FURUNO

Total Control, Simply Refined

NAVnet

TZtouch2

Simply Refined, Simply Beautiful

- Edge-to-edge glass front

- Sunlight viewable multi touch display with impressive brightness, 1300 cd/m^2 for TZTL12F and 1000 cd/m^2 for TZTL15F

- Seamless, smooth chart operation with TimeZero™ Technology

- Enhanced touch gestures like edge swiping for frequently used functions

- The graphical user interface has been renewed and refined, focusing on usability and ease of operation

- Internal GPS Antenna (TZTL12F/15F)

- Internal RezBoost™ Fish Finder

- Fast processor (CPU) for great performances (TZT2BB)

- Independent display and operation for dual screens with built in dual CPU (TZT2BB)

- Add Autopilot, Instruments, Radar, AIS, and a wide variety of other sensors to your NavNet TZtouch2 network

- An instrument display like nothing you have seen before, totally customizable, totally simple

- Connect up to 6 NavNet TZtouch2/TZtouch displays on one network, 4 when connecting a TZT2BB Black Box

- With an Internet connection, NavNet TZtouch2 can wirelessly access real-time weather data

- Tablet & Smart phone apps: NavNet Remote, NavNet Viewer and NavNet Controller for your iOS and Android™ devices

- Compatible with CZone Digital Switching

- Manual Fuel Management enabling visual evaluation of fuel amount

- Full HD HDMI video input available (TZT2BB)

NEW

Model **TZT2BB**

Multi Function Display Black Box

Supports both wide and non-wide resolutions:
1920 x 1080 (16:9), 1280 x 1024 (5:4),
1024 x 768 (4:3)

Multi Touch Marine Display* with TZT2BB Processor Unit (Model MPU-004)
and Control Unit** (Model MCU-005)
* Local supply
** Option

TimeZero Designed by MAXSEA — RotoKey — MTC Multi Touch Control — AUTO — Target Tracking — AIS — 3D CHART — BlackBox — FISH FINDER Internal — Ethernet Plug&Play — CAN bus — VIDEO IN/OUT

Model TZTL15F

15.6" Multi Function Display

Resolution: FWXGA (1366 x 768 pixels)
Brightness: 1000 cd/m^2 (typical)

Model TZTL12F

12.1" Multi Function Display

Resolution: WXGA (1280 x 800 pixels)
Brightness: 1300 cd/m^2 (typical)

TimeZero Designed by MAXSEA | MTC Multi Touch Control | RezBoost | BDS Bottom Discrimination Sounder | ACCU-FISH

AUTO | Target Tracking | AIS | Enhanced Sunlight Viewable | Bonded LCD | Polarized Friendly | GPS Internal Antenna | FISH FINDER Internal | Ethernet Plug&Play | CAN bus | NMEA2000 Certified | VIDEO IN/OUT

Model SDU-001

SD Card Unit (option)
for TZTL12F/TZTL15F

Model MCU-002

Remote Control Unit (option)

Model MCU-004

Remote Control Unit (option)

Model PSD-003

Switch Box
for TZT2BB

NEW

Model MCU-005

Control Unit (option)

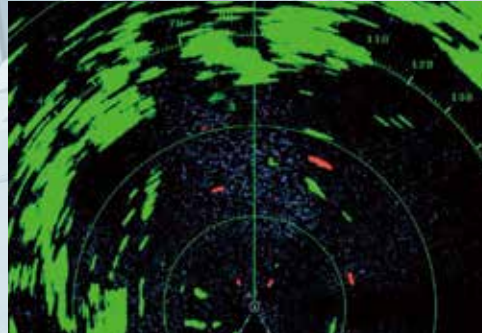* TZTL12F/15F: Software version 6.01 or later

2

For Safe Cruising

Target Analyzer™

Target Analyzer™ function displays help you distinguish targets that are moving and getting close to own ship.
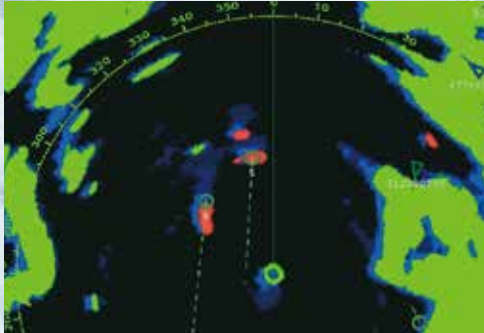

Target mode

Rain mode

* Target Analyzer™ available when connected to DRS4D-NXT or DRS6A-NXT Radar sensor.
** NavNet TZtouch2 software version 3.01, TZtouch software version 4.21 or later required.

Fast Target Tracking™ (TT)

After selecting a target, it only takes a few seconds for a speed and course vector to be displayed. With accurate tracking information, estimation of other vessels course and speed is made easier.
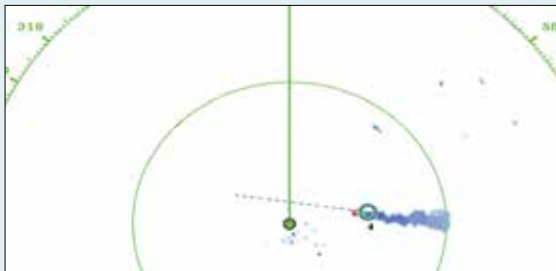
CPA graphic display

The CPA graphic display lets you monitor an AIS and ARPA (TT) targets heading and speed changes. This is useful as an anti-collision aid, especially in congested waters.

NEW
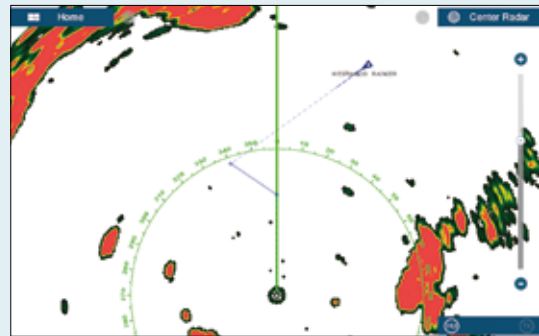
Autopilot Control Window

The new autopilot control window on the instrument page and data area offers quick and easy control of the NAVpilot Series, including steering operation and mode selection. With the NAVpilot-300, you can also initiate Turn/Fish Hunter operation, adjust manual parameters and carry out installation setup from the NavNet TZtouch2 MFDs.


NMEA2000

Manual Fuel Management*

The NavNet Series calculates and displays the remaining fuel based on the manually entered tank capacity, as well as fuel consumption information from an NMEA2000 network. The gauge allows the user to evaluate the price fuel level without equipping the ship with a fuel gauge. By configuring the settings, an alarm is available to inform you when the fuel level is low.

