

# PRODUCT GUIDE

2014 MARINE ELECTRONICS



# Raymarine®

INNOVATION • QUALITY • TRUST

# WELCOME TO RAYMARINE



Evolution Autopilots



Dragonfly® Sonar/GPS



Evolution Autopilots



Evolution Autopilots (Special mention)  
Dragonfly® Sonar/GPS  
CP100 Sonar  
ECI-100 Universal Engine  
and Control Interface



Evolution Autopilots

Welcome to Raymarine's range of marine electronics designed specifically to help you get the most from your time afloat.

**Innovation** – Raymarine is proud to specialize in marine electronics. Our dedication to developing industry-leading technology for the marine environment is second to none; we've even won awards for it! Innovative features, precision performance, operational simplicity, all combined by Raymarine to bring you the best for you and your boat.

**Quality** – Raymarine products are built to withstand extended use in marine conditions. Using our world-class test facilities, including test boat 'Raymariner' and a dedicated team of testers around the world, we push products to the limit to ensure they meet our demanding criteria for robustness and reliability. Thousands of hours are spent at sea on your behalf, ensuring that Raymarine products achieve the high standards set for them and expected by you.

**Trust** – Day sailing, kayaking, tournament fishing, coastal cruising, ocean racing or simply the call of open water, Raymarine's worldwide network is there for you.

**See you on the water!**





# CONTENTS

2	<b>aSeries</b> Multi-Touch Multifunction Displays	22	<b>Radar</b> Radomes and Open Arrays	48	<b>AIS Receivers and Transceivers</b>
8	<b>eSeries and cSeries</b> HybridTouch and Non-Touch Multifunction Displays	26	<b>Sonar</b> Digital and CHIRP Sonar	50	<b>Communications</b> Fixed-Mount and Modular VHF Radios
14	<b>gS Series</b> Glass Bridge Multifunction Displays	32	<b>Evolution Autopilots</b>	51	<b>Video Cameras</b> Interior and Exterior Video Cameras
20	<b>Universal Engine and Control Interface</b>	38	<b>Instruments</b> Wired and Wireless Instruments	52	<b>Satellite TV Antennas</b>
		44	<b>Thermal Night Vision</b> Handheld and Fixed-Mount Thermal Cameras		

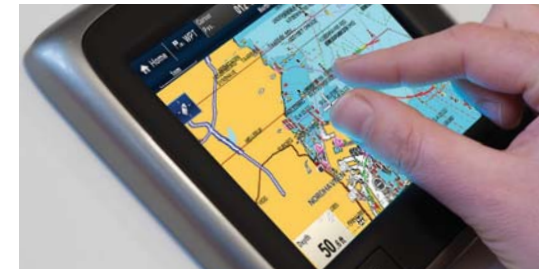




## aSERIES TOUCH SCREEN NETWORK MULTIFUNCTION

Powerful, go-anywhere, navigation; aSeries multifunction displays deliver the speed and simplicity of Raymarine technology in sleek compact touch screen displays.

- Swipe, Touch and Navigate – very easy
- Powered by Raymarine's intuitive LightHouse II user interface
- Super-fast dual-core processor
- Powerful dedicated graphics processor
- Super Bright LED Technology – sunlight viewable, high-contrast display



Pinch-to-zoom with fluid touch screen control

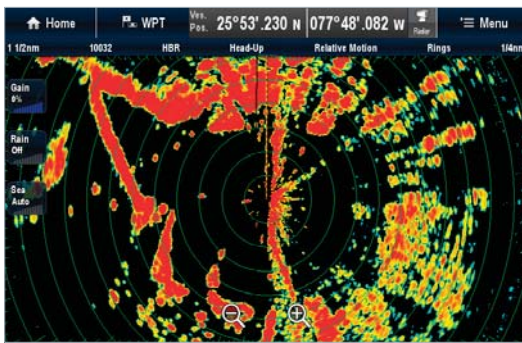


Navigation screen





a7 Series typical split screen showing DownVision and engine data



a7 Series typical HD Color radar screen



a6 Series typical environment screen



Powered by LightHouse II user interface

Optional built-in Digital or CHIRP DownVision sonar

Surface or bracket mount installation options



5.7 or 7 inch multi-touch screen with pinch to zoom

microSD chart and memory card reader

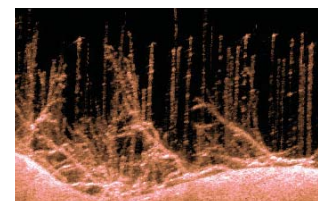
Built-in GPS sensor



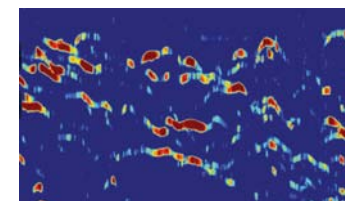


### Sonar

- aSeries with built-in sonar is the perfect choice for anglers looking for a powerful do-it-all combo
- a68 and a78 feature CHIRP sonar to target fish and Raymarine's exclusive CHIRP DownVision sonar for photo-realistic images of structure. Choice of bronze and plastic through-hull and transom-mounted CHIRP DownVision transducers
- a67 and a77 feature an integrated digital sonar, ideal for coastal fishing and the occasional offshore venture. Wide choice of 50/200kHz through-hull, in-hull and transom-mount transducers
- The a67 and a77 are trolling motor ready – optional adapter enables use of Minn Kota's Universal Sonar trolling motor transducer (200/83kHz)



a68/a78 CHIRP DownVision



a67/a77 Digital Sonar





**Radar**

Display radar data with an optional Raymarine Digital, HD Color or Super HD Color radar antenna.

**Optional Wi-Fi and Mobile Apps**

Choose an aSeries MFD with built in Wi-Fi and use Raymarine mobile apps with your mobile device to view and remotely control your MFD.

For more information and model compatibility, visit [www.raymarine.com](http://www.raymarine.com)



**256**  
COLOUR HD+SHD



**Charting**

- 50 channel internal GPS sensor
- aSeries MFDs are available with or without Navionics Silver or Gold cartography on microSD cards. Also compatible with Navionics+, featuring sonar charts and community edits
- Raymarine US waters raster and vector LightHouse charts available
- 3D chart and aerial photo chart navigation using optional Navionics Platinum+ charts
- Start up wizard and on-screen user guide
- Touch the screen to place waypoints and plan routes



LightHouse vector charts



LightHouse raster charts





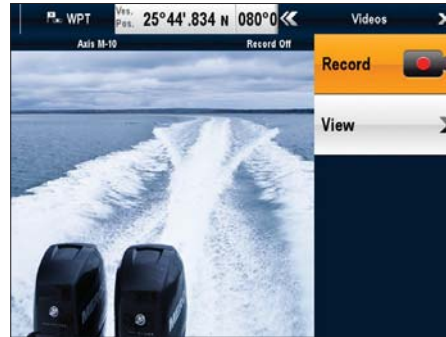
### Instrument Displays

Sharp, easy-to-read analog and digital instrument graphics transform aSeries into a powerful information display



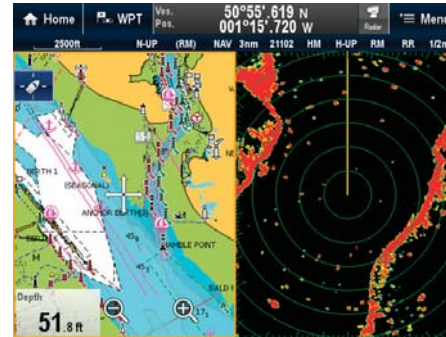
### IP Cameras

aSeries MFDs support IP cameras (requires ONVIF compatibility) including record and playback facilities



### Custom Screens

Display multiple screens at the same time, such as chart and radar information



### Engines Display

Connect with NMEA 2000 compatible engines for graphical engine data displays



### Fuel Management

Fuel monitoring with Time-To-Empty and Distance-To-Empty calculations, display fuel range rings on navigation charts



### Audio Control

Control your audio with Bluetooth or FUSION link. Full control of FUSION 700 Series marine stereos







Features	a65	a67	a68	a75	a77	a78
Screen size	5.7 inch			7 inch		
Built-in digital sonar		•			•	
Built-in CHIRP with DownVision sonar			•			•
Wi-Fi	Optional					
Bluetooth	Yes					
Chartplotter	Yes					
Radar Display	Optional radar antenna required					
Remote network display	•			•		
Recommended for coastal fishing		•	•		•	•
Recommended for freshwater or coastal fishing			•			•

### Networking

- Fast RayNet Ethernet port (SeaTalk<sup>hs</sup> compatible)
- Network up to 6 Raymarine MFDs
- Network Raymarine Digital radar, HD Color and SHD Color radar and sonar modules
- NMEA 2000 and SeaTalk<sup>ng</sup> connectivity

### aSeries MFDs work with...



RCU-3 Remote



AIS350/650 AIS Modules



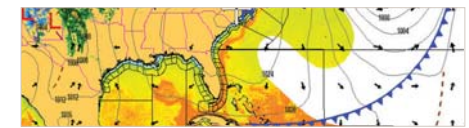
Evolution Autopilots



Network Sonar Modules



Radar – Raymarine Open Arrays and Radomes



SiriusXM Weather and Audio (North America Only)



### Regular LightHouse Updates

LightHouse is an expanding user interface with downloadable updates every 3 months. Make sure you are up to date with latest features available from [www.raymarine.com/software](http://www.raymarine.com/software)



## HIGH PERFORMANCE NETWORK MULTIFUNCTION DISPLAYS

Harness the full power of Raymarine navigation technologies with eSeries and cSeries multifunction displays. From the award winning e7 to the big screen e165, Raymarine multifunction displays are the perfect fit. Configure eSeries and cSeries as a single all-in-one chart, radar, and sonar navigation display or expand into a navigation network with multiple displays, CHIRP DownVision™ sonar, thermal night vision and more.







**eSeries MFDs with HybridTouch™**

eSeries HybridTouch display allow simple touch screen control or take command with the rotary Unicontroller and keypad – the choice is yours.

**cSeries with Keypad Control**

The perfect combination of performance and value, cSeries with keypad control offers confident control and ease of use.

**Powered by LightHouse™ II**

Raymarine's simplified user interface is your guide to unlock the powerful multifunction features of eSeries. With just a few swipes of the LightHouse home screen you will quickly become an expert.



**Regular LightHouse Updates**

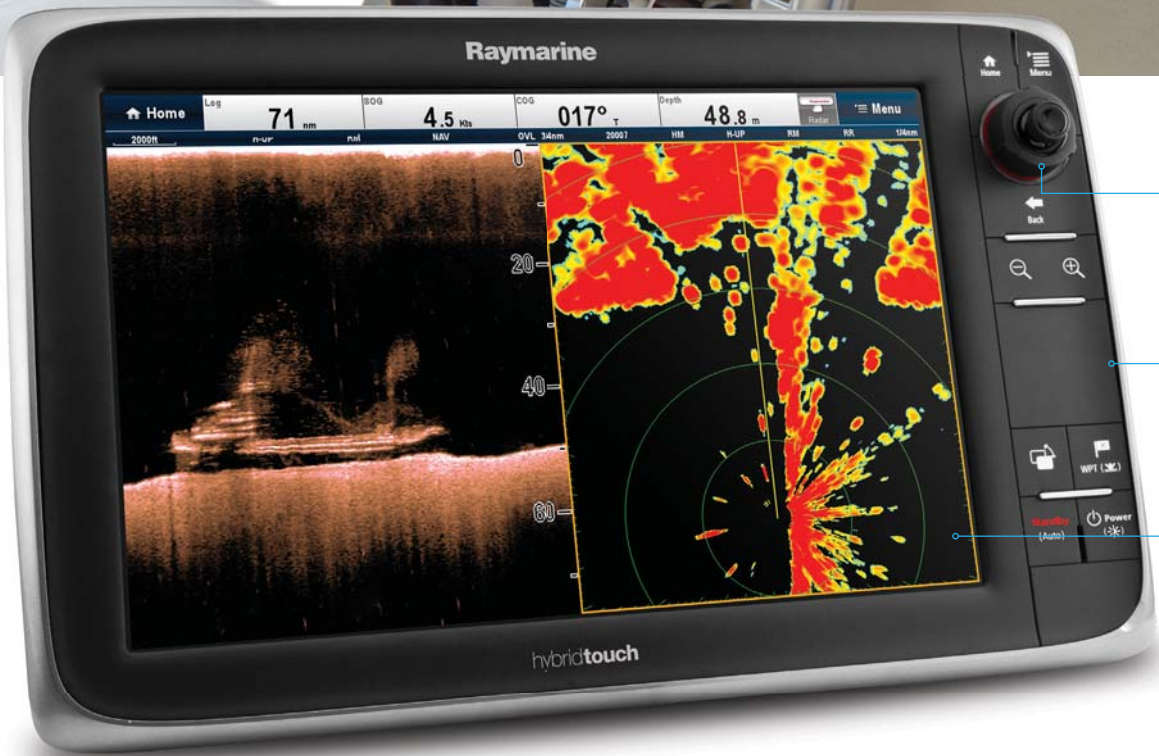
LightHouse is an expanding user interface with downloadable updates every 3 months. Make sure you are up to date with latest features available from [www.raymarine.com/software](http://www.raymarine.com/software)



**Screen Size Options**

	7"	9"	12.1"	15.4"
cSeries		•	•	
eSeries	•	•	•	•





**Touch Screen or Keypad – You Choose**

eSeries HybridTouch allows simple touch screen control or take command with the rotary Unicontroller with integrated joystick and the built-in keypad.

