Automatic Identification System (AIS) Products

AIS650 Class B Transceiver
AIS350 Dual Channel Receiver

New Product Launch Presentation
May 12, 2011

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New AIS Products for 2011

AIS650 Class B Transceiver

- Transmits vessel navigation status data.
- Receives Class A and B transmissions.
- AIS Targets on MFD chart and radar.
- SeaTalk^{ng}, NMEA0183, USB connectivity.
- Integral GPS receiver w/active antenna.

E32158   RRP:£695/€799

Available: end June 2011

AIS350 Receive-Only

- Receives Class A and B transmissions.
- AIS Targets on MFD chart and radar.
- SeaTalk^{ng}, NMEA0183, USB connectivity.

E32157   RRP:£349/€429

Available: mid Aug 2011

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What's New in Raymarine AIS?

- New ultra-compact enclosures
  - Up to 50% smaller than AIS500 and AIS250

- Dual channel receiver design in AIS350
  - Provides faster target acquisition and updating

- Superior connectivity options
  - SeaTalk^{ng}, NMEA0183 and USB connections

- New hardware and software controlled Silent Mode.
  - Provides more options for AIS650 users

- More affordable
 - Same quality and performance at a lower cost

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Why Raymarine AIS for my boat?

- Guaranteed compatibility with Raymarine multifunction displays.
    – Works best with Raymarine, designed for Raymarine.
    – Simple installation using SeaTalk^{ng}

- 3-Year Product Warranty.
    – Best-in-class warranty protection
    – World wide service and dealer network
    – Raymarine RapidCare™ warranty service minimizes down time in the unlikely event of a failure (US only)

- Superior Connectivity
    – SeaTalk^{ng}, NMEA0183 and USB 2.0 connectivity.
    – NMEA2000 Compatible
    – Supports MFD's, PC Navigation, 3rd party products and more


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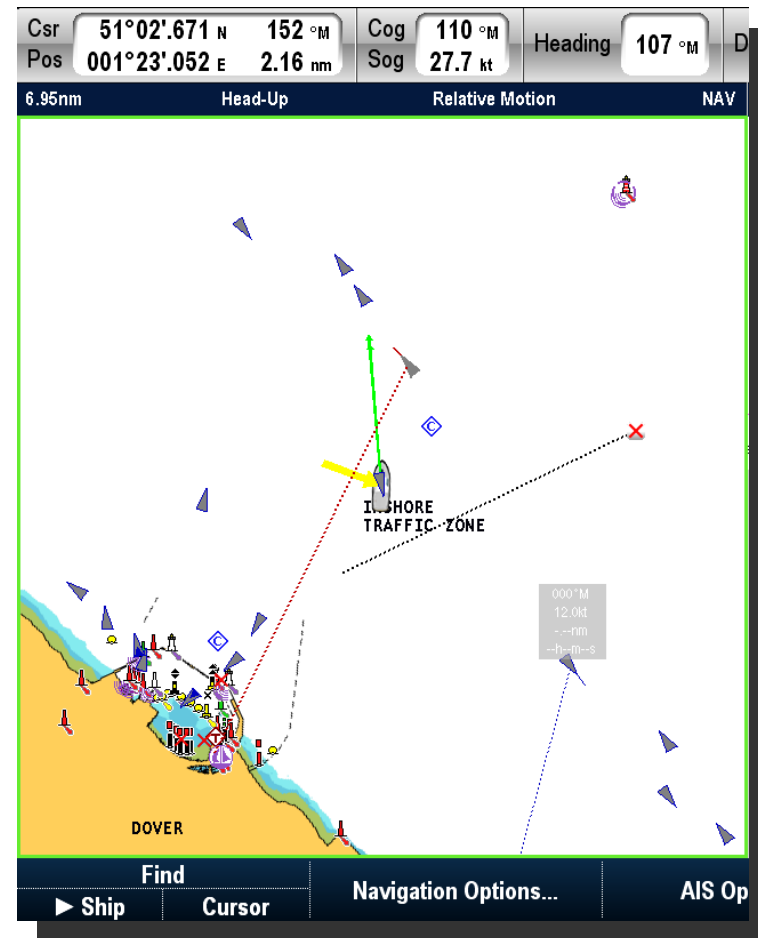
Common Features and Improvements

- ## Ultra-compact enclosure:
  - 50% smaller than previous products
  - Water resistant (IPX2) enclosure