* 1) NMEA2000 PGN127489 (Fuel Rate) input is required.
  2) NavNet TZtouch software version 4.01 and NavNet TZtouch2 software version 6.0 or later required.
  3) While the engine is running, at least one NavNet model in the network should always be turned on in order to keep calculating the fuel consumption.
  4) The fuel indication may be inaccurate if the values entered are not correct, or the fuel rate sensor is not functioning correctly.
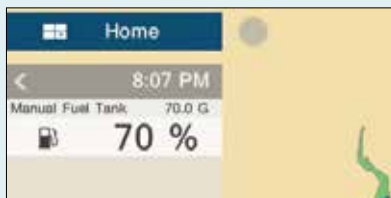
Data box
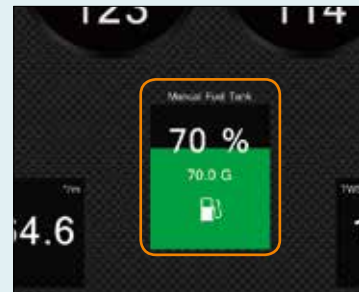
Manual Fuel Tank display in Instrument mode

Integrate YAMAHA outboards with NavNet Series

The YAMAHA graphic interface displays status inforation of engines (up to 4), and ship information can be controlled from the NavNet TZtouch2 via YAMAHA Command Link®, Command Link Plus® and Helm Master® interfaces.

* For more details about the list of compatible engines, please contact us or YAMAHA representatives.

Quater display

Full display

For Sailing

01 Laylines*   NEW

Based on the direction and speed of the wind, the shortest route is calculated.

02 Polar File*   NEW

In order to display accurate Laylines, Polar Files can be imported to the NavNet TZtouch2. Polar Files of various boat models are available for download from NavNet.com.

03 Historical Graph*   NEW

Wind speed and direction can be visualized on the Historical Graph. In addition, the Air Pressure will be useful for your long cruising.
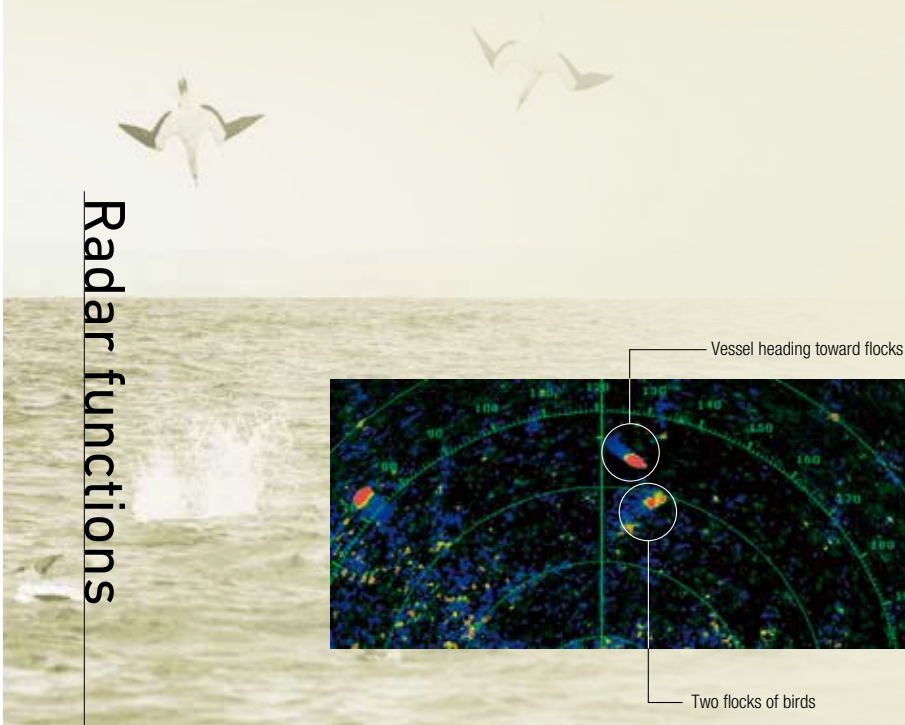

* NavNet TZtouch2 software version 6.0 or later required.

For Fishing

Vessel heading toward flocks

Bird Mode

The bird mode helps you identify birds congregating around schools of fish at the sea surface.

* NavNet TZtouch2 software version 3.01,TZtouch software version 4.21 or later required.

Two flocks of birds

Built-in Fish Finder with RezBoost™

With RezBoost™ technology, high resolution and target separation previously limited to FURUNO commercial-grade Fish Finders can now be achieved. RezBoost™ technology makes it easier to spot individual fish in tightly packed fish schools, as well as discerning game fish from bait fish.

* RezBoost™ performance may vary depending on depth, range and signal frequency used.
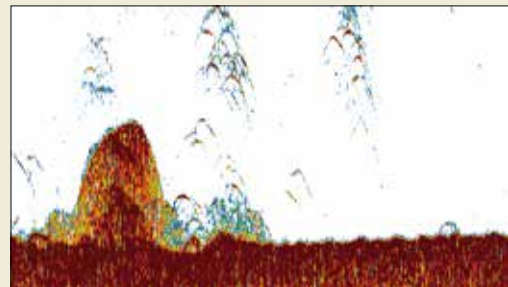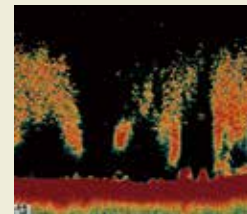
TruEcho CHIRP™

TruEcho CHIRP™ Fish Finder allows for incredible performance when it comes to detecting fish close to the seabed, as well as discriminating individual fish in densely packed schools of fish.

* Network Fish Finder DFF1-UHD required.
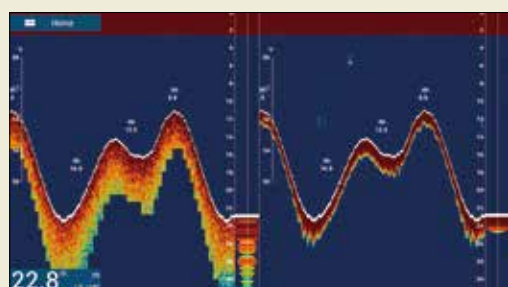
High Frequency CHIRP
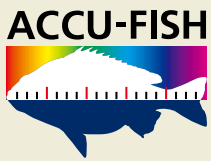
Low Frequency CHIRP

NEW
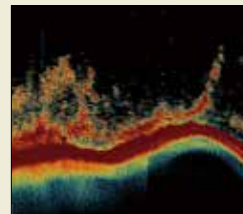
White Edge

The edge of the seabed is displayed in white to easily discern seabed structure from bottom fish returns.

* NavNet TZtouch2 software version 6.0 or later required.

22.8°

ACCU-FISH™ (Fish Size Analyzer)

The ACCU-FISH™ algorithm analyzes echo returns in order to compute individual fish size. The algorithm is capable of computing fish size ranging from 10 cm up to 199 cm long. Fish depth can also be displayed.

