Next Generation Navigation

A look at the latest technologies and trends

by Digital Yacht

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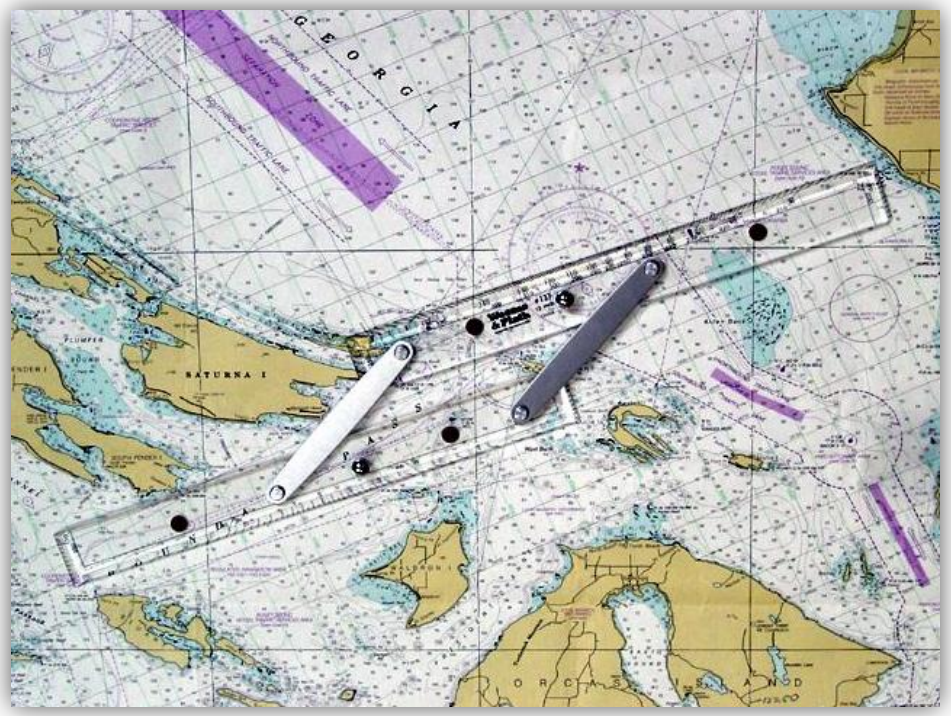
Contents

1. History Highlights of Yacht Electronics
2. Navigation Systems
3. Safety Equipment
4. Communication Equipment
5. Engines and Steering
6. Entertainment Systems
7. The Tablet and Smart Phone Revolution
8. GPS Navigation
9. Wireless NMEA
10. Apps – some examples

History Highlights

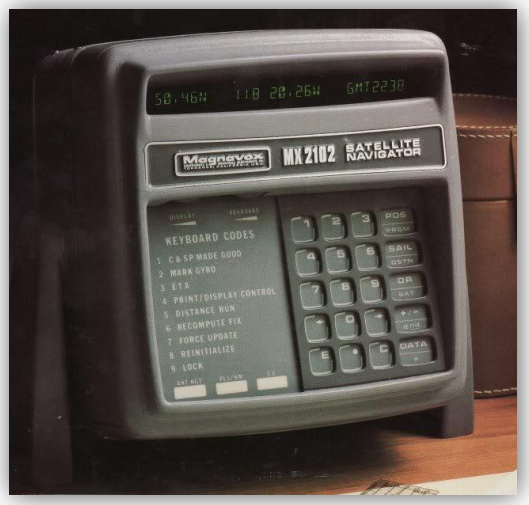
- Once upon a time…..things were so much simpler….

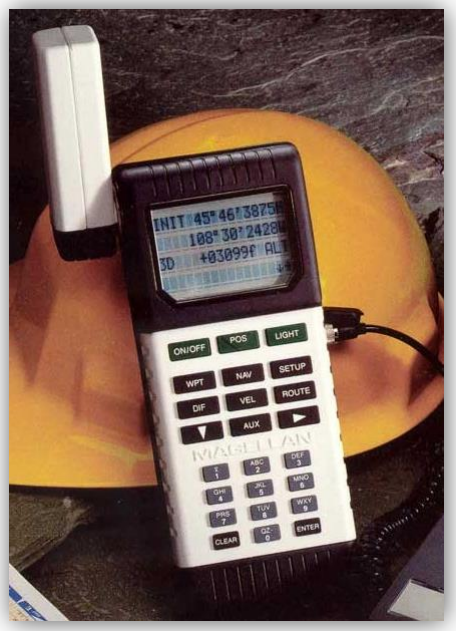


But things change…

- For Example Position Fixing Technology

Decca **>** ***Transit*** **>** ***GPS*** **>** ***Chart Plotter***





Step Changes

- Some changes are bigger than others
- Competition drives change
- Manufacturers constantly release new products
- The latest products may look different but do they perform differently ?

1990 2000 2010

Navigation Systems

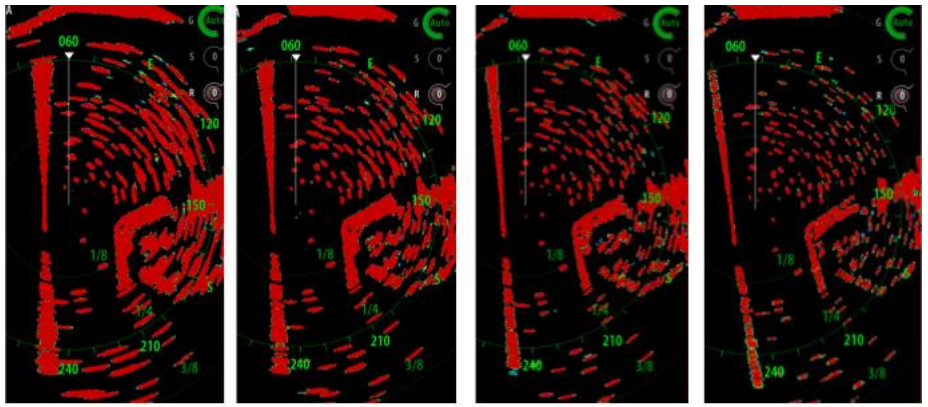
Recent Changes

- Touch Screen
- 3D Charting
- AIS Support
- Embedded Charts
- Multi-Function
- Networking