- ## Easier installation and servicing.
  - Standard twist-lock waterproof connections
  - Simple key hole, 4-slot mounting.
  - Forward-facing multicolor LED status indicator
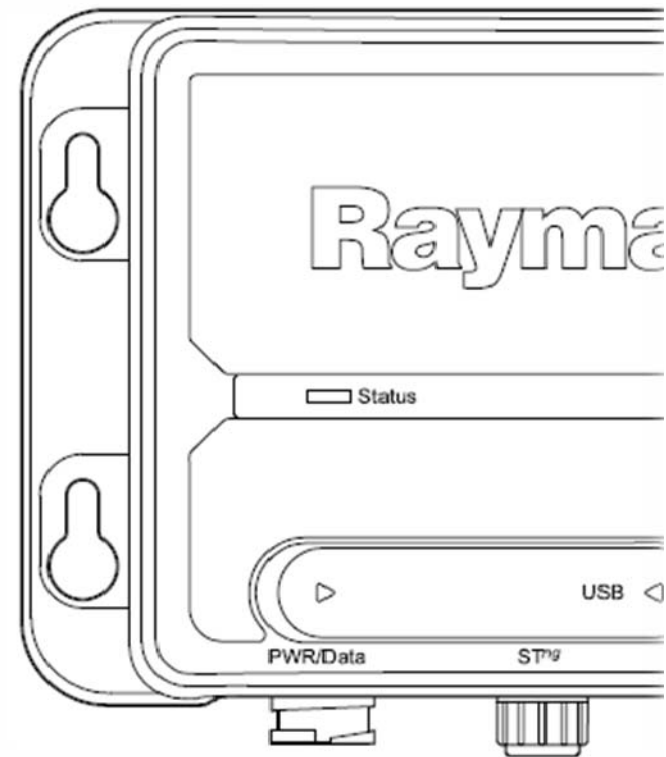
Connectivity Improvements

- ## Superior Connectivity
  - Standard NMEA0183, SeaTalk^{ng}, and USB interfaces
  - Simultaneous connections to all interfaces
  - NMEA2000 Network Compatible
    - with optional SeaTalk^{ng} to DeviceNet Spur Adapter

- ## Built-in NMEA0183 Multiplexer:
  - Easy connection to VHF radios, legacy MFD's, 3rd Party products
  - NMEA0183 4800 Baud Tx/Rx
  - NMEA0183 38,400 Baud Tx/Rx
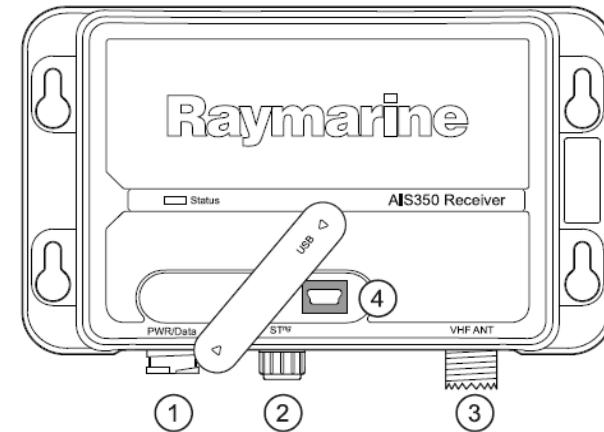
Item	Description
1	Power/NMEA0183
2	SeaTalk^{ng}
3	VHF Antenna (PL259)
4	USB 2.0 (Mini-B)

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USB Interface for PC Connectivity

- **NEW!** USB 2.0 interface
  - Direct plug and play connection to PC based navigation systems
  - Standard Mini-B USB Connector

- Easy product software updates from PC

- Simple dealer programming of AIS650 Ship Static Data
  - USB powered for programming
  - No 12V DC connection required

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AIS650 Class B Transceiver

- Dual channel receiver design

- Transmits Class B dynamic data and vessel static information

- Receives Class A and Class B AIS broadcasts

- NMEA0183, SeaTalk^{ng} and USB Interfaces

- SD card slot for static data configuration and data recording

- RAIM compatible GPS system included

AIS650 Class B Transceiver
E32158   RRP:£695/ €799

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AIS650 Exclusive Features

- **NEW!** SD Card Slot for In-Use Data Recording
  - Continuously records last 30 minutes of AIS data
  - Only records when SD card is present
  - Useful for accident reconstruction or incident reporting