Bottom Discrimination Sounder

Bottom Discrimination Display

The bottom discrimination function provides you with valuable information to help you locate rich fishing grounds to boost the day's catch.
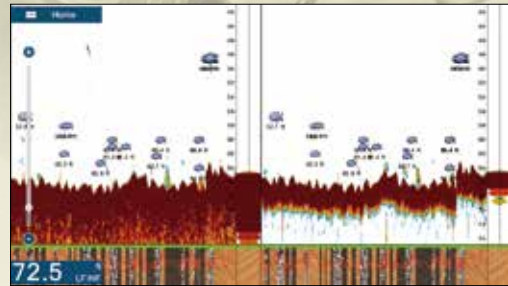
Scroll-back

Found a fishing hot spot? Simply tap the screen and add a fish mark. With the scroll-back feature, you can look at past echoes simply by swiping the screen, and add new fish marks that will show the captured location on your plotter screen.
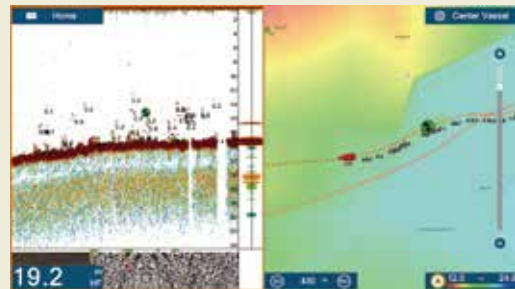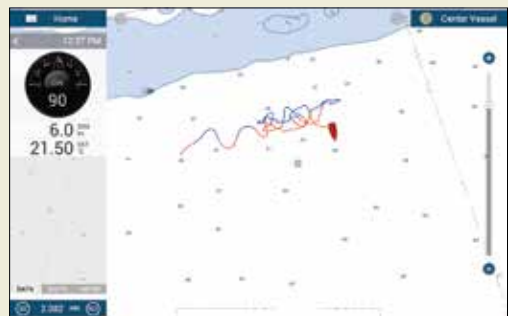
Monitoring Sea Surface Temperature

Sea surface temperature (SST) is one of the most important pieces of information for fishing in order to find the best spot or area.

Track Recording

Track Recording by SST Variation draw a ship's track in variable colors, helping you find the location of a big temperature change or shear.

Shear Alarm

The Shear Alarm lets you know when there is a sudden change in sea surface temperature, often caused when two currents meet. This is usually a good indication of a great fishing spot.

SST Graph

SST Graph on the fish finder display, instrument display or data box shows you the history of SST in the trip.

For ship condition monitoring and expandability

CZone Digital Switching

CZone digital switching by BEP simplifies the installation and operation of complex electrical systems. NavNet TZtouch2 is compatible with CZone controls, allowing you to operate CZone equipment.

* Lean more about CZone Digital Switching at www.czone.net

CZone Control & Monitoring

CZone, engine, navigation and various NMEA2000 data can be laid out on the same screen.

Marine Audio FUSION-Link

Enjoy the ability to control all FUSION-Link enabled Apollo/755/750/700 series marine entertainment system capabilities and functions directly from the NavNet TZtouch Series. FUSION-Link makes it easy for you to enjoy your onboard audio and video entertainment from the NavNet TZtouch Series.
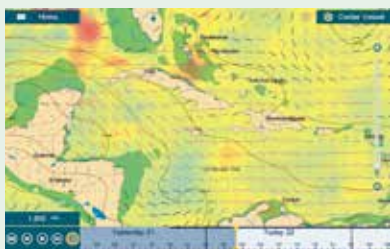
Marine Weather Forecast

The weather tool is completely free and easy to use, giving you unlimited access to weather forecasts, worldwide, 24 hours a day, provided by NavCenter. NavNet Series can display up to 16 days of downloaded weather forecasting.

* Internet connection is required.

My TimeZero™ Cloud Data Service

Connect your NavNet TZtouch2 to the internet and login to your My TimeZero™ account, and you will be able to back up or restore points, routes, tracks and settings to/from the cloud server.

APPS

View information on your smart devices via wireless network

NavNet TZtouch2 open the door to cutting edge Wireless LAN features, such as iOS and Android™ apps, real-time weather data, software updates and much, much more.

NavNet Remote App

Take full control of your NavNet TZtouch2 in a whole new way. The NavNet Remote app allows you to remotely operate and view your system with your smart devices when connected to the Wireless LAN network.

App Store | Google play
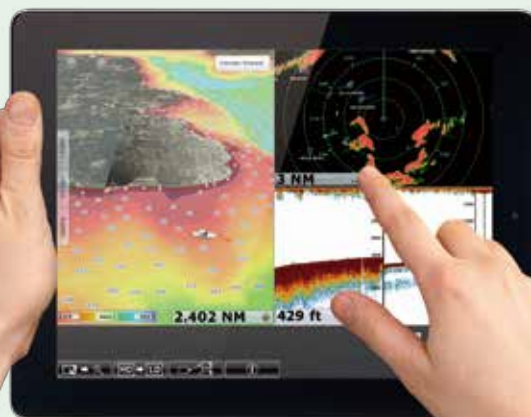
NavNet Viewer App

Conventiently view instruments as well as the fish finder of your NavNet TZtouch2 on your smart devices over the Wireless LAN network. Key navigational information such as Depth, Temp, Wind, COG as well as Engine information can all be accessed from the palm of your hand. Even if you change the display on your NavNet TZtouch2, you can still view the Fish Finder on your smart devices.

App Store | Google play

NavNet Controller App

Wirelessly control the NavNet TZtouch2 with touch controls just like the real thing. With a scroll pad, cursor pad and dedicated keys within the app, controlling the NavNet TZtouch2 is simple and straightforward.

App Store | Google play

	NavNet Remote	NavNet Viewer	NavNet Controller
Compatible NavNet products	NavNet TZtouch2 (TZTL12F/TZTL15F/TZT2BB) - software version 4.01 or later.	NavNet TZtouch2 (TZTL12F/TZTL15F/TZT2BB)	NavNet TZtouch2 (TZTL12F/TZTL15F/TZT2BB)
Languages	English/Japanese		

NavNet TZtouch2 Network

NAVnet Connect

RADAR

NEW **NEW**

Radar Sensor
**DRS4DL+/DRS4D-NXT/DRS6A-NXT
DRS6A X-Class/DRS12A X-Class
DRS25A X-Class**
`Ethernet`

FISH FINDER

Network Fish Finder
DFF1-UHD/DFF1/DFF3
`Ethernet`

Bottom Discrimination Sounder
BBDS1
`Ethernet`

Multi Beam Sonar
DFF-3D
`Ethernet`

AIS

AIS Receiver
FA-30
`Ethernet`

Class-B AIS Transponder
FA-50
`Ethernet`

Class-A AIS Transponder
FA-170
`Ethernet` `NMEA0183`

WEATHER/ PC PLOTTER
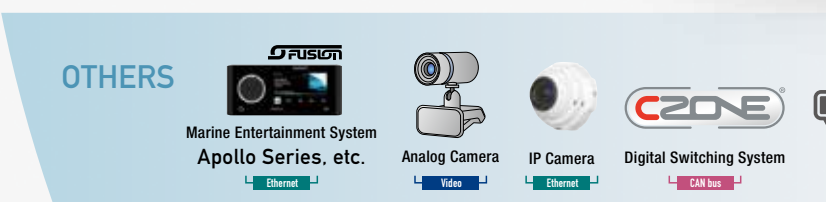
**TIMEZERO
Marine Software**
`Ethernet`

Network Weather
Facsimile Receiver
FAX-30
`Ethernet`

Network Satellite Weather
and Radio Receiver
BBWX4*[1]
`Ethernet`

OTHERS

Marine Entertainment System
Apollo Series, etc.
`Ethernet`

Analog Camera
`Video`

IP Camera
`Ethernet`

Digital Switching System
`CAN bus`

HDMI*[2]

GPS Internal Antenna   **Internal GPS Antenna**

CONVERTER

NMEA Data Converter
IF-NMEA2K2
`CAN bus` `NMEA0183`

Analog NMEA Data Converter
IF-NMEAFI
`CAN bus` `ANALOG`

NMEA2000 Certified

NavNet TZtouch2 is NMEA2000 certified. NMEA2000 offers improved data transfer rates and true plug-and-play operation.