**Easy to Expand**

Network with any Lighthouse II powered Raymarine MFD. Create a multi-station network with up six displays.

**Multi Talented**

LightHouse makes it easy to customize the display with full or split screen windows of charting, radar, sonar, and much more.





Raymarine US waters raster chart



Raymarine US waters vector chart



Navionics cartography



eSeries MFD with T400 Series Thermal Camera

**Powerful LightHouse Chart Engine**

Navigate with premium Navionics vector charts including Navionics' community sourced Sonar charts. Alternatively choose Raymarine LightHouse freely available vector and raster charts of US waters.



**Stay Safe and Aware**

Integrated radar, AIS and thermal night vision technology enhance your situational awareness and keep you safe in limited visibility.

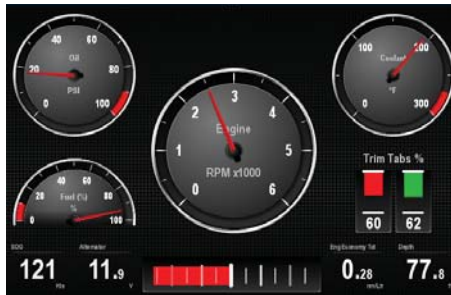
**Superior Built-in Digital Sonar (Optional)**

Choose built-in Digital sonar or step up to more power and high resolution CHIRP sonar technology with optional network sonar modules.



## Engine Data

Monitor engine and fuel performance using NMEA 2000 or Raymarine's exclusive ECI-100 Universal Engine and Control interface.



## "Infotainment"

Access your favorite music and take full control Fusion 700 series. Stay ahead of storms with SiriusXM Weather and Audio (North America Only).

## Raymarine Anywhere Onboard

Take control of eSeries from your tablet or smartphone using built-in Wi-Fi and Raymarine mobile apps.



## Key cSeries and eSeries Facts

- eSeries HybridTouch™ available in 7.0", 9.0", 12.1" or 15.4" display sizes
- cSeries with Keypad Control available in 9" or 12.1" display sizes
- Sunlight viewable, optically bonded display for sharp color and contrast
- Low power consuming LED backlighting
- Dual core processor and a dedicated graphics processor delivers quick redraws and fast response
- GPS: Built-in GPS on e7, e9 and e12 models. The e165 uses the optional RS130 external GPS sensor
- Sonar: e7d, e97, and e127 models are equipped with a 600 Watt digital sonar. Network with optional Digital, CHIRP, and CHIRP DownVision sonar modules
- Composite video input for thermal cameras and entertainment
- Support for IP video cameras
- Fully waterproof RayNet Ethernet cables and connectors
- NMEA 2000 support using SeaTalk<sup>ng</sup> cabling
- NMEA 0183 input and output
- Engine data integration using NMEA 2000 or the optional ECI-100 Universal Engine and Control interface
- Available with LightHouse USA Vector and Raster charts or Navionics Silver charts for Europe and the rest of the world on microSD cards (upgradable to Navionics Gold or Platinum Plus)
- Simple waypoint management tools and expanded archiving options. Manage waypoints on your PC with VoyagePlanner software or export waypoints in the popular GPX file format
- Optional RMK-9 remote keypad provides total control from a remote location
- Optional RCU-3 Bluetooth steering wheel remote offers simple 3 button control







Low profile bezel

Multicontroller with integrated joystick

Flush button controls

Sunlight viewable touchscreen display in sizes from 7 to 15.4 inches

MicroSD chart and memory card reader

Bracket or flush mount installation options

Sonar: e7d, e97, and e127 models are equipped with a 600 Watt digital sonar. Network with optional Digital, CHIRP, and CHIRP DownVision sonar modules

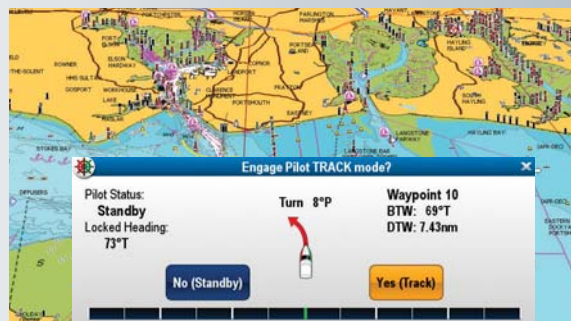
Built-in GPS on e7, e9 and e12 models. The e165 uses the optional RS130 external GPS sensor

Dual core processor and a dedicated graphics processor delivers quick redraws and fast response



### Point and steer... Full Evolution autopilot control

Engage a waypoint and let Evolution's 9 axis sensor technology take you there with remarkable precision and control.



### c and eSeries MFDs work with...



RCU-3 Steering Wheel Remote



RMK-9 Remote



AIS350/650 AIS Modules



Network Sonar Modules



Thermal Imaging



Evolution Autopilots



Satellite TV Antennas



Open Arrays and Radomes



Digital Switching Control lighting, monitor AC and DC electrical systems, remotely monitor fluid tanks and battery levels and much more!



SiriusXM Weather and Audio (North America Only)







# gS SERIES. PREMIUM GLASS BRIDGE MULTIFUNCTION NAVIGATION DISPLAYS

Elegant, flexible, and simple to use, gS Series multifunction displays will transform your helm station into a powerful glass bridge navigation system. A step above black-box systems, each gS Series display is a smart, self-contained multifunction navigation display equipped with Raymarine's fastest dual core processor plus a third dedicated graphics processor, delivering super fast and responsive performance.



## Powered by LightHouse™ II

gS Series displays are the pinnacle of simplicity and performance thanks to Raymarine's simplified LightHouse II user interface. Create a single display installation or expand gS Series into a multi-station system, the choice is yours. For added flexibility, gS Series systems network seamlessly with any LightHouse II powered Raymarine MFD, allowing you to customize a navigation network that's just right for you.



### Regular LightHouse Updates

LightHouse is an expanding user interface with downloadable updates every 3 months. Make sure you are up to date with latest features available from [www.raymarine.com/software](http://www.raymarine.com/software)





**Multi-touch**

Navigating with gS Series is incredibly simple with the smooth and responsive multi-touch control of Raymarine's LightHouse user interface. With gS Series you also have pinch-to-zoom chart control.







### Touch or Remote Control

Enjoy fluid and effortless full touch-screen interaction with Raymarine's easy-to-use LightHouse II user interface or interact with any gS Series display from a single RMK-9 remote keypad.



The optional RMK-9 Remote Keypad gives you full control of single or multiple gS Series displays from a remote location. The keypad can be used in portrait or landscape orientation.

### HD Video Output

HDMI output enables connection for remote monitors or big screen TVs. Connect gS Series to your TV in the saloon and take control of the system with your tablet or smartphone via Raymarine mobile apps.

### Total Vessel Control

Optional EmpirBus™ Digital Switching modules allow gS Series to take control of the vessel's electrical systems. Control lighting, monitor electrical systems and much more.

### Mobile Apps

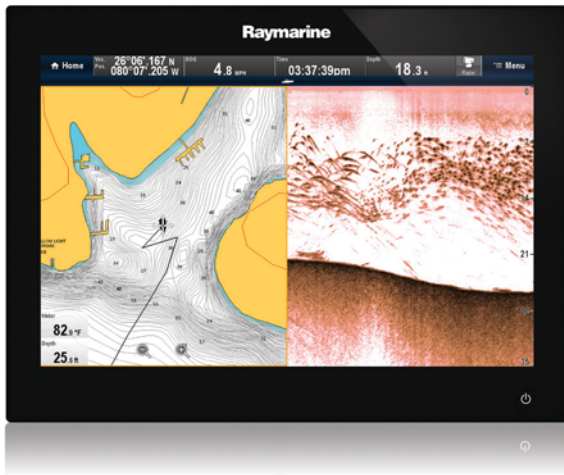
Access Raymarine anywhere onboard via Raymarine mobile apps and gS Series built-in Wi-Fi. Take full control of your gS Series direct from your tablet or smart phone.



### Big display. Slim Profile

gS Series displays feature a slim 8mm front bezel and the entire rear housing is less than 73mm deep, making gS Series easy to fit in tight spaces.





### Tournament Winning Sonar

Increase your underwater intelligence with gS Series and optional CHIRP sonar modules. Target fish and see the underwater world like never before with CHIRP DownVision™ technology.



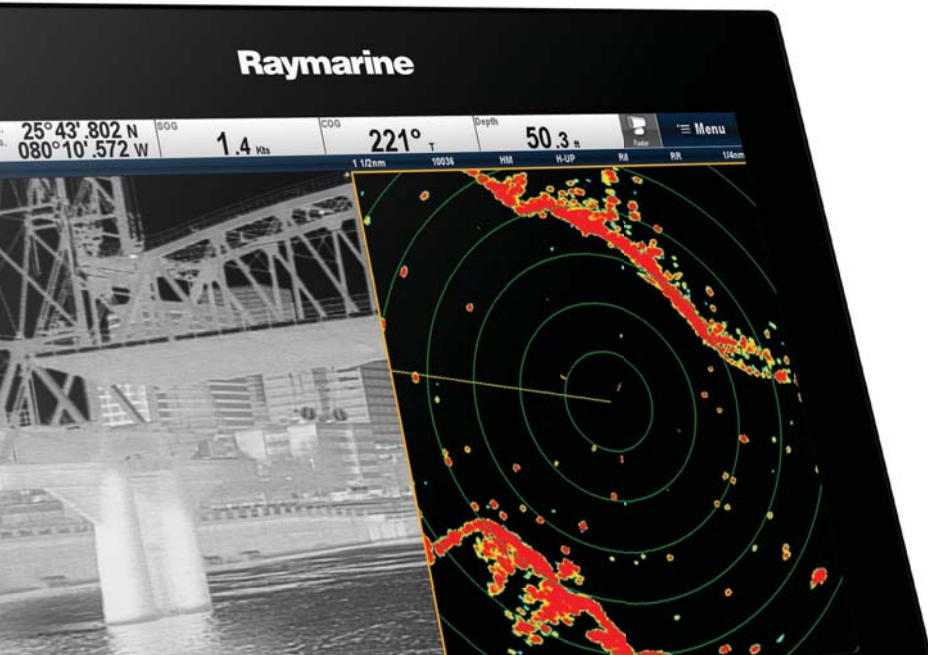
### Keep Watch with IP and Analog Video

gS Series supports unlimited IP network cameras. Gigabit Raynet ports provide power over Ethernet (POE) for simple remote IP CCTV connectivity. Monitor engine room cameras, crew quarters or docking cameras with just a swipe of the touch screen.



### Enhanced Situational Awareness

gS Series brings together Raymarine radar and thermal night vision technology to keep you safe in limited visibility situations. AIS target overlays and MARPA target tracking keep you informed. Slew-to-Cue thermal camera tracking locks the thermal camera on potential dangerous targets for added safety.





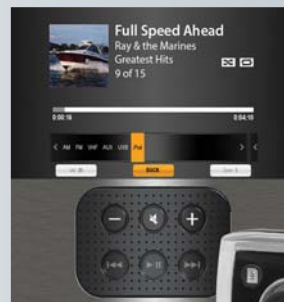


### Key gS Series Features

- 3 display sizes 9.0", 12.1" or 15.4"
- Ultra-bright sunlight-viewable LCD
- Optically bonded display for sharp color and contrast
- Low power consumption LED backlighting
- GPS: Optional RS130 remote 50 channel GPS sensor
- 2x composite analog video input for thermal cameras and entertainment
- HDMI video output
- Each gS Series display is equipped with 3x RayNet POE Ethernet ports with integrated network switching for simple, reliable connectivity
- NMEA 2000 support using SeaTalk<sup>ng</sup> cabling
- NMEA 0183 input and output
- Built in Wi-Fi for syncing with Raymarine mobile apps on your smartphone or tablet
- Bluetooth connectivity to smartphones with remote audio controls
- External alarm connection

### Stay Informed

Display data, such as heading, depth, wind and more. Network gS Series with NMEA 2000 engine instruments and access engine and fuel consumption data. For engines with J1939 interface protocols, the optional ECI-100 Universal Engine and Control Interface bridges engine data to the gS Series network.



### Entertainment

Access your favorite tunes and take full control of Fusion 700 audio systems.