Safety Equipment

Recent Changes

- Broadband Radar
- AIS Systems
- AIS Sarts + MOBs



Communication Equipment

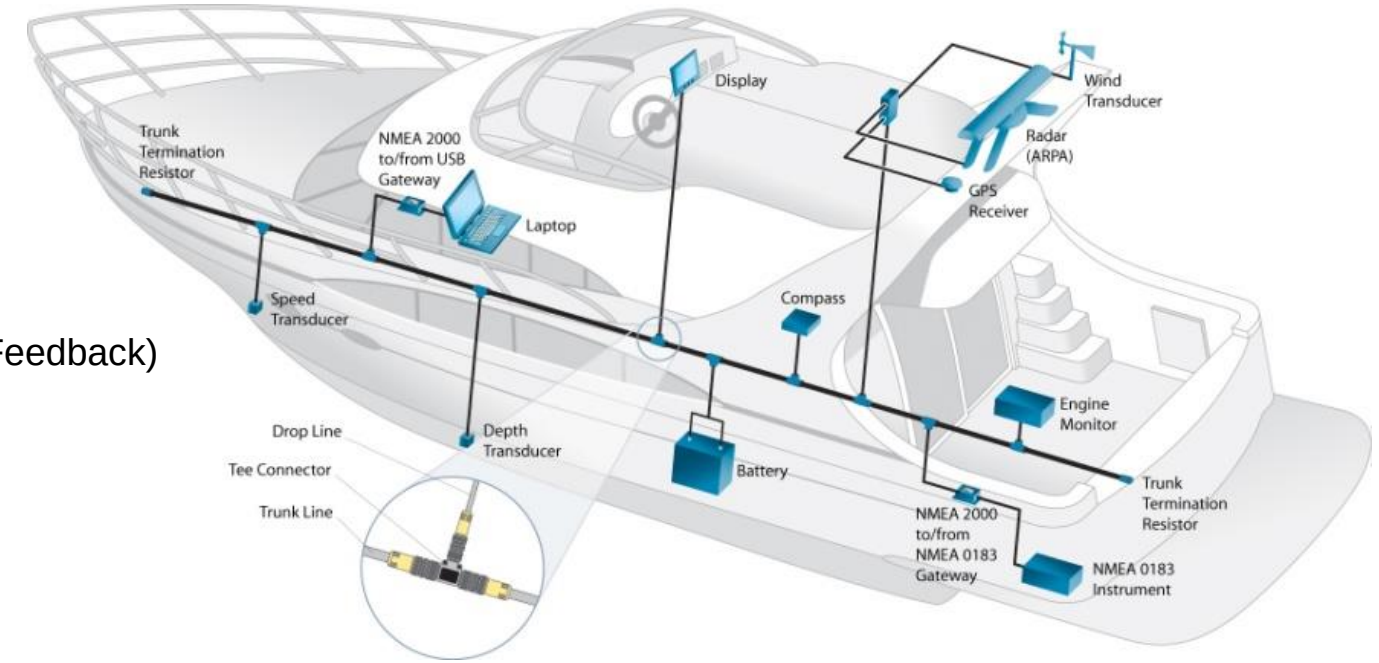
Recent Changes

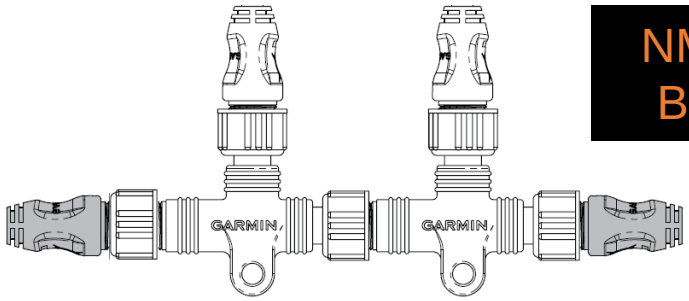
- DSC VHF (with built-in GPS)
- VHF+AIS
- Satellite Phones
- Mobile Phones

Engines and Steering

Recent Changes

- NMEA2000
- Gyro sensors (No Rudder Feedback)