*1 Sirius weather coverage is currently available only in U.S and Canada. Sirius subscription required.
*2 TZT2BB only.

Perfect match!

NavNet TZtouch2, NAVpilot-711C and the FI-70 have been designed to match each other beautifully, both in appearance and in function. Sporting a clean and functional design in all black, they will make a great addition to your helm.

NavNet TZtouch2 **NAVpilot-711C** **FI-70**

AUTOPILOT

NAVpilot-300
CAN bus

NAVpilot-700
CAN bus NMEA0183

NAVpilot-711C
CAN bus NMEA0183

COMPASS

Integrated Heading Sensor
PG-700
CAN bus

Satellite Compass
SC-33
CAN bus

SC-70
NMEA0183

GPS

GPS/WAAS
Receiver Antenna
GP-330B
CAN bus

GPS Navigator
GP-33
CAN bus

VHF COMMUNICATION

Marine VHF Radiotelephone
FM-4850
CAN bus

Marine VHF Radiotelephone
FM-4800
CAN bus

INSTRUMENT

Center Radar
0.25 NM

278 130 358 41min
5.8 8.5 1/1/2014 12:18:24 PM

FISH FINDER Internal
Internal Fish Finder
with RezBoost™ technology

FI-70
CAN bus

OPTION

Control Unit
MCU-005
USB

Remote Control Unit
MCU-004
USB

Remote Control Unit
MCU-002
USB

SD Card Unit
SDU-001
USB

* TZTL12F/TZTL15F; Software version 6.01 or later.

Nothing Is Faster Than TimeZero™

NavNet TZtouch2 TimeZero™ technology delivers chart processing like you've never seen before – seamless chart handling, zooming and panning without the screen disappearing. TimeZero™ technology redefines the meaning of stress-free operation by smoothing out your chart handling actions.

The Only Acceptable Wait Time is Zero:
TimeZero™ Technology Changes Your Perspective on Chart Redraw

Equipped with powerful TimeZero™ technology, NavNet TZtouch2 will completely transform the way you navigate. You can scroll, pan, zoom in/out with a smooth, fast and seamless graphics engine. Navigating in a 3D environment offers you a true perspective and wider area of view around the ship, which allows you to better plan your routes. TimeZero™ technology updates the information on your screen with virtually no redraw as you go.

Chart Plotter

Mapmedia Vector and Raster Chart Library

With NavNet TZtouch2 it's possible to freely choose the charts that fit your individual needs. With the optional NOAA raster and vector charts, Mapmedia brings an authentic vector and raster chart library to your NavNet TZtouch2. "C-MAP" as well as "Datacore by Navionics" vector cartography are optional charts that can be downloaded to your TZtouch2 with ease. Mapmedia cartography integrates cutting edge algorithms with high resolution image processing techniques to deliver a fusion of digital navigation charts and satellite photography.

2D Raster

2D Vector

Satellite PhotoFusion™

Satellite photography is included in the Mapmedia Raster and Vector charts, simply called Satellite PhotoFusion™. Land areas (zero depth) are completely opaque, displayed as satellite photos on the chart. As the depth increases, the satellite image is merged with the chart data to provide you with added detail on seabed areas in shallow water, without losing vital chart information. In deeper water, where the satellite photos have no detail to offer, the chart is displayed without alteration.


Raster+Satellite

Vector+Satellite

Depth Shading

A depth color scale can be applied to both 2D and 3D vector and raster charts. Transparency levels can be adjusted so that chart data is visible beneath the color shading. This unique feature allows you to view water depths at-a-glance with vibrant colors. No more searching for depth numbers, when you can simply set depths to your specified colors. Whether you want to see the depth for navigation or fishing purposes, this feature makes it easier than ever before.
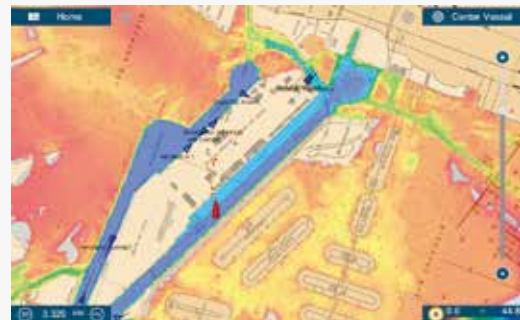
AIS Target Tracking

When connecting a FURUNO FA-30/50/170 AIS unit to your NavNet TZtouch2, up to 100 AIS targets can be tracked and displayed on the Chart Plotter screen. The Automatic Identification System (AIS) improves safety during travel by sharing the status and position of your vessel with other AIS-equipped vessels nearby. You can easily read detailed information about AIS-equipped vessels nearby such as speed, heading, Closest Point of Approach and Time to Closest Point of Approach.

Fish Finder

NavNet TZtouch2 is the first product from FURUNO to feature the brand new RezBoost™ technology. Accurately spot individual fish and increase your catch.
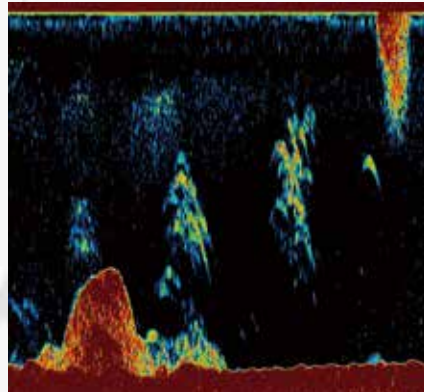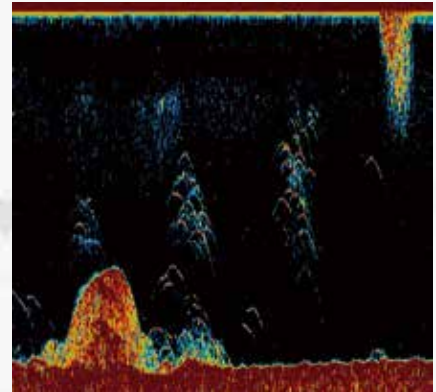
RezBoost

Up to 8 times sharper image than conventional FDF*1

RezBoost™

Rezboost™ is a revolutionary new technology utilizing FURUNO's advanced digital signal processing to provide fantastic resolution without having to change your transducer.