### gS Series Glass Bridge works with...



RMK-3 Wheel Mounted Remote



AIS350/650 AIS Modules



Evolution Autopilots



Network Sonar Modules



Thermal Imaging



Satellite TV Antennas



Radar – Raymarine Open Arrays and Radomes



Network with any LightHouse powered Raymarine MFD



NMEA 2000 or J1939 Engines powered Raymarine MFD



SiriusXM Weather and Audio (North America Only)



## ECI-100 UNIVERSAL ENGINE AND CONTROL INTERFACE

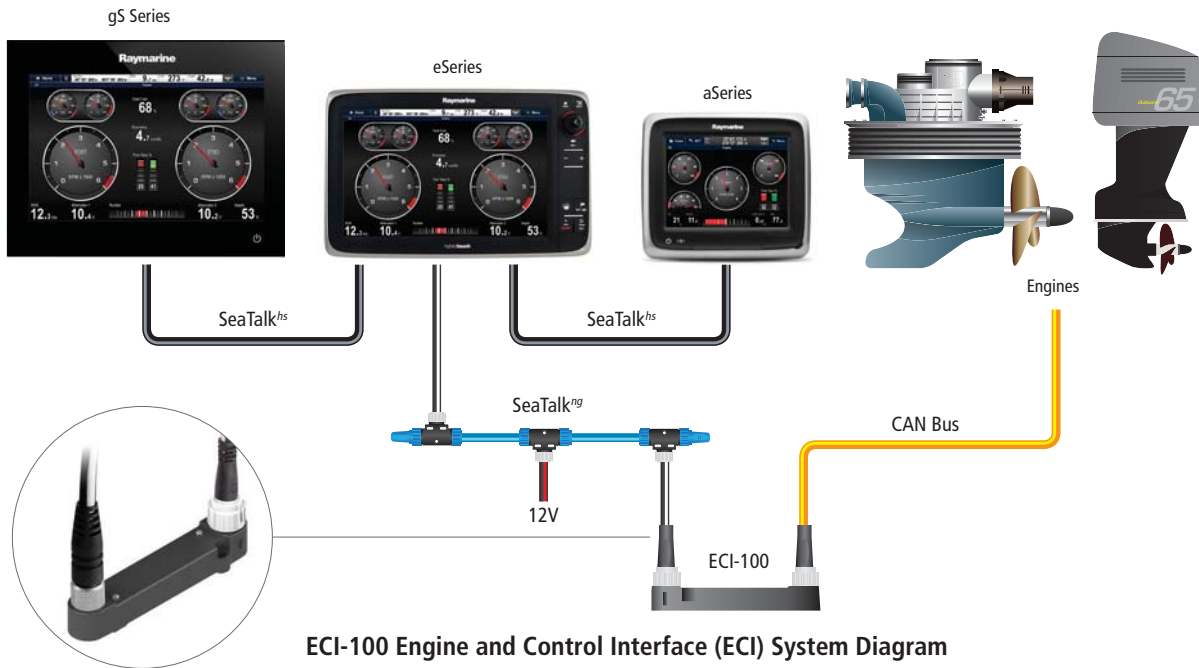
The ECI-100 Universal Engine and Control Interface is an innovative and affordable solution for bridging engine instrumentation and drive-by-wire steering with Raymarine autopilot and navigation systems.

A simple isolated CAN Bus solution, the ECI-100 offers reliable integration with Raymarine's latest generation of multifunction displays and delivers a seamless autopilot steering interface to Raymarine's Evolution EV-2 Drive-By-Wire autopilot system.

### ECI-100 Benefits

- A simple, single point of connection for engine data and drive-by-wire autopilot control
- Affordable and uncomplicated solution eliminates the need for multiple engine and autopilot gateways
- No need for a proprietary autopilot gateway. Connects direct to Raymarine Evolution autopilots bringing 9-axis sensor and adaptive performance control to drive-by-wire propulsion systems
- View engine data displays and enjoy full autopilot control alongside Raymarine's industry-leading radar, sonar and navigation technologies using a single touch screen display
- From our space saving aSeries, to our flagship big screen gS Series, engine information displays and autopilot control are available on any display running LightHouse v8 or later
- Access easy to customize displays to show engine performance data, fuel consumption, alarms, and much more
- View engine information displays on your smart phone or tablet with Raymarine mobile apps
- Simple to install ECI-100 makes engine and navigation integration a reality for virtually any size vessel





**ECI-100 Engine and Control Interface (ECI) System Diagram**

**Simple Integration, Powerful Performance**

The ultra-compact ECI-100 connects directly to the industry-standard NMEA 2000 or SAE\* J1939 Engine Data Bus used by major marine engine manufacturers including:

✓	Volvo Penta
✓	Yamaha Marine (Command Link Plus only)
✓	Caterpillar
✓	Yanmar Marine

An industry standard DeviceNet port connects the ECI-100 to manufacturer-specific CAN bus cabling. The ECI-100 then connects to NMEA 2000 networks using the SeaTalk<sup>hs</sup> cabling system. Each of the ECI-100's isolated ports is powered independently ensuring reliable, worry-free performance from both navigation electronics and engine systems.

\* SAE – Society of Automotive Engineers standard

Enjoy autopilot control from any network display



**ECI-100 Engine Data Parameters**

The ECI-100 Universal Engine and Control Interface identifies the following parameters:

✓	Engine speed
✓	Engine oil temperature
✓	Engine temperature
✓	Engine oil pressure
✓	Engine coolant pressure
✓	Engine fuel rate
✓	Boost pressure
✓	Battery potential
✓	Transmission oil pressure
✓	Transmission oil temperature
✓	Total engine hours
✓	Fuel tank level
✓	Trip fuel used (calculated by ECI-100)
✓	Alternator potential
✓	Engine torque
✓	Engine percent load
✓	Transmission gear

Raymarine is committed to delivering seamless integration with leading marine engines. Visit [www.raymarine.com](http://www.raymarine.com) for the latest engine compatibility information.

## RADAR SCANNERS

Day and night, radar systems from Raymarine keep you aware of surrounding traffic, hazards, rain, sea birds, and much more. From compact and lightweight digital radomes, to ultra-high performance Super HD Color open arrays, Raymarine has the perfect radar solution for every boat.

Every Raymarine radar scanner features:

- Simple RayNet Ethernet networking to Raymarine LightHouse-powered multifunction displays
- Exclusive AutoGST™ controls for true hands-off operation. There's no need to manually adjust gain, sea clutter or tune, it's done for you automatically
- Powerful 4kW and 12kW transmitters offer superb long-range capability, yet still deliver outstanding short-range performance for navigation in dense fog or rain
- Radar overlay mode for live radar information right on your chartplotter display Easily correlate navigation aids, landmasses and buoys with chart objects\*
- Standard MARPA target tracking and AIS integration to keep you informed of dangerous targets\*
- Slew-to-cue target tracking with Raymarine T300/T400 Series thermal night vision camera systems

### Radome or Open Array...Which is Right for Me?

#### Radome scanners

Radome antennas are the perfect blend of compact size, light weight and high performance. Choose a radome antenna when space is a premium or restricted by rigging. Radome scanners also consume less power than open array scanners which is essential for long-distance cruising sailboats.

#### Open Array scanners

The choice of mid to large-sized powerboats and sailing vessels, open array radar scanners deliver higher sensitivity, better target detection, and improved target separation. Open array systems are available with 4kW or 12kW transmitters for exceptional performance at all ranges.

\* Radar overlay requires GPS position and interface to an electronic heading sensor or autopilot. AIS receiver sold separately.



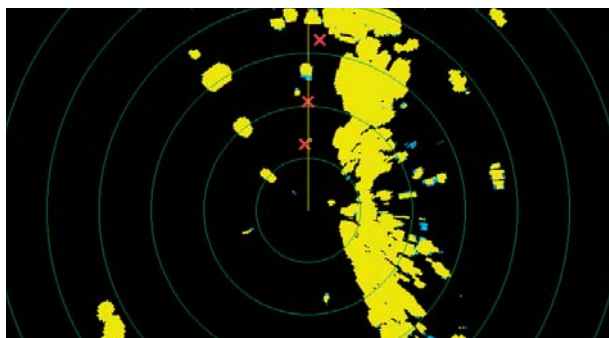


### Digital Radar

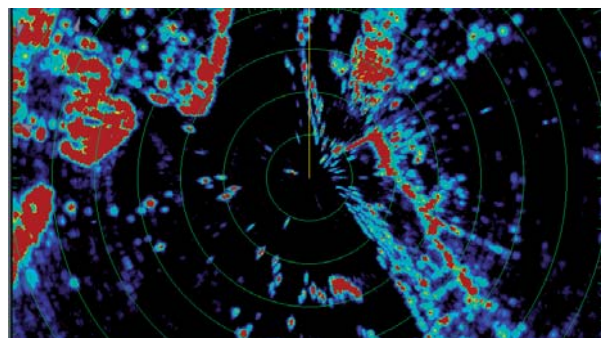
- 18 and 24 inch radome options
- Basic radar for small vessels
- 4kW capability for improved performance
- Digital processing for increased target definition
- Reduced power consumption
- Trusted Raymarine radar performance and great value

**256**  
COLOR HD+SHD

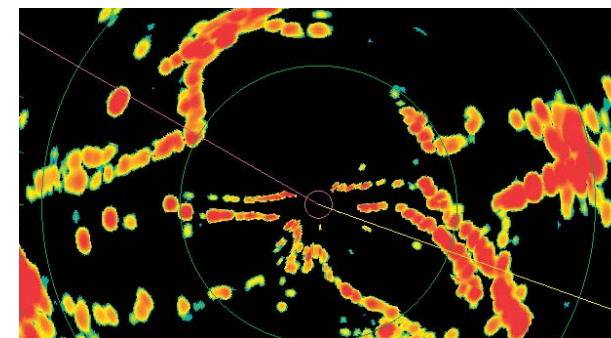
Digital Radar



HD Digital Radar



Super HD Digital Radar



### HD Color Radar – 256 Colours

- 18 and 24 inch 4kW radomes
- 48 and 72 inch open arrays with 4kW or 12kW power output
- Superior target detection and interpretation
- Identify target types, detect weak and distant contacts automatically, and virtually eliminate clutter and noise
- Adaptive transmitter and receiver automatically adjusts to changing environmental and sea conditions
- Dramatically clearer radar images
- Crisp, well-defined contact echoes
- Superior target separation and life-like target presentation

### Super HD Color Radar – 256 Colours

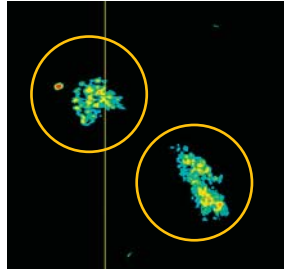
- 48 and 72 inch open array options
- Choice of 4kW or 12kW power output
- Greater dynamic range than conventional radar
- Acquires and processes vast amounts of echo information normally lost by conventional analogue radar
- Intelligently isolates and identifies true radar targets and simultaneously eliminates unwanted clutter
- Extra-narrow beam width pinpoints targets with stunning clarity and gives dramatically clearer radar displays

**Installation**

All radars work on line-of-sight principles so although antennas could theoretically be fitted almost anywhere, unobstructed and parallel to the water line is better.

**Bird Mode**

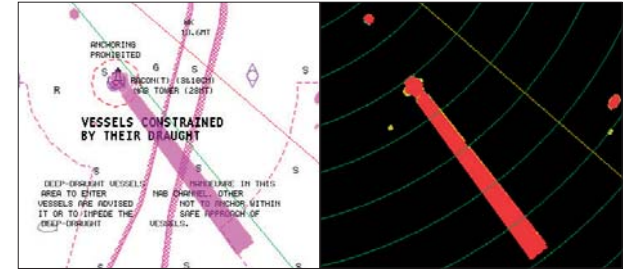
Bird Mode automatically tracks flocks of seabirds (circled right), giving fishermen the heads up on where the fish are.



Bird mode

**RACON and SART**

Raymarine radar antennas also trigger RACON beacons and home in on signals from Search And Rescue Transponders.



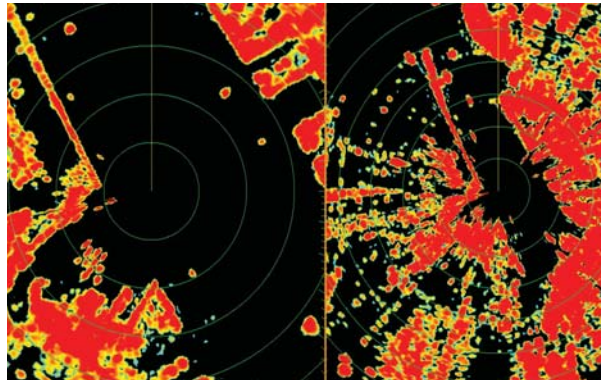
RACON and SART

**256 colour resolution**

Helps define the strength of target returns and highlights targets that could be hidden within clutter.

**Dual Range Scanning**

Simultaneously monitor near and far targets from a single radar antenna with dual-range scanning, found on the HD Color and Super HD Color radar systems.



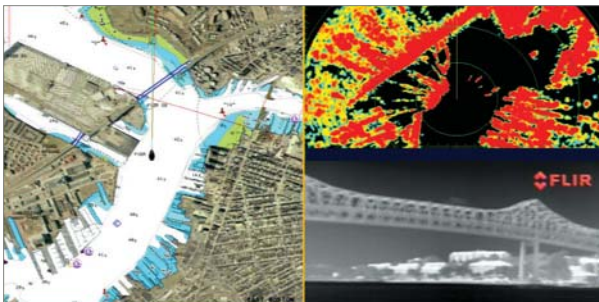
Dual Range

**Interference resistance**

Raymarine radars use interference rejection technology to resist signal interference from other vessels' transmissions as well as close proximity objects already fitted to the boat.

