariner engines.

See Fuel Management section for more information.

## COMPACT YET COMPREHENSIVE

With the option of having an integrated antenna, the Explorer 538i is designed with the smaller vessel in mind. Now every sized boat can take advantage of GPS technology.

## ■ EXPLORER 550 (i)



### MORE FEATURES:

- ❑ 320 x 234 pixel screen
- ❑ Split-screen View
- ❑ Integrated Antenna option
- ❑ Bracket or bulkhead mount ‡
- ❑ Tracklogs (1 x 2000 and 4 x 500 waypoints)
- ❑ 25 Routes (50 waypoints each). 3000 Alphanumeric waypoints
- ❑ Multilingual menu option
- ❑ Weather Watch (see VHF section) \*\*

## ■ EXPLORER 538 (i)



Note: some NT MAX features, such as perspective view and land elevations are not available on this product.

### MORE FEATURES:

- ❑ 320 x 234 pixel screen
- ❑ Split-screen View
- ❑ Integrated Antenna option
- ❑ Bracket or bulkhead mount ‡
- ❑ Tracklogs (1 x 2000 and 4 x 500 waypoints)
- ❑ 25 Routes (50 waypoints each). 3000 Alphanumeric waypoints
- ❑ Multilingual menu option
- ❑ Weather Watch (see VHF section) \*\*

Search: Northstar 567, 557, 550(i) or 538(i)

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





# Fishfinders

467, 457, 438

Northstar's Explorer range of color fishfinders have sophisticated sounder technology. With our ease-of-use engineering, in a range of sizes and single/dual frequency combinations to suit your needs. Our bright HI-RES displays boast 640X480 pixels making these dedicated fishfinders a stunning addition to a boat of any size.

## 438, 457, 467 FISHFINDERS LOADED WITH FEATURES:



Fishfinder



Waterproof  
to IPX7  
Standards



Navbus  
Networking



Fuel  
Computer



Instrument  
Gauges



Compatible  
with Mercury  
Smartcraft

## EXPLORER 467



6.4 Inch  
Display

### MORE FEATURES

- ❑ 640 x 480 pixel screen
- ❑ Full and Split-screen View, A-Scope, White, blue or black background
- ❑ Dual frequency: 50 / 200 kHz
- ❑ Output Power RMS : 600 W
- ❑ Depth Range\*\* (with supplied transducer): 2- 2000 ft (0.6 - 600 m)
- ❑ Speed with Log

## EXPLORER 457



5 Inch  
Display

### MORE FEATURES

- ❑ 640 x 480 pixel screen
- ❑ Full and Split-screen View, A-Scope, White, blue or black background
- ❑ Dual frequency: 50 / 200 kHz
- ❑ Output Power RMS : 600 W
- ❑ Depth Range\*\* (with supplied transducer): 2- 2000 ft (0.6 - 600 m)
- ❑ Speed with Log

Search: Northstar 467, 457, 438, 443s or 443 sp

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



## TRANSDUCERS

### Choosing your Transducer

Northstar's WIDE-34 transducer will show targets over an impressive 60° area (-3 dB) and will still see the bottom in 180 m (600 ft) of water.

(Compatible with Northstar Explorer 438 and 443 series)



## Grayscale Fishfinders

### 443s, 443sp

Enjoy day after day, season after season of fishing with the Northstar 443sp, designed for years of trouble-free performance. So simple to use, but so full of features. Pixels, power and ping-rate.

## EXPLORER 438



### MORE FEATURES

- ❑ 320 x 240 pixel screen
- ❑ Full and Split-screen View, A-Scope, White, blue or black background
- ❑ Frequency (kHz) : 200
- ❑ Output Power RMS (W) : 200
- ❑ Depth Range\*\* (with supplied transducer): 0.6 - 180 m (2- 600 ft)
- ❑ Speed with Log

## EXPLORER 443s, 443sp



### MORE FEATURES

- ❑ 160 x 120 pixels screen
- ❑ Frequency: 200 kHz
- ❑ High ping rate: 20 soundings second
- ❑ Output Power RMS: 150 W
- ❑ Depth Range\*\* (with supplied transducer): 0.6 - 180 m (2- 600 ft)
- ❑ Speed with Log for 443sp only

\* Requires optional fuel kit/SmartCraft™ gateway; see the Fuel Management section for details.

\*\* Depth capabilities depend on type of transducer used, installation and water clarity. Depth to 3300 ft (1000 m), may be achieved under optimal conditions and using a 1000 W dual element transducer. Refer to transducer section for information on maximizing your transducer performance.



## Instrument systems

Northstar's complete Autopilot, Instrumentation and Fuel Management product range will give you the flexibility to build the power or sailing system you want. Our instruments are particularly easy to use and to install. With Northstar instruments you can spend more time doing what you love, boating.





helm...

# Instruments

Northstar Explorer: W310, W315, S310, D310, R310, M310

The 310 Series are extremely simple to use and connect with performance at the cutting edge of digital marine technology.



Navbus  
Networking



Waterproof  
to IPX6  
Standards

## WIND 310

Optimized wind indication available instantly in analog or digital display, with large backlit digits for excellent visibility. Port and starboard color coding, combined with 'Locked-Angle' function, contribute to easier steering to a pre-selected wind angle.



Navbus  
Networking



Waterproof  
to IPX6  
Standards

## WIND 315

The analog WIND 315 is packed with features, offering a stylish and accurate analog alternative for those who prefer a more 'traditional' appearance in a wind instrument.



Navbus  
Networking



Waterproof  
to IPX6  
Standards

## SPEED 310

Features all the essential functions such as speed (instant, average and max), distance, countdown timer function that can be set every minute from 1 to 10 min water temperature, voltmeter function plus some exciting extras, such as the trim speed function that displays speed fluctuations above or below reference speed.



Search: 310 series  
[www.northstarnav.com/instruments](http://www.northstarnav.com/instruments)





## BIG DISPLAYS

We know what sailors and power-boaters need in marine instrumentation: big, bold digits that you can read at a glance across the deck of your boat in fine weather and bad. So we've used wide-angle monochrome displays and 1.5" / 38 mm digits to deliver a complete range of instrumentation suitable for any wheel-house, bridge or cockpit.

## NAVBUS OR NMEA

Integrate and transfer information between instruments easily with Northstar's high-speed NavBus system or industry standard NMEA. Send depth to your chartplotter, wind information to your autopilot, speed to your wind instrument and countless other possibilities to derive the most benefit from the data collected on your vessel.

## SIMPLE INSTALLATION

Installation is as simple as drilling a 2" / 50 mm diameter hole in your bulkhead and tightening the screw-thread locking nut by hand. There's no need for drilling templates, nuts or bolts and the built-in over-moulding provides a completely waterproof front fascia without additional sealant.

Replacing older instrumentation couldn't be easier with Northstar's functional product design and seamless NMEA integration.

### NavBus features

NavBus is Northstar's proprietary high-speed connectivity system for the Explorer Series, offering increased control and simple system building.

Our NavBus junction box simplifies the installation of Northstar instruments so you can easily:

- ❑ Connect several identical NavBus instruments to a single transducer, making the information available at various locations on the boat. You can cluster up to four instruments wired to one NavBus box or daisy chain multiple NavBus boxes together to build bigger systems.
- ❑ Turn your Northstar Chartplotter or FISH 438, 457 or 467 into repeaters for any data available on the system when linked to the 310 series instruments.
- ❑ Calibrate all instruments from a single display and adjust the lighting for a group of instruments.



### ■ DEPTH 310

This very powerful depth sounder features giant digits for easy reading and peace of mind. NavBus System allows depth repetition throughout the boat. The DEPTH 310 provides depth up to 425ft (130m). Also available are deep and shallow alarms with anchor watch feature. D310 also has keel offset, as well as a voltmeter function.



### ■ REPEAT 310

Delivers all the information available from any of Northstar's 310 Series instruments and NMEA data from virtually any other instrument. A simple solution to repeat a mix of data in multiple locations. In addition, the REPEAT 310 can be used as a GPS repeater for Northstar GPS or any other GPS receiver. It has three NMEA inputs.



### ■ MULTI 310

Multi-function instrument, delivering all the functions of Northstar's DEPTH 310 and SPEED 310 on a dual-display. You may choose to have the data displayed on the upper or lower part of the screen.

▲ SHOWN ACTUAL SIZE.  
ALL NORTHSTAR 310  
INSTRUMENTS ARE THIS SIZE.

# Fuel Instruments

## Explorer F310, F210



Fuel Computer



Navbus Networking



Waterproof to IPX6 Standards



Fuel Computer



Waterproof to IPX6 Standards

### FUEL 310

In addition to providing complete management of your vessel's fuel flow and fuel remaining, Northstar's Fuel 310 utilizes speed data from GPS or paddlewheel input to calculate real-time fuel economy data. The Fuel 310 can be programmed to display these values in nautical miles (and miles) per gallon or liter.

This important information allows you to determine the optimum throttle and trim settings for single and twin engine boats. This will save you money on fuel and minimise long-term engine wear.

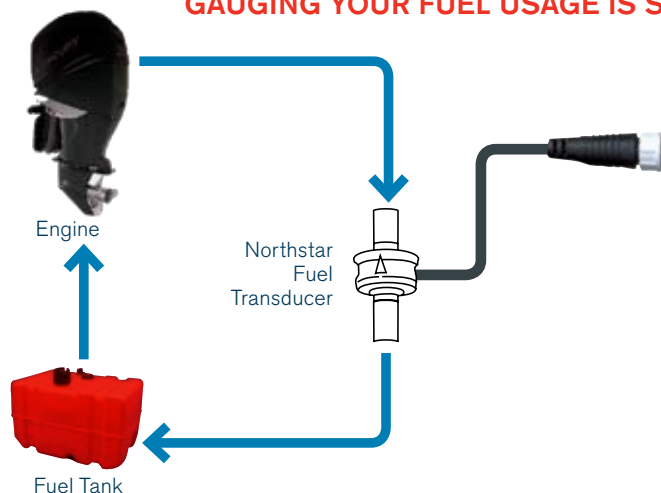
Diagnosing engine faults and propeller damage is easy by comparing economy values over time. When used in twin-engine installations, the FUEL 310 allows you to compare the individual flow rates of each engine to achieve maximum synchronisation.

### FUEL 210

Northstar's compact dedicated fuel solution for single engine applications:

- ▣ Instant fuel flow: 1.3 to 36 US gallons / hour, 2.5 to 130 Liters / hour.
- ▣ Trip and total fuel consumption, user resettable, up to 999 units.
- ▣ Volume remaining in tank (provided that the total tank volume has been entered).
- ▣ Low fuel alarm.

### GAUGING YOUR FUEL USAGE IS SIMPLE WITH NORTHSTAR



Hook your fuel transducer up to any Northstar M Series, Fuel Instrument or color Explorer product.

**Installation is simple!**



**Gasoline fuel sensors are suitable for the following engines:**

Engine Type	Range
Carburetted 2-stroke and EFI * Outboards	50 - 300 hp
4-stroke outboards	90 - 300 hp
Inboard engines	70 - 450 hp

\*Note: Gasoline fuel sensors are not suitable for EFI engines that have a return fuel line.



Search: Fuel Instruments

[www.northstarnav.com/fuel-management](http://www.northstarnav.com/fuel-management)



SmartCraft™ - Your personal on-board engine wizard. Available on select Northstar products\*, SmartCraft™ integration can reduce boat dash clutter and delivers critical engine performance and important diagnostic information to boaters.

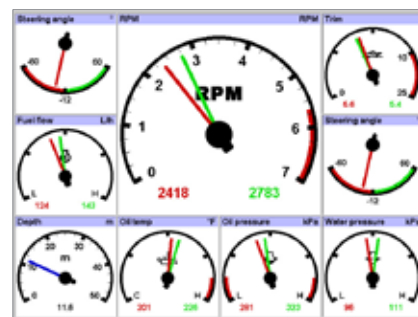
- ❑ Automatically recognizes engine type, configures appropriate settings and displays real-time diagnostics from over 40 sensors.
- ❑ Display detailed RPM, engine temperature, fuel, oil, water and waste information.\*\*
- ❑ Displays trim angle and steering angle.
- ❑ Troll control varies speed of boat for optimal trolling.
- ❑ Single and dual engine capability.

\* See Northstar web site for a complete list of SmartCraft™ enabled products.

\*\* Contact your nearest Mercury dealer for a list of compatible Mercury engines. Some data may require additional Mercury sensors not supplied standard with motors.



▲ SmartCraft™ Gateway



▲ SMARTCRAFT FOR M121/ M84



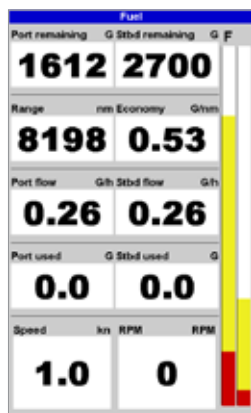
▲ SMARTCRAFT™ FOR 6100i

Search: SmartCraft [www.northstarnav.com/smartcraft](http://www.northstarnav.com/smartcraft)

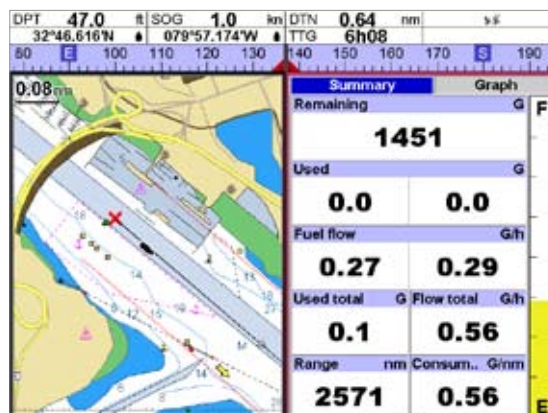
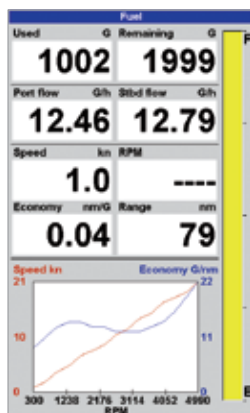
## Is your product Fuel Management or SmartCraft™ capable?