Conventional Signal Processing

RezBoost™ Signal Processing

RezBoost™ improves target separation close to the seabed, as well as giving an unprecedented boost in resolution. With RezBoost™ technology, resolution and target separation previously limited to FURUNO commercial-grade Fish Finders can now be achieved. RezBoost™ technology makes it easier to spot individual fish in tightly packed fish schools, as well as discerning game fish from bait fish. Since RezBoost™ technology is software based, you can use transducers* already installed on your vessel.

* To check if your transducer supports the "Enhanced Mode", see FURUNO.com for further information.
   In-hull mounted transducers not compatible with RezBoost™ technology.
*1 RezBoost™ performance may vary depending on depth, range and signal frequency used.

FDF
FURUNO Digital Filter

FURUNO Digital Filter (FDF™) Fish Finder

FURUNO Digital Filter (FDF™) fish finders feature advanced filtering capabilities and digital auto tuning, which eliminates noise. FURUNO FDF™ fish finders deliver the ability to spot individual fish with clarity, accuracy and detail. Whether in shallow or deep water, FURUNO FDF™ fish finders give you what you would expect from a fish finder at all times.
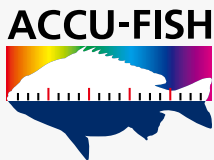
ACCU-FISH

## ACCU-FISH™ (Fish Size Analyzer)

The ACCU-FISH™ algorithm analyzes echo returns in order to compute individual fish size. The algorithm is capable of computing fish size ranging from 10 cm up to 199 cm long. Fish depth can also be displayed.

In some instances, fish size indicated on the NavNet TZtouch2 may differ from its actual size. Please carefully read the operator's manual prior to utilizing this feature.

BDS
Bottom Discrimination Sounder

Bottom Discrimination Display

Bottom discrimination provides detailed information about Knowing the make-up of the seabed, categorizing it into four different categories; "Rocks", "Gravel", "Sand" and "Mud". The make-up of the seabed can be tremendously helpful information when looking for fishing grounds, as well as for finding good anchoring spots.
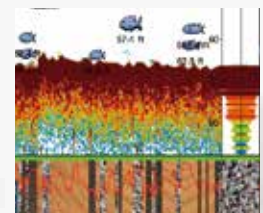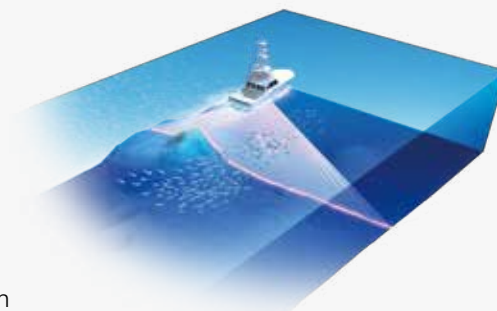
Multi Beam Sonar
Innovative tool for exploring a wide range of water column and seabed

New Multi Beam Sonar model DFF-3D gives you real-time 120 port-starboard view of the water column and seabed up to 200 m depth*. The DFF-3D allows you to explore fishing spots and find fish in deep water by far faster than conventional single beam sounders. On the other hand, the main beam penetrate right under the boat at a depth of approximately 300 m*. Installation is made easy, thanks to a compact transducer design. The built-in motion sensor gives you clear images under your boat even in rough water.
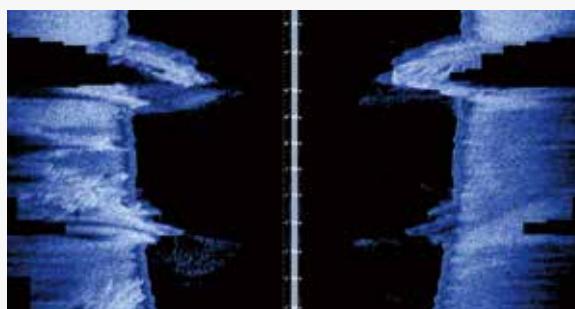
* Maximum depth dependent on installation, bottom type and water conditions.

Scanning image of Multi Beam Sonar

wassp MULTIBEAM
SEE IT ALL
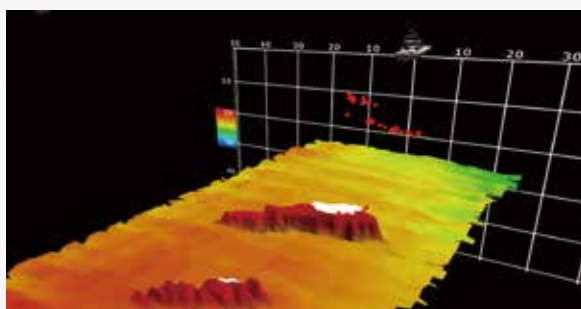
3D history

Side Scan

Find More Fish With TruEcho CHIRP™ Fish Finder

An advanced technology for both professional and enthusiast fishermen. Designed to operate across a wide range of frequencies utilizing a broadband transducer, the TruEcho CHIRP™ network fish finder delivers significant advantages in signal clarity and target definition. Due to the constant sweep of frequencies the TruEcho CHIRP™ network fish finder is capable of gathering more and higher quality data than a traditional single frequency fish finder. The clear presentation marks individual game fish and bait fish, even when tightly schooled together.

TruEcho CHIRP

Up to 10 times sharper image than conventional FDF*2
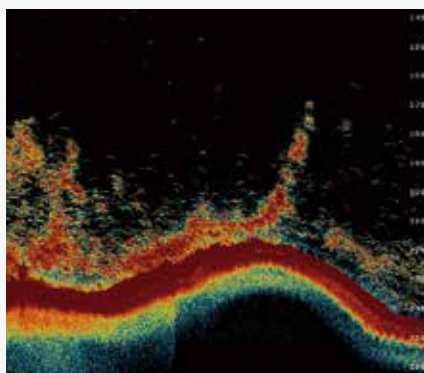
High Frequency CHIRP
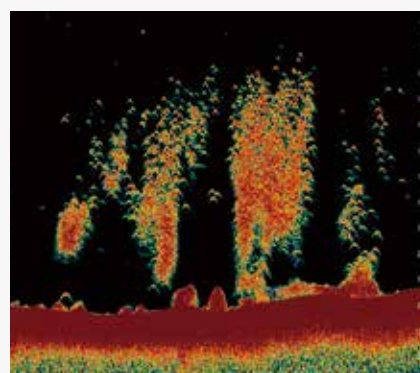
Low Frequency CHIRP

*2 TruEcho CHIRP™ performance may vary depending on depth, range and signal frequency used.

FISH FINDER Internal

BLACK BOX NETWORK FISH FINDER

BLACK BOX NETWORK FISH FINDER

BLACK BOX NETWORK MULTI BEAM SONAR

	Internal Fish Finder	DFF1-UHD	DFF3	DFF-3D
Frequency	Dual frequency 50kHz and 200 kHz	Dual frequency 50±20 and 200±25 kHz	The synthesized transducer works with dual frequencies between 28 and 200 kHz	165 kHz
Range Scale	Up to 1,200 m		Up to 3,000 m	Up to 1,200 m
Transducers	600 W or 1 kW*	1 kW	1, 2 or 3 kW	800 W
3D Mode	N/A			Available
ACCU-FISH™	Available**			N/A
Bottom Discrimination	Available		N/A	N/A
TruEcho CHIRP™	N/A	Available	N/A	N/A
RezBoost™	Available		N/A	
Display Mode	Auto (Fishing/Cruising/Manual), Bottom Zoom, Bottom Lock, A-Scope			Triple/Single Beam Sounder, Side Scan, Cross Section, 3D history

DFF1/BBDS1 are fully compatible with NavNet TZtouch2.