**Safe emissions**

Powerful enough to slice through atmospheric clutter, Raymarine radars still comfortably meet International limits for Radio Frequency emissions – in fact, the energy absorbed from an ordinary mobile phone can be several times greater than that from a correctly installed Raymarine radar.



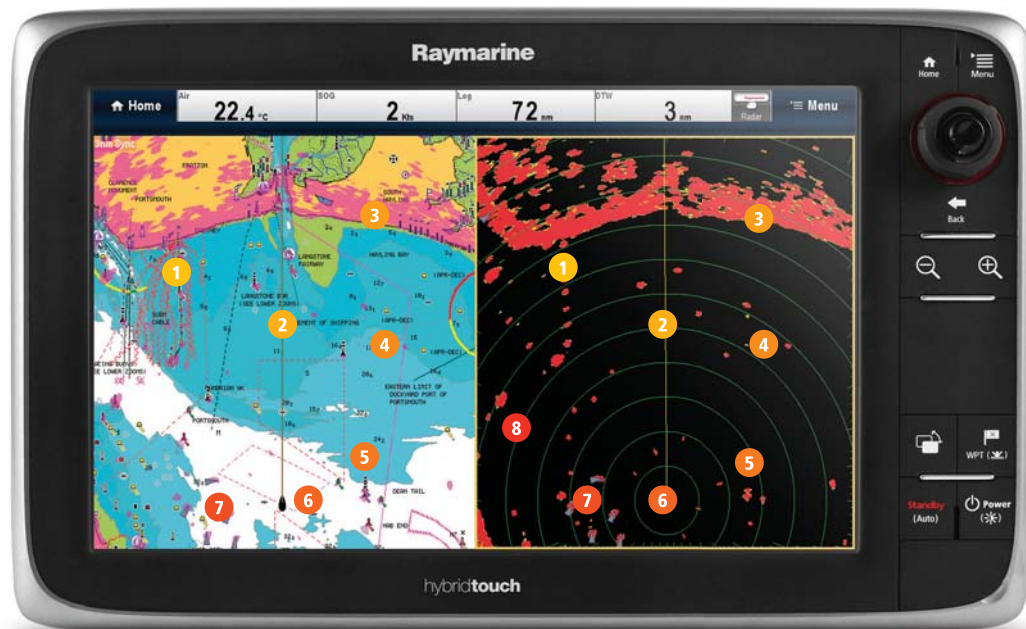
Radar and Thermal Imaging

**Radar and Thermal Imaging**

Every Raymarine radar integrates with T-Series thermal night vision camera systems. Instantly identify radar contacts night or day.







**Raymarine radomes and open array antennas work with...**



**Chart Overlay**

Overlay radar onto a chart to clearly identify targets (left half of the image). Note the superior target clarity and separation on the submarine barrier to the left of both screens.

**Chart Screen**

1. Submarine barrier
2. Heading and bearing
3. Radar overlay
4. Small fishing vessel
5. Cardinal mark
6. Vessel position
7. AIS transmitting vessels at anchor

**Radar Screen**

1. Corresponding clear return from submarine barrier
2. Heading and bearing
3. Corresponding radar return
4. Corresponding clear return from small fishing vessel
5. Corresponding clear return from cardinal mark
6. Vessel position
7. Corresponding AIS transmitting vessels at anchor
8. 0.5nm range rings showing 4.25nm to harbour

eSeries MFD (above) and aSeries touchscreen MFD (below) showing split-screen and full screen configurations



	RADOME AND OPEN ARRAY FEATURES COMPARISON									
	Radomes				Open Arrays					
	Digital		HD Digital		HD	SHD	HD	SHD	HD	SHD
Peak power output (kW)	18"	24"	18"	24"	48" 4kW	48" 12kW	72" 4kW	72" 12kW		
Maximum range scale	4				4	12	4	12		
Colours	8				256					
Rotation rate	24		24/48		24	24/48	24	24/48	24	24/48
Horizontal beam width -3dB	4.9°	3.9°	4.9°	3.9°	1.9°	<1°**	1.9°	<1°**	1.15°	<1°**
Vertical beam width -3dB	25°									
Near and far dual range mode			■	■	■	■	■	■	■	■
Bird mode			■	■		■		■		■
Automatic harbour, coastal offshore and buoy modes***	Yes									
256 multi-level colour and selectable colour palettes			■	■	■	■	■	■	■	■
SeaTalk <sup>®</sup> networking	Yes									
Raymarine MFD compatibility	aSeries / cSeries / eSeries / gS Series									

\*\* Horizontal beam width on Super HD Color open arrays adjustable to less than 1°

\*\*\* Digital domes only provide Harbour, Coastal and Offshore auto modes for the Sea Clutter adjustment. All others provide presets for Buoy, Harbour, Coastal and Offshore.



## DRAGONFLY<sup>®</sup> A NEW SPECIES OF SONAR

View the world beneath your boat with the photo-like clarity of Dragonfly's DownVision™ sonar, the first high-resolution imaging sonar for anglers to use CHIRP technology. Dragonfly's dual-channel CHIRP sonar lets you explore structure and target fish like never before.

- View photo-like images of bottom structure with CHIRP DownVision
- Display high resolution structure images and target fish at the same time
- Exclusive Raymarine CHIRP DownVision technology delivers best in class deep water sonar imagery (600ft 180m) without any loss of clarity
- Intuitive user interface simplifies display choices and menu options
- Available with industry leading, Navionics charts included on microSD memory cards
- Temperature sensor built into the transducer
- Ideal for open cockpit installations thanks to spray and submersion protection to IPX6 and IPX7 standards

5.7" Bright sunlight viewable display for maximum readability in all conditions

Built in 50-channel GPS sensor

Simple three button control

Dual-channel CHIRP sonar







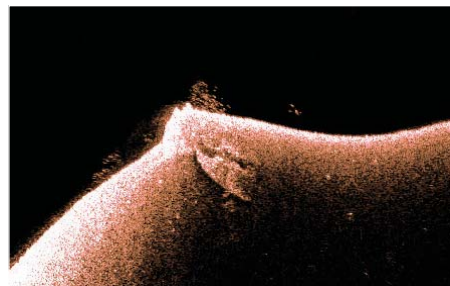
**CHIRP Sonar Technology**

Unlike conventional imaging sonars that transmit a single frequency with each pulse, Dragonfly's DownVision sonar uses CHIRP technology to transmit across a wide spectrum of sonar frequencies with each pulse – the result is much higher-resolution, life-like sonar images.

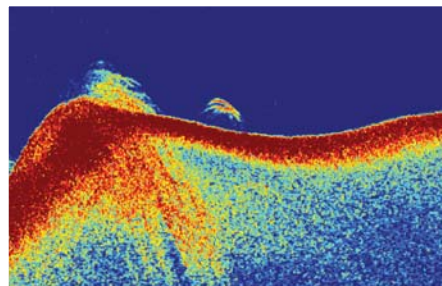
**Dual-Channel CHIRP – Two Sonars in One**

Dragonfly includes two discrete CHIRP sonar channels. The first is an ultra-high resolution DownVision channel and the second a high-resolution fish targeting sonar channel.

View each sonar channel independently or switch to dual sonar split screen mode for the ultimate in underwater intelligence.



High-resolution DownVision detail



Same location reveals individual fish targets in sonar mode



**Seeing is Believing.**

The amazing sonar imagery above is from actual Dragonfly owners. To see more of Dragonfly's real world performance please visit [www.raymarine.com/dragonfly](http://www.raymarine.com/dragonfly)



Tilt and swivel quick release cradle with optional locking core for added security

**Dual Channel CHIRP**

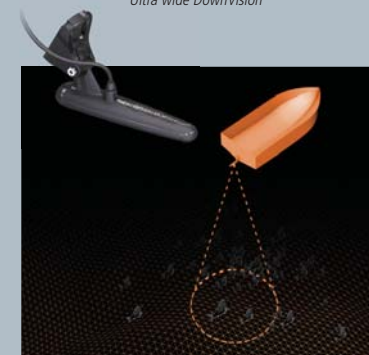
Dragonfly, aSeries and the CP100 Sonar Module utilize dual-channel CHIRP transducers. DownVision produces a 60° side-to-side and 1.4° fore to aft beam. The second element provides a conical shaped beam for imaging fish targets, ensuring you will never miss any of the action below your boat.

DownVision transducers are available in transom mount, trolling motor and thru-hull mounting options.

*CPT-70 and CPT-80 plastic/bronze through hull transducers also available.*



Ultra wide DownVision™



Fish Targeting Sonar



## VIEW THE WORLD BENEATH YOUR BOAT LIKE NEVER BEFORE

### Digital Sonar

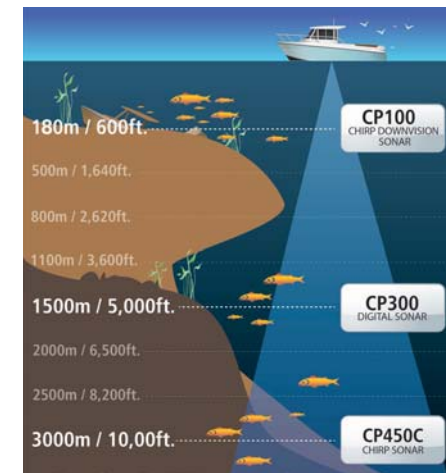
Raymarine is a pioneer in digital sonar technology and our latest generation of digital sonar delivers reliable, fully automatic, fish targeting and bottom detail. Available built in to aSeries, cSeries and eSeries MFDs or step up to the offshore performance of the CP300 network sonar module.

### CHIRP DownVision™

Raymarine's award winning CHIRP DownVision technology gives anglers underwater vision so close to reality we call it Visionality™. Image structure and target fish on a single sonar display in depths down to 600ft. (180 meters). Dragonfly, a68/a78 and the CP100 are equipped with CHIRP DownVision technology.

### CHIRP Sonar

Go beyond high definition sonar and go further offshore with the CP450C CHIRP sonar module. CP450C CHIRP technology identifies and separates baitfish from predators and delivers bottom tracking down to 10,000ft. (3000 meters).



Sonar depth performance guide



## CP100 CHIRP DOWNVISION SONAR MODULE



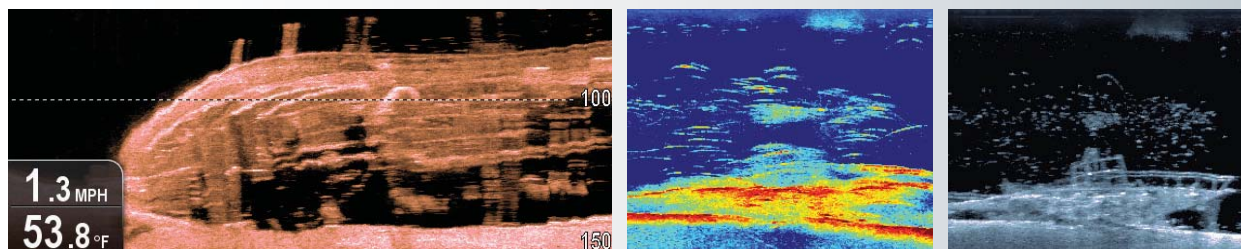
CHIRP  
DOWNVISION  
ONBOARD

### Underwater Vision

The CP100 network sonar module brings CHIRP DownVision technology to Raymarine's multifunction displays. CP100's CHIRP DownVision delivers a photo-like view of the world beneath your boat, allowing you to image bottom structure with amazing detail and target fish simultaneously.

### CHIRP Technology

Unlike conventional imaging sonars that transmit a single frequency with each pulse, the CP100 uses CHIRP technology to transmit across a wide spectrum of sonar frequencies with each pulse – the result is much higher resolution, photo-like sonar images.



CHIRP technology lets you image structure and pinpoint fish on a single sonar display



### Key features:

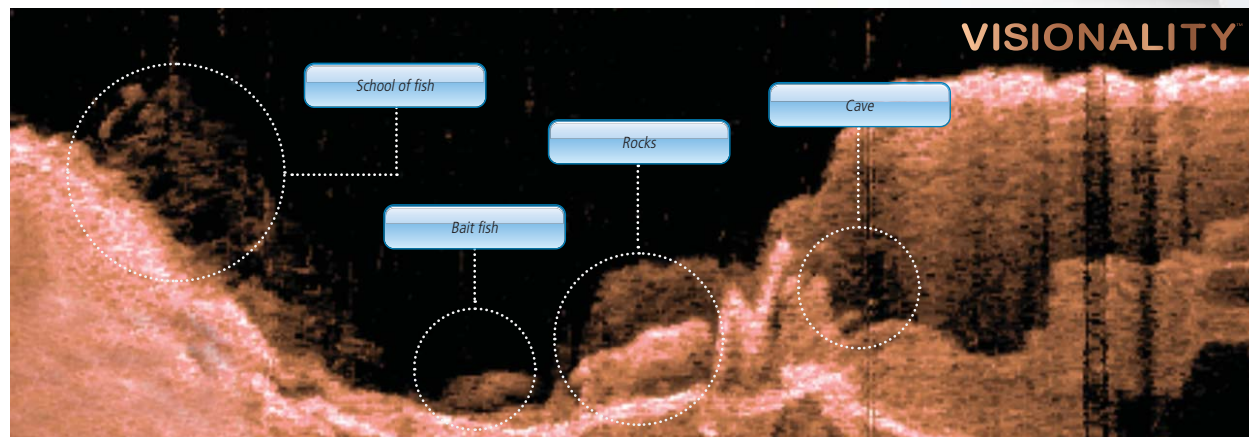
- Photo-like images of bottom structure with CHIRP DownVision
- Dual-channel; view high resolution CHIRP DownVision structure imagery and target fish with CHIRP sonar at the same time
- Network with Raymarine's latest multifunction displays. From the compact aSeries to the flagship gS Series the CP100 brings underwater vision in resolutions up to 1280 x 800 pixels
- Perfectly matched dual-beam CHIRP transducers available in transom mount, plastic and bronze thru-hull configurations

### Freshwater Fishing

The CP100 is ideal for freshwater anglers. Combined with Raymarine eSeries HybridTouch displays, the CP100 lets freshwater anglers create a multi-display network with HybridTouch control. Photo realistic CHIRP DownVision™ easily identifies the habitat of bass and other fresh water species.