All Northstar M Series and color Explorer series have a built-in fuel computer. Just add the optional fuel kit to display fuel management data such as fuel flow, fuel remaining, estimated range, and fuel economy.

Product	SmartCraft™	Gasoline Single Engine	Gasoline Twin Engine
6100i	✓		
M SERIES	✓	✓	✓
EXPLORER SERIES (COLOR ONLY)	✓	✓	✓
FUEL 310		✓	✓
EXPLORER F210		✓	



▲ FUEL MANAGEMENT ON EXPLORER SERIES



▲ CHART + FUEL MANAGEMENT ON M121/ M84



# Autopilot Systems

## AP380

Accuracy is not an expensive add-on: a rate gyro is standard with the Northstar Autopilot. This 3.8" daylight viewable color TFT display provides crystal-clear information on heading status and key pilot data. See and feel the difference that a gyro stabilized pilot can make to your power or sail boat. The AP380 is a serious blue water tool that provides total reliability and performance whether you are crossing the bay or crossing an ocean.

### ■ EXPLORER AP380



3.8 Inch  
Display



Instrument  
Gauges



Navbus  
Networking



Compatible  
with Mercury  
SmartCraft



Waterproof  
to IPX7  
Standards

#### MORE SPECS:

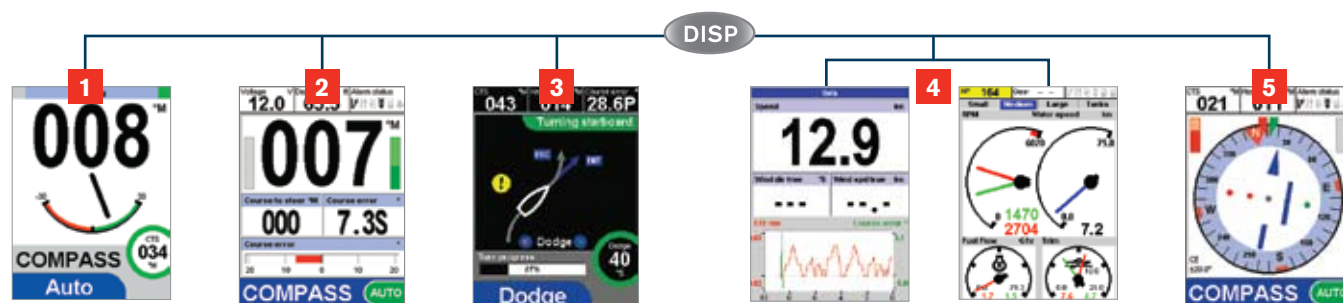
- ❑ Rotary control dial
- ❑ One button dodge and jog keys
- ❑ Selection of tack, gybe, 90 and 180 degree turns
- ❑ Autopilot solid state rate gyro supplied standard for maximum course stability
- ❑ Steer to wind angle, compass heading or GPS waypoint at the press of a button
- ❑ Dodge obstructions with a simple button press
- ❑ "Auto Tack" tacks the boat through a preset angle
- ❑ "Auto Cal" allows for automatic correction of deviation errors
- ❑ Interfacing with either Northstar's proprietary NavBus protocol or industry standard NMEA 0183
- ❑ Info data is displayed in clear, large formats
- ❑ Auto diagnostics continuously monitors all components in the Autopilot

Search: AP380 [www.northstarnav.com/autopilot](http://www.northstarnav.com/autopilot)





## ONE TOUCH ACCESS TO CORE FUNCTIONS



**1** Simple Compass mode with rudder angle indicator.

**2** PILOT mode with configurable data fields to display Autopilot or NavBus information.

**3** Dodge Screen with animated boat demonstrating real-time turn progress.

**4** The AP380 is a true multi-function display. Complete repetition of all NavBus and SmartCraft™ data.

**5** Aviation-style analog compass display with central deviation bar that shows course error, cross-track error or rudder position.

## EASY "WIZARD" STYLE CONFIGURATION



Installation and configuration wizards eliminate configuration complexity. Clear, on-screen graphics walk you through calibrations, such as rudder and compass.

## WHAT IS A RATE GYRO?

Northstar's Rate Gyro is a rate-of-turn sensor that provides a superior means of monitoring a vessel's heading. Changes in boat heading (yaw) are instantaneously measured and corrected by the Pilot's rudder control. With Northstar's autopilot, the gyro is used in conjunction with a fluxgate compass to provide accurate steering on all vessels, by minimizing rudder movement and as a result reducing fuel costs.

The master dial provides simple, precise access to course setting and menu items. Port and starboard LED's indicate course adjustments.

At a single glance from across the cockpit, the skipper gets general steering confirmation, even at night.

One-button dodge and jog keys, easy selection of 90° / 180° turns, tack / gybe selection, on-screen animations of the vessel's intended actions and progress through a turn: the Northstar Autopilot make controlling your boat a breeze.

**A rate gyro is standard with the Northstar Autopilot.**



# Building Your Autopilot System

1

START WITH YOUR AUTOPILOT CONTROL HEAD



AP380

2

CHOOSE YOUR CORE PACK



Standard Core Pack



Verado Core Pack

3

CHOOSE YOUR DRIVE SYSTEM



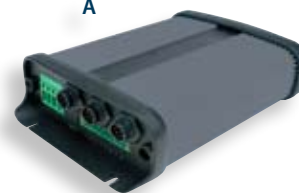
## NORTHSTAR AUTOPILOT CORE PACKS:

Choose between standard Core Pack and Verado Core Pack.

- Standard Core Pack includes:
  - A: Course Computer
  - B: Fluxgate Compass and Rate Gyro
  - C: Robust hall-effect Rudder Feedback Unit
- Verado Core Pack includes:
  - A: Course Computer
  - B: Fluxgate Compass and Rate Gyro and the Mercury Verado adapter kit. The Verado adapter kit combines the best of engine performance and navigation control. The Verado adapter kit contains: Cables, connectors and attachments engineered for Mercury Verado engines.



A



B



C



4

COMBINE YOUR AUTOPILOT WITH OTHER NORTHSTAR DISPLAYS



8000i



6100i



M Series



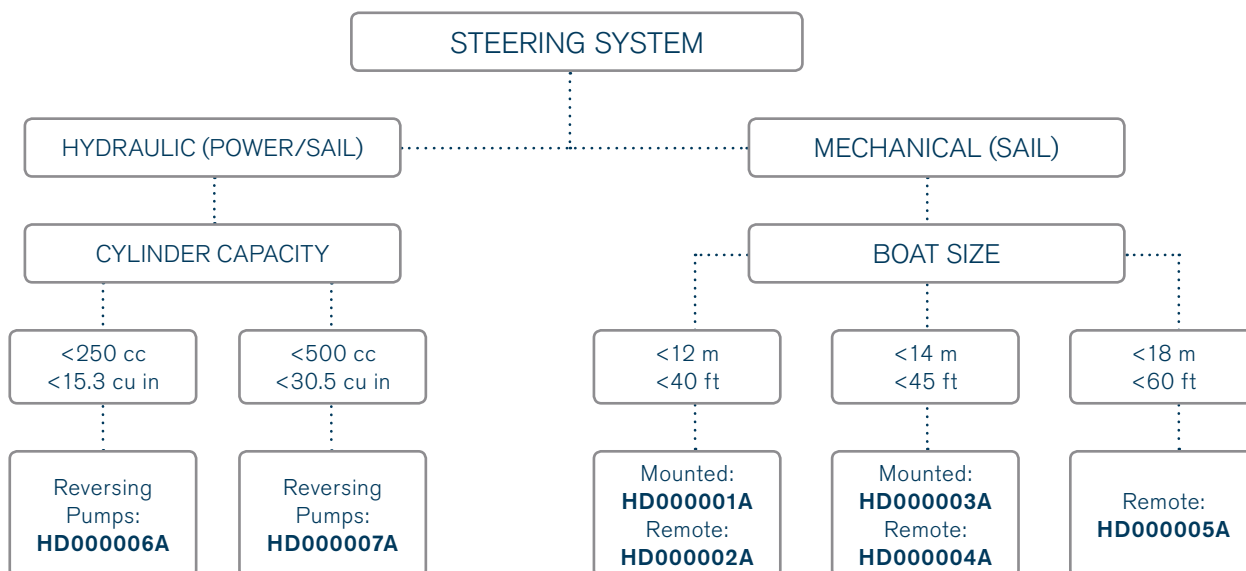
Explorer Series



## AUTOPILOT DRIVE SELECTION CHART

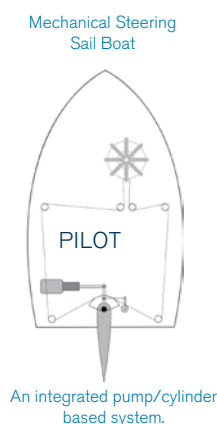
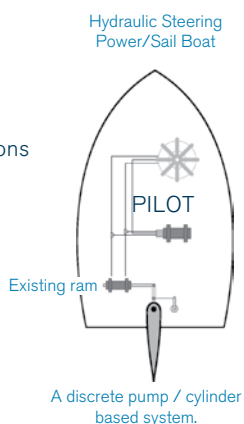
The Northstar AP380 is designed to work with all kinds of autopilot systems.

The selection chart below is a guide only, please contact a marine specialist prior to any installations.



### SYSTEM OPTIONS

Integrate the Northstar autopilot system with virtually any steering system. Examples here show most common systems with pump options listed.



### LINEAR HYDRAULIC DRIVE

A Hydraulic Linear Drive is a simple, effective way to drive the rudder on a boat equipped with a mechanical steering system. The linear drive is an assembly of a reversing pump and a marine hydraulic cylinder.

#### Mounted style



#### Remote style



### Hydraulic Reverse Pumps - adjustable flow

Part No.	Pump (for hydraulic steering)	Flow Rate	Max cylinder capacity	Type of Boat
HD000006A	Hydraulic	1 L / min	250 cc (15.3 cu in)	power / sail, typically < 35ft (10.5 m)
HD000007A	Hydraulic	2 L / min	500 cc (30.5 cu in)	power / sail, typically < 45ft (14m)

### Hydraulic Linear Drives for mechanical steering systems

Part No.	Thrust	Stroke Length	Bore	Style	Type of Boat
HD000001A	880 lb / 400 kg	7.12" / 178 mm	1.52" / 38 mm	Mounted	Sail Boat < 40' (12 m), <21,000lb (9,500kg)
HD000002A	880 lb / 400 kg	7.12" / 178 mm	1.52" / 38 mm	Remote	Sail Boat < 40' (12 m), <21,000lb (9,500kg)
HD000003A	880 lb / 400 kg	12.2" / 305 mm	1.52" / 38 mm	Mounted	Sail Boat < 45' (14 m), <31,000lb (14,000kg)
HD000004A	880 lb / 400 kg	12.2" / 305 mm	1.52" / 38 mm	Remote	Sail Boat < 45' (14 m), <31,000lb (14,000kg)
HD000005A	1320 lb / 600kg	12.2" / 305 mm	1.8" / 45 mm	Remote	Sail Boat < 60' (18 m), <62,000lb (28,000kg)



# communicate...

## Marine VHF Radios

Whether you're on a day-trip to a nearby fishing location or a coastal voyage of several days, you can't beat the dependability of Northstar's radios.







# Marine VHF Radios

Explorer: 725, 705, 710, 700, 727, NS100

Northstar's range of VHF radios are built to the same robust standard of performance as the rest of our marine products. Exceptionally clear audio is provided via a powerful front facing speaker and a separate external speaker amplifier, driving 4 W of output. Both the unit and handset are rated JIS-7 water-resistant, so your Northstar radio will continue to perform under extreme conditions.

## ■ EXPLORER 725

And Explorer 705 - optional wireless 2<sup>nd</sup> station handset.



Navbus  
Networking



Waterproof  
to JIS-7  
Standards



Wireless

The Northstar Explorer 725 is a premium fishing machine: the built-in barometric pressure sensor provides prediction of weather and fish activity. The wireless mic, the Explorer 705 is sold separately (up to two mics per base).

### MORE SPECS :

- ❑ Track-your-Buddy feature
- ❑ 5 W External speaker with listen back feature
- ❑ Radio controls on Mic
- ❑ SAME Weather and NOAA Tone Alert
- ❑ Rotary Channel Knob and Bitmap LCD

### Wireless special features are:

- ❑ Works with up to 2 handsets with 3 modes:
  1. Base to Handset #1
  2. Base to Handset #2
  3. Handset to Handset through the Base
- ❑ Frequency Hopping Spread Spectrum (FHSS) Technology at 2.4 GHz assures clearest communication and least interference
- ❑ Unobstructed Range base to handset is about 250' max (80 m)
- ❑ Radio controls on Mic
- ❑ Full DSC operation for any handset with high resolution GPS display

## ■ EXPLORER 700



Waterproof  
to JIS-7  
Standards

For exceptional VHF performance in markets where DSC is not required, you can't beat Northstar's VHF 700.

With NMEA input standard and a GPS connected, you can display your boat's position on the large LCD display. An ideal repeater of boat position, course and speed conveniently on hand at your VHF station.

### MORE SPECS :

The VHF 700 has all the great features of the 710 including:

- ❑ Three favorite channel programming
- ❑ Channel naming feature
- ❑ Large display (1.8" x 1" / 46 x 26 mm) with four lines of text
- ❑ External speaker option



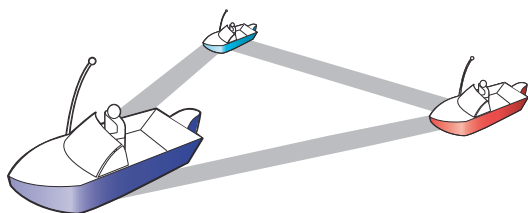
## Even more with Explorer 725

### TRACK YOUR BUDDY

Track-Your-Buddy is for safety, teamwork, convenience or just for fun. It allows you to combine your Northstar 725's DSC position polling with Track-Your-Buddy enabled Chartplotter or Combo units to show the location of up to three boating friends on the chart display.

It's easy to setup: you need a Northstar 725, the MMSI number of your buddies' DSC enabled VHF radio, and a Northstar Track-Your-Buddy capable unit.