NMEA2000 Backbone

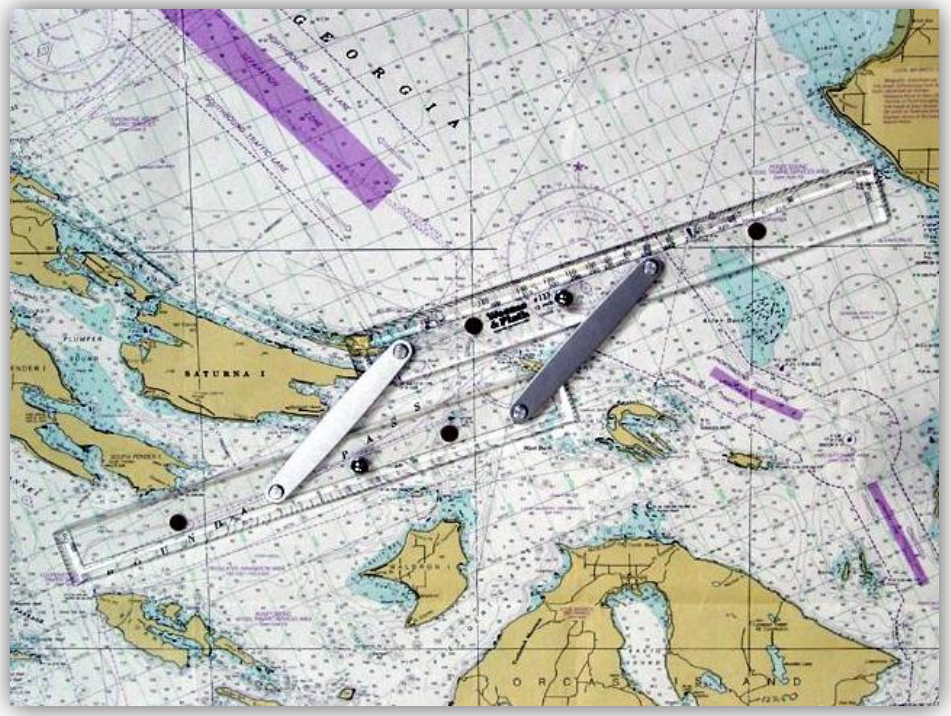
Entertainment Systems

Recent Changes

- Satellite TV
- Wi-Fi
- Media Systems

Positioning

- Fundamental to safe navigation
- Are we too dependent on GPS ?
- The GPS in your phone or tablet is as powerful as those in modern chart plotters
- Most boats have at least two GPS sources
- GLONASS operational again as back up

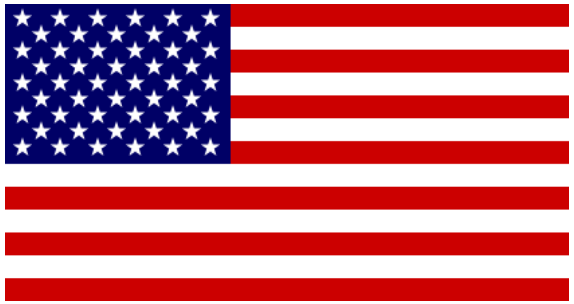


What are the options?

$4.7 BILLION

GLONASS

and Galileo, Compass and e-loran



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DualNav

GPS

GLONASS

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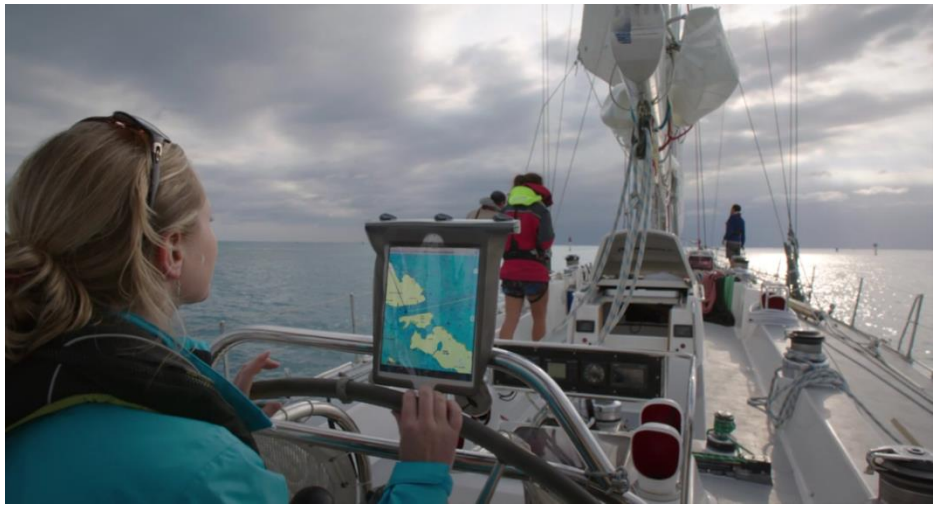
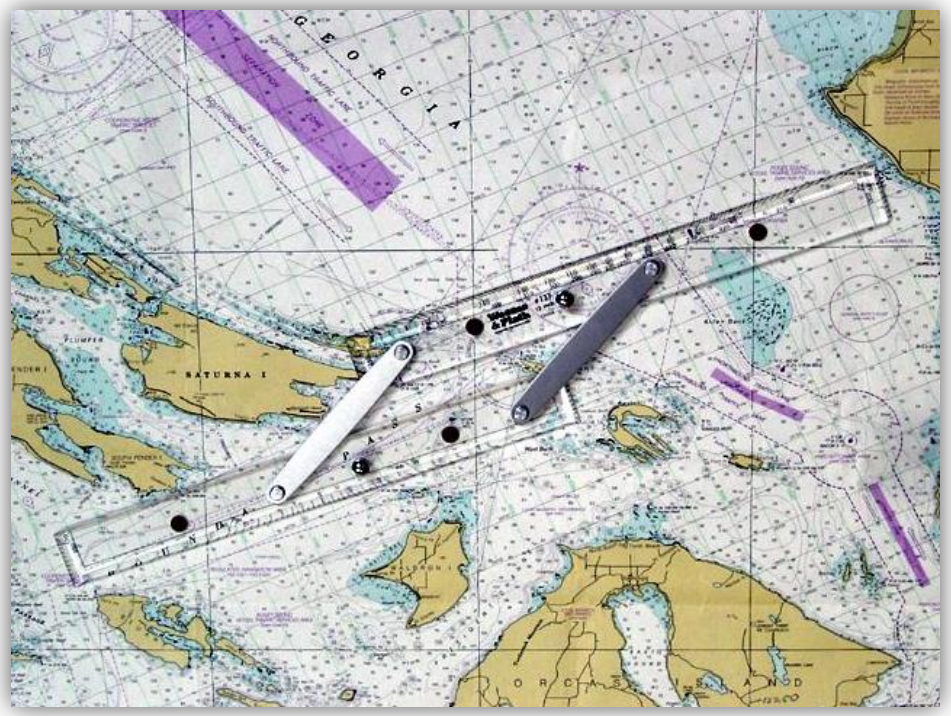
The Tablet and Smart Phone Revolution

- Tablet sales in 2014 were 200 Million
- Smart Phone Sales were 1 Billion
- Apple and Android have changed the way people live and what they do with their mobile devices



20th Century Navigation

- Things have changed….