### Coastal Fishing

With depths down to 600ft (180 meters), CP100 is perfect for coastal and bay fishing. View wrecks with unmatched clarity and use the second CHIRP channel to target bait and predators.



CPT-100 Transom Mount  
Transducer

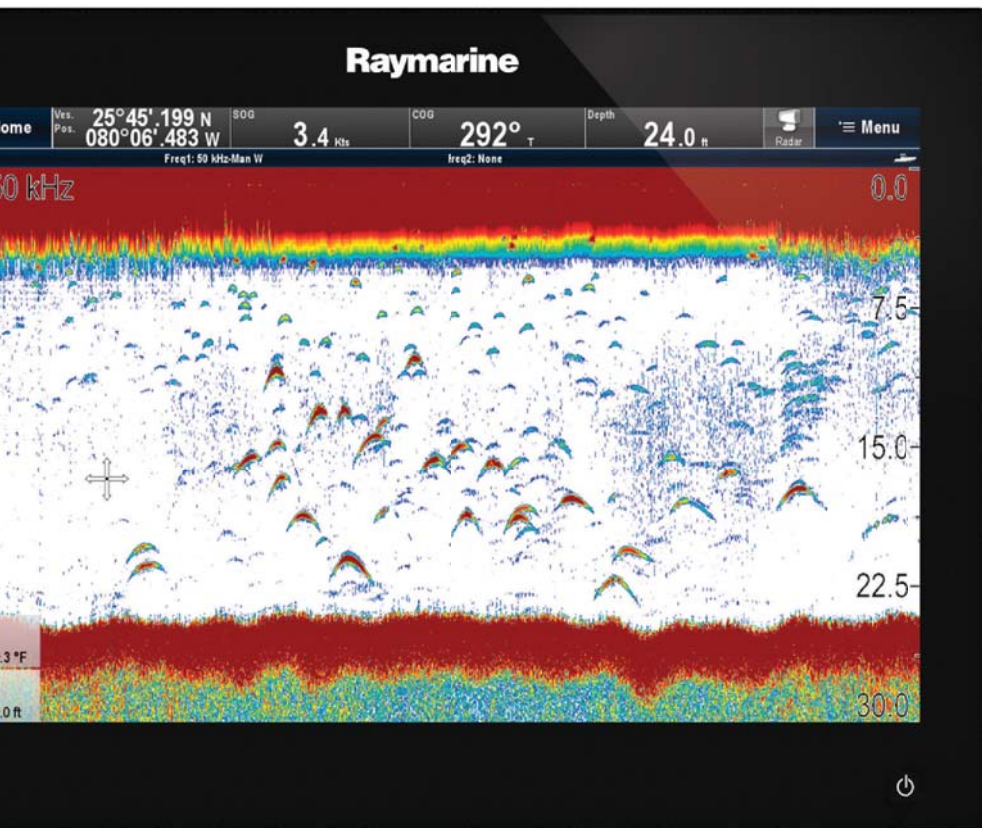


CPT-110 Through Hull Plastic  
Transducer



CPT-120 Through Hull Bronze  
Transducer with Fairing Block





## CP450C CHIRP HIGH PERFORMANCE SONAR MODULE

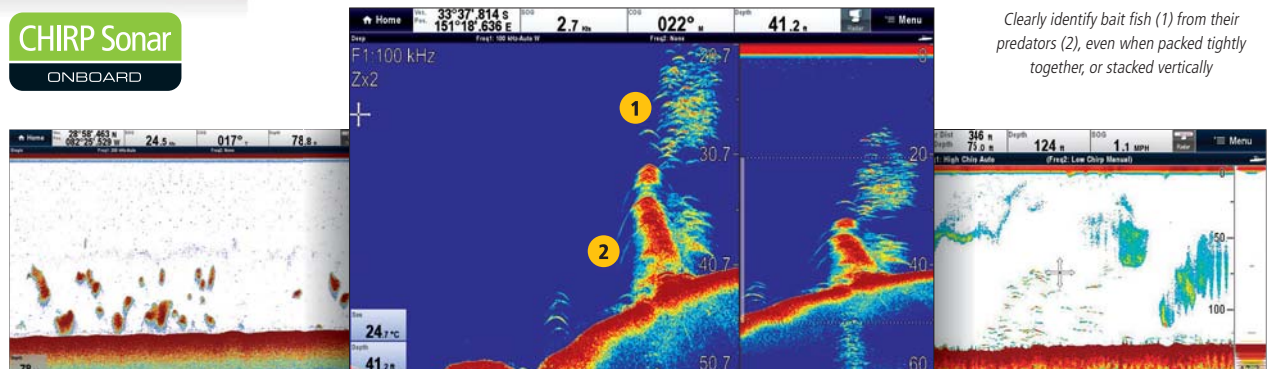
Built for the offshore angler that demands the best, the CP450C with CHIRP sonar technology goes beyond high definition sonar and delivers increased resolution, enhanced fish targeting and deeper depth performance. Easily identify and separate baitfish from predators using Raymarine's exclusive CHIRP sonar processing.

- TruZoom™ mode for a precise magnified view of fish targets, bottom structure and baitfish without any loss of resolution seen with traditional sonar
- Fast Pulse Rate with 80 pulses a second and enhanced shallow water and high-speed operation
- Network compatible with all the latest generation of Raymarine multifunction displays
- Dual CHIRP channels – 2 independently adjustable channels. Each channel can be customised to specific frequency bands along with independent manual and auto adjustment settings
- Low, medium and high frequencies for excellent performance at all depths – supports CHIRP transmissions from 25kHz to 255kHz with additional mid-band frequency support in the 75kHz to 130kHz range

### CP450C Applications: Offshore Fishing

With depth capability down to 10,000ft. (3,000 meters) the CP450C is the choice of competitive offshore anglers. From tuna to billfish the CP450C delivers incredible imagery and underwater intelligence.

CHIRP Sonar  
ONBOARD



Clearly identify bait fish (1) from their predators (2), even when packed tightly together, or stacked vertically





## CP300 DIGITAL SONAR MODULE



For compatible transducer information, go to our website [www.raymarine.com](http://www.raymarine.com)

Digital Sonar

ONBOARD

The CP300 Digital sonar module is for anglers looking to step up to more power and offshore performance. Using Raymarine's new and enhanced digital receiver technology the CP300 intelligently adjusts every sonar variable automatically and eliminates unwanted noise from the display. The result is accurate, easy to interpret fish targeting and bottom imaging.

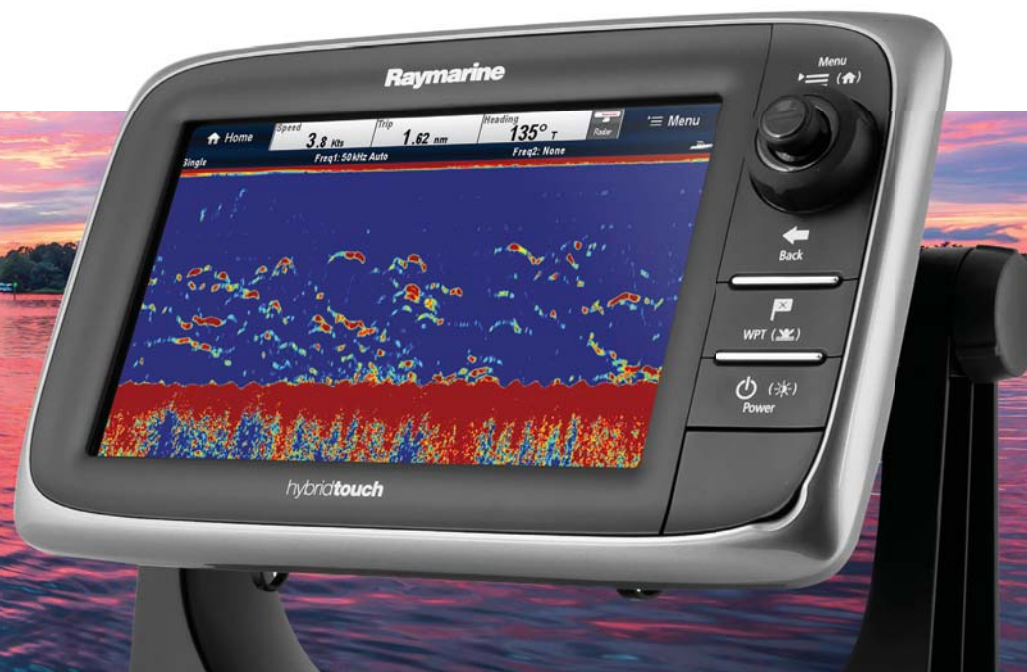
- For anglers looking for enhanced performance above and beyond the built-in sonar option on Raymarine multifunction displays
- Dual frequency. 200kHz for coastal fishing and 50kHz for offshore
- Automatically adjusts and adapts for a clear image of fish and bottom structure in depths down to 5,000ft. (1,500 meters)
- Compatible with a broad range of 600W and 1000W transducers. Including in-hull, transom mount, and thru-hull option
- Improved digital filtering technology for accurate fish targeting
- Longer pulse lengths and faster ping rates deliver enhanced bottom tracking

### CP300 Applications: Coastal and Offshore Fishing

With up to 1000W of output power the CP300 is the ideal sonar for coastal anglers that make the occasional foray offshore.

	Depth Performance Guide	
	Metres	Feet
CP100 CHIRP DownVision Sonar Module	183	600
CP300 Digital Sonar Module	1,500	5,000
CP450C CHIRP Sonar Module	3,000	10,000

	Product Compatibility		
	CP100	CP300	CP450C
aSeries	•	•	
cSeries / eSeries	•	•	•
gS Series	•	•	•
eSeries Classic		•	
c/eSeries Widescreen		•	





# RACE, CRUISE OR FISH EVOLUTION WILL TAKE COMMAND

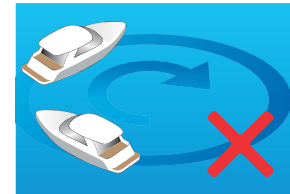
## Evolution Technology

The culmination of Raymarine autopilot expertise, FLIR Systems' R&D, and advanced aerospace guidance technology, Evolution Ai control algorithms deliver a new level of accurate autopilot control.

## Evolution Ai™ – Autopilot Intelligence

Evolution autopilots perceive their environment and instantly calculate and evolve steering commands to maximize performance. The result is precise and confident course keeping, regardless of vessel speed or sea conditions.

## Why you need Evolution



### Automagic™

- No lengthy calibration procedures to perform
- No compass calibration required
- Plug and play connections



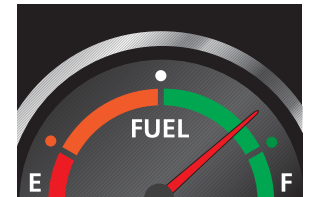
### Easy to install

- Freedom from the restrictions of conventional heading sensors
- EV sensor core can be installed above or below deck
- Install upsidedown or off the vessel's centreline



### Aerospace Technology

9-axis precision monitoring of pitch, roll, yaw and heading



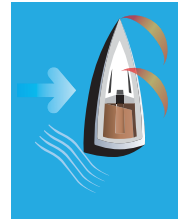
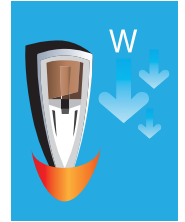
### Fuel Efficient

Evolution autopilots steer so accurately they will save fuel and get you to your destination faster



## Evolution perfect on all points of sail

- Downwind with kite up
- Beam reach with quartering sea
- Upwind in short chop



## Easily selectable performance modes



### Race Performance

When only the best will do. Razor sharp course keeping. Fine-tuned for racers!