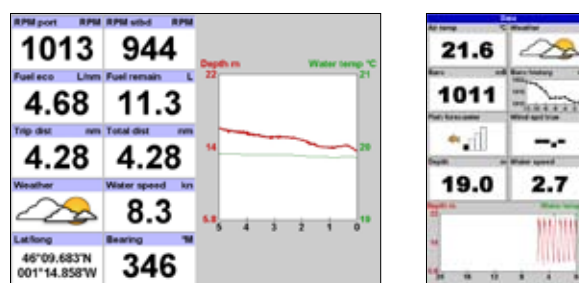
A great function for fleet voyages or any application where knowing the location of your boating partner is important.



### WEATHER WATCH / FISH FORECASTER

Unique to Northstar's Explorer 725 is barometric weather forecasting. Barometric pressure is presented using highly accurate digital graph technology so you can see the current reading and trends to assist in determining rapid changes in air pressure.

Going fishing? Check the 4-level "Happy Fish" icon on the LCD to determine the likelihood of good fishing conditions.



▲ Weather Watch/ Fish Forecaster screen displays on an M Series and Explorer Navigation products

## EXPLORER 710



Navbus  
Networking



Waterproof  
to JIS-7  
Standards

The Northstar Explorer 710 is fully DSC capable and features call logs with instant call back capability. The large LCD presents 4 lines of text to display channel names, GPS position, GPS speed, GPS course or time, and DSC messages.

#### MORE SPECS :

- ❑ Large display 1.8" x 1" (46 x 26 mm) with four lines of text (12 characters per line).
- ❑ Program three favorite channels for easy selection.
- ❑ Call logs with instant CALL BACK capability.
- ❑ Automatic GPS boat position and time when connected to a GPS receiver.

## EXPLORER 727



Waterproof  
to JIS-7  
Standards

This is the full-featured Marine CB radio that provides 27 MHz communications in a waterproof design.

The submersible rating exceeds the JIS-7 standard rating ensuring years of trouble-free performance in the marine environment.

The 727 is designed to match the VHF range with the same great features of large LCD display, crystal clear audio and bracket and flush mount options. Instant channel 88 / 89 selection and your three favorite channels can be selected directly from the mic.

This unit also has a dual band feature for Land CB communications.

(Available in Australia only.)

Search: Northstar 725, 705, 700, 710 or 727

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

# Marine VHF Radios

## ■ NORTHSTAR NS100

The Northstar NS100 marine VHF DSC radio, available in single and dual station models, combines the ease-of-use and peace-of-mind you expect from Northstar and provides a wealth of useful features.

- ❑ The latest DSC SC-101 (US) or Class-D (EU) functions.
- ❑ Dedicated distress call button automatically transmits MMSI (Maritime Mobile Service Identity) and position until an acknowledgement is received.
- ❑ Alphanumeric handset with built-in screen for easy operation and information display.
- ❑ Access to all available marine VHF channel banks including weather.
- ❑ Adjustable contrast on the handset LCD and adjustable backlighting on for low and no light use.

The dual station model also offers:

- ❑ Second alphanumeric handset
- ❑ Intercom capabilities between handsets
- ❑ Foghorn mode
- ❑ Hailer function



Waterproof  
to JIS-7  
Standards

### DSC – INSTANT DISTRESS CALLS & DIGITAL MESSAGING

Digital Selective Calling is a component of the international distress and safety system GMDSS (Global Maritime Distress and Safety System). When connected with a GPS, the time, precise location and unique ID of the vessel in trouble is broadcast when the DISTRESS button is pressed. When GMDSS is fully implemented, Channel 16 will not be required to be monitored. Small boats without a DSC equipped radio could find that no-one is listening for their distress call.

With DSC, the boater can also send and receive messages digitally. You can efficiently transmit and receive communications between one selected vessel, a group of vessels or ship-to-shore. To do this, each user will be assigned a unique MMSI (Maritime Mobile Service Identity) number that will allow users to dial a specific location, similar to dialing a telephone number.

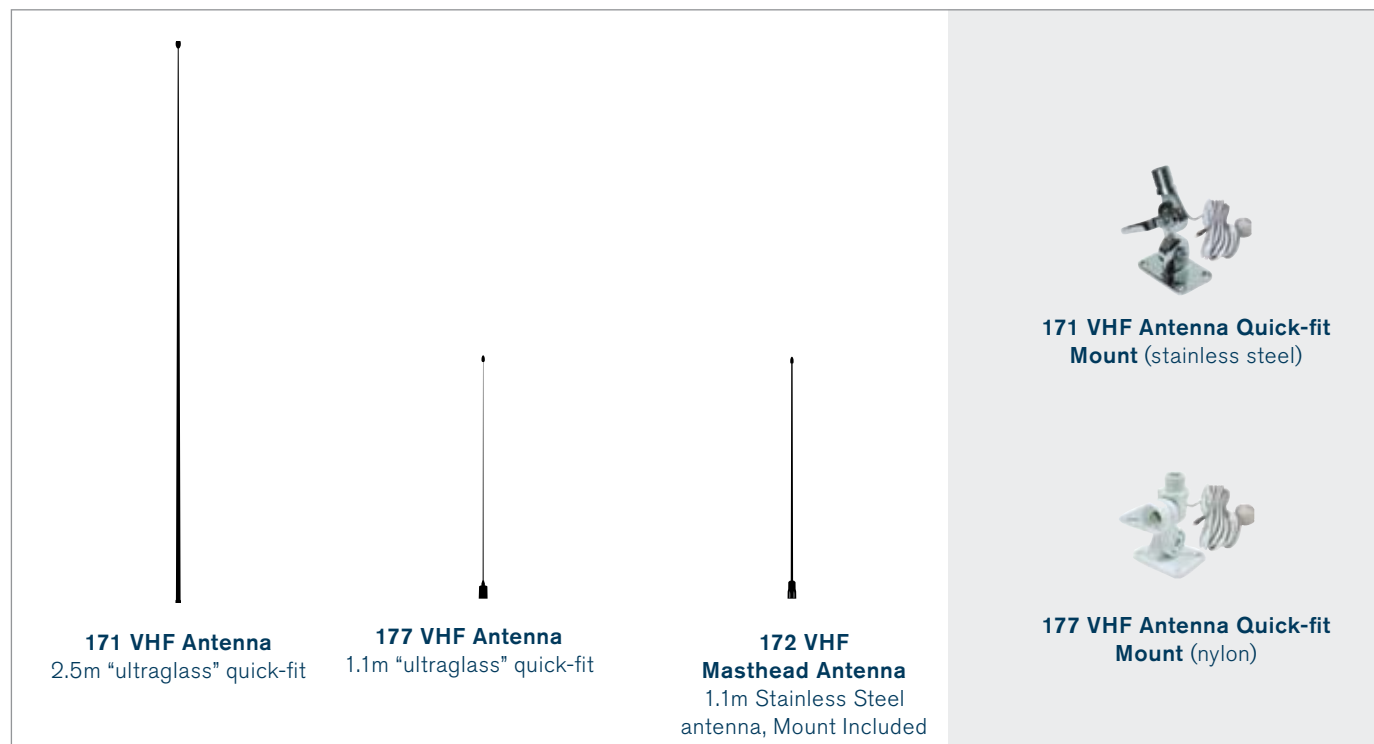




# VHF Antennas

## ■ NORTHSTAR 171, 177, 172

Northstar's innovative VHF antennas are not only tested in the most extreme conditions but also pass the rigorous International Standard for salt mist exposure. With this kind of durability and reliability built-in, you can enjoy years of trouble free performance.



### 171 and 177 VHF Antennas

Northstar's 171 and 177 antennas feature a uniquely designed quick-fit "no cable" mount system that enables the antenna to be simply unscrewed from the base, leaving the coaxial cable attached to the mount. This means the antenna can be removed quickly and conveniently without the hassle of dealing with the cable. You can keep your antenna safely stored when not in use or remove for travel, adding years to the life of the antenna.

### 172 VHF Masthead Antenna

1.1 m stainless steel masthead antenna with stainless steel bracket. Full performance antenna designed for mast-head use, supplied with PL259 connectors. This requires an additional 30 m masthead cable.



Search: Northstar NS100, 171, 177 or 172

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







## Product Specifications

Specifications, spatial dimensions and part numbers.

# Specifications



## 8000i and 6100i

Differences	8000i 15" monitor	8000i black box processor	8000i 12" system	6100i
Screen size	15"	N/A	12.1"	6.4", 8.4", 10.4", 12", 15"
Pixel dimensions	1024 x 768 (XGA)	Supports SVGA (800x600) and XGA (1024 x 768) monitors	800 x 600 (SVGA)	6.4", 8.4", 10.4" (640 x 480), 12.1" (800 x 600), 15.1" (1024 x 768)
Mounting	12 mm flush mount	N/A	12 mm flush mount	6", 8", 10" (Bracket or flush mount) 12", 15" (Flush mount only)
Weight of the unit unpacked	4.5 kg	3 kg	5 kg	6.4" (5.3 kg), 8.4" (7.5 kg), 10.4" (9.2 kg), 12" (11.8 kg), 15" (14.3 kg).
Keyboard	Keypad to control the monitor settings (not the application)	Remote keypad	Built in keypad	Built-in keypad
Power consumption	25 W	20 W	25 W	6.4" (20.4 W), 8.4" (21.6 W), 10.4"(38.4 W), 12"(31.2 W), 15"(39.6 W)
Touch screen	Yes (Infrared technology retains full sunlight viewability)	N/A	Yes (Infra red technology retains full sunlight viewability)	No
NMEA Input	N/A	GGA, VTG, ZDA, DBT, GSA, GSV, HDM, HDT		SGR, GTD, SRS, RMA, WPL, GLL, VTG, TLL, HDG, HDT, OSD, HCC, HCD, HDM, DBT, DPT, VHW, MTW
NMEA Output	N/A	APA, APB(M), APB(T), BOD, BWC, DBT, DPT, GGA, GLL, HDG, HDM, HDT, RMB, RMC, VTG, XTE, ZDA		APB, BOD, GLC, GLL, GSA, GSV, LCD, HSC, MSS, RNN, RMC, RMA, RMA, VTG, WVC, XTE, ZDA, ZTG
Interface	2 x VGA, 2 x BNC, 1 x DVI-D, 2 x S video output	NMEA (1 in, 1 out), GPS, USB2 x 2, Stereo Line out via RCA, Standard VGA out, 1 x Ethernet		2 bi-directional NMEA I/O ports, 1 aux port, 1 bi-directional RS-232 port 200 PPNM speed output or ext- alarm output Standard 15 pin VGA output, NTSC/PAL video input.
Split screens	N/A	2,3, 4 way, or 3 plus one thumbnail		2 way, 3 way
Functions	N/A	Chartplotter, Radar, Fishfinder, instrumentation, Music, CD player, Video Jukebox, DVD, CD player, Video Input, Network, Cameras		Chartplotter, Radar, Fishfinder, Video Input, and Weather Data
Number of displays	N/A	Up to 6 autonomous displays		Up to 5
Supply voltage	10-34 V DC			10-36 V DC
Compliance	CE, C-Tick, ISO 7637 part 2			CE
Environmental	-10 to 55 ° C Operating temperature			0-55 ° C max 95 % relative humidity
Network speed	100Mbits/second			
Languages	English			
Waterproof rating	IPx6			
Chartplotter	8000i			6100i
Cartography	C- Map NT MAX Pro			Navionics Platinum, Platinum+, Gold, Gold+, Silver
Built-in worldwide map	Pre-loaded ready to unlock			Built in map to 64 nm
Waypoints and routes	Unlimited with USB Memory stick extension			Stores up to 1000 waypoints, 500 routes (35 WP per route)
Estimated time of arrival	Yes			Yes
Distance and bearing calculator	Yes			Yes
Waypoint upload/download from PC	Yes (through USB storage device)			Yes (Via Navionics Nav Planner software or via CF memory card)
Waypoints and route transfer via NMEA	Yes			Yes
Chart orientation	Head Up, North Up or Course Up			Course up, heading up, leg up, north up.
Steering screen	2D steering screen and 3d 'Highway' screen			2D steering screen and 3D "Highway" screen.
Radar chart overlay	Yes, optional heading sensor required			





Fishfinder/Sounder	8000i	6100i
Network Sounder	Optional module	Optional 491
Waterproof rating of sounder	IPx7	EN60529 IP65
Compliance of sounder	IEC 60945	EN60945 CE
Output power of sounder	1000 W or 600 W	1000 W or 600 W
Bottom lock, zoom, A- Scope	Yes	Yes
Transducer options (not supplied)	See Transducers section	AIRMAR or others (see See Transducers section)
Water temperature	Yes	Yes
SoundTrac	Scrolling and zooming of sounder history	Scrolling and zooming of sounder history
Frequency	Dual Frequency (50/200 kHz)	Single/Dual frequency (60/200 kHz)
Fish symbols	Yes	No
Fish, bottom, temperature alarms	Yes	Yes
Auto modes	Fishing or Cruising	Fishing or Cruising
Waypoint interface	User can place waypoint directly onto sounder history	User can save current position and go directly to past echo
Instrumentation	8000i	6100i
Number of customizable panels	100	Data and panels can be customized but not their positions.
GPS Clock	Shows GPS time in position screen	Yes
Anchor watch	Yes	Yes
Entertainment	8000i	6100i
Music	Stored music library, or CD player. Each display has audio out. All controls integrated into system UI	No
Video input	Stored video library or DVD player. 8000i 15" monitor supports additional analogue or digital video inputs.	One video input per display
Network video servers	Axis Ethernet cameras and Axis 241Q Video Server for composite video input	Not compatible