21st Century Navigation

- Things have changed….forever….

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This or this?

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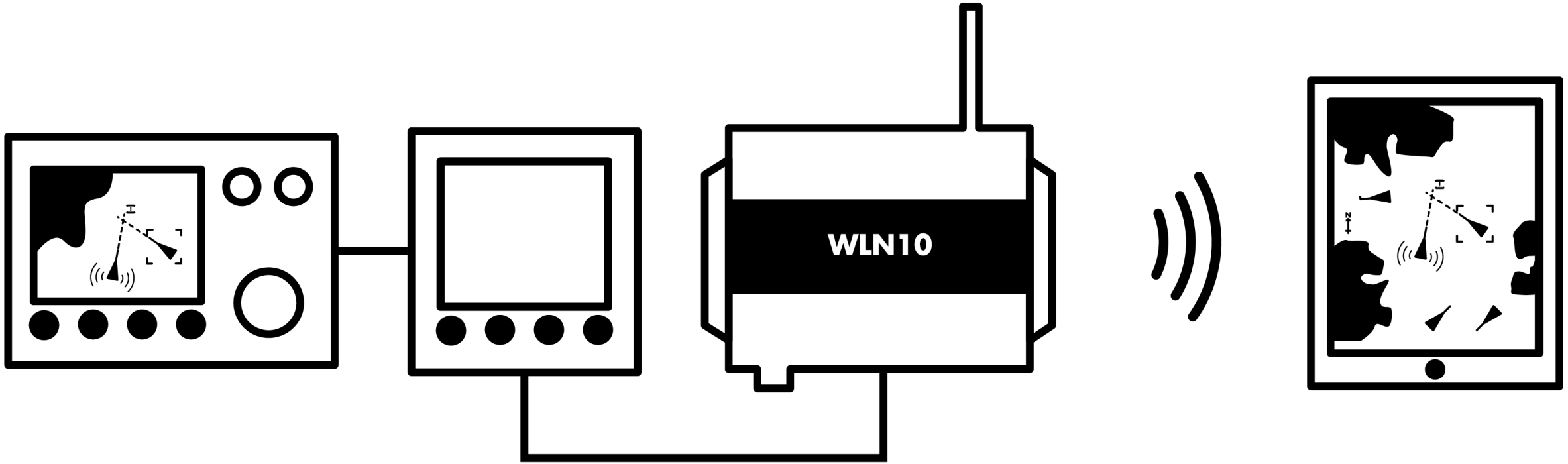
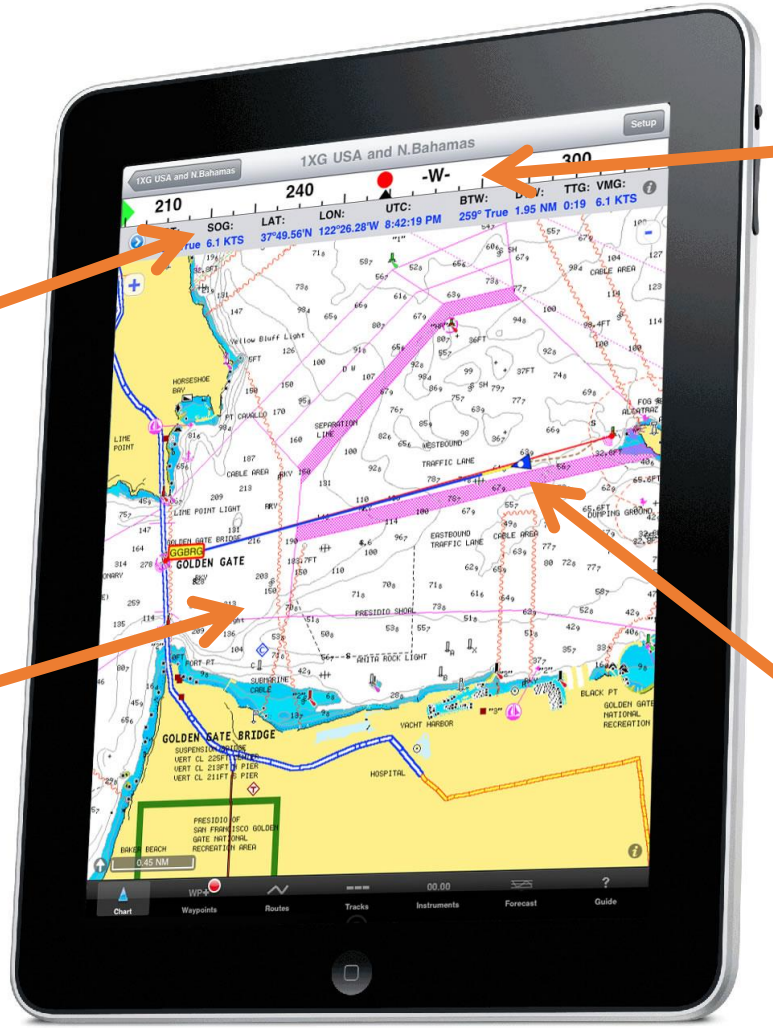
Choose your app…

Maybe a mix?



A Tablet or Smart Phone does Everything !