- **NEW!** Hardware Controlled Silent Mode
  - Turn off the AIS650's transmitter for privacy or security
  - Leads provided for installer-supplied transmitter power switch
  - Network capable software silent mode enable/disable when connected to Raymarine MFD displays
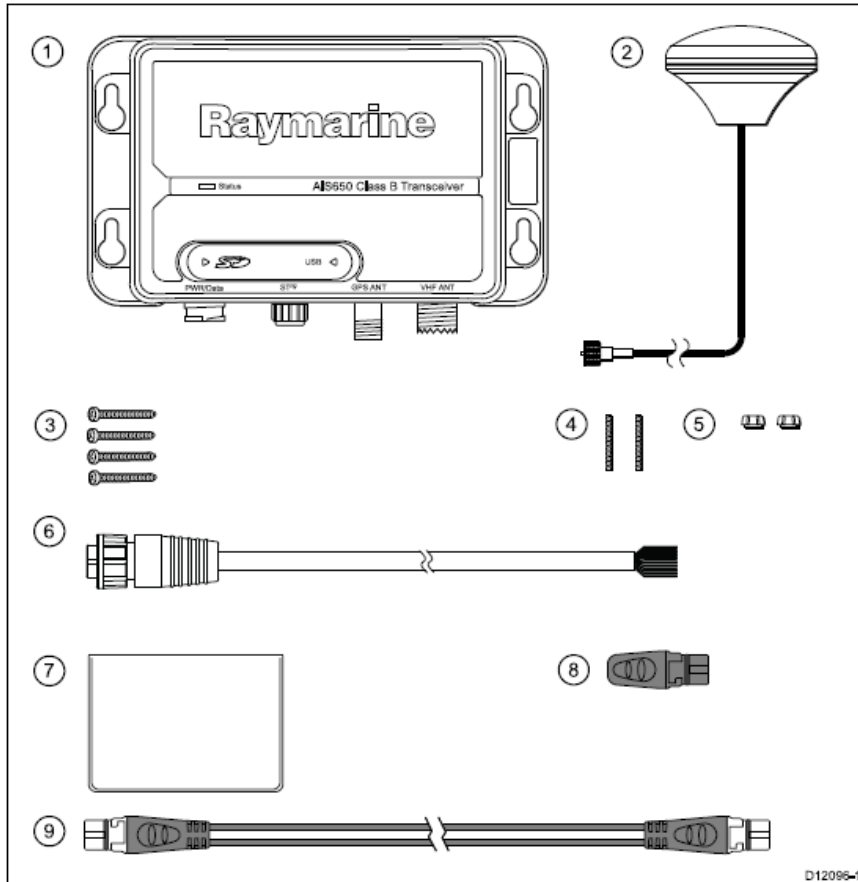

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AIS650 Dimensions

- Greater than 50% smaller than the AIS500
  - 6.6"w x 3.9"h x 2.0"d
  - 167 x 100 x 52mm

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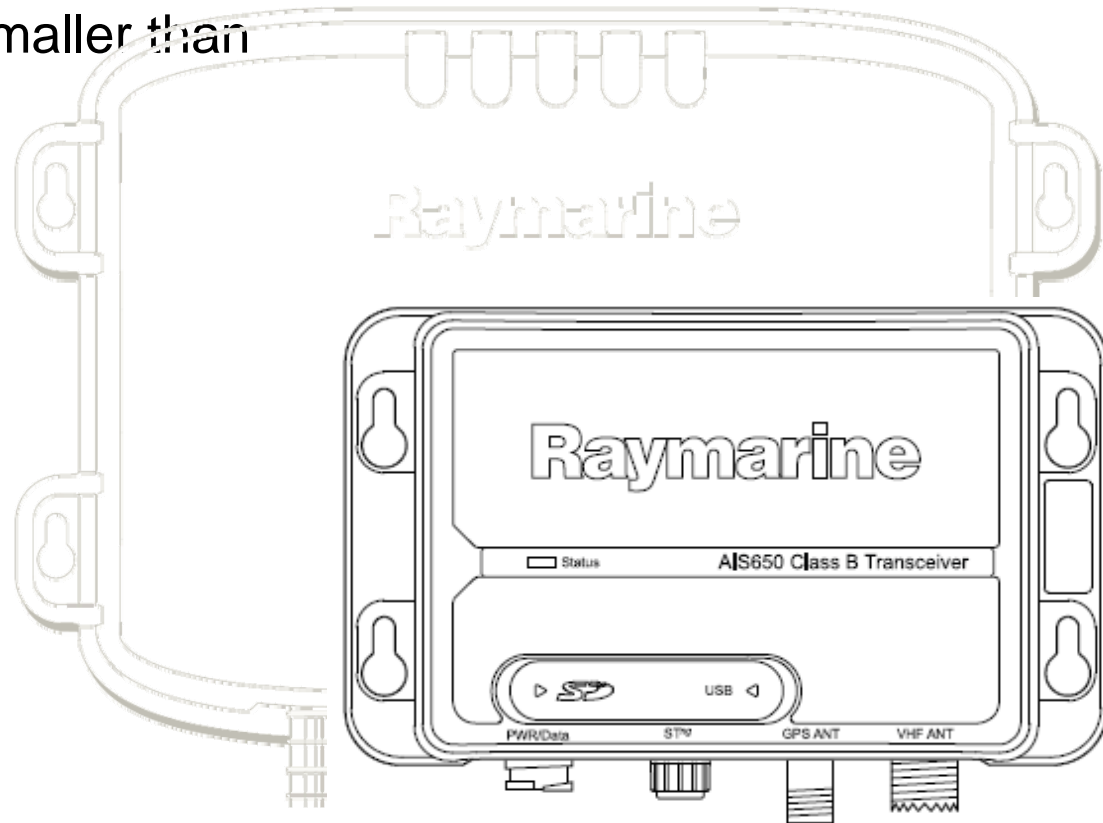
AIS650 Box Contents