# Specifications

## M Series and Combos



Differences	M121	M84	660	650	657
<b>Pixel Dimensions</b>	800 x 600	800 x 600	800 x 480	320 x 234	640 x 480
<b>Screen Size</b>	12.1" (304 mm)	8.4" (212 mm)	7" (178 mm)	5" (127 mm)	5" (127 mm)
<b>Power Consumption (backlight on)</b>	15 W or 1.1 A at 13.8 V	15 W or 1.1 A at 13.8 V	19.3 W or 1.4 A at 13.8 V	13.8 W or 1 A at 13.8 V	13.8 W or 1 A at 13.8 V
<b>C-Map cartridge slots</b>	2 x SD Card	2 x SD Card	1 x C Card	1 x C Card	1 x C Card
<b>C-Map user card support</b>	Yes, on SD cards	Yes, on SD cards	✓	✓	✓
<b>Output Power (RMS)</b>	600   1000 W	600   1000 W	600 W	600 W	600 W
<b>Depth Range (with supplied transducer)</b>	0.6 – 1000 m (2 - 3300 ft)	0.6 – 1000 m (2 - 3300 ft)	0.6 – 600 m (2 - 2000 ft)	0.6 – 600 m (2 - 2000 ft)	0.6 – 600 m (2 - 2000 ft)
<b>Radar input</b>	✓	✓	x	x	x
<b>AIS input</b>	✓	✓	x	x	✓
<b>Video input</b>	BNC connector (PAL / NTSC)	BNC connector (PAL / NTSC)	x	x	x

### Multifunctional Units: Common Features

<b>Backlighting</b>	White, 16 levels
<b>Operating Temperatures</b>	0 to 50 °C (32 to 122 °F)
<b>Keypad</b>	Laser etched silicone rubber and backlit
<b>Waterproof Rating</b>	IPx7 (Immersed 3 ft (1 m) water for 30 minutes)
<b>Mounting</b>	Flush or bracket mount
<b>Beeper</b>	Audible beeper with external alarm output
<b>Cartography</b>	NT MAX on SD Card or C-Map C-Card (check specific product specifications)
<b>Worldwide background Map</b>	✓
<b>PC Interface</b>	Yes, via C-Map's PC Planner (ask your Northstar dealer)
<b>Waypoint Memory</b>	3000 alphanumeric
<b>Waypoint/ MOB Hotkey</b>	✓
<b>Routes</b>	25 with up to 50 waypoints per route
<b>Chart Display Options</b>	North, Track and Course up
<b>Plotting Scales</b>	1/8 NM to 4096 NM
<b>Alarms</b>	Arrival Radius, Danger, Anchor, XTE, Too Shallow, Too Deep, Fish, Low Battery, Temperature Value, Temperature Rate, Low Fuel
<b>Celestial Data</b>	Tide Data (with nearest tide station, peak tide times and depths), local time, moon phase, sunrise and sunset
<b>Tracklogs</b>	5 Tracklogs: 1 x 2000 points, 4 x 500 points (time or distance)
<b>Track-Your-Buddy</b>	✓
<b>Languages</b>	English, French, German, Dutch, Danish, Swedish, Finnish, Spanish, Portuguese, Italian, Norwegian, Croatian and Greek

<b>Operating Voltage</b>	10.5 V - 32 V DC
<b>Transmit Frequency</b>	50 kHz / 200 kHz
<b>Water Temperature</b>	Yes, with trend graph
<b>Transducer Options</b>	Transom, through-hull and in-hull
<b>Auto Range / Auto Gain</b>	✓
<b>Split / Full Screen Zoom</b>	✓
<b>Bottom Lock</b>	✓
<b>Bottom Indication</b>	16 color
<b>Ping Rate (per second)</b>	Over 50/s
<b>Sonar History Playback</b>	✓
<b>Instant Fuel Flow</b>	Gasoline
<b>Fuel used and remaining</b>	Gasoline
<b>Fuel Economy and Fuel range</b>	Gasoline
<b>SmartCraft™</b>	Yes, with optional SmartCraft gateway
<b>NMEA 0183 (ver 2) Input</b>	Standard input from GPS or DGPS receiver, BWR, DBT, DPT, GGA, GLL, GSA, GSV, HDG, HDM, HDT, MTW, MWV, RMC, VHW and VTG
<b>NMEA 0183 (ver 2) Output</b>	APA, APB, BWR, DBT, DPT, GGA, GLL, GSA, GSV, MTW, RMB, RMC, VHW, VLW, VTG, XDR and XTE
<b>NavBus / Data repeat display screen</b>	✓
<b>Fish Symbols (with depth)</b>	3 sizes with or without depth indication
<b>Fish Forecast / Weather Watch</b>	✓





## Chartplotters

Differences	567	557	550(i)	538 (i)
<b>Pixel Dimensions</b>	640 x 480	640 x 480	320 x 240	320 x 240
<b>Screen Size</b>	6.4" (163 mm)	5" (127 mm)	5" (127 mm)	3.8" (97 mm)
<b>Split-screen View</b>	✓	✓	✓	✓
<b>Weight</b>	0.9 kg (2 lb)	0.7 kg (1.5 lb)	0.6 kg (1.3 lb)	0.7 kg (1.4 lb)
<b>Supply Voltage</b>	10.5 - 32 V DC	10.5 - 32 V DC	10.5 - 32 V DC	8 - 16 V DC
<b>Power Consumption (backlight on)</b>	0.6A at 13.8 V DC	0.5A at 13.8 V DC	0.5A at 13.8 V DC	0.2A at 13.8 V DC
<b>Antenna Type</b>	124 (with 10 m cable)	124 (with 10 m cable)	133 (with 10 m cable), 550i : Internal	133 , 538i : Internal
<b>Waypoint/ MOB Hotkey</b>	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✗
<b>Track your Buddy (requires VHF Explorer 725)</b>	✓	✓	✗	✗
<b>AIS Compatible</b>	✓	✓	✗	✗

### NORTHSTAR EXPLORER SERIES CHARTPLOTTERS: COMMON FEATURES

<b>Operating Temperatures</b>	0 to 50 °C (32 to 122 °F)
<b>Beeper</b>	Audible beeper with external alarm output
<b>Keypad</b>	Laser etched silicone rubber and backlit
<b>Waterproof Rating</b>	IPx7
<b>Mounting</b>	Flush or bracket mount (no flush mount for 550i)
<b>Backlighting</b>	White, 16 levels
<b>Cartography</b>	C-Map NT MAX™
<b>Non-Volatile Memory</b>	✓
<b>Worldwide Background Map</b>	✓
<b>Celestial Data</b>	Tide Data (with nearest tide station, peak tide times and depths), local time, moon phase, sunrise and sunset
<b>C-Map user card support</b>	✓
<b>Chart Datums</b>	128 Chart Datums
<b>Routes</b>	25 with up to 50 waypoints per route
<b>LCD Display Type</b>	256 colour TFT

<b>Plotting Scales</b>	1/8 NM to 4096 NM
<b>Alphanumeric Waypoint Memory</b>	3000
<b>Alarms</b>	Arrival Radius, Danger, Anchor, XTE, Low Fuel
<b>C-Map cartridge slots</b>	1 x C Map C Card
<b>Tracklogs</b>	5 Tracklogs: 1 x 2000 points, 4 x 500 points (time or distance)
<b>Chart Display Options</b>	North, Track and Course up
<b>Languages</b>	English, Malaysian, Chinese, Japanese, Korean, Vietnamese, Thai
<b>SmartCraft™</b>	Yes, with optional SmartCraft gateway
<b>Fuel Management</b>	✓ Gasoline
<b>NMEA 0183 (ver 2) Input</b>	Standard input from GPS or DGPS receiver, BWC, DPT, DBT, HDG, HDT, MTW, RMC, VHW, VLW, VTG and VPW
<b>NMEA 0183 (ver 2) Output</b>	APA, APB, BWC, GGA, GLL, RMB, RMC, VTG, XTE
<b>NavBus / Data repeat display screen</b>	✓
<b>PC Interface</b>	Yes, via C-Map's PC Planner (ask your Northstar dealer)
<b>VHF DSC Interface</b>	✓
<b>Weather Watch (see VHF section)</b>	✓

## GPS Antennas

Differences	124	133
<b>Weight (without cable)</b>	165 g (5.3 oz.)	140 g (4.5 oz.)
<b>Installation</b>	Flat surface or 1" Ø 14 TPI UNB	Flat surface or 1" Ø 14 TPI UNB
<b>Cable Length</b>	10 m (32.8 ft)	10 m (32.8 ft)
<b>Power Supply</b>	Via Northstar chartplotter	Via Northstar chartplotter
<b>Power Consumption (typical)</b>	55 mA (at 12 V DC)	20 mA (at 6 V DC)
<b>GPS Dynamics</b>	950 m/s (2125 mph), accel. 4 G	950 m/s (2125 mph), accel. 4 G
<b>Operating Temperature</b>	0 - 60°C (32 - 140°F)	0 - 60°C (32 - 140°F)
<b>Re-acquisition times</b>	2 s typical (<10 s blockage)	2 s typical (<10 s blockage)
<b>TTFF*: Warm start / Cold start</b>	< 48 s / < 120 s	< 48 s / < 120 s
<b>Update Rate</b>	Once per second, continuous	Once per second, continuous
<b>Accuracy</b>	Within 32 ft 95% of the time	Within 32 ft 95% of the time
<b>Output</b>	NMEA 0183 (ver 2) GGA, RMC, GSA, GSV	50 Ω
<b>Case</b>	UV Stable plastic radome, waterproof design	UV Stable plastic radome, waterproof design
<b>Connector Type</b>	LT 8	SMA

\* Figures provided for Time to First Fix are for 90% or better for first fix.

# Specifications



## Fishfinders

Differences	467	457	438	443sp	443s
Screen Size	6.4" (163 mm)	5" (127 mm)	3.8" (97 mm)	4.3" (109 mm)	4.3" (109 mm)
Pixel Dimensions	480 x 640	480 x 640	320 x 240	160 x 120	160 x 120
Supply Voltage	10 - 32 V DC	10 - 32 V DC	10 - 32 V DC	10.5 - 16 V DC	10.5 - 16 V DC
Power Consumption (backlight on)	13 W or 1.0 A @ 13.8 V DC	12.4 W or 0.9 A @ 13.8 V DC	3.1 W or 225 mA @ 13.8V DC	3.5 W or 250 mA @ 13.8V DC	3.5 W or 250 mA @ 13.8V DC
LCD Display Type	256 colour TFT	256 colour TFT	256 colour TFT	FSTN 4 Grays	FSTN 4 Grays
Bottom Indication	16 colour	16 colour	16 colour	4 grays	4 grays
Transmit Frequency	50 kHz   200 kHz	50 kHz   200 kHz	200 kHz	200 kHz	200 kHz
Output Power (RMS)	600 W	600 W	200 W	150 W	150 W
Depth Range (with supplied transducer)	0.6 — 600 m (2 — 2000 ft)	0.6 — 600 m (2 — 2000 ft)	0.6 — 180 m (2 — 600 ft)	0.6 — 180 m (2 — 600 ft)	0.6 — 180 m (2 — 600 ft)
Ping Rate (per second)	Up to 50	Up to 50	Up to 10	Up to 20	Up to 20
NMEA 0183 (ver2) Output	DBT, DPT, VHW, MTW, VLW, XDR	DBT, DPT, VHW, MTW, VLW, XDR	DBT, DPT, VHW, MTW, VLW, XDR	DBT, DPT, VHW, MTW, VLW, XDR	x
NavBus	✓	✓	✓	x	x
Boat Speed and Log	✓	✓	✓	✓	x
Fish Forecaster / Weather Watch (with optional VHF 721 or 725)	✓	✓	x	x	x
Audible buzzer / External output	✓ / ✓	✓ / ✓	✓ / ✓	✓ / ✓	✓ / x
Sounder Snooze Mode	✓	✓	✓	x	x
Sonar History Playback	✓	✓	x	x	x
Split / Full Screen Zoom	✓ / ✓	✓ / ✓	✓ / x	✓ / ✓	✓ / ✓
Fuel Management (Instant fuel flow, fuel used / remaining, fuel economy, low fuel alarm)	✓	✓	✓	x	x
SmartCraft (Twin / Single Engines with optional Smartcraft Gateway)	✓ / ✓	✓ / ✓	✓ / ✓	x / x	x / x

## NORTHSTAR EXPLORER SERIES FISHFINDERS: COMMON FEATURES

Operating Temperatures	0 to 50 °C (32 to 122 °F)
Beeper	Audible beeper with external alarm output
Keypad	Laser etched silicone rubber and backlit
Waterproof Rating	IPx7
Mounting	Flush or bracket mount
Backlighting	White, 16 levels
Alarms	Too shallow, Too deep, fish, low battery, temp value, temp rate
Non-Volatile Memory	✓

Auto Range / Auto Gain	✓
A-Scope/ History Display	✓ / ✓
Bottom Lock	✓
Low Fuel Alarm	✓
Battery Voltage / Engine Hours	✓
Transducer options	Transom, through-hull and in-hull
Water temperature	Yes, with trend graph
Languages	English, Malaysian, Chinese, Japanese, Korean, Vietnamese, Thai

## Autopilot and Instruments



Differences/common features	AP380	310 SERIES	F210 Instrument
<b>Display type</b>	256 colour TFT, 320 x 240 pixels	TN Temperature compensated, Mono - Segmented	TN Temperature compensated, Mono - Segmented
<b>Night view</b>	backlight, 16 levels, backlit keypad	4 - level amber LED, backlit keypad	Red LED
<b>Installation</b>	Flush mount or bracket	Flush mount - Ø 50 mm hole, no screws	Flush mount - Ø 50 mm hole, no screws
<b>Depth behind faceplate (flush mount)</b>	0 mm	50 mm minimum	95 mm minimum
<b>Operating Voltage (DC)</b>	10.5 - 30.5 V	10.5 to 16.5 V	8 - 16.6 V
<b>Operating Temperature</b>	0 to 50 °C (32 to 122 °F)	0 to 50 °C (32 to 122 °F)	0 to 50 °C (32 to 122 °F)
<b>Waterproof Rating</b>	IPx6, IPx7	IPx6	IPx6
<b>Smartcraft</b>	✓	✗	✗
<b>Power consumption (backlight on)</b>	410 mA	R310, S310, W310: 100 mA W315: 140 mA D310: 190 mA M310: 220 mA	F210: 70 mA
<b>Power consumption (backlight off)</b>	160 mA	R310, S310, W310: 60 mA W315: 90 mA D310: 150 mA M310 <sup>2</sup> : 180 mA	F210: 70 mA
<b>Alarms</b>	200 mA (switch to ground)	✓	✓

### AP COREPACK

#### MCU

<b>Operating voltage</b>	10.5 to 16.5 V DC (Note: AP380 will also operate with higher voltages)
<b>Drive output current</b>	20 A
<b>Drive output voltage</b>	10.5 to 16.5 V DC
<b>Multiple display head capable</b>	✓
<b>NavBus</b>	✓
<b>NMEA Input ports</b>	1
<b>NMEA Input messages</b>	APA, APB, BOD, BWC, MWD, MWV, RMA, RMB, RMC, VHW, VTG, XTE
<b>NMEA Output ports</b>	1 (can be programmed as an output)
<b>NMEA Output messages</b>	HDG, HDT, RSA, BWR, VWR
<b>Rudder Gain adjustment</b>	User adjustable 1-10
<b>Counter rudder adjustment</b>	User adjustable 1-10
<b>Adjustable turn rate limit</b>	User adjustable 1-10
<b>Remote control input</b>	Auto Indicator, Auto, > and < buttons
<b>Jog inputs</b>	Non follow up
<b>Hardware current limit</b>	Fixed protection > 25 A
<b>User selectable current limit</b>	2 to 20 A user selectable
<b>Protective fuses</b>	(Internal) 2 x 20 A ATC Blade
<b>Clutch/Auto relay output</b>	300 mA / 30 V max (switched to negative in Auto)
<b>Valve/Solenoid output</b>	User Selectable Switched to Negative/Positive 20 A max
<b>Reversing Pump/Motor output</b>	20 A max
<b>Small mounting footprint</b>	150 x 250 mm

<b>Flux gate compass</b>	UV stable enclosure suitable for above or below deck mounting, c/w 5 m cable and connector
<b>Rate Gyro standard</b>	UV stable enclosure suitable for above or below deck mounting, c/w 5 m cable and connector
<b>Rudder feedback sensor</b>	Waterproof, hall effect, 360° rotation, glass filled nylon, c/w 10 m cable and connector

#### Gasoline Transducers:

Back pressure generated by the gasoline/petrol fuel sensor on the feed line: ½ inch/ mercury with a 75 liters/hour consumption, 1 inch/mercury with a 150 liters/hour consumption.