Speed (SOG)

Electronic Charts

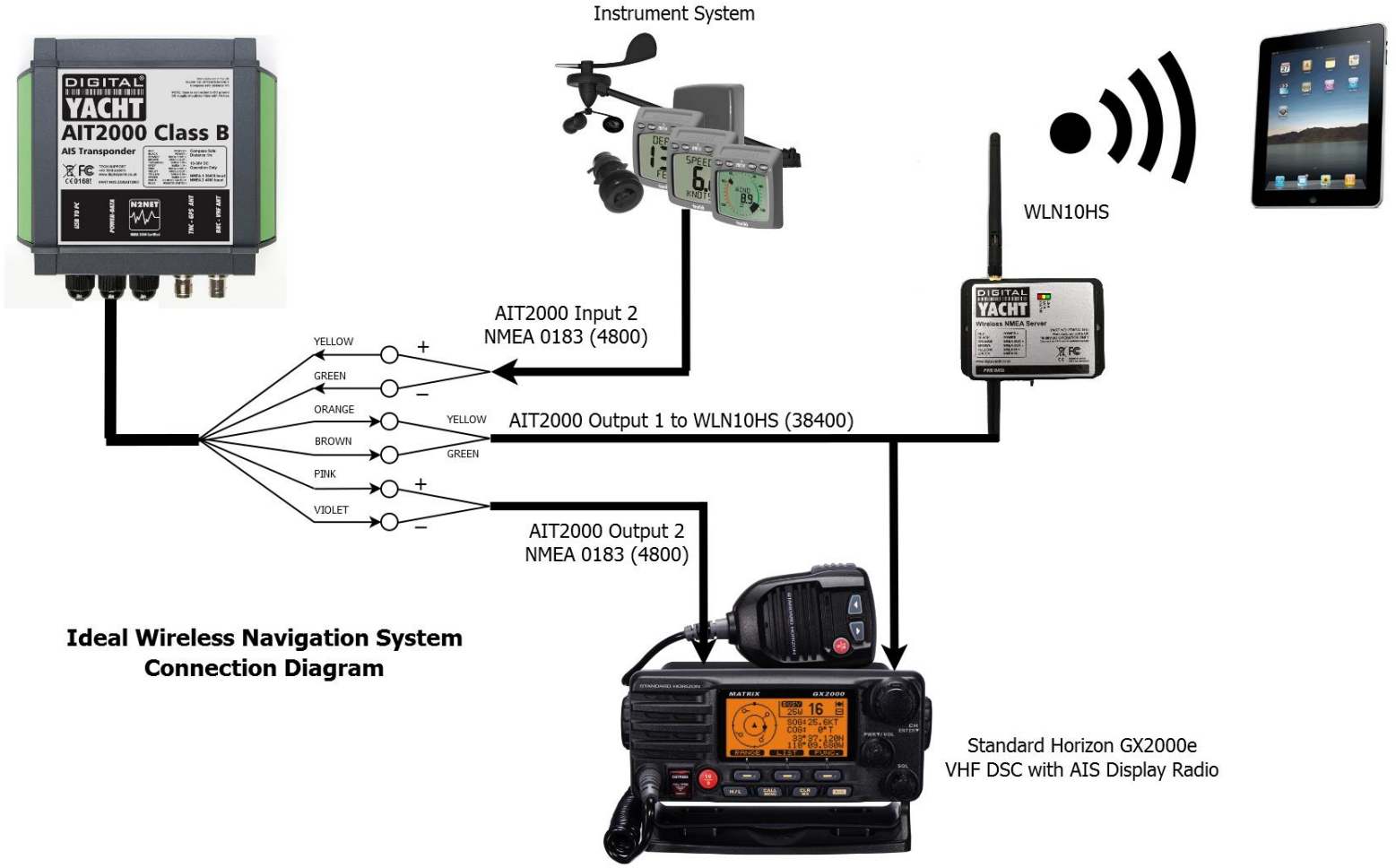
True Heading

GPS Position

What a Tablet/Smart Phone Cannot Do

- Take Depth Soundings
- Make VHF Calls
- Receive live AIS data
- Work below deck
- Measure Wind

“But combine it in a system like this and everything is possible with a suitable App”



What is Wireless NMEA

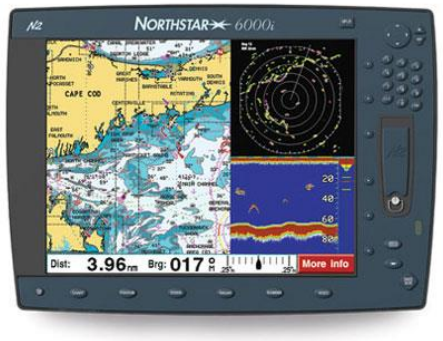
- Wireless NMEA is traditional NMEA0183 data sentences converted to wireless network packets
- Wi-Fi is the only way to get the boat's NMEA data in to iPhones and iPads
- The majority of marine Apps have been developed to support wireless NMEA data

Wireless NMEA Modes

- Wireless NMEA operates in two modes; TCP and UDP
- Most Apps support both modes but some only support TCP
- TCP is a data link between the wireless NMEA server and the device
- UDP is a data broadcast from the wireless NMEA server to multiple devices (up to seven)