### Cruising Performance

Superb course keeping and crisp turns in all conditions – the Raymarine skippers choice



### Leisure Performance

For relaxed boating, when soaking up the sun is more attractive than precise course keeping

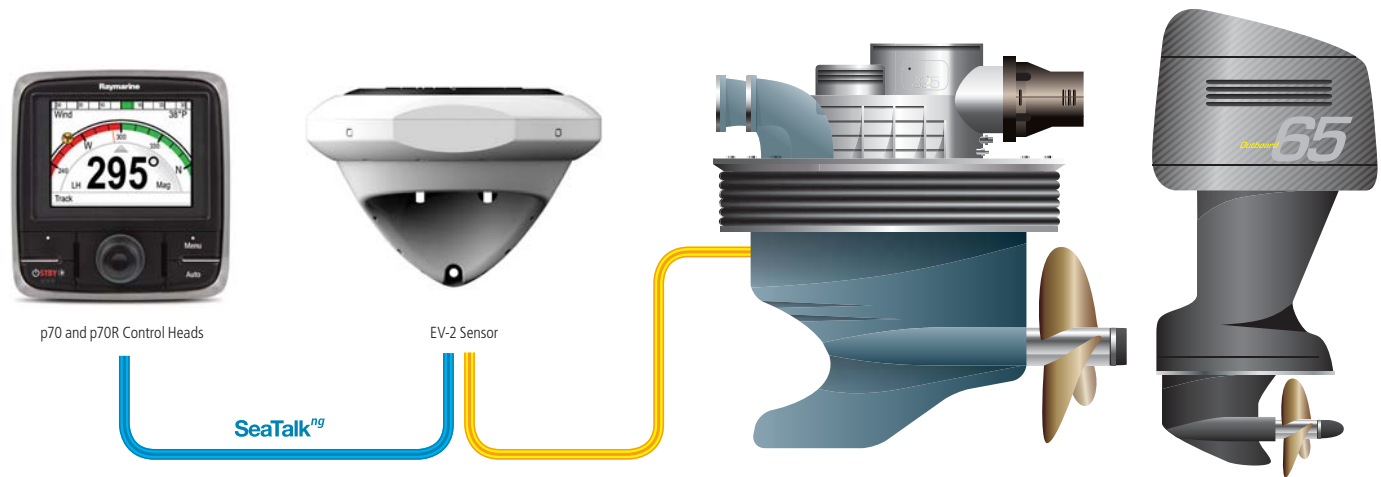


### EV-2 for Drive-by-Wire Propulsion

EV-2 has been designed for the latest drive-by-wire steering systems and connects directly to Raymarine's SeaTalk<sup>ng</sup> bus. EV-2 also has a dedicated CAN Bus port for direct connection to steer-by-wire steering systems – such as ZF Pod Drives, Yamaha Helm Master, Volvo IPS\* and SeaStar Solutions Optimus systems.

A single CAN Bus connection to the EV-2 eliminates the need for an Autopilot Control Unit (ACU), further simplifying installation.

\* Use a Raymarine ECI-100 Universal Control and Engine Interface for a quick and easy install.



**Drive-by-Wire Partners:** • SeaStar Solutions (Optimus 360 and Optimus eps) • Volvo Penta • ZF • Yamaha Helm Master



### EV-1 Cockpit and Inboard Autopilots

EV-1 autopilots consist of a Control Head, EV-1 Sensor, Autopilot Control Unit (ACU) and drive unit. The drive unit (inboard mechanical/hydraulic or cockpit mounted), and correct ACU for your vessel is dependent on the steering system and displacement of the vessel itself.

For more information about Evolution, visit our website [www.raymarine.com](http://www.raymarine.com) or contact your Raymarine dealer



p70 or p70R Control Heads



EV-1 Sensor



Autopilot Control Unit (ACU)



Drive Unit



### Fishing Patterns

Fishing patterns are available when the p70 and p70R control heads are used with Evolution.

### Flexible Control

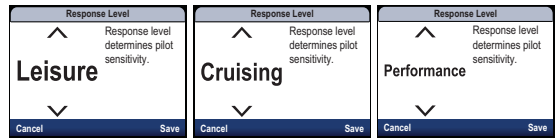
Control Evolution from the p70/p70R control heads or direct from your Raymarine MFD.





### Autopilot Control

Complete your Evolution autopilot system with a p70 or p70R autopilot control head. The p70 and p70R feature vibrant color displays and are powered by Raymarine's intuitive LightHouse user interface. LightHouse organises all options into simple menu structures, so with Evolution's Automagic 3-step setup process you will be up and running in minutes.



### p70 Control Head

Designed for sailing yachts, the p70 offers simple 1 and 10 degree direct course changes at the touch of a button.



### p70R Control Head

Features a rotary dial control for power boaters. Use the rotary dial for menu and course changes or activate power steer mode and steer manually right from the p70R.

### MFD Pilot Control

Evolution pilots can also be controlled from aSeries, cSeries, eSeries and gS Series Raymarine multifunctional displays (MFD).





# THE EVOLUTION AUTOPILOT RANGE

## Cockpit Autopilots

EV-100 autopilots are installed in the cockpit of tiller and wheel steered yachts and smaller power boats. An EV-100 system consists of an EV-1 Sensor, ACU-100 Autopilot Control unit, drive unit and control head. The following table lists the cockpit pilots and their vessel suitability.



COCKPIT AUTOPILOTS						
Cockpit Pilot Description	Maximum Displacement	Vessel Type	Pack Contents			
			EV	ACU	Control Head	Drive
EV-100 Wheel	7,500kg (16,000lbs)	Sail	EV-1	ACU-100	p70	Wheel Drive
EV-100 Tiller	6,000kg (13,200lbs)	Sail	EV-1	ACU-100	p70	Tiller Drive
EV-100 Power	3,181kg (7,000lbs)	Power	EV-1	ACU-100	p70R	0.5L Hydraulic Pump

## Inboard Autopilots

The Evolution inboard range consists of autopilot packs designed to suit specific vessel types, steering systems and vessel displacements. Autopilot pack selection is, therefore, determined by:

1. The type of steering system installed on your vessel
2. Hydraulic steering systems; the pump has to be matched to the ram (in cc)
3. The size and displacement of your vessel – always take the fully laden displacement of your vessel into account (often 20% above the designed displacement)

With this information, the correct pack for your vessel can be selected from the table (right).



INBOARD AUTOPILOTS						
Drive Units	RAM Capacity cc / cu in (Hydraulic)	Vessel Displacement kg / lbs	Autopilot Control Unit			
			EV-100	EV-200	EV-300	EV-400
Type 0.5L Hydraulic Pump	50–150 / 3–9	NA	●			
Type 1 Hydraulic Pump	80–230 / 4.9–14	NA		●		
Type 1 Mechanical Rotary / Linear Drives		11,000 / 24,000		●		
Type 1 Universal Stern Drives		NA		●		
Type 2 Hydraulic Pump	230–350 / 14–21	NA				●
Type 3 Hydraulic Pump	350–500 / 21–30.5	NA				●
Type 2 Hydraulic Linear		22,000 / 48,000				●
Type 3 Hydraulic Linear		35,000 / 77,000				●
Type 2 Short Mechanical Linear Drives		15,000 / 33,000				●
Type 2 Long Mechanical Linear Drives		20,000 / 44,000				●
Type 2 Mechanical Rotary Drives		20,000 / 44,000				●
Solenoid Drive Units		NA			●	
ZF Saildrive Systems		NA				●

## Raymarine Evolution Autopilots work with...



aSeries



cSeries and eSeries



g5 Series



Instruments



ST1000/ST2000 Tillerpilots. Go to [www.raymarine.com](http://www.raymarine.com)



## i70 MULTIFUNCTION INSTRUMENT

Our most advanced and versatile instrument display, the i70 multifunction instrument's powerful features are very easy to use. The large 4" LCD screen gives superb visibility at distance and acute angles.

### Key features

- 4" over-sized LCD display with 160° viewing angles
- 43mm digits in full screen mode
- Anti-reflective coating for improved visibility in bright sunlight
- LightHouse user interface is simple and quick to use
- AIS repeater and display of AIS targets
- Data views include: Wind, Speed, Depth, Tridata, Engine (NMEA 2000), Environment (NMEA 2000), Fuel (NMEA 2000) and Navigation
- Low power – typically 132mA/ 1.6W





Four-button user interface

Choice of 4 color palettes

Anti-reflective coating for improved visibility

Low-profile housing



Analog style



Digital style



### Intuitive LightHouse User Interface

LightHouse intuitively places frequently used navigation functions right at your fingertips. The LightHouse user interface is consistent with Raymarine multifunction displays, so once you are familiar with i70 you'll be at home with Raymarine MFDs too.



### AIS Repeater

Display AIS targets from NMEA 2000 AIS receivers. View the closest 25 AIS-equipped vessels and select individual targets to obtain vessel information.

### Converting Analog to Digital

Pair i70 instruments with the ITC-5 instrument transducer converter for seamless integration with analog depth, wind, speed, compass and rudder transducer.

### Customization

The Raymarine i70 instrument is easily customized to suit your personal boating requirements. From traditional analog dials to engine information and tank levels, i70 has the capabilities to show it all.

### Networking

Raymarine i70 seamlessly integrates with NMEA 2000 using SeaTalk and SeaTalk<sup>ng</sup> marine networks. User-selectable data sources allow integration on multi-sensor networks.



## i50 AND i60. ANALOG AND DIGITAL INSTRUMENTS

The i50 and i60 instruments are designed to complement Raymarine's latest generation multifunction displays. These stylish, dedicated-function instruments are the perfect solution for smaller power boats, yachts and RIBs. The i50 range consists of 3 digital displays: speed and depth displays with extra-large digits and a multi-line tridata unit. Designed primarily for the sailboater, i60 covers wind and closehauled wind options in analog and digital formats.

Excellent viewing angles for both day and night conditions and simple, push-button controls make i50 and i60 instruments extremely easy to see and use. They are also simple to install thanks to the front-mount design.

### General Features

- i60: Large analog dials
- i50: Large numerals and digits
- SeaTalk and SeaTalk<sup>ng</sup> interfaces
- NMEA 2000 (compatible) interface
- Built-in transducer interface
- 110mm x 115mm footprint
- Low power consumption
- Multiple data source support eliminates potential data conflicts
- Front mounted design for simple installation



### i50 Depth

- Large digits
- Depth trend indicator
- Minimum and maximum depth
- Audible shallow, anchor and deep water alarms

### i50 Speed

- Speed Through Water or Speed Over Ground (GPS required)
- Sea surface temperature
- Trip and Log data

### i50 Tridata

- Combines depth and speed data
- Easy-to-read 3-line display; dedicated depth and speed displays
- Trip/log, sea temperature and SOG



Red back lighting for enhanced night time visibility

### Long/Short Arm Wind Transducers

Compatible with:

- i60 (direct connection)
- i70 via iTC-5 transducer converter



### Speed/Depth/Temp Transducers

Go to our website [www.raymarine.com](http://www.raymarine.com) to see compatible transducers for use with Raymarine instruments.



**i60 Wind**

- Analog and digital data
- Calculates Apparent (relative) and True Wind Speed/Angle (true wind requires SeaTalk Speed Through Water data)

**i60 Close Hauled Wind**

- The perfect instrument when a single degree can make all the difference
- Magnified 20° – 60° display

**i40 COMPACT SPEED, DEPTH, WIND AND BIDATA INSTRUMENTS**

Big displays for smaller powerboats, yachts and RIBs, these compact yet powerful SeaTalk instruments offer full integration with Raymarine autopilots and navigation equipment and can be surface or trunion-mounted. Easy-to-use i40 instruments have extra-large (28mm max) digits and razor sharp LCDs for outstanding visibility in all lighting conditions.

**General Features**

- Red backlighting for improved night visibility
- SeaTalk interface (SeaTalk<sup>ng</sup> when used with SeaTalk converter)
- Built-in transducer interface
- Large controls for ease of use at sea
- Low power consumption

**i40 Speed**

- Current, maximum and average boat speed
- Log, trip and sea temperature

**i40 Bidata**

- Speed, depth, log
- Sea temperature
- Two sets of data at once in large or small digits

**i40 Wind**

- Apparent Wind Speed and direction and True Wind Speed and direction
- Talks to your autopilot to steer your boat to a chosen apparent wind angle

**i40 Depth**

- Crystal-clear depth readout.
- Shallow and deep anchor alarms and minimum depth display

**Rotavecta Wind Transducer**

Compatible with:

- i40/i60 (direct connection)
- i70 via iTC-5 transducer converter



## RAYMARINE WIRELESS INSTRUMENTS

You need instant access to accurate data, and displays that are absolutely reliable. Raymarine Wireless instruments display all the data you'll need and there are no wires running through your hull or down your mast.

### Wireless Displays



#### T112 Analog Display

- Solar powered
- 300 hours autonomy
- Combination of display formats
- Large 14mm (0.56") digits
- Simple to configure



#### T111 Dual Display

- Solar powered
- 300 hours autonomy
- Displays 2 lines of data
- Large 20mm (0.8") digital readout



#### T110 Multifunction Display

- Solar powered
- 300 hours autonomy
- Displays any single data type
- Super-large 38mm (1.5") digital readout

## Wireless Racing Displays

### T070 Race Master

- Tactical race compass and wind shift indicator
- Heading and distance above or below mean course
- Displays how much you're being headed or lifted
- Quickly establish favoured end of the start line
- Sail the shortest distance to the windward mark



### T060 Micro Compass

- Light and easy to read
- Reliable and precise
- Tactical scale provides clear, stable figures for port and starboard tacks
- When tacking, readings are always the same, so you never have to remember numbers







### T210 Maxi Display

- Large, solar-powered mast display
- Designed for racing yachts
- Provides highly visible and accurate data
- Massive 50 mm (2 in) digits



### T215 Dual Maxi Display

- Excellent visibility by night
- Red or amber digits allows you to select different colours for different data.
- Control and configure from anywhere onboard with the Raymarine Wireless Remote Display



### T113 Wireless Remote

- Not just a remote control, more an essential item of equipment for those serious about winning.
- The Raymarine Wireless Remote Display controls, configures and repeats all the data you need to improve performance, including: Wind trends; Speed trends; VMG to wind and waypoint; SOG; COG; performance graphing.