| Item	Description
1	AIS650 transceiver
2	GPS Antenna w/ pole mounting kit – 10m cable
3	4X Fixing Screws
4	2X Mounting Studs
5	2X Thumb Nuts
6	Power/NMEA Cable – 2m
7	Document Pack: •Installation guide •ProAIS Software CD-ROM •Warranty Card
8	SeaTalk^{ng} Dust Cap
9	SeaTalk^{ng} Spur Cable – 1m

D12096-1

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AIS650 SYSTEM DIAGRAM
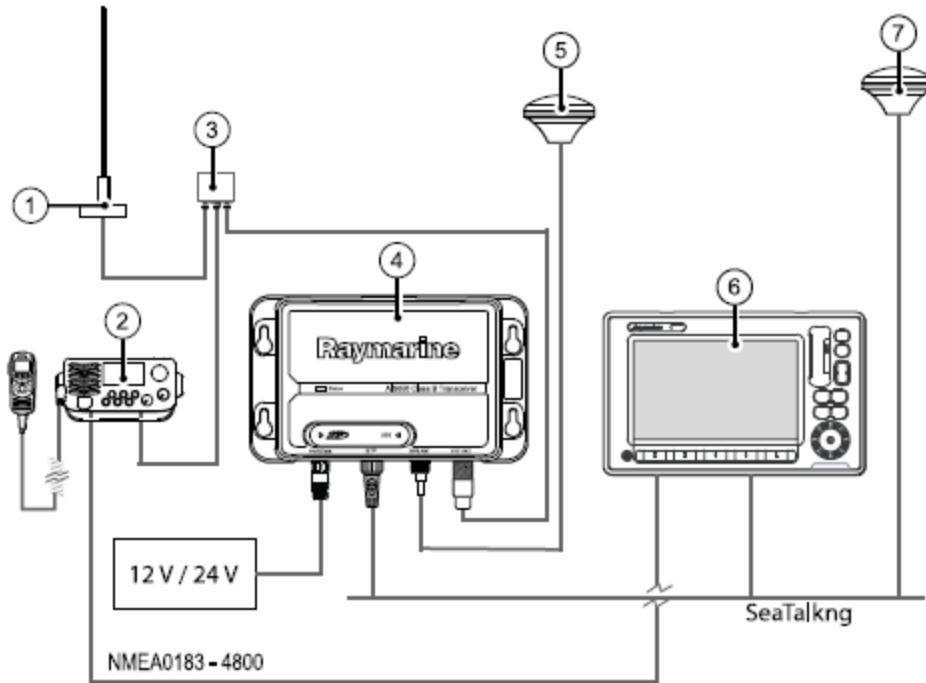
Item	Description
1.	VHF Antenna
2.	VHF Radio
3.	VHF Splitter (Not supplied)
4.	AIS650 transceiver unit
5.	GPS antenna (supplied with AIS650 transceiver)
6.	Multifunction display
7.	Vessel's existing GPS antenna