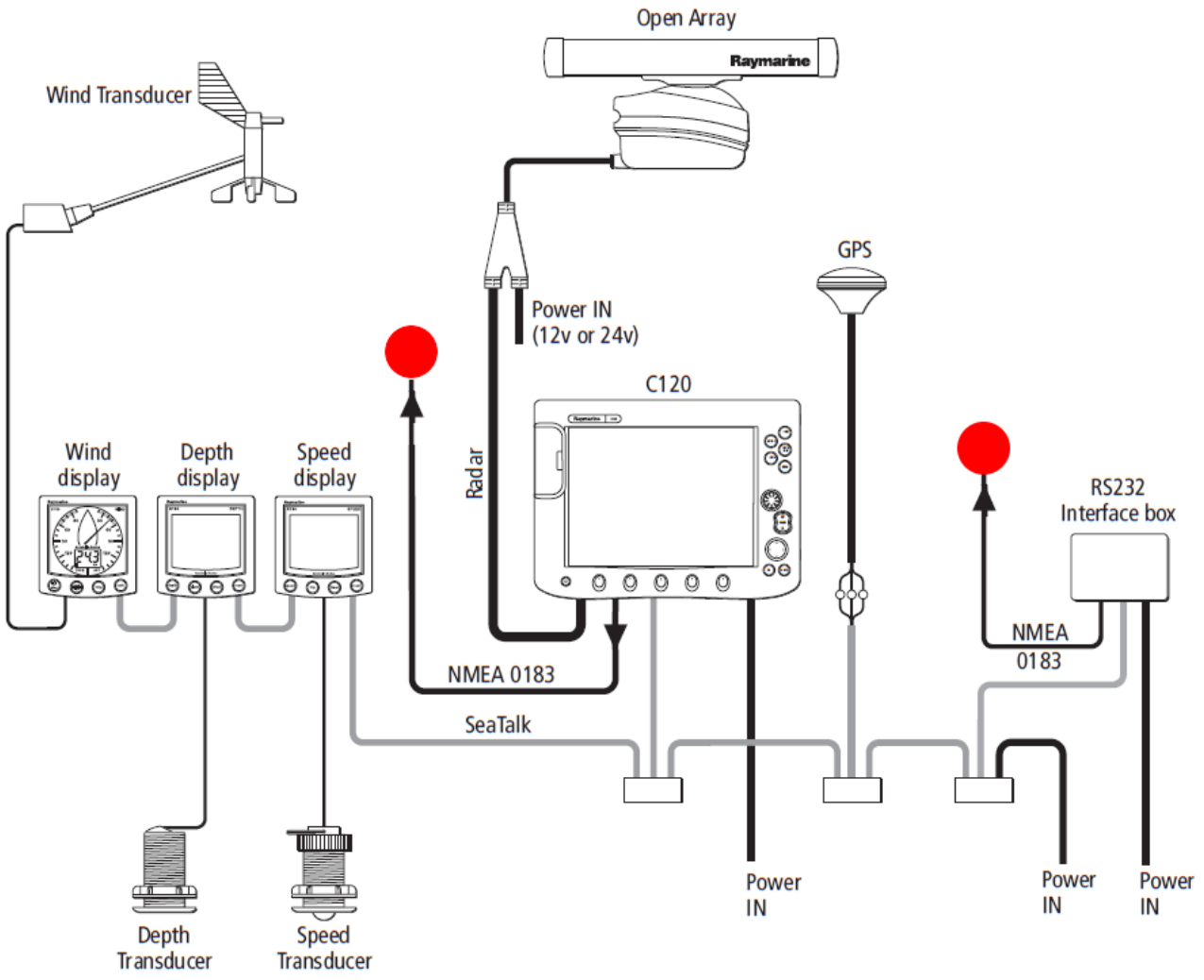
Upgrading Legacy Systems

- In the current economic climate, many customers are choosing to upgrade what they have instead of buying new boats/systems
- Any legacy navigation system from Raymarine, Garmin, Furuno, Navico, etc. that has an NMEA output can be upgraded to wireless