### Wireless Wind Transducer

This robust, solar powered wireless Wind Transducer transmits data from the top of your mast wirelessly to Raymarine wireless displays.



### Wireless Vertical Wind Transducer

A wireless and solar powered wind transducer for Raymarine wireless displays.



### Speed/Depth/Temp Transducers

Go to our website [www.raymarine.com](http://www.raymarine.com) to see compatible transducers for use with Raymarine instruments.

## THERMAL NIGHT VISION CAMERAS

Thermal night vision cameras from Raymarine give captains the confidence to navigate safely in total darkness.

Engineered with genuine FLIR thermal imaging technology, Raymarine's thermal night vision cameras are designed for simple, seamless operation with Raymarine multifunction displays.

Day or night, thermal imaging cameras deliver enhanced levels of safety and situational awareness, allowing you to clearly see other vessels, navigation hazards, buoys, and much more.

### Handheld, Fixed-Mount, or Full-Motion Systems

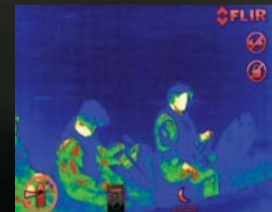
Previously reserved for military, law-enforcement and ultra-luxury vessels only, thermal night vision technology is now available for every boater.

Choose from the portable TH-Series marine scopes or the affordable T200 series fixed mount thermal cameras. For a 360 degree view, step up to T300 and T400 with pan, tilt and zoom.

Your night vision



Thermal night vision





### Every Raymarine thermal night vision camera offers:

**Superior FLIR thermal imaging technology.** As the worldwide leader in thermal technology, FLIR Systems are the choice of military and law enforcement professionals.

**Ease of use.** As simple as watching and controlling your TV.

**Day and night operation.** Thermal imaging camera systems are amazing at night, but are also just as effective at seeing through bright sun, glare, haze and more.

**The best man-overboard detection.** If one of your crew should fall overboard, a Raymarine thermal camera is your best bet in low visibility to find and track them so you can quickly get them back on board.



### TH-Series Handheld Thermal Night Vision

- Two models available: TH24 and TH32
- Simple three-button operation
- Rugged all-weather design
- Long-life rechargeable Li-ion battery
- 24° and 18° field of view



### T200 Series Thermal Night Vision

- Compact, fixed mount cameras
- Look-ahead visibility, targeting objects in the vessel's path
- Simple installation
- Easy integration with Raymarine multifunction displays
- User-selectable color palettes for enhanced on-screen visibility
- 2x and optional 4x digital zoom for enlarging far-away targets
- Standard and high-resolution options





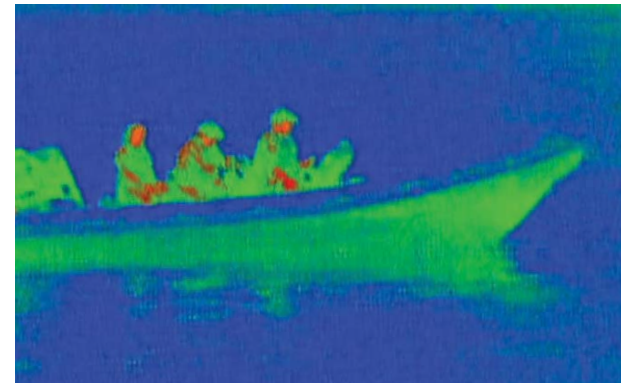
eSeries MFD with dual-payload T400 Series thermal camera



### T300 and T400 Series Thermal Cameras

- Full pan, tilt and zoom capabilities
- Simple touchscreen control from Raymarine multifunction displays. Simply swipe your finger to slew the camera
- T300 models feature single payload thermal camera standard or high-resolution FLIR thermal imagers
- T400 dual-payload models add a high-resolution day/night lowlight camera. Anywhere your eyes can see just a little, the lowlight camera will show you a whole lot more
- Optional 2-axis gyro-stabilized models provide steady imagery in heavy seas and a color low-light camera with 10x optical zoom

T300 Series  
single-payload thermal camera



RIB and crew clearly visible in this midnight image



Thermal image of bridge structure at night and what the human sees (inset)



Dockside cranes (1) and ferry boat (2) at night with hot funnels glowing





360° continuous pan and +/- 90° tilt

**Slew-to-Cue Target Tracking.** Slew-To-Cue improves situational awareness and safety. Thermal camera automatically keeps “cued” targets in view at all times

**Chart Object Slew-to-Cue.** Touch the display (cue) and the thermal camera automatically moves to the cursor position (slew), allowing you to keep chart objects like buoys or obstructions in constant view.

**Auto Slew to AIS and MARPA Targets.** T Series cameras and Raymarine MFDs can Auto Slew to dangerous MARPA and AIS targets, keeping dangerous targets in the camera’s sight during limited visibility situations.

**MOB Auto Slew.** The MFD and thermal camera will Auto Slew to a Man Over Board alarm location, maintaining the Man Over Board position in view at all times during a rescue situation.

Gyro stabilised imager; target still in view despite bow rise and fall



	TH and T-Series Range and Detection	
	MOB	Klein schip
TH24	320m (1.050ft)	895m (2.940ft)
TH32	450m (1.500ft)	1.230m (4.035ft)
T200/T203/T223/T220	450m (1.500ft)	1.280m (4.200ft)
T253/T250/T273/T270	820m (2.700ft)	2.200m (1.2nm)
T403/T400/T300/T303	450m (1.500ft)	1.280m (4.200ft)
T453/T450/T353/T350	820m (2.700ft)	2.200m (1.2nm)
T463/T460	1.200m (4.000ft)	3.200m (2.0miles)
T473SC/T470SC	1.200m (4.000ft)	3.900m (2.4miles)

### Range and Detection

The range at which Raymarine thermal night vision cameras detect objects is shown in the table (right). However, actual object detection range performance may vary depending on camera set-up, environmental conditions, user experience and display type.

### Thermal Cameras work with...



eSeries and cSeries MFDs



gS Series Glass Bridge Displays



### Raymarine Control Apps

RayControl transforms tablets into both a viewer and full function, 2-way control; the tablet syncs with the multifunction display and users touch the tablet screen to control the MFD. RayControl also features ‘pop-out’ virtual keypad mirroring the MFD’s rotary controller and hard keys, enabling users to operate all available functions wirelessly and remotely. RayControl works with all of Raymarine’s eSeries, cSeries and gS Series MFD’s.

## RAYMARINE AIS. RECEIVERS AND TRANSCIVERS... SEE AND BE SEEN!

AIS (Automatic Identification System) systems enable the wireless exchange of navigation status between vessels and shore-side traffic monitoring centres. Commercial ships, ocean-going vessels and recreational boats equipped with AIS transceivers broadcast AIS messages that include the vessel's name, course, speed and current navigation status.



AIS Targets overlaid on radar screen (left) and on chart (right)

### Receive-only AIS

- Inexpensive and low-powered
- These systems only receive information from other vessels (whether transmitting using Class A or Class B)
- Information about the vessel on which they are installed is not transmitted

### Class A AIS

- Required for IMO/SOLAS commercial vessels
- Class A transmits and receives the full set of AIS information

### Class B AIS

- For small commercial vessels and pleasure vessels that do not need to comply with IMO/SOLAS regulations
- Transmits shortened/simplified AIS information at a slightly less frequent rate than Class A
- Provides less AIS functionality than Class A
- Uses lower transmission power

eSeries display with AIS overlaid on chart/radar screen (left)





### AIS350 Receiver Only (Class B)

- Dual-channel receive-only
- For small vessels wanting increased situational awareness, but without the need for Class B transmitting capability
- Low cost alternative brings AIS safety advantages to a wider range of vessels

### AIS650 Transceiver (Class B)

- Send your boat's data to AIS equipped vessels
- Receive and see data on Raymarine MFD radar and/or chartplotter screens
- Engineered for high performance and seamless integration with Raymarine navigation systems



AIS Target Info: THE DIEGO			
Position	26°05'.606N 080°07'.097W	COG	000°T
Heading	101°T	SOG	0.0kt
ROT	+000°/min S	CPA	0.401nm
MMSI	222990055	TCPA	00h23m55s
Call sign	SYCB	Last seen	10/30/2006
IMO No	5204484		10:52:53AM
Length	608ft	Dest	PORT EVERGLDES
Beam	103ft	ETA	10/30
Draught	38.1ft	Status	Moored
		Vessel	Tanker

AIS Target List			
No.	Name/MMSI	Rng	Brg
7	235013829	1.585nm	134.5°S
8	235007472	2.065nm	119.9°S
9	235899935	2.642nm	38.8°S
10	PILOT V/L HAMPSHIRE	3.683nm	122.9°S
11	440079000	4.216nm	131.6°S
12	THORAX	4.457nm	157.9°P
MMSI	235014661	Position	50°45'.515N
Last seen	03/14/2007		001°05'.433W
	04:10:23PM	Heading	---°T
Vessel	Pilot Vessel	ROT	---°/min

### AIS950 Transceiver (Class A)

- Combined receiver and transmitter
- Approved for deep sea and inland waterway (royalty costs apply) standards with intuitive user interface
- Fully compliant Class A AIS product
- Advanced radio communications technology
- Easy access to all information
- Large, high visibility mono LCD

## Marine Video Cameras



### CAM100

- Transforms Raymarine MFDs into onboard video observation systems
- Automatic switching between true color (Day) and black & white (night)
- Clear focus at night with Anti-IR focus distortion technology built-in
- Ideal for monitoring blind spots, decks, engine room, and cabins
- Composite video output



### CAM50

- Ideal camera for interior installations
- Dome design is ideal for mounting in the salon, wheel house or engine room
- Plug-and-play with Raymarine MFDs
- Ceiling or wall mount
- Manually adjustable pan and tilt
- Composite video output



## RAYMARINE VHF RADIOS... KEEP YOU IN TOUCH!

Raymarine's communications systems combine innovative, state-of-the-art technology with rugged waterproof construction, designed to withstand life at sea. Select the right VHF radio for your boat – single or multi-station VHF's, Class D DSC (Digital Selective Calling) and NMEA connectivity. Whether blue water cruising or fishing inshore, Raymarine has what you need for communications at sea.

### Ray260/Ray260E

- The premium Ray260 VHF radio
- Top-of-the-line communications features in a compact, modular design
- Works with small and large vessels alike
- Fully-featured 25 watt VHF radio
- Class D Digital Selective Calling (DSC)
- Loudhailer/foghorn with internal multi-station intercom
- Digital Voicemail allows you to pre-record a message up to 15-seconds and send it automatically to another DSC-equipped vessel
- Position tracking allows you to simultaneously receive position reports from up to 5 nearby DSC equipped vessels – perfect for keeping tabs on other boats in your cruising party, monitoring vessels of interest, or for local fleet management
- Ray260AIS gets a built-in dual-channel Automatic Identification System (AIS) receiver. When connected to a compatible MFD or instrument, AIS allows you to see names and positions of other AIS users within radio-range of your vessel
- NMEA 2000 certification



### Ray49/Ray49E

- Fixed mount ultra compact VHF
- Our most compact fixed mount DSC VHF radio
- Ideal for smaller boats
- Features crystal clear audio and remote microphone controls



### Ray55/Ray55E

- Fixed mount full featured compact VHF
- Programmable favorite channel soft keys
- Expand the Ray55 with the powerful RayMic remote handset

16 PLUS

*E variants (Europe and RoW) have a 16/Plus button on fascias and handsets*

16/9

*US non-E variants have a 16/9 button*

### Ray218/218E

- Large screen, high performance VHF
- All the features of the Ray55 plus a 30 watt loudhailer
- Optional RayMic remote handset offers full function radio control and intercom from a remote station



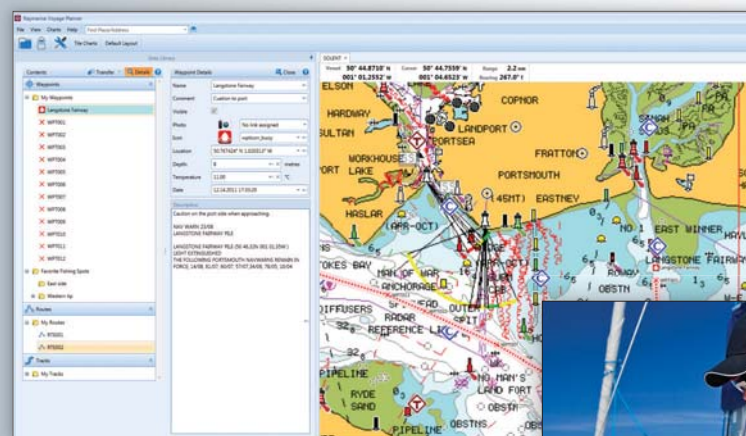
*European/RoW VHF models shown*

## VoyagePlanner Home Planning Software

Voyage Planner is a powerful, easy-to-use, home-planning and data management software solution designed for Raymarine MFDs.