12 V / 24 V

NMEA0183 - 4800
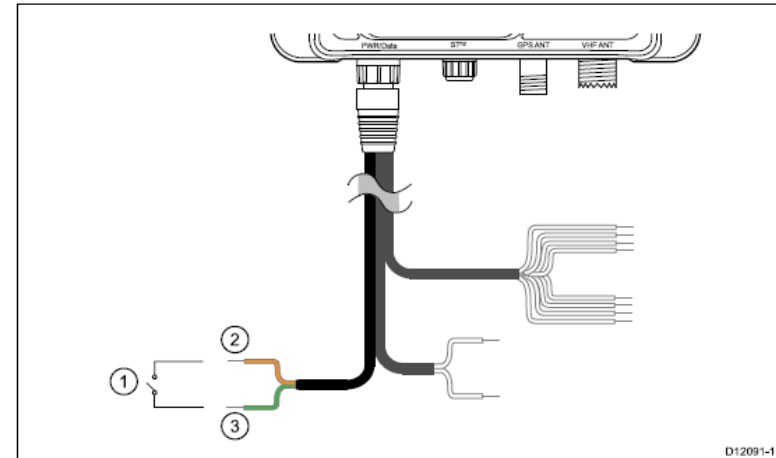
SeaTalkng

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AIS650 Dedicated GPS

- Internal 50-Channel GPS system with powered external antenna

- RAIM Compliant GPS System
  - Receiver Autonomous Integrity Monitoring
  - RAIM verifies the consistency of the fix by comparing data from ALL of the satellites in view, rather than just the ones "in use.

- Does not transmit position by default on SeaTalk^{ng} or NMEA0183 ports
  - Not meant to replace the normal Raystar 125 or internal MFD GPS receiver

Antenna

A   B

Pole mount adaptor

D11642-1
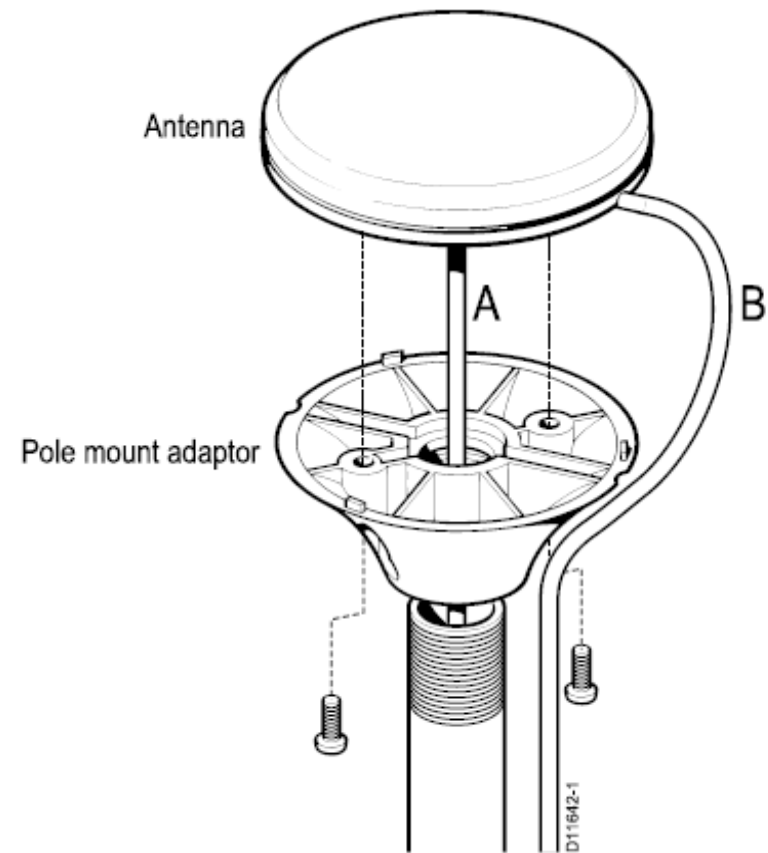
AIS650 Silent Mode Switch

- *AIS Silent* leads provided on Power/NMEA cable

- Connect to installer-supplied *bespoke switch*

- Controls power to the AIS650 transmitter

- Software controlled silent mode available from Raymarine MFD products too

Item	Description
1	Bespoke switch
2 (Orange)	AIS Silent (+)
3 (Green)	AIS Silent (-)

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AIS350 Receiver

AIS350 Receiver
E32157   RRP: £349/ €429

- **NEW!** Dual channel receiver design.