Always be careful not to exceed the maximum back pressure for your engine when adding additional components to a fuel system. If in doubt, check with your engine supplier and have your local dealer measure the existing back pressure in your system before fitting the fuel flow sensor.



# Specifications



## High Definition Digital Radars

Differences	25 kW 7' (2.25 m)	10 kW 6' (1.88 m)	6 kW 4' (1.28 m)	4 kW 24" (620 mm)	2 kW 18" (450 mm)
<b>Weight (without cable)</b>	51 kg (113 lb)	31 kg (82 lb)	29 kg (64 lb)	10 kg (22 lb)	4.2 kg (9 lb)
<b>Dimensions (mm)</b>	L2254 x W458 x H536 mm	L1880 x W437 x H448 mm	L1285 x W437 x H448 mm	620 diameter x H 280 mm	450 diameter x H227 mm
<b>Max. Range Scale (nm)</b>	96 nm	72 nm	64 nm	48 nm	24 nm
<b>Horizontal beam width</b>	1.0°	1.2°	1.8°	4°	5.2°
<b>Noise Figure</b>	6 dB	6 dB	6 dB	6 dB	7 dB
<b>Voltage</b>	21.6 V - 31.2 V	21.6 V - 41.6 V	10.8 V - 42 V	10.8 V - 42 V	10.8 V - 15.6 V
<b>Power Consumption</b>	180 W (Max) *	250 W (Max)	120 W (Max)	30 W	25 W
<b>Rotation Speed</b>	24 RPM	27 RPM	27 RPM	27 RPM	27 RPM
<b>Pulse Length / PRF</b>	0.07 µs / 2250 Hz	0.08 µs / 2250 Hz	0.08 µs / 2250 Hz	0.08 µs / 2250 Hz	0.08 µs / 2250 Hz
	0.2 µs / 2250 Hz	0.25 µs / 1700 Hz	0.25 µs / 1700 Hz	0.25 µs / 1700 Hz	0.3 µs / 1200 Hz
	0.4 µs / 1400 Hz	0.5 µs / 1200 Hz	0.5 µs / 1200 Hz	0.5 µs / 1200 Hz	0.8 µs / 600 Hz
	0.8 µs / 750 Hz	1.0 µs / 650 Hz	1.0 µs / 650 Hz	1.0 µs / 650 Hz	
	1.0 µs / 650 Hz				
<b>Processor Weight</b>	0.9 kg	0.9 kg	0.9 kg	0.9 kg	0.9 kg
<b>Processor Dimensions</b>	L197 x W141 x H57 mm	L197 x W141 x H57 mm	L197 x W141 x H57 mm	L197 x W141 x H57 mm	L197 x W141 x H57 mm

\* The 25 kW radar scanner uses less power than the 10 kW because the 25 kW uses a more efficient motor that operates over a narrower voltage range.



## NAIS-300

Features	NAIS-300
<b>Class-B Certification</b>	YES
<b>Receive and Transmit</b>	YES
<b>System Interface</b>	0183HS/N2K/SimNet
<b>User Interface</b>	4 LED's Green - Power Red - Built In Integrity Test (BIIT) Yellow - Transmit Blue - Receive
<b>Networking / Connectors</b>	NMEA0183 Interface – RS232 / RS485 Out: 38.4kbaud VDM, VDO, RMC, ALR In: 38.4kbaud for configuration and testing only
<b>Connectors</b>	VHF Antenna PL259 GPS Antenna SMA
<b>Communications</b>	Sensitivity < -107dBm for 20% PER (Packet Error Rate)

Features	NAIS-300
<b>Display</b>	NO
<b>GPS Receiver Incl.</b>	YES
<b>Dual Rec. Channel</b>	YES
<b>Environmental (NAIS-300 Black Box)</b>	Waterproof Standard IP67 Width 210mm Height 130mm Depth 62.5mm Weight 0.65kg
<b>Environmental</b>	EMC - IEC60945 Operating Temperature -15°C to +55°C Output Power - 2W Type Approval - IEC62287-1 Type of Equipment - Class B for use on non-SOLAS craft
<b>Power Requirements</b>	Power Supply 10.8 – 15.6VDC Power Consumption < 0.5A

## VHF Antennas

Differences	171	177	172
<b>Length</b>	2.5 m	1.1 m	1.1 m
<b>Compatible mounts</b>	171 quick-fit mount ( stainless steel )	177 quick-fit mount (nylon)	included
<b>Gain</b>	3dBi / 6dB	0dBi / 3dB	0dBi / 3dB
<b>Construction</b>	Fibreglass	Fibreglass	Stainless Steel



## Marine Radios

Differences	725 + 2nd Station (705 WIRELESS)	710 Base Unit	727 (aus only)	700	NS100 Single and Dual Stations
<b>Dimensions w/o Bracket</b>	6.4 W x 2.8 H x 5.8 D" (162 x 75 x 147 mm) Handset 2.5 W x 5.9 H x 1.4 D" (63 x 149 x 35 mm)	6.4 W x 2.8 H x 5.8 D" (162 x 75 x 147 mm) Handset 2.5 W x 5.9 H x 1.4 D" (63 x 149 x 35 mm)	6.4 W x 2.8 H x 5.8 D" (162 x 75 x 147 mm) Handset 2.5 W x 5.9 H x 1.4 D" (63 x 149 x 35 mm)	6.4 W x 2.8 H x 5.8 D" (162 x 75 x 147 mm) Handset 2.5 W x 5.9 H x 1.4 D" (63 x 149 x 35 mm)	Handset: 68(W) x 140(H) x 30(T) mm Speaker: 140(W) x 148(H) x 49(T) mm Box: 220(W) x 173(H) x 50(T) mm
<b>Weight</b>	1.36 kg (3.0 lb) w/o mic 2nd station: 0.28 kg (10 oz.) w/o cord	1.29 kg (2.8 lb) w/o Mic	1.29 kg (2.8 lb) w/o mic	1.29 kg (2.8 lb) w/o mic	Handset: 10 oz (0.28 kg), Speaker: 11 oz (0.31 kg), box: 3.0 lbs (1.36 kg)
<b>LCD display (viewing)</b>	50 x 45 mm (1.9 x 1.6") FSTN 2nd station: 26 x 46 mm (1 x 1.8") FSTN, 4 x 12 character	26 x 46 mm (1 x 1.8") FSTN 4 x 12 character	1.2 x 0.98" (30 x 25mm)	1 x 1.8" (26 x 46 mm) FSTN 4 x 12 character	24 x 48 mm (0.95 x 1.9") FSTN, 4 x 12 character
<b>Current drain transmit</b>	6 A at 25 W / 1.5 A at 1 W 2nd station: ~From base station: Under 100 mA	6 A at 25 W / 1.5 A at 1 W	2 A at 4 W	6 A at 25 W / 1.5 A at 1 W	6A at 25W Tx / 1.5A at 1W Tx
<b>Receive</b>	Under 250 mA in Standby	Under 250 mA in Standby	800 mA full volume - 350 mA squelched	Under 250 mA in Standby	Under 400 mA in Standby
<b>Output power</b>	25 W/ 1 W selectable Operational from handset	25 W/ 1 W selectable	4 W	25 W/ 1 W selectable	25 W/ 1 W selectable
<b>Audio output power</b>	2 W (with 8 Ω at 10% distortion) 4 W with 4 Ω external speaker 2nd station: 40 mm speaker - 0.5 W (1 W max.)	2 W (with 8 Ω at 10% distortion), 4 W with 4 Ω external speaker	1 W @ 16 Ω, 4 W @ 4 Ω w/ ext. speaker	2 W (with 8 Ω at 10% distortion) 4 W with 4 Ω external speaker	1W (handset), 2W (external speaker), 20W into 4 Ω (hailer)
<b>User programmable MMSI ID and NAME directory</b>	20 numbers + Group + ATIS	20 numbers + Group + ATIS	×	×	✓
<b>Comm. port</b>	4800 baud NMEA and 38,400 baud NavBus Proprietary high-speed duplex link	4800 baud NMEA	×	4800 baud NMEA	4800 baud NMEA
<b>Mode</b>	16K0G3E (FM) / 16K0G2B (DSC)	16K0G3E (FM) / 16K0G2B (DSC)	AM (A3E)	16K0G3E (FM)	16K0G3E (FM)/16K0G2B (DSC)
<b>Useable Channels (country specific)</b>	International, ATIS, US, Canada, Weather	International, ATIS, US, Canada, Weather : available for the 710 VHF only	Marine / Land	International	International, ATIS, US, Canada, Weather
<b>Transmitter frequency</b>	156.025 - 157.425 MHz	156.025 - 157.425 MHz	26.965 - 27.980 MHz	156.025 - 157.425 MHz	156.025 - 157.425 MHz
<b>Receiver frequency</b>	156.025 -163.275 MHz	156.025 -163.275 MHz	26.965 - 27.980 MHz	156.025 - 163.275 MHz	156.025 -163.275 MHz
<b>Call logs</b>	20 Individual and 10 Distress	20 Individual and 10 Distress	×	×	Yes (20 individual, 10 distress, 10 distress relay)
<b>Current barometric pressure, Outside Air Temperature, Happy Fish, and 5 Wx forecast Icons</b>	960 - 1050 mb at 1 mb increments, -20 to 50 °C 2nd station: Environmental information available in TEXT mode	×	×	×	×
<b>12 dB SINAD sensitivity</b>	0.25 μV (distant) / 2.5 μV (local)	0.25 μV (distant) / 2.5 μV (local)	0.5 μV (distant) 12.0 μV (local)	0.25 μV (distant) / 2.5 μV (local)	0.25 μV (distant) / 2.5 μV (local)
<b>20 dB SINAD sensitivity</b>	0.35 μV (distant) 3.5 μV (local)	0.35 μV (distant) 3.5 μV (local)	0.35 μV (distant) 3.5 μV (local)	0.35 μV (distant) 3.5 μV (local)	0.35 μV (distant) 3.5 μV (local)
<b>GPS / NMEA output</b>	✓	✓	×	✓	✓
<b>DSC (Class D)</b>	✓	✓	×	×	✓
<b>Local / Distant control</b>	✓	✓	×	✓	✓
<b>Position polling</b>	✓	✓	×	×	✓
<b>Track-Your-Buddy</b>	✓	×	×	✓	×
<b>Intercom with talkback</b>	✓	×	×	×	✓

### ALL RADIO BASE UNITS SHARE THE FOLLOWING FEATURE

Power Supply: 13.6 V DC  
Battery monitor: Yes  
Compass safe distance: 0.45 m  
Temperature Range: -15 to 50 °C (5 to 122 °F)  
Waterproof Rating: JIS-7  
Antenna connector: SO-239 (50 Ω)

Transmitter protection: Open/ short circuit of antenna  
Dual watch/ All scan / Favorite channel scan: Yes  
Residual Noise Level: More than -40 dB unsquelched  
Spurious and Harmonics: 80 dBc at 25 W, 60 dBc at 1 W  
Spurious noise: More than 70 db  
Frequency Stability: ± 10 ppm

Adjacent CH selectivity: More than 70 dB  
Intermodulation rejection ratio: More than 68 dB  
Frequency control: PLL  
Max. frequency deviation: ± 5 kHz  
Modulation distortion: Less than 4% at 1 kHz for a ± 3 kHz deviation

# Part Number Directory



Norsthtar 8000i	
<b>NS004700</b>	12" 8000i infrared Touch screen / with integrated processor
<b>NS004710</b>	15" 8000i infrared touch screen
<b>AA010008</b>	4 Port USB Hub
<b>AA010009</b>	Network Linker
<b>NS004730</b>	8000i Black Box Processor
<b>NS004740</b>	DVD / CD Player
<b>AA010011</b>	Network Sounder
<b>NS004743</b>	124 GPS Antenna
<b>NS004747</b>	8000i USB Remote Keypad