- Easily manage waypoints, routes and tracks between your vessel's MFD and your home PC
- Real-time import and export with a PC whilst onboard
- Sync wirelessly via SeaTalk<sup>hs</sup> (Ethernet) or the internet via a Wi-Fi or router equipped PC or laptop. Alternatively, you can use a microSD card
- Import and export to Raymarine, GPX and KMZ formats

VoyagePlanner

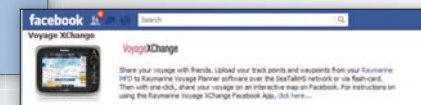


## Voyage Exchange

- Share routes and waypoints on Facebook
- Purchase a wide range of charts for use with your MFD display or Voyage Planner software
- Low-cost annual subscription – FREE 12 month access with the purchase of Voyage Planner software
- Share routes and waypoints on Facebook



 VoyageXChange



## SATELLITE TV ANTENNA SYSTEMS

Raymarine's Satellite TV antennas bring the same combination of high performance and ease-of-use to your onboard entertainment that you would expect from your home entertainment system.

- Compact domes
- Automatically track and receive satellite TV signals in almost any conditions
- Access to hundreds of digital channels
- Quickly identify and acquire satellite signals
- Once you have a fix on the satellite signal, tracking algorithms will help you keep it
- Designed to cope with tough conditions
- Dynamic Beam Tilting (DBT) continuously measures, and compensates for your vessel's heading, pitch and roll – keeping your antenna locked on a satellite for a clear picture

### Dual or Quad LNB

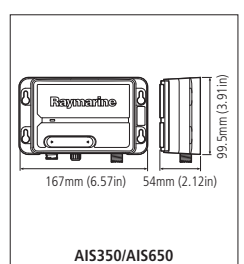
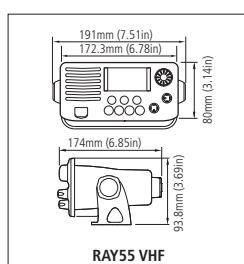
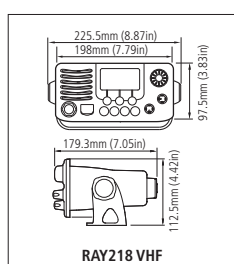
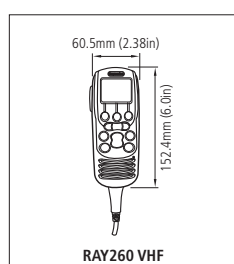
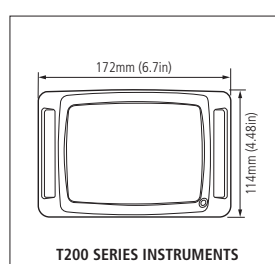
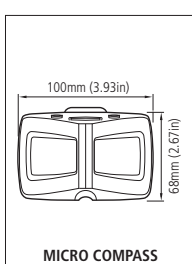
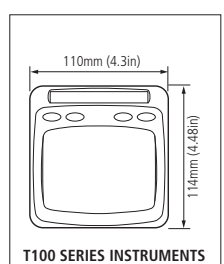
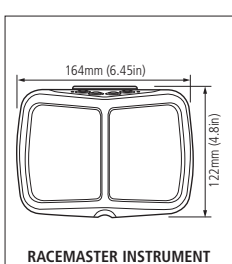
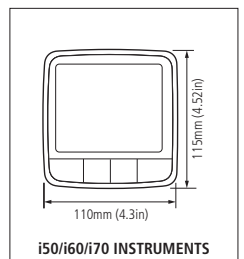
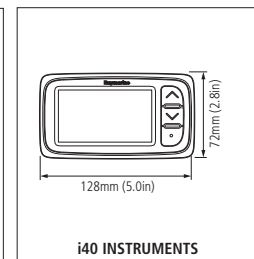
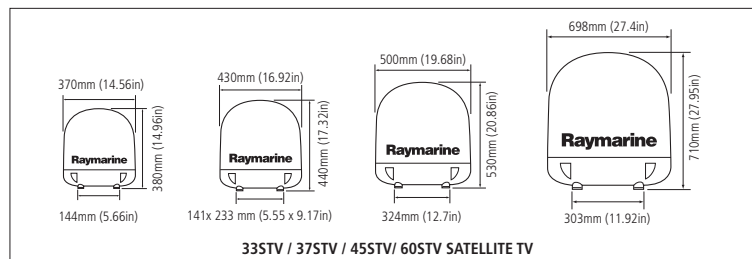
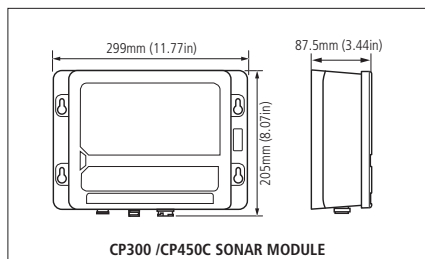
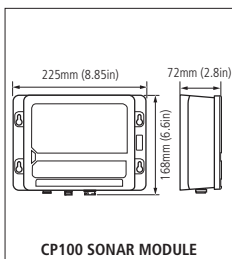
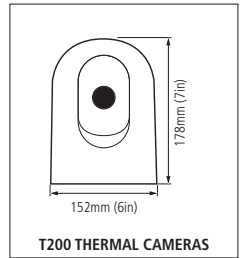
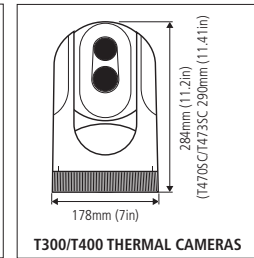
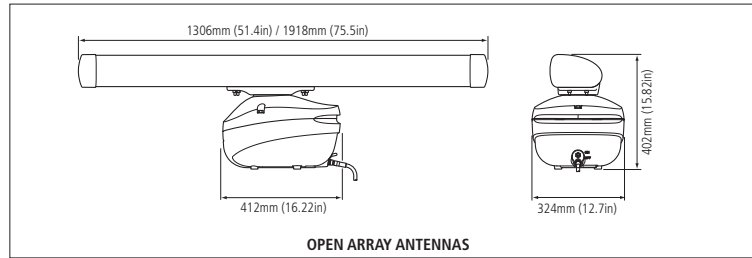
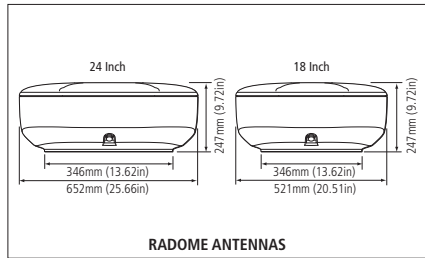
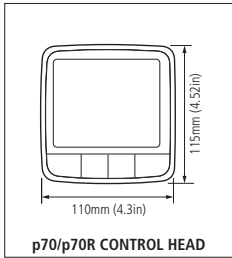
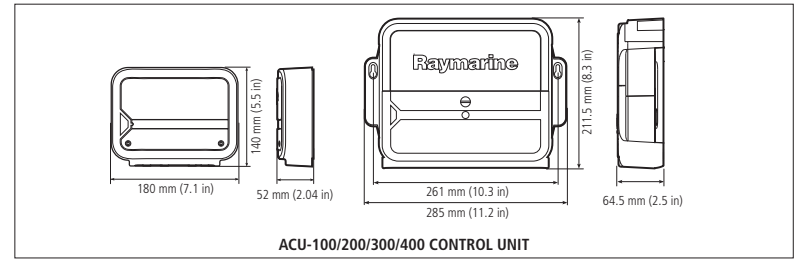
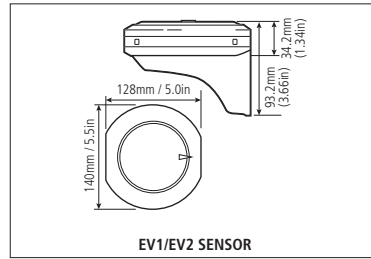
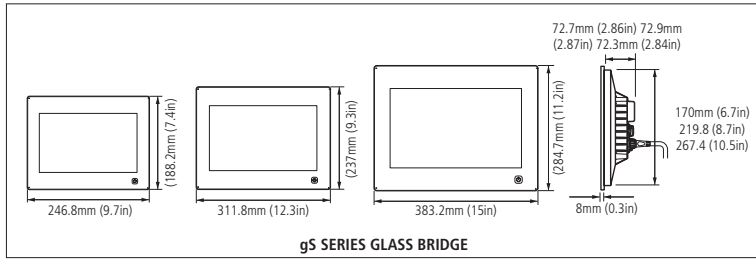
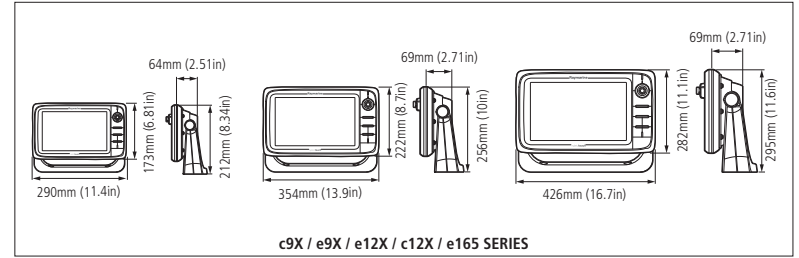
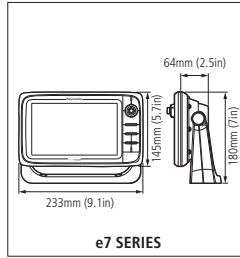
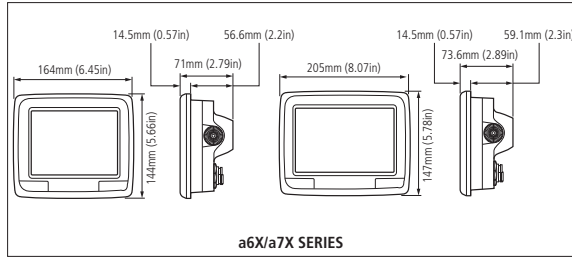
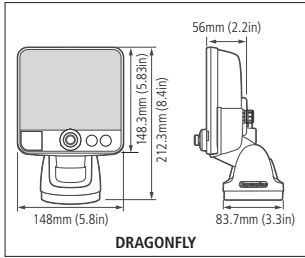
- Connect multiple television receivers and tune in to different channels on each television
- Dual systems (33 and 37STV) allow the connection of two television receivers and the Quad systems (45 and 60STV) connection of four receivers



	SATELLITE TV FEATURES			
	33STV	37STV	45STV	60STV
Dual or Quad LNB design for multiple receivers	Dual	Dual	Quad	Quad
DVB (Digital Video Broadcast) compatible	●	●	●	●
Dish diameter (cm)	13 in (33 cm)	14.6 in (37 cm)	17.7 in (45 cm)	23.6 in (60 cm)
Wide Range Search Algorithm for high speed search and fast satellite acquisition	●	●	●	●
Dynamic Beam Tilting (DBT) technology signal tracking in extreme weather and sea conditions	●	●	●	●
High Definition (HD) compatible	●	●	●	●
Enhanced signal reception and improved antenna gain for better performance				●
NMEA 0183 GPS position input capability for reduced acquisition time	●	●	●	●
Conical scanning detects strongest satellite signal for enhanced stabilisation	●	●	●	●
Enhanced elevation angles to maintain satellite fix				●
Automatic LNB skew control (not USA)			Optional	●
Rotating sub-reflector redirects signal for reduced dish movement and quieter operation	●	●	●	●
Suggested vessel size	20 - 25 ft (6 - 7.6 m)	25 - 35 ft (7.6 - 10.7 m)	35 - 50 ft (10.7 - 15.2 m)	over 50 ft (over 15.2 m)
Built in GPS		●	●	●
Tracks DUB-S2 or HD Transponders	●	●	●	●



# Product Dimensions





#### Safety Notices

Raymarine products are intended to be used as aids to navigation and must never be used in preference to sound navigational judgement. Their accuracy can be affected by many factors, including environmental conditions, equipment failure or defects, and incorrect installation, handling or use.

Only official government charts and notices to mariners contain all the current information needed for safe navigation, and the captain is responsible for their prudent use. It is the user's responsibility to use official government charts, notices to mariners, caution and proper navigational skill when operating any Raymarine product.

#### Content Note

The technical and graphical information contained in this brochure, to the best of our knowledge, was correct as it went to press. However, the Raymarine policy of continuous improvement and updating may change product specifications without prior notice. Therefore, unavoidable differences between the product and this brochure may occur from time to time, for which liability cannot be accepted by Raymarine.

#### Product Information

Product information contained in this brochure is subject to change without prior notice. Visit [www.raymarine.com](http://www.raymarine.com) for the most up-to-date information.

Some images in this brochure are used for illustration purposes only.

*Note: Equipment described herein may require US Government authorisation for export purposes. Diversion contrary to US law is prohibited.*

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Zeppelin (Jacques Vapillon)  
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**FREE WARRANTY UPGRADE**  
from 2 years to 3 years Go to [www.raymarine.com/warranty](http://www.raymarine.com/warranty)  
for more information and conditions