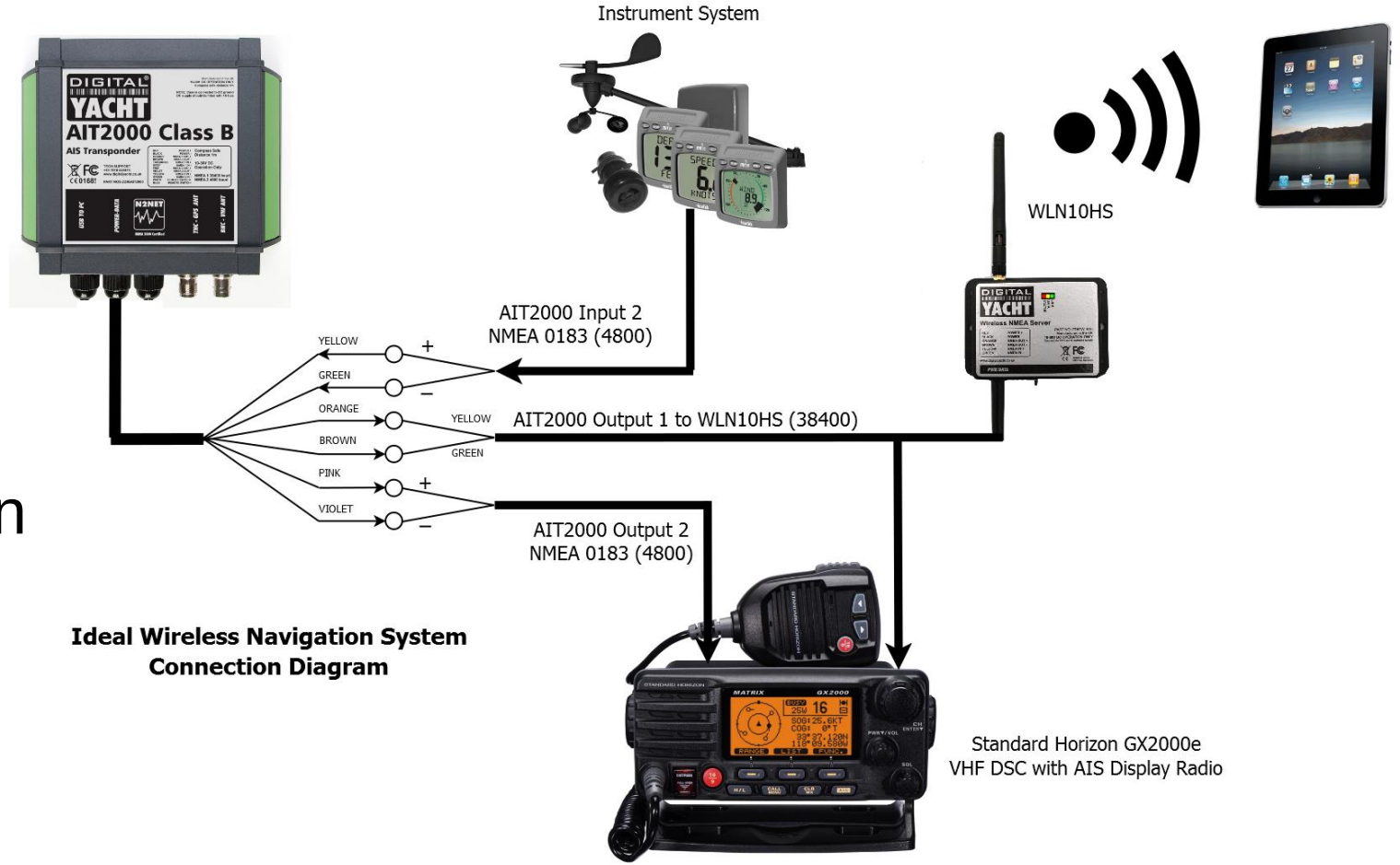
Example Wireless Instrument System

- Most installations have an NMEA0183 output
- The red dots show two possible places where our WLN10 could connect in this Raymarine system
- Simple two wire connection
- Data is at standard 4800 baud
- Instrument, Navigation and GPS data will be available



Example Wireless AIS System

- AIS Data from a receiver or transponder can be used
- Some AIS units can multiplex (combine) other NMEA data on the boat
- In this example instrument data is combined with the transponders own AIS and GPS data
- Simple two wire connection to our WLN10HS
- AIS Data at 38400 baud
- AIS, Instrument and GPS data will be available

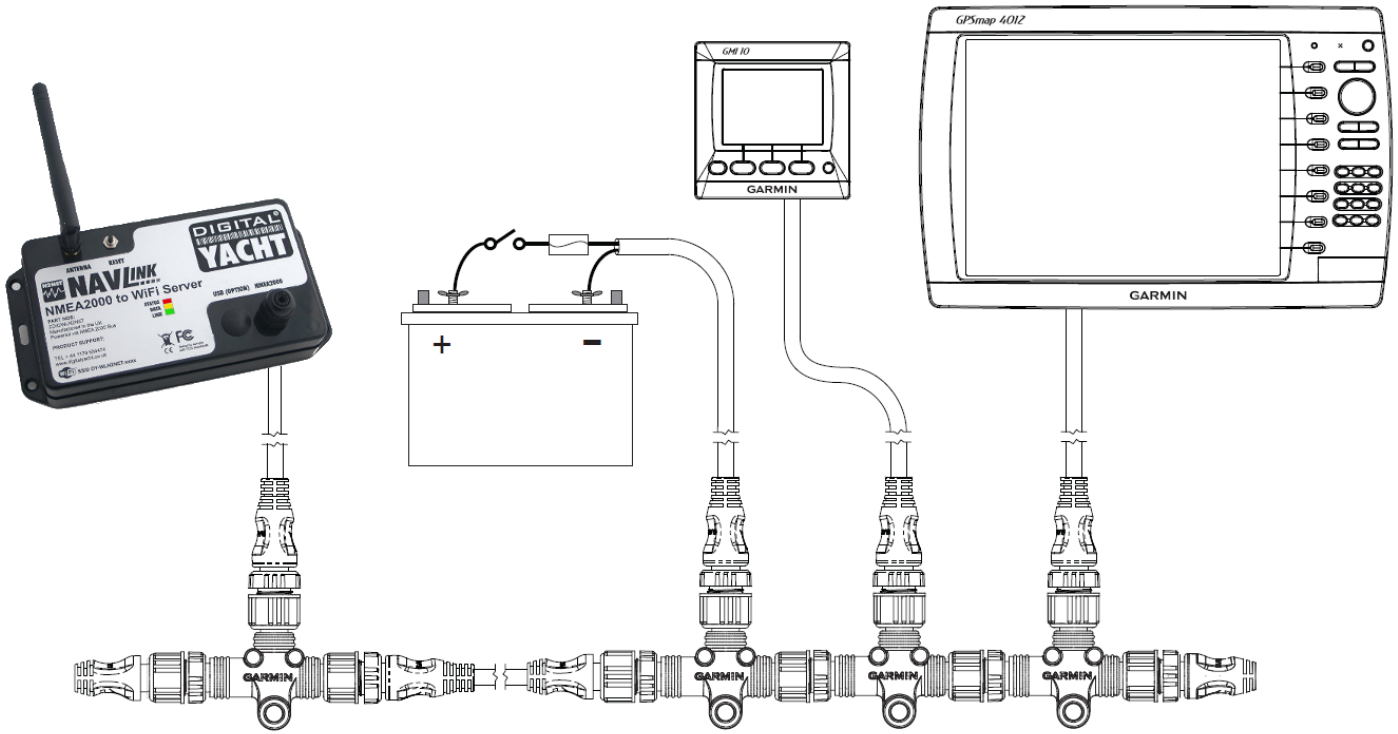


Example “All In One” Transponder

- New AIT3000 Class B Transponder
- Built-in Splitter
- Built-in Wi-Fi

Example Wireless NMEA 2000

- Installation of our NavLink wireless NMEA 2000 server is even easier than 0183
- Just connect the NMEA 2000 cable of the NavLink to a spare NMEA 2000 “T-Piece”
- NavLink takes its power from the NMEA 2000 network
- All of the most important AIS, Instrument, Navigation and GPS data PGNs will be converted