Norsthtar 6100i	
<b>NS006051</b>	6.4" 6100i Network system
<b>NS006061</b>	8.4" 6100i Network system
<b>NS006071</b>	10.4" 6100i Network system
<b>NS006081</b>	12" 6100i Network system
<b>NS006091</b>	15" 6100i Network system
<b>6KRCM-A</b>	6100i Remote Control
<b>SWITCH-BOX-1K</b>	6100i Ethernet Switchbox
<b>NS002459</b>	6100i High gain Antenna
<b>NS000491</b>	491 Sounder Module complete (includes kit)
<b>AA010132</b>	Weather module ( Available : USA only)
<b>NS003107</b>	cable for radar 2kW / 4kW/ 6Kw/ 10Kw / 25 kW + 6100i (6100i Radar/Smartcraft Interface Cable)
<b>AA010062</b>	SmartCraft gateway for 6100i
<b>AA010063</b>	Twin Engine SmartCraft gateway for 6100i



M Series	
<b>NS006634</b>	M84 Head + GPS antennna
<b>NS006630</b>	M84 Head
<b>NS006624</b>	M121 Head + GPS antennna
<b>NS006620</b>	M121 Head
<b>AA010064</b>	Aquaducer tri-function 50/200 kHz, transom mount
<b>AA010115</b>	AIS Y-Cable NMEA/FUEL and SMARTCRAFT/ NAVBUS
<b>AA010112</b>	Radtr connection kit



Compos	
<b>NS006611</b>	Explorer 650 with 124 GPS antenna + 50/200 kHz transom transducer
<b>NS006614</b>	Explorer 650 with 124 GPS antenna
<b>NS006610</b>	Explorer 650 Head
<b>NS006641</b>	Explorer 657 with 124 GPS antenna + 50/200 kHz transom transducer
<b>NS006644</b>	Explorer 657 with 124 GPS antenna
<b>NS006601</b>	Explorer 660 with 124 GPS antenna + 50/200 kHz transom transducer
<b>NS006600</b>	Explorer 660 with 124 GPS antenna (no transducer)
<b>NS006608</b>	Explorer 660 Head
<b>AA010127</b>	Navico rail mount bracket for Explorer range excluding Explorer 660
<b>AA010128</b>	Navico rail mount clip for GPS antenna



Chartplotters	
<b>NS002941</b>	Explorer 567 with 124 GPS antenna
<b>NS002940</b>	Explorer 567 Head
<b>NS002911</b>	Explorer 557 with 124 GPS antenna
<b>NS002910</b>	Explorer 557 Head
<b>NS002965</b>	Explorer 550(i) - integrated antenna
<b>NS002961</b>	Explorer 550 - with 133 GPS antenna
<b>NS002960</b>	Explorer 550 Head
<b>NS002995</b>	Explorer 538i - integrated antenna
<b>NS002991</b>	Explorer 538 - with 133 GPS antenna
<b>NS002990</b>	Explorer 538
<b>AA010127</b>	Navico rail mount bracket for Explorer range
<b>AA010128</b>	Navico rail mount clip for GPS antenna



Fishfinders	
<b>NS006211</b>	Explorer 467 with 50/200 kHz transom mount aquaducer - depth, temp and speed
<b>NS006210</b>	Explorer 467 Head Unit
<b>NS006201</b>	Explorer 457 with 50/200 kHz transom mount aquaducer - depth, temp and speed
<b>NS006200</b>	Explorer 457 Head Unit
<b>NS006541</b>	Explorer 438 with transom mount aquaducer - depth, temp and speed
<b>NS006540</b>	Explorer 438 Head Unit
<b>NS002501</b>	Explorer 443s with transom mount transducer - depth/ temp
<b>NS002500</b>	Explorer 443s Head Unit with Y-cable
<b>NS002511</b>	Explorer 443sp with transom mount aquaducer - depth, temp and speed
<b>NS002510</b>	Explorer 443sp Head Unit with Y-cable

Fishfinders cont.	
<b>AA010127</b>	Navico rail mount bracket for Explorer range
<b>AA002661</b>	Wide 34 transom mount aquaducer (speed, depth, temp)
<b>AA002662</b>	Wide 34 transom mount (depth, temp)
<b>AA002074</b>	Trolling motor mount bracket



Radars	
<b>NS007001</b>	2KW Dome Radar Kit 18" Radome + Processor Unit + 15m cable
<b>NS007002</b>	4KW Dome Radar Kit 24" Radome + Processor Unit + 15m cable
<b>NS007003</b>	6KW Array Radar Kit 48" Radome + Processor Unit + 20m cabl
<b>NS007004</b>	10KW Array Radar Kit 72" Radome + Processor Unit + 20m cable
<b>NS007005</b>	25KW Array Radar Kit 84" Radome + Processor Unit + 20m cable
<b>NS003107</b>	cable for radar 2kW / 4kW/ 6Kw/ 10Kw / 25 kW + 6100i (6100i Radar/Smartcraft Interface Cable)
<b>AA010089</b>	20m cable for radar 2kW / 4kW/ 6Kw/ + 8000i
<b>AA010112</b>	M Series radar connection kit
<b>22090187</b>	FC40 Fluxgate compass
<b>22090195</b>	RC42 Rate compass
<b>24006694</b>	AT10HD Heading NMEA0183 Converter
<b>24005902</b>	SimNet power cable with termination
<b>24005860</b>	SimNet 3 Prong T Joiner



NAIS-300	
<b>000-0135-03</b>	NAIS-300N Interface type : SimNet Interface hardware: SimNet to SimNet Cable
<b>000-0135-04</b>	NAIS-300L Interface type : NMEA-2000 Interface hardware: SimNet to Micro-C Cable + 3 Prong T-Joiner



NavBus	
<b>NS002616</b>	NAVBUS Connection box complete with cables + book





Instruments	
<b>NS003331</b>	WIND 310 Wiith mast head and 30 m (99ft) cable
<b>NS003330</b>	WIND 310 Head unit only
<b>NS003334</b>	WIND 315 Wiith mast head and 30 m (99ft) cable
<b>NS003333</b>	WIND 315 Head unit only
<b>NS003311</b>	SPEED 310 Wiith thru-hull transducer
<b>NS003310</b>	SPEED 310 Head unit only
<b>NS003301</b>	DEPTH 310 With thru-hull transducer
<b>NS003300</b>	DEPTH 310 Head unit only
<b>NS003340</b>	REPEAT 310 Head unit only
<b>NS003321</b>	MULTI 310 Wiith thru-hull transducer
<b>NS003320</b>	MULTI 310 Head unit only
<b>AA002012</b>	Masthead transducer



Autopilot	
<b>NS003360</b>	Northstar AP380 Head Only
<b>NS002874R</b>	Northstar Standard Core Pack
<b>NS002876R</b>	Northstar Verado Core Pack
<b>HD000006A</b>	Hydraulic Reverse Pomp, 1litre
<b>HD000007A</b>	Hydraulic Reverse Pomp, 2 litres
<b>HD000001A</b>	Hydraulic Linear Drives for Mechanical steering systems,38mm,BORE 7"STROKE,Mounted
<b>HD000002A</b>	Hydraulic Linear Drives for Mechanical steering systems,38mm x 7"Remote
<b>HD000003A</b>	Hydraulic Linear Drives for Mechanical steering systems, AP LINEAR DRIVE 38mm x 12" Mounted
<b>HD000004A</b>	Hydraulic Linear Drives for Mechanical steering systems, AP LINEAR DRIVE 38mm x 12" Remote
<b>HD000005A</b>	Hydraulic Linear Drives for Mechanical steering systems, 45MM BORE UNIVERSAL LINEAR

VHF Antennas	
<b>AA000355</b>	171 VHF Antenna
<b>AA000224</b>	171 VHF Antenna Quick-fit Mount
<b>AA000358</b>	177 VHF Antenna
<b>AA000226</b>	177 VHF Antenna Quick-fit Mount
<b>AA000352</b>	172 VHF Masthead Antenna

Fuel Management		
<b>NS003350</b>	FUEL 310 Head Unit Only	
<b>NS004551</b>	FUEL 210 with single engine fuel kit	
<b>AA010187</b>	Smartcraft engine gateway (without cable) - Single Engine	To be used with: M121 / M84 / 660 / 650 / 657 / 567 / 557 / 550 / 467 / 457 / AP380
<b>AA010188</b>	Smartcraft engine gateway - Twin Engine	To be used: M121 / M84 / 660 / 650 / 657 / 567 / 557 / 467 / 457 / AP380
<b>NS005022</b>	SmartCraft™ Gateway - Single (438/538 only)	To be used with: 538/438
<b>AA010062</b>	Smartcraft gateway - Single Engine for 6100i	To be used with: 6100i
<b>AA010063</b>	Twin Engine Smartcraft gateway for 6100i	To be used with: 6100i
<b>AA010059</b>	Navico Single engine gasoline Fuel kit	To be used with : M121, M84, 660, 657, 650, 467, 457, 438, 443S, 443SP
<b>AA010058</b>	Navico Twin engine gasoline fuel kit	To be used with : M121, M84, 660, 657, 650, 467, 457, 438, 443s, 443sp
<b>AA010111</b>	Tri-cable required to connect fuel transducers / Tri-Cable for GPS/AIS/FUEL	To be used with : 657, 650, 567, 557
<b>AA010061</b>	Fuel/SmartCraft splitter kit to connect fuel transducers to two displays	
<b>AA002276</b>	Single engine fuel kit for 438 and 538 only	To be used with : 438 / 538



Marine Radios	
<b>NS009519</b>	NS100 (USA)
<b>NS009520</b>	NS100 (EU)
<b>NS009521</b>	NS100DS VHF dual station radio (USA)
<b>NS009522</b>	NS100DS VHF dual station radio (EU)
<b>NS009523</b>	NS100HS 2nd station handset (USA)
<b>NS009524</b>	NS100HS 2nd station handset (EU)
<b>AA010165</b>	Northstar NS 725 (USA) Base station with mic, bracket and flush mount kit, external speaker cable, COM cable and dust cover
<b>AA010166</b>	Northstar NS 725 (EU) Base station with mic, bracket and flush mount kit, external speaker cable, COM cable and dust cover
<b>AA010167</b>	Northstar NS 705 (USA) Optional wireless handset for Explorer 725
<b>AA010168</b>	Northstar NS 705 (EU) Optional wireless handset for Explorer 725
<b>NS009507</b>	710 Base station with mic, bracket and flush mount kit, external speaker cable, COM cable and dust cover (USA)
<b>NS009508</b>	710 Base station with mic, bracket and flush mount kit, external speaker cable, COM cable and dust cover (EU)
<b>AA010174</b>	Northstar Explorer 700 Base station with mic, bracket and flush mount kit, external speaker cable, COM cable, and dust cover
<b>AA010175</b>	Northstar Explorer 727 (AU ONLY) Base station with mic, bracket and flush mount kit, external speaker cable, COM cable and dust cover

# Part Numbers

## Transducers

PART #	Description	°C/F	Speed	Drilling (Ø mm)	Cable Length (m)	Beam Width @ -3 dB	Plug	Connects to:
<b>1kW DUAL FREQUENCY (50/200kHz) DEPTH TRANSDUCERS suitable for 1kW applications or high performance 600W applications</b>								
<b>AA002657</b>	Bronze Long Stem Thru-Hull Depth / Temp (B258)	✓	✗	25 (1")	10 (33 ft)	19° / 6°	LT6 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>AA002028</b>	Bronze Depth 1kW 20degree tilted element (B164), Suitable for deep-vee hulls	✓	✗	95 (3 3/4 ")	10 (33 ft)	45° / 11°	LT6 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>AA002016</b>	In-hull (Shoot-thru) Depth (M260)	✗	✗	—	10 (33 ft)	19° / 6°	LT6 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>AA002660</b>	Bronze Long Stem Thru-Hull Performance Depth / Temp (B260)	✓	✗	25 (1")	10 (33 ft)	19° / 6°	LT6 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>TD1009</b>	In-hull (Shoot-thru) Depth (M260)	✗	✗	—	10 (33 ft)	19° / 6°	CX10 m	491 Sounder (for 6100i)
<b>TD1004</b>	Bronze Long Stem Thru-Hull Performance Depth / Temp (B260)	✓	✗	25 (1")	10 (33 ft)	19° / 6°	CX10 m	491 Sounder (for 6100i)
<b>600 W DUAL FREQUENCY (50 / 200 kHz) DEPTH TRANSDUCERS and DEPTH / SPEED / TEMPERATURE TRIDUCERS</b>								
<b>AA010064</b>	Plastic Transom Mount Triducer	✓	✓	—	10 (33 ft)	38° / 11°	LT6 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>AA002001</b>	In-Hull (Shoot-thru) Depth (P79)	✗	✗	—	8 (26 ft)	45° / 11°	LT6 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>AA002017</b>	Plastic Flush Thru-Hull Depth (P319)	✗	✗	51 (2")	9 (30 ft)	45° / 12°	LT6 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>AA002018</b>	Bronze Flush Thru-Hull Depth (B117)	✗	✗	51 (2")	9 (30 ft)	45° / 12°	LT6 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>AA002025</b>	Bronze Flush Thru-Hull 20 Degree Tilted Element Depth Suitable for deep-vee hulls (B60)	✗	✗	51 (2")	9 (30 ft)	45° / 12°	LT6 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>AA002008</b>	Bronze Thru-Hull Triducer Includes high-speed fairing block (B744V)	✓	✓	51 (2")	10 (33 ft)	45° / 12°	LT6 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>TD1006</b>	Plastic Transom Mount Triducer	✓	✓	—	10 (33 ft)	45° / 12°	CX10 m	491 Sounder (for 6100i)
<b>TD1005</b>	Bronze Thru-Hull Triducer Includes High-Speed Fairing Block (B744V)	✓	✓	51 (2")	10 (33 ft)	45° / 12°	CX10 m	491 Sounder (for 6100i)
<b>TD1008</b>	Bronze Long Stem Thru-Hull Triducer (B744VL)	✓	✓	51 (2")	10 (33 ft)	45° / 12°	CX10 m	491 Sounder (for 6100i)
<b>SPEED / TEMPERATURE TRANSDUCERS for display of boatspeed with a thru-hull depth transducer (all speed / temperature transducers require adapter cable AA002429)</b>								
<b>AA010066</b>	Plastic Transom Mount Speed / Temperature (requires adapter cable AA002410 + AA010110)	✓	✓	—	8 (26 ft)	—	FUJ14 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>AA010065</b>	Plastic Thru-Hull Speed / Temperature. Requires adapter cable AA010110 and AA02410		✓	42 (1 5/8")	8 (26 ft)	—	LT8 f	8000i Sounder, M121, M84, Explorer combos, 467, 457
<b>SMART DIGITAL DEPTH TRANSDUCERS delivering NMEA depth strings to GPS chartplotters for data header display.</b>								
<b>AA002021</b>	Plastic Digital Depth (DT-800). Requires adapter cable AA010110	✓	✗	51 (2")	10 (33 ft)	13°	wires	Explorer 567, 557, 550(i), 6100i
<b>AA002022</b>	Bronze Digital Depth. Requires adapter cable AA010110	✓	✗	51 (2")	10 (33 ft)	13°	wires	Explorer 567, 557, 550(i), 6100i

## Transducers tips

Boat Type/Hull Material	GRP/Fiberglass	Aluminum	Wood
Outboard engine planing hull	Transom mount, Through hull plastic or bronze, In hull	Transom mount, Through Hull Plastic	Transom mount, Through hull bronze
Inboard engine planing hull	Through hull plastic or bronze. In Hull	Through Hull plastic or Stainless steel with insulator kit	Through hull bronze or stainless steel
Yacht or displacement hull	Through hull plastic or bronze. In Hull	Through Hull plastic or Stainless steel with insulator kit	Through Hull plastic or Stainless steel

Other transducers may also be available suitable for use with your Northstar product – contact your dealer for details. Not all transducers will be available in all regions.