*Matching Box MB-1100 required for some specific FURUNO transducers.
** For DFF3, with 50/200-1T transducer only.

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Radar

Model **DRS25A X-Class**
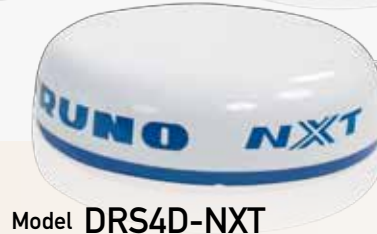
Model **DRS12A X-Class**

Model **DRS6A X-Class**

NEW

Model **DRS4DL+**

NEW

Model **DRS6A-NXT**

Model **DRS4D-NXT**

Radar Sensors

UHD Ultra High Definition

NMEA Winner of the NMEA awards 2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015

Doppler **TARGET ANALYZER** **RezBoost**

Exclusive DRS4D-NXT features

The NXT step in Radar technology

Solid-State Radar with pulse compression, Target Analyzer and Fast Target Tracking™ utilizing Doppler technology. Combined with FURUNO exclusive RezBoost™ technology for echo sharpening.

* TZtouch2 software version v3.01 or later for DRS4D-NXT, version v5.01 or later for DRS6A-NXT.

**New Target Analyzer function***
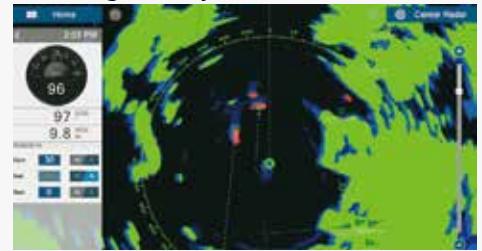
With Target Analyzer, hazardous targets are displayed in red

X-Class series a whole new class of Radar

Pushing the boundaries of what is possible with conventional Radar technology, X-Class series mark yet another leap forward for FURUNO. Improved in almost all aspects, X-Class Radar features improved short range detection as well as an impressive long range detection of up to 96 nautical miles. And that's not all, the new "Bird Mode" gives you incredible bird detection performance.
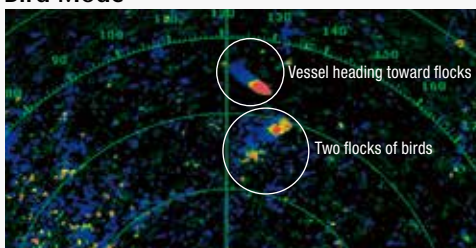
*1 TZtouch2 software version v3.01 or later.
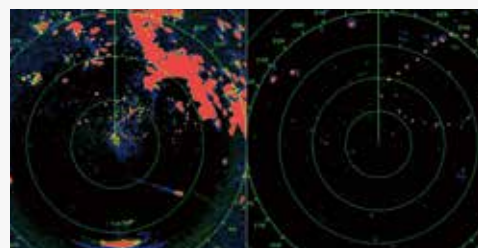*2 Bird mode is also available with DRS-NXT Series.
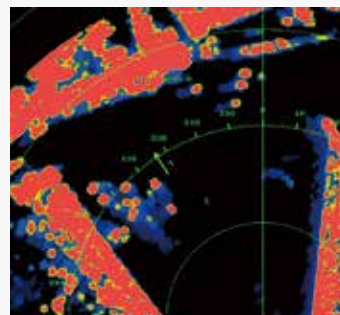
The radar detects and distinguishes several small yatchs with high accuracy.

Bird Mode

Vessel heading toward flocks

Two flocks of birds

DRS X-Class Series

Bird mode and navigation mode can both be displayed via a simultaneous dual mode scanning. Possibility to track the birds while navigating safely.

ARPA Target Tracking

With ARPA Target Tracking enabled, up to 30 different targets* can be tracked simultaneously. Targets can be acquired either manually or fully automatically. Automatic Radar Plotting Aid (ARPA) calculates the tracked objects course and speed, as well as the CPA (Closest Point of Approach). With this information, the Radar is capable of predicting possible collision courses and sound relevant alarms. In combination with AIS, this spells increased security and ease of mind on your vessel.

*100 different targets with DRS-NXT Series.
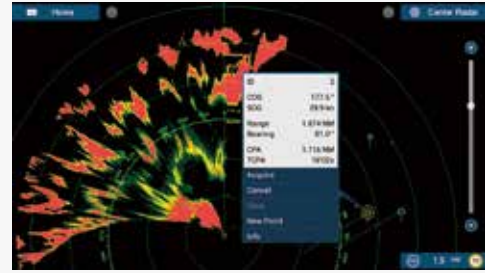
Real-Time Digital Auto Gain/Sea Controls

NavNet TZtouch2 employs revolutionary real-time digital auto Gain/Sea controls to deliver a crystal clear radar presentation. With this new technology, NavNet TZtouch2 computes and applies an adaptive omni-directional anti-clutter filter with variable intensity according to vessel bearing. With the use of this technology, automatic gain and sea clutter have achieved such a high level of proficiency that one rarely needs to venture into the manual modes. Set the Radar to auto and focus on more important things at hand.
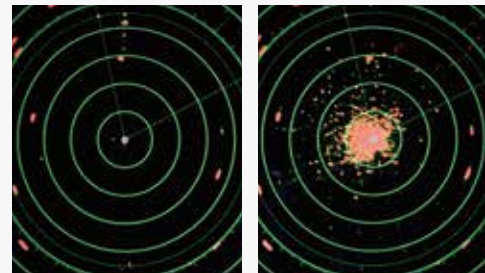
Auto Gain/Sea Controls On   Auto Gain/Sea Controls Off

Simultaneous Dual Range Radar Scanning

Simultaneous scanning technology sends out a dual progressive scan that is processed and presented on the NavNet TZtouch2. This technology allows for two different radar ranges to be displayed simultaneously, each range with autonomous control over gain and anti-clutter settings.