- Receives Class A and Class B broadcasts

- NMEA0183, SeaTalk^{ng} and USB Interfaces

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AIS350 Dual Channel Receiver

- Significant improvement over AIS250
- Simultaneously monitors **both** AIS frequencies for target broadcasts
- Significantly faster acquisition time of all nearby targets at power-on
- Improves update rate for Class B targets, particularly in congested areas

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AIS350 Dimensions

- 50% smaller than the AIS250
  - 6.6"w x 3.9"h x 2.0"d
  - 167 x 100 x 52mm

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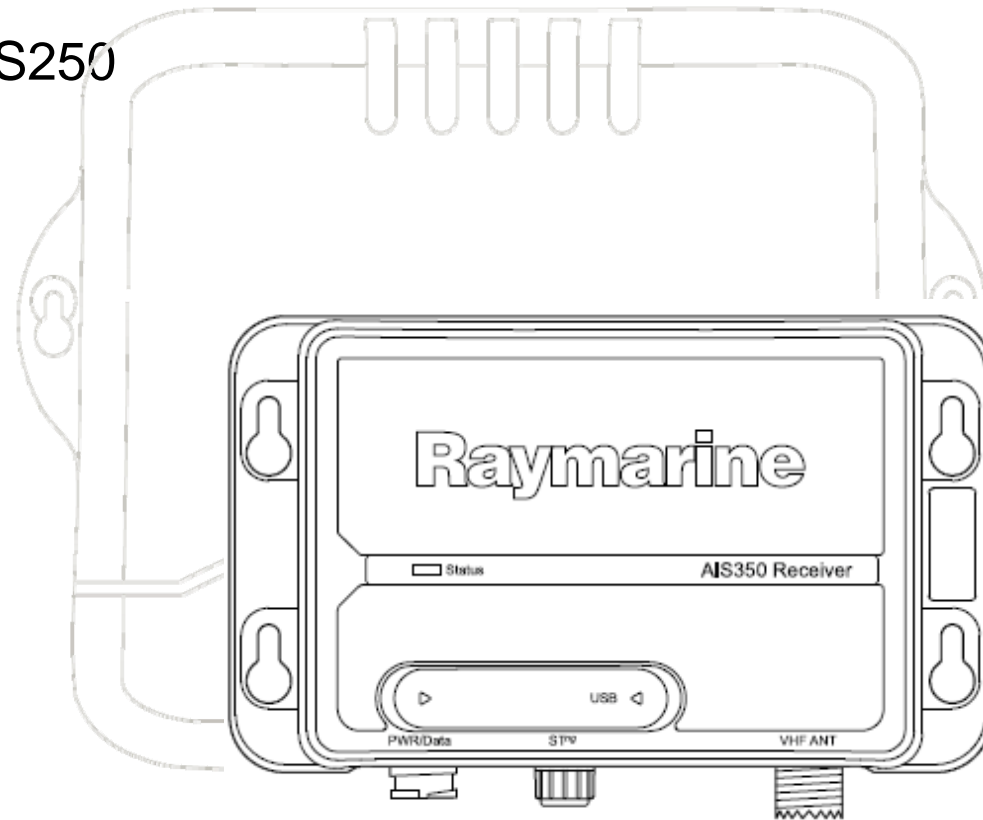
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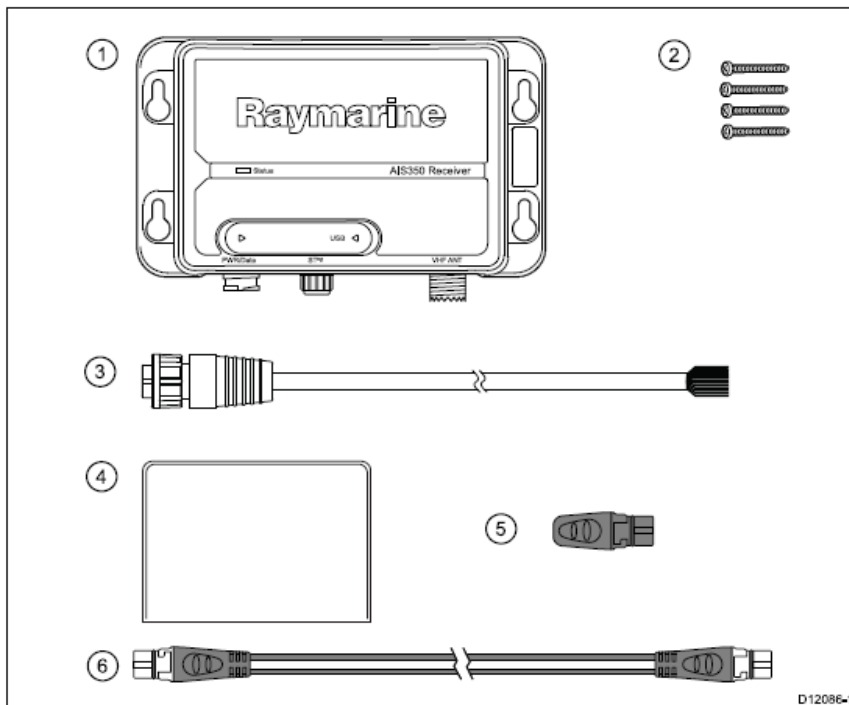
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AIS350 SYSTEM DIAGRAM
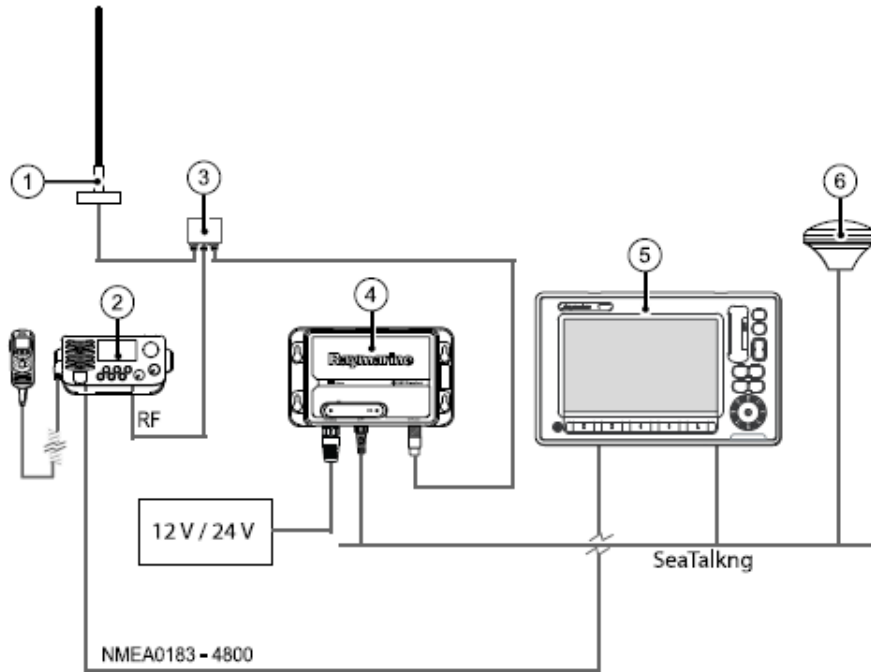
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12 V / 24 V