Example Wireless Radar

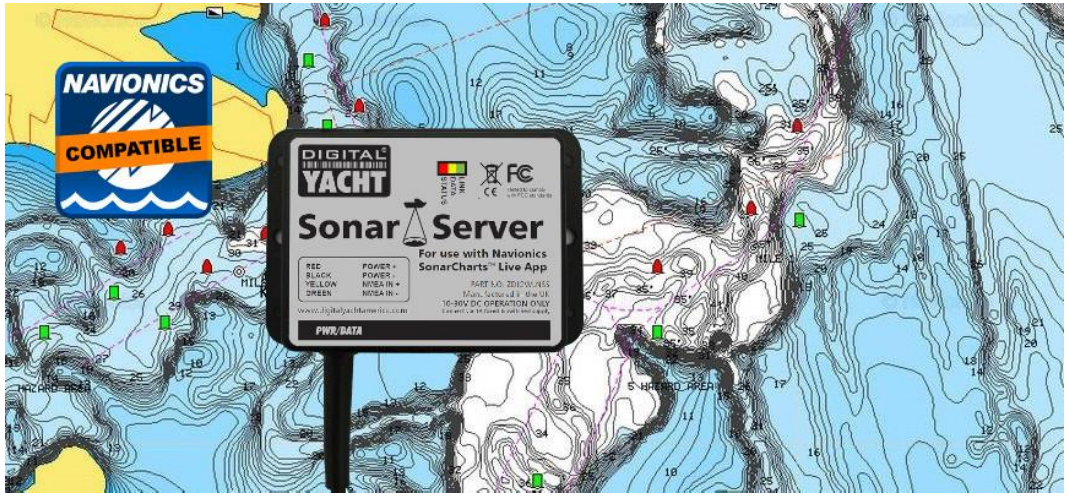
- Furuno have launched the world’s first wireless radar
- Easy to install Radar Scanner
- No large dedicated display to install, just use your iPad
- New MaxSea App will soon launch that offers Radar Overlay on charts and AIS

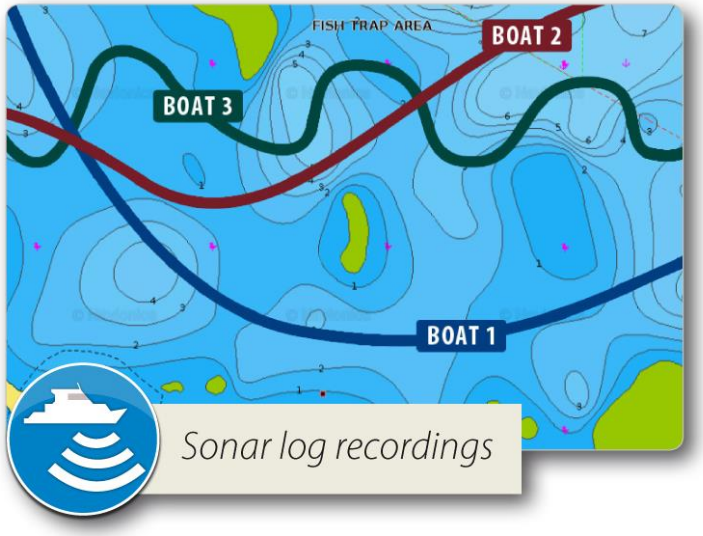
Example Wearable Technology

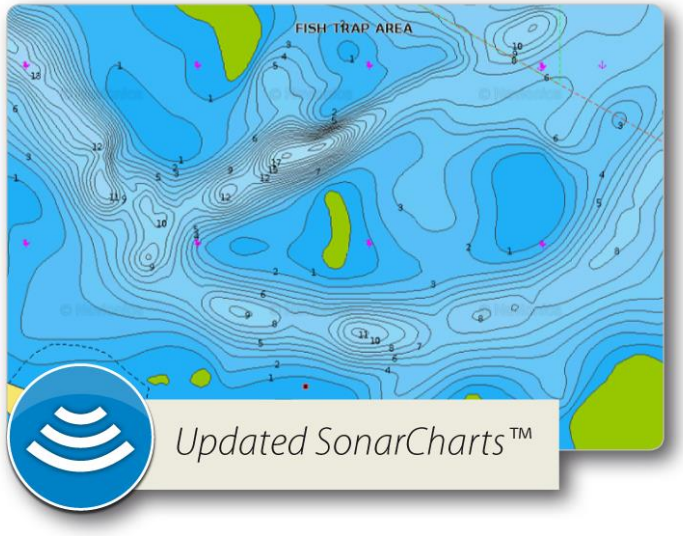
- Wireless NMEA server streams AIS + Instrument data to your mobile devices

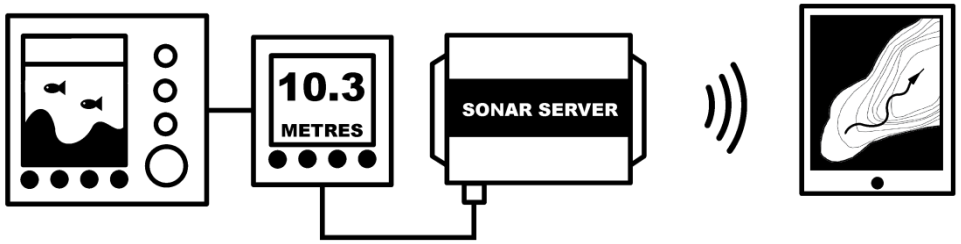
Example Wireless Depth Logging

- Our new Sonar Server will allow the Navionics App to wirelessly log depth data that creates their new “Crowd Sourced” SonarCharts™









Apps that support Wireless NMEA

- More wireless NMEA Apps on the Apple Store than on Google Play
- The popular Navionics App does now support wireless NMEA (GPS+Depth)

iNavX

The Original and still one of the best, Navionics based chart plotter apps

NavLink

Digital Yacht's chart plotter app with US or UK charts and AIS support

iSailor

Good chart plotter app from Transas featuring their own vector chart data

iAIS

Digital Yacht's free AIS app that provides an "AIS Radar" type display

iRegatta Pro*

Good performance sailing app with good instrument and AIS support (no charts)

NOTE – Also available for Android

THE END

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