- Installation is critical to the performance of your sonar; the best sonar available is next to useless with a poorly installed transducer. Follow the installation guide carefully.
- Never install a plastic through hull transducer into a wooden hull as swelling of the wood can crush the transducer and cause leaking.
- Never use bronze transducers on Aluminum or Steel hulls as galvanic corrosion can occur.
- Stainless steel transducers can be used on aluminium and steel hulls but an insulating kit MUST be used.

## Cables

Part #	Description	Instruments used:	Plug to Instrument:	Plug to transducer:
<b>Adaptater cable for all speed / temperature transducers. Transducer and sensor adapter cables</b> (see transducer table for details on depth, temperature and speed transducers).				
<b>AA010110</b>	Y Adapter for LT8 plug speed and LT6 plug depth transducers	M121, M84, 660, 657, 650, 467, 457. To be used for all speed / temperature transducers		
<b>AA002410</b>	Adapter cable for Plastic Transom Mount Speed			Plastic Transom Mount Speed transducer
<b>8000i Power and Data Cables.</b>				
<b>AA010070</b>	2 m (6 ft) Utility data cable	8000i Processors, 15" Monitor, Radar		
<b>8000i Video Cables.</b>				
<b>AA010072</b>	2 m (6 ft) Composite video cable 8000i Composite to BNC	8000i 15" monitor		
<b>AA010073</b>	2 m (6 ft) S-video cable 8000i S-Video to S-video	8000i 15" monitor		
<b>AA010074</b>	2 m (6 ft) DVI-D cable connect a DVI device to 8000i 15" monitor	8000i 15" monitor		
<b>AA010075</b>	2 m (6 ft) LTW - LTW cable for 8000i processor to 8000i 15" monitor	8000i 15" monitor		
<b>AA010076</b>	2 m (6 ft) LTW - DSUB m cable	8000i 15" monitor		
<b>8000i Ethernet Cables.</b>				
<b>AA010079</b>	0.5 (1.7 ft) m ethernet cable	8000i Processors, 1kW sounder, all radars and 8000i 8 Port		
<b>AA010080</b>	2 m (6 ft) ethernet cable	8000i Processors, 1kW sounder, all radars and 8000i 8 Port		
<b>AA010081</b>	5 m (16 ft) ethernet cable	8000i Processors, 1kW sounder, all radars and 8000i 8 Port		
<b>AA010082</b>	10 m (32 ft) ethernet cable	8000i Processors, 1kW sounder, all radars and 8000i 8 Port		
<b>AA010083</b>	0.3 m (1 ft) ethernet joiner cable F/F	8000i Processors, 1kW sounder, all radars and 8000i 8 Port		
<b>AA010084</b>	0.3 m (1 ft) ethernet x-over joiner cable F/F	8000i Processors, 1kW sounder, all radars and 8000i 8 Port		
<b>6100i cables</b>				
<b>NS003107</b>	Interface cable for connection of SmartCraft or radar to 6100i displays	6100i all sizes		
<b>NS003108</b>	2m extension cable for use in connecting radar to 6100i with NS003107	6100i all sizes		
<b>AA010134</b>	15 m (50') cable for connection of Sirius antenna to weather module	6100i all sizes, Weather module		
<b>AA010135</b>	27 m (90') cable for connection of Sirius antenna to weather module	6100i all sizes, Weather module		
<b>WA575-A</b>	1m (3ft) ethernet crossover cable	6100i all sizes (for connection of two displays)		
<b>WA593-A</b>	2m (6ft) ethernet crossover cable	6100i all sizes (for connection of two displays)		
<b>WA576-A</b>	20m (64ft) ethernet crossover cable	6100i all sizes (for connection of two displays)		
<b>WA560-A</b>	5m (16ft) ethernet passthru cable	6100i all sizes (for connection of display to switch)		
<b>WA577-A</b>	20m (64ft) ethernet passthru cable	6100i all sizes (for connection of display to switch)		
<b>Transducer Extension Cables suitable for depth, speed, fuel or GPS Sensors</b>				
<b>AA010102</b>	4 m (13 ft) extension for LT6 plug transducers	M121, M84, Explorer 660, 657, 650, 467, 457	LT6 f	LT6 m
<b>AA010103</b>	20 m (66 ft) extension for LT6 plug transducers	M121, M84, Explorer 660, 657, 650, 467, 457	LT6 f	LT6 m
<b>AA010099</b>	5 m (16 ft) m extension for SMA plug GPS antenna	Explorer 550	SMA f	SMA m
<b>AA010098</b>	5 m (16 ft) m extension for FUJI plug Fuel sensor	F210	FUJI5 f	FUJI5 m
<b>Multi-purpose Extension Cables suitable for fuel or GPS sensors, G-Pilot components (Compass, Rate Gyro, RFU), and radar processor box extensions</b>				
<b>AA010104</b>	5 m (16 ft) general purpose LT8 plug extension cable	All LT8 plug instruments	LT8 f	LT8 m
<b>AA010105</b>	10 m (33 ft) general purpose LT8 plug extension cable	All LT8 plug instruments	LT8 f	LT8 m
<b>AA010106</b>	15 m (50 ft) general purpose LT8 plug extension cable	All LT8 plug instruments	LT8 f	LT8 m
<b>AA010107</b>	20 m (66 ft) general purpose LT8 plug extension cable	All LT8 plug instruments	LT8 f	LT8 m
<b>Transducer and sensor adapter cables</b> (see transducer table for details on depth, temperature and speed transducers)				
<b>AA010115</b>	Y - Cable for FUEL or NavBus* + NMEA-in or AIS	M121, M84, 467, 457, 660, 550(i) 657, 567, 557	LT8 f	LT8 m + breakout wires
<b>AA010111</b>	Tri - Cable for GPS + Fuel + NMEA - in or AIS	657, 650, 567, 557	LT6 f	LT8 m and LT6 m
<b>AA010117</b>	Adapter to LT6 for Airmar dual frequency transducers with Airmar 8 pin connector	M121, M84, 660, 657, 650, 467, 457	LT6 f	Airmar 8 pin
<b>AA010109</b>	Adaptor to LT6 for dual frequency transducers with Motorguide 9 pin connector	M121, M84, 660, 657, 650, 467, 457	LT6 f	Motorguide 9 pin

\* Multi-purpose Extension Cables

All cables have LT8 female connectors with one male / female adapter.

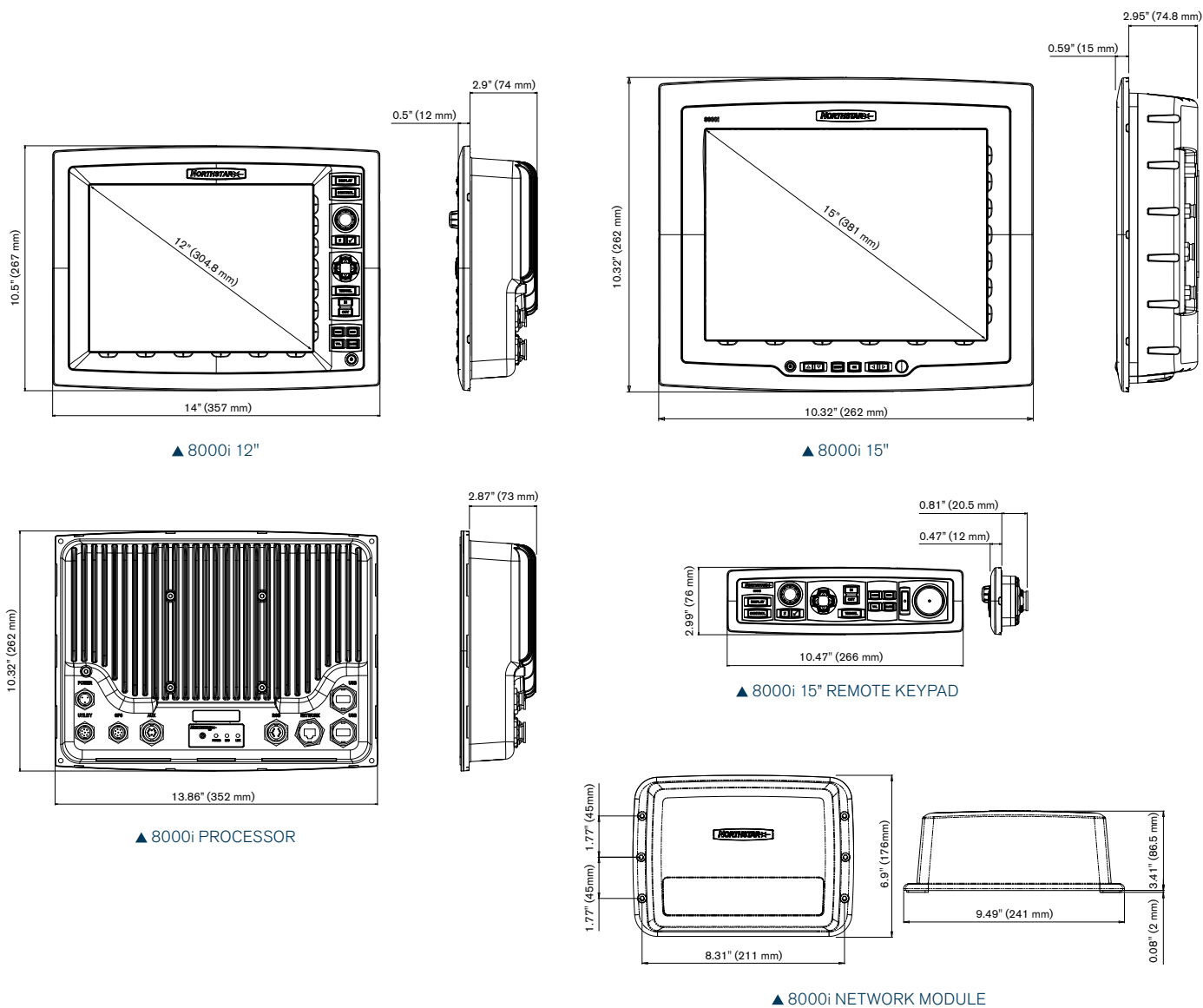
Note: Cables, sun covers, mounting kits and other parts supplied with Northstar products are also supplied as spare parts.

Contact your Northstar dealer for details.