SeaTalkng

NMEA0183 - 4800

RF

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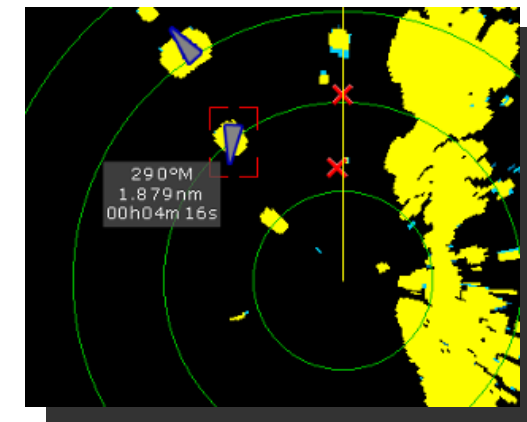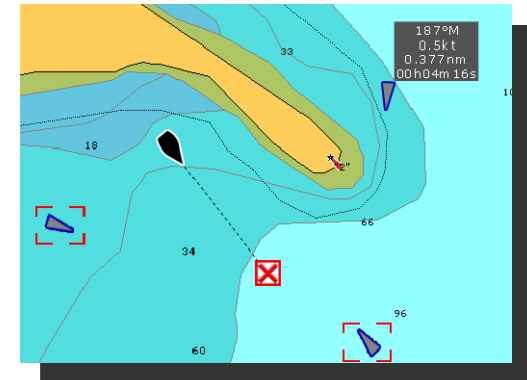# AIS Technology: See and Be Seen at Sea

What is AIS?