Not available on DRS4DL+, Limited to 12 NM on DRS-NXT Series.
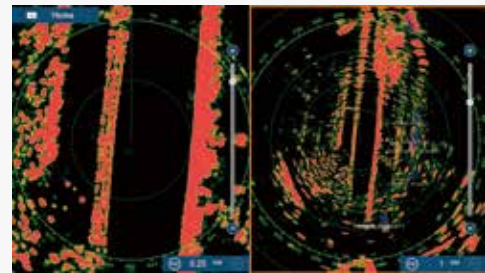
AIS Target Tracking

When connecting a FURUNO FA-30/50/170 AIS unit to the NavNet TZtouch2, up to 100 AIS targets can be tracked and displayed on the Radar screen. The Automatic Identification System (AIS) improves safety during travel by sharing the status and position of your vessel with other AIS-equipped vessels nearby. You can easily read detailed information about AIS-equipped vessels nearby such as speed, heading, Closest Point of Approach and Time to Closest Point of Approach.
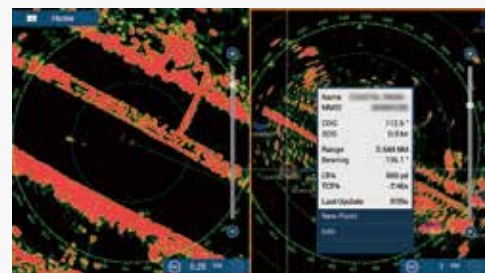
NavNet TZtouch2 Radar Sensor Options

		DRS4DL+ NEW	DRS4D-NXT	DRS6A-NXT NEW	DRS6A X-Class	DRS12A X-Class	DRS25A X-Class
Output Power		4 kW	Solid-state, 25 W	Solid-state, 25 W	6 kW	12 kW	25 kW
Size		19 inch	24 inch	3.5 ft/4 ft/6 ft	3.5 ft/4 ft/6 ft	4 ft/6 ft	4 ft/6 ft
Antenna Type		Radome	Radome	Open	Open	Open	Open
Beam Width	Horizontal	5.2°	3.9°	2.3°/1.9°/1.35°	2.3°/1.9°/1.35°	1.9°/1.35°	1.9°/1.35°
	Vertical	25°	25°	22°/22°/22°	22°/22°/22°	22°/22°	22°/22°
Max. Range		36 NM	36 NM	72 NM	96 NM	96 NM	96 NM
48 rpm Capability		—	●	●	●	●	●
Functions		Head-up, North-up* True Echo Trail, TT, AIS	Head-up, North-up*, True Echo Trail, Bird mode, TT, AIS	Head-up, North-up*, True Echo Trail, Bird mode, TT, AIS	Head-up, North-up*, True Echo Trail, Bird mode, TT, AIS	Head-up, North-up*, True Echo Trail, Bird mode, TT, AIS	Head-up, North-up*, True Echo Trail, Bird mode, TT, AIS
	Target Analyzer	—	●	●	—	—	—
Dual Range Scanning		—	● (Range is limited to 12 NM)	● (Range is limited to 12 NM)	●	●	●
Fast Target Tracking™		●	●	●	●	●	●
MFD version required		5.01	3.01	5.01	3.01	4.01	4.01

* Heading input required.

The radar antenna complies with IEC62252 Ed. 1:2004 (Clauses 4.33, 5,33, Annex D) relevant to radio characteristic.
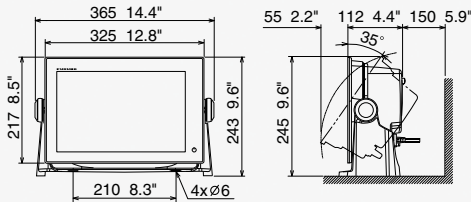
Specifications

Model TZTL12F
Model TZTL15F

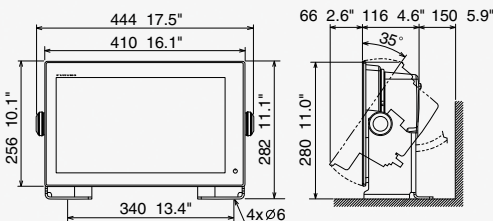| MULTI FUNCTION DISPLAY			TZTL12F	TZTL15F
DISPLAY UNIT				
Type			Color TFT multi touch LCD	
Screen Size			12.1" Wide	15.6" Wide
Screen Resolution			WXGA 1280 x 800	FWXGA 1366 x 768
Screen Brightness			1300 cd/m^2 (typical)	1000 cd/m^2 (typical)
Language			Chinese, Danish, English (USA/UK), Finnish, French, German, Greek, Italian, Japanese, Norwegian, Portuguese, Russian, Spanish, Swedish	
GPS/WAAS				
Receiver Type			GPS: 56 channels, SBAS: 1 channel (C/A mode, WAAS)	
Receiving Frequency			L1 (1575.42 MHz)	
Time to First FIX			100 s (cold start)	
Tracking Velocity			999 kn	
SBAS			WAAS, EGNOS, MSAS	
ACCURACY				
Internal Antenna			GPS: 10 m Max, WAAS: 3 m Max, MSAS: 7 m Max	
CHART PLOTTER				
Cartgraphy			MapMedia mm3d chart (C-MAP/Navionics/NOAA)	
Memory Capacity			30,000 user points, 30,000 points for ship's tracks, 200 planned routes (500 points per route)	
Alarms			Anchor Watch, XTE, Proximity, Depth, Temperature, Speed, etc.	
RADAR				
Display Modes			Head-up, North-up* *Heading input required.	
Echo Trail			Interval: 15 s, 30 s, 1 min, 3 mins, 6 mins, 15 mins, 30 mins and continuous	
Target Tracking			30 Targets*, 100 Targets (with DRS-NXT Series) *Heading input required.	
FISH FINDER (Built-in)				
Transmit Frequency			50/200 kHz	
Transducer			600 W or 1 kW* *Matching box MB-1100 required for some FURUNO transducers.	
Modes			RezBoost™, ACCU-FISH™, Bottom Discrimination, A-Scope, Auto (Fishing/Cruising), Bottom Zoom, Bottom Lock	
INTERFACE				
CAN bus/NMEA2000			1 Port	
Interface (CAN bus/NMEA2000)	Input		065280, 126992, 126993, 126996, 127237, 127245, 127250, 127251, 127257, 127488, 127489, 127505, 128259, 127267, 129025, 129026, 126029, 126033, 126038, 126039, 126040, 126041, 126291, 126538, 126540, 129793, 129794, 129798, 129801, 129802, 129808, 129809, 129810, 130306, 130310, 130311, 130312, 130313, 130314, 130316, 130577, 130578, 130817, 130818, 130820, 130822, 130823, 130826, 130827, 130828, 130880	
	Output		126992, 126993, 126996, 127250, 127251, 127257, 127258, 128259, 128267, 128275, 129025, 129026, 129029, 129033, 129283, 129284, 129285, 130306, 130310, 130312, 130313, 130314, 130316	
NMEA0183			1 Integrated Output Port	
Interface (NMEA0183)	Output		AAM, APB, BOD, DBT, DPT, GGA, GLL, GNS, GSA, GSV, RMB, RMC, RTE, TLL, TTM, VTG, WPL, XTE, ZDA	
LAN			1 Port (100BASE-TX)	
USB			1 Port (USB2.0)	
Video I/O			Input: 2 Ports (NTSC/PAL), Output: 1 Port (HDMI)	
AUX I/O			1 Port (External Event/MOB Input/Operator Fitness/Alarm Output)	
SD Card Slot			1 Slot (Micro SDXC, rear), 2 Slots Card Unit: Model SDU-001 (option)	
Wireless LAN			IEEE802.11b/g/n, Transmit frequency: 2.4 GHz band	
Transducer			1 Port	
ENVIRONMENT				
Temperature (IEC60945)			-15°C to +55°C	
Waterproofing			IP56	
POWER				
			12-24 VDC	
			3.0-1.5 A	3.6-1.8 A