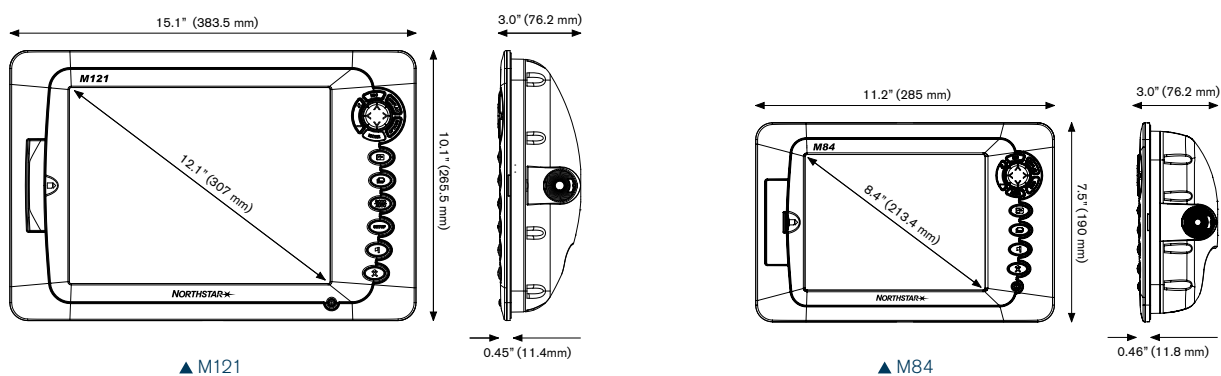


# Product Dimensions

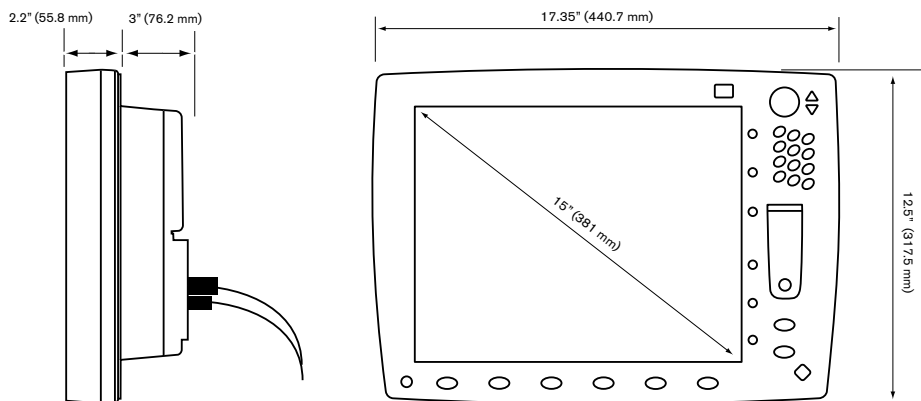
## 8000i SYSTEM



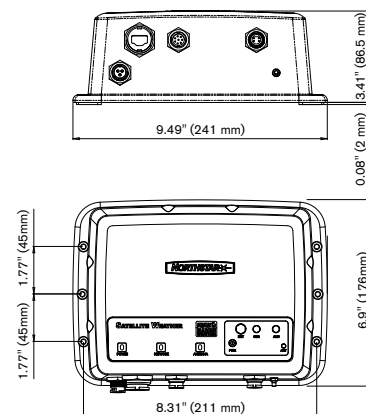
## M SERIES



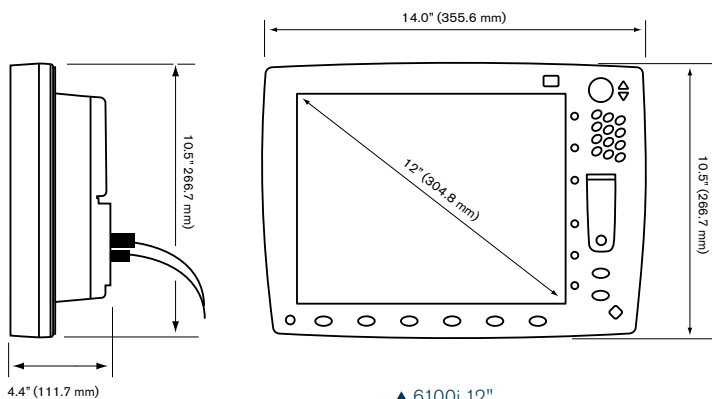
## 6100i DISPLAYS



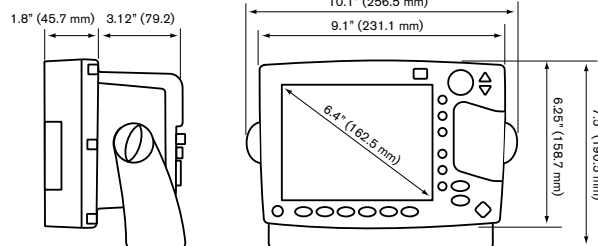
▲ 6100i 15"



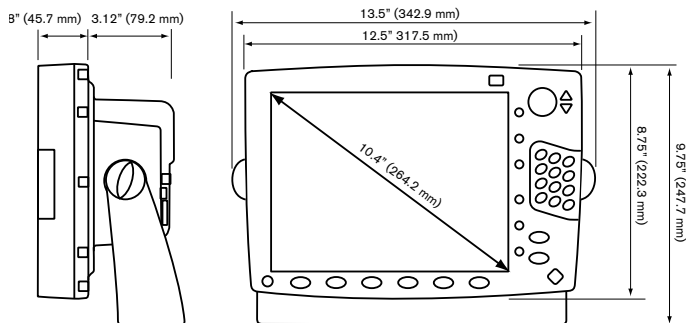
▲ 6100i WEATHER MODULE



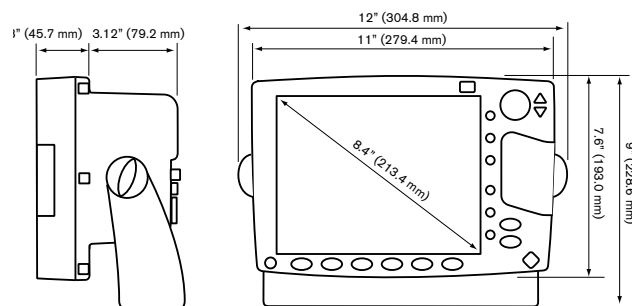
▲ 6100i 12"



▲ 6100i 6.4"



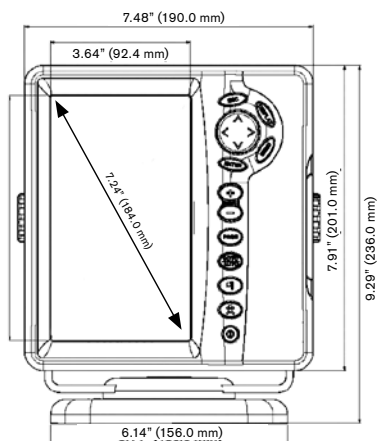
▲ 6100i 10.4"



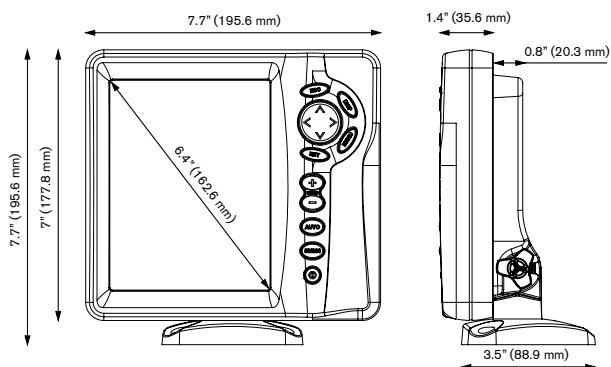
▲ 6100i 8.4"

# Product Dimensions

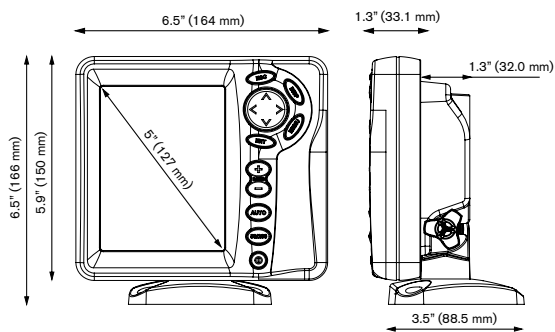
## EXPLORER SERIES



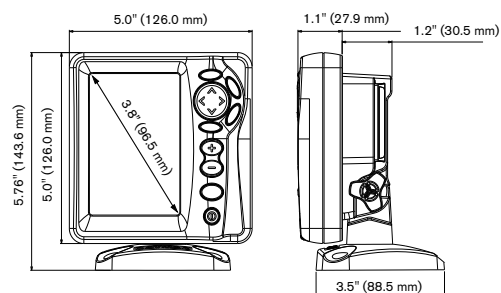
▲ EXPLORER 660



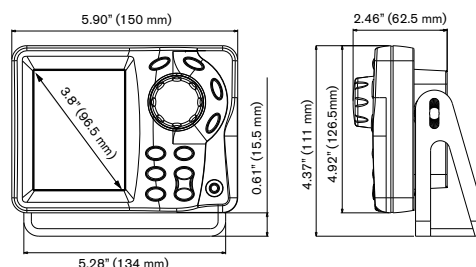
▲ EXPLORER 6" PRODUCTS: 567, 467



▲ EXPLORER 5" PRODUCTS: 650, 657, 550, 557, 457

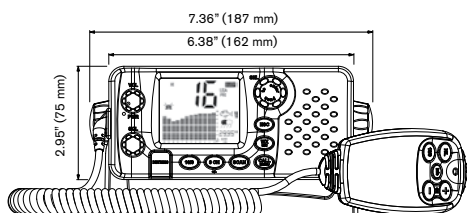


▲ EXPLORER 3.8" PRODUCTS: 438, 443, 538(i)

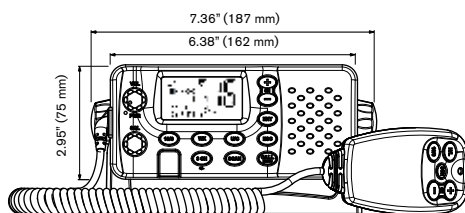


▲ EXPLORER AP380

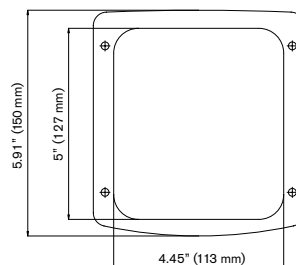
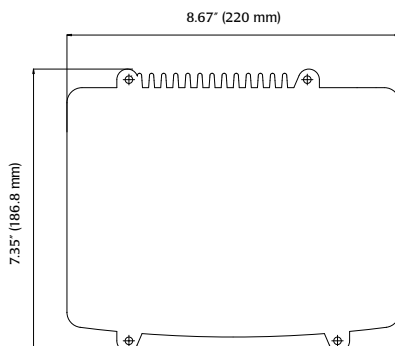
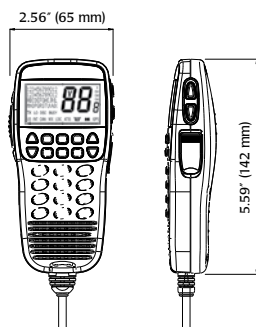
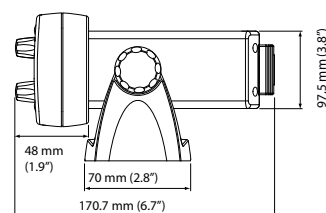
## MARINE RADIOS



▲ EXPLORER 725 (US MODEL)



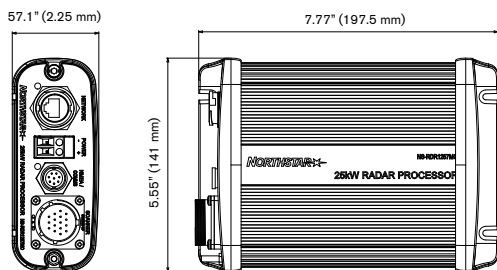
▲ EXPLORER 710, 727, 700 (US MODEL)



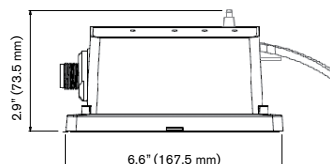
▲ VHF NS100 (HANDSET, BASE UNIT, EXTERNAL SPEAKER)



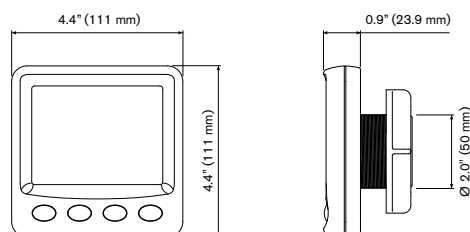
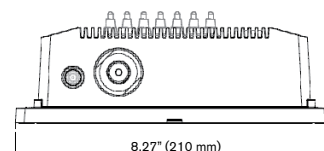
## OTHER PRODUCTS



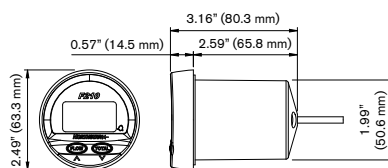
▲ RADAR PROCESSOR



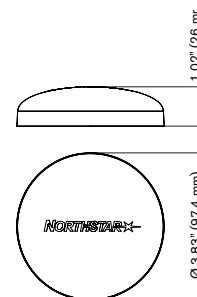
▲ NAIS-300



▲ EXPLORER 310 SERIES INSTRUMENT RANGE

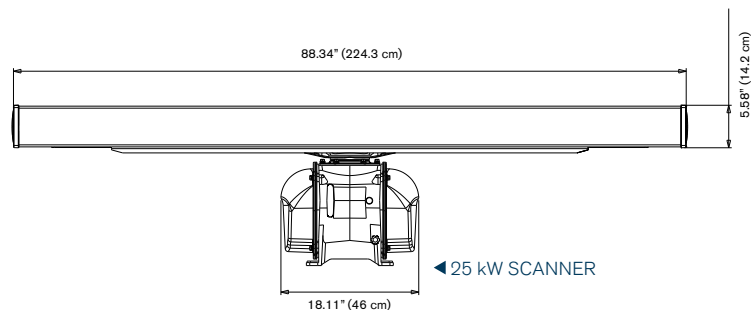


▲ EXPLORER F210

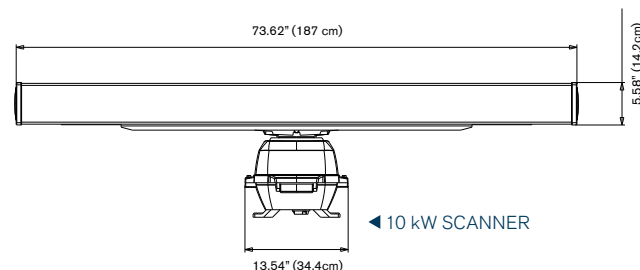
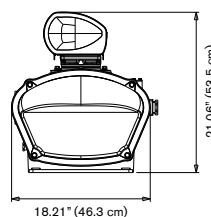


▲ GPS ANTENNA

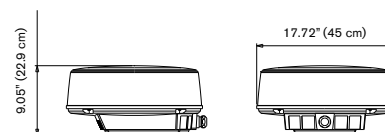
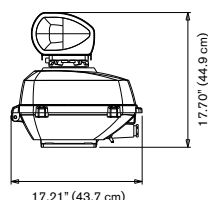
## ARRAYS AND RADOMES



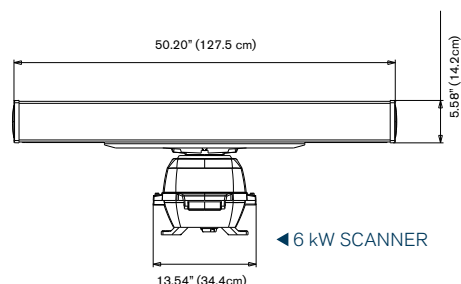
◀ 25 kW SCANNER



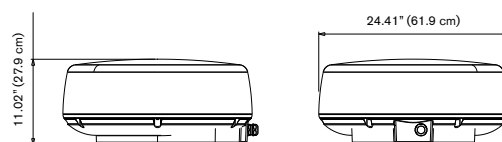
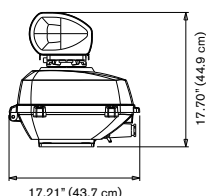
◀ 10 kW SCANNER



▲ 2 kW SCANNER



◀ 6 kW SCANNER



▲ 4 kW SCANNER

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JJTango Marine Electronics (Pte) Ltd.

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(See distributor for products sold)  
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