- Automatic Identification System
  - Designed to enhance navigational safety and security in open-ocean, coastal and harbor approach areas
  - Voiceless exchange of navigation information between vessels and shore side traffic centers
  - AIS data can be seen on chart plotters, radars and dedicated AIS displays
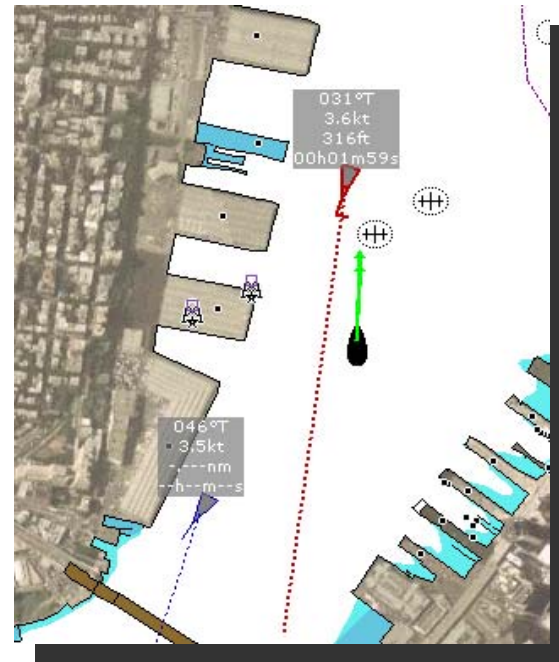
What are the benefits of AIS?

- Corroborates and provides identification and position of vessels not always possible through voice radio communication, visual ID or radar alone

- More accurate and more timely than information available from an automatic radar plotting aid (ARPA)

- AIS can 'see' around hills and eliminate blind spots caused by coastal topography that radar can't see

- Positions are updated frequently enough to be useful in avoiding collisions

Classes of Marine AIS Devices

	Class A	Class B	Receive Only
Transmit Power	12.5 watts hi 2 watts lo	2 watts	None
Position Source and Inputs	External GPS Heading Rate-of-turn indicator AIS internal GPS	AIS Internal GPS Heading optional.	None
Transmitted Data Update Rate (based on vessel speed)	Every 10 seconds underway Every 6 seconds over 14 knots Every 2 seconds over 23 knots Every 3 minutes when moored. Increased intervals when maneuvering	Every 3 minutes less than 2 knots Every 30 seconds greater than 2 kts.	Does not transmit any own ship data.
Typical Application	SOLAS, IMO or USCG regulated high-seas shipping, medium to large coastal commercial vessels, tankers, most commercial passenger vessels.	Recreational vessels of all sizes. Small commercial vessels not mandated to Class A. Inland commercial vessels, tugs, ferries, water taxis etc.	Small recreational vessels. Shore-side marine facilities. Ship-spotting enthusiasts.
Raymarine Products	None	AIS650, AIS500	AIS350, AIS250

AIS Technology Benefits

- See and **be seen.**
    - See targets and information about nearby vessels
    - Be seen by other nearby vessels

- See into areas where other sensors **cannot**
    - Around the bend in a river
    - Behind a peninsula or island

- Increase **situational awareness**
    - Identify dangerous traffic in advance
    - Positively identify radar and visual contacts
    - Clearly ascertain target aspect and CPA

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AIS Data Stream Information

AIS350 & AIS650
Information to be received (Rx)

Dynamic Data
- Ship's position
- Heading
- Rate of turn (ROT)
- Course over ground (COG)
- Speed over ground (SOG)
- Navigation status*
- Time

Static Data
- MMSI (Maritime Mobile Service Identity)
- IMO number*
- Ship's name
- Type of ship and cargo type
- Call sign
- Dimensions of ship and reference for position.

Voyage Related Data
- Hazardous cargo
- Destination and ETA*

Safety-related messages
- Short safety related messages

AIS650
Information to be transmitted (Tx)

Dynamic Data
- Ship's position
- Heading
- Course over ground (COG)
- Speed over ground (SOG)
- Time (UTC seconds)

Static Data *(Configure via PC)*
- MMSI (Maritime Mobile Service Identity)
- Ship's name
- Type of ship
- Call sign
- Dimensions of ship and reference for position.
- Vendor ID (equipment manufacturer)

Data Update Rate *:
- Moving less than 2 kt: 3 min.
- Moving faster than 2 kt: 30 sec.

* As VHF time slot becomes available.

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