Multi Function Display (Tabletop Mount) TZTL12F   3.8 kg 8.4 lb
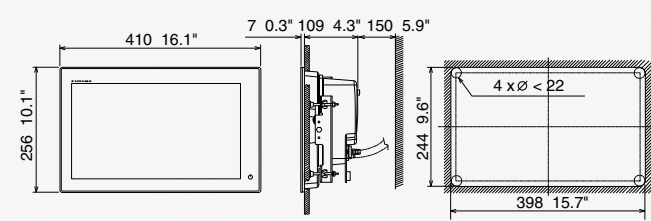

Multi Function Display (Flush Mount) TZTL12F   3.7 kg 8.2 lb
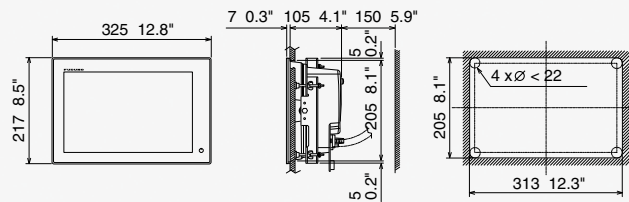
Multi Function Display (Tabletop Mount) TZTL15F   5.5 kg 12.1 lb

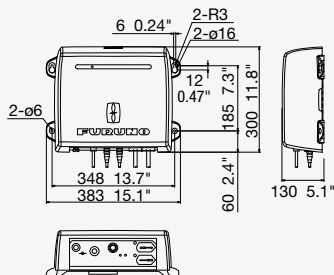**Multi Function Display (Flush Mount) TZTL15F**   4.9 kg 10.8 lb

Model TZT2BB

| MULTI FUNCTION DISPLAY BLACK BOX		TZT2BB
DISPLAY UNIT		
Type		Color LCD with touch panel control, FHD 1920 x 1080 recommended, XGA 1024 x 768/SXGA 1280 x 1024 available
Signal Interface		Picture: HDMI, Extended, HDCP Touch panel: USB2.0, Windows® 7 multi-touch
Display Colors		Chart Plotter/Menu: 16,770,000 colors Fish Finder: 64 colors Radar: 64 colors
Language		Chinese, Danish, English (USA/UK), Finnish, French, German, Greek, Italian, Japanese, Norwegian, Portuguese, Russian, Spanish, Swedish
CHART PLOTTER		
Cartgraphy		MapMedia mm3d chart (C-MAP/Navionics/NOAA)
Memory Capacity		30,000 user points, 30,000 points for ship's tracks, 200 planned routes (500 points per route)
Alarms		Anchor Watch, XTE, Proximity, Depth, Temperature, Speed, etc.
RADAR		
Display Modes		Head-up, North-up* *Heading input required.
Echo Trail		Interval: 15 s, 30 s, 1 min, 3 mins, 6 mins, 15 mins, 30 mins and continuous
Target Tracking		30 Targets* 100 Targets*, (with DRS-NXT series) *Heading input required.
FISH FINDER		
Transmit Frequency		50/200 kHz
Transducer		600 W or 1 kW* *Matching box MB-1100 required for some FURUNO transducers.
Display Range		2-1, 200 m, shift: 0-500 m
Extension Mode		RezBoost™, ACCU-FISH™, Bottom Discrimination, A-Scope, Auto (Fishing/Cruising), Bottom Zoom, Bottom Lock
Picture Advance		8 steps: x4, x2, x1, 1/2, 1/4, 1/8, 1/16, stop
INTERFACE		
CAN bus/NMEA2000		1 Port
Interface (CAN bus/NMEA2000)	Input	065280, 126992, 126993, 126996, 127237, 127245, 127250, 127251, 127257, 127488, 127489, 127505, 128259, 127267, 129025, 129026, 126029, 126033, 126038, 126039, 126040, 126041, 126291, 126538, 126540, 129793, 129794, 129798, 129801 129802, 129808, 129809, 129810, 130306, 130310, 130311, 130312, 130313, 130314, 130316, 130577, 130578, 130817, 130818, 130820, 130822, 130823, 130826, 130827, 130828, 130880
	Output	126992, 126993, 126996, 127250, 127251, 127257, 127258, 128259, 128267, 128275, 129025, 129026, 129029, 129033, 129283, 129284, 129285, 130306, 130310, 130312, 130313, 130314, 130316
NMEA0183		1 integrated output port
Interface (NMEA0183)	Output	AAM, APB, BOD, DBT, DPT, GGA, GLL, GNS, GSA, GSV, RMB, RMC, RTE, TLL, TTM, VTG, WPL, XTE, ZDA
LAN		3 Ports (100 BASE-TX)
USB		5 Ports (USB2.0), Type A 4 Ports, microB 1 Port
HDMI I/O		Input: 1 Port, Output: 2 Ports (FHD 1920 x 1080, SXGA 1280 x 1024, XGA 1024 x 768) Extended
Video Input		2 Ports (NTSC/PAL)
SD Card Slot		2 Slots (SXDC, PSD-003)
Wireless LAN		IEEE802.11b/g/n, Transmit frequency: 2.4 GHz band
Transducer		1 Port
ENVIRONMENT		
Temperature (IEC60945)		-15°C to +55°C
Waterproofing	Processor unit	IP22
	Switch box	IP56 (front), IPX2 (chassis)
	Control unit (option)	IP56 (front panel)
POWER		
		12-24 VDC
		2.6-1.3 A

Multi Function Display Black Box TZT2BB MPU-004   3.9 kg 8.6 lb
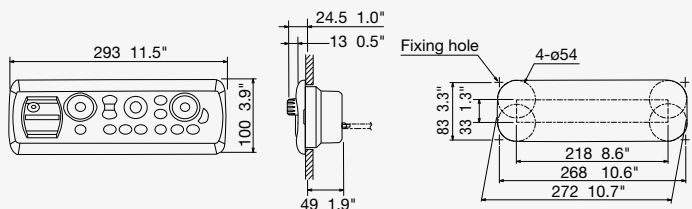

Multi Function Display Black Box TZT2BB Switch Box PSD-003   0.75 kg 1.7 lb
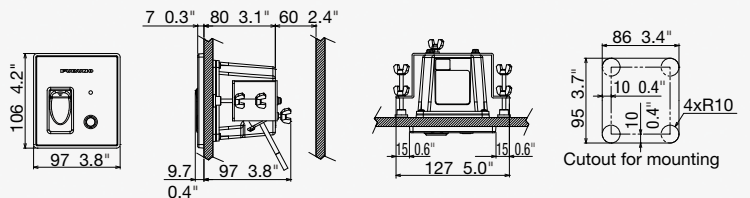
SD Card Unit SDU-001 (option)   0.1 kg 0.22 lb
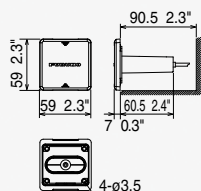
Multi Function Display TZT2 Control Unit MCU-005 (option)   1.0 kg 2.2 